

COLORADO RIVER RECOVERY PROGRAM
FY 2016 ANNUAL PROJECT REPORT

RECOVERY PROGRAM
PROJECT
NUMBER: C29a/138

I. Project Title: GRCC Canal Salvage

II. Bureau of Reclamation Agreement Number(s)

USFWS Vernal: R15PG00083

Project/Grant Period: Start date (Mo/Day/Yr): 10/01/2014

End date: (Mo/Day/Yr): 09/30/2019

UDWR Moab: R14AP00007

Project/Grant Period: Start date (Mo/Day/Yr): 05/01/2014

End date: (Mo/Day/Yr): 09/30/2018

Reporting period end date: 09/30/2016

Is this the final report? Yes _____ No X

III. Principal Investigators:

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IV. Abstract: During November 2015 sampling of the Green River Canal, Utah Division of Wildlife Resources and United States Fish and Wildlife Service personnel captured four endangered Colorado pikeminnow (*Ptychocheilus lucius*), forty-three native chubs (*Gila spp.*), seventeen bluehead suckers (*Catostomus discobolus*) and ninety-six flannelmouth suckers (*Catostomus latipinnis*). These native fish were translocated to the mainstem Green River immediately adjacent to the canal and released alive.

V. Study Schedule: 2014-ongoing

VI. Relationship to RIPRAP:

GREEN RIVER ACTION PLAN: MAINSTEM

II.B Restore native fish passage at instream barriers.

II.B.1 Assess and make recommendations for fish passage at low flows at Tusher Wash

II.B.2 Screen Tusher Wash diversion to prevent endangered fish entrainment, if warranted

II.B.2.a Assess need

VII. Accomplishment of FY 2016 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

The Green River canal extends approximately 7.5 miles from the Tusher diversion raceway to Saleratus Wash in the town of Green River, Utah. Check dams with adjustable gates provide control of water levels and divide the canal system into discrete sections of approximately 600-2,000 meters. Within these sections, seven sluice gates allow direct return paths for canal water to the Green River mainstem and are used by Green River Canal Company (GRCC) staff to flush excess sediment from the canal during annual de-watering.

With permission from landowners and assistance from canal company staff, UDWR Moab and USFWS Vernal crews accessed the canal via the canal company right-of-way on either side of the canal. We sampled the canal via single-pass backpack electrofishing during 9-17 November 2015 (total effort = 13.6 hours). As in 2014, 2015 sampling was timed to coincide with de-watering. However, in 2015, improved coordination with GRCC staff allowed for lower water levels during sampling and facilitated strategic placement of PIT antennas during de-watering.

Four endangered Colorado pikeminnow were captured in the canal. These fish had total lengths of 466, 188, 182 and 50 mm. None were previously marked, and the three largest individuals were PIT-tagged prior to translocation. Additional native fish captures included one age-1 *Gila sp.* (TL = 131mm), forty-two young of year *Gila spp.* (median TL = 75mm), 17 bluehead suckers (*Catostomus discobolus*) and 96 flannelmouth suckers (*Catostomus latipinnis*).

Ten non-native species were encountered during sampling. Walleye (*Sander vitreus*), black Crappie (*Pomoxis nigromaculatus*), white sucker (*Catostomus commersonii*) and green sunfish (*Lepomis cyanellus*) were removed from the canal and euthanized as per recovery program protocols in the Green River. All other non-native fish were tallied by species and returned to the canal alive. Ancillary fish captures are summarized in Table 1.

Overall catch rate increased from 77 fish per hour in 2014 to 109 fish per hour in 2015. Composition of catch also shifted from 3% native fish in 2014 to 15% in 2015. All native fish were translocated to the mainstem Green River and released alive with the exception of 67 speckled dace. Speckled dace could not be legally translocated, so individuals were tallied and released alive in the canal. Translocated individuals were remotely inspected by a UDWR fish pathologist prior to release.

To document possible return of fish to the river from the canal, we deployed Biomark submersible PIT antennas between canal sluice gates (Photo 1) and the Green River during de-watering. Of the 254 unique PIT tags detected by the GRCC PIA from 11 April to 21 September 2015, none were detected with our submersible antennas. One PIT tag, attributed to a bonytail, was detected via this method. The bonytail was stocked in the Green River at Jensen, Utah on 6 May 2015.

As in 2014, the majority of fish captured via electrofishing were young-of-year or age-1 individuals. This trend, supported by the dearth of submersible antenna detections, indicates that adult fish of any kind are largely absent from the canal at the time of sampling. To what extent this is due to intra-canal mortality, emigration, and/or disinclination of individuals to move downstream of the PIA remains unclear.

VIII. Additional noteworthy observations:

The body of one adult flannelmouth sucker was recovered from private property by a GRCC client, preserved by GRCC staff and delivered to UDWR and USFWS personnel during salvage operations. The fish was scanned for a PIT tag and found to be unmarked. We stressed to GRCC staff that such information is valuable, and other that clients may report fish mortalities without fear of legal repercussions.

IX. Recommendations:

- Continue to salvage native fish from the Green River Canal until a permanent fish exclusion system is in place. Consider salvaging fish after the fish exclusion system is in place to compare prior- and post-fish exclusion results.
- Continue to coordinate operation of sluice gates and other flow control structures to reduce canal water levels prior to sampling.
- Consider pilot investigation into emigration, immigration and intra-canal movement of tagged fishes. A pair of submersible PIT antennas placed near the downstream outlet of the canal and operated throughout irrigation season may elucidate fate of fishes detected by the GRCC PIA and would require minimal effort to maintain.
- Investigate potential for sluice return improvement and private canal improvement as part of larger fish exclusion solution. These improvements could benefit any individuals that are entrained into the canal after the fish exclusion solution is in place.

X. Project Status: Ongoing

XI. FY 2016 Budget Status

- A. Funds Provided: \$10,154 (UDWR), \$10,088 (USFWS)
- B. Funds Expended: \$10,154 (UDWR), \$10,088 (USFWS)
- C. Difference: \$0
- D. Percent of the FY 2016 work completed: 100%
- E. Recovery Program funds spent for publication charges: \$0

XII. Status of Data Submission:

USFWS data were compiled and submitted to database manager in January 2016.

XIII. Signed:

Zach Ahrens & M. Tilden Jones

Principal Investigators

Feb. 2016

Date

FY 2016 Ann. Rpt. Project # C29a/138



Photo 1. Example of sluice gate returning canal water to mainstem.

Table 1. Green River canal ancillary fish captures, November 2015.

Species	Number Captured
black crappie (<i>Pomoxis nigromaculatus</i>)	1
bluehead sucker (<i>Catostomus discobolus</i>)	17
channel catfish (<i>Ictalurus punctatus</i>)	100
common carp (<i>Cyprinus carpio</i>)	395
fathead minnow (<i>Pimephales promelas</i>)	9
flannelmouth sucker (<i>Catostomus latipinnis</i>)	96
green sunfish (<i>Lepomis cyanella</i>)	17
red shiner (<i>Cyprinella lutrensis</i>)	661
sand shiner (<i>Notropis stramineus</i>)	63
speckled dace (<i>Rhinichthys osculus</i>)	67
walleye (<i>Sander vitreus</i>)	1
white sucker (<i>Catostomus commersonii</i>)	1

ANNUAL PERFORMANCE PROGRESS REPORT (PPR)

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Performance: During November 2015 electrofishing (total effort=13.6 hours) of the Green River canal system, Utah Division of Wildlife Resources and United States Fish and Wildlife personnel salvaged four endangered Colorado pikeminnow (*Ptychocheilus lucius*), forty-three native chubs (*Gila spp.*), seventeen bluehead suckers (*Catostomus discobolus*) and ninety-six flannelmouth suckers (*Catostomus latipinnis*). These fish were released alive into the Green River mainstem. Data was submitted to the database manager in January 2016 and an annual report was provided in February 2016.