

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

FY 2023 ANNUAL REPORT

PROJECT: C-29a

Project Title

Retrieval of fish from the Grand Valley Irrigation Company and Grand Valley Water Users canals

Bureau of Reclamation Agreement Number:

R20PG00024

Project/Grant Period:

Start date: 10/01/2019

End date: 09/30/2024

Reporting period end date: 09/30/2023

Is this the final report? Yes No

Principal Investigator:

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Abstract:

Grand Valley Irrigation Company (GVIC) constructed a fish screen on the irrigation canal during the winter of 2001-2002 to limit entrainment of fish, becoming fully operational a few years later. A similar fish screen was constructed during summer 2005, on the Grand Valley Water Users (GVWU) irrigation canal, becoming fully operational spring 2009. When fully operational, these screens are designed to effectively limit fish down to 20-30 mm total length (TL) from becoming entrained. However, during periods of high debris flow and/or algae growth, these screens become clogged, preventing sufficient water to pass through the canals and meet irrigation and/or power generation demands. As an option to mitigate, irrigation companies can lift these screens (GVIC) or divert water through the bypass channel (GVWU). During this time, it is possible for fish to become entrained in these canals. Once the dewatering process begins in the Fall, these fish then become stranded in the canals. Some entrained fish seek refuge in deep-water reaches of the canals and/or underground siphons that hold water year around. Native fish are collected during salvage operations of the two canals and are returned alive to adjacent sections of the Colorado River. FY-2023 (November 2022) canal salvage efforts resulted in 1,990 fish

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being collected in the canals. All 1,990 fish were collected from the GVIC canal and were returned to the river. Of the 1,990 fish collected in the GVIC canal, three endangered bonytail (*Gila elegans*) and two endangered razorback sucker (*Xyrauchen texanus*) were collected from the canal and returned to the river.

Study Schedule:

2002-Ongoing

Relationship to RIPRAP:

Colorado River Action Plan:

II.B.1.b. Screen GVIC diversion canal to prevent endangered fish entrainment.

II.B.3.b. Screen Government Highline diversion canal to prevent endangered fish entrainment.

Accomplishment of FY 2023 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

FY-2023 Tasks and Deliverables

Task 1: Sample GVIC and GVWU canals; collect native fish and relocate to the Colorado River.

In fall 2022 (i.e., at the start of FY-2023), Colorado Parks and Wildlife (CPW) led field operations, with assistance from U.S. Fish and Wildlife Service, Grand Junction Fish and Wildlife Conservation Office (GJFWCO), conducting fish salvage efforts by driving portions of the roads adjacent to the irrigation canals and looking for locations with water that may contain fish after the canals were dewatered. Diversion of irrigation water from the Colorado River generally ceases early in November. After the canals are shut down, it usually takes 5-7 days for the water to become low enough for sampling efforts to begin. Pools of water are sampled via electrofishing units and/or seine nets. All native species and trout are collected, identified, and loaded into a hatchery truck. These fish are transported and released into the Colorado River. Total number of fish collected and translocated are recorded. As part of CPW's Three Species (roundtail chub (*Gila robusta*), flannelmouth sucker (*Catostomus latipinnis*), and bluehead sucker (*Catostomus discobolus*)) sampling efforts, large numbers of native fish may also be weighed, measured, and tagged with passive integrated transponder (PIT) tags, prior to being placed in a hatchery truck to be transported to and stocked in the Colorado and/or Gunnison rivers. Any endangered fish collected during this process will be measured, weighed, and checked for presence of a PIT tag. If no PIT tag is present, one will be implanted prior to releasing the fish alive back into the Colorado and/or Gunnison rivers. Nonnative fish encountered are left in the canal(s). Sampling ceases when salvage operations can no longer be done effectively.

Task 2: Compile and summarize fish salvage data for fish collected in GVIC and GVWU canals; prepare annual RIPRAP report.

Data collected during CPW field operations are transferred to GJFWCO to summarize data and prepare an annual report.

All tasks were completed for FY2023.

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Additional noteworthy observations:

Grand Valley Irrigation Company (GVIC) Canal:

The roads adjacent to the GVIC canal were driven to assess areas of the canal for potential locations that could have stranded fish. The canal was driven from the diversion dam on the Colorado River, downstream to 25 Road and G Road where six reaches were determined to have stranded fish. Sampling focused on these reaches occurred between November 8th and November 17th, 2022. Sampling was limited to areas accessible by truck.

A total of 1,990 fish were collected from the GVIC canal, including 983 roundtail chub, 359 speckled dace (*Rhinichthys osculus*), 535 flannelmouth sucker, 101 bluehead sucker, three flannelmouth X bluehead sucker, three bonytail, two mottled sculpin (*Cottus bairdii*), two razorback sucker, one rainbow trout (*Oncorhynchus mykiss*), and one brown trout (*Salmo trutta*; Table 1). Of these species, 86 bluehead sucker, 276 roundtail chub, 180 flannelmouth sucker, one flannelmouth X bluehead sucker, and one razorback sucker received PIT tags before translocation back to the river. Thirty-two fish (17 roundtail chub, 10 flannelmouth sucker, one flannelmouth X bluehead sucker, one razorback sucker, and three bonytail) had been PIT tagged prior to being captured during canal salvage. Various life stages of fish were collected for many of the species collected. Juvenile fish dominated the length frequency histograms for roundtail chub, flannelmouth sucker, and bluehead sucker. Roundtail chub total lengths ranged from 25 to 423mm with a mean of 172mm; flannelmouth sucker total lengths ranged from 55 to 532mm with a mean of 223mm; bluehead sucker total lengths ranged from 52 to 414mm with a mean of 258mm (Figures 1-3).

The three bonytail had total lengths of 250, 376, and 306mm. One bonytail was collected on November 14, 2022, near K road. PIT tag data reveals that this fish had previously been stocked on August 9, 2022, near Beavertail tunnel (at river mile {RMI} 218) upstream from Palisade, CO. The other two bonytail were collected November 9 or 14, 2022 from the 12th Street siphon. One fish had been previously stocked on August 9, 2022, near Beavertail tunnel and the other was stocked July 8th, 2022, at Redlands Parkway Boat Launch (RMI 166.7) in Grand Junction, CO.

The two razorback sucker had total lengths of 436 and 422mm. One razorback sucker did not have a PIT tag and received one on this encounter, and the other razorback sucker was stocked September 17th, 2020, at the Rifle, CO Boat Ramp (RMI 240.7).

Grand Valley Water User's (GVWU) canal:

No salvage was conducted in GVWU canal during FY-2023.

Annual variations of numbers of fish collected from canals:

The numbers of native fish collected in GVIC canal were average compared to previous years.

Recommendations:

1. Continue operating fish screens.
2. Continue fall fish salvage efforts to collect and translocate native fish that have become entrained in the canals.

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Project Status:

On track and ongoing

FY2023 Budget Status

Funds Provided: \$15,632

Funds Expended: \$15,632

Difference: -0-

Percent of the FY 2023 work completed, and projected costs to complete: 100%

Status of Data Submission

Tyler Swarr (CPW) intends to reformat the data and work with Chris Michaud to upload the data into STReaMS.

Signed:

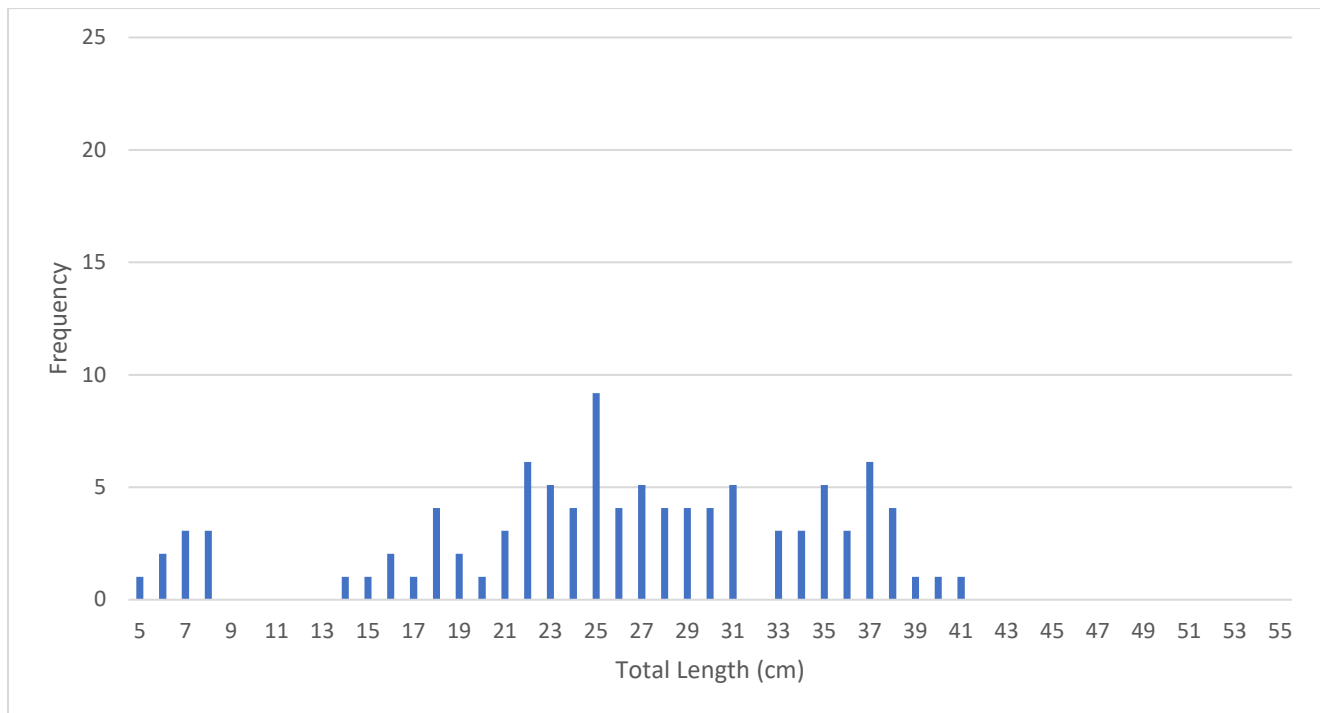
Travis Francis

Principal Investigator

11/20/2023

Figure 1.

Length frequency histogram of bluehead sucker collected during 2022 fish salvage efforts in the Grand Valley Irrigation Company's (GVIC) canal.



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Figure 2.

Length frequency histogram of flannelmouth sucker collected during 2022 fish salvage efforts in the Grand Valley Irrigation Company's (GVIC) canal.

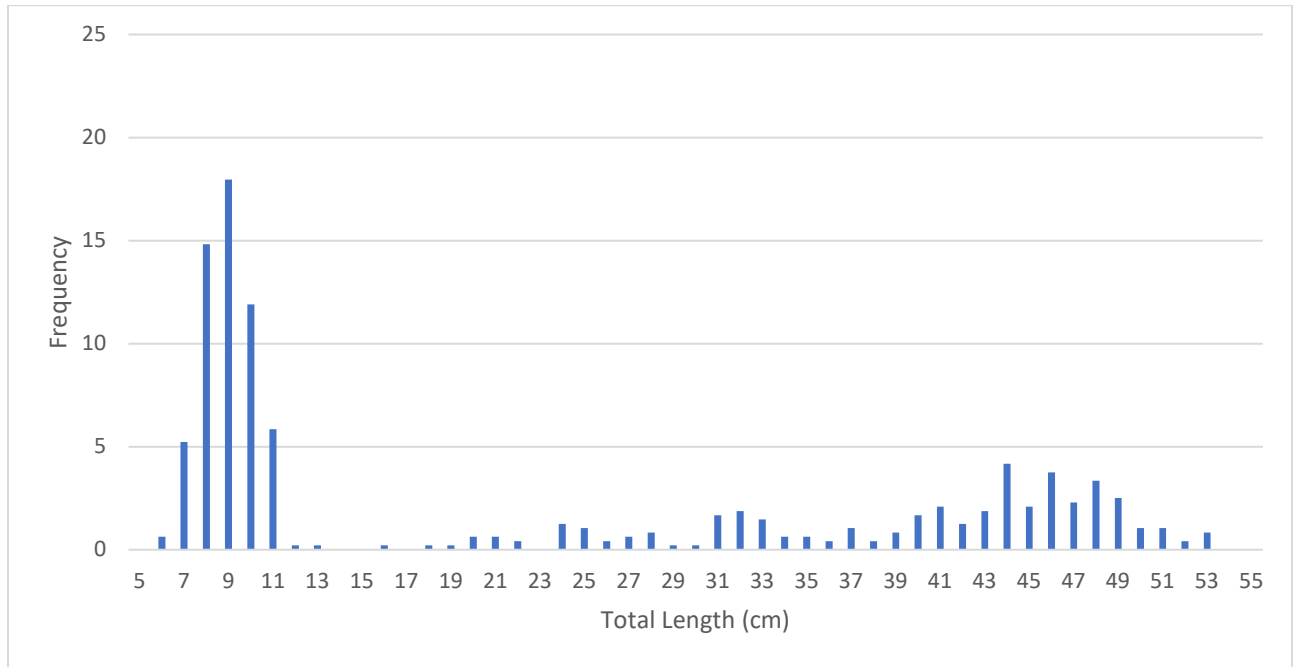
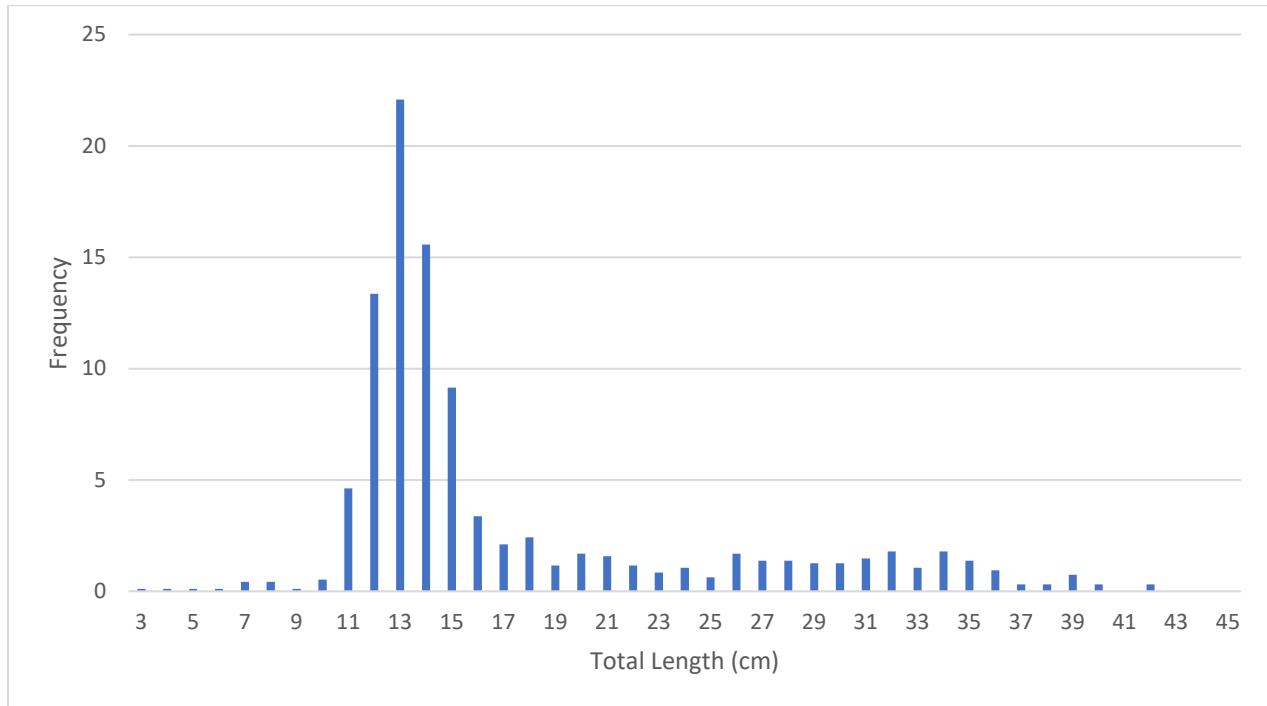


Figure 3.

Length frequency histogram of roundtail chub collected during 2022 fish salvage efforts in the and Grand Valley Irrigation Company's (GVIC) canal.



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Table 1.

Total numbers of native fish collected by species and year in the Grand Valley Irrigation Company (GVIC) canal.

YEAR	FM	BH	FB	RB	RT	SD	MF	MS	RZ	CPM	BT	MT	BN	TOTALS
2022	535	101	3	1	983	359	0	2	2	0	3	0	1	1990
2021	341	105	2	0	1157	814	0	0	0	0	1	0	9	2429
2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	1212	139	2	0	336	155	0	0	13	0	6	4	5	1872
2018	272	18	2	0	452	199	0	0	1	0	0	0	0	944
2017	533	87	0	0	380	964	0	0	0	0	0	0	0	1964
2016	552	60	0	0	902	1,919	0	0	8	0	1	0	0	3442
2015	458	25	0	0	389	131	0	0	2	0	0	0	0	1005
2014	657	12	0	0	139	26	1	0	1	0	9	0	0	845
2013	467	34	0	0	1669	153	0	0	1	0	3	0	0	2327
2012	2386	451	0	0	2453	450	0	0	2	0	2	0	0	5744
2011	428	17	1	0	258	6	1	0	2	0	0	0	0	713
2010	571	4	0	0	478	80	0	0	0	0	0	0	0	1061
2009	877	48	0	0	79	232	4	0	0	0	0	0	0	1240
2008	892	59	0	0	150	0	0	0	1	0	0	0	0	1102
2007	128	3	0	0	35	0	0	0	0	0	0	0	0	166
2006	2252	123	0	0	1322	0	0	0	1	0	0	0	0	3698
2005	897	80	0	0	730	0	0	0	0	0	0	0	0	1707
2004	1783	22	0	0	588	26	0	0	0	0	0	0	0	2419
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	2908
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	3371

Fish Species: FM-flannelmouth sucker, BH-bluehead sucker, FB-flannelmouth x bluehead sucker, RT-roundtail chub, SD-speckled dace, MF-mountain whitefish, MS-mottled sculpin, RB-rainbow trout, RZ-razorback sucker, CPM-Colorado pikeminnow, BT- bonytail, MT-mountain sucker, BN-brown trout

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Table 2.

Total numbers of native fish collected by species and year in the Grand Valley Water User's (GVWU) canal.

YEAR	FM	BH	FB	RT	SD	MF	MS	RZ	CPM	BT	MT	BN	TOTALS
2022	-	-	-	-	-	-	-	-	-	-	-	-	-
2021	6	1	0	4	0	0	0	0	0	0	0	1	12
2020	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	2645	213	4	1260	41	1	0	2	0	0	19	1	4186
2018	867	87	0	956	346	0	0	0	0	0	0	0	2256
2017	6649	79	0	21161	10833	0	0	0	0	0	0	0	38722
2016	4004	183	0	25455	24612	0	0	0	0	0	0	0	54254
2015	6310	85	0	22290	20414	0	0	2	0	0	0	0	49101
2014	19	2	0	2	8	0	0	0	0	0	0	0	31
2013	598	66	0	5732	1004	0	0	2	0	8	0	0	7410
2012	1574	632	0	5924	3942	0	0	1	0	2	0	0	12075
2011	808	77	1	16813	328	3	19	3	0	0	0	0	18052
2010	1517	88	0	23299	1043	30	0	0	0	0	0	0	25977
2009	6255	797	0	26527	5135	7	1	0	0	0	0	0	38722
2008	738	77	0	754	23	6	0	0	0	0	0	0	1598
2007	433	93	0	6543	70	0	0	1	0	0	0	0	7140
2006	-	-	-	-	-	-	-	-	-	-	-	-	-
2005	722	173	0	3815	48	0	0	0	1	0	0	0	4759
2004	893	118	0	5166	140	0	1	0	24	0	0	0	6342
2003	-	-	-	-	-	-	-	-	-	-	-	-	-
2002	-	-	-	-	-	-	-	-	-	-	-	-	-

Fish Species: FM-flannelmouth sucker, BH-bluehead sucker, FB-flannelmouth x bluehead sucker, RT-roundtail chub, SD-speckled dace, MF-mountain whitefish, MS-mottled sculpin, RZ-razorback sucker, CPM-Colorado pikeminnow, BT- bonytail, MT-mountain sucker, BN-brown trout