

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

FY 2020 ANNUAL REPORT

PROJECT: C-14 & PIP 12C

Project Title

Coordinated Reservoir Operations (CROS) and Information and Education (I&E)

Bureau of Reclamation Agreement Number:

N/A

Project/Grant Period:

Start date: 1995

End date: Present

Reporting period end date: 09/30/2020

Is this the final report? Yes _____ No X

Principal Investigator:

Michelle Garrison
Senior Water Resource Specialist
Colorado Water Conservation Board
1313 Sherman Street, Room 718
Denver, CO. 80203
Phone: (303) 866-3441 x 3213
Fax: (303) 866-4474
Email: Michelle.Garrison@state.co.us

Victor Lee
Hydrologic Engineer
U.S. Bureau of Reclamation
Eastern Colorado Area Office
11056 West/County Road 18E
Loveland, CO. 80537-9711
Phone: (970) 962-4384
vlee@usbr.gov

Jojo La
Endangered Species Policy Specialist
Colorado Water Conservation Board
1313 Sherman Street, Room 718
Denver, CO. 80203
Phone: (303) 866-3441 x 3233
Fax: (303) 866-4474
Email: Jojo.La@state.co.us

Don Anderson
Hydrologist/Instream Flow Coordinator
Upper Colorado River Endangered Fish
Recovery Program
P.O. Box 25486, DFC,
Denver, CO. 80225-0486
Phone: (303) 236-9883
Donald_Anderson@fws.gov

Abstract:

This project involves coordinated voluntary operations of selected reservoirs and trans-mountain diversion projects in the Colorado River Basin upstream from the confluence of the Colorado and Gunnison rivers. The goal is to enhance spring peak flows to improve endangered fish species habitat in the 15-Mile Reach of the Colorado River without diminishing reservoir or diversion yields or affecting the timing of reservoir filling.

Over the years, reservoirs and trans-mountain diversion projects that have participated in the operation have included the Colorado-Big Thompson Project, Granby Reservoir, Green Mountain Reservoir, the Fryingpan-Arkansas Project, the Homestake Project, the Moffat Tunnel Project, Ruedi Reservoir, Williams Fork Reservoir, Willow Creek Reservoir, Windy Gap Project and Wolford Mountain Reservoir. Participating water management agencies include Bureau of Reclamation (Reclamation), City of Aurora, Colorado River Conservation District, Colorado Spring Utilities, Denver Water Board, Northern Water

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

Conservancy District and Northern Water Municipal Subdistrict.

CROS occurs in years when runoff conditions allow participating reservoirs and trans-basin diversion projects to bypass anticipated surplus water without affecting their yield. The intent of CROS is to enhance the natural peak flows on the Colorado River for approximately one to two weeks. This typically occurs around the last week of May and first week of June.

Since the first coordinated operations were made in 1997, CROS operations to augment peak flows have been implemented in eleven years, including 2019.

Study Schedule:

Initial: 1995

Final Year: Ongoing

Relationship to RIPRAP:

Colorado Mainstem Action Plan I.A.5.g.(2): Coordinated Reservoir Operations: If available, deliver additional peak flows, evaluate process and hydrology, and provide annual report.

Accomplishment of FY 2020 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Coordinated Reservoir Operations (CROS) were conducted in 2020 for the fifth time in the last six years. CROS was implemented previously in 2015, 2016, 2017, and 2019. However in 2018, very dry hydrologic conditions precluded implementation of CROS. Prior to that, CROS was last implemented in 2010. Table 1 shows all of the CROS augmentation since 1997 (Table 1 below).

Table 1. Coordinated Reservoir Operations (CROS) Augmentation Volume of Peak Flows

Reservoir	Operations for Augmentation of Peak Flows (Acre-Feet)												Total
	1997	1998	1999	2006	2008	2009	2010	2015	2016	2017	2019	2020	
Homestake	--	--	--	--	--	--	--	--	1,430	--	655	--	2,085
Grandby	--	--	8,515	--	--	--	--	18,002	--	--	--	--	26,517
Green Mountain	3,568	12,482	11,010	6,788	2,101	14,113	34,666	11,292	8,632	14,410	21,223	12,081	152,366
Ruedi	693	5,106	3,602	6,297	4,848	5,858	10,050	4,599	4,007	4,502	5,998	--	55,560
Williams Fork	946	1,672	1,543	6,625	--	5,044	19,982	2,733	4,893	3,293	9,273	2,920	58,924
Willow Creek	--	--	6,631	--	--	2,638	--	8,000	--	7,206	--	799	25,274
Windy Gap	--	--	--	--	--	2,061	--	906	--	--	2,007	--	4,974
Wolford Mountain	10,635	4,431	8,555	9,007	--	13,069	9,273	4,587	8,452	4,245	--	625	72,879
Moffat	--	--	--	--	--	--	--	--	1,960	2,079	--	3,541	7,580
<i>Total</i>	<i>15,842</i>	<i>23,691</i>	<i>39,856</i>	<i>28,717</i>	<i>6,949</i>	<i>42,783</i>	<i>73,971</i>	<i>50,119</i>	<i>29,374</i>	<i>35,735</i>	<i>39,156</i>	<i>19,966</i>	<i>406,159</i>

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

Combined operations for CROS purposes in 2020 totaled approximately 19,966 acre-feet (AF). Participating reservoirs included Green Mountain and Willow Creek reservoirs (Reclamation), Williams Fork (Denver Water), Wolford Mountain Reservoir (Colorado River Water Conservation District), and the Moffat Tunnel (Denver Water). Through a series of conference calls and public outreach activities, real-time conditions were carefully monitored, operations closely coordinated, and the public kept apprised. A press release describing anticipated CROS operations was jointly disseminated by U.S. Fish and Wildlife Service, the Bureau of Reclamation, and the State of Colorado on May 29, 2020 (attached).

CROS began on May 29, peaked on June 2, and terminated on June 5. After accounting for travel time and transit loss, the result was augmentation of 15-Mile Reach flows from June 1 to June 8 by an estimated total of 17,250 AF, reaching a maximum daily mean increase of 1,702 cubic feet per seconds (cfs) on June 3. During the CROS operation, daily mean flow in the 15-Mile Reach, as measured at the USGS Colorado River at Palisade stream gage (#09106150), peaked at 11,500 cfs on June 2. (Figure 1)

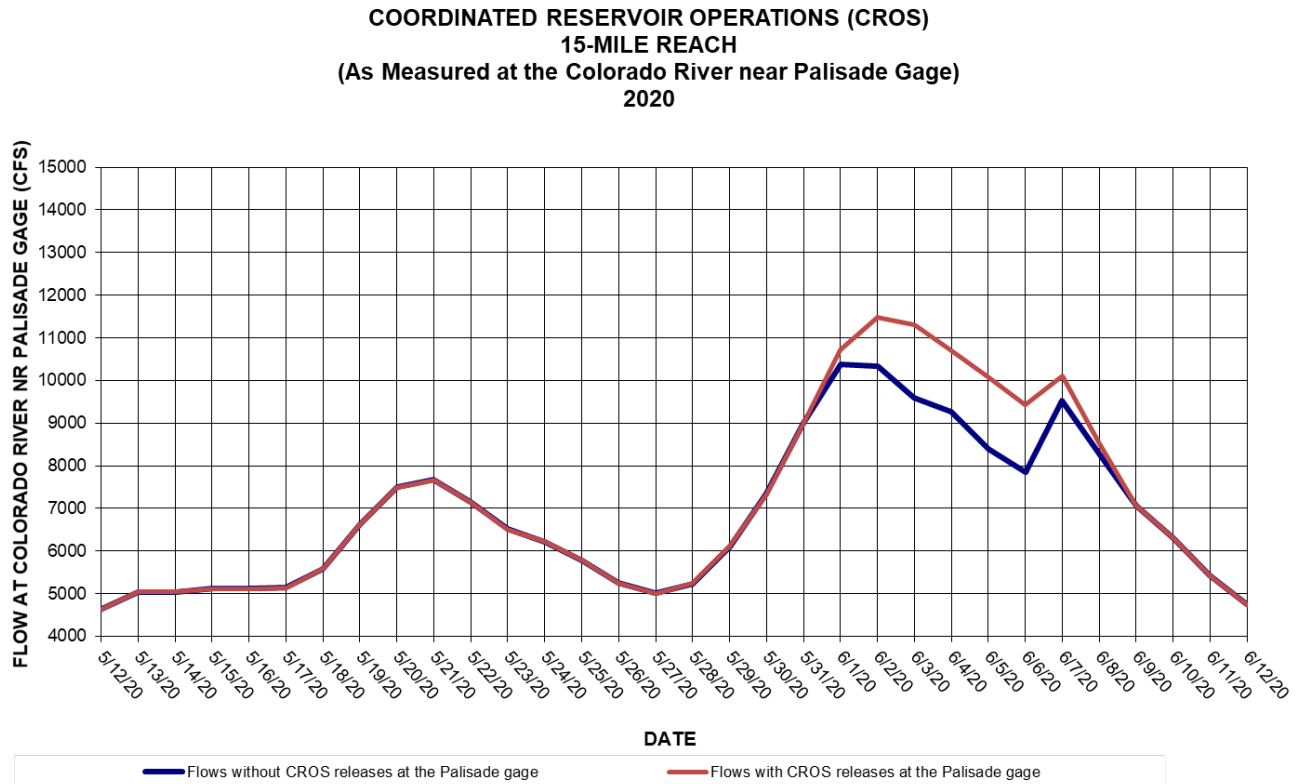


Figure 1. Measured flow at the USGS Colorado River near Palisade gage (#09106150) during the peak flow period of 2020 (red), including CROS releases. The blue line illustrates estimated flows without these CROS releases.

Additional noteworthy observations:

Even though the 2020 water year ended as a low flow year in the Colorado River above the Gunnison River confluence, the forecasted flows in May were near-average with tributary flows at or above average. Due to these forecasts, Program partners volunteered to conduct Coordinated Reservoir Operations at the end of May/early June to augment the peak flow. Partners were successful in augmenting the peak to try to achieve the lower threshold target and enhance habitat conditions for endangered fish.

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

Recommendations:

The Recovery Program should continue to support these efforts and encourage participation in Coordinated Reservoir Operations. The participating entities should continue to work with the National Weather Service Colorado River Basin Forecast Center to improve peak runoff forecasts. Efforts should continue to maintain effective communication and coordination (which has worked well in recent years), address any remaining issues associated with inundation concerns downstream of participating reservoirs, and maintain effective accounting and monitoring. Additionally, the Recovery Program's Information and Education Committee is encouraged to work with participants and the U.S. Fish and Wildlife Service to improve the public's understanding of the role, function, and benefits the Coordinated Reservoir Operations provide in the Upper Colorado River Basin.

Project Status:

CROS is an ongoing activity and efforts will continue to refine and improve the process and address issues identified to allow for maximum effectiveness. The Recovery Program is nearing completion of the 'Phase 3 Coordinated Facilities Operation Study', which assesses the feasibility of additional activities to augment peak flows in the 15-Mile Reach including 'enhanced coordinated reservoir operations' (enhanced CROS) and 'coordinated facilities operations' (CFOPS). The former would provide additional bypass flows to CROS flows when feasible, while the latter would provide up to 20,000 AF of additional water to further enhance peak flows, if it can be done without significant cost to water users or Reclamation. The Phase 3 report is expected to be finalized by July 1, 2021 following Recovery Program review.

FY 2020 Budget Status

Funds Provided: State of Colorado (In-Kind): \$12,000 Federal: (USBR In-Kind) \$2,000

Funds Expended: State of Colorado (In-Kind): \$12,000 Federal: (USBR In-Kind) \$2,000

Difference: \$0.00

Percent of the FY 2020 work completed, and projected costs to complete: 100%

Recovery Program funds spent for publication charges: \$0.00

Status of Data Submission

Not applicable

Signed:

Michelle Garrison
Senior Water Resource Specialist
Colorado Water Conservation Board
Principal Investigator
12/10/2020

Victor Lee
Hydrologic Engineer
U.S. Bureau of Reclamation
Principal Investigator
12/10/2020

Jojo La
Endangered Species Policy Specialist
Colorado Water Conservation Board
Principal Investigator
12/10/2020

Don Anderson
Hydrologist/Instream Flow Coordinator
Upper Colorado River Endangered Fish
Recovery Program
Principal Investigator
12/10/2020

Noreen Walsh, Chair
Implementation Committee



Upper Colorado River Endangered Fish Recovery Program

Tom Chart
Program Director

U.S. Fish and Wildlife Service - P.O. Box 25486 - Denver Federal Center - Denver, CO 80225 - (303) 969-7322 - Fax (303) 969-7327

For Immediate Release

May 29, 2020

MEDIA CONTACTS:

Don Anderson, U.S. Fish and Wildlife Service: (720) 232-6330; donald_anderson@fws.gov

Sara Leonard, State of Colorado: (720) 670-0089; sara.leonard@state.co.us

Victor Lee, Bureau of Reclamation: (970) 461-5484; vlee@usbr.gov

Targeted Reservoir Operations Begin May 29 to Benefit Endangered Fishes in Upper Colorado River



A razorback sucker. Photo: Sam Stukel/USFWS

DENVER – Sufficient water runoff from melting mountain snowpack in Colorado River headwaters this year means that most headwater reservoirs will more than meet their storage needs. As a result, participants in the Coordinated Reservoir Operations (CROS) program will ramp-up water releases into the Colorado River to benefit four rare fishes protected under the federal Endangered Species Act (ESA). The Colorado River, where it traverses Colorado’s Grand Valley, is critical to the survival of these four endangered fishes: [bonytail](#), [Colorado pikeminnow](#), [humpback chub](#), and [razorback sucker](#).

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

For the fifth time in the last six years, coordinated voluntary reservoir operations will occur as the Colorado River nears its natural spring runoff peak. In years with sufficient snowpack, surplus inflow is bypassed simultaneously from multiple reservoirs to boost river flow without impacting reservoir yields or future water uses. These water releases improve river conditions for the four rare Colorado River fishes. For instance, increased Colorado River flows help remove fine sediment from gravel beds in the river channel (“cobble bars”), which serve as reproductive (“spawning”) habitat for native fishes.

Coordinated reservoir operations will begin May 29 and continue through the coming week. Most reservoirs will increase water releases over several days, maintain at a constant rate for three to five days, and then wind down. **Approximate release and flow amounts include:**

- **Green Mountain Reservoir** (operated by the **Bureau of Reclamation**) will increase releases from approximately 350 cubic feet per second (cfs) to around 1450 cfs.
- **Williams Fork Reservoir** (operated by **Denver Water**) currently releases around 200 cfs; this will likely increase to approximately 500 cfs over the coming week.
- **Moffatt Tunnel** collection system (operated by **Denver Water**) will bypass approximately 100 cfs of available flow, beginning May 30.
- **Wolford Mountain Reservoir** (operated by the **Colorado River Water Conservancy District**) will increase outflows from 400 to 500 cfs for approximately 3 days, starting May 30.
- **Northern Colorado Water Conservancy District** does not anticipate pumping water from **Windy Gap Reservoir** to Granby Reservoir this month, allowing for Windy Gap Reservoir inflows to continue down the Colorado River.
- **Willow Creek Reservoir** (operated the **Bureau of Reclamation** and **Northern Colorado Water Conservancy District**) will continue to bypass 75 cfs of reservoir inflow to support CROS and meet downstream senior water rights.

Reservoir releases are expected to reach Cameo – upriver of Grand Junction – on Monday, June 1 and continue through the week. Flows in the Colorado River at Cameo are anticipated to peak around 12,000 – 13,000 cfs from Monday, June 1 through Thursday, June 4, based on current weather forecasts and planned reservoir operations. Last year’s peak flow was greater than 23,000 cfs.

River flows, including planned reservoir releases, are expected to remain well below riverbank capacity. Water is not anticipated to flood land areas or communities near the Colorado River or along associated waterways.

For detailed information about Colorado River basin streamflow forecasts, visit: www.cbrfc.noaa.gov.

The CROS program is a partnership between owners and operators of upper Colorado River water storage systems, including: U.S. Bureau of Reclamation, Denver Water, Colorado River Water Conservation District, and Northern Colorado Water Conservancy District (Northern Water).

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

The CROS program was established in 1995 as part of the [Upper Colorado River Endangered Fish Recovery Program](#), a public-private partnership supported by the U.S. Fish and Wildlife Service. Many local, state and federal partners contribute to these efforts, including: Colorado Basin River Forecast Center, Colorado Springs Utilities, Colorado Water Conservation Board, Colorado River Water Conservation District, Denver Water, Grand Valley Water Users Association, National Weather Service, Northern Water, Orchard Mesa Irrigation District, Palisade Irrigation District, Grand Valley Irrigation Company, U.S. Bureau of Reclamation, Xcel Energy [and others](#).

Science indicates these collaborative conservation efforts are working. Recent scientific analyses of the [humpback chub](#) and [razorback sucker](#) suggest that these fishes could be reclassified from endangered to threatened under the ESA. Reclassification would be a major conservation milestone for local, state, federal, tribal, public and private partners across the Colorado River basin. Continued collaborative efforts, including the CROS program, play an important role in the ongoing recovery of the Colorado River's native fishes and habitats to benefit current and future generations. Healthy river systems support vibrant local economies and America's shared natural heritage, in addition to providing recreational fishing opportunities and supporting industry and agriculture.

The Upper Colorado River Endangered Fish Recovery Program is a cooperative partnership of local, state and federal agencies, water developers, power customers and environmental groups established in 1988 to recover the endangered fishes while water development proceeds in accordance with federal and state laws and interstate compacts.