

# UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

FY 2020 Annual Report

PROJECT: 179

**Project Title:**

PIA operation/maintenance and PIT equipment

**Bureau of Reclamation Agreement Numbers:**

R19AC00153, 140R4018D0012

**Project/Grant Period:**

Start date: 10/01/2019

End date: indefinite

Reporting period end date: 10/01/2020

Is this the final report? No

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**Abstract:**

The goals of this project are 1) to maximize continuity and performance of passive interrogation array (PIA) operations by performing routine annual operation and maintenance (O/M), repair, and replacement activities and 2) provide Recovery Program investigators and hatchery staff with PIT tags and related tagging and scanning equipment for use on an annual basis. In FY2020, we made several visits to perform upgrades, updates and other operation/maintenance tasks at six PIA locations in the Upper Colorado River Basin (White River, Dolores River, San Rafael River (3 PIAs) and Green River Canal). In coordination with field investigators, PIT equipment purchases were made late in FY2019 and included submersible antennas and battery packs, handheld scanners, PIT tags (including supplies for both FY2020 and 2021) and associated tagging equipment, and control modules for fixed PIA installations.

**Study Schedule:**

Ongoing

**Relationship to RIPRAP:**

General Action Plan:

## UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

V.A Measure and document population and habitat parameters to determine status and biological response to recovery actions.

V.A.1.a.(2) Investigate improving recapture rates through passive PIT tag monitoring, nets, etc. to improve population abundance estimates.

V.A.3. Collect and submit data according to standard protocol (e.g., location, PIT tag #, length, weight, etc.) on endangered fish encountered in all field activities in order to provide annual information on population status outside of formal population estimates.

V.D Establish sampling procedures to minimize adverse impacts to endangered fishes.

V.F Assess relative biological importance of tributaries and their potential contributions to endangered fish recovery.

### Green River Action Plan

II. Restore habitat

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

II.B.2.b Design.

V. Research and Monitoring

V.A Conduct research to acquire life history information and enhance scientific techniques required to complete recovery actions.

### White River Action Plan.

V. Research and Monitoring

V.A Conduct research to acquire life history information and enhance scientific techniques required to complete recovery actions.

### Colorado River Action Plan

II. Restore Habitat

II.B.2 Restore fish passage at Price Stubb.

II.B.2.a.(5) Monitor and evaluate success.

V. Research and Monitoring

V.A Conduct research to acquire life history information and enhance scientific techniques required to complete recovery actions.

### Dolores River Action Plan.

V. Research and Monitoring

V.A Survey native and nonnative fish in Dolores River

### **Accomplishment in FY20 Deliverables, Discussion of Initial Findings and Shortcomings:**

#### Task 1: PIA operation and maintenance

On November 14-16, 2019 we visited the White River PIA to upgrade the system's modem from 3G to 4G. The system received new battery banks at that time and was found to be running well, although connectivity is still sporadic. This issue will be rectified in 2021. On December 17-19, 2019, we performed several updates to the Dolores River (Rio Mesa Center) PIA including an overall system update, data download and solar charging system upgrade. On April 6-7, we visited the San Rafael River PIA sites to perform a number of upgrades and install two PIA sites as part of a new fish habitat study conducted through Utah State University's Department of Watershed Sciences. The Chaffin PIA (near the confluence with the Green River) was upgraded by replacing its existing 4G modem with a satellite uplink. Two new PIA sites were established near Cottonwood Wash and Hatt Ranch (August

## UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

26-28), the latter of which hasn't been monitored remotely for almost a decade. Also in April 2020 we attempted to remove a stuck tag in antenna loop 3 of the Green River Canal PIA, but were unsuccessful. Data acquisition at STReaMS was compromised by the large volumes of downloaded data on the same tag number, so the antenna loop was deactivated. The tag will be removed during the winter of 2020-21. On September 21, we performed site visit system checks at the Tusher Wash fish passage and Green River Canal fish screen sites. Finally, on September 23-24 we repaired the Dolores River PIA's solar charging system and then continued to Palisade, CO where we upgraded the Price-Stubbs PIA's communication system from 3G to 4G.

### Task 2: Purchase PIT tags and related tagging and scanning equipment

Based on input from field investigators collected in the first half of 2019, we ordered PIT supplies intended to cover the Recovery Program for calendar years 2020 and 2021 in August of 2019. Included in that order were PIA peripheral components (antenna nodes, data loggers and node enclosures) intended for replacement of obsolete or damaged PIA components, four 36" submersible antennas, 16 submersible antenna batteries, four battery chargers, five HPR lite scanners, and 70,000 pre-loaded PIT tag needles in trays. The latter tag purchase was intended to cover anticipated tag needs for FY21.

### **Additional noteworthy observations:**

See report on project C-28a, Green River Canal PIA

### **Recommendations:**

Continue to coordinate with field investigators and hatchery staff early in calendar 2021 to identify PIT equipment needs for the coming year; purchase equipment if needed as funds become available. Continue to monitor PIA performance remotely and perform O/M site visits as required.

### **Project Status:**

On track and ongoing.

### **FY 2020 Budget Status**

Funds Provided: \$264,968.78 (*Note:* These were non-Program funds provided by Reclamation and intended to cover Program PIT-related costs for FY20 as well as PIT tag requirements for FY21).

Funds Expended: \$264,968.78

Difference: \$0

Percent of the FY20 tasks completed: 100%

Recovery Program funds spent for publication charges: N/A

### **Status of Data Submission**

Data uploads to STReaMS are current as of this writing.

### **Signed:**

/s/Dave Speas  
Fish Biologist, USBR  
December 11, 2020