

# UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

FY 2024-25 SCOPE OF WORK

PROJECT: 170

## Project Title

Development of a Centralized PIT Tag Database for the San Juan and Upper Basin Recovery Programs

## Bureau of Reclamation Agreement Number:

R20AP00027

## Reclamation Agreement Term

*[if applicable & known, e.g., Oct. 1, 2013 – Sep. 30, 2020]*

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*Note: Recovery Program FY22-23 scopes of work are drafted in May 2021. They often are revised before final Program approval and may subsequently be revised again in response to changing Program needs. Program participants also recognize the need and allow for some flexibility in scopes of work to accommodate new information (especially in nonnative fish management projects) and changing hydrological conditions.*

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## Lead Agency:

Colorado Natural Heritage Program, Colorado State University

## Principal Investigator:

Amy Greenwell

Colorado Natural Heritage Program

Colorado State University

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## Category:

Ongoing project

Ongoing-revised project

Requested new project

Unsolicited proposal

## Expected Funding Source:

Annual funds

Capital funds

Other *[explain]*

## Relationship to RIPRAP:

V.A.1. Conduct interagency data management program to compile, manage, and maintain all research and monitoring data collected by the Recovery Program.

## Study Background/Rationale and Hypotheses:

STReaMS, the central database of the Recovery Programs, creates a consolidated system to assist researchers and stakeholders with uploading, managing, editing, and accessing data. Data support the recovery of endangered species and removal of nonnative fishes, assessment of effects of non-native fish removal, effects of new flow and temperature regimes based on the fish community response, and effects of continued water development.

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### **Study Goals and Objectives:**

Investigators of the Recovery Programs have been collecting large quantities of data on stocked and wild endangered fishes. These data are stored in the STReaMS database, which makes it easy to identify individual fish and capture histories and integrate data from various active capture projects as well as Passive Interrogation Arrays (PIAs). The sharing of data between investigators and stakeholders is streamlined to improve efficiency of data entry and retrieval, and to prevent duplication of records and efforts between and among the various investigations. The master database standardizes content and provides convenient, easy access to all available data.

### **Study Area:**

STReaMS will house data from the entire upper Colorado and San Juan River basins, including Lake Powell.

### **Study Methods/Approach:**

CNHP and the data managers use standard data management and assessment techniques to ensure data are accurate and as complete as possible.

### **Task Description, Deliverables and Schedule:**

CNHP will continue to maintain the STReaMS database and enhance existing features during the Federal FY20-24. Tasks are broken out below.

#### *Task 1: Server and Database Maintenance*

- Maintain the server, server security, and perform regular database backups
- Maintain the test server and web development environment
- Perform necessary software installs and upgrades including Windows operating system, Windows updates, MS SQL Server, source control, and PHP. Ensure all code performs as expected following updates.
- Assess overall performance and optimize resources
- Maintain Database Manager credentials to access SQL Server
- Replace hardware (e.g. server, hard drives, RAM, etc.) as needed and configure new hardware
- Monitor daily interim back-ups, running jobs, and change tracking

#### *Task 2: Website Maintenance and Feature Enhancements*

- Develop issue tracking tools on STReaMS website
- Enhancements to existing tools as funding allows
- Work with key recovery program staff to ensure complete PIA data in STReaMS
- Work with Database Managers to develop any necessary custom queries, including non-tagged fish queries
- Bug fixes
- Internal testing and stress tests
- Update online help, data dictionary, user manuals, Data Managers user guide, and system documentation
- Train Recovery Program participants on features and enhancements
- Participate in monthly Database Manager meetings
- Support hosting and other technical needs for Recovery Program website
- Other priorities identified by Recovery Program Database Managers

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### *Task 3: Project Management*

- Prepare annual reports
- Perform project management and CSU compliance
- Maintain regular communication with Database Managers
- Ensure CNHP staff are fully trained on database design and tasks
- Recovery Program purchases

### *Task 4: Develop Direct Database Upload System for PIA Data to Enhance Security, Reliability, and Resiliency (FY22)*

- Work with Biomark to determine the computer infrastructure needed for direct database access
- Create table (or bin) in STReAMS to receive raw data from PIAs
- Revise upload methodology
- Write PIA upload code to import raw data bin into the main STReAMS database (Tags, Fish, Encounters)
- Gather existing PIA data files, format, and import to a bin so available raw data are in a central location
- Update web interface and email notifications to align with the new import process
- Testing
- Dismantle existing FTPS site

*FY21 includes the purchase and installation of a new server to run the database and website.*

*FY22 includes Task 4 to develop the direct database upload system for PIA data.*

### Key Personnel:

**Amy Greenwell (PI and GIS Program Manager)** has been a Research Associate at CNHP for over 20 years and is an expert in GIS, data collection methods, and relational database management. Ms. Greenwell will be responsible for project management, communications, feature design, testing, training, online content, documentation, and help manuals.

**David Anderson (Co-PI, Director and Chief Scientist)** has been the Director of CNHP for over 10 years and has over 20 years of experience working on biodiversity conservation priority setting and management of natural resources. His role will be to oversee the project within the context of CNHP's mission, CSU regulations, and reporting requirements, and to ensure QA/QC is followed throughout the duration of the project.

### Other Personnel:

**Yannick EDAYE (Database and Web Developer)** is an experienced database and web developer, website designer, and database administrator. He is the lead developer on this project. He is responsible for web coding, query development, and database administration.

**Michael Menefee (Environmental Review Coordinator and IT Supervisor)** has been a Research Associate at CNHP for almost 20 years. He leads CNHP's IT staff and oversees administration of CNHP's IT network. His role is to lead server maintenance activities and assess overall infrastructure, assess hardware and software needs, and manage backups.

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Other staff may be involved as needed in order to efficiently meet deadlines and balance workloads at CNHP.

### **Budget Summary:**

Salary charges include costs for CNHP staff to review project parameters, provide supporting technological infrastructure, update and enhance web interface, update database schema and content, complete database documentation, provide training and satisfy reporting requirements. Salary charges for CNHP professional staff are billed under the "Other Direct" category. Materials and supplies include hardware for the server and back-ups, the cert for the website, and long-distance phone charges. The Colorado Natural Heritage Program (CNHP) is a specialized service center as defined by OMB 2 CFR 200, Subpart E, Section 200.468. The rate structure is carefully designed to recover the cost of operating the CNHP and represents direct costs in accordance with 200.468b, which states, "The costs of such services, when material, must be charged directly to applicable awards based on actual usage of the services on the basis of a schedule of rates or established methodology...". The established schedule/methodology is available. These costs are explicitly removed from F&A cost pools and are included in the MTDC base for purposes of F&A rate calculation.

Maintenance & Enhancements Budget FY20-FY24

<b>FY Year</b>	<b><i>BOR Funding Total</i></b>	<b><i>San Juan Cost</i></b>	<b><i>Upper Colorado Cost</i></b>
2024	\$86,649.36	\$28,883.12	\$57,766.24
2025	\$86,758.72	\$28,916.68	\$57,842.04
2026	\$88,616.26	\$29,535.80	\$59,080.46
2027	\$91,244.37	\$30,411.75	\$60,832.62
2028	\$93,950.76	\$31,313.79	\$62,636.97
2029	\$99,332.29	\$33,107.45	\$66,224.84
Total	\$546,551.76	\$182,168.59	\$364,383.17

### **Reviewers:**

Christopher Michaud, Database Coordinator, Upper Colorado Program  
Scott Durst, Science Coordinator, SJRIP

### **References:**

**SUMMARY OF PROPOSED COSTS**

<b>Name of Servicing Agency:</b>	Colorado Natural Heritage Program
<b>Project Name:</b>	

	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL
	10/1/2024		10/1/2025		10/2/2026		10/2/2027		10/1/2028		
	Through		Through		Through		Through		Through		
Enter the BEGINNING dates for each year ----->	9/30/2025		10/1/2026		10/1/2027		9/30/2028		9/30/2029		
Enter the ENDING dates for each year ----->											
<b>DIRECT LABOR AND FRINGE BENEFIT COSTS:</b>	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL
Direct Labor - Hourly	\$	42,090.76	\$	43,353.49	\$	44,654.09	\$	45,993.71	\$	47,373.53	\$ 223,465.59
Fringe Benefits - Hourly	\$	28,622.15	\$	29,480.82	\$	30,365.24	\$	31,276.20	\$	32,214.49	\$ 151,958.90
Subtotal of Direct Labor & Fringe Benefits:	\$	70,712.92	\$	72,834.30	\$	75,019.33	\$	77,269.91	\$	79,588.01	\$ 375,424.48

	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL
<b>OTHER DIRECT COSTS:</b>											
Materials and Supplies	\$	3,124.29	\$	2,583.79	\$	2,635.45	\$	2,688.18	\$	4,950.11	\$ 15,981.82
Travel Costs	\$	-	\$	-	\$	-	\$	-	\$	-	\$ -
Equipment	\$	-	\$	-	\$	-	\$	-	\$	-	\$ -
Contractors	\$	-	\$	-	\$	-	\$	-	\$	-	\$ -
Subtotal of Other Direct Costs:	\$	3,124.29	\$	2,583.79	\$	2,635.45	\$	2,688.18	\$	4,950.11	\$ 15,981.82

	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL
<b>INDIRECT/OVERHEAD COSTS:</b>											
Subtotal of Labor and Other Direct Costs:	\$	73,837.21	\$	75,418.09	\$	77,654.78	\$	79,958.09	\$	84,538.12	\$ 391,406.30
Total dollars exempt from indirect/overhead base:	\$	-	\$	-	\$	-	\$	-	\$	-	\$ -
<Enter Description of Indirect/OH Cost #1>	17.50%	\$ 12,921.51	17.50%	\$ 13,198.17	17.50%	\$ 13,589.59	17.50%	\$ 13,992.67	17.50%	\$ 14,794.17	\$ 68,496.10
Total dollars exempt from indirect/overhead base:	\$	-	\$	-	\$	-	\$	-	\$	-	\$ -
<Enter Description of Indirect/OH Cost #2>	3.00%	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	\$ -
Subtotal of Indirect/Overhead Costs:	\$	12,921.51	\$	13,198.17	\$	13,589.59	\$	13,992.67	\$	14,794.17	\$ 68,496.10

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
<b>GRAND TOTAL:</b>	\$ 86,758.72	\$ 88,616.26	\$ 91,244.37	\$ 93,950.76	\$ 99,332.29	\$ 459,902.41
<b>SAN JUAN FUNDED</b>	\$ 28,916.68	\$ 29,535.80	\$ 30,411.75	\$ 31,313.79	\$ 33,107.45	\$ 153,285.47
<b>UC FUNDED</b>	\$ 57,842.04	\$ 59,080.46	\$ 60,832.62	\$ 62,636.97	\$ 66,224.84	\$ 306,616.93