

Project Title

Development of a centralized PIT tag database for the San Juan And Upper Basin recovery programs, FY20-24 maintenance and enhancements

Bureau of Reclamation Agreement Number:

R20AP00027

Reclamation Agreement Term

Note: Recovery Program FY23 scopes of work are drafted in May 2022. 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 and changing hydrological conditions.

Lead Agency:

Colorado State University

Principal Investigator:

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Category:

- Ongoing project
- Ongoing-revised project
- Requested new project
- Unsolicited proposal

Expected Funding Source:

- Annual funds
- Capital funds
- Other: FCPP (NFWF) funds

Justification

The Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program need continued maintenance, updates, and periodic enhancements to the online *Species Tagging, Research and Monitoring System* (STReAMS). The database tracks PIT tags and endangered fish activities in the Upper Colorado River Basin. The online data system was developed by the Colorado Natural Heritage Program (CNHP) during 2014-2019 and is located at <https://streamsystem.org> (registration is required). In FY20, CNHP is beginning the sixth full year of the project.

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 Maintenance

- Maintain the server, server security, and perform regular database backups
- Maintain the test server and development environment
- Perform necessary software installs and upgrades including Windows operating system, Windows updates, MS SQL Server, MS TFS, 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

Task 2: Website Maintenance and Feature Enhancements

- Enhancements to existing tools as funding allows
 - Batch uploads
 - QC tools
 - Calculated fields
- Work with key recovery program staff to ensure complete PIA data in STReaMS
 - Shift units from Loggernet process to new Biologic FTPS upload process as they are upgraded
 - Needs assessment and training with key staff
 - Add and remove PIAs to the automatic upload system as needed
- 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
- Other priorities identified by Recovery Program Database Managers

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

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
 - Crosswalk unit names between organizations
 - Record import tracking

- Problem records (stuck tags, etc.)
- Rejected records
- Data retention
- Write PIA upload code to import raw data bin into the main STReaMS database (Tags, Fish, Encounters)
 - Maintain current code for data files (if needed for old files, units not on Biologic system, etc.)
- 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.

Budget

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

5 YEAR TOTAL: \$204,363.08

FY20 BUDGET ITEM (Year 1)	COST
CNHP PROFESSIONAL SERVICES (OTHER DIRECT)	\$28,455.00
MATERIALS/SUPPLIES	
Hard drive	\$250.00
Cert for website (2 yr)	\$16.00
TOTAL MATERIALS/SUPPLIES	\$266.00
TOTAL DIRECT	\$28,721.00
INDIRECT COSTS (@17.5%)	\$5,026.18
TOTAL FY20 PROJECT COSTS	\$33,747.18

FY21 BUDGET ITEM (Year 2)	COST
CNHP PROFESSIONAL SERVICES (OTHER DIRECT)	\$31,697.51
MATERIALS/SUPPLIES	
Hard drive	\$255.00
SLQ Server Software Licenses (4 count)	\$1,206.86
Domain for website (3 yr)	\$45.90
MS Windows for Server (8 count)	\$43.08
Backup Exec Agent for App and Db (3 yr)	\$530.40
Backup Exec Agent for Windows Server (3 yr)	\$316.20
Server to run website and Db	\$6,925.00
TOTAL MATERIALS/SUPPLIES	\$9,322.44
TOTAL DIRECT	\$41,019.95
INDIRECT COSTS (@17.5%)	\$7,178.51
TOTAL FY21 PROJECT COSTS	\$48,198.46

FY22 BUDGET ITEM (Year 3 - Revised 2021)	COST
CNHP PROFESSIONAL SERVICES (OTHER DIRECT)	\$38,282.28
MATERIALS/SUPPLIES	
Hard drive	\$261.38
SLQ Server Software Licenses (4 count)	\$1,237.04
Cert for website (2 yr)	\$16.73
MS Windows for Server (8 count)	\$44.16
Mentimeter	\$119.88
TOTAL MATERIALS/SUPPLIES	\$1,679.19
TOTAL DIRECT	\$39,961.47
INDIRECT COSTS (@17.5%)	\$6,993.25
TOTAL FY22 PROJECT COSTS	\$46,954.72

FY23 BUDGET ITEM (Year 4- Revised 2021)	COST
CNHP PROFESSIONAL SERVICES (OTHER DIRECT)	\$30,484.11
MATERIALS/SUPPLIES	
Hard drive	\$269.22
SLQ Server Software Licenses (4 count)	\$1,274.15
MS Windows for Server (8 count)	\$45.49
Mentimeter	\$123.48
TOTAL MATERIALS/SUPPLIES	\$1,712.34
TOTAL DIRECT	\$32,196.45
INDIRECT COSTS (@17.5%)	\$5,634.38
TOTAL FY23 PROJECT COSTS	\$37,830.83

FY24 BUDGET ITEM (Year 5- Revised 2021)	COST
CNHP PROFESSIONAL SERVICES (OTHER DIRECT)	\$29,261.82
MATERIALS/SUPPLIES	
Hard drive	\$278.64
SLQ Server Software Licenses (4 count)	\$1,318.74
Domain for website (3 yr)	\$50.15
Cert for website (2 yr)	\$17.83
MS Windows for Server (8 count)	\$47.08
Backup Exec Agent for App and Db (3 yr)	\$579.57
Backup Exec Agent for Windows Server (3 yr)	\$345.51
Mentimeter	\$127.80
TOTAL MATERIALS/SUPPLIES	\$2,765.32
TOTAL DIRECT	\$32,027.14
INDIRECT COSTS (@17.5%)	\$5,604.75
TOTAL FY24 PROJECT COSTS	\$37,631.89

Budget Summary:		
FY2020: \$33,747.18	San Juan: \$10,000	Upper Basin: \$23,747.18
FY2021: \$48,198.46	San Juan: \$10,000	Upper Basin: \$38,198.46
FY2022 (Rev 2021): \$46,954.72	San Juan: \$15,651.57	Upper Basin: \$31,303.15
FY2023 (Rev 2021): \$37,830.83	San Juan: \$12,610.28	Upper Basin: \$25,220.55
FY2024 (Rev 2021): \$37,631.89	San Juan: \$12,543.96	Upper Basin: \$25,087.93
Highlighted rows revised in 2021		

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:

TBD (Database and Web Developer) will be a new hire 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.

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