

# UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

## FY 2024-25 SCOPE OF WORK

### Title

*Utah Division of Wildlife Resources-Vernal Office Implementation of Recovery Activities*

### Bureau of Reclamation Agreement Number

R19AP00059

### Reclamation Agreement Term

Oct. 1, 2019 – Sep. 30, 2024

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*Note: Recovery Program scopes of work are drafted in May and often are revised before final Program approval and may subsequently be revised again in response to changing Program needs. Program participants recognize the need and allow for flexibility in scopes of work to accommodate new information and changing hydrological conditions.*

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### Lead Agency

*Utah Division of Wildlife Resources-Vernal*

### Principal Investigator

*Michael Partlow, Native Aquatics Project Leader*

*Utah Division of Wildlife Resources*

*318 N Vernal Ave*

*Vernal, UT, 84078*

*Phone: (435)-219-4910*

*Email: mpartlow@utah.gov*

### Category:

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

### Expected Funding Source:

- Annual funds
- Capital funds
- Other *[explain]*

### Station Abstract

The Utah Division of Wildlife Resources, Vernal Office (*UDWR- Vernal*), will implement various recovery activities to support listed fishes, including monitoring both adult and juvenile populations, removing nonnative species, managing wetland habitats for listed species production, and conducting outreach. Permanent staff will participate in all covered recovery activities as well as non-project specific tasks such as managing seasonal employees, administering budgets, completing trainings, and aiding other offices as the need arises.

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### Activities to be Implemented

*UDWR- Vernal* will assist with or directly implement the following activities which are outlined in the Recovery Program 2023 RIPRAP and 2024-25 workplan.

- A. Plan, manage, and implement projects through permanent staff and fixed costs;
- B. Coordinate, plan and implement outreach activities;
- C. Monitor adult Colorado Pikeminnow abundance in the Green River subbasin;
- D. Manage wetland habitats in the Green River to support young Razorback Sucker;
- E. Mechanically remove smallmouth bass in the Green and White rivers;
- F. Mechanically remove northern pike, white sucker and walleye in the Green River;
- G. Monitor age-0 Colorado Pikeminnow densities in the Green River;
- H. Operate, maintain, and monitor reservoir screening facilities.

### Staffing

*UDWR- Vernal* operates with a staff of five permanent employees to effectively oversee, plan, perform, and report the activities listed above.

In addition, *UDWR- Vernal* requires approximately five to eight seasonal staff (up to six fisheries technicians and two shuttle drivers) each year to perform field work for the Recovery Program. Typically, seasonal staff are needed at various levels from March to October.

#### *Permanent Staff*

The following permanent staff will oversee, plan, perform, and report on the activities described above.

Native Aquatics Project Leader – Oversees all Native Aquatics operations in the Vernal field office, including scopes, budgets, data management and reporting. Principal Investigator for Activities A, B, E (White River), and G. Responsible for submission of annual reports for Activities A, B, E (White River), and G. This position is 49.1% funded by Recovery Program dollars (this is the only amount included in the UDWR-Vernal budget), 39.9% funded by Utah’s ESMF contribution to the Recovery Program (included in the Program Management SOW), and 11% funded by other state dollars.

Native Aquatics Biologist II (A) – Oversees seasonal workforce, the two Native Aquatics Biologist I positions, data management, reporting of Recovery Program projects. Principal Investigator for Activities C, D, E (Green River), and F. Responsible for submission of annual reports for Activities C, D, E (Green River), and F. This position is 97% funded by the Recovery Program.

Native Aquatics Biologist II (B) -- Primarily a state funded position that implements Utah’s Wildlife Action Plan. This position assists with activities B, C, and D. This position is 25% funded by the recovery program.

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Native Aquatics Biologist I – Oversees data management and assists in supervising seasonal workforce for Recovery Program projects. Acts as a co-principal investigator for activities E and F. This position is 97% funded by the Recovery Program.

Journeyman Maintenance Specialist – Fleet and equipment manager responsible for boat, truck, trailer, and equipment maintenance. This position is 97% funded by the Recovery Program.

### *Seasonal Staff*

Biological Technician II—Primary duty is to help manage Technician I positions and directly support the permanent staff. Typically, the individuals in these positions have a stronger background in fisheries and/or have previously worked in a Technician I position for multiple seasons. They will also fulfill Technician I duties as needed. *UDWR- Vernal* activities require two technicians of this level annually.

Biological Technician I – Primary duty is to handle fish for speciation and enumeration and collect associated data. *UDWR- Vernal* activities typically require four technicians of this level annually.

Shuttle Drivers – Primary duty is to shuttle vehicles and equipment for multiple *UDWR- Vernal* programs. *UDWR- Vernal* activities typically require two technicians annually.

### **Staff Hours**

	<b>YR 1 Hours</b>
<b>Perm Staff</b>	<b>7,732</b>
Project Leader	1,022
Biologist A (II)	2,020
Biologist B (II)	520
Biologist C (I)	2,020
JMCS	2,020
Manager	120
Biologist E (sportfish)	10
<b>Seas Staff</b>	<b>6,920</b>
Technician I	3,400
Technician II	2,560
Driver	960
<b>Grand Total</b>	<b>14,652</b>

**ACTIVITY A – Permanent staff and fixed costs associated with implementation of all station activities (previously embedded in Project scopes 123b, 128, 138, 158, 165, 167, 180).**

### **Goal**

To ensure timely and effective planning, implementation, coordination, and administrative support of Recovery Program activities and adaptive management processes.

### **Tasks**

1. Coordinate, plan, and implement recovery activities;

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2. Collect, process, and submit data;
3. Analyze, evaluate, and report on recovery activities;
4. Manage budget;
5. Maintain and replace station equipment and fleet; and
6. Attend and provide expertise at Program meetings.
7. Provide housing to Recovery Program seasonal employees

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

#### **Task 1. Coordinate, plan, and implement recovery activities.**

Permanent staff are responsible for all field activity planning and preparation, including scope of work development and modification, acquiring permits from both federal and state agencies, and acquiring landowner access for specific study locations. Adequate planning and preparation ensure that work can be safely accomplished in a manner that protects both staff and equipment throughout the field season.

This task includes hiring and training permanent and seasonal staff that are properly equipped to safely engage in activities in remote areas in potentially adverse conditions.

#### **Task 2. Collect, process, and submit data.**

Collecting and reporting accurate data is one of the primary products of any field sampling event. Data should be collected and stored in a manner that allows for minimal error inclusion and is managed in accordance with the standard procedures outlined in the appropriate data management plan. *UDWR-Vernal* staff use digital data collection tools with customized applications for Program work, as per Recovery Program recommendations. Data will be submitted to the STReAMS Data Manager as soon as possible at the end of each trip or in conjunction with deadlines noted under each Activity below. Staff will work with the Data Manager to resolve any errors before the data is submitted to STReAMS for analysis and reporting.

#### **Task 3. Analyze, evaluate, and report on recovery activities.**

Each activity requires reporting to document completion of tasks, biological effects and conditions, and recommendations for adjustments in future years. All specific reports due are outlined in the specific activity sections below, but the funds needed for reporting are addressed here in Activity A.

#### **Task 4. Manage budget**

The *UDWR-Vernal* budget is managed to ensure all projects funded by scopes of work are completed with the funding provided. This includes purchasing all necessary materials and equipment in conjunction with the UDWR guidance and policy. Task includes developing and administering Interagency Agreements, Cooperative Agreements, and contracts necessary to implement activities for the Recovery Program.

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### Task 5. Maintain and replace station equipment and fleet.

The *UDWR-Vernal* utilizes three rafts with trailers, four Honda generators, six electrofishing units, four 6.0hp Yamaha outboard motors, six 50hp Honda motors, one 65hp Honda outboard jet motor, 4 Juniper Allegro mx field computers, five Jon boats with trailers and a fleet of five permanent and 1 seasonal truck to implement all station activities. This task describes the replacement schedule and cost of equipment used for all field activities, as well as the fixed monthly fees associated with our fleet of six trucks. Mileage fees for station fleet are accounted for in the individual activities in which they are accrued.

- Replace six electrofishing units on a 10-year rotation;
- Replace four generators on a 5-year rotation;
- Replace rafts, cataraft tubes, frames, trailers, and hard bottom boats as needed;
- Replace outboard boat motors on a (5-year) schedule alternating boats and replacement years;
- Replace Allegro field computers as needed; and
- Fixed monthly fees for six station trucks.

### Task 6. Attend and provide expertise at Program meetings

The Recovery Program relies on the expertise of field crews to share pertinent information and offer guidance outside of written reports. This includes providing expertise at the Recovery Program's Biology and Management committees as requested or appropriate. Station staff also should attend and participate in adaptive management meetings and workshops (e.g., planning workshops, NNF workgroup, STReAMS or data meetings) to acquire needed training and to share knowledge.

The Recovery Program also relies on partners and stakeholders to review and recommend updates to the RIPRAP and other Program documents as appropriate. Scientific expertise of field crews also provides peer review to ensure technical and scientific integrity of Recovery Program activities (study proposals, project reports, etc.) as requested.

### Task 7. Provide housing to Recovery Program seasonal employees

*UDWR-Vernal* will lease an apartment for our seasonal technicians in Vernal so that techs would not have to find their own housing. Housing within Vernal is often challenging for seasonal employees to obtain. By providing housing for seasonal employees, *UDWR-Vernal* is able to attract and retain quality seasonal employees within the constraints of Vernal's challenging housing market and Utah's pay scale.

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### Activity A Budget

<b>A</b>	<b>Year 1</b>	<b>Year 2</b>
Perm Staff	\$281,967	\$287,607
Seas Staff		
Materials	\$47,414	\$36,122
Equipment	\$34,700	\$40,652
Travel	\$3,880	\$3,910
Contracts	\$19,900	\$20,100
<b>A Total</b>	<b>\$387,861</b>	<b>\$388,391</b>

### Generalized Work Schedule

A typical field season for *UDWR-Vernal* begins with field work in April, although some hydrologic conditions may warrant work being performed in late March. Early season work, before spring runoff, includes monitoring adult Colorado Pikeminnow (3 out of every 5 years), fyke-netting and electrofishing removal of Northern Pike and Walleye in the Green River, and preparing wetland infrastructure for use. During spring runoff, work primarily includes monitoring for larval Razorback Sucker emergence and managing wetland infrastructure to entrain the drifting Razorback Sucker larvae. Beginning with the descending limb of the hydrograph, work shifts primarily to Smallmouth Bass removal in the White and Green rivers. This work typically lasts through the summer months into autumn. In late summer and autumn, crews will monitor Colorado Pikeminnow survival in back waters. Throughout the summer, personnel will also monitor water levels in managed wetlands and ensure that adequate water quantity and quality is maintained. In autumn (or when water levels begin to deteriorate), crews will begin draining managed wetlands and returning age-0 Razorback Sucker to the river. The *UDWR-Vernal* field season typically ends mid to late October.

Upon completion of field work, principal investigators will ensure data is submitted to the STReAMS database for QA/QC and data sharing with other Recovery Program partners. Principal Investigators will then retrieve data from STReAMS and will complete annual reports of their responsibility, typically presenting this data at the Recovery Program Researcher's Meeting each winter. During the winter, permanent staff will ensure equipment and gear is maintained, repaired, and replaced for the next field season. Also, overwinter, permanent staff will complete the hiring process for seasonal staff, rectify budgets, and coordinate with any pertinent landowners for access.

## UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

*UDWR-Vernal schedule for implementation of field activities.*

Target species	Activity	Legacy Project(s)	Locations	Staff Permanent Seasonal Daily Staffing													
					J	F	M	A	M	J	J	A	S	O	N	D	
All	B – Outreach	NA	All	5-permanent 4-seasonal		X						X					
CPM, RZ	C – CPM Estimates	128	GR Split-Tabyago	4-permanent 4-seasonal				X	X								
RZ	D – Wetland Mgmt.	165	Middle Green River (MGR)	3-perm, 2 seasonal					X	X		X	X	X			
SM	E – Mechanical removal	123b	GR Split-Tabyago GR Rainbow Prk	2-perm, 4-seasonal						X	X	X	X	X			
SM	E – Mechanical removal	167	WR Trujillo-Enron	2-perm, 5 seasonal						X	X						
NP, WS, WE	F – Mechanical removal	123b	MGR	2-perm, 2 seasonal			X	X	X								
CPM	G – Monitor age-0	138	MGR	1-perm, 4 seasonal									X				
CPM	G – Monitor age-0	158	MGR	1-perm, 4 seasonal							X	X					
WE, SM	H – Reservoir Fish Screens	180	MGR Red fleet, Starvation		X	X	X	X	X	X	X	X	X	X	X	X	X
<del>RZ</del>	<del>I – Antenna monitoring</del>	172	<del>MGR</del>	Submit as new start													

# UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

## **ACTIVITY B - Coordinate, plan, and implement outreach activities.**

### **Study Principal Investigator**

*Shannon Nelson, Outreach Coordinator*

*UCREFRP Program Directors Office*

*Email: [shannon\\_nelson@fws.gov](mailto:shannon_nelson@fws.gov)*

### **Activity Principal Investigator**

*Michael Partlow, Native Aquatics Project Leader*

*Utah Division of Wildlife Resources*

*Phone: (435)-219-4910*

*Email: [mpartlow@utah.gov](mailto:mpartlow@utah.gov)*

### **Study Goals**

Provide information and engage with the public about the Recovery Program and the four listed fish species in order to build and maintain public support for program recovery goals.

### **Study Area**

Municipalities in the Uinta Basin and on the Uinta's North Slope (4<sup>th</sup> grade classroom presentations) and river access points along the Green and White rivers (signage).

### **Task Descriptions**

**Task 1.** Interact with members of the public, including posting signage along critical habitat to educate the public about these native fishes and the recovery program.

These efforts often occur organically with anglers, boaters, and other groups while conducting sampling and consist of providing information about the Recovery Program, as well as sharing a variety of materials that can make a lasting positive impression, such as fish-themed stickers and tattoos. This task also includes posting and maintaining signage along the river to educate anglers, boaters, and other river users about the endangered fish and the problem of nonnatives. This outreach is especially valuable because it provides direct experiences for people who may be curious or deeply interested in river ecology and efforts to recover threatened and endangered fishes. In addition, signs assist in identification of native fishes, which is often problematic for the average angler.

**Task 2.** Participate in community events, festivals, school visits, conferences, or guest speaker forums.

*UDWR-Vernal* will provide information and education about the Recovery Program and threatened and endangered fish recovery efforts at public events, as coordinated with the Outreach Coordinator.

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Task 3. Visit and present on native fishes in the Green River at fourth grade classrooms throughout the Uintah Basin and surrounding areas.

*UDWR-Vernal*, in collaboration with outreach staff and other volunteers in the UDWR Northeastern Regional Office, plans and visits classrooms presenting on fishes in the Green River and surrounding areas. During these visits, we provide informational materials for the students and teachers and tie our presentation into the fourth-grade curriculum. This effort takes up most of February with classroom visits being one hour each, and drive time being anywhere from twenty minutes to three hours round-trip. Two presenters go to each classroom and the total number of classes participating varies each year with up to 40 classes participating in previous years.

### Deliverables

Provide a summary to the PDO Outreach Coordinator documenting community events, festivals, conferences, school visits, guest speaker forums and other outreach activities conducted by field office staff including:

- A list of outreach activities, type (e.g. school visit, community event), date, and the estimated number of people contacted during each occasion, including informal encounters\* with anglers, boaters, and other groups.

\*Please note that for informal outreach encounters, the goal is to identify trends to guide future outreach efforts and it is not necessary to document every interaction. Instead, it would be helpful to learn the approximate number of boats and/or people encountered, significant locations/river reaches where interactions occurred, and if they were positive, negative, or otherwise remarkable in terms of recommending future outreach actions.

- A brief narrative about current field office outreach efforts including general observations, successes, and challenges to help inform recommendations.
- A list of recommendations to guide future outreach efforts based on an assessment of current gaps, needs, and opportunities to further program recovery goals, such as:
  - Creating educational materials to address site-specific needs;
  - Participating in additional conferences or events;
  - Developing K-12 classroom curricula;
  - Removing barriers that hinder broader public involvement (e.g. developing bilingual materials or providing increased access to events); and
  - Increasing field office staff capacity to conduct outreach activities.
- Photos and videos of interesting field activities to assist the PDO in sharing accomplishments in formal publications and digital media. In addition, photos needed for scientific verification will be acquired. Guidance for submission will be distributed prior to the field season.

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## Activity B Budget

B	Year 1	Year 2
Perm Staff		
Seas Staff	\$764	\$779
Materials	\$245	\$135
Equipment		
Travel		
Contracts		
<b>B Total</b>	<b>\$1,009</b>	<b>\$914</b>

## ACTIVITY C - Colorado Pikeminnow abundance estimation in the middle Green River (Project 128)

### Study Principal Investigator

*Kevin Bestgen*

*Larval Fish Laboratory*

*Colorado State University*

*Phone: (970) 491-1848*

*Email: [kbestgen@colostate.edu](mailto:kbestgen@colostate.edu)*

### Activity Principal Investigator

*Saidee Hyder, Native Aquatics Biologist II*

*Utah Division of Wildlife Resources*

*Phone: (435)-219-3706*

*Email: [shyder@utah.gov](mailto:shyder@utah.gov)*

### Study Goals

Obtain accurate (unbiased) and reliable (precise) estimates of adult population abundance and survival of Colorado Pikeminnow that occupy the Green River study area and collect additional information concerning Razorback Sucker.

### Study Area

Green River between the confluence of the White River [250 RM] and upstream to the lower end of Whirlpool Canyon (i.e., upper Island Park) [333.9-327.6 RM], excluding Split Mountain Canyon [327.6-319.3 RM]; hereafter referred to as the Middle Green River.

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## Task Descriptions

Task 1. While completing a minimum of three sampling passes through the Middle Green River, obtain highest possible rates of capture of sub-adult and adult Colorado Pikeminnow maximizing the number of individuals marked and captured each pass.

Passes will occur starting soon after ice-off (typically April) when temperatures and flows are appropriate. Each pass requires eight to ten days, two boats, and six people, as well as two to three shuttle drivers from the *UDWR-Vernal* office.

Task 2. If while completing the Colorado Pikeminnow abundance estimate through the Middle Green River, it becomes feasible to also capture Razorback Sucker without interfering with Task 1, we will attempt to obtain the highest possible catch rates of sub-adult and adult fish maximizing the number of individuals captured each pass.

If/when we are attempting to handle Razorback Sucker in the same manner as Pikeminnow then at least one additional boat and 2-3 additional people are needed. In spring 2023, additional resources will come from Colorado State University. The effort in 2023 will be evaluated and future feasibility of incorporating Razorback Sucker monitoring into the Colorado Pikeminnow abundance estimate will be assessed.

## Deliverables

We deliver data on location, sex, length, weight, and PIT tag information for each fish processed, as well as fin clips as requested typically for Razorback Sucker and any other noteworthy information. Additionally, the activity PI will QA/QC the data and submit it to the STReaMS database as well as the study PI, by a predetermined deadline given by the Recovery Program.

## Activity C Budget

C	Year 1	Year 2
Perm Staff		
Seas Staff	\$41,618	\$0
Materials	\$6,025	\$0
Equipment		
Travel	\$1,800	\$0
Contracts		
<b>C Total</b>	<b>\$49,443</b>	<b>\$0</b>

## ACTIVITY D - Manage wetland habitats in the Green River to support young Razorback Sucker (Project 165)

### Activity Principal Investigator

*Saidee Hyder, Native Aquatics Biologist II*  
*Utah Division of Wildlife Resources*

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## UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

Phone: (435)-219-3706

Email: [shyder@utah.gov](mailto:shyder@utah.gov)

### Study Goals

Manage Stewart Lake gates, controlling filling and draining timing, to improve recruitment of wild spawned Razorback Sucker and characterize use by larval and adult endangered fishes.

### Study Area

Stewart Lake is located along the middle Green River at river mile 300 near Jensen, UT.

### Task Descriptions

**Task 1. Operate Stewart Lake fish screens and outlet gates to entrain Razorback Sucker larvae.**

Starting when Razorback Sucker larvae are collected in the Green River by FWS-Vernal we will open both the inlet and outlet gates at Stewart Lake to entrain larvae. After filling begins, daily trips to the wetland to check the gates and progress of filling will occur. One to two people are needed to assess flow, manipulate the gates, and clean the fish screens while filling occurs, taking one to four weeks total. Additionally, monitoring of entrainment and nearby fish will be done with larval light traps within the wetland and the canal. Portable submersible antennas will also be deployed within the outlet canal and near the adjacent tributaries to monitor any returning Razorback Sucker or other endangered fishes attempting to enter the floodplain.

**Task 2. Drain Stewart Lake and sample fish exiting through the fish trap.**

In the fall, usually early to mid-October, we will begin slowly draining the wetland through the outlet gate. A fish trap will be connected to the screen and harvesting of all fish species present will begin. Nonnative fish are removed from the wetland and counted while native fish are processed and tagged (if greater than 100 mm) before being released back into the Green River. This process takes two to three weeks total checking the trap each day in 1-2 shifts of two people. At the end of draining, about six people are needed to help with the large influx of fish leaving the wetland. The number of people needed depends on the volume of fish that are successfully recruited in the wetland.

**Task 3. Stewart Lake inlet channel maintenance and in-lake vegetation control.**

The inlet channel is dredged in November as needed (most recent will be 2023). Vegetation management within the wetland is tackled by numerous methods including prescribed burning in early spring, aerial herbicide typically in July or August, and goat grazing of vegetation on an annual basis (2023 is a feasibility year to determine if this can be an affordable and effective option in the future). Crew size will vary greatly with each method. Mainly people are needed for prescribed burning to aid Forestry Fire and State Lands. Typically, the permanent staff members help with the burning process.

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### Task 4. Prevention of nonnative fish entering the wetland in high hydrology years.

In seasons with high water, Stewart Lake may breach at two low spots (typically occurs around 20,000 cfs). During this time, *UDWR-Vernal* will attempt to place block nets using driven fence posts or other screening methods to prevent carp from jumping into the wetland. If we are not 100% successful at preventing nonnative adult fish from entering the wetland, we may also utilize fykes, trammels, or other netting techniques to remove those adults as soon as possible from Stewart Lake. This effort would take a Jon boat or canoe and at least two people to set and process nets.

### Task 5. Stocking and monitoring Bonytail within Stewart Lake.

Experimental stocking of hatchery reared Bonytail may occur in years where fish are available. The goal would be to stock adult Bonytail pre-spawn so they might spawn within the wetland. This stocking would ideally occur during the filling process in late May/early June or earlier if water conditions in the wetland can support fish prior to filling. Stocking fish prior to larval trigger flows and filling will be dependent on groundwater and snowmelt conditions providing sufficient water to hold fish. *UDWR-Vernal* will coordinate with hatchery staff on an annual basis to determine feasibility. Portable submersible antennas could be used throughout the summer to attempt to monitor the adult Bonytail. At least one to two staff members would be needed to aid in stocking and monitoring efforts. Harvest efforts would be the same as noted in Task 2.

### Deliverables

Each year an annual report will be written by the Activity PI describing management activities, nonnative fish numbers estimated, and native fish released to the Green River. During draining, native fish, mainly YOY Razorback Suckers, are PIT tagged, measured, and a sample are fin clipped (if requested) before being released. Mortalities and any other noteworthy information are also recorded. In years where Stewart Lake is not filled, a database search for reencounters of Stewart Lake Razorback Suckers will be conducted and reported on. All data will be submitted to STReAMS by November each year.

### Activity D Budget

D	Year 1	Year 2
Perm Staff		
Seas Staff	\$16,421	\$24,930
Materials	\$2,555	\$2,606
Equipment		
Travel		
Contracts		
<b>D Total</b>	<b>\$18,976</b>	<b>\$27,536</b>

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### **ACTIVITY E – Mechanically remove Smallmouth Bass in the Green and White rivers (Projects 123b, 167)**

#### **Activity Principal Investigator**

*Michael Partlow, Native Aquatics Project Leader*

*Utah Division of Wildlife Resources*

*Phone: (435)-219-4910*

*Email: [mpartlow@utah.gov](mailto:mpartlow@utah.gov)*

*Saidee Hyder, Native Aquatics Biologist II*

*Utah Division of Wildlife Resources*

*Phone: (435)-219-3706*

*Email: [shyder@utah.gov](mailto:shyder@utah.gov)*

#### **Study Goals**

Sufficiently reduce the abundance of Smallmouth Bass in the White and Green rivers such that their potential to spawn and their predatory and competitive impacts on the growth, recruitment, and survival of endangered and other native fishes is minimized.

#### **Study Area**

The study area encompasses the Green River section from Split Mountain boat ramp [RM 319.3] to Tabyago Riffle [RM 206.8] and upper Island Park [RM 333.9-327.6]. It also includes the White River section from Big Trujillo boat launch (RM 87.5) to Enron boat ramp (RM 24).

#### **Task Descriptions**

##### **Task 1. Complete two electrofishing passes on the White River.**

Complete one five-day electrofishing trip using two electrofishing rafts simultaneously to mechanically remove bass at each shoreline of the river. Complete two three-day electrofishing passes utilizing the same equipment with one pass covering the upper section and the second pass covering the lower section equaling two full passes on the White River. Each pass will be conducted in coordination with USFWS-Vernal, coordinating efforts so as to not overlap sections within two days of one another.

Electrofishing passes will be conducted from May to early July, focusing on the descending limb (~2000 cfs) of the hydrograph when water temperatures will likely favor Smallmouth Bass spawning and nesting (~16°C). Each pass will require two electrofishing boats with one raft operator and one netter per boat. Additionally, a gear raft will be necessary with one boat operator.

##### **Task 2. Complete two full Smallmouth Bass removal passes in the middle Green River to guide subsequent targeted removal effort.**

Each pass on the middle Green River can take two weeks encompassing four total weeks of effort. Between these full passes, targeted removal will occur focusing on areas with the highest catch rates of  
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Smallmouth Bass identified in full pass sampling. These targeted removal passes in tandem with full passes will equal up to 16 total weeks of effort. Ancillary catch of Smallmouth Bass in other projects will also be recorded and included. Passes will occur on the descending limb of the hydrograph when temperatures and flows are appropriate, typically from late June until early October. Each full pass requires two weeks, two boats, and four people.

### Task 3. Complete a pass for Smallmouth Bass removal in the lower Duchesne River.

In years where hydrology allows, typically high-water years, we will conduct a Smallmouth Bass removal pass in the Duchesne River with the Ute Tribe's permission. This would involve one to two weeks of effort (4-8 days) sending a boat or two up the Duchesne River from the confluence with the Green, with two to four people to remove bass. If it seems as though there are a lot of bass present in the Duchesne, then more effort would be reallocated as hydrology allows.

### Task 4. Complete a pass for Smallmouth Bass removal in Desolation Canyon.

Previously, we have completed a removal pass in Desolation Canyon to aid UDWR-Moab with their efforts. This does not happen every year, only in years where help is needed and as determined by the nonnative fish coordinator. A single pass through the canyon can take a full week (seven days) and requires a minimum of five to six people, three rafts (two catarafts and one gear raft), as well as the hiring of shuttle drivers. These costs may be split with the UDWR-Moab office as deemed necessary. If a trip occurs, it's usually in mid to late August.

### Task 5. Complete a "surge" effort to disrupt Smallmouth Bass spawning near Island Park.

If flows and time allow, an effort to remove bass during their spawn at Island Park in collaboration with Fish and Wildlife Service-Vernal may occur. The timing of this effort relies on temperatures and flows with previous efforts being conducted when temperatures are around 16°C and during the descending limb of the hydrograph. Previous removals occurred in mid to late June. If flows are low, a single barge shocker with six to seven people will be utilized in a large side channel near Ruple Ranch. If the upper island complexes are accessible by boat during the right timing, then one to two boats and three to six people will be utilized.

### Deliverables

One biological summary report will be provided annually on Smallmouth Bass removal for both the White and Green rivers. This report will provide information on the catch of this species within the study areas including total numbers of each age class, total catch per unit effort (CPUE), CPUE by river reach, catch of piscivore size fish, ancillary catch of other nonnative species that are removed, and ancillary catch of native species that are processed and released alive.

All data will be submitted to the STReAMS and the nonnative fish coordinator by a predetermined deadline given by the Recovery Program.

## UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

### Activity E Budget

<b>E</b>	<b>Year 1</b>	<b>Year 2</b>
Perm Staff		
Seas Staff	\$50,309	\$54,267
Materials	\$13,665	\$15,876
Equipment		
Travel	\$4,100	\$4,590
Contracts		
<b>E Total</b>	<b>\$68,074</b>	<b>\$74,733</b>

### ACTIVITY F – Mechanically remove Northern Pike, White Sucker and Walleye in the middle Green River (Project 123b)

#### Activity Principal Investigator

*Saidee Hyder, Native Aquatics Biologist II*

*Utah Division of Wildlife Resources*

*Phone: (435)-219-3706*

*Email: [shyder@utah.gov](mailto:shyder@utah.gov)*

#### Study Goals

Sufficiently reduce the abundance of adult Northern Pike, White Sucker, and Walleye in the middle Green River such that their potential to spawn and their predatory and competitive impacts on the growth, recruitment, and survival of endangered and other native fishes is minimized.

#### Study Area

The study area encompasses the middle Green River from Island Park to Rainbow Park (river mile [RM] 333.9 to 327.6) in Dinosaur National Monument and from Split Mountain boat ramp [RM 319.3] to Tabyago Riffle [RM 206.8]. Effort will focus on concentration areas identified during subsequent removal passes for Walleye. Targeted tributaries for Northern Pike and White Sucker include: the Duchesne River [RM 247.9], Brush Creek [RM 304.5], Cliff Creek [RM 302.9], Stewart Lake Drain [RM 300], and Ashley Creek [RM 299.0].

#### Task Descriptions

**Task 1. Conduct removal of Northern Pike and White Sucker in tributary and mainstem habitats.**

Fyke netting and boat electrofishing will be utilized in tributary habitats of the middle Green River to target these invasive species. This occurs as spring flows inundate tributary mouths. This effort could start as early as late March and continue off and on until June following peaks in the hydrograph. Up to four weeks of effort with one to two boats and two to four people may be utilized. This effort is generally reduced during Colorado Pikeminnow estimate years. These species are also removed as ancillary catch during other activities.

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## UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

### Task 2. Targeted removal of Walleye in the middle Green River.

This removal effort occurs during years where we are not estimating Pikeminnow abundance. Walleye are targeted in main channel habitats during early spring until early summer, as needed. This targeted removal effort could take up to two boats, six people and four weeks of effort. Walleye are also removed as ancillary catch in other activities.

### Task 3. Targeted removal of Walleye near Tusher Diversion.

During off years of Pikeminnow estimates, some effort may be reallocated to help the UDWR-Moab office with Walleye removal near the Tusher Diversion. Usually this requires one boat with two people, but the amount of effort and personnel will be determined by need in discussions between the activity PIs and the nonnative fish coordinator.

### Deliverables

One biological summary report will be written annually for Walleye, White Sucker, and Northern Pike. Data is collected on numbers of fish removed, locations, and their lengths. If the fish are large enough to have consumed stockable native fish, stomach contents may be examined or scanned for PIT tags. All data will be submitted to STReAMS and the Nonnative Fish Coordinator by the predetermined date set by the Recovery Program. The activity PI will also participate in the nonnative fish coordination meetings each December.

### Activity F Budget

F	Year 1	Year 2
Perm Staff		
Seas Staff	\$5,346	\$17,731
Materials	\$2,799	\$2,927
Equipment		
Travel		
Contracts		
<b>F Total</b>	<b>\$8,145</b>	<b>\$20,658</b>

### ACTIVITY G - Monitor age-0 Colorado Pikeminnow densities (Projects 138, 158)

#### Activity Principal Investigator

*Michael Partlow, Native Aquatics Project Leader*

*Utah Division of Wildlife Resources*

*Phone: (435)-219-4910*

*Email: mpartlow@utah.gov*

#### Study Goals

Monitor age-0 Colorado Pikeminnow in the middle Green River to determine their presence, location, and status during the summer, and assess long-term trends in annual fall recruitment.

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# UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

## Study Area

The middle Green River from Split Mountain boat ramp [RM 319.5] to Sand Wash [RM 215.5].

## Task Descriptions

Task 1. Determine age-0 Colorado Pikeminnow presence, densities, and overall fish community composition in backwaters throughout the summer base flow period (158).

Seine backwater habitats in the middle Green River during summer baseflows beginning about six weeks after larval Colorado Pikeminnow are detected in the Yampa River at Echo Park. Two passes will occur in either late July or August. Each pass may take one to two weeks requiring one boat and three people. Additional assistance may be given to FWS-Vernal to collect brood stock Colorado Pikeminnow in September and October.

Task 2. Determine size and abundance of YOY Colorado Pikeminnow and small-bodied native fishes at the end of their first growing season to complement larval and juvenile sampling (138).

Seine backwater/low velocity habitats to collect data for endangered, native and nonnative fish, while also taking physical habitat information using the ISMP protocol (USFWS 1987). This data collection occurs from mid to late September. The first two habitats encountered within every five river miles will be sampled. This effort can take up to two weeks, one boat, and three people.

## Deliverables

Information on physical habitats utilized by YOY native fishes will be collected, along with sizes, numbers, and preservation of some specimens particularly in Task 1 when YOY fish are smaller. Annual reports on these tasks will be written by the activity PI.

All data will be submitted to STReAMS by the due date identified by the PDO.

## Activity G Budget

G	Year 1	Year 2
Perm Staff		
Seas Staff	\$12,060	\$12,301
Materials	\$2,970	\$3,029
Equipment		
Travel	\$900	\$918
Contracts		
<b>G Total</b>	<b>\$15,930</b>	<b>\$16,248</b>

## ACTIVITY H – Operate, maintain, and monitor reservoir screening facilities (Project 180)

### Activity Principal Investigator

*Trina Hedrick, Northeast Region Aquatics Manager*

FY 2024-25 UDWR-Vernal Scope of Work

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# UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

*Utah Division of Wildlife Resources*  
*Phone: (435)-790-2283*  
*Email: trinahedrick@utah.gov*

## **Study Goals**

To prevent escapement of nonnative fish species from reservoirs into the Green River subbasin.

## **Study Area**

Starvation and Red Fleet reservoirs just below their respective dams.

## **Task Descriptions**

### *Task 1. Complete checks and maintain the screen below Red Fleet Reservoir.*

This task is mainly completed during the spring, summer, and fall when higher volumes of water (e.g., irrigation releases) are being pushed into Brush Creek. However, monthly checks of the screen are still completed outside of the irrigation season (from October to April). Starting in April, biweekly checks of the screen for cleaning and maintenance occur typically for three months. During the last three months of irrigation season, weekly checks are conducted unless flows change dramatically (which typically triggers more debris moving through the structure), in which case visits go back to biweekly. This effort takes at least one person to check and clean the screens. If damage occurs, more people may be needed for the repair work (or a contractor may need to be hired).

### *Task 2. Complete checks and maintenance on the screen below Starvation Reservoir.*

For this screen we are given information on when the annual spill will occur at Starvation. Once we know when the spill is expected, staff will check the screen for damage and make the necessary repairs. Typically, the spill happens in spring or summer and the initial maintenance check occurs in spring. Once the spill starts, someone will go out at least once per week to clear the screen of debris and check for functionality. More trips may occur depending on the volume of water being spilled. In October or November, a scheduled rotenone treatment of the spillway stilling basin is conducted and post-spill repairs are made to the screen as needed.

### *Task 3. Assist with design and implementation of a new screen at Starvation Reservoir.*

The current screen at Starvation is not a permanent structure; however, staff are currently working on the design and permitting for a permanent modular picket screen. This involves meetings and discussions with engineers and partner agencies as well as permitting through the U.S. Bureau of Reclamation, the U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers. This task is temporary, and we hope it will be completed by FY25. Once a permanent screen is in place, maintenance needed at this screen should be reduced.

# UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

## Deliverables

An annual report is written on the status of reservoir screens within Utah and any other notable observations of fish that are found within the screen structures. This report is submitted at a predetermined date given by the Recovery Program.

## Activity H Budget

H	Year 1	Year 2
Perm Staff	\$0	\$0
Seas Staff	\$0	\$0
Materials		
Equipment		
Travel		
Contracts		
<b>H Total</b>	<b>\$0</b>	<b>\$0</b>

## Budget Summary Total

Fiscal Year	USBR Funding
2024	\$ 549,197.14
2025	\$ 528,233.71
2026	\$ 543,026.75
2027	\$ 570,904.09
2028	\$ 578,663.77
<b>Total</b>	<b>\$2,770,025.47</b>

**SUMMARY OF PROPOSED COSTS**

<b>Name of Servicing Agency:</b>	Utah Division of Wildlife Resources
<b>Project Name:</b>	Vernal Field Station - All Activities

	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL
	10/1/2023		10/1/2024		10/1/2025		10/1/2026		10/1/2027		
	Through		Through		Through		Through		Through		
Enter the BEGINNING dates for each year ----->	9/30/2024		9/30/2025		9/30/2026		9/30/2027		9/30/2028		
Enter the ENDING dates for each year ----->											
<b>DIRECT LABOR AND FRINGE BENEFIT COSTS:</b>	<b>YEAR 1</b>		<b>YEAR 2</b>		<b>YEAR 3</b>		<b>YEAR 4</b>		<b>YEAR 5</b>		<b>TOTAL</b>
Direct Labor - Hourly	\$	298,231.12	\$	286,690.04	\$	292,423.84	\$	316,485.25	\$	322,814.96	\$ 1,516,645.21
Fringe Benefits - Hourly	\$	110,253.86	\$	110,923.69	\$	113,142.16	\$	117,002.28	\$	119,342.32	\$ 570,664.31
Subtotal of Direct Labor & Fringe Benefits:	\$	<b>408,484.98</b>	\$	<b>397,613.73</b>	\$	<b>405,566.00</b>	\$	<b>433,487.53</b>	\$	<b>442,157.28</b>	\$ <b>2,087,309.52</b>
<b>OTHER DIRECT COSTS:</b>	<b>YEAR 1</b>		<b>YEAR 2</b>		<b>YEAR 3</b>		<b>YEAR 4</b>		<b>YEAR 5</b>		<b>TOTAL</b>
Materials and Supplies	\$	75,432.16	\$	60,449.88	\$	63,593.07	\$	63,280.22	\$	64,874.00	\$ 327,629.33
Travel Costs	\$	10,680.00	\$	9,418.00	\$	9,558.76	\$	11,188.03	\$	11,364.19	\$ 52,208.97
Equipment	\$	34,700.00	\$	40,652.10	\$	44,008.92	\$	42,448.32	\$	39,568.31	\$ 201,377.65
Contractors	\$	19,900.00	\$	20,100.00	\$	20,300.00	\$	20,500.00	\$	20,700.00	\$ 101,500.00
Subtotal of Other Direct Costs:	\$	<b>140,712.16</b>	\$	<b>130,619.98</b>	\$	<b>137,460.75</b>	\$	<b>137,416.57</b>	\$	<b>136,506.49</b>	\$ <b>682,715.95</b>
<b>INDIRECT/OVERHEAD COSTS:</b>	<b>YEAR 1</b>		<b>YEAR 2</b>		<b>YEAR 3</b>		<b>YEAR 4</b>		<b>YEAR 5</b>		<b>TOTAL</b>
Subtotal of Labor and Other Direct Costs:	\$	<b>549,197.14</b>	\$	<b>528,233.71</b>	\$	<b>543,026.75</b>	\$	<b>570,904.09</b>	\$	<b>578,663.77</b>	
Total dollars exempt from indirect/overhead base:	\$	549,197.14	\$	528,233.71	\$	543,026.75	\$	570,904.09	\$	578,663.77	
<Enter Description of Indirect/OH Cost #1>	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	\$ -
Total dollars exempt from indirect/overhead base:	\$	-	\$	-	\$	-	\$	-	\$	-	
<Enter Description of Indirect/OH Cost #2>	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	\$ -
Subtotal of Indirect/Overhead Costs:	\$	-	\$	-	\$	-	\$	-	\$	-	\$ -
<b>GRAND TOTAL:</b>	\$	<b>549,197.14</b>	\$	<b>528,233.71</b>	\$	<b>543,026.75</b>	\$	<b>570,904.09</b>	\$	<b>578,663.77</b>	\$ <b>2,770,025.47</b>