

**COLORADO RIVER RECOVERY PROGRAM
FY2013 PROPOSED SCOPE OF WORK for:**

Project No.: C-6 Baeser

Detection of endangered fishes at Razorback Bar using PIT tag antennas and pumping Old Charley wetland.

Lead Agency: US Fish and Wildlife Service

Submitted by:
Aaron Webber
Colorado River Fish Project
1380 South 2350 West
Vernal, UT 84078
Phone:(435) 789-4078 ext. 21
FAX:(435) 789-4805
aaron_webber@fws.gov

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Category:

Expected Funding Source:

- | | |
|---|--|
| <input type="checkbox"/> Ongoing project | <input checked="" type="checkbox"/> Annual funds |
| <input checked="" type="checkbox"/> Ongoing-revised project | <input type="checkbox"/> Capital funds |
| <input type="checkbox"/> Requested new project | <input type="checkbox"/> Other (explain) |
| <input type="checkbox"/> Unsolicited proposal | |

- I. Title of Proposal: Detection of endangered fishes at Razorback Bar using PIT tag antennas and pumping Old Charley wetland.
- II. Relationship to RIPRAP:
Green River Action Plan: Mainstem
IV.A. Augment or restore populations as needed.
IV.A.1. Develop state stocking plan for the four endangered fishes of the Green River.
IV.A.1.c. Implement plan.
- III. Study Background/Rationale and Hypotheses:
This project initially dealt with raising razorback suckers in Baeser Bend wetland, but in recent years this project has changed its focus. Currently, this scope of work has two components: 1) using PIT tag antennas on a spawning location known as Razorback Bar to detect endangered fishes while collecting passive detection data to be used in future survival rate estimation, and 2) pumping water into the Old Charley wetland in the Ouray National Wildlife Refuge to facilitate survival of naturally spawned razorback suckers which enter the wetland in the spring with higher flows.

Flat Plate Antennas at Razorback Bar

In 2008, a flat plate antenna (27"x13") and an FS2001F-ISO reader manufactured by Biomark (information on this equipment is found at www.biomark.com) was used on the Weber River and documented 58 of 98 (59%) total PIT tagged bluehead sucker from October 2007-March 2008 (Webber et al. 2012). The flatplate antenna had a read range of approximately 12". The flat plate antenna was deployed in an area known to have a concentration of tagged fish. The equipment was easy to setup and maintain. It required only the weekly recharging and replacement of a 12V deep-cycle battery. The Recovery Program approved this proposal in 2012 to use PIT tag antennas to document endangered fishes on Razorback Bar, and using 2 PIT tag antennas, we detected 59 individual fish: 52 razorback suckers and 7 Colorado pikeminnow. We hope to use 2 PIT tag antennas again in 2013 at Razorback Bar to further document razorback suckers and Colorado pikeminnow. Now that we have explored the utility of using PIT tag antennas to detect endangered fishes, we plan to experiment with them opportunistically in different locations (e.g., Yampa Canyon, White River, other locations on the Green River) in an attempt to add passive detection data to our database.

Pump water into Old Charley wetland

The Larval Trigger Study Plan seeks to time water releases from Flaming Gorge Dam with emergence of razorback sucker larvae in the Green River. The idea is to increase flows during the same time when larval razorback suckers are drifting, with the objective of providing larvae access to wetlands. In 2012, the low water releases only connected Stewart Lake and Old Charley wetland to the river. Consequently, both wetlands entrained razorback sucker larvae. Data from project 22F (light trapping) indicate that razorback sucker larvae are not observed at lengths larger than 20mm in main channel connected habitats. In 2012 at Old Charley, we captured several razorback suckers that had survived three weeks from the time of entrainment to lengths > 20 mm. Unfortunately, the wetland dried completely in June 2012. Had we been able to pump water into Old Charley, razorback suckers might have been able to survive longer. We propose pumping water from the Green River to Old Charley wetland in 2013, with the end goal of providing entrained razorback suckers in Old Charley an environment where they will have a chance of surviving to late summer or fall. By pumping the wetland, we hope to document naturally spawned razorback suckers getting closer to completing their life cycle.

- IV. Study Goals, Objectives, End Product: Our goals are to:
 - 1) Detect tagged endangered fish at Razorback Bar
 - 2) Experiment with PIT tag antennas in other locations to try to detect endangered fishes
 - 3) Maintain Old Charley wetland with enough water to allow potentially entrained razorback suckers to survive through fall 2013.

- V. Study area: Old Charley wetland in the Ouray National Wildlife Refuge, and Razorback Bar near Jensen, Utah.

VI. Study Methods/Approach:

Flat Plate Antennas at Razorback Bar

We will deploy two 27” x 13” flat plate PIT tag antennas on Razorback Bar to detect endangered fishes. We would access the spawning bar by a road on the Dinosaur National Monument, or by boat from a downstream landowner’s boat ramp. We will obtain a research permit from the National Park Service since our equipment will be placed on their property. We would install the flat plates several weeks before flows begin to rise on the bar (probably late March or early April). We would use four ≥ 24” stakes to secure each flat plate to the river bottom. We intend to set up one flat plate at the upper end of the spawning bar and one at the lower end. Depending on flows, these flat plates will likely be 1’- 4’ underwater. There would be a 50’ cable from the flat plate which we would secure to the bottom or bury that would be connected to a PIT tag reader housed in a secured box on the bank above high water. Batteries (12V deep cycle) would be recharged and changed weekly during the razorback spawn, and we would take down the equipment after flows recede, sometime in June. Other locations we potentially will sample with the PIT tag antennas include but are not limited to: Yampa Canyon, Vermillion Creek, Escalante Bar (Green River), wetlands that connect to the Green River in 2013, and White River locations.

Pump Old Charley Wetland

Old Charley has been dry since June 2012. The wetland begins to entrain water through a control gate at just over 5,000cfs. We intend to screen the inflow gate of Old Charley to allow water in but to preclude adult fish from entering. We also plan on leaving the wetland closed off until larval razorbacks are detected and Flaming Gorge flows increased as part of the Larval Trigger Study Plan. Larval razorback suckers would be able to enter the wetland even with screens in place. We would pump water from the river to Old Charley three times for four days each during July, August, and September. We would sample for razorback suckers in the fall under existing projects 22F and/or 164.

VII. Task Description and Schedule

Task 1: Operate PIT tag antennas on Razorback Bar

Task 2: Pump water into Old Charley wetland

Task 3: Opportunistically experiment with PIT tag antennas in other locations

Task 4: Data Analysis, report writing, presentations.

Schedule: FY-2013

Task	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1				X	X	X						
2							X	X	X			
3				X			X	X	X	X		
4											X	X

VIII. FY- 2013 Proposed budget:

Task 1. Operate PIT tag antennas on Razorback Bar

Labor	Cost
GS-5 Fisheries Tech (\$17.95/hr x 24 hrs)	\$430.80
GS-8 Fisheries Tech (\$38.45 x 8 hrs)	\$307.60
GS-11 Biologist (\$45.54/hr x 16 hrs)	\$728.64
GS-12 Supervisory Fish Biologist (\$52.69/hr x 8 hrs)	\$421.52
(truck/trip x 40mi/truck x \$0.30/mi x 10 trips) Vernal to Razorback Bar round trip	\$120.00
Boat Fuel @ \$4.50/gal x 1 gal/day x 10 days	\$45.00
Subtotal	\$2,053.56

Task 2. Pump Old Charley floodplain

Operational Costs	Cost
GS-11 Biologist (\$45.54/hr x 96 hrs)	\$4,371.84
GS-8 Fisheries Tech (\$38.45/hr x 96 hrs)	\$3,361.92
Fuel @ \$4.50/gal x 50 gal/day x 12 days	\$2,700.00
Oil, filters, grease, tires, misc. parts for trailers/pump	\$500
GSA truck lease \$334/mo/2 trucks/4 mo	\$2,672.00
(truck/trip x 80mi/truck x \$0.30/mi x 24 trips) Vernal to Old Charley round trip	\$576.00
Subtotal	\$14,181.76

Task 3. Experiment with PIT tag antennas in other locations

Labor	Cost
GS-5 Fisheries Tech (\$17.95/hr x 24 hrs)	\$430.80
GS-8 Fisheries Tech (\$38.45 x 8 hrs)	\$307.60
GS-11 Biologist (\$45.54/hr x 16 hrs)	\$728.64
GS-12 Supervisory Fish Biologist (\$52.69/hr x 8 hrs)	\$421.52
(truck/trip x 40mi/truck x \$0.30/mi x 10 trips)	\$120.00
Boat Fuel @ \$4.50/gal x 1 gal/day x 10 days	\$45.00
Subtotal	\$2,053.56

Task 4. Data Analysis, report writing, presentations, administration

Labor	Cost
GS-9 Administrative Officer (\$38.54/hr x 8 hrs)	\$308.32
GS-11 Biologist (\$45.54/hr x 40 hrs)	\$1,821.60
GS-12 Supervisory Fish Biologist (\$52.69/hr x 8 hrs)	\$421.52
Subtotal	\$2,551.44

FY2013 Total = \$20,840.32

FY- 2014 Proposed budget:

Task 1. Operate PIT tag antennas on Razorback Bar

Labor	Cost
GS-5 Fisheries Tech (\$18.31/hr x 24 hrs)	\$439.44
GS-8 Fisheries Tech (\$39.22 x 8 hrs)	\$313.76
GS-11 Biologist (\$46.45/hr x 16 hrs)	\$743.20
GS-12 Supervisory Fish Biologist (\$53.74/hr x 8 hrs)	\$429.92
(truck/trip x 40mi/truck x \$0.30/mi x 10 trips) Vernal to Razorback Bar round trip	\$120.00
Boat Fuel @ \$4.50/gal x 1 gal/day x 10 days	\$45.00
Subtotal	\$2,091.32

Task 2. Pump Old Charley floodplain

Operational Costs	Cost
GS-11 Biologist (\$46.45/hr x 96 hrs)	\$4,459.20
GS-8 Fisheries Tech (\$39.22/hr x 96 hrs)	\$3,765.12
Fuel @ \$4.50/gal x 50 gal/day x 12 days	\$2,700.00
Oil, filters, grease, tires, misc. parts for trailers/pump	\$500
GSA truck lease \$334/mo/2 trucks/4 mo	\$2,672.00
(truck/trip x 80mi/truck x \$0.30/mi x 24 trips) Vernal to Old Charley round trip	\$576.00
Subtotal	\$14,672.32

Task 3. Experiment with PIT tag antennas in other locations

Labor	Cost
GS-5 Fisheries Tech (\$18.31/hr x 24 hrs)	\$439.44
GS-8 Fisheries Tech (\$39.22 x 8 hrs)	\$313.76
GS-11 Biologist (\$46.45/hr x 16 hrs)	\$743.20
GS-12 Supervisory Fish Biologist (\$53.74/hr x 8 hrs)	\$429.92
(truck/trip x 40mi/truck x \$0.30/mi x 10 trips) Vernal to Razorback Bar round trip	\$120.00
Boat Fuel @ \$4.50/gal x 1 gal/day x 10 days	\$45.00
Subtotal	\$2,091.32

Task 4. Data Analysis, report writing, presentations, administration

Labor	Cost
GS-9 Administrative Officer (\$39.31/hr x 8 hrs)	\$314.48
GS-11 Biologist (\$46.45/hr x 40 hrs)	\$1,858.00
GS-12 Supervisory Fish Biologist (\$53.74/hr x 8 hrs)	\$429.92
Subtotal	\$2,602.40

FY2014 Total = \$21,457.36

FY- 2015 Proposed budget:

Task 1. Operate PIT tag antennas on Razorback Bar

Labor	Cost
GS-5 Fisheries Tech (\$18.68/hr x 24 hrs)	\$448.32
GS-8 Fisheries Tech (\$40.00 x 8 hrs)	\$320.00

GS-11 Biologist (\$47.38/hr x 16 hrs)	\$758.08
GS-12 Supervisory Fish Biologist (\$54.82/hr x 8 hrs)	\$438.56
(truck/trip x 40mi/truck x \$0.30/mi x 10 trips) Vernal to Razorback Bar round trip	\$120.00
Boat Fuel @ \$4.50/gal x 1 gal/day x 10 days	\$45.00
Subtotal	\$2,129.96

Task 2. Pump Old Charley floodplain

Operational Costs	Cost
GS-11 Biologist (\$47.38/hr x 96 hrs)	\$4,548.48
GS-8 Fisheries Tech (\$40.00/hr x 96 hrs)	\$3,840.00
Fuel @ \$4.50/gal x 50 gal/day x 12 days	\$2,700.00
Oil, filters, grease, tires, misc. parts for trailers/pump	\$500
GSA truck lease \$334/mo/2 trucks/4 mo	\$2,672.00
(truck/trip x 80mi/truck x \$0.30/mi x 24 trips) Vernal to Old Charley round trip	\$576.00
Subtotal	\$14,836.48

Task 3. Experiment with PIT tag antennas in other locations

Labor	Cost
GS-5 Fisheries Tech (\$18.68/hr x 24 hrs)	\$448.32
GS-8 Fisheries Tech (\$40.00 x 8 hrs)	\$320.00
GS-11 Biologist (\$47.38/hr x 16 hrs)	\$758.08
GS-12 Supervisory Fish Biologist (\$54.82/hr x 8 hrs)	\$438.56
(truck/trip x 40mi/truck x \$0.30/mi x 10 trips) Vernal to Razorback Bar round trip	\$120.00
Boat Fuel @ \$4.50/gal x 1 gal/day x 10 days	\$45.00
Subtotal	\$2,129.96

Task 4. Data Analysis, report writing, presentations, administration

Labor	Cost
GS-9 Administrative Officer (\$40.10/hr x 8 hrs)	\$320.80
GS-11 Biologist (\$47.38/hr x 40 hrs)	\$1,895.20
GS-12 Supervisory Fish Biologist (\$54.82/hr x 8 hrs)	\$438.56
Subtotal	\$2,654.56

FY2015 Total = \$21,750.96

FY- 2016 Proposed budget:

Task 1. Operate PIT tag antennas on Razorback Bar

Labor	Cost
GS-5 Fisheries Tech (\$19.05/hr x 24 hrs)	\$457.20
GS-8 Fisheries Tech (\$40.80 x 8 hrs)	\$326.40
GS-11 Biologist (\$48.33/hr x 16 hrs)	\$773.28
GS-12 Supervisory Fish Biologist (\$55.92/hr x 8 hrs)	\$447.36
(truck/trip x 40mi/truck x \$0.30/mi x 10 trips) Vernal to Razorback Bar round trip	\$120.00

Boat Fuel @ \$4.50/gal x 1 gal/day x 10 days	\$45.00
Subtotal	\$2,169.24

Task 2. Pump Old Charley floodplain

Operational Costs	Cost
GS-11 Biologist (\$48.33/hr x 96 hrs)	\$4,639.68
GS-8 Fisheries Tech (\$40.80/hr x 96 hrs)	\$3,916.80
Fuel @ \$4.50/gal x 50 gal/day x 12 days	\$2,700.00
Oil, filters, grease, tires, misc. parts for trailers/pump	\$500
GSA truck lease \$334/mo/2 trucks/4 mo	\$2,672.00
(truck/trip x 80mi/truck x \$0.30/mi x 24 trips) Vernal to Old Charley round trip	\$576.00
Subtotal	\$15,004.48

Task 3. Experiment with PIT tag antennas in other locations

Labor	Cost
GS-5 Fisheries Tech (\$19.05/hr x 24 hrs)	\$457.20
GS-8 Fisheries Tech (\$40.80 x 8 hrs)	\$326.40
GS-11 Biologist (\$48.33/hr x 16 hrs)	\$773.28
GS-12 Supervisory Fish Biologist (\$55.92/hr x 8 hrs)	\$447.36
(truck/trip x 40mi/truck x \$0.30/mi x 10 trips) Vernal to Razorback Bar round trip	\$120.00
Boat Fuel @ \$4.50/gal x 1 gal/day x 10 days	\$45.00
Subtotal	\$2,169.24

Task 4. Data Analysis, report writing, presentations, administration

Labor	Cost
GS-9 Administrative Officer (\$40.90/hr x 8 hrs)	\$327.20
GS-11 Biologist (\$48.33/hr x 40 hrs)	\$1,933.20
GS-12 Supervisory Fish Biologist (\$55.92/hr x 8 hrs)	\$447.36
Subtotal	\$2,707.76

FY2016 Total = \$22,050.72

FY- 2017 Proposed budget:

Task 1. Operate PIT tag antennas on Razorback Bar

Labor	Cost
GS-5 Fisheries Tech (\$19.43/hr x 24 hrs)	\$466.32
GS-8 Fisheries Tech (\$41.62 x 8 hrs)	\$332.96
GS-11 Biologist (\$49.30/hr x 16 hrs)	\$788.80
GS-12 Supervisory Fish Biologist (\$57.04/hr x 8 hrs)	\$456.32
(truck/trip x 40mi/truck x \$0.30/mi x 10 trips) Vernal to Razorback Bar round trip	\$120.00
Boat Fuel @ \$4.50/gal x 1 gal/day x 10 days	\$45.00
Subtotal	\$2,209.40

Task 2. Pump Old Charley floodplain

Operational Costs	Cost
GS-11 Biologist (\$49.30/hr x 96 hrs)	\$4,732.80
GS-8 Fisheries Tech (\$41.62/hr x 96 hrs)	\$3,995.52
Fuel @ \$4.50/gal x 50 gal/day x 12 days	\$2,700.00
Oil, filters, grease, tires, misc. parts for trailers/pump	\$500
GSA truck lease \$334/mo/2 trucks/4 mo	\$2,672.00
(truck/trip x 80mi/truck x \$0.30/mi x 24 trips) Vernal to Old Charley round trip	\$576.00
Subtotal	\$15,176.32

Task 3. Experiment with PIT tag antennas in other locations

Labor	Cost
GS-5 Fisheries Tech (\$19.43/hr x 24 hrs)	\$466.32
GS-8 Fisheries Tech (\$41.62 x 8 hrs)	\$332.96
GS-11 Biologist (\$49.30/hr x 16 hrs)	\$788.80
GS-12 Supervisory Fish Biologist (\$57.04/hr x 8 hrs)	\$456.32
(truck/trip x 40mi/truck x \$0.30/mi x 10 trips) Vernal to Razorback Bar round trip	\$120.00
Boat Fuel @ \$4.50/gal x 1 gal/day x 10 days	\$45.00
Subtotal	\$2,209.40

Task 4. Data Analysis, report writing, presentations, administration

Labor	Cost
GS-9 Administrative Officer (\$41.72/hr x 8 hrs)	\$333.76
GS-11 Biologist (\$49.30/hr x 40 hrs)	\$1,972.00
GS-12 Supervisory Fish Biologist (\$57.04/hr x 8 hrs)	\$456.32
Subtotal	\$2,762.08

FY2017 Total = \$22,357.20

IX. Budget Summary:

FY-2013=\$20,840.32
 FY-2014=\$21,457.36
 FY-2015=\$21,750.96
 FY-2016=\$22,050.72
 FY-2017=\$22,357.20

X. Reviewers: Tildon Jones, Supervisory Fish Biologist (CRFP- Vernal)

References:

Modde, T., Z. H. Bowen, and D. C. Kitcheyan. 2005. Spatial and Temporal Use of a Spawning Site in the Middle Green River by Wild and Hatchery-Reared Razorback Suckers. Transactions of the American Fisheries Society 134:937-944.

Webber P. A., P. D. Thompson, and P. Budy. 2012. Status and structure of two populations of bluehead suckers (*Catostomus discobolus*) in the Weber River, Utah. *Southwestern Naturalist* 57(3):267-276.