

**RECOVERY PROGRAM**  
**FY 2016-2017 SCOPE OF WORK for:**  
Razorback Sucker Survey in Lake Powell

Recovery Program Project Number: New

Reclamation Agreement number:  
Reclamation Agreement term:

Lead agencies: U.S. Fish and Wildlife Service – Colorado River Fishery Project  
Utah Division of Wildlife Resources – Moab Field Station

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Category:

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

Expected Funding Source:

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

I. Title of Proposal: **Razorback Sucker Survey in Lake Powell**

II. Relationship to RIPRAP:

GENERAL RECOVERY PROGRAM SUPPORT ACTION PLAN

- V. Monitor populations and habitat and conduct research to support recovery actions (research, monitoring, and data management).
- V.A. Measure and document population and habitat parameters to determine status and biological response to recovery actions.
- V.B.2. Conduct appropriate studies to provide needed life history information.

COLORADO RIVER ACTION PLAN: MAINSTEM

- V. Monitor populations and habitat and conduct research to support recovery actions (research, monitoring, and data management).
- V.A. Conduct research to acquire life history information and enhance scientific techniques required to complete recovery actions

III. Study Background/Rationale and Hypotheses:

Since 1994, the San Juan River Basin Recovery Implementation (SJRBRIP) has been stocking razorback sucker into numerous riverine locations, from Bluff, UT to as far upstream as Bloomfield, NM. The SJRBRIP has long known that an unknown percentage of these fish were moving downstream, over a waterfall (located at RM 0.0), and into Lake Powell. In 2011 and 2012, the SJRBRIP surveyed the San Juan River arm of Lake Powell to determine if: 1) Were razorback sucker that had been stocked in the San Juan River into the river and then moved into Lake Powell surviving?; 2) What were the numbers and distribution of these fish within the lake?; 3) Were these fish successfully spawning and/or recruiting, possibly in conjunction with any remaining wild razorback sucker that might inhabit Lake Powell?

Over two years about 147 individual razorback sucker were collected in the San Juan River arm of Lake Powell (75 in 2011 and 72 in 2012; Francis et al. 2012, 2015), as far downstream as the end of Critical Habitat, which ends at Neskahai Canyon. It is the opinion of the USFWS Region 2, that those razorback sucker occupying Lake Powell within Critical Habitat are part of the San Juan River population of this species and will count towards Recovery if/when recruitment of wild-produced fish is documented.

A large percentage of untagged razorback sucker were collected in the San Juan River arm of Lake Powell. Scales and fin clips were taken from these untagged individuals and the ages of several of these fish didn't correlate with any known group of stocked fish, indicating that these may have been wild-spawned and recruited fish. Further testing is being done to

determine if this is the case. Several suspected aggregations of spawning adult fish were located over these two years and a single wild-spawned razorback sucker larvae was collected in the San Juan River arm of the lake in 2011, indicating at least a low level of successful spawning by this species in the lake.

For most of the study period in both years, the lower San Juan River and the lake were separated by a large waterfall that can reach up to 30 feet in height. For a 2-3 week window in summer 2011, the lake level rose enough to inundate the waterfall. In that short time, an unknown number of razorback sucker made their way upstream out of the lake and back into the San Juan River. One traveled as far as 144 upstream from their last capture location in Lake Powell. A database search of razorback sucker PIT tag numbers also documented three razorback sucker that had originally been stocked into the San Juan River, moved into and through Lake Powell and then moved upstream into the Colorado River. The longest movement among these fish was 477 river miles. If this information is examined in the context of the genetic viability criteria in the 2002 Razorback Sucker Recovery Goals (USFWS 2002), this means that effectively the Upper Basin and San Juan River populations are one large meta-population.

In 2014 (and again in 2015), this same type of study was performed on the Colorado River arm of Lake Powell. In 2014, over 200 individual razorback sucker were collected from the Colorado River arm of the lake from Trachyte Canyon, downstream to the Castle Butte/Good Hope Bat area (Francis et al. In Prep.). Remote sonic tag readers were deployed throughout the lake to document movement of razorback sucker that had been implanted with sonic tags, in an attempt to locate spawning areas and document movement throughout the lake and from lake to rivers. Again, several aggregations of spawning adult fish were documented. Larval light traps collected 811 larval razorback sucker at three distinct locations, near Trachyte Canyon and Castle Butte/Good Hope Bay (Brandenburg 2015). Field efforts from March through mid-May 2015 have already collected another 150 individual razorback sucker in the Colorado River arm of Lake Powell. Data from the remote sonic tag readers, as well as data from sportfish surveys being conducted by UDWR-Wahweap farther downstream both indicate that there are aggregations of razorback farther downstream in Lake Powell (W. Gustaveson, pers. comm., T. Francis unpublished data, Francis et al. 2015).

A separate study effort utilizing as remote PIT tag antenna immediately below the waterfall in the San Juan River arm of Lake Powell documented over 370 individual PIT-tagged fish using this area. When these PIT tags were researched, it was determined that at least three of these fish had come from stockings in the Green River and one from a stocking in the Colorado River (N. Cathcart, C. Cheeks, M. McKinstry, and T. Francis unpublished data). So, it appears that razorback sucker from both the Upper Colorado and San Juan basins are navigating the lake and it may be acting as more of a highway than a barrier to this species.

While other endangered (Colorado pikeminnow and bonytail) and native species (flannelmouth sucker) have been collected in our Lake Powell samples, their number have not been anywhere near as high as the numbers of razorback sucker collected in the lake. The fact that these fish are apparently abundant, reproducing, and possibly recruiting in Lake Powell indicates that at least for this one endangered species Lake Powell may play an important part, by harboring

large numbers of fish and providing an avenue through which separate riverine populations can communicate. While it seems extremely unlikely that Lake Powell is an answer in and of itself to razorback sucker recovery efforts, it does increasingly seem like it may play a vital and not yet fully understood role in that process.

The plan developed back in 2012 to survey Lake Powell for razorback sucker was originally to do two years of sampling in the San Juan River arm of the lake (this was done from 2011-2012), do two years of sampling in the Colorado River arm (this was done in 2014 and 2015), and then either move back to the San Juan arm of the lake or farther downstream, to get a more holistic understanding of the razorback sucker population's use of the lake as a whole. If funding can be obtained for FY-2016, the survey team, along with representatives from the Bureau of Reclamation will make the decision as to where and when to survey Lake Powell, based on our latest information and understanding of the resident razorback sucker population.

#### IV. Study Goals, Objectives, End Product(s):

Since Lake Powell is such a vast body of water and our knowledge of the razorback sucker population within the lake is still very preliminary, the following general objectives have been defined as part of the Lake Powell razorback sucker survey:

- 1) To document the abundance and distribution of the Lake Powell razorback sucker population.
- 2) To obtain (if possible) population estimates for this species in localized areas of the lake.
- 3) To document movement of razorback sucker within the lake and from the lake to various upper basin rivers.
- 4) To document spawning aggregations of razorback sucker within Lake Powell.
- 5) To identify (if possible) recruitment of wild-produced razorback sucker within Lake Powell.

#### V. Study Area:

Lake Powell in Utah, including both the Colorado River and San Juan River arms of the lake, as well as areas further downlake

#### VI. Study Methods/Approach:

Sampling techniques employed so far have included releasing "Judas" fish approximately a month prior to the beginning of field studies. These hatchery-produced Judas fish are implanted with sonic tags to help lead researchers to suspected aggregations of razorback sucker. Once a suitable sampling area is located, crews use trammel nets, electrofishing, larval light traps and other sampling techniques (such as fyke nets) to collect razorback sucker. Once collected, razorback sucker are measured, weighed, and their somatic condition is noted. Fish without PIT tags have fin clips collected and are implanted with a 134 kHz PIT tag prior to being released back into the lake. In the first few sampling trips, additional razorback sucker that have been collected from the lake may also be implanted with sonic tags, at the researcher's discretion. Sampling crews usually identify and sample from 2-4 good habitat

reaches over the course of a given field season. This makes effectively sampling areas much easier. In conjunction with sampling, sonic-tagged fish are actively tracked via boat. Data is also downloaded from remote sonic tag readers to identify fish movement that may not have been apparent using just active tracking. If aggregations of spawning adult fish are located, light traps are deployed to collect larval razorback sucker.

## VII. Task Description and Schedule:

- Task 1. Implant hatchery-reared fish with sonic tags. Release the “Judas” fish approximately one month prior to the beginning of active field sampling.
- Task 2. Locate suitable sampling sites either by locating Judas fish via sonic telemetry, or in lieu of (or in addition to) that, using researcher’s search image to identify habitat similar to that where razorback sucker have been previously located in other portions of the lake
- Task 3. Actively sample for adult and juvenile razorback sucker using trammel nets, electrofishing, and other techniques
- Task 4. If/when aggregations of spawning adult razorback sucker are identified, deploy light traps to collect larval razorback sucker. Send larval fish samples off to American Southwest Ichthyological Researchers (ASIR) for identification.
- Task 5. Actively track razorback sucker that have sonic tags. At the same time download data from remote sonic tag readers.
- Task 6. Compile and summarize fish use data; prepare annual report. The inclusion of data on larval fish collected prohibits a comprehensive report on all field activities from being prepared in the same calendar year. Annual reports will be revised once larval samples have been identified.

### Schedule

- Task 1. February-March
- Task 2. April-June
- Task 3. April-June
- Task 4. April-June
- Task 5. April-June
- Task 6. July-March of the following year. An annual report would be submitted to the UCREFRP in November and revised upon completion of larval sample identification. However, the final report would be generated for and submitted to the main funding agency, which is the Bureau of Reclamation in Salt Lake City, UT.

## VIII. Yearly Budgets

**NOTE:** The FY-2016 budget total of \$260,481 is split among the two agencies as follows, \$151,859 (58.3%) to USFWS-CRFP and \$108,622 (41.7% to UDWR-Moab. It is anticipated that if the Upper Colorado River Endangered Fish Recovery Program (UCREFRP) were to provide partial funding for this study, that the equivalent percentage of whatever funding amount is allotted would go to those two agencies in the same proportions. In other words, if the UCREFRP were to provide \$75,000 in funding for this

study in FY-2016, then \$43,725 would go to USFWS-CRFP and \$31,275 would go to UDWR-Moab. If the UCREFRP decides to fund this project for \$75,000 in FY-16, they would be paying for approximately 28% of the overall budget.

## **Fiscal Year 2016 Budget**

(Based on projected FY-2016 costs)

### **Personnel/Labor Costs (Projected Federal Salary + Benefits)**

Acquiring, Tagging, & Stocking Razorback Sucker	
Principal Biologist (GS-11) – 48hrs @ \$49.36/hour	\$ 2,369.00
Principal Biologist (GS-11) – 48hrs @ \$49.36/hour (2 person X 3 days transport of fish) (2 person X 3 days of implanting sonic tags)	\$ 2,369.00
Field Sampling: Logistics	
Principal Biologist (GS-11) – 48hrs @ \$49.36/hour (1 person X 6 days rigging/planning/organization)	\$ 2,369.00
Principal Biologist (GS-11) – 96hrs @ 49.36/hour (1 person X 12 days rigging/planning/organization)	\$ 4,739.00
Biological Technicians (GS-5) – 240hrs @ \$24.96/hour (2 people X 15 days rigging/organization/clean-up)	\$ 5,990.00
Field Sampling: Trammel-Netting, Electrofishing, Sonic Telemetry, Remote SUR Unit Deployment, Retrieval & Data Downloading/Processing	
Principal Biologist (GS-11) – 192hrs @ \$49.36/hour	\$ 9,477.00
Principal Biologist (GS-11) – 192hrs @ \$49.36/hour	\$ 9,477.00
Crew Leader (GS-7) – 192hrs @ \$33.70/hour	\$ 6,470.00
Overtime (1 ½ times GS-7) – 72hrs @ \$50.55/hour (approx. 3 hrs/day X 1 person X 24 days)	\$ 3,640.00
Biological Technicians (GS-5) – 1,248hrs @ \$24.96/hour (2 people 78 days each)	\$ 31,150.00
Overtime (1 ½ times GS-5) – 468hrs @ \$37.44/hour (3 hrs/day X 2 people X 78 days)	\$ 17,522.00
	<b>Sub Total</b>
	\$ 95,572.00

### **Permitting; Coordination; Data Input, Analysis, & Management; Report Writing; Office & Administrative Support (Projected Federal Salary + Benefits)**

Project Leader (GS-14) – 72hrs @ \$83.42/hour	\$ 6,006.00
Principal Biologist (GS-11) – 402hrs @ \$49.36/hour	\$ 19,843.00
Administrative Officer (GS-9) – 120hrs @ \$44.72/hour	\$ 5,366.00

**Sub Total** \$ 31,215.00

**Travel and Per Diem (Based on Published FY-2015 Federal Per Diem Rates)**

Hotel Costs

6 nights @ \$83/night (in Vernal, UT) \$ 498.00

Per Diem (Hotel Rate)

6 days X 2 people X \$46/day \$ 552.00

Per Diem (Camping Rate)

70 days X 4 people X \$28/day \$ 7,840.00

**Sub Total** \$ 8,890.00

**Equipment and Supplies**

Vehicle Maintenance & Gasoline (@ \$365/month lease = \$12.17 per day based on 30 days in an “average” month + \$0.33/mile)

Acquiring & Stocking Fish

Implanting sonic tags: \$ 179.00

470 miles round trip from Grand Junction, CO to Ouray National Fish Hatchery X 1 trip = \$155  
2 days/trip X 1 vehicle X 1 trip = \$24

Stocking tagged fish in Lake Powell: \$ 491.00

670 miles round trip from Grand Junction, CO to ONFH to Bullfrog Marina X 2 trucks 1 trip = \$442  
2 days/trip X 2 vehicles X 1 trip = \$49

Trammel Netting, Electrofishing, Sonic Telemetry

Field Work: \$ 1,811.00

450 miles round trip from Grand Junction, CO to Bullfrog Marina X 2 trips X 2 vehicles/trip = \$594  
1 trip = 5 days X 2 vehicles/trip = \$122  
1 trip = 45 days X 2 vehicles/trip = \$1,095

Re-Supply Trips: \$ 1,928.00

450 miles round trip from Grand Junction, CO to Bullfrog Marina, UT to trade out crew members and do resupply X 2 vehicles/trip X 6 trips = \$1,782  
1 day/trip X 2 vehicle/trip X 6 trips = \$146

Boat Gas

Trammel Netting & Sonic Telemetry

Field Work: <\$ 5,000.00>

1,000 gallons for 2 boats used for 75 days X \$5.00/gallon

***NOTE – Gas at Bullfrog Marina at Lake Powell averages ~ \$5.00/gallon. As of FY-2015 the gas for this portion of the SOW is being paid for by the Bureau of Reclamation using their credit card at Bullfrog Marina. Therefore these costs are no longer being incurred by our office.***

Trammel Nets (10 nets @ \$400 per net + \$35 shipping/net)

From H. Christiansen Net Co. (Duluth, MN) \$ 4,350.00

Equipment Maintenance, Repair, & Replacement \$ 3,000.00

Exact use of the money in this line item will vary from year

to year depending on what equipment needs to be maintained, repaired, or replaced, but use of these funds for a “typical” field season for one study would include the following:

Duraframe electrofishing dip nets - 3 at \$300 each = \$900

Stearns 4185ORG-03-000 orange life jackets - 4 @

\$210 each = \$840

Hourly service rate for outboard engine repair – 20 hours at  
\$100/hr = \$2,000

Parts for outboard engine repair – shifter cables, fuel filters,  
water pumps, wiring, etc. = \$750

Hourly service rate for aluminum welding repair – 10 hours at  
\$100/hr = \$1,000

Stainless steel outboard engine props – 2 at \$150 each = \$300

Spark plugs for generators/outboard engines – 8 at \$7 each = \$56

Synthetic oil for generators/outboard engines - 20 quarts at \$7  
each = \$70

Generator repair/tune-up - 5 hrs @ \$75/hr = \$375

Hip boots – 2 pair at \$50/pair = \$100

Breathable chest waders - 2 pair @ \$125/pair = \$250

Electrical Gloves - 3 pairs @ \$65/pair = \$195

Boat trailer maintenance

Signal light pigtail adapters – 2 @ \$30 each = \$60

Annual trailer safety inspections/updates/repairs – 4  
Trailers at \$150 each = \$600

Replace any missing NRS HD-brand tie-down straps,  
each boat needs:

Ten 2-ft straps @ \$4.20 each = \$42

Five 3-ft straps @ \$4.30 each = \$21.50

Ten 4-ft straps @ \$4.70 each = \$47

Five 6-ft straps @ \$5.05 each = \$25.25

Five 9-ft straps @ \$5.7 each = \$28.50

Five 12-ft straps @ \$6.15 each = \$30.75

Replace any missing D-style carabiners, each boat needs:  
10 @ \$7.50 each = \$75

Yeti 125-quart coolers – 1 @ \$500 each = \$500

5-gallon plastic gasoline jerry cans – 5 @ \$20 each = \$100

River bags

NRS 3.8 heavy-duty Bill's Bag – 1 @ \$100 each = \$100

Clavey (green 7 X 17) dry bag – 3 @ \$22 each = \$66

Clavey (blue 10 X 24) dry bag) – 4 @ \$26 each = \$104

20 lb. propane tanks – 3 @ \$20 each = \$60

Pesola brand spring scales

# 20010 Micro-Line 10 gram – 1 @ \$50 = \$50

# 20060 Micro-Line 60 gram – 1 \$46 = \$46

# 20100 Micro-Line 100 gram – 1 @ \$46 = \$46

# 40300 Medio-Line 300 gram – 1 @ \$54 = \$54

# 40600 Medio-Line 600 gram – 1 @ \$54 = \$54

# 42500 Medio-Line 2,500 gram – 2 @ \$56 = \$112

# 41002 Medio-Line 1,000 gram – 3 @ \$54 = \$108

# 80005 Macro-Line 5 kg – 1 @ \$107 = \$107

# 80010 Macro-Line 10 kg – 1 @ \$109 = \$109

Other potential uses for these same funds could include replacing hand  
tools (ratchet and sockets, screw drivers, vise grips, pliers, Allen  
wrenches, crescent wrenches, hammer, etc.), WD-40, bailing wire,  
duct tape, electrical supplies (12 and 14 gage wire for the electrofishing  
boat, junction boxes, extra male & female plugs, wire nuts, fuses,

Ohm meter, electrical tape), batteries (C, AA and AAA), camp stoves, lanterns, lantern mantles, Gott 5-gallon water jugs, shovels, 5-gallon buckets, cargo nets, fix chips or cracks in vehicle windshields, bulbs, lenses, and wiring to fix trailer lights, new electrofishing spheres, wire rope for replacing electrofishing "witches brooms," 2-man dome tents, NRS Canyon Box for dry storage, camping kitchen gear (roll-up camp tables, anodized dutch ovens, plates, bowls, cups, silverware), data books, Rite-In-The-Rain data sheets, pencils, repair/replace river maps, etc.

**Sub Total**           \$ 11,759.00

<b>USFWS-CRFP (Grand Junction, CO) Total</b>	\$147,436.00
<b>USFWS Region 6 Administrative Overhead (3%)</b>	<u>\$ 4,423.00</u>
<b>USFWS Region 6 Total</b>	<b>\$151,859.00</b>

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**Attachment A. – Out-year budgets for Razorback Sucker Survey in the San Juan  
and Colorado River Arms of Lake Powell: 2017-2020**

**THESE BUDGETS ARE ESTIMATES ONLY AND MAY  
NOT REPRESENT ACTUAL COSTS**

# **Fiscal Year 2017 Estimated Budget**

(Salaries based on projected FY-2017 amounts. Costs for travel, per diem, equipment and supplies are based on a 5% increase over the previous year's budget)

## **Personnel/Labor Costs (Projected Federal Salary + Benefits)**

Acquiring, Tagging, & Stocking Razorback Sucker	
Principal Biologist (GS-11) – 48hrs @ \$50.84/hour	\$ 2,440.00
Principal Biologist (GS-11) – 48hrs @ \$50.84/hour (2 person X 3 days transport of fish) (2 person X 3 days of implanting sonic tags)	\$ 2,440.00
Field Sampling: Logistics	
Principal Biologist (GS-11) – 48hrs @ \$50.84/hour (1 person X 6 days rigging/planning/organization)	\$ 2,440.00
Principal Biologist (GS-11) – 96hrs @ 50.84/hour (1 person X 12 days rigging/planning/organization)	\$ 4,881.00
Biological Technicians (GS-5) – 240hrs @ \$25.70/hour (2 people X 15 days rigging/organization/clean-up)	\$ 6,168.00
Field Sampling: Trammel-Netting, Electrofishing, Sonic Telemetry, Remote SUR Unit Deployment, Retrieval & Data Downloading/Processing	
Principal Biologist (GS-11) – 192hrs @ \$50.84/hour	\$ 9,761.00
Principal Biologist (GS-11) – 192hrs @ \$50.84/hour	\$ 9,761.00
Crew Leader (GS-7) – 192hrs @ \$34.71/hour	\$ 6,664.00
Overtime (1 ½ times GS-7) – 72hrs @ \$52.07/hour (approx. 3 hrs/day X 1 person X 24 days)	\$ 3,749.00
Biological Technicians (GS-5) – 1,248hrs @ \$25.70/hour (2 people 78 days each)	\$ 32,074.00
Overtime (1 ½ times GS-5) – 468hrs @ \$38.55/hour (approx. 3 hrs/day X 2 people X 78 days)	\$ 18,041.00
<b>Sub Total</b>	<u>\$ 98,419.00</u>

## **Permitting; Coordination; Data Input, Analysis, & Management; Report Writing; Office & Administrative Support (Projected Federal Salary + Benefits)**

Project Leader (GS-14) – 72hrs @ \$85.92/hour	\$ 6,186.00
Principal Biologist (GS-11) – 402hrs @ \$50.84/hour	\$ 20,438.00
Administrative Officer (GS-9) – 120hrs @ \$46.06/hour	<u>\$ 5,527.00</u>
<b>Sub Total</b>	\$ 32,151.00

## **Travel and Per Diem (Based on Published FY-2015 Federal Per Diem Rates)**

\*\*\* see FY-2016 budget for line item breakdowns

<b>FY-2016 Budget Cost</b>	<u>\$ 8,890.00</u>
<b>Sub Total with 5% added for inflation</b>	\$ 9,335.00

## **Equipment and Supplies**

\*\*\* see FY-2016 budget for line item breakdowns

<b>FY-2016 Budget Cost</b>	<u>\$ 11,759.00</u>
<b>Sub Total with 5% added for inflation</b>	\$ 12,347.00

<b>USFWS-CRFP (Grand Junction, CO) Total</b>	\$152,252.00
<b>USFWS Region 6 Administrative Overhead (3%)</b>	<u>\$ 4,568.00</u>

**USFWS Region 6 Total**

\$156,820.00

**FY 2017 Costs for UDWR- Moab****Task 1. Field Sampling**Labor: salary + benefits + applicable overtime (personnel services)

	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Leader	\$34.72	160	\$5,555
Biologist	\$31.68	500	\$15,841
Technician	\$17.27	1200	\$20,728
		<b>subtotal</b>	<b>\$42,124</b>

Food and Transport (current expense)

	<b>Rate</b>	<b>Quantity</b>	<b>Cost</b>
Fleet Costs (2 trucks for 20% of total fleet costs)	\$42,024.00	0.200	\$8,405
Food (3 people, 6 days, 12 trips)	\$30.90	216	\$6,674
Out-of-state per diem	\$48.41	3	\$145
Hotel- Durango	\$97.85	2	\$196
		<b>subtotal</b>	<b>\$15,420</b>

Equipment (current expense)

	<b>Rate</b>	<b>Quantity</b>	<b>Cost</b>
Camping gear repair/replacement:			\$5,150
Sampling gear repair/replacement:			\$12,360
Boating gear repair/replacement:			\$10,300
Fuel for motors/generators	\$4.12	1000	\$4,120
		<b>subtotal</b>	<b>\$31,930</b>

**Task 1 subtotal** **\$89,474****Task 2. Data Entry, Analysis and Reporting**Labor: salary + benefits + applicable overtime (personnel services)

	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Leader	\$34.72	80	\$2,778
Biologist	\$31.68	280	\$8,871
Technician	\$17.27	80	\$1,382
		<b>subtotal</b>	<b>\$13,030</b>

**Task 2 subtotal** **\$13,030****Total Expenses** **\$102,504****Administrative Overhead (17% on all personnel services)** **\$9,376****Grand Total FY 2017** **\$111,881**

## Fiscal Year 2018 Estimated Budget

(Salaries based on projected FY-2018 amounts. Costs for travel, per diem, equipment and supplies are based on a 5% increase over the previous year's budget)

### **Personnel/Labor Costs (Projected Federal Salary + Benefits)**

<b>Acquiring, Tagging, &amp; Stocking Razorback Sucker</b>	
Principal Biologist (GS-11) – 48hrs @ \$52.37/hour	\$ 2,514.00
Principal Biologist (GS-11) – 48hrs @ \$52.37/hour (2 person X 3 days transport of fish) (2 person X 3 days of implanting sonic tags)	\$ 2,514.00
<b>Field Sampling: Logistics</b>	
Principal Biologist (GS-11) – 48hrs @ \$52.37/hour (1 person X 6 days rigging/planning/organization)	\$ 2,514.00
Principal Biologist (GS-11) – 96hrs @ 52.37/hour (1 person X 12 days rigging/planning/organization)	\$ 5,028.00
Biological Technicians (GS-5) – 240hrs @ \$26.48/hour (2 people X 15 days rigging/organization/clean-up)	\$ 6,355.00
<b>Field Sampling: Trammel-Netting, Electrofishing, Sonic Telemetry, Remote SUR Unit Deployment, Retrieval &amp; Data Downloading/Processing</b>	
Principal Biologist (GS-11) – 192hrs @ \$52.37/hour	\$ 10,055.00
Principal Biologist (GS-11) – 192hrs @ \$52.37/hour	\$ 10,055.00
Crew Leader (GS-7) – 192hrs @ \$35.75/hour	\$ 6,864.00
Overtime (1 ½ times GS-7) – 72hrs @ \$53.63/hour (approx. 3 hrs/day X 1 person X 24 days)	\$ 3,861.00
Biological Technicians (GS-5) – 1,248hrs @ \$26.48/hour (2 people 78 days each)	\$ 33,047.00
Overtime (1 ½ times GS-5) – 468hrs @ \$39.72/hour (approx. 3 hrs/day X 2 people X 78 days)	\$ 18,589.00
<b>Sub Total</b>	<b>\$101,396.00</b>

### **Permitting; Coordination; Data Input, Analysis, & Management; Report Writing; Office & Administrative Support (Projected Federal Salary + Benefits)**

Project Leader (GS-14) – 72hrs @ \$88.50/hour	\$ 6,372.00
Principal Biologist (GS-11) – 402hrs @ \$52.37/hour	\$ 21,053.00
Administrative Officer (GS-9) – 120hrs @ \$47.44/hour	\$ 5,693.00
<b>Sub Total</b>	<b>\$ 33,118.00</b>

### **Travel and Per Diem (Based on Published FY-2015 Federal Per Diem Rates)**

\*\*\* see FY-2016 budget for line item breakdowns

<b>FY-2017 Budget Cost</b>	<u>\$ 9,335.00</u>
<b>Sub Total with 5% added for inflation</b>	<b>\$ 9,802.00</b>

### **Equipment and Supplies**

\*\*\* see FY-2016 budget for line item breakdowns

<b>FY-2017 Budget Cost</b>	<u>\$ 12,347.00</u>
<b>Sub Total with 5% added for inflation</b>	<b>\$ 12,964.00</b>

**USFWS-CRFP (Grand Junction, CO) Total** **\$157,280.00**

USFWS Region 6 Administrative Overhead (3%)	\$ 4,718.00
USFWS Region 6 Total	\$161,998.00

<b>FY 2018 Costs for UDWR- Moab</b>
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**Task 1. Field Sampling**

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Labor: salary + benefits + applicable overtime (personnel services)

	Rate	Hours	Cost
Project Leader	\$35.76	160	\$5,722
Biologist	\$32.63	500	\$16,316
Technician	\$17.79	1200	\$21,350
		<b>subtotal</b>	<b>\$43,388</b>

Food and Transport (current expense)

	Rate	Quantity	Cost
Fleet Costs (2 trucks for 20% of total fleet costs)	\$43,284.72	0.200	\$8,657
Food (3 people, 6 days, 12 trips)	\$31.83	216	\$6,875
Out-of-state per diem	\$49.86	3	\$150
Hotel- Durango	\$100.79	2	\$202
		<b>subtotal</b>	<b>\$15,883</b>

Equipment (current expense)

	Rate	Quantity	Cost
Camping gear repair/replacement:			\$5,305
Sampling gear repair/replacement:			\$12,731
Boating gear repair/replacement:			\$10,609
Fuel for motors/generators	\$4.24	1000	\$4,244
		<b>subtotal</b>	<b>\$32,888</b>

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**Task 1 subtotal** **\$92,158**

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**Task 2. Data Entry, Analysis and Reporting**

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Labor: salary + benefits + applicable overtime (personnel services)

	Rate	Hours	Cost
Project Leader	\$35.76	80	\$2,861
Biologist	\$32.63	280	\$9,137
Technician	\$17.79	80	\$1,423
		<b>subtotal</b>	<b>\$13,421</b>

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**Task 2 subtotal** **\$13,421**

**Total Expenses** **\$105,580**

**Administrative Overhead (17% on all personnel services)** **\$7,376**

<b>Grand Total FY 2018</b>	<b>\$112,955</b>
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## Fiscal Year 2019 Estimated Budget

(Salaries based on projected FY-2019 amounts. Costs for travel, per diem, equipment and supplies are based on a 5% increase over the previous year's budget)

### **Personnel/Labor Costs (Projected Federal Salary + Benefits)**

<b>Acquiring, Tagging, &amp; Stocking Razorback Sucker</b>	
Principal Biologist (GS-11) – 48hrs @ \$53.94/hour	\$ 2,589.00
Principal Biologist (GS-11) – 48hrs @ \$53.94/hour (2 person X 3 days transport of fish) (2 person X 3 days of implanting sonic tags)	\$ 2,589.00
<b>Field Sampling: Logistics</b>	
Principal Biologist (GS-11) – 48hrs @ \$53.94/hour (1 person X 6 days rigging/planning/organization)	\$ 2,589.00
Principal Biologist (GS-11) – 96hrs @ 53.94/hour (1 person X 12 days rigging/planning/organization)	\$ 5,178.00
Biological Technicians (GS-5) – 240hrs @ \$27.27/hour (2 people X 15 days rigging/organization/clean-up)	\$ 6,545.00
<b>Field Sampling: Trammel-Netting, Electrofishing, Sonic Telemetry, Remote SUR Unit Deployment, Retrieval &amp; Data Downloading/Processing</b>	
Principal Biologist (GS-11) – 192hrs @ \$53.94/hour	\$ 10,356.00
Principal Biologist (GS-11) – 192hrs @ \$53.94/hour	\$ 10,356.00
Crew Leader (GS-7) – 192hrs @ \$36.82/hour	\$ 7,069.00
Overtime (1 ½ times GS-7) – 72hrs @ \$55.24/hour (approx. 3 hrs/day X 1 person X 24 days)	\$ 3,977.00
Biological Technicians (GS-5) – 1,248hrs @ \$27.27/hour (2 people 78 days each)	\$ 34,033.00
Overtime (1 ½ times GS-5) – 468hrs @ \$40.91/hour (approx. 3 hrs/day X 2 people X 78 days)	\$ 19,146.00
<b>Sub Total</b>	<b>\$104,427.00</b>

### **Permitting; Coordination; Data Input, Analysis, & Management; Report Writing; Office & Administrative Support (Projected Federal Salary + Benefits)**

Project Leader (GS-14) – 72hrs @ \$91.16/hour	\$ 6,564.00
Principal Biologist (GS-11) – 402hrs @ \$53.94/hour	\$ 21,684.00
Administrative Officer (GS-9) – 120hrs @ \$48.86/hour	\$ 5,863.00
<b>Sub Total</b>	<b>\$ 34,111.00</b>

### **Travel and Per Diem (Based on Published FY-2015 Federal Per Diem Rates)**

\*\*\* see FY-2016 budget for line item breakdowns

<b>FY-2018 Budget Cost</b>	<b>\$ 9,802.00</b>
<b>Sub Total with 5% added for inflation</b>	<b>\$ 10,292.00</b>

### **Equipment and Supplies**

\*\*\* see FY-2016 budget for line item breakdowns

<b>FY-2018 Budget Cost</b>	<b>\$ 12,964.00</b>
<b>Sub Total with 5% added for inflation</b>	<b>\$ 13,612.00</b>

<b>USFWS-CRFP (Grand Junction, CO) Total</b>	\$162,442.00
<b>USFWS Region 6 Administrative Overhead (3%)</b>	<u>\$ 4,873.00</u>
<b>USFWS Region 6 Total</b>	<b>\$167,315.00</b>

<b>FY 2019 Costs for UDWR- Moab</b>
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**Task 1. Field Sampling**

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Labor: salary + benefits + applicable overtime (personnel services)

	Rate	Hours	Cost
Project Leader	\$36.83	160	\$5,893
Biologist	\$33.61	500	\$16,806
Technician	\$18.33	1200	<u>\$21,990</u>
		<b>subtotal</b>	<b>\$44,689</b>

Food and Transport (current expense)

	Rate	Quantity	Cost
Fleet Costs (2 trucks for 20% of total fleet costs)	\$44,583.26	0.2	\$8,917
Food (3 people, 6 days, 12 trips)	\$32.78	216	\$7,081
Out-of-state per diem	\$51.36	3	\$154
Hotel- Durango	\$103.81	2	<u>\$208</u>
		<b>subtotal</b>	<b>\$16,359</b>

Equipment (current expense)

	Rate	Quantity	Cost
Camping gear repair/replacement:			\$5,464
Sampling gear repair/replacement:			\$13,113
Boating gear repair/replacement:			\$10,927
Fuel for motors/generators	\$4.37	1000	<u>\$4,371</u>
		<b>subtotal</b>	<b>\$33,875</b>

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**Task 1 subtotal** **\$94,923**

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**Task 2. Data Entry, Analysis and Reporting**

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Labor: salary + benefits + applicable overtime (personnel services)

	Rate	Hours	Cost
Project Leader	\$36.83	80	\$2,947
Biologist	\$33.61	280	\$9,411
Technician	\$18.33	80	<u>\$1,466</u>
		<b>subtotal</b>	<b>\$13,824</b>

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**Task 2 subtotal** **\$13,824**

**Total Expenses** **\$108,747**  
**Administrative Overhead (17% on all personnel services)** **\$7,597**

<b>Grand Total FY 2019</b>	<b>\$116,344</b>
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## Fiscal Year 2020 Estimated Budget

(Salaries based on projected FY-2020 amounts. Costs for travel, per diem, equipment and supplies are based on a 5% increase over the previous year's budget)

### **Personnel/Labor Costs (Projected Federal Salary + Benefits)**

#### Acquiring, Tagging, & Stocking Razorback Sucker

Principal Biologist (GS-11) – 48hrs @ \$55.56/hour \$ 2,667.00

Principal Biologist (GS-11) – 48hrs @ \$55.56/hour \$ 2,667.00

(2 person X 3 days transport of fish)

(2 person X 3 days of implanting sonic tags)

#### Field Sampling: Logistics

Principal Biologist (GS-11) – 48hrs @ \$55.56/hour \$ 2,667.00

(1 person X 6 days rigging/planning/organization)

Principal Biologist (GS-11) – 96hrs @ 55.56/hour \$ 5,334.00

(1 person X 12 days rigging/planning/organization)

Biological Technicians (GS-5) – 240hrs @ \$28.09/hour \$ 6,742.00

(2 people X 15 days rigging/organization/clean-up)

#### Field Sampling: Trammel-Netting, Electrofishing, Sonic Telemetry, Remote

##### SUR Unit Deployment, Retrieval & Data Downloading/Processing

Principal Biologist (GS-11) – 192hrs @ \$55.56/hour \$ 10,668.00

Principal Biologist (GS-11) – 192hrs @ \$55.56/hour \$ 10,668.00

Crew Leader (GS-7) – 192hrs @ \$37.92/hour \$ 7,281.00

Overtime (1 ½ times GS-7) – 72hrs @ \$56.88/hour \$ 4,095.00

(approx. 3 hrs/day X 1 person X 24 days)

Biological Technicians (GS-5) – 1,248hrs @ \$28.09/hour \$ 35,056.00

(2 people 78 days each)

Overtime (1 ½ times GS-5) – 468hrs @ \$42.14/hour \$ 19,722.00

(approx. 3 hrs/day X 2 people X 78 days)

**Sub Total** \$107,567.00

### **Permitting; Coordination; Data Input, Analysis, & Management; Report Writing; Office & Administrative Support (Projected Federal Salary + Benefits)**

Project Leader (GS-14) – 72hrs @ \$93.89/hour \$ 6,760.00

Principal Biologist (GS-11) – 402hrs @ \$55.56/hour \$ 22,335.00

Administrative Officer (GS-9) – 120hrs @ \$50.33/hour \$ 6,040.00

**Sub Total** \$ 35,135.00

### **Travel and Per Diem (Based on Published FY-2015 Federal Per Diem Rates)**

\*\*\* see FY-2016 budget for line item breakdowns

**FY-2019 Budget Cost** \$ 10,292.00

**Sub Total with 5% added for inflation** \$ 10,807.00

### **Equipment and Supplies**

\*\*\* see FY-2016 budget for line item breakdowns

**FY-2019 Budget Cost** \$ 13,612.00

**Sub Total with 5% added for inflation** \$ 14,293.00

<b>USFWS-CRFP (Grand Junction, CO) Total</b>	\$167,802.00
<b>USFWS Region 6 Administrative Overhead (3%)</b>	<u>\$ 5,034.00</u>
<b>USFWS Region 6 Total</b>	\$172,836.00

IX. Budget Summary:

FY-2016 Scope-Of-Work Budget Totals:	
USFWS-CRFP =	\$151,859
UDWR-Moab =	<u>\$108,622</u>
FY-2016 SOW Total =	\$260,481
FY-2017 Scope-Of-Work Budget Totals:	
USFWS-CRFP =	\$156,820
UDWR-Moab =	<u>\$111,881</u>
FY-2017 SOW Total =	\$268,701
FY-2018 Scope-Of-Work Budget Totals:	
USFWS-CRFP =	\$161,998
UDWR-Moab =	<u>\$112,955</u>
FY-2018 SOW Total =	\$274,953
FY-2019 Scope-Of-Work Budget Totals:	
USFWS-CRFP =	\$167,315
UDWR-Moab =	<u>\$116,344</u>
FY-2019 SOW Total =	\$283,659
FY-2020 Scope-Of-Work Budget Totals:	
USFWS-CRFP =	\$172,836
UDWR-Moab =	<u>\$119,834</u>
FY-2020 SOW Total =	\$283,659

X.Reviewers:

USFWS-CRFP, UDWR-Moab, and Recovery Program staff.