

## **Channel Catfish Management on the San Juan River 2019**

**Prepared by**

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## Overview

The establishment of nonnative fishes including Channel Catfish (*Ictalurus punctatus*) and Common Carp (*Cyprinus carpio*) has been identified as a detriment to the recovery of Colorado Pikeminnow (*Ptychocheilus lucius*) and Razorback Sucker (*Xyrauchen texanus*) (USFWS 2002a, b). Reducing the impacts of nonnative fishes has specifically been identified as a management element in the San Juan River Basin Recovery Implementation Program's Long Range Plan (SJRBRIP 2015). However, the level of threat that Channel Catfish pose on endangered fishes remains unknown. In the absence of rigorous evaluation, Channel Catfish are thought to pose a threat to native fishes in multiple forms such as: predation, competition for resources, and as a choking hazard to the piscivorous Colorado Pikeminnow. In an effort to quantify the threat nonnative fish pose to recovery, a study assessing the predatory effect of Channel Catfish on endangered fish was initiated in 2018. This study was designed to be conducted over a two-year period, 2018-2019.

The San Juan River's nonnative fish control program was modified in 2016 to facilitate quantification of the effects of nonnative removal on native and nonnative fishes. This modification was designed to assess yearly effects of nonnative fish removal on Channel Catfish and the two endangered fishes, Razorback Sucker and Colorado Pikeminnow. While analyses of this modification showed significant temporal trends in catch per unit effort (CPUE) of Channel Catfish and a significant temporal trend in the size structure of Channel Catfish, the modification did not reveal a significant positive response of endangered fishes to nonnative removal and it did not significantly alter the CPUE of Channel Catfish in removal reaches compared to control reaches. Effects of this modified management action have been difficult to quantify and to understand. Many environmental factors could have contributed to the variation observed among removal passes and between years such as flow, turbidity, and other environmental variations that are difficult to tease apart.

On November 30, 2017, the San Juan River Basin Recovery Implementation Program (SJRBRIP) convened a nonnative fish workshop to discuss results from the modified management during 2016-2017 and to plot a course for future nonnative fish management efforts on the San Juan River. Several options were presented and ultimately agreement among the Biology Committee for one option was realized. It was determined that work in 2018 and 2019 would support efforts, as identified in Kansas State University's (KSU) SOW 18-26 *Incidence and consumption of endangered fishes by Channel Catfish (Ictalurus punctatus) in the San Juan River*, to quantify the predatory effects Channel Catfish have on the two endangered fishes in the San Juan River. Additionally, it was determined that mark-recapture would be initiated for Channel Catfish to generate more precise population estimates, detection probabilities, and annual survival rates. Data from both stomach content analysis (i.e., percent predation)

and abundance/survival estimates (number of predatory fish), when used in concert, will aid the SJRBRIP in the development of a future nonnative fish management program commensurate with the level of threat.

## **Objectives**

- 1.) Collect stomach contents, in support of SOW18-26, to quantify predation on endangered fishes by Channel Catfish.
- 2.) Calculate abundance estimates, capture probabilities, and survival estimates for Channel Catfish.
- 3.) Support SJRBRIP projects to estimate age-1 Colorado Pikeminnow abundance and ongoing calcein marking study of Colorado Pikeminnow.

## **Methods**

### *Study Area*

Sampling will take place from Hogback Diversion, New Mexico (River Mile 158.7) to Mexican Hat, Utah (River Mile 52). The New Mexico Fish and Wildlife Conservation Office (NMFWCO) will be responsible for sampling from Hogback Diversion, NM to Montezuma Creek, UT (River Mile 93.6) and Utah Division of Wildlife Resources (UDWR) will sample from Montezuma Creek to Mexican Hat, UT (River Mile 52). Four sampling trips will be conducted post spring runoff (July and August) when predation by Channel Catfish is presumably higher. Tentative sampling dates for 2019 are listed below:

July 15-23  
 July 29-August 6  
 August 12-21  
 August 26-September 3

### *Tagging Protocol, Stomach Contents and Data Analysis*

The time of day that fish collections will occur will depend on the results from the daily ration experiments being conducted independently by KSU and results of 2018 sampling. Sampling will only occur from dawn until noon to maximize the probability of Channel Catfish stomachs containing prey items unless otherwise determined by 2018 results that sampling can occur later in the day. Due to limitations on sampling period it is anticipated that approximately seven river miles can be sampled per day resulting in each trip lasting seven to eight days.

Channel Catfish  $\geq 200$  mm total length (TL) captured during the first three trips will be fitted with an individual numerical T-bar anchor tag, implanted with a passive integrated transponder (PIT) tag and released back to the river. Double tagging of fish will minimize issues of under estimating capture probabilities or over estimating abundance due to tag loss between sampling periods. Tag data, length (mm) and mass (grams) will be recorded from recaptured Channel Catfish on trips two through four. Any newly captured, untagged Channel Catfish, during trips two and three will be double tagged under the aforementioned tagging protocol. During the fourth trip of the year all Channel Catfish will be removed from the river. All Channel Catfish  $< 200$  mm TL captured during any trip will be removed from the river.

All Channel Catfish  $\geq 300$  mm TL will have stomach contents removed using a nonlethal pulsed gastric lavage procedure. Stomach contents will be preserved per KSU protocol and will be provided to KSU for lab analysis. Channel Catfish with stomach contents too large to be removed through pulsed gastric lavage will be sacrificed and stomachs will be removed and preserved. Professional judgement and expertise will be used in determining when this will be necessary. Untagged Channel Catfish captured during the final pass of the year will have stomachs removed and preserved.

Closely timed multi-pass electrofishing surveys will enable the calculation of annual population estimates and capture-recapture probabilities using closed population models in program MARK. Additionally, two years of data and multiple electrofishing passes will allow for the use of a robust-design model in program MARK to estimate survival in addition to abundance and detection probabilities. Investigating the use of sight data (i.e., remote antennae data) in conjunction with recapture data may help to further refine these estimates (Francis et al. 2016). Finally multiple mark and recapture passes will contribute to quantifying Channel Catfish movement in the San Juan River.

### *Rare Fishes Captures*

During sampling, only certain size classes of Colorado Pikeminnow and Razorback Sucker will be captured. Only Razorback Sucker  $< 300$  mm TL will be collected. Tag number, length, and mass will be recorded and a fish lacking a detectable tag will be implanted with a PIT tag. Age-1 and age-2 Colorado Pikeminnow,  $\sim 130$ - $250$  mm TL, will be collected and implanted with PIT tags.

### **Deliverables**

Data will be entered, analyzed, and presented to the SJRIP Biology Committee at a workshop following the field season. A draft report will be submitted to the Program Office by 31 March 2020 and a final report will be completed by 1 June 2020. All data will be submitted to the Program Office by 31 December 2019.

**Literature Cited**

- Francis, T.A., K.R. Bestgen, and G.C. White. 2016. Population status of Humpback Chub, *Gila cypha*, and catch indices and population structure of sympatric Roundtail Chub, *Gila robusta*, in Black Rocks, Colorado River, Colorado, 1998-2012. Larval Fish Laboratory Contribution 1999. Final Report from the U.S. Fish and Wildlife Service to the Upper Colorado River Endangered fish Recovery Program, Project Number 131. Grand Junction, Colorado.
- San Juan River Basin Recovery Implementation Program. 2015. Long-range plan. San Juan River Basin Recovery Implementation Program, U.S. Fish and Wildlife Service, Albuquerque, New Mexico.
- U.S. Fish and Wildlife Service. 2002a. Colorado pikeminnow (*Ptychocheilus lucius*) Recovery Goals: amendment and supplement to the Colorado Squawfish Recovery Plan. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.
- U.S. Fish and Wildlife Service. 2002b. Razorback sucker *Xyrauchen texanus* Recovery Goals: amendment and supplement to the Razorback Sucker Recovery Plan. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.

**Outyear Budgets:****FY 19            \$325,600.6****\*\*Funding included for Channel Catfish management across all Agencies and Agreement Numbers**

<b>Hogback to Montezuma Creek (4 passes)</b>	
USFWS – NMFWCO	\$113,177.03
USFWS – GJFWCO	\$ 50,350.41
ASIR – Albuquerque	\$ 25,812.00
<b>Sub-Total for Upper Section</b>	<b>\$189,339.44</b>
<b>Montezuma Creek to Mexican Hat (4 passes)</b>	
UDWR – Moab	\$ 96,918.00
USFWS- GJFWCO	\$ 17,198.09
NMDGF	\$ 10,474.00
NNDFW	\$ 11,398.09
<b>Sub-Total for Lower Section</b>	<b>\$136,261.2</b>

## APPENDIX 1

# PARTICIPATING AGENCIES BUDGETS FOR FY 19 CHANNEL CATFISH MANAGEMENT ON THE SAN JUAN RIVER 2019 FROM HOGBACK, NM TO MONTEZUMA CREEK, UT

<b>FY 2019</b>								
<b>Channel Catfish Diet Study Proposal</b>								
<b>Labor Cost - Field Work (4 trips x 10 days/trip)</b>								
<b>Position</b>	<b>Grade/Step</b>	<b>Hourly Rate</b>	<b>Fringe</b>	<b>Salary w/benefits</b>	<b>Hours/Day</b>	<b>Total Days</b>	<b>Sub-Total</b>	
Fish Biologist	GS 9/7	\$29.19	26.41%	\$36.90	9	32	\$10,626.93	
Fish Biologist	GS 9/7	\$29.19	25.54%	\$36.65	9	32	\$10,553.80	
Fish Biologist	GS 7/3	\$21.21	19.20%	\$25.28	9	32	\$7,281.31	
Fish Biologist	GS 11/6	\$34.34	25.54%	\$43.11	9	20	\$7,759.88	
Supervisory Fish Biologist	GS 13/7	\$50.34	28.28%	\$64.58	9	20	\$11,623.71	
Remote Biologist	GS 9/1	\$24.24	20.00%	\$29.09	9	32	\$8,377.34	
<b>Overtime Hours (weekend work)</b>								
Fish Biologist	GS 9/7	\$43.04	26.41%	\$54.41	9	8	\$3,917.29	
Fish Biologist	GS 9/7	\$43.04	32.62%	\$57.08	9	8	\$4,109.73	
Fish Biologist	GS 7/3	\$31.82	19.20%	\$37.93	9	8	\$2,730.92	
Remote Biologist	GS 9/1	\$36.50	20.00%	\$43.80	9	8	\$3,153.60	
<b>Administrative, Reporting, Planning</b>								
Fish Biologist	GS 9/7	\$29.19	26.41%	\$36.90	9	45	\$14,944.13	
Supervisory Fish Biologist	GS 13/7	\$50.34	28.28%	\$64.58	9	5	\$2,905.93	
Administrative Officer	GS 9/9	\$30.81	26.12%	\$38.86	9	2	\$699.44	
						<b>Total Labor</b>	<b>\$88,684.01</b>	
<b>Travel and Per Diem</b>								
	<b>Days</b>	<b>Rate</b>						
Hotel Costs	20	\$91.00					\$1,820.00	
Per Diem (Travel Day)	20	\$38.25					\$765.00	
Per Diem (Full Day)	140	\$29.00					\$4,060.00	
						<b>Total Travel/Per Diem</b>	<b>\$6,645.00</b>	
<b>Equipment</b>								
	<b>Miles/Qty</b>	<b>Total Miles</b>	<b>Rate</b>					
Shuttle Costs	16	\$200.00					\$3,200.00	
4 trucks x 4 trips								
Vehicle Fuel								
3 trucks X 4 Trips - ABQ to								
Montezuma Creek, UT 366mi RT	545	6,540	\$0.54					\$3,531.60
Generator Fuel								
30 gallons x 4 trips	120	\$2.50					\$300.00	
Maintenance, repair, replace								
(i.e. life jackets, waders, generator repair, dip nets, etc.)								
Tagging Equipment								
6,000 Floy t-bar anchor tags	6,000	\$0.74					\$4,440.00	
10 replacement needles	10	\$8.00					\$80.00	
						<b>Equipment Total</b>	<b>\$14,551.60</b>	
						<b>Sub-total for Augmentation - NMFWCO</b>	<b>\$109,880.61</b>	
						<b>USFWS Administrative Overhead (3%)</b>	<b>\$3,296.42</b>	
						<b>Total for Augmentation - NMFWCO</b>	<b>\$113,177.03</b>	

**Under the heading "Funding for participation of other agencies." Cost for participation of U.S. Fish and Wildlife Service Grand Junction Fish and Wildlife Conservation Office in FY-2019 Channel Catfish management, Hogback to Montezuma Creek**

## **Fiscal Year 2019 Estimated Budget:**

**Costs for participation of the U.S. Fish Wildlife Service, Grand Junction Fish and Wildlife Conservation Office, Grand Junction, CO.**

(Based on projected FY-2019 costs)

**Note:** The FY-19 cost has been adjusted for the GS-5 Bio Tech line items to reflect new guidance from Office of Personnel Management (OPM) to the USFWS requiring the USFWS to provide health insurance to all federal employees, regardless of grade level or appointment type, if they work for the federal government longer than 60 days (480 total hours).

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

Principal Biologist (GS-11) – 296 hours @ \$53.84/hr (1 person X 7 days/trip X 4 camping trips) (+ 26 extra hours/trip X 4 trips)	\$ 17,659.52
Bio. Tech. Crew Leader (GS-7) – 296 hours @ \$36.91/hr (1 person X 7 days/trip X 4 camping trips) (+ 26 hours overtime/per trip X 4 trips = 104 total hours of overtime at \$54.94/hr = \$5,063.76)	\$ 12,334.80
<b>Sub Total</b>	<b>\$ 29,994.32</b>

### **Administrative Support (Federal Salary + Benefits)**

Administrative Officer (GS-9) – 60 hours @ \$42.98/hr	\$ 2,578.80
Project Leader (GS-14) – 60 hours @ \$82.57/hr	<u>\$ 4,954.20</u>
<b>Sub Total</b>	<b>\$ 7,533.00</b>

### **Travel and Per Diem (Based on Published FY-2016 Federal Per Diem Rates)**

Hotel – 1 night in Cortez, CO @ 2 people/trip X 4 trips (8 nights @ \$115/night – single occupancy)	\$ 920.00
Per Diem (Hotel Rate) – 1 day in Cortez, CO X 2 people per trip X 4 trips (8 days @ \$59/day)	\$ 472.00
Per Diem (Camp Rate) – 7 days X 2 people/trip X 4 trips (56 days @ \$36/day)	<u>\$ 2,016.00</u>
<b>Sub Total</b>	<b>\$ 3,408.00</b>

### **Equipment**

Vehicle Maintenance & Gasoline (@ \$365/month lease = \$12.17 per day based on 30 days in an "average" month + \$0.43/mile) 4 trips from Grand Junction, CO to Cortez, CO to Shiprock, NM to Montezuma Creek, UT (park trucks at Bluff, UT) and back to Grand Junction, CO X 2 truck X 7 days per trip (600 miles/trip X 4 trips X 2 truck = 4,800 miles X \$0.43/mile) = \$2,046.24 (2 truck X 7days/trip X 4 trips = 28 days X \$12.35/day) = \$691.74	\$ 2,948.58
Generator Gas 1 boat per trip with 3 gals per day at \$2.51/gal (1 boat/trip X 4 X trip X 3 gals/day X 7 days X \$2.51/gal)	

Equipment Maintenance, Repair, & Replacement \$5,000.00

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:

Annual trailer maintenance & safety inspection = \$175

Replace/repair trailer suspension, trailer lights,  
winch handle/straps/gears, trailer jack stand  
wheel bearings

Replace trailer tires – 2 per year @ \$100 each = \$200

Synthetic oil for generators - 5 quarts at \$7 each = \$35

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

Stearns Type III life jackets – 3 @ \$70 each = \$210

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

Repair raft frame

Aluminum welding – 3 hours @ \$150/hr = \$450

Raft repair kits

Raft glue (urethane/hypalon) – Four 4-oz. cans  
@ \$22.50/can = \$90

NRS raft patch material – 5 feet @ \$37/ft = \$185

Acetone – 1 gallons @ \$17.50/gallon = \$17.50

Toluene – 1 gallon @ \$17.50/gallon = \$17.50

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

Mesh rig bag – 1 @ \$50 each = \$50

Rafting oars, oar blades, and oar rowing sleeves

Carlisle 10-foot oar shafts – 2 @ \$90 each = \$180

Carlisle Oars blades – 4 @ \$65 each = \$260

Oar sleeves – 4 @ \$12 each = \$48

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 (spark plugs, 12 and 14 gage wire for the boats, junction boxes, extra male & female plugs, wire nuts, fuses, Ohm meter, electrical tape), batteries (C, AA and AAA), camp stoves, lanterns, lantern mantles, small “pony” propane bottles for lanterns, 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 and pigtails, new electrofishing spheres, wire rope for replacing electrofishing “witches brooms,” Yeti 125-quart coolers, Dura-Frame electrofishing dip nets, 2-man dome tents, NRS Canyon Box for dry storage, Rite-In-The-Rain data sheets, data books, pencils, repair/replace river maps, etc.

<b>Sub Total</b>	\$ 7,948.58
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<b>USFWS-CRFP (Grand Junction) Total</b>	\$ 48,883.90
<b>USFWS Region 6 Regional Office Administrative Overhead (3.00%)</b>	<u>\$ 1,466.52</u>
<b>USFWS Region 6 Total</b>	<u>\$ 50,350.41</u>

**Under the heading "Funding for participation of other agencies." Cost for participation of American Southwest Ichthyological Researchers, LLC – Albuquerque, NM in FY-2019 nonnative removal activities**

**2019 BUDGET: SAN JUAN RIVER NON-NATIVE FISH REMOVAL**  
 Based on four 10-day sampling trips per year: Shiprock to Mexican Hat

**Personnel**

Field Data Collection

*Shiprock to Mexican Hat - RM 148.0 - 53.3*

Fisheries Biologist I (320 hrs)

(1 staff x 4 trips x 10 days x 8 hrs/day at \$ 58.90/hr): ..... \$ 18,848

Tasks: Fish sampling

Project Oversight

Senior Fisheries Biologist (32 hrs)

(1 staff x 4 days x 8 hrs/day at \$ 99.67/hr): ..... \$ 3,189

Tasks: Project coordination and management.

GSA Industrial Funding Fee (0.75%) included in above rates ..... \$ 0

**Personnel: ..... Total \$ 22,037**

**Materials and Supplies**

Rafts and associated sampling gear supplied by USFWS

Personal camping gear (*In kind contribution*)

**Materials and Supplies: ..... Total \$ 0**

**Travel and Per Diem**

Travel

Travel - (1 vehicle x 4 trips x 625 miles x \$ 0.545/mile): ..... \$ 1,363

Per Diem

Per Diem - 1 hotel day per trip x 4 trips x 1 staff (\$ 93/night GSA lodging rate): ..... \$ 372

Per Diem - 10 field days per trip x 4 trips x 1 staff (\$ 51/day GSA M&IE rate): ..... \$ 2,040

**Travel and Per Diem: ..... Total \$ 3,775**

**2019 Project Totals**

**Personnel: ..... Total \$ 22,037**

**Materials and Supplies: ..... Total \$ 0**

**Travel and Per Diem: ..... Total \$ 3,775**

**2019 Scope of Work: ..... GRAND TOTAL \$ 25,812**

## APPENDIX 2

# PARTICIPATING AGENCIES BUDGETS FOR FY 19 CHANNEL CATFISH MANAGEMENT ON THE SAN JUAN RIVER 2019 FROM MONTEZUMA CREEK TO MEXICAN HAT, UT

<b>FY 2019 Costs for UDWR- Moab (includes 2.2% increase from FY19 SOW on all line items)</b>
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<b>San Juan River KSU Diet Study (4 passes, Montezuma Creek to Mexican Hat)</b>
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Labor: salary + benefits + applicable overtime (personnel services)

	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Leader	\$35.84	120	\$4,301
Biologist	\$33.03	860	\$28,403
Technician	\$17.33	1760	\$30,506
		<b>subtotal</b>	<b>\$63,210</b>

Food and Transport (current expense)

	<b>Rate</b>	<b>Quantity</b>	<b>Cost</b>
Fleet Costs <sup>a</sup> (3 trucks for 15% of total fleet costs)	\$42,924.00	0.15	\$6,439
Food (8 people, 7 days, 4 passes)	\$30.66	224	\$6,868
Shuttle (4 trucks, 4 passes)	\$107.31	16	\$1,717
Out-of-state per diem (Biologist and Project Leader)	\$47.01	8	\$376
Hotel- Durango (Biologist and Project Leader)	\$97.09	6	\$583
		<b>subtotal</b>	<b>\$15,982</b>

Equipment (current expense)

	<b>Rate</b>	<b>Quantity</b>	<b>Cost</b>
Camping gear repair/replacement <sup>b</sup> :			\$1,022
Sampling gear repair/replacement <sup>c</sup> :			\$4,088
Boating gear repair/replacement <sup>d</sup> :			\$1,022
Fuel for generators (20 gallons/pass)	\$4.09	120	\$491
		<b>subtotal</b>	<b>\$6,623</b>

Other

	<b>Rate</b>	<b>Quantity</b>	<b>Cost</b>
Swiftwater Rescue Training	\$357.70	1	\$358
		<b>subtotal</b>	<b>\$358</b>

<b>Total Expenses</b>	<b>\$86,172</b>
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<b>Administrative Overhead (17% on all personnel services)</b>	<b>\$10,746</b>
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<b>UDWR-Moab Total</b>	<b>\$96,918</b>
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<sup>a</sup> The State of Utah motorpool vehicles cost approximately \$6,800/year/vehicle (includes fleet rental, mileage, and gas), which is based on the average annual cost for all trucks used in our program.

<sup>b</sup> Includes, but is not limited to, tents, sleeping pads, toilet system, cookware, stoves, propane, charcoal, satellite phone and service, drybags, coolers, first aid supplies.

<sup>c</sup> Includes, but is not limited to dip nets, tags, tagging equipment, electrofishing wiring, anodes, cathodes, generator repair, data loggers, etc...

<sup>d</sup> Includes, but is not limited to, raft repair/replacement, oars, oar hardware, raft frame repair, dry boxes, straps, etc...

<sup>b,c,d</sup> Estimated costs are based on actual costs from previous years plus an estimated 3% (unless otherwise noted) cost of living increase each year following.

**Under the heading "Funding for participation of other agencies." Cost for participation of New Mexico Department of Game and Fish, Santa Fe, NM in FY-2019 Channel Catfish Management Montezuma Creek to Mexican Hat**

**Sampling**

**Personnel**

*Tasks* - Assist Utah Department of Wildlife Resources with Endangered Fish Monitoring and Nonnative Fish Control from Montezuma Creek, UT to Mexican Hat, UT; 1 project biologist for 2 trips at 7 days per trip (14 total days), field days projected at 10 hours of work per day = 112 regular hours and 28 overtime hours (140 hours total).

Project Biologist (1)

112 hrs regular @ \$37.95/hr (\$27.39/hr (base salary) + \$10.56 (benefits))	\$ 4,250
28 hrs overtime @ \$56.93/hr (\$37.13/hr * 1.5 (time-and-a-half))	\$ 1,594

<b>Sub-total</b>	<b>\$ 5,844</b>
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**Per Diem**

14 days @ 115/day (standard NM out-of-state rate)	\$ 1,610
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<b>Sub-total</b>	<b>\$ 1,610</b>
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**Vehicles**

Round-trip Bluff, UT – 700 miles @ \$0.55/mile x 2 trips	\$ 770
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<b>Sub-total</b>	<b>\$ 770</b>
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**FY 2019 Total**

NMDGF - Santa Fe	\$ 8,224
IDC (27.35%)	\$ 2,249

<b>Total</b>	<b>\$ 10,474</b>
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**Under the heading “Funding for participation of other agencies.” Cost for participation of U.S. Fish and Wildlife Service Grand Junction Fish and Wildlife Conservation Office in FY-2019 Channel Catfish management – Montezuma Creek to Mexican Hat, UT**

## **Fiscal Year 2019 Estimated Budget:**

**Costs for participation of the U.S. Fish Wildlife Service, Grand Junction Fish and Wildlife Conservation Office (USFWS-GJFWCO, Grand Junction, CO.**

(Based on projected FY-2019 costs)

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

Principal Biologist (GS-11) – 82 hours @ \$53.84/hr (1 person X 7 days/trip X 1 trips) (+ 26 extra hours/trip X 1 trips)	\$ 4,414.88
Crew Leader (GS-7) - 82 hours @ \$35.91/hr (1 people X 7 days/trip X 1 trips) (+ 26 hours overtime at \$48.69/hr = \$1,265.94)	\$ 3,083.70
Crew Leader (GS-6) - 164 hours @ \$27.74/hr (1 people X 7 days/trip X 2 trips) (+ 26 hours overtime at \$41.62/hr = \$2,164.24)	\$ 5,271.12
<b>Sub Total</b>	<b>\$ 12,769.70</b>

### **Administrative Support (Federal Salary + Benefits)**

Administrative Officer (GS-9) – 23 hours @ \$42.98/hr	\$ 988.54
Project Leader (GS-14) -- 15 hours @ \$82.57/hr	<u>\$ 1,238.55</u>
<b>Sub Total</b>	<b>\$ 2,227.09</b>

### **Equipment**

Vehicle Maintenance & Gasoline (GSA lease @ \$365 = \$12.17 per day based on 30 days in an “average” month + \$0.43/mile) 2 trips from Grand Junction to Montezuma Creek to Mexicat Hat to Grand Junction in Utah X 1 truck X 5 days per trip (camping) (500 miles round trip X 2 trips) = \$430 (1 truck X 7 days/trip X 2 trips X \$12.17/day) = \$170.38	\$ 600.38
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Equipment Maintenance, Repair, & Replacement \$ 1,100.00

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 probable uses for this incurred cost include the following:

Annual trailer maintenance & safety inspection = \$175

Replace/repair trailer suspension, trailer lights,  
winch handle/straps/gears, trailer jack stand,  
wheel bearings

Replace trailer tires – 2 per year @ \$100 each = \$200

Spark plugs for generators - 5 @ \$7.50 each = \$37.50

Synthetic oil for generators - 5 quarts at \$7.50 each = \$37.50

Generator repair/tune-up - 3 hrs @ \$75/hr = \$225

Hip boots – 3 pair at \$50/pair = \$150

Breathable chest waders - 4 pair @ \$125/pair = \$500  
 Dura-Frame electrofishing dip nets – 3 @ \$300 each = \$900  
 Stearns Type II life jackets – 3 @ \$70 each = \$210  
 Electrical Gloves - 3 pairs @ \$65/pair = \$195  
 Repair raft frame  
     Aluminum welding – 3 hours @ \$150/hr = \$450  
 Restock raft repair kits  
     Raft glue (urethane/hypalon) – Two 4-oz. cans  
     @ \$22.50/can = \$55  
 NRS raft patch material – 5 feet @ \$37/ft = \$185  
 Acetone – 1 gallon @ \$17/gallon = \$17  
 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

**Sub Total**      \$ 1,700.38

<b>USFWS-CRFP (Grand Junction, CO) Total</b>	\$ 16,697.17
<b>USFWS Region 6 Administrative Overhead (3.00%)</b>	\$ <u>500.92</u>
<b>USFWS Region 6 Total</b>	<b>\$ 17,198.09</b>

**Fiscal Year - 2019 NNDFW NonNative Removal Activities Montezuma Creek, UT - Mexian Hat, UT)**

**Personnel/Labor Costs (salary + benefits)**

Fish Biologist - 10 days @ (\$177.91/day)	\$1,779.10
(1 person x 5 days x 2 trips)	
Biological Technician - 10 days @ \$97.44/day	\$974.40
(1 person x 5 days x 2 trips)	
Sub - total	\$2,753.50
Fringe Benefits x 48.7%	\$1,340.95
<b>Total Personnel/Labor</b>	<b>\$4,094.45</b>

**Travel (Vehicle shuttling)**

Vehicle Lease/Maintenance & Fuel	
\$16.10/day x 12 days = \$193.20 + (2 x 80 miles) x .294/mile = \$240.20	\$240.20
(160 miles round trip from Fruitland, NM to Montezuma Creek, UT x 6 trips)	
Per Diem Meals 10 days x \$ 53.55/ day	\$535.50
<b>Total Travel</b>	<b>\$775.70</b>

**Equipment**

Equipment Maintenance, Repair, & Replacement	\$315.00
Electrical Miscellaneous	\$315.00
PFD - Astral Ronny (\$100 ea) x 2	\$210.00
Hip boots (\$150 ea) x 2	\$315.00
Waders (\$150 ea) x 2	\$315.00
Wading Boots - Simms (\$ 150.0 ea) x 2	\$315.00
Muck Boots (\$100 ea) x 2	\$210.00
Raft repair/equipment (pump, oar locks, oars, etc.)	\$525.00
Camp Equipment (Emergency Kit, compass, storm matches, etc.)	\$229.15
Tent (\$150 ea) x 2	\$315.00
Poco Pad (\$250 ea) x 2	\$525.00
Dry Bags (\$150 ea) x 2 and (\$130ea) x 2	\$588.00
Rain gear (\$100 ea) x 2	\$210.00
Miscellaneous	\$210.00
<b>Total Equipment</b>	<b>\$4,597.15</b>

<b>Navajo Nation Fish &amp; Wildlife Total</b>	<b>\$9,467.30</b>
<b>Navajo Fish &amp; Wildlife Administration Overhead (17.18%)</b>	<b>\$1,388.02</b>
<b>Navajo Nation Total</b>	<b>\$10,855.33</b>
<b>Navajo Nation Total with 5% increase for inflation</b>	<b>\$11,398.09</b>

