

**RECOVERY PROGRAM
FY 2016-2017 SCOPE OF WORK for:**

Recovery Program Project Number: 126(a)

Removal of Non-native Fish in the Upper Colorado River between Grand Valley Water User's Dam [Government Highline Diversion Dam] near Palisade, Colorado, and Potash, Utah

Reclamation Agreement number: R13PG40018
Reclamation Agreement term: June 3, 2013 – Sept. 30, 2017

Note: Recovery Program FY16-17 scopes of work are drafted in May 2015. They often are revised before final Program approval and may subsequently be revised again in response to changing Program needs. Program participants also recognize the need and allow for some flexibility in scopes of work to accommodate new information (especially in nonnative fish management projects) and changing hydrological conditions.

Lead agency: Fish and Wildlife Service
Colorado River Fishery Project – Grand Junction (CRFP-GJ)

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<u>Category:</u>	<u>Expected Funding Source:</u>
<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: **Removal of Non-native Fish in the Upper Colorado River between Grand Valley Water User's Dam [Government Highline Diversion Dam] near Palisade, Colorado, and Potash, Utah.**
- II. Relationship to RIPRAP: Colorado River Action Plan: Mainstem
 - III. Reduce negative impacts of nonnative fishes and sportfish management activities.
 - III.A. Develop and implement control programs in reaches of the Colorado River occupied by endangered fishes.
- III. Study Background/Rationale and Hypotheses:

General

Significant anthropogenic changes to the physical riverine habitat have undoubtedly played an important role in the decline and endangered status of Colorado pikeminnow, humpback chub, bonytail, and razorback sucker, but changes in the biological environment may also have been

equally significant. Physical changes in the riverine habitat have been accompanied by the introduction, establishment, and proliferation of nonnative fishes, and concomitant declines in native fishes in the Upper Colorado River basin. The role of nonnative fishes is often identified, in association with habitat changes, as a major obstacle to conservation of native fish communities.

At least 67 nonnative fishes have been introduced actively or passively into the Colorado River system during the last 100 years (Minckley 1982; Tyus et al. 1982; Carlson and Muth 1989; Minckley and Deacon 1991; Maddux et al. 1993). By 1980, more than 50 nonnative fishes had been actively introduced into rivers and reservoirs of the Colorado River basin (Minckley 1982; Tyus et al. 1982; Carlson and Muth 1989). Native big river fishes have disappeared from about three-fourths of their original habitat while introduced fishes have become more widespread and abundant. Former studies have also documented a decline in the abundance of native fish species as nonnative species increased in abundance (Joseph et al. 1977; Behnke 1980; Osmundson and Kaeding 1989; Quarterone 1993; Francis and Ryden 2014(b)).

Many of the nonnative fishes introduced into the Colorado River basin are suspected of adversely affecting the native main stem fishes in some fashion. Warm water game fish are thought to have the greatest adverse effect on endangered native fishes. Centrarchids (e. g., largemouth bass, green sunfish, bluegill, black crappie, and smallmouth bass), ictalurids (e. g., channel catfish and black bullhead), esocids (northern pike), and percids (walleye) are frequently listed as contributors to the decline of native fishes. An increasing body of evidence characterizes the negative interactions of nonnative fishes with the endangered big river fishes (Hawkins and Nesler 1991; Minckley et al. 1991; Maddux et al. 1993; Lentsch et al. 1996; Francis and Ryden 2014(b)). Some of this evidence is indirect, including inferences from field data or results from laboratory studies of predation by nonnatives on natives. Laboratory studies have documented agonistic behavior, resource sharing, and vulnerability to predation (Papoulias and Minckley 1990; Karp and Tyus 1990; Ruppert et al. 1993; Johnson et al. 1993). Direct evidence of predation includes native fishes obtained from stomach contents of nonnative fishes and by visual observation of predation. Other means by which nonnative fishes may adversely affect native fishes are by competition for food, which limits the success of razorback sucker (Papoulias and Minckley 1990). The extent of predation pressure by some nonnative fishes on populations of native fishes is not exactly known. Tyus and Saunders (1996) went on to conclude that smallmouth bass along with channel catfish and northern pike were the main threat to juvenile Colorado pikeminnow and razorback sucker. During the 1990s the Yampa River experienced a dramatic increase in northern pike and then smallmouth bass in critical habitat. Predation by these two piscivorous species wreaked havoc on the native fish community. Anderson (2004; 2005) documented significant declines of native fish densities in parts of the Yampa River between 1998 and 2004 coincident with an increase in smallmouth bass abundance. Bioenergetics modeling by Johnson et al. (2008) indicated that smallmouth bass fish consumption was similar to northern pike and about 65 times greater than channel catfish, but if more prey fish were available, piscivory by smallmouth bass could be 10 fold the piscivory by northern pike and channel catfish. They concluded that smallmouth bass presented the greatest predatory threat to native fishes of the Yampa River. Francis and Ryden reported a decline in Colorado pikeminnow abundance in the lower Colorado River (2010-2014), while walleye populations were increasing; and they documented two juvenile Colorado pikeminnow in two walleye stomachs.

Smallmouth Bass

Until 2003, smallmouth bass were only reported as incidental, rare captures in the Upper Colorado River from Price Stubb Dam (river mile 188.3) to the Colorado/Green River confluence. However, Fish and Wildlife sampling crews involved with the channel catfish removal evaluation recorded and documented the capture of 318 smallmouth bass in main

channel riverine habitats in a 39-mile reach of the Upper Colorado River from the Gunnison/Colorado River confluence to the Utah/Colorado stateline (Burdick 2003(a)). Catch rates (fish/hour and fish/mile) steadily increased throughout the 4-month sampling period (30 June to 31 October) and reached a high of 4.07 fish/hr. The source(s) of these smallmouth bass are unknown.

Upper Colorado River (Colorado)

In the Upper Colorado River between Grand Valley Water User's Dam (GVWU; river mile [RM] 193.7) and Potash, UT (RM 47.2), abundance and distribution information is limited for smallmouth bass. However, the increase in the number of smallmouth bass reported during the channel catfish removal evaluation had biologists and managers concerned that smallmouth bass abundance could increase quickly, and further impact recovery of native endangered fishes. Smallmouth bass have the potential to predate or compete with different life stages of the four native endangered fishes.

Fish passage has been restored at the Grand Valley Irrigation Company Diversion Dam near Palisade, GVWU Dam, and at the Price-Stubbs Diversion Dam. For the first time in over 100 years fish now have upstream access from the Grand Valley to upstream reaches in the Upper Colorado River. Only a fish trap at the GVWU fish passageway can prevent unimpeded movement upstream. Smallmouth bass are located in Rifle Gap Reservoir and Highline Lake and adult smallmouth bass have been collected in the Colorado River between Rifle and Price-Stubbs Dam (Anderson 1997; Burdick 2008(a)) and Price-Stubbs Dam and Dewey Bridge, UT (Francis and Ryden 2013(b); Francis and Ryden 2014(b)).

Lower Gunnison River

In the fish trap of the Redlands Dam fish passageway in the Lower Gunnison River, the number of smallmouth bass have increased (22 in 2013[Francis and Ryden 2013(a)]) over previous years of monitoring (1996–2001: 1 fish)(Burdick 2001). Nineteen smallmouth bass were collected and removed in 2002 and 2003 (Burdick 2002; Burdick 2003(b)). Fourteen smallmouth (third most abundant year since 1996) bass were collected and removed from the fish trap in 2012 (Francis 2012(a)). Nine smallmouth bass were collected in the fish trap at Redlands during 2004 (Burdick 2004) and 21 during 2005 (Burdick 2005a). No smallmouth bass were collected in the fish trap during 2006 (Burdick 2006) or 2007 (Burdick 2007) or 2011 (Burdick 2011(a)). Four were collected in 2008, one in 2009 (Burdick 2008(b); 2009), three in 2010 (Burdick 2010(a)), and two in 2014 (Francis and Ryden 2014(b)). About 1,800 fingerling smallmouth bass were stocked by the Colorado Division of Wildlife (CDOW) in 1973 in the Gunnison River near Delta (Wiltzius 1978) upstream from Redlands Diversion Dam. None of these stocked smallmouth bass have been subsequently captured upstream from the diversion dam (Wiltzius 1978, Valdez et al. 1982; Burdick 1995). Redlands Dam (RM 3.0) provides an effective barrier to smallmouth bass and all other fish attempting to move further upstream in the Gunnison River.

Juanita Reservoir, which can connect to Kannah Creek and eventually to the Lower Gunnison River near the town of Whitewater, also contains smallmouth bass. Ridgeway Reservoir, which drains into the Uncompahgre River and eventually the Gunnison River near the town of Delta, also has an illicitly introduced population of smallmouth bass.

Walleye

Little to no large bodied fishing effort has been expended in the Colorado River below the Colorado/Utah state line to the confluence of the Green River in years when the Colorado pikeminnow estimate work is on its two year rest cycle. In 2010, during Colorado pikeminnow

estimate work, walleye captures were equal to pikeminnow captures, in these reaches, at 46. The two year cycle of no work in these reaches passed (2011 & 2012) and then in 2013, walleye captures during the Colorado pikeminnow estimate work skyrocketed to 268. In the spring of 2014 walleye captures were still high at 109. Additional work in the summer and fall 2013 produced another 23 walleye (Francis and Ryden 2013(b)). Additional experimental work in the fall 2014 produced an additional 107 walleye (Francis and Ryden 2014(b)). In addition, for the first time in 9 years of centrarchid removal work, 2012 produced 4 walleye in the Grand Valley reaches (Francis 2012(a)). With adult Colorado pikeminnow estimated abundances falling in both the Green and Colorado Rivers in concert with the expansion of the walleye population, it is imperative that we have a ‘surge’ type effort in the lower rivers (important nursery areas for young-of year and juvenile Colorado pikeminnow and razorback sucker) in both the spring and fall in future years if we wish to see recovery of Colorado pikeminnow and razorback sucker.

Johnson et al (2014) had success in determining that (through chemical fingerprinting) eight walleye collected between Silt Colorado and Beavertail Tunnel Colorado (2004-2006; RM 248.0 to 197.0) originated from Rifle Gap Reservoir. In response, Colorado Parks and Wildlife constructed a fish screen, in Rifle Creek, to prevent escapement of non-native fishes from the reservoir. This study also determined Starvation and Redfleet Reservoirs were contributing walleye to the Green River which drains into the Colorado River just above Cataract Canyon. Additionally, some walleye collected in the Green River had fingerprints that suggested they were Green River residents. At the lower terminus of the Upper Colorado River lies Lake Powell which also has a robust walleye fishery, as does McPhee Reservoir which drains into the Dolores River and eventually the Colorado River just upstream of Dewey Bridge, UT. All of these potential source populations have exasperated the predatory and competitive threat to both listed and unlisted native fishes in the Colorado River.

Control of Nonnative Fish by Mechanical Removal

Control of smallmouth bass and other nonnative fish species is a primary emphasis, along with habitat restoration, propagation and stocking, and instream flow management within the Recovery Program for the four endangered fish species. In the strategic plan for the control of nonnative fishes in the Upper Colorado River Basin (Tyus and Saunders 1996), “control” was defined as “reducing the numbers of one of more nonnative species to levels below which they are no longer an impediment to the recovery of endangered fish species.” The goal for nonnative fish control or management in the Upper Colorado River Basin is to reduce the adverse impacts of nonnative fishes on the endangered fishes which will hopefully increase the distribution and abundance of the endangered fishes and contribute to their recovery. It is not likely that nonnative fishes that have become established in the Upper Colorado River Basin can be eliminated. However, preventive measures and active control programs could be implemented to reduce the abundance of nonnative fishes in riverine and adjacent floodplain habitats. Consequently, then, reducing the abundance of some problematic, nonnative fishes would reduce the potential for predation and competition on native listed and non-listed fishes. Management to promote recovery of listed fish species may have to include long-term or periodic suppression of some problematic nonnatives, such as mechanical removal, that minimizes impacts to remaining native fishes.

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

A. Study Goals

The purpose of this proposed study is to remove as many centrarchids (e. g., largemouth bass, green sunfish, bluegill, black crappie, and smallmouth bass), esocids (northern pike), percids (walleye), clupeids (gizzard shad), and non-native catostomids (white

sucker) as possible of all sizes in main channel riverine habitats in a 68.9-mile reach of the Upper Colorado River between GVWU Dam and Westwater Wash in eastern Utah and in a 63.8-mile reach of the Upper Colorado River between Cisco and Potash Utah. The goal is to reduce the abundance of non-native fishes as quickly as possible in these reaches which will ultimately benefit native listed fishes, and possibly contribute to their recovery.

B. Objectives

1. Remove all sizes of centrarchids (e. g., largemouth bass, green sunfish, bluegill, black crappie, and smallmouth bass), esocids (northern pike), percids (walleye), clupeids (gizzard shad), and non-native catostomids (white sucker) in the Upper Colorado River by boat and raft-based electrofishing, and
2. **Currently Suspended:** Obtain an abundance estimate for smallmouth bass juvenile (100-199 mm) and adults (≥ 200 mm) by mark and recapture methods for the Upper Colorado River between GVIC Dam and Loma Boat Landing and the Lower Gunnison River between Redlands Dam and the Colorado/Gunnison river confluence.

C. End Products

Analyze field data; Prepare annual RIP reports.

V. Study Area:

Upper Colorado River:

GVWU Dam downstream to Loma boat landing (RM 193.7 – 152.6) & the Lower Gunnison River (RM 3.0 – 0.0)

Loma Boat Launch to Westwater Wash (RM 152.6 – 124.8)

Rifle Bridge to Beavertail Mountain (RM 240.4 – 195.7) [added in 2004] [CPW's reach from 2012-2019]

Silt to Rifle (RMs ~ 250.0 – 240.4) [added in 2007] [removed for 2009/2010/2011] [CPW's reach from 2012-2019]

Cisco to Potash, UT (RM 111.0 – 47.2) [added in 2013]

VI. Study Methods/Approach:

Temporarily reducing riverine smallmouth bass and northern pike populations appears viable under certain environmental conditions but both species can easily reverse these reductions in population abundance and return to pre-removal abundances under favorable environmental conditions (Breton et al. 2014; Zelasko et al. 2015). Therefore, mechanical removal efforts will attempt to reach eradication of nonnative fish populations in the river. However, recent synthesis reports investigating effectiveness of in-river removal efforts for northern pike and smallmouth bass determined that reducing in-river populations of these two species would not be successful unless in-river reproduction and reservoir escapement were controlled (Breton et al. 2014; Zelasko et al. 2015). Therefore, mechanical removal efforts will continue to temporarily suppress riverine populations, and will focus on reducing in-river reproduction when feasible. Simultaneously, Program partners will work on other means to reduce in-river reproduction and reservoir escapement, in order to make mechanical removal more effective and to attempt to reach complete eradication of riverine populations.

General–Study Direction and Evolution

December 2003. One of the conclusions agreed upon by participants at the December 2003 Nonnative Fish Control Workshop in Grand Junction was that smallmouth bass posed a greater threat to native fishes than other nonnative game fishes (e.g., channel catfish). Northern pike was viewed as the present number one threat to native fishes. At this workshop, the priority was established to start removing smallmouth bass from the Upper Colorado River in western Colorado as soon as possible to head off a possible increase in the abundance of this species. Recovery of listed native fishes might be more attainable if the threats (i.e., predation and competition) posed by certain nonnative fishes, such as smallmouth bass, could be minimized or eliminated.

FY2006 Study Modifications. The decision was made during the December 14, 2005, Biology Committee meeting to obtain an abundance estimate for smallmouth bass in concentration areas of the Upper Colorado River from Price Stubb Dam to Westwater, Utah. In essence this endeavor entailed marking and releasing smallmouth bass during an initial pass starting in the summer of 2006, and lethally removing and recording previously marked smallmouth bass in all subsequent passes. Smallmouth bass were marked in the river segments from Price Stubb Dam to Fruita State Park in the Upper Colorado River and a 2.3-mile segment of the Lower Gunnison River. These river segments were identified as moderate to high concentrations areas for smallmouth bass based on capture data from the summers of 2004 and 2005. An additional first pass was added to accomplish the marking. Four successive passes were performed during 2006 in the concentration areas to lethally remove smallmouth bass as was conducted in both 2004 and 2005. Population estimates for smallmouth bass were completed from 2007-2012, to track population abundance.

The number of removal passes for areas of low densities of smallmouth bass as determined from 2004 and 2005 capture data was reduced during 2006. These river segments included the canyon-bound reaches of Ruby and Horsethief canyons to Westwater, Utah (RM 152.6 – 127.6). The reduced effort in these reaches was re-directed to increase the number of removal passes in river segments where smallmouth bass had proliferated over the past two years. One such river reach was the 45-mile reach of the Upper Colorado River from the Rifle Bridge to Beavertail Mountain and, in particular, the 10 mile river segment from Rifle to Rulison. In 2005, the number of smallmouth bass collected in these reaches increased 11 fold and catch effort increased about 5.5 times. Re-focusing the removal effort resulted in a zero net budget change.

In 2007, study direction was modified again. Four additional removal passes were added for the Grand Valley portion of the project area. Two additional passes were performed by Fish and Wildlife personnel and two by Colorado Division of Wildlife (CDOW) personnel. The last two removal passes performed by the CDOW were in river reaches where high concentration or high abundance of smallmouth bass had been determined during the past five years of sampling. This sampling regime continued from 2008-2011.

Further modifications to the sampling protocol were implemented in 2011 from earlier sampling years (2007-2010). Removal efforts in the 45-mile reach between Rifle Bridge and

Beavertail Mountain were continued but the number of removal passes was reduced from three to one. The reduced effort in the Rifle to Beavertail reach was re-allocated to increase removal passes (two total) in some of the Grand Valley reaches of the Colorado River (RMs 185.3-152.6). The principal investigator believed it was imperative to re-allocate this effort from the Rifle to Beavertail Mountain reaches to the Grand Valley reaches for 2011 because the smallmouth bass cohort produced in 2010 in the Grand Valley reaches appeared to be stronger than that of 2007, which was recognized as one of the strongest year classes in the upper Colorado River basin rivers. It was uncertain if this 2010 cohort would overwinter, and that would not be known until the 2011 summer sampling was underway. The Service was responsible for performing this “re-allocated” effort and would not affect the removal effort (two passes) performed by the CDOW (RP project no. 126(b)), which usually occurred in September. This reallocation of effort resulted in no additional costs to the 2011 budget for this project.

Sampling modifications were necessary to remain within the new budget prescribed by the Recovery Program for FY2012. These changes were directly related to the Recovery Program’s 20% budget reduction from the FY2009, FY2010, and FY2011 budget (\$157,200/fiscal year). The sampling modifications included, 1) reducing the number of removal passes from 10 to 6 in the Grand Valley reaches, 2) eliminated sampling in the 25-mile reach from the Loma Boat Landing to the Westwater BLM ranger station, UT, and the 4-mile reach between Government Highline Dam and the Cameo XCEL bridge. Colorado Parks and Wildlife shifted their efforts to the reach between Rulison and Beavertail.

Sampling modifications for FY2013 and FY2014 included; 1) suspending the marking pass in the Grand Valley reaches, 2) increasing the number of removal passes in the Grand Valley reaches from 6 (FY2012) to 8, 3) completing two overnight trips removing centrarchids from the 25-mile reach between Loma boat landing to the Westwater, UT, BLM ranger station landing, and 4) CPW completed all work upstream of Beavertail Mountain with scope of work 126(b).

A final synthesis report describing results from 2004 to 2006 was completed in January 2008 (Burdick 2008(a)).

Methodology

To date, sampling efforts have focused on a reach and not river-wide scale. Two electrofishing craft (per Upper Colorado River Recovery Program SOP) worked both shorelines of a reach to complete a pass. For logistical considerations, the entire 68.9-mile section of the Upper Colorado River from GVWU Dam to Westwater Wash, Utah, was divided into three different sub-reaches based on hydro-geomorphic features.

Three general sub-reaches were sampled between 2004 and 2014. These included, 1) a 10.1-mile section between GVWU and Palisade and the 15-mile section that extends from Palisade to the Gunnison/Colorado River confluence (RMs 185.5–171), 2) the 18-mile reach that extends from the confluence of the Gunnison and Colorado rivers to the Loma Boat Landing (RMs 171.0–152.6), and 3) Ruby and Horsethief canyons (RMs 152.6–124.8) which extends from the Loma Boat Landing to the Westwater, Utah. The 15- and 18-mile sub-reaches flow through a wide alluvial section of the lower Grand Valley; the canyon-bound sub-reach is

considered a quasi-alluvial sub-reach. The number of sampling occasions (i.e., passes) in the 15-mile reach has been affected by the availability of sufficient water for sampling craft to operate due to extended drought periods. Sampling the 3-mile section between Price-Stubbs and Grand Valley Irrigation dams has also been reduced due to poor access and low-water conditions in mid- to late-summer.

A 45-mile reach of the Upper Colorado River from the Rifle Bridge (RM 240.7) to Beavertail Mountain in Debeque Canyon (RM 195.7) will have been sampled with raft electrofishing for the eleven most recent years (2004 – 2014) of this study. This river reach was outside the original defined removal area. However, there were unsubstantiated reports that anglers had encountered smallmouth bass in these upstream reaches, and it was determined that a “reconnaissance” sampling trip was warranted to substantiate or refute these claims. Burdick (2011(b)) reported 11 northern pike removed in this reach and Francis (2012(b)) reported 16 northern pike removed by CPW in this reach providing additional support to work in this reach. Sampling regime for this 45-mile reach (2004-2010) has been two complete passes and a third pass in high concentration areas of smallmouth bass. However, only one pass was completed in these upper reaches in 2011 and only two were completed in 2012-2014.

In response to an increased walleye catch from Cisco to the confluence of the Green during spring Colorado pikeminnow abundance estimate work, another 63.8-mile reach was added in the Upper Colorado River from Cisco, UT (RM 11.0) to Potash, UT (RM 47.2) in 2013. Francis and Ryden (2014(b)) reported removing 292 walleye in 2013 and 216 walleye in 2014 during combined non-native removal and Colorado pikeminnow abundance work.

Within the Grand Valley, between Grand Valley Diversion Dam and Loma, CO, there are many off channel gravel pit ponds which connect with the river at various stages during run-off. These off-channel habitats are important pre-spawn staging areas for adult native fishes and they are important nursery areas for young-of year native fishes. However, these gravel pit ponds have become sources for many of the non-native centrarchids, northern pike, white sucker and gizzard shad found in the main-stem river. Little effort has been expended at these locations since the inception of this project. As a recommendation in our 2014 annual report and with the approval of the UCRRP and Biology Committee, mechanical removal may be expended in these these gravel pit ponds (where we have access). Electrofishing, trap netting, gill netting, trammel netting, seining, and cast netting will be utilized at these locations.

FY 2015-2017

Sampling Protocol

Sampling for FY2015-2017 will include; 1) continued suspension of the marking pass in the Grand Valley reaches, 2) eight removal passes conducted in the Grand Valley reaches, 3) two removal passes from the 25-mile reach between Loma boat landing to the Westwater BLM ranger station, UT, 4) three walleye removal passes conducted from Cisco to Potash, UT (in 2015, funding was transferred from UCRRP project 131 to this project to fund this addition), 5) one month’s removal from streamside gravel pit ponds in the Grand Valley, and 6) CPW will complete all work upstream of Beavertail Mountain with scope of work 126(b). The UCRRP 2015-2017 non-native workshop conclusions could change these protocols.

Fish Disposal. All smallmouth bass (with the exception of marked fish during years when abundance estimates are conducted), other centrarchids, northern pike, walleye, gizzard shad, grass carp, and yellow perch collected will be lethally removed. White sucker will be removed at levels that don't interfere with the primary objective of removing centrarchids. Disposal of all these fishes will be as follows: following capture, fish will be euthanized afield and preserved with ice. All dead fish will be held on station in freezers and disposed of in the Mesa County landfill southeast of Grand Junction.

Data Analyses. All smallmouth bass captured within each of the sub-reaches will be enumerated in 2016-2017 similar to that during former years (2004 – 2015). Total numbers of smallmouth bass, largemouth bass and walleye collected and catch/effort (fish/hr) will be also determined for each sub-reach per sampling pass. Length data will be recorded for 2016-2017 similar to that during former years (2004 – 2015) to determine the size structure of smallmouth bass removed.

Data analyses similar to that employed between 2004 and 2015 will be used to analyze the 2016-2017 field data. We assume that during 2016-2017, abundance estimates will be suspended.

VII. Task Description and Schedule:

- Task 1. Remove all sizes of non-native fishes.
Schedule: 6/2015 – 10/2015; 6/2016 – 10/2016; 6/2017 – 10/2017
- Task 2. a) Electronically input field data; b) analyze data; c) prepare annual RIP reports and presentations.
Schedule: a) 9/2015 – 11/2015; 9/2016 – 11/2016; 9/2017 – 11/2017
b) & c) 11/2015, 11/2016, 11/2017

VIII. Deliverables, Due Dates, and Budget by Fiscal Year:

FY 2016

Deliverables: *Tasks 1 and 2*

FY 2016	Work from GVWU Dam to Westwater Wash								
	Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate		Total
		Project Leader GS-14		1	240	83.42	0	0	20020.8
		Administrative Officer GS-09		1	260	44.72	0	0	11627.2
		Fishery Biologist GS-11		1	800	49.36	0	0	39488
		Fishery Biologist GS-07		1	300	33.7	120	50.54	16174.8
		Crew leader Tech. GS-06		1	300	32.76	120	49.14	15724.8
		Biological Tech. GS-05		3	500	24.96	120	37.44	50918.4
	Labor Subtotal								153954
	Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration		Total
		Office Supplies	FEDEX charges for Biological samples						100
		Office Supplies	Rite in the rain paper						50
		Office Supplies	Data clipboards						50
		Office Supplies	Ink Cartridges and paper						200
		Office Supplies	Cell, SAT, and Office phone service						816
		Field Equipment	GSA vehicle lease per month	3.25	each	364.97	3.25		3854.9956
		Field Equipment	Mileage	3648	miles	0.33	1		1203.84
		Field Equipment	Boat Gasoline 91 octane	205	gallons	4.37	1		895.85
		Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	5,500	1		5500
		Field Equipment	*Misc. Field Supplies See Justification	1	see basis	2,100	1		2100
									14770.686
	Type Of Travel	Number of Travelers	Hotel Costs	Per Diem	TAV Fee	# days	# of trips	Total	
	Camping	5	0	28	15	4	2	1310	
	Meetings/ Lakewood 2013 GSA Rates	2	149	66	15	3	1	1052	
								2362	
								Grand Total	
	USFWS Grand Jct.							171087	
FY 2016	Work from Cisco, UT to Potash, UT								
	Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate		Total
		Project Leader GS-14		1	20	83.42	0	0	1668.4
		Administrative Officer GS-09		1	20	44.72	0	0	894.4
		Fishery Biologist GS-11		1	168	49.36	0	0	8292.48
		Crew leader Tech. GS-06		1	168	32.76	54	49.14	8157.24
		Biological Tech. GS-05		3	168	24.96	54	37.44	18645.12
	Labor Subtotal								37657.64
	Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration		Total
		Office Supplies	Cell, SAT, and Office phone service						200
		Field Equipment	GSA vehicle lease per month	3	each	364.97	1		1094.91
		Field Equipment	Mileage	770	miles	0.33	1		254.1
		Field Equipment	Boat Gasoline 91 octane	52	gallons	4.37	1		227.24
		Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	1,000	1		1000
		Field Equipment	*Misc. Field Supplies See Justification	1	see basis	500	1		500
									3276.25
	Type Of Travel	Number of Travelers	Hotel Costs	Per Diem	TAV Fee	# days	# of trips	Total	
	Camping	5	0	28	15	2	6	2530	
		4	75	47	15	3	3	1884	
								4414	
								Grand Total	
	USFWS Grand Jct.							45348	
FY 2016	Mechanical Removal of non-native fishes from streamside gravel pit ponds								
	Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate		Total
		Project Leader GS-14		1	40	83.42	0	0	3336.8
		Administrative Officer GS-09		1	40	44.72	0	0	1788.8
		Fishery Biologist GS-11		1	80	49.36	0	0	3948.8
		Crew leader Tech. GS-06		1	160	32.76	0	49.14	5241.6
		Biological Tech. GS-05		1	160	24.96	0	37.44	3993.6
	Labor Subtotal								18309.6
	Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration		Total
		Office Supplies	Cell, SAT, and Office phone service						100
		Field Equipment	GSA vehicle lease per month	1	each	364.97	1		364.97
		Field Equipment	Mileage	250	miles	0.33	1		82.5
		Field Equipment	Boat Gasoline 91 octane	15	gallons	4.37	1		65.55
		Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	500	1		500
		Field Equipment	*Misc. Field Supplies See Justification	1	see basis	500	1		500
									1613.02
									Grand Total
	USFWS Grand Jct.								19923
	Grand Total for all Reaches								236358

*Misc. Field Supplies

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:

Spark plugs for generators – 5 at \$7 each = \$35
Synthetic oil for generators - 5 quarts at \$7 each = \$35
Generator repair/tune-up - 5 hrs @ \$75/hr = \$375
2 stroke Optimax Oil – 20 gallons @ \$38/Gallon = \$760
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
Dura-Frame electrofishing dip nets – 2 @ \$300 each = \$600
Boat trailer maintenance

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

Replace any missing NRS HD-brand tie-down straps:

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

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

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

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 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,” 2-man dome tents, NRS Canyon Box for dry storage, camping kitchen gear (roll-up camp tables, anodized dutch ovens, plates, bowls, cups, silverware), pencils, repair/replace river maps, etc.

FY 2017

Deliverables: *Tasks 1 and 2*

FY 2017								
Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate	Total	
	Project Leader GS-14	1	240	85.92	0	0	20620.8	
	Administrative Officer GS-09	1	260	46.06	0	0	11975.6	
	Fishery Biologist GS-11	1	800	50.84	0	0	40672	
	Fishery Biologist GS-07	1	300	34.71	120	52.06	16660.2	
	Crew leader Tech. GS-06	1	300	33.74	120	50.62	16196.4	
	Biological Tech. GS-05	3	500	25.7	120	38.55	52428	
Labor Subtotal								158553
Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration	Total	
	Office Supplies	FEDEX charges for Biological samples					100	
	Office Supplies	Rite in the rain paper					50	
	Office Supplies	Data clipboards					50	
	Office Supplies	Ink Cartridges and paper					200	
	Office Supplies	Cell, SAT, and Office phone service					816	
	Field Equipment	GSA vehicle lease per month	3.25	each	375.92	3.25	3970.655	
	Field Equipment	Mileage	3648	miles	0.34	1	1240.32	
	Field Equipment	Boat Gasoline 91 octane	205	gallons	4.5	1	922.5	
	Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	5,500	1	5500	
	Field Equipment	*Misc. Field Supplies See Justification	1	see basis	1,000	1	1000	
								13849.475
Type Of Travel	Number of Travelers	Hotel Costs	Per Diem	TAV Fee	# days	# of trips	Total	
Camping	5	0	28	15	4	2	1310	
Meetings/ Lakewood 2013 GSA Rates	2	149	66	15	3	1	1052	
								2362
Grand Total								174764
USFWS Grand Jct.								
FY 2017 Work from Cisco, UT to Potash, UT								
Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate	Total	
	Project Leader GS-14	1	20	85.92	0	0	1718.4	
	Administrative Officer GS-09	1	20	46.06	0	0	921.2	
	Fishery Biologist GS-11	1	168	50.84	0	0	8541.12	
	Crew leader Tech. GS-06	1	168	33.74	54	50.62	8401.8	
	Biological Tech. GS-05	3	168	25.7	54	38.55	19197.9	
Labor Subtotal								38780.42
Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration	Total	
	Office Supplies	Cell, SAT, and Office phone service					200	
	Field Equipment	GSA vehicle lease per month	3	each	375.92	1	1127.76	
	Field Equipment	Mileage	770	miles	0.34	1	261.8	
	Field Equipment	Boat Gasoline 91 octane	52	gallons	4.5	1	234	
	Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	1,000	1	1000	
	Field Equipment	*Misc. Field Supplies See Justification	1	see basis	500	1	500	
								3323.56
Type Of Travel	Number of Travelers	Hotel Costs	Per Diem	TAV Fee	# days	# of trips	Total	
Camping	5	0	28	15	2	6	2530	
	4	75	47	15	3	3	1884	
								4414
Grand Total								46518
USFWS Grand Jct.								
FY 2017 Mechanical Removal of non-native fishes from streamside gravel pit ponds								
Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate	Total	
	Project Leader GS-14	1	40	85.92	0	0	3436.8	
	Administrative Officer GS-09	1	40	46.06	0	0	1842.4	
	Fishery Biologist GS-11	1	80	50.84	0	0	4067.2	
	Crew leader Tech. GS-06	1	160	33.74	0	50.62	5398.4	
	Biological Tech. GS-05	1	160	25.7	0	38.55	4112	
Labor Subtotal								18856.8
Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration	Total	
	Office Supplies	Cell, SAT, and Office phone service					100	
	Field Equipment	GSA vehicle lease per month	1	each	375.92	1	375.92	
	Field Equipment	Mileage	250	miles	0.34	1	85	
	Field Equipment	Boat Gasoline 91 octane	15	gallons	4.5	1	67.5	
	Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	500	1	500	
	Field Equipment	*Misc. Field Supplies See Justification	1	see basis	500	1	500	
								1628.42
Grand Total								20485
USFWS Grand Jct.								
Grand Total for all Reaches								241767

*Misc. Field Supplies (see FY2016 note)

Out-year budgets for Non-native Fish Removal in the Upper Colorado River between GVWU Dam [Government Highline Diversion Dam] near Palisade, Colorado, and Potash, Utah: 2018-2020

THESE BUDGETS ARE ESTIMATES ONLY AND MAY NOT REPRESENT ACTUAL COSTS

FY 2018

Deliverables: *Tasks 1 and 2*

FY 2018									
Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate			Total
	Project Leader GS-14		1	240	88.5	0	0		21240
	Administrative Officer GS-09		1	260	47.44	0	0		12334.4
	Fishery Biologist GS-11		1	800	52.37	0	0		41896
	Fishery Biologist GS-07		1	300	35.75	120	53.62		17159.4
	Crew leader Tech. GS-06		1	300	34.76	120	52.13		16683.6
	Biological Tech. GS-05		3	500	26.48	120	39.72		54019.2
Labor Subtotal									163332.6
Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration			Total
	Office Supplies	FEDEX charges for Biological samples							100
	Office Supplies	Rite in the rain paper							50
	Office Supplies	Data clipboards							50
	Office Supplies	Ink Cartridges and paper							200
	Office Supplies	Cell, SAT, and Office phone service							816
	Field Equipment	GSA vehicle lease per month	3.25	each	387.2	3.25			4089.8
	Field Equipment	Mileage	3648	miles	0.35	1			1276.8
	Field Equipment	Boat Gasoline 91 octane	205	gallons	4.64	1			951.2
	Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	5,500	1			5500
	Field Equipment	*Misc. Field Supplies See Justification	1	see basis	1,000	1			1000
									14033.8
Type Of Travel	Number of Travelers	Hotel Costs	Per Diem	TAV Fee	# days	# of trips			Total
Camping	5	0	28	15	4	2			1310
Meetings/ Lakewood 2013 GSA Rates	2	149	66	15	3	1			1052
									2362
Grand Total									179728
USFWS Grand Jct.									
FY 2018 Work from Cisco, UT to Potash, UT									
Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate			Total
	Project Leader GS-14		1	20	88.5	0	0		1770
	Administrative Officer GS-09		1	20	47.44	0	0		948.8
	Fishery Biologist GS-11		1	168	52.37	0	0		8798.16
	Crew leader Tech. GS-06		1	168	34.76	54	52.13		8654.7
	Biological Tech. GS-05		3	168	26.48	54	39.72		19780.56
Labor Subtotal									39952.22
Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration			Total
	Office Supplies	Cell, SAT, and Office phone service							200
	Field Equipment	GSA vehicle lease per month	3	each	387.2	1			1161.6
	Field Equipment	Mileage	770	miles	0.35	1			269.5
	Field Equipment	Boat Gasoline 91 octane	52	gallons	4.64	1			241.28
	Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	1,000	1			1000
	Field Equipment	*Misc. Field Supplies See Justification	1	see basis	500	1			500
									3372.38
Type Of Travel	Number of Travelers	Hotel Costs	Per Diem	TAV Fee	# days	# of trips			Total
Camping	5	0	28	15	2	6			2530
	4	75	47	15	3	3			1884
									4414
Grand Total									47739
USFWS Grand Jct.									
FY 2018 Mechanical Removal of non-native fishes from streamside gravel pit ponds									
Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate			Total
	Project Leader GS-14		1	40	88.5	0	0		3540
	Administrative Officer GS-09		1	40	47.44	0	0		1897.6
	Fishery Biologist GS-11		1	80	52.37	0	0		4189.6
	Crew leader Tech. GS-06		1	160	34.76	0	52.13		5561.6
	Biological Tech. GS-05		1	160	26.48	0	39.72		4236.8
Labor Subtotal									19425.6
Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration			Total
	Office Supplies	Cell, SAT, and Office phone service							100
	Field Equipment	GSA vehicle lease per month	1	each	387.2	1			387.2
	Field Equipment	Mileage	250	miles	0.35	1			87.5
	Field Equipment	Boat Gasoline 91 octane	15	gallons	4.64	1			69.6
	Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	500	1			500
	Field Equipment	*Misc. Field Supplies See Justification	1	see basis	500	1			500
									1644.3
Grand Total									21070
USFWS Grand Jct.									
Grand Total for all Reaches									248537

*Misc. Field Supplies (see FY2016 note)

FY 2019

Deliverables: *Tasks 1 and 2*

FY 2019									
Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate			Total
	Project Leader GS-14		1	240	91.16	0	0		21878.4
	Administrative Officer GS-09		1	260	48.86	0	0		12703.6
	Fishery Biologist GS-11		1	800	53.94	0	0		43152
	Fishery Biologist GS-07		1	300	36.82	120	55.23		17673.6
	Crew leader Tech. GS-06		1	300	35.8	120	53.7		17184
	Biological Tech. GS-05		3	500	27.27	120	40.91		55632.6
Labor Subtotal									168224.2
Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration			Total
	Office Supplies	FEDEX charges for Biological samples							100
	Office Supplies	Rite in the rain paper							50
	Office Supplies	Data clipboards							50
	Office Supplies	Ink Cartridges and paper							200
	Office Supplies	Cell, SAT, and Office phone service							816
	Field Equipment	GSA vehicle lease per month	3.25	each	398.82	3.25			4212.5363
	Field Equipment	Mileage	3648	miles	0.36	1			1313.28
	Field Equipment	Boat Gasoline 91 octane	205	gallons	4.78	1			979.9
	Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	5,500	1			5500
	Field Equipment	*Misc. Field Supplies See Justification	1	see basis	1,000	1			1000
									14221.716
Type Of Travel	Number of Travelers	Hotel Costs	Per Diem	TAV Fee	# days	# of trips			Total
Camping	5	0	28	15	4	2			1310
Meetings/ Lakewood 2013 GSA Rates	2	149	66	15	3	1			1052
									2362
Grand Total									184808
USFWS Grand Jct.									
FY 2019 Work from Cisco, UT to Potash, UT									
Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate			Total
	Project Leader GS-14		1	20	91.16	0	0		1823.2
	Administrative Officer GS-09		1	20	48.86	0	0		977.2
	Fishery Biologist GS-11		1	168	53.94	0	0		9061.92
	Crew leader Tech. GS-06		1	168	35.8	54	53.7		8914.2
	Biological Tech. GS-05		3	168	27.27	54	40.91		20371.5
Labor Subtotal									41148.02
Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration			Total
	Office Supplies	Cell, SAT, and Office phone service							200
	Field Equipment	GSA vehicle lease per month	3	each	398.82	1			1196.46
	Field Equipment	Mileage	770	miles	0.36	1			277.2
	Field Equipment	Boat Gasoline 91 octane	52	gallons	4.78	1			248.56
	Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	1,000	1			1000
	Field Equipment	*Misc. Field Supplies See Justification	1	see basis	500	1			500
									3422.22
Type Of Travel	Number of Travelers	Hotel Costs	Per Diem	TAV Fee	# days	# of trips			Total
Camping	5	0	28	15	2	6			2530
	4	75	47	15	3	3			1884
									4414
Grand Total									48984
USFWS Grand Jct.									
FY 2019 Mechanical Removal of non-native fishes from streamside gravel pit ponds									
Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate			Total
	Project Leader GS-14		1	40	91.16	0	0		3646.4
	Administrative Officer GS-09		1	40	48.86	0	0		1954.4
	Fishery Biologist GS-11		1	80	53.94	0	0		4315.2
	Crew leader Tech. GS-06		1	160	35.8	0	53.7		5728
	Biological Tech. GS-05		1	160	27.27	0	40.91		4363.2
Labor Subtotal									20007.2
Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration			Total
	Office Supplies	Cell, SAT, and Office phone service							100
	Field Equipment	GSA vehicle lease per month	1	each	398.82	1			398.82
	Field Equipment	Mileage	250	miles	0.36	1			90
	Field Equipment	Boat Gasoline 91 octane	15	gallons	4.78	1			71.7
	Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	500	1			500
	Field Equipment	*Misc. Field Supplies See Justification	1	see basis	500	1			500
									1660.52
Grand Total									21668
USFWS Grand Jct.									
Grand Total for all Reaches									255460

*Misc. Field Supplies (see FY2016 note)

FY 2020

Deliverables: *Tasks 1 and 2*

FY 2020								
Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate		Total
	Project Leader GS-14	1	240	93.89	0	0		22533.6
	Administrative Officer GS-09	1	260	50.33	0	0		13085.8
	Fishery Biologist GS-11	1	800	55.56	0	0		44448
	Fishery Biologist GS-07	1	300	37.93	120	56.89		18205.8
	Crew leader Tech. GS-06	1	300	36.87	120	55.3		17697
	Biological Tech. GS-05	3	500	28.09	120	42.14		57305.4
Labor Subtotal								173275.6
Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration		Total
	Office Supplies	FEDEX charges for Biological samples						100
	Office Supplies	Rite in the rain paper						50
	Office Supplies	Data clipboards						50
	Office Supplies	Ink Cartridges and paper						200
	Office Supplies	Cell, SAT, and Office phone service						816
	Field Equipment	GSA vehicle lease per month	3.25	each	410.78	3.25		4338.8638
	Field Equipment	Mileage	3648	miles	0.37	1		1349.76
	Field Equipment	Boat Gasoline 91 octane	205	gallons	4.92	1		1008.6
	Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	5,500	1		5500
	Field Equipment	*Misc. Field Supplies See Justification	1	see basis	1,000	1		1000
								14413.224
Type Of Travel	Number of Travelers	Hotel Costs	Per Diem	TAV Fee	# days	# of trips	Total	
Camping	5	0	28	15	4	2	1310	
Meetings/ Lakewood 2013 GSA Rates	2	149	66	15	3	1	1052	
							2362	
Grand Total								190051
USFWS Grand Jct.								
FY 2020 Work from Cisco, UT to Potash, UT								
Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate		Total
	Project Leader GS-14	1	20	93.89	0	0		1877.8
	Administrative Officer GS-09	1	20	50.33	0	0		1006.6
	Fishery Biologist GS-11	1	168	55.56	0	0		9334.08
	Crew leader Tech. GS-06	1	168	36.87	54	55.3		9180.36
	Biological Tech. GS-05	3	168	28.09	54	42.14		20984.04
Labor Subtotal								42382.88
Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration		Total
	Office Supplies	Cell, SAT, and Office phone service						200
	Field Equipment	GSA vehicle lease per month	3	each	410.78	1		1232.34
	Field Equipment	Mileage	770	miles	0.37	1		284.9
	Field Equipment	Boat Gasoline 91 octane	52	gallons	4.92	1		255.84
	Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	1,000	1		1000
	Field Equipment	*Misc. Field Supplies See Justification	1	see basis	500	1		500
								3473.08
Type Of Travel	Number of Travelers	Hotel Costs	Per Diem	TAV Fee	# days	# of trips	Total	
Camping	5	0	28	15	2	6	2530	
	4	75	47	15	3	3	1884	
							4414	
Grand Total								50270
USFWS Grand Jct.								
FY 2020 Mechanical Removal of non-native fishes from streamside gravel pit ponds								
Labor	Title	# of employees	Hours	Reg. Rate	OT Hours	OT Rate		Total
	Project Leader GS-14	1	40	93.89	0	0		3755.6
	Administrative Officer GS-09	1	40	50.33	0	0		2013.2
	Fishery Biologist GS-11	1	80	55.56	0	0		4444.8
	Crew leader Tech. GS-06	1	160	36.87	0	55.3		5899.2
	Biological Tech. GS-05	1	160	28.09	0	42.14		4494.4
Labor Subtotal								20607.2
Equipment & Supplies	Category	Item	Quantity	Unit	Rate	Duration		Total
	Office Supplies	Cell, SAT, and Office phone service						100
	Field Equipment	GSA vehicle lease per month	1	each	410.78	1		410.78
	Field Equipment	Mileage	250	miles	0.37	1		92.5
	Field Equipment	Boat Gasoline 91 octane	15	gallons	4.92	1		73.8
	Field Equipment	Motor, Generator, Boat Repair (Based on 10 year depreciation and replacement costs)	1	see basis	500	1		500
	Field Equipment	*Misc. Field Supplies See Justification	1	see basis	500	1		500
								1677.08
Grand Total								22284
USFWS Grand Jct.								
Grand Total for all Reaches								262605

*Misc. Field Supplies (see FY2016 note)

IX. Budget Summary

		FY2016
USFWS-GJ	GVWU Dam to Westwater Wash, UT	\$171,087
USFWS-GJ	Cisco, UT to Potash, UT	\$ 45,348
USFWS-GJ	Grand Valley streamside ponds	\$ 19,923
Grand Total		\$236,358

		FY2017
USFWS-GJ	GVWU Dam to Westwater Wash, UT	\$174,764
USFWS-GJ	Cisco, UT to Potash, UT	\$ 46,518
USFWS-GJ	Grand Valley streamside ponds	\$ 20,485
Grand Total		\$241,767

2016-2017 Total = \$478,125

Estimated Budget Summary for Fiscal Years 2018-2020:

		FY2018
USFWS-GJ	GVWU Dam to Westwater Wash, UT	\$179,728
USFWS-GJ	Cisco, UT to Potash, UT	\$ 47,739
USFWS-GJ	Grand Valley streamside ponds	\$ 21,070
Grand Total		\$248,537

		FY2019
USFWS-GJ	GVWU Dam to Westwater Wash, UT	\$184,808
USFWS-GJ	Cisco, UT to Potash, UT	\$ 48,984
USFWS-GJ	Grand Valley streamside ponds	\$ 21,668
Grand Total		\$255,460

		FY2020
USFWS-GJ	GVWU Dam to Westwater Wash, UT	\$190,051
USFWS-GJ	Cisco, UT to Potash, UT	\$ 50,270
USFWS-GJ	Grand Valley streamside ponds	\$ 22,284
Grand Total		\$262,605

2018-2020 Total = \$766,602

5-Year Total = \$1,244,727

X. Reviewers: **Kevin McAbee, June 2015;**

XI. References:

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