RECOVERY PROGRAM Recovery Program Project Number: 126b & 167b

FY 2018-2022 SCOPE OF WORK for:

Colorado River and White River supplemental removal of smallmouth bass and northern pike

Reclamation Agreement number: R13AP40028
Reclamation Agreement term: July 11, 2013 – September 30, 2017

Lead agency: Colorado Parks and Wildlife

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Category:
__ Ongoing project
_X Ongoing-revised project
__ Requested new project
__ Unsolicited proposal

Expected Funding Source:
_X Annual funds
__ Capital funds
__ Other *[explain]*

I. Title of Proposal:

Supplemental removal of smallmouth bass and northern pike in the Colorado River between Silt, Colorado and Beavertail Mountain with expanded removal upstream of Rifle, Colorado, in constructed, private ponds within the Colorado River floodplain; supplemental smallmouth bass removal in the White River downstream of Taylor Draw dam in Rangely, Colorado.

II. Relationship to RIPRAP:

This study will remove smallmouth bass and northern pike from the Colorado River in Silt, Colorado (RM 248.0) to Beavertail Mountain (RM 195.7), and will also focus on removal of these species in three constructed, private ponds (Mamm Creek Pit #1, #2, and #3) upstream of Rifle, Colorado (RM 240.4). Smallmouth bass will also be removed from the White River downstream of Taylor Draw dam (RM 104.0) in Rangely, Colorado.

<u>General Recovery Program Support Action Plan</u>

III.	Reduce negative impacts of nonnative fishes and sportfish management activities (nonnative and sportfish management).
III.A.	Reduce negative interactions between nonnative and endangered fishes.
III.A.2.	Identify and implement viable active control measures.

<u>Colorado River Action Plan: Mainstem</u>

III.	Reduce negative impacts of nonnative fishes and sportfish management activities (nonnative and sportfish management).
III.A.	Develop and implement control programs in reaches of the Colorado River occupied by endangered fishes.
III.A.6.	Develop and implement program to identify required level of smallmouth bass control.
III.A.7.	Develop and implement program to identify required level of northern pike control.
III.A.9.	Upstream of Grand Valley Project dam: determine and implement an adequate level of mechanical removal in the main channel. More importantly, use all techniques available to eradicate northern pike (and other nonnative species of concern) from floodplain habitats.

<u>Green River Action Plan: White River</u>

III.	Reduce negative impacts of nonnative fishes and sportfish management activities (nonnative and sportfish management).
III.A.	Reduce negative interactions between nonnative and endangered fishes.
III.B.2.	Preclude new nonnative species introductions, translocations or invasions to preserve native species dominance within critical habitat.
III.B.2.a.	Determine and implement an adequate level of mechanical removal to reduce smallmouth bass.

III. Study Background/Rationale and Hypotheses:

Colorado River

The U.S. Fish and Wildlife Service (USFWS) (Burdick 2007, 2011) has previously documented the need for smallmouth bass and northern pike removal in the Colorado River. Colorado Parks and Wildlife (CPW) will supplement the USFWS efforts by adding additional removal passes within the smallmouth bass and northern pike concentration areas identified by Burdick (2007 and 2011). For more information regarding the USFWS effort, please see the Scope of Work for Project #126.

White River

Colorado Parks and Wildlife will provide three weeks of assistance to the USFWS to remove smallmouth bass from the White River. For more information regarding the USFWS effort, please see the Scope of Work for Project #167.

Study Considerations

Colorado River

Colorado Parks and Wildlife will remove smallmouth bass and northern pike from the main channel utilizing raft electrofishing and from backwaters utilizing block-and-shock techniques. A minimum of five total days will be expended within the 52.3 river mile study area, pending appropriate hydrological conditions. Additionally, a minimum of two total days may be spent in reaches of the study area with the greatest smallmouth bass and/or northern pike concentrations. These efforts will focus primarily on backwater electrofishing and block-and-shock methods. A crew of four people will be required to complete this portion of the project. Temporaries will be hired for a total of 4, 5-day weeks at 40-hours per week. Two and one-half weeks (one week pre-sampling and one and a half week post-sampling) will be devoted to crew training, preparation and maintenance of equipment, and data entry. Temporaries will work one to one and a half weeks (5 days/week of which at least three days will be on the river), pending appropriate hydrological conditions, to target smallmouth bass and northern pike.

Colorado Parks and Wildlife will also expand removal efforts targeting smallmouth bass and northern pike upstream of Rifle, Colorado in constructed, private ponds within the Colorado River floodplain. A minimum of 14 days will be expended within Mamm Creek Pit #1, #2, and #3. These efforts will focus on use of the Merwin trap, boat electrofishing, gill net and potentially fyke net sets. A crew of six people (of which four will be temporary employees) will be required to complete this portion of the project. Temporaries will be hired for a total of 4, 5-day weeks at 40-hours per week. Temporaries will work four weeks in the ponds to target smallmouth bass and northern pike.

White River

Colorado Parks and Wildlife will remove smallmouth bass from the main channel utilizing raft electrofishing. A minimum of nine total days will be expended from Taylor Draw dam downstream to the Colorado/Utah state line, pending appropriate hydrological conditions. Most

of this effort will be focused in the upper most 10 miles of river downstream of the dam, within the area of greatest smallmouth bass concentration. A crew of four people will be required to complete this portion of the project. Temporaries will be hired for 4, 5-day weeks at 40-hours per week. One week post-sampling will be devoted to data entry. Temporaries will work three weeks (5 days/week of which at least three days will be on the river) to target smallmouth bass.

Changes from previous SOW

Please note that in previous versions of this Scope of Work for Project #126b, Task 3: Acquire permission from landowners to capture and remove smallmouth bass and northern pike residing in constructed, private ponds within the floodplain of the Colorado River, a zero budget was inaccurately proposed. Colorado Parks and Wildlife has completed this task in the past, with plans to continue to do so in the future. This modification in the budget tables results in an overall increase to the total budget for each fiscal year.

Colorado Parks and Wildlife also is unsure whether temporary employees will need to be paid overtime wages pursuant to Colorado State law. Per guidance from the Recovery Program Director's office, CPW was advised to include these additional overtime expenses as a line item within the budget tables. If CPW is provided other direction by the time this Scope of Work is considered by the Recovery Program, these proposed changes to the budget tables will be omitted. Application of federal health care mandates may also result in increased costs for temporary employees. These expenses have not been included in the budget tables as there is no understanding at this time as to what those considerations may include.

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

Study Goals

<u>Colorado River</u>

1) To assist the USFWS in reducing the numbers of smallmouth bass and northern pike in 52.3 river miles of the Colorado River between Silt, Colorado (RM 248.0) and Beavertail Mountain (RM 195.7), thereby benefiting natives fishes of the Colorado River Basin.

2) To reduce the number of smallmouth bass and northern pike in constructed, private ponds within the Colorado River floodplain upstream of Rifle, Colorado (RM 240.4), thereby benefitting native fishes of the Colorado River Basin.

3) To reduce the probability of smallmouth bass and northern pike escaping from floodplain ponds when connected to the Colorado River during high water periods, thereby benefitting native fishes of the Colorado River Basin.

<u>White River</u>

1) To assist the USFWS in reducing the number of smallmouth bass in the White River from Taylor Draw dam (RM 104.0) downstream, thereby benefitting native fishes of the White River Basin, as well as native fish communities downstream within the Green River Basin.

Study Objectives

Colorado River

1) To remove as many smallmouth bass and northern pike as possible within the Colorado River study area utilizing main channel electrofishing and block-and-shock methods in backwaters.

2) To acquire permission from landowners to sample and remove smallmouth bass and northern pike residing in constructed, private ponds within the floodplain of the Colorado River upstream of Rifle, Colorado.

3) To remove as many smallmouth bass and northern pike as possible residing in constructed, private ponds within the floodplain that may reconnect to the Colorado River during high water periods.

White River

1) To remove as many smallmouth bass as possible within the White River study area utilizing main channel electrofishing. Most of this effort will be focused in the upper most 10 miles of river downstream of the dam within the area of greatest smallmouth bass concentration.

End Product

Colorado River

In compiling and organizing the data collected, CPW will follow quality assurance and quality control protocols provided annually by the Recovery Program Director's Office and/or the USFWS. All of the CPW validated data will be provided to the USFWS. CPW will not perform data analysis for this supplemental project; all data collected will be analyzed by the USFWS.

White River

In compiling and organizing the data collected, CPW will follow quality assurance and quality control protocols provided annually by the Recovery Program Director's Office and/or the USFWS. All of the CPW validated data will be provided to the USFWS. CPW will not perform data analysis for this supplemental project; all data collected will be analyzed by the USFWS.

Revisions from previous SOW

CPW included work to remove nonnative fish from floodplain gravel ponds (Task 3) in all years. Because of low catch rates, work to remove nonnative fish in the mainstem Colorado River was reduced (Task 2). Remaining effort is adequate to monitor the reach and target backwaters with higher catch rates. CPW included overtime costs because agency guidance requires the payment of overtime in lieu of compensatory time. Overall, costs of SOW increased because of increased work accomplished and inclusion of overtime pay.

V. Study Area:

Colorado River

The study area for this project will include 52.3 river miles of the Colorado River between Silt, Colorado (RM 248.0) and Beavertail Mountain (RM 195.7). The main channel, including backwaters, will be raft electrofished utilizing block-and-shock techniques within backwaters. Specific river segments that may be sampled include: Reach 1: RM 248.0 (Silt boat launch) to RM 240.4 (Rifle boat launch), Reach 2: RM 240.4 (Rifle boat launch) to RM 230.0 (Rulison), Reach 3: RM 230.0 (Rulison) to RM 223.0 (Parachute), Reach 4: RM 223.0 (Parachute boat launch) to RM 209.7 (Debeque boat launch), and Reach 5: RM 209.7 (Debeque boat launch) to RM 195.7 (Beavertail Mountain).

Three constructed, private ponds (Mamm Creek Pit #1, #2, and #3) within the Colorado River floodplain upstream of Rifle, Colorado (RM 240.4) will also be targeted.

White River

The study area for this project will include the White River from Taylor Draw dam (RM 104.0) to the Colorado/Utah state line. The main channel will be raft electrofished. Most of this effort will be focused in the upper most 10 miles of river downstream of the dam, within the area of greatest smallmouth bass concentration.

VI. Study Methods/Approach:

Field Methods-Colorado River

Mainstem Electrofishing and Backwater Block-and-Shock

Main channel electrofishing and block-and-shock techniques in backwaters to target smallmouth bass and northern pike will be the focus of this sampling effort. This portion of the study will occur between June and September. A minimum of seven total days will be expended during this portion of the study, including two days that will focus on reaches of the study area with the greatest smallmouth bass and/or northern pike concentrations.

Two, two-person electrofishing crews will utilize rafts equipped with outboard motors to perform sampling in the main channel. Each crew will simultaneously sample the left and right shorelines in a downstream direction using ETS electrofishing equipment. Island perimeters will also be electrofished. No river segment will be electrofished on consecutive days to allow for fish recovery and redistribution. Each raft will process fish collected.

Backwaters where CPW has obtained permission to sample will also be included within this sampling effort, when feasible. Crews will sample backwater areas along both sides of the river. A gill net may be used with a block-and-shock technique. Backwater habitats will be sampled until the river recedes and habitats are no longer accessible. Output power within backwaters will be adjusted based upon changes in river conductivity. Additionally, output power will be reduced during the raft approach to the backwater mouth if it is blocked by a gill net. Both processes will minimize the potential for electrofishing injuries to fish.

All smallmouth bass, northern pike, and other nonnative fish (excluding salmonids and channel catfish) taken by these methods will be identified by species, measured for total length to the nearest millimeter, weighed to the nearest gram, and lethally removed and disposed of in a landfill. Capture locations for smallmouth bass and northern pike will be recorded to the nearest tenth of a river mile. Nonnative species of unusual occurrence, i.e. walleye, burbot, grass carp, etc. will have their otoliths extracted prior to disposal.

Roundtail chub, razorback sucker, bonytail, and Colorado pikeminnow captured will be identified, measured in total length to the nearest millimeter, and weighed to the nearest gram. These species will be scanned to determine the presence of passive integrated transponder (PIT) tags. PIT tag number will be recorded and stored in the PIT tag reader for those fish encountered with PIT tags. Individuals without PIT tags will be implanted with a new PIT tag following the appropriate protocol. Capture locations for these species will be recorded to the nearest tenth of a river mile. UTMs associated with capture locations will also be recorded, when possible. All native species captured will be released alive, immediately. Any native fish captured that is visibly stressed will not be processed, but rather returned to the location of capture within the river, immediately.

Constructed, Private Ponds within the Colorado River Floodplain

This sampling effort will include targeting smallmouth bass and northern pike upstream of Rifle, Colorado in constructed, private ponds (Mamm Creek Pit #1, #2, and #3) within the Colorado River floodplain. This portion of the study will begin in mid-March and continue intermittently until after high water. The goals of these efforts are to exploit northern pike during the spawning period, and to also reduce the probability of smallmouth bass and northern pike escaping from floodplain ponds when connected to the Colorado River during high water periods. A minimum of 14 total days will be expended within the ponds.

Two, three-person electrofishing crews will utilize jon boats to electrofish, and set gill and potentially fyke nets. A block-and-shock technique will be utilized to corral fish into nets. Day and/or evening electrofishing will occur with ETS electrofishing equipment, in addition to overnight sets of gill/fyke nets. A Merwin trap (over-size, floating but stationary fyke net) will also be utilized as a passive capture technique in the largest pond, Mamm Creek Pit #1. This trap will be used for two purposes: 1) in the shallows to exploit northern pike during the spawning period, and 2) to block the pond outlet, precluding escapement of nonnative fishes from the pond into the Colorado River during high water periods.

Each boat will process fish collected. All smallmouth bass, northern pike, and other nonnative fish (excluding salmonids) taken by these methods will be identified by species, measured for total length to the nearest millimeter, weighed to the nearest gram, and lethally removed and disposed of in a landfill. Nonnative species of unusual occurrence, i.e. walleye, burbot, grass carp, etc. will have their otoliths extracted prior to disposal.

Roundtail chub, razorback sucker, bonytail, and Colorado pikeminnow captured will be identified, measured in total length to the nearest millimeter, and weighed to the nearest gram. These species will be scanned to determine the presence of PIT tags. PIT tag number will be recorded and stored in the PIT tag reader for those fish encountered with PIT tags. Individuals

without PIT tags will be implanted with a new PIT tag following the appropriate protocol. Capture locations for these species will be recorded to the nearest tenth of a river mile. UTMs associated with capture locations will also be recorded, when possible. All native species captured will be released alive, immediately. Any native fish captured that is visibly stressed will not be processed, but rather released in the river, immediately.

Field Methods-White River

Main channel electrofishing to target smallmouth bass will be the focus of this sampling effort. This portion of the study will occur in early to mid-May on the descending limb of the hydrograph when water temperatures will likely favor the smallmouth bass spawning period. A minimum of nine total days will be expended during this portion of the study, which will primarily focus in the upper most 10 miles of river downstream of the Taylor Draw dam, within the area of greatest smallmouth bass concentration. These efforts will be coordinated with the USFWS.

Two, two-person electrofishing crews will utilize rafts equipped with outboard motors to perform sampling in the main channel. Each crew will simultaneously sample the left and right shorelines in a downstream direction utilizing ETS electrofishing equipment. Island perimeters will also be electrofished. No river segment will be electrofished on consecutive days to allow for fish recovery and redistribution. Each raft will process fish collected.

All smallmouth bass and other nonnative fish (excluding salmonids and channel catfish) taken by this method will be identified by species, measured for total length to the nearest millimeter, weighed to the nearest gram, and lethally removed and disposed of in a landfill. Capture locations for smallmouth bass will be recorded to the nearest tenth of a river mile. Nonnative species of unusual occurrence, i.e. walleye, burbot, grass carp, etc. will have their otoliths extracted prior to disposal.

Colorado pikeminnow captured will be identified, measured in total length to the nearest millimeter, and weighed to the nearest gram. This species will be scanned to determine the presence of PIT tags. PIT tag number will be recorded and stored in the PIT tag reader for those fish encountered with PIT tags. Individuals without PIT tags will be implanted with a new PIT tag following the appropriate protocol. Capture locations for Colorado pikeminnow will be recorded to the nearest tenth of a river mile. UTMs associated with capture locations will also be recorded, when possible. All Colorado pikeminnow captured will be released alive, immediately. Any native fish captured that is visibly stressed will not be processed, but rather returned to the location of capture within the river, immediately.

Data Collection and Analysis-Colorado River

All data collected will follow the same guidelines that the USFWS will be utilizing. In addition to fisheries information, water temperature, water conductivity, ETS settings, and gear effort will also be recorded. Quality assurance and quality control protocols provided annually by the Recovery Program Director's Office and/or the USFWS will be followed during data compilation and organization. All of the CPW validated data will be provided to the USFWS. Colorado Parks and Wildlife will not perform data analysis for this supplemental project; all data collected will be analyzed by the USFWS.

Data Collection and Analysis-White River

All data collected will follow the same guidelines that the USFWS will be utilizing. In addition to fisheries information, water temperature, water conductivity, ETS settings, and gear effort will also be recorded. Quality assurance and quality control protocols provided annually by the Recovery Program Director's Office and/or the USFWS will be followed during data compilation and organization. All of the CPW validated data will be provided to the USFWS. Colorado Parks and Wildlife will not perform data analysis for this supplemental project; all data collected will be analyzed by the USFWS.

VII. Task Description and Schedule:

Task 1. Plan logistics, hire and train personnel, order and maintain equipment, and prepare for sampling (Project #126b and #167b)
Schedule: January-March 15, 2018

Task 2. Sample Colorado River study area to capture and remove smallmouth bass and northern pike (Project #126b)
Schedule: June-September, 2018

Task 3. Acquire permission from landowners to capture and remove smallmouth bass and northern pike residing in constructed, private ponds within the floodplain of the Colorado River (Project #126b)
Schedule: March 15, 2018-November, 2018

Task 4. Organize and validate Project #126b data and submit to the USFWS (Project #126b)
Schedule: By November 1, 2018

Task 5. Sample White River study area to capture and remove smallmouth bass (Project #167b)
Schedule: May-July, 2018

Task 6. Organize and validate Project #167b data and submit to the USFWS (Project #167b)
Schedule: By November 1, 2018

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

FY 2018:

FY-2018 Budget by Task:						
2.5% increase in temp salaries			Tech 1 Wage:	$15.54		
			Tech II Wage:	$16.71		
			Benefits:	21.6000%		
			Indirect:	34.0000%		
Task 1.						
Labor: One seasonal technician (Technician I)-1, 5-day week at 8 hours/day						Subtotals
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$15.54	$134	$257	1	$1,012.86
Labor: One seasonal technician (Technician II)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$16.71	$144	$276	1	$1,089.12
Equipment:						
Merwin trap parts and maintenance (includes shipping)						$1,250.00
Three ETS factory calibration and shipping @ $160 each						$480.00
Generator motor oil, fuel, misc. parts, and maintenance						$750.00
Boat motor oil and fuel, misc. parts, and maintenance						$1,250.00
Boat and raft trailer maintenance						$800.00
6 gill nets @ $250 each						$1,500.00
					Task 1 Total:	**$8,131.98**
Task 2.						
Labor: One seasonal technician (Technician I)-1.5, 5-day weeks @ 12hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$15.54	$201	$385	2	$3,038.58
	OT-hours:					
	30	$23.31	$151	$289	2	$2,278.93
Labor: One seasonal technician (Technician II)-1.5, 5-day weeks @ 12 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$16.71	$217	$415	2	$3,267.35
	OT-hours:					
	30	$25.07	$162	$311	2	$2,450.51
					Task 2 Total:	**$11,035.38**

Task 3.						
Labor: One seasonal technician (Technician I)-4, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	160	$15.54	$537	$1,028	2	$8,102.88
Labor: One seasonal technician (Technician II)-4, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	160	$16.71	$577	$1,105	2	$8,712.94
	Lodging:	Nights	Each	Positions		
					Task 3 Total:	**$16,815.82**
Task 4.						
Labor: One seasonal technician (Technician I)-1.5, 5-day weeks at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$15.54	$201	$385	1	$1,519.29
Labor: One seasonal technician (Technician II)-1.5, 5-day weeks at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$16.71	$217	$415	1	$1,633.68
					Task 4 Total:	**$3,152.97**
Task 5.						
Labor: One seasonal technician (Technician I)-3, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	120	$15.54	$403	$771	2	$6,077.16
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	2	$1,602	$1,602.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	2	$1,224	$1,224.00
Labor: One seasonal technician (Technician II)-3, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	120	$16.71	$433	$829	2	$6,534.71
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	2	$1,602	$1,602.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	2	$1,224	$1,224.00
Labor: One Wildlife Manager III						
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	1	$801	$801.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	1	$612	$612.00
					Task 5 Total:	**$19,676.87**

Task 6.						
Labor: One seasonal technician (Technician I)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$15.54	$134	$257	1	$1,012.86
Labor: One seasonal technician (Technician II)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$16.71	$144	$276	1	$1,089.12
					Task 6 Total:	**$2,101.98**

Task 1:	$8,132
Task 2:	$11,035
Task 3:	$16,816
Task 4:	$3,153
Task 5:	$19,677
Task 6:	$2,102
Grand Total:	**$60,915**

FY 2019:

FY-2019 Budget by Task:						
2.5% increase in temp salaries			Tech 1 Wage:	$15.93		
			Tech II Wage:	$17.13		
			Benefits:	21.6000%		
			Indirect:	34.0000%		
Task 1.						
Labor: One seasonal technician (Technician I)-1, 5-day week at 8 hours/day						Subtotals
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$15.93	$138	$263	1	$1,038.28
Labor: One seasonal technician (Technician II)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$17.13	$148	$283	1	$1,116.49
Equipment:						
Merwin trap parts and maintenance (includes shipping)						$1,250.00
Three ETS factory calibration and shipping @ $160 each						$480.00
Generator motor oil, fuel, misc. parts, and maintenance						$750.00
Boat motor oil and fuel, misc. parts, and maintenance						$1,250.00
Boat and raft trailer maintenance						$800.00
6 gill nets @ $250 each						$1,500.00
					Task 1 Total:	**$8,184.77**

Task 2.						
Labor: One seasonal technician (Technician I)-1.5, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$15.93	$206	$395	2	$3,114.84
	OT-hours:					
	30	$23.90	$155	$296	2	$2,336.13
Labor: One seasonal technician (Technician II)-1.5, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$17.13	$222	$425	2	$3,349.48
	OT-hours:					
	30	$25.70	$167	$319	2	$2,512.11
					Task 2 Total:	**$11,312.55**
Task 3.						
Labor: One seasonal technician (Technician I)-4, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	160	$15.93	$551	$1,054	2	$8,306.23
Labor: One seasonal technician (Technician II)-4, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	160	$17.13	$592	$1,133	2	$8,931.94
	Lodging:	Nights	Each	Positions		
					Task 3 Total:	**$17,238.17**
Task 4.						
Labor: One seasonal technician (Technician I)-1.5, 5-day weeks at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$15.93	$206	$395	1	$1,557.42
Labor: One seasonal technician (Technician II)-1.5, 5-day weeks at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$17.13	$222	$425	1	$1,674.74
					Task 4 Total:	**$3,232.16**
Task 5.						
Labor: One seasonal technician (Technician I)-3, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	120	$15.93	$413	$790	2	$6,229.68
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	2	$1,602	$1,602.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	2	$1,224	$1,224.00

Labor: One seasonal technician (Technician II)-3, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	120	$17.13	$444	$850	2	$6,698.95
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	2	$1,602	$1,602.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	2	$1,224	$1,224.00
Labor: One Wildlife Manager III						
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	1	$801	$801.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	1	$612	$612.00
					Task 5 Total:	**$19,993.63**
Task 6.						
Labor: One seasonal technician (Technician I)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$15.93	$138	$263	1	$1,038.28
Labor: One seasonal technician (Technician II)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$17.13	$148	$283	1	$1,116.49
					Task 6 Total:	**$2,154.77**
Task 1:	$8,185					
Task 2:	$11,313					
Task 3:	$17,238					
Task 4:	$3,232					
Task 5:	$19,994					
Task 6:	$2,155					
Grand Total:	**$62,116**					

FY 2020:

FY-2020 Budget by Task:						
2.5% increase in temp salaries			Tech 1 Wage:	$16.33		
			Tech II Wage:	$17.56		
			Benefits:	21.6000%		
			Indirect:	34.0000%		
Task 1.						
Labor: One seasonal technician (Technician I)-1, 5-day week at 8 hours/day						Subtotals
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$16.33	$141	$270	1	$1,064.35
Labor: One seasonal technician (Technician II)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$17.56	$152	$290	1	$1,144.52
Equipment:						
Merwin trap parts and maintenance (includes shipping)						$1,250.00
Three ETS factory calibration and shipping @ $160 each						$480.00
Generator motor oil, fuel, misc. parts, and maintenance						$750.00
Boat motor oil and fuel, misc. parts, and maintenance						$1,250.00
Boat and raft trailer maintenance						$800.00
6 gill nets @ $250 each						$1,500.00
					Task 1 Total:	**$8,238.87**
Task 2.						
Labor: One seasonal technician (Technician I)-1.5, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$16.33	$212	$405	2	$3,193.05
	OT-hours:					
	30	$24.50	$159	$304	2	$2,394.79
Labor: One seasonal technician (Technician II)-1.5, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$17.56	$228	$436	2	$3,433.56
	OT-hours:					
	30	$26.34	$171	$327	2	$2,575.17
					Task 2 Total:	**$11,596.56**
Task 3.						
Labor: One seasonal technician (Technician I)-4, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	160	$16.33	$564	$1,080	2	$8,514.80

Labor: One seasonal technician (Technician II)-4, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	160	$17.56	$607	$1,162	2	$9,156.15
	Lodging:	Nights	Each	Positions		
					Task 3 Total:	**$17,670.95**
Task 4.						
Labor: One seasonal technician (Technician I)-1.5, 5-day weeks at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$16.33	$212	$405	1	$1,596.53
Labor: One seasonal technician (Technician II)-1.5, 5-day weeks at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$17.56	$228	$436	1	$1,716.78
					Task 4 Total:	**$3,313.30**
Task 5.						
Labor: One seasonal technician (Technician I)-3, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	120	$16.33	$423	$810	2	$6,386.10
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	2	$1,602	$1,602.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	2	$1,224	$1,224.00
Labor: One seasonal technician (Technician II)-3, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	120	$17.56	$455	$871	2	$6,867.11
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	2	$1,602	$1,602.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	2	$1,224	$1,224.00
Labor: One Wildlife Manager III						
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	1	$801	$801.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	1	$612	$612.00
					Task 5 Total:	**$20,318.21**
Task 6.						
Labor: One seasonal technician (Technician I)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$16.33	$141	$270	1	$1,064.35

Labor: One seasonal technician (Technician II)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$17.56	$152	$290	1	$1,144.52
					Task 6 Total:	**$2,208.87**
Task 1:	$8,239					
Task 2:	$11,597					
Task 3:	$17,671					
Task 4:	$3,313					
Task 5:	$20,318					
Task 6:	$2,209					
Grand Total:	**$63,347**					

FY 2021:

FY-2021 Budget by Task:						
2.5% increase in temp salaries			Tech 1 Wage:	$16.74		
			Tech II Wage:	$18.00		
			Benefits:	21.6000%		
			Indirect:	34.0000%		
Task 1.						
Labor: One seasonal technician (Technician I)-1, 5-day week at 8 hours/day						Subtotals
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$16.74	$145	$277	1	$1,091.07
Labor: One seasonal technician (Technician II)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$18.00	$156	$298	1	$1,173.20
Equipment:						
Merwin trap parts and maintenance (includes shipping)						$1,250.00
Three ETS factory calibration and shipping @ $160 each						$480.00
Generator motor oil, fuel, misc. parts, and maintenance						$750.00
Boat motor oil and fuel, misc. parts, and maintenance						$1,250.00
Boat and raft trailer maintenance						$800.00
6 gill nets @ $250 each						$1,500.00
					Task 1 Total:	**$8,294.27**

Task 2.						
Labor: One seasonal technician (Technician I)-1.5, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$16.74	$217	$415	2	$3,273.22
	OT-hours:					
	30	$25.11	$163	$311	2	$2,454.91
Labor: One seasonal technician (Technician II)-1.5, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$18.00	$233	$447	2	$3,519.59
	OT-hours:					
	30	$27.00	$175	$335	2	$2,639.69
					Task 2 Total:	**$11,887.42**
Task 3.						
Labor: One seasonal technician (Technician I)-4, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	160	$16.74	$579	$1,107	2	$8,728.58
Labor: One seasonal technician (Technician II)-4, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	160	$18.00	$622	$1,191	2	$9,385.57
	Lodging:	Nights	Each	Positions		
					Task 3 Total:	**$18,114.16**
Task 4.						
Labor: One seasonal technician (Technician I)-1.5, 5-day weeks at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$16.74	$217	$415	1	$1,636.61
Labor: One seasonal technician (Technician II)-1.5, 5-day weeks at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$18.00	$233	$447	1	$1,759.80
					Task 4 Total:	**$3,396.40**
Task 5.						
Labor: One seasonal technician (Technician I)-3, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	120	$16.74	$434	$831	2	$6,546.44
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	2	$1,602	$1,602.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	2	$1,224	$1,224.00

Labor: One seasonal technician (Technician II)-3, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	120	$18.00	$467	$893	2	$7,039.18
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	2	$1,602	$1,602.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	2	$1,224	$1,224.00
Labor: One Wildlife Manager III						
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	1	$801	$801.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	1	$612	$612.00
					Task 5 Total:	**$20,650.62**
Task 6.						
Labor: One seasonal technician (Technician I)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$16.74	$145	$277	1	$1,091.07
Labor: One seasonal technician (Technician II)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$18.00	$156	$298	1	$1,173.20
					Task 6 Total:	**$2,264.27**
Task 1:	$8,294					
Task 2:	$11,887					
Task 3:	$18,114					
Task 4:	$3,396					
Task 5:	$20,651					
Task 6:	$2,264					
Grand Total:	**$64,607**					

FY 2022:

FY-2022 Budget by Task:						
2.5% increase in temp salaries			Tech 1 Wage:	$17.16		
			Tech II Wage:	$18.45		
			Benefits:	21.6000%		
			Indirect:	34.0000%		
Task 1.						
Labor: One seasonal technician (Technician I)-1, 5-day week at 8 hours/day						Subtotals
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$17.16	$148	$284	1	$1,118.45
Labor: One seasonal technician (Technician II)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$18.45	$159	$305	1	$1,202.53
Equipment:						
Merwin trap parts and maintenance (includes shipping)						$1,250.00
Three ETS factory calibration and shipping @ $160 each						$480.00
Generator motor oil, fuel, misc. parts, and maintenance						$750.00
Boat motor oil and fuel, misc. parts, and maintenance						$1,250.00
Boat and raft trailer maintenance						$800.00
6 gill nets @ $250 each						$1,500.00
					Task 1 Total:	**$8,350.97**
Task 2.						
Labor: One seasonal technician (Technician I)-1.5, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$17.16	$222	$426	2	$3,355.34
	OT-hours:					
	30	$25.74	$167	$319	2	$2,516.51
Labor: One seasonal technician (Technician II)-1.5, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$18.45	$239	$458	2	$3,607.58
	OT-hours:					
	30	$27.68	$179	$343	2	$2,705.69
					Task 2 Total:	**$12,185.12**
Task 3.						
Labor: One seasonal technician (Technician I)-4, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	160	$17.16	$593	$1,135	2	$8,947.58

Labor: One seasonal technician (Technician II)-4, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	160	$18.45	$638	$1,220	2	$9,620.21
	Lodging:	Nights	Each	Positions		
					Task 3 Total:	**$18,567.79**
Task 4.						
Labor: One seasonal technician (Technician I)-1.5, 5-day weeks at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$17.16	$222	$426	1	$1,677.67
Labor: One seasonal technician (Technician II)-1.5, 5-day weeks at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	60	$18.45	$239	$458	1	$1,803.79
					Task 4 Total:	**$3,481.46**
Task 5.						
Labor: One seasonal technician (Technician I)-3, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	120	$17.16	$445	$851	2	$6,710.69
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	2	$1,602	$1,602.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	2	$1,224	$1,224.00
Labor: One seasonal technician (Technician II)-3, 5-day weeks @ 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	120	$18.45	$478	$915	2	$7,215.16
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	2	$1,602	$1,602.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	2	$1,224	$1,224.00
Labor: One Wildlife Manager III						
	Lodging:	Nights	Each	Positions		
3 nights/trip x 3 trips		9	$89.00	1	$801	$801.00
	Per diem:	Days	Each	Positions		
4 days/trip x 3 trips		12	$51.00	1	$612	$612.00
					Task 5 Total:	**$20,990.85**
Task 6.						
Labor: One seasonal technician (Technician I)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$17.16	$148	$284	1	$1,118.45

Labor: One seasonal technician (Technician II)-1, 5-day week at 8 hours/day						
	Hours:	Salary/hr	Benefits	Indirect	Positions	
	40	$18.45	$159	$305	1	$1,202.53
					Task 6 Total:	**$2,320.97**
Task 1:	$8,351					
Task 2:	$12,185					
Task 3:	$18,568					
Task 4:	$3,481					
Task 5:	$20,991					
Task 6:	$2,321					
Grand Total:	**$65,897**					

IX. Budget Summary:

FY 2018: $60,915
FY 2019: $62,116
FY 2020: $63,347
FY 2021: $64,607
FY 2022: $65,897

X. Reviewers:

Harry Crockett, Ben Felt, Jenn Logan, and Tory Eyre; Recovery Program Director's Office, Biology Committee

XI. References:

Burdick, B.D. 2007. Colorado River smallmouth bass removal. Scope of work prepared for the Recovery Implementation Program for the Endangered Fishes of the Upper Colorado River Basin. Recovery Program Project Number 126. U.S. Fish and Wildlife Service, Colorado River Fishery Project, Grand Junction, Colorado.

----. 2011. Colorado River smallmouth bass removal. Scope of work prepared for the Recovery Implementation Program for the Endangered Fishes of the Upper Colorado River Basin. Recovery Program Project Number 126. U.S. Fish and Wildlife Service, Colorado River Fishery Project, Grand Junction, Colorado.