

**COLORADO RIVER RECOVERY PROGRAM  
FY 2014 – FY 2017 PROPOSED SCOPE OF WORK**

**Project No.: 98a**

Middle Yampa River northern pike removal and evaluation; Middle Yampa River (South Beach section) smallmouth bass removal and evaluation

Reclamation Agreement number: 08FG402776

Reclamation Agreement term: 2013-2017

Lead Agency: Colorado Parks and Wildlife

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Date: January 21, 2005; revised 1/28/05 by LMM; revised 6/24/2005 by LMM; revised 7/22/05 by LMM; revised 3/15/06 by LMM; revised 3/27/07 by LMM; revised by Sherman Hebein 4/17/2008; 10/23/2008; Revised by Boyd Wright 3/13/2009; revised by Boyd Wright 1/6/2010; revised by Boyd Wright 1/20/2010; revised by Kyle Battige 2/6/2013; revised by Sherman Hebein 2/14/2013; updated by Angela Kantola 5/17/13 and Harry Crockett 5/26/2013

Category:

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

Expected Funding Source:

- Annual funds
- Capital funds
- Other (explain)

**I. Title of Proposal:**

Middle Yampa River northern pike removal and evaluation; Middle Yampa River smallmouth bass removal and evaluation

**II. Relationship to RIPRAP:**

This study will remove northern pike from the middle Yampa River and evaluate the efficiency of that effort. Smallmouth bass will also be removed from the entire Colorado Parks and Wildlife (CPW) study area and the efficiency of the removal evaluated.

Green River Action Plan: Yampa and Little Snake rivers:

III. Reduce negative impacts of nonnative fishes and sportfish management activities (nonnative and sportfish management).

III.A.1. Implement Yampa Basin aquatic wildlife management plan in reaches of the Yampa River occupied by endangered fishes. Each control activity will be evaluated for effectiveness and then continue as needed.

III.A.1.b. Control northern pike.

III.A.1.b.(1) Remove and translocate northern pike and other sport fishes from the Yampa River.

### **III. Study Background/Rationale and Considerations:**

#### Study Background/Rationale:

Susceptibility of the Colorado River Basin to nonnative fish establishment has been attributed to the low diversity of the native fish fauna, a high degree of endemism of this fauna, and the highly altered physical habitat of the basin (Hawkins and Nesler 1991). Bezzerides and Bestgen (2002) report that the native fish fauna of the Colorado River Basin consists of at least 35 species, while at least 100 nonnative fishes have been introduced into the basin (Tyus and Saunders (2000). Twenty-eight of these nonnative fish species were identified as threats to native fishes through a recent survey of regional fisheries biologists (Hawkins and Nesler 1991). Of these 28 species, the northern pike (*Esox lucius*) was considered by biologists as the third greatest hazard to native fishes (Hawkins and Nesler 1991).

In Colorado, the northern pike is one of 40 known, introduced fish species currently existing within the Colorado River Basin (Nesler 2003). This species has been extensively introduced outside of the species' native range for use as a large, sportfish, and as a predator to control other fishes (Scott and Crossman 1973). Northern pike were first introduced to the Yampa River Basin of Colorado in 1977. Less than 1,000 fingerling northern pike were released into Elkhead Reservoir to predate on a large number of nonnative suckers present (Roehm 2004). Elkhead Creek is located approximately four miles upstream of Craig, and is the receiving stream of Elkhead Reservoir. This creek is tributary to the Yampa River. Movement of northern pike downstream was evidenced by collection of this species in the Yampa River, as early as 1979 (Tyus and Beard 1990). Northern pike numbers within the river had increased by the early 1980s (Wick et al. 1985; Tyus and Beard 1990). Subsequent downstream movement of northern pike into the Green River was first documented less than five years after initial release in Elkhead Reservoir (Tyus and Beard 1990). This species has since established itself as a self-sustaining population within the Yampa River.

Influences of such introductions on native fish fauna are cause for great concern, especially in areas occupied by endangered species. The Yampa River downstream of Craig is designated by the U.S. Fish and Wildlife Service (USFWS) as critical habitat for the federal- and state-listed Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), bonytail (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*). Primary threats to these native species include competition with, and predation by nonnative fish species (USFWS 2002). The northern pike has

been identified as one of two principal, nonnative hazards to juvenile and adult Colorado pikeminnow (USFWS 2002). Northern pike and Colorado pikeminnow share similar habitat in the spring and early summer during the spawning season. Both species also rely on native sympatric species, such as roundtail chub (*Gila robusta*), flannelmouth sucker (*Catostomus latipinnis*), bluehead sucker (*Catostomus discobolus*), and speckled dace (*Rhinichthys osculus yarrowi*) as prey (Tyus and Beard 1990; Nesler 1995). Further, Nesler (1995) found that the nonnative redbreasted shiner may also be a common prey item of northern pike and Colorado pikeminnow. Overall resource sharing between the two species may also increase the likelihood of northern pike predation on young and adult endangered fishes (Tyus and Beard 1990; Nesler 1995). Thus, the potential impacts of northern pike competition with, and predation of native, sympatric species (especially the Colorado pikeminnow) are severe.

This proposed study is one of several designed for removal of northern pike and smallmouth bass, and evaluation of such efforts within the upper Colorado River Basin. CPW and Colorado State University (CSU) have cooperatively worked together to develop the logistics within this proposal. These collaborative efforts will increase the efficiency and effectiveness of removing northern pike and smallmouth bass within the middle Yampa River. Evaluation of the removal efforts will assist the Upper Colorado Recovery Program in attaining nonnative fish management goals.

#### Study Considerations:

Colorado Parks and Wildlife will complete a minimum of three removal passes across 47.3 miles within the time frame that weather and river conditions allow. Further, CPW will work with CSU and the US Fish and Wildlife Service-Vernal office (USFWS) to complete four additional removal passes within Reach 1 and Reach 3. The mark and recapture passes for both species will occur in a three week time period.

A crew of eight to nine people will be required to complete this project. Temporaries will be hired for 29, 40-hour work weeks (6.71 months). Four weeks (two weeks pre-sampling and two weeks post-sampling) of the 29 weeks will be devoted to crew training, preparation and maintenance of boats and equipment, and data entry. Temporaries will work thirteen to fifteen weeks on the river to capture, remove, and translocate northern pike. Smallmouth bass will be captured and removed. Four to five additional weeks during the period allotted for river sampling will be dedicated to crew recovery, use of compensation time, and boat/equipment maintenance. Further, five weeks of this time are set aside for targeted smallmouth bass removal during the spawning period. Temporary employees will not be paid overtime wages.

#### **IV. Study Goals, Objectives, End Product:**

##### Study Goals:

- 1) To reduce the number of northern pike occupying 47.3 river miles of critical habitat within the Yampa River downstream of Craig, Colorado (RM 134.2 –

- RM 60.6), thereby benefiting native fishes of the Yampa River Basin, as well as native fish communities downstream within the Green River Basin
- 2) To transport live northern pike collected from the study area for release in Kyle's Pond at the State Park Headquarters, thereby increasing angler opportunities to harvest northern pike
  - 3) To reduce the number of smallmouth bass occupying 47.3 river miles of critical habitat within the Yampa River downstream of Craig, Colorado for the benefit of Yampa and Green River native fishes.

Study Objectives:

- 1) To remove as many northern pike as possible within the study area via three or more removal passes, and translocate individuals  $\geq 20$ " in length
- 2) To estimate the number of northern pike occupying the study area by generating a population estimate for northern pike utilizing a mark-recapture methodology (1 marking pass, minimum of 3 removal passes). CPW did not pursue this objective in 2013 as the BC agreed to reassess population estimation following the 2013 field season. 2014 plans will be determined after that reassessment.
- 3) To calculate the number of northern pike removed.
- 4) To remove as many smallmouth bass as possible within Critical Habitat of the middle Yampa River, downstream of Craig, CO, thereby benefiting native fishes of the Yampa River basin as well as native fish communities downstream within the Green River Basin.
- 5) To implement targeted removal of smallmouth bass during the SMB spawning in a coordinated effort with CSU, and with CSU as the lead.
- 6) To provide CSU with smallmouth bass data to estimate the number of smallmouth bass occupying Critical Habitat of the middle Yampa River.
- 7) To calculate the number of smallmouth bass removed.

End Product:

Annual Reports will be prepared and distributed to interested parties following the field season. Smallmouth bass data will be provided to CSU. Presentations will also be provided during the Annual Nonnative Fish Control Workshop, and at the Annual Recovery Program Researchers' Meeting.

**V. Study Area:**

The study area for this project will focus on 47.3 miles of the Yampa River just downstream of Craig, Colorado (RM 134.2) to just upstream of Cross Mountain Canyon (RM 60.6). Specific river segments to be sampled include: RM 134.2 (South Beach launch) to RM 124.0 (Round Bottom), RM 100.0 (upstream Government Bridge) to RM 91.0 (mouth of Little Juniper Canyon), RM 88.7 (downstream of Juniper Canyon) to RM 79.2 (old Maybell bridge launch), RM 79.2 to RM 71.0 (Sunbeam launch), and RM 71.0 to RM 60.6 (just upstream of Cross Mountain launch). Northern pike will not be removed by CPW in 24 miles of river, RM 124 (Round Bottom) to RM 100 (near Government Bridge). CSU has established this

reach as a smallmouth bass study area. These 24 miles have also been included in previous studies for northern pike removal. Therefore, CSU will remove northern pike within these stretches in conjunction with their smallmouth bass study. CSU will also remove smallmouth bass and northern pike from downstream of Cross Mountain Canyon (RM 55.5) to just downstream of the Little Snake River confluence (RM 50.5). CSU's northern pike data will be collated with CPW data and reported by CPW. Colorado Parks and Wildlife will also remove smallmouth across the entire CPW study area. Approximately two miles of river within Juniper Canyon will not be sampled, due to non-navigable riverine conditions.

## **VI. Study Methods/Approach:**

All northern pike, smallmouth bass, roundtail chub, and Colorado pikeminnow captured will be identified, measured in total length to the nearest millimeter (mm), and weighed to the nearest gram (g). Capture locations for northern pike and smallmouth bass will be recorded to the nearest tenth of a river mile. Northern pike and smallmouth bass collected will be examined for the presence of FLOY tags, and fin clips. FLOY tag number and color will be recorded. FLOY tag numbers and color combinations will be updated annually.

Colorado pikeminnow and roundtail chub captured 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; tags for Colorado pikeminnow will be provided by the USFWS. Capture locations for Colorado pikeminnow and roundtail chub will be recorded to the nearest tenth of a river mile. UTM coordinates associated with capture locations will also be recorded, when possible. All Colorado pikeminnow and roundtail chub 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.

Incidental contact with other nonnative game fish (including centrarchids and walleye, excluding channel catfish) will result in lethal removal. Samples will also be provided to the State Health Department for heavy metals analysis. Disposal of all the aforementioned fishes will be as follows: following capture, fish will be euthanized in the field, and preserved with ice. All other dead fish will be disposed of in the Mesa County landfill southeast of Grand Junction, Colorado, or in the Moffat County landfill south of Craig, Colorado.

Capture and removal of northern pike within main channel and backwater habitat will be the focus of this sampling effort. Further, capture and removal of smallmouth bass across the entire study area will continue in 2013 and in out years pending Recovery Program direction. Incidental contact with Colorado pikeminnow and roundtail chub will be handled per the protocol below. This study will occur between the middle of April and end of July. Ten day trips across two weeks (seven/eight days on the river

and two/three days travel) will constitute one pass. A minimum of three passes will be completed for northern pike and smallmouth bass removal in Reach 2, Reach 4, and Reach 5. A minimum of seven removal passes will be completed in Reach 1 and Reach 3.

In some years, one pass during the study will be designated for tagging and releasing northern pike. In order to integrate USFWS's study area into a combined northern pike estimate, CPW would normally initiate a northern pike tagging pass on April 20<sup>th</sup>, when USFWS plans to start on the river. This would likely be CPW's second pass overall. As such, the third pass would constitute the recapture pass and the second removal pass for northern pike. The smallmouth bass marking pass would commence when CSU initiated their third pass, a date which has not yet been determined. For 2013 and potentially future years, all mark-recapture runs will be removal only, pending Recovery Program direction on population estimates.

All smallmouth bass captured during removal passes will be euthanized and either deposited in Rio Blanco County Landfill or donated to CSU for research purposes.

Northern pike greater than 20 inches in total length that are captured on removal passes will be translocated to Kyle's Pond at Yampa River State Park Headquarters. Northern pike that are removed from the river and translocated to other waters will be given a unique numbered Gray FLOY tag, if they did not already have a tag when captured. Those fish that were previously tagged will be translocated with that same tag.

Two, three-man electrofishing crews will utilize jon boats with outboard jet units within each river segment to perform sampling in the main channel. Each crew will simultaneously move downstream with ETS electrofishing equipment. One crew will work one side of the river, while the second crew will work the other side. Island perimeters will also be electrofished. No river segment will be electrofished on consecutive days to allow for fish recovery and redistribution. A third, chase boat, will be operated by two additional crew members to process northern pike and other fish captured at a maximum of 2.0 mile intervals, depending on the number of fish caught.

Backwaters where CPW has obtained permission to sample will also be included within the study. Both crews will sample backwater areas along both sides of the river. A trammel net will be used with a block and shock technique. Backwater habitats will be sampled until the river recedes and habitat is no longer accessible. Output power will be adjusted within backwaters based upon changes in river conductivity. Additionally, output power will be reduced during the boat approach to the blocked mouth. Both processes will minimize the potential for electrofishing injuries to fish.

Data collected will be analyzed to determine northern pike and smallmouth bass population estimates (only in estimate years), fish densities, length frequency

distributions, catch per unit effort, and movement. Length frequencies and catch per unit effort will also be determined for Colorado pikeminnow and roundtail chub. Annual Reports will include the data analyses mentioned above for all years of study in which comparable methodology and data exists. Data collected regarding Colorado pikeminnow will be provided to the USFWS.

### *The Surge*

As has been the case since 2010, CPW will assist CSU with a targeted intensive smallmouth bass removal effort during the smallmouth bass spawning period. This will include the use of three electrofishing boats and a crew of four to five employees. Previous work has shown that adult smallmouth bass are most vulnerable to our sampling gear during this period and increased rates of removal can be achieved. Further, this effort aims to explore our ability to interfere with the spawning process by increasing the return frequency to identified river reaches during the spawning period. For more information regarding the surge effort see SOW #125.

### *The Extended Surge*

Intensive removal of smallmouth bass during their spawning period has become known as “The Surge”, an activity that concentrates the efforts of several agencies in reaches with spawning habitat. In 2012, the Surge began on May 30th and stopped 20 days later on June 19<sup>th</sup> when flows declined to base flow levels below 1000 cfs. Flows below 1000 cfs are unsafe for navigation when using hard bottom aluminum electrofishing boats. Recent work by Bestgen and Hill showed that smallmouth bass spawning continues for about 4 weeks and often for 2-3 weeks after flows decline to 1000 cfs. In order to maximize the disruption of spawning this new Task will extend The Surge beyond the 1000-cfs threshold by switching to electrofishing rafts. We will also try other gear as needed including small aluminum electrofishing boats, trammel nets, and angling over nests. This extended work will be done by CSU-LFL and CPW crews and will focus on the same spawning reaches as The Surge. We are planning for this extended period to occur for an additional 2-3 weeks after flow declines below 1000 cfs. Fish will be shocked by two electrofishing crews with two boats, one on each side of the river and northern pike that are to be translocated will be held in a chase boat (raft) in large coolers with oxygenated water. Colorado Parks and Wildlife and CSU-LFL will each contribute two electrofishing rafts and one chase raft. Colorado Parks and Wildlife will contribute four or more people and CSU-LFL will contribute six people to this effort. For more information regarding the extended surge effort see SOW #125.

## **VII. Task Description and Schedule:**

Task 1. Establish landowner contacts, and obtain permission to access property (backwaters) for fish sampling.

Schedule: February - March 2014

Task 2. Plan logistics, hire and train personnel, order and maintain equipment, and prepare for sampling.

Schedule: February-April 2014

Task 3. Sample study area to capture, remove, and translocate northern pike. Limited data entry.

Schedule: April 15 – June 15, 2014

Task 4. “The Surge” -Targeted Removal During Bass Spawn:

Schedule: June 15-July 7, 2014

Task 4.5 “The Extended Surge” – Low Flow Targeted Removal During Bass Spawn completed using electrofishing rafts.

Schedule: July 2014

Task 5. Maintenance of equipment, data entry, data analysis, and preparation of final report. Present findings during the Annual Nonnative Fish Control Workshop, and at the Annual Recovery Program Researchers Meeting.

Schedule: August-December 2014, January 2014; August-December 2014, January 2015

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

**FY-2014 Work:**

Deliverables/Due Dates:				2014 Estimated Budget			
				5% increase in Tech I and II salaries			
FY-2013 Budget by Task:							
<b>Task 1.</b>							
Labor =							
Two Wildlife Manager IIIs:							
		Lodging:	Nights	Each	Positions	Total	
			8	\$83.00	2	\$1,328	
		Per diem:	Days	Each	Positions	Total	
			10	\$46.00	2	\$920	
					Task 1 Total:		\$2,248
<b>Task 2.</b>							
Labor= One seasonal technician (Technician I)							
	Benefits=	16.10%	Indirect=	29.16%			
		Hours	Salary/hr	Benefits	Indirect	Positions	
		120	14.19	\$274	\$576	3	\$7,660
Labor= One seasonal technician (Technician II)							
	Benefits=	16.10%	Indirect=	29.16%			
		Hours	Salary/hr	Benefits	Indirect	Positions	
		120	\$16.40	\$317	\$666	1	\$2,951
Equipment =							
Two ETS MBS-IDP-RLY-COS replacement units							\$12,428
ETS factory calibration and shipping @ \$160 each							\$320
Two Honda 6500 watt generators @ \$2,750 each							\$5,500
Dip nets; fish measuring boards; fish scales ; net pens							
24 nets at \$79 each							\$1,896

	5 measuring boards @ \$42 each						\$210
	8 spring scales @ \$53/each =						\$424
	Two net pens @ \$100 each						\$200
Fish hauling tank and regulators, aerators, and oxygen							
	12 oxygen tanks rental @ \$22/each = \$264)						\$264
FLOY tags, guns, and needles (per FLOY Tag)							
	2,000 tags @ \$520/1,000 tags						\$1,040
	5 guns @ \$50/each						\$250
	12 needles @ \$8/each						\$96
PIT tags and implanter (per Biomark)							
	100 tags @ \$4.50/tag = \$450						\$450
	2 sets of one dozen implanters @ \$25/dozen						\$50
Waders, lifejackets, rain gear, electrofishing gloves							
	5 pairs of waders/boots @ \$179/each						\$895
	5 lifejackets @ \$116/each						\$580
	5 sets of heavy duty rain coats and pants @ \$200 each						\$1,000
	16 pairs of gloves @ \$30/each						\$480
Maintenance of boats and trailers (includes replacement,							
	repair and maintenance of boat and trailer parts:						
	3 tune-ups @ \$100/ each						\$300
	6 spare jet sleeves/liners @ \$42/each						\$252
	3 spare impellers @ \$450/each						\$1,350
	9 spare water pumps and kits @ \$60/each						\$450
	6 spare throttle and steering cables @ \$45/each						\$270
	2 spare batteries @ \$50/each						\$100
	6 trailer bunks @ \$50/each						\$300
	trailer lights and bearings						\$250
	Injection motor oil and grease						\$800
	Boat fuel: 3 @ \$1,400/each						\$4,200
	Generator motor oil and fuel; misc. parts						\$950
	Maintenance of electrofishing arrays						\$1,644
	Replacement anodes, cathodes, plugs, booms, wiring, and hardware						
					Task 2 Total:		\$47,560
<b>Task 3.</b>							
	Labor =						
Three seasonal technicians (Technician I's):				15, 40 hour weeks			
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$14.19	
		Hours	Salary	Benefits	Indirect	Positions	
		600	\$8,514	\$1,371	\$2,882	3	\$38,301
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 5 trips		40	\$83.00	3	\$9,960	\$9,240
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 5 trips		50	\$46.00	3	\$6,900	\$6,900
One seasonal technician (Technician II)				15, 40 hour weeks			
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$16.40	
		Hours	Salary/hr	Benefits	Indirect	Positions	
		600	16.4	\$1,584	\$3,331	1	\$14,756
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 5 trips		40	\$83.00	1	\$3,320	\$3,080
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 5 trips		50	\$46.00	1	\$2,300	\$2,300
Four Wildlife Manager IIIs:							
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 5 trips		40	\$83.00	4	\$13,280	\$12,320
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 5 trips		50	\$46.00	4	\$9,200	\$9,200
					Task 3 Total:		\$96,097
<b>Task 4.</b>							
	Labor =						
Three seasonal technicians:							

	Benefits=	16.10%	Indirect=	29.16%	Salary/hr	\$14.19	
		Hours	Salary	Benefits	Indirect	Positions	
		200	\$2,838	\$457	\$961	3	\$12,767
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	3	\$5,976	\$5,544
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	3	\$4,140	\$4,140
<b>One seasonal Technician (Technician II)</b>							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr	\$16.40	
		Hours	Salary/hr	Benefits	Indirect	Positions	
		200	16.4	\$528	\$1,110	1	\$4,919
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	1	\$1,992	\$1,848
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	1	\$1,380	\$1,380
<b>Wildlife Manager III</b>							
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	1	\$1,992	\$1,848
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	1	\$1,380	\$1,380
					Task 4 Total:		\$33,826
<b>Task 4.5</b>							
Labor=							
<b>Three seasonal technicians (Technician I):</b>							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$14.19	
		Hours	Salary	Benefits	Indirect	Positions	
		120	\$1,703	\$274	\$576	3	\$7,660
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	3	\$5,976	\$5,544
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	3	\$4,140	\$4,140
<b>One seasonal technician (Technician II):</b>							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$16.40	
		Hours	Salary/hr	Benefits	Indirect	Positions	
		120	16.4	\$317	\$666	1	\$2,951
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	1	\$1,992	\$1,848
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	1	\$1,380	\$1,380
<b>Wildlife Manager III</b>							
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	1	\$1,992	\$1,848
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	1	\$1,380	\$1,380
					Task 4.5 Total:		\$26,751
<b>Task 5.</b>							
Labor =							
<b>Three seasonal technicians (Technician Is)</b>							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$14.19	
		Hours	Salary	Benefits	Indirect	Positions	
		120	\$1,703	\$274	\$576	3	\$7,660
<b>One seasonal technician (Technician II):</b>							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$16.40	
		Hours	Salary/hr	Benefits	Indirect	Positions	
		120	\$16.40	\$317	\$666	1	\$2,951
					Task 5 Total:		\$10,611
Task 1:	\$2,248						
Task 2:	\$47,560						
Task 3:	\$96,097						
Task 4:	\$33,826						
Task 4.5:	\$26,751						
Task 5:	\$10,611						

	\$217,094	SOW Total				
		Colorado In-Kind Contribution Adjustment				
Award:	\$217,094					

**2014: Grand Total to CDOW from USBR = \$TBD**

**Changes in Number of Removal Passes and Allocation of Effort**

The removal effort expended for both species since 2010 will be repeated in 2014, and increased for smallmouth bass specifically to account for recommendations to target smallmouth bass during their spawning period, and when flows have dropped below the threshold that render aluminum bottomed john boats unsafe for river use. Once flows reach this threshold, we will switch to other gear until smallmouth bass spawning has ceased.

**Additional Costs to Scope of Work**

Most of the additional costs associated with 98a level of effort in the FY14 scope of work are a result of extending The Surge. These costs are associated with the need for additional personnel time, travel per diem, and lodging. Further, one of the four seasonal technicians required for this project was switched from Technician I wages (\$13.51/hour) to Technician II wages (\$15.62/hour FY13). This is to account for the anticipated return of a seasonal employee who has worked on this project for three years, and who fulfills a higher level of responsibility than the other Technician I's. For planning purposes the \$13.51/hour rate for three Technician I's and the \$15.62/hour rate for one Technician II was used for the FY13 budget. FY14 temporary employee salaries increase by 5% (includes extended surge):

FY 2015 Estimated Budget:

Temporary employee salaries increase by 2.5% (includes extended surge): Colorado In-Kind Contribution not taken.

Deliverables/Due Dates:				2015 Estimated Budget			
				2.5% increase in Tech I and II salaries			
FY-2013 Budget by Task:							
<b>Task 1.</b>							
Labor =							
Two Wildlife Manager IIIs:							
		Lodging:	Nights	Each	Positions	Total	
			8	\$83.00	2	\$1,328	
		Per diem:	Days	Each	Positions	Total	
			10	\$46.00	2	\$920	
						Task 1 Total:	\$2,248
<b>Task 2.</b>							
Labor= One seasonal technician (Technician I)							
	Benefits=	16.10%	Indirect=	29.16%			
		Hours	Salary/hr	Benefits	Indirect	Positions	
		120	14.54	\$281	\$591	3	\$7,849
Labor= One seasonal technician (Technician II)							
	Benefits=	16.10%	Indirect=	29.16%			

	Hours	Salary/hr	Benefits	Indirect	Positions	
	120	\$16.81	\$325	\$683	1	\$3,025
<b>Equipment =</b>						
Two ETS MBS-IDP-RLY-COS replacement units						\$12,428
ETS factory calibration and shipping @ \$160 each						\$320
Two Honda 6500 watt generators @ \$2,750 each						\$5,500
<b>Dip nets; fish measuring boards; fish scales ; net pens</b>						
24 nets at \$79 each						\$1,896
5 measuring boards @ \$42 each						\$210
8 spring scales @ \$53/each =						\$424
Two net pens @ \$100 each						\$200
<b>Fish hauling tank and regulators, aerators, and oxygen</b>						
12 oxygen tanks rental @ \$22/each = \$264)						\$264
<b>FLOY tags, guns, and needles (per FLOY Tag)</b>						
2,000 tags @ \$520/1,000 tags						\$1,040
5 guns @ \$50/each						\$250
12 needles @ \$8/each						\$96
<b>PIT tags and implanter (per Biomark)</b>						
100 tags @ \$4.50/tag = \$450						\$450
2 sets of one dozen implanters @ \$25/dozen						\$50
<b>Waders, lifejackets, rain gear, electrofishing gloves</b>						
5 pairs of waders/boots @ \$179/each						\$895
5 lifejackets @ \$116/each						\$580
5 sets of heavy duty rain coats and pants @ \$200 each						\$1,000
16 pairs of gloves @ \$30/each						\$480
<b>Maintenance of boats and trailers (includes replacement,</b>						
<b>repair and maintenance of boat and trailer parts:</b>						
3 tune-ups @ \$100/ each						\$300
6 spare jet sleeves/liners @ \$42/each						\$252
3 spare impellers @ \$450/each						\$1,350
9 spare water pumps and kits @ \$60/each						\$450
6 spare throttle and steering cables@ \$45/each						\$270
2 spare batteries @ \$50/each						\$100
6 trailer bunks @ \$50/each						\$300
trailer lights and bearings						\$250
Injection motor oil and grease						\$800
Boat fuel: 3 @ \$1,400/each						\$4,200
Generator motor oil and fuel; misc. parts						\$950
Maintenance of electrofishing arrays						\$1,644
Replacement anodes, cathodes, plugs, booms, wiring, and hardware						
<b>Task 2 Total:</b>						<b>\$47,823</b>
<b>Task 3.</b>						
<b>Labor =</b>						
Three seasonal technicians (Technician I's):				15, 40 hour weeks		
Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$14.54	
	Hours	Salary	Benefits	Indirect	Positions	
	600	\$8,724	\$1,405	\$2,953	3	\$39,246
Lodging:		Nights	Each	Positions	Total	
8 nights/trip x 5 trips		40	\$83.00	3	\$9,960	\$9,240
Per diem:		Days	Each	Positions	Total	
10 days /trip x 5 trips		50	\$46.00	3	\$6,900	\$6,900
One seasonal technician (Technician II)				15, 40 hour weeks		
Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$16.81	
	Hours	Salary/hr	Benefits	Indirect	Positions	
	600	16.81	\$1,624	\$3,415	1	\$15,124
Lodging:		Nights	Each	Positions	Total	
8 nights/trip x 5 trips		40	\$83.00	1	\$3,320	\$3,080
Per diem:		Days	Each	Positions	Total	
10 days /trip x 5 trips		50	\$46.00	1	\$2,300	\$2,300
<b>Four Wildlife Manager IIIs:</b>						

	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 5 trips		40	\$83.00	4	\$13,280	\$12,320
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 5 trips		50	\$46.00	4	\$9,200	\$9,200
						Task 3 Total:	\$97,411
<b>Task 4.</b>							
Labor =							
Three seasonal technicians:							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr	\$14.54	
		Hours	Salary	Benefits	Indirect	Positions	
		200	\$2,908	\$468	\$984	3	\$13,082
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	3	\$5,976	\$5,544
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	3	\$4,140	\$4,140
One seasonal Technician (Technician II)							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr	\$16.81	
		Hours	Salary/hr	Benefits	Indirect	Positions	
		200	16.81	\$541	\$1,138	1	\$5,041
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	1	\$1,992	\$1,848
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	1	\$1,380	\$1,380
Wildlife Manager III							
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	1	\$1,992	\$1,848
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	1	\$1,380	\$1,380
						Task 4 Total:	\$34,264
<b>Task 4.5</b>							
Labor=							
Three seasonal technicians (Technician I):							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$14.54	
		Hours	Salary	Benefits	Indirect	Positions	
		120	\$1,745	\$281	\$591	3	\$7,849
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	3	\$5,976	\$5,544
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	3	\$4,140	\$4,140
One seasonal technician (Technician II):							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$16.81	
		Hours	Salary/hr	Benefits	Indirect	Positions	
		120	16.81	\$325	\$683	1	\$3,025
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	1	\$1,992	\$1,848
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	1	\$1,380	\$1,380
Wildlife Manager III							
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	1	\$1,992	\$1,848
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	1	\$1,380	\$1,380
						Task 4.5 Total:	\$27,014
<b>Task 5.</b>							
Labor =							
Three seasonal technicians (Technician Is)							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$14.54	
		Hours	Salary	Benefits	Indirect	Positions	
		120	\$1,745	\$281	\$591	3	\$7,849
One seasonal technician (Technician II):							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$16.81	
		Hours	Salary/hr	Benefits	Indirect	Positions	

		120	\$16.81	\$325	\$683	1	\$3,025	
					Task 5 Total:		\$10,874	
Task 1:	\$2,248							
Task 2:	\$47,823							
Task 3:	\$97,411							
Task 4:	\$34,264							
Task 4.5:	\$27,014							
Task 5:	\$10,874							
	\$219,633	SOW Total						
		Colorado In-Kind Contribution Adjustment						
Award:	\$219,633							

**FY 2016 Estimated budget:**

Temporary employee salaries increase by 2.5% (includes extended surge): Colorado In-Kind Contribution not taken.

Deliverables/Due Dates:				2016 Estimated Budget			
				2.5% increase in Tech I and II salaries			
FY-2013 Budget by Task:							
<b>Task 1.</b>							
Labor =							
Two Wildlife Manager IIIs:							
	Lodging:	Nights	Each	Positions	Total		
		8	\$83.00	2	\$1,328		
	Per diem:	Days	Each	Positions	Total		
		10	\$46.00	2	\$920		
				Task 1 Total:	\$2,248		
<b>Task 2.</b>							
Labor= One seasonal technician (Technician I)							
	Benefits=	16.10%	Indirect=	29.16%			
	Hours	Salary/hr	Benefits	Indirect	Positions		
	120	14.9	\$288	\$605	3	\$8,044	
Labor= One seasonal technician (Technician II)							
	Benefits=	16.10%	Indirect=	29.16%			
	Hours	Salary/hr	Benefits	Indirect	Positions		
	120	\$17.23	\$333	\$700	1	\$3,100	
Equipment =							
Two ETS MBS-1DP-RLY-COS replacement units				\$12,428			
ETS factory calibration and shipping @ \$160 each				\$320			
Two Honda 6500 watt generators @ \$2,750 each				\$5,500			
Dip nets; fish measuring boards; fish scales ; net pens							
24 nets at \$79 each				\$1,896			
5 measuring boards @ \$42 each				\$210			
8 spring scales @ \$53/each =				\$424			
Two net pens @ \$100 each				\$200			
Fish hauling tank and regulators, aerators, and oxygen							
12 oxygen tanks rental @ \$22/each = \$264)				\$264			
FLOY tags, guns, and needles (per FLOY Tag)							
2,000 tags @ \$520/1,000 tags				\$1,040			
5 guns @ \$50/each				\$250			
12 needles @ \$8/each				\$96			
PIT tags and implanter (per Biomark)							
100 tags @ \$4.50/tag = \$450				\$450			
2 sets of one dozen implanters @ \$25/dozen				\$50			
Waders, lifejackets, rain gear, electrofishing gloves							
5 pairs of waders/boots @ \$179/each				\$895			
5 lifejackets @ \$116/each				\$580			
5 sets of heavy duty rain coats and pants @ \$200 each				\$1,000			
16 pairs of gloves @ \$30/each				\$480			

Maintenance of boats and trailers (includes replacement,								
repair and maintenance of boat and trailer parts:								
3 tune-ups @ \$100/ each							\$300	
6 spare jet sleeves/liners @ \$42/each							\$252	
3 spare impellers @ \$450/each							\$1,350	
9 spare water pumps and kits @ \$60/each							\$450	
6 spare throttle and steering cables@ \$45/each							\$270	
2 spare batteries @ \$50/each							\$100	
6 trailer bunks @ \$50/each							\$300	
trailer lights and bearings							\$250	
Injection motor oil and grease							\$800	
Boat fuel: 3 @ \$1,400/each							\$4,200	
Generator motor oil and fuel; misc. parts							\$950	
Maintenance of electrofishing arrays							\$1,644	
Replacement anodes, cathodes, plugs, booms, wiring, and hardware								
						Task 2 Total:	\$48,093	
<b>Task 3.</b>								
Labor =								
Three seasonal technicians (Technician I's):				15, 40 hour weeks				
Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$14.90			
	Hours	Salary	Benefits	Indirect	Positions			
	600	\$8,940	\$1,439	\$3,027	3	\$40,218		
Lodging:		Nights	Each	Positions	Total			
8 nights/trip x 5 trips		40	\$83.00	3	\$9,960	\$9,240		
Per diem:		Days	Each	Positions	Total			
10 days /trip x 5 trips		50	\$46.00	3	\$6,900	\$6,900		
One seasonal technician (Technician II)				15, 40 hour weeks				
Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$17.23			
	Hours	Salary/hr	Benefits	Indirect	Positions			
	600	17.23	\$1,664	\$3,500	1	\$15,502		
Lodging:		Nights	Each	Positions	Total			
8 nights/trip x 5 trips		40	\$83.00	1	\$3,320	\$3,080		
Per diem:		Days	Each	Positions	Total			
10 days /trip x 5 trips		50	\$46.00	1	\$2,300	\$2,300		
Four Wildlife Manager III's:								
Lodging:		Nights	Each	Positions	Total			
8 nights/trip x 5 trips		40	\$83.00	4	\$13,280	\$12,320		
Per diem:		Days	Each	Positions	Total			
10 days /trip x 5 trips		50	\$46.00	4	\$9,200	\$9,200		
						Task 3 Total:	\$98,760	
<b>Task 4.</b>								
Labor =								
Three seasonal technicians:								
Benefits=	16.10%	Indirect=	29.16%	Salary/hr	\$14.90			
	Hours	Salary	Benefits	Indirect	Positions			
	200	\$2,980	\$480	\$1,009	3	\$13,406		
Lodging:		Nights	Each	Positions	Total			
8 nights/trip x 3 trips		24	\$83.00	3	\$5,976	\$5,544		
Per diem:		Days	Each	Positions	Total			
10 days /trip x 3 trips		30	\$46.00	3	\$4,140	\$4,140		
One seasonal Technician (Technician II)								
Benefits=	16.10%	Indirect=	29.16%	Salary/hr	\$17.23			
	Hours	Salary/hr	Benefits	Indirect	Positions			
	200	17.23	\$555	\$1,167	1	\$5,167		
Lodging:		Nights	Each	Positions	Total			
8 nights/trip x 3 trips		24	\$83.00	1	\$1,992	\$1,848		
Per diem:		Days	Each	Positions	Total			
10 days /trip x 3 trips		30	\$46.00	1	\$1,380	\$1,380		
Wildlife Manager III								
Lodging:		Nights	Each	Positions	Total			

	8 nights/trip x 3 trips	24	\$83.00	1	\$1,992	\$1,848
	Per diem:	Days	Each	Positions	Total	
	10 days /trip x 3 trips	30	\$46.00	1	\$1,380	\$1,380
				Task 4 Total:		\$34,713
<b>Task 4.5</b>						
Labor=						
Three seasonal technicians (Technician I):						
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$14.90
		Hours	Salary	Benefits	Indirect	Positions
		120	\$1,788	\$288	\$605	3
	Lodging:	Nights	Each	Positions	Total	
	8 nights/trip x 3 trips	24	\$83.00	3	\$5,976	\$5,544
	Per diem:	Days	Each	Positions	Total	
	10 days /trip x 3 trips	30	\$46.00	3	\$4,140	\$4,140
One seasonal technician (Technician II):						
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$17.23
		Hours	Salary/hr	Benefits	Indirect	Positions
		120	17.23	\$333	\$700	1
	Lodging:	Nights	Each	Positions	Total	
	8 nights/trip x 3 trips	24	\$83.00	1	\$1,992	\$1,848
	Per diem:	Days	Each	Positions	Total	
	10 days /trip x 3 trips	30	\$46.00	1	\$1,380	\$1,380
Wildlife Manager III						
	Lodging:	Nights	Each	Positions	Total	
	8 nights/trip x 3 trips	24	\$83.00	1	\$1,992	\$1,848
	Per diem:	Days	Each	Positions	Total	
	10 days /trip x 3 trips	30	\$46.00	1	\$1,380	\$1,380
				Task 4.5 Total:		\$27,284
<b>Task 5.</b>						
Labor =						
Three seasonal technicians (Technician Is)						
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$14.90
		Hours	Salary	Benefits	Indirect	Positions
		120	\$1,788	\$288	\$605	3
	Lodging:	Nights	Each	Positions	Total	
	8 nights/trip x 3 trips	24	\$83.00	1	\$1,992	\$1,848
	Per diem:	Days	Each	Positions	Total	
	10 days /trip x 3 trips	30	\$46.00	1	\$1,380	\$1,380
				Task 5 Total:		\$11,144
Task 1:	\$2,248					
Task 2:	\$48,093					
Task 3:	\$98,760					
Task 4:	\$34,713					
Task 4.5:	\$27,284					
Task 5:	\$11,144					
	\$222,243	SOW Total				
		Colorado In-Kind Contribution Adjustment				
Award:	\$222,243					

FY 2017 Estimated budget:

Temporary employee salaries increase by 2.5% (includes extended surge): Colorado In-Kind Contribution not taken.

Deliverables/Due Dates:				2017 Estimated Budget
				2.5% increase in Tech I and II salaries
FY-2013 Budget by Task:				

<b>Task 1.</b>							
Labor =							
Two Wildlife Manager IIIs:							
		Lodging:	Nights	Each	Positions	Total	
			8	\$83.00	2	\$1,328	
		Per diem:	Days	Each	Positions	Total	
			10	\$46.00	2	\$920	
					Task 1 Total:	\$2,248	
<b>Task 2.</b>							
Labor= One seasonal technician (Technician I)							
	Benefits=	16.10%	Indirect=	29.16%			
		Hours	Salary/hr	Benefits	Indirect	Positions	
		120	15.28	\$295	\$621	3	\$8,249
Labor= One seasonal technician (Technician II)							
	Benefits=	16.10%	Indirect=	29.16%			
		Hours	Salary/hr	Benefits	Indirect	Positions	
		120	\$17.66	\$341	\$717	1	\$3,178
Equipment =							
Two ETS MBS-1DP-RLY-COS replacement units							\$12,428
ETS factory calibration and shipping @ \$160 each							\$320
Two Honda 6500 watt generators @ \$2,750 each							\$5,500
Dip nets; fish measuring boards; fish scales ; net pens							
	24 nets at \$79 each						\$1,896
	5 measuring boards @ \$42 each						\$210
	8 spring scales @ \$53/each =						\$424
	Two net pens @ \$100 each						\$200
Fish hauling tank and regulators, aerators, and oxygen							
	12 oxygen tanks rental @ \$22/each = \$264)						\$264
FLOY tags, guns, and needles (per FLOY Tag)							
	2,000 tags @ \$520/1,000 tags						\$1,040
	5 guns @ \$50/each						\$250
	12 needles @ \$8/each						\$96
PIT tags and implanter (per Biomark)							
	100 tags @ \$4.50/tag = \$450						\$450
	2 sets of one dozen implanters @ \$25/dozen						\$50
Waders, lifejackets, rain gear, electrofishing gloves							
	5 pairs of waders/boots @ \$179/each						\$895
	5 lifejackets @ \$116/each						\$580
	5 sets of heavy duty rain coats and pants @ \$200 each						\$1,000
	16 pairs of gloves @ \$30/each						\$480
Maintenance of boats and trailers (includes replacement,							
	repair and maintenance of boat and trailer parts:						
	3 tune-ups @ \$100/ each						\$300
	6 spare jet sleeves/liners @ \$42/each						\$252
	3 spare impellers @ \$450/each						\$1,350
	9 spare water pumps and kits @ \$60/each						\$450
	6 spare throttle and steering cables@ \$45/each						\$270
	2 spare batteries @ \$50/each						\$100
	6 trailer bunks @ \$50/each						\$300
	trailer lights and bearings						\$250
	Injection motor oil and grease						\$800
Boat fuel: 3 @ \$1,400/each							\$4,200
Generator motor oil and fuel; misc. parts							\$950
Maintenance of electrofishing arrays							\$1,644
	Replacement anodes, cathodes, plugs, booms, wiring, and hardware						
					Task 2 Total:	\$48,376	
<b>Task 3.</b>							
Labor =							
Three seasonal technicians (Technician I's):				15, 40 hour weeks			
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$15.28	
		Hours	Salary	Benefits	Indirect	Positions	

		600	\$9,168	\$1,476	\$3,104	3	\$41,244
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 5 trips		40	\$83.00	3	\$9,960	\$9,240
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 5 trips		50	\$46.00	3	\$6,900	\$6,900
One seasonal technician (Technician II)				15, 40 hour weeks			
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$17.66	
		Hours	Salary/hr	Benefits	Indirect	Positions	
		600	17.66	\$1,706	\$3,587	1	\$15,889
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 5 trips		40	\$83.00	1	\$3,320	\$3,080
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 5 trips		50	\$46.00	1	\$2,300	\$2,300
Four Wildlife Manager IIIs:							
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 5 trips		40	\$83.00	4	\$13,280	\$12,320
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 5 trips		50	\$46.00	4	\$9,200	\$9,200
					Task 3 Total:		\$100,173
<b>Task 4.</b>							
Labor =							
Three seasonal technicians:							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr	\$15.28	
		Hours	Salary	Benefits	Indirect	Positions	
		200	\$3,056	\$492	\$1,035	3	\$13,748
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	3	\$5,976	\$5,544
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	3	\$4,140	\$4,140
One seasonal Technician (Technician II)							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr	\$17.66	
		Hours	Salary/hr	Benefits	Indirect	Positions	
		200	17.66	\$569	\$1,196	1	\$5,296
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	1	\$1,992	\$1,848
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	1	\$1,380	\$1,380
Wildlife Manager III							
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	1	\$1,992	\$1,848
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	1	\$1,380	\$1,380
					Task 4 Total:		\$35,184
<b>Task 4.5</b>							
Labor=							
Three seasonal technicians (Technician I):							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$15.28	
		Hours	Salary	Benefits	Indirect	Positions	
		120	\$1,834	\$295	\$621	3	\$8,249
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	3	\$5,976	\$5,544
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	3	\$4,140	\$4,140
One seasonal technician (Technician II):							
	Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$17.66	
		Hours	Salary/hr	Benefits	Indirect	Positions	
		120	17.66	\$341	\$717	1	\$3,178
	Lodging:		Nights	Each	Positions	Total	
	8 nights/trip x 3 trips		24	\$83.00	1	\$1,992	\$1,848
	Per diem:		Days	Each	Positions	Total	
	10 days /trip x 3 trips		30	\$46.00	1	\$1,380	\$1,380

Wildlife Manager III						
Lodging:		Nights	Each	Positions	Total	
8 nights/trip x 3 trips		24	\$83.00	1	\$1,992	\$1,848
Per diem:		Days	Each	Positions	Total	
10 days /trip x 3 trips		30	\$46.00	1	\$1,380	\$1,380
				Task 4.5 Total:		\$27,567
<b>Task 5.</b>						
Labor =						
Three seasonal technicians (Technician Is)						
Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$15.28	
	Hours	Salary	Benefits	Indirect	Positions	
	120	\$1,834	\$295	\$621	3	\$8,249
One seasonal technician (Technician II):						
Benefits=	16.10%	Indirect=	29.16%	Salary/hr =	\$17.66	
	Hours	Salary/hr	Benefits	Indirect	Positions	
	120	\$17.66	\$341	\$717	1	\$3,178
				Task 5 Total:		\$11,427
Task 1:	\$2,248					
Task 2:	\$48,376					
Task 3:	\$100,173					
Task 4:	\$35,184					
Task 4.5:	\$27,567					
Task 5:	\$11,427					
	\$224,974	SOW Total				
		Colorado In-Kind Contribution Adjustment				
Award:	\$224,974					

**IX. Budget Summary:**

**FY 2014 Total: \$217,094**

**Less Colorado In-Kind Contribution Adjustment (\$TBD)**

**FY 2014 Funds from Reclamation to Colorado: \$TBD**

**FY2015: \$219,633**

**FY2016: \$222,243**

**FY2017: \$224,974**

**X. Reviewers:**

Recovery Program Director's office, Biology Committee

**XI. References:**

Bezzlerides, N. and K. Bestgen. 2002. Status review of roundtail chub *Gila robusta*, flannelmouth sucker *Catostomus latipinnis*, and bluehead sucker *Catostomus discobolus* in the Colorado River Basin. Final report to the U.S. Dept. of Interior Bureau of Reclamation, Salt Lake City, Utah. Colorado State University Larval Fish Laboratory Contribution 118.

Colorado Division of Wildlife. 1998. Aquatic wildlife management plan Yampa River Basin, Colorado. Colorado Division of Wildlife, Denver, Colorado.

Hawkins, J.A. and T.P. Nesler. 1991. Nonnative fishes of the Upper Colorado River Basin: an issue paper. Final report. Colorado State University Larval Fish Laboratory and Colorado Division of Wildlife, Fort Collins, Colorado.

Hawkins, J.A, C. Wolford, T. Sorensen, L.M. Martin. 2004. Evaluation of nonnative fish removal from the Yampa River, Colorado. Presentation for the Upper Colorado Endangered Fish Recovery Program's Northern Pike, Smallmouth Bass, and Channel Catfish Management Workshop: a Review of 2004 Results and Plans for 2005 Projects. December 8-9, 2004. Grand Junction, Colorado.

Li, H.W. and J.L. Li. 1996. Fish community composition. Pages 391-406 in F.R. Hauer and G.A. Lamberti (eds.). Methods in stream ecology. Academic Press, San Diego, California.

Nesler, T.P. 1995. Interactions between endangered fish and introduced gamefishes in the Yampa River, Colorado, 1987-1991. Final report to the Colorado River Recovery Implementation Program (Project # 91-29). Colorado Division of Wildlife, Fort Collins, Colorado.

Nesler, T.P. 2003. Native and introduced fish species by major river basins in Colorado. Colorado Division of Wildlife, Fort Collins, Colorado.

Roehm, G.W. 2004. Management plan for endangered fishes in the Yampa River Basin and environmental assessment. U.S. Fish and Wildlife Service, Mountain-Prairie Region 6, Denver, Colorado.

Scott, W.B. and E.J. Crossman. 1973. Freshwater fishes of Canada. Bulletin 184. Fisheries Research Board of Canada, Ottawa, Canada.

Tyus, H.M. and J.M. Beard. 1990. *Esox lucius* (Esocidae) and *Stizostedion vitreum* (Percidae) in the Green River Basin, Colorado and Utah. Great Basin Naturalist 50:33-39.

Tyus, H.M. and J.F. Saunders, III. 1996. Nonnative fishes in the upper Colorado River basin and a strategic plan for their control. Final report to the U.S. Fish and Wildlife Service (Contract No. 14-48-0006-95-923). University of Colorado Center for Limnology, Boulder, Colorado.

Tyus, H.M. and J.F. Saunders, III. 2000. Nonnative fish control and endangered fish recovery. Fisheries 25(9):17-24.

Upper Colorado River Recovery Implementation Program. 2004. Final nonnative fish management policy. Upper Colorado River Endangered Fish Recovery Program, Denver, Colorado.

Utah Division of Wildlife Resources. 2004a. Range-wide conservation agreement for roundtail chub (*Gila robusta*), bluehead sucker (*Catostomus discobolus*), and flannelmouth sucker (*Catostomus latipinnis*). Salt Lake City, Utah.

Utah Division of Wildlife Resources. 2004b. Range-wide conservation strategy for roundtail chub, bluehead sucker, and flannelmouth sucker. Salt Lake City, Utah.

U.S. Fish and Wildlife Service. 2002. Colorado pikeminnow (*Ptychocheilus lucius*) Recovery Goals: amendment and supplement to the Colorado Squawfish Recovery Plan. U.S. Fish and Wildlife Service, Mountain-Prairie Region 6, Denver, Colorado.

Wick, E.J., J.A. Hawkins, and C.A. Carlson. 1985. Colorado squawfish and humpback chub population and habitat monitoring, 1983-1984. Endangered wildlife investigations. Final report SE 3-7. Colorado State University Larval Fish Laboratory (Fort Collins, Colorado) and Colorado Division of Wildlife (Denver, Colorado).