

**COLORADO RIVER RECOVERY PROGRAM  
FY 2012-2013 PROPOSED SCOPE-OF-WORK for:  
Smallmouth Bass control in the Green River**

**Project No.: 123a**

Lead Agency: USFWS

Submitted by:

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**Category:**

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

**Expected Funding Sources:**

- Annual funds  
 Capital funds  
 Other (explain)

**Changes for FY2012:**

- **Reduce passes from 12 to 8 in Echo Park to Split Mtn. reach**
- **Use pass reduction to fund 2 passes in Desolation/Gray Canyons**
- **Purchase ETS electrofishing units to update and standardize fleet to Recovery Program specifications**

I. Title of Proposal:

Nonnative Fish Control in the Echo Park to Split Mountain Reach of the Green River, Utah

II. Relationship to RIPRAP:

GENERAL RECOVERY PROGRAM SUPPORT ACTION PLAN

- 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.

#### GREENRIVER ACTION PLAN: MAINSTEM

- III. Reduce impacts of nonnative fishes and sportfish management activities (nonnative and sportfish management).
- III.A. Reduce negative impacts to endangered fishes from sportfish management activities.
- III.A.4. Develop and implement control programs for nonnative fishes in river reaches occupied by the endangered fishes to identify required levels of control. Each control activity will be evaluated for effectiveness, and then continued as needed.

#### III. Study Background/Rationale and Hypotheses:

The Upper Colorado River Endangered Fish Recovery Program has determined that control of nonnative fish in the upper Colorado River basin is essential to the recovery of the four endangered fish species: Colorado pikeminnow, razorback sucker, humpback chub, and bonytail. Smallmouth bass abundance has dramatically increased in the Green River since 2000. This information resulted in a recommendation from the December 2003 Nonnative Fish Control Workshop (Grand Junction, CO) to attempt control of this species in the Green River. Eight years of removal and Nonnative Fish Control Workshops have added to the knowledge base of the effort required to successfully remove smallmouth bass from the Green River. During the December 2006 workshop, participants discussed the importance of increasing the removal effort and reallocating effort to concentration areas, resulting in this revised scope of work for the Echo Park to Split Mountain reach of the Green River in Utah.

In 2008, two control/monitoring trips were completed to assess smallmouth abundance and distribution within Desolation/Gray Canyons. The 2008 assessment showed that although distribution had spread downstream, relative abundance remained low and intensive control efforts in this reach were not warranted at that time.

In January of 2011, reports of increasing smallmouth captures in the uppermost section of Desolation Canyon prompted a change in the distribution of control efforts for 2011. Effort from four Echo reach removal passes was reallocated to two passes in the Desolation/Gray reach (UDWR-Moab). The allocation of effort for FY 2012–13 will be the same as FY 2011. The change resulted in adjusting our objectives and eliminating mark-recapture population estimates for either reach. There is no net change in cost for the project relative to FY 2011.

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

##### Goal:

Control smallmouth bass in the Green River between Echo Park and Split Mountain boat ramp and from Sand Wash to Swasey's Beach (Desolation and Gray Canyons).

##### Objectives:

1. Remove smallmouth bass and other nonnative fishes in the Green River from Echo Park (RM 344.5) to Split Mountain (RM 319.5).
2. Monitor adult and juvenile smallmouth bass to determine extent of control needed in Desolation/Gray Canyons of the Green River.
3. Remove smallmouth bass from the Green River between Sand Wash (RM 215.3) and Swasey's Rapid (RM 129.8)

End Products: **Echo Reach** – An in-depth annual report will provide the current years data for: adult and juvenile total CPUE, CPUE by river mile and size class, monthly length frequency histograms, CPUE for other nonnative species, total catch numbers, and estimates of spawning periods and locations. Data from past years will be included for relevant metrics to provide background and demonstrate trends.

**Desolation/Gray Reach** – The 123a annual report will be amended to include adult and juvenile total CPUE, CPUE by river mile and size class, length frequency histograms, CPUE for other nonnative species, and total catch numbers. With passes occurring during summer, determining potential spawning areas will not be possible, but young-of-year captures can be used to confirm spawning and their relative success compared to previous years. Data from past years will be included for relevant metrics to provide background and demonstrate trends.

#### V. Study Area

The study area is located on the Green River from Echo Park (RM 344.5) to Split Mountain boat ramp (RM 319.5); a total of 26 miles. Crews from UDWR - Moab and USFWS CRFP will both work in this reach to complete a total of eight passes. The UDWR – Moab crew will complete back-to-back sampling trips (with a one day camp break) in both of their visits (4 passes) to minimize mileage and other travel related costs. The second study area is in Desolation/Gray Canyons on the Green River between Sand Wash (RM 215.3) and Swasey's Rapid boat ramp (RM 129.8) (85.5 river miles).

#### VI. Study Methods/Approach

**Sampling:** Smallmouth bass will be removed primarily by electrofishing. Two

electrofishing boats will simultaneously electrofish each shoreline of the river. Effort will be focused on shoreline habitat that is likely to contain smallmouth bass. Sampling crews will conduct removal activities in a manner that minimizes potential negative impacts to endangered fish as a result of electrofishing activities. This includes discontinuing electrofishing when elevated numbers of endangered fish are known to be present. Eight electrofishing passes will be conducted beginning June and ending in late September or early October. Due to low capture rates in 2011, mark-recapture population estimates will not be attempted, therefore all passes will be removal of all size classes of smallmouth bass. All bass captured in subsequent passes will be removed and deposited in shoreline areas deemed low use by consultation with Dinosaur National Monument. The Vernal USFWS office will coordinate passes with Moab UDWR in order to maximize the number of passes conducted during the bass spawning and nesting period.

Several methods will be used in an attempt to identify spawning periods and locations. First, crews will note pairings of adult bass or congregations preceding spawning temperatures. Second, all bass captured will be examined for spawning condition. Finally, the time and locations of YOY smallmouth appearance in catches will be noted and tracked to estimate spawning period and to locate spawning areas.

**Data Analysis:** Adult and juvenile smallmouth bass catch rates, total catch-per-unit-effort (CPUE), CPUE by river mile and length frequency histograms, and CPUE for other nonnative fish will be calculated for both reaches. Data from past years of sampling will be included for relevant comparisons and to demonstrate trends.

**Fish Handling and Disposal:** All other centrarchids (green sunfish, bluegill, black crappie, and largemouth bass), northern pike, and walleye encountered will be removed. Any nonnative species of special concern such as grass carp, gizzard shad, or burbot which are encountered will be removed and the appropriate state fish and wildlife agencies will be contacted. All nonnative fish removed in Dinosaur National Monument will be euthanized and deposited on banks in low-use areas not frequented by the general public, as advised by the National Park Service. Any endangered fish captured will be scanned for a PIT tag, tagged if needed, weighed (g), measured TL (mm), and released alive. Endangered fish data will then be reported to appropriate principal investigators and included in annual reporting.

## VII. Task Description and Schedule

Task 1. Four removal passes from Echo Park to Split Mountain boat ramp (USFWS CRFP – Vernal; August – October 2012).

Task 2. Four removal passes from Echo Park to Split Mountain boat ramp (UDWR Moab; June - July 2012). Two removal passes from Sand Wash to Swasey's Beach boat ramp.

Task 3. Data entry, analysis, and reporting – October/November 2012.

## VIII. FY2012-13 Work Deliverables/Due Dates

FY 2012:

- Annual Report, November, 2012
- Data to USFWS database manager by December 2012

<b>Task 1 – USFWS Echo Sampling (8 trips)</b>	<b>Rate \$/hr</b>	<b>Total hours</b>	<b>Cost</b>
<b>Labor</b>			
GS-12 Supervisory Fish Biologist	\$49.65	160	\$7,944
4 GS-5 Tech	\$18.27	640	\$11,693
Overtime for technicians (6 hrs/week x 4 weeks x 4 techs)	\$27.41	96	\$2,631
<b>Subtotal</b>			<b>\$22,268</b>
<b>Travel</b>			
Shuttle (3 trucks/trip x \$150/truck x 4 trips) Echo to Split Mountain			\$1,800
Per diem (5 people/day x \$30/person x 3 days/trip x 4 trips)			\$1,800
<b>Subtotal</b>			<b>\$3,600</b>
<b>Equipment</b>			
(3 trucks/trip x 175 mi/truck x \$0.30/mi x 4 trips) Vernal to Echo Park, round trip			\$630
(12 gal gas/boat x 2 boats/trip x \$4.00/gal x 4 trips)			\$384
(2 qts motor boat oil/boat x 2 boats/trip x \$11/qt x 4 trips)			\$176
GSA trucks (3 trucks x 1 months)	\$334	3	\$1,002
Vehicle maintenance (oil chgs, tires, cleaning, etc.)			\$0
Honda 5500W generator for new ETS units	\$2,890	3	\$8,670
ETS electrofishing control box (FY2012 one-time cost)	\$5,725	3	\$17,175
Maintenance/replacement of rafting gear, sampling nets, electrofishing gear, etc.			\$2,005
GS-8 Fish Tech maintenance work	\$37.38	383	\$14,317
<b>Subtotal</b>			<b>\$44,359</b>
<b>Task 1 Total</b>			<b>\$70,227</b>

<b>Task 4 - USFWS, Data collection, analysis, reporting, administration</b>	<b>Rate \$/hr</b>	<b>Total hours</b>	<b>Cost</b>
<b>Labor</b>			
GS-13 Asst. Project Leader	\$61.38	160	\$9,821
GS-12 Supervisory Fish Biologist	\$49.65	336	\$16,682

GS-11 Biologist	\$44.25	0	\$0
GS-9 Admin. Officer	\$38.54	263	\$10,136
Supplies (paper, computer disks, copies, etc.)			\$0
<b>Subtotal</b>			<b>\$36,639</b>
Travel			
Per diem (1 person x \$137/day x 3 days) Vernal to Grand Junction			\$411
Travel to give presentations at workshops and meetings (1 truck/trip x 288 mi/truck x \$0.30/mi)			\$86
<b>Subtotal</b>			<b>\$497</b>
<b>Task 4 USFWS Total</b>			<b>\$37,136</b>
<b>SOW USFWS Total</b>			<b>\$107,363</b>

**FY 2012 costs for UDWR Moab:**

	<b>Work Days</b>	<b>UDWR Moab</b>
<b><u>Task 2. Four Echo Removal Passes.</u></b>		
<i>Labor (Personal services)</i>		
Proj. leader ( \$438/day)	7	\$3,066
2 Biologist (\$340/day)	20	\$6,800
Technicians (\$195/day)	100	\$19,500
<i>Food and Transport (Current Expense)</i>		
Vehicle - 2 trips (2 trucks for 5.8% of fleet expense) <sup>a</sup>		\$2,480
Food - 4 passes (4 days/ 5 people @ \$25 day)		\$2,000
Shuttle service: 2 trucks / 4passes @ \$150 per truck		\$1,200
<i>Equipment (Current Expense)</i>		
Camp gear repair and replacement		\$375
Boat, Trailer, Sampling gear repair and maintenance		\$1650
Sampling Equipment		\$500
Boat/generator fuel, propane 3 trips		\$650
	<i>Task 2 subtotal</i>	<u>\$38,221</u>

**Task 3. Two Desolation/Grey Removal Passes.**

<i>Labor (Personal services)</i>		
Proj. leader ( \$438/day)	7	\$3,066
2 Biologist (\$340/day)	18	\$6,120
Technicians (\$195/day)	80	\$15,600
<i>Food and Transport (Current Expense)</i>		
Vehicle - 2 trips (3 trucks for 8.7% of fleet expense) <sup>a</sup>		\$3,719
Food - 2 passes (7 days/ 5 people @ \$25 day)		\$1,750
Shuttle service: 2 trucks / 2passes @ \$175 per truck		\$1,050
<i>Equipment (Current Expense)</i>		
Boat, Trailer, Sampling gear repair and maintenance		\$1,448
Boat/generator fuel, propane 3 trips		\$600
	<i>Task 3 subtotal</i>	<u>\$33,353</u>

<sup>a</sup> Calculated as the total percentage of annual fleet costs based on the number of trucks, days used, and total miles driven. Annual fleet costs for the Moab Field Station FY12 is estimated to be \$42,753 for 7 vehicles. Moab fleet vehicles are not assigned to specific projects; instead they are rotated through all projects in the UCRRP & SJRRP.

<b><u>Task 4. Data management and reporting</u></b>	<b>Work Days</b>	<b>UDWR Moab</b>
<i>Labor (Personal services)</i>		
Proj. leader ( \$438/day)	1	\$438
2 Biologist (\$340/day)	15	\$5,100
2 Technicians (\$195/day)	2	\$390
<i>Task 3 subtotal</i>		<u>\$5,928</u>
<b>Total for FY 2012 - Moab</b>		<b>\$77,502</b>

FY 2013:

- Annual Report, November, 2013
- Data to USFWS database manager by December 2013

<b>Task 1 – USFWS Echo Sampling (4 trips)</b>	<b>Rate \$/hr</b>	<b>Total hours</b>	<b>Cost</b>
<b>Labor</b>			
GS-12 Supervisory Fish Biologist	\$52.69	160	\$8,430
4 GS-5 Tech	\$18.80	640	\$12,032
Overtime for technicians (6 hrs/week x 4 weeks x 4 techs)	\$28.20	96	\$2,707
<b>Subtotal</b>			<b>\$23,170</b>
<b>Travel</b>			
Shuttle (3 trucks/trip x \$150/truck x 4 trips) Echo to Split Mountain			\$1,800
Per diem (5 people/day x \$30/person x 3 days/trip x 4 trips)			\$1,800
<b>Subtotal</b>			<b>\$3,600</b>
<b>Equipment</b>			
(3 trucks/trip x 175 mi/truck x \$0.30/mi x 4 trips) Vernal to Echo Park, round trip			\$630
(12 gal gas/boat x 3 boats/trip x \$4.00/gal x 4 trips)			\$384
(2 qts motor boat oil/boat x 3 boats/trip x \$11/qt x 4 trips)			\$176
GSA trucks	\$334	3	\$1,002
Vehicle maintenance (oil chgs, tires, cleaning, etc.)			\$0
Maintenance/replacement of rafting gear, sampling nets,			\$1,022

electrofishing gear, etc.

GS-8 Fish Tech maintenance work	\$38.45	383	\$14,726
<b>Subtotal</b>			<b>\$17,940</b>
<b>Task 1 Total</b>			<b>\$44,710</b>

<b>Task 4 - USFWS, Data analysis, reporting, administration</b>	<b>Rate \$/hr</b>	<b>Total hours</b>	<b>Cost</b>
<b>Labor</b>			
GS-13 Asst. Project Leader	\$65.05	148	\$9,627
GS-12 Supervisory Fish Biologist	\$52.69	336	\$17,704
GS-11 Biologist	\$45.54	0	\$0
GS-9 Admin. Officer	\$38.54	263	\$10,136
<b>Subtotal</b>			<b>\$37,467</b>
<b>Travel</b>			
Per diem (1 person x \$137/day x 3 days) Vernal to Grand Junction			\$411
Travel to give presentations at workshops and meetings (1 truck/trip x 288 mi/truck x \$0.30/mi)			\$86
<b>Subtotal</b>			<b>\$497</b>
<b>Task 4 USFWS Total</b>			<b>\$37,964</b>
<b>SOW USFWS Total</b>			<b>\$82,674</b>

<b>FY 2013 costs for UDWR Moab:</b>	<b>Work Days</b>	<b>UDWR Moab</b>
<u>Task 2. Removal Passes.</u>		
<i>Labor (Personal services)</i>		
Proj. leader ( \$438/day)	7	\$3,066
2 Biologist (\$340/day)	30	\$10,200
Technicians (\$195/day)	154	\$30,030
<i>Food and Transport (Current Expense)</i>		
Vehicle - 3 trips (2 trucks for 11.3% of fleet expense) <sup>a</sup>		\$4,811
Food - 6 passes (4 days/ 5 people @ \$25 day)		\$3,000
Shuttle service: 2 trucks / 6passes @ \$150 per truck		\$1,800
<i>Equipment (Current Expense)</i>		
Camp gear repair and replacement		\$375
Sampling Equipment		\$1650
Boat, Trailer, Sampling gear repair and maintenance		\$500
Boat/generator fuel, propane 3 trips		\$650
	<u>Task 2 subtotal</u>	<u>\$56,082</u>

<sup>a</sup> Calculated as the total percentage of annual fleet costs based on the number of trucks, days used, and total miles driven. Annual fleet costs for the Moab Field Station FY13 is estimated to be \$42,753 for 7 vehicles. Moab fleet vehicles are not assigned to specific projects; instead they are rotated through all projects in the UCRRP & SJRRP.

<u>Task 2. Data management and reporting</u>	<b>Work Days</b>	<b>UDWR Moab</b>
<i>Labor (Personal services)</i>		
Proj. leader ( \$438/day)	1	\$438
2 Biologist (\$340/day)	15	\$5,100
2 Technicians (\$195/day)	2	\$390
<i>Task 3 subtotal</i>		<u>\$5,928</u>
<b>Total for FY 2012 – Moab</b>		<b>\$62,010</b>

IX. Program Budget Summary

	USFWS – Vernal	UDWR – Moab	Total
FY 2012	\$107,363	\$ 77,502	\$184,865
FY 2013	\$82,674	\$ 62,010	\$144,684
<b>Totals</b>	<b>\$190,037</b>	<b>\$139,512</b>	<b>\$329,549</b>

X. Reviewers: Krissy Wilson and Dale Ryden