

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

FY 2022-23 SCOPE OF WORK

PROJECT: 123d

Project Title

Walleye control on the lower Green and Colorado Rivers

Bureau of Reclamation Agreement Number:

R19AP00059

Reclamation Agreement Term

Oct. 1, 2019 – Sept. 30, 2024

Note: Recovery Program FY22-23 scopes of work are drafted in May 2021. They often are revised before final Program approval and may subsequently be revised again in response to changing Program needs. Program participants also recognize the need and allow for some flexibility in scopes of work to accommodate new information (especially in nonnative fish management projects) and changing hydrological conditions.

Lead Agency:

Utah Division of Wildlife Resources

Principal Investigator:

Christopher Michaud, Biologist
Katherine Creighton, Project Leader
Utah Division of Wildlife Resources
1165 S. Hwy 191 – Suite 4, Moab, UT 84532
(435) 259-3784, (435) 259-3780
cmichaud@utah.gov, katherinecreighton@utah.gov

Category:

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

Expected Funding Source:

- Annual funds
- Capital funds
- Other [explain]

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.

GREEN RIVER 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.

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

- 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.

COLORADO RIVER ACTION PLAN: MAINSTEM

- III Reduce 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.8 Reduce walleye populations in the Colorado River

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. Walleye are a large bodied predatory sportfish native to waters east of the Continental Divide. This species was introduced into a reservoir in the Green River Sub-basin in the 1950s. By the early 1960s, walleye had been detected within the Green and Colorado Rivers; however, encounters remained infrequent through the mid 2000's. Between 2008 and 2013, encounters tripled within both the lower Green and Colorado Rivers. Researchers have documented walleye predation on both pikeminnow and bonytail in recent years. Additionally, because walleye fill the same ecological niche as the Colorado pikeminnow, there is a high probability that these species are in direct competition for limited food resources. Responding to this threat, UDWR-Moab initiated a targeted walleye removal effort in 2014 in the lower Green River. In May of 2014, researchers removed a large numbers of walleye from a 31-mile section of the lower Green River between Tusher Diversion and Ruby Ranch (RM 128.0-97.0). This 31-mile sub-reach remains the focus of walleye removal efforts on the lower Green River. UDWR is collecting data through these removal efforts that we hope will increase our understanding of temporal and spatial variations in habitat use and factors affecting this species' vulnerability to exploitation by electrofishing. Targeted removal efforts will continue on both the lower Green and Colorado Rivers. Future effort will be guided by the previous years' findings. When possible, effort will be combined with sampling under Project #128 (Abundance Estimates for Colorado Pikeminnow in the Green River) to maximize efficiency and reduce impacts on sympatric native fish populations.

Study Goals, Objectives, End Product(s):

Goal:

Control and monitor walleye in the Green River between Tusher Diversion and Ruby Ranch and in the Colorado River between lower Westwater Canyon and Potash boat ramp.

Objectives:

1. Remove walleye in the lower Green River from Tusher Diversion (RM 128.0) to Ruby Ranch (RM 97.0) and on the lower Colorado River from lower Westwater Canyon (RM 116) to Potash (RM 47.2).
2. Compile walleye encounter and electrofishing effort data from all applicable projects conducted within the Green River sub-basin, analyze and draft a basin wide single species management report.

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

End Products:

The Walleye Management Report is the annual end product for Project 123d. This single species management report compiles walleye encounter information and effort data for all UCREFRP projects on the Colorado, Green, Yampa, White, and Duchesne rivers. It provides summary statistics useful in the continuing management of this invasive species on a landscape scale, including: total CPUE, CPUE by river mile, length frequency histograms, total catch, and estimates of spawning periods and locations. Data from past years will be included for relevant metrics to provide background and demonstrate trends.

Study Area:

The lower Green River between Tusher Diversion and Ruby Ranch (RM 128.0-97.0), and the lower Colorado River between lower Westwater Canyon and Potash (RM 116 -47.2).

Study Methods/Approach:

Since 2015, the Recovery Program has implemented a two-tiered strategy for reducing populations of problematic nonnative predators in endangered species habitats by 1) performing large-scale removal of nonnative predators, especially focusing on spawning disruption; and 2) preventing escapement of nonnative predators from off-channel sources by containing or eradicating populations. The combination of these two strategies is important because reducing in-river reproduction and limiting emigration from off-channel sources limits population growth after in-river removal is performed. Currently, the Recovery Program removes nonnative smallmouth bass, northern pike and walleye from over 600 miles of river. Screens have been installed on 5 of 7 major reservoir outlets to prevent escapement with 2 more pending.

Over the past decade, this strategy has been applied with general success for smallmouth bass, northern pike, and walleye. For example, in the Yampa River smallmouth bass populations have been contained at Elkhead Reservoir via a spillway net and outlet screen, while spawning has been disrupted via intense nest disruption. As a result, even with occasional strong year classes, the adult population of smallmouth Bass in Little Yampa Canyon remains low compared to almost all prior years ([Hawkins 2020](#)). Northern pike are also contained at Elkhead Reservoir, while spawning in the Yampa River is disrupted via early spring backwater gill-netting. Abundance estimates show that this effort has resulted in a large reduction in Yampa River northern pike between Hayden and Craig compared to estimates a decade ago ([Bestgen et al. 2020](#)). Similarly, in the upper Colorado River, containment at Rifle Gap Reservoir, along with containment and removal at the Mamm Creek gravel ponds, appears to have successfully suppressed catch of northern pike in endangered fish habitats ([Francis 2020](#)). Reservoir containment of walleye is the priority; in-river walleye recruitment has not been documented, so spawning disruption is not needed. Catches of walleye in the middle Green River over the past few years have declined from previous norms ([Partlow and Elbin 2020](#)), likely the result of eradication and containment of populations at Red Fleet and Starvation Reservoirs. These examples demonstrate that a two-tiered approach is generally successful at limiting populations of problematic predators.

This project focuses on in-river mechanical removal of walleye. As part of the project, we will include spawning disruption. In addition, we will remove individuals of walleye outside of the spawning period in order to reduce the population abundance. We will measure response to these efforts via CPUE comparisons.

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

Task Description, Deliverables and Schedule :

Task 1. Removal efforts - March-May, October.

Task 2. Data management, analysis, and reporting – October-December.

Task	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	X					X	X	X				
2	X	X	X									

Budget Summary:

FY Year	<i>UDWR-Moab</i>
2022	\$54,741
2023	\$54,741
2024	\$55,835
2025	\$56,952
2026	\$58,091
Total	\$280,360

SUMMARY OF PROPOSED COSTS

Name of Servicing Agency:	Utah Division of Wildlife Resources
Project Name:	Project 123d Walleye control on the lower Green and Colorado Rivers

	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL
	10/1/2021		10/1/2022		10/2/2023		10/1/2024		10/1/2025		
	Through		Through		Through		Through		Through		
Enter the BEGINNING dates for each year ----->	9/30/2022		10/1/2023		9/30/2024		9/30/2025		9/30/2026		
Enter the ENDING dates for each year ----->											
DIRECT LABOR AND FRINGE BENEFIT COSTS:	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL
Direct Labor - Hourly	\$	30,936.64	\$	30,936.64	\$	31,555.38	\$	32,186.48	\$	32,830.21	\$ 158,445.36
Fringe Benefits - Hourly	\$	13,783.97	\$	13,783.97	\$	14,059.65	\$	14,340.84	\$	14,627.66	\$ 70,596.08
Subtotal of Direct Labor & Fringe Benefits:	\$	44,720.61	\$	44,720.61	\$	45,615.02	\$	46,527.32	\$	47,457.87	\$ 229,041.44
OTHER DIRECT COSTS:	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL
Materials and Supplies	\$	7,500.00	\$	7,500.00	\$	7,650.00	\$	7,803.00	\$	7,959.06	\$ 38,412.06
Travel Costs	\$	2,520.00	\$	2,520.00	\$	2,570.40	\$	2,621.81	\$	2,674.24	\$ 12,906.45
Equipment	\$	-	\$	-	\$	-	\$	-	\$	-	\$ -
Contractors	\$	-	\$	-	\$	-	\$	-	\$	-	\$ -
Subtotal of Other Direct Costs:	\$	10,020.00	\$	10,020.00	\$	10,220.40	\$	10,424.81	\$	10,633.30	\$ 51,318.51
INDIRECT/OVERHEAD COSTS:	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL
Subtotal of Labor and Other Direct Costs:	\$	54,740.61	\$	54,740.61	\$	55,835.42	\$	56,952.13	\$	58,091.17	
Total dollars exempt from indirect/overhead base:	\$	54,740.61	\$	54,740.61	\$	55,835.42	\$	56,952.13	\$	58,091.17	
<Enter Description of Indirect/OH Cost #1>	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	\$ -
Total dollars exempt from indirect/overhead base:	\$	-	\$	-	\$	-	\$	-	\$	-	\$ -
<Enter Description of Indirect/OH Cost #2>	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	\$ -
Subtotal of Indirect/Overhead Costs:	\$	-	\$	-	\$	-	\$	-	\$	-	\$ -

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
GRAND TOTAL:	\$ 54,740.61	\$ 54,740.61	\$ 55,835.42	\$ 56,952.13	\$ 58,091.17	\$ 280,359.95

SUMMARY OF DIRECT LABOR & FRINGE BENEFITS

Enter Escalation Rates ----->	Yr 2 Escalation Rate	0.00%
-------------------------------	----------------------	-------

	Task # or Description	Employee Name	Position Title	Current Hourly Rate	YEAR 1					YEAR 2				
					10/1/2021		Through	9/30/2022		10/1/2022		Through	10/1/2023	
					# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost	# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost
1	1		Project Leader(1)	\$ 27.66	80.0	\$ 27.66	\$ 2,212.44	48.00%	\$ 1,061.97	80.0	\$ 27.66	\$ 2,212.44	48.00%	\$ 1,061.97
2	1		Biologist(4)	\$ 22.91	420.0	\$ 22.91	\$ 9,621.02	68.00%	\$ 6,542.30	420.0	\$ 22.91	\$ 9,621.02	68.00%	\$ 6,542.30
3	1		Technician(s)(12)	\$ 16.36	600.0	\$ 16.36	\$ 9,816.00	8.77%	\$ 860.86	600.0	\$ 16.36	\$ 9,816.00	8.77%	\$ 860.86
4	2		Project Leader(1)	\$ 27.66	40.0	\$ 27.66	\$ 1,106.22	48.00%	\$ 530.99	40.0	\$ 27.66	\$ 1,106.22	48.00%	\$ 530.99
5	2		Biologist(4)	\$ 22.91	300.0	\$ 22.91	\$ 6,872.16	68.00%	\$ 4,673.07	300.0	\$ 22.91	\$ 6,872.16	68.00%	\$ 4,673.07
6	2		Technician(s)(12)	\$ 16.36	80.0	\$ 16.36	\$ 1,308.80	8.77%	\$ 114.78	80.0	\$ 16.36	\$ 1,308.80	8.77%	\$ 114.78
7					-	\$ -	\$ -	48.00%	\$ -	-	\$ -	\$ -	48.00%	\$ -
8					-	\$ -	\$ -	68.00%	\$ -	-	\$ -	\$ -	68.00%	\$ -
9					-	\$ -	\$ -	8.77%	\$ -	-	\$ -	\$ -	8.77%	\$ -
10				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
11				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
12				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
13				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
14				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
15				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
16				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
17				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
18				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
19				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
20				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
21				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
22				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
23				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
24				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
25				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
26				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
27				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
28				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
29				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
30				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
31				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
					1,520.00	\$ 30,936.64			\$ 13,783.97	1,520.00		\$ 30,936.64		\$ 13,783.97

SUMMARY OF DIRECT LABOR & FRINGE BENEFITS

Yr 3 Escalation Rate	2.00%
----------------------	-------

Yr 4 Escalation Rate	2.00%
----------------------	-------

	Task # or Description	Employee Name	Position Title	Current Hourly Rate	YEAR 3					YEAR 4				
					10/2/2023		Through	9/30/2024		10/1/2024		Through	9/30/2025	
					# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost	# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost
1	1		Project Leader(1)	\$ 27.66	80.0	\$ 28.21	\$ 2,256.69	48.00%	\$ 1,083.21	80.0	\$ 28.77	\$ 2,301.82	48.00%	\$ 1,104.87
2	1		Biologist(4)	\$ 22.91	420.0	\$ 23.37	\$ 9,813.44	68.00%	\$ 6,673.14	420.0	\$ 23.83	\$ 10,009.71	68.00%	\$ 6,806.61
3	1		Technician(s)(12)	\$ 16.36	600.0	\$ 16.69	\$ 10,012.32	8.77%	\$ 878.08	600.0	\$ 17.02	\$ 10,212.57	8.77%	\$ 895.64
4	2		Project Leader(1)	\$ 27.66	40.0	\$ 28.21	\$ 1,128.34	48.00%	\$ 541.61	40.0	\$ 28.77	\$ 1,150.91	48.00%	\$ 552.44
5	2		Biologist(4)	\$ 22.91	300.0	\$ 23.37	\$ 7,009.60	68.00%	\$ 4,766.53	300.0	\$ 23.83	\$ 7,149.80	68.00%	\$ 4,861.86
6	2		Technician(s)(12)	\$ 16.36	80.0	\$ 16.69	\$ 1,334.98	8.77%	\$ 117.08	80.0	\$ 17.02	\$ 1,361.68	8.77%	\$ 119.42
7					-	\$ -	\$ -	48.00%	\$ -	-	\$ -	\$ -	48.00%	\$ -
8					-	\$ -	\$ -	68.00%	\$ -	-	\$ -	\$ -	68.00%	\$ -
9					-	\$ -	\$ -	8.77%	\$ -	-	\$ -	\$ -	8.77%	\$ -
10				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
11				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
12				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
13				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
14				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
15				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
16				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
17				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
18				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
19				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
20				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
21				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
22				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
23				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
24				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
25				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
26				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
27				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
28				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
29				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
30				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
31				\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
					1,520.00		\$ 31,555.38		\$ 14,059.65	1,520.00		\$ 32,186.48		\$ 14,340.84

SUMMARY OF DIRECT LABOR & FRINGE BENEFITS

Yr 5 Escalation Rate	2.00%
----------------------	-------

					YEAR 5							
					10/1/2025		Through	9/30/2026		Total Salary Cost	Total Fringe Cost	Total Labor Cost
Task # or Description	Employee Name	Position Title	Current Hourly Rate	# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost				
1	1		Project Leader(1)	\$ 27.66	80.0	\$ 29.35	\$ 2,347.86	48.00%	\$ 1,126.97	\$ 11,331.25	\$ 5,439.00	\$ 16,770.25
2	1		Biologist(4)	\$ 22.91	420.0	\$ 24.31	\$ 10,209.91	68.00%	\$ 6,942.74	\$ 49,275.11	\$ 33,507.08	\$ 82,782.19
3	1		Technician(s)(12)	\$ 16.36	600.0	\$ 17.36	\$ 10,416.82	8.77%	\$ 913.55	\$ 50,273.70	\$ 4,409.00	\$ 54,682.71
4	2		Project Leader(1)	\$ 27.66	40.0	\$ 29.35	\$ 1,173.93	48.00%	\$ 563.49	\$ 5,665.63	\$ 2,719.50	\$ 8,385.13
5	2		Biologist(4)	\$ 22.91	300.0	\$ 24.31	\$ 7,292.79	68.00%	\$ 4,959.10	\$ 35,196.51	\$ 23,933.63	\$ 59,130.14
6	2		Technician(s)(12)	\$ 16.36	80.0	\$ 17.36	\$ 1,388.91	8.77%	\$ 121.81	\$ 6,703.16	\$ 587.87	\$ 7,291.03
7					-	\$ -	\$ -	48.00%	\$ -	\$ -	\$ -	\$ -
8					-	\$ -	\$ -	68.00%	\$ -	\$ -	\$ -	\$ -
9					-	\$ -	\$ -	8.77%	\$ -	\$ -	\$ -	\$ -
10				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
11				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
12				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
13				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
14				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
15				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
16				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
17				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
18				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
19				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
20				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
21				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
22				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
23				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
24				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
25				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
26				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
27				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
28				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
29				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
30				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
31				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
					1,520.00		\$ 32,830.21		\$ 14,627.66	\$ 158,445.36	\$ 70,596.08	\$ 229,041.44

SUMMARY OF MATERIALS AND SUPPLIES

SUMMARY OF MATERIALS, SUPPLIES, AND SERVICES

Yr 2 Escalation Rate	0.00%
----------------------	-------

	Task # or Description	Item Description	Rationale for Proposed Cost	Year 1			Year 2		
				Unit Price	Unit Quantity	Subtotal	Unit Price	Unit Quantity	Subtotal
1	1	Monthly fleet rental (2 trucks, 2 months)	Based on previous experience & SOWs	\$ 500.00	4.00	\$ 2,000.00	\$ 500.00	4.00	\$ 2,000.00
2	1	Mileage costs (2000 miles)	Based on previous experience & SOWs	\$ 0.40	2000.00	\$ 800.00	\$ 0.40	2000.00	\$ 800.00
4	1	Camping materials and gear	Based on previous experience & SOWs	\$ 1,000.00	0.50	\$ 500.00	\$ 1,000.00	0.50	\$ 500.00
5	1	Sampling materials and gear	Based on previous experience & SOWs	\$ 1,000.00	1.00	\$ 1,000.00	\$ 1,000.00	1.00	\$ 1,000.00
6	1	Boating materials, gear and fuel	Based on previous experience & SOWs	\$ 1,000.00	2.50	\$ 2,500.00	\$ 1,000.00	2.50	\$ 2,500.00
7	2	Monthly fleet rental (1 truck, 1 month)	Based on previous experience & SOWs	\$ 500.00	1.00	\$ 500.00	\$ 500.00	1.00	\$ 500.00
8	2	Mileage costs (500 miles)	Based on previous experience & SOWs	\$ 0.40	500.00	\$ 200.00	\$ 0.40	500.00	\$ 200.00
9						\$ -	\$ -		\$ -
10						\$ -	\$ -		\$ -
11						\$ -	\$ -		\$ -
12						\$ -	\$ -		\$ -
13						\$ -	\$ -		\$ -
14						\$ -	\$ -		\$ -
15					0	\$ -	\$ -	0	\$ -
16				\$ -	0	\$ -	\$ -	0	\$ -
17				\$ -	0	\$ -	\$ -	0	\$ -
18				\$ -	0	\$ -	\$ -	0	\$ -
19				\$ -	0	\$ -	\$ -	0	\$ -
20				\$ -	0	\$ -	\$ -	0	\$ -
21				\$ -	0	\$ -	\$ -	0	\$ -
22				\$ -	0	\$ -	\$ -	0	\$ -
23				\$ -	0	\$ -	\$ -	0	\$ -
24				\$ -	0	\$ -	\$ -	0	\$ -
25				\$ -	0	\$ -	\$ -	0	\$ -
26				\$ -	0	\$ -	\$ -	0	\$ -
TOTAL:						\$ 7,500.00			\$ 7,500.00

SUMMARY OF MATERIALS AND SUPPLIES

SUMMARY OF MATERIALS, SUPPLIES, AND SERVICES	Yr 3 Escalation Rate	2.00%	Yr 4 Escalation Rate	2.00%
---	-----------------------------	-------	-----------------------------	-------

	Task # or Description	Item Description	Year 3			Year 4		
			Unit Price	Unit Quantity	Subtotal	Unit Price	Unit Quantity	Subtotal
1	1	Monthly fleet rental (2 trucks, 2 months)	\$ 510.00	4.00	\$ 2,040.00	\$ 520.20	4.00	\$ 2,080.80
2	1	Mileage costs (2000 miles)	\$ 0.41	2000.00	\$ 816.00	\$ 0.42	2000.00	\$ 832.32
4	1	Camping materials and gear	\$ 1,020.00	0.50	\$ 510.00	\$ 1,040.40	0.50	\$ 520.20
5	1	Sampling materials and gear	\$ 1,020.00	1.00	\$ 1,020.00	\$ 1,040.40	1.00	\$ 1,040.40
6	1	Boating materials, gear and fuel	\$ 1,020.00	2.50	\$ 2,550.00	\$ 1,040.40	2.50	\$ 2,601.00
7	2	Monthly fleet rental (1 truck, 1 month)	\$ 510.00	1.00	\$ 510.00	\$ 520.20	1.00	\$ 520.20
8	2	Mileage costs (500 miles)	\$ 0.41	500.00	\$ 204.00	\$ 0.42	500.00	\$ 208.08
9			\$ -		\$ -	\$ -		\$ -
10			\$ -		\$ -	\$ -		\$ -
11			\$ -		\$ -	\$ -		\$ -
12			\$ -		\$ -	\$ -		\$ -
13			\$ -		\$ -	\$ -		\$ -
14			\$ -		\$ -	\$ -		\$ -
15			\$ -		\$ -	\$ -		\$ -
16			\$ -	0	\$ -	\$ -	0	\$ -
17			\$ -	0	\$ -	\$ -	0	\$ -
18			\$ -	0	\$ -	\$ -	0	\$ -
19			\$ -	0	\$ -	\$ -	0	\$ -
20			\$ -	0	\$ -	\$ -	0	\$ -
21			\$ -	0	\$ -	\$ -	0	\$ -
22			\$ -	0	\$ -	\$ -	0	\$ -
23			\$ -	0	\$ -	\$ -	0	\$ -
24			\$ -	0	\$ -	\$ -	0	\$ -
25			\$ -	0	\$ -	\$ -	0	\$ -
26			\$ -	0	\$ -	\$ -	0	\$ -
					\$ 7,650.00			\$ 7,803.00

SUMMARY OF MATERIALS AND SUPPLIES

SUMMARY OF MATERIALS, SUPPLIES, AND SERVICES	Yr 5 Escalation Rate	2.00%
---	-----------------------------	-------

			Year 5			
	Task # or Description	Item Description	Unit Price	Unit Quantity	Subtotal	TOTAL
1	1	Monthly fleet rental (2 trucks, 2 months)	\$ 530.60	4.00	\$ 2,122.42	\$ 10,243.22
2	1	Mileage costs (2000 miles)	\$ 0.42	2000.00	\$ 848.97	\$ 4,097.29
4	1	Camping materials and gear	\$ 1,061.21	0.50	\$ 530.60	\$ 2,560.80
5	1	Sampling materials and gear	\$ 1,061.21	1.00	\$ 1,061.21	\$ 5,121.61
6	1	Boating materials, gear and fuel	\$ 1,061.21	2.50	\$ 2,653.02	\$ 12,804.02
7	2	Monthly fleet rental (1 truck, 1 month)	\$ 530.60	1.00	\$ 530.60	\$ 2,560.80
8	2	Mileage costs (500 miles)	\$ 0.42	500.00	\$ 212.24	\$ 1,024.32
9			\$ -		\$ -	\$ -
10			\$ -		\$ -	\$ -
11			\$ -		\$ -	\$ -
12			\$ -		\$ -	\$ -
13			\$ -		\$ -	\$ -
14			\$ -		\$ -	\$ -
15			\$ -	0	\$ -	\$ -
16			\$ -	0	\$ -	\$ -
17			\$ -	0	\$ -	\$ -
18			\$ -	0	\$ -	\$ -
19			\$ -	0	\$ -	\$ -
20			\$ -	0	\$ -	\$ -
21			\$ -	0	\$ -	\$ -
22			\$ -	0	\$ -	\$ -
23			\$ -	0	\$ -	\$ -
24			\$ -	0	\$ -	\$ -
25			\$ -	0	\$ -	\$ -
26			\$ -	0	\$ -	\$ -
					\$ 7,959.06	\$ 38,412.06

SUMMARY OF TRAVEL COSTS

Cost Element	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Trip #	1	1	1	1	1	
From-To	Task 1. Removal	Task 1. Removal	Task 1. Removal	Task 1. Removal	Task 1. Removal	
Reason	Field Work	Field Work	Field Work	Field Work	Field Work	
# of Days (include travel days)	1	1	1	1	1	
Airfare	\$ -	\$ -	\$ -	\$ -	\$ -	
Lodging (Per Night)	\$ -	\$ -	\$ -	\$ -	\$ -	
MI&E Per Day	\$ 35.00	\$ 35.00	\$ 35.70	\$ 36.41	\$ 37.14	
Auto Rental Per Day	\$ -	\$ -	\$ -	\$ -	\$ -	
Misc Costs/Adjustments/Trip	\$ -	\$ -	\$ -	\$ -	\$ -	
Total Per Trip	\$ 35.00	\$ 35.00	\$ 35.70	\$ 36.41	\$ 37.14	
No. of persons	4	4	4	4	4	
No. of trips	18	18	18	18	18	
SUBTOTAL =	\$ 2,520.00	\$ 2,520.00	\$ 2,570.40	\$ 2,621.81	\$ 2,674.24	\$ 12,906.45
TOTAL COST BY PERIOD =	\$ 2,520.00	\$ 2,520.00	\$ 2,570.40	\$ 2,621.81	\$ 2,674.24	\$ 12,906.45