

**RECOVERY PROGRAM
FY 2020-2021 SCOPE OF WORK for:**

Recovery Program Project Number: 169

Monitoring spawning aggregations on the Green and Yampa rivers with antennas.

Reclamation Agreement number:

Reclamation Agreement term:

Note: Recovery Program FY20-21 scopes of work are drafted in May 2019. 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: USFWS Green River Basin FWCO
Submitted by: Christian Smith, GRB FWCO
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Date Last Modified: 5/28/2019 1:52:00 PM

Category:

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

Expected Funding Source:

- Annual funds
 Capital funds
 Other [*explain*]

I. Title of Proposal: Monitoring spawning aggregations on the Green and Yampa rivers with antennas.

II. Relationship to RIPRAP:

General Action Plan:

V.A.1.a.(2) Investigate improving recapture rates through passive PIT tag monitoring to improve population abundance estimates

Green River Action Plan:

V.D.1. Implement razorback sucker monitoring plan

III. Study Background/Rationale and Hypotheses:

Researchers monitor endangered fishes in the Upper Colorado River Basin. Periodic population abundances are estimated using capture-recapture techniques. This type of estimation requires that marked animals are recaptured in some way, and the more recaptures, the higher the precision of the estimate. Precise population estimates allow managers to be more confident about the status of the species in question.

In recent years, Colorado pikeminnow monitoring efforts have provided researchers with enough data to generate population estimates, however, captures and recaptures have been declining, and more recaptures are desired for better precision (K. Bestgen, personal communication). Razorback sucker are captured while conducting work to estimate Colorado pikeminnow. However, recaptures for this species are insufficient to generate a precise population estimate. Managers have identified a need to increase razorback sucker recaptures to thus generate population parameters (Bestgen et al. 2012). This study was initiated with this purpose: to document as many razorback sucker detections as possible in an attempt to generate data that can be used for estimating populations and survival using PIT tag antennas/Passive Interrogation Arrays (PIA). Added detections of PIT-tagged Colorado pikeminnow could also provide more robust population estimates of this long-lived species.

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

Goals:

1. To detect as many endangered fish as possible at Razorback Bar, Cleopatra's Couch bar, and Echo Park bar.
2. Find other locations where PIT tag antenna technology can be used to obtain more detections, such as Douglas Creek and floodplain wetlands.
3. Assist hatchery managers in determining the efficacy of fish rearing and stocking methods by determining the level of representation of hatchery fish cohorts within single and multi-year antenna datasets.

Objectives:

1. Deploy PIA's at Razorback Bar, Cleopatra's Couch bar, and Echo Park bar.
2. Supplement traditional sampling gear at floodplain wetlands such as Johnson Bottom, Old Charley Wash, and Sheppard Bottom with PIA's.

End products: All detection data will be provided electronically to the Recovery Program database for future survival estimates. This project is not intended to estimate razorback sucker survival in and of itself, but rather to augment other datasets (ancillary captures through pikeminnow estimates and nonnative fish removal). We will also provide results of our findings in the form of an annual report.

V. Study Area:

Razorback Bar near Jensen, Utah, Echo Park and Cleopatra's Couch bars on the Yampa River in Dinosaur National Monument, Colorado, and other locations along the Green, White, and Yampa rivers.

VI. Study Methods/Approach:

Multiple 40" x 6" submersible antennas will be deployed in riverine and floodplain habitats in the middle Green River Basin. Since most of the spawning bars we sample are located within Dinosaur National Monument, we have acquired sampling permits from the National Park Service. We will deploy antennas several weeks before flows begin to rise on Razorback and

Echo Park bars (typically late March or early April) to detect spawning razorback sucker. Detection of PIT-tagged Colorado pikeminnow will be attempted once peak flows begin to subside in the Yampa River (typically in early June). We will also deploy submersible antennas at Cleopatra’s Couch bar, which will coincide with an early pass on Project 110, which allows access to this location. The PIAs at Echo Park bar will additionally serve to detect Colorado pikeminnow in the Green-Yampa River confluence vicinity.

The standalone nature of submersible PIAs creates a much smaller footprint compared to antennas that require shore-based infrastructure, which makes them desirable in rivers that are managed as wilderness, such as the Yampa River and the Green River above the Split Mountain boat ramp in Dinosaur National Monument. We will use appropriate lengths of weighted 1/8” wire rope to secure submersible PIAs to a fixed natural object on shore that will allow for easy retrieval and eliminate the chance of losing the antenna to the current. We will also attach an identification tag to the shore end of the anchor that will explain its purpose and provide our contact information to anyone interested. Batteries will be changed bi-weekly by driving to Echo Park and hiking batteries to/from the antenna, driving a john boat to Razorback Bar, or stopping at Cleopatra’s Couch and Echo Park bars during Project 110 passes. Data retrieval will also occur during these weekly maintenance visits.

VII. Task Description and Schedule:

Task 1: Document razorback sucker and Colorado pikeminnow on or near spawning bars

Task 2: Data Analysis, report writing, presentations.

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

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

Annual report and data submissions to STReAMS by November of each year. Submission of 8-12 photos of project components or individuals completing tasks in conjunction with annual reports. Photos may be submitted to Melanie_fischer@fws.gov or through the Program’s flicker account.

IX. Budget Summary:

Fiscal Year	FY Total
FY 2020	\$ 33,349
FY 2021	\$ 32,663
FY 2022	\$ 33,305
FY 2023	\$ 33,971
FY 2024	\$ 36,076
TOTAL	\$ 169,364

X. Reviewers:

XI. References:

Bestgen, K. R., K. A. Zelasko, and G. C. White. 2012. Monitoring reproduction, recruitment and population status of razorback suckers in the upper Colorado River Basin. Report to the Upper Colorado River Endangered Fish Recovery Program. Larval Fish Laboratory Contribution 170, Colorado State University, Fort Collins.

Webber, P.A. and D. Beers. 2014. Detecting razorback suckers using passive integrated transponder tag antennas in the Green River, Utah. *Journal of Fish and Wildlife Management* 5: 191-196.

Webber, P. A., P. D. Thompson and P. Budy. 2012. Status and structure of two populations of bluehead suckers (*Catostomus discobolus*) in the Weber River, Utah. *Southwestern Naturalist* 57(3):267-276.

SUMMARY OF PROPOSED COSTS

Name of Servicing Agency:	U.S. Fish & Wildlife Service Green River Basin FWCO
Project Name:	Recovery Program Project 169: Monitoring spawning aggregations on the Green and Yampa rivers with antennas

	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL	
	10/1/2019		9/30/2020		10/1/2021		10/1/2022		10/1/2023			
	Through		Through		Through		Through		Through			
Enter the BEGINNING dates for each year ----->	9/29/2020		9/30/2021		9/30/2022		9/30/2023		9/29/2024			
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	\$	22,636.12	\$	22,121.90	\$	22,564.34	\$	23,015.63	\$	24,502.06	\$ 114,840.06	
Fringe Benefits - Hourly	\$	8,334.13	\$	8,114.03	\$	8,276.32	\$	8,441.84	\$	9,021.13	\$ 42,187.45	
Subtotal of Direct Labor & Fringe Benefits:	\$	30,970.25	\$	30,235.94	\$	30,840.66	\$	31,457.47	\$	33,523.19	\$ 157,027.50	
OTHER DIRECT COSTS:	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL	
Materials and Supplies	\$	2,108.56	\$	2,150.73	\$	2,193.75	\$	2,237.61	\$	2,282.37	\$ 10,973.02	
Travel Costs	\$	270.50	\$	275.91	\$	270.50	\$	275.91	\$	270.50	\$ 1,363.32	
Equipment	\$	-	\$	-	\$	-	\$	-	\$	-	\$ -	
Contractors	\$	-	\$	-	\$	-	\$	-	\$	-	\$ -	
Subtotal of Other Direct Costs:	\$	2,379.06	\$	2,426.64	\$	2,464.25	\$	2,513.52	\$	2,552.87	\$ 12,336.34	
INDIRECT/OVERHEAD COSTS:	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL	
Subtotal of Labor and Other Direct Costs:	\$	33,349.31	\$	32,662.58	\$	33,304.91	\$	33,970.99	\$	36,076.06		
Total dollars exempt from indirect/overhead base:	\$	-	\$	-	\$	-	\$	-	\$	-		
<Enter Description of Indirect/OH Cost #1>	3.00%	\$ 1,000.48	3.00%	\$ 979.88	3.00%	\$ 999.15	3.00%	\$ 1,019.13	3.00%	\$ 1,082.28	\$ 5,080.92	
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:	\$	1,000.48	\$	979.88	\$	999.15	\$	1,019.13	\$	1,082.28	\$ 5,080.92	
		YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL
GRAND TOTAL:	\$	34,349.79	\$	33,642.45	\$	34,304.05	\$	34,990.12	\$	37,158.34	\$	174,444.76

SUMMARY OF DIRECT LABOR & FRINGE E

Enter Escalation Rates ----->	Yr 2 Escalation Rate	2.00%
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Task # or Descri	Position Title	GS/WG Grade	GS/WG Step	OPM Pay Location	Current Hourly Rate	YEAR 1					YEAR 2					
						10/1/2019		Through	9/29/2020		9/30/2020		Through	9/30/2021		
						# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost	# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost	
1	1	Fisheries Biologist	GS 11	5	Rest of United	\$ 33.80	40.0	\$ 33.80	\$ 1,352.00	40.00%	\$ 540.80	40.0	\$ 34.48	\$ 1,379.04	40.00%	\$ 551.62
2	1	Fisheries Technician	GS 11	3	Rest of United	\$ 31.81	160.0	\$ 31.81	\$ 5,089.60	35.00%	\$ 1,781.36	160.0	\$ 32.45	\$ 5,191.39	35.00%	\$ 1,816.99
3	1	Fisheries Technician	GS 8	9	Rest of United	\$ 28.27	178.0	\$ 28.27	\$ 5,032.06	40.00%	\$ 2,012.82	178.0	\$ 28.84	\$ 5,132.70	40.00%	\$ 2,053.08
4	1	Biological Science Tect	GS 6	2	Rest of United	\$ 18.74	80.0	\$ 18.74	\$ 1,499.20	23.78%	\$ 356.51	80.0	\$ 19.11	\$ 1,529.18	23.78%	\$ 363.64
5	2	Fisheries Biologist	GS 11	5	Rest of United	\$ 33.80	40.0	\$ 33.80	\$ 1,352.00	40.00%	\$ 540.80	40.0	\$ 34.48	\$ 1,379.04	40.00%	\$ 551.62
6	2	Fisheries Technician	GS 11	3	Rest of United	\$ 31.81	140.0	\$ 31.81	\$ 4,453.40	35.00%	\$ 1,558.69	140.0	\$ 32.45	\$ 4,542.47	35.00%	\$ 1,589.86
7	2	Administrative Officer	GS 9	8	Rest of United	\$ 30.40	35.0	\$ 30.40	\$ 1,064.00	40.00%	\$ 425.60	26.0	\$ 31.01	\$ 806.21	40.00%	\$ 322.48
8	2	Project Leader	GS 13	5	Rest of United	\$ 48.17	58.0	\$ 48.17	\$ 2,793.86	40.00%	\$ 1,117.54	44.0	\$ 49.13	\$ 2,161.87	40.00%	\$ 864.75
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SUMMARY OF DIRECT LABOR & FRINGE E

Yr 3 Escalation Rate 2.00%

Yr 4 Escalation Rate 2.00%

Task # or Descri	Position Title	GS/WG Grade	GS/WG Step	OPM Pay Location	Current Hourly Rate	YEAR 3					YEAR 4				
						10/1/2021		Through	9/30/2022	10/1/2022		Through	9/30/2023		
						# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost	# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost
1	Fisheries Biologist	GS 11	5	Rest of United	\$ 33.80	40.0	\$ 35.17	\$ 1,406.62	40.00%	\$ 562.65	40.0	\$ 35.87	\$ 1,434.75	40.00%	\$ 573.90
2	Fisheries Technician	GS 11	3	Rest of United	\$ 31.81	160.0	\$ 33.10	\$ 5,295.22	35.00%	\$1,853.33	160.0	\$ 33.76	\$ 5,401.12	35.00%	\$ 1,890.39
3	Fisheries Technician	GS 8	9	Rest of United	\$ 28.27	178.0	\$ 29.41	\$ 5,235.36	40.00%	\$2,094.14	178.0	\$ 30.00	\$ 5,340.06	40.00%	\$ 2,136.02
4	Biological Science Tech	GS 6	2	Rest of United	\$ 18.74	80.0	\$ 19.50	\$ 1,559.77	23.78%	\$ 370.91	80.0	\$ 19.89	\$ 1,590.96	23.78%	\$ 378.33
5	Fisheries Biologist	GS 11	5	Rest of United	\$ 33.80	40.0	\$ 35.17	\$ 1,406.62	40.00%	\$ 562.65	40.0	\$ 35.87	\$ 1,434.75	40.00%	\$ 573.90
6	Fisheries Technician	GS 11	3	Rest of United	\$ 31.81	140.0	\$ 33.10	\$ 4,633.32	35.00%	\$1,621.66	140.0	\$ 33.76	\$ 4,725.98	35.00%	\$ 1,654.09
7	Administrative Officer	GS 9	8	Rest of United	\$ 30.40	26.0	\$ 31.63	\$ 822.33	40.00%	\$ 328.93	26.0	\$ 32.26	\$ 838.78	40.00%	\$ 335.51
8	Project Leader	GS 13	5	Rest of United	\$ 48.17	44.0	\$ 50.12	\$ 2,205.11	40.00%	\$ 882.04	44.0	\$ 51.12	\$ 2,249.21	40.00%	\$ 899.68
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SUMMARY OF DIRECT LABOR & FRINGE E

Yr 5 Escalation Rate	2.00%
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							YEAR 5							
							10/1/2023		Through	9/29/2024				
Task # or Descri	Position Title	GS/WG Grade	GS/WG Step	OPM Pay Location	Current Hourly Rate		# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost	Total Salary Cost	Total Fringe Cost	Total Labor Cost
1	1	Fisheries Biologist	GS 11	5	Rest of United	\$ 33.80	40.0	\$ 36.59	\$ 1,463.45	40.00%	\$ 585.38	\$ 7,035.86	\$ 2,814.34	\$ 9,850.21
2	1	Fisheries Technician	GS 11	3	Rest of United	\$ 31.81	160.0	\$ 34.43	\$ 5,509.15	35.00%	\$ 1,928.20	\$ 26,486.48	\$ 9,270.27	\$ 35,756.75
3	1	Fisheries Technician	GS 8	9	Rest of United	\$ 28.27	178.0	\$ 30.60	\$ 5,446.86	40.00%	\$ 2,178.75	\$ 26,187.04	\$ 10,474.82	\$ 36,661.86
4	1	Biological Science Tech	GS 6	2	Rest of United	\$ 18.74	80.0	\$ 20.28	\$ 1,622.78	23.78%	\$ 385.90	\$ 7,801.90	\$ 1,855.29	\$ 9,657.19
5	2	Fisheries Biologist	GS 11	5	Rest of United	\$ 33.80	40.0	\$ 36.59	\$ 1,463.45	40.00%	\$ 585.38	\$ 7,035.86	\$ 2,814.34	\$ 9,850.21
6	2	Fisheries Technician	GS 11	3	Rest of United	\$ 31.81	140.0	\$ 34.43	\$ 4,820.50	35.00%	\$ 1,687.18	\$ 23,175.67	\$ 8,111.49	\$ 31,287.16
7	2	Administrative Officer	GS 9	8	Rest of United	\$ 30.40	35.0	\$ 32.91	\$ 1,151.71	40.00%	\$ 460.68	\$ 4,683.03	\$ 1,873.21	\$ 6,556.24
8	2	Project Leader	GS 13	5	Rest of United	\$ 48.17	58.0	\$ 52.14	\$ 3,024.16	40.00%	\$ 1,209.67	\$ 12,434.21	\$ 4,973.68	\$ 17,407.89
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							731.00		\$ 24,502.06		\$ 9,021.13	\$ 114,840.06	\$ 42,187.45	\$ 157,027.50

SUMMARY OF MATERIALS AND SUPPLIES

SUMMARY OF MATERIALS, SUPPLIES, AND SERVICES

Yr 2 Escalation Rate	2.00%
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	Task #	Item Description	Rationale for Proposed Cost	Year 1			Year 2		
				Unit Price	Quantity	Subtotal	Unit Price	Unit Quantity	Subtotal
1	1	GSA Lease of Equip Code 6351 (monthly lease)	http://www.gsa.gov/portal/category/21852	\$ 236.64	3	\$ 709.92	\$ 241.37	3	\$ 724.12
2	1	GSA Lease of Equip Code 6351 (mileage rate)	http://www.gsa.gov/portal/category/21852	\$ 0.32	1852	\$ 592.64	\$ 0.33	1852	\$ 604.49
3	1	Boat fuel (gal)	Please refer to Reclamation Agreement num	\$ 4.00	60	\$ 240.00	\$ 4.08	60	\$ 244.80
4	1	Boat oil (qt)	Please refer to Reclamation Agreement num	\$ 11.00	6	\$ 66.00	\$ 11.22	6	\$ 67.32
5	1	Sampling equipment repair/replacement	Please refer to Reclamation Agreement num	\$ 500.00	1	\$ 500.00	\$ 510.00	1	\$ 510.00
6				\$ -	0	\$ -	\$ -	0	\$ -
7				\$ -	0	\$ -	\$ -	0	\$ -
8				\$ -	0	\$ -	\$ -	0	\$ -
9				\$ -	0	\$ -	\$ -	0	\$ -
10				\$ -	0	\$ -	\$ -	0	\$ -
11				\$ -	0	\$ -	\$ -	0	\$ -
12				\$ -	0	\$ -	\$ -	0	\$ -
13				\$ -	0	\$ -	\$ -	0	\$ -
14				\$ -	0	\$ -	\$ -	0	\$ -
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	\$ -
27				\$ -	0	\$ -	\$ -	0	\$ -
28				\$ -	0	\$ -	\$ -	0	\$ -
29				\$ -	0	\$ -	\$ -	0	\$ -
30				\$ -	0	\$ -	\$ -	0	\$ -
TOTAL:									
						\$ 2,108.56			\$ 2,150.73

SUMMARY OF MATERIALS AND SUPPLIES

SUMMARY OF MATERIALS, SUPPLIES	Yr 3 Escalation Rate	2.00%	Yr 4 Escalation Rate	2.00%
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	Task #	Item Description	Year 3			Year 4		
			Unit Price	Unit Quantity	Subtotal	Unit Price	Unit Quantity	Subtotal
1	1	GSA Lease of Equip Code 6351 (monthly lease)	\$ 246.20	3	\$ 738.60	\$ 251.12	3	\$ 753.37
2	1	GSA Lease of Equip Code 6351 (mileage rate)	\$ 0.33	1852	\$ 616.58	\$ 0.34	1852	\$ 628.91
3	1	Boat fuel (gal)	\$ 4.16	60	\$ 249.70	\$ 4.24	60	\$ 254.69
4	1	Boat oil (qt)	\$ 11.44	6	\$ 68.67	\$ 11.67	6	\$ 70.04
5	1	Sampling equipment repair/replacement	\$ 520.20	1	\$ 520.20	\$ 530.60	1	\$ 530.60
6			\$ -	0	\$ -	\$ -	0	\$ -
7			\$ -	0	\$ -	\$ -	0	\$ -
8			\$ -	0	\$ -	\$ -	0	\$ -
9			\$ -	0	\$ -	\$ -	0	\$ -
10			\$ -	0	\$ -	\$ -	0	\$ -
11			\$ -	0	\$ -	\$ -	0	\$ -
12			\$ -	0	\$ -	\$ -	0	\$ -
13			\$ -	0	\$ -	\$ -	0	\$ -
14			\$ -	0	\$ -	\$ -	0	\$ -
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	\$ -
27			\$ -	0	\$ -	\$ -	0	\$ -
28			\$ -	0	\$ -	\$ -	0	\$ -
29			\$ -	0	\$ -	\$ -	0	\$ -
30			\$ -	0	\$ -	\$ -	0	\$ -
					\$ 2,193.75			\$ 2,237.61

SUMMARY OF MATERIALS AND SUPPLIES

SUMMARY OF MATERIALS, SUPPLIES	Yr 5 Escalation Rate	2.00%
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	Task #	Item Description	Year 5			TOTAL
			Unit Price	Unit Quantity	Subtotal	
1	1	GSA Lease of Equip Code 6351 (monthly lease)	\$ 256.15	3	\$ 768.44	\$ 3,694.45
2	1	GSA Lease of Equip Code 6351 (mileage rate)	\$ 0.35	1852	\$ 641.49	\$ 3,084.11
3	1	Boat fuel (gal)	\$ 4.33	60	\$ 259.78	\$ 1,248.97
4	1	Boat oil (qt)	\$ 11.91	6	\$ 71.44	\$ 343.47
5	1	Sampling equipment repair/replacement	\$ 541.22	1	\$ 541.22	\$ 2,602.02
6			\$ -	0	\$ -	\$ -
7			\$ -	0	\$ -	\$ -
8			\$ -	0	\$ -	\$ -
9			\$ -	0	\$ -	\$ -
10			\$ -	0	\$ -	\$ -
11			\$ -	0	\$ -	\$ -
12			\$ -	0	\$ -	\$ -
13			\$ -	0	\$ -	\$ -
14			\$ -	0	\$ -	\$ -
15			\$ -	0	\$ -	\$ -
16			\$ -	0	\$ -	\$ -
17			\$ -	0	\$ -	\$ -
18			\$ -	0	\$ -	\$ -
19			\$ -	0	\$ -	\$ -
20			\$ -	0	\$ -	\$ -
21			\$ -	0	\$ -	\$ -
22			\$ -	0	\$ -	\$ -
23			\$ -	0	\$ -	\$ -
24			\$ -	0	\$ -	\$ -
25			\$ -	0	\$ -	\$ -
26			\$ -	0	\$ -	\$ -
27			\$ -	0	\$ -	\$ -
28			\$ -	0	\$ -	\$ -
29			\$ -	0	\$ -	\$ -
30			\$ -	0	\$ -	\$ -
					\$ 2,282.37	\$ 10,973.02

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	Vernal to Logan	Vernal to Logan	Vernal to Logan	Vernal to Logan	Vernal to Logan	
Reason	Equipment repair/transfer	Equipment repair/transfer	Equipment repair/transfer	Equipment repair/transfer	Equipment repair/transfer	
# of Days (include travel days)	2	2	2	2	2	
Airfare						
Lodging (Per Night)	\$ 94.00	\$ 95.88	\$ 94.00	\$ 95.88	\$ 94.00	
MI&E Per Day	\$ 55.00	\$ 56.10	\$ 55.00	\$ 56.10	\$ 55.00	
Auto Rental Per Day						
Total Per Trip	\$ 270.50	\$ 275.91	\$ 270.50	\$ 275.91	\$ 270.50	
No. of persons	1	1	1	1	1	
SUBTOTAL =	\$ 270.50	\$ 275.91	\$ 270.50	\$ 275.91	\$ 270.50	\$ 1,363.32

Cost Element	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Trip #	2	2	2	2	2	
From-To	Vernal to Durango	Vernal to Durango	Vernal to Durango	Vernal to Durango	Vernal to Durango	
Reason	Researchers Meeting	Researchers Meeting	Researchers Meeting	Researchers Meeting	Researchers Meeting	
# of Days (include travel days)	4	4	4	4	4	
Airfare						
Lodging (Per Night)	\$ 105.00	\$ 107.10	\$ 109.24	\$ 111.43	\$ 113.66	
MI&E Per Day	\$ 71.00	\$ 72.42	\$ 73.87	\$ 75.35	\$ 76.85	
Auto Rental Per Day						
Total Per Trip	\$ 668.50	\$ 681.87	\$ 695.51	\$ 709.42	\$ 723.61	
No. of persons						
SUBTOTAL =	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Cost Element	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Trip #	3	3	3	3	3	
From-To						
Reason						
# of Days (include travel days)						
Airfare						
Lodging (Per Night)						