UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

FY 2022-23 SCOPE OF WORK PROJECT: 176

Project Title
Matheson Wetland Sampling and Management

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

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

Relationship to RIPRAP:
COLORADO RIVER ACTION PLAN: MAINSTEM
II.A. Restore and manage flooded bottomland habitat
II.A.7. Matheson
II.A.7.d. Operate and maintain
II.A.7.e. Monitor and evaluate success

Study Background/Rationale and Hypotheses:
Recent management of floodplain wetlands, particularly at Stewart Lake on the middle Green River, highlights the potential of these habitats to boost recruitment of wild-spawned razorback sucker larvae (Schelly et al. 2016 & 2014, Schelly and Breen 2015). A portion of the Scott M. Matheson Wetland Preserve (Preserve) near Moab, UT is currently being augmented to connect and enhance historic

floodplain habitat. We expect these augmentations to increase intra-annual duration and inter-annual frequency of the Colorado River flooding in the Preserve's Central Pond.
Competition and predation by non-native fishes is linked to reduced survival and growth rates of stocked razorback sucker larvae in wetlands (Webber 2009, Webber and Haines 2014). However, experimental survival rates of razorback sucker larvae in 'reset' floodplains are thought adequate to sustain populations (Modde and Haines 2005), and age-0 razorback sucker in floodplain environments may outgrow predation risk from concurrent non-native fish cohorts (Christopherson and Birchell 2004). Based on this information and practical results at Stewart Lake, we propose to manage flooding and fish entrainment via a gate and fish screens and evaluate larval razorback sucker entrainment and growth at the Preserve.

Study Goals, Objectives, End Product(s):
Goal: This project will operate an existing floodplain wetland within the Preserve to provide access to floodplain wetland rearing habitat for endangered fishes.

Objective 1: During the ascending limb of the hydrograph (mid-April to June), we will determine presence of larval razorback sucker between the river and water control structure using quadrafoil light traps (April – June). Upon confirmation of larval razorback sucker presence adjacent to the water control structure, we will operate the fish screen and water control structure to: 1) exclude large-bodied nonnative fishes, 2) maximize larval razorback sucker entrainment and water storage in wetland (May – July).

Objective 2: We will document larval dispersal, growth, water quality and quantity throughout the filling and entrainment period (May – October). When water quality and/or quantity have degraded or the growing season has ended, we will drain the wetland; enumerate, tag and return native fish to the river (July – October).

End Products:
1. Annual management of floodplain wetland habitat with the goal of entraining, rearing and releasing wild-spawned razorback sucker while excluding large-bodied nonnative fishes.
2. Annual report detailing temporal patterns of pre-entrainment larval razorback sucker presence, post-entrainment fish community composition & size structure, and evaluation of annual operations.

Study Area:
The Scott M. Matheson Wetland Preserve (Preserve) is co-owned and managed by Utah Division of Wildlife Resources (UDWR) and The Nature Conservancy (TNC). Located immediately adjacent to the city of Moab, UT on the river-left bank of the Colorado River miles 64 to 61.3, the Preserve contains 875 acres of bottomland along the inside bend of a Colorado River meander in the Moab Valley. Wetland augmentations currently underway at the Preserve's Central Pond site have deepened and widened the pond's connection to the Colorado River at river mile 62. Additionally, a concrete control structure to house a gate and fish screens has been constructed.

Study Methods/Approach:
Razorback sucker larval drift typically occurs during the ascending limb of the hydrograph between April and June in the Colorado River adjacent to Moab (Howard 2014, Gibson & Caldwell 2018). To determine larval presence or absence during this period, we will sample the river-floodplain interface via quadrafoil larval light traps or 500 micron seine twice weekly. We will preserve all larvae collected and

conduct preliminary identification on-site at the Moab Field Station. We will then send preserved samples to the Larval Fish Lab at Colorado State University for rigorous identification.

Upon positive preliminary identification of razorback sucker larvae at the inland-most point of the river-floodplain interface, we will initiate filling of the Central Pond (with 1/2-inch fish screen in place). During or immediately after the filling period, we will conduct additional larval sampling within the wetland to confirm successful entrainment of razorback sucker larvae and characterize larval dispersal.

To maximize water storage (and thus duration of growing period), we aim to close the water control structure immediately following peak river stage. In the interest of minimizing water loss through the control structure, we may also place stop logs in the control structure, adjacent to the gate if necessary.

After filling the wetland and closing the gate, we will monitor post-entrainment fish community composition twice monthly. We may employ a variety of sampling gear types, including (but not limited to) seines, fyke nets, hoop nets, traps and/or weirs to determine the most efficient method of sampling.

We will also continuously monitor water temperature and dissolved oxygen using MiniDot loggers suspended in the water column. Additionally, to avoid anoxia-induced fish mortality events, we will directly measure temperature and dissolved oxygen during extreme low water and/or high temperature periods, and may use these data to trigger draining of the wetland.

Upon draining of the Central Pond, we will collect fish from the depression adjacent to the exit screen. We will weigh, measure, and transfer to the mainstem Colorado River all native fishes. We will implant PIT tags in all endangered fishes of suitable size prior to release. We will also euthanize any nonnative fishes after identifying, measuring, and weighing a subsample.

Task Description, Deliverables and Schedule:

Task 1: During ascending limb of the hydrograph (mid-April to June), determine presence or absence of larval razorback sucker between river and water control structure using quadrafoil light traps (April – June).

Task 2: Upon confirmation of larval razorback sucker presence adjacent to water control structure:

a) Operate fish screen and water control structure to maximize larval razorback sucker entrainment in wetland and sample wetland to determine larval presence and document dispersal (May – July).
b) Sample fish community, water quality and quantity throughout filling and entrainment period (May – October).
c) Drain wetland; enumerate, tag and return native fish to river when water quality has degraded or growing season has ended (July – October).

Task 3: Data entry, analysis and reporting (September – December).

Budget Summary:

FY Year	UDWR Moab
2022	$31,109
2023	$31,109
2024	$31,731
2025	$32,366
2026	$33,013
Total	$159,329

Reviewers:

References:

Christopherson, K. and G.J. Birchell. 2004. Investigation of larval razorback sucker survival to recruitment in floodplain depressions in the presence of nonnative fishes. Draft Report of Utah Division of Wildlife Resources, Vernal, Utah, to Upper Colorado River Endangered Fish Recovery Program, Denver, Colorado.

Gibson, C. and J. Caldwell. 2018. Assessment of Stocked Razorback Sucker Reproduction in the Lower Green and Lower Colorado Rivers. FY15 Annual Report of Utah Division of Wildlife Resources to Upper Colorado River Endangered Fish Recovery Program. Denver, CO.

Howard, J. 2014. Lower Green River Razorback Sucker Larval and Young-of-Year Monitoring Pilot Study. FY12 Annual Report of Utah Division of Wildlife Resources to Upper Colorado River Endangered Fish Recovery Program. Denver, CO.

Modde, T. and G.B. Haines. 2005. Survival and growth of stocked razorback sucker and bonytail in multiple floodplain wetlands of the middle Green River under reset conditions. Final Report of U.S. Fish and Wildlife Service to Upper Colorado River Endangered Fish Recovery Program, Denver, Colorado.

Schelly, R.C. J.T. Herdmann, and M.J. Breen 2014. Use of Stewart Lake floodplain by larval and adult endangered fishes. Annual Report of Utah Division of Wildlife Resources to Upper Colorado River Endangered Fish Recovery Program. Denver, CO.

Schelly, R.C. and M.J. Breen. 2015. Use of Stewart Lake floodplain by larval and adult endangered fishes. Annual Report of Utah Division of Wildlife Resources to Upper Colorado River Endangered Fish Recovery Program. Denver, CO.

Schelly R.C., R.R. Staffeldt, and M.J. Breen, 2016. Use of Stewart Lake floodplain by larval and adult endangered fishes. Annual Report of Utah Division of Wildlife Resources to Upper Colorado River Endangered Fish Recovery Program. Denver, CO.

Webber, P.A. 2009. Rearing razorback sucker in Baeser Bend, a wetland of the Green River. Annual report for Project C-6 Baeser to the Upper Colorado River Endangered Fish Recovery Program. Denver, CO.

Webber, P.A and G.B. Haines, 2014. Survival and growth rates of stocked razorback suckers (Xyrauchen texanus) in a wetland of the Green River, Utah. The Southwestern Naturalist 59(4): 459-464.

SUMMARY OF PROPOSED COSTS

Name of Servicing Agency:	**Utah Division of Wildlife Resources**
Project Name:	**Project 176 Matheson Wetland Sampling and Management.**

		YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5	TOTAL
Enter the BEGINNING dates for each year ------>		**10/1/2021**		**10/1/2022**		**10/2/2023**		**10/1/2024**		**10/1/2025**	
		Through		Through		Through		Through		Through	
Enter the ENDING dates for each year -------->		**9/30/2022**		**10/1/2023**		**9/30/2024**		**9/30/2025**		**9/30/2026**	
DIRECT LABOR AND FRINGE BENEFIT COSTS:		**YEAR 1**		**YEAR 2**		**YEAR 3**		**YEAR 4**		**YEAR 5**	**TOTAL**
Direct Labor - Hourly		$ 18,020.61		$ 18,020.61		$ 18,381.02		$ 18,748.64		$ 19,123.62	$ 92,294.50
Fringe Benefits - Hourly		$ 7,658.54		$ 7,658.54		$ 7,811.71		$ 7,967.94		$ 8,127.30	$ 39,224.02
Subtotal of Direct Labor & Fringe Benefits:		**$ 25,679.15**		**$ 25,679.15**		**$ 26,192.73**		**$ 26,716.58**		**$ 27,250.92**	**$ 131,518.52**
OTHER DIRECT COSTS:		**YEAR 1**		**YEAR 2**		**YEAR 3**		**YEAR 4**		**YEAR 5**	**TOTAL**
Materials and Supplies		$ 5,430.00		$ 5,430.00		$ 5,538.60		$ 5,649.38		$ 5,762.35	$ 27,810.33
Travel Costs		$ -		$ -		$ -		$ -		$ -	$ -
Equipment		$ -		$ -		$ -		$ -		$ -	$ -
Contractors		$ -		$ -		$ -		$ -		$ -	$ -
Subtotal of Other Direct Costs:		**$ 5,430.00**		**$ 5,430.00**		**$ 5,538.60**		**$ 5,649.38**		**$ 5,762.35**	**$ 27,810.33**
INDIRECT/OVERHEAD COSTS:		**YEAR 1**		**YEAR 2**		**YEAR 3**		**YEAR 4**		**YEAR 5**	**TOTAL**
Subtotal of Labor and Other Direct Costs:		**$ 31,109.15**		**$ 31,109.15**		**$ 31,731.33**		**$ 32,365.96**		**$ 33,013.27**	
Total dollars exempt from indirect/overhead base:		$ 31,109.15		$ 31,109.15		$ 31,731.33		$ 32,365.96		$ 33,013.27	
<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:	**$ 31,109.15**	**$ 31,109.15**	**$ 31,731.33**	**$ 32,365.96**	**$ 33,013.27**	**$ 159,328.85**

MARY OF DIRECT LABOR & FRINGE BENEFITS

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

					YEAR 1					YEAR 2				
					10/1/2021		Through	9/30/2022		10/1/2022		Through	10/1/2023	
	Task # or Description	Employee Name	Position Title	Current Hourly Rate	# 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	20.0	$ 27.66	$ 553.11	48.00%	$ 265.49	20.0	$ 27.66	$ 553.11	48.00%	$ 265.49
2	1		Biologist(4)	$ 22.91	140.0	$ 22.91	$ 3,207.01	68.00%	$ 2,180.77	140.0	$ 22.91	$ 3,207.01	68.00%	$ 2,180.77
3	1		Technician(s)(12)	$ 16.36	200.0	$ 16.36	$ 3,272.00	8.77%	$ 286.95	200.0	$ 16.36	$ 3,272.00	8.77%	$ 286.95
4	2		Project Leader(1)	$ 27.66	20.0	$ 27.66	$ 553.11	48.00%	$ 265.49	20.0	$ 27.66	$ 553.11	48.00%	$ 265.49
5	2		Biologist(4)	$ 22.91	140.0	$ 22.91	$ 3,207.01	68.00%	$ 2,180.77	140.0	$ 22.91	$ 3,207.01	68.00%	$ 2,180.77
6	2		Technician(s)(12)	$ 16.36	200.0	$ 16.36	$ 3,272.00	8.77%	$ 286.95	200.0	$ 16.36	$ 3,272.00	8.77%	$ 286.95
7	3		Project Leader(1)	$ 27.66	20.0	$ 27.66	$ 553.11	48.00%	$ 265.49	20.0	$ 27.66	$ 553.11	48.00%	$ 265.49
8	3		Biologist(4)	$ 22.91	120.0	$ 22.91	$ 2,748.86	68.00%	$ 1,869.23	120.0	$ 22.91	$ 2,748.86	68.00%	$ 1,869.23
9	3		Technician(s)(12)	$ 16.36	40.0	$ 16.36	$ 654.40	8.77%	$ 57.39	40.0	$ 16.36	$ 654.40	8.77%	$ 57.39
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MARY OF DIRECT LABOR & FRINGE BENEFITS

Yr 3 Escalation Rate	2.00%

Yr 4 Escalation Rate	2.00%

					YEAR 3					YEAR 4				
					10/2/2023		Through	9/30/2024		10/1/2024		Through	9/30/2025	
	Task # or Description	Employee Name	Position Title	Current Hourly Rate	# 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	20.0	$ 28.21	$ 564.17	48.00%	$ 270.80	20.0	$ 28.77	$ 575.46	48.00%	$ 276.22
2	1		Biologist(4)	$ 22.91	140.0	$ 23.37	$ 3,271.15	68.00%	$ 2,224.38	140.0	$ 23.83	$ 3,336.57	68.00%	$ 2,268.87
3	1		Technician(s)(12)	$ 16.36	200.0	$ 16.69	$ 3,337.44	8.77%	$ 292.69	200.0	$ 17.02	$ 3,404.19	8.77%	$ 298.55
4	2		Project Leader(1)	$ 27.66	20.0	$ 28.21	$ 564.17	48.00%	$ 270.80	20.0	$ 28.77	$ 575.46	48.00%	$ 276.22
5	2		Biologist(4)	$ 22.91	140.0	$ 23.37	$ 3,271.15	68.00%	$ 2,224.38	140.0	$ 23.83	$ 3,336.57	68.00%	$ 2,268.87
6	2		Technician(s)(12)	$ 16.36	200.0	$ 16.69	$ 3,337.44	8.77%	$ 292.69	200.0	$ 17.02	$ 3,404.19	8.77%	$ 298.55
7	3		Project Leader(1)	$ 27.66	20.0	$ 28.21	$ 564.17	48.00%	$ 270.80	20.0	$ 28.77	$ 575.46	48.00%	$ 276.22
8	3		Biologist(4)	$ 22.91	120.0	$ 23.37	$ 2,803.84	68.00%	$ 1,906.61	120.0	$ 23.83	$ 2,859.92	68.00%	$ 1,944.74
9	3		Technician(s)(12)	$ 16.36	40.0	$ 16.69	$ 667.49	8.77%	$ 58.54	40.0	$ 17.02	$ 680.84	8.77%	$ 59.71
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31				$ -	-	$ -	$ -	0.00%	$ -	-	$ -	$ -	0.00%	$ -
					900.00		$ 18,381.02		$ 7,811.71	900.00		$ 18,748.64		$ 7,967.94

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MARY OF DIRECT LABOR & FRINGE BENEFITS

Yr 5 Escalation Rate	2.00%

	Task # or Description	Employee Name	Position Title	Current Hourly Rate	YEAR 5 10/1/2025 Through 9/30/2026 # of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost	Total Salary Cost	Total Fringe Cost	Total Labor Cost
1	1		Project Leader(1)	$ 27.66	20.0	$ 29.35	$ 586.96	48.00%	$ 281.74	$ 2,832.81	$ 1,359.75	**$ 4,192.56**
2	1		Biologist(4)	$ 22.91	140.0	$ 24.31	$ 3,403.30	68.00%	$ 2,314.25	$ 16,425.04	$ 11,169.03	**$ 27,594.06**
3	1		Technician(s)(12)	$ 16.36	200.0	$ 17.36	$ 3,472.27	8.77%	$ 304.52	$ 16,757.90	$ 1,469.67	**$ 18,227.57**
4	2		Project Leader(1)	$ 27.66	20.0	$ 29.35	$ 586.96	48.00%	$ 281.74	$ 2,832.81	$ 1,359.75	**$ 4,192.56**
5	2		Biologist(4)	$ 22.91	140.0	$ 24.31	$ 3,403.30	68.00%	$ 2,314.25	$ 16,425.04	$ 11,169.03	**$ 27,594.06**
6	2		Technician(s)(12)	$ 16.36	200.0	$ 17.36	$ 3,472.27	8.77%	$ 304.52	$ 16,757.90	$ 1,469.67	**$ 18,227.57**
7	3		Project Leader(1)	$ 27.66	20.0	$ 29.35	$ 586.96	48.00%	$ 281.74	$ 2,832.81	$ 1,359.75	**$ 4,192.56**
8	3		Biologist(4)	$ 22.91	120.0	$ 24.31	$ 2,917.12	68.00%	$ 1,983.64	$ 14,078.60	$ 9,573.45	**$ 23,652.05**
9	3		Technician(s)(12)	$ 16.36	40.0	$ 17.36	$ 694.45	8.77%	$ 60.90	$ 3,351.58	$ 293.93	**$ 3,645.51**
10				$ -		$ -	$ -	0.00%	$ -	$ -	$ -	**$ -**
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12				$ -	-	$ -	$ -	0.00%	$ -	$ -	$ -	**$ -**
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14				$ -	-	$ -	$ -	0.00%	$ -	$ -	$ -	**$ -**
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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%	$ -	$ -	$ -	**$ -**
					900.00		**$ 19,123.62**		**$ 8,127.30**	**$ 92,294.50**	**$ 39,224.02**	**$ 131,518.52**

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SUMMARY OF MATERIALS AND SUPPLIES

SUMMARY OF MATERIALS, SUPPLIES, AND SERVICES

Yr 2 Escalation Rate

				Year 1			Year 2	
	Task # or Description	Item Description	Rationale for Proposed Cost	Unit Price	Unit Quantity	Subtotal	Unit Price	Unit Quantity
1	1	Montly fleet rental (1 truck, 3 months)	Based on previous experience & SOWs	$ 500.00	3.00	$ 1,500.00	$ 500.00	3.00
2	1	Mileage costs (100 miles)	Based on previous experience & SOWs	$ 0.40	100.00	$ 40.00	$ 0.40	100.00
5	1	Sampling materials and gear	Based on previous experience & SOWs	$ 1,000.00	1.50	$ 1,500.00	$ 1,000.00	1.50
7	2	Montly fleet rental (1 truck, 3 months)	Based on previous experience & SOWs	$ 500.00	3.00	$ 1,500.00	$ 500.00	3.00
8	2	Mileage costs (100 miles)	Based on previous experience & SOWs	$ 0.40	100.00	$ 40.00	$ 0.40	100.00
9	2	Sampling materials and gear	Based on previous experience & SOWs	$ 100.00	1.50	$ 150.00	$ 100.00	1.50
13	3	Montly fleet rental (1 truck, 1 month)	Based on previous experience & SOWs	$ 500.00	1.00	$ 500.00	$ 500.00	1.00
14	3	Mileage costs (500 miles)	Based on previous experience & SOWs	$ 0.40	500.00	$ 200.00	$ 0.40	500.00
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:			**$ 5,430.00**		

SUMMARY OF MATERIALS AND SUPPLIES

SUMMARY OF MATERIALS, SU	0.00%	Yr 3 Escalation Rate	2.00%	Yr 4 Escalation Rate	2.00%

				Year 3			Year 4		
	Task # or Description	Item Description	Subtotal	Unit Price	Unit Quantity	Subtotal	Unit Price	Unit Quantity	Subtotal
1	1	Montly fleet rental (1 truck, 3 months)	$ 1,500.00	$ 510.00	3.00	$ 1,530.00	$ 520.20	3.00	$ 1,560.60
2	1	Mileage costs (100 miles)	$ 40.00	$ 0.41	100.00	$ 40.80	$ 0.42	100.00	$ 41.62
5	1	Sampling materials and gear	$ 1,500.00	$ 1,020.00	1.50	$ 1,530.00	$ 1,040.40	1.50	$ 1,560.60
7	2	Montly fleet rental (1 truck, 3 months)	$ 1,500.00	$ 510.00	3.00	$ 1,530.00	$ 520.20	3.00	$ 1,560.60
8	2	Mileage costs (100 miles)	$ 40.00	$ 0.41	100.00	$ 40.80	$ 0.42	100.00	$ 41.62
9	2	Sampling materials and gear	$ 150.00	$ 102.00	1.50	$ 153.00	$ 104.04	1.50	$ 156.06
13	3	Montly fleet rental (1 truck, 1 month)	$ 500.00	$ 510.00	1.00	$ 510.00	$ 520.20	1.00	$ 520.20
14	3	Mileage costs (500 miles)	$ 200.00	$ 0.41	500.00	$ 204.00	$ 0.42	500.00	$ 208.08
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	$ -
27			$ -	$ -	0	$ -	$ -	0	$ -
28			$ -	$ -	0	$ -	$ -	0	$ -
29			$ -	$ -	0	$ -	$ -	0	$ -
30			$ -	$ -	0	$ -	$ -	0	$ -
			$ 5,430.00			**$ 5,538.60**			**$ 5,649.38**

SUMMARY OF MATERIALS AND SUPPLIES

SUMMARY OF MATERIALS, SU	Yr 5 Escalation Rate	2.00%

	Task # or Description	Item Description	Year 5 Unit Price	Year 5 Unit Quantity	Year 5 Subtotal	TOTAL
1	1	Montly fleet rental (1 truck, 3 months)	$ 530.60	3.00	$ 1,591.81	$ 7,682.41
2	1	Mileage costs (100 miles)	$ 0.42	100.00	$ 42.45	$ 204.87
5	1	Sampling materials and gear	$ 1,061.21	1.50	$ 1,591.81	$ 7,682.41
7	2	Montly fleet rental (1 truck, 3 months)	$ 530.60	3.00	$ 1,591.81	$ 7,682.41
8	2	Mileage costs (100 miles)	$ 0.42	100.00	$ 42.45	$ 204.87
9	2	Sampling materials and gear	$ 106.12	1.50	$ 159.18	$ 768.24
13	3	Montly fleet rental (1 truck, 1 month)	$ 530.60	1.00	$ 530.60	$ 2,560.80
14	3	Mileage costs (500 miles)	$ 0.42	500.00	$ 212.24	$ 1,024.32
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	$ -	$ -
					$ 5,762.35	**$ 27,810.33**