

**RECOVERY PROGRAM
FY 2020-2021 SCOPE OF WORK for:
Operations and Maintenance at Mumma**

Recovery Program Project Number: **29d**

Federal Agreement Assistance Number 08-FG-40-2747

Lead Agency: Colorado Parks and Wildlife
Submitted by: Harry Crockett
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Date Last Modified: 6/4/2019 12:29 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:

Operation and Maintenance of the J. W. Mumma Native Aquatic Species Restoration Facility

II. Relationship to RIPRAP:

General:

IV. Manage genetic integrity and augment or restore populations
IV.C. Operate and maintain facilities.

IV.C.4. Mumma

Green River Action Plan: Yampa and Little Snake Rivers:

IV.A. Yampa River in Dinosaur National Monument
IV.A.1. Augment or restore populations as needed.
IV.A.1.a. Develop State stocking plan for Bonytail in the Yampa River
IV.A.1.a. (1) Implement stocking plan.

Colorado River: Main stem:

IV.A.5. Develop State stocking plan for Bonytail in the Colorado River from Palisade to Loma.
IV.A.5.b. Implement Bonytail State stocking plan.

III. Study Background/Rationale and Hypotheses:

Since 2001, the J. W. Mumma Native Aquatic Species Restoration Facility (Mumma) located in Alamosa, Colorado and operated by Colorado Parks and Wildlife (CPW) has met endangered fish production needs for the Upper Colorado River Endangered Fish Recovery Program (UCREFRP). The Mumma facility currently provides five (5) lined-ponds; two (2) large 20 ft. diameter circular tanks; and a temporary, make-shift 216 sq. ft. trailer for fish grow-out and fish tagging purposes. Mumma is currently in the process of constructing a permanent 1,440 sq. ft. Fish Staging Building at an estimated cost of \$232,000 (**See rationale below**).

Each year Mumma implants approximately 6,000 Bonytail chub with passive integrated transponders (PIT tags) to assist state and federal biologists in the collection of growth, recruitment, survival and migration data. During this time, fish also receive chemotherapeutic treatment(s) to defend against potential fish pathogens and are provided with water-conditioning and flow-training techniques to promote and enhance their survival in the resource following release. Currently Mumma handles and PIT tags fish in a temporary, makeshift 210 sq. ft. Semi-Trailer without adequate lighting, permanent plumbing, a safe electrical supply and insulation to control ambient temperature. Due to overcrowded conditions, little working space exists between tagging tables and fish-holding tanks. Workflow often bottlenecks impeding progress and resulting in the inefficient use of time and labor. The current situation also requires fish be handled multiple times throughout the process causing undue fish-stress and the potential for increased disease and mortality. The construction of a permanent 1,440 sq. ft. Fish Staging Building will help Mumma facilitate the ease, efficiency and safety of handling these fish species thereby significantly reducing the amount of fish-stress on Bonytail chub prior to release into selected Colorado waters.

In past years, Mumma has been identified to annually produce 5,400 Bonytail (BYT) at 200 mm total length (TL) and to receive Humpback and Roundtail chubs to investigate further the culture techniques and potential. In 2019, Mumma's production goal is to produce 5,400 Bonytail at a size of 250 mm TL. Therefore, it is assumed the number and size of fish requested will remain at current levels throughout 2020-21, although acknowledged increasing demand for additional production and smaller sized fish may change this situation.

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

Goals:

- To provide Bonytail in numbers and sizes sufficient to help meet the annual stocking plan of the Upper Colorado River Endangered Fish Recovery Program (UCREFRP) for BYT in the Upper Basin of the Colorado River drainage. (UCREFRP 2015).
- To receive and rear Humpback and Roundtail chubs removed from the Yampa River for approximately one year.

Objectives:

- To receive early life stage progeny of Bonytail from the Southwest Native Aquatic Resources and Recovery Center, NM and the Wahweap State Fish Hatchery, UT.
- To grow fish out in numbers, sizes, and periods necessary to help meet the annual

stocking requirements for these fish species in Colorado Rivers.

- To individually tag fish with a Passive Integrated Transponder purchased by the USFWS.
- To transport, treat, and take in young-of-year *Gila* species from the Yampa River to determine survival and culture techniques.
- To flow train fish in two (2) large 20 ft. diameter tanks prior to stocking to enhance post-stocking survival.
- To transport fish from Mumma as necessary and assist in the stocking of fish in designated river reaches in Colorado.
- To conduct Health Condition Profiling (HCP) on 20 fish per lot prior to stocking if time and resources allow.
- To conduct a feed trial on 1,000 - 1,500 fish using a low energy diet if time and resources allow.
- To conduct pre-HCP and post-HCP on fish involved in feed trial using a low energy diet if time and resources allow.

End Product:

- Production of Colorado River endangered fish species required to help meet revised stocking plan objectives for designated rivers/river reaches in Colorado.
- Maintaining (via culture) *Gila* spp. brought in from Yampa River.
- An annual report detailing numbers of fish received, propagated, transported off station and maintained on station: propagation, fish marking and disease treatment actions taken.

V. Study Area:

The J. W. Mumma Native Aquatic Species Restoration Facility (Mumma) located at 6655 County Road 106 South in Alamosa, Colorado.

VI. Study Methods/Approach:

Mumma currently has approximately 42,000 Bonytail on unit. Mumma has made available four (4) 0.10 surface acre lined-ponds, one (1) 0.03 surface acre lined-ponds, two (2) 20' diameter circular tanks and a 216 sq. ft. trailer for the propagation and PIT tagging of any feasible combination, number and size of the fish species requested by the Recovery Program.

NOTE: During the summer of 2017 CPW Mumma began construction on new "*Isolation and Fish-Staging Buildings*" to facilitate the ease and biosecurity of receiving Bonytail from other hatchery sources as well as the handling, conditioning and PIT tagging of Bonytail prior to release. Both facilities will be fully functional by fall 2019.

Depending on the requirements for maintaining separate family lots and the flexibility of marking polyculture fish from multiple lots and different species, production capability of Mumma will vary with annual Recovery Program objectives, expectations and funding. Endangered fish received at the unit as larvae, fry, or fingerling-size fish are reared using industry accepted culture techniques and anticipated normal annual mortality rates to produce the

desired number and size of fish product for Recovery Program stocking purposes. Transport of fish product to stocking or transfer locations is pre-planned. Providing assistance in preparing the fish for release and distribution in targeted river reaches is available if requested and budgeted by the Recovery Program.

VII. Task Description and Schedule:

- Task 1:** Grow-out, harvest, PIT tag, and stock target numbers of Bonytail chub by July through August 2019: a. 5,400 Bonytail chub (mean = 250 mm TL) into the Yampa and Colorado rivers with stocking locations to be determined by hatchery and state.
- Task 2:** Produce same numbers and sizes by July through August in each year, 2020-2025.

VIII. Deliverables and Due Dates by Fiscal Year:

PIs are requested to submit 6-12 photos by February 28th each year. Photos can be submitted here: <https://www.flickr.com/photos/coloradoriverrecovery/>. PIs should make a folder with their SOW number and upload images into that folder. Photographs can be taken using cell phones as the quality is acceptable. Each uploaded image will have a number assigned to it. PIs should email Melanie Fischer at melanie_fischer@fws.gov the number and a brief description of each photo. Descriptions should include the date taken, location, what is happening in the photo, and who the photographer is. Field report articles of 300-500 words are requested and may be submitted to Melanie Fischer. PIs should include one photo related to field report article in photo submissions.

FY-2020

Photos (eg. bonytail diet study) submitted to I & E committee: 28 February 2020
5,400 Bonytail at 250 mm average total length by July through August 2020
PIT-tag Data finalized and submitted to database, HCP report finalized and submitted to PDO, annual report finalized and submitted to PDO: November 2020

FY-2021

Photos submitted to I & E committee: 28 February 2021
5,400 Bonytail at 250 mm average total length by July through August 2021
PIT-tag Data finalized and submitted to database, HCP report finalized and submitted to PDO, annual report finalized and submitted to PDO: November 2021

FY-2022

Photos submitted to I & E committee: 28 February 2022
5,400 Bonytail at 250 mm average total length by July through August 2022
PIT-tag Data finalized and submitted to database, HCP report finalized and submitted to PDO, annual report finalized and submitted to PDO: November 2022

FY-2023

Photos submitted to I & E committee: 28 February 2023

5,400 Bonytail at 250 mm average total length by July through August 2023
PIT-tag Data finalized and submitted to database, HCP report finalized and submitted to PDO,
annual report finalized and submitted to PDO: November 2023

FY-2024

Field report article and photos submitted to I & E committee: 28 February 2024, if time and resources allow

5,400 Bonytail at 250 mm average total length by July through August 2024
PIT-tag Data finalized and submitted to database, HCP report finalized and submitted to PDO,
annual report finalized and submitted to PDO: November 2024.

IX. Budget Summary:

Please see Non-Federal Grants Cost Estimating Tool Spreadsheet Budget Summary for more detailed information.

FY-2020	\$82,364.43
FY-2021	\$84,046.74
FY-2022	\$85,898.61
FY-2023	\$89,263.94
<u>FY-2024</u>	<u>\$90,410.90</u>
Total:	\$431,984.62

X. Reviewers:

Colorado Parks and Wildlife – Mumma Hatchery and Recovery Program staff.

Harry Crockett

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XI. References:

Upper Colorado River Endangered Fish Recovery Program, Integrated Stocking Plan Revision Committee. 2015. Revised integrated stocking plan for razorback sucker and bonytail. Upper Colorado River Endangered Fish Recovery Program, Denver, Colorado.

SUMMARY OF PROPOSED COSTS

Name of Servicing Agency:	COLORADO PARKS & WILDLIFE					
Project Name:	OPERATIONS AND MAINTENANCE AT MUMMA					
Enter the BEGINNING dates for each year ----->	YEAR 1 10/1/2020	YEAR 2 Through	YEAR 3 Through	YEAR 4 Through	YEAR 5 Through	TOTAL
Enter the ENDING dates for each year ----->	9/30/2021	10/1/2022	10/1/2023	9/30/2024	9/30/2025	
DIRECT LABOR AND FRINGE BENEFIT COSTS:	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Direct Labor - Hourly	\$ 27,097.61	\$ 27,639.56	\$ 28,192.35	\$ 28,756.20	\$ 29,331.32	\$ 141,017.05
Fringe Benefits - Hourly	\$ 4,849.63	\$ 4,946.62	\$ 5,045.55	\$ 5,146.46	\$ 5,282.45	\$ 25,270.72
Subtotal of Direct Labor & Fringe Benefits:	\$ 31,947.24	\$ 32,586.18	\$ 33,237.91	\$ 33,902.66	\$ 34,613.78	\$ 166,287.77
OTHER DIRECT COSTS:	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Materials and Supplies	\$ 44,430.54	\$ 44,871.71	\$ 45,993.50	\$ 47,845.70	\$ 49,031.37	\$ 232,172.82
Travel Costs	\$ 3,152.14	\$ 3,106.14	\$ 3,106.14	\$ 3,106.14	\$ 3,106.14	\$ 15,576.72
Equipment	\$ 2,834.51	\$ 3,482.70	\$ 3,561.06	\$ 4,409.43	\$ 3,659.61	\$ 17,947.31
Contractors	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal of Other Direct Costs:	\$ 50,417.19	\$ 51,460.55	\$ 52,660.70	\$ 55,361.28	\$ 55,797.13	\$ 265,696.85
INDIRECT/OVERHEAD COSTS:	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Subtotal of Labor and Other Direct Costs:	\$ 82,364.43	\$ 84,046.74	\$ 85,898.61	\$ 89,263.94	\$ 90,410.90	
Total dollars exempt from indirect/overhead base:	\$ 5,000.00	\$ 5,100.00	\$ 5,200.00	\$ 5,300.00	\$ 5,400.00	
<Enter Description of Indirect/OH Cost #1>	\$ -	0.00%	\$ -	0.00%	\$ -	\$ -
Total dollars exempt from indirect/overhead base:	\$ -	\$ -	\$ -	\$ -	\$ -	
<Enter Description of Indirect/OH Cost #2>	\$ -	0.00%	\$ -	0.00%	\$ -	\$ -
Subtotal of Indirect/Overhead Costs:	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
GRAND TOTAL:	\$ 82,364.43	\$ 84,046.74	\$ 85,898.61	\$ 89,263.94	\$ 90,410.90	\$ 431,984.62

SUMMARY OF DIRECT LABOR & FRINGE BENEFITS

Enter Escalation Rates ----->	Yr 2 Escalation Rate	2.00%
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Task # or Description	Employee Name	Position Title	Current Hourly Rate	YEAR 1					YEAR 2				
				10/1/2020		Through	9/30/2021		10/1/2021		Through	10/1/2022	
				# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost	# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost
1	Grow-out, har FTE 1	TECHNICIAN V	\$ 38.44	158.9	\$ 38.44	\$ 6,108.58	33.00%	\$ 2,015.83	158.9	\$ 39.21	\$ 6,230.75	33.00%	\$ 2,056.15
2	Grow-out, har FTE 2	TECHNICIAN IV	\$ 25.26	158.9	\$ 25.26	\$ 4,014.12	35.00%	\$ 1,404.94	158.9	\$ 25.77	\$ 4,094.40	35.00%	\$ 1,433.04
3	Grow-out, har FTE 3	TECHNICIAN III	\$ 25.69	158.9	\$ 25.69	\$ 4,082.45	35.00%	\$ 1,428.86	158.9	\$ 26.20	\$ 4,164.10	35.00%	\$ 1,457.43
4	Grow-out, har FTE 4	TECHNICIAN III	\$ 22.37	158.9	\$ 22.37	\$ 3,554.86	0.00%	\$ -	158.9	\$ 22.82	\$ 3,625.96	0.00%	\$ -
5	Grow-out, har FTE 5	TECHNICIAN III	\$ 25.69	158.9	\$ 25.69	\$ 4,082.45	0.00%	\$ -	158.9	\$ 26.20	\$ 4,164.10	0.00%	\$ -
6	Grow-out, har TEMPORARY 1	TECHNICIAN I	\$ 15.75	106.0	\$ 15.75	\$ 1,668.98	0.00%	\$ -	106.0	\$ 16.07	\$ 1,702.36	0.00%	\$ -
7	Grow-out, har TEMPORARY 2	GENERAL LABOR I	\$ 14.25	106.0	\$ 14.25	\$ 1,510.03	0.00%	\$ -	106.0	\$ 14.54	\$ 1,540.23	0.00%	\$ -
8	Grow-out, har TEMPORARY 3	GENERAL LABOR I	\$ 14.25	106.0	\$ 14.25	\$ 1,510.03	0.00%	\$ -	106.0	\$ 14.54	\$ 1,540.23	0.00%	\$ -
9	Grow-out, har TEMPORARY 4	GENERAL LABOR I	\$ 14.25	39.7	\$ 14.25	\$ 566.12	0.00%	\$ -	39.7	\$ 14.54	\$ 577.45	0.00%	\$ -
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%	\$ -
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17			\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
18			\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
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21			\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
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31			\$ -	-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
				1,152.19		\$ 27,097.61		\$ 4,849.63	1,152.19		\$ 27,639.56		\$ 4,946.62

SUMMARY OF DIRECT LABOR & FRINGE

				Yr 3 Escalation Rate	2.00%	Yr 4 Escalation Rate	2.00%									
#	Task # or Description	Employee Name	Position Title	YEAR 3					YEAR 4							
				10/2/2022		Through	10/1/2023		# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost			
1	Grow-out, har	FTE 1	TECHNICIAN V	\$ 38.44			158.9	\$ 39.99	\$ 6,355.36	33.00%	\$ 2,097.27	158.9	\$ 40.79	\$ 6,482.47	33.00%	\$ 2,139.22
2	Grow-out, har	FTE 2	TECHNICIAN IV	\$ 25.26			158.9	\$ 26.28	\$ 4,176.29	35.00%	\$ 1,461.70	158.9	\$ 26.81	\$ 4,259.81	35.00%	\$ 1,490.93
3	Grow-out, har	FTE 3	TECHNICIAN III	\$ 25.69			158.9	\$ 26.73	\$ 4,247.38	35.00%	\$ 1,486.58	158.9	\$ 27.26	\$ 4,332.33	35.00%	\$ 1,516.31
4	Grow-out, har	FTE 4	TECHNICIAN III	\$ 22.37			158.9	\$ 23.27	\$ 3,698.48	0.00%	\$ -	158.9	\$ 23.74	\$ 3,772.45	0.00%	\$ -
5	Grow-out, har	FTE 5	TECHNICIAN III	\$ 25.69			158.9	\$ 26.73	\$ 4,247.38	0.00%	\$ -	158.9	\$ 27.26	\$ 4,332.33	0.00%	\$ -
6	Grow-out, har	TEMPORARY 1	TECHNICIAN I	\$ 15.75			106.0	\$ 16.39	\$ 1,736.40	0.00%	\$ -	106.0	\$ 16.71	\$ 1,771.13	0.00%	\$ -
7	Grow-out, har	TEMPORARY 2	GENERAL LABOR I	\$ 14.25			106.0	\$ 14.83	\$ 1,571.03	0.00%	\$ -	106.0	\$ 15.12	\$ 1,602.45	0.00%	\$ -
8	Grow-out, har	TEMPORARY 3	GENERAL LABOR I	\$ 14.25			106.0	\$ 14.83	\$ 1,571.03	0.00%	\$ -	106.0	\$ 15.12	\$ 1,602.45	0.00%	\$ -
9	Grow-out, har	TEMPORARY 4	GENERAL LABOR I	\$ 14.25			39.7	\$ 14.83	\$ 589.00	0.00%	\$ -	39.7	\$ 15.12	\$ 600.78	0.00%	\$ -
10				\$ -			-	\$ -	\$ -	0.00%	\$ -	-	\$ -	\$ -	0.00%	\$ -
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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%	\$ -
							1,152.19		\$ 28,192.35		\$ 5,045.55	1,152.19		\$ 28,756.20		\$ 5,146.46

SUMMARY OF DIRECT LABOR & FRINGE

Yr 5 Escalation Rate	2.00%
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	Task # or Description	Employee Name	Position Title	Current Hourly Rate	YEAR 5					Total Salary Cost	Total Fringe Cost	Total Labor Cost			
					10/1/2024		Through	9/30/2025							
					# of Hours	Hourly Rate	Salary Cost	Fringe Rate	Fringe Cost						
1	Grow-out, har	FTE 1	TECHNICIAN V	\$ 38.44	158.9	\$ 41.61	\$ 6,612.12	33.50%	\$ 2,215.06	\$ 31,789.28	\$ 10,523.52	\$ 42,312.80			
2	Grow-out, har	FTE 2	TECHNICIAN IV	\$ 25.26	158.9	\$ 27.34	\$ 4,345.01	35.00%	\$ 1,520.75	\$ 20,889.63	\$ 7,311.37	\$ 28,201.00			
3	Grow-out, har	FTE 3	TECHNICIAN III	\$ 25.69	158.9	\$ 27.81	\$ 4,418.97	35.00%	\$ 1,546.64	\$ 21,245.23	\$ 7,435.83	\$ 28,681.06			
4	Grow-out, har	FTE 4	TECHNICIAN III	\$ 22.37	158.9	\$ 24.21	\$ 3,847.90	0.00%	\$ -	\$ 18,499.64	\$ -	\$ 18,499.64			
5	Grow-out, har	FTE 5	TECHNICIAN III	\$ 25.69	158.9	\$ 27.81	\$ 4,418.97	0.00%	\$ -	\$ 21,245.23	\$ -	\$ 21,245.23			
6	Grow-out, har	TEMPORARY 1	TECHNICIAN I	\$ 15.75	106.0	\$ 17.05	\$ 1,806.55	0.00%	\$ -	\$ 8,685.42	\$ -	\$ 8,685.42			
7	Grow-out, har	TEMPORARY 2	GENERAL LABOR I	\$ 14.25	106.0	\$ 15.42	\$ 1,634.50	0.00%	\$ -	\$ 7,858.24	\$ -	\$ 7,858.24			
8	Grow-out, har	TEMPORARY 3	GENERAL LABOR I	\$ 14.25	106.0	\$ 15.42	\$ 1,634.50	0.00%	\$ -	\$ 7,858.24	\$ -	\$ 7,858.24			
9	Grow-out, har	TEMPORARY 4	GENERAL LABOR I	\$ 14.25	39.7	\$ 15.42	\$ 612.79	0.00%	\$ -	\$ 2,946.13	\$ -	\$ 2,946.13			
10				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -			
11				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -			
12				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -			
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30				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -			
31				\$ -	-	\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -			
					1,152.19		\$ 29,331.32		\$ 5,282.45	\$ 141,017.05	\$ 25,270.72	\$ 166,287.77			

SUMMARY OF MATERIALS AND SUPPLIES

SUMMARY OF MATERIALS, SUPPLIES, AND SERVICES

Yr 2 Escalation Rate

2.00%

	Task # or D	Item Description	Rationale for Proposed Cost	Year 1			Year 2		
				Unit Price	Unit Quantity	Subtotal	Unit Price	Unit Quantity	Subtotal
1	Grow-out, ha	PRORATED UTILITY COSTS	TO PUMP WELLS & RUN AERATION	\$ 26,332.00	1	\$ 26,332.00	\$ 26,858.64	1	\$ 26,858.64
2	Grow-out, ha	FISH FOOD	RAZORBACK SUCKER DIET	\$ 1.17	13140	\$ 15,373.80	\$ 1.19	13140	\$ 15,681.28
3	Grow-out, ha	CHEMICALS	SALT FOR HANDLING STRESS	\$ 0.09	9000	\$ 810.00	\$ 0.09	9000	\$ 826.20
4	Grow-out, ha	DIP NETS	FISH HARVEST & HANDLING	\$ 39.27	2	\$ 78.54	\$ 40.06	2	\$ 80.11
5	Grow-out, ha	SEINE NET	FISH HARVEST & HANDLING	\$ 438.68	1	\$ 438.68	\$ 447.45	0	\$ -
6	Grow-out, ha	CHEMICALS	CL2 DISINFECTION OF EFFLUENT	\$ 116.25	7	\$ 813.75	\$ 118.58	7	\$ 830.03
7	Grow-out, ha	COMMUNICATIONS	PHONE & EMAIL	\$ 83.77	1	\$ 83.77	\$ 85.45	1	\$ 85.45
8	Grow-out, ha	FISH HEALTH INSPECTIONS	ANNUAL DIAGNOSTIC SERVICES	\$ 500.00	1	\$ 500.00	\$ 510.00	1	\$ 510.00
9				\$ -	0	\$ -	\$ -	0	\$ -
10				\$ -	0	\$ -	\$ -	0	\$ -
11				\$ -	0	\$ -	\$ -	0	\$ -
12				\$ -	0	\$ -	\$ -	0	\$ -
13				\$ -	0	\$ -	\$ -	0	\$ -
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29				\$ -	0	\$ -	\$ -	0	\$ -
30				\$ -	0	\$ -	\$ -	0	\$ -
TOTAL:						\$ 44,430.54			\$ 44,871.71

SUMMARY OF MATERIALS AND SUPPLIES

SUMMARY OF MATERIALS,		Yr 3 Escalation Rate	2.50%	Yr 4 Escalation Rate	3.00%
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	Task # or D	Item Description	Year 3			Year 4		
			Unit Price	Unit Quantity	Subtotal	Unit Price	Unit Quantity	Subtotal
1	Grow-out, ha	PRORATED UTILITY COSTS	\$ 27,530.11	1	\$ 27,530.11	\$ 28,356.01	1	\$ 28,356.01
2	Grow-out, ha	FISH FOOD	\$ 1.22	13140	\$ 16,073.31	\$ 1.26	13140	\$ 16,555.51
3	Grow-out, ha	CHEMICALS	\$ 0.09	9000	\$ 846.86	\$ 0.10	9000	\$ 872.26
4	Grow-out, ha	DIP NETS	\$ 41.06	2	\$ 82.11	\$ 42.29	2	\$ 84.58
5	Grow-out, ha	SEINE NET	\$ 458.64	0	\$ -	\$ 472.40	1	\$ 472.40
6	Grow-out, ha	CHEMICALS	\$ 121.54	7	\$ 850.78	\$ 125.19	7	\$ 876.30
7	Grow-out, ha	COMMUNICATIONS	\$ 87.58	1	\$ 87.58	\$ 90.21	1	\$ 90.21
8	Grow-out, ha	FISH HEALTH INSPECTIONS	\$ 522.75	1	\$ 522.75	\$ 538.43	1	\$ 538.43
9			\$ -	0	\$ -	\$ -	0	\$ -
10			\$ -	0	\$ -	\$ -	0	\$ -
11			\$ -	0	\$ -	\$ -	0	\$ -
12			\$ -	0	\$ -	\$ -	0	\$ -
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18			\$ -	0	\$ -	\$ -	0	\$ -
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29			\$ -	0	\$ -	\$ -	0	\$ -
30			\$ -	0	\$ -	\$ -	0	\$ -
					\$ 45,993.50			\$ 47,845.70

SUMMARY OF MATERIALS AND SUPPLIES

SUMMARY OF MATERIALS,	Yr 5 Escalation Rate	3.50%
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	Task # or D	Item Description	Year 5			
			Unit Price	Unit Quantity	Subtotal	TOTAL
1	Grow-out, ha	PRORATED UTILITY COSTS	\$ 29,348.47	1	\$ 29,348.47	\$ 138,425.23
2	Grow-out, ha	FISH FOOD	\$ 1.30	13140	\$ 17,134.95	\$ 80,818.85
3	Grow-out, ha	CHEMICALS	\$ 0.10	9000	\$ 902.79	\$ 4,258.11
4	Grow-out, ha	DIP NETS	\$ 43.77	2	\$ 87.54	\$ 412.88
5	Grow-out, ha	SEINE NET	\$ 488.93	0	\$ -	\$ 911.08
6	Grow-out, ha	CHEMICALS	\$ 129.57	7	\$ 906.97	\$ 4,277.83
7	Grow-out, ha	COMMUNICATIONS	\$ 93.37	1	\$ 93.37	\$ 440.38
8	Grow-out, ha	FISH HEALTH INSPECTIONS	\$ 557.28	1	\$ 557.28	\$ 2,628.46
9			\$ -	0	\$ -	\$ -
10			\$ -	0	\$ -	\$ -
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30			\$ -	0	\$ -	\$ -
					\$ 49,031.37	\$ 232,172.82

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	Alamosa - Grand Junction					
Reason	Stock Byt - Salt Creek					
# of Days (include travel days)	2	2	2	2	2	
Airfare	\$ -	\$ -	\$ -	\$ -	\$ -	
Lodging (Per Night)	\$ 94.00	\$ 94.00	\$ 94.00	\$ 94.00	\$ 94.00	\$ 94.00
MI&E Per Day	\$ 55.00	\$ 55.00	\$ 55.00	\$ 55.00	\$ 55.00	\$ 55.00
Auto Rental Per Day	\$ -	\$ -	\$ -	\$ -	\$ -	
Misc Costs/Adjustments/Trip	\$ -	\$ -	\$ -	\$ -	\$ -	
Total Per Trip	\$ 149.00	\$ 149.00				
No. of persons	2	2	2	2	2	
Mileage rate	\$ 0.69	\$ 0.69	\$ 0.69	\$ 0.69	\$ 0.69	\$ 0.69
Total miles	536	536	536	536	536	
SUBTOTAL =	\$ 668.91	\$ 3,344.56				

Cost Element	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Trip #	2	2	2	2	2	
From-To	Alamosa - Dinosaur					
Reason	Stock BYT - Yampa River					
# of Days (include travel days)	2	2	2	2	2	
Airfare	\$ -	\$ -	\$ -	\$ -	\$ -	
Lodging (Per Night)	\$ 94.00	\$ 94.00	\$ 94.00	\$ 94.00	\$ 94.00	\$ 94.00
MI&E Per Day	\$ 55.00	\$ 55.00	\$ 55.00	\$ 55.00	\$ 55.00	\$ 55.00
Auto Rental Per Day	\$ -	\$ -	\$ -	\$ -	\$ -	
Misc Costs/Adjustments/Trip	\$ -	\$ -	\$ -	\$ -	\$ -	
Total Per Trip	\$ 270.50	\$ 270.50				
No. of persons	2	2	2	2	2	
Mileage rate	\$ 0.69	\$ 0.69	\$ 0.69	\$ 0.69	\$ 0.69	\$ 0.69
Total miles	766	766	766	766	766	
SUBTOTAL =	\$ 1,069.54	\$ 5,347.70				

Cost Element	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Trip #	3	3	3	3	3	
From-To	Alamosa - Grand junction					
Reason	Stock BYT - Colorado River					
# of Days (include travel days)	2	2	2	2	2	
Airfare	\$ -	\$ -	\$ -	\$ -	\$ -	
Lodging (Per Night)	\$ 94.00	\$ 94.00	\$ 94.00	\$ 94.00	\$ 94.00	
MI&E Per Day	\$ 55.00	\$ 55.00	\$ 55.00	\$ 55.00	\$ 55.00	
Auto Rental Per Day	\$ -	\$ -	\$ -	\$ -	\$ -	
Misc Costs/Adjustments/Trip	\$ -	\$ -	\$ -	\$ -	\$ -	
Total Per Trip	\$ 270.50	\$ 270.50				
No. of persons	2	2	2	2	2	
Mileage rate	\$ 0.69	\$ 0.69	\$ 0.69	\$ 0.69	\$ 0.69	
Total miles	578	578	578	578	578	
SUBTOTAL =	\$ 939.82	\$ 4,699.10				

SUMMARY OF EQUIPMENT COSTS

SUMMARY OF EQUIPMENT			Enter Escalation Rates ----->			Yr 2 Escalation Rate	2.00%	Yr 3 Escalation Rate	2.25%		
Task # or	Item Description	Rationale for Proposed Cost	Year 1			Year 2			Year 3		
			Unit Price	Unit Quantity	Subtotal	Unit Price	Unit Quantity	Subtotal	Unit Price	Unit Quantity	Subtotal
1	Paddlewheel Aerators	To maintain adequate dissolved oxygen levels in ponds	\$ 993.79	1	\$ 993.79	\$ 1,013.67	1	\$ 1,013.67	\$ 1,036.47	1	\$ 1,036.47
2	EsensION+ pH1 Portable meter with probe	To monitor water quality, temperature and pH	\$ 740.72	1	\$ 740.72	\$ 755.53	0	\$ -	\$ 772.53	0	\$ -
3	Big Bull Agitators	To maintain adequate dissolved oxygen levels in tanks	\$ 550.00	2	\$ 1,100.00	\$ 561.00	2	\$ 1,122.00	\$ 573.62	2	\$ 1,147.25
4	Replacement motors & parts	Annual Paddlewheel Aerator Maintenance	\$ 376.99	0	\$ -	\$ 384.53	2	\$ 769.06	\$ 393.18	2	\$ 786.36
5	Replacement gearbox & parts	Annual Paddlewheel Aerator Maintenance	\$ 261.49	0	\$ -	\$ 266.72	1	\$ 266.72	\$ 272.72	1	\$ 272.72
6	Replacement pH probe	Annual pH Meter Maintenance	\$ 305.15	0	\$ -	\$ 311.25	1	\$ 311.25	\$ 318.26	1	\$ 318.26
7			\$ -	0	\$ -	\$ -	0	\$ -	\$ -	0	\$ -
8			\$ -	0	\$ -	\$ -	0	\$ -	\$ -	0	\$ -
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TOTAL:					\$ 2,834.51			\$ 3,482.70			\$ 3,561.06

SUMMARY OF EQUIPMENT COSTS

SUMMARY C		Yr 4 Escalation Rate	1.75%	Yr 5 Escalation Rate	1.00%			
	Task # or Item Description	Year 4			Year 5			TOTAL
		Unit Price	Unit Quantity	Subtotal	Unit Price	Unit Quantity	Subtotal	
1	Grow-out, hPaddlewheel Aerators	\$ 1,054.61	1	\$ 1,054.61	\$ 1,065.16	1	\$ 1,065.16	\$ 5,163.70
2	Grow-out, hsension+ pH1 Portable meter with probe	\$ 786.05	1	\$ 786.05	\$ 793.91	0	\$ -	\$ 1,526.77
3	Grow-out, hBig Bull Agitators	\$ 583.66	2	\$ 1,167.32	\$ 589.50	2	\$ 1,179.00	\$ 5,715.56
4	Grow-out, hReplacement motors & parts	\$ 400.06	2	\$ 800.12	\$ 404.06	2	\$ 808.13	\$ 3,163.67
5	Grow-out, hReplacement gearbox & parts	\$ 277.49	1	\$ 277.49	\$ 280.27	1	\$ 280.27	\$ 1,097.20
6	Grow-out, hReplacement pH probe	\$ 323.83	1	\$ 323.83	\$ 327.06	1	\$ 327.06	\$ 1,280.40
7		\$ -	0	\$ -	\$ -	0	\$ -	\$ -
8		\$ -	0	\$ -	\$ -	0	\$ -	\$ -
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				\$ 4,409.43			\$ 3,659.61	\$ 17,947.31