

**SAN JUAN RIVER LARVAL ENDANGERED FISH MONITORING BETWEEN RM 180.6 – 168.4
(Animas River confluence to Hatch Brother’s trading post)**

FISCAL YEAR 2021 SCOPE OF WORK

SUBMITTED TO THE U.S. BUREAU OF RECLAMATION

SUBMITTED BY

**AMERICAN SOUTHWEST ICHTHYOLOGICAL RESEARCHERS, L.L.C. (ASIR)
800 ENCINO PLACE NE
ALBUQUERQUE, NEW MEXICO 87102-2606
PRINCIPAL INVESTIGATOR MICHAEL A. FARRINGTON
505.247.9337 (VOICE)
MICHAEL_FARRINGTON@ASIRLLC.COM**

CONTRACT # GS-10F-0249X-140R4018F0037

1 OCTOBER 2020 – 30 SEPTEMBER 2021

**SAN JUAN RIVER LARVAL ENDANGERED FISH MONITORING BETWEEN RM 180.6 – 168.4
(ANIMAS RIVER CONFLUENCE TO HATCH BROTHER’S TRADING POST) FISCAL YEAR 2021
PROJECT PROPOSAL**

Background:

During the February 2016 SJRRIP Biology Committee meeting in Durango Colorado, the option of expanding the study area upstream of Shiprock, NM for the larval fish monitoring program was discussed. Researchers hypothesized that as more Razorback Sucker adults are established in the San Juan River through augmentation efforts, and potentially through natural recruitment, larval Razorback Sucker should be present upstream of the current larval fish monitoring study area. This expansion was approved and first included in the SJRRIP fiscal year 2017 Annual Work Plan.

During the 2016 SJRRIP study “Evaluation of Larval Fish Entrainment in the Hogback Diversion Canal” larval Colorado Pikeminnow and Razorback Sucker were collected in drift-net samples taken in the San Juan River adjacent to the Hogback Diversion Canal. At the May 2017 SJRRIP Biology Committee meeting in Durango, Colorado, the Hogback Diversion Canal collection of larval Razorback Sucker prompted a discussion regarding conducting a larval fish survey trip upstream of Shiprock to target the collection of Colorado Pikeminnow. This change in protocol was unanimously approved. In 2017, three sampling trips were conducted between mid-June and early August with the intent of documenting upstream distributional boundaries of both Razorback Sucker and Colorado Pikeminnow (between Shiprock and the Animas-San Juan River confluence at Farmington, NM).

Both larval Colorado Pikeminnow and Razorback Sucker were documented in the expanded study area in 2017. Sampling of the San Juan River between Farmington and Shiprock, NM during 2018 documented larval Razorback Sucker up to river mile (RM) 179.8 (near the confluence of the Animas River) while a 2019 sample yielded larval Razorback Sucker in the Animas River. Colorado Pikeminnow were not collected in the extended study area during 2018. Beginning in 2019, at the request of the SJRRIP, this project was redesigned to specifically targeted the collection of larval Colorado Pikeminnow, with all sampling efforts occurring upstream of the Four Corners Power Plant pumping station at RM 163.7; this FY 2021 proposal specifically targets the collection of larval Colorado Pikeminnow above RM 163.7.

Project Justification:

Data from this monitoring effort can be used by the SJRRIP to determine when to implement Reasonable and Prudent Measures (RPM) necessary to avoid adverse impacts to the endangered fish species. Specifically, sampling in the proposed reach (RM 180.6 – 168.4) may trigger RPM #2, as outlined in the Biological Opinion for Four Corners Power Plant (Service, 2015). If larval Colorado Pikeminnow are collected upstream of RM 163.7 (Four Corners Power Plant pumping station), a feasible pumping plan that maintains the current operating configuration could be developed to help minimize entrainment risk.

Sampling in this proposed reach relies on annually securing private property access through the Hatch Brother’s trading post. These landowners have allowed access to SJRRIP researchers in the past.

Methods:

Two sampling trips will occur after the presumed spawning and hatching period of Colorado Pikeminnow (July and early August). Results (i.e., raw numbers of larvae captured) from the long-term larval fish survey being conducted immediately downstream of Shiprock will help to inform specific sampling dates within the extended study area. This “adaptive sampling” approach will help ensure the collection of the large number of larval fish necessary to document reproduction of a rare species.

Access to the river will be gained through the use of inflatable rafts equipped with all of the necessary equipment to successfully sample nursery type habitats. Sample crews will consist of two people and two separate vehicles. The sampling of a discrete river reach requires the use of two vehicles to daily shuttle materials and personnel to the upstream and downstream end of study area. A schedule for each sampling trip follows:

- Day 1 Fieldwork preparation, travel from Albuquerque to Farmington NM.
- Day 2 Sample RM 180.6 – 168.4.
- Day 3 Travel from Farmington to Albuquerque NM. Clean and store field sampling gear and deposit specimens at the Museum of Southwestern Biology, UNM.

The collection and preservation of specimens, magnitude of sampling effort, habitat classification, gathering of physical data, field work safety, laboratory work, species-specific identifications, quality assurance and control, and data analysis will follow the methodology outlined for the San Juan River larval Razorback Sucker and Colorado Pikeminnow Monitoring program (*SOW 21*). Larval fish monitoring project history, as well as goals and objectives of this project as they relate to the SJRRIP Long Range Plan, can also be found in the San Juan River larval Razorback Sucker and Colorado Pikeminnow Monitoring scope of work.

This sampling effort is independent of ongoing larval fish monitoring occurring below Shiprock, NM, but data can be integrating into the existing long-term larval fish monitoring database. Integration with the long-term larval fish monitoring data will be done in instances (e.g., back-calculated spawning dates) where integration does not affect analysis and interpretation of long-term trends associated with the current larval fish monitoring. Density estimates, frequency of occurrence, and other metrics associated with this expanded study area will be analyzed and presented independently of the long-term larval fish monitoring study.

**2021 BUDGET: SAN JUAN RIVER LARVAL ENDANGERED FISH MONITORING BETWEEN
RM 180.6 – 168.4 (Animas River confluence to Hatch Brother’s trading post)**

Personnel

Field Data Collection

Animas River confluence to Hatch Brother’s trading post RM 180.6 – 168.4

Fisheries Biologist I (1 staff x 2 trips x 3 days x 8 hr/day at \$63.89/hr)	\$	3,067
Fisheries Technician (1 staff x 2 trips x 3 days x 8 hr/day at \$39.31/hr).....	\$	1,887

Lab Work

All Samples Combined

Fisheries Biologist I (15 staff days/sampling year x 8 hrs/day at \$63.89/hr)	\$	7,667
Tasks: Laboratory identification, developmental staging, specialized endangered fish processing, data entry, data query and review, database development		

Fisheries Technician (15 staff days/sampling year x 8 hrs/day at \$39.31/hr)	\$	4,717
Tasks: Post-trip sample processing, juvenile identification, Post-identification – processing, measures, review of counts		

Office Work (Report Development)

Fisheries Biologist I (3 staff days year x 8 hrs/day at \$63.89/hr):	\$	1,533
Tasks: Data analysis and integration into long-term larval fish monitoring database, inclusion of data in annual draft report, incorporate data into presentation of study for annual meetings, annual reporting related to state and tribal permitting of sampling activities		

Project Oversight

Senior Fisheries Biologist (1 staff days year x 8 hrs/day at \$108.10/hr):	\$	865
Tasks: Project coordination, project and data review, data management, report review, permitting review		

Personnel (Field, Lab, Office, Oversight):	Subtotal	\$	<u>19,736</u>
---	-----------------	-----------	----------------------

SJRRIP Meetings

Three meetings/year required; 2 days/meeting. (Costs are covered under SOW 21)

Fisheries Biologist I (6 staff days/year):	\$	0
Senior Fisheries Biologist (6 staff days/year):	\$	0
Personnel (Meetings):	Subtotal	\$ 0

Personnel.....	Subtotal	\$ 19,736
Personnel.....	GSA General and Administrative Fee (IFF)	\$ 148
Personnel.....	Total	\$ 19,884

Materials and Supplies

Safety dedicated first aid gear: <i>(In kind contribution)</i>	\$	0
Raft and rafting associated gear: <i>(In kind contribution)</i>	\$	0
Fish Sampling and associated electronic recording gear: <i>(In kind contribution)</i>	\$	0

Materials and Supplies:	Total	\$ 0
--------------------------------------	--------------	-------------

Travel and Per Diem

Field Data Collection

Animas River confluence to Hatch Brother's trading post (two trips) - RM 180.6 – 168.4

Travel - 4 x 4 pickup trucks (404 miles x \$ 0.58/mile x 2 trips x 2 trucks).....	\$	937
Per Diem - 2 hotel days per trip x 2 staff (\$96/night GSA lodging rate) x 2 trips....	\$	768
Per Diem - 3 field days per trip x 2 staff (\$55/day GSA M&IE rate) x 2 trips	\$	660

Travel and Per Diem (Field):	Subtotal	\$ 2,365
---	-----------------	-----------------

SJRRIP Meetings (Costs are covered under SOW 21)

Travel (one vehicle at 430 miles r.t. x 3 trips x \$ 0.58/mile):	\$	0
Per Diem (2 GSA lodging + 2 M&IE per diem days/meeting x 3 meetings x 2 staff)	\$	0

Travel and Per Diem (Meetings):.....	Subtotal	\$ 0
Travel and Per Diem:	Total	\$ 2,365

2021 Project Totals

Personnel:	Total	\$	19,884
Materials and Supplies:	Total	\$	0
Travel and Per Diem:	Total	\$	2,365

2021 Scope of Work: GRAND TOTAL \$ **22,249**

Projected Out-year funding (Adjusted by 3% annually)

FY 2022	\$	22,916
FY 2023	\$	23,604
FY 2024	\$	24,312

Response to reviewers' comments.

No comments received.