

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

FISCAL YEAR 2019 SCOPE OF WORK

SUBMITTED TO THE U.S. BUREAU OF RECLAMATION

FROM

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**SAN JUAN RIVER LARVAL ENDANGERED FISH MONITORING BETWEEN RM 180.6 – 168.4
(ANIMAS RIVER CONFLUENCE TO HATCH BROTHER’S TRADING POST) FISCAL YEAR 2019
PROJECT PROPOSAL**

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Background:

During the February 2016 SJRBRIP 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 SJRBRIP fiscal year 2017 Annual Work Plan.

During a separate 2016 SJRBRIP 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. During the May 2017 Biology Committee meeting in Durango Colorado, these collections prompted a discussion regarding moving one survey trip to target the collection of Colorado Pikeminnow. This change in protocol was unanimously approved. During 2017, three sampling trips were conducted between mid-June and early August with the intent of documenting upstream distributional boundaries of both endangered fish. Both larval Colorado Pikeminnow and Razorback Sucker were documented within the expanded study area in 2017. Sampling of the San Juan River between Farmington and Shiprock, NM is taking place during 2018, and continues to target the collection of both endangered fish species. At the request of the SJRBRIP, this FY2019 proposal specifically targets the collection of larval Colorado Pikeminnow, with all sampling efforts taking place above the Four Corners Power Plant pumping station located at RM 163.7.

Project Justification:

Data from this monitoring effort can be used by the SJRBRIP 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 larvae are collected upstream of river mile 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 within this proposed reach relies on annually securing private property access through the Hatch Brother's trading post. These landowners have allowed access to SJRBRIP researchers in the past.

Methods:

Two sampling trips will take place during 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 proposed 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 19 21*). Larval fish monitoring project history, as well as goals and objectives of this project as they relate to the SJRBRIP 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 taking place 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. Mixture model 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.

2019 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 (two staff, one raft)
RM 180.6 – 168.4*

Fisheries Biologist I (1 staff x 2 trips x 3 days x 8 hrs/day at \$58.90/hr):.....\$ 2,827

Fisheries Technician (1 staff x 2 trips x 3 days x 8 hrs/day at \$36.24/hr):.....\$ 1,740

Lab Work

All Samples Combined

Fisheries Biologist I (15 staff days/sampling year x 8 hrs/day at \$58.90/hr):\$ 7,068
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 \$36.24/hr):\$ 4,349
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 \$58.90/hr):.....\$ 1,414
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 \$99.67/hr):.....\$ 797
Tasks: Project coordination, project and data review, data management, report review, permitting review

Personnel (Field, Lab, Office, Oversight): Subtotal \$ 18,195

SJRBRIP Meetings

Four meetings/year required; 2 days/meeting. (Costs are covered under SOW 19 21)

Fisheries Biologist I (8 staff days/year):\$ 0

Senior Fisheries Biologist (8 staff days/year):\$ 0

Personnel (Meetings): Subtotal \$ 0

Personnel: Total \$ 18,195

Materials and Supplies

Safety dedicated first aid gear: (*In kind contribution*)\$ 0

Raft and rafting associated gear: (*In kind contribution*)\$ 0

Fish Sampling and associated electronic recording gear: (*In kind contribution*)\$ 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 \$ 0.545/mile x 2 trips x 2 trucks):.....\$ 881

Per Diem - 3 field days per trip x 2 staff (\$51/day GSA M&IE rate) x 2 trips:\$ 612

Per Diem - 2 hotel days per trip x 2 staff (\$93/night GSA lodging rate) x 2 trips:\$ 744

Travel and Per Diem (Field): Subtotal \$ 2,237

SJRBRIP Meetings (*Costs are covered under SOW 19 21*)

Travel (one vehicle at 430 miles r.t. x 4 trips x \$ 0.545/mile):\$ 0

Per Diem (2 GSA lodging + 3 M&IE per diem days/meeting x 4 meetings x 2 staff):\$ 0

Travel and Per Diem (Meetings):..... Subtotal \$ 0

Travel and Per Diem: Total \$ 2,237

2019 Project Totals

Personnel: Total \$ 18,195

Materials and Supplies: Total \$ 0

Travel and Per Diem: Total \$ 2,237

2019 Scope of Work: GRAND TOTAL \$ 20,432

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

FY 2020\$ 21,045

FY 2021\$ 21,676

FY 2022\$ 22,326