

ADDENDUM TO SOW 18 21, SAN JUAN RIVER LARVAL RAZORBACK SUCKER AND COLORADO PIKEMINNOW MONITORING

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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 included in the SJRBRIP fiscal year 2017 Annual Work Plan. This addendum addresses the field logistics, data integration with the current larval fish monitoring program, and budget associated with increased upstream monitoring.

Project Justification:

Between 1998 and 2012, the increasing upstream distribution of larval Razorback Sucker has necessitated the upstream expansion of the existing larval fish monitoring study area. In 2001, the upper boundary of the study area was moved from river mile (RM) 127.5 to 141.5 (Cudei, NM). The study area was expanded again in 2012 from RM 141.5 to 147.9 (Shiprock, NM). These expansions were accompanied by increasing the length of existing larval fish survey sampling trips. Those trips (accessing suitable habitats via a raft) were able to be expanded with minimal increases in budget and time; a feasible boat launch farther upstream was all that was required. Immediately after each of these expansions, larval Razorback Sucker was documented in the newly expanded study area.

This type of expansion is no longer possible. The area upstream of Shiprock, NM has restricted access in areas that fall within the Navajo Nation, or is otherwise private property with little or no access to the San Juan River. Additionally, the presence of the PNM weir and Hogback diversion structures that are impassible to watercraft necessitated a new approach to study area expansion.

This approach closely followed the successful protocols of other SJRBRIP research projects currently being conducted between Farmington and Shiprock, NM; notably non-native removal, small-bodied, and sub-adult and adult monitoring. Rather than a continuous sampling effort, the area between Farmington and Shiprock, NM is divided into three discrete sections of river. These sections are as follows:

- RM 180.6 – 168.4 (Animas River confluence to Hatch Brother's trading post)
- RM 166.6 – 159.4 (Directly below PNM weir to landowner Buck Wheeler's property)
- RM 158.6 – 147.9 (Directly below Hogback diversion to Shiprock, NM)

These proposed sampling reaches allowed for a 32.7 mile upstream expansion of the current larval fish monitoring project while only foregoing sampling of 2.6 miles of river. The 1.8 mile gap between RM 168.4 and 166.6 as well as the 0.8 mile gap between RM 159.4 and 158.6 are required to bypass the impassable structures of the PNM weir and Hogback diversion. These proposed reaches rely on annually securing private property access through Mr. Buck Wheeler and the Hatch Brother's trading post. Both of these landowners have allowed access to SJRBRIP researchers in the past.

Currently, these reaches are only sampled during the presumed spawning and hatching period of Razorback Sucker (May and June) and target the collection of Razorback Sucker larvae. 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 the expanded study area will be analyzed and presented independently of the long-term larval fish monitoring study.

Methods:

Field Work:

Sampling for Razorback Sucker larvae would be done during the presumed spawning and hatching period of Razorback Sucker (May and June). 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 discrete river reaches requires the use of two vehicles to daily shuttle materials and personnel to the upstream and downstream end of each reach. A proposed schedule for each sampling trip follows:

- Day 1 Fieldwork preparation.
- Day 2 Travel from Albuquerque to Farmington NM, sample RM 166.6 – 159.4.
- Day 3 Sample RM 180.6 – 168.4.
- Day 4 Sample RM 158.6 – 147.9.
- Day 5 Travel from Farmington to Albuquerque NM, clean and maintain field sampling gear, 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. 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 (*SOW 18 21*).

2018 BUDGET: EXPANDED SAN JUAN RIVER LARVAL ENDANGERED FISH MONITORING
Based on three sampling trips per year

Personnel

Field Data Collection

Animas River confluence to Shiprock (two staff, one raft) - RM 180.6 – 147.9

Fisheries Biologist I (1 staff x 3 trips x 5 days x 8 hrs/day):\$ 6,862
 Fisheries Technician (1 staff x 3 trips x 5 days x 8 hrs/day):\$ 4,223

Lab Work

All Reach Samples Combined

Fisheries Biologist I (20 staff days/sampling year):\$ 9,149
 Tasks: Laboratory identification, developmental staging, specialized endangered fish processing, data entry, data query and review, database development

Fisheries Technician (20 staff days/sampling year):\$ 5,630
 Tasks: Post-trip sample processing, juvenile identification, Post-identification – processing, measures, review of counts

Office Work (Report Development)

Fisheries Biologist I (5 staff days year):\$ 2,287
 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 (2 staff days year):\$ 1,548
 Tasks: Project coordination, project and data review, data management, report review

Personnel (Field, Lab, Office, Oversight): Subtotal \$ 29,699

SJRBRIP Meetings

Four meetings/year required; 2 days/meeting. (Costs are covered under SOW 17 21)

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

Personnel (Meetings): Subtotal \$ 0

Personnel: Total \$ 29,699

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 Shiprock (three trips) - RM 180.6 – 147.9

Travel - 4 x 4 pickup trucks (488 miles x \$ 0.54/mile x 3 trips x 2 trucks):.....\$ 1,581

Per Diem - 4 field days per trip x 2 staff (\$51/day GSA M&IE rate) x 3 trips:\$ 1,224

Per Diem - 3 hotel days per trip x 2 staff (\$91/night GSA lodging rate) x 3 trips:\$ 1,638

Travel and Per Diem (Field): Subtotal \$ 4,443

SJRBRIP Meetings (Costs are covered under SOW 17 21)

Travel (one vehicle at 430 miles r.t. x 4 trips x \$ 0.54/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 \$ 4,443

2018 Project Totals

Personnel: Total \$ 29,699

Materials and Supplies: Total \$ 0

Travel and Per Diem: Total \$ 4,443

2018 Scope of Work: **GRAND TOTAL \$ 34,142**

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

FY 2019\$ 35,166

FY 2020\$ 36,221

FY 2021\$ 37,308