

Project Title: San Juan River Larval Razorback Sucker and Colorado Pikeminnow Monitoring between river miles 180.6 – 168.4 (Animas River confluence to Hatch Brother’s trading post)

Bureau of Reclamation Agreement Number:

Reclamation Agreement Term:

Note: Recovery Program FY23 scopes of work are drafted in May 2022. 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 and changing hydrological conditions.

Lead Entity: American Southwest Ichthyological Researchers, L.L.C. (ASIR)

Principal Investigator:

Michael A. Farrington, Senior Fisheries Biologist
American Southwest Ichthyological Researchers, L.L.C. (ASIR)
800 Encino Place NE
Albuquerque, New Mexico 87102-2606
505.247.9337 (voice)
michael_farrington@asirllc.com

Category:

- Ongoing project
- Ongoing-revised project
- Requested new project
- Unsolicited proposal

Expected Funding Source:

- Annual funds
- Capital funds
- Other [explain]

Study Goals and Objectives:

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 endangered fish species. Specifically, sampling in this 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 for Colorado Pikeminnow.

Study Background and Rationale:

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 Colorado Pikeminnow prompted a discussion regarding conducting a larval fish survey trip upstream of Shiprock, NM to specifically 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 spawning boundaries of 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 the 2020 survey found larval Razorback Sucker in the San Juan River upstream of the Animas River confluence at RM 184.3.

Beginning in 2019, at the request of the SJRRIP, this project was redesigned (sampling would occur later in the summer than for Razorback Sucker) to target collection of larval Colorado Pikeminnow, with all sampling efforts occurring upstream of the Four Corners Power Plant pumping station (RM 163.7). This FY 2023 proposal specifically targets the collection of larval Colorado Pikeminnow above RM 163.7.

Study Area:

The study area for this SOW encompasses the San Juan River between the Animas River confluence in Farmington New Mexico (RM 180.6) and the Hatch Brothers trading post near Waterflow, NM (RM 168.4).

Study Methods/Approach:

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 data being conducted immediately downstream of Shiprock will help 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 using inflatable rafts equipped with all the necessary equipment to successfully sample larval fish nursery 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 (*SOW 21*).

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.

Deliverables:

Data generated from this larval fish sampling effort will be incorporated into all Draft and Final deliverable products associated with SOW 21. Timelines for deliverables, meeting attendance, and presentation of results will also follow those outlined in SOW 21.

Budget Summary:

FY Year	<i>Office and laboratory labor</i>	<i>Materials and supplies</i>	<i>Travel and per diem</i>	<i>Total</i>
2023	\$ 19,363.44	\$ 0.00	\$ 3,322.72	\$ 22,686.16
2024	\$ 19,750.71	\$ 0.00	\$ 3,322.72	\$ 23,073.43
2025	\$ 20,145.72	\$ 0.00	\$ 3,322.72	\$ 23,468.44
2026	\$ 20,548.64	\$ 0.00	\$ 3,322.72	\$ 23,871.36
2027	\$ 20,959.61	\$ 0.00	\$ 3,322.72	\$ 24,282.33
Total	\$ 100,768.12	\$ 0.00	\$ 16,613.60	\$ 117,381.72

Reviewers: Not applicable.

References:

USFWS (U.S. Fish and Wildlife Service). 2015. Biological Opinion for the Four Corners Power Plant and Navajo Mine Energy Project. Biological Opinion Number 02ENNM00-2014-F-0064.