

Work Task C53: Sonic Telemetry of Juvenile Flannelmouth Suckers in Reach 3

FY15 Estimate	FY15 Actual Obligations	Cumulative Expenditures Through FY15	FY16 Approved Estimate	FY17 Proposed Estimate	FY18 Proposed Estimate	FY19 Proposed Estimate
\$120,000	\$117,133.38	\$410,889.16	\$120,000	\$100,000	\$100,000	\$0

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Start Date: FY12

Expected Duration: FY18

Long-Term Goal: Support flannelmouth sucker conservation

Conservation Measures: FLSU1 and FLSU3

Location: Reach 3, Arizona/Nevada/California

Purpose: To evaluate habitat selection and use of juvenile flannelmouth suckers in Reach 3 and provide recommendations to enhance juvenile flannelmouth sucker habitats as a requirement of LCR MSCP habitat creation goals

Connections with Other Work Tasks (Past and Future): Work conducted under this task is related to Work Tasks C15 (closed) and C45 (closed).

Project Description: Flannelmouth suckers were reintroduced into the Colorado River below Davis Dam by the Arizona Game and Fish Department in 1976 by transfer of fish captured at the confluence of the Colorado and Paria Rivers at Lee's Ferry, Arizona. This stock has persisted for three decades and now represents the only known population of this native species in the Colorado River downstream from Davis Dam.

Five years of research on this population of flannelmouth suckers was completed under the LCR MSCP. All life stages of this species were contacted, and telemetry of adults provided insight on the movements and habitat use of adult flannelmouth suckers. Inference may be limited, as only nine juvenile flannelmouth suckers > 100 millimeters (mm) and < 350 mm total length were contacted during this study. Similar difficulties contacting juveniles were encountered during studies undertaken by the U.S. Geological Survey in the 20 river miles above Lake Havasu, but it was found that, while flannelmouth

sucker contacts were rare, the majority (85 percent) of flannelmouth suckers captured consisted of these smaller size classes. The habitats used by these younger fish will be better defined and will add to the current knowledge base for this species in Reach 3.

Previous Activities: A surrogate population of flannelmouth suckers from the Colorado River at the Lake Mead inflow was used to initiate telemetry work in FY13. In March 2013, 20 subadult fish were surgically implanted with a 90-day sonic transmitter, held at the Lake Mead Fish Hatchery and observed until determined healthy, then released downstream from Laughlin, Nevada. Active tracking using boats and manually controlled receivers was initiated immediately following release accompanied by submersible ultrasonic receivers (SURs) to help determine fish locations. Fish were tracked and habitat data were recorded until mid-June. Fish proved difficult to track with manual equipment, and the majority of detections were from SURs. Seven fish were either mortalities or never detected, and the majority of active tags (10 of 13) were only detected by SURs. Fish were detected in a mix of backwater and riverine habitats.

Work in FY14 was similar to that of FY13 but included the tagging of a total of 30 subadult flannelmouth suckers with sonic transmitters and an additional 8 with 100-day radio transmitters. The increased number of tagged fish, more SURs, and the use of radio tags resulted in an increase in manual tracking detections of fish during the field season. Sonic and radio tags were both effective, and habitat data were collected on 5 radio- and 13 sonic-tagged fish. In lower turbidity environments (i.e., main channel and select backwaters), fish were associated with stands of bulrush. Fish remained concealed during daylight hours and moved out during the evenings and night, presumably to forage, and then returned to similar locations each day. This association with emergent vegetation was not seen in habitats with higher turbidity; fish in these environments remained stationary in the open water of the backwater. Over the past 2 years, multiple fish have been detected for extended periods within the backwater at the Big Bend Conservation Area.

FY15 Accomplishments: Subadult flannelmouth sucker surrogates were collected from the Lake Mead inflow. Thirty of these were surgically implanted with 90-day sonic tags, and 12 were implanted with 100-day low-frequency radio transmitters. All tagged fish (sonic and radio) were released into Laughlin Lagoon in late April 2015. Manual tracking and deployment of SURs was initiated immediately following release of the SURs to help determine fish locations. Tracking and habitat data collections continued until late July. Sonic and radio tags were both effective, and habitat data were collected on 5 radio- and 18 sonic-tagged fish. Detections indicated that habitat use in turbid and low turbidity environments was similar to data from previous years. In addition, active tracking indicated that fish were moving around in open water in backwaters at night and were tracked up to a mile upstream and downstream from the Laughlin Lagoon entrance in the river channel. Fish would return to similar

locations of bulrush stands by daybreak. Three fish moved from Laughlin Lagoon to the Big Bend Conservation Area and spent from 1–3 weeks in the backwater.

FY16 Activities: Activities will be similar to those from FY15; however, the release locations will differ greatly. The study site will be shifted, and fish will be released into the large backwater/marsh habitats found in the 20 river miles immediately upstream of Lake Havasu in Topock Gorge. Age-0 flannelmouth suckers have been detected in seine hauls within this area, and subadults have sporadically been captured during other research and monitoring. Based on recent telemetry research and available habitats, this section of river presumably serves as nursery habitat for the Reach 3 flannelmouth sucker population.

Additional effort will be dedicated to investigating individual fish movements throughout the day and night.

Proposed FY17 Activities: Activities will be similar to those from FY16; specifics may vary depending on FY16 results.

We expect that this will be a multi-year effort and have estimated budgets through FY18. Budgets after FY16 have been reduced to reflect anticipated increases in efficiency resulting from combining these efforts with other ongoing monitoring in the area (Work Tasks C64 and D8).

Pertinent Reports: A summary report will be posted on the LCR MSCP Web site upon completion.