

## Work Task C13: Lake Mead Razorback Sucker Study

FY14 Estimate	FY14 Actual Obligations	Cumulative Expenditures Through FY14	FY15 Approved Estimate	FY16 Proposed Estimate	FY17 Proposed Estimate	FY18 Proposed Estimate
\$135,000	\$135,247.93	\$1,666,002.31	\$135,000	\$0	\$0	\$0

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**Start Date:** FY05

**Expected Duration:** FY15

**Long-Term Goal:** Investigate conditions that allow for natural recruitment of razorback sucker in Lake Mead

**Conservation Measures:** RASU7

**Location:** Reach 1, Lake Mead, Nevada/Arizona.

**Purpose:** To assess the razorback sucker population and recruitment in Lake Mead

**Connections with Other Work Tasks (Past and Future):** This work task was previously included in the draft FY05 work tasks as Work Task D7. The long-term monitoring portion of this work has now been moved to Work Task D8, and larvae collected through that effort are being reared at the Lake Mead Fish Hatchery (B6) and Overton WMA (B11).

**Project Description:** Funding and support of the ongoing studies of razorback sucker in Lake Mead will continue. The focus areas of these studies are to:

- Locate populations of razorback sucker in Lake Mead
- Document use and availability of spawning areas at various water elevations
- Monitor potential nursery areas
- Continue aging of captured razorback sucker
- Confirm recruitment events that may be tied to physical conditions in the lake

**Previous Activities:** In 1995, the SNWA, NDOW, and Reclamation began a monitoring program for razorback sucker in Lake Mead. Between 1995 and 2004, some 200 adult and 30 juvenile razorback sucker were captured. Aging data showed that a low level of recruitment had occurred in at least 22 of the past 30 years. This recruitment has happened in the face of extensive non-native fish populations and declining lake elevations. A summary report of the first 10 years of the study was completed and posted on the LCR MSCP Web site. The general sites identified in that report are now part of the long-term monitoring for razorback sucker in Lake Mead (D8). Research under this work task began focusing on an additional area of Lake Mead, the Colorado River inflow, in FY10, and was further expanded to include the lower Grand Canyon in FY13 as part of a multi-agency cooperative effort. Similar to past research efforts on Lake Mead, this work uses hatchery-reared and wild, sonic-tagged razorback sucker to assist researchers in locating spawning aggregates. Through FY13, 27 hatchery-reared and wild razorback sucker have been sonic or radio tagged as part of this effort. These fish have provided information that assisted in the capture of 82 razorback sucker larvae, 12 flannelmouth sucker larvae, 42 wild adult razorback sucker, and approximately 500 flannelmouth sucker from the Colorado River inflow. All captured adult and subadult native fish were marked with PIT tags for individual identification before being released back into Lake Mead, and all captured razorback sucker have been aged between 2 and 11 years old.

**FY14 Accomplishments:** Nine adult razorback sucker were obtained from the Lake Mead Fish Hatchery (B6) and surgically implanted with sonic transmitters in March 2014. These fish were stocked into the lower Grand Canyon below Lava Falls and actively or passively tracked throughout the year. An additional two wild razorback sucker captured at the Colorado River inflow during routine sampling were also implanted with sonic tags and tracked throughout the remainder of the study year. In total, habitat use and information pertaining to movement patterns of razorback sucker were obtained from 25 sonic-tagged fish that were contacted during the year. These 25 fish included the 11 released in 2014 as well as an additional 14 fish that were released during prior study years. Some sonic-tagged fish were observed to use both the Colorado River inflow and lower Grand Canyon regardless of where they were released, which may indicate that both areas provide important habitat for this species. Using sonic-tagged razorback sucker contacts to locate potential spawning sites, trammel netting was used to capture adults where concentrations of razorback sucker were suspected. From 1,344 net-hours, 4 razorback sucker, 7 razorback-flannelmouth sucker hybrids, and 251 flannelmouth sucker were captured. Of these fish, 3 razorback sucker and 32 flannelmouth sucker were recaptured fish. A fin ray specimen was obtained from the single newly caught razorback sucker for aging purposes. This fish was determined to be a 3-year-old juvenile, measuring 429 mm TL. Catostomid larval sampling was also conducted throughout the spawning season, resulting in the capture of 167 razorback sucker and 33 flannelmouth sucker larvae.

**FY15 Activities:** All research actions, including larval sampling, trammel netting, tracking of sonic-tagged fish, evaluating growth rates of recaptured fish, and fin ray sectioning for aging adult and subadult razorback sucker are expected to continue. Data obtained through these continuing actions will help further identify the size, age structure, habitat use, spawning areas, and recruitment patterns of razorback sucker located in the Colorado River inflow and lower Grand Canyon. A final project report will be completed in FY15; however, parts of this research may transition into monitoring and be continued at a reduced effort under Work Task D8 in subsequent years.

**Proposed FY16 Activities:** This work task was closed in FY15.

**Pertinent Reports:** A report titled *Razorback Sucker Research and Monitoring in the Colorado River Inflow Area of Lake Mead and the Lower Grand Canyon, Arizona and Nevada* will be posted on the LCR MSCP Web site upon completion.