

Work Task C13: Lake Mead Razorback Sucker Study

FY08 Estimates	FY08 Actual	Cumulative Accomplishment Through FY08	FY09 Approved Estimate	FY10 Proposed Estimate	FY11 Proposed Estimate	FY12 Proposed Estimate
\$150,000	\$147,816.23	\$813,503.23	\$150,000	\$300,000	\$300,000	\$300,000

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Start Date: FY05

Expected Duration: FY15

Long-term Goal: Determine conditions that allow for natural recruitment of RASU.

Conservation Measures: RASU7

Location: Reach 1, Lake Mead, Nevada/Arizona

Purpose: Assess RASU 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 Lake Mead Razorback Study (D7). Larvae collected during this effort are to be reared at Lake Mead Hatchery (B6) and Overton WMA (B11).

Project Description: The LCR MSCP will continue to fund and support the ongoing studies of RASU in Lake Mead that were implemented under the SIA BO. The focus areas of the studies are to:

1. Locate populations of RASU in Lake Mead.
2. Document use and availability of spawning areas at various water elevations.
3. Monitor potential nursery areas.
4. Continue aging of captured RASU.
5. Confirm recruitment events that may be tied to physical conditions in the lake.

These studies began in 1995 and were anticipated to be completed within a 5-10 year period. However, under RASU7, these studies may be followed by further research and monitoring within the adaptive management program of the LCR MSCP.

Previous Activities: The SNWA began a monitoring program for RASU in Lake Mead in 1995, partnering with NDOW and Reclamation. Between 1995 and 2004, some 200 adult and 30 juvenile RASU were captured. Aging data showed that a low level of recruitment has occurred in at least 22 of the past 30 years. This remarkable 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 to the LCR MSCP Web site.

FY08 Accomplishments: 2008 was the twelfth year of this cooperative study. Trammel netting surveys during the spawning season resulted in the capture of 72 RASU (24 from the Muddy River/Virgin River inflow area, 8 from Echo Bay, and 40 from Las Vegas Bay), 21 of which were recaptures. Twenty-seven of the RASU collected were subadult fish. Aging and growth data were again collected, and evaluation of captured fish suggests continued, recent recruitment in Lake Mead. Larval RASU were also collected during the spawning season in a joint effort between Reclamation, NDOW, SNWA, and BIO-WEST, Inc. Larvae were delivered to Lake Mead SFH for rearing. Monitoring of sonic-tagged fish continued in an effort to gather information on habitat use and movements of RASU. Data obtained from these fish once again indicated shifts in the Muddy River/Virgin River, Echo Bay, and Las Vegas Bay spawning locations.

FY09 Activities: Monitoring actions will continue. These efforts will include larval sampling, adult trammel netting, and fin-ray collection and aging of subadult and adult RASU. An additional 12 razorback suckers will be collected from Floyd Lamb State Park. These fish will be implanted with sonic transmitter tags and repatriated to Lake Mead. Of the 12 fish, 4 will be released near the mouth of the Muddy/Virgin River, 4 will be released in the back of Echo Bay, and 4 will be released into Las Vegas Bay. Data from continued monitoring of these RASU will further assist in understanding the size and habitat use of the populations of RASU in Lake Mead, help document the exchange of fish between the Muddy River/Virgin River spawning site and the Echo Bay spawning area, identify problems or habitat shifts associated with the known spawning aggregates, and provide information on recruitment patterns in Lake Mead.

An interagency team will be convened that will utilize the 10-year review to determine future monitoring, research, and management activities.

Proposed FY10 Activities: Research and monitoring will be conducted on RASU ecology in Lake Mead, as described in the report, *Lake Mead Razorback Sucker Monitoring Recommendations*, available on the LCR MSCP Web site. An increase in funding is proposed to conduct a cooperative study between Reclamation and the Glen Canyon Adaptive Management Program (AMP) on Lake Mead in the Colorado River inflow area.

Pertinent Reports: The *Annual Lake Mead RASU Study: 2007-2008* and the 10-year comprehensive report, *RASU Studies on Lake Mead, Nevada and Arizona 1996-2007* have been posted to the LCR MSCP Web site.