

Work Task C13: Lake Mead Razorback Sucker Study

FY06 Estimates	FY06 Actual	Cumulative Accomplishment Through FY06	FY07 Approved Estimate	FY08 Proposed Estimate	FY09 Proposed Estimate	FY10 Proposed Estimate
\$350,000	\$265,621	\$363,621	\$300,000	\$150,000	\$150,000	\$150,000

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Start Date: FY05

Expected Duration: FY10

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

Conservation Measures: RASU7

Location: Reach 1, Lake Mead, NV/AZ

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. Resolve any remaining questions about the location of populations of RASU in Lake Mead from the lower Grand Canyon area downstream to Hoover Dam.
2. Document use and availability of spawning areas at various water elevations.
3. Clarify substrate requirements for spawning.
4. Monitor potential nursery areas.
5. Continue aging of captured RASU.
6. 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. Reclamation proposes that the current studies be completed in FY07, and then a reduced monitoring effort be initiated in FY08. However, this final decision on level of future monitoring activities has not been determined.

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.

FY06 Accomplishments: Year 2006 was the tenth year of this cooperative study. Four-year sonic tags were implanted into 10 adult RASU that were acquired from Floyd Lamb State Park. The sonic-tagged fish were released into Las Vegas Bay, Echo Bay, and the Muddy River/Virgin River inflow area. Trammel-netting surveys captured 47 adult RASU (13 at Las Vegas Bay, 31 at Echo Bay, and 3 at Fish Island). Declining lake levels resulted in local shifts in spawning sites as RASU established new spawning sites in the vicinity of historical ones. Both the Las Vegas Bay and Echo Bay populations successfully adapted to these changes in water surface elevation. Collecting of RASU larvae was conducted during the spawning season, with larvae captured from all major spawning sites. In addition to fish from known spawning sites, five larvae were collected from the Muddy River/Virgin River inflow. This finding coupled with other data indicates that this area of Lake Mead may be important for RASU recruitment. Aging and growth data were again collected in 2006. Fin-ray aging of multiple sub-adult fish suggests recent recruitment in Las Vegas Bay. Evaluations of possible off-channel stocking sites, including Grand Wash Bay and Driftwood Cove, were also conducted.

FY07 Activities: A document summarizing the 10 years of research is being completed. Reclamation plans to initiate a Lake Mead RASU monitoring program based on this information. Program goals will include observation and identification of population trends, annual observations of spawning area use at known spawning sites, and continued confirmation of recruitment. Additional monies that do not count toward the LCR MSCP cost share will be received from SNWA to accomplish Lake Mead RASU activities.

Proposed FY08 Activities: Limited 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 interagency team will be convened that will utilize the 10-year review to determine future need for management activities.

Pertinent Reports: The *Annual Lake Mead RASU Study* report for 2005-2006 is posted on the LCR MSCP Web site.