

Work Task C13: Lake Mead Razorback Sucker Study

FY11 Estimate	FY11 Actual Obligations	Cumulative Expenditures Through FY11	FY12 Approved Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate
\$125,000	\$80,324.83	\$1,386,783.91	\$125,000	\$135,000	\$135,000	\$135,000

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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. The focus areas of these 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 Conservation Measure 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 had 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 website.

FY11 Accomplishments: Monitoring of RASU ecology in Lake Mead as described in the report *Lake Mead Razorback Sucker Monitoring Recommendations* (available on the LCR MSCP website) will continue. However, this work has been separated from the research task and has been reassigned to an existing work task under the System Monitoring portion of the LCR MSCP (see D8).

The second year of research in the Colorado River inflow (CRI) area of Lake Mead was completed in FY11. Using sonic-tagged RASU to locate potential spawning sites, larval sampling was conducted on 39 nights and resulted in the capture of 65 larval RASU and 11 larval FLSU. Trammel netting was used to capture adults where concentrations of razorback sucker were suspected, and fin ray specimens were obtained from adult razorback sucker for aging purposes. From 187 net-nights, 9 wild razorback suckers, 7 razorback-flannelmouth sucker hybrids, and 112 flannelmouth suckers were captured. Of these fish, 2 razorback suckers, 1 hybrid, and 39 flannelmouth suckers were recaptures from 2010. Three of the wild razorback suckers were males expressing milt; the other six were females showing signs of spawning, which helped confirm spawning activities. To our knowledge these are the first female razorback suckers collected from within the CRI. Ages from the seven new wild razorback suckers ranged from 6-11 years.

FY12 Activities: All research actions including larval sampling, trammel netting, monitoring of sonic-tagged fish, evaluating growth rates of recaptured fish, and fin-ray sectioning for aging subadult and adult RASU are expected to continue. Sampling efforts will be performed at the same level as FY11 to increase the opportunity of contacting various life stages of RASU in the area. If captured through trammel netting efforts, an additional group of smaller size class RASU may also be implanted with sonic tags to begin evaluating movement patterns and habitat use of subadult fish. Data obtained through these actions will help further identify the size, age structure, habitat use, spawning areas, and recruitment patterns of the RASU aggregate located in the CRI.

Proposed FY13 Activities: Investigations will continue in the Colorado River inflow area of Lake Mead. Additional changes to the study design will be made as necessary based on the results from the first three study years.

Pertinent Reports: The *Razorback Sucker Studies on Lake Mead, Nevada and Arizona 2010-2011 Final Annual Report*, and the *Razorback Sucker Investigations at the Colorado River Inflow Area Lake Mead, Nevada and Arizona 2011 Final Annual Report* are available upon request and will be posted to the LCR MSCP website.