

Work Task D8: Razorback Sucker and Bonytail Stock Assessment

FY10 Estimates	FY10 Actual	Cumulative Accomplishment Through FY10	FY11 Approved Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate
\$400,000	\$676,835.76	\$2,291,213.07	\$575,000	\$575,000	\$600,000	\$650,000

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Start Date: FY05

Expected Duration: FY55

Long-term Goal: Conduct long-term system monitoring of RASU and BONY.

Conservation Measures: RASU6 and BONY5.

Location: Lower Colorado River within the LCR MSCP planning area, including reservoirs and connected channels, from Lake Mead downstream to Imperial Dam.

Purpose: Supplement and maintain sufficient knowledge and understanding of RASU and BONY populations within the LCR MSCP planning area to have an effective AMP.

Connections with Other Work Tasks (past and future): Monitoring data for RASU and BONY have been or will be gleaned from work accomplished under Razorback Sucker Survival Studies (C8-Closed FY10), Demographics and Post-Stocking Survival of Repatriated Razorback Suckers in Lake Mohave (C12), Lake Mead Razorback Sucker Study (C13), Flannelmouth Sucker Habitat Use, Preference and Recruitment Downstream of Davis Dam (C15), Evaluation of Remote Sensing Techniques for PIT-Tagged Fish (C23-Closed FY09), Post-Development Monitoring of Fish Restoration Sites (F5), and Adaptive Management Research Projects (G3).

Project Description: This project collects and organizes RASU and BONY population and distribution data to maintain up-to-date, system-wide, stock assessments for these species. Data acquisition work is accomplished by: 1) gleaning information from ongoing fish monitoring and fish research activities, and 2) direct data collection through field surveys within the LCR MSCP planning area not covered by other work tasks.

Work routinely includes trammel netting and electro-fishing, but visual surveys using Reclamation's helicopter are periodically conducted, as well as surveys using specialized equipment and techniques (e.g., aerial and underwater photography and video recordings). Costs described under this work task are for salary, travel, and materials necessary for Reclamation staff to accomplish this work. Project costs include all costs associated with conducting field surveys, gleaning or capturing data from ongoing

research actions and monitoring programs (both internal and external to the LCR MSCP), transfer of these data into record archives, and organizing these data into a cohesive report.

Previous Activities: Reclamation has cooperatively conducted fish surveys with Nevada and Arizona on Lake Mead each fall since 1999, and has provided funding and support to the Lake Mead Razorback Sucker Study (C13) since 1995. Interagency cooperative native fish roundups have been occurring since 1987 on Lake Mohave and since 1999 on Lake Havasu (including the river reach below Davis Dam). Fish monitoring on reaches 4 and 5 has been conducted as part of the Razorback Sucker Survival Study (C8), which ended in 2009.

FY10 Accomplishments: Accomplishments for this work task have been summarized by river reach. The additional funds expended during the fiscal year reflect the scaling up of monitoring efforts as more fish are put into the system.

Reach 1 (Lake Mead). Reclamation, in cooperation with the AZGFD, NDOW, and NPS, conducted annual fall surveys of Lake Mead. Techniques employed in this lakewide effort included gill netting and electro-fishing and resulted in the capture of over 2,600 fish including 14 different species and 5 RASU.

Collection of wild-born RASU larvae took place at all major spawning sites over the course of the spawning season. A total of 852 RASU larvae were collected and subsequently delivered to Lake Mead Fish Hatchery (B6) for rearing.

Monitoring of the Lake Mead RASU population under the Lake Mead Razorback Sucker Study (C13) also continued. Tracking of sonic-tagged fish continued to gather information on habitat use and movement patterns of RASU, and provided valuable information including the general location of RASU populations and the location of spawning sites. Trammel netting surveys conducted during the spawning season resulted in the capture of 61 total RASU. Six of the RASU collected were subadult fish, and 12 were recaptures. Seven FLSU were also captured in the Muddy River/Virgin River inflow area. This is the first year FLSU have been documented through these monitoring efforts.

The monitoring activities for RASU previously conducted under the Lake Mead Razorback Sucker Study (C13) and described in the preceding paragraphs are being relocated to this work task.

Reach 2 (Lake Mohave). Reclamation repatriated 9,203 RASU into Lake Mohave in 2010. This is a significant increase in the number of RASU stocked in 2008 (770), indicative of availability of the largest RASU obtainable (overall average of 456 mm TL) from all sources in 2008, but is fewer than the number of RASU stocked in 2009 (12,496).

Lake-wide surveys for native fish were conducted, including trammel netting (44 net nights, 60 RASU contacted), electro-fishing (5,580 seconds, 70 RASU contacted), and remote sensing, which resulted in 7,364 total PIT-tag contacts from 984.5 hours of deployment time representing 473 unique RASU contacted. Improvements in antennae design have contributed to an increasing number of contacts while actually reducing the hours of deployment. All native fish contact data were analyzed under Demographics and Post-Stocking Survival of Repatriated Razorback Suckers in Lake Mohave (C12) resulting in the current population estimate of 1,463 adult RASU.

Annual RASU (May and November) and BONY (May) roundups were conducted. Bimonthly helicopter surveys were conducted to verify presence of RASU on known spawning beds and to search for new spawning congregations during the spawning season. A total of 33,889 RASU larvae were collected and delivered to Willow Beach National Fish Hatchery (B2) for rearing.

Reach 3 (Davis Dam to Parker Dam or Lake Havasu). Under the Fish Augmentation Program, 7,180 RASU and 4,032 BONY were stocked into Reach 3 during calendar year 2010.

Reclamation participated in the ongoing multi-agency native fish roundup, and collected data from other annual surveys conducted by LCR MSCP partners. A fall netting/electrofishing survey was conducted through Topock Gorge to look for young native fishes, and eight trips to monitor movements of sonic-tagged razorback suckers between Davis and Parker dams were completed. Large numbers of RASU continue to be contacted in the riverine portions of Reach 3 (182 RASU). Younger, recently released RASU dominate the catch from the backwaters within the reach, while more mature RASU are contacted during surveys of the numerous spawning aggregations. A single BONY was contacted during the annual Lake Havasu roundup, and several accidental captures of BONY were made by fisherman near the Bill Williams Refuge. The non-native fish community did not show any significant changes and was represented by 13 different species.

A population estimate of 4,376 adult RASU was generated based on capture data from all sampling events within this reach. The current estimate is more than double the previous estimates, and this is a direct result of an increase in RASU contacts which can be attributed to the number of fish stocked through the fish augmentation program.

Sampling trips conducted during the FLSU field season targeted larval, juvenile, and adult FLSU. Over 200 adult FLSU were contacted, producing an adult population estimate of 1,476 fish. A comprehensive final report is being completed and will be posted to the LCR MSCP website under Flannelmouth Sucker Habitat Use, Preference and Recruitment Downstream of Davis Dam (C15).

Reaches 4 and 5 (Parker Dam to Imperial Dam). Under the Fish Augmentation Program, 6,093 RASU and 961 BONY were stocked into Reach 4 (between Parker and Headgate Rock dams) during calendar year 2010.

Field sampling of fish within the confines of the Colorado River Indian Tribes Reservation (CRIT) on Reach 4 was not initiated due to permitting issues. However, the FWS was able to facilitate access for FY11 as part of Investigations of RASU and BONY Movements and Habitat Use Downstream of Parker Dam (C49). A winter sampling event focused from Parker Dam to Headgate Rock Dam located a small group of RASU in the main channel near River Island State Park. A preliminary survey was conducted below Palo Verde Dam in an attempt to locate spawning adult RASU, but no native fish were located. All fisheries surveys in Reach 5 were restricted to Imperial Ponds Native Fish Research (C25).

FY11 Activities: Monitoring data will be collected for reaches 1 through 5. Information will be gleaned from ongoing fish research activities as well as through fish monitoring field work. Field work will include collecting larvae, trammel netting, electro-fishing, remote sensing of PIT-tagged fish, and active and passive tracking of sonic tagged fish. Several surgical techniques were examined for sonic/radio tagging juvenile size classes of flannelmouth and razorback suckers, and several hundred larval flannelmouth suckers were captured and are being reared for use upcoming studies.

Proposed FY12 Activities: Monitoring will continue in all reaches. The LCR MSCP staff will continue to participate in multi-agency field surveys. An increase in effort for reaches 4 and 5 is expected as associated work tasks mature and native fishes continue to be released through the Fish Augmentation Program.

Pertinent Reports: *Lake Mead Razorback Sucker Monitoring Recommendations* will be posted to the website when available. *Movements of Sonic Tagged Razorback Suckers Between Davis and Parker Dams (Lake Havasu)* is posted on the LCR MSCP website.