

## Work Task D8: Razorback Sucker and Bonytail Stock Assessment

FY07 Estimates	FY07 Actual	Cumulative Accomplishment Through FY07	FY08 Approved Estimate	FY09 Proposed Estimate	FY10 Proposed Estimate	FY11 Proposed Estimate
\$325,000	\$332,621	\$805,245	\$300,000	\$350,000	\$400,000	\$400,000

**Contact:** Tom Burke, (702) 293-8310, [tburke@lc.usbr.gov](mailto:tburke@lc.usbr.gov)

**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 C8, C12, C13, C15, C23, F5, and 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 are accomplished by one of two strategies: 1) gleaned 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.

Under the first strategy, LCR MSCP staff will gather and organize data from existing monitoring programs. For example, sport-fish surveys and native-fish surveys are conducted annually on lakes Mead, Mohave, and Havasu by multi-agency teams, with LCR MSCP fishery staff participating in each survey. In each survey, the lake is divided into different zones with one survey group assigned to each zone. All zones are sampled within a set time period using similar equipment. When the survey is complete, each participating agency receives information for the entire lake at a reduced cost incurred by only needing to survey a portion of the whole system.

Also under the first strategy, data will be gleaned from ongoing species research actions. For example, a RASU study is being conducted on Lake Mead (C13) and another study is being conducted in the lower river below Parker Dam (C8). Data for RASU population status and distribution will be gathered from these studies.

Under the second strategy, areas not being sufficiently surveyed through ongoing activities will be surveyed either by LCR MSCP fishery staff or another entity hired via contract, grant, or agreement. For example, the current surveys for RASU between Davis and Parker dams are being conducted jointly by USGS and Reclamation and are financially supported through D8. Another major monitoring action funded by this work task is the survey work conducted by Reclamation on Lake Mohave to assess survival and distribution of repatriated RASU. Areas along the lower two-thirds of the lake are netted monthly between October and May. The upper third of the lake, including the area above Willow Beach and up to Hoover Dam are electro-fished and netted during the June to September period (due to cool water releases from Lake Mead).

In some cases, LCR MSCP fishery staff conducts native fish surveys to fill in seasonal gaps left by other research activities. For example, USGS surveys for RASU between Davis Dam and Lake Havasu are only conducted during the January to April spawning period. Staff from the LCR MSCP monitor sonic-tagged fish in this reach during the summer and conduct electro-fishing in the fall, to provide a more complete assessment of the fishery.

Work routinely includes trammel netting and electro-fishing, but visual surveys using Reclamation's helicopter are periodically conducted, as well as other 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. In cases where Reclamation staff assist contractors or researchers, or conduct work in similar areas or at similar times, Reclamation's presence allows for improved quantity and quality of observations (i.e., additional effort, additional spatial coverage, additional temporal coverage). 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 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 by Reclamation and ASU as part of the Razorback Sucker Survival Study (C8) annually since 2003. Reclamation financially supports the Colorado River Fishes database maintained by ASU through G1.

**FY07 Accomplishments:** Accomplishments for this work task have been summarized by river reach for clarity.

*Reach 1 (Lake Mead):* Reclamation, in cooperation with AGFD and NDOW, participated in annual fall surveys of Lake Mead. Techniques employed in this lakewide effort included gill netting (133.6 net nights) and electro-fishing (24,902 seconds), and resulted in the capture of a single RASU. Collections of larval RASU took place at all major spawning sites over the course

of the spawning season and yielded a total of 4,445 larvae. Larvae were subsequently delivered to Lake Mead SFH for rearing (B6). Species research on the Lake Mead RASU population (C13) also continued with promising results. A total of 88 RASU including 10 subadult fish were contacted through this effort via trammel netting. Capture data, in concert with aging and growth data, have once again indicated continued, successful recruitment in Lake Mead.

*Reach 2 (Lake Mohave):* Reclamation repatriated 1,283 RASU into Lake Mohave in 2007. This is considerably less than in 2006 because fish are being held in grow out facilities to attain a larger size than previous years (500 mm TL versus 300 mm TL).

Lakewide surveys for native fish were conducted monthly and included both trammel netting (95 total net nights) and electro-fishing (19,086 seconds), which resulted in the capture of 71 and 67 RASU, respectively. All native fish capture data were provided to ASU for analysis and used to derive the current population estimate of 1,679 adult RASU (C12). Reclamation also assisted with stocking and tracking sonic-tagged RASU for the second year of an ASU telemetry study.

Annual RASU ( May and November) and BONY (May) roundups were conducted. The LCR MSCP partners and cooperators for these efforts included USFWS, AGFD, NDOW, ASU, and NPS. Biweekly helicopter surveys to verify presence of RASU on known spawning beds and to search for new spawning congregations were completed during the spawning season. A total of 20,568 RASU larvae were collected and delivered to Willow Beach NFH for rearing (B2).

*Reach 3 (Davis Dam to Parker Dam or Lake Havasu):* Reclamation participated in the ongoing multi-agency native fish round-up, and collected data from spring and fall electrofishing surveys by LCR MSCP partners. An additional electrofishing survey was conducted by Reclamation from Needles, California, down through Topock Gorge to look for young-of-year native fishes. During this last survey, RASU, which had been stocked only weeks earlier at both Laughlin Lagoon near Davis Dam and at Bill Williams River near Parker Dam, were captured at the Needles Dredgeyard backwater in Needles. These fish had moved 30 miles downstream and 50 miles upstream, respectively, in a 2-week period.

Under the Fish Augmentation Program, 7,080 RASU and 5,118 BONY were stocked into Reach 3 during calendar year 2007. For both species, this is slightly more than the annual targets (6,000 RASU and 4,000 BONY).

The second field season of FLSU surveys associated with C15 was completed, and the RASU population was monitored through Work Task G3. Data were collected using dive surveys, seines, trammel nets, hoop nets, and electrofishing. Electrofishing proved most effective in sampling riverine populations of native suckers and will provide increased accuracy in the development of mark/recapture population estimates in 2008.

The FLSU population estimate based on netting and electrofishing was 2,471, calculated based on more than 100 contacts between Davis Dam and RM 257. The RASU population was congregated near Needles during the spawning months and a population estimate of 1,200 fish was calculated based on more than 500 contacts. The majority of the BONY contacts for the year were recently stocked fish, thus not allowing for the generation of a population estimate. The

nonnative fish community did not show any significant changes and was represented by 15 different species.

*Reaches 4 and 5 (Parker Dam to Imperial Dam):* Reclamation and ASU conducted fish surveys from Parker Dam to Imperial Dam, with the exception of CRIT Reservation (C8). Surveys included a suite of standard fishery techniques. Approximately 84,000 seconds of electro-fishing resulted in capture of 336 RASU. Trammel netting effort was for 300 net-nights and resulted in 539 RASU captured. A radio telemetry study was initiated to examine post-stocking dispersal. Studies were initiated to determine possible effects of RASU that imprint on surface feeding and remain near the surface after stocking.

During calendar year 2007, Reclamation stocked 12,750 RASU and 4,019 BONY into the Colorado River within Reach 4/5.

Native fish ponds were completed at Imperial Refuge and four ponds were stocked with adult RASU and BONY (see C25).

**FY08 Activities:** Monitoring will continue with effort similar to 2007. An agreement was reached with CRIT whereby Reclamation and USFWS will conduct surveys along the lower river near Parker, Arizona. This area has not been efficiently surveyed for more than 10 years. As requested by the USFWS, and to assess the amount the total amount of netting, electrofishing, and/or similar activities directed toward these species, a table of field activities for monitoring RASU, BONY, and FLSU will be developed.

**Proposed FY09 Activities:** Monitoring data will be collected for reaches 1 through 5.

**Pertinent Reports:** The status report for RASU and BONY in the LCR MSCP area through the end of calendar year 2007 is in preparation and will be posted to the LCR MSCP Web site.