

Work Task B1: Lake Mohave Razorback Sucker Larvae Collections

FY15 Estimate	FY15 Actual Obligations	Cumulative Expenditures Through FY15	FY16 Approved Estimate	FY17 Proposed Estimate	FY18 Proposed Estimate	FY19 Proposed Estimate
\$200,000	\$183,182.91	\$2,158,662.37	\$200,000	\$215,000	\$215,000	\$215,000

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Start Date: FY04

Expected Duration: FY55

Long-Term Goal: Fish augmentation

Conservation Measures: RASU3, RASU5, and RASU8

Location: Reach 2, Lake Mohave, Arizona/Nevada

Purpose: To develop the razorback sucker broodstock in Lake Mohave, maintain the broodstock, and harvest offspring for rearing as needed for the LCR MSCP Fish Augmentation Program

Connections with Other Work Tasks (Past and Future): Work Tasks B2, B3, B4, B5, B6, and B7 are related to this work task, as the razorback suckers to be reared under these work tasks originate from Lake Mohave. Other research related to larvae collection, handling, and genetics include Work Tasks C30 (closed), C31, and C40.

Project Description: The razorback sucker broodstock in Lake Mohave provides a level of genetic diversity found nowhere else in the world. Under this project, wild-born razorback sucker larvae from Lake Mohave are captured and delivered to the Willow Beach National Fish Hatchery (Willow Beach NFH) for initial rearing. The work involved under this work task includes surveys to locate spawning groups, nighttime larvae collection, and maintaining the boat fleet and field station at Cottonwood Cove. Larvae are captured one at a time, making this a labor-intensive program.

Work normally commences in January and extends into late April or early May. Equipment is delivered to and staged at Cottonwood Cove, where a field station is established. The lake's shoreline is surveyed, and locations of spawning aggregations of razorback suckers are recorded. Razorback sucker larvae attracted to submerged lights suspended from the boats are captured by net and

counted. The larvae are transferred to the Willow Beach NFH, by either boat or vehicle, where they are logged in by date received, number collected, and location. This work task is repeated three to four nights per week through mid-to-late April. Research under Work Task C31 has helped to define larvae collection protocols. In order to represent the high genetic diversity of razorback sucker larvae used for rearing, collection efforts will continue to be distributed both temporally across the spawning season and spatially among the known spawning areas on Lake Mohave.

Previous Activities: This work task is part of a program started by the Lake Mohave Native Fish Work Group in 1989 to rebuild the adult stock of razorback suckers in Lake Mohave so that these fish could be used as brood fish for razorback sucker conservation and recovery. A portion of the larvae collected is used to sustain the broodstock, and the remaining larvae are reared for release into Reaches 2–5 to accomplish the augmentation goals of the program. In 2007, an invasive species, quagga mussels, were found within the Lake Mead Recreational Area, which includes Lake Mohave. To avoid transferring this species into other waters where they currently do not exist, larvae are no longer transported outside the lower Colorado River to the Southwestern Native Aquatic Resources & Recovery Center at Dexter or the Bubbling Ponds Fish Hatchery. Therefore, there is no longer a connection with Work Tasks B4 or B5.

FY15 Accomplishments: A target of 17,000 larvae was established for FY15 in coordination with the Lake Mohave Native Fish Work Group. This quantity was established to provide the appropriate number of larvae for the new rearing strategy at the Willow Beach NFH. Of these larvae, 11,000 were set aside for rearing at the Willow Beach NFH, and the remaining were set aside for rearing at the Lake Mead Fish Hatchery.

A total of 17,841 wild larvae were collected from four areas on Lake Mohave. All larvae were delivered to the Willow Beach NFH for further grow-out. The hatchery had a target goal of 11,000 larvae, so once larvae were reared to fingerling size, the remaining 6,841 fingerlings were taken to the Lake Mead Fish Hatchery for additional grow-out. The contribution from each zone of Lake Mohave by month of capture is presented in table 1.

Table 1.—Larval Razorback Suckers Collected from Lake Mohave, 2015*

Location	January	February	March	April	May	Total
Nine Mile	0	2,018	1,692	69	0	3,779
Tequila	500	1,750	2,500	200	0	4,950
Yuma	1,000	1,750	3,150	87	0	5,987
Above Owl Point	90	550	170	1,516	799	3,125
Total	1,590	6,068	7,512	1,872	799	17,841

* Larvae collection numbers should be considered approximations. Larvae are collected by hand and counted during collection; however, exact counts of larvae are not verified.

Remote passive integrated transponder scanners were placed throughout the spawning areas to assess the population of fish spawning at each location. Telemetry tags have also been used on adult stocked fish in an attempt to find new spawning areas.

FY16 Activities: A target of 17,000 larvae was once again planned for FY16; however, at the request of the LCR MSCP, the Lake Mead Fish Hatchery began preparations to expand razorback sucker production in February of FY16. Subsequently, larvae collections will also need to be increased to achieve these goals and are expected to increase the efforts and, potentially, expenditures in FY16.

Proposed FY17 Activities: Razorback sucker larvae collections will continue. The target level for FY17 is expected to be 15,000–20,000 larvae. The projected increase in the budget estimate for FY17 is attributed to the implementation of additional safety procedures associated with collecting larvae.

Pertinent Reports: A status report titled *Five-Year Summary of Razorback Sucker (*Xyrauchen texanus*) Larval Collections on Lake Mohave: 2010–2014* will be posted on the LCR MSCP Web site upon completion.