

## Work Task B7: Lake-Side Rearing Ponds

FY14 Estimate	FY14 Actual Obligations	Cumulative Expenditures Through FY14	FY15 Approved Estimate	FY16 Proposed Estimate	FY17 Proposed Estimate	FY18 Proposed Estimate
\$200,000	\$223,986.77	\$1,878,570.64	\$200,000	\$200,000	\$200,000	\$200,000

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**Start Date:** FY05

**Expected Duration:** FY55

**Long-Term Goal:** Maintain fish rearing capability, provide razorback sucker and bonytail to the LCR MSCP Fish Augmentation Program, and accomplish species research

**Conservation Measures:** RASU3, RASU4, RASU5, RASU6, BONY3, BONY4, and BONY5

**Location:** Reach 2, Lake Mohave, Arizona/Nevada

**Purpose:** To operate and maintain fish grow-out areas along the Lake Mohave shoreline to contribute to razorback sucker broodstock development

**Connections with Other Work Tasks (Past and Future):** Activities are related to Work Tasks B2, B4, and B5, as fish for grow-out ponds may come from the Willow Beach NFH, SNARRC, and/or the Bubbling Ponds Fish Hatchery. In addition, some of the fish rearing research activities outlined in Work Tasks C10, C11, C34 (closed), C40, C41, and C44 (closed) may be conducted at these ponds.

**Project Description:** Lake Mohave is operated by Reclamation as a re-regulation reservoir. It fluctuates annually within a 15-foot vertical range, filling by mid-May and lowering to an annual minimum in October. Wave actions redistribute sediment deposits from desert washes and shape these deposits into sandbars or natural berms. In some areas, these sandbars isolate the lower portions of the desert washes from the lake proper, and when the lake is at full pool, lake-side ponds form at many of these washes. Reclamation and its partners in the Lake Mohave Native Fish Work Group have been using these lake-side ponds since 1993 as rearing and grow-out areas for razorback sucker and bonytail. The ponds are stocked with juvenile fish as the reservoir fills (typically stocked in late January). LCR MSCP staff monitor the fish and manage the ponds throughout the growing season. This work includes periodic monitoring of plankton production, removal of weeds and debris, installing and maintaining solar well pumps to mix the water and provide sufficient oxygen levels,

population monitoring through the use of remote sensing technologies, and routine monitoring of physical, chemical, and biological parameters. The ponds are normally harvested in the fall as the lake elevation declines. The fish from these ponds are then released back into Lake Mohave. Reclamation anticipates the need for these ponds to support razorback sucker and bonytail conservation through the life of the program (FY55).

**Previous Activities:** These ponds have been in use since 1993, and more than 32,000 razorback sucker have been reared and repatriated into Lake Mohave. In an effort to expedite development of razorback sucker broodstock, the target size for repatriation was increased to 500 mm TL during 2007. Since this new target size went into effect, the ponds have been managed to rear larger-size fish for the program. Typically, razorback sucker in excess of 300 mm TL are stocked into the ponds and then harvested in the spring and fall. Beginning in 2012, surplus in situ spawned fish were harvested and fin clipped and/or PIT tagged and transferred to Reach 3 below Davis Dam.

**FY14 Accomplishments:** Five backwaters were stocked at the beginning of the year with juvenile razorback sucker that were originally collected from Lake Mohave as larvae and then reared at the Willow Beach NFH. All fish were stocked at a size of at least 300 mm TL to fulfill LCR MSCP augmentation goals. While all stockings of the Lake Mohave backwaters supported work under Work Task B7, several of the backwaters were also used to conduct concurrent species research work tasks. Specifically, the North Chemehueve and Willow backwaters were stocked solely in support of Work Task B7. The Arizona Juvenile (AJ), Dandy, and Yuma Cove backwaters were stocked as part of Work Task C40. The backwaters received 210, 52, 197, 198, and 98 razorback sucker, respectively, for a total of 755 razorback sucker credited to the program. The total number of fish repatriated into Lake Mohave from the 2014 stockings was 375. The mean TL for all backwater pond fish at harvest was 422 mm, with a range of 371–468 mm. The year class for all fish stocked in 2014 was 2011, except for North Chemehueve, which was year class 2010. All fish were PIT tagged prior to initial stocking into the backwaters. Fish were scanned at the time of harvest, and a new tag was inserted if the original PIT tag was not detected. A total of 66 stocked adult razorback sucker (mean TL = 514) were netted from the Yuma Cove backwater in May 2014, and all fish were returned to the backwater as part of Work Task C40. A total of five in situ-produced fish greater than 300 mm captured from North Chemehueve were PIT tagged and transferred to Reach 3 to supplement LCR MSCP augmentation initiatives. An additional lot of more than 160 spawned razorback sucker captured from the ponds less than 300 mm TL were PIT tagged and released into Reach 3. Table 1 lists the numbers of fish repatriated into Lake Mohave from the 2014 harvest, excluding the Yuma Cove and Davis backwaters.

**Table 1.—2014 Stocked Adult Razorback Sucker Repatriated into Lake Mohave from Lake-Side Rearing Ponds**

Backwater		Number Stocked		Mean TL at Stocking (mm)		Number Harvested		Mean TL at Harvest (mm)		Percent Harvested from 2014 Stocking
Yuma Cove*		98		372		0		0		0.0
Willow		52		376		1		N/A		1.9
Dandy		198		373		108		421		54.5
Arizona Juvenile		197		382		156		418		79.2
North Chemehuevi		210		379		110		428		52.4
Davis Cove		0		0		0		0		0.0
<b>Total or overall mean value</b>	<b>Total</b>	<b>755</b>	<b>Mean</b>	<b>376</b>	<b>Total</b>	<b>375</b>	<b>Mean</b>	<b>422</b>	<b>Mean</b>	<b>49.7</b>

\* Backwater sampled with no repatriates released into Lake Mohave. The Yuma Cove backwater was excluded from the totals due to project goals related to Work Task C40.

A total of 480 year class 2009 adult bonytail provided by the SNARRC were stocked in equal proportions in the North Nine Mile, Nevada Larvae, and Nevada Egg backwaters in 2014 as part of Work Task C40. A total of 154 stocked adults and naturally spawned bonytail were harvested in 2014 and transferred to Davis Cove as part of Work Task C41. The mean TL for all backwater bonytail at harvest was 291 mm, with a range of 240–345 mm. None of the bonytail stocked into backwaters were used to fulfill LCR MSCP augmentation goals.

Expenditures against the FY14 budget were higher than estimated due to additional labor required to assist in reconstruction of a number of the lake-side ponds that were damaged by flooding. These ponds included AJ, Nevada Egg, and North Nine Mile. The NPS assisted in these reconstruction efforts.

**FY15 Activities:** Lake-side ponds are again being used for razorback sucker broodstock maintenance and development. Genetic and demographic investigations related to Work Task C40 in the AJ, Yuma, and Dandy backwaters will continue to be gathered, and in situ voluntarily spawned fish will continue to be harvested and released into downstream locations in Reach 3 below Davis Dam.

The North Nine Mile and Nevada Egg backwaters will again be stocked with bonytail to quantify genetic and demographic parameters. This work is related to investigations into reproductive success of razorback sucker in the AJ, Yuma, and Dandy ponds (C40). All harvested bonytail will be released into Davis Cove (C41).

**Proposed FY16 Activities:** Lake-side ponds along the shoreline of Lake Mohave will be operated and maintained for native fish. The ponds will be monitored regularly, with an initial harvest commencing in the spring and concluded in the fall as the lake elevation declines. Fish reared in these ponds will be released back into Lake Mohave for development and maintenance of razorback sucker broodstock. Voluntarily spawned fish from backwaters will continue to be transported downstream from Davis Dam.

**Pertinent Reports:** N/A