

Work Task B7: Lake-Side Rearing Ponds

FY12 Estimate	FY12 Actual Obligations	Cumulative Expenditures Through FY12	FY13 Approved Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate
\$175,000	\$173,805.16	\$1,462,379.26	\$200,000	\$200,000	\$200,000	\$200,000

Contact: Eric Loomis, (702) 293-8519, eloomis@usbr.gov

Start Date: FY05

Expected Duration: FY55

Long-term Goal: Maintain fish-rearing capability, provide RASU and BONY for 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: Operate and maintain fish grow-out areas along the Lake Mohave shoreline to contribute to RASU brood stock development.

Connections with Other Work Tasks (past and future): Activities are related to B2, B4, and B5, as fish for grow-out ponds may come from Willow Beach NFH, SNARRC, and/or Bubbling Ponds SFH. In addition, some of the fish-rearing research activities outlined in C10, C11, C34, C40, and C44 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 RASU and BONY. The ponds are stocked with juvenile fish as the reservoir fills in the spring (typically stocked in March). Reclamation staff monitor the fish and manage the ponds throughout the growing season. This work includes periodic fertilization with alfalfa pellets and ammonium nitrates to sustain algae blooms and plankton production, removal of weeds and debris, installing and maintaining floating windmills or solar well pumps to mix the water and provide sufficient oxygen levels, 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 RASU and BONY conservation through the life of the program (FY55).

Previous Activities: These ponds have been in use since 1993 and more than 31,000 RASU have been reared and repatriated to Lake Mohave. In an effort to expedite development of RASU brood stock, 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, RASU in excess of 300 mm TL are stocked into the ponds and then harvested in the fall. Any in situ production from volunteer spawning is usually transferred to Yuma Cove pond or Davis Cove pond. These two ponds contain water throughout the year and support multiple year classes of fish, and are operated separately from the other ephemeral ponds. They also serve as reservoirs for fish that have not yet met a minimum stocking size of 300 mm TL. In 2011, with cooperation from the National Park Service, the berm at the Yuma Cove backwater was successfully rebuilt on time and within the budget estimates.

FY12 Accomplishments: Seven backwaters were stocked at the beginning of the year with juvenile RASU that were originally collected from Lake Mohave as larvae and then reared at Willow Beach National Fish Hatchery. AJ and Dandy backwaters were stocked in January as part of the C40 work task. The remaining backwaters were stocked in March: this included Yuma, North Chemehuevi, Nevada Larvae, and Willow. The last backwater stocked was Davis as part of the C41 work task in April of 2012. The backwaters received 200, 200, 200, 201, 50, 50, and 377 razorbacks, respectively, for a total of 1,278 fish. Mean TL for all backwater pond fish at harvest was 439.2 mm with a range of 334 mm to 560 mm. Year class for all fish stocked in 2012 was 2008. North Nine Mile backwater did not receive any fish in 2012. All fish were PIT-tagged at the time of initial stocking into the backwaters. Fish were re-scanned at the time of harvest and a new tag was inserted if the original PIT tag was not detected. The total number of fish harvested from the 2012 stocking into Yuma was 134; this total likely included holdover fish from previous stockings. These potential holdover fish stocked prior to 2012 were included in the total harvest and released into Lake Mohave. Zero fish were harvested from the 2012 stocking at Davis. The following table lists numbers of fish for the 2012 harvest. A total of 259 in situ-produced fish captured from Arizona Juvenile, Yuma, and Dandy spawning were PIT-tagged or fin-clipped and transferred to Reach 3.

2012 adult razorback suckers repatriated to Lake Mohave from lake-side rearing ponds

Pond/Backwater	# Stocked	Mean Length at Stocking	# Harvested	Mean Length at Harvest	% Harvested from 2012 Stocking
Yuma	200	358	134*	484*	67.0*
Willow	50	370	47	435	94.0
Dandy	200	418	77	439	38.5
Arizona Juvenile	200	421	99	444	49.5
Nevada Larvae	50	371	9	403	18.0
N. Chemehuevi	201	361	178	430	88.6
Davis	377	249	0	0	0.0
Total	1,278	364.0	544*	439*	42.5*

*Indicates the total number and overall mean lengths of fish at harvest for ponds that contained fish prior to 2012.

FY13 Activities: Lake-side ponds are again being used for RASU brood stock maintenance and development. Nevada Larvae has not been successful the past few years due to poor water quality and will not be used in the foreseeable future. Research investigations have been ongoing to look at ways to better manage natural food resources in these ponds (C44). In situ voluntarily spawned fish in Arizona Juvenile, Yuma, and Dandy ponds continue to be harvested and released to downstream locations in Reach 3 below Davis Dam.

Proposed FY14 Activities: Lake-side ponds along the shoreline of Lake Mohave will be operated and maintained for native fish. The ponds will be harvested in the fall as the lake elevation declines, and fish reared in these ponds will be released back into Lake Mohave for development and maintenance of RASU brood stock. Voluntarily spawned fish from backwaters will continue to be transported downstream of Davis Dam.

Out-of-production backwaters, including North Nine Mile, Nevada Larvae, and Nevada Egg, will be stocked with BONY to quantify genetic and demographic parameters. This work is related to investigations into reproductive success of RASU in Arizona Juvenile and Dandy ponds (C40).

Pertinent Reports: N/A