

## Work Task B7: Lake-Side Rearing Ponds

FY11 Estimate	FY11 Actual Obligations	Cumulative Expenditures Through FY11	FY12 Approved Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate
\$250,000	\$246,148.11	\$1,291,745.10	\$175,000	\$200,000	\$200,000	\$200,000

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**Start Date:** FY05

**Expected Duration:** FY55

**Long-term Goal:** Maintain fish-rearing capability, provide 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, Dexter NFH, 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 2009, Nevada Egg's earthen berm was breached, and it was invaded by non-native fish. South Sidewinder has not been successful the past few years due to poor water quality. Neither of these ponds will be used in the foreseeable future.

**FY11 Accomplishments:** With cooperation from the National Park Service, the berm at the Yuma Cove backwater was successfully rebuilt on time and within the budget estimates. Six backwaters were stocked at the beginning of the year with juvenile razorbacks 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 2011. The backwaters received 200, 199, 200, 201, 52, 52, and 376 razorbacks, respectively, for a total of 1280 fish. Mean TL for all backwater pond fish at harvest were 338.0 mm with a range of 300 mm to 525 mm. Year classes for all fish stocked in 2011 were 2007 and 2008. North Nine Mile backwater did not receive any fish in 2011. 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 2011 stocking into Yuma was 19 and 239 additional fish were harvested and released into Lake Mohave. Zero fish were harvested from the 2011 stocking at Davis. Table 1 lists numbers of fish for the 2011 harvest.

**Table 1. 2011 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 2011 Stocking
Yuma	200	403	19*(258)	496*(435)	10.0
Willow	52	402	23	418	44.0
Dandy	199	412	94	450	47.0
Arizona Juvenile	200	417	111	438	56.0
Nevada Larvae	52	402	21	415	40.0
N. Chemehueve	201	315	97	465	48.0
Davis	376	218	0*(2)	0*(470)	0.0
Total	1280	338.0	365*(606)	449*(442)	29.0

\*Numbers in parentheses indicate the total number and overall mean lengths of fish at harvest for ponds that contained fish prior to 2011.

**FY12 Activities:** Lake-side ponds are again being used for RASU brood stock maintenance and development. Research investigations have been initiated to look at ways to better manage natural food resources in these ponds (Work Task C44: Management of Fish Food Resources in Off-Channel Native Fish Habitats).

**Proposed FY13 Activities:** Lake-side ponds along the shoreline of Lake Mohave will be operated and maintained for native fish. The ponds will be harvested in 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.

**Pertinent Reports:** The updated *Fish Augmentation Plan* will be posted to the LCR MSCP website.