Work Task B7: Lake-Side Rearing Ponds

FY10 Estimates	FY10 Actual	Cumulative Accomplishment Through FY10	FY11 Approved Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate
$150,000	$165,056.32	$1,095,885.82	$250,000	$175,000	$175,000	$175,000

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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 broodstock 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 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 30,000 RASU have been reared and repatriated to Lake Mohave. In an effort to expedite development of RASU 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, 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.

In 2009 Nevada Egg's earthen berm had 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.

FY10 Accomplishments: Five 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. The first backwaters stocked in February were AJ and Dandy; the remaining backwaters were stocked in March, this included North Chemehuevi, Nevada Larvae, and Willow. Each backwater received 199, 200, 200, 50, and 49 razorbacks respectively for a total of 698 fish, with a mean TL of 377 mm and a range of 305 mm to 450 mm.

In May, North Nine Mile backwater received 1,723 larvae with an average TL of 20 mm. These fish originated from hand spawned Lake Mohave adult razorbacks. They were reared in Boulder City, Nevada at the USBR Fish Laboratory and used in a research project associated with work task C32. All fish were PIT tagged at the time of initial stocking into the backwaters except for the experimental fish stocked into North Nine Mile. Fish were re-scanned at the time of harvest and a new tag was inserted if the original PIT tag was not detected.

Table 1. 2010 RASU Repatriated to Lake Mohave

Ponds RASU	# Stocked	Mean Length at Stocking	# Harvested	Mean Length at Harvest	% Harvested
Yuma*	0	NA	310	470	NA
Willow	49	376	34	476	69
Dandy	200	378	151	444	76
Arizona Juvenile	199	378	127	432	64
Nevada Larvae	50	376	0	0	0
N. Chemehuevi	200	376	122	460	61
Davis*	0	NA	117	480	NA
Total	**698**	**377**	**861**	**460**	**62%***

*Yuma Cove and Davis Cove ponds sustain fish year round and have multiple year class fish; these fish were not included in the percent harvest.

FY11 Activities: Lake-side ponds are again being used for RASU broodstock maintenance and development. An additional $100,000 had been requested to rebuild the earthen berm at Yuma Cove and has been completed. Research investigations have been initiated to look at ways to better manage natural food resources in these ponds (C44: Management of Fish Food Resources in Off-Channel Native Fish Habitats).

Proposed FY12 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 broodstock.

Pertinent Reports: The *2005-2009 Fish Augmentation Summary* is in preparation and will be posted to the LCR MSCP website.