

Work Task E13: McAllister Lake

FY07 Estimates	FY07 Actual	Cumulative Accomplishment Through FY07	FY08 Approved Estimate	FY09 Proposed Estimate	FY10 Proposed Estimate	FY11 Proposed Estimate
\$50,000	\$18,876	\$172,364	\$0	\$0	\$0	\$0

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Start Date: FY05

Expected Duration: Closed in FY07

Long-term Goal: Habitat creation.

Conservation Measures: BONY2, RASU2, and LEBI1.

Location: Reach 5, Imperial NWR, River Mile 61, AZ.

Purpose: Evaluate a method of water quality improvement by dewatering the lake and inducing groundwater recharge to dilute the lake's existing high salt concentrations.

Connections with Other Work Tasks (past and future): Species monitoring is being addressed under F2 and F4.

Project Description: Located on Imperial NWR, McAllister Lake is a shallow 32-acre isolated floodplain lake with no known surface connection to the LCR. The lack of freshwater flushing has caused the lake to become highly saline, to the extent that it provides limited fish and wildlife value. Because backwaters are expected to be the most expensive land cover type to create under the LCR MSCP, Reclamation has been, through the restoration of existing backwaters, developing the technology to more effectively create sustainable backwater habitat. The purpose of this ongoing investigation is to determine whether this experimental method of pumping water out of the lake, followed by induced groundwater recharge from the river aquifer, may be a sustainable method of improving water quality in isolated backwaters with high salinity levels on the LCR. Potentially, this method provides a high degree of safety against intrusion by nonnative fish species by eliminating the need for engineered fish barriers.

Previous Activities: Reclamation initiated a series of experimental pump-tests during FY03 and FY04, which dewatered the lake to about one-fourth of its normal volume. Before, during, and after these tests, a variety of environmental data were collected to measure the lake's response to the pumping and the consistency of the groundwater supply through the river aquifer. This monitoring included groundwater and surface water levels, and water quality measurements of the river and lake. These pump tests were conducted from December 2002 through March 2004, during the fall and winter months only, to avoid potential impacts to Yuma clapper rails.

The lake was left unmanaged during FY05. Monitoring was continued to determine how quickly the lake's water quality would degrade if pumping is stopped, so that Reclamation may decide whether the lake can be maintained in a manner that is cost effective.

An agreement was executed to initiate limnological investigations at McAllister Lake. This effort will evaluate the sustainability of maintaining McAllister Lake as a backwater for native fish, and provide recommendations to Reclamation as to how to best manage the site.

FY07 Accomplishments: A report detailing the methodology and results of all experimental dewatering conducted from FY03 to FY05 was finalized and posted to the LCR MSCP Web site. The report documents all five pump tests between FY03 and FY04, as well as the degradation of water quality, which occurred during FY05 while the site was left unmanaged.

A full year of quarterly water quality sampling events has been completed. A final report documenting the quarterly sampling and recommendations on practices for long-term management of the lake for native fish was completed in FY07.

Activities in FY07 were limited to the discussion of the alternatives listed in the report, a review of available water data, and the determination by the fisheries group as to the value and intended use of McAllister Lake. All decisions will be made in consultation with Imperial NWR. Therefore, expenditures in FY07 were less than approved.

Proposed FY08 Activities: Closed in FY07. At this time, no activities are planned for FY08 pending the results of research projects such as C32: Determination of Salinity, Temperature, and Oxygen Limits for Bonytail and Razorback Sucker. In the future, the decision on whether to continue the management of McAllister Lake under the LCR MSCP will be made. If the decision is made to continue management of this site, Reclamation will prepare a land use agreement securing the necessary land and water interests for the duration of the LCR MSCP. A restoration plan will be prepared and posted to the LCR MSCP Web site for review.

Pertinent Reports: *Experimental Design Plan for McAllister Lake Study; Hydrologic Characterization of McAllister Lake, Arizona;* and the study plan are available upon request from the LCR MSCP. *Induced Recharge in McAllister Lake, Arizona to Reduce Salinity for the Possible Introduction of Native Fish Species* is posted on the LCR MSCP Web site. *Limnological Survey and Assessment of Butler and McAllister Lakes* will be posted to the LCR MSCP Web site.