

## Work Task C26: Evaluation of Raceway Rearing of Razorback Sucker at Lake Mead Fish Hatchery

FY09 Estimates	FY09 Actual	Cumulative Accomplishment Through FY09	FY10 Approved Estimate	FY11 Proposed Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate
\$100,000	\$74,709.00	\$75,330.85	\$70,000	\$70,000	\$0	\$0

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**Start Date:** FY08

**Expected Duration:** FY11

**Long-term Goal:** Rear RASU of sufficient quantity and quality to accomplish the LCR MSCP Fish Augmentation and Species Research Programs.

**Conservation Measures:** RASU3, RASU4, and RASU8

**Location:** Reach 1, Lake Mead, Boulder City, Nevada

**Purpose:** Evaluate raceway rearing of RASU to improve physical conditioning prior to stocking.

**Connections with Other Work Tasks (past and future):** This research is complementary to work conducted under C10. If successful (i.e., shows benefit to fish and is cost effective), this action may be included in the Fish Augmentation Program (Section B) in the future. Other rearing of RASU is being conducted at this facility under B6.

**Project Description:** This project will investigate and evaluate rearing of RASU in flowing raceways at Lake Mead SFH. The study will investigate ways to deliver food, efficiency of food conversion, feeding rate, growth of RASU, and physical condition of fish. End-of-year results will be compared with similar parameters for RASU being reared for the LCR MSCP in non-flow facilities (Willow Beach NFH and Bubbling Ponds SFH).

This research is designed to take advantage of a unique opportunity at Lake Mead SFH. Research underway at Achii Hanyo by the USGS and USFWS is showing that RASU acclimated to flow have improved swimming performance. This may improve post-stocking survival for fish released by the LCR MSCP. Currently, there are no facilities rearing fish for the LCR MSCP using flowing raceways. Due to current water elevations of Lake Mead, intake water temperatures at Lake Mead SFH are too warm for rearing rainbow trout (summer water temperatures in 2006 exceeded 75°F). The NDOW is

waiting to acquire water from deeper, cooler areas of Lake Mead. In the meantime, all or parts of the Lake Mead SFH will be idle. This work proposes to use RASU from lakes Mead and Mohave to examine and evaluate the practicality and cost effectiveness of feeding and growing RASU in flowing raceways at Lake Mead SFH.

**Previous Activities:** Reclamation, SNWA, and NDOW have been cooperatively rearing Lake Mead RASU in tanks at the Lake Mead State Fish Hatchery (B6).

**FY09 Accomplishments:** Construction of the test apparatus began with the purchase of four large fiberglass raceways. Parts were purchased to construct and test the inflow manifold that will be used to control flow during rearing trials. A portion of the subadult RASU reared under B6 were PIT tagged and kept on station for use as research subjects. PIT tagging and collection of biological data (length, weight, and condition) of RASU was done so that growth and performance of individual fish could be accurately evaluated over the course of this study.

**FY10 Activities:** Construction of the inflow manifold and testing of the four experimental raceways will be completed in early FY10. Flowing raceways will first be evaluated without RASU present to determine whether the inflow manifold design is sufficient for rearing trials. Following initial evaluation of the test apparatus, any necessary design changes will be made and additional testing will be performed. Rearing trials are expected to begin in May when hatchery water temperatures become favorable. Trials will be run for up to five months and will evaluate such parameters as growth rate, condition factor, and food conversion efficiency.

**Proposed FY11 Activities:** Results from the previous study year will be analyzed, and methods for evaluating growth rate, condition factor, and food conversion efficiency will be refined as necessary. Rearing trials for juvenile and subadult RASU will continue, beginning in spring and summer months as warm water becomes available.

**Pertinent Reports:** The scope of work is available upon request from the LCR MSCP.