Work Task C56: Characterization of Lake Mohave Backwaters to Evaluate Factors Influencing Spawning Success

FY13 Estimate	FY13 Actual Obligations	Cumulative Expenditures Through FY13	FY14 Approved Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate	FY17 Proposed Estimate
$265,000	$22,208.29	$22,208.29	$100,000	$0	$0	$0

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Start Date: FY13

Expected Duration: FY14

Long-term Goal: To help inform future design and management of created backwater habitats.

Conservation Measures: RASU3, RASU6, BONY3, BONY5.

Location: Lake Mohave, Reach 2.

Purpose: Characterize Lake Mohave backwater rearing ponds, to include but not limited to Arizona Juvenile (AJ), Dandy, and Yuma where stocked juvenile RASU have been observed to spawn at different rates in order to determine which factors are most influential in promoting spawning and subsequent survival of RASU larvae.

Connections with Other Work Tasks (past and future): Genetic and Demographic Studies to Guide Conservation Management of RASU and BONY in Off-Channel Habitats (C40). This work task will be closed in FY14, but continued baseline monitoring of Lake Mohave backwaters will be captured by C40, B1, and B7, as appropriate. Additional findings related to this work task may be undertaken under work task in C63 (new in FY 15) Assessment of Habitat features that influence success of RASU and BONY in backwater environments.

Project Description: Disconnected backwater ponds on Lake Mohave are used for rearing RASU in support of the fish augmentation program. Sub-adult fish are currently PIT tagged at 300 mm TL, fin clipped for genetics, and stocked into these ponds during winter or spring. The ponds are harvested in the fall, as the backwaters are drawn down with the seasonally declining water level of Lake Mohave.

Over the past two years, genetic analyses of larvae that were spawned from stocked RASU in AJ and Dandy showed differences in reproductive success. In AJ, a minimum 52% of the stocked fish contributed to the larvae sampled, while in Dandy a minimum of

33% contributed in 2010. In 2011, only larvae were captured from AJ, a minimum of 68% of the adults contributed to the larvae sampled.

This project will provide a detailed characterization of selected Lake Mohave backwaters to determine which factors are most influential towards successful RASU spawning and subsequent larval survival. The research will begin with a narrow focus on AJ and Dandy, two ponds with different spawning success, at Lake Mohave but may be expanded to include other backwaters or other known RASU spawning areas.

Previous Activities: This is a new start in FY13

FY13 Accomplishments: A reduced amount of funds were expended on this work task in FY13 due to budget constraints, including budget reductions caused by sequestration. Activities were confined to determining if there was indeed a marked difference in spawning rates among Lake Mohave backwaters compared to the relative sampling efforts. Larval sampling at AJ, Dandy, and Yuma backwaters was completed bi-weekly. AJ and Dandy were sampled five times each and Yuma backwater four times. AJ had a catch per unit effort (CPUE) of 0.64. Dandy had a CPUE of 0.20 and Yuma had a CPUE of 0.22. AJ had the greatest CPUE while Dandy and Yuma had similar CPUE.

These results suggest that spawning rates among these backwaters varied but did not indicate any pattern outside the regular spectrum of variation observed across backwaters at Lake Mohave. In addition, there appears to be wide variation in physical and chemical parameters among these backwaters and year-to-year differences in other life stage success. Because of likely interacting affects, potentially confounding variables and the inability to suggest any particular causal links, this work task will be closed in FY14.

FY14 Activities: No expenditures will be incurred under this work task in FY14. Additional baseline data on these backwaters will continue to be collected in FY 14 within the scope of other appropriate work tasks including, C40, B1, and B7. This will include larval sampling at AJ, Dandy, and Yuma backwaters on Lake Mohave AZ/NV on a bi-weekly basis to obtain a second year of catch per unit effort data. If longer-term standardized monitoring reveals more consistent patters centered on particular variables that may be important in influencing success, a study plan will be developed and with steering committee approval, investigations will commence under work task C63.

Proposed FY15 Activities: Closed in FY14.

Pertinent Reports: N/A