Work Task C61: Evaluation of Alternative Stocking Methods for Fish Augmentation

FY13 Estimate	FY13 Actual Obligations	Cumulative Expenditures Through FY13	FY14 Approved Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate	FY17 Proposed Estimate
$0	$0	$0	$150,000	$425,000	$350,000	$350,000

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Start Date: FY14

Expected Duration: FY18

Long-term Goal: Maintain effectiveness of the fish augmentation program
Conservation Measures: RASU3, RASU5, RASU6, BONY3, BONY5

Location: The Lower Colorado River within the LCR MSCP planning area, including reservoirs and connected channels from Lake Mead downstream to Imperial Dam.

Purpose: To evaluate the effects alternative stocking methods have on survival of RASU and BONY stocked within the LCR MSCP planning area.

Connections with Other Work Tasks (past and future): Related work tasks include B2, B3, B4, B5, B6, C10, C11, C26, C31, C33, C39, C46, D8, and G3. In FY15 work tasks C10, and C11 will be incorporated into this one due to similarities in purpose scope and out-year implementation. Specific activities will be detailed in this work task and the proposed FY budgets will reflect the work that is to be undertaken. This is a logical merger of these work tasks as information from this type of research will allow the development and testing of conditioned fish as experimental stocking treatments. These treatments will then be used to test whether different types of conditioning will translate to improved survival of stocked fish. Additionally, the sharing of overlapping resources is expected to increase efficiency in implementation and reporting and may also reduce overall expenditures.

Project Description: The LCR MSCP is committed to extensive monitoring of Colorado River native fish, and in accordance with the HCP several monitoring and research elements have been included as part of the Fish Augmentation Program. This project addresses two of these research elements, including 1) understanding and minimizing adverse effects of stocking, and 2) understanding post-stocking distribution and survival. This work task will evaluate alternative stocking methods for RASU and BONY within the Fish Augmentation Program boundaries. Alternative methods to be evaluated may include stocking during different seasons, stocking at night, stocking cohorts of various quantities, and stocking at specific locations. These alternative methods will generally be

evaluated through multiple iterations of paired stockings with one group representing the more traditional stocking and one representing the alternative method being investigated.

In addition to these alternative stocking methods, fish reared by alternative means may also be evaluated through these efforts. These stockings would be done in paired groups and may include fish that have been either flow conditioned or trained to recognize predators. Information regarding post-stocking distribution and survival will be obtained through ongoing research and monitoring work tasks. As information on these stockings becomes available, specific combinations of these alternative stocking methods may also be evaluated.

Previous Activities: Previous research related to this work task was conducted under work task C26 in FY09-11. This research evaluated feeding rates, efficiency of food conversion, growth, swimming performance, and physical condition of RASU reared in flowing raceways at the Lake Mead Hatchery. Results from multiple iterations of this research showed that RASU reared at the highest velocity flows evaluated, 38 and 39 centimeters/second, exhibited the most growth, highest food conversion efficiency, and best swimming performance. Additional rearing of native fish under flowing conditions will be conducted as part of the current work task, and future monitoring efforts will be used to evaluate how the benefits of this rearing strategy relate to post-stocking survival of native fish.

In preparation of this work task, a total of 13,116 RASU were also repatriated into Lake Mohave during FY13 as 6 paired cohorts released in day and night stocking events. All efforts associated with these stocking events were captured under work task B2. Contact data for these cohorts will be obtained through FY14 and future year monitoring efforts and evaluated under this work task to determine the effectiveness or benefit of night stockings as compared to traditional day stocking events.

FY13 Accomplishments: This is a new start in FY14.

FY14 Activities: An additional 11,393 RASU will also be repatriated into Lake Mohave during FY14, again as 6 paired cohorts released in day and night stocking events. Contact data for these cohorts will be analyzed under this work task as they become available. A portion of FY14 funding will also be used to upgrade electrical capabilities at the Lake Mead Hatchery in preparation of future flow conditioning efforts. This upgrade will support operation of submersible propeller pumps, which will allow for controlled flow in ten 40-foot raceways. Similar to the day and night paired stockings, flow conditioned and static reared native fish will be stocked in paired cohorts, which will be tracked through ongoing monitoring efforts. Contact data for these cohorts will also be analyzed under this work task to evaluate differential survival.

Proposed FY15 Activities: Data collected through monitoring efforts will continue to be analyzed. It is anticipated that additional day and night paired stockings will occur, and that stocking of flow-conditioned cohorts will begin. Additional alternatives to traditional stockings will also be evaluated during the year, and potential opportunities to implement these alternatives will be evaluated as fish become available.

Work tasks C10 (Razorback Sucker Rearing Studies) and C11 (Bonytail Rearing Studies) will be incorporated into this work task in FY15. The resulting budget estimate increases in FY15 correspond to the addition of this work. Predator recognition conditioning will continue from where research left off in FY14. Post-training survival trials for RASU and BONY will begin in FY15. The frequency of exposure to a predator, largemouth bass, will be evaluated to determine if repeated trainings increase the probability of RASU and BONY learning a behavior as compared to those fish trained a single time.

Pertinent Reports: N/A