Work Task C44: Management of Fish Food Resources in Off-Channel Native Fish Habitats

FY12 Estimate	FY12 Actual Obligations	Cumulative Expenditures Through FY12	FY13 Approved Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate
$100,000	$94,204.34	$127,746.60	$100,000	$0	$0	$0

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Start Date: FY11

Expected Duration: FY13

Long-term Goal: To maintain effectiveness of restored fish habitats.

Conservation Measures: BONY5, RASU6.

Location: Various off-channel fish grow-out ponds and native fish refugia.

Purpose: To determine best management practices for maintaining ample food resources for native fishes in off-channel ponds within the Colorado River floodplain.

Connections with Other Work Tasks (past and future): This work is related to B7, B11, C25, C34, F5, and G3.

Project Description: This three-year study will evaluate means to enhance food resources in the various flood-plain ponds being used within the LCR to hold or rear RASU and/or BONY. Off-channel habitats, including both man-made and natural flood-plain ponds are being used to support communities of RASU and BONY. In some ponds the fish are fed prepared feeds, in some cases the ponds are only fertilized with the assumption that this act boosts development of zooplankton for food, and in some cases neither feed nor fertilizer are added to the ponds and the fish must subsist on whatever food is naturally available. To successfully manage these habitats, the amounts of zooplankton in these ponds must be optimized. This study evaluates ways to manipulate zooplankton communities to benefit native fishes and works toward developing recommendations for adding feed and/or fertilization to maintain food levels needed by native fish to attain targeted growth rates.

Previous Activities: Information characterizing the zooplankton communities of 33 separate native fish ponds was collected quarterly during FY09 and FY10. This information was gathered through C34, and will be used as a baseline for comparison. At the start of FY11 an extensive literature search was performed to gather information on potential methods for boosting plankton production within fish rearing ponds. Information gathered from this search indicated that a mix of organic and inorganic

fertilizers was likely the best method for promoting the desired plankton bloom. Fertilizer quantities and types were selected based on recommendations from the reviewed literature and on the total surface area of the four individual ponds selected. Ponds were fertilized by two different methods, with two of the study ponds receiving inorganic ammonia phosphate and organic alfalfa pellet, and two of the ponds receiving ammonia phosphate and rice bran. A single pond received no fertilizer inputs and acted as a control. Plankton sampling was conducted prior to pond fertilization and then once a month from March through October.

FY12 Accomplishments: Investigation into the effects of pond fertilization on zooplankton and phytoplankton communities in native fish rearing ponds continued in FY12 with the fertilization of four lake-side backwater ponds on Lake Mohave. Fertilizer quantities were increased from the previous study year to determine if an equivalent increase in plankton abundance would result. Plankton sampling for the four fertilized ponds and a single control pond that received no fertilizer was conducted prior to fertilization and then monthly from March through October. An additional 15 off-channel native fish ponds were also sampled on a quarterly basis, and the cost of sample analyses was covered under this work task. The sampling of these additional sites was done to evaluate their extant plankton populations and develop a data set for comparative purposes. Data sets for all ponds were summarized and interpreted.

FY13 Activities: Investigation into the effects of pond fertilization on zooplankton communities in native fish rearing ponds will continue. For the third study year, additional means of fertilization may be explored in addition to the methods previously used. Phytoplankton and zooplankton samples will continue to be collected and analyzed on a monthly or quarterly basis depending on the individual site. A three-year project report will be completed.

Proposed FY14 Activities: Closed in FY13.

Pertinent Reports: Data sets for FY11 and FY12 have been summarized and are available in tabular and graphical formats.