

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

FY11 Estimate	FY11 Actual Obligations	Cumulative Expenditures Through FY11	FY12 Approved Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate
\$60,000	\$33,542.26	\$33,542.26	\$100,000	\$100,000	\$0	\$0

**Contact:** Jim Stolberg, (702) 293-8206, [jstolberg@usbr.gov](mailto:jstolberg@usbr.gov)

**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 and/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, as well as develop 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.

**FY11 Accomplishments:** 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 methodology 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. Data sets were summarized and interpreted as they became available.

**FY12 Activities:** Investigation into the effects of pond fertilization on zooplankton communities in native fish rearing ponds will continue. For the second study year, both inorganic and organic fertilizer amounts will be increased to evaluate the effect the increased input has on plankton species composition and abundance. Phytoplankton and zooplankton samples will continue to be collected and analyzed on a monthly basis.

**Proposed FY13 Activities:** Investigation into the effects of pond fertilization will continue. Based on findings from the first study year, modifications may be made to the study design and additional treatments or methods of fertilization may be tested. All tests will focus on ways to manage food resources in off-channel habitats to improve quantity and quality of fish reared for the program.

**Pertinent Reports:** The statement of work for this study is available upon request.