

Work Task C34: Characterization of Zooplankton Communities in Off-Channel Native Fish Habitats

FY09 Estimates	FY09 Actual	Cumulative Accomplishment Through FY09	FY10 Approved Estimate	FY11 Proposed Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate
\$60,000	\$42,196.13	\$42,196.13	\$60,000	\$10,000	\$0	\$0

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

Start Date: FY09

Expected Duration: FY11

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 the relative abundance of zooplankton in off-channel ponds being used to support native fish communities within the Colorado River floodplain.

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

Project Description: This study will characterize the existing zooplankton communities of 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 maximize management of these habitats, the amounts of zooplankton in these ponds must be determined. This study will collect and analyze zooplankton samples from such ponds quarterly over a two-year period to characterize these zooplankton communities. Future investigations may be developed to evaluate ways to manipulate zooplankton communities to benefit native fishes.

Previous Activities: Preliminary samples were collected from lake-side rearing ponds on Lake Mohave (B7). This effort was used to refine sampling procedures and develop a

study design for the three-year study. A written protocol for sample collection, including necessary equipment and procedures, was developed.

FY09 Accomplishments: Quarterly zooplankton samples were collected from a total of 33 native fish ponds during FY09. Sampling sites included: one pond at Floyd Lamb State Park; two ponds at the Overton WMA (B11, Reach 1); nine Lake Mohave lake-side rearing ponds (B7, Reach 2); two Needles Golf Course ponds, Beal Lake, and Office Cove Pond (Reach 3); seven ponds at the Achii Hanyo Rearing Station (B3); three Emerald Canyon Golf Course ponds, and Parker Dam Pond (Reach 4); and six ponds at Imperial NWR (C25, Reach 5). Sample analysis to identify and enumerate the zooplankton community structure was conducted each quarter following sample collection. Samples were also analyzed to determine seasonal trends in the zooplankton community. A progress report for the first full study year is in development.

FY10 Activities: Zooplankton sampling will continue on a quarterly basis. A subset of the ponds listed above will be sampled with increased frequency to provide a more complete picture of the zooplankton community throughout the year. This increased sampling effort will be performed on a monthly basis, often in conjunction with other work occurring at these sites. Water quality parameters (temperature, dissolved oxygen, conductivity, and pH) will also be recorded during each sampling event to provide additional habitat information. Samples will be analyzed for identification and enumeration of zooplankton as well as determination of seasonal trends in the zooplankton community structure.

Proposed FY11 Activities: This last year of study will correlate observed zooplankton community densities and composition to feeding and optimum foraging densities for young-of-year native fishes. Literature reviews will be conducted to glean extant information on foraging needs of native fishes. Feeding trials will be carried out in a laboratory environment using young-of-year RASU and BONY fed zooplankton captured from lake-side ponds. Results will be used to characterize the utility of extant zooplankton communities to grow native fish. This work will migrate into work task C44.

Pertinent Reports: A progress report summarizing the 2009 and 2010 study years is in production.