Work Task F5: Post-Development Monitoring of Fish at Conservation Areas

FY11 Estimate	FY11 Actual Obligations	Cumulative Expenditures Through FY11	FY12 Approved Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate
$175,000	$153,930.06	$662,159.60	$175,000	$250,000	$250,000	$250,000

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Start Date: FY07

Expected Duration: FY55

Long-term Goal: Post-development monitoring

Conservation Measures: RASU6 and BONY5

Location: Reaches 3-6 backwater habitats.

Purpose: Monitor fish use of habitat creation sites to provide data for the adaptive management process and develop management guidelines for created backwater habitats.

Connections with Other Work Tasks (past and future): All backwaters created in Section E. Work Task C23, C31, C33, C34, C40, and C41.

Project Description: This work will monitor the fish and fish habitat at conservation areas. It is anticipated that these sites will play various roles for conservation of target fish species throughout the term of the LCR MSCP. Some habitats will be able to develop self-sustaining populations, others may become overpopulated requiring harvest or thinning, and some will require continuous population augmentation. Most isolated fish habitats will require some stock rotation to maintain genetic diversity through time. Basic surveys of the fish population and the physical and chemical habitat developed or restored will be required. Fish monitoring will include trapping (hoop, fyke, and minnow traps), trammel netting, electro-fishing, larvae light trapping, and ocular surveys (including scuba and snorkeling where necessary and practical). Water quality assessment will require annual measurements of temperature, oxygen, pH, and conductivity (salinity), as well as periodic monitoring of chemical makeup, including electro-ions and selenium.

Previous Activities: Since 2006, Beal Lake has been renovated and stocked with more than 6,000 RASU and 2,000 large BONY (an additional 27,000 YOY BONY have also been released); a limited portion of each of these stockings were marked with PIT tags. Non-natives were identified shortly after the renovation efforts. Annual surveys have contacted subsets of each of these stockings, but long term survival has been low. Closer order monitoring via remote sensing was initiated in FY09 and continued through FY10. Populations of stocked RASU

declined rapidly within the first several months post-release and eventually leveled off at 130 individuals. Water quality has been monitored constantly with multi-parameter water quality loggers and all parameters have remained within the known ranges of acceptability for native fish. Annual netting and electro-fishing surveys have been coordinated with the USFWS and have resulted in the capture of numerous RASU, as well as large numbers of non-natives.

Research and monitoring of Imperial Ponds is being accomplished under C25.

FY11 Accomplishments: In early FY11 Beal Lake was again stocked with 400 PIT tagged RASU, these stockings were monitored bi-weekly using remote sensing to detect changes in the population. The population declined over the first three months until it stabilized around 90 individuals. All future stockings were terminated to allow for additional habitat assessment. The annual fall survey resulted in the capture of large amounts of non-natives, in addition to 64 RASU (avg. 468 mm TL); 50 of these were released into the main stem river near Needles, CA. Larval surveys were conducted in late winter and none were captured. Water quality was constantly monitored throughout the backwater; low levels of DO and high temperatures were observed locally but not lake wide. Current water management at Beal Lake is highly dependent on the management of Topock Marsh. Beal Lake and Topock Marsh observed lower than normal water levels while a new water delivery system was being completed for Topock Marsh. Zooplankton was collected quarterly as part of work task C44 and initial results show lower than average mean zooplankter biomass.

Monitoring of Big Bend Conservation Area was accomplished through monthly monitoring from February through May. This monitoring included electro-fishing, trammel netting, and larval light trapping in areas dictated by water level and based on historical contacts of native fish. Water quality profiles were conducted during each monitoring trip and at least quarterly the remainder of the year. The monitoring resulted in the capture of 3 RASU and 1 FLSU adult/subabults, and more than 30 FLSU larvae. Water quality was exceptional, as was expected for a habitat with a direct connection to the river.

FY12 Activities: The monitoring activities for Beal Lake and BBCA will continue at a level similar to FY11. Searches for larval fish and other signs of reproduction and recruitment will be conducted in all developed habitats. Food resource assessments will be increased and results compared with data from C34. Non-native fish abundance will be attempted during the annual fall survey at Beal Lake. The water quality at Beal will continue to be monitored to evaluate the impacts of the new water delivery system for Topock Marsh.

Proposed FY13 Activities: The activities from FY12 will continue into this year. Recommendations for future fish work or infrastructure improvements will be finalized and incorporated into work plans.

Pertinent Reports: A study plan is available upon request, and a summary report is in development.