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

FY10 Estimates	FY10 Actual	Cumulative Accomplishment Through FY10	FY11 Approved Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate
$150,000	$156,279.56	$511,260.63	$175,000	$175,000	$200,000	$200,000

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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, C33, C34, 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 BONY; 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. Remote sensing techniques have proved valuable in contacting PIT-tagged

fish. Netting and electro-fishing have also been attempted with limited success. Water quality has been monitored routinely and all parameters have remained at sufficient levels for native fish. In FY09 closer order water sampling and remote sensing collection trips were accomplished through the summer at Beal Lake. Dissolved oxygen dropped below 3 mg/L on several occasions, which may have impacted fish survival. Remote sensing was unable to contact any fish during these trips. Multiple large impoundment nets were purchased to assess their ability to contact native fish, as well as assist in removing non-natives.

Since the completion of Imperial Ponds, in excess of 1,600 BONY and 800 RASU have been stocked. Monitoring of this site is being accomplished under C25. Water quality parameters at this site have remained within the assumed thresholds for native fish with the exception of pH, which has spiked above 9, but with no apparent harm to the fish.

FY10 Accomplishments: In 2010 Beal Lake was stocked with 610 PIT tagged RASU; these stockings were monitored at closer intervals using remote sensing to detect changes in the population. At the end of FY10, the current population estimate for Beal Lake was 130 RASU. The decline in population was steady for most of the year with exceptions in the spring and summer. The reasons for higher mortality rates for the spring and summer are unknown, but could possibly be attributed to post-stocking delayed mortality, avian predation, or water quality.

Current water management at Beal Lake is highly dependent on the management of Topock Marsh and this may have a detrimental impact on fish survival. Water quality loggers were purchased and deployed throughout the year to record and potentially identify problems with water management. Infrastructure improvements to the water management at Beal Lake will be developed based on our findings.

FY11 Activities: Monitoring activities from FY10 will continue in FY11. We will begin to assess the impacts from avian predation. Fish sampling will occur in the fall. All RASU greater than 425 mm TL will be harvested and released into the River near Needles, California, and these fish will be used as research subjects associated with C33. Searches for larval fish and other signs of reproduction and recruitment will be conducted in all developed habitats. Food resource assessments will be conducted and results compared with data from C34. Fish work or infrastructure improvements will be based on our findings from FY10 and FY11.

Monitoring of Big Bend Conservation Area will be accomplished through monthly monitoring from February through May. This monitoring will include 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 will be conducted during each monitoring trip and quarterly the remainder of the year.

Post-development monitoring activities for Imperial Ponds will be conducted under C25.

Proposed FY12 Activities: The activities from FY11 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 will be posted to the LCR MSCP website.