

Work Task F5: Post-Development Monitoring of Fish Restoration Sites

FY09 Estimates	FY09 Actual	Cumulative Accomplishment Through FY09	FY10 Approved Estimate	FY11 Proposed Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate
\$150,000	\$175,494.19	\$354,981.07	\$150,000	\$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 developed and stocked with RASU and BONY, Nevada, Arizona, and California.

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.

Project Description: This work will monitor the fish and fish habitat at restoration sites. It is anticipated that fish restoration 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. 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.

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. For more information on Imperial Ponds see C25.

FY09 Accomplishments: Beal Lake fall sampling contacted 16 RASU and 1 BONY using remote sensing; two of these fish were also contacted using conventional gear (nets and electro-fishing) and all of the fish appeared in good health and growing. 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. These nets allow for extended soak times with minimal stress on captured fish.

FY10 Activities: In 2010 we will restock native fish with a greater portion of them being PIT tagged. These stockings will be monitored at closer intervals using remote sensing to help detect changes in the population. Impoundment nets will be deployed to assess their ability to contact native fish, as well as assist in removing non-natives.

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 in Beal. Water quality loggers will be 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.

Proposed FY11 Activities: The activities from FY10 will continue into this year. Fish work or infrastructure improvements will be based on our findings from FY10 activities. 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.

Pertinent Reports: Annual reports will be written and posted on the LCR MSCP Web site.