

Work Task G3: Adaptive Management Research Projects

FY10 Estimates	FY10 Actual	Cumulative Accomplishment Through FY10	FY11 Approved Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate
\$300,000	\$241,728.79	\$1,669,604.15	\$300,000	\$200,000	\$300,000	\$300,000

Contact: Sonja Kokos, (702) 293-8033, skokos@usbr.gov

Start Date: FY06

Expected Duration: FY55

Long-term Goal: Effective conservation of native species and their habitats.

Conservation Measures: MRM1, MRM2, MRM4, WIFL1, MRM5, BONY5, RASU6, CRCR1, YHCR1, MRM3, FLSU3, LLFR1, LLFR3.

Location: System-wide.

Purpose: Develop tools to effectively evaluate conservation actions.

Connections with Other Work Tasks (past and future): Research projects initiated under this work task may be continued as Species Research (Section C). Information obtained may be used for Fish Augmentation (Section B), System Monitoring (Section D), Habitat Creation (Section E), Post-Development Monitoring (Section F), or Habitat Maintenance (Section H).

Project Description: The Adaptive Management Program is an assurance that the conservation actions presented in the HCP are effectively accomplished. This work task develops and evaluates tools by which the conservation actions can be measured, and provides data to improve the efficacy of techniques to successfully create habitat.

This work task enables Reclamation to initiate priority research projects in a timely manner. For example, opportunistic research proposals (e.g. time-sensitive such as spawning or breeding season dependent) can be considered and initiated during the funding year and then be elevated to full research or monitoring status (Section C, D, or F) the following year. Also, experimental techniques can be evaluated through research to assess their utility, and if found to be useful, they would be incorporated into monitoring activities.

Previous Activities: An evaluation of monitoring techniques for assessing relative abundance of RASU in riverine reaches was conducted, providing population estimates for adult RASU spawning in the Colorado River near Needles, California. A telemetry

study was initiated in FY07 to determine range and habitat use by repatriated RASU in Reach 3.

Research was conducted to experimentally determine lethal salinity limits for RASU eggs and larvae. Results indicate that upper salinity tolerances are between 10-15,000 $\mu\text{S}/\text{cm}$ for eggs and 23-26,000 $\mu\text{S}/\text{cm}$ for larvae. Remote sensing applications for PIT tagged fish were evaluated. This was continued as Work Task C23.

FY10 Accomplishments: A genetics study was initiated to determine the population demographics and habitat use of the California leaf-nosed bat. This study will determine the population history of the California leaf-nosed bat along the LCR, determine the distribution of genetic variation in California leaf-nosed bat roost sites, and identify where individuals from different roosts are foraging. Genetic samples were taken and are currently being analyzed to determine if genetic markers are distinct between bat roost sites. Samples were also taken from bats captured at LCR MSCP restoration sites, and these will be analyzed in FY11. This work will continue in FY11 under C43.

A habitat analysis and development of a population monitoring protocol for *Sigmodon* was designed and is being implemented under C27. The purpose of this research is to define the physical structure of the microhabitat utilized by the Colorado River cotton rat at two sites along the LCR where they appear to have relatively high abundance (an indication of high quality habitat). Data from this research will then be utilized in conservation areas for the creation of cotton rat habitat.

A two year project was initiated in FY10 with the purpose of acquiring the expansive reprint library amassed by the late Professor W.L. Minckley during his professional lifetime and making this library available online in a searchable format for end users via a website. This library is populated by thousands of documents relevant to partners and participants of the LCR MSCP, and to fishery and aquatic professionals throughout the southwestern United States and beyond. During FY10 the reprint library was retrieved from storage at Arizona State University and moved to the project work area where its contents were readily accessible. A detailed and comprehensive flow diagram was developed to guide the digitization process from the time a physical document was pulled from the library through its permanent storage as a digital electronic file. All necessary equipment was purchased and routine processing of documents was initiated in early March. Currently over 3,900 documents have been successfully scanned and organized using bibliographic software.

During FY10, riparian restoration research was conducted and a series of tasks were accomplished: 1) a literature review on salinity issues and management strategies were completed and are summarized in the Year 1 Report; 2) pre-existing vegetation types were ground-truthed and soil texture and salinity data were reviewed for PVER, Cibola Unit #1, and Beal Riparian habitat creation sites to guide the sampling plan design; 3) soil and groundwater sampling plans were developed based on pre-existing data, ground-truthing existing vegetation, as well as identifying existing well locations and selecting locations for new wells; 4) the first year of soil sampling was completed, and results are

presented in the Year 1 Report; and 5) groundwater monitoring began during the fourth quarter of 2010.

Study designs were finalized for four new investigations. These include work tasks C44, Management of Fish Food Resources in Off-channel Native Fish Habitats; C45, Ecology and Habitat Use of Stocked RASU in Reach 3; C45, Physiological Response in BONY and RASU to Transport Stress; and C47, Genetic Monitoring and Management of Recruitment in BONY rearing ponds.

FY11 Activities: Analysis of the data collected for the Tamarisk Beetle Study (conducted under D2) will be conducted by Reclamation's Tamarisk Beetle expert at the Denver Technical Service Center. Analysis completed under this work task will be used to determine future potential conservation and management recommendations in the adaptive management portion of the program.

A demonstration project is being conducted at Topock Marsh to place additional water in a portion of the Tamarisk SWFL habitat to determine the effects this may have on increasing the number of nesting pairs and potentially increasing nest success.

Vegetation typing of new aerial photos is being cost-shared with Reclamation's Lower Colorado River Accounting Systems group. This opportunity allows for new vegetation type maps to be completed efficiently and at a lower expense to the program.

Proposed FY12 Activities: Research questions identified during fish augmentation, species research, system-wide monitoring, habitat creation, and post-development monitoring will be evaluated for development into adaptive management research projects under this work task.

Pertinent Reports: The statement of work for the *Acquisition and Distribution of the W.L. Minckley Reprint Library* is available upon request.