

## Work Task C63: Evaluation of Habitat Features that May Influence Success of RASU and BONY in Backwater Environments

FY13 Estimate	FY13 Actual Obligations	Cumulative Expenditures Through FY13	FY14 Approved Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate	FY17 Proposed Estimate
\$0	\$0	\$0	\$0	\$125,000	\$100,000	\$100,000

**Contact:** Jeff Anderson (702) 293-8216, [jranderson@usbr.gov](mailto:jranderson@usbr.gov)

**Start Date:** FY15

**Expected Duration:** FY18

**Long-term Goal:** To inform future design and management of created backwater habitats.

**Conservation Measures:** BONY3, BONY5, RASU3, RASU5, and RASU6.

**Location:** Reaches 2-5

**Purpose:** To provide information on how natural and artificial habitat features are used by RASU and BONY and their relative importance for influencing survival and long-term success.

**Connections with Other Work Tasks (past and future):** This work task represents the merger of the of two previously funded work tasks: C41 (Role of Artificial Habitat in Survival of RASU and BONY) and C58 (Investigating Shoreline Habitat Cover for BONY). This work is related to all work tasks in Section B that provide RASU and BONY for augmentation stocking, specifically B7, C23, and F5. Future work may occur at Imperial Ponds (C25) and result may suggest modifications in future stocking treatments (C61).

**Project Description:** The activities covered under this work task both consolidate and build-on the work that has been undertaken and accomplished under C41 and C58. This represents a logical merger of these work tasks due to their similarities in scope and intent and potential overlap in ongoing experimental investigations.

Habitat features are important to success (growth, survival, reproduction) of fish in aquatic environments. In particular, structural features such as submerged woody debris, reefs, rock cavities, and submerged vegetation can provide cover for multiple life stages of fish. Cover allows fish to hide and rest and can be vital to survival by allowing fish to avoid predation. This work task investigates the types of features (both artificially constructed and those that are existing/natural) that may be used by native fishes and which ones are selected with greater frequency. This work task may also investigate the

use other forms of cover such as aquatic vegetation and turbidity. In this way, we may be able to suggest which of these types of features plays a more important role as cover for BONY and RASU and by including these features we may also improve both immediate and long-term survival and success. This is especially important in created backwater environments where these features may not be present or may not be in sufficient quantities to promote success of these species. This work task expects to:

- Inform management regarding habitat structures to include when designing creating backwaters.
- Help improve existing created backwaters by providing options for adding structural element (both “natural” and artificial) to afford adequate cover.
- Potentially assist in improving post-stocking survival by suggesting stocking sites with adequate cover or adding features to stocking locations to provide cover from predatory fish and/or piscivorous birds.

**Previous Activities:** Detailed accounts of work and accomplishments covered under C41 and C58 have been reported under these work tasks and by their associated technical reports. This work includes monitoring the use of artificial habitat features in Davis Cove (on Lake Mohave) by both RASU and BONY. Investigations have also been ongoing to characterize the existing rip-rap shoreline at High Levee pond because of documented frequent use of its cavities by BONY. These preliminary investigations suggest that BONY will regularly use both artificial (constructed and installed) and more “natural” existing structures (rip-rap) as cover. No difference has been detected in use of these features by RASU and suggests that this species may use other forms of cover: aquatic vegetation and/or turbidity have been speculated.

**FY13 Accomplishments:** This is a new start in FY15.

**FY14 Activities:** This is a new start in FY15.

**Proposed FY15 Activities:** Investigations of the selection and use of artificial structures (similar to 2013 and 2014) in Davis Cove will continue, with a continued emphasis on habitat use by BONY. A refinement of cavity selection by BONY will take place with repeated trials in a more controlled setting. The proposed budget estimate for FY15 reflects the combination of the FY15 estimates from C41 and C58.

**Pertinent Reports:** N/A