

Work Task C65: Evaluation of Immediate Post-Stocking Survival of RASU and BONY

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	\$60,000	\$60,000	\$60,000

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Start Date: FY15

Expected Duration: FY18

Long-term Goal: To maintain an effective fish augmentation program.

Conservation Measures: BONY3, BONY4, BONY5, RASU3, RASU4, and RASU6.

Location: Reaches 2-5

Purpose: To identify the most important sources of immediate post-stocking mortality and to inform management of how to best target and prioritize solutions.

Connections with Other Work Tasks (past and future): This work is related to Physiological Response in BONY and RASU to Transport Stress (C46), Willow Beach National Fish Hatchery (B2), Achii Hanyo Rearing Station (B3), SNARRC (B4), Razorback Sucker Rearing Studies (C10), and Bonytail Rearing Studies (C11), and Evaluation of Alternate Stocking Methods for Fish Augmentation (C61). Preliminary, planning, acquisition of materials, and study design development will occur in FY14 with funds from G3.

Project Description: Observations from past stocking events have indicated relatively high immediate post stocking mortality of RASU and BONY. This pattern appears more commonly in backwater situations and occurs even in instances where no or low numbers of predatory fish are present and where water quality parameters should not be a source of mortality. Transport and handling stress and predation by piscivorous birds have been suspected as causes of this low survival. Only anecdotal evidence exists to support the speculation that piscivorous birds are the major cause of this mortality and although handling and transport stress have been measured for stocked fish, little evidence exists that connect this stress to actual latent mortality.

This work task builds directly on the knowledge gained from C46 and takes the next step from observing stress indicators in stocked fish and investigating how this translates into actual latent post-stocking mortality. This work may involve holding a subset of stocked fish in a protected area for observation and recording of survival after 24, 48, and 72-

hours. Longer durations may also be explored. A subsample of these fish may also have blood tested for levels of stress-indicating compounds.

In addition, a bio-energetics model of piscivorous bird predation will be further developed and tested. Observational studies may be employed to help calibrate the model. These studies may include performing counts of confirmed feeding of piscivorous birds on stocked RASU and BONY. This model is intended to help inform managers on the relative pressure that bird predation may be having on stocked native fish.

These data are important to assess the effect of stocking treatments relative to stress-related mortality, bird predation, or other factors that may be accounting for immediate post-stocking mortality. It will allow managers to better prioritize and target solutions, like those being tested under C61, or find new ways to improve survival of stocked fishes by identifying what factors are the greatest sources of immediate mortality.

Previous Activities: This is a new start in FY15. Previous activities have been conducted under G3 and include the development of a protocol and study plan to assess latent mortality of stocked fish. If budget permits, preliminary trials of this protocol may be conducted in FY14. A bioenergetics model will also be developed to suggest the potential pressure that available piscivorous birds could exert on stocked fish.

FY13 Accomplishments: This is a new start in FY15.

FY14 Activities: This is a new start in FY15.

Proposed FY15 Activities: Latent mortality assessments of stocked fish will be performed at various locations in Reaches 2-5. The piscivorous bird bioenergetics model will be refined and applied to appropriate stocking locations. Budget estimates for FY15 reflect the effort needed to test these at only a few stocking locations and cost may vary depending on the number of fish and locations where these assessments are conducted.

Pertinent Reports: N/A