

## Work Task C47: Genetic Monitoring and Management of Recruitment in Bonytail Rearing Ponds

FY11 Estimate	FY11 Actual Obligations	Cumulative Expenditures Through FY11	FY12 Approved Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate
\$220,000	\$1,147.88	\$1,147.88	\$250,000	\$250,000	\$250,000	\$0

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**Start Date:** FY12

**Expected Duration:** FY14

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

**Conservation Measures:** BONY3, BONY4, and BONY5.

**Location:** Off-site rearing stations (Dexter NFH, and Achii Hanyo Rearing Station).

**Purpose:** To assess effects of volunteer spawning by BONY in holding ponds on the genetic integrity and goals of the captive management plan for this species.

**Connections with Other Work Tasks (past and future):** This work is related to Willow Beach National Fish Hatchery (B2), Achii Hanyo Rearing Facility (B3), Dexter National Fish Hatchery (B4), and Bonytail Rearing Studies (C11).

**Project Description:** This three-year study will characterize the genetic diversity of inadvertently spawned BONY in ponds at Achii Hanyo Rearing Facility, Dexter NFH, and Uvalde NFH, and compare these fish to the founder population of BONY broodstock at Dexter. This project will determine average diversity of pond recruitment. The study will also assess utility of using a biological control (piscivorous fish) to reduce or eliminate inadvertent spawns in grow-out ponds.

**Previous Activities:** This effort is building upon research conducted under Dexter National Fish Hatchery (B4), Uvalde National Fish Hatchery (B10), and Bonytail Rearing Studies (C11).

**FY11 Accomplishments:** Due to budget constraints, a decision was made to delay the start to FY12.

**FY12 Activities:** Tissue samples were collected from young-of-year BONY resulting from inadvertent spawning in rearing ponds at Uvalde NFH in 2010, and Achii Hanyo Rearing Station in 2011. Samples are to be analyzed and compared to the diversity in the original broodstock of BONY, and evaluated to assess impact of inadvertent recruitment by determining the average

number of parental contributors. Piscivorous fish are to be obtained and quarantined to accomplish investigations of piscivorous fish as a biological control in FY13.

**Proposed FY13 Activities:** Biological controls (piscivorous fish) were investigated to reduce or eliminate inadvertent spawns, which may lead to overcrowding and high densities resulting in oxygen depletion and increased susceptibility to disease. Trials will be conducted at Dexter NFH and Achii Hanyo Rearing Station to develop biological controls for pond recruitment in BONY.

Tissue samples are to be taken and analyzed from 1,000 bonytail derived from inadvertent spawns. All fish are to be inventoried from the study ponds, total parent versus recruitment biomass recorded, and results compared to determine effects and efficiency of piscivore use. In addition, the initial treatment protocols looking at a biological control will be adjusted for effectiveness based on previous year's results and repeated in FY14.

**Pertinent Reports:** Scopes of work are available upon request.