

Work Task B2: Willow Beach National Fish Hatchery

FY08 Estimates	FY08 Actual	Cumulative Accomplishment Through FY08	FY09 Approved Estimate	FY10 Proposed Estimate	FY11 Proposed Estimate	FY12 Proposed Estimate
\$235,000	\$334,013.77	\$953,847.77	\$350,000	\$250,000	\$250,000	\$250,000

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Start Date: FY05

Expected Duration: FY55

Long-term Goal: Fish Augmentation

Conservation Measures: RASU3, RASU4, RASU5, RASU6, BONY3, and BONY4

Location: Reach 2, Willow Beach, Arizona

Purpose: Annually contribute RASU and bonytail (BONY) to the LCR MSCP Fish Augmentation Program.

Connections with Other Work Tasks (past and future): Much of the activity at Willow Beach NFH is related to other Work Tasks in Section B, because most of the RASU and BONY reared for the LCR MSCP Fish Augmentation Program spend time at Willow Beach NFH (for further information, please see the Fish Augmentation Plan, which provides an overview of the program and shows the interrelationships between the various hatcheries). Some of the fishery research actions described in Section C are ongoing at this facility, including Razorback Sucker Growth Studies (C10), Bonytail Rearing Studies (C11), Humpback Chub Monitoring Program (C14), and Development and Evaluation of Measures to Reduce Transport of Quagga Mussel During Fish Transfer and Stocking Activities (C30).

Project Description: Willow Beach NFH is managed by the USFWS. The hatchery receives funding from the LCR MSCP for rearing of RASU and BONY for the Fish Augmentation Program. There are three primary tasks at the hatchery:

1. **Receive fish to be reared.** Annually receives wild RASU larvae collected from Lake Mohave and fingerling BONY (25-75 mm TL) from Dexter NFH.
2. **Provide fish to other hatcheries.** Each year Willow Beach NFH is to provide fingerling RASU to Bubbling Ponds SFH to be further reared and ultimately stocked into reaches 3-5 of the lower Colorado River, provide fingerling RASU from wild-caught larvae to Dexter NFH for further rearing and eventual repatriation to Lake Mohave, and provide juvenile BONY to Achii Hanyo Rearing Facility for further rearing and ultimately for stocking into reaches 3-5 of the lower Colorado River.

3. **Annually rear RASU for release to lower Colorado River.** Rear 6,000 subadult RASU to 300 mm TL for stocking into Reach 3; rear up to 5000 RASU to 500 mm for repatriation to Lake Mohave.

Previous Activities: This coldwater trout hatchery began operation in 1962 to produce rainbow trout for recreational fishing. Between 1994 and 1997, USFWS and Reclamation cooperatively added solar heating systems to the hatchery, converting 50% of its rearing capacity to warmwater fish production. Each year since 1996, the hatchery has received wild RASU larvae, reared juvenile RASU, and repatriated fish back to Lake Mohave. Similarly, the hatchery has provided fry to Bubbling Ponds SFH every year since 1997 for rearing and ultimately for return to the lower Colorado River. Since the inception of the LCR MSCP through 2007, a total of 21,165 RASU have been repatriated to Reach 2, and a total of 12,550 RASU have been stocked into Reach 3, bringing the cumulative total to 33,715 RASU stocked from Willow Beach NFH into the LCR.

FY08 Accomplishments: A total of 29,768 RASU larvae were received from Lake Mohave, fingerling BONY were distributed to Achii Hanyo for further rearing, and RASU juveniles for repatriation back to Lake Mohave are currently being reared. A total of 1,830 RASU juveniles (>380 mm TL) were distributed to Lake Mohave lakeside rearing ponds (B7). A total of 20 RASU and 7 BONY were repatriated into Lake Mohave (Reach 2). A total of 3,121 RASU were stocked into three backwaters along a 40-mile stretch of river below Davis Dam and Lake Havasu proper (Reach 3). A total of 3,445 RASU were stocked into Beal Lake (Reach 3), bringing the grand total to 6,566 RASU stocked into Reach 3 this year. The majority of funds were for salary and consumable materials (fish feed, medicines, chemicals, etc.). Additional funds that became available in FY08 were used to acquire solar heating panels and bird netting to replace aging units. Also, a new forklift was purchased and delivered to the facility.

During January 2007, the exotic quagga mussel was discovered in Lake Mead, and subsequently found at Willow Beach NFH. Larval RASU that were to be transferred to Bubbling Ponds SFH were not collected (B1) and no RASU of any size or year-class were delivered to waters outside the lower Colorado River corridor. Quagga mussels have not severely impacted the maintenance or operation of the facility. However, quagga mussels continue to have an impact on delivery of fish. Fish transport protocols for the Lower Colorado River corridor have been developed and are under review by cooperating resource agencies.

FY09 Activities: Willow Beach NFH will receive RASU larvae from Lake Mohave, and continue to rear and distribute RASU and BONY that are currently on station. This includes 500 RASU of the 2005 year class, 11,300 RASU of the 2006 year class, 11,700 RASU of the 2007 year class, and 24,000 RASU of the 2008 year class. At the end of 2008 there were approximately 1,100 BONY of the 2007 year class and 20,000 BONY of the 2008 year class at the hatchery. Some of these fish will be transferred to Achii Hanyo (B3). Investigations into efficacy of potassium chloride and formalin for removing quagga mussel from transport tanks at Willow Beach NFH (C30) have been initiated. Two more raceways are being converted to form a recirculation system for production of native fish. Additional solar heating panels and bird netting will be purchased in FY09.

Proposed FY10 Activities: The hatchery will receive RASU larvae from Lake Mohave and continue to rear and distribute RASU and BONY for the LCR MSCP Fish Augmentation Program. Protocols developed for addressing issues with quagga mussel during fish distribution will be incorporated into the stocking program. Investigations into efficacy of potassium chloride and formalin for removing quagga mussel from transport tanks at Willow Beach NFH (C30) are anticipated to be completed in FY10.

Production levels are expected to increase in FY09 and again in FY10 to reach annual RASU production of 12,000 fish for research as required in the HCP (see conservation measures RASU3.1 and RASU6).

Pertinent Reports: The *2008 Fish Augmentation Summary* is in preparation and will be posted to the LCR MSCP Web site.