

Work Task B2: Willow Beach National Fish Hatchery

FY16 Estimate	FY16 Actual Obligations	Cumulative Expenditures Through FY16	FY17 Approved Estimate	FY18 Proposed Estimate	FY19 Proposed Estimate	FY20 Proposed Estimate
\$325,000	\$309,156.64	\$3,717,532.47	\$325,000	\$325,000	\$325,000	\$325,000

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Start Date: FY05

Expected Duration: FY55

Long-Term Goal: Fish augmentation

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

Location: Reach 2, Willow Beach, Arizona

Purpose: To annually contribute razorback suckers (*Xyrauchen texanus*) and bonytail (*Gila elegans*) to the LCR MSCP Fish Augmentation Program

Connections with Other Work Tasks (Past and Future): The Willow Beach National Fish Hatchery (Willow Beach NFH) receives larval razorback suckers under Work Task B1 and bonytail under Work Task B4. Some of these fishes are transferred to the Achii Hanyo Native Fish Rearing Facility (B3) for rearing. Some fishery research actions described in Species Research (Section C) have occurred at the Willow Beach NFH, including Work Tasks C10 (closed) and C30 (closed).

Project Description: The Willow Beach NFH is managed by the U.S. Fish and Wildlife Service. The hatchery receives program funding to rear razorback suckers and bonytail for the LCR MSCP Fish Augmentation Program. There are three primary tasks at this hatchery:

1. **Receive fish to be reared.** The Willow Beach NFH annually receives wild razorback sucker larvae collected from Lake Mohave and fingerling bonytail (25–75 millimeters [mm] total length [TL]) from the Southwestern Native Aquatic Resources and Recovery Center in Dexter, New Mexico (B4).
2. **Provide fish to other hatcheries.** Initially, the Willow Beach NFH was to provide fingerling razorback suckers to the Bubbling Ponds Fish Hatchery to be further reared and ultimately stocked into Reaches 3–5, provide fingerling razorback suckers from wild-caught larvae to the

Southwestern Native Aquatic Resources and Recovery Center for further rearing and eventual repatriation into Lake Mohave, and provide juvenile bonytail and razorback suckers to the Achii Hanyo Native Fish Rearing Facility for further rearing and ultimately for stocking into Reaches 3–5. Due to quagga mussel (*Dreissena bugensis*) infestations, the Willow Beach NFH is only delivering fishes to the Achii Hanyo Native Fish Rearing Facility and the Lake Mead Fish Hatchery.

3. **Annually rear razorback suckers for release into the lower Colorado River.** The Willow Beach NFH will rear 8,000 subadult razorback suckers for stocking into Reaches 2–5 and, in addition, rear up to 1,000 razorback suckers greater than 400 mm TL for repatriation into Lake Mohave. All razorback suckers stocked into Reaches 2 and 3 will be a minimum of 300 mm TL. All razorback suckers stocked into Reaches 4 and 5 will be a minimum of 305 mm TL.

Previous Activities: This cold-water hatchery began operation in 1962 to produce rainbow trout (*Oncorhynchus mykiss*) for recreational fishing. Between 1994 and 1997, the U.S. Fish and Wildlife Service and the Bureau of Reclamation cooperatively added solar heating systems to the hatchery, converting 50% of its rearing capacity to warm-water fish production. Each year since 1996, the hatchery has received wild razorback sucker larvae, reared juvenile razorback suckers, and repatriated fish back into Lake Mohave.

During January 2007, the exotic quagga mussel was discovered in Lake Mead and was subsequently found at the Willow Beach NFH. No razorback suckers were delivered to waters outside the lower Colorado River corridor. Quagga mussels have not severely impacted the maintenance or operation of the Willow Beach NFH; however, they continue to have an impact on the delivery of fishes.

FY16 Accomplishments: The rearing strategy at the Willow Beach NFH was changed in FY15 in an attempt to produce larger (400 mm TL average size) fish for stocking into Lake Mohave. This change was made to improve post-stocking survival of razorback suckers stocked into Lake Mohave and to ultimately increase the adult population of the lake. This strategy continued in FY16.

During FY16, 18,050 razorback sucker larvae were received from Lake Mohave, 451 razorback sucker juveniles were stocked to lakeside rearing ponds (B7), and 7,447 razorback suckers of at least 300 mm TL were repatriated into Lake Mohave (Reach 2). A total of 14,705 year-class 2013 razorback suckers, 9,043 year-class 2014 razorback suckers, and 21,030 year-class 2014 razorback suckers were on station at the start of FY16. A total of 15,000 bonytail fry were received from the Southwestern Native Aquatic Resources and Recovery Center and transferred to the Achii Hanyo Native Fish Rearing Facility (B3) for further grow-out. New filtering material was installed in the recirculation systems

within the raceways dedicated to razorback sucker production. New screens were built to accommodate the new filtering material. The majority of funds were for salary and consumable materials (fish feed, medicines, chemicals, etc.).

FY17 Activities: Early in FY17, an outbreak of the parasite Ich (*Ichthyophthirius multifiliis*) was discovered at the Willow Beach NFH. The infestation moved quickly through all the razorback sucker raceways on station and resulted in high mortality of nearly every year-class. Prior to the outbreak, the numbers of razorback suckers on station totaled over 46,000 fish (table 1).

Table 1.—Year-Class and Number of Razorback Suckers on Station at the Willow Beach NFH Early in FY17 Before and After the Outbreak of Ich

Year-Class	Number prior to Ich outbreak	Number Remaining
2013	10,403	0
2014	15,111	3,500
2015	10,224	0
2016	10,542	10,000

Following the outbreak of Ich, the Willow Beach NFH reported losses of over 32,000 razorback suckers. Approximately 13,500 fish remained on station after the outbreak and included approximately 3,500 razorback suckers in the 2014 year-class and approximately 10,000 razorback suckers in the 2016 year-class (see table 1).

Approximately 300 razorback suckers from the 2014 year-class were stocked into the lakeside backwaters on Lake Mohave in support of ongoing research projects. All of these razorback suckers were fin clipped for genetic samples and passive integrated transponder tagged prior to stocking in backwaters. No additional razorback suckers from the Willow Beach NFH are expected to be stocked in FY17.

The Willow Beach NFH will receive razorback sucker larvae from Lake Mohave in FY17 and will continue to rear and distribute the razorback suckers. No bonytail will be reared at the Willow Beach NFH in FY17.

A project was completed to improve flow rates for well number 3. It included drilling through the existing well to add an additional 100 feet and changing the pump and motor to use the available water.

Proposed FY18 Activities: The Willow Beach NFH will continue to receive razorback sucker larvae from Lake Mohave and rear and distribute razorback suckers for the LCR MSCP Fish Augmentation Program. Bonytail may be temporarily housed at the Willow Beach NFH before transfer to other facilities.

Pertinent Reports: Annual administrative reports are available upon request.