

Work Task B6: Lake Mead Fish Hatchery

FY16 Estimate	FY16 Actual Obligations	Cumulative Expenditures Through FY16	FY17 Approved Estimate	FY18 Proposed Estimate	FY19 Proposed Estimate	FY20 Proposed Estimate
\$240,000	\$241,051.09	\$908,017.26	\$325,000	\$400,000	\$400,000	\$400,000

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Start Date: FY05

Expected Duration: FY55

Long-Term Goal: Fish augmentation

Conservation Measures: BONY3, BONY4, FLSU2, RASU3, RASU4, RASU5, RASU7, and RASU8

Location: Reach 1, Lake Mead, Boulder City, Nevada

Purpose: To support Lake Mead razorback sucker (*Xyrauchen texanus*) studies and contribute bonytail (*Gila elegans*) and razorback suckers to the LCR MSCP Fish Augmentation Program

Connections with Other Work Tasks (Past and Future): Activities at the Lake Mead Fish Hatchery contribute to other LCR MSCP work tasks. This includes closed work tasks, including B11, C13, C39, and C49, as well as ongoing work tasks: C41 (closed), C53, C57 (closed), C61, and D8.

Project Description: The Lake Mead Fish Hatchery is managed and operated by the Nevada Department of Wildlife (NDOW). The LCR MSCP and the NDOW are cooperatively rearing both bonytail and razorback suckers at this facility in support of the LCR MSCP Fish Augmentation Program. Bonytail for this work task are produced and supplied by the Southwestern Native Aquatic Resources and Recovery Center in Dexter, New Mexico (Center), and razorback suckers are wild-caught individuals from Lakes Mead and Mohave. Funds from this work task are provided for the salaries, equipment, feed, and chemicals necessary to rear these fish. Fish produced through this work task will be used to support research and augmentation in Reaches 1–5.

Previous Activities: A number of infrastructure and facilities improvements were made to the Lake Mead Fish Hatchery prior to 2007 to accommodate native fish production for the LCR MSCP. Since 2007, larval and fingerling razorback suckers, from Lakes Mead and Mohave, have been brought into the Lake Mead

Fish Hatchery for rearing. Subsequently, these fish have been transferred to ponds at the Overton Wildlife Management Area for additional grow-out, used for Lake Mead research and monitoring projects, and stocked into Lake Mohave. Additional rearing space was made available at the hatchery in 2012 in continued support of the LCR MSCP Fish Augmentation Program. This additional space has allowed for a greater number of native fishes to be kept on station and is currently being used to rear razorback suckers, flannelmouth suckers (*Catostomus latipinnis*), and bonytail. Prior to 2014, adult bonytail had only been held on station for short durations. The Lake Mead Fish Hatchery received an estimated 35,000 bonytail from the Wahweap State Fish Hatchery in December 2013, marking the first time that this species has been reared at the facility. The additional rearing capacity now available at the Lake Mead Fish Hatchery will continue to be necessary in future years when the number of fishes stocked annually into Reaches 3–5 is expected to increase.

FY16 Accomplishments: During FY16, the Lake Mead Fish Hatchery continued rearing the approximately 20,000 bonytail and 16,000 razorback suckers that were on station from previous years. The Lake Mead Fish Hatchery received approximately 5,000 fingerling bonytail during FY16, bringing the total number of bonytail on station to approximately 25,000. The hatchery's razorback sucker stocks were also augmented in FY16, with an additional 121 razorback sucker larvae from Lake Mead, 3,400 razorback sucker larvae from Lake Mohave, and approximately 3,000 razorback sucker fingerlings also from Lake Mohave. No flannelmouth suckers were brought on station during FY16.

A number of stockings occurred during FY16 in support of ongoing LCR MSCP work task activities. These stockings have been organized by river reach and include their associated work tasks where applicable. A total of 17 razorback suckers were stocked into Reach 1 during FY16 in support of ongoing research. These fish included 7 sonic-tagged juvenile razorback suckers released in order to investigate habitat use and seasonal movements of immature razorback suckers in Lake Mead (C57 [closed]), and 10 sonic-tagged adult razorback suckers released into the lower Grand Canyon in support of Work Task D8. A total of 1,244 bonytail were stocked into Reach 2 during FY16. Approximately 300 were stocked into Davis Cove in support of research continuing under Work Task C63. The remaining 900 were stocked into Lake Mohave as part of a sonic telemetry study being conducted under Work Task C64. The final stocking in FY16 occurred in Reach 3. A total of 2,006 razorback suckers were stocked in order to investigate latent mortality and relative survival and dispersal of fish stocked using soft release techniques (C65). Only minimal stockings of Lake Mohave razorback suckers occurred during FY16. It was anticipated that five hundred 500-millimeter razorback suckers would be stocked into Reach 2 by the end of FY16; however, this stocking is now scheduled for the first quarter of FY17.

In addition to rearing and stocking fish, the NDOW also continued making improvements to the hatchery. An electrical upgrade was completed in FY16, which will now allow for simultaneous flow conditioning of native fishes in up to 10 raceways. It is anticipated that the hatchery will begin pre-stocking flow conditioning of native fishes in early FY17. The Lake Mead Fish Hatchery also began preparations in FY16 to expand razorback sucker production by 4,000 fish per year, with the goal of producing 6,000 fish per year by FY18–19. Additionally, the hatchery was able to dedicate a single raceway for low-density rearing of adult bonytail that will provide the LCR MSCP with larger specimens for use in ongoing and future sonic telemetry studies. At the end of FY16, over 40,000 native fishes from multiple year-classes remained on station at the Lake Mead Fish Hatchery. These fish will be stocked or made available for research purposes as needs are identified.

FY17 Activities: The NDOW will continue to operate the Lake Mead Fish Hatchery for bonytail and razorback sucker production and flannelmouth sucker research. Continuing operations will include grow-out and stocking of native fishes from the 2011–17 year-classes and capturing and rearing of up to 500 wild-caught razorback sucker larvae from Lake Mead. Hatchery production will include the use of the Overton Wildlife Management Area ponds (B11, closed) and will be reported under this work task. This consolidation of work tasks, and the additional fishes that will be brought on station this year, both contributed to the increase in the approved budget for FY17. It is also anticipated that the hatchery will stock approximately 4,000 bonytail and 4,000 razorback suckers toward fish augmentation goals in FY17.

The NDOW has agreed to increase its rearing capacity for razorback suckers in response to the losses the Willow Beach National Fish Hatchery experienced due to the Ich (*Ichthyophthirius multifiliis*) parasite outbreak in early FY17. The Lake Mead Fish Hatchery will receive approximately 3,500 razorback sucker larvae (increased from 3,000) from Lake Mohave and up to 5,500 additional fingerling Lake Mohave razorback suckers from the Willow Beach National Fish Hatchery. In addition, the Lake Mead Fish Hatchery will receive up to 6,000 additional fingerling bonytail from the Center for rearing to stocking size. As a result of these increased fish numbers, additional expenditures will be necessary for expansion of the larval rearing portion of the hatchery as well as to compensate for additional fishes on station in subsequent years. These expenditures will include those for additional electrical upgrades, fish food, chemicals, supplies, and staff time.

Proposed FY18 Activities: Rearing and stocking of native fishes from previous year-classes will continue. The Lake Mead Fish Hatchery will also receive and rear up to 9,000 additional razorback suckers from Lake Mohave and 6,000 additional fingerling bonytail from the Center. Adult and subadult Lake Mead razorback suckers will be delivered to the Overton Wildlife Management Area and additional off-channel grow-out sites as necessary.

Expansion of the rearing capacity at Lake Mead Fish Hatchery to a total output of 6,000 subadult razorback suckers and 4,000 bonytail per year is expected to result in substantial increases in costs, including those for feed, electrical and associated pumping costs, chemicals, supplies, and staff time. These increases are reflected in the proposed budget for FY18.

Pertinent Reports: Annual administrative reports are available upon request.