

## COLLECTION OF AN ADULT GIZZARD SHAD (*DOROSOMA CEPEDIANUM*) FROM THE SAN JUAN RIVER, UTAH

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We collected an adult gizzard shad (*Dorosoma cepedianum*) from the San Juan River just upstream of Lake Powell, Utah, on 6 June 2000. This represents the first documented occurrence of the species in the Colorado River or its tributaries. The adult male (35 cm TL, 470 g) was taken by trammel net from a small (0.5 ha), shallow (<2 m) backwater along with several other fish that included 3 endangered razorback sucker (*Xyrauchen texanus*). The specimen is stored at the Museum of Southwestern Biology, University of New Mexico, Albuquerque (curation number 49122).

Utah Division of Wildlife (UDOW) intensified their shad surveys in the San Juan arm of Lake Powell as a result of this initial collection. No additional gizzard shad were found during 2001, but 8 young-of-year gizzard shad ( $\bar{x}$  = 103 mm TL) were taken collectively during August and September 2002 (Blommer and Gustaveson 2002). The fish were taken 12 km downstream from the original collection site, indicating that gizzard shad are not only present but are successfully producing young.

Source of the gizzard shad is unknown. Angler (live bait) introduction is possible but unlikely because of the fragile nature of the species. More likely, the gizzard shad escaped Morgan Lake where it was probably introduced when largemouth bass were stocked (Brooks et al. 2000). Stocked fish were supplied by Inks Dam National Fish Hatchery (IDNFH) where subsequent shipments were found (by coauthor) to contain gizzard shad in addition to 9 other nontargeted species. Large numbers of gizzard shad were first observed in Morgan Lake in 1996. The reservoir provides

cooling water for the Four Corners Power Plant located near Farmington, New Mexico. While the reservoir is physically separated from the San Juan River, the power plant periodically flushes the cooling system into a wash that empties into the river (Howard Bradley, Arizona Public Service, personal communication).

The spread of gizzard shad poses a competitive and predatory threat to native and recreational fish communities throughout the Colorado River basin. The San Juan River Recovery Program has stocked large numbers of razorback suckers in an attempt to reestablish river populations (Ryden 1997). Razorback sucker and gizzard shad are planktivores (Marsh 1987, Pflieger 1997) that prefer highly productive habitats (Robinson and Buchanan 1988, Mueller et al. 2000), and capture of both species at the same site suggests they may compete for similar physical and biological resources. If gizzard shad expand further upstream, they could invade floodplain nurseries that are believed critical to the recovery of the razorback sucker (Wydoski and Wick 1998). While gizzard shad are seldom considered active predators, adults feed on benthic insects (Robinson and Buchanan 1988) which may contain larval-native fish.

The spread of nonindigenous fish in the desert Southwest has devastated and, in many cases, totally eliminated native fish communities (Minckley and Deacon 1991, Fuller et al. 1999, Tyus and Saunders 2000). The collection of yet another nonnative reemphasizes the need for diligent inspections of all fish shipments to minimize the risk of further jeopardizing remaining communities and recovery efforts.

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