

# Lake Bogue Homa: A Case History of Renovation and Recovery after Hurricane Katrina-associated Fish Kill and Infrastructure Damages

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*Abstract:* The purpose of this case history is to document the recovery and renovation of Lake Bogue Homa in southern Mississippi after suffering the effects of Hurricane Katrina. At 357 ha, Lake Bogue Homa is the largest lake managed by the Mississippi Department of Wildlife, Fisheries, and Parks. Prior to 2005, Lake Bogue Homa provided a robust fishery consisting of largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), redear sunfish (*Lepomis microlophus*), black crappie (*Pomoxis nigromaculatus*), and channel catfish (*Ictalurus punctatus*). In August 2005, Hurricane Katrina made landfall on the coast of Mississippi causing extensive damage to facilities and natural resources of the state. Lake Bogue Homa sustained physical damage to the dam, gate structures, and surrounding facilities. The Lake Bogue Homa fishery was decimated by a massive oxygen depletion induced fish kill due to excessive rainfall, flooding, and subsequent nutrient rich inflow. Electrofishing surveys in 2005 showed few game fish survived the kill. MDWFP closed the lake in late 2007 and drained it for repairs and renovation of the fishery. Repairs were completed, the lake was refilled, and the fish population was reestablished. As part of the fishery renovation, over 500,000 fish were stocked in 2007 and 2008. The lake remained closed for two years so the fish population could benefit from two spawning and growing seasons. Electrofishing surveys in 2010 showed adequate growth and successful reproduction of all species stocked which facilitated reopening the lake in May 2010. Upon reopening, regulations will include a 381-mm minimum length limit and five fish creel limit on largemouth bass and statewide creel limits on sunfish (100 fish), crappie (30 fish), and channel catfish (10 fish). Creel surveys will be conducted in May and June 2010 to assess angler success and attitudes concerning the lake, management of the fishery, and regulation of the fishery. The creel surveys will also be used to determine if there is a decline in angler catch rates for largemouth bass after Lake Bogue Homa opens since researchers has suggested that largemouth bass show an avoidance behavior after being caught and released.

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