



Grenada Reservoir 2022

REEL FACTS

Keith Meals – Fisheries Biologist

keithm@wfp.ms.gov

General Information: Grenada Reservoir is one of four flood control reservoirs (FCRs) in north Mississippi. Built by the US Army Corps of Engineers (COE) in 1954 on the Yalobusha River, it is the largest FCR and the state's largest lake with a summer pool of 35,820 ac. Water levels follow an annual rule curve but deviate from it due to local precipitation and COE spillway gate operations. The reservoir is lowered in fall to winter pool (9,800 ac); flood pool is 64,600 ac. The state's largest lake is a popular destination for crappie and catfish anglers.

Location/Contact: 3 miles northeast of Grenada, MS. COE office (662) 226-5911.

Fishery Management: Crappie, catfish, Largemouth Bass, and White Bass.

Purchase a Fishing License: https://www.ms.gov/mdwfp/hunting_fishing/

Amenities

- 10 concrete fee ramps.
- Bait shops in Grenada.

Creel and Size Limits

The following apply to the reservoir, but not the spillway.

- Crappie: Must be over 12 inches. 15 crappie per day per angler; no more than 40 crappie per boat (3 or more anglers).
- Largemouth Bass: No length limit and 10 bass per day per angler.
- White Bass: No limits.
- Bream: No length limit and 100 per day per angler.
- Catfish: No limits.

Regulations

- No more than 25 jugs and no more than 25 yo-yos may be fished per person with no more than 2 hooks per device. Jugs and yo-yos must be tagged with the license holder's MDWFP number or the angler's name and address. Gear must be attended (in sight) during daylight hours.
- Grabbling season May 1 – July 15; only wooden structures allowed.
- No more than 4 poles may be fished per person; no more than 2 hooks or lures per pole.
- Spillway: Consult Outdoor Digest

Fishing Tips

General

- Best fishing is usually in the spring and fall.
- Fish near deeper water if the water is falling; fish shallower if it is rising.

Crappie

- Target shoreline cover in spring in creek arms and coves. In summer and fall, search for suspended fish in creek mouths and the main reservoir.

Largemouth Bass

- Target cover in coves in spring, points in summer, and tributaries in fall.

Bream

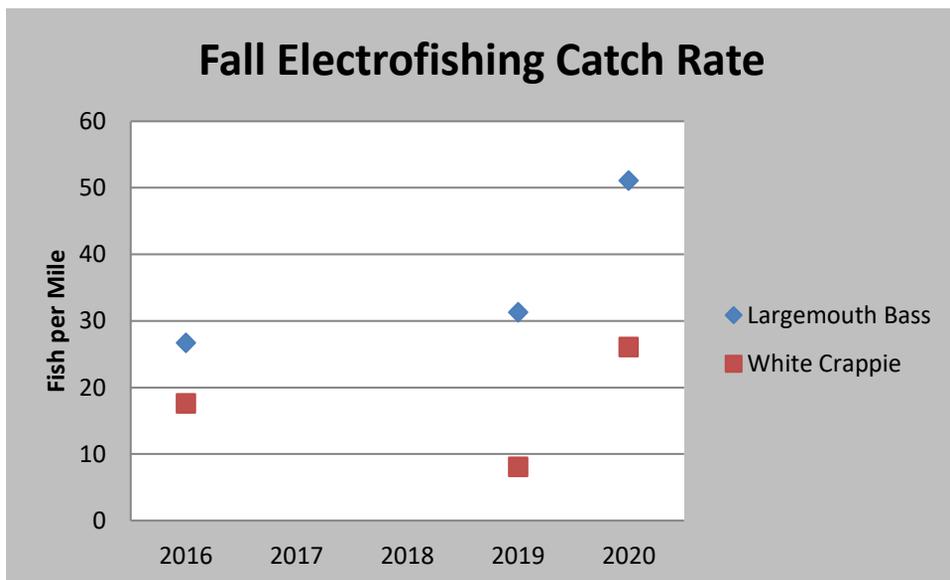
- Fish crickets or redworms near cover.

Catfish

- Fish worms or cut bait in tributaries during runoff or over mudflats if no runoff.

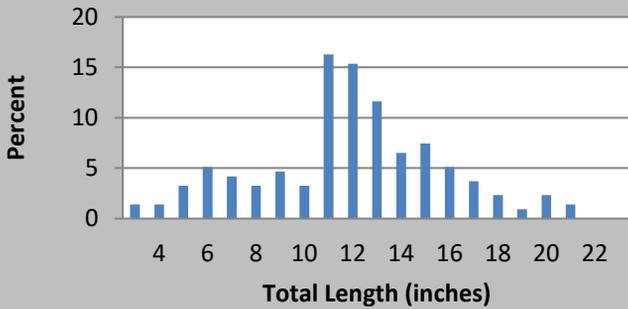
Species	# of fish collected	% of sample	Average Length (inches)	Maximum Length (inches)	Average Weight (pounds)	Catch Rate – Adult fish (fish/mile)
Gizzard Shad	620	43	4.3	13.5	<0.1	12
Largemouth Bass	215	15	12.3	21.7	1.2	51
Bluegill	198	14	4.1	7.7	<0.1	30
White Crappie	135	9	9.1	16.7	0.7	26
Threadfin Shad	131	9	1.8	3.9	<0.1	30 (all)
Channel Catfish	50	4	14.6	24.1	1.1	12
Black Crappie	39	3	6.1	14.8	0.3	6
White Bass	20	1	11.5	16.9	0.9	4
Blue Catfish	12	1	22.3	30.2	5.1	3
Flathead Catfish	4	0	14.8	19.3	1.4	<1
Redear Sunfish	2	0	5.3	6.4	0.1	<1

Above: Fall 2020 electrofishing results. Forage fish (Gizzard Shad, Bluegill) were numerous, but mostly small. Largemouth Bass, Bluegill, and crappie spawning success usually improves in high water, as occurred in 2018 - 2020. Channel Catfish have also benefited

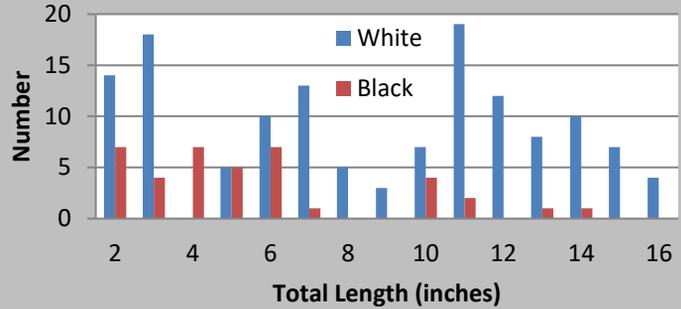


Above: Trends in fall electrofishing catch rates, adult fish. Bass abundance has increased due to higher water levels since 2016 (except for the 2017 drought). Although adult bass may live offshore, survival of small bass is dependent on littoral (shoreline) habitat. White Crappie numbers rose in 2020 mostly due to a big 2018 year class spawned in thick flooded vegetation that colonized in the 2017 drought. White Crappie catch rate was unusually low in 2019 due to a rapid drawdown; fish were deeper than could be efficiently sampled by electrofishing.

Largemouth Bass



Crappie

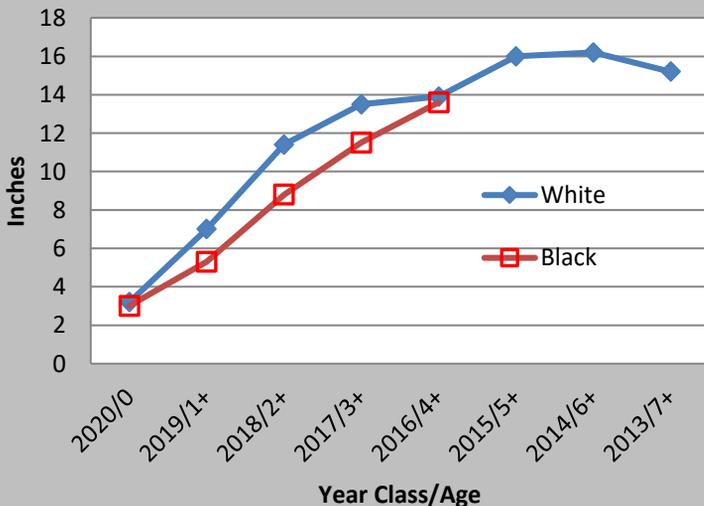


Above: Length distributions, fall electrofishing, 2020. Most bass were from the 2018 year class. FCR bass populations fluctuate mainly from environmental factors (water levels) since angler harvest is low. More White Crappie were collected than Black Crappie, and most White Crappie were also from the 2018 year class when vegetation from the 2017 drought was flooded. The 2018 White Crappie peaked near 11 inches.



Below: Growth rates for crappie, fall, 2020. Not all fish were aged, and the odd patterns were due to only a few fish in some year classes. The low average for 2016 White Crappie was because 2016 had two spawning events. These fish have remained in larger and smaller modes; more of the larger 2016 fish have been harvested. All trophy White Crappie were 5+ or 6+; the oldest fish aren't always the biggest. Black Crappie grew slower than White Crappie, which is normal for the FCRs. It takes about a year longer for Black Crappie to grow over 12 inches. Some larger Black Crappie were not aged but were transferred to the North Mississippi Hatchery Visitor Education Center aquarium.

Crappies, Length at Age



Year Class	Age	# White Crappie aged	Average Length (inches)	# Black Crappie aged	Average Length (inches)
2020	0	11	3.2	9	3.0
2019	1+	32	7.0	19	5.3
2018	2+	28	11.4	5	8.8
2017	3+	12	13.5	2	11.5
2016	4+	12	13.9	1	13.6
2015	5+	2	16.0		
2014	6+	5	16.2		
2013	7+	1	15.2		

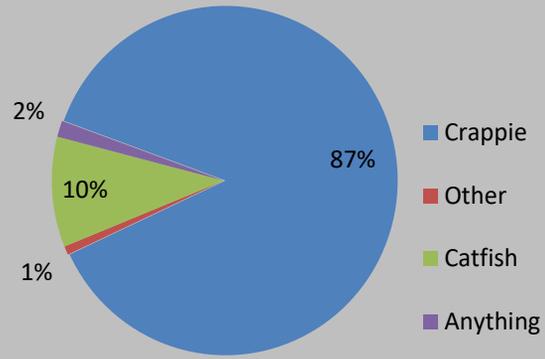
Fish Harvest and Fishing Effort: Most anglers fished for crappie in 2019 (right, top). Crappie and catfish were 97.6% of harvest (right, bottom). Grenada crappie average the second largest of the FCRs. White Crappie (below, right) were over 99% of crappie kept.

Harvest and effort varied monthly (middle). Effort and harvest followed each other closely all year, indicating consistent seasonal fishing. Peak harvest and effort were in August as high water subsided. Anglers fished about 521,000 hr and kept about 605,000 lb of fish.

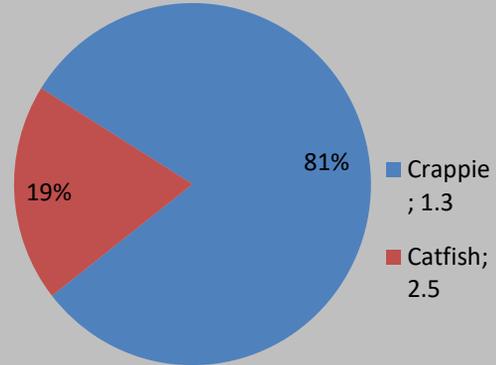
Harvest and effort rose 91% and 109%, respectively, from 2007- 2019 (bottom). Harvest was low in 2011 due to low water and poor spawns from 2005 – 2007, plus the big 2009 crappie year class was too small to keep. Grenada’s reputation as the nation’s top trophy crappie lake has resulted in more fishing effort.

Anglers were 38% non-residents; out-of-pocket expenses (fuel, bait, etc.) were about \$12 million.

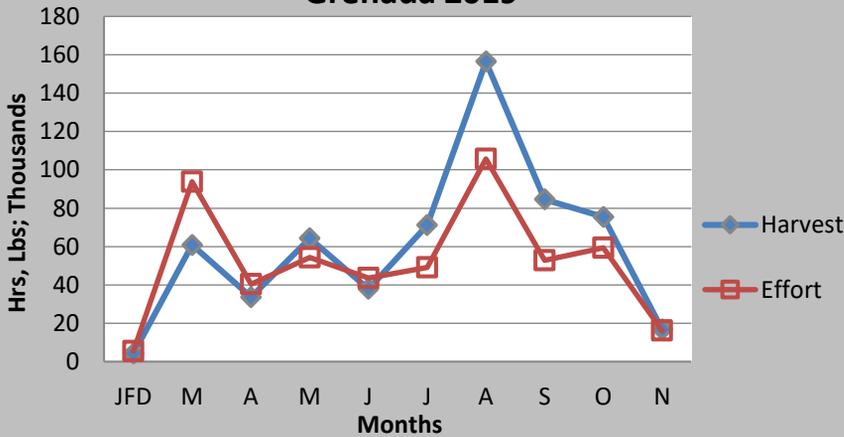
Targeted Species, Grenada 2019



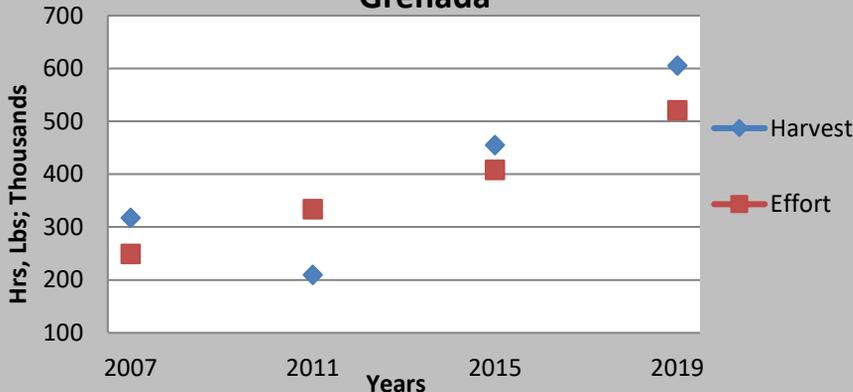
% Wt, Avg Wt, Grenada 2019



Monthly Harvest and Fishing Effort Grenada 2019



Annual Harvest and Fishing Effort Grenada



Lake Characteristics: Grenada normally fluctuates 12 ft yearly following a “rule curve” based on seasonal rainfall patterns. For water levels (rule curve vs actual water level), see <http://mvk-wc.usace.army.mil/docs/bullet.txt> for a table or <http://mvk-wc.usace.army.mil/plots/grenplot.png> for a graph or <http://www.mvk-wc.usace.army.mil/resrep.htm> for both. Due to its shallowness, Grenada exceeds its emergency spillway more than the deeper FCRs (Sardis, Enid). Rapid fluctuations can make it challenging to find and pattern fish.

Fall drawdowns and droughts let moist soil vegetation colonize mudflats (below left) for fish habitat when water levels rise again. Flooding brings in nutrients and expands fish habitat. Aquatic vegetation is scarce due to fluctuating lake levels, but there are abundant shoreline trees and shrubs at higher water levels. The fluctuation zone (winter to summer pool, below right) has very little cover other than dead timber, some live trees and shrubs, and colonized vegetation.



Lake Characteristics: Grenada’s rule curve and rainfall sometimes result in low water during the spring spawning season and/or limited vegetation colonization during the fall drawdown. However, the Grenada Reservoir COE sponsors a Habitat Day in winter when the water is low. Materials are placed in the fluctuation zone with the assistance of MDWFP and volunteers (right, top and bottom) to provide fish habitat when the water comes back up. Although beneficial, these artificial structures do not begin to replace the quantity or quality of habitat created by naturally colonized vegetation during low water periods or flooded during high water events.



Spillway: The Grenada Reservoir spillway is also a popular fishing destination, mostly for catfish and crappie by bank anglers. Crappie in the spillway are dependent on reservoir releases and are caught mostly in winter and early spring; catfish are more common in summer. A concrete ramp into the “old river run” below the dam provides anglers access. A new handicapped accessible pier (middle, left) was opened in 2017 where the spillway channel and old river run meet.

The Yalobusha River below the reservoir allows access into the spillway by many wide-ranging fishes, such as Asian carps (middle, right; Silver Carp, top. Bighead Carp, bottom) from the Mississippi River. Young Asian Carp resemble shad or minnows. Anglers collecting bait fish in the spillway must put them on ice or in a dry container to prevent the spread of these nuisance, non-native fishes to other waters. Uncommon species caught in the spillway may include Paddlefish, American Eel, Striped Bass, and Hybrid Striped Bass.

In 2019, Grenada Reservoir overflowed its emergency spillway for the first time since 1991 (bottom, left). Grenada also briefly overflowed in 2020. Asian carps that inhabit the river below the dam were constantly jumping in the churning water at the bottom of the spillway (bottom, right) to get upstream. Fortunately, Asian carps have been unable to swim up the spillway tunnel or the emergency spillway overflow and invade the reservoir.

