SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-46

Name: Corsica Lake **County(ies):** Douglas
Legal Description: T99N-R63W-Sec. 3, 4, & 9 **GPS:** 43º24'32.06"N 98º17'43.29"W
Location from nearest town: 6 miles east and 1 mile south of Corsica

Date of present survey: June 3-5, 2013 (netting)
Date of last survey: June 38-30, 2010 (netting); October 14, 2010 (electrofishing)
Most recent lake management plan: F-21-R-45 (January 1, 2013 to December 31, 2017)
Management classification: Warmwater Permanent

Primary Game Species	Secondary and Other Species
Black Crappie	Northern Pike
Bluegill	Black Bullhead
Largemouth Bass	Yellow Perch
	Common Carp

PHYSICAL DATA

Surface Area: 110 acres **Watershed:** 24,000 acres
Maximum Depth: 12 feet **Mean Depth:** 6 feet
Lake elevation at time of survey (field observations): 5-6 feet low
Contour map: No **Date:** NA

Ownership of lake and adjacent lakeshore properties:

Corsica Lake was created in 1937 when the Works Progress Administration constructed a dam on Choteau Creek. Douglas County owns the dam grade and the lower ½ of the lake. The remainder is privately owned. The South Dakota Department of Game, Fish and Parks holds an easement for the lake and a strip of land 12 feet above the high water mark on the county-owned section and a flood easement on the private lands.

Watershed condition with percentages of land use types:

Corsica Lake has a watershed of approximately 24,000 acres or 37.5 square miles which is primarily made up of privately owned agricultural land. Land use in the watershed is 80% cultivated cropland and 20% pastureland. The lower ½ of the immediate shoreline is woodland and native grasses. Cropland and livestock feeding areas border the upper ½ of the lake. The large percentage of cultivated land and the number of livestock in the watershed have contributed to the heavy siltation that has deposited a high amount of nutrients in the lake.

Fishing access:

There is a concrete boat ramp to provide adequate launching for any type of boat traffic. There are also some opportunities for shorefishing.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

The boat ramp and spillway are in good condition.

Field observations of aquatic vegetation condition:

Very little to no submergent vegetation was present in Corsica Lake due to the poor water clarity and extremely low water levels. Emergent vegetation is found scattered along the shoreline and consists of mainly bulrushes with cattails scattered in, but really dense in the upper 1/3 of the lake.

CHEMICAL DATA

Field observations of water quality and pollution problems:

Heavy siltation is the main problem with Corsica Lake. Water clarity is poor with a secchi disc reading of 1.5 feet. Other water quality characteristics were measured in the field on June 5, 2013, using a HACH water quality kit and a Hanna multiparameter meter. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Corsica Lake, Douglas County, June 5, 2013.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/L)	HRD (mg/L)	pH	Cond (µS/cm)	TDS (ppm)	Sal.	ORP	Secchi (ft)
A	Surface	65.5	4.65	85.0	263	1222	8.94	2382	1190	1.23	-3.2	1.5
A	4	65.1	4.42	81.0	260	1155	8.98	2378	1189	1.23	8.2	

BIOLOGICAL DATA

Methods:

Corsica Lake was sampled on June 3-5, 2013, with ten overnight trap net sets. The trap nets have 3ft x 5ft frames, 60ft leads, and ¾ inch knotted mesh. No experimental gill nets or electrofishing was done during this survey period. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Table 2. Total catch of ten, overnight ¾-inch frame nets at Corsica Lake, Douglas County, June 3-5, 2013.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	2,404	98.7	240.4	± 77.1	256.8	2	0	72
Northern Pike	12	0.5	1.2	± 0.6	3.4	83	8	84
Black Crappie	9	0.4	0.9	± 0.6	29.4	100	100	101
Common Carp	9	0.4	0.9	± 0.4	3.3	100	0	67

* Ten year mean (1974, 1985, 1987, 1991, 1994, 1997, 2000, 2004, 2007, 2010)

Black Crappie

The black crappie population in Corsica Lake has taken a major downturn; probably in large to a drought that has lasted a couple years. The CPUE of 0.9 is well below the 109.9 from the 2010 survey (Table 4) as well as the 29.4 ten year mean (Table 2). The population had been fairly stable for several surveys until this year. Figures 1 through 7 illustrate the length frequency histograms for the last seven surveys. They show that the population generally contained quality fish. The biggest concern now is the void of any young fish recruiting in the population. Condition is fine with a mean Wr of 101. This population will continue to be monitored and more adults stocked to help bolster the population once water levels return.

Figure 1. Length frequency histogram for black crappie sampled from Corsica Lake, Douglas County, 2013.

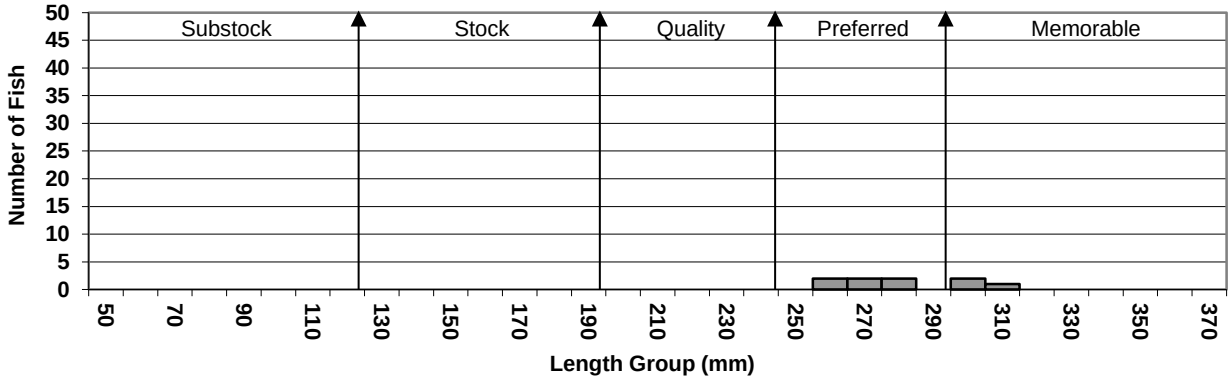


Figure 2. Length frequency histogram for black crappie sampled from Corsica Lake, Douglas County, 2010.

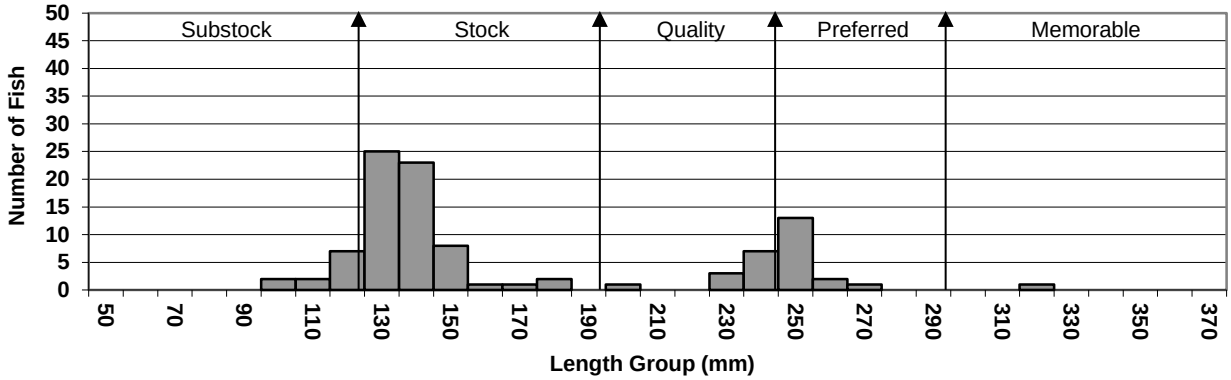


Figure 3. Length frequency histogram for black crappie sampled from Corsica Lake, Douglas County, 2007.

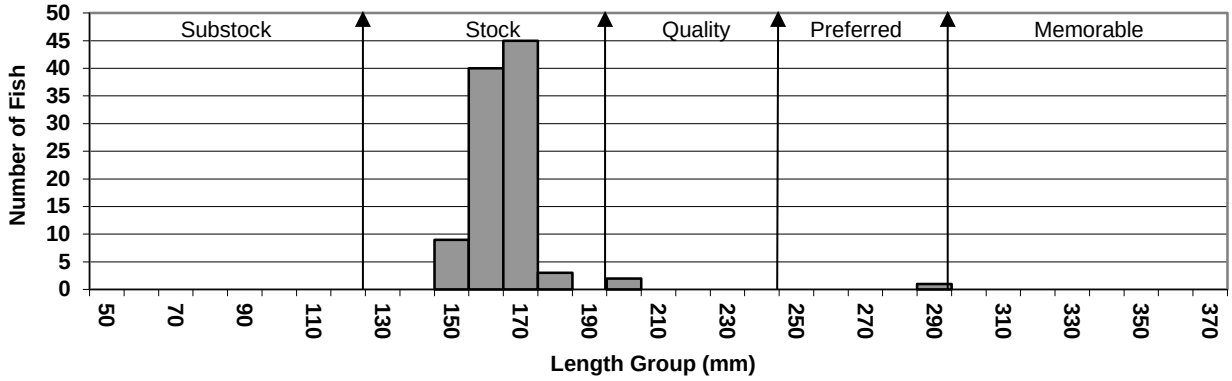


Figure 4. Length frequency histogram for black crappie sampled from Corsica Lake, Douglas County, 2004.

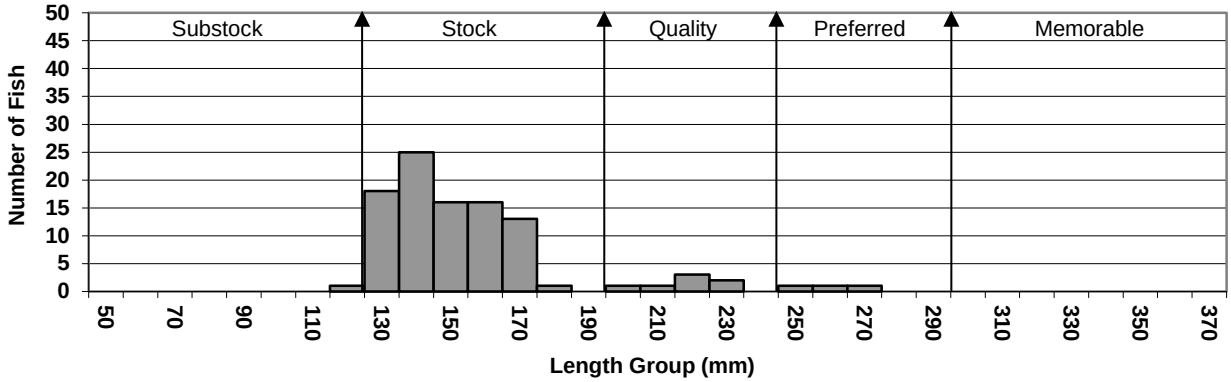


Figure 5. Length frequency histogram for black crappie sampled from Corsica Lake, Douglas County, 2000.

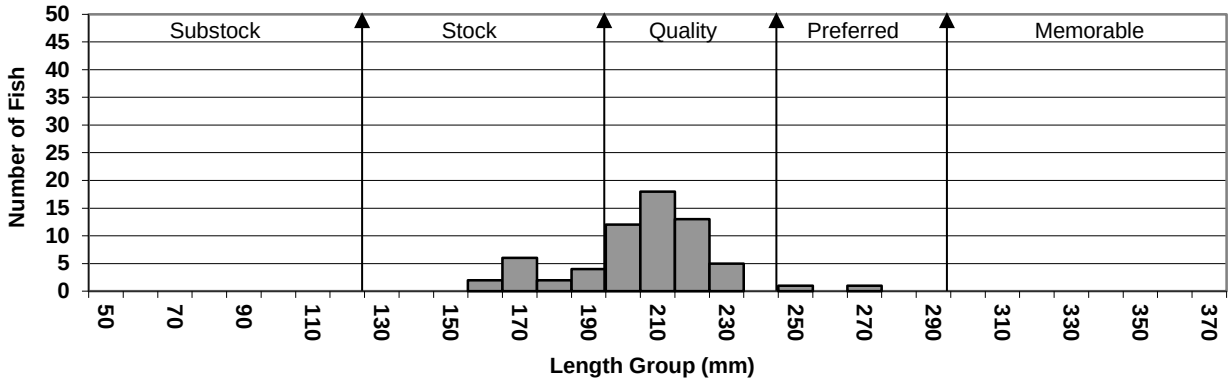


Figure 6. Length frequency histogram for black crappie sampled from Corsica Lake, Douglas County, 1997.

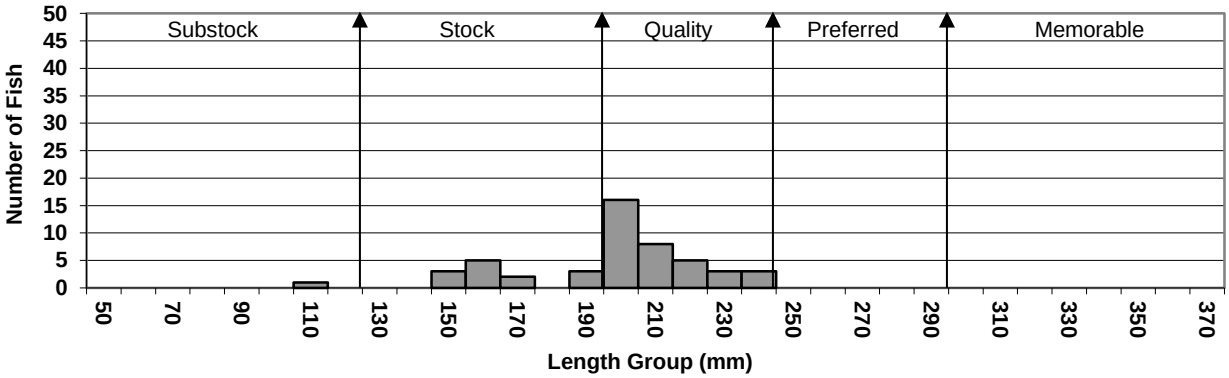
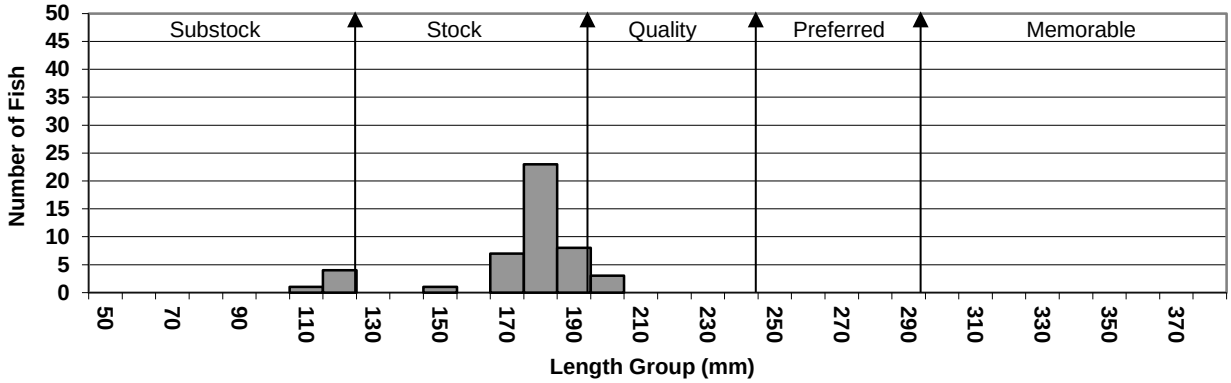


Figure 7. Length frequency histogram for black crappie sampled from Corsica Lake, Douglas County, 1994.



Black Bullhead

Corsica Lake continues to contain a high density black bullhead population that has now taken over as the dominant species. The CPUE of 240.4 fish per net night is well above the 106.6 from the 2010 survey (Table 4), but right on with the 256.8 ten year mean (Table 2). Condition has declined this survey to a mean Wr of 72. Figures 8 through 13 illustrate the length frequency histograms for the last six surveys. There was a couple years when the population contained fish of a size that anglers would target, but most years the populations is dominated by very small fish. The population is more than likely going to continue to get out of control with the reduced water levels and a lack of any predatory fish species.

Figure 8. Length frequency histogram for black bullhead sampled from Corsica Lake, Douglas County, 2013.

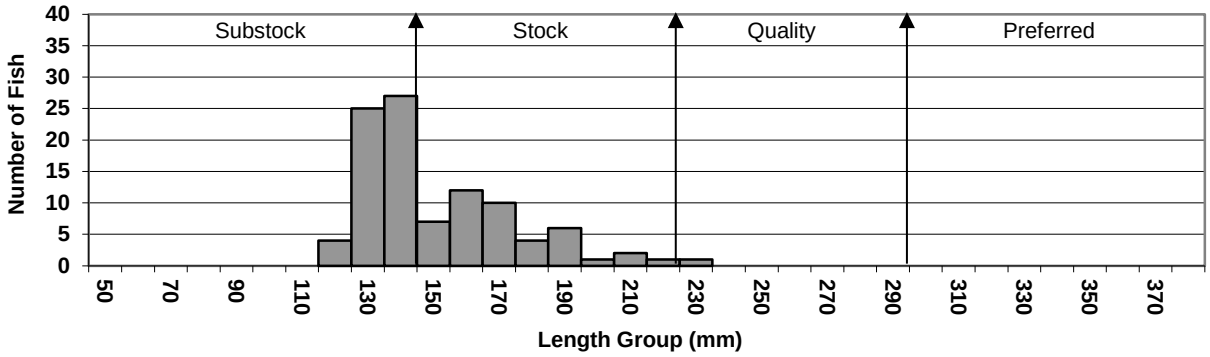


Figure 9. Length frequency histogram for black bullhead sampled from Corsica Lake, Douglas County, 2010.

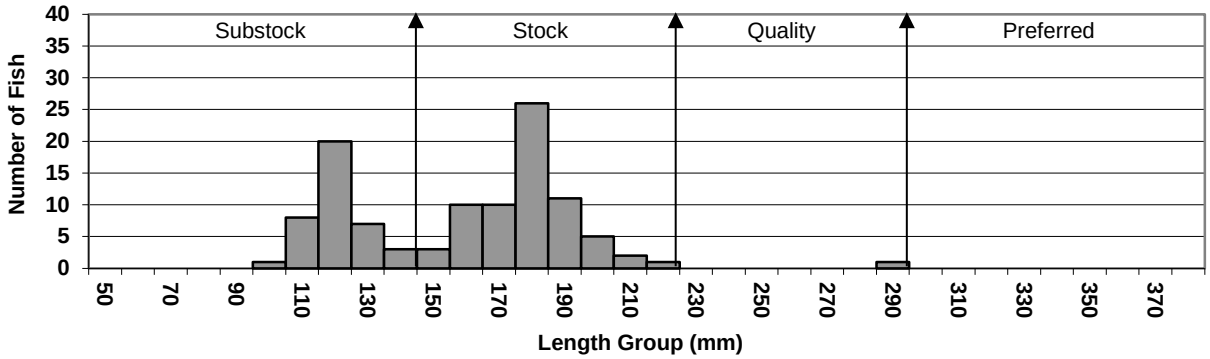


Figure 10. Length frequency histogram for black bullhead sampled from Corsica Lake, Douglas County, 2007.

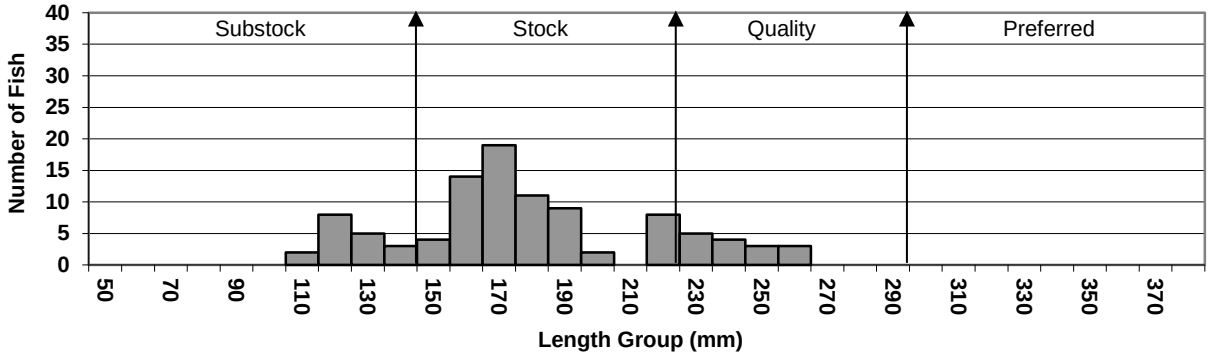


Figure 11. Length frequency histogram for black bullhead sampled from Corsica Lake, Douglas County, 2004.

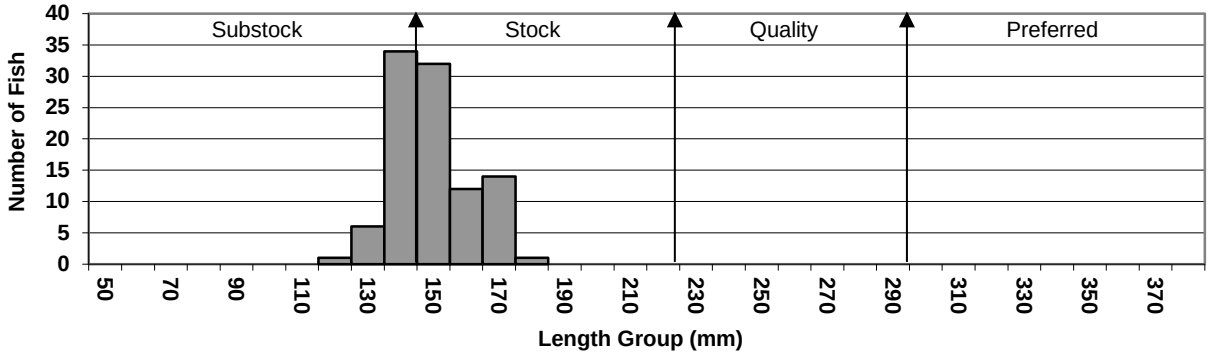


Figure 12. Length frequency histogram for black bullhead sampled from Corsica Lake, Douglas County, 2000.

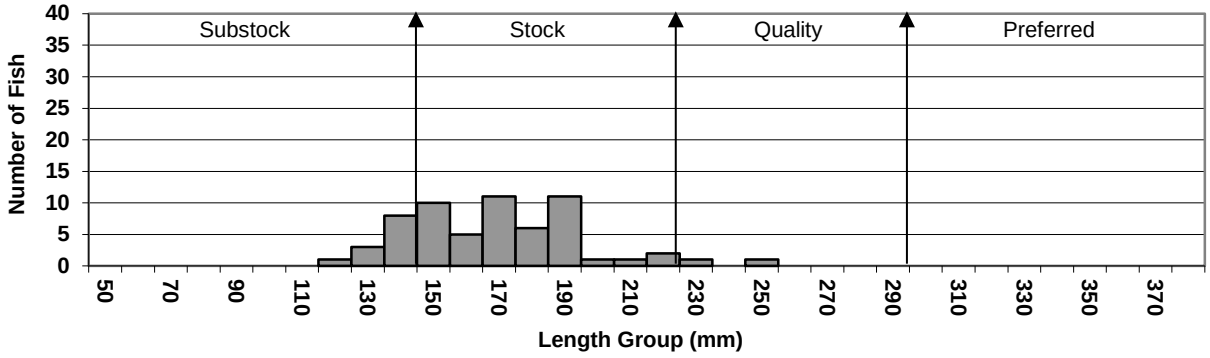
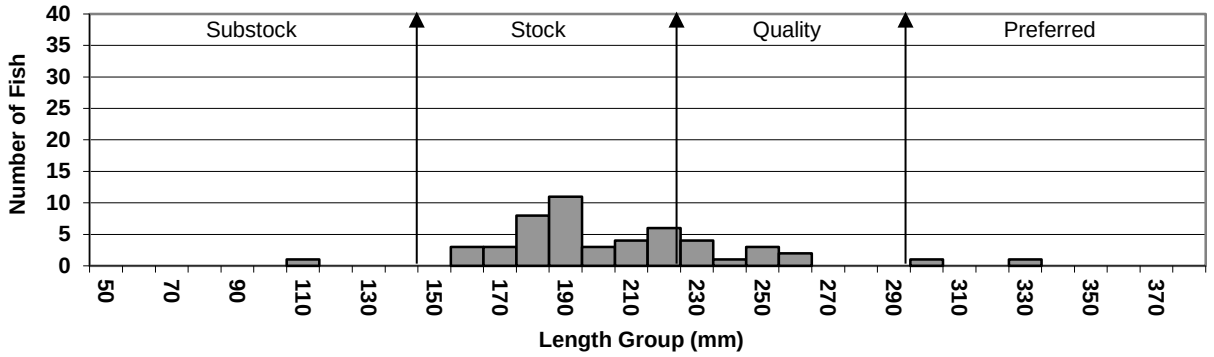


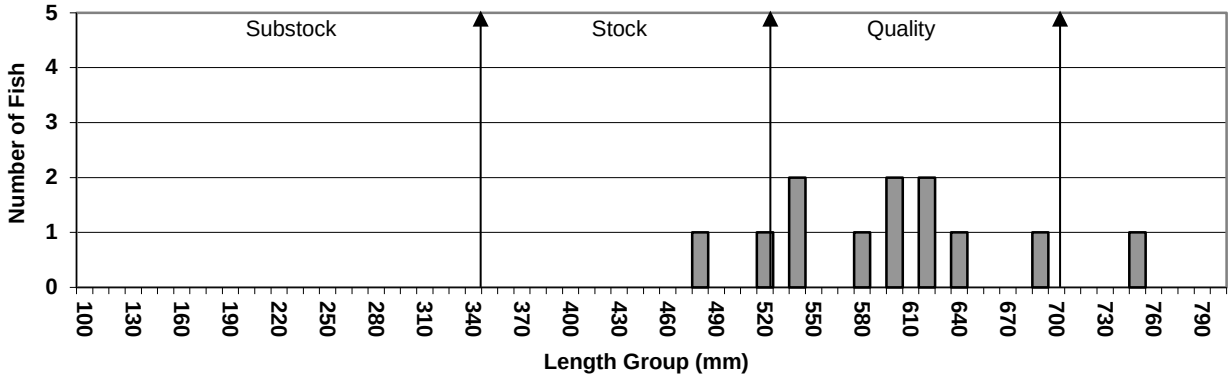
Figure 13. Length frequency histogram for black bullhead sampled from Corsica Lake, Douglas County, 1997.



Other species

A low density northern pike population does exist in Corsica Lake and has remained relatively constant through the history of the lake. The CPUE of 1.2 fish per net night is right on with 1.1 from the 2010 survey (Table 4), but slightly below the 3.4 ten year mean (Table 2). Figure 14 illustrates the length frequency histogram for the fish sampled this survey. Condition is fine with a mean Wr of 84. Their presence will help to keep the black bullhead numbers down, but more help is drastically needed.

Figure 14. Length frequency histogram for northern pike sampled from Corsica Lake, Douglas County, 2013.



Common carp were the only other species sampled this survey. The CPUE of 0.9 fish per net night is right on with the 1.0 from the 2010 survey (Table 4), but slightly below the 3.3 ten year mean (Table 2). Figure 15 illustrates the length frequency histogram for the fish sampled this survey. Condition is low with a mean Wr of 67.

Yellow perch, largemouth bass, bluegill, green sunfish, orangespotted sunfish, and hybrid sunfish were the species not sampled this survey that had been is surveys past (Table 4).

Figure 15. Length frequency histogram for common carp sampled from Corsica Lake, Douglas County, 2013.

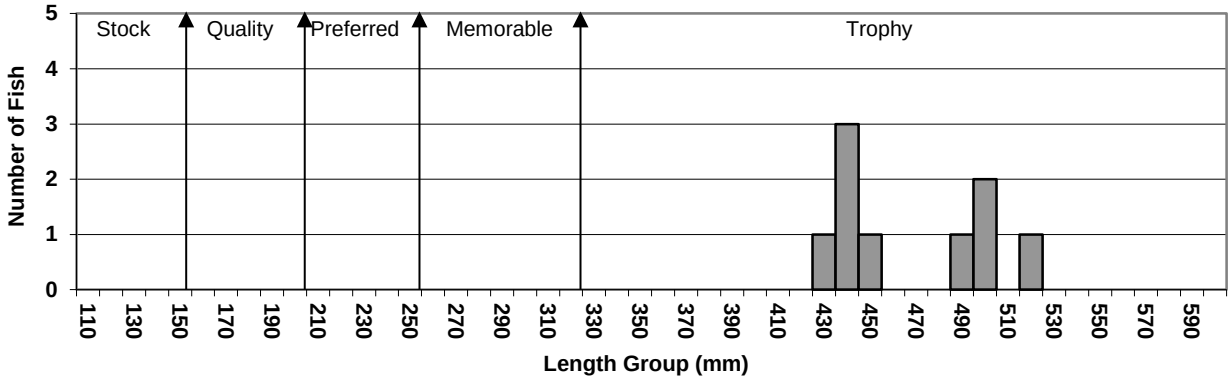


Table 3. Stocking records from 1999 to the present for Corsica Lake, Douglas County.

Year	Number	Species	Size
1999	11,000	Largemouth Bass	Fingerling
2001	652	Largemouth Bass	Adult
2001	11,000	Largemouth Bass	Fingerling
2002	150	Largemouth Bass	Adult
2002	13,360	Largemouth Bass	Fingerling
2003	20,040	Largemouth Bass	Fingerling
2004	100	Largemouth Bass	Juvenile

RECOMMENDATIONS

1. Schedule for manual bullhead removal whenever time permits.

2. Resurvey in 2016 to monitor the fish populations.

3. Stock adult largemouth bass to bolster the current population.

4. Consider another predator for stocking to help the largemouth bass control the black bullhead populations. A predator to consider would be catfish or walleye.

Table 4. Gill net (GN), trap net (TN), and electrofishing (EF) CPUE for all fish species sampled from Corsica Lake since survey records.

Species	1974	1985	1987	1991	1994	1997	2000	2004	2007	2010	2013
BLB (GN)	170.0	--	--	--	--	--	--	--	--	--	--
BLB (TN)	97.0	17.0	31.3	32.5	49.6	658.5	1317.0	78.8	180.0	106.6	240.4
BLC (GN)	--	--	--	--	--	--	--	--	--	--	--
BLC (TN)	--	--	0.4	34.4	37.4	12.6	12.6	36.6	50.0	109.9	0.9
YEP (GN)	25.0	--	--	--	--	--	--	--	--	--	--
YEP (TN)	0.8	0.1	--	0.3	0.4	0.1	--	--	--	0.1	--
LMB (EF)	--	11.0	--	--	--	--	4.0	10.8	--	0.0	--
LMB (GN)	1.0	--	--	--	--	--	--	--	--	--	--
LMB (TN)	0.2	0.5	--	--	0.1	--	--	--	--	--	--
NOP (GN)	8.0	--	--	--	--	--	--	--	--	--	--
NOP (TN)	1.5	4.5	2.8	1.5	11.9	3.5	2.0	0.8	4.7	1.1	1.2
COC (GN)	--	--	--	--	--	--	--	--	--	--	--
COC (TN)	--	3.3	1.3	8.3	2.8	5.3	0.4	0.3	10.5	1.0	0.9
BLG (GN)	--	--	--	--	--	--	--	--	--	--	--
BLG (TN)	1.2	60.0	26.9	0.4	1.5	4.1	9.0	15.9	--	0.7	--
GSF (GN)	--	--	--	--	--	--	--	--	--	--	--
GSF (TN)	--	--	--	--	0.1	--	--	0.2	0.1	--	--
OSF (GN)	--	--	--	--	--	--	--	--	--	--	--
OSF (TN)	--	--	--	--	--	--	--	0.3	0.5	--	--
HYB (GN)	--	--	--	--	--	--	--	--	--	--	--
HYB (TN)	--	--	--	--	--	--	--	0.4	--	--	--

BLB – Black Bullhead, BLC – Black Crappie, YEP – Yellow Perch, LMB – Largemouth Bass, NOP – Northern Pike, COC – Common Carp, BLG – Bluegill, GSF – Green Sunfish, OSF – Orangespotted Sunfish, HYB – Hybrid Sunfish