

BIOLOGICAL DATA

Methods:

Gustafson's Pond was sampled on August 28-29, 2012 with five overnight trap-net sets. The trap nets are constructed with 19-mm-bar-mesh ($\frac{3}{4}$ in) netting, 0.9 m high x 1.5 m wide (3 ft high x 5 ft wide) frames and 18.3 m (60 ft) long leads. The objective of this survey was to determine species composition in the pond and the size distribution of important game species.

Results and Discussion:

Trap Net Catch

Black crappie and bluegill were the most abundant species sampled during the survey (Table 1). Yellow perch, northern pike, white bass and walleye were also sampled.

Table 1. Total catch from five overnight trap net sets at Gustafson's Pond, Brookings County, August 28-29, 2012.

Species	#	%	CPUE	80% C.I.
Black Crappie	76	46.1	15.2	<u>+29.9</u>
Bluegill	73	44.2	14.6	<u>+0.5</u>
Yellow Perch	7	4.2	1.4	<u>+0.3</u>
Northern Pike	7	4.2	1.4	<u>+0.5</u>
White Bass	1	0.6	0.2	<u>+0.5</u>
Walleye	1	0.6	0.2	<u>+0.3</u>

*2012 is the first survey

Discussion

Despite nearly annual stockings of northern pike and white bass since 2009, very few were sampled in the trap nets. Gustafson's Pond receives considerable fishing pressure and it's likely these many of these fish were harvested. However, ice anglers have reported good fishing for northern pike this winter indicating that trap net catches may have underestimated actual abundance. Since no bluegills or black crappies have been stocked in recent years, they are successfully reproducing and their abundance is relatively high due to their small mean size.

MANAGEMENT RECOMMENDATIONS

1. Monitor the Gustafson's Pond fishery by conducting lake surveys every other year with the next occurring in 2014.
2. Stock annually with northern pike and yellow perch.
3. Stock with other species such as channel catfish, white bass, largemouth bass and smallmouth bass if they are easily available.

Table 7. Stocking record for Gustafsons pond, Brookings County, 1995-2012.

Year	Number	Species	Size
1996	5,751	Yellow Perch	Adult
	402	Bluegill	Adult
1997	16,468	Green Sunfish	Adult
	575	Yellow Perch	Adult
	171	Bluegill	Adult
1999	1,795	Hybrid Sunfish	Adult
	1,755	Yellow Perch	Adult
	3,029	Bluegill	Adult
2000	4,412	Green Sunfish	Adult
	500	Yellow Perch	Adult
2001	500	Black Bullhead	Adult
2002	500	Black Bullhead	Adult
	105	Smallmouth Bass	Adult
2003	100	Northern Pike	Adult
2004	50	Northern Pike	Adult
2005	50	Northern Pike	Adult
2007	17	Northern Pike	Adult
	100	Black Crappie	Adult
2008	169	Northern Pike	Adult
2009	96	Northern Pike	Adult
	360	White Bass	Adult
2010	25	Northern Pike	Adult
	290	White Bass	Adult
2012	250	Northern Pike	Adult

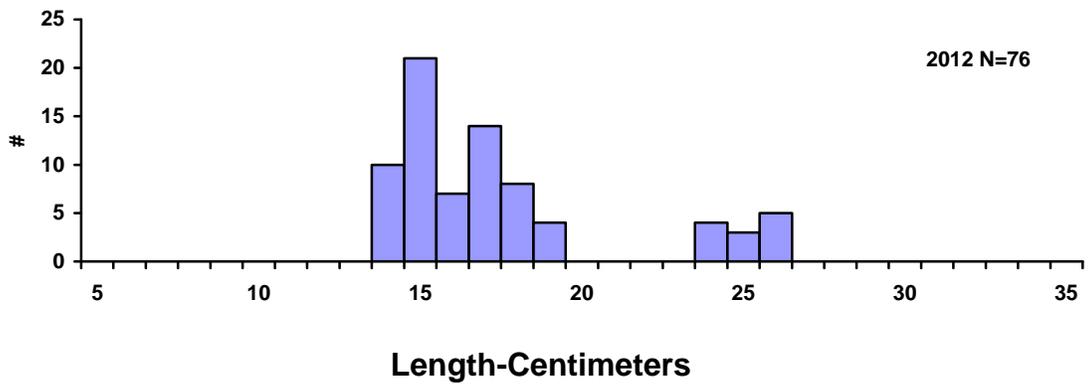


Figure 1. Length frequency histograms for black crappie sampled with trap nets in Gustafsons pond, Brookings County, 2012.

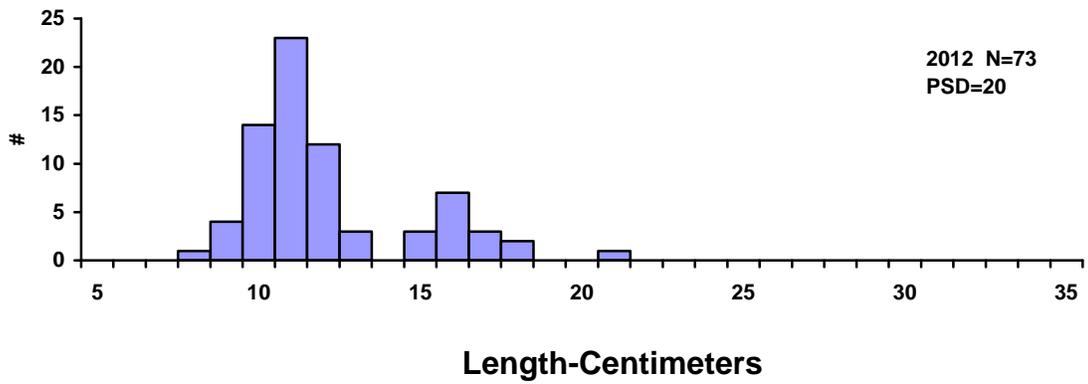


Figure 2. Length frequency histograms for bluegill sampled with trap nets in Gustafsons pond, Brookings County, 2012.

Appendix A. A brief explanation of catch per unit effort (CPUE), proportional stock density (PSD), relative stock density (RSD) and relative weight (Wr).

Catch Per Unit Effort (CPUE) is the catch of animals in numbers or in weight taken by a defined period of effort. Can refer to trap-net nights of effort, gill-net nights of effort, catch per hour of electrofishing, etc.

Proportional Stock Density (PSD) is calculated by the following formula:

$$\text{PSD} = \frac{\text{Number of fish} > \text{quality length}}{\text{Number of fish} \geq \text{stock length}} \times 100$$

Relative Stock Density (RSD-P) is calculated by the following formula:

$$\text{RSD-P} = \frac{\text{Number of fish} > \text{preferred length}}{\text{Number of fish} \geq \text{stock length}} \times 100$$

PSD and RSD-P are unitless and usually calculated to the nearest whole digit.

Size categories for selected species found in Region 3 lake surveys, in centimeters (Inches in parenthesis).

Species	Stock	Quality	Preferred	Memorable	Trophy
Walleye	25 (10)	38 (15)	51 (20)	63 (25)	76 (30)
Yellow perch	13 (5)	20 (8)	25 (10)	30 (12)	38 (15)
Black crappie	13 (5)	20 (8)	25(10)	30 (12)	38 (15)
White crappie	13 (5)	20 (8)	25(10)	30 (12)	38 (15)
Bluegill	8 (3)	15 (6)	20 (8)	25 (10)	30 (12)
Largemouth bass	20 (8)	30 (12)	38 (15)	51 (20)	63 (25)
Smallmouth bass	18 (7)	28 (11)	35(14)	43 (17)	51 (20)
Northern pike	35 (14)	53 (21)	71 (28)	86 (34)	112 (44)
Channel catfish	28 (11)	41 (16)	61 (24)	71 (28)	91 (36)
Black bullhead	15 (6)	23 (9)	30 (12)	38 (15)	46 (18)
Common carp	28 (11)	41 (16)	53 (21)	66 (26)	84 (33)
Bigmouth buffalo	28 (11)	41 (16)	53 (21)	66 (26)	84 (33)

For most fish, 30-60 or 40-70 are typical objective ranges for “balanced” populations. Values less than the objective range indicate a population dominated by small fish while values greater than the objective range indicate a population comprised mainly of large fish.

Relative weight (Wr) is a condition index that quantifies fish condition (i.e., how much does a fish weigh for its length). A Wr range of 90-100 is a typical objective for most fish species. When mean Wr values are well below 100 for a size group, problems may exist in food and feeding relationships. When mean Wr values are well above 100 for a size group, fish may not be making the best use of available prey.