

BIOLOGICAL DATA

Methods:

Interstate Lake was sampled on August 29-30, 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.

Results and Discussion:

Trap Net Catch

Bluegill comprised the majority of the trap net catch followed by northern pike and seven other species (Table 1).

Table 1. Total catch from five overnight trap nets set at Interstate Lake, Brookings County, August 29-30, 2012.

Species	Number	Percent	CPUE ¹	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Bluegill	276	81.7	55.2	<u>+20.8</u>		1	0	80
Northern Pike	30	8.9	6.0	<u>+2.2</u>		28	3	75
White Sucker	16	4.7	3.2	<u>+1.5</u>		100	100	76
Black Crappie	5	1.5	1.0	<u>+0.8</u>		--	--	--
Green Sunfish	4	1.2	0.8	<u>+0.6</u>		--	--	--
European Rudd	3	0.9	0.6	<u>+0.5</u>		--	--	--
White Bass	2	0.6	0.4	<u>+0.5</u>		--	--	--
Yellow Perch	1	0.3	0.2	<u>+0.3</u>		--	--	--
Largemouth Bass	1	0.3	0.2	<u>+0.3</u>		--	--	--

Table 2. Catch per unit effort by length category for various fish species captured with trap nets in Interstate Lake, Brookings County, August 29-30, 2012.

Species	Substock	Stock	S-Q	Q-P	P+	All sizes	80% C.I.
Bluegill	--	55.2	54.8	0.4	--	55.2	<u>+20.8</u>
Northern Pike	0.2	5.8	4.2	1.4	0.2	6.0	<u>+2.2</u>
White Sucker	--	3.2	--	--	3.2	3.2	<u>+1.5</u>
Black Crappie	--	1.0	0.2	0.8	--	1.0	<u>+0.8</u>
Green Sunfish	--	0.8	0.6	0.2	--	0.8	<u>+0.6</u>
Rudd*	--	--	--	--	--	0.6	<u>+0.5</u>
White Bass	--	0.4	--	--	0.4	0.4	<u>+0.5</u>
Yellow Perch	--	0.2	0.2	--	--	0.2	<u>+0.3</u>
Largemouth Bass	0.2	--	--	--	--	0.2	<u>+0.3</u>

*No length categories established. Length categories can be found in Appendix A.

¹ See Appendix A for definitions of CPUE, PSD, and mean Wr.

Discussion

Due to its location on the southeast side of Brookings, Interstate Lake is managed as an urban fishery. Management focus has been the annual spring stocking of adult northern pike (Table 3) and creel survey results have shown this to be popular and well-utilized by anglers. However, this year's high trap-net CPUE of naturally-produced bluegill suggests that the lake's habitat may also be suitable for a self-sustaining largemouth bass fishery.

MANAGEMENT RECOMMENDATIONS

1. Continue to monitor the Interstate Lake fishery by conducting lake surveys every other year with the next occurring in 2014.
2. Continue to stock adult northern pike every spring.
3. Stock juvenile or adult largemouth bass, if available, in an attempt to establish a self-sustaining population.

Table 3. Stocking record for Interstate Lake, Brookings County, 1995-2012.

Year	Number	Species	Size
1995	250	Yellow Perch	Adult
1996	200	Yellow Perch	Adult
1997	625	Walleye	Fingerling
2002	102	Smallmouth Bass	Juvenile
2005	20,060	Largemouth Bass	Fingerling
	519	Northern Pike	Adult
2006	100	Northern Pike	Adult
2007	150	Bluegill	Adult
	290	Northern Pike	Adult
2008	228	Northern Pike	Adult
2009	240	Northern Pike	Adult
2010	89	Northern Pike	Adult
	500	White Bass	Adult
2011	118	Northern Pike	Adult
2012	597	Northern Pike	Adult

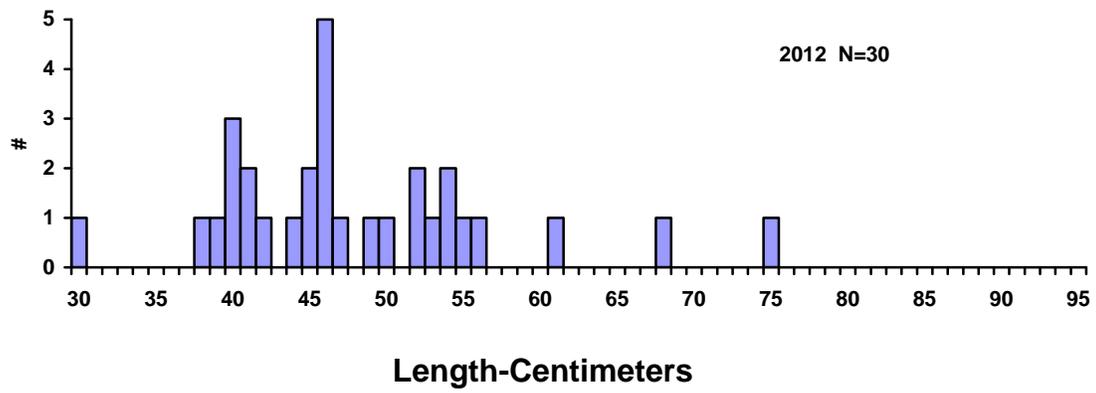


Figure 1. Length frequency histograms for northern pike sampled with trap nets in Interstate Lake, Brookings County, 2012.

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.