SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Scott, Minnehaha County
LBS-Lake-65-000
2017

Lake Information

Name: Scott

County: Minnehaha

Legal Description: T102-R51-Sec. 7-8

Surface Area: 115 Acres

Maximum Depth: 11 Feet

Mean Depth: 4 Feet

Surveys and Investigations

Survey methods used by gear type, date, and effort.

Gear	Date	Effort
AFS std frame net	July 20, 2017	5 net-nights
AFS std gill net	July 27, 2017	4 net-nights

Common Fish Species Present

Yellow Perch

Walleye

Black Bullhead

Black Crappie

Green Sunfish

Pumpkinseed

Northern Pike

Sunfish Hybrid

Orangespotted Sunfish

Bluegill

Terminology

Catch per unit effort (**CPUE**) refers to the relative abundance of a species. It is defined as the number of fish captured per unit of effort (i.e., number of fish captured per net-night or number of fish captured per hour electrofishing). In this report CPUE is typically given for only stock-length fish (see length categories table for stock lengths).

$$CPUE = \frac{number\ of\ fish}{effort}$$

Population size structure is quantified using the indices proportional size distribution of quality-length fish (**PSD**) and proportional size distribution of preferred-length fish (**PSD-P**). These indices indicate the proportion of stock-length fish that are equal to or greater than a given length. Minimum lengths for stock, quality and preferred length fish are given in the length categories table.

$$PSD = \left(\frac{number\ of\ fish \geq quality\ length}{number\ of\ fish \geq stock\ length}\right) \text{x } 100$$

$$PSD - P = \left(\frac{number\ of\ fish\ \geq preferred\ length}{number\ of\ fish \geq stock\ length}\right) \text{x } 100$$

Relative weight (**Wr**) is used to quantify fish plumpness. Relative weight is the ratio of what a fish weighs (W) compared to a length-specific standard weight (Ws) multiplied by 100. Relative weight values of 95-105 are commonly cited as optimum values, but values in the 80s are common during summer sampling in South Dakota.

$$Wr = \left(\frac{W}{Ws}\right) \text{x } 100$$

Confidence intervals (**CI**) are provided for many of the estimates calculated in this report. The confidence interval provides a range in which the true mean is expected to fall. For example, with an 80% CI we are 80% confident that the interval contains the true value.

Length categories include stock (**S**), quality (**Q**), preferred (**P**), memorable (**M**) and trophy (**T**). Length categories for most species have been defined based on a percentage of the world record length for that species. Some species mentioned in this report do not have defined length categories. Length categories for species used in this report are provided in the following table. Measurements are the minimum total length for each category and are reported in inches (in) and centimeters (cm).

	Stock		Quality		Preferred		Memorable		Trophy	
Species Name	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)
Bigmouth Buffalo	11	28	18	46	24	61	30	76	37	94
Black Bullhead	6	15	9	23	12	30	15	38	18	46
Black Crappie	5	13	8	20	10	25	12	30	15	38

	Stock		Quality		Preferred		Memorable		Trophy	
Species Name	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)
Blue Catfish	12	30	20	51	30	76	35	89	45	114
Bluegill	3	8	6	15	8	20	10	25	12	30
Bluegill X Gr. Sunfish Hybrid	3	8	6	15	8	20	10	25	12	30
Brown Bullhead	5	13	8	20	11	28	14	36	17	43
Burbot	8	20	15	38	21	53	26	67	32	82
Channel Catfish	11	28	16	41	24	61	28	71	36	91
Common Carp	11	28	16	41	21	53	26	66	33	84
Flathead Catfish	14	35	20	51	28	71	34	86	40	102
Freshwater Drum	8	20	12	30	15	38	20	51	25	63
Gizzard Shad	7	18	11	28						
Green Sunfish	3	8	6	15	8	20	10	25	12	30
Lake Herring	5	13	8	20	11	28	14	35	17	43
Largemouth Bass	8	20	12	30	15	38	20	51	25	63
Longnose Gar	16	41	27	69	36	91	45	114	55	140
Muskellunge	20	51	30	76	38	97	42	107	50	127
Northern Pike	14	35	21	53	28	71	34	86	44	112
Paddlefish	16	41	26	66	33	84	41	104	51	130
Pumpkinseed	3	8	6	15	8	20	10	25	12	30
Redear Sunfish	4	10	7	18	9	23	11	28	13	33
River Carpsucker	7	18	11	28	14	36	18	46	22	56
Rock Bass	4	10	7	18	9	23	11	28	13	33
Rudd	6	15	10	25	12	30	15	38	19	48
Sauger	8	20	12	30	15	38	20	51	25	63
Saugeye	9	23	14	35	18	46	22	56	27	69
Shorthead Redhorse	6	15	10	25	13	33	16	41	20	51
Smallmouth Bass	7	18	11	28	14	35	17	43	20	51
Smallmouth Buffalo	11	28	18	46	24	61	30	76	37	94
Spotted Bass	7	18	11	28	14	35	17	43	20	51
Striped Bass	12	30	20	51	30	76	35	89	45	114
Striped Bass Hybrid (wiper)	8	20	12	30	15	38	20	51	25	63
Walleye	10	25	15	38	20	51	25	63	30	76
White Bass	6	15	9	23	12	30	15	38	18	46
White Crappie	5	13	8	20	10	25	12	30	15	38
White Perch	5	13	8	20	10	25	12	30	15	38
White Sucker	6	15	10	25	13	33	16	41	20	51
Yellow Bass	4	10	7	18	9	23	11	28	13	33
Yellow Bullhead	4	10	7	18	9	23	11	28	14	36
Yellow Perch	5	13	8	20	10	25	12	30	15	38

Catch Summary of Stock Length Fish

Catch per unit effort (CPUE), proportional size distribution (PSD), proportional size distribution of preferred length fish (PSD-P), and relative weight (Wr) for species sampled in survey with 80% confidence interval (CI-80).

		Abundance		Stock Density Indices				Condition	
Gear	Species	CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
AFS std frame net	Black Bullhead	271.4	153.8	3	1	0			
	Black Crappie	1.6	2.1	63		0		104	2
	Bluegill	0.0	0.0	0		0			
	Green Sunfish	0.8	1.2	0		0			
	Orangespotted Sunfish	0.0	0.0						
	Sunfish Hybrid	0.0	0.0						
	Walleye	0.8	0.6	75		50		80	5
	Yellow Perch	2.0	1.4	50	28	0		91	3
AFS std gill net	Black Bullhead	102.3	20.2	3	1	0			
	Black Crappie	0.5	0.5	100		0		102	1
	Northern Pike	0.3	0.4	100		0		92	
	Pumpkinseed	0.8	1.2	67		0		114	9
	Walleye	7.5	3.3	90		60	14	95	2
	Yellow Perch	5.0	3.1	55	18	5		101	3

10-Year Catch Per Unit Effort by Gear and Species

Catch per unit effort (CPUE) and average (Avg) of species across 10 years using different gear types.

		CPUE										
Gear	Species	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Avg
AFS std frame net	Black Bullhead										271.4	271.4
	Black Crappie										1.6	1.6
	Bluegill										0.0	0.0
	Green Sunfish										0.8	0.8
	Orangespotted Sunfish										0.0	0.0
	Sunfish Hybrid										0.0	0.0
	Walleye										0.8	0.8
	Yellow Perch										2.0	2.0
AFS std gill net	Black Bullhead										102.3	102.3
	Black Crappie										0.5	0.5
	Northern Pike										0.3	0.3
	Pumpkinseed										0.8	0.8
	Walleye										7.5	7.5
	Yellow Perch										5.0	5.0
large frame net	Black Bullhead		104.2		144.0		496.0					248.1
	Black Crappie		6.6									6.6
	Green Sunfish		0.6		0.4							0.5
	Northern Pike		0.2									0.2
	Orangespotted Sunfish		0.0									0.0
	Walleye		7.8									7.8
	Yellow Perch		9.0		26.6		0.4					12.0
std exp gill net	Black Bullhead		0.0		348.3		273.0	217.0	88.7	327.0		209.0
	Black Crappie							0.3	0.7			0.5
	Green Sunfish				0.3							0.3
	Northern Pike				0.3		0.7			0.3		0.4
	Walleye		3.7		1.7		2.7	4.3	5.7			3.6
	Yellow Perch		20.0		17.3		7.7	9.0	26.0	31.7		18.6
std frame net (3/8 inch)	Black Bullhead									448.6		448.6
	Green Sunfish									1.4		1.4
	Yellow Perch									0.6		0.6

10-Year Size Structure and Condition Statistics by Gear and Species

Species proportional size distribution (PSD), proportional size distribution of preferred length fish (PSD-P), and relative weight (Wr) collected by different gear types across 10 years.

			Year									
Gear	Species	Index	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AFS std frame net	Black Crappie	PSD										63
		PSD-P										0
		Wr										104
	Walleye	PSD										75
		PSD-P										50
		Wr										80
	Yellow Perch	PSD										50
		PSD-P										0
		Wr										91
AFS std gill net	Black Crappie	PSD										100
		PSD-P										0
		Wr										102
	Northern Pike	PSD										100
		PSD-P										0
		Wr										92
	Walleye	PSD										90
		PSD-P										60
		Wr										95
	Yellow Perch	PSD										55
		PSD-P										5
		Wr										101
large frame net	Black Crappie	PSD		21								
		PSD-P		0								
		Wr		114								
	Northern Pike	PSD		100								
		PSD-P		100								
		Wr		76								
	Walleye	PSD		95								
		PSD-P		5								
		Wr		88								
	Yellow Perch	PSD		11		20		50				

			Year									
Gear	Species	Index	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
large frame net	Yellow Perch	PSD-P		2		2		0				
		Wr		97		122		109				
std exp gill net	Black Crappie	PSD							0	0		
		PSD-P							0	0		
		Wr							127	115		
	Northern Pike	PSD				100		100			0	
		PSD-P				0		0			0	
		Wr				101		96			97	
	Walleye	PSD		82		20		50	62	88		
		PSD-P		0		0		13	8	0		
		Wr		92		89		92	92	91		
	Yellow Perch	PSD		2		21		43	0	0	2	
		PSD-P		0		0		17	0	0	0	
		Wr		106		107		107	103	104	101	
std frame net (3/8 inch)	Yellow Perch	PSD									0	
		PSD-P									0	
		Wr									106	

Fish Condition

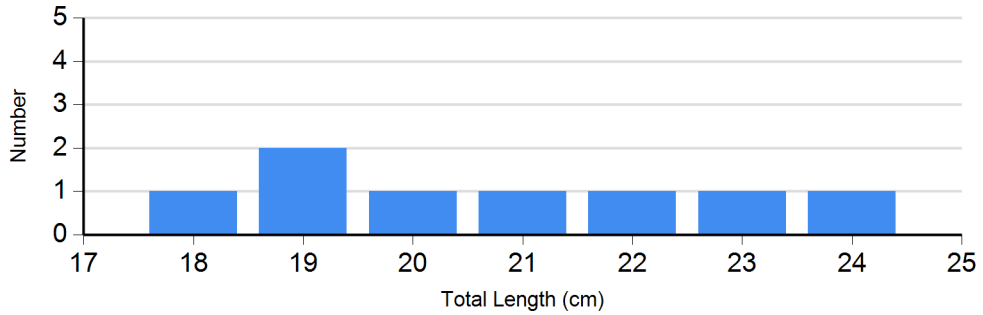
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Crappie Frame Net	2017	3	105 (3.9)	5	103 (1.2)	0		0	
Northern Pike Gill Net	2013	0		2	96 (14.6)	0		0	
	2016	1	97	0		0		0	
	2017	0		1	92	0		0	
Walleye Gill Net	2013	4	86 (3.0)	3	99 (6.0)	0		1	98
	2014	5	92 (2.3)	7	91 (1.5)	1	100	0	
	2015	2	84 (2.0)	15	92 (1.2)	0		0	
	2017	3	81 (1.7)	9	92 (2.6)	16	98 (1.7)	2	108 (10.5)
Yellow Perch Gill Net	2013	13	104 (5.2)	6	111 (2.3)	4	111 (7.0)	0	
	2014	27	103 (1.8)	0		0		0	
	2015	78	104 (0.8)	0		0		0	
	2016	93	101 (1.0)	2	96 (1.3)	0		0	
	2017	9	105 (3.3)	10	98 (2.5)	1	90	0	

Length Frequency Distribution

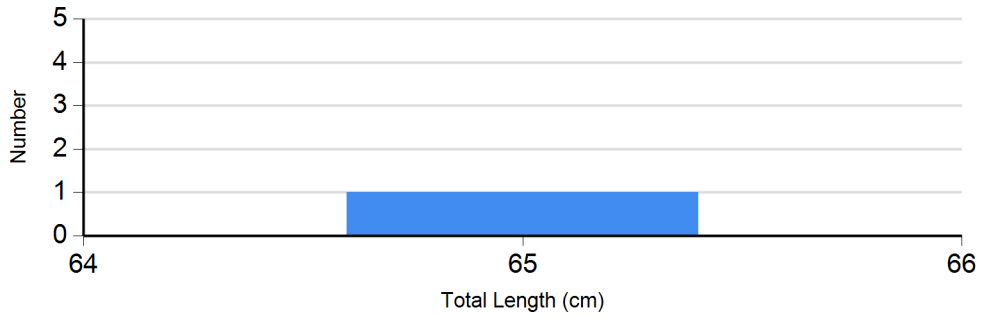
Length frequency histogram of species sampled by year.

Species: Black Crappie
Gear: AFS std frame net



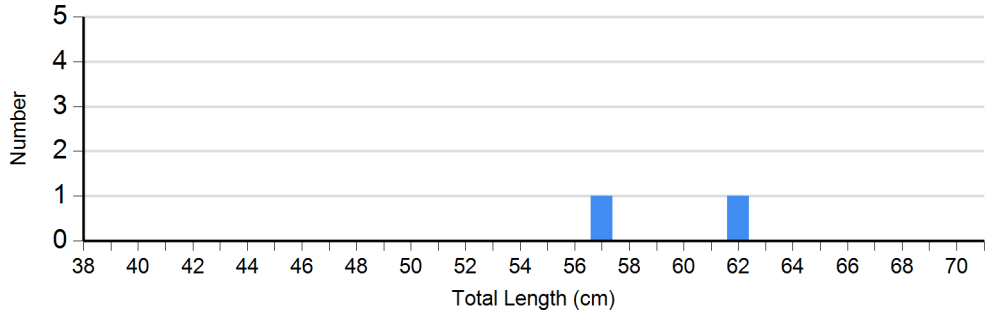
2017

Species: Northern Pike
Gear: AFS std gill net

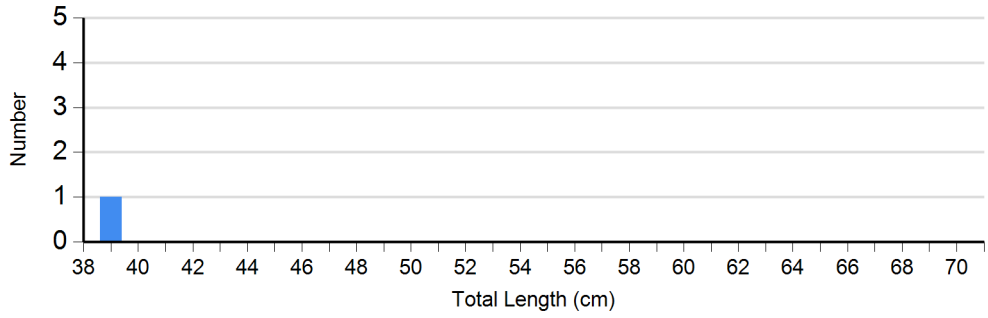


2017

Species: Northern Pike
Gear: std exp gill net

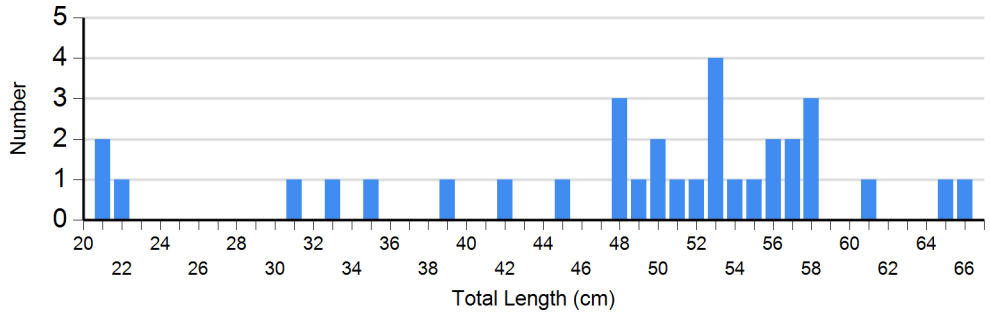


2013



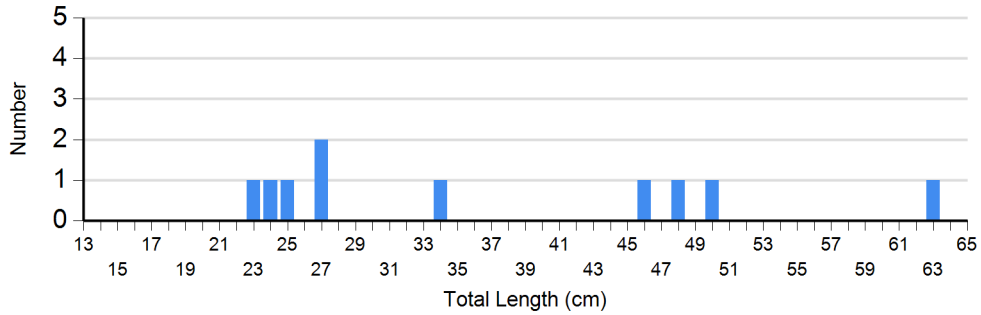
2016

Species: Walleye
Gear: AFS std gill net

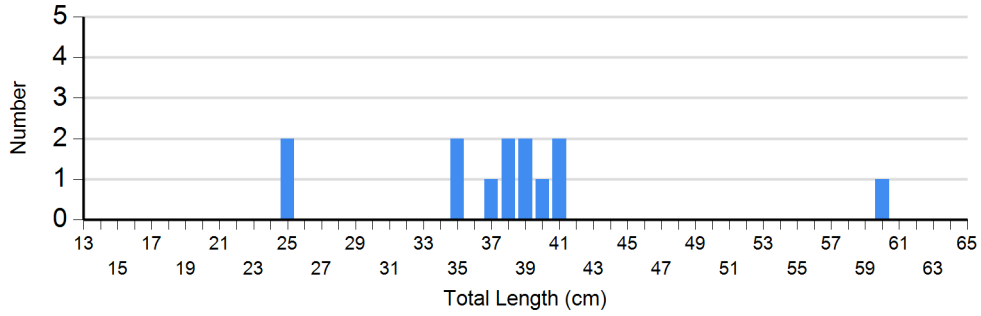


2017

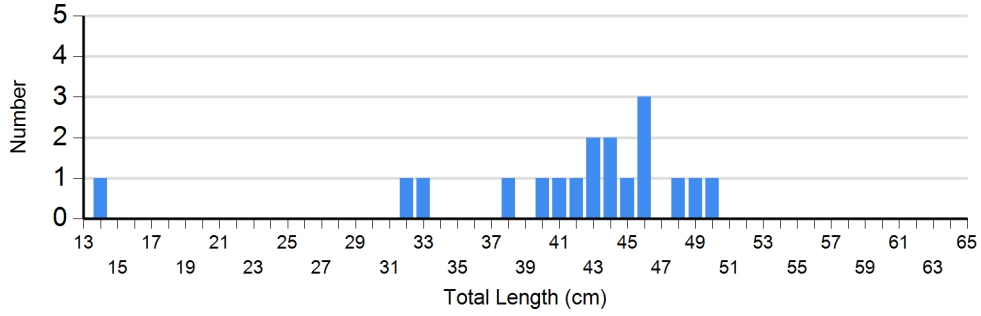
Species: Walleye
Gear: std exp gill net



2013

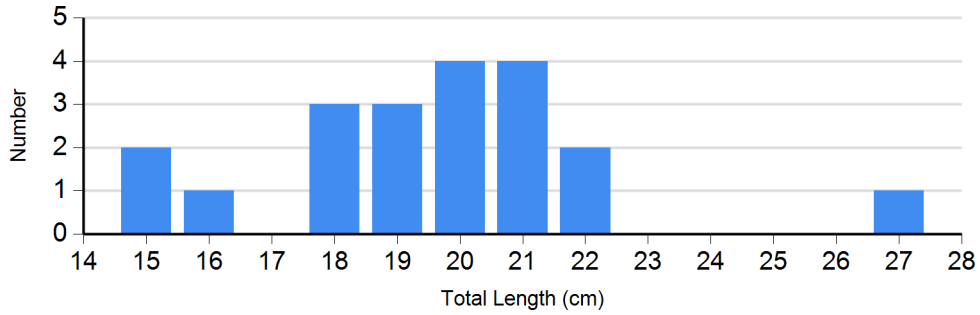


2014



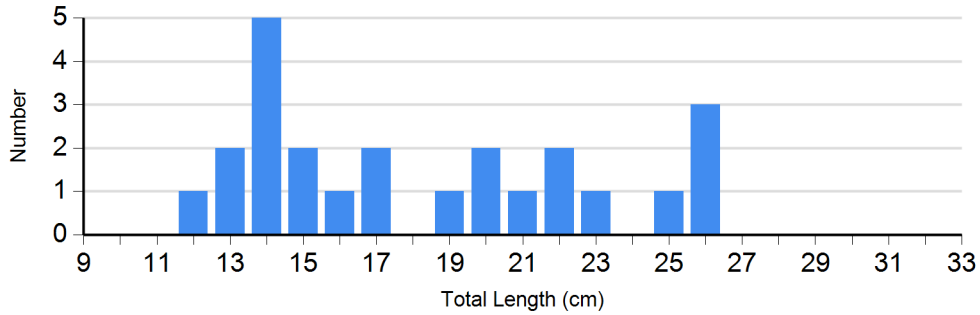
2015

Species: Yellow Perch
Gear: AFS std gill net

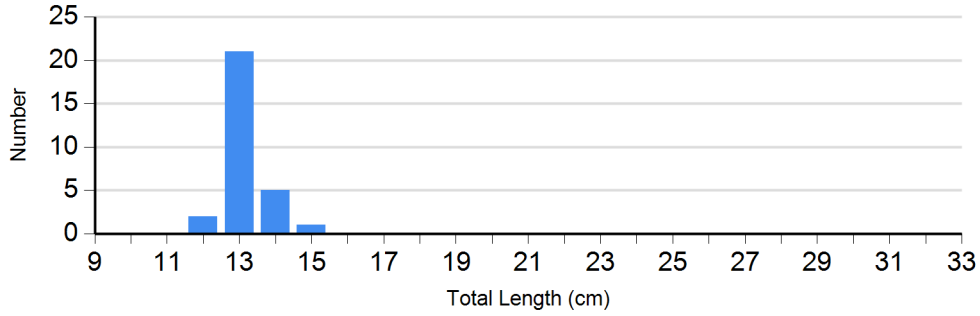


2017

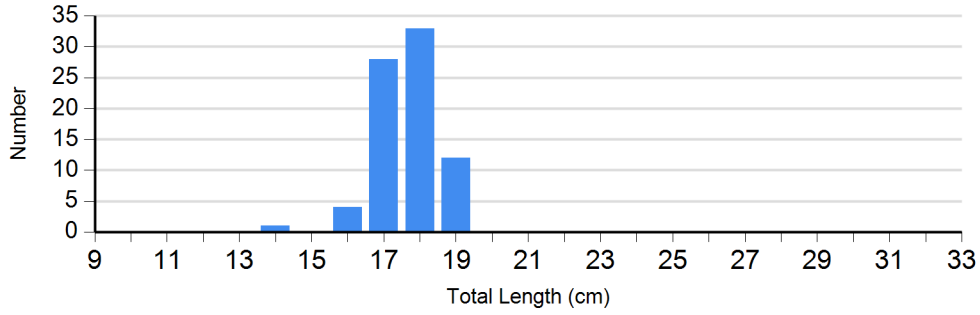
Species: Yellow Perch
Gear: std exp gill net



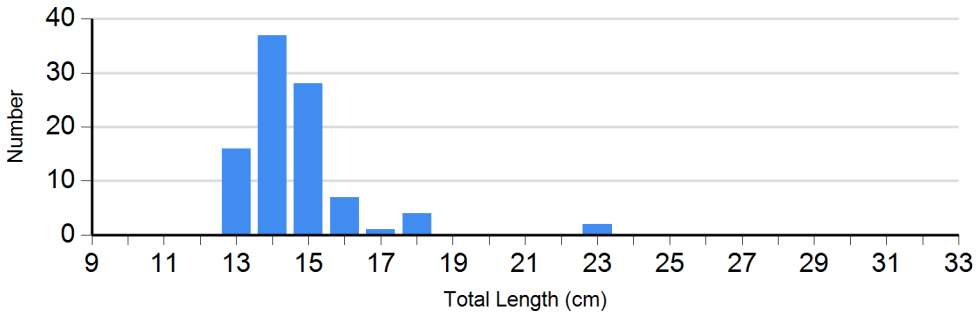
2013



2014



2015

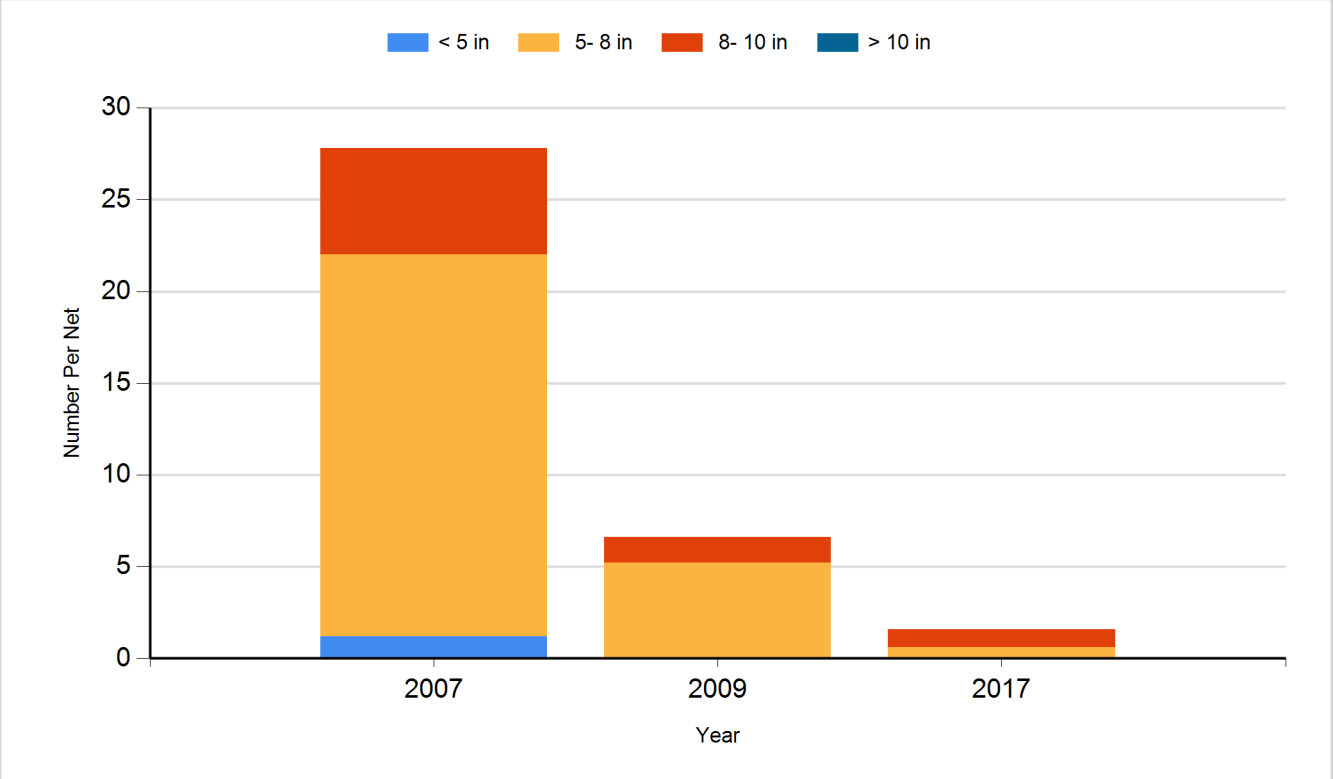

40
30
20
10
0
Number
9
11
13
15
17
19
21
23
25
27
29
31
33
Total Length (cm)

2016

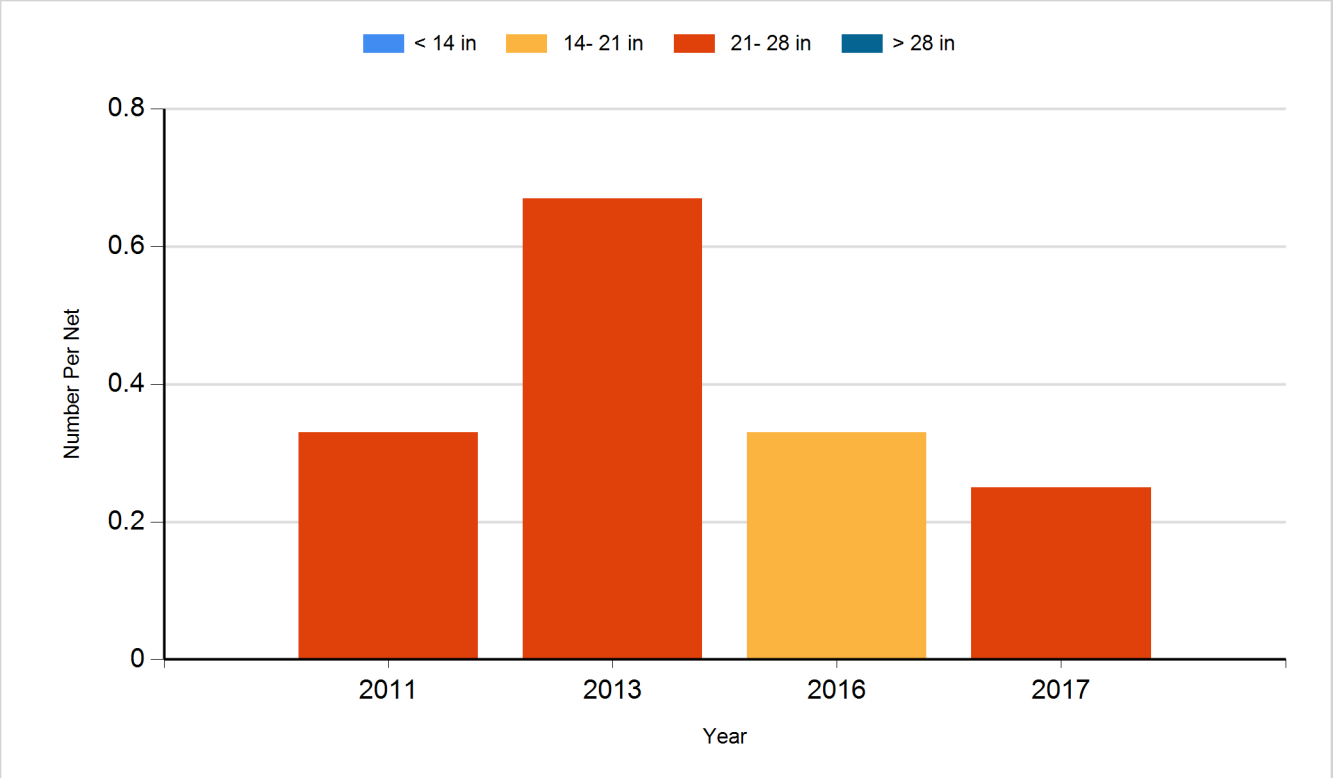
Historic Fish Sizes and Relative Abundance

Size distribution per net by color for species sampled by year.

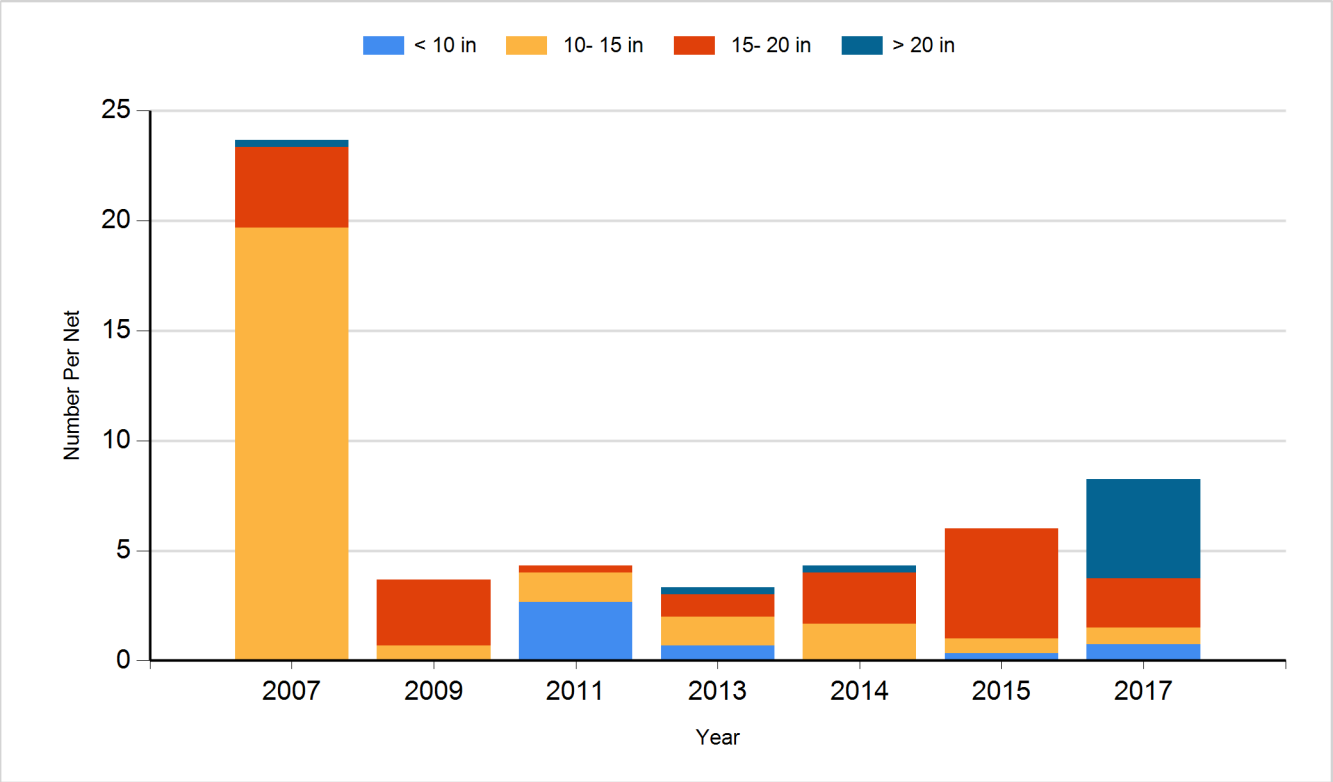
Species: Black Crappie
Gear: Frame Net



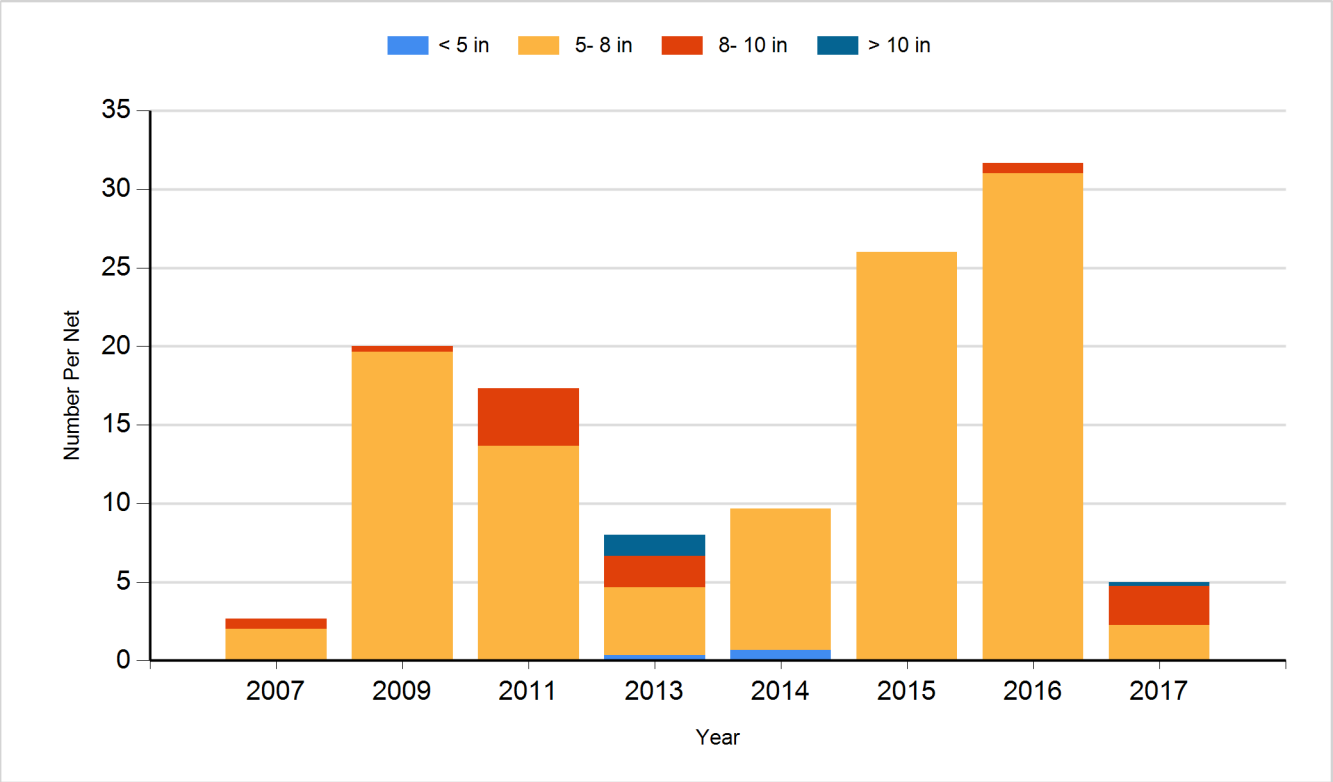
Species: Northern Pike
Gear: Gill Net



Species: Walleye
Gear: Gill Net



Species: Yellow Perch
Gear: Gill Net



Fish Stocking

Number of fish stocked by year, species, and size.

Year	Species	Size	Number
2006	Yellow Perch	Adult	480
2006	Yellow Perch	Juvenile	1,875
2007	Walleye	Juvenile	331
2009	Walleye	Large Fingerling	600
2009	Walleye	Small Fingerling	10,800
2010	Walleye	Adult	235
2010	Walleye	Juvenile	218
2010	Walleye	Small Fingerling	10,800
2010	Yellow Perch	Adult	275
2010	Yellow Perch	Fingerling	41,056
2010	Yellow Perch	Small Fingerling	54,780
2011	Walleye	Small Fingerling	12,480
2011	Yellow Perch	Small Fingerling	57,680
2012	Yellow Perch	Fingerling	96,640
2012	Yellow Perch	Juvenile	19,891
2012	Yellow Perch	Large Fingerling	2,470
2013	Yellow Perch	Adult	3,516
2014	Walleye	Fry	108,000
2014	Yellow Perch	Adult	3,570
2015	Walleye	Juvenile	212
2015	Walleye	Small Fingerling	7,560
2015	Yellow Perch	Adult	6,147
2015	Yellow Perch	Fingerling	11,060
2016	Walleye	Juvenile	1,390
2016	Walleye	Small Fingerling	7,560
2016	Yellow Perch	Adult	2,063
2016	Yellow Perch	Juvenile	3,630
2017	Walleye	Large Fingerling	1,280
2017	Yellow Perch	Adult	11,428