SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Thompson, Kingsbury County
LKT-Lake-55-801
2015

Lake Information

Name:	Thompson	**Maximum Depth:**	26 Feet
County:	Kingsbury	**Mean Depth:**	15 Feet
Legal Description:	T110N-R55W-Sec.20-22, 28-33; T109N-R55W-Sec.4-9, 16-17;		
Surface Area:	14,526 Acres		

Surveys and Investigations

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

Gear	Date	Effort
fall night EF-WAE	September 28, 2015	7200 seconds
std exp gill net	August 04, 2015	4 net-nights
std frame net (3/8 inch)	August 04, 2015	10 net-nights

Common Fish Species Present

Walleye

Yellow Perch

Common Carp

White Bass

Northern Pike

Black Crappie

Black Bullhead

Bigmouth Buffalo

Smallmouth Bass

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
fall night EF-WAE	Walleye	35.5	12.5					83	1
std exp gill net	Black Crappie	2.3	1.2	100		100		101	2
	Common Carp	1.0	0.7	100		75			
	Northern Pike	1.5	0.5	100		33		80	4
	Walleye	20.5	5.9	20	6	5		86	1
	White Bass	6.8	4.7	100		96		93	1
	Yellow Perch	12.8	4.9	82	8	31	10	110	2
std frame net (3/8 inch)	Bigmouth Buffalo	0.3	0.3	67		33			
	Black Bullhead	0.4	0.4	100		25			
	Black Crappie	1.7	1.1	100		88		106	2
	Common Carp	10.0	5.8	95	3	57	7		
	Northern Pike	5.8	1.9	95		31	9	79	2
	Smallmouth Bass	0.1	0.1	0		0		98	
	Walleye	1.0	0.5	60		10		86	4
	White Bass	0.6	0.5	50		17		89	1

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	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Avg
fall night EF-WAE	Walleye	42.5	214.0	13.0	7.5	24.0	186.5	3.5	31.0	40.5	35.5	59.8
large frame net	Bigmouth Buffalo		0.0	0.3	1.8	1.7	0.2	3.5	0.5			1.1
	Black Bullhead	0.7	0.1			0.1	2.6	29.7	4.7			6.3
	Black Crappie	0.8	1.1	1.8	0.1	1.8	50.8	20.4	6.3			10.4
	Bluegill					0.1	0.2	0.3				0.2
	Common Carp	2.7	7.5	7.5	0.6	7.0	10.4	15.9	4.6			7.0
	Northern Pike	0.8	0.5	1.3	1.1	1.4	4.4	13.6	3.4			3.3
	Smallmouth Bass	0.4	0.4	0.3	0.7	0.3	1.0	0.3	0.2			0.5
	Walleye	1.2	3.5	2.9	8.3	9.5	2.4	4.9	3.1			4.5
	White Bass						0.8	2.0	1.0			1.3
	White Sucker			0.3	0.2				0.3			0.3
	Yellow Perch			0.1			0.8	0.2	0.1			0.3
std exp gill net	Bigmouth Buffalo		0.0	1.6	0.2							0.6
	Black Bullhead						0.2			1.2		0.7
	Black Crappie	0.8	0.3		0.2	0.0	20.6	4.7	10.8	1.6	2.3	4.6
	Common Carp	7.3	5.3	3.4	3.0	0.7	5.6	0.7	1.8	1.0	1.0	3.0
	Northern Pike	1.5		0.2	0.4	0.3	2.8	3.3	1.8	4.0	1.5	1.8
	Smallmouth Bass	0.3	0.3									0.3
	Spottail Shiner	0.0	0.0		0.0		0.0	0.0	0.0	0.0		0.0
	Walleye	25.0	22.5	7.4	20.2	37.0	22.2	26.7	15.2	13.4	20.5	21.0
	White Bass	0.0			3.2	0.0	0.6	5.7	4.0	4.6	6.8	3.1
	White Sucker	0.3				0.3				0.2		0.3
	Yellow Perch	3.3	3.0	2.8	3.8	12.0	29.0	18.0	13.0	20.2	12.8	11.8
std frame net (3/8 inch)	Bigmouth Buffalo										0.3	0.3
	Black Bullhead									3.6	0.4	2.0
	Black Crappie									5.6	1.7	3.7
	Common Carp									2.1	10.0	6.1
	Northern Pike									2.5	5.8	4.2
	Smallmouth Bass									0.2	0.1	0.2
	Walleye									1.7	1.0	1.4
	White Bass									0.5	0.6	0.6
	White Sucker									0.6		0.6
	Yellow Perch									0.1		0.1

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	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
fall night EF-WAE	Walleye	Wr	95	101	96	107	91	90	82	81	85	83
large frame net	Black Crappie	PSD	86	100	100	100	100	16	98	100		
		PSD-P	57	92	65	100	95	3	32	93		
		Wr	110	106	103	94	93	124	115	103		
	Northern Pike	PSD	86	100	93	85	67	64	35	76		
		PSD-P	71	60	64	46	33	13	3	14		
		Wr	108	76	75	75	83	87	73	70		
	Walleye	PSD	45	33	22	3	15	59	41	62		
		PSD-P	18	3	3	2	0	3	14	41		
		Wr	89	92	80	84	87	88	81	78		
	Yellow Perch	PSD			100			78	50	100		
		PSD-P			100			56	50	100		
		Wr			116			117	101	103		
std exp gill net	Black Crappie	PSD	0	100		100	0	1	64	100	100	100
		PSD-P	0	100		100	0	0	7	83	100	100
		Wr	151	108		107		123	120	88	107	101
	Northern Pike	PSD	100		100	100	0	21	50	67	80	100
		PSD-P	17		100	100	0	0	0	22	15	33
		Wr	88		86	85	94	87	85	74	83	80
	Walleye	PSD	22	33	27	1	13	41	15	21	22	20
		PSD-P	1	2	3	0	1	1	0	0	0	5
		Wr	88	90	84	87	89	88	85	81	80	86
	Yellow Perch	PSD	100	100	57	95	69	62	80	94	54	82
		PSD-P	54	50	50	11	50	28	20	46	23	31
		Wr	113	122	118	120	113	112	114	105	106	110
std frame net (3/8 inch)	Black Crappie	PSD									91	100
		PSD-P									88	88
		Wr									112	106
	Northern Pike	PSD									80	95
		PSD-P									32	31

			Year									
Gear	Species	Index	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
std frame net (3/8 inch)	Northern Pike	Wr									86	79
	Walleye	PSD									41	60
		PSD-P									18	10
		Wr									84	86
	Yellow Perch	PSD									0	
		PSD-P									0	
		Wr									116	

Length at Capture

Mean length at capture by age across years sampled, sample size (N).

Species: Black Crappie

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2013	69		237 (4)	270 (51)	257 (12)		346 (2)	366 (1)			
2008	20		209 (2)	254 (12)			309 (1)	319 (5)			

Species: Walleye

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2015	129	214 (49)	280 (45)	363 (7)	374 (17)	412 (8)	434 (1)	544 (1)	525 (1)	555 (1)	
2014	93	209 (26)	324 (2)	326 (50)	398 (11)			465 (4)			
2013	83	201 (1)	279 (55)	376 (20)	407 (2)	463 (1)	433 (4)				
2012	109	212 (34)	331 (63)	419 (5)	407 (3)	415 (4)					
2011	142	253 (55)	328 (7)	400 (11)	386 (70)	403 (1)				514 (1)	
2010	114	250 (11)	318 (18)	351 (83)	450 (1)	530 (1)					
2009	109	213 (4)	277 (95)	360 (10)							
2008	64	212 (30)	343 (24)		441 (7)			493 (2)		493 (1)	
2007	91	283 (48)	331 (8)	410 (28)	437 (4)		404 (1)		654 (1)	630 (1)	
2006	100	290 (4)	343 (83)	404 (4)		464 (3)	463 (6)				

Species: Yellow Perch

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2015	51	153 (4)	210 (27)	255 (4)	264 (11)	286 (4)	245 (1)				
2014	102	147 (45)	215 (14)	240 (27)	268 (9)	260 (6)					
2013	65	173 (2)	215 (18)	257 (40)	290 (2)	296 (1)	294 (2)				
2012	54	161 (10)	229 (34)	259 (8)	254 (1)	284 (1)					
2011	145	175 (55)	230 (47)	264 (2)	268 (32)			271 (10)			332 (2)
2010	36	168 (11)		251 (21)	269 (3)	310 (1)					

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2009	19		224 (18)		280 (1)						
2008	14	156 (6)		241 (1)	276 (4)	303 (1)		308 (2)			
2007	12			246 (5)	247 (3)		280 (4)				
2006	13		224 (5)			272 (8)					

Fish Condition

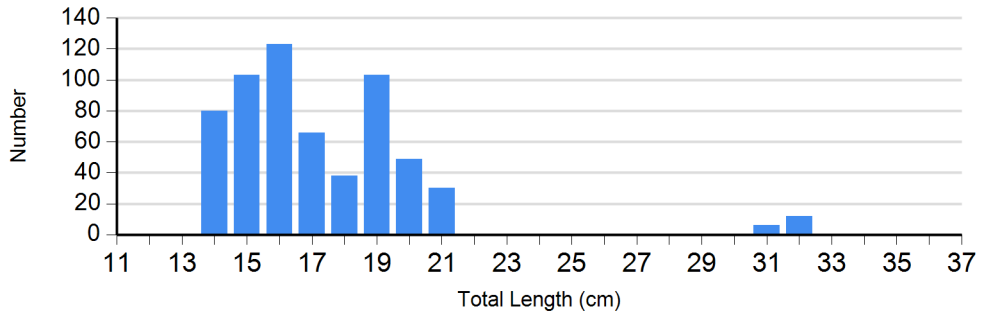
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		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	2011	513	126 (0.9)	79	126 (2.5)	0		18	98 (2.1)
	2012	4		135	116 (0.8)	56	117 (0.8)	9	100 (1.5)
	2013	0		5	107 (3.0)	61	103 (1.2)	3	88 (8.0)
	2014	5	120 (6.6)	2	111 (3.5)	45	112 (1.2)	4	108 (3.6)
	2015	0		2	113 (0.6)	9	108 (1.7)	6	102 (1.2)
Northern Pike Gill Net	2011	11	89 (2.1)	3	81 (1.0)	0		0	
	2012	5	83 (1.9)	5	88 (2.8)	0		0	
	2013	3	72 (4.3)	4	72 (4.3)	2	82 (5.9)	0	
	2014	4	79 (4.2)	13	85 (1.9)	3	80 (7.5)	0	
	2015	0		4	78 (4.4)	2	83 (2.8)	0	
Walleye Gill Net	2011	66	88 (0.9)	44	88 (1.6)	1	95	0	
	2012	68	84 (0.7)	12	88 (2.2)	0		0	
	2013	60	83 (1.4)	16	76 (2.8)	0		0	
	2014	52	79 (0.6)	15	84 (2.0)	0		0	
	2015	66	87 (0.8)	12	83 (1.7)	4	82 (4.1)	0	
Yellow Perch Gill Net	2011	55	108 (2.0)	50	115 (2.4)	35	115 (2.2)	5	110 (3.8)
	2012	11	106 (1.8)	32	116 (1.9)	11	116 (2.2)	0	
	2013	4	119 (6.2)	31	106 (2.7)	29	103 (3.6)	1	82
	2014	46	101 (1.3)	32	113 (1.6)	23	105 (1.7)	0	
	2015	9	112 (3.7)	26	110 (1.8)	16	110 (3.0)	0	

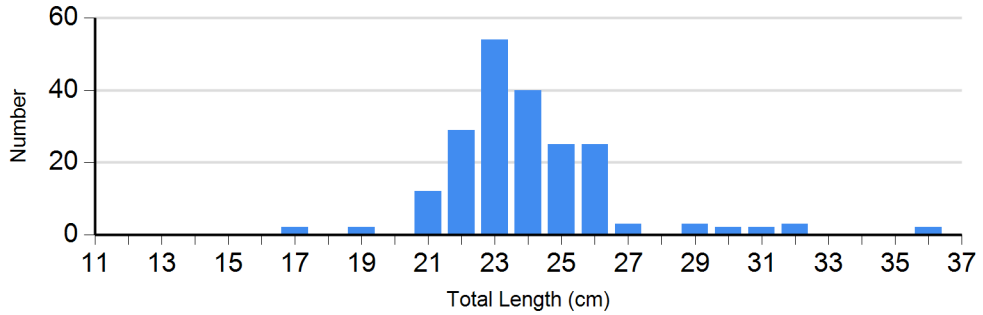
Length Frequency Distribution

Length frequency histogram of species sampled by year.

Species: Black Crappie
Gear: large frame net



2011



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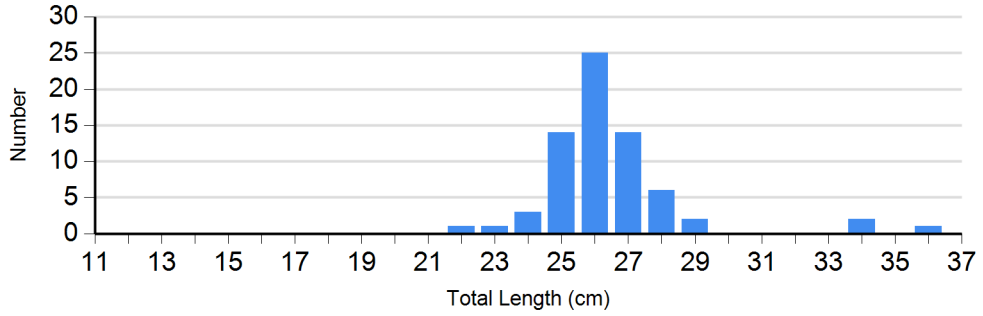

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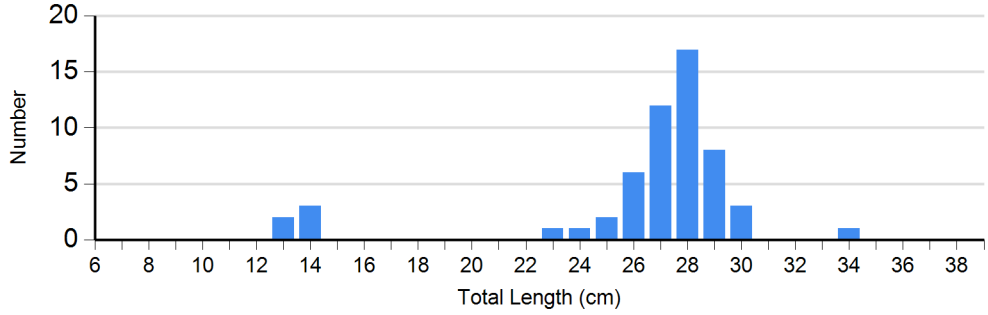
Species: Black Crappie
Gear: std frame net (3/8 inch)



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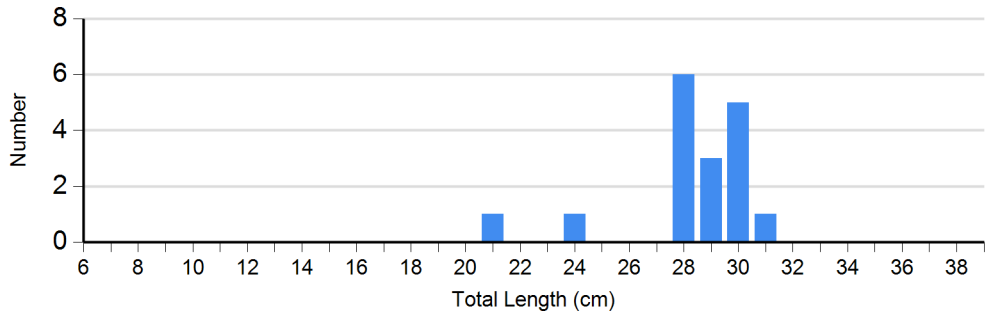

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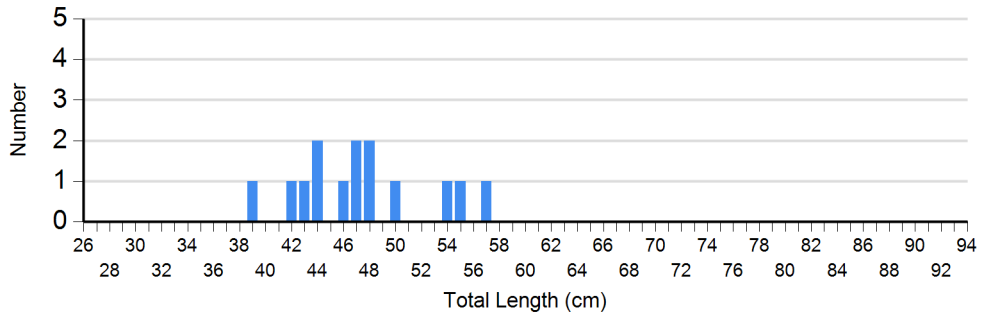
Species: Northern Pike
Gear: std exp gill net



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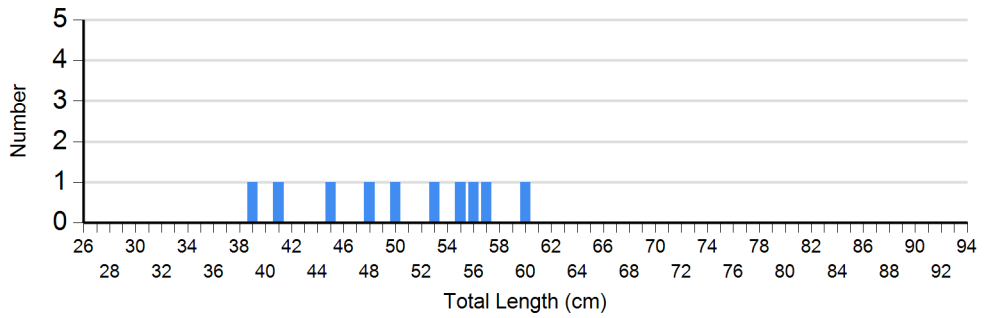

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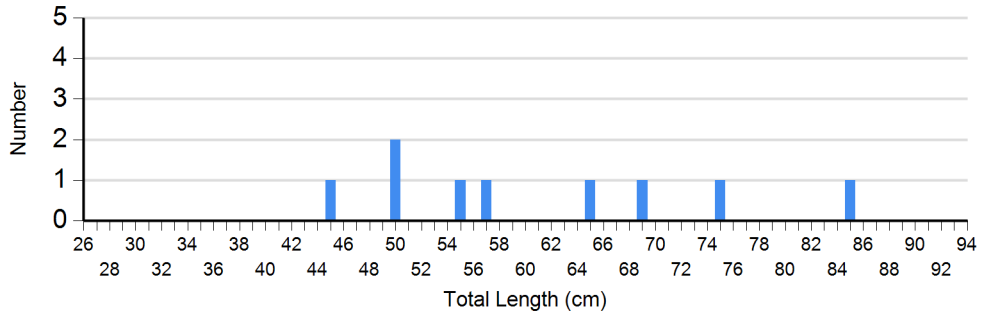

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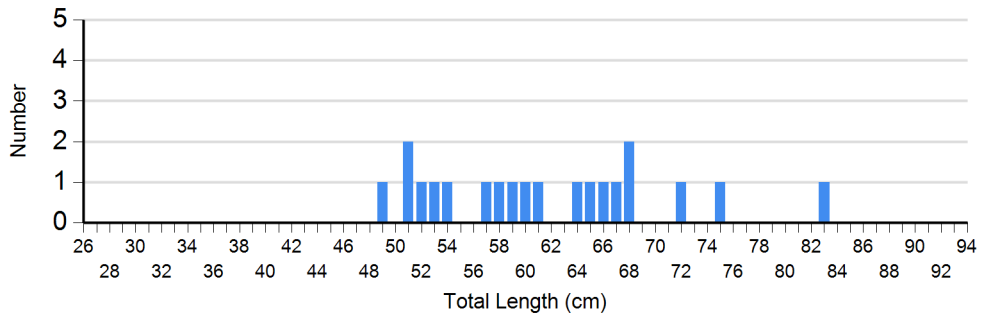
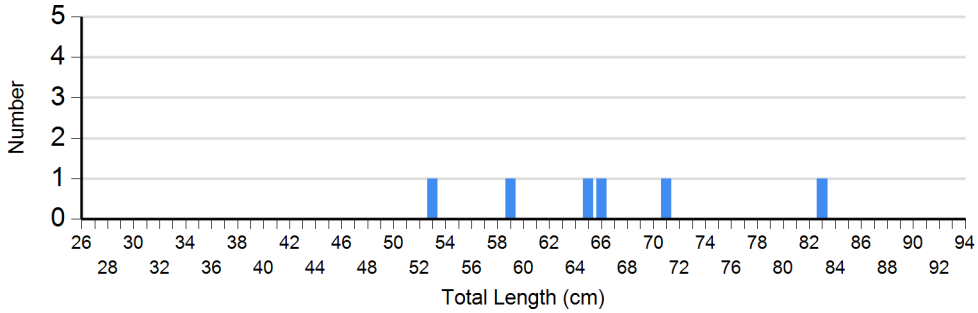


2014



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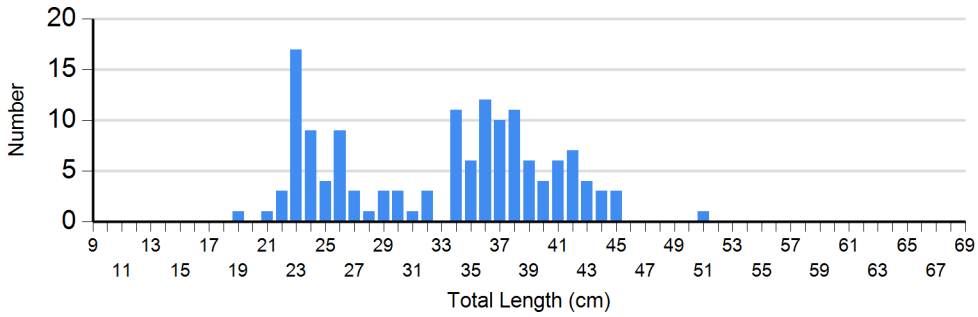
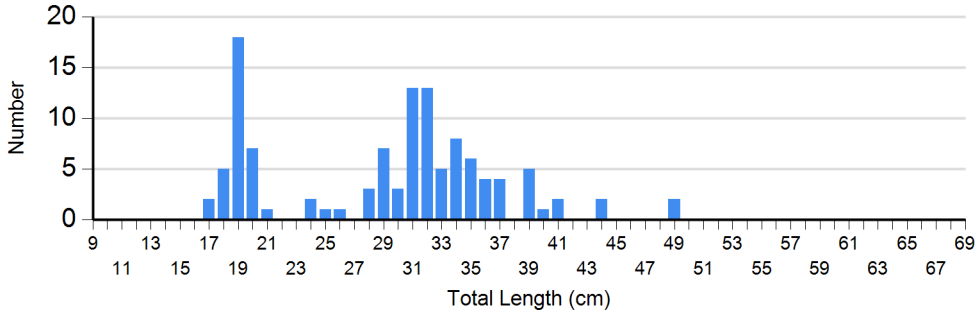
Species: Walleye
Gear: std exp gill net



2011



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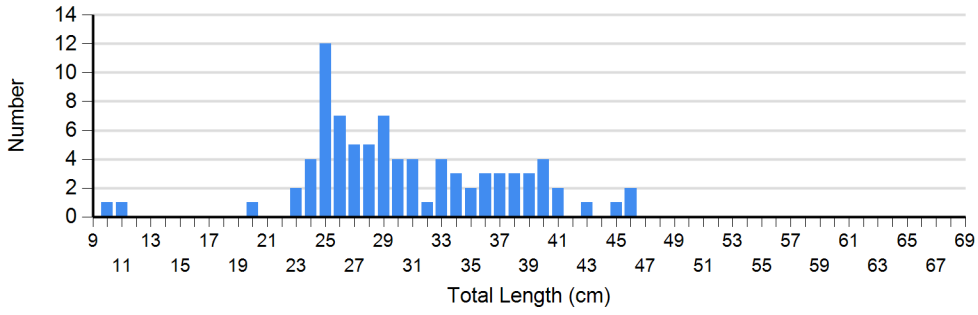
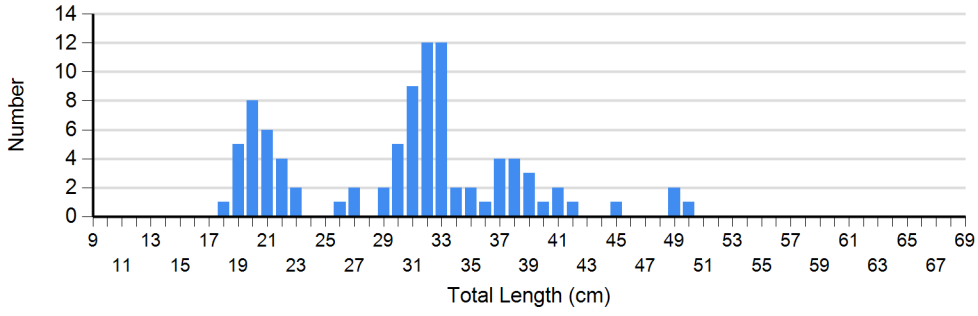
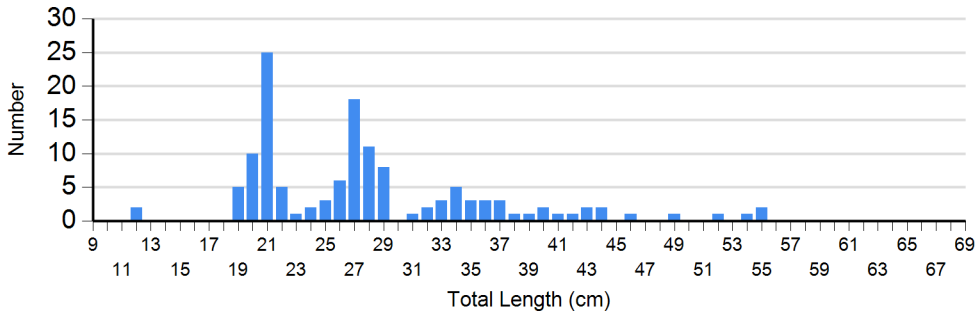


2013

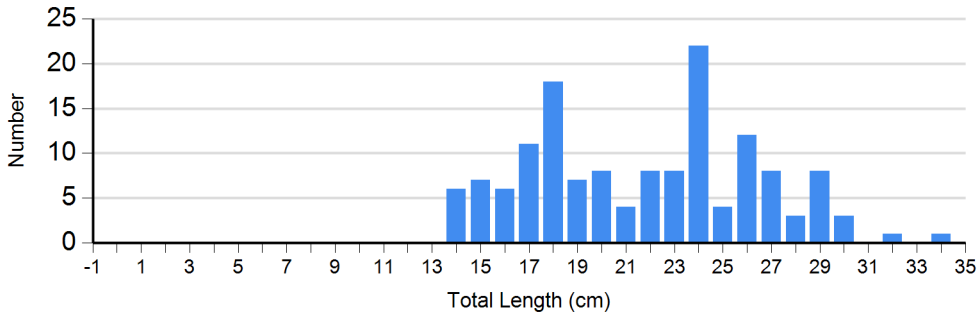


2014

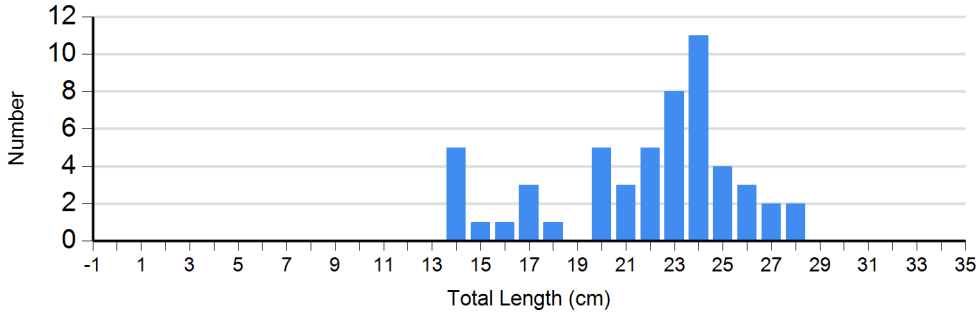


2015

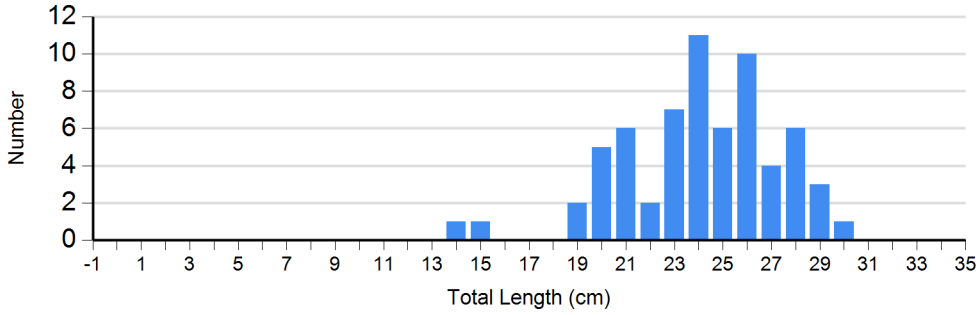
Species: Yellow Perch
Gear: std exp gill net



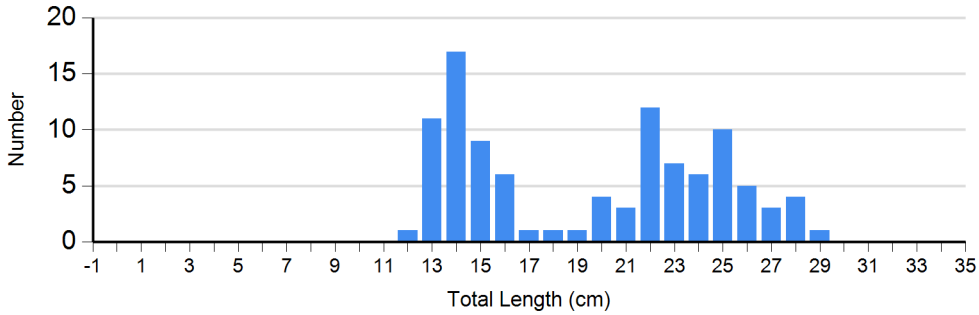
2011



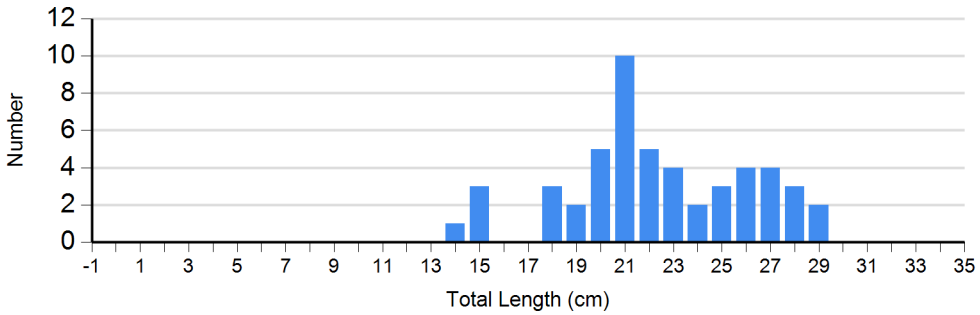
2012



2013



2014

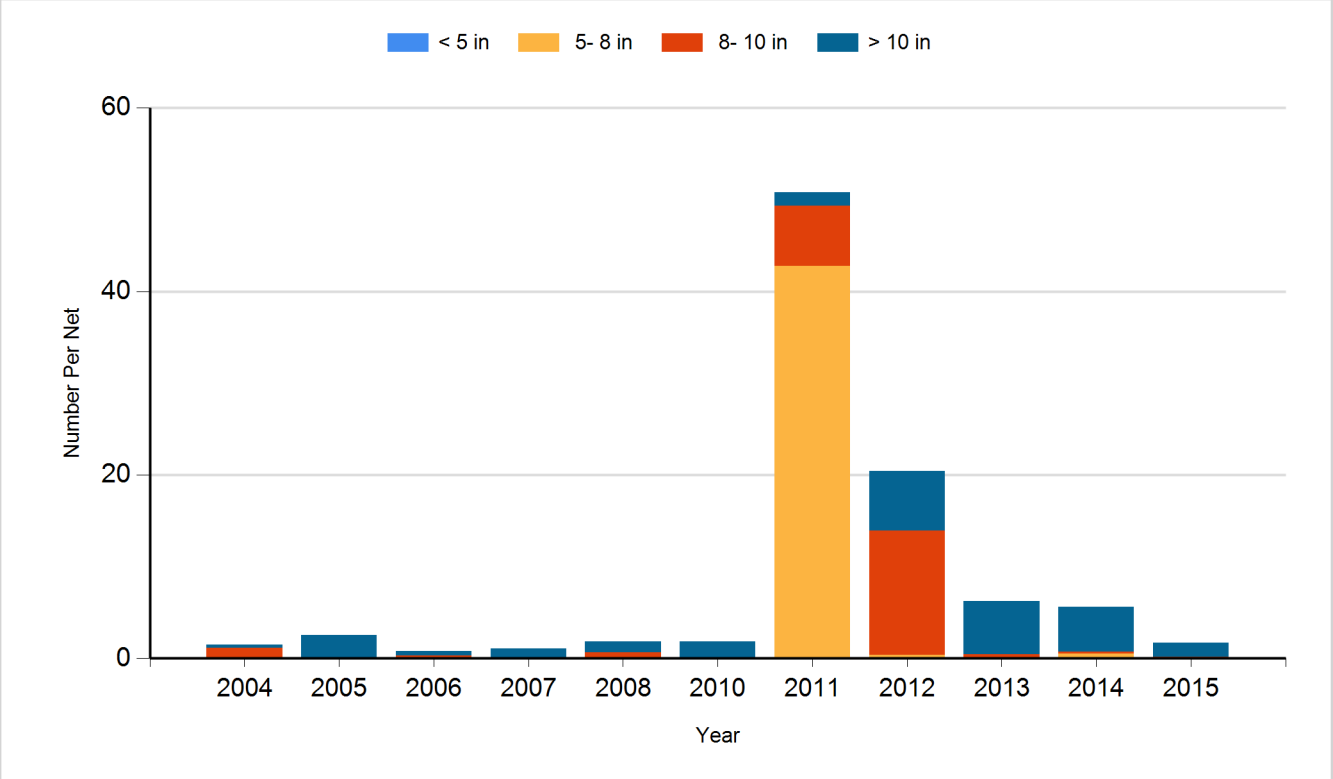

12
10
8
6
4
2
0
Number
-1
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
33
35
Total Length (cm)

2015

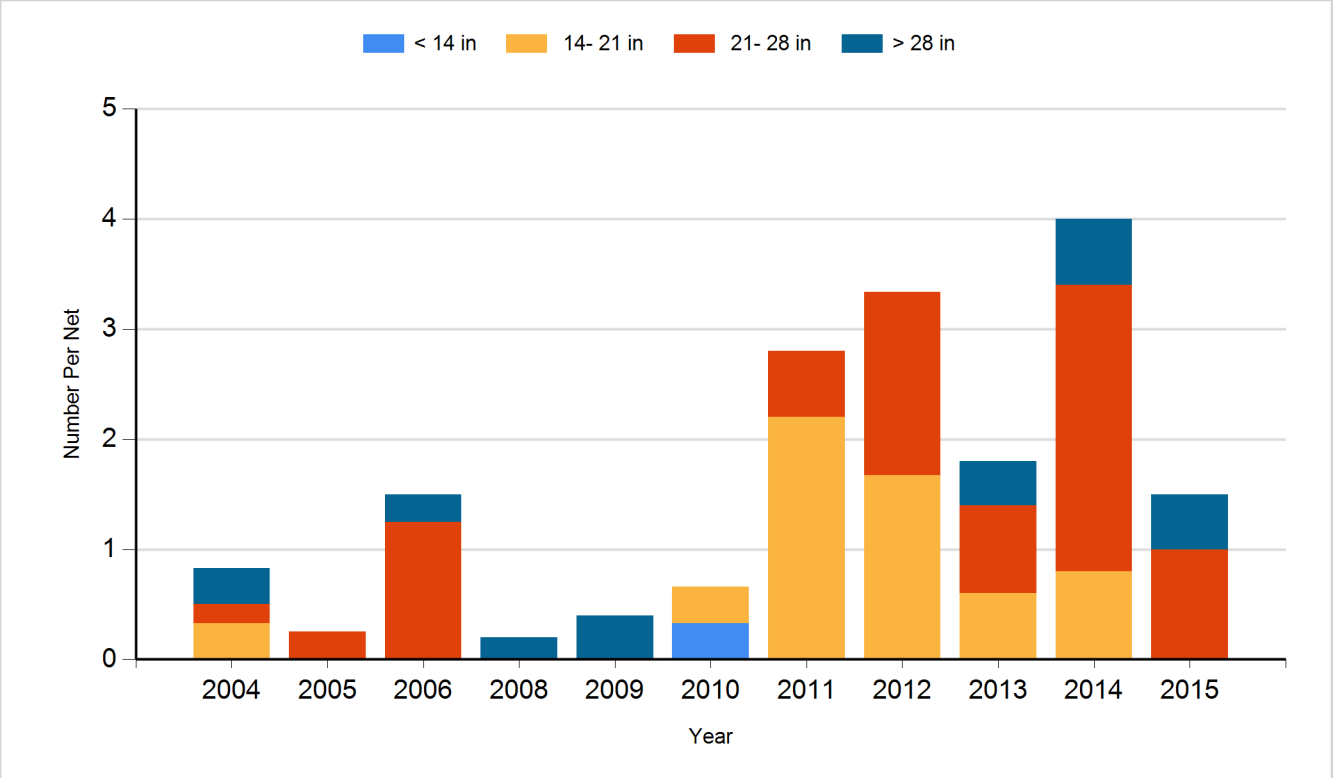
Historic Fish Sizes and Relative Abundance

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

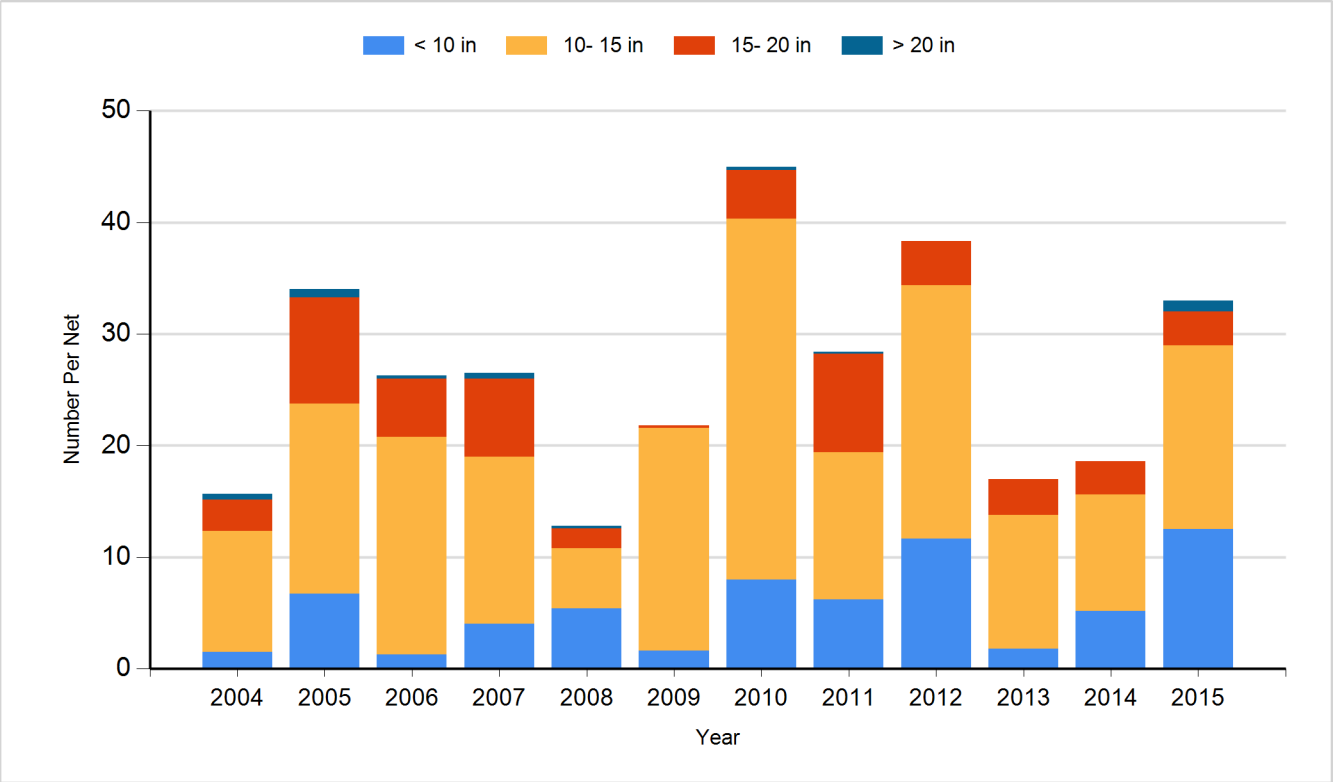
Species: Black Crappie
Gear: Frame Net



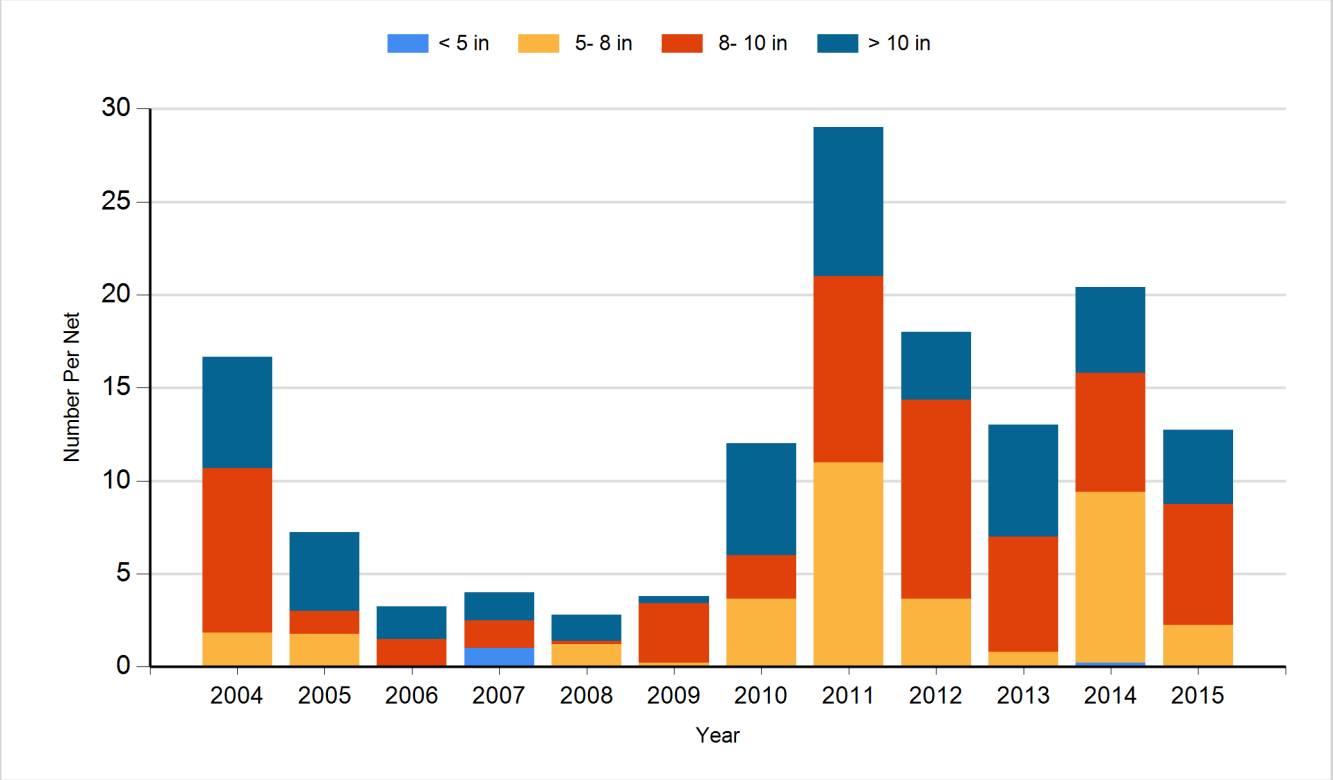
Species: Northern Pike
Gear: Gill Net



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
2004	Walleye	Fry	10,000,000
2006	Walleye	Fingerling	17,935
2006	Walleye	Fry	6,250,000
2011	Walleye	Fry	8,000,000
2014	Walleye	Fry	6,200,000
2015	Walleye	Fry	6,200,000