SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Pocasse, Campbell County
ULO-Lake-302-000
2017

Lake Information

Name: Pocasse

County: Campbell

Legal Description: T128-R78-S9

Surface Area: 1,485 Acres

Maximum Depth: 17 Feet

Mean Depth: 6 Feet

Surveys and Investigations

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

Gear	Date	Effort
AFS std frame net	June 27, 2017	6 net-nights
AFS std frame net	June 28, 2017	6 net-nights
AFS std gill net	June 27, 2017	3 net-nights
AFS std gill net	June 28, 2017	3 net-nights

Common Fish Species Present

Northern Pike

Black Crappie

Walleye

Yellow Perch

Channel Catfish

Bluegill

Black Bullhead

White Bass

Common Carp

Freshwater Drum

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	2.3	0.9	85		78	13	89	2
	Black Crappie	3.6	2.6	84	9	44	11	107	3
	Bluegill	3.3	1.2	46	12	15	9	122	4
	Channel Catfish	0.2	0.2	0		0		94	5
	Common Carp	1.5	0.8	100		100		97	2
	Freshwater Drum	0.2	0.2	100		100		94	11
	Northern Pike	0.8	0.4	100		70		88	3
	River Carpsucker	0.1	0.1	100		100		132	
	Shortnose Gar	0.0	0.0						
	Smallmouth Bass	0.5	0.2	83		50		92	4
	Smallmouth Buffalo	0.1	0.1	100		0		83	
	Walleye	2.3	1.0	63	15	11		87	1
	White Bass	2.1	1.0	84		84		96	5
	White Sucker	0.3	0.3	100		100		95	5
	Yellow Perch	0.1	0.1	0		0		105	
AFS std gill net	Black Bullhead	0.3	0.5	100		100		92	1
	Black Crappie	0.7	0.5	100		50		109	4
	Channel Catfish	5.5	2.1	100		33	13	100	3
	Common Carp	1.0	1.0	100		83		93	4
	Freshwater Drum	0.7	0.3	100		100		104	3
	Northern Pike	0.8	0.5	100		80		86	4
	Walleye	6.5	1.0	74	11	5		86	1
	White Bass	0.8	0.6	100		100		93	2
	White Sucker	0.3	0.5	100		100		104	7
	Yellow Perch	1.5	0.6	100		100		93	5

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										2.3	2.3
	Black Crappie										3.6	3.6
	Bluegill										3.3	3.3
	Channel Catfish										0.2	0.2
	Common Carp										1.5	1.5
	Freshwater Drum										0.2	0.2
	Northern Pike										0.8	0.8
	River Carpsucker										0.1	0.1
	Shortnose Gar										0.0	0.0
	Smallmouth Bass										0.5	0.5
	Smallmouth Buffalo										0.1	0.1
	Walleye										2.3	2.3
	White Bass										2.1	2.1
	White Sucker										0.3	0.3
	Yellow Perch										0.1	0.1
AFS std gill net	Black Bullhead										0.3	0.3
	Black Crappie										0.7	0.7
	Channel Catfish										5.5	5.5
	Common Carp										1.0	1.0
	Freshwater Drum										0.7	0.7
	Northern Pike										0.8	0.8
	Walleye										6.5	6.5
	White Bass										0.8	0.8
	White Sucker										0.3	0.3
	Yellow Perch										1.5	1.5
frame net (std 3/4 in)	Bigmouth Buffalo			0.1	0.1							0.1
	Black Bullhead	5.5		1.3	8.3			8.3				5.9
	Channel Catfish			2.8	8.3			3.1				4.7
	Common Carp	8.6		5.8	1.8			2.5				4.7
	Freshwater Drum			0.1	1.5							0.8
	Northern Pike			1.3	0.2			0.3				0.6
	Orangespotted Sunfish	0.0										0.0
	Shortnose Gar			0.0	0.0			0.0				0.0

		CPUE										
Gear	Species	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Avg
frame net (std 3/4 in)	Smallmouth Bass							0.3				0.3
	Walleye	0.2		1.4	0.3			0.2				0.5
	White Bass				0.2			0.8				0.5
	Yellow Perch			0.1								0.1
std exp gill net	Black Bullhead	4.0		1.0	27.5			0.5				8.3
	Channel Catfish			6.0	2.0							4.0
	Common Carp	18.5		2.0	2.5			13.0				9.0
	Freshwater Drum			1.0	1.5			0.8				1.1
	Northern Pike	0.3		5.5	0.5			4.0				2.6
	Orangespotted Sunfish			0.0				0.0				0.0
	Smallmouth Bass				0.5							0.5
	Walleye	0.5		6.0	1.5			2.8				2.7
	White Bass				0.5							0.5
	Yellow Perch			4.0	4.0			0.3				2.8

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										84
		PSD-P										44
		Wr										107
	Northern Pike	PSD										100
		PSD-P										70
		Wr										88
	Walleye	PSD										63
		PSD-P										11
		Wr										87
	Yellow Perch	PSD										0
		PSD-P										0
		Wr										105
AFS std gill net	Black Crappie	PSD										100
		PSD-P										50
		Wr										109
	Northern Pike	PSD										100
		PSD-P										80
		Wr										86
	Walleye	PSD										74
		PSD-P										5
		Wr										86
	Yellow Perch	PSD										100
		PSD-P										100
		Wr										93
frame net (std 3/4 in)	Northern Pike	PSD			0	100			100			
		PSD-P			0	0			67			
		Wr			97	76			86			
	Walleye	PSD	0		18	75			100			
		PSD-P	0		0	0			0			
		Wr	91		94	83			88			
	Yellow Perch	PSD			0							

			Year									
Gear	Species	Index	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
frame net (std 3/4 in)	Yellow Perch	PSD-P			0							
		Wr			103							
std exp gill net	Northern Pike	PSD	0		55	100			100			
		PSD-P	0		0	0			75			
		Wr	83		100	83			92			
	Walleye	PSD	0		42	100			100			
		PSD-P	0		0	0			18			
		Wr	85		93	91			94			
	Yellow Perch	PSD			0	38			100			
		PSD-P			0	0			0			
		Wr			101	93			93			

Back-Calculated Lengths

Mean species back-calculated total length (mm) at age, standard error (SE), and sample size (N).

Species: Black Crappie

Year Class	Age	N	Mean back-calculated length (SE) at age									
			1	2	3	4	5	6	7	8	9	10
2016	1	1	78									
2016	1	16	90 (3.2)									
2015	2	8	94 (5.7)	180 (6.5)								
2014	3	2	81 (9.3)	172 (3.7)	236 (7.4)							
2014	3	14	93 (3.3)	186 (4.1)	241 (2.5)							
2013	4	1	105	197	255	300						
2013	4	11	100 (1.8)	197 (3.7)	246 (3.5)	283 (3.2)						
2011	6	3	83 (2)	194 (1.5)	250 (4.4)	282 (7.1)	302 (6.5)	320 (5.2)				
Weighted Mean		56	93	188	244	284	302	320				

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2016	1	1										
2016	1	16										
2015	2	8										
2014	3	2										
2014	3	14										
2013	4	1										
2013	4	11										
2011	6	3										
Weighted Mean		56										

Species: Walleye

Mean back-calculated length (SE) at age

Year Class	Age	N	1	2	3	4	5	6	7	8	9	10
2016	1	1	163									
2015	2	8	155 (7.5)	304 (7)								
2015	2	9	144 (6)	296 (3.7)								
2014	3	13	175 (5.2)	302 (4.3)	396 (4.6)							
2014	3	27	159 (2.4)	290 (2.4)	390 (3.1)							
2013	4	1	180	321	415	461						
2013	4	1	231	322	396	457						
2012	5	1	229	362	422	447	510					
2011	6	2	206 (6.2)	318 (24.1)	408 (2.5)	461 (1.6)	488 (6.7)	509 (11.2)				
2011	6	2	216 (20.5)	349 (6.4)	409 (24.4)	459 (20.2)	480 (24)	500 (12.5)				
2010	7	1	215	377	409	446	463	476	495			
2009	8	1	215	395	467	508	531	565	589	604		
Weighted Mean		67	167	302	396	462	491	510	542	604		

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2016	1	1										
2015	2	8										
2015	2	9										
2014	3	13										
2014	3	27										
2013	4	1										
2013	4	1										
2012	5	1										
2011	6	2										
2011	6	2										

2010	7	1
2009	8	1
Weighted Mean		67

Species: Yellow Perch

			Mean back-calculated length (SE) at age									
Year Class	Age	N	1	2	3	4	5	6	7	8	9	10
2016	1	2	98 (6.3)									
2014	3	6	103 (2.3)	184 (5.4)	249 (2.4)							
2011	6	2	105 (.8)	172 (19.3)	237 (17.5)	273 (14.9)	293 (10.6)	306 (5.8)				
Weighted Mean		10	102	181	246	273	293	306				

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2016	1	2										
2014	3	6										
2011	6	2										
Weighted Mean		10										

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+
2017	56	116 (16)	198 (8)	248 (18)	287 (11)		324 (3)				

Species: Walleye

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2017	40	196 (1)	321 (8)	400 (27)	475 (1)		537 (2)	501 (1)			
2014	24	247 (2)		423 (10)	488 (4)	512 (6)		497 (2)			
2010	24		320 (14)	407 (10)							
2008	78	209 (78)									

Species: Yellow Perch

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2017	9			266 (7)			311 (2)				
2011	16		196 (16)								
2010	20	138 (20)									

Fish Condition

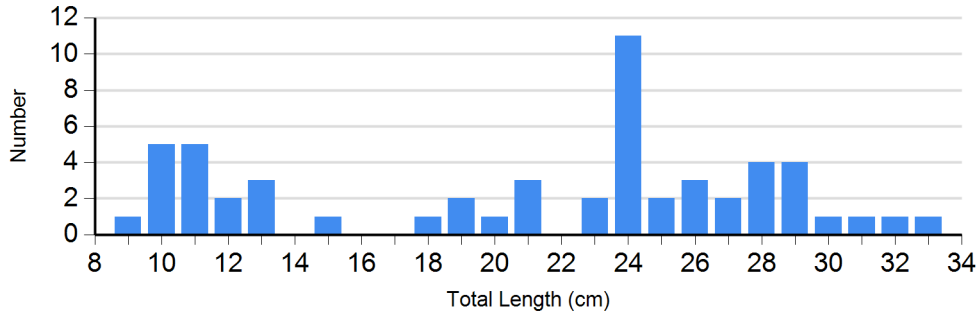
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		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	7	126 (13.1)	17	106 (1.3)	15	102 (1.8)	4	101 (5.8)
Northern Pike Gill Net	2014	0		8	90 (1.1)	22	92 (1.2)	2	95 (0.0)
	2017	0		1	77	3	87 (3.0)	1	90
Walleye Gill Net	2014	0		18	94 (1.1)	4	94 (2.3)	0	
	2017	10	84 (1.0)	27	87 (0.9)	2	91 (1.2)	0	
Yellow Perch Gill Net	2014	0		2	93 (0.0)	0		0	
	2017	0		0		7	95 (4.4)	2	85 (5.1)

Length Frequency Distribution

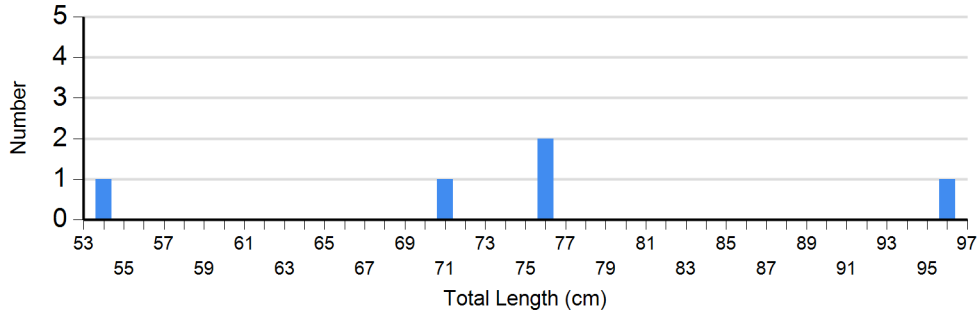
Length frequency histogram of species sampled by year.

Species: Black Crappie
Gear: AFS std frame net



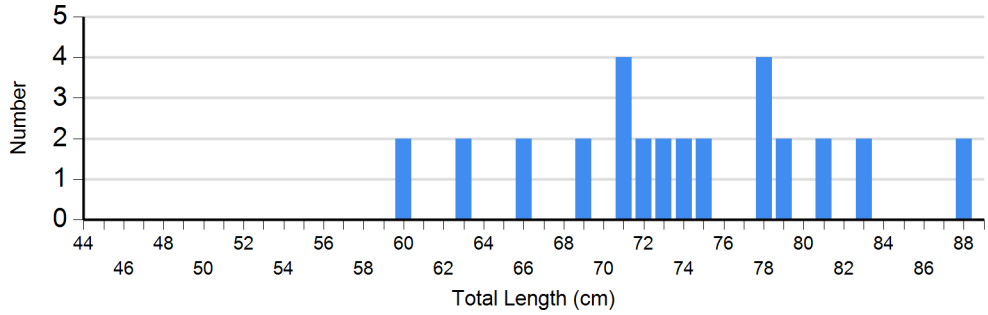
2017

Species: Northern Pike
Gear: AFS std gill net



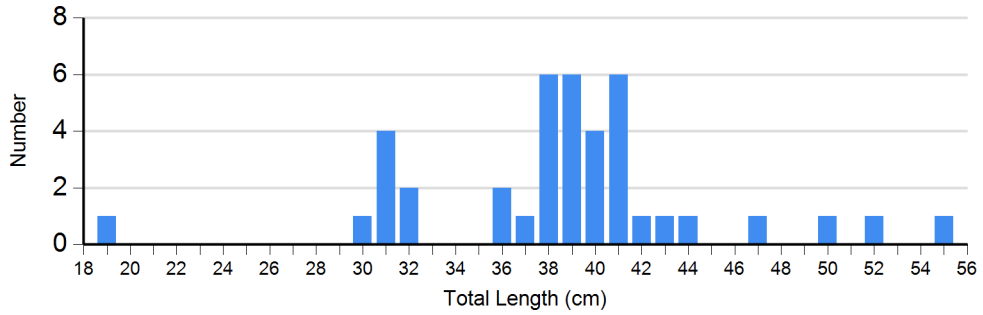
2017

Species: Northern Pike
Gear: std exp gill net



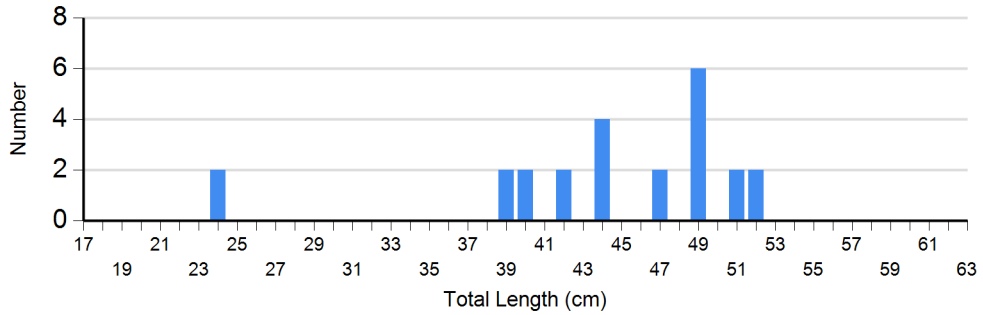
2014

Species: Walleye
Gear: AFS std gill net



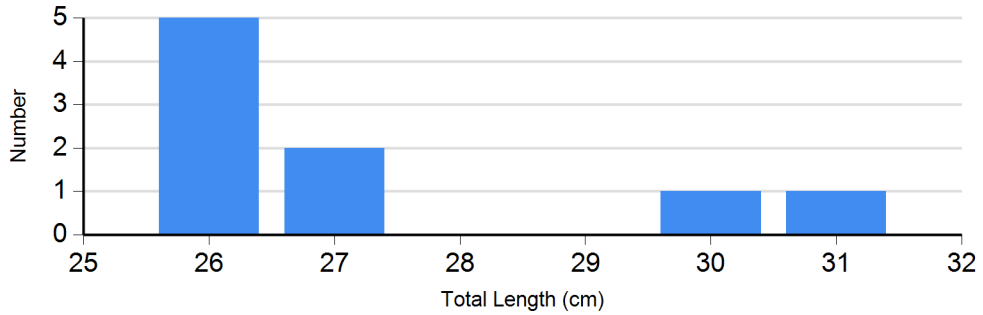
2017

Species: Walleye
Gear: std exp gill net



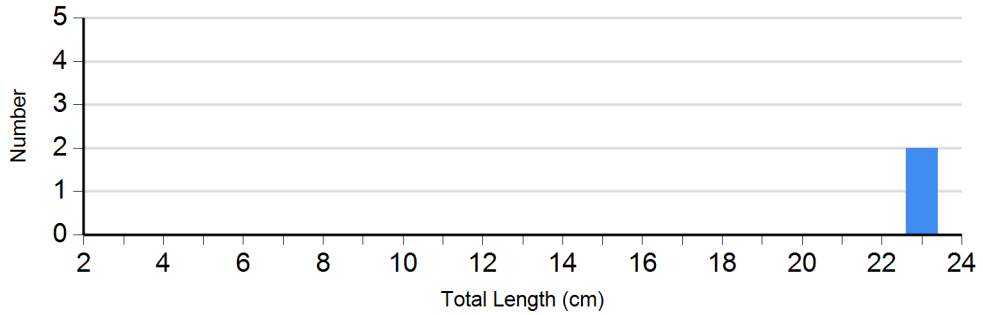
2014

Species: Yellow Perch
Gear: AFS std gill net



2017

Species: Yellow Perch
Gear: std exp gill net

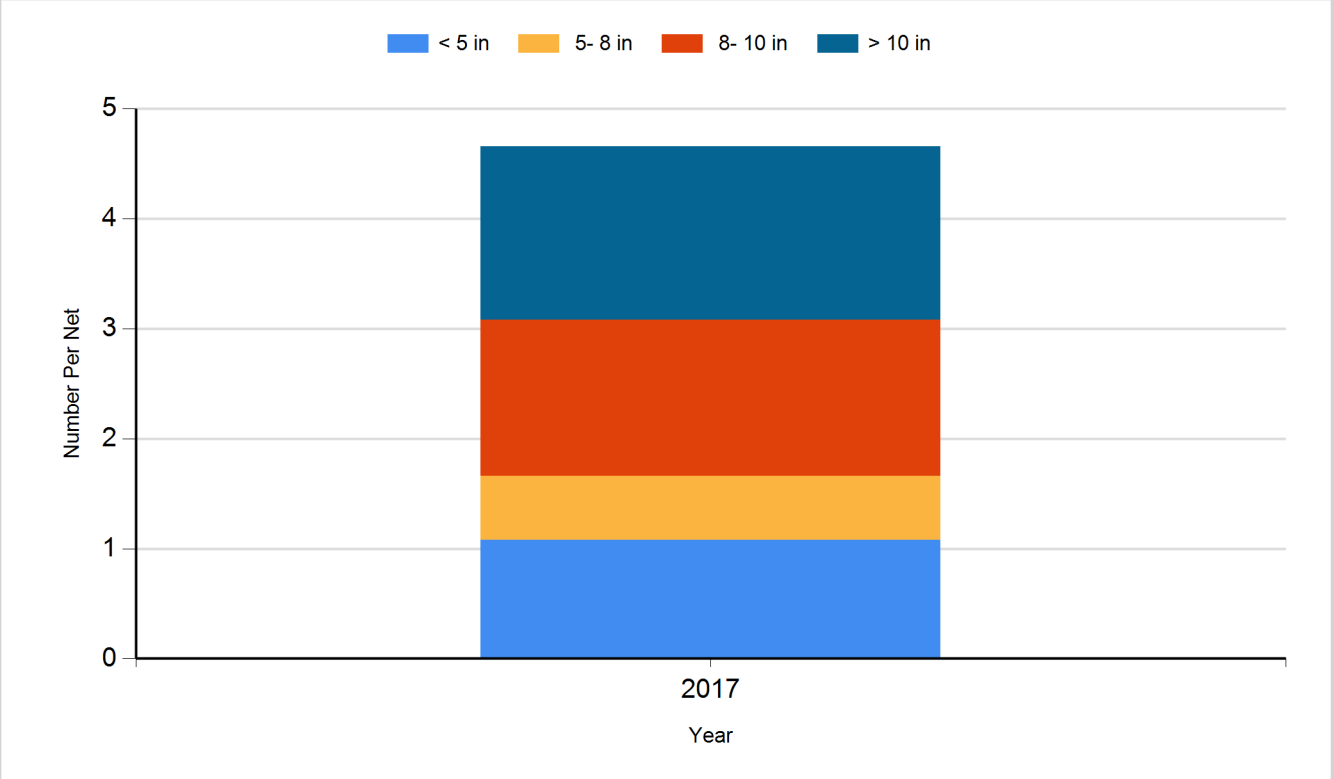


2014

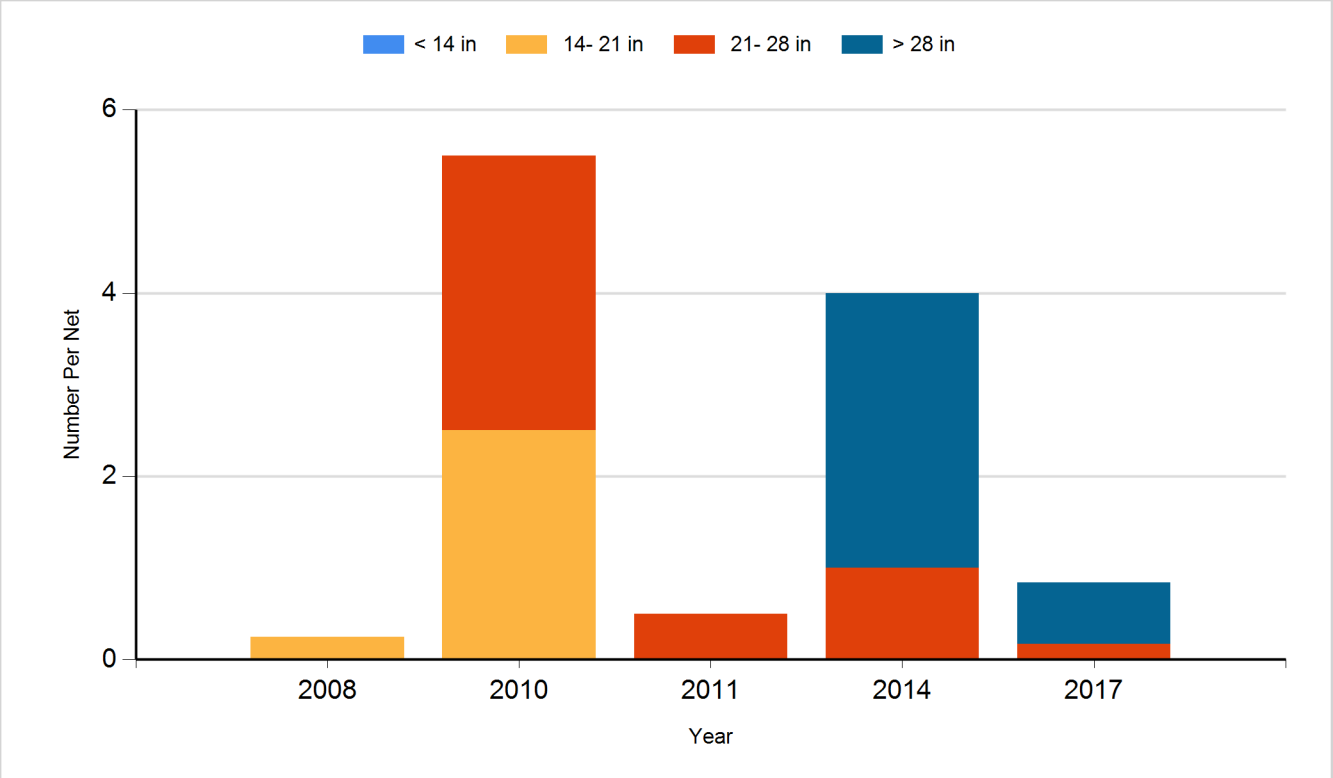
Historic Fish Sizes and Relative Abundance

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

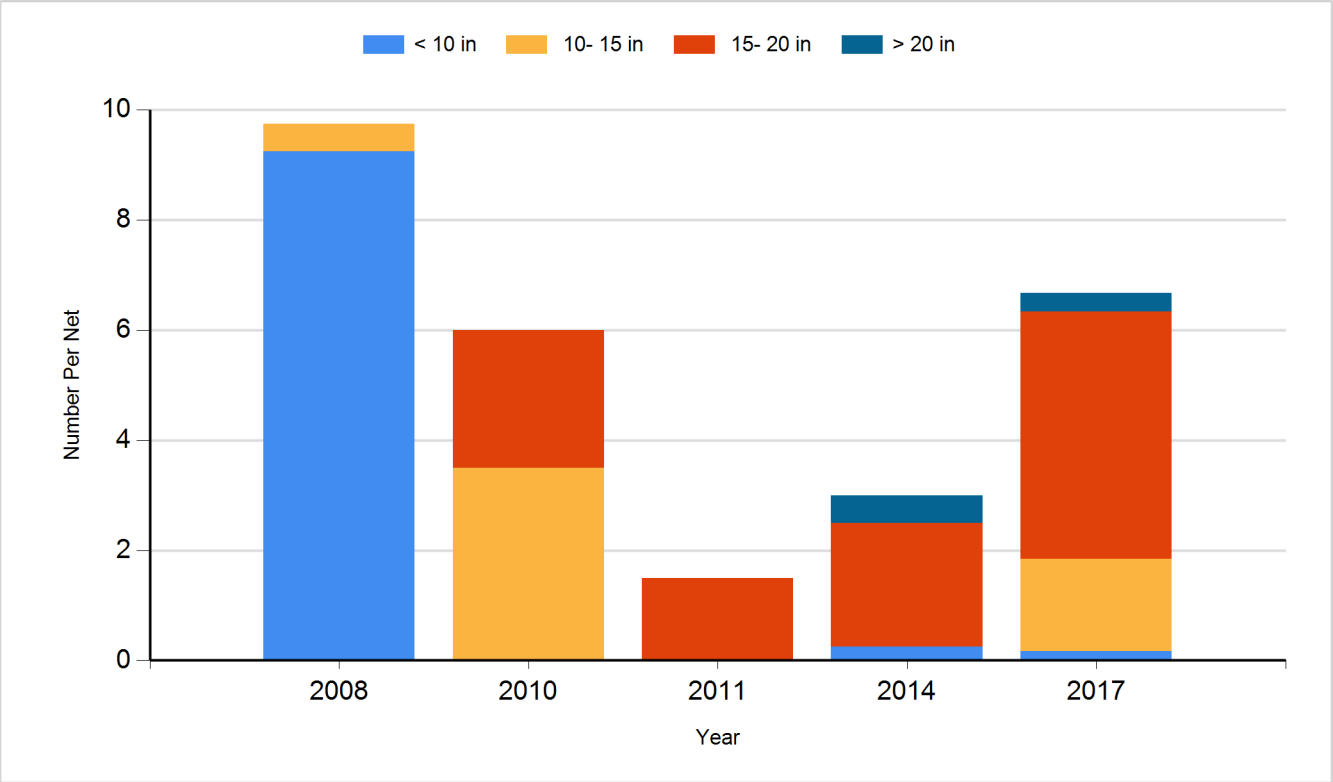
Species: Black Crappie
Gear: Frame Net



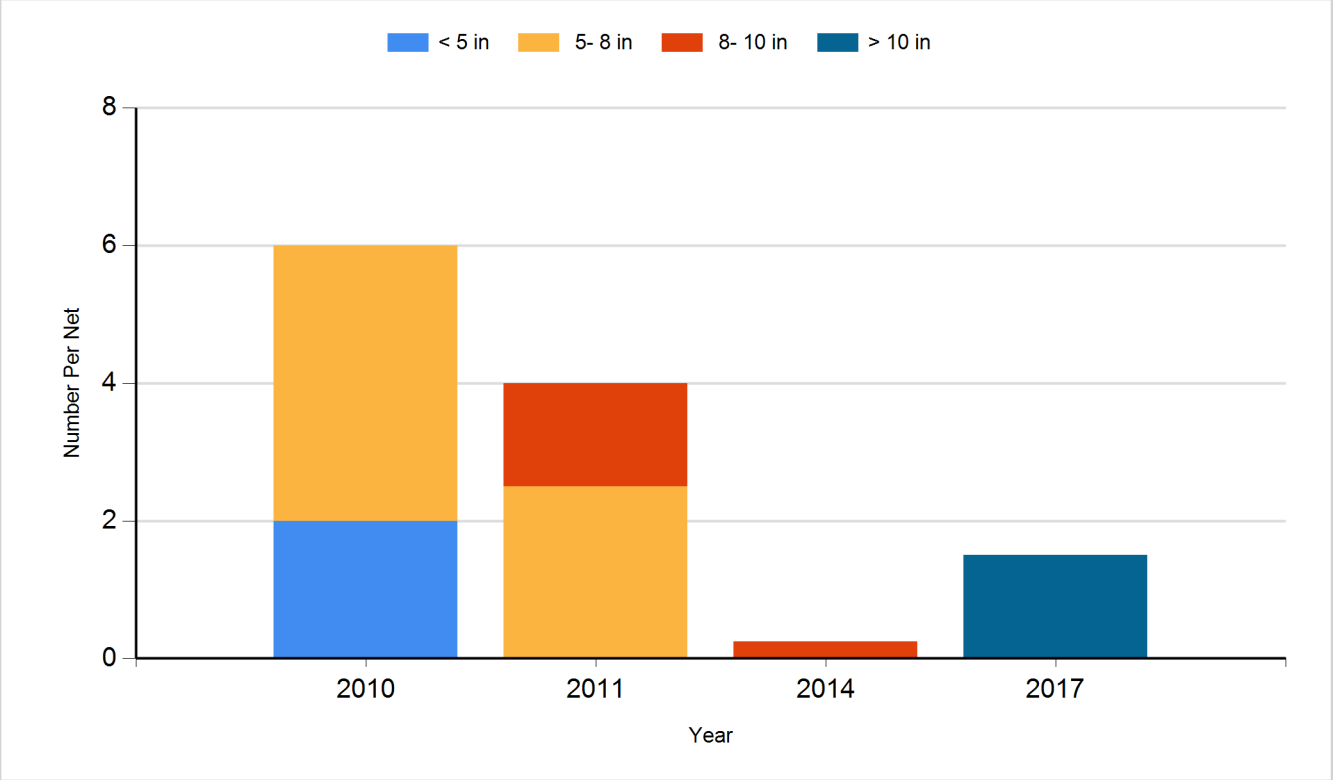
Species: Northern Pike
Gear: Gill Net



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
2007	Black Crappie	Adult	40
2007	Walleye	Small Fingerling	180,940
2007	Yellow Perch	Adult	120
2008	Walleye	Fry	2,000,000
2015	Walleye	Small Fingerling	180,700
2015	White Crappie	Adult	70