

**SOUTH DAKOTA STATEWIDE FISHERIES SURVEY**  
**Lewis and Clark, Yankton County**  
**LCL-Lake-73-000**  
**2016**

**Lake Information**

**Name:** Lewis and Clark  
**County:** Yankton  
**Surface Area:** 48,774 Acres

**Surveys and Investigations**

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

Gear	Date	Effort
boat shocker (night)	April 20, 2016	11700 seconds
boat shocker (night)	May 24, 2016	3600 seconds
fall night EF-WAE	October 07, 2016	7200 seconds
small seine	July 26, 2016	42 hauls
std exp gill net	September 20, 2016	6 net-nights
std exp gill net	September 21, 2016	6 net-nights
std seine	July 25, 2016	12 hauls
std seine	July 26, 2016	1 hauls

## **Common Fish Species Present**

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Walleye

Gizzard Shad

Smallmouth Bass

Sauger

Channel Catfish

Freshwater Drum

Shorthead Redhorse

White Bass

River Carpsucker

Yellow Perch

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## 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).

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

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.

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

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

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.

$$Wr = \left( \frac{W}{W_s} \right) \times 100$$

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).

Species Name	Stock		Quality		Preferred		Memorable		Trophy	
	(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

Species Name	Stock		Quality		Preferred		Memorable		Trophy	
	(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).

Gear	Species	Abundance		Stock Density Indices			Condition		
		CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
boat shocker (night)	Largemouth Bass	0.0	0.0	0		0			
	Sauger	4.3	1.9	76		24			
	Smallmouth Bass	7.1	5.1	26	11	8		96	2
	Walleye	15.0	10.5	74	11	21	10		
fall night EF-WAE	Walleye	56.0	26.8					82	2
small seine	Black Crappie	0.0	0.0	0		0			
	Bluegill	0.0	0.0	0		0			
	Bluntnose Minnow	0.0	0.0						
	Brassy Minnow	0.0	0.0						
	Channel Catfish	0.0	0.0	0		0			
	Common Carp	0.0	0.0	0		0			
	Gizzard Shad	0.0	0.0	0					
	Johnny Darter	0.0	0.0						
	Largemouth Bass	0.0	0.0	0		0			
	None	0.0	0.0						
	Orangespotted Sunfish	0.0	0.0						
	River Carpsucker	0.0	0.0	0		0			
	Shorthead Redhorse	0.0	0.0	0		0			
	Smallmouth Bass	0.0	0.0	0		0			
	Smallmouth Buffalo	0.0	0.0	0		0			
	Spotfin Shiner	0.0	0.0						
	Spottail Shiner	0.0	0.0						
	Walleye	0.0	0.0	0		0			
	White Bass	0.0	0.0	0		0			
	White Sucker	0.0	0.0	0		0			
Yellow Perch	0.0	0.0	0		0				
std exp gill net	Channel Catfish	4.0	2.1	77	9	8		92	1
	Common Carp	0.2	0.2	100		100		109	14
	Flathead Catfish	0.1	0.1	0		0		93	
	Freshwater Drum	1.3	0.7	94		63	20	95	4
	Gizzard Shad	8.0	3.3	15	5			100	1
	River Carpsucker	0.3	0.2	100		100		94	7
	Sauger	2.5	1.5	77	12	57	14	86	3

Gear	Species	Abundance		Stock Density Indices			Condition		
		CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
std exp gill net	Shorthead Redhorse	0.8	0.7	100		90		101	4
	Shortnose Gar	0.0	0.0						
	Smallmouth Buffalo	0.0	0.0	0		0			
	Walleye	3.3	1.1	68	11	15	9	96	2
	White Bass	0.8	0.6	22		11		95	5
	White Crappie	0.0	0.0	0		0			
	Yellow Perch	0.3	0.2	100		67		93	3
std seine	Bigmouth Buffalo	0.0	0.0	0		0			
	Black Crappie	0.0	0.0	0		0			
	Bluegill	0.0	0.0	0		0			
	Channel Catfish	0.0	0.0	0		0			
	Common Carp	0.0	0.0	0		0			
	Freshwater Drum	0.0	0.0	0		0			
	Gizzard Shad	0.0	0.0	0					
	Green Sunfish	0.0	0.0	0		0			
	Johnny Darter	0.0	0.0						
	Largemouth Bass	0.0	0.0	0		0			
	None	0.0	0.0						
	River Carpsucker	0.0	0.0	0		0			
	Smallmouth Buffalo	0.0	0.0	0		0			
	Spotfin Shiner	0.0	0.0						
	Walleye	0.0	0.0	0		0			
	White Bass	0.0	0.0	0		0			
Yellow Perch	0.0	0.0	0		0				

## 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.

Gear	Species	CPUE										Avg	
		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
boat shocker (day)	Flathead Catfish	7.3											7.3
boat shocker (night)	Largemouth Bass											0.0	0.0
	Sauger											4.3	4.3
	Smallmouth Bass	30.0	69.0	37.2		54.6	25.0	94.0	53.0	30.0	7.1	44.4	
	Walleye										15.0	15.0	
electrofishing (flathead)	Flathead Catfish		14.6	6.3		16.3	8.8	11.7					11.5
fall night EF-WAE	Sauger		10.4	0.0		0.0	0.0	0.0	0.5	0.0			1.6
	Walleye		83.5	24.5		6.5	51.5	48.0	30.0	12.0	56.0	39.0	
large seine	Black Crappie						0.0						0.0
	Bluegill						0.0						0.0
	Channel Catfish						0.0						0.0
	Emerald Shiner						0.0						0.0
	Fathead Minnow						0.0						0.0
	Flathead Catfish						0.0						0.0
	Freshwater Drum						0.0						0.0
	Johnny Darter						0.0						0.0
	Largemouth Bass						0.0						0.0
	Red Shiner						0.0						0.0
	River Carpsucker						0.0						0.0
	Shorthead Redhorse						0.0						0.0
	Smallmouth Bass						0.0						0.0
	Spotfin Shiner						0.0						0.0
	White Bass						0.0						0.0
Yellow Perch						0.0						0.0	
rod and reel	Largemouth Bass							5,220.0					5220.0
	Smallmouth Bass							2,100.0					2100.0
small seine	Black Crappie											0.0	0.0
	Bluegill											0.0	0.0
	Bluntnose Minnow											0.0	0.0
	Brassy Minnow											0.0	0.0
	Channel Catfish											0.0	0.0
	Common Carp											0.0	0.0

## CPUE

Gear	Species	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Avg	
small seine	Gizzard Shad										0.0	0.0	
	Johnny Darter										0.0	0.0	
	Largemouth Bass										0.0	0.0	
	None										0.0	0.0	
	Orangespotted Sunfish										0.0	0.0	
	River Carpsucker										0.0	0.0	
	Shorthead Redhorse										0.0	0.0	
	Smallmouth Bass										0.0	0.0	
	Smallmouth Buffalo										0.0	0.0	
	Spotfin Shiner										0.0	0.0	
	Spottail Shiner										0.0	0.0	
	Walleye										0.0	0.0	
	White Bass										0.0	0.0	
	White Sucker										0.0	0.0	
Yellow Perch										0.0	0.0		
std exp gill net	Bigmouth Buffalo		0.2	0.1								0.2	
	Black Crappie	0.2					0.2					0.2	
	Channel Catfish	7.3	4.9	3.3		0.5	4.1	6.8	3.2	6.3	4.0	4.5	
	Common Carp	0.8	0.5	0.7		0.1	0.2	0.6	0.2	0.3	0.2	0.4	
	Flathead Catfish					0.0			0.1	0.0	0.1	0.1	
	Freshwater Drum	1.8	2.0	2.8		3.6	0.8	1.1	0.8	0.3	1.3	1.6	
	Gizzard Shad	0.1	0.0	0.0			1.2	0.1	0.3	1.0	8.0	1.3	
	Goldeye					0.0	0.0					0.0	
	Northern Pike						0.3					0.3	
	Paddlefish		0.3									0.3	
	River Carpsucker	1.1	2.2	0.3		0.3	0.8	1.1	0.6	2.9	0.3	1.1	
	Rock Bass					0.3						0.3	
	Sauger	4.9	7.3	6.9		2.7	1.8	2.7	2.1	1.9	2.5	3.6	
	Shorthead Redhorse	1.6	2.3	1.3		0.1	0.9	2.9	2.5	1.3	0.8	1.5	
	Shortnose Gar	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0	
	Shovelnose Sturgeon					0.0							0.0
	Smallmouth Bass										0.1		0.1
	Smallmouth Buffalo	0.2	0.1	0.1			0.3	0.3		0.3	0.0	0.2	
	Walleye	5.9	11.9	9.8		2.3	4.3	3.1	2.1	2.1	3.3	5.0	
	White Bass		1.8	0.3			0.1	0.0	0.4	0.3	0.8	0.5	
	White Crappie	0.1	0.2	0.3			0.1	0.2		0.0	0.0	0.1	



		CPUE										
Gear	Species	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Avg
std exp gill net	Yellow Perch		0.1				0.3	1.3	1.2	0.4	0.3	0.6
std seine	Bigmouth Buffalo		0.0			0.0			0.0	0.0	0.0	0.0
	Black Crappie	0.0		0.0		0.0			0.0	0.0	0.0	0.0
	Bluegill	0.0		0.0		0.0		0.0	0.0	0.0	0.0	0.0
	Bluntnose Minnow					0.0						0.0
	Central Stoneroller			0.0								0.0
	Channel Catfish			0.0		0.0		0.0		0.0	0.0	0.0
	Common Carp		0.0					0.0			0.0	0.0
	Common Shiner			0.0								0.0
	Emerald Shiner	0.0	0.0	0.0		0.0		0.0	0.0	0.0		0.0
	Fathead Minnow					0.0		0.0				0.0
	Freshwater Drum	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0
	Gizzard Shad	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0
	Golden Shiner								0.0			0.0
	Goldeye					0.0						0.0
	Green Sunfish										0.0	0.0
	Johnny Darter	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0
	Largemouth Bass	0.0				0.0		0.0	0.0	0.0	0.0	0.0
	None										0.0	0.0
	Northern Pike					0.0						0.0
	Orangespotted Sunfish	0.0										0.0
	Red Shiner	0.0	0.0	0.0		0.0						0.0
	River Carpsucker	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0
	Sand Shiner								0.0			0.0
	Sauger		0.0	0.0		0.0			0.0			0.0
	Shorthead Redhorse			0.0		0.0						0.0
	Shortnose Gar			0.0								0.0
	Silver Chub					0.0						0.0
	Smallmouth Bass	0.0	0.0	0.0					0.0			0.0
	Smallmouth Buffalo					0.0		0.0	0.0		0.0	0.0
	Spotfin Shiner		0.0	0.0		0.0		0.0		0.0	0.0	0.0
	Spottail Shiner		0.0	0.0		0.0		0.0				0.0
	Walleye	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0
	White Bass	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0
	White Crappie	0.0				0.0			0.0	0.0		0.0
	Yellow Perch	0.0				0.0		0.0	0.0		0.0	0.0



## 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.

Gear	Species	Index	Year										
			2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
boat shocker (night)	Walleye	PSD											74
		PSD-P											21
fall night EF- WAE	Walleye	Wr		81									82
large seine	Black Crappie	PSD								0			
		PSD-P								0			
	Yellow Perch	PSD								0			
		PSD-P								0			
small seine	Black Crappie	PSD											0
		PSD-P											0
	Walleye	PSD											0
		PSD-P											0
	Yellow Perch	PSD											0
		PSD-P											0
std exp gill net	Black Crappie	PSD	100							100			
		PSD-P	0							50			
		Wr	105							94			
	Northern Pike	PSD								0			
		PSD-P								0			
		Wr								95			
	Walleye	PSD	79	64	54		71	83	59	48	44	68	
		PSD-P	17	16	10		14	6	16	0	0	15	
		Wr	90	91	82		81	83	85	90	85	96	
	Yellow Perch	PSD		100					0	6	50	100	100
		PSD-P		0					0	0	14	100	67
		Wr		91					84	90	91	94	93
std seine	Black Crappie	PSD	0		0		0			0	0	0	
		PSD-P	0		0		0			0	0	0	
	Northern Pike	PSD					0						
		PSD-P					0						
	Walleye	PSD	0	0	0		0		0	0		0	

Gear	Species	Index	Year									
			2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
std seine	Walleye	PSD-P	0	0	0		0		0	0	0	
	Yellow Perch	PSD	0				0		0	0	0	
		PSD-P	0				0		0	0	0	

## Length at Capture

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

Species: Walleye

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2016	40	350 (12)	415 (10)	495 (4)	445 (7)	537 (1)		584 (2)	471 (3)	523 (1)	
2015	27	287 (12)	369 (5)	418 (4)	467 (2)	434 (1)	460 (1)	470 (2)			
2014	25	301 (6)	377 (12)	417 (3)		422 (1)	495 (1)	443 (1)	433 (1)		
2013	37	293 (9)	381 (9)	466 (1)	439 (3)	461 (8)	523 (5)	475 (1)			530 (1)
2012	53	300 (6)	369 (4)	416 (13)	453 (18)	457 (7)	444 (1)	477 (1)	541 (1)		552 (2)
2011	28		341 (7)	405 (9)	460 (9)	497 (1)	513 (1)		628 (1)		
2009	124	279 (44)	399 (53)	419 (6)	516 (6)	495 (4)	507 (2)	547 (3)		522 (1)	521 (5)
2008	143	335 (51)	428 (23)	494 (37)	487 (15)	529 (6)	493 (6)	485 (1)	523 (1)		504 (3)
2007	74	243 (4)	333 (8)	376 (11)	438 (22)	468 (16)	517 (8)	532 (3)	542 (2)		

## **Fish Condition**

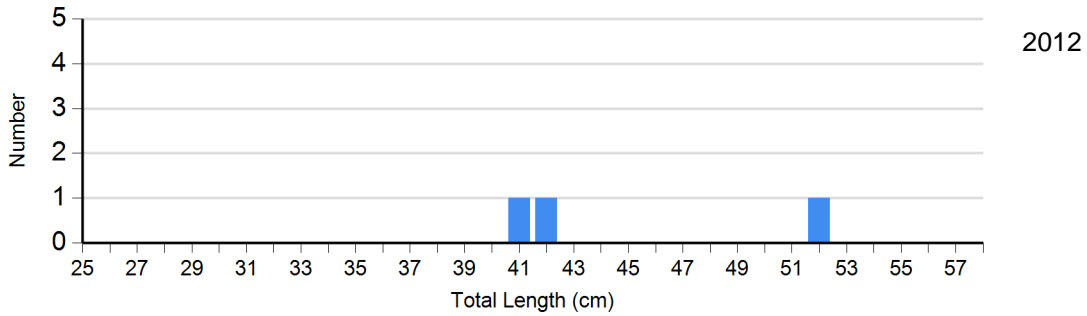
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Northern Pike Gill Net	2012	3	95 (3.0)	0		0		0	
Walleye Gill Net	2012	9	83 (1.2)	40	84 (0.7)	3	83 (1.0)	0	
	2013	15	85 (1.6)	16	86 (1.1)	6	85 (2.1)	0	
	2014	13	91 (2.3)	12	88 (1.9)	0		0	
	2015	14	86 (2.1)	11	83 (1.3)	0		0	
	2016	13	97 (2.2)	21	96 (1.7)	6	94 (2.4)	0	
Yellow Perch Gill Net	2012	3	84 (1.7)	0		0		0	
	2013	15	89 (2.4)	1	102	0		0	
	2014	7	89 (1.9)	5	92 (1.2)	2	93 (1.7)	0	
	2015	0		0		5	94 (2.7)	0	
	2016	0		1	88	2	95 (2.0)	0	

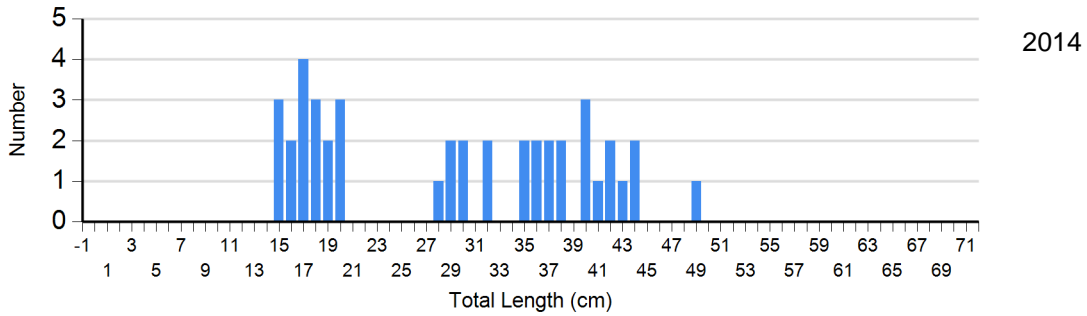
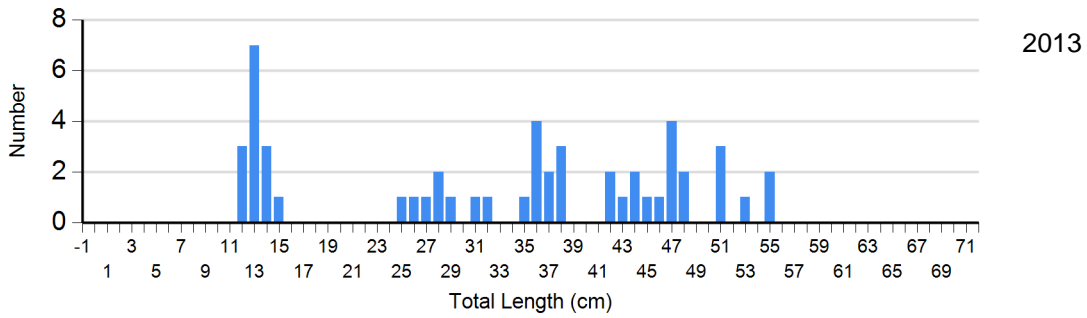
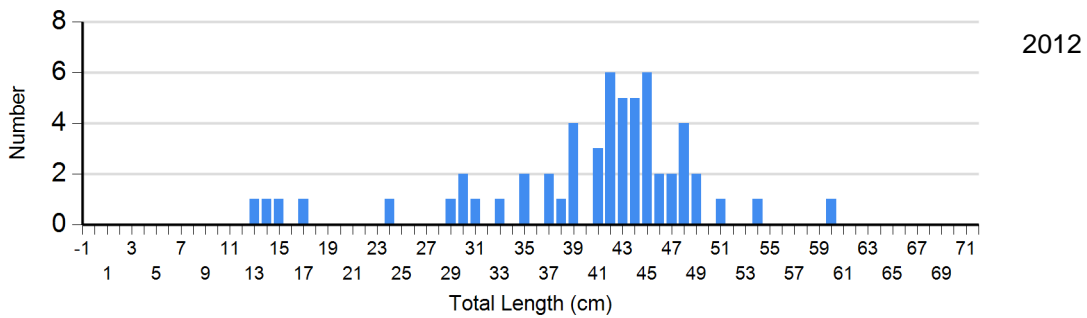
# Length Frequency Distribution

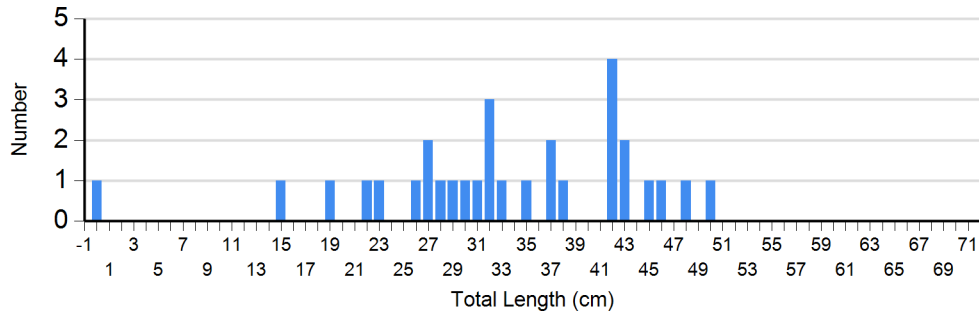
Length frequency histogram of species sampled by year.

Species: Northern Pike  
Gear: std exp gill net

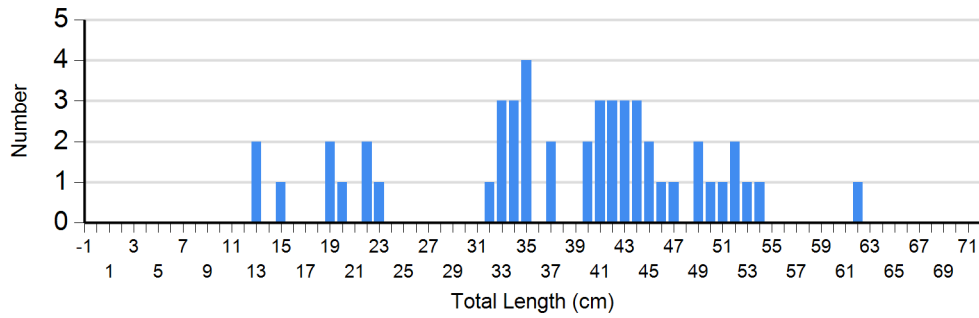


Species: Walleye  
Gear: std exp gill net



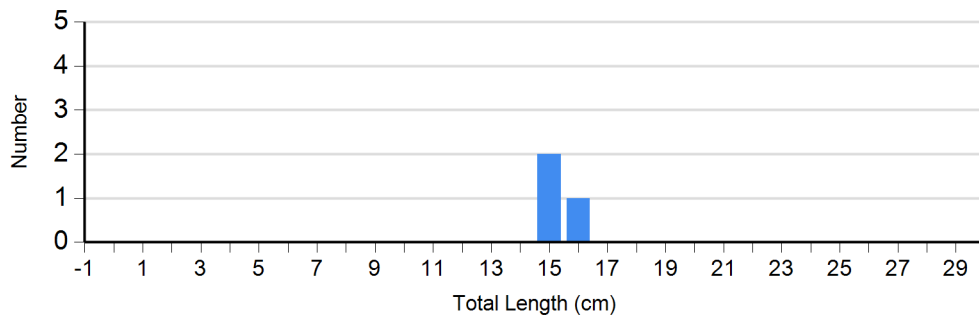


2015

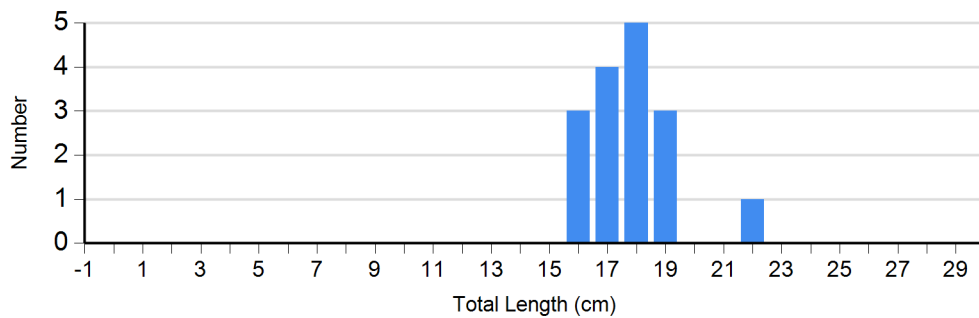


2016

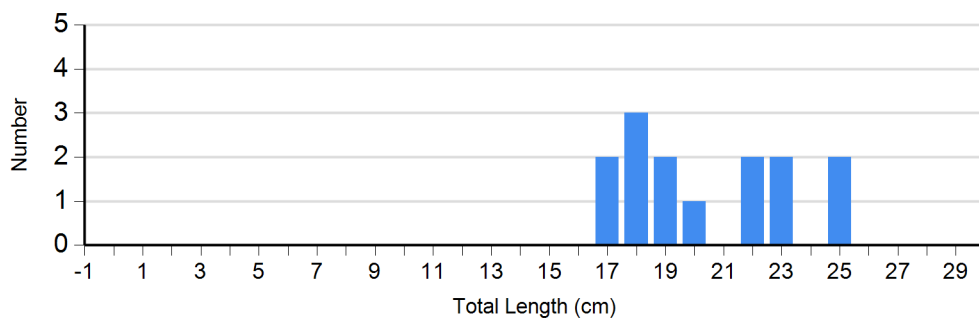
Species: Yellow Perch  
Gear: std exp gill net



2012

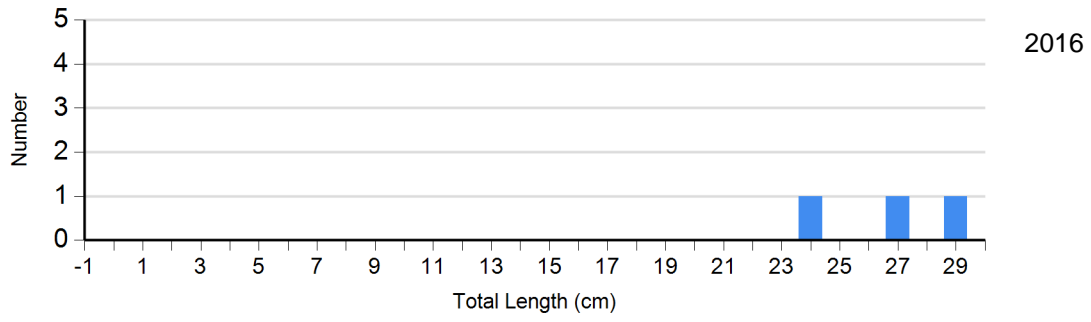
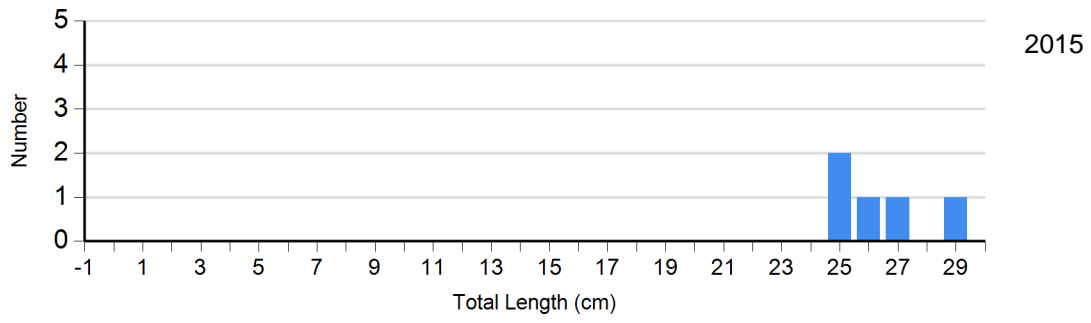


2013



2014

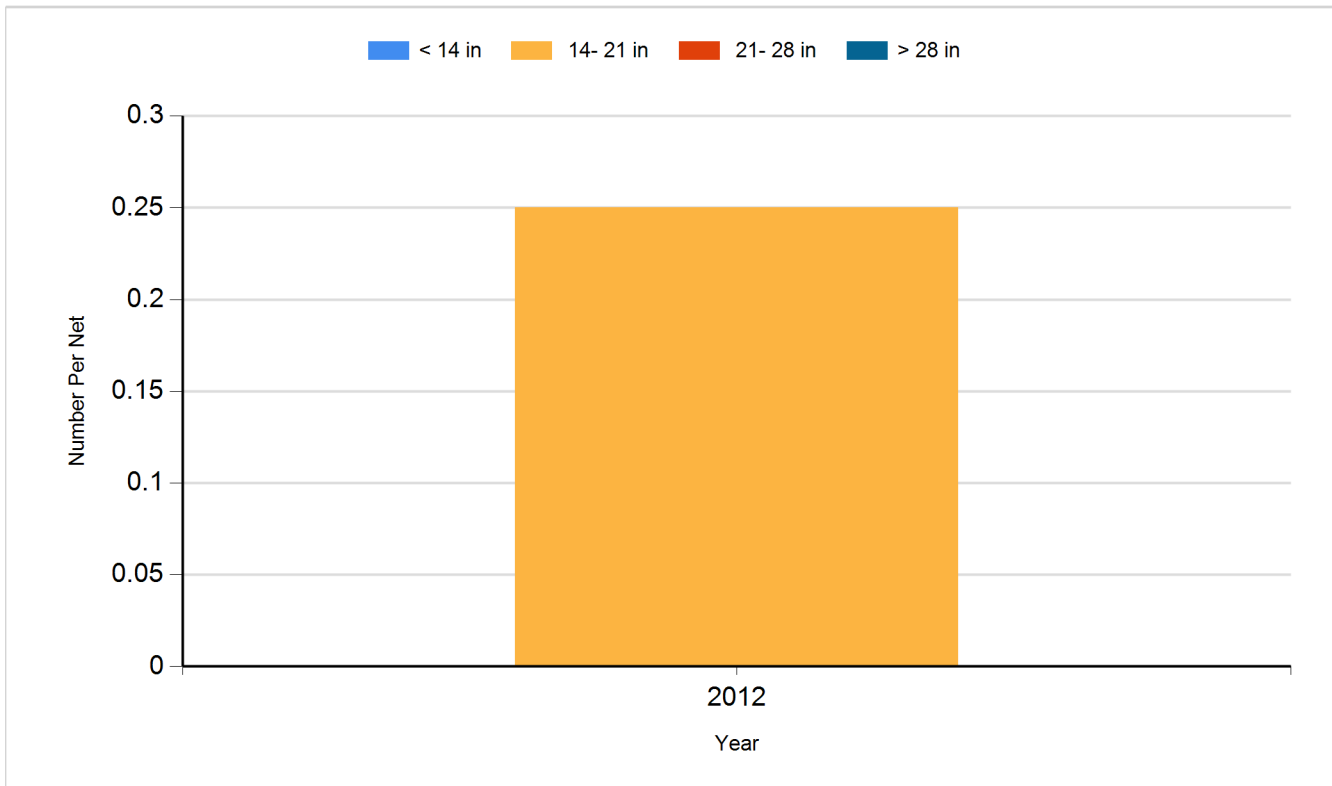




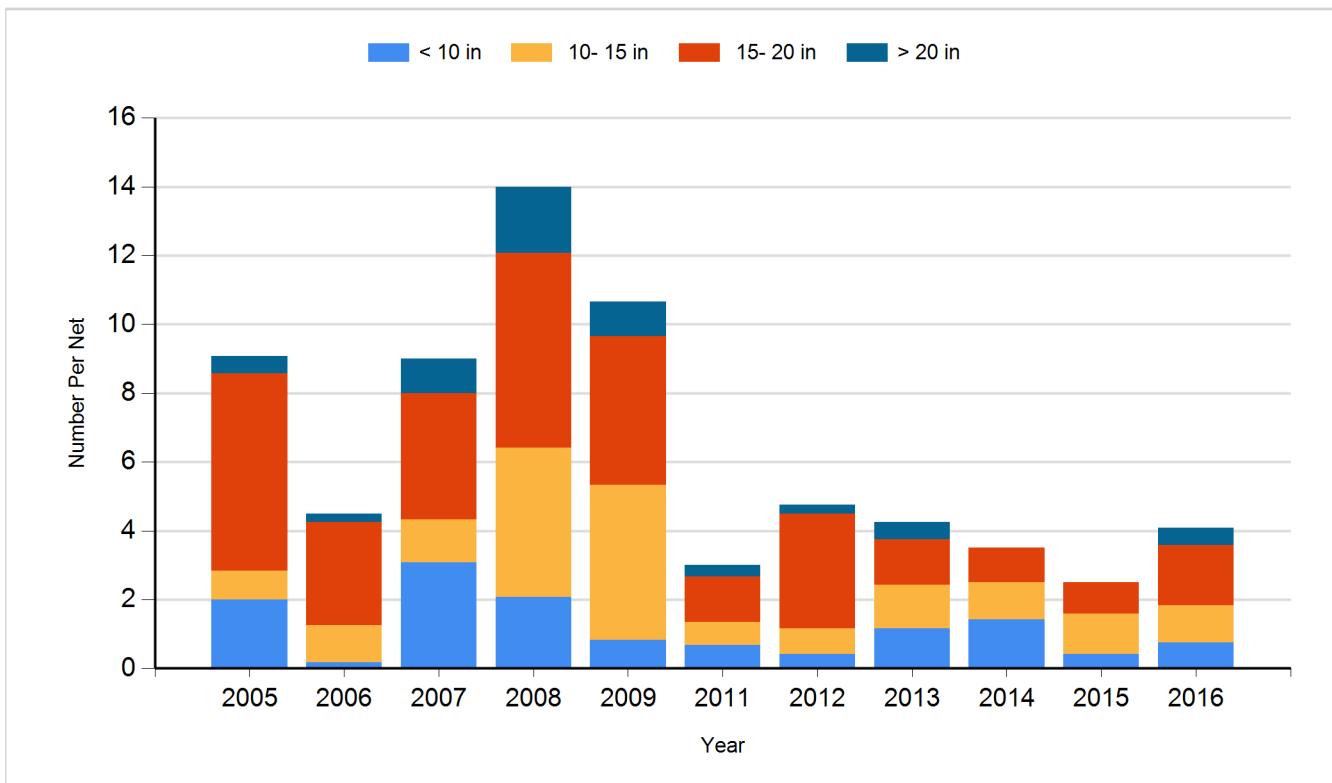
## Historic Fish Sizes and Relative Abundance

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

Species: Northern Pike  
Gear: Gill Net



Species: Walleye  
Gear: Gill Net



Species: Yellow Perch  
Gear: Gill Net

