

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

Scott, Minnehaha County

LBS-Lake-65-000

2018

Lake Information

Name: Scott **Maximum Depth:** 11 Feet
County: Minnehaha **Mean Depth:** 4 Feet
Legal Description: T102-R51-Sec. 7-8
Surface Area: 115 Acres

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Aug 06, 2018	4 net-nights

Common Fish Species Present

Yellow Perch

Walleye

Black Bullhead

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).

A statewide effort to help make netting efforts comparable to all waters sampled across the state, occurred in 2017, with a switch to American Fisheries Society gill nets. Past gill netting efforts were completed with different style/types of nets and are not comparable side by side.

- **AFS std gill net** – 80 ft experimental gill net containing eight panels (10 ft each) of varying monofilament meshes of 0.75, 1.00, 1.25, 1.50, 1.75, 2.00, 2.25 and 2.50 inches.
- **std experimental gill net for non-Missouri River waters** - 150 ft experimental gill net containing six panels (25 ft each) of varying monofilament meshes of 0.5, 0.75, 1.00, 1.25, 1.50 and 2.00 inches.
- **std experimental gill net for Missouri River reservoirs** – 300 ft experimental gill net containing six panels (50 ft each) of varying multifilament meshes of 0.5, 0.75, 1.00, 1.25, 1.50 and 2.00 inches.

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

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)
Black Bullhead	6	15	9	23	12	30	15	38	18	46
Black Crappie	5	13	8	20	10	25	12	30	15	38
Bluegill	3	8	6	15	8	20	10	25	12	30
Brown Trout	8	20	12	30	16	40	20	50	18	46
Channel Catfish	11	28	16	41	24	61	28	71	36	91
Freshwater Drum	8	20	12	30	15	38	20	51	25	63
Lake Trout	12	30	20	50	26	65	31	80	39	100
Largemouth Bass	8	20	12	30	15	38	20	51	25	63
Muskellunge	20	51	30	76	38	97	42	107	50	127
Northern Pike	14	35	21	53	28	71	34	86	44	112
Pumpkinseed	3	8	6	15	8	20	10	25	12	30
Rainbow Trout	10	25	16	40	20	50	26	65	31	80
Rudd	6	15	10	25	12	30	15	38	19	48
Sauger	8	20	12	30	15	38	20	51	25	63
Smallmouth Bass	7	18	11	28	14	35	17	43	20	51
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
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).

* **Methods/Species that ignore stock length**

Gear	Species	Sample Size (n)	Abundance		Stock Density Indices			Condition		
			CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
AFS std gill net	Black Bullhead	380	95.0	30.3	2	1	0			
	Walleye	27	6.8	2.6	67	14	19	12	98	2
	Yellow Perch	26	6.5	2.4	54	15	0		96	2

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
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
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	95.0	98.7
	Black Crappie									0.5		0.5
	Northern Pike									0.3		0.3
	Pumpkinseed									0.8		0.8
	Walleye									7.5	6.8	7.2
	Yellow Perch									5.0	6.5	5.8
frame net (std 3/4 in)	Black Bullhead	104.2		144.0		496.0				448.6		298.2
	Black Crappie	6.6										6.6
	Green Sunfish	0.6		0.4						1.4		0.8
	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				0.6		9.2
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

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											
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		
AFS std frame net	Black Bullhead	PSD											3	
		PSD-P											0	
		Wr											80	
	Walleye	PSD											75	
		PSD-P											50	
		Wr											80	
	Yellow Perch	PSD											50	
		PSD-P											0	
		Wr											91	
AFS std gill net	Black Bullhead	PSD										3	2	
		PSD-P										0	0	
		Wr											95	98
	Walleye	PSD											90	67
		PSD-P											60	19
		Wr											95	98
	Yellow Perch	PSD											55	54
		PSD-P											5	0
		Wr											101	96
frame net (std 3/4 in)	Black Bullhead	PSD	0		0		33					1		
		PSD-P	0		0		0					0		
		Wr	81		98		90							
	Walleye	PSD	95											
		PSD-P	5											
		Wr	88											
	Yellow Perch	PSD	11		20		50					0		
		PSD-P	2		2		0					0		
		Wr	97		122		109					106		
std exp gill net	Black Bullhead	PSD	0		0		40	24	12		1			
		PSD-P	0		0		0	0	0		0			
		Wr			97		94							
	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			

Gear	Species	Index	Year									
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
std exp gill net	Yellow Perch	PSD-P	0		0		17	0	0	0		
		Wr	106		107		107	103	104	101		

Fish Condition

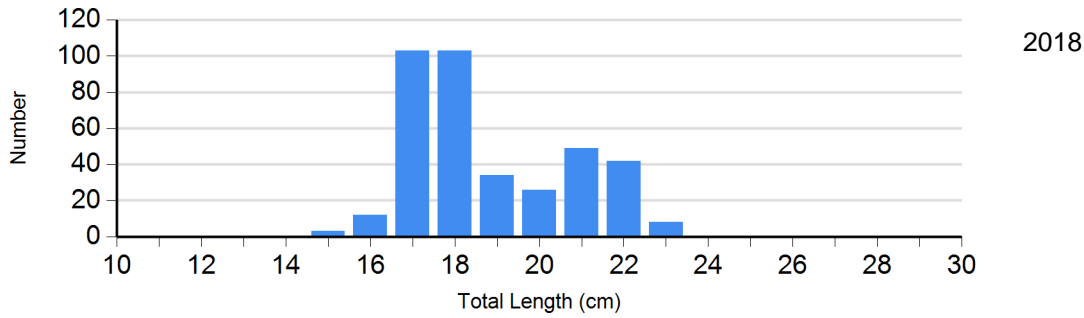
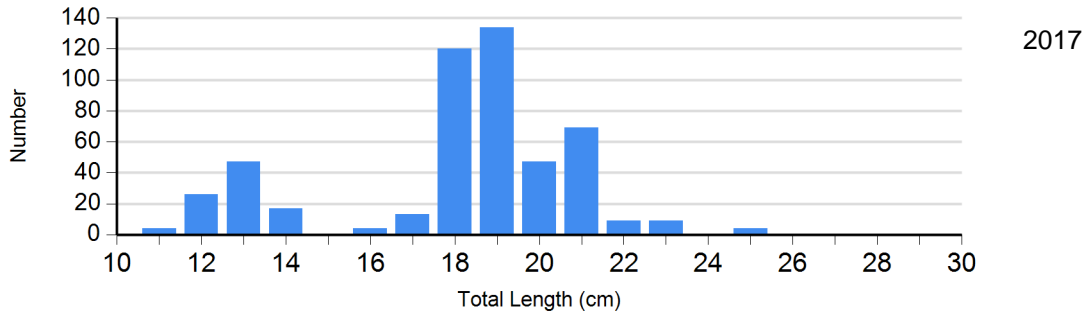
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Walleye Gill Net	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)
	2018	9	101 (1.9)	13	96 (1.8)	5	97 (3.2)	0	
Yellow Perch Gill Net	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	
	2018	12	98 (2.1)	14	95 (1.5)	0		0	

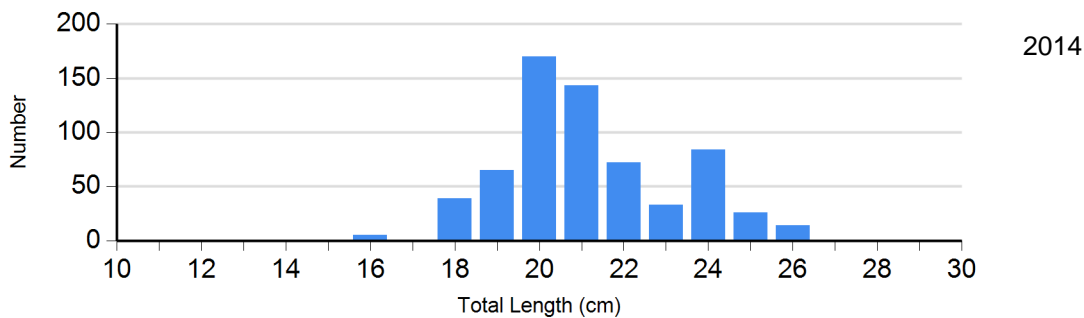
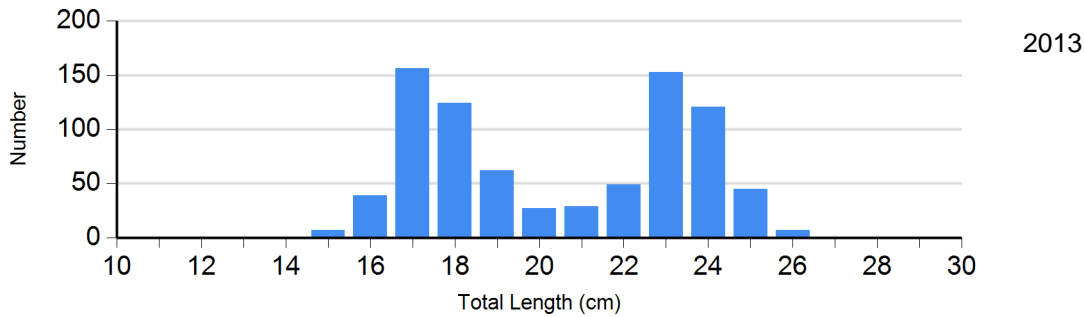
Length Frequency Distribution

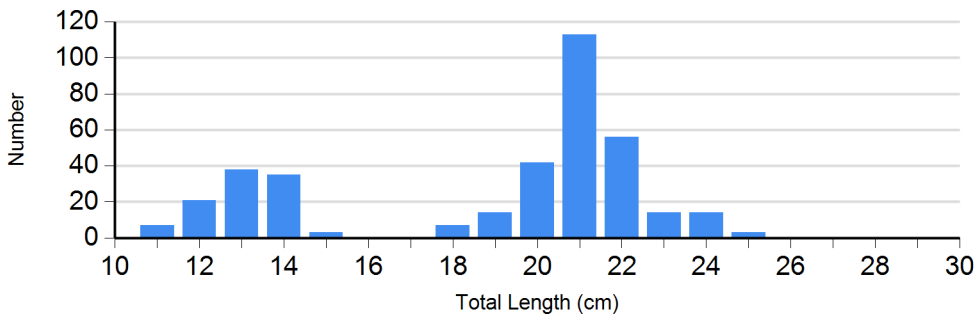
Length frequency histogram of species sampled by year.

Species: Black Bullhead
Gear: AFS std gill net

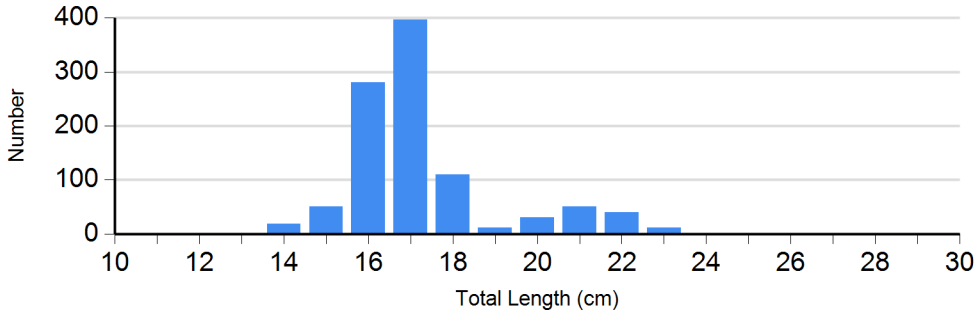


Species: Black Bullhead
Gear: std exp gill net



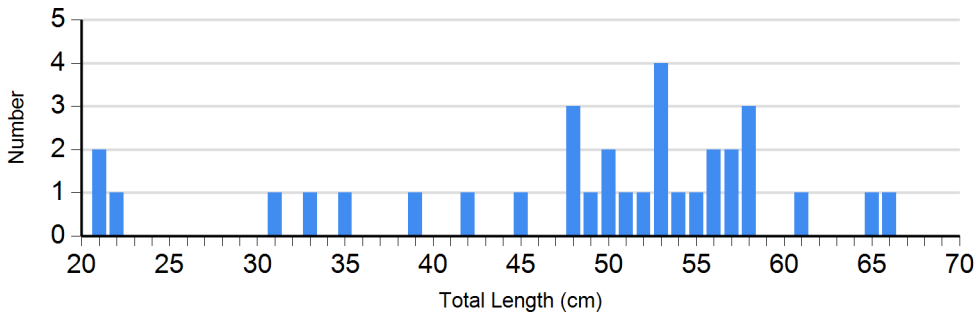


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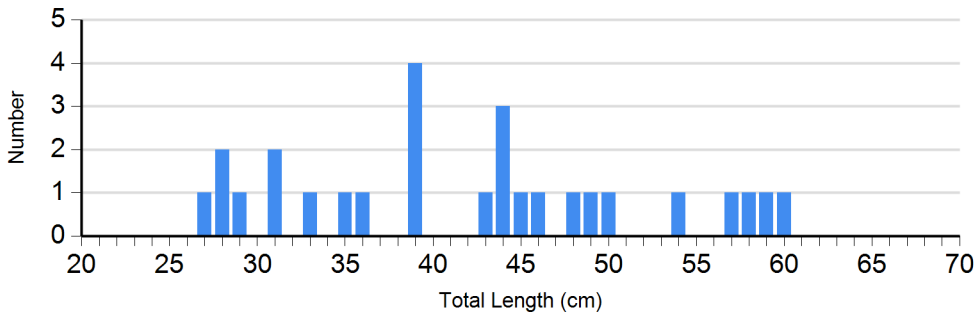


2016

Species: Walleye
Gear: AFS std gill net

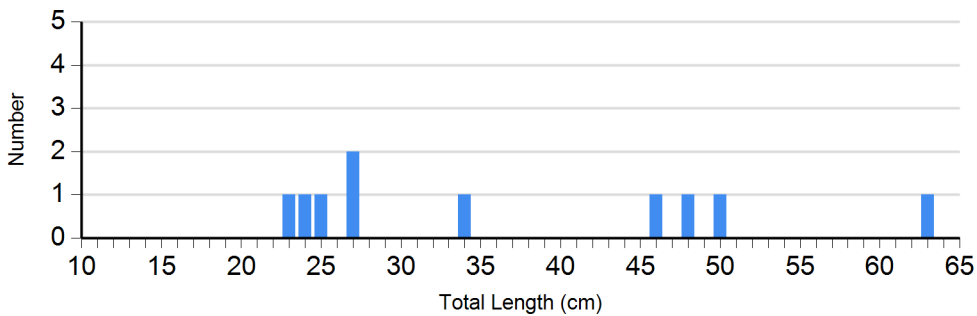


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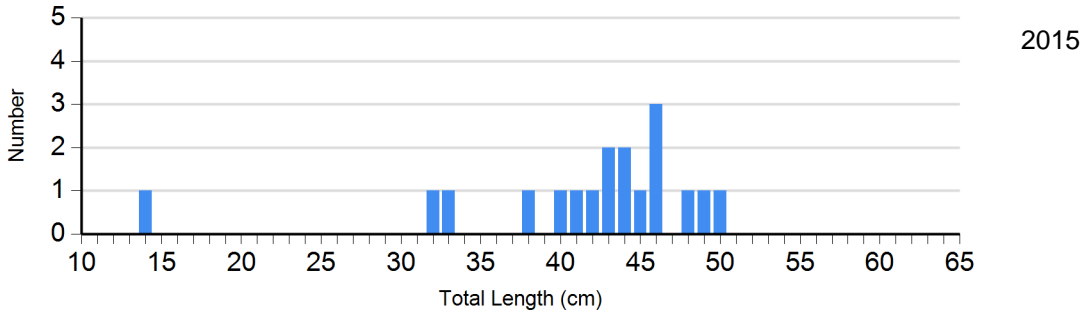
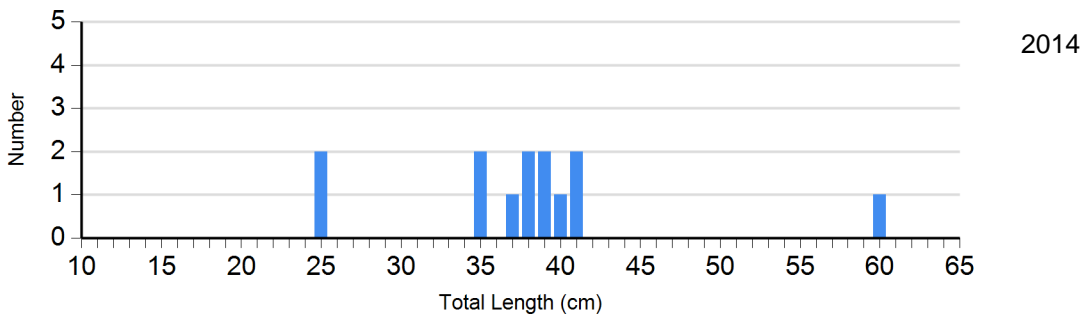


2018

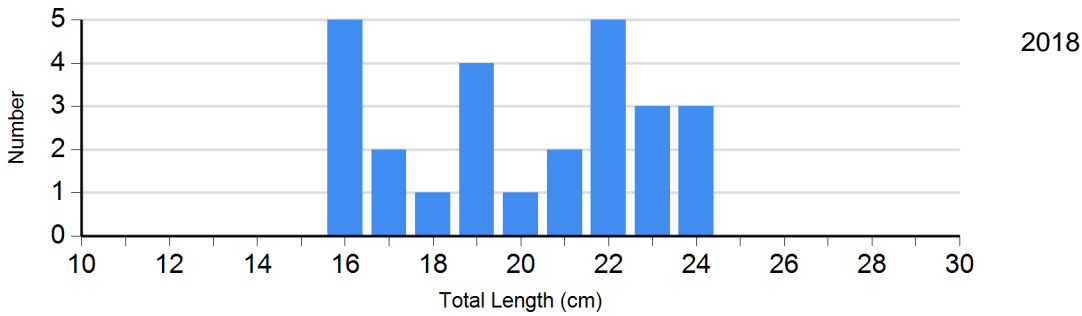
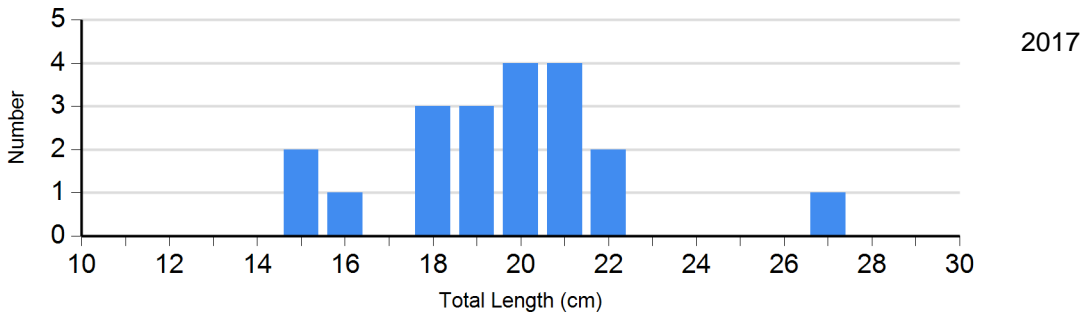
Species: Walleye
Gear: std exp gill net



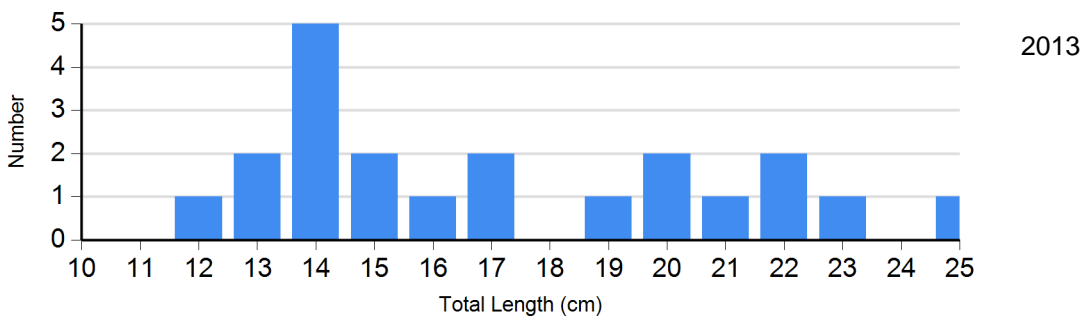
2013

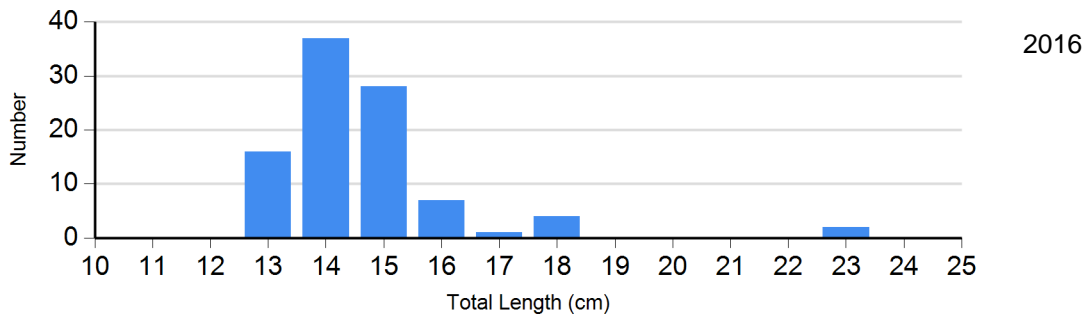
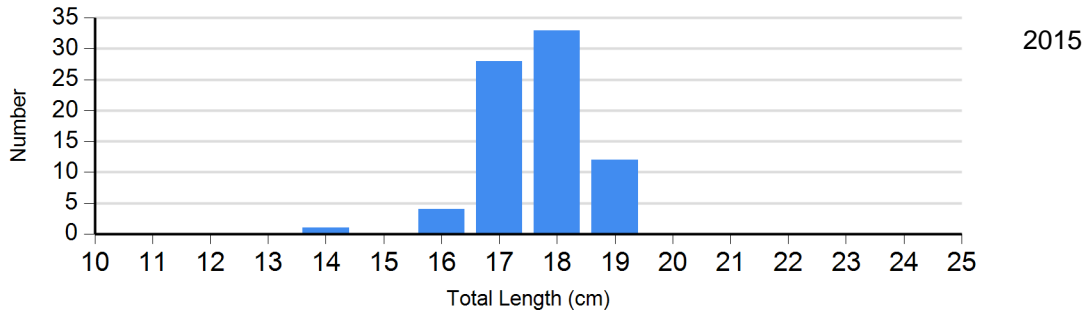
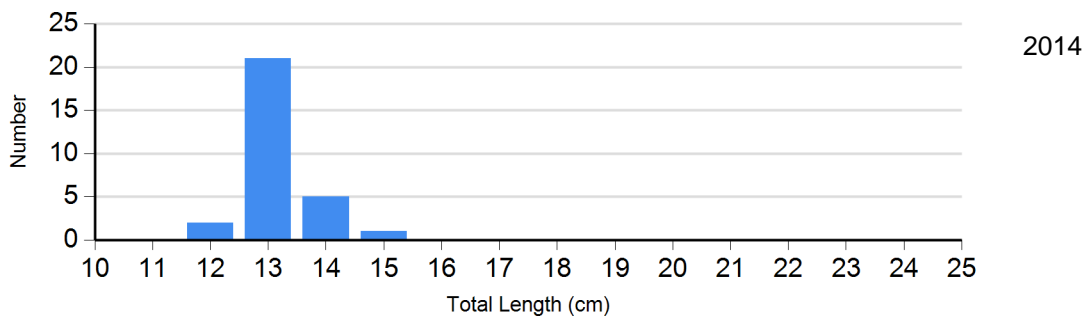


Species: Yellow Perch
 Gear: AFS std gill net



Species: Yellow Perch
 Gear: std exp gill net

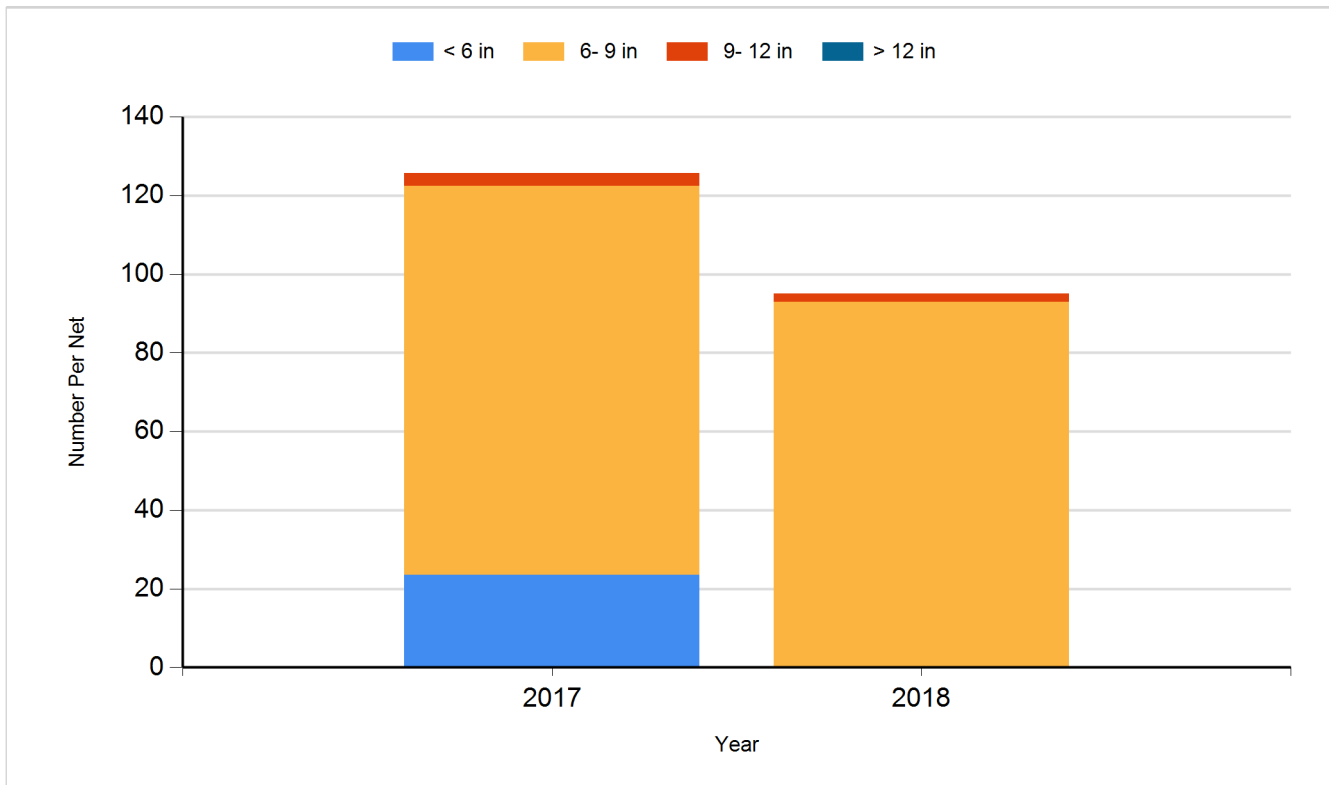




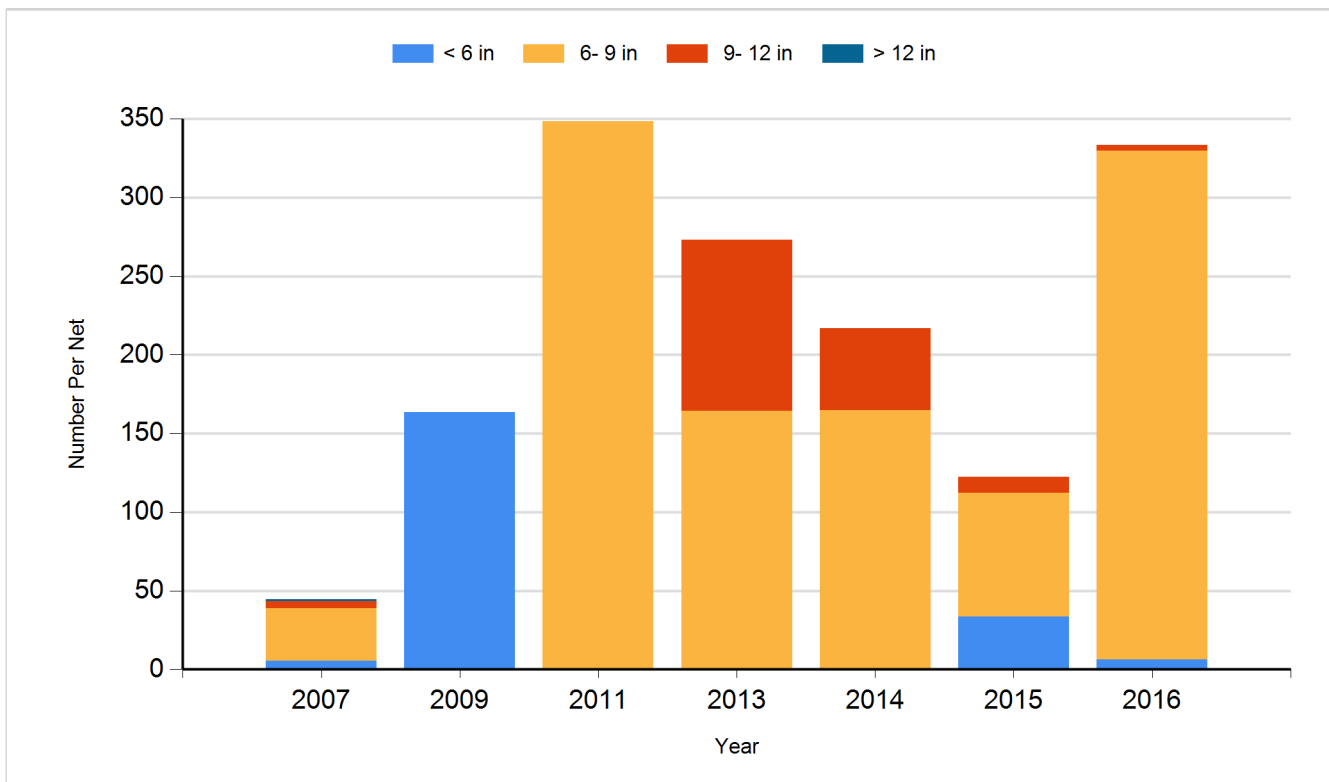
Historic Fish Sizes and Relative Abundance

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

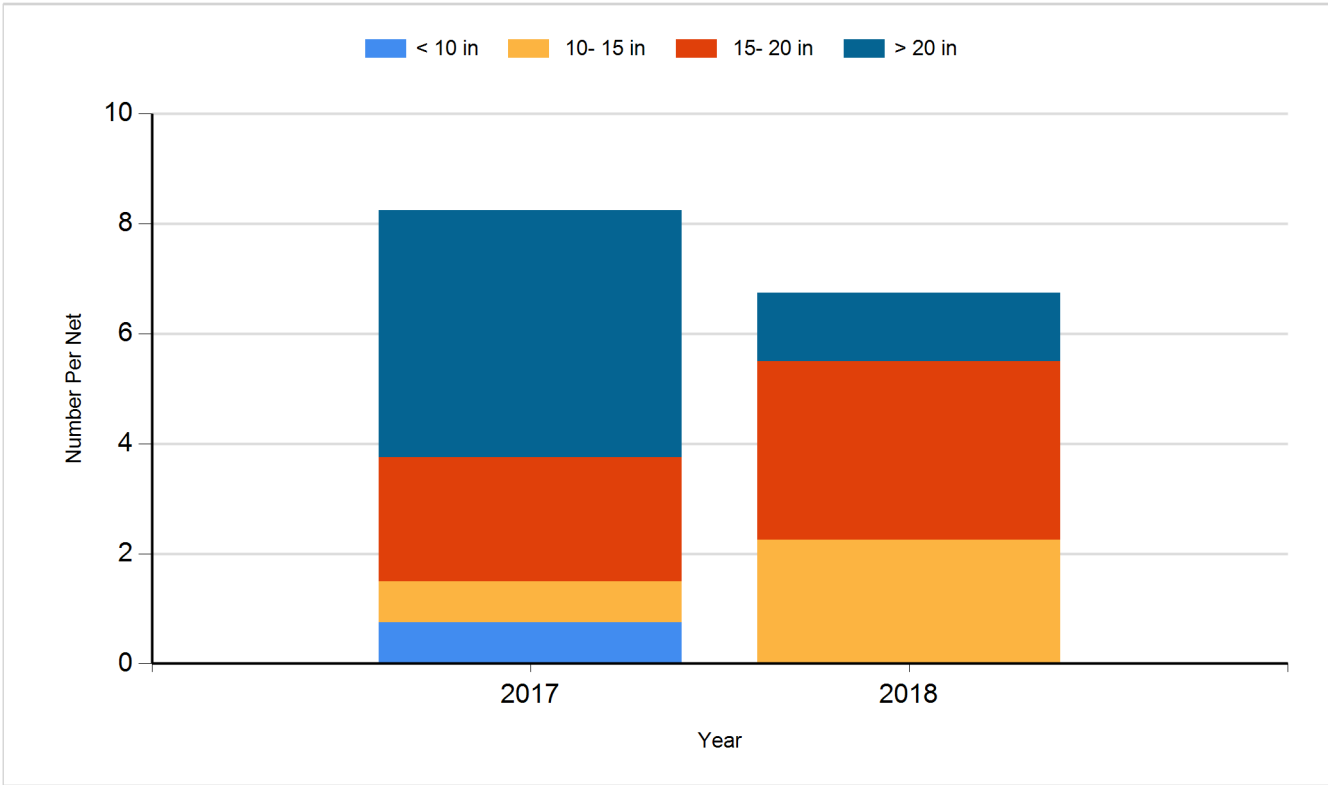
Species: Black Bullhead
Gear: AFS std gill net



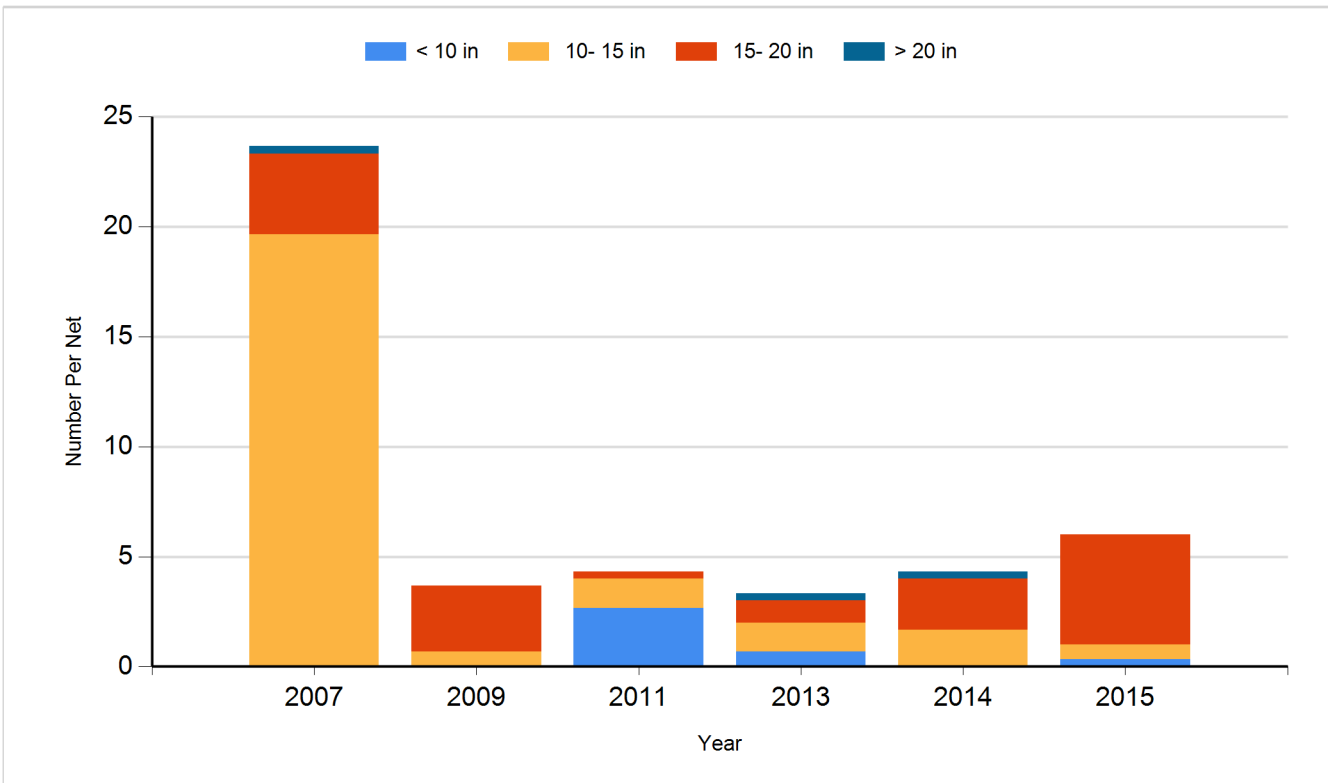
Species: Black Bullhead
Gear: std exp gill net



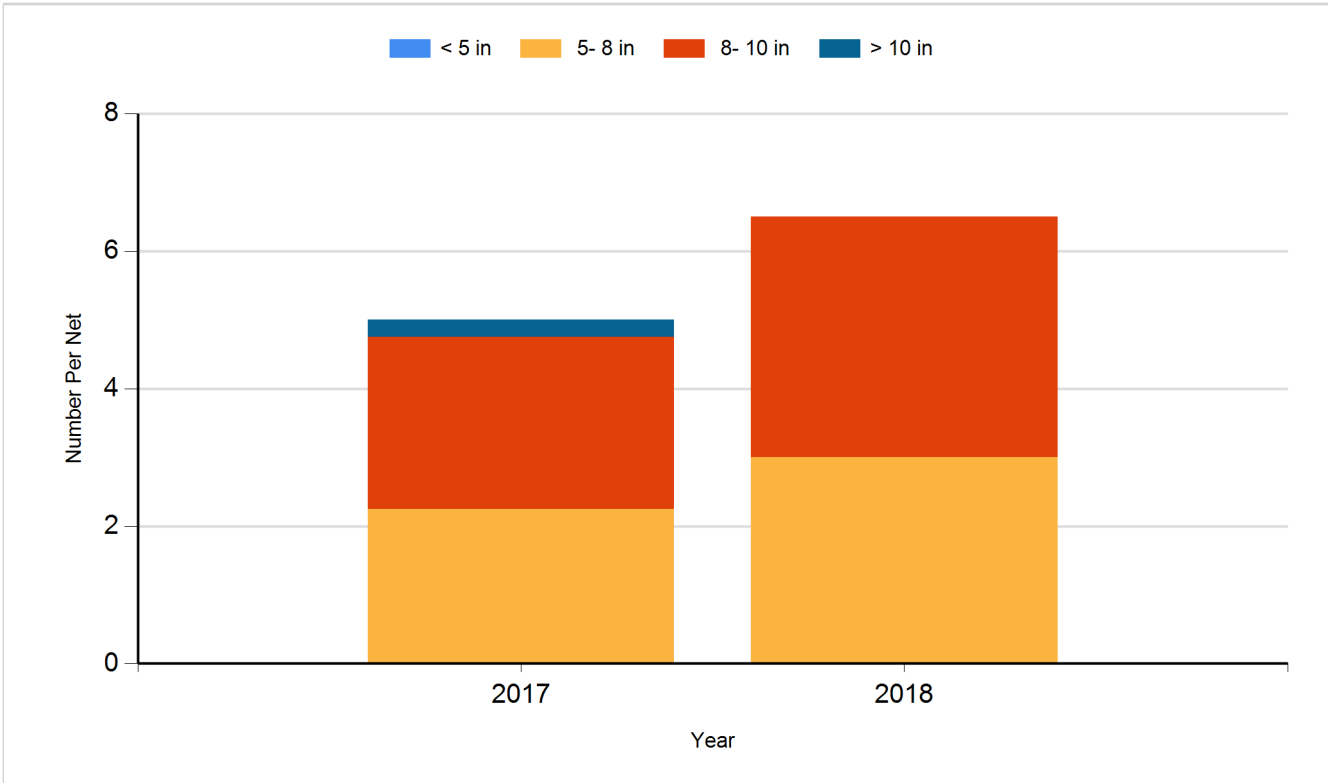
Species: Walleye
Gear: AFS std gill net



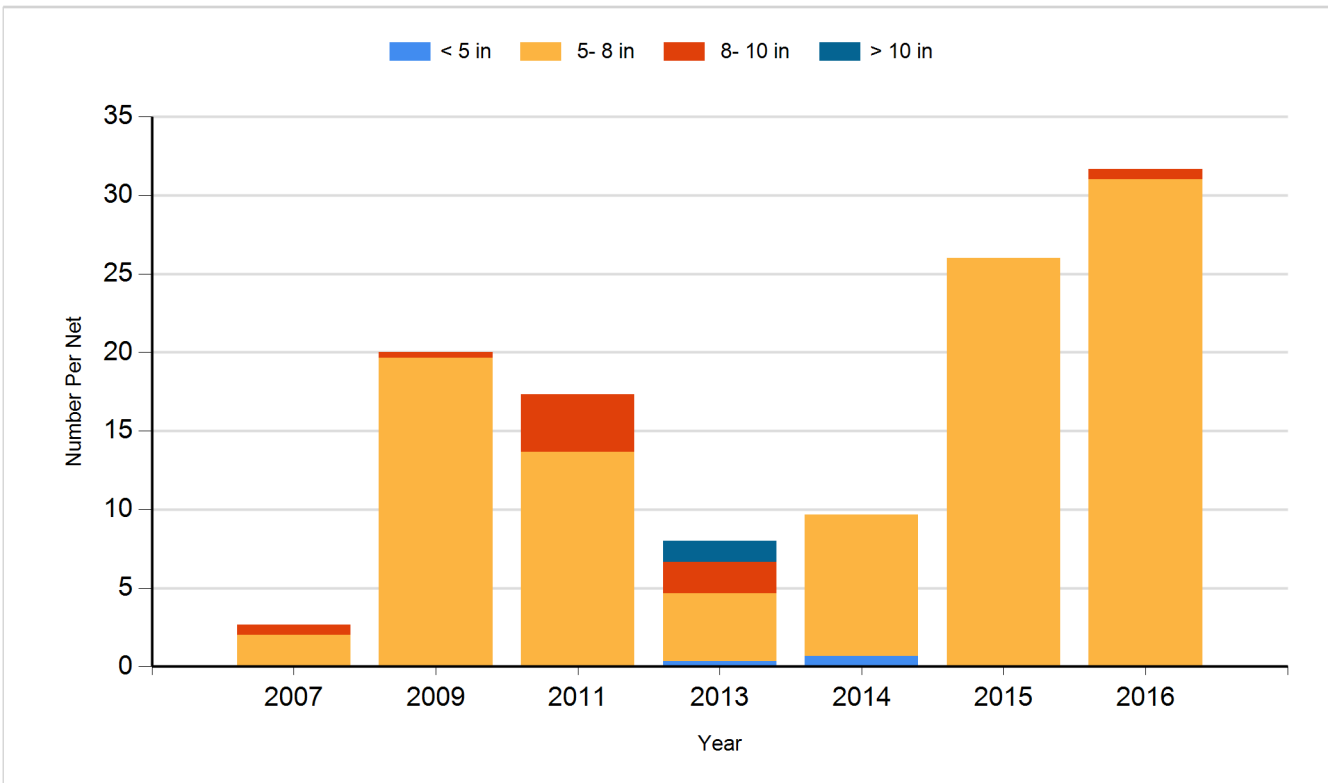
Species: Walleye
Gear: std exp gill net



Species: Yellow Perch
Gear: AFS std gill net



Species: Yellow Perch
Gear: std exp gill net



Fish Stocking

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

Year	Species	Size	Number
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
2018	Walleye	Large Fingerling	919
2018	Yellow Perch	Adult	5,379