SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Owen Dam, Perkins County
LMO-Lake-397-000
2019

Lake Information

Name: Owen Dam

County: Perkins

Surface Area: 136 Acres

Surveys and Investigations

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

Gear	Date	Effort
frame net (std 3/4 in)	Jun 18, 2019	5 net-nights

Common Fish Species Present

Black Bullhead

Yellow Perch

Northern Pike

Largemouth Bass

Bluegill

Black Crappie

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.
- s**td 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.

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

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)
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**

			Abundance		Stock Density Indices				Condition	
Gear	Species	Sample Size (n)	CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
frame net (std 3/4 in)	Black Bullhead	9	1.8	1.2	22		22		124	6
	Black Crappie	1	0.2	0.3	100		0		109	
	Bluegill	8	1.6	0.6	100		63		135	4
	Northern Pike	3	0.6	0.4	67		33		94	7
	Yellow Perch	2	0.4	0.4	0		0		85	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	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg
AFS std frame net	Black Bullhead								1.7			1.70
	Black Crappie								0.2			0.20
	Bluegill								0.1			0.10
	Largemouth Bass								0.1			0.10
	Northern Pike								0.4			0.40
AFS std gill net	Black Bullhead								6.3			6.30
	Northern Pike								2.8			2.80
frame net (std 3/4 in)	Black Bullhead	1.5		65.3	3.5	7.8	67.3	4.4		4.0	1.8	19.45
	Black Crappie	0.0		0.0	0.0	0.3	0.1	0.2		0.0	0.2	0.10
	Bluegill	0.0		0.0	0.0	1.6	20.5	0.2		0.0	1.6	2.99
	Green Sunfish	0.0		0.0	0.0	0.0	0.1	0.0		0.0	0.0	0.01
	Largemouth Bass	0.0		0.0	0.0	0.0	0.0	0.2		0.0	0.0	0.03
	Northern Pike	10.8		4.8	1.5	4.5	1.4	1.8		0.0	0.6	3.18
	Yellow Perch	0.3		0.0	0.0	0.0	0.1	0.0		0.0	0.4	0.10
std exp gill net	Black Bullhead	0.0		91.0	0.0	1.5	2.5	1.0				16.00
	Green Sunfish	0.0		0.0	0.0	0.0	0.0	0.5				0.08
	Northern Pike	8.0		8.0	9.0	7.5	7.5	4.0				7.33
	Yellow Perch	2.0		0.0	0.0	1.5	0.0	0.0				0.58

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	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
AFS std frame net	Black Bullhead	PSD								100		
		PSD-P								100		
		Wr								125		
	Black Crappie	PSD								100		
		PSD-P								100		
		Wr								108		
	Bluegill	PSD								100		
		PSD-P								0		
		Wr								149		
	Largemouth Bass	PSD								100		
		PSD-P								100		
		Wr								123		
	Northern Pike	PSD								75		
		PSD-P								25		
		Wr								89		
AFS std gill net	Black Bullhead	PSD								100		
		PSD-P								100		
		Wr								137		
	Northern Pike	PSD								82		
		PSD-P								18		
		Wr								93		
frame net (std 3/4 in)	Black Bullhead	PSD	100		37	100	27	17	50		46	22
		PSD-P	17		2	29	6	1	0		42	22
		Wr	107		107	114	93	106	101		108	124
	Black Crappie	PSD					100	0	0			100
		PSD-P					50	0	0			0
		Wr					100	121	126			109
	Bluegill	PSD					46	52	100			100
		PSD-P					8	9	100			63
		Wr					139	135	138			135
	Largemouth Bass	PSD							100			
		PSD-P							100			

			Year									
Gear	Species	Index	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
frame net (std 3/4 in)	Largemouth Bass	Wr							127			
	Northern Pike	PSD	0		89	83	64	55	67			67
		PSD-P	0		5	33	3	0	33			33
		Wr	88		94	93	87	94	92			94
	Yellow Perch	PSD	0					100				0
		PSD-P	0					100				0
		Wr	103									85
std exp gill net	Black Bullhead	PSD			21		33	20	0			
		PSD-P			0		0	0	0			
		Wr			110		130	114	106			
	Northern Pike	PSD	0		75	100	33	73	88			
		PSD-P	0		0	11	0	20	0			
		Wr	92		98	96	86	96	95			
	Yellow Perch	PSD	0				33					
		PSD-P	0				0					
		Wr	93				82					

Fish Condition

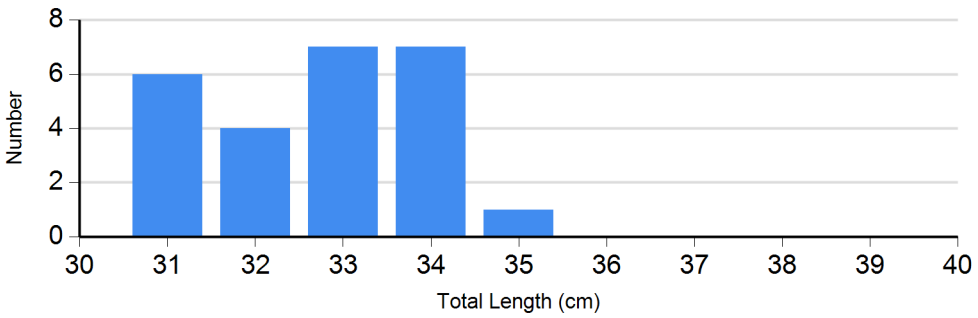
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Bullhead Gill Net	2015	8	112 (1.7)	2	120 (0.0)	0		0	
	2016	4	106 (2.3)	0		0		0	
	2017	0		0		25	137 (2.4)	0	
Black Crappie Frame Net	2015	2	121 (0.0)	0		0		0	
	2016	2	126 (0.0)	0		0		0	
	2017	0		0		0		2	108 (4.6)
	2019	0		1	109	0		0	
Bluegill Frame Net	2015	158	127 (1.2)	140	138 (0.9)	28	143 (1.6)	2	142 (0.0)
	2016	0		0		2	138 (0.0)	0	
	2017	0		1	149	0		0	
	2019	0		3	130 (1.4)	5	137 (4.2)	0	
Northern Pike Gill Net	2015	8	96 (3.6)	16	96 (1.6)	2	89 (0.0)	4	101 (1.9)
	2016	2	81 (0.0)	14	97 (2.3)	0		0	
	2017	2	100 (1.7)	7	90 (3.3)	2	93 (0.2)	0	

Length Frequency Distribution

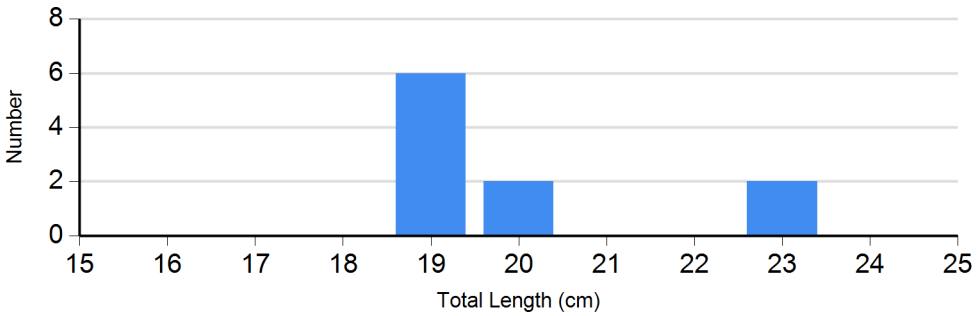
Length frequency histogram of species sampled by year.

Species: Black Bullhead
Gear: AFS std gill net



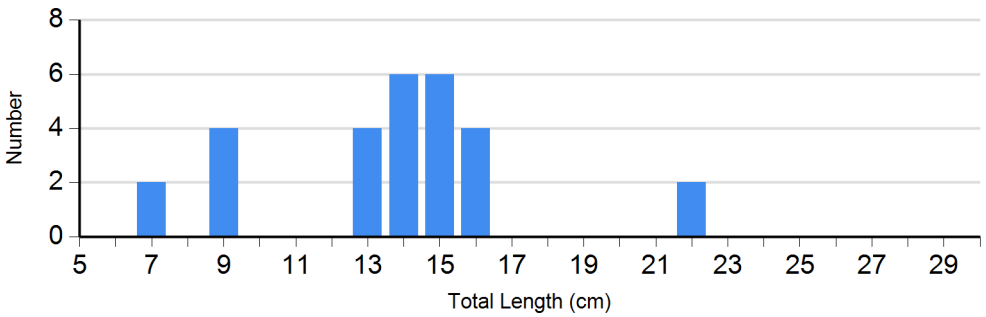
2017

Species: Black Bullhead
Gear: std exp gill net

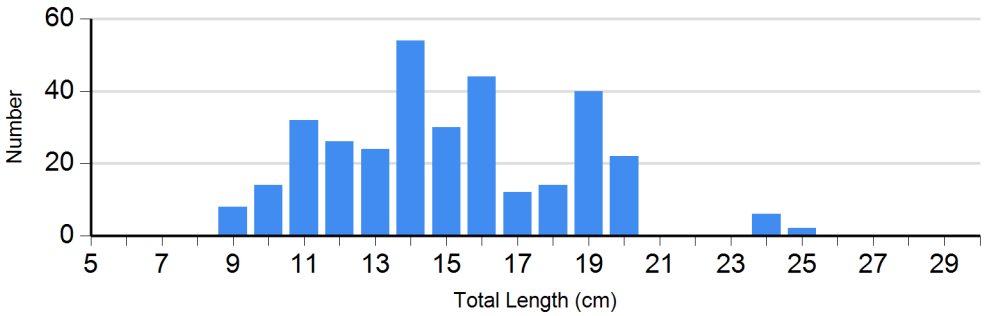


2015

Species: Bluegill
Gear: frame net (std 3/4 in)

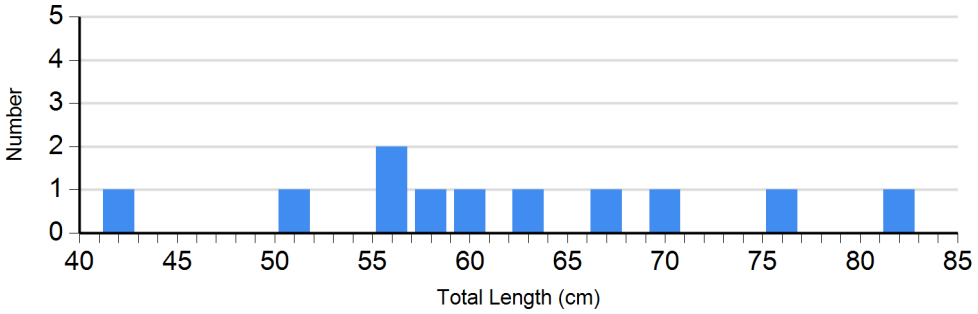


2014



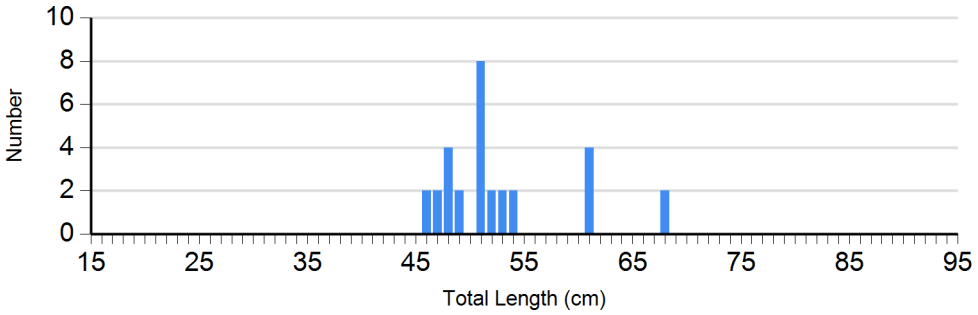
2015

Species: Northern Pike
Gear: AFS std gill net

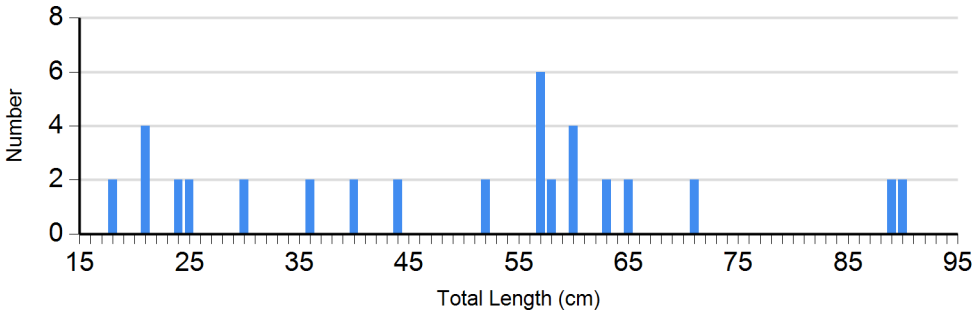


2017

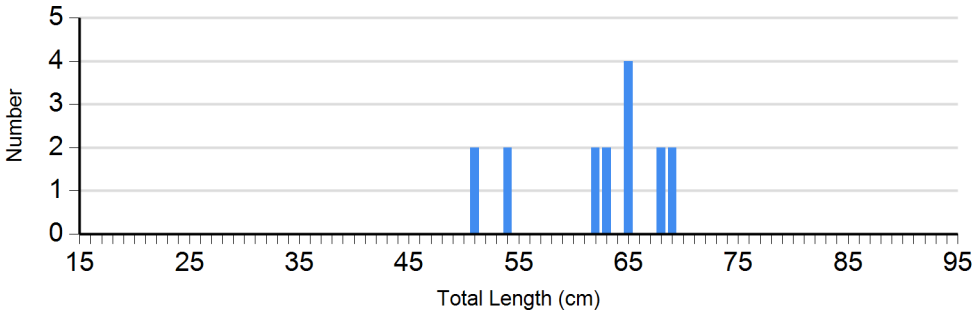
Species: Northern Pike
Gear: std exp gill net



2014



2015

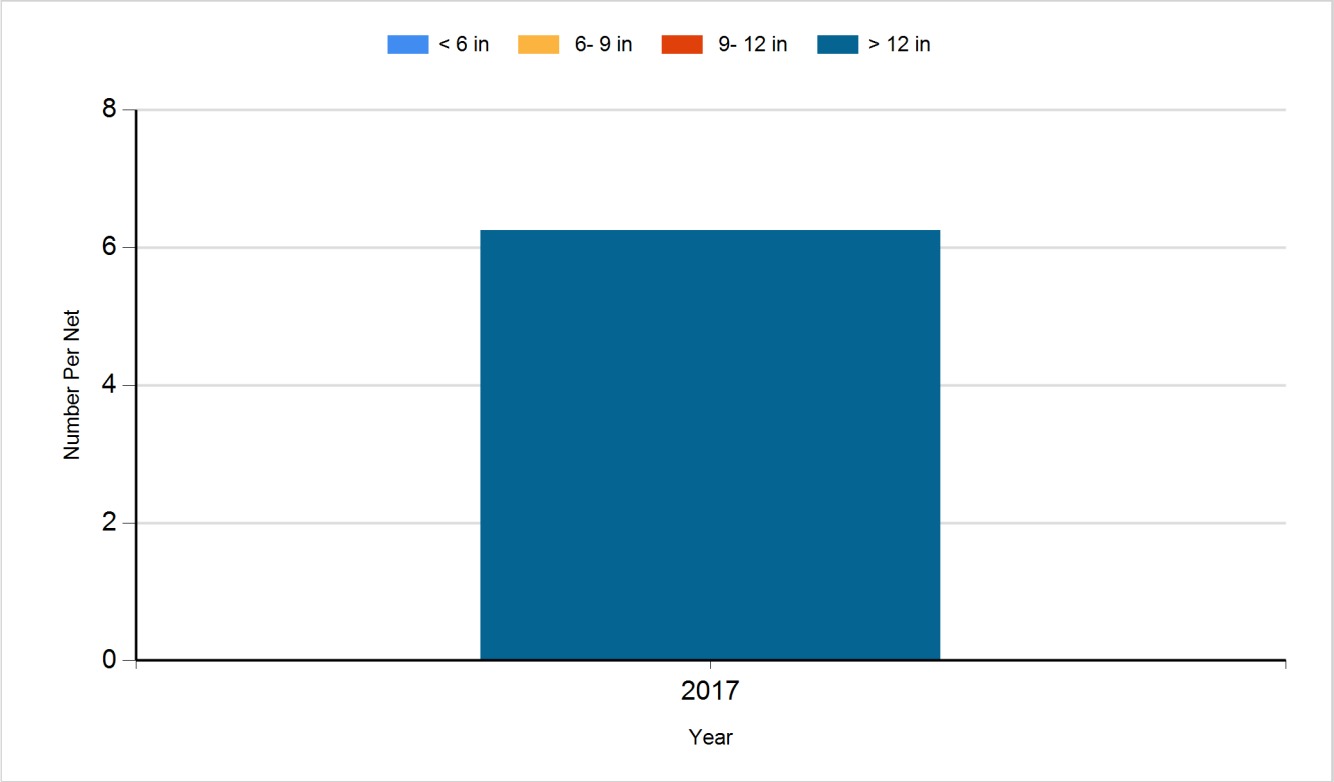


2016

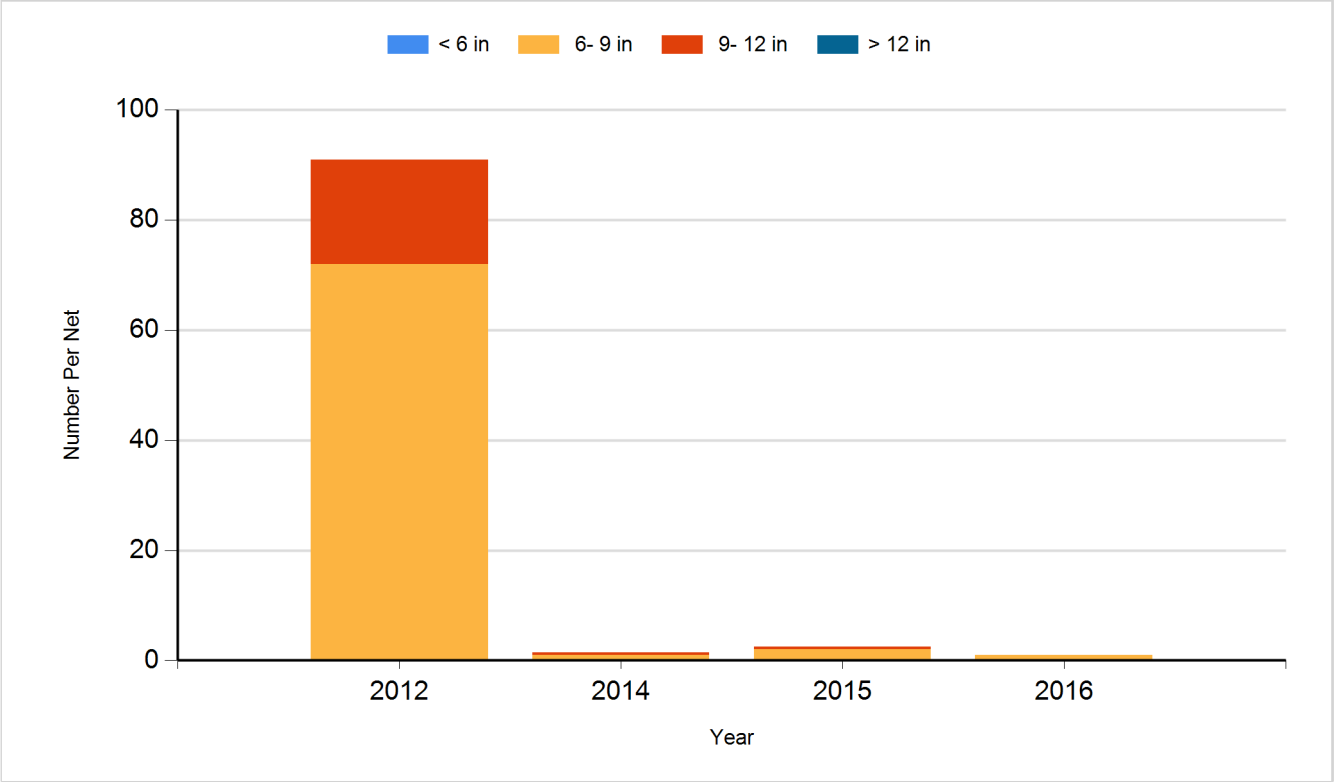
Historic Fish Sizes and Relative Abundance

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

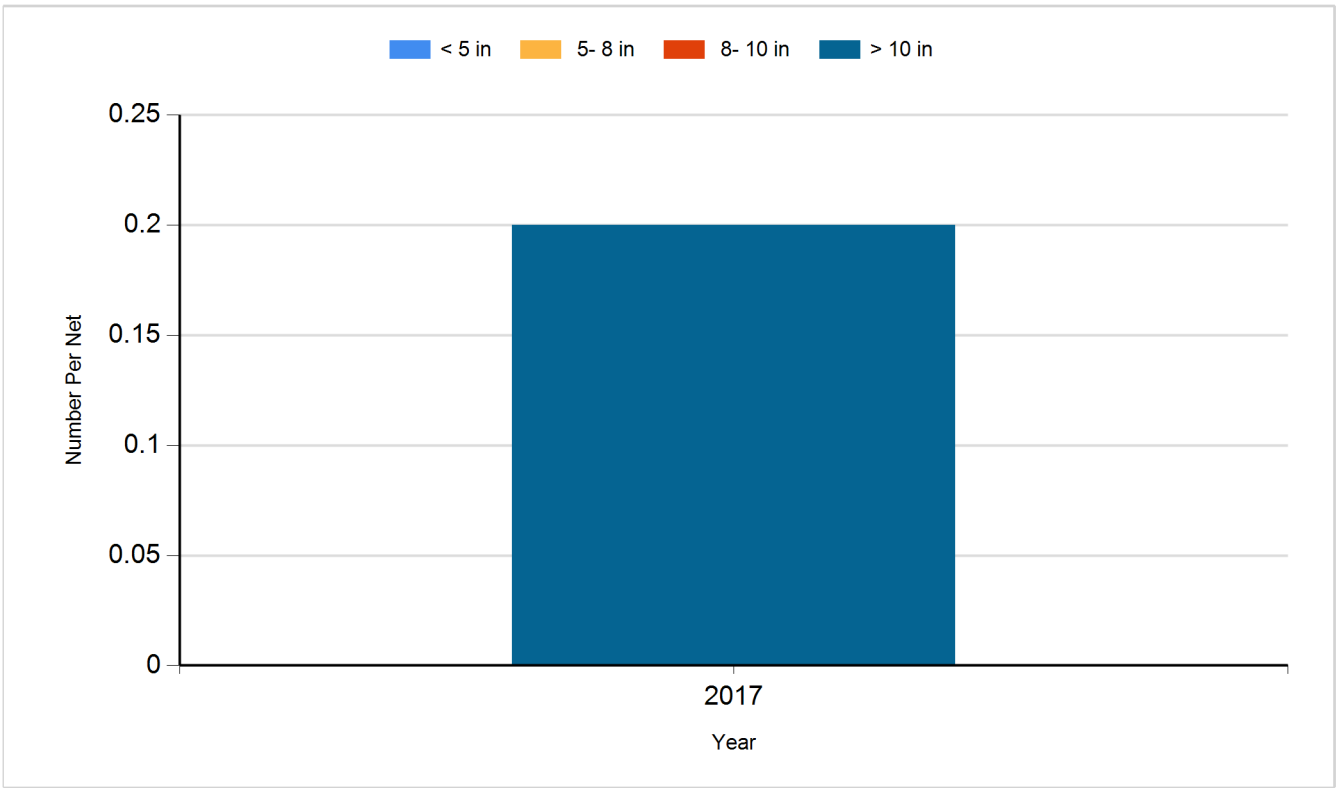
Species: Black Bullhead
Gear: AFS std gill net



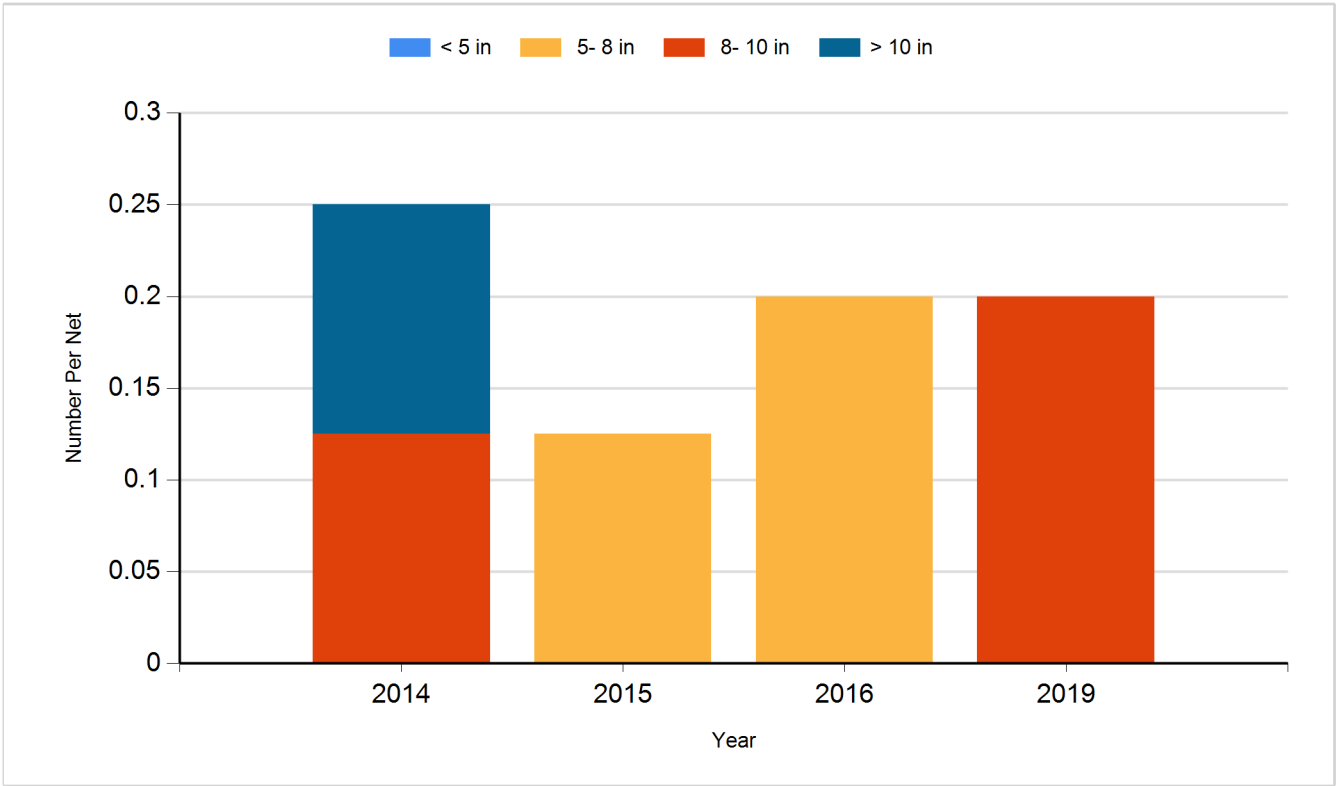
Species: Black Bullhead
Gear: std exp gill net



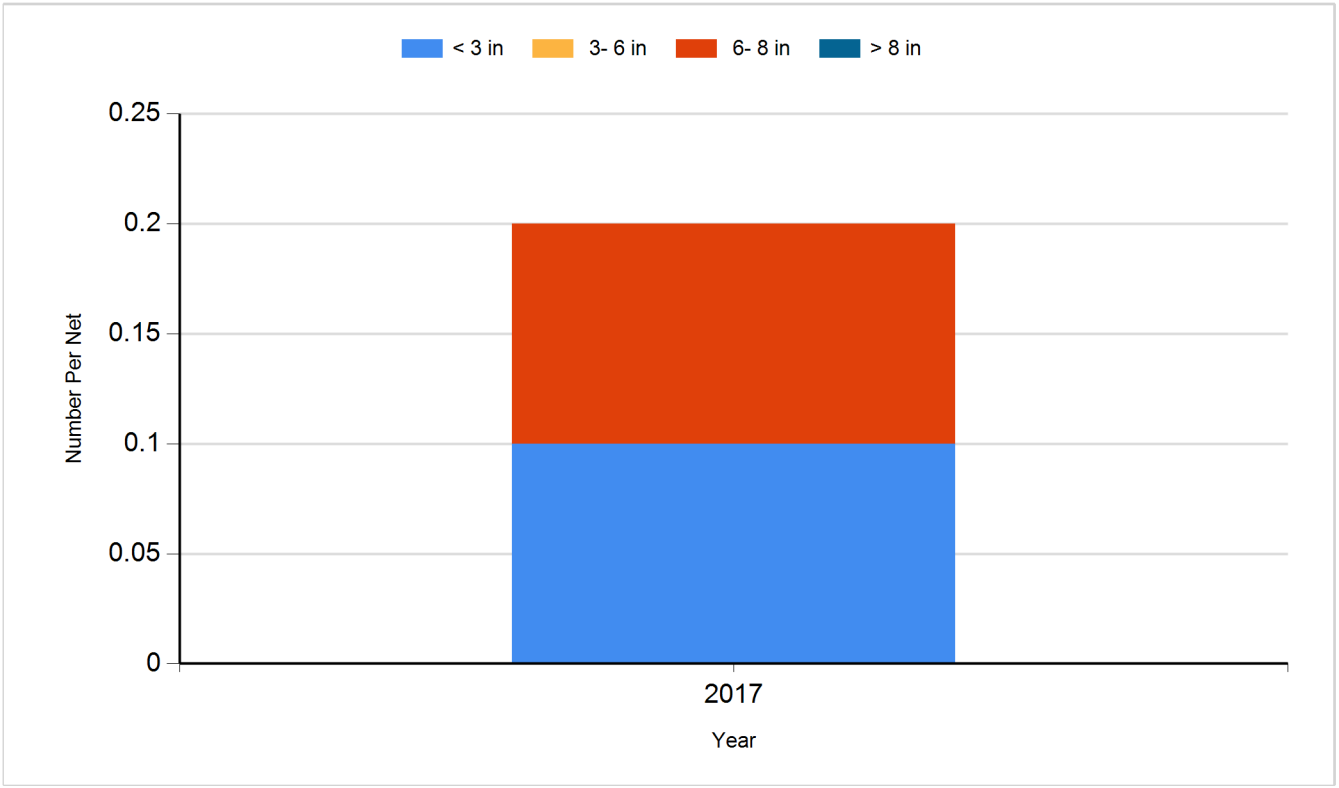
Species: Black Crappie
Gear: AFS std frame net



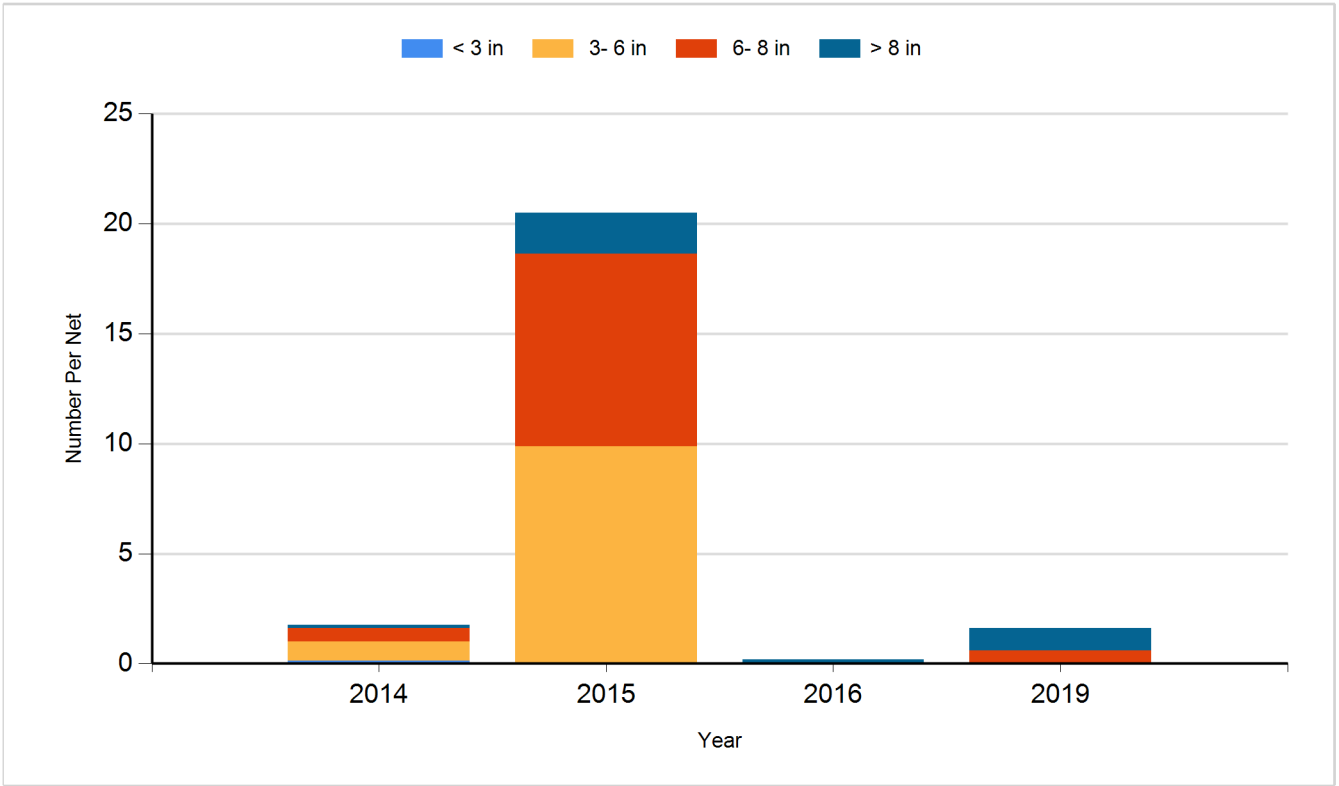
Species: Black Crappie
Gear: frame net (std 3/4 in)



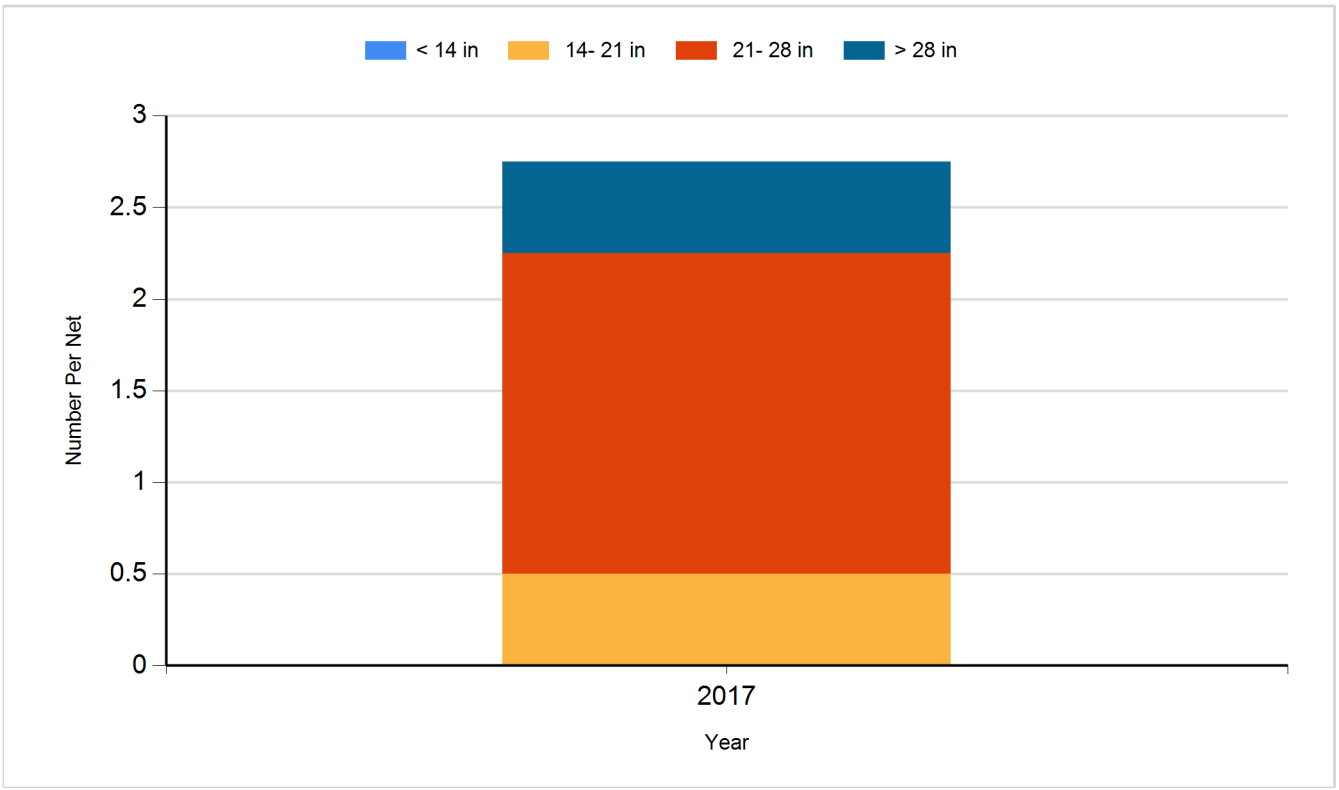
Species: Bluegill
Gear: AFS std frame net



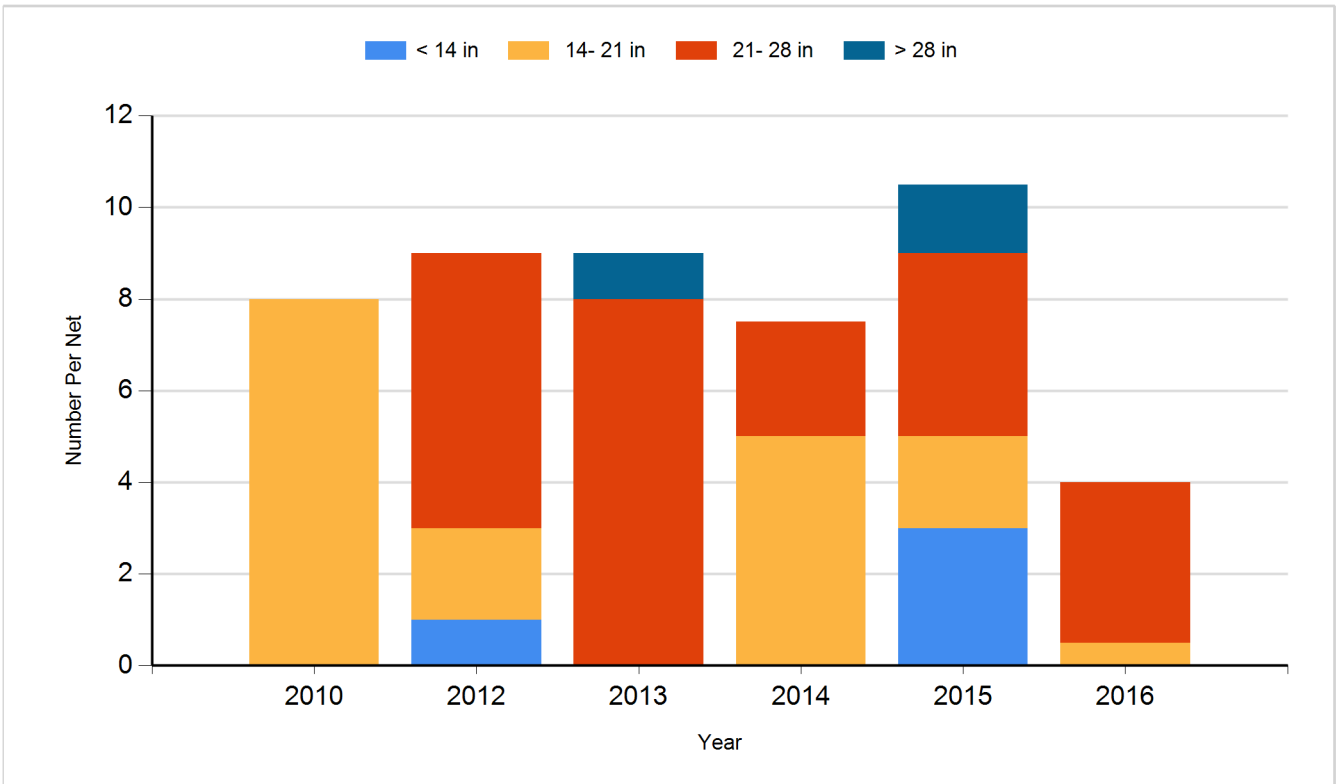
Species: Bluegill
Gear: frame net (std 3/4 in)



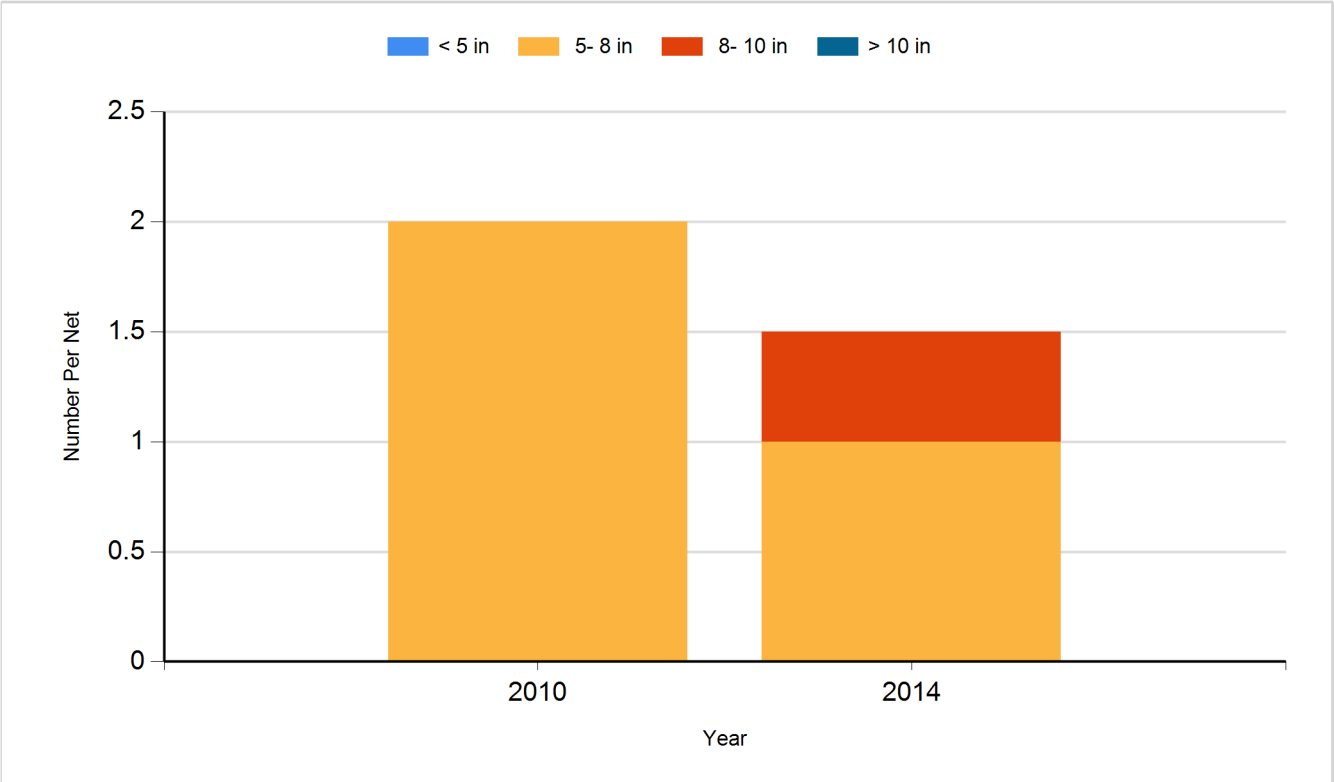
Species: Northern Pike
Gear: AFS std gill net



Species: Northern Pike
Gear: std exp 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
2009	Yellow Perch	Adult	250
2010	Largemouth Bass	Fingerling	5,560
2010	Northern Pike	Fry	97,600
2012	Bluegill	Adult	835
2012	Largemouth Bass	Adult	320
2012	Yellow Perch	Adult	572
2014	Largemouth Bass	Juvenile	250
2014	Yellow Perch	Adult	800
2017	Black Crappie	Adult	200
2017	Bluegill	Adult	25
2017	Yellow Perch	Adult	25
2018	Bluegill	Adult	200
2018	Northern Pike	Adult	15
2019	Golden Shiner	Adult	110
2019	Northern Pike	Adult	100
2019	Yellow Perch	Adult	350