

# SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

Owen Dam, Perkins County

LMO-Lake-397-000

2021

## 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 22, 2021	6 net-nights

## **Common Fish Species Present**

Black Bullhead

Yellow Perch

Northern Pike

Largemouth Bass

Bluegill

Black Crappie

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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).

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
frame net (std 3/4 in)	Black Bullhead	855	142.5	121.2	14	2	1	1	106	1
	Black Crappie	4	0.7	0.6	75		75		97	8
	Bluegill	10	1.7	1.4	50	28	50	28	150	5
	Northern Pike	14	2.3	0.9	71		0		89	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.

\* Methods/Species that ignore stock length

Gear	Species	CPUE										Avg	
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
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			27.0			16.65
	Northern Pike						2.8			5.0			3.90
frame net (std 3/4 in)	Black Bullhead	65.3	3.5	7.8	67.3	4.4		4.0	1.8	81.5	142.5		42.01
	Black Crappie	0.0	0.0	0.3	0.1	0.2		0.0	0.2	0.3	0.7		0.20
	Bluegill	0.0	0.0	1.6	20.5	0.2		0.0	1.6	0.5	1.7		2.90
	Golden Shiner	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.00
	Green Sunfish	0.0	0.0	0.0	0.1	0.0		0.0	0.0	0.0	0.0		0.01
	Largemouth Bass	0.0	0.0	0.0	0.0	0.2		0.0	0.0	0.0	0.0		0.02
	Northern Pike	4.8	1.5	4.5	1.4	1.8		0.0	0.6	4.7	2.3		2.40
	Yellow Perch	0.0	0.0	0.0	0.1	0.0		0.0	0.4	0.0	0.0		0.06
std exp gill net	Black Bullhead	91.0	0.0	1.5	2.5	1.0							19.20
	Green Sunfish	0.0	0.0	0.0	0.0	0.5							0.10
	Northern Pike	8.0	9.0	7.5	7.5	4.0							7.20
	Yellow Perch	0.0	0.0	1.5	0.0	0.0							0.30

## 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											
			2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
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				0	
		PSD-P							100				0	
		Wr								137			107	
	Northern Pike	PSD								82			30	
		PSD-P								18			0	
		Wr								93			89	
frame net (std 3/4 in)	Black Bullhead	PSD	37	100	27	17	50			46	22	2	14	
		PSD-P	2	29	6	1	0			42	22	1	1	
		Wr	107	114	93	106	101			108	124	94	106	
	Black Crappie	PSD			100	0	0				100	100	75	
		PSD-P			50	0	0				0	100	75	
		Wr			100	121	126				109	93	97	
	Bluegill	PSD			46	52	100				100	100	50	
		PSD-P			8	9	100				63	100	50	
		Wr			139	135	138				135	132	150	
	Largemouth Bass	PSD								100				
		PSD-P								100				

Gear	Species	Index	Year									
			2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
frame net (std 3/4 in)	Largemouth Bass	Wr					127					
	Northern Pike	PSD	89	83	64	55	67			67	14	71
		PSD-P	5	33	3	0	33			33	0	0
		Wr	94	93	87	94	92			94	86	89
	Yellow Perch	PSD				100				0		
		PSD-P				100				0		
		Wr								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	75	100	33	73	88					
		PSD-P	0	11	0	20	0					
		Wr	98	96	86	96	95					
	Yellow Perch	PSD			33							
		PSD-P			0							
		Wr			82							



## **Fish Condition**

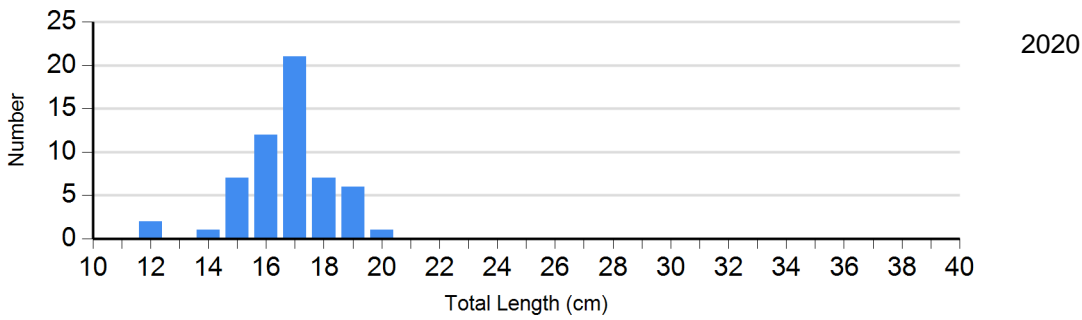
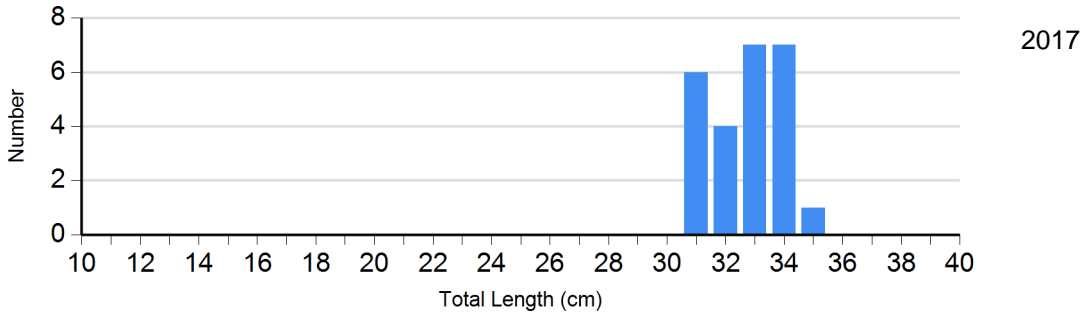
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Bullhead Gill Net	2017	0		0		25	137 (2.4)	0	
	2020	54	107 (1.0)	0		0		0	
Black Crappie Frame Net	2017	0		0		0		2	108 (4.6)
	2019	0		1	109	0		0	
	2020	0		0		2	93 (3.6)	0	
	2021	1	112	0		2	90	1	89
Bluegill Frame Net	2017	0		1	149	0		0	
	2019	0		3	130 (1.4)	5	137 (4.2)	0	
	2020	0		0		1	134	2	130 (0.8)
	2021	5	155 (2.3)	0		1	122	4	151 (2.6)
Northern Pike Gill Net	2017	2	100 (1.7)	7	90 (3.3)	2	93 (0.2)	0	
	2020	7	87 (2.6)	3	91 (7.4)	0		0	

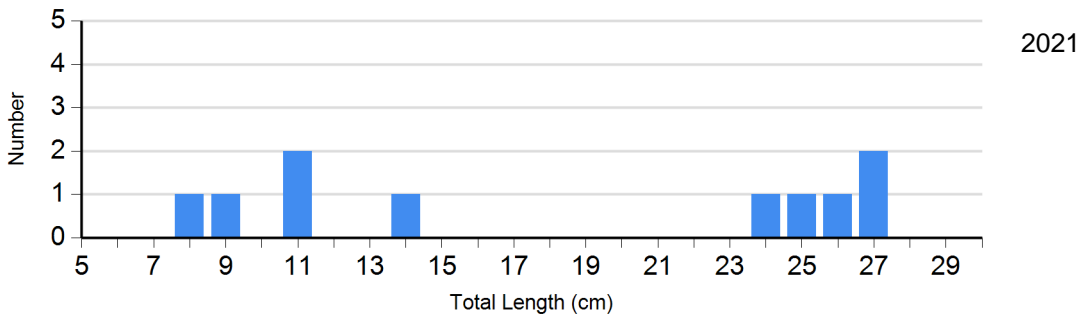
## Length Frequency Distribution

Length frequency histogram of species sampled by year.

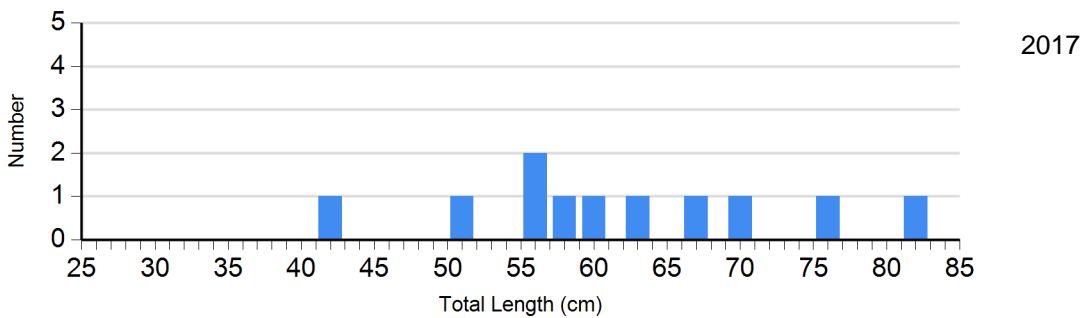
Species: Black Bullhead  
Gear: AFS std gill net

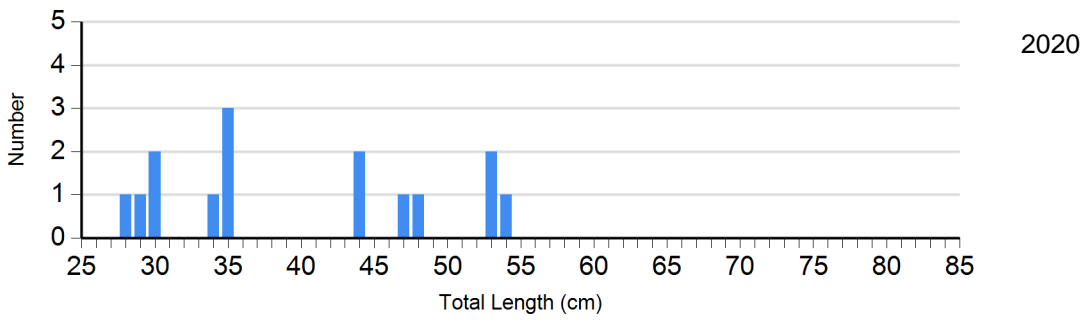


Species: Bluegill  
Gear: frame net (std 3/4 in)

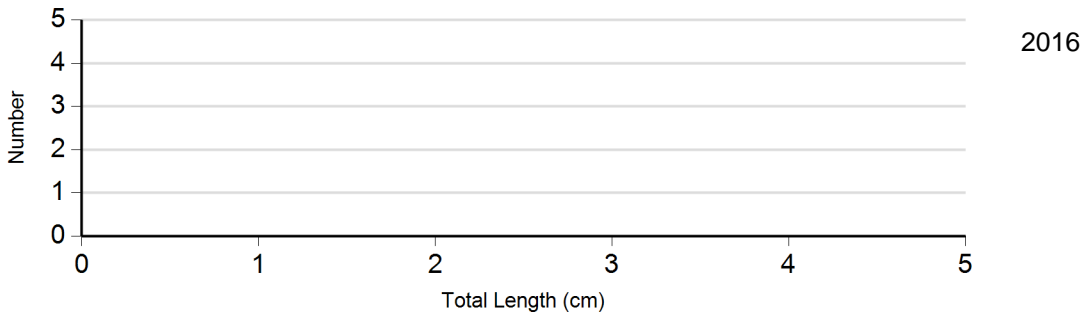


Species: Northern Pike  
Gear: AFS std gill net





Species: Northern Pike  
 Gear: std exp gill net

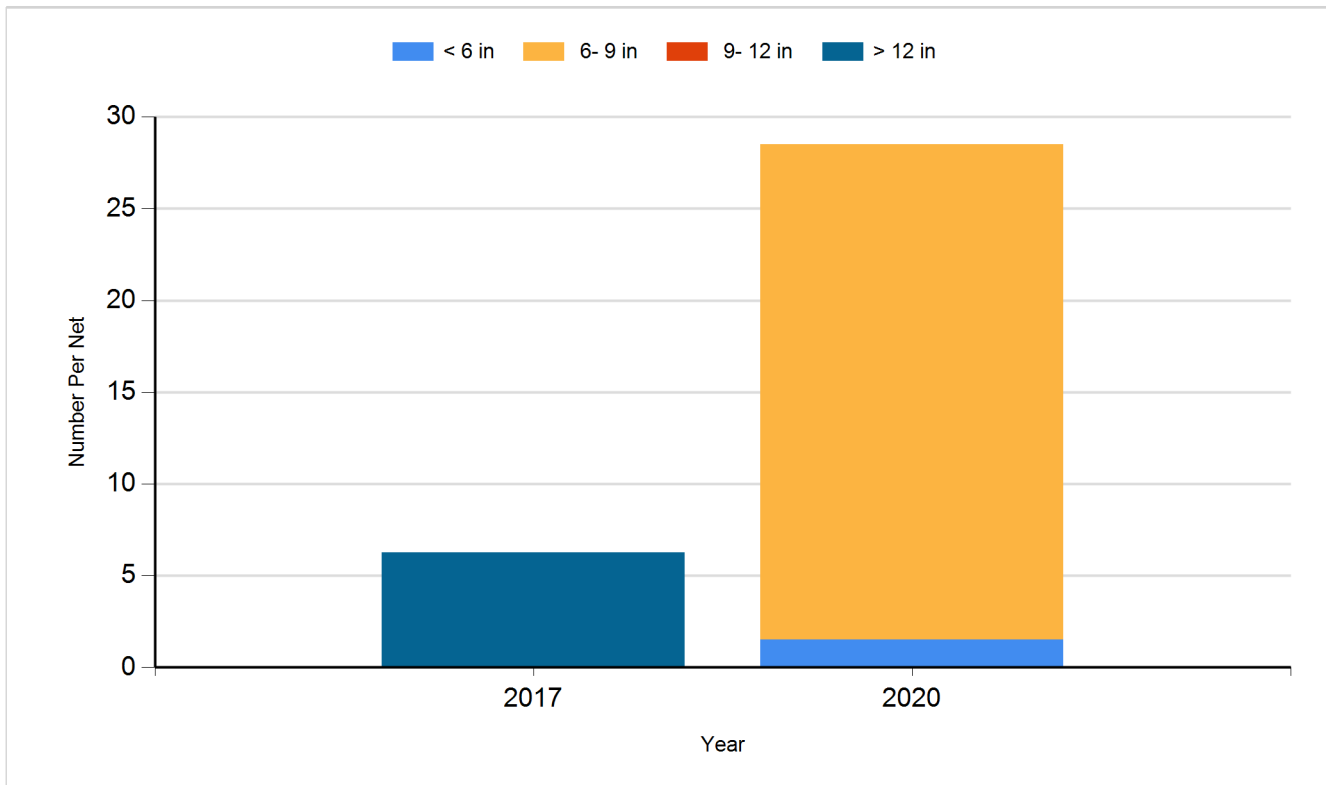


## Historic Fish Sizes and Relative Abundance

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

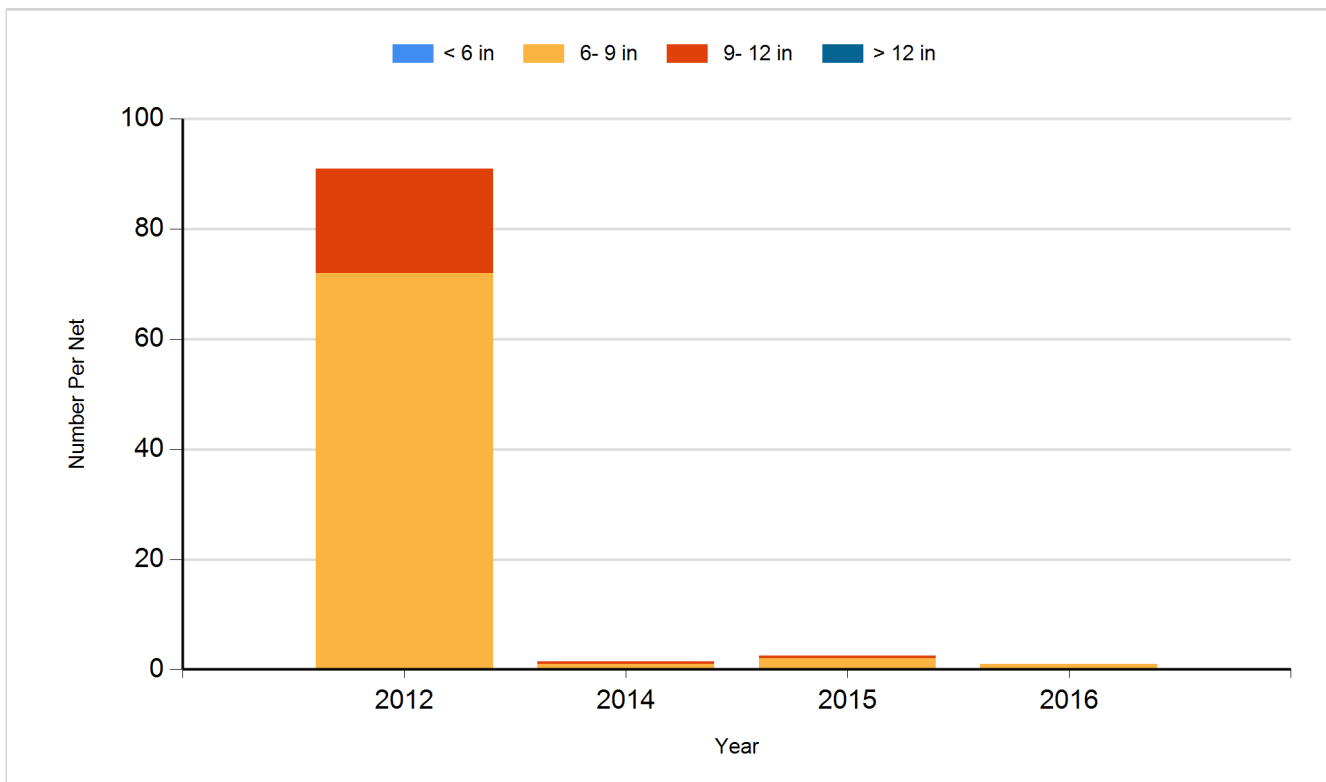
Species: Black Bullhead

Gear: AFS std gill net

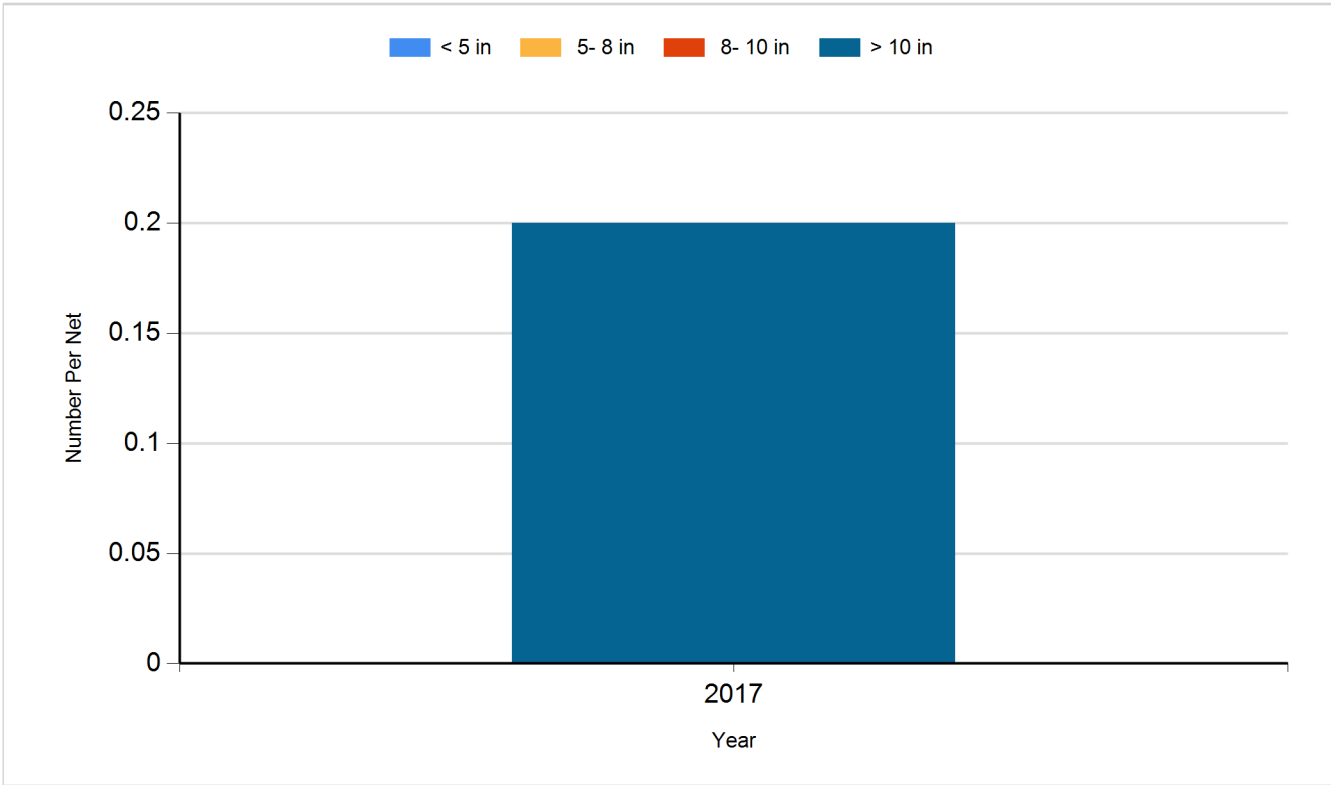


Species: Black Bullhead

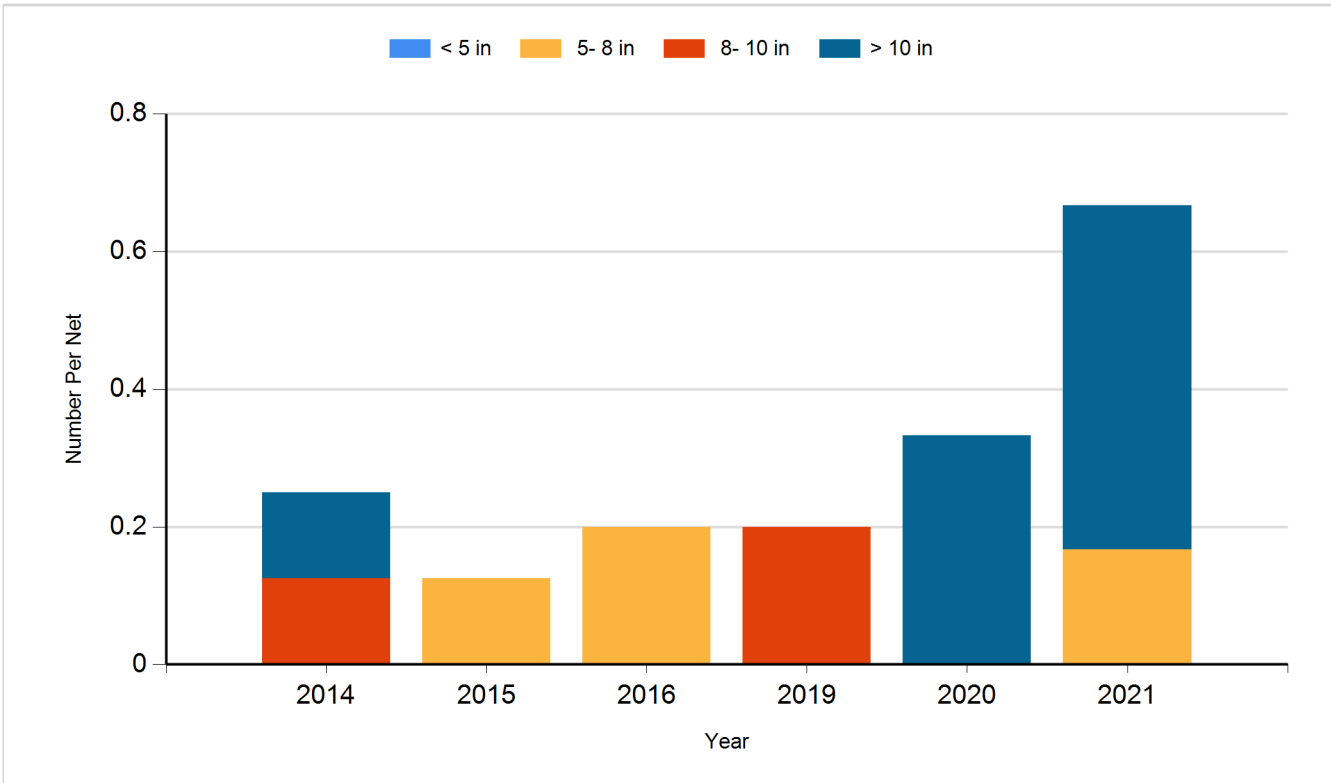
Gear: std exp gill net



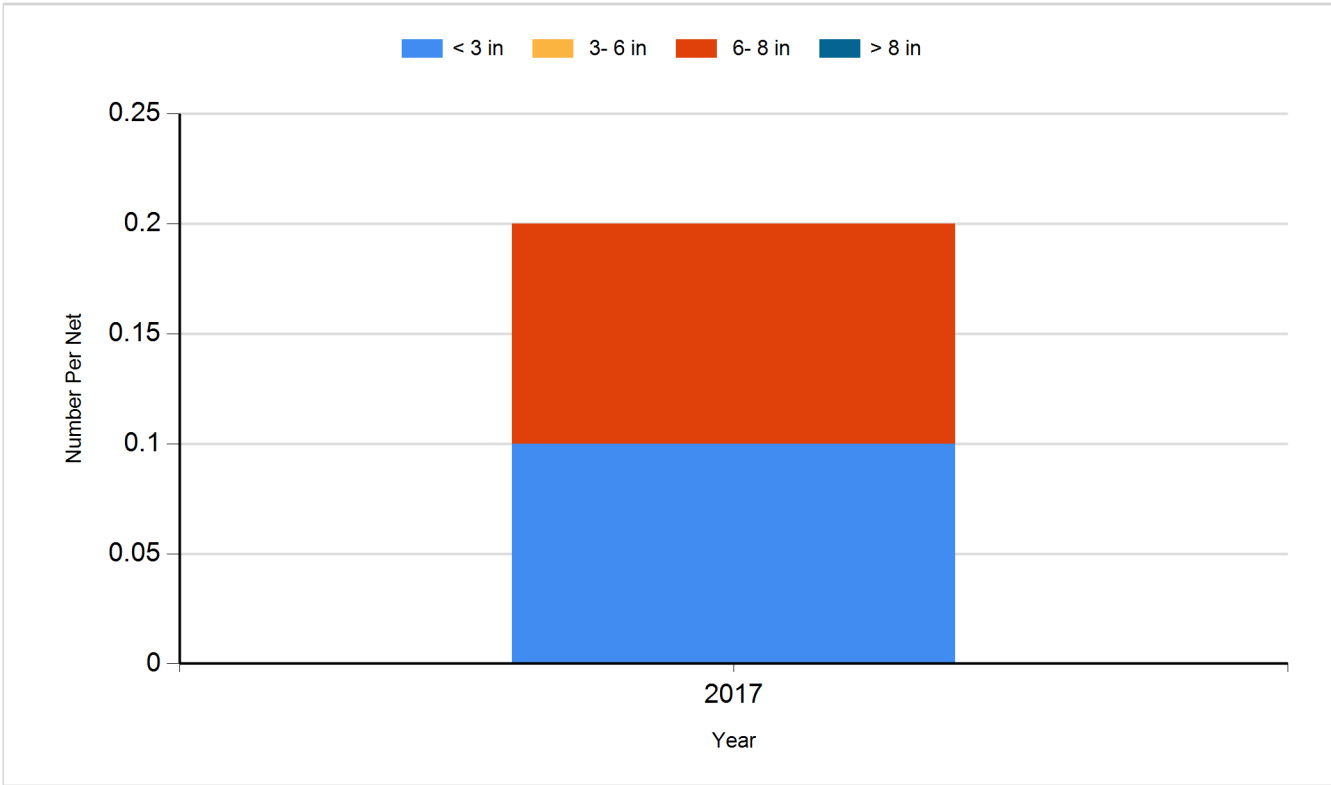
Species: Black Crappie  
Gear: AFS std frame net



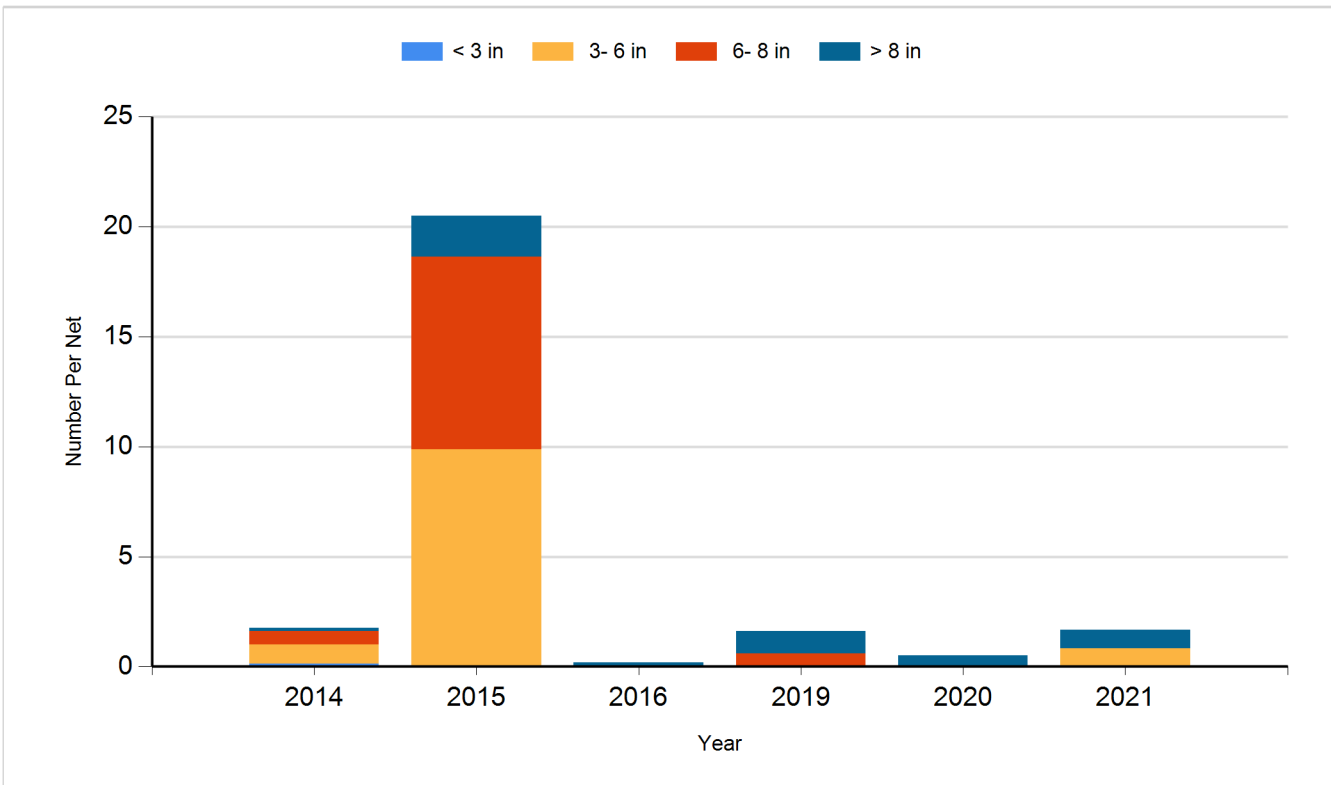
Species: Black Crappie  
Gear: frame net (std 3/4 in)



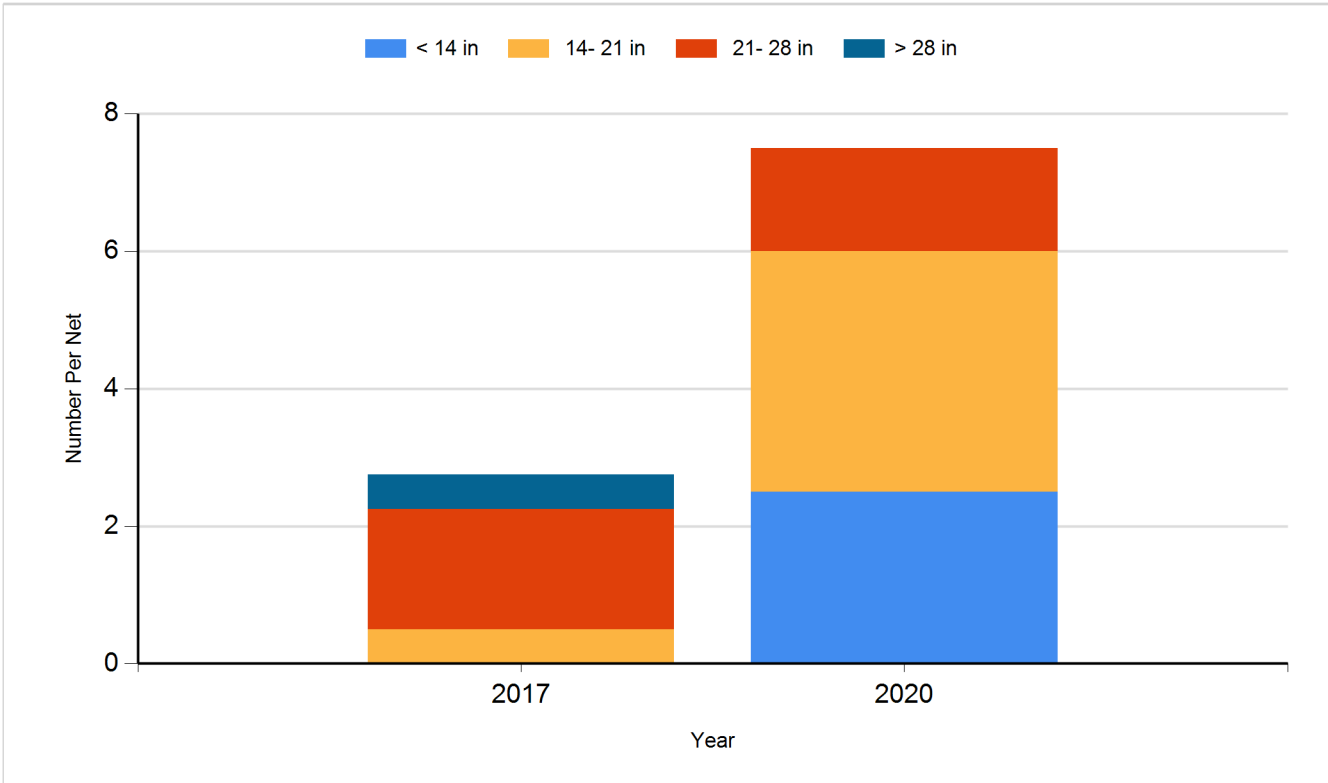
Species: Bluegill  
Gear: AFS std frame net



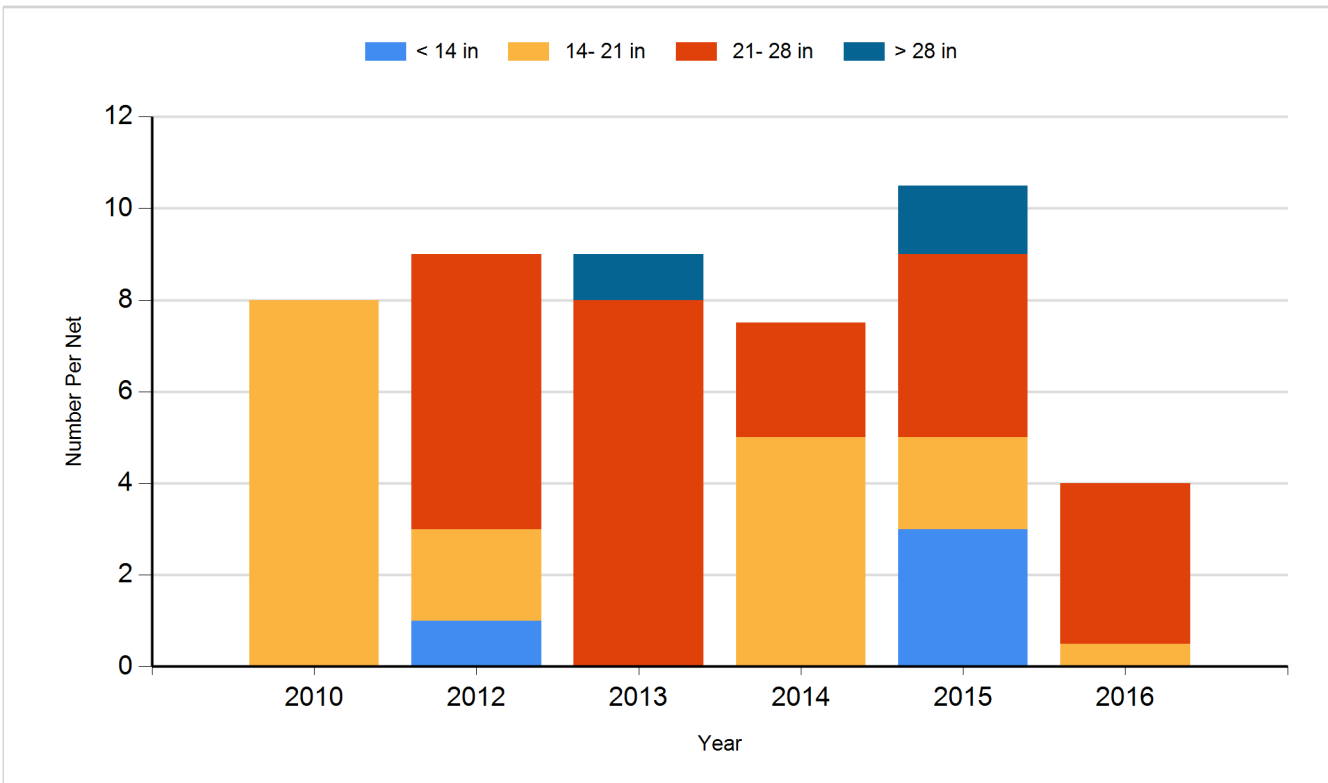
Species: Bluegill  
Gear: frame net (std 3/4 in)



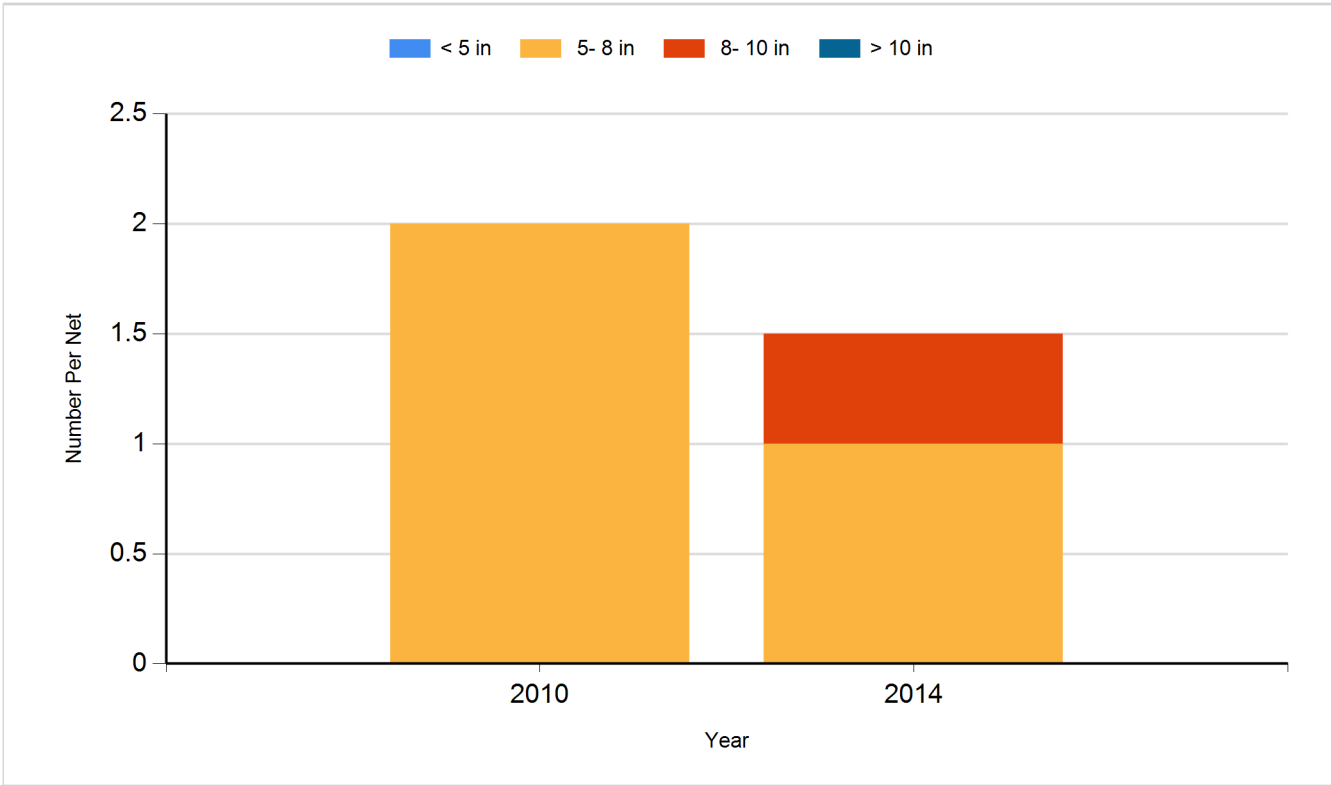
Species: Northern Pike  
Gear: AFS std gill net



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
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
2021	Black Crappie	Adult	170
2021	Bluegill	Adult	130
2021	Yellow Perch	Adult	1,100