SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
New Wall, Pennington County
MCE-Lake-9-000
2024

Lake Information

Name: New Wall

County: Pennington

Surface Area: 36 Acres

Surveys and Investigations

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

Gear	Date	Effort
frame net (std 3/4 in)	Jun 12, 2024	8 net-nights

Common Fish Species Present

Bluegill

Black Crappie

Northern Pike

Largemouth Bass

Yellow Perch

White Crappie

Golden Shiner

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 Crappie	84	10.5	3.6	64	8	0		102	1
	Bluegill	539	67.3	31.9	40	3	1	1	110	1
	Golden Shiner	3	0.0	0.0						
	Northern Pike	3	0.4	0.3	67		33		71	40
	White Crappie	4	0.5	0.4	100		100		81	14
	Yellow Perch	99	12.4	4.2	27	6	1		83	1

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**

		CPUE										
Gear	Species	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Avg
AFS std frame net	Black Crappie			13.3								13.30
	Bluegill			15.7								15.70
	Golden Shiner			0.0								0.00
	Yellow Perch			1.4								1.40
AFS std gill net	Black Crappie			5.0		0.5						2.75
	Bluegill			3.0		0.0						1.50
	Golden Shiner			0.0		0.0						0.00
	Largemouth Bass			2.0		0.5						1.25
	Northern Pike			1.5		1.0						1.25
	Yellow Perch			4.5		2.0						3.25
boat shocker (day)	Largemouth Bass							120.0		108.0		114.00
boat shocker (night)	Largemouth Bass	91.5	107.0	169.5	71.0	82.0	76.0					99.50
frame net (std 3/4 in)	Black Crappie	27.0	8.1		13.2	17.9	30.2	75.8	5.4		10.5	23.51
	Bluegill	65.5	26.9		10.3	34.3	18.3	103.4	79.0		67.3	50.63
	Crappie Hybrid	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.00
	Golden Shiner	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.00
	Largemouth Bass	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.00
	Northern Pike	0.8	0.5		0.0	0.1	0.2	0.4	0.0		0.4	0.30
	White Crappie	0.9	1.6		0.0	1.3	1.2	2.0	0.0		0.5	0.94
	Yellow Perch	3.9	1.9		1.2	16.5	6.5	19.2	5.6		12.4	8.40
std exp gill net	Black Crappie	1.5										1.50
	Bluegill	5.5										5.50
	Golden Shiner	0.0										0.00
	Largemouth Bass	0.0										0.00
	Northern Pike	1.5										1.50
	Yellow Perch	0.5										0.50

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	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AFS std frame net	Black Crappie	PSD			23							
		PSD-P			3							
		Wr			90							
	Bluegill	PSD			59							
		PSD-P			0							
		Wr			92							
	Yellow Perch	PSD			54							
		PSD-P			0							
		Wr			77							
AFS std gill net	Black Crappie	PSD			10		0					
		PSD-P			0		0					
		Wr			92		86					
	Bluegill	PSD			100							
		PSD-P			0							
		Wr			94							
	Largemouth Bass	PSD			25		100					
		PSD-P			25		100					
		Wr			102		99					
	Northern Pike	PSD			100		100					
		PSD-P			100		100					
		Wr			94		102					
	Yellow Perch	PSD			0		0					
		PSD-P			0		0					
		Wr			85		75					
boat shocker (day)	Largemouth Bass	PSD							48		60	
		PSD-P							40		33	
		Wr							108		115	
boat shocker (night)	Largemouth Bass	PSD	87	71	58	70	71	59				
		PSD-P	51	28	30	32	33	32				
		Wr	101	107	106	100	106	108				
frame net (std 3/4 in)	Black Crappie	PSD	6	25		10	15	4	13	7		64

			Year									
Gear	Species	Index	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
frame net (std 3/4 in)	Black Crappie	PSD-P	0	4		1	1	2	0	0		0
		Wr	104	101		91	91	93	91	86		102
	Bluegill	PSD	23	42		47	60	43	34	23		40
		PSD-P	1	0		0	0	0	0	1		1
		Wr	105	114		90	94	98	95	87		110
	Largemouth Bass	PSD	0				0					
		PSD-P	0				0					
	Northern Pike	PSD	50	80			100	100	100			67
		PSD-P	33	0			100	0	100			33
		Wr	92	96			108	81	107			71
	White Crappie	PSD	100	100			80	100	100			100
		PSD-P	29	88			80	100	100			100
		Wr	89	88			94	91	89			81
	Yellow Perch	PSD	13	26		71	34	18	24	14		27
		PSD-P	0	5		0	3	5	3	0		1
		Wr	92	89		78	89	86	81	81		83
std exp gill net	Black Crappie	PSD	0									
		PSD-P	0									
		Wr	100									
	Bluegill	PSD	73									
		PSD-P	0									
		Wr	97									
	Northern Pike	PSD	100									
		PSD-P	100									
		Wr	102									
	Yellow Perch	PSD	0									
		PSD-P	0									
		Wr	92									

Length at Capture

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

Species: Bluegill

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2017	100				147 (27)	155 (8)	165 (66)				

Species: Largemouth Bass

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2015	78	145 (16)	236 (10)		322 (27)	351 (21)	412 (4)				

Fish Condition

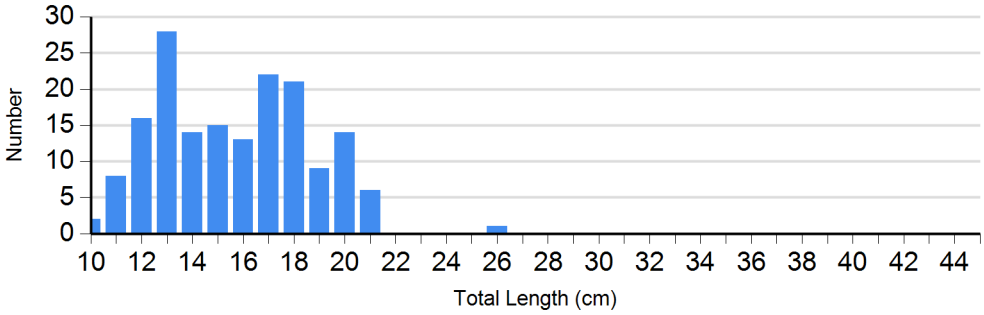
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		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	2020	173	94 (0.7)	5	88 (1.2)	0		3	89 (3.3)
	2021	330	91 (0.7)	49		0		0	
	2022	25	86 (1.6)	2	84 (5.2)	0		0	
	2024	30	104 (1.6)	54	101 (0.9)	0		0	
Bluegill Frame Net	2020	63	101 (1.8)	47	96 (1.1)	0		0	
	2021	339	96 (1.0)	176	93 (1.7)	2		0	
	2022	306	88 (0.8)	87	72 (1.1)	2		0	
	2024	321	113 (1.0)	214	108 (0.8)	3	100 (8.2)	0	
Largemouth Bass Electro Fishing	2020	31	108 (1.2)	21	107 (2.2)	24	109 (1.8)	0	
	2021	42	106 (1.2)	6	105 (2.4)	32	113 (1.6)	0	
	2023	29	118 (1.3)	19	115 (1.7)	23	112 (2.4)	1	93
White Crappie Frame Net	2020	0		0		0		7	91 (1.5)
	2021	0		0		0		10	89 (1.4)
	2024	0		0		0		4	81 (11.2)

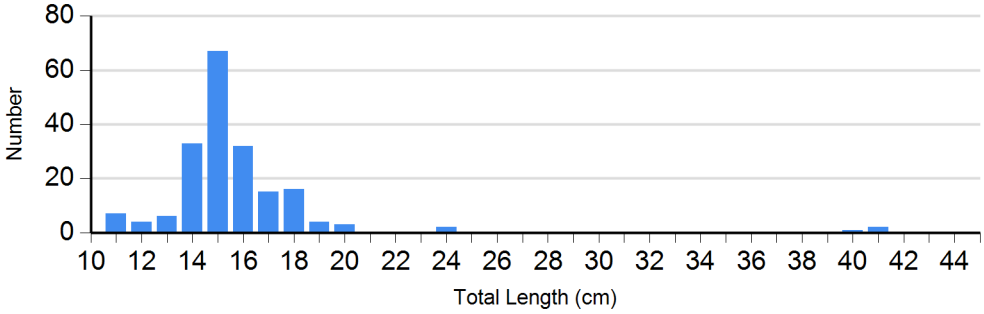
Length Frequency Distribution

Length frequency histogram of species sampled by year.

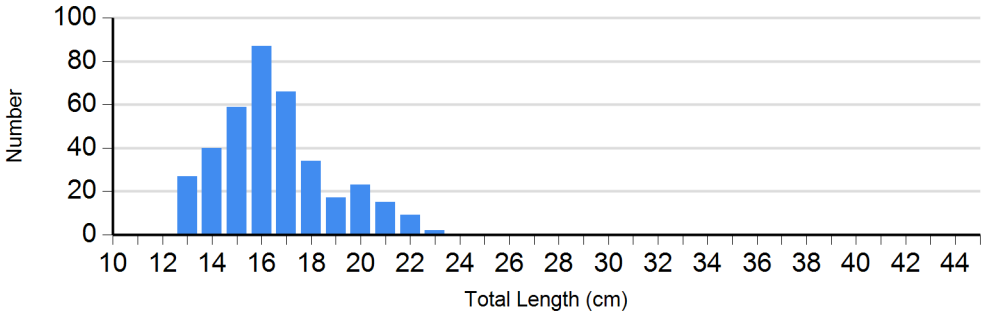
Species: Black Crappie
Gear: frame net (std 3/4 in)



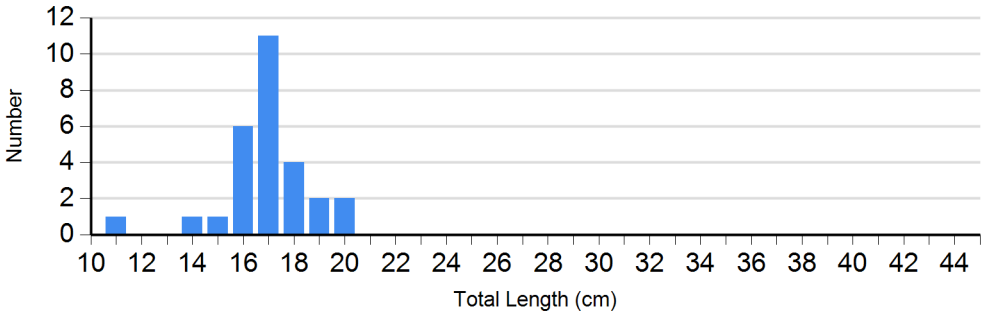
2019



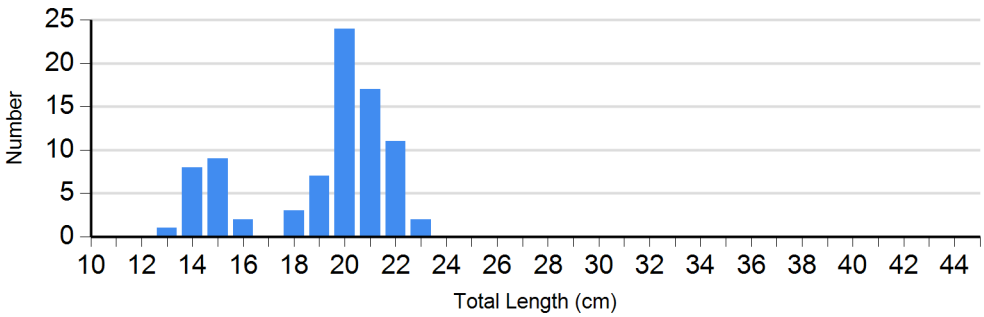
2020



2021



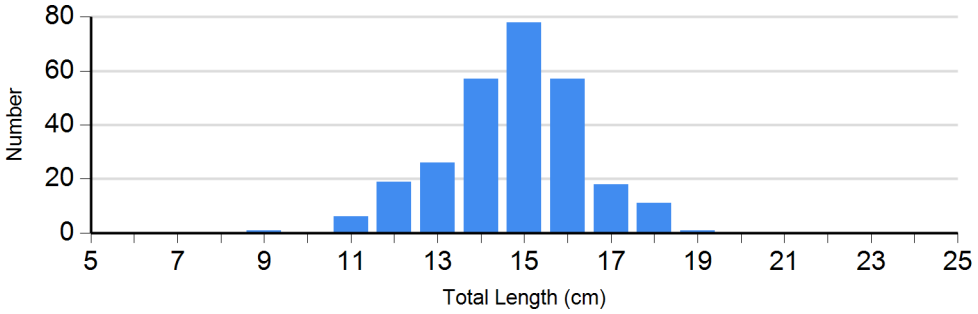
2022



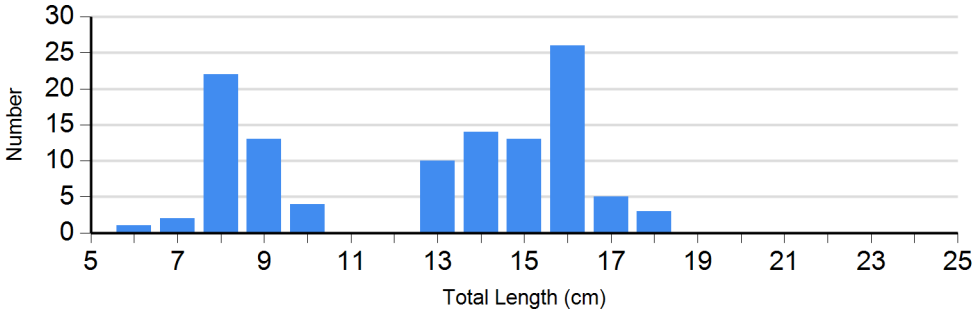
2024

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

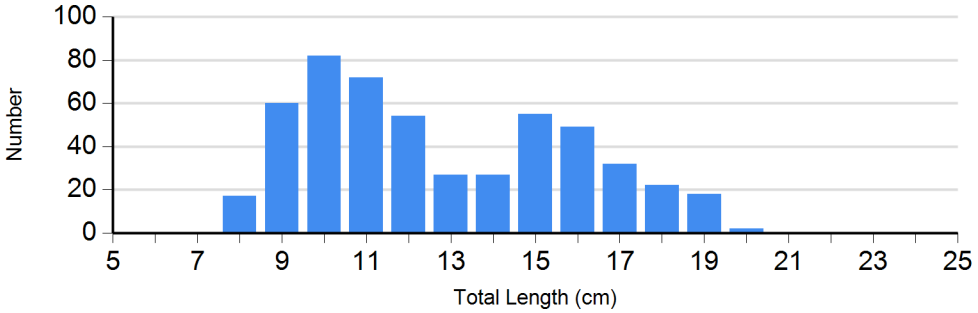
2019



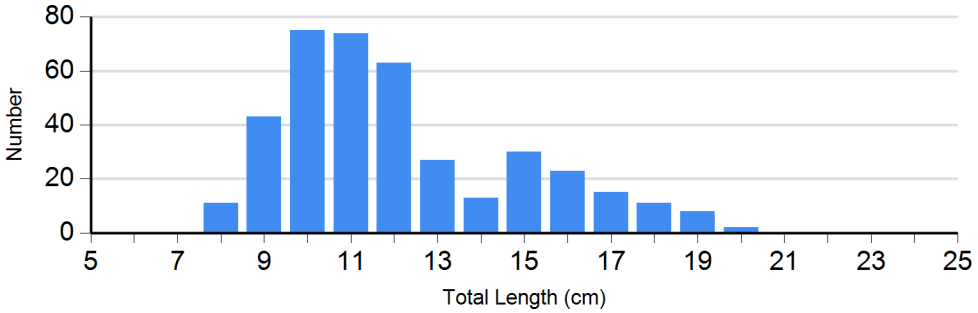
2020



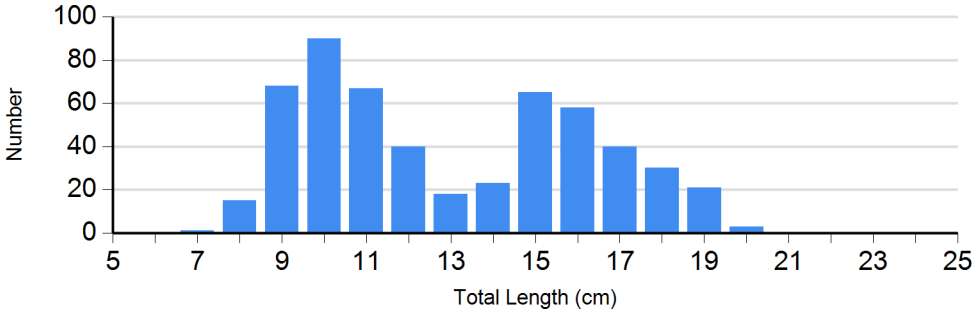
2021



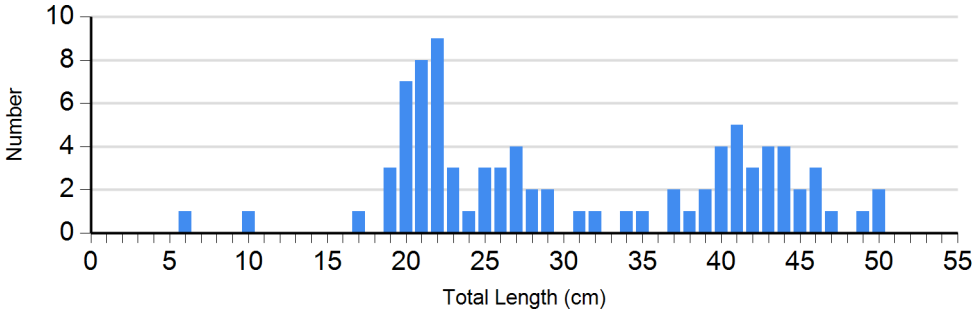
2022



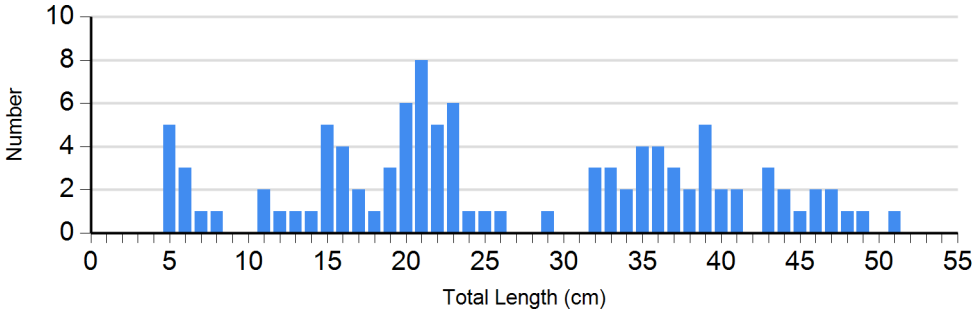
2024



Species: Largemouth Bass
Gear: boat shocker (day)

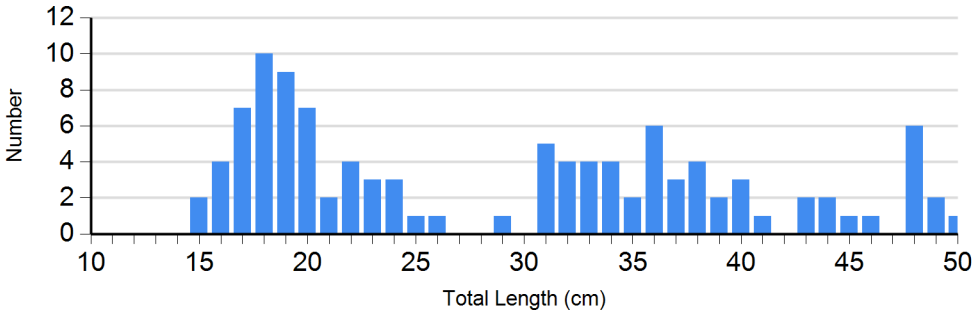


2021



2023

Species: Largemouth Bass
Gear: boat shocker (night)



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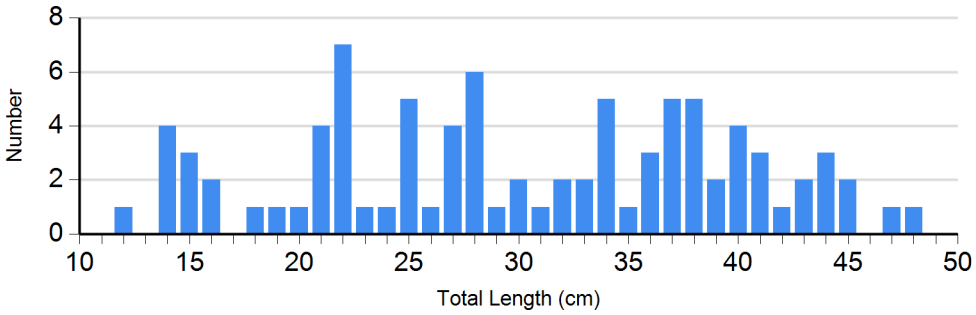
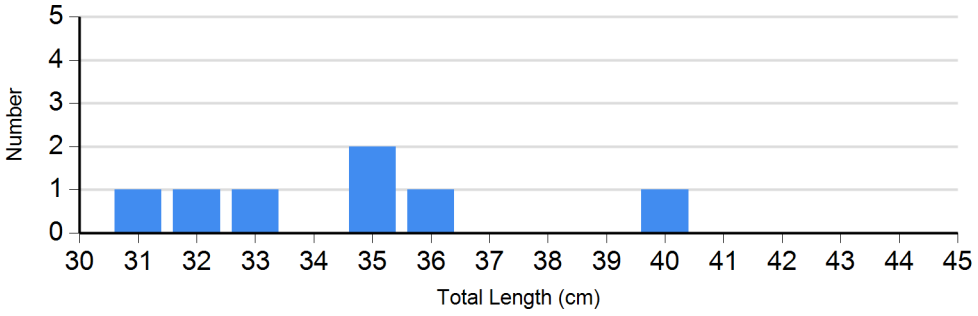
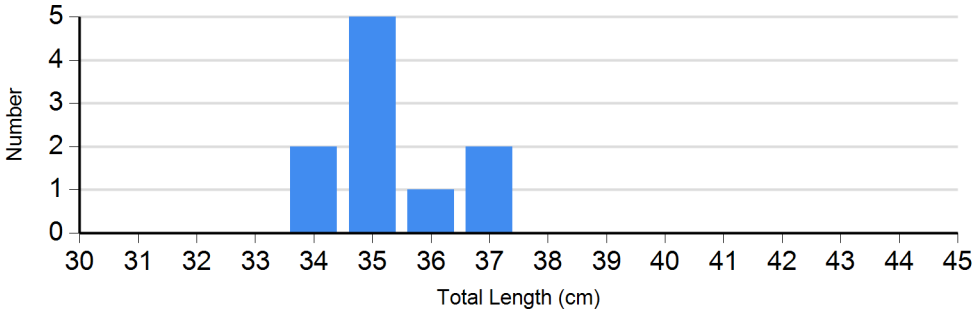


2020

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



2019

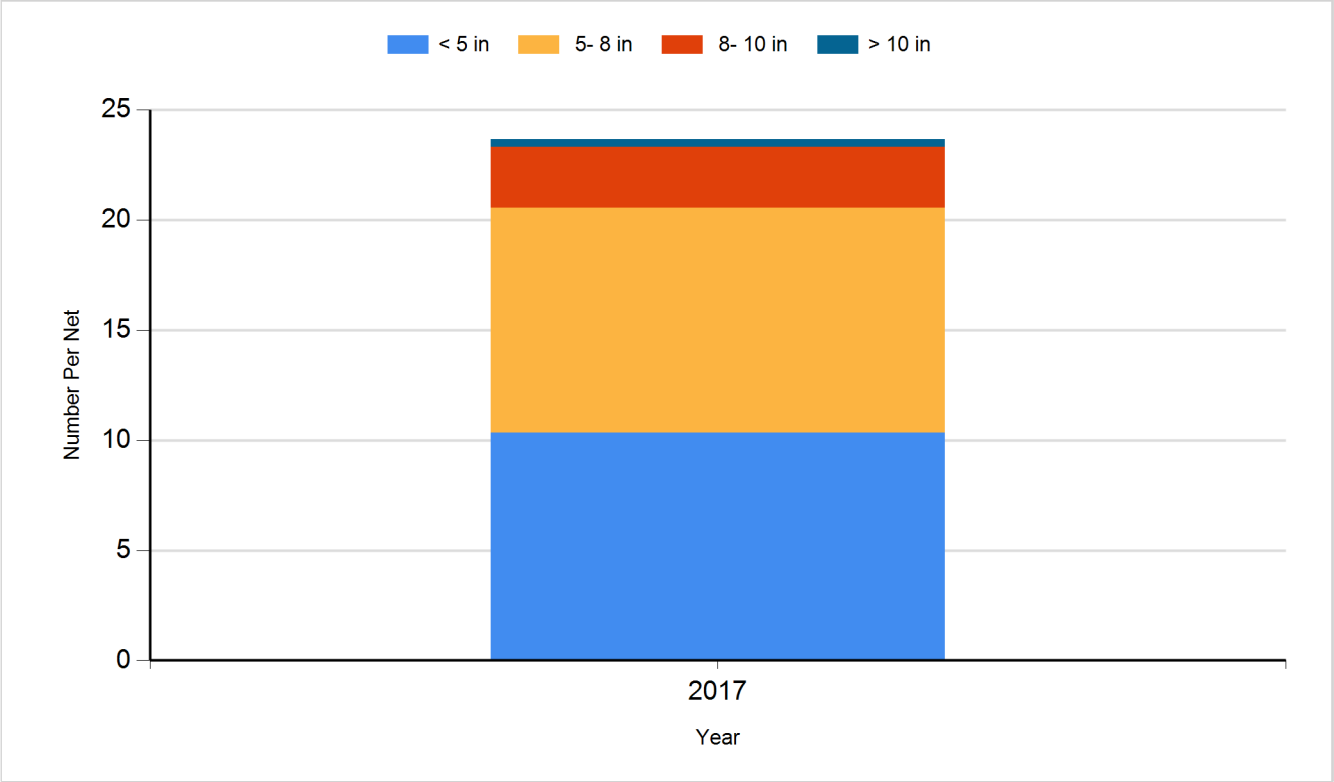


2021

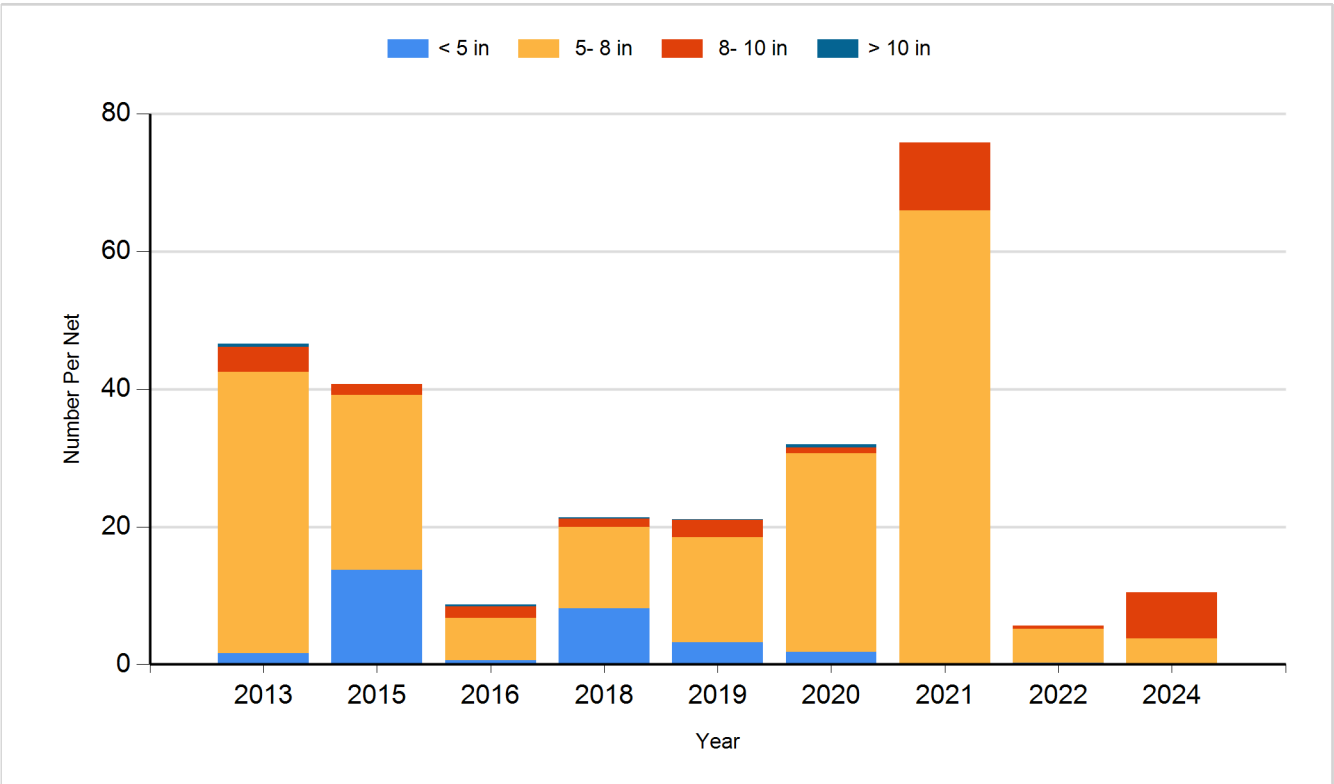
Historic Fish Sizes and Relative Abundance

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

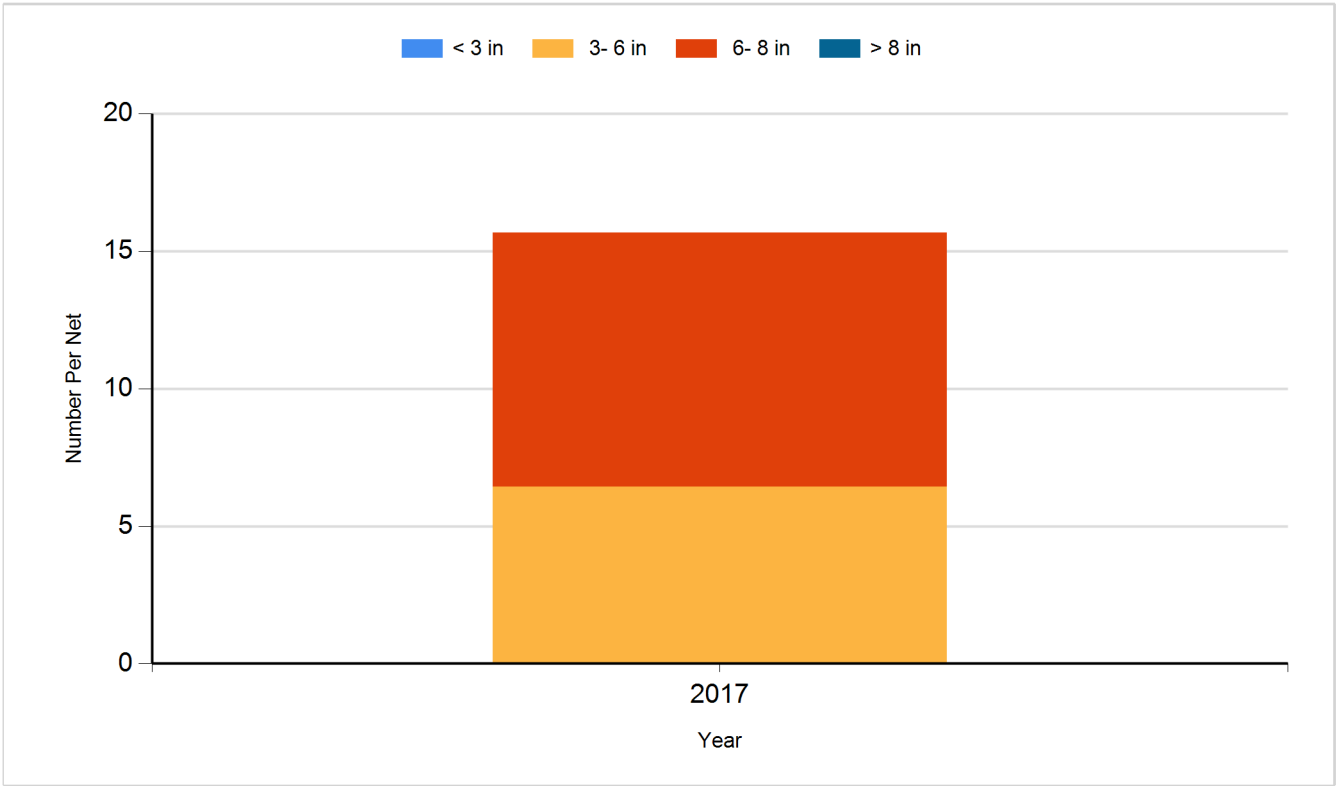
Species: Black Crappie
Gear: AFS std frame net



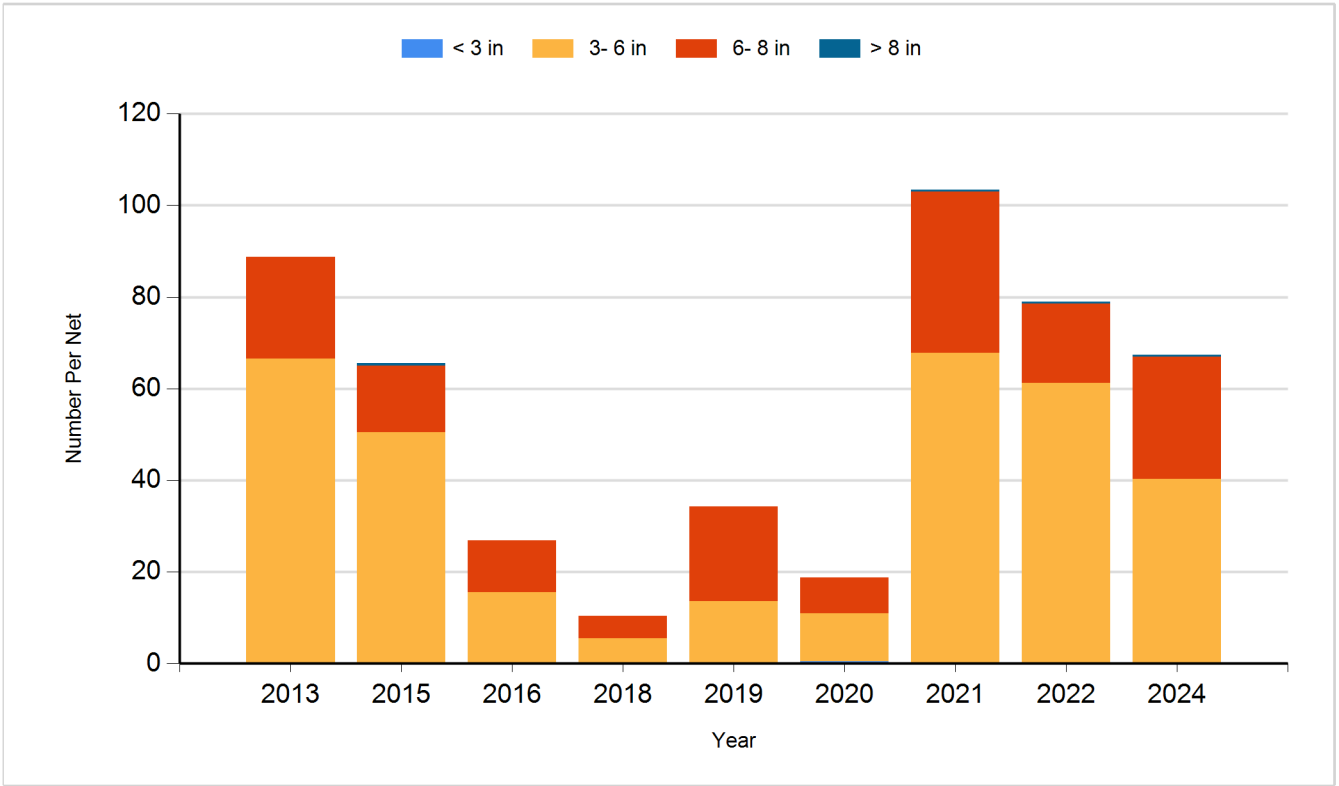
Species: Black Crappie
Gear: frame net (std 3/4 in)



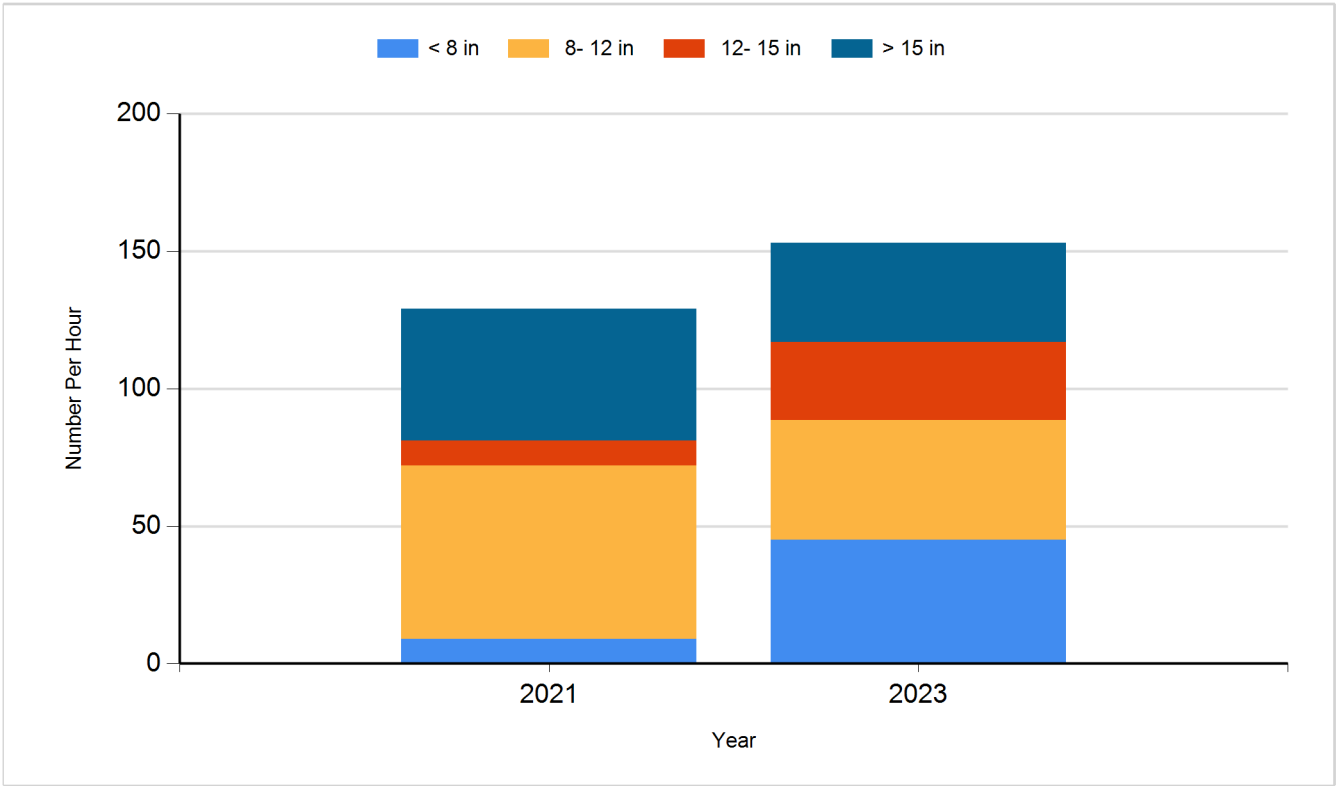
Species: Bluegill
Gear: AFS std frame net



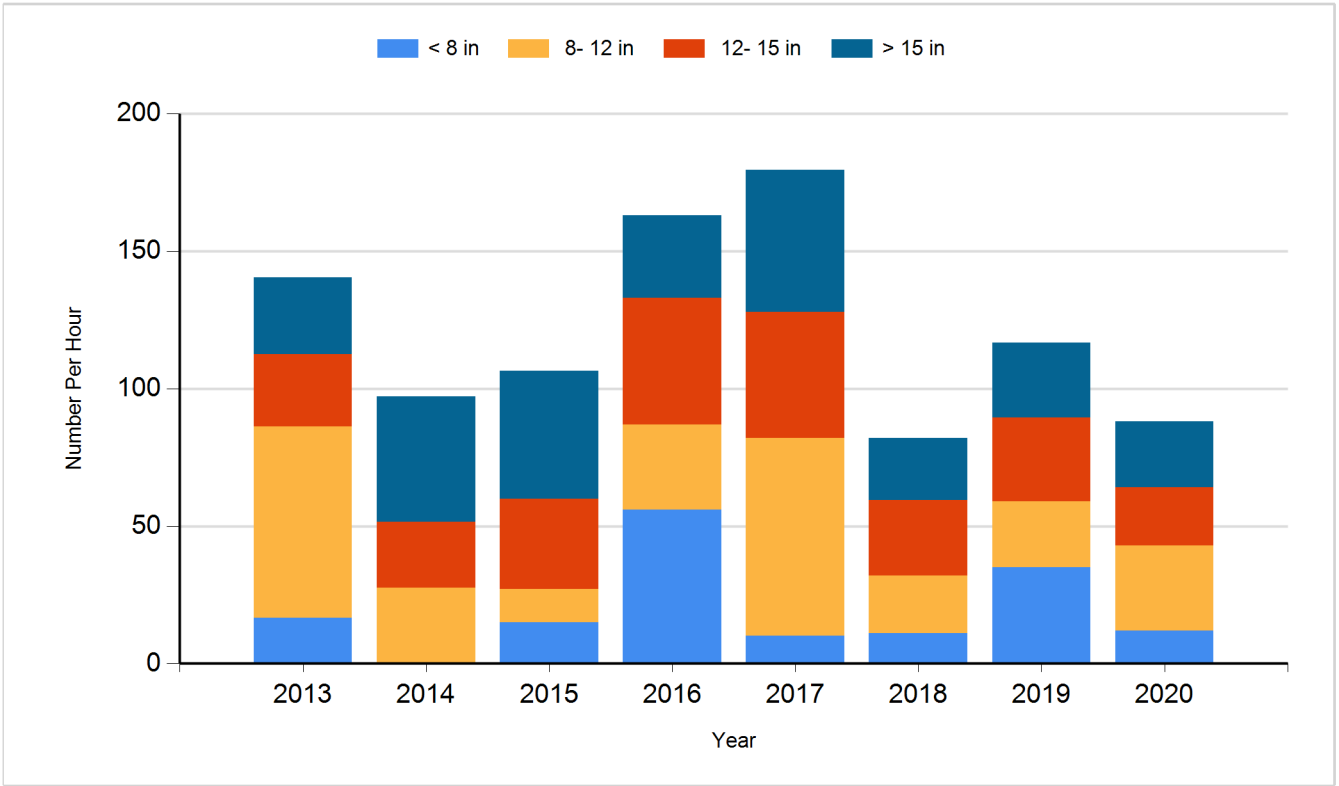
Species: Bluegill
Gear: frame net (std 3/4 in)



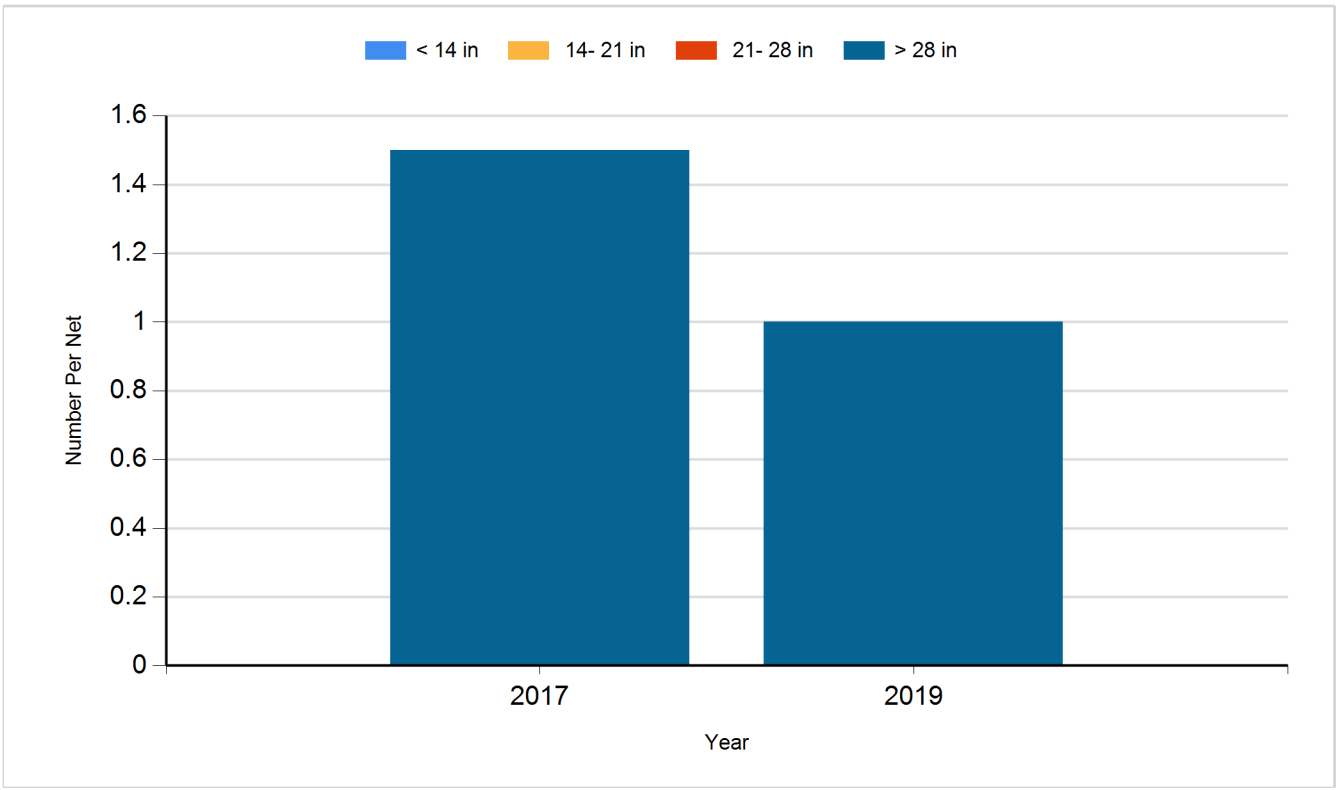
Species: Largemouth Bass
Gear: boat shocker (day)



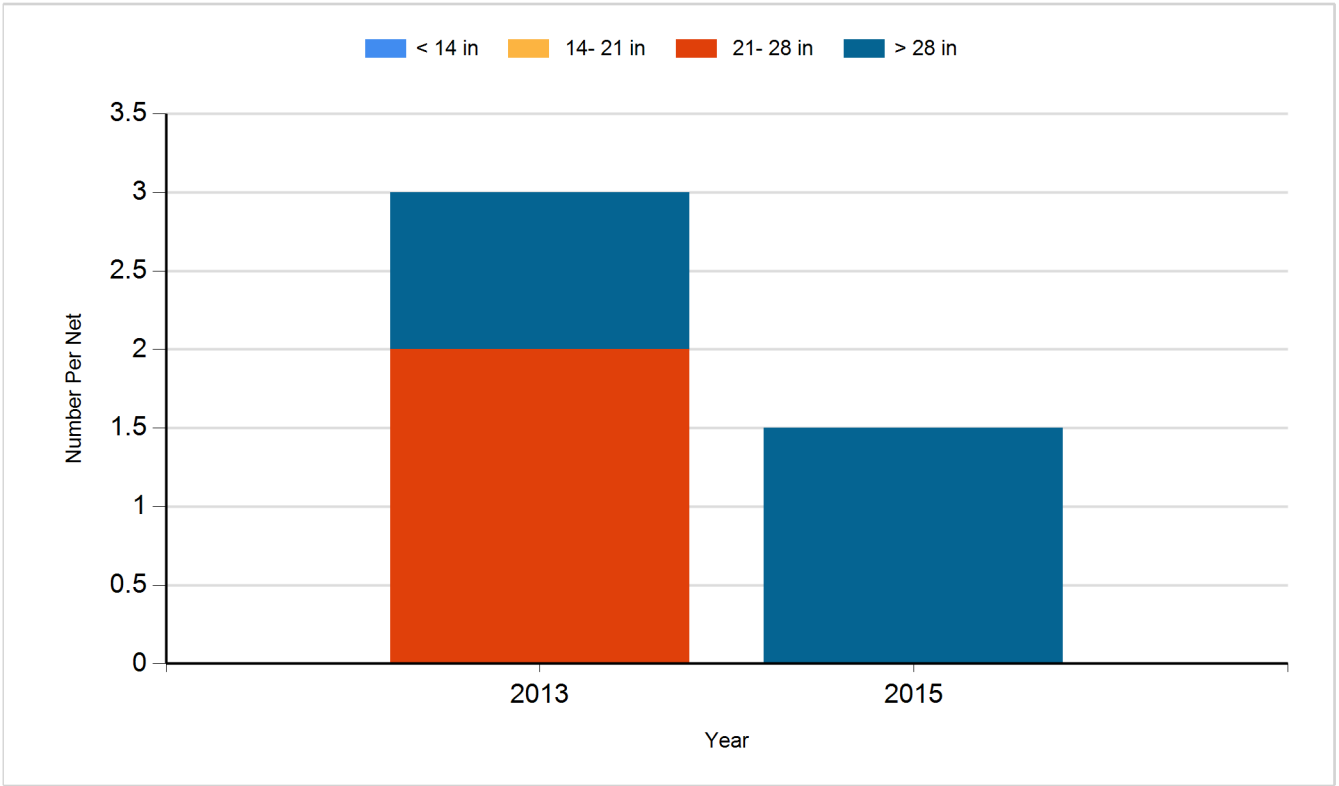
Species: Largemouth Bass
Gear: boat shocker (night)



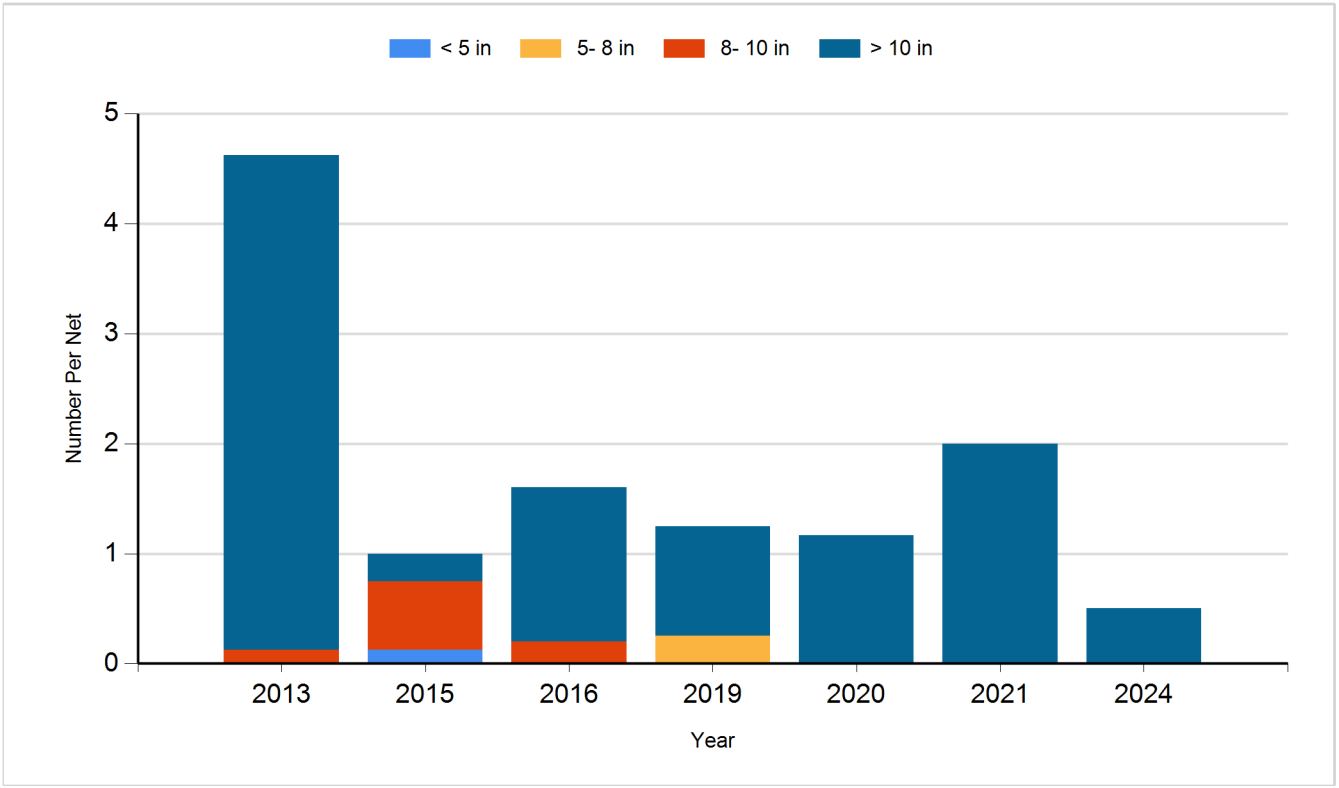
Species: Northern Pike
Gear: AFS std gill net



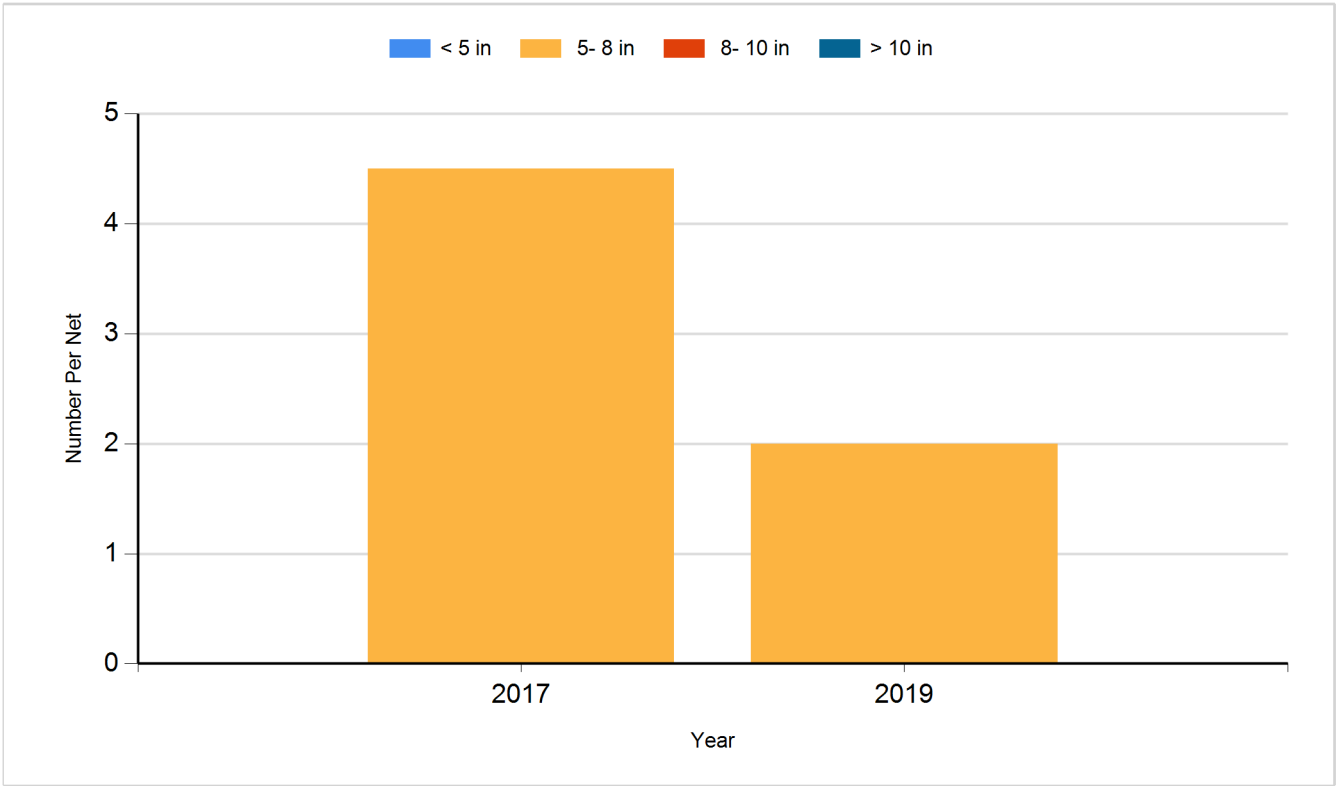
Species: Northern Pike
Gear: std exp gill net



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



Species: Yellow Perch
Gear: AFS std gill net



Species: Yellow Perch
Gear: std exp gill net