Durkee Lake Survey Summary

Durkee Lake is a 70-acre impoundment located three miles south of Faith. The primary species managed for include Largemouth Bass, Bluegill, Black Crappie, Yellow Perch and Northern Pike. Other species present include Black Bullhead and Golden Shiner. Durkee had been suffering from low water for multiple years and refilled from some big rain events in June of 2023.

Largemouth Bass. Durkee Lake has a healthy bass population with 145 fish sampled in 60 minutes of electrofishing. Sampled bass ranged in size from 3-19 inches.

Bluegill. Bluegill numbers were lower this year with 13.0 fish per net, compared to 54.0 last year. Bluegill size increased, with most fish between 6.5-8.5 inches.

Northern Pike. Only two pike were captured in the five net sample.

Black Bullhead. Bullhead numbers increased sharply this year with 33.8 per net compared to 6.4 last year. Two size classes dominated the sample, with most fish in the 7 to 9 inch range and few large fish in the 12-14 inch sizes.

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Durkee, Meade County
CHE-Lake-516-000
2024

Lake Information

Name: Durkee

County: Meade

Surface Area: 108 Acres

Surveys and Investigations

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

Gear	Date	Effort
boat shocker (day)	Oct 02, 2024	3600 seconds
frame net (std 3/4 in)	Jun 27, 2024	5 net-nights

Common Fish Species Present

Yellow Perch

Northern Pike

Largemouth Bass

Bluegill

Black Crappie

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.
- 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
boat shocker (day)	Largemouth Bass	145	38.0	6.3	71	11	66	12	121	2
frame net (std 3/4 in)	Black Bullhead	158	31.6	22.9	18	4	15	4	94	1
	Black Crappie	41	7.2	4.9	39	12	3		107	2
	Bluegill	65	13.0	5.9	94		9	6	116	2
	Largemouth Bass	5	0.6	0.9	0		0		116	3
	Northern Pike	2	0.4	0.4	100		0		86	5
	Yellow Perch	2	0.4	0.6	0		0		104	13

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 Bullhead			27.0								27.00
	Black Crappie			9.4								9.40
	Bluegill			9.7								9.70
	Golden Shiner			0.0								0.00
	Largemouth Bass			0.3								0.30
	Northern Pike			0.6								0.60
	Yellow Perch			1.9								1.90
AFS std gill net	Black Bullhead			10.0	25.5	1.7						12.40
	Black Crappie			0.3	0.5	0.0						0.27
	Bluegill			0.0	0.5	0.0						0.17
	Channel Catfish			0.0	0.5	0.0						0.17
	Common Carp			0.0	0.0	1.3						0.43
	Freshwater Drum			0.0	0.0	0.7						0.23
	Golden Shiner			0.0	0.0	0.0						0.00
	Northern Pike			2.3	3.5	0.7						2.17
	Walleye			0.0	0.0	3.3						1.10
	White Bass			0.5	0.0	1.3						0.60
	Yellow Perch			5.0	13.5	2.7						7.07
boat shocker (day)	Largemouth Bass									12,824.2	38.0	6431.10
boat shocker (night)	Largemouth Bass	22.5	47.1	59.0	39.6	9.0						35.44
frame net (std 3/4 in)	Black Bullhead	162.4	42.8		19.6	35.0	6.5	1.4	2.4	4.6	31.6	34.03
	Black Crappie	10.3	23.9		11.4	14.9	12.3	31.8	3.4	0.6	7.2	12.87
	Bluegill	12.1	85.5		34.4	0.1	24.5	45.4	19.2	44.9	13.0	31.01
	Channel Catfish	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.01
	Golden Shiner	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
	Green Sunfish	0.3	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03
	Largemouth Bass	0.1	0.0		0.0	0.3	0.0	0.0	2.0	0.3	0.6	0.37
	Northern Pike	0.0	1.5		1.6	1.0	0.5	5.2	3.2	2.0	0.4	1.71
	Sunfish Hybrid	0.0	0.0		0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.02
	Yellow Perch	18.6	3.4		6.2	4.5	2.0	2.4	0.2	1.6	0.4	4.37
std exp gill net	Black Bullhead	32.0	17.0									24.50
	Black Crappie	1.0	7.0									4.00
	Bluegill	1.0	0.0									0.50

		CPUE										
Gear	Species	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Avg
std exp gill net	Channel Catfish	0.5	0.0									0.25
	Golden Shiner	0.0	0.0									0.00
	Northern Pike	1.0	6.0									3.50
	Yellow Perch	54.0	30.0									42.00

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 Bullhead	PSD			89							
		PSD-P			0							
		Wr			89							
	Black Crappie	PSD			55							
		PSD-P			0							
		Wr			107							
	Bluegill	PSD			78							
		PSD-P			7							
		Wr			106							
	Largemouth Bass	PSD			100							
		PSD-P			0							
		Wr			110							
	Northern Pike	PSD			50							
		PSD-P			50							
		Wr			95							
	Yellow Perch	PSD			85							
		PSD-P			0							
		Wr			88							
AFS std gill net	Black Bullhead	PSD			88	100	60					
		PSD-P			0	0	0					
		Wr			92	90	101					
	Black Crappie	PSD			0	100						
		PSD-P			0	0						
		Wr			103	97						
	Bluegill	PSD				100						
		PSD-P				100						
		Wr				64						
	Northern Pike	PSD			89	100	0					
		PSD-P			33	14	0					
		Wr			91	84	92					
	Yellow Perch	PSD			40	11	0					
		PSD-P			0	0	0					

			Year									
Gear	Species	Index	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AFS std gill net	Yellow Perch	Wr			91	98	90					
boat shocker (day)	Largemouth Bass	PSD									87	71
		PSD-P									66	66
		Wr									129	121
boat shocker (night)	Largemouth Bass	PSD	80	56	81	85	100					
		PSD-P	57	33	31	18	56					
		Wr	108	128	106	102	105					
frame net (std 3/4 in)	Black Bullhead	PSD	60	80		95	98	92	100	92	95	18
		PSD-P	0	0		0	0	0	14	25	78	15
		Wr	88	85		97	98	90	88	94	97	94
	Black Crappie	PSD	6	38		40	26	18	13	18	60	39
		PSD-P	0	1		2	6	4	0	0	0	3
		Wr	126	105		103	97	101	101	95	104	107
	Bluegill	PSD	80	94		80	100	35	41	23	31	94
		PSD-P	0	8		9	0	5	7	6	4	9
		Wr	115	106		105	125	109	102	110	120	116
	Largemouth Bass	PSD	100				100			100	100	0
		PSD-P	0				100			50	50	0
		Wr	102				101			122	120	116
	Northern Pike	PSD	0	58		100	88	33	88	100	88	100
		PSD-P	0	8		38	25	33	12	25	19	0
		Wr		84		87	86	98	89	87	88	86
	Yellow Perch	PSD	46	48		52	17	33	42	100	23	0
		PSD-P	0	4		13	6	8	0	100	0	0
		Wr	102	89		87	86	91	94	79	101	104
std exp gill net	Black Bullhead	PSD	31	88								
		PSD-P	0	0								
		Wr	91	88								
	Black Crappie	PSD	0	14								
		PSD-P	0	0								
		Wr	125	109								
	Bluegill	PSD	50									
		PSD-P	0									
		Wr	115									
	Northern Pike	PSD	100	67								

			Year									
Gear	Species	Index	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
std exp gill net	Northern Pike	PSD-P	100	17								
		Wr	94	94								
	Yellow Perch	PSD	15	23								
		PSD-P	0	0								
		Wr	102	92								

Length at Capture

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

Species: Black Crappie

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2016	380		162 (74)	197 (251)	185 (8)	214 (13)	225 (35)				

Species: Yellow Perch

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2016	60		131 (2)	175 (40)	204 (4)	215 (8)	216 (6)				

Fish Condition

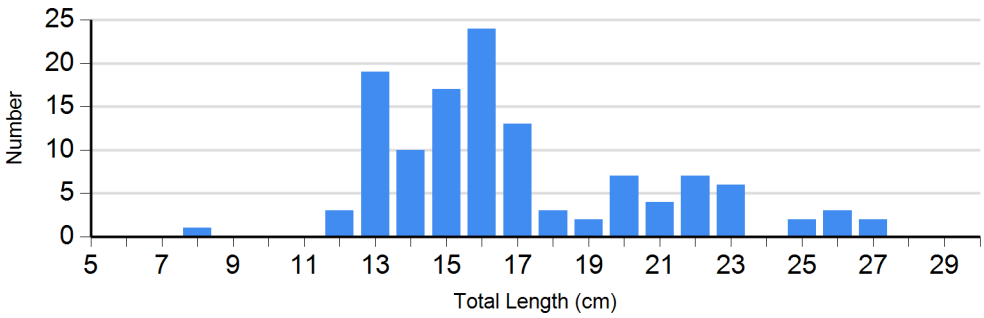
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		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	61	103 (0.9)	10	90 (2.9)	3	92 (4.0)	0	
	2021	139	102 (0.8)	20	91 (0.8)	0		0	
	2022	14	95 (2.6)	3	95 (3.8)	0		0	
	2023	2	100 (9.9)	3	107 (3.2)	0		0	
	2024	22	111 (2.0)	13	101 (1.5)	1	101	0	
Bluegill Frame Net	2020	96	109 (1.2)	44	110 (1.3)	7	106 (2.8)	0	
	2021	133	104 (1.2)	78	102 (1.3)	16	98 (1.3)	0	
	2022	74	110 (1.1)	16	108 (2.9)	6	111 (11.8)	0	
	2023	249	122 (1.3)	97	114 (1.8)	13		0	
	2024	4	92	55	118 (1.4)	6	108 (3.3)	0	
Largemouth Bass Electro Fishing	2023	12	121 (2.2)	19	125 (3.5)	61	132 (2.0)	0	
	2024	11	117 (1.6)	2	114 (7.7)	25	124 (1.3)	0	

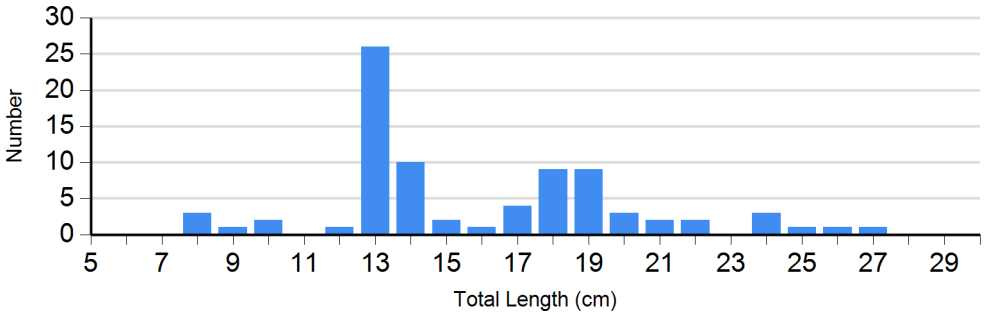
Length Frequency Distribution

Length frequency histogram of species sampled by year.

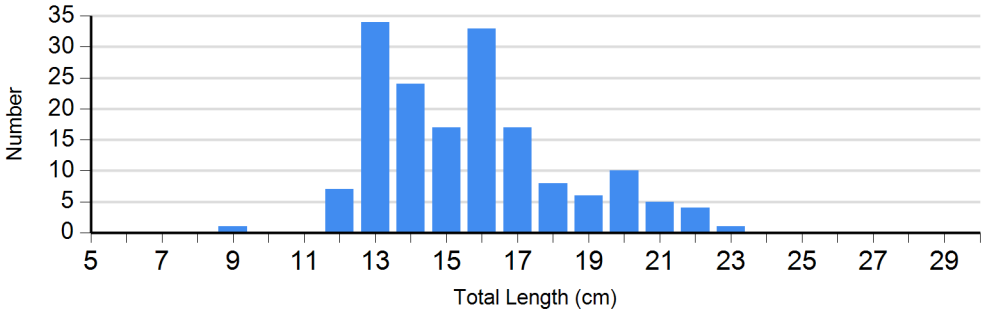
Species: Black Crappie
Gear: frame net (std 3/4 in)



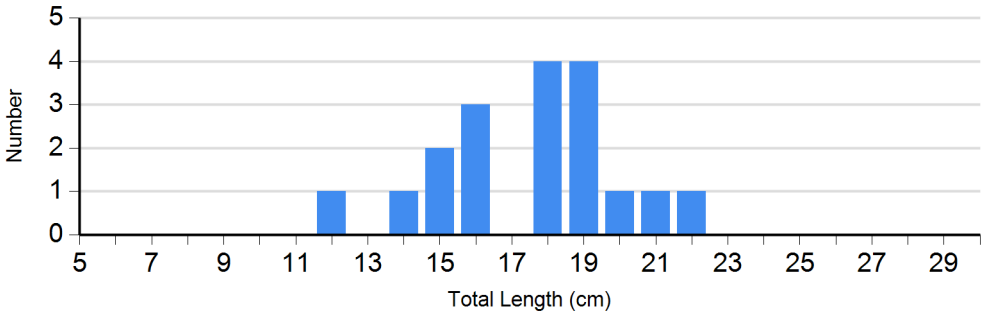
2019



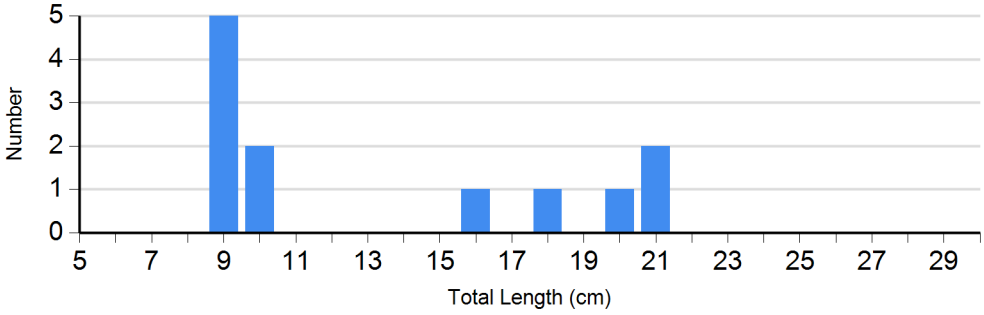
2020



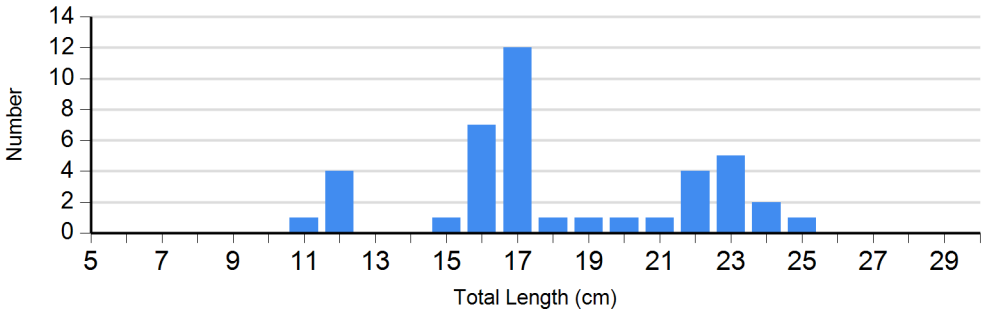
2021



2022

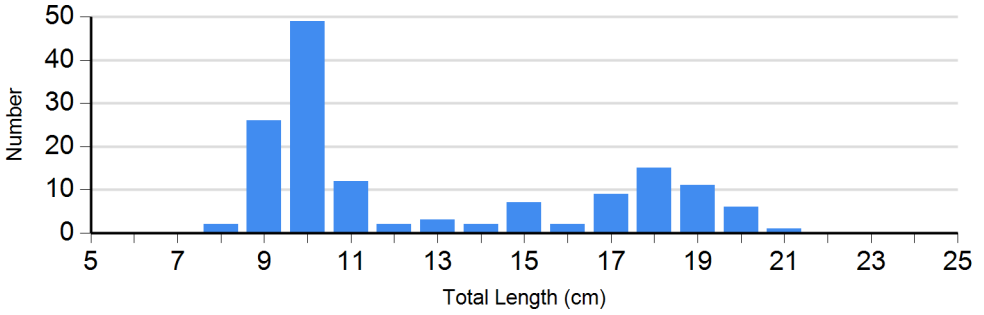


2023

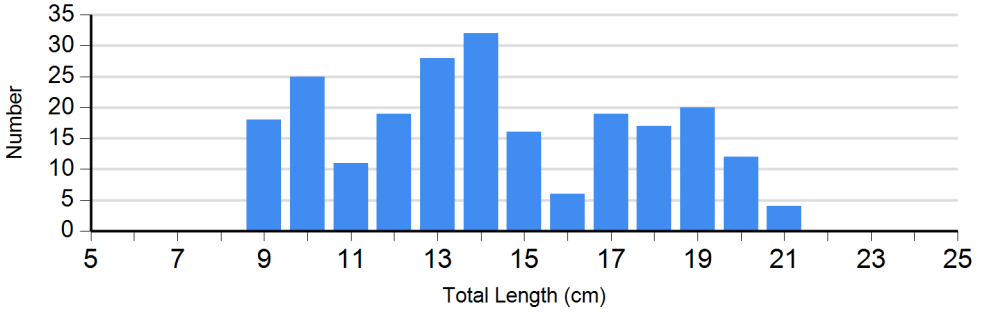


2024

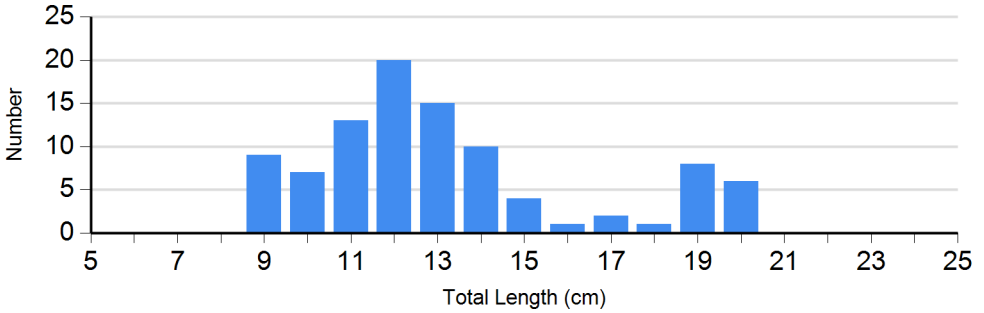
Species: Bluegill
Gear: frame net (std 3/4 in)



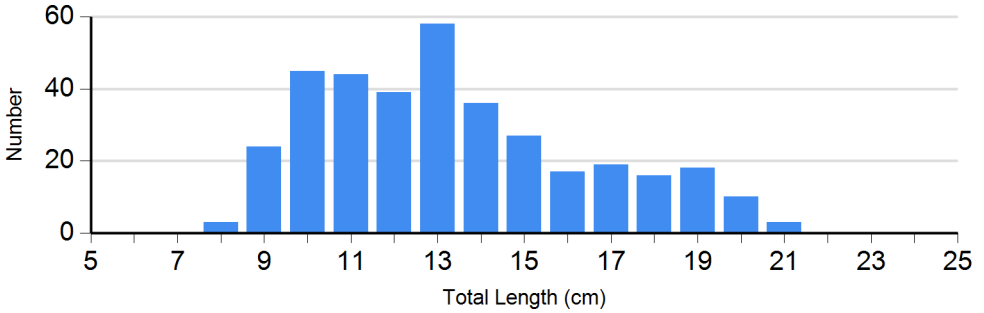
2020



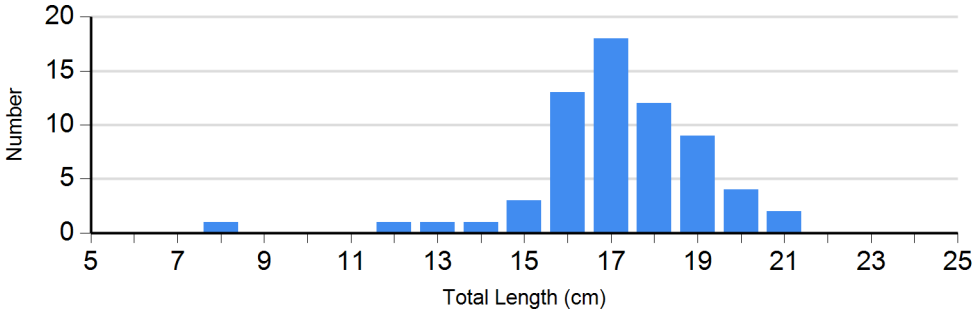
2021



2022

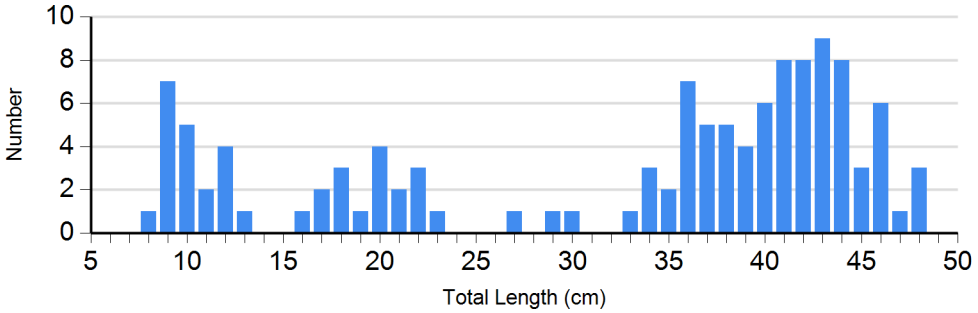


2023

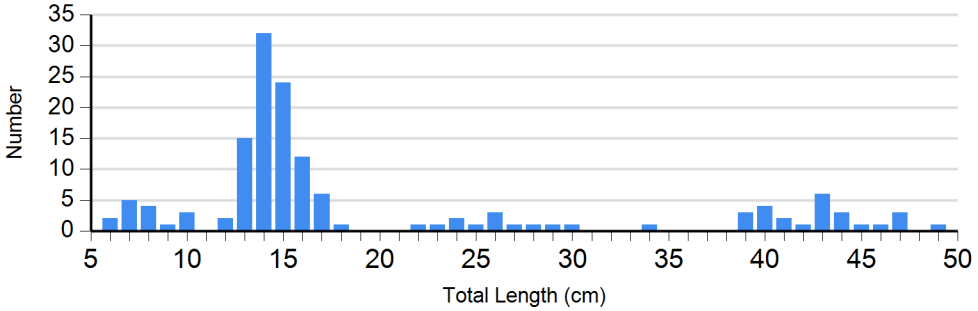


2024

Species: Largemouth Bass
Gear: boat shocker (day)



2023

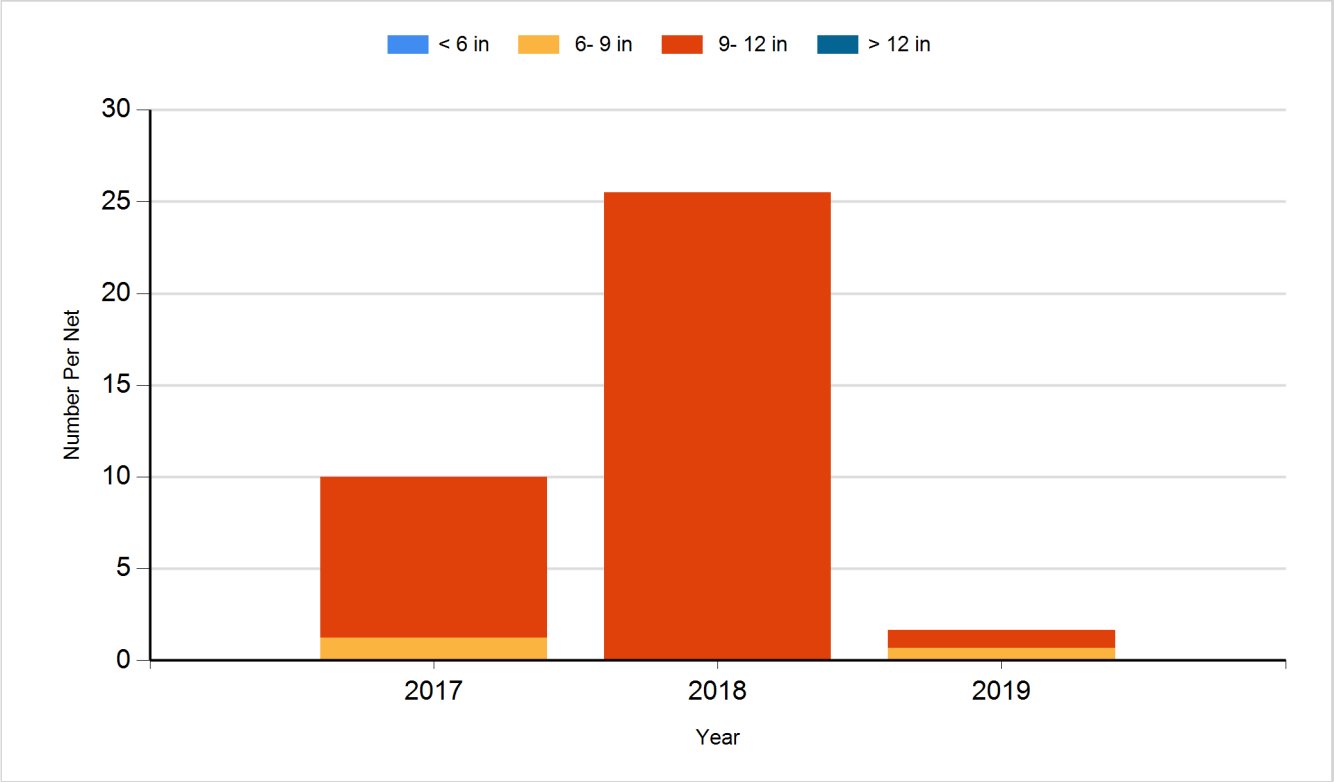


2024

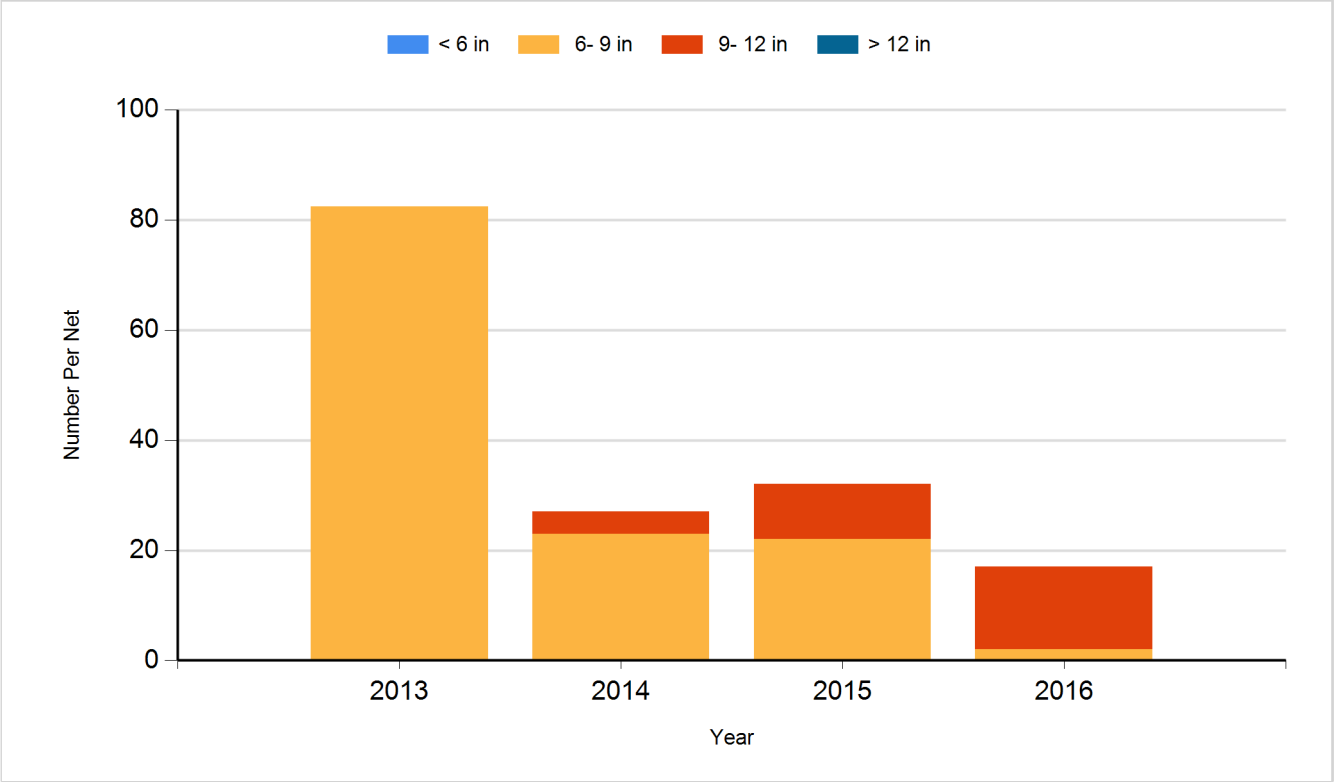
Historic Fish Sizes and Relative Abundance

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

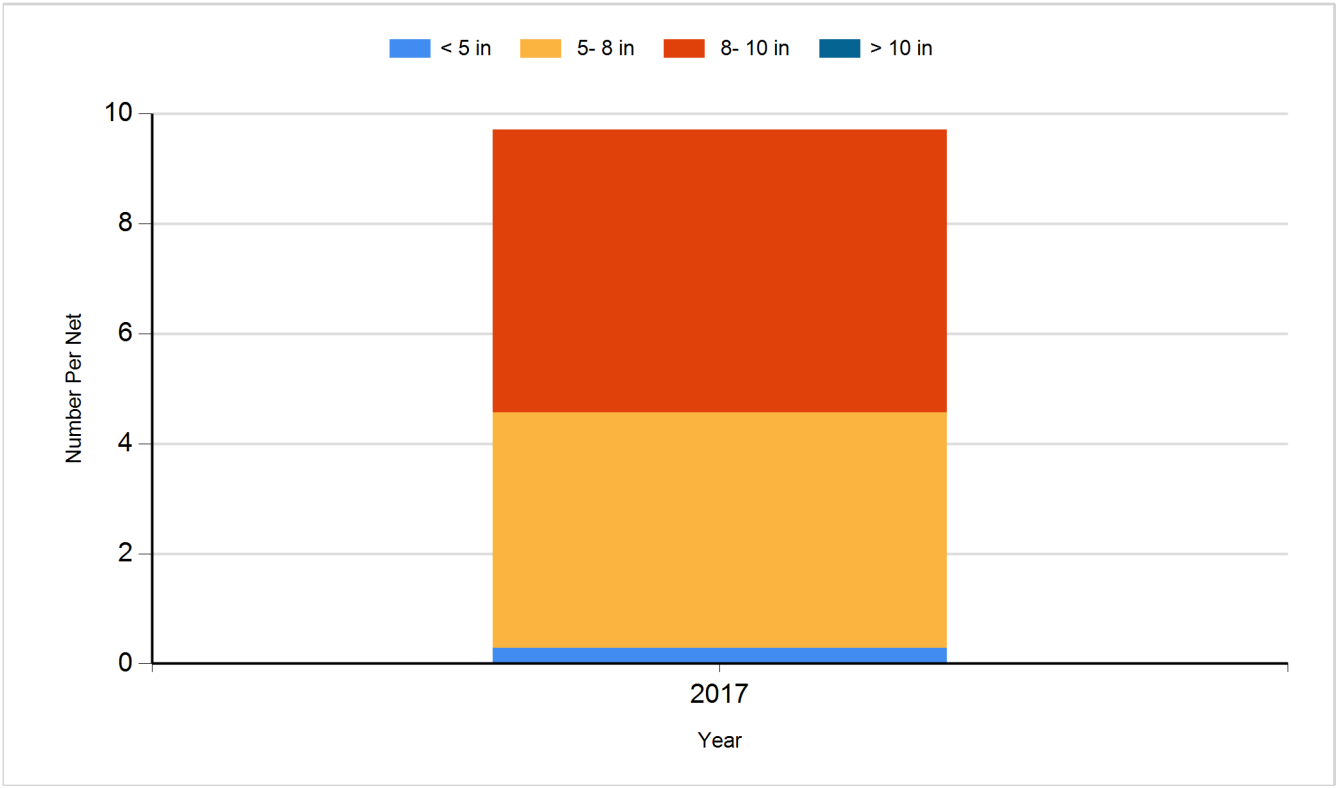
Species: Black Bullhead
Gear: AFS std gill net



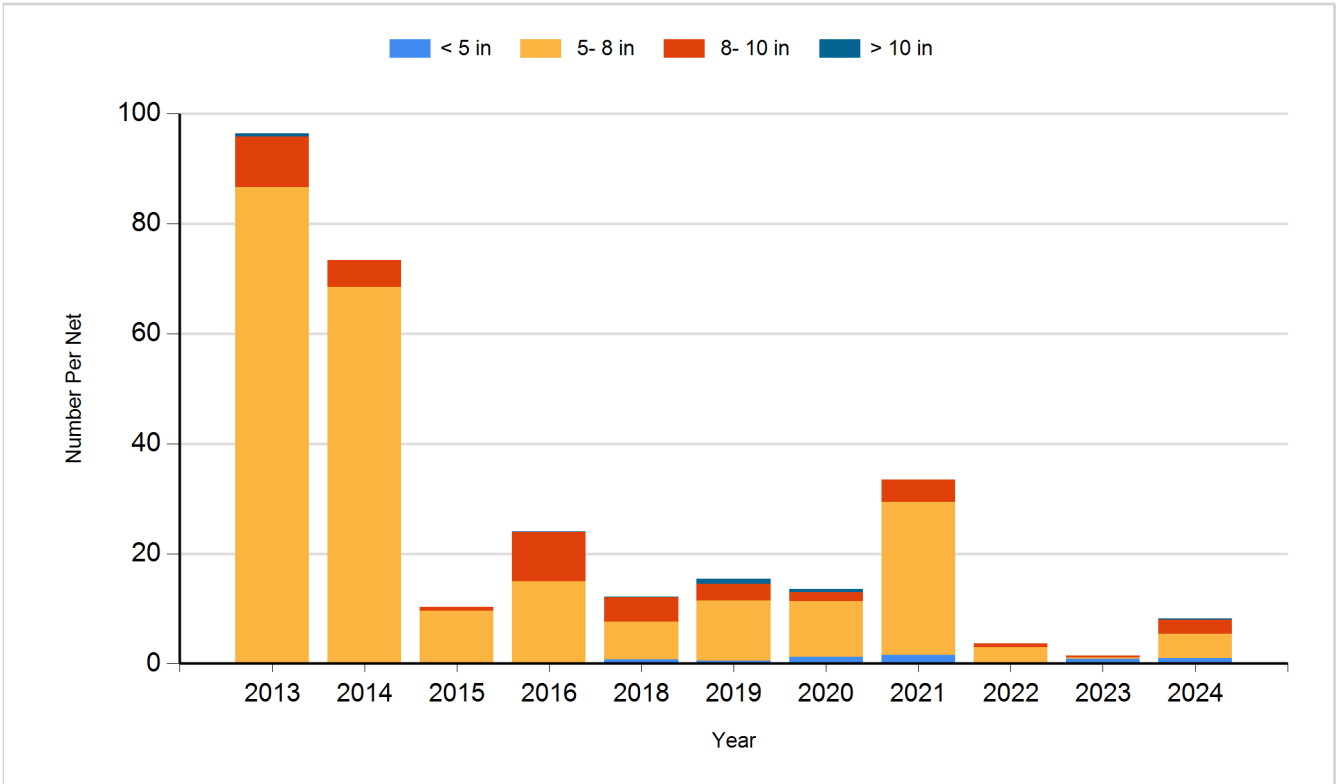
Species: Black Bullhead
Gear: std exp gill net



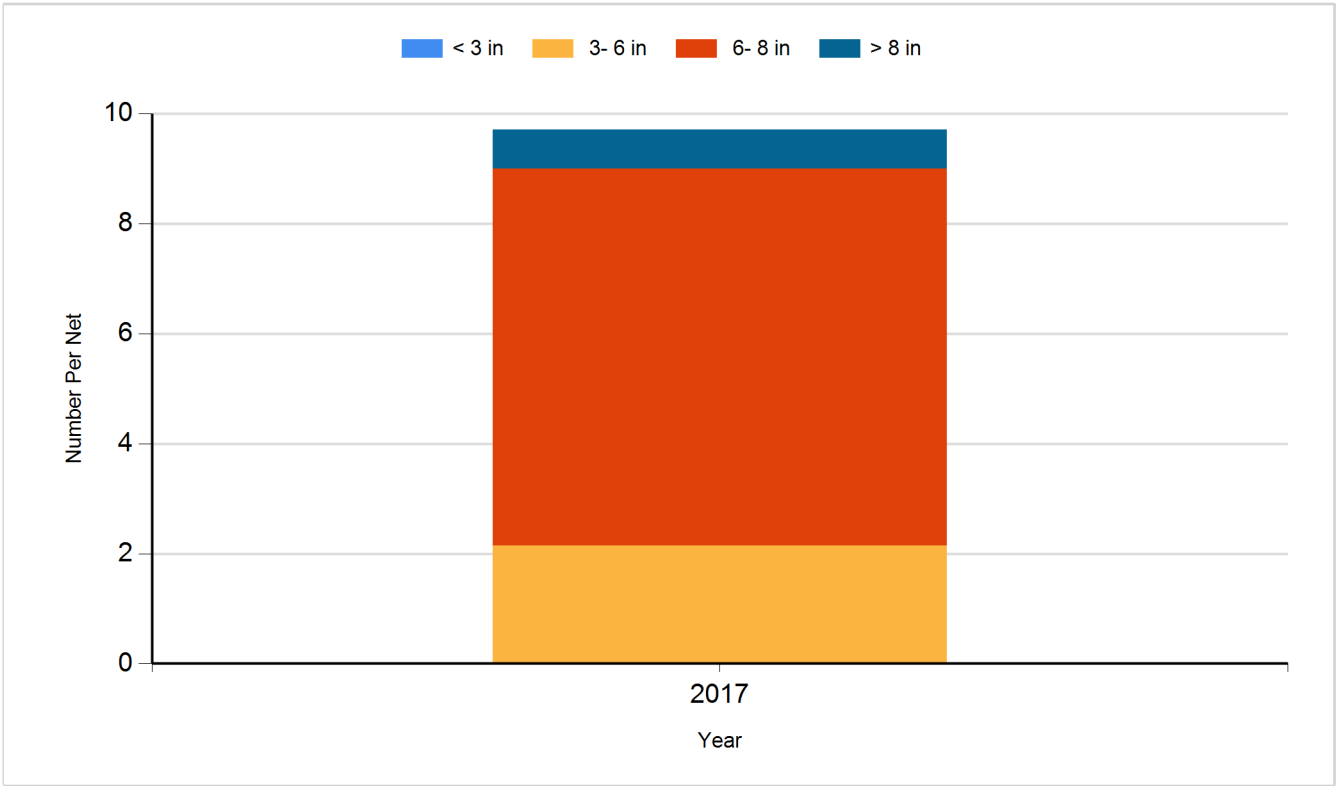
Species: Black Crappie
Gear: AFS std frame net



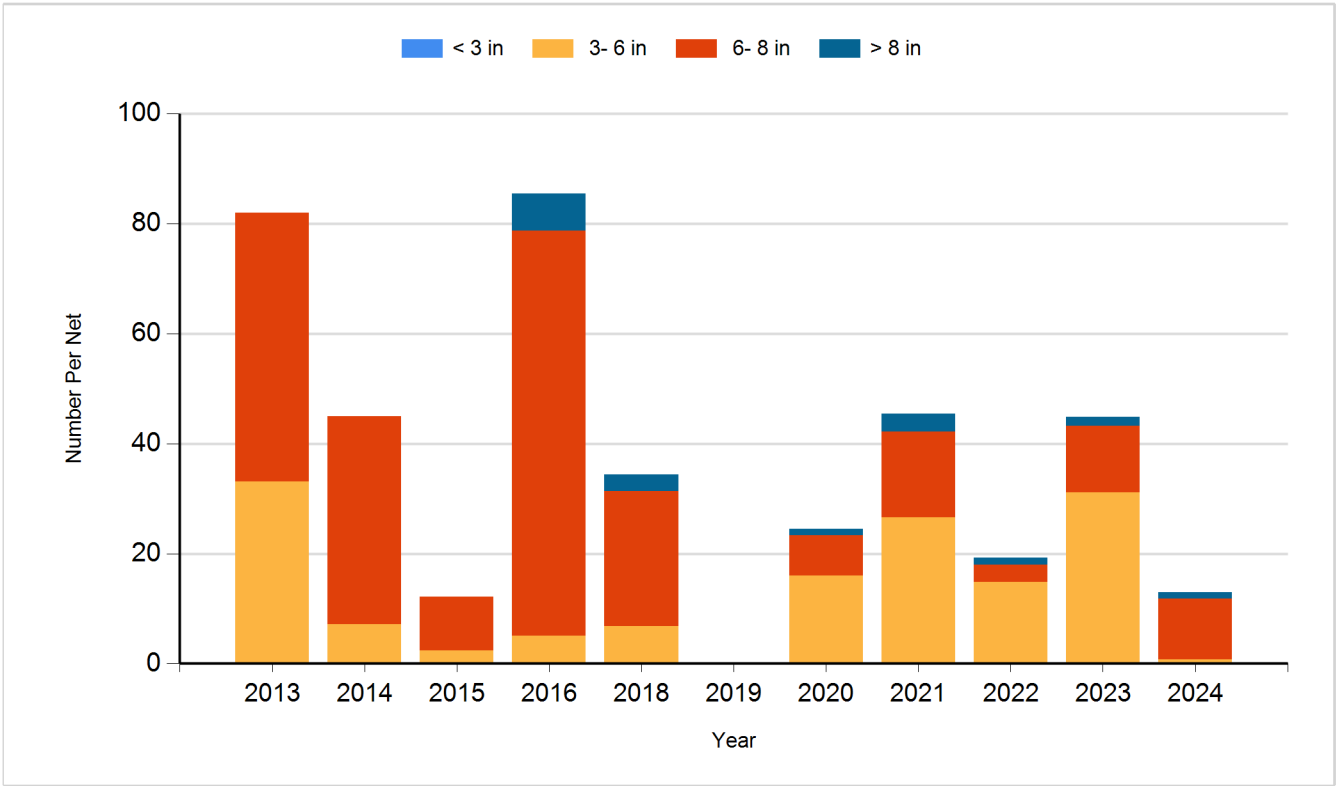
Species: Black Crappie
Gear: frame net (std 3/4 in)



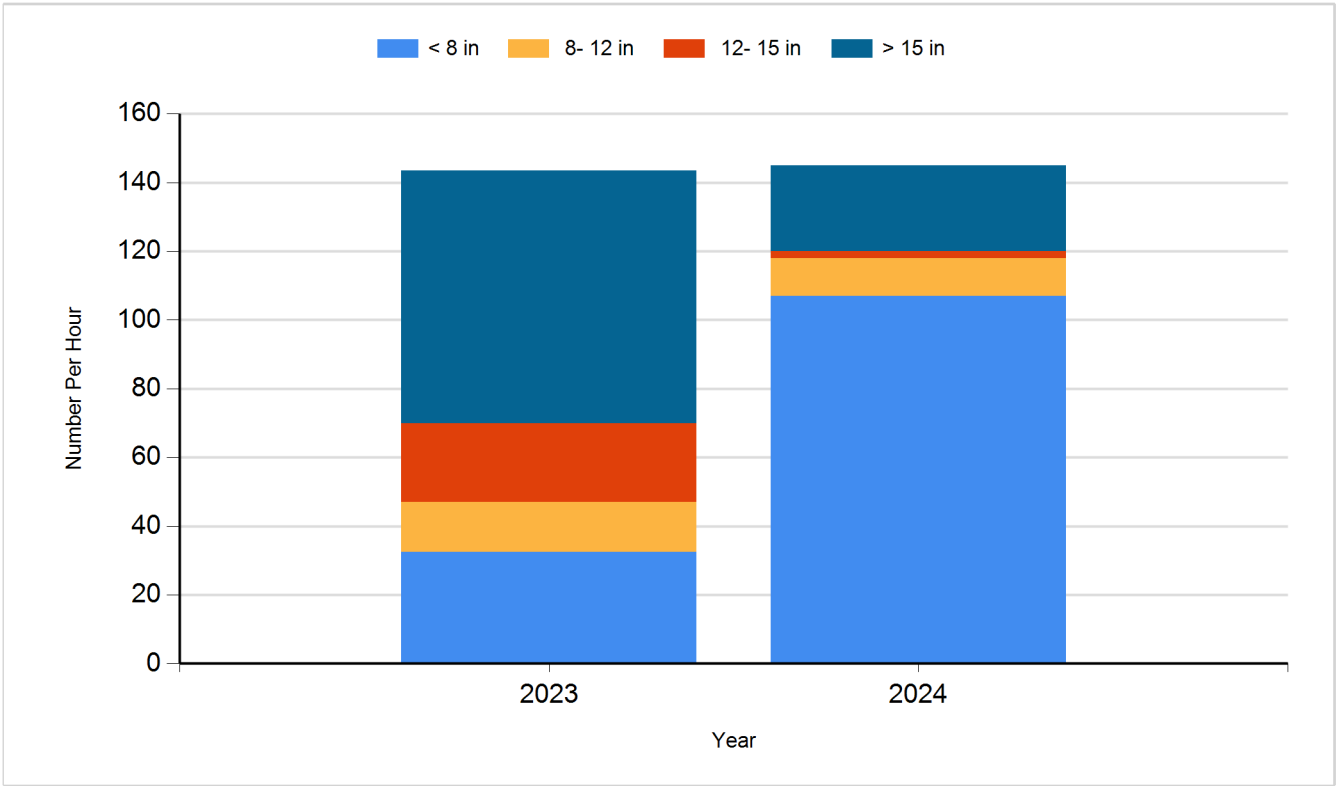
Species: Bluegill
Gear: AFS std frame net



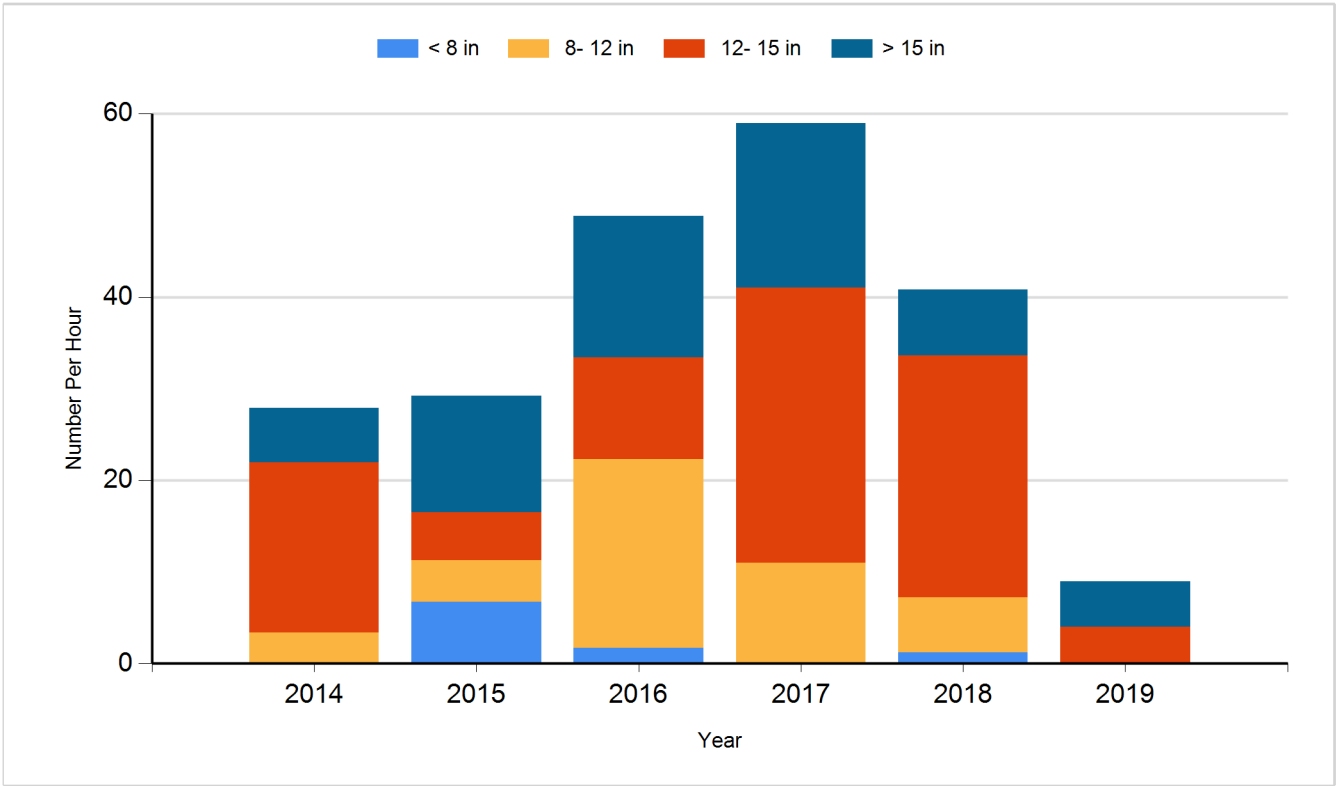
Species: Bluegill
Gear: frame net (std 3/4 in)



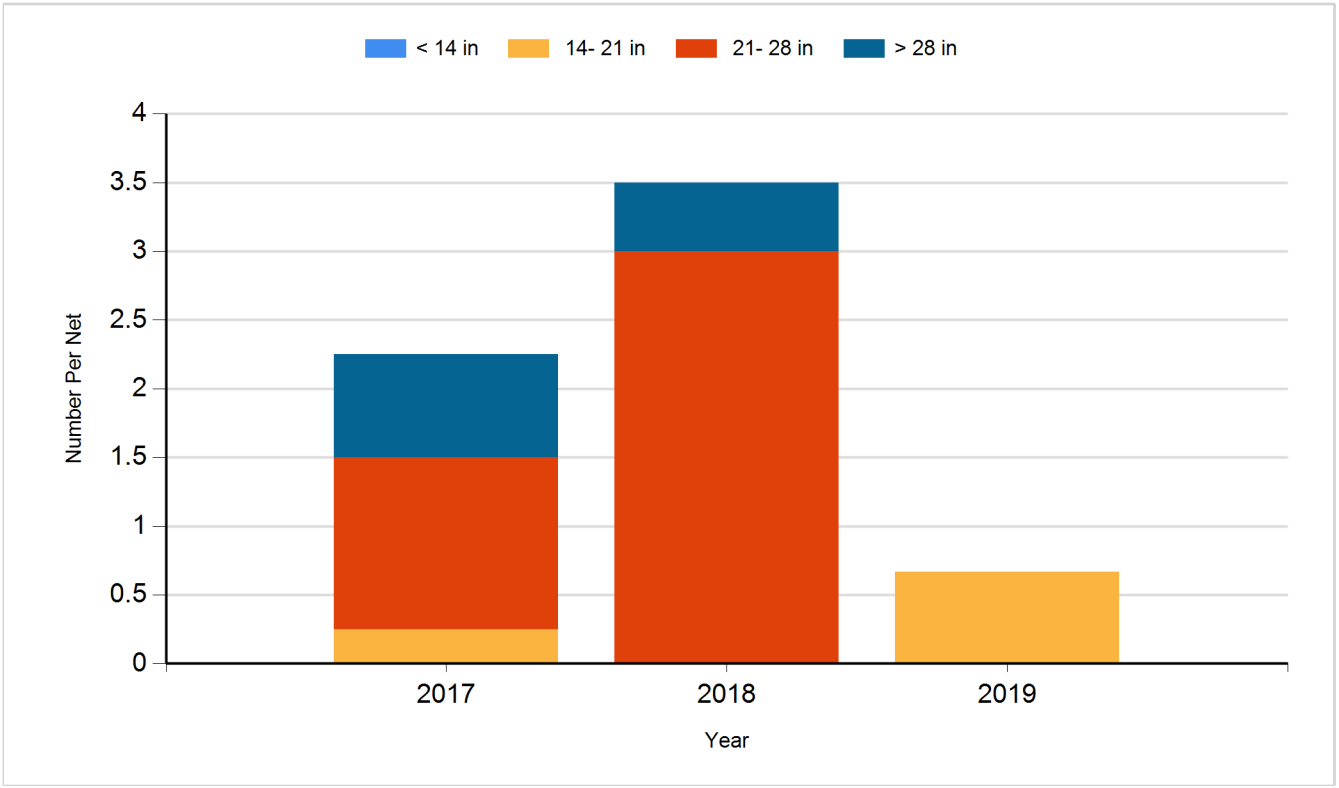
Species: Largemouth Bass
Gear: boat shocker (day)



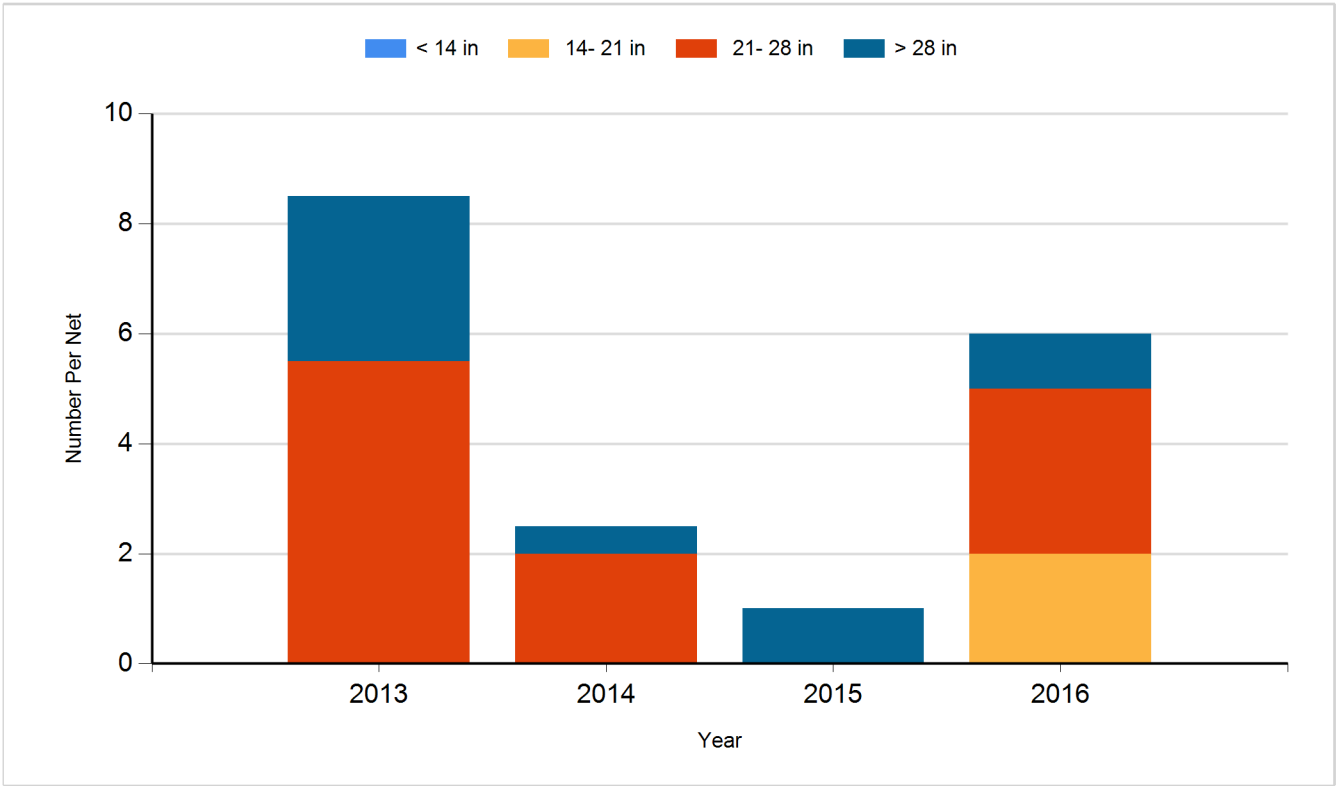
Species: Largemouth Bass
Gear: boat shocker (night)



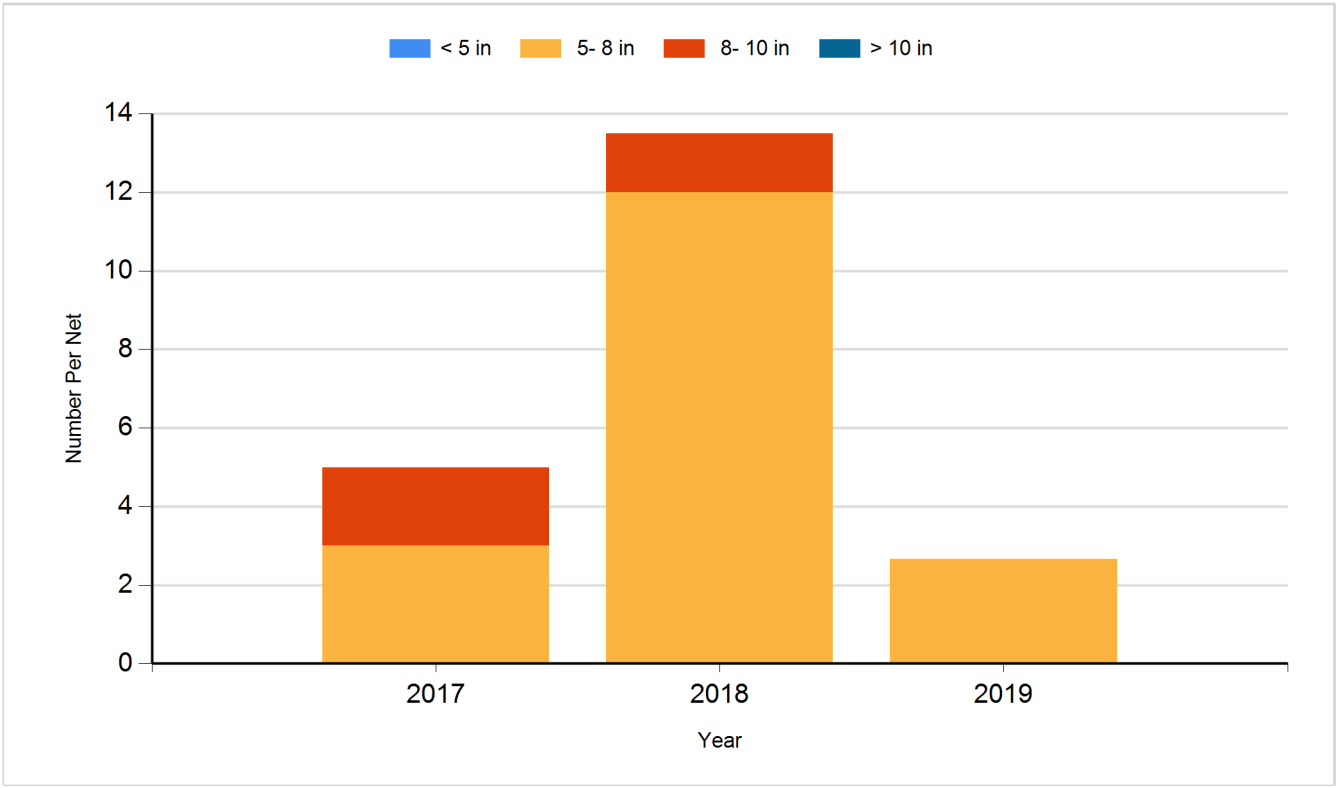
Species: Northern Pike
Gear: AFS std gill net



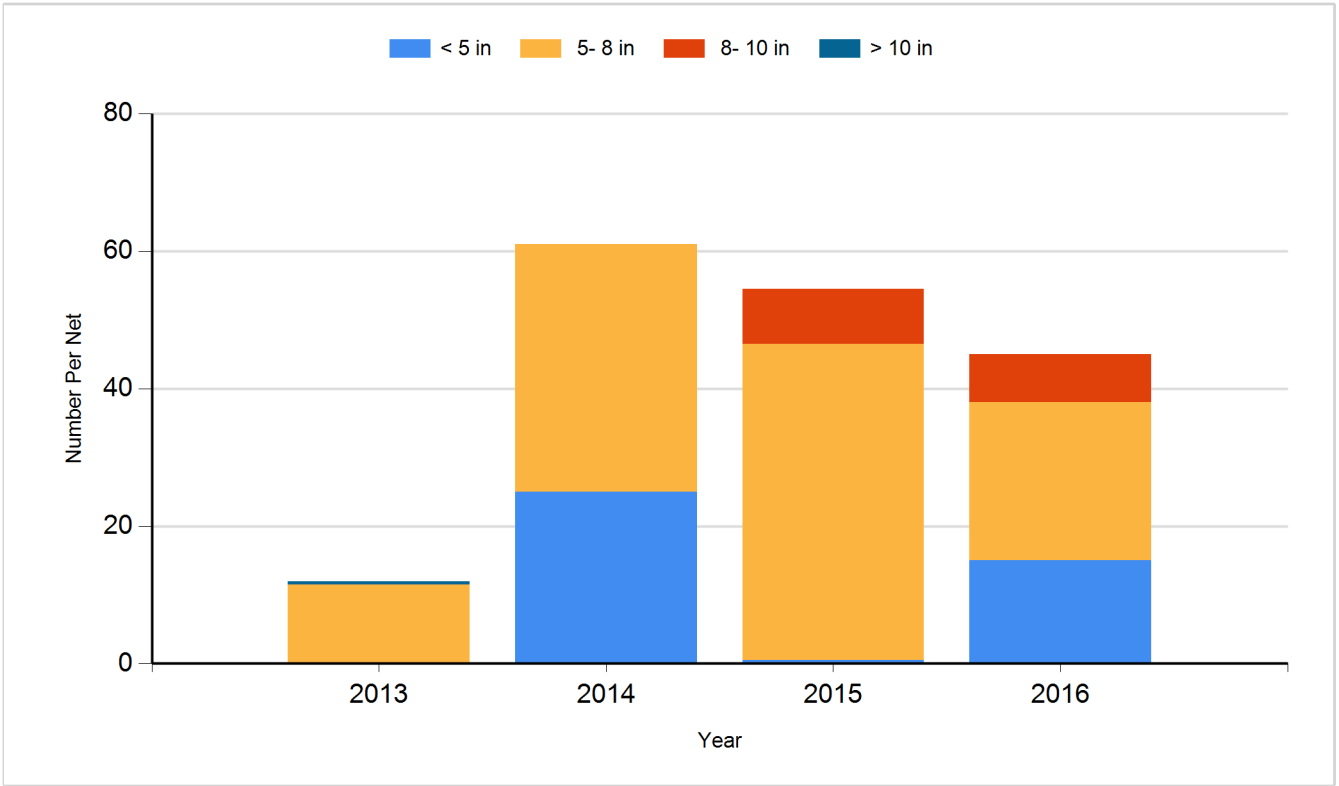
Species: Northern Pike
Gear: std exp gill net



Species: 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
2014	Largemouth Bass	Adult	175
2014	Largemouth Bass	Juvenile	200
2015	Largemouth Bass	Adult	112
2018	Largemouth Bass	Juvenile	601
2023	Largemouth Bass	Adult	134