SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Little Moreau #1, Dewey County
LMO-Lake-1058-000
2024

Lake Information

Name: Little Moreau #1

County: Dewey

Legal Description: T16-R25-S17

Surface Area: 34 Acres

Maximum Depth: 20 Feet

Mean Depth: 10 Feet

Surveys and Investigations

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

Gear	Date	Effort
frame net (std 3/4 in)	Jun 04, 2024	5 net-nights
frame net (std 3/4 in)	Jun 05, 2024	4 net-nights

Common Fish Species Present

Bluegill

Black Crappie

Largemouth Bass

Green Sunfish

Yellow Perch

Northern Pike

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	163	18.1	5.7	3		2		108	2
	Bluegill	210	23.3	8.4	51	5	1		114	1
	Green Sunfish	18	2.0	1.7	0		0		114	5
	Largemouth Bass	1	0.0	0.0	0		0			
	Northern Pike	5	0.6	0.3	40		0		96	6
	Yellow Perch	12	1.3	1.2	33		33		93	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.

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

		CPUE									
Gear	Species	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Avg
boat shocker (night)	Largemouth Bass		70.0		33.0	29.0	41.0					43.25
frame net (std 3/4 in)	Black Bullhead		0.0			0.0		2.2			0.0	0.55
	Black Crappie		2.1			5.3		43.6			18.1	17.28
	Bluegill		7.9			14.4		24.7			23.3	17.58
	Green Sunfish		0.0			0.0		1.5			2.0	0.88
	Largemouth Bass		0.0			0.0		0.0			0.0	0.00
	Northern Pike		1.4			1.7		0.6			0.6	1.08
	Yellow Perch		2.0			2.9		11.9			1.3	4.53

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
boat shocker (night)	Largemouth Bass	PSD		49		76	57	66				
		PSD-P		30		39	50	51				
		Wr		121		105	113	122				
frame net (std 3/4 in)	Black Crappie	PSD		52			19		3			3
		PSD-P		10			0		1			2
		Wr		103			107		105			108
	Bluegill	PSD		16			36		68			51
		PSD-P		4			1		5			1
		Wr		125			117		106			114
	Green Sunfish	PSD							0			0
		PSD-P							0			0
		Wr							100			114
	Largemouth Bass	PSD		0					0			0
		PSD-P		0					0			0
	Northern Pike	PSD		93			100		100			40
		PSD-P		29			35		17			0
		Wr		98			91		99			96
	Yellow Perch	PSD		65			21		16			33
		PSD-P		5			3		2			33
		Wr		98			100		95			93

Back-Calculated Lengths

Mean species back-calculated total length (mm) at age, standard error (SE), and sample size (N).

Species: Black Crappie

Year Class	Age	N	Mean back-calculated length (SE) at age									
			1	2	3	4	5	6	7	8	9	10
2022	2	15	82 (1.4)	117 (2.3)								
2021	3	3	79 (6.5)	113 (1.5)	147 (3.4)							
2020	4	2	88 (1.4)	88 (1.4)	130 (9.9)	130 (9.9)						
2019	5	1	77	105	137	170	223					
2018	6	2	85 (5.5)	117 (18.3)	152 (12.9)	185 (11.3)	206 (8)	231 (11.2)				
2016	8	1	109	109	147	147	179	179	221	221		
Weighted Mean		24	83	113	143	158	204	214	221	221		

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2022	2	15										
2021	3	3										
2020	4	2										
2019	5	1										
2018	6	2										
2016	8	1										
Weighted Mean		24										

Species: Bluegill

Year Class	Age	N	Mean back-calculated length (SE) at age									
			1	2	3	4	5	6	7	8	9	10
2022	2	5	59 (4.2)	95 (1.8)								
2021	3	19	72 (3.9)	100 (4.9)	126 (5.2)							
2020	4	6	74 (5.2)	92 (8.2)	122 (6.9)	135 (10.4)						
2019	5	5	78 (6.6)	107 (8.2)	138 (4.7)	157 (5.7)	169 (4.6)					
2018	6	1	82	82	109	109	137	137				
2017	7	1	119	138	164	181	202	218	237			
2014	10	1	81	81	114	114	129	129	145	145	164	164
Weighted Mean		38	73	99	127	143	164	161	191	145	164	164

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2022	2	5										
2021	3	19										
2020	4	6										
2019	5	5										
2018	6	1										
2017	7	1										
2014	10	1										
Weighted Mean		38										

Species: Yellow Perch

Year Class	Age	N	Mean back-calculated length (SE) at age									
			1	2	3	4	5	6	7	8	9	10
2022	2	4	87 (5.5)	137 (6)								
2021	3	1	88	133	169							
2020	4	1	88	88	139	139						
2019	5	3	108 (9.4)	146 (5.9)	172 (8.8)	219 (7.8)	250 (8.3)					
2018	6	2	91 (3.6)	91 (3.6)	142 (.7)	142 (.7)	163 (0)	163 (0)				
2014	10	1	126	126	174	174	197	197	236	236	264	264
Weighted Mean		12	96	126	160	179	212	174	236	236	264	264

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2022	2	4										
2021	3	1										
2020	4	1										
2019	5	3										
2018	6	2										
2014	10	1										
Weighted Mean		12										

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+
2024	158		146 (123)	162 (14)	156 (17)	253 (1)	259 (2)		253 (1)		
2021	397		157 (267)	166 (60)	160 (70)	204 (2)					
2019	54	98 (1)	140 (17)	173 (12)	192 (5)	195 (15)	203 (2)	203 (2)		240 (1)	
2016	21		153 (9)	211 (10)		269 (1)		292 (1)			

Species: Bluegill

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2024	204		113 (10)	144 (118)	155 (39)	177 (20)	144 (9)	252 (1)			173 (5)
2021	246		118 (24)	140 (33)	152 (65)	173 (80)	182 (40)	217 (4)			
2019	144	92 (15)	110 (68)	149 (15)	158 (13)	170 (12)	179 (7)	184 (2)	190 (8)	193 (2)	206 (2)
2016	78		120 (66)	154 (5)	178 (5)	207 (2)					

Species: Largemouth Bass

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2019	59	120 (2)		195 (25)	235 (7)	265 (4)			391 (1)	350 (1)	436 (19)
2016	80	208 (32)	258 (9)	273 (5)	364 (16)	431 (8)	475 (1)	466 (1)		499 (4)	492 (4)

Fish Condition

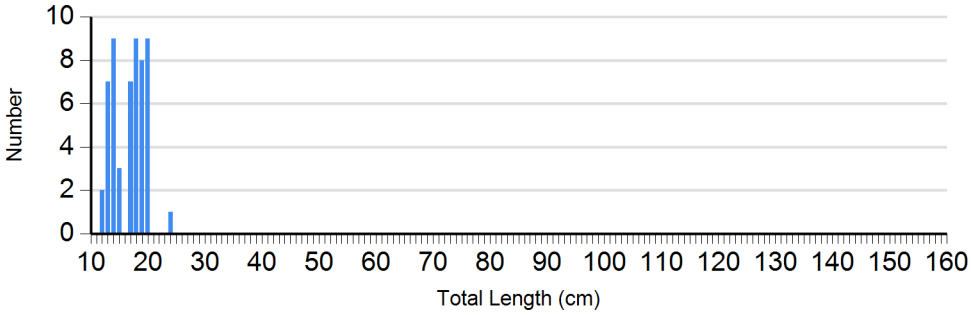
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		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	2021	421	106 (0.7)	9	88 (2.6)	5		1	
	2024	158	110 (1.3)	1	94	3	87 (4.9)	1	0
Bluegill Frame Net	2021	78	109 (1.0)	156	106 (0.9)	12	100 (1.4)	1	
	2024	103	114 (1.2)	104	115 (1.0)	2		1	100
Largemouth Bass Electro Fishing	2020	14	121 (3.9)	6	127 (1.8)	19	121 (1.4)	2	123 (15.7)

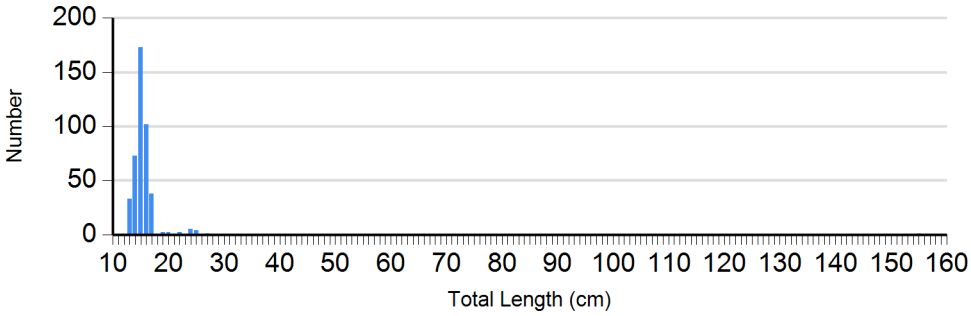
Length Frequency Distribution

Length frequency histogram of species sampled by year.

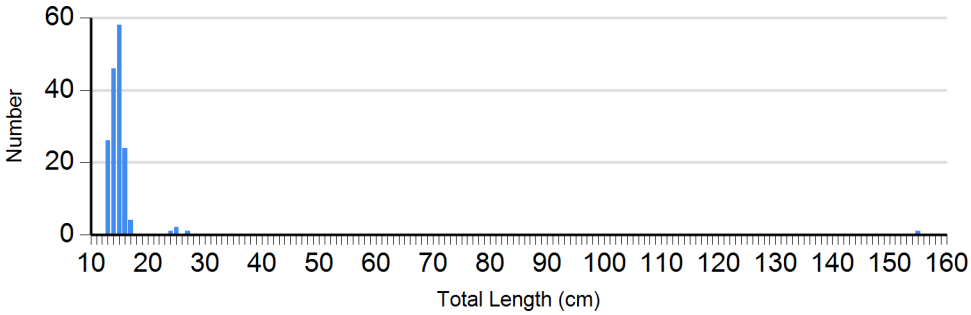
Species: Black Crappie
Gear: frame net (std 3/4 in)



2019

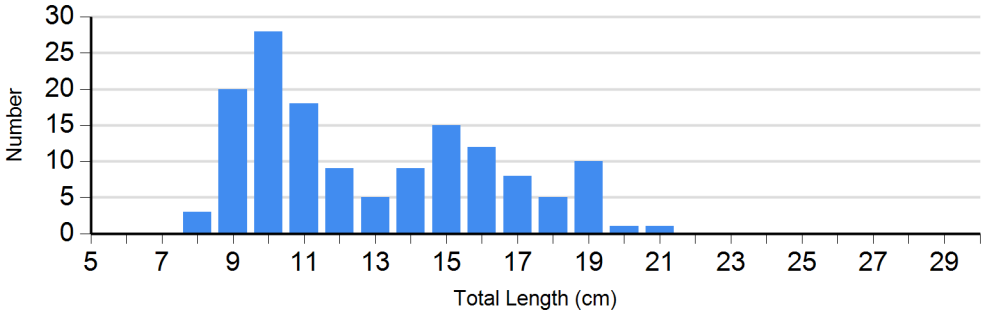


2021

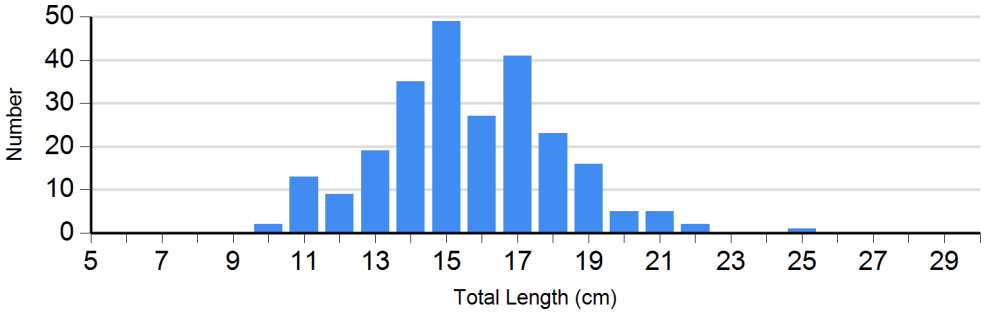


2024

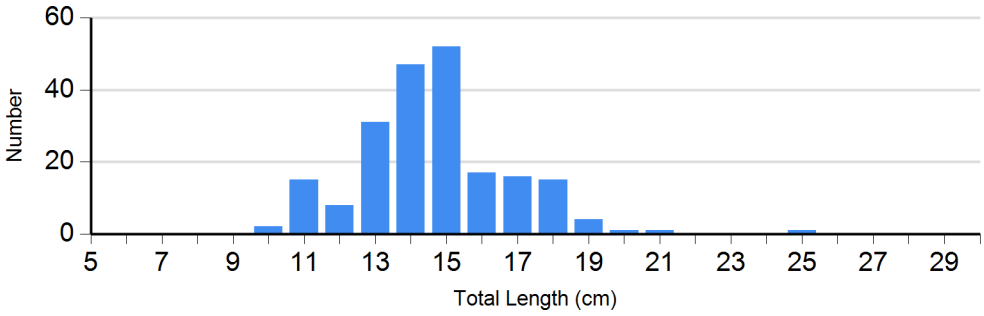
Species: Bluegill
Gear: frame net (std 3/4 in)



2019

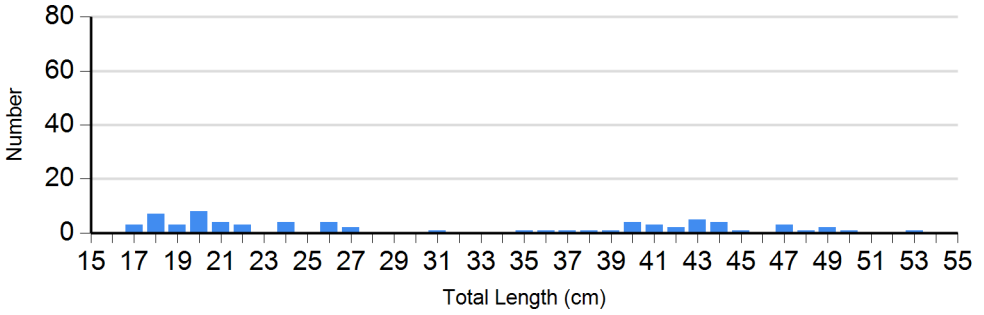


2021

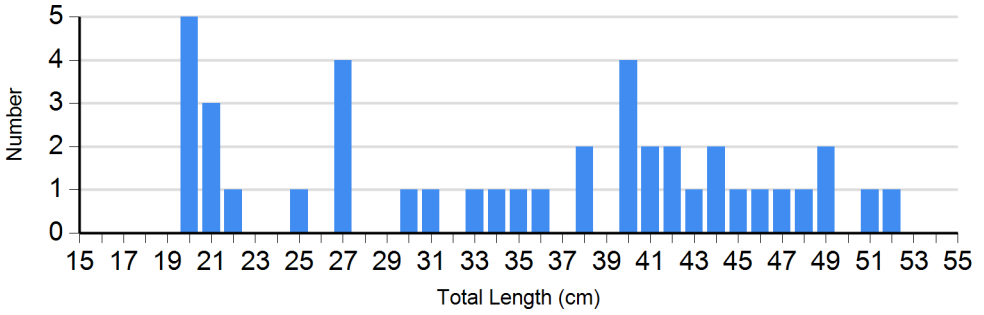


2024

Species: Largemouth Bass
Gear: boat shocker (night)



2019

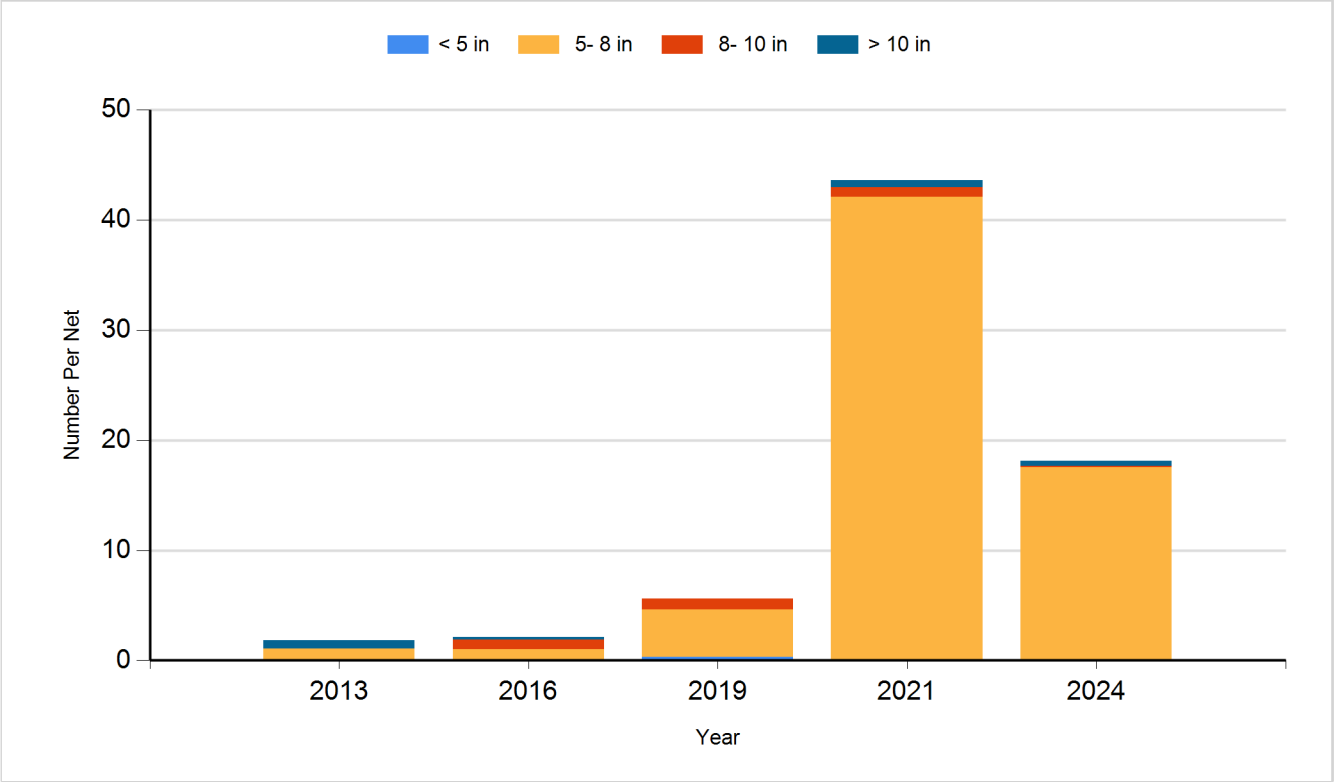


2020

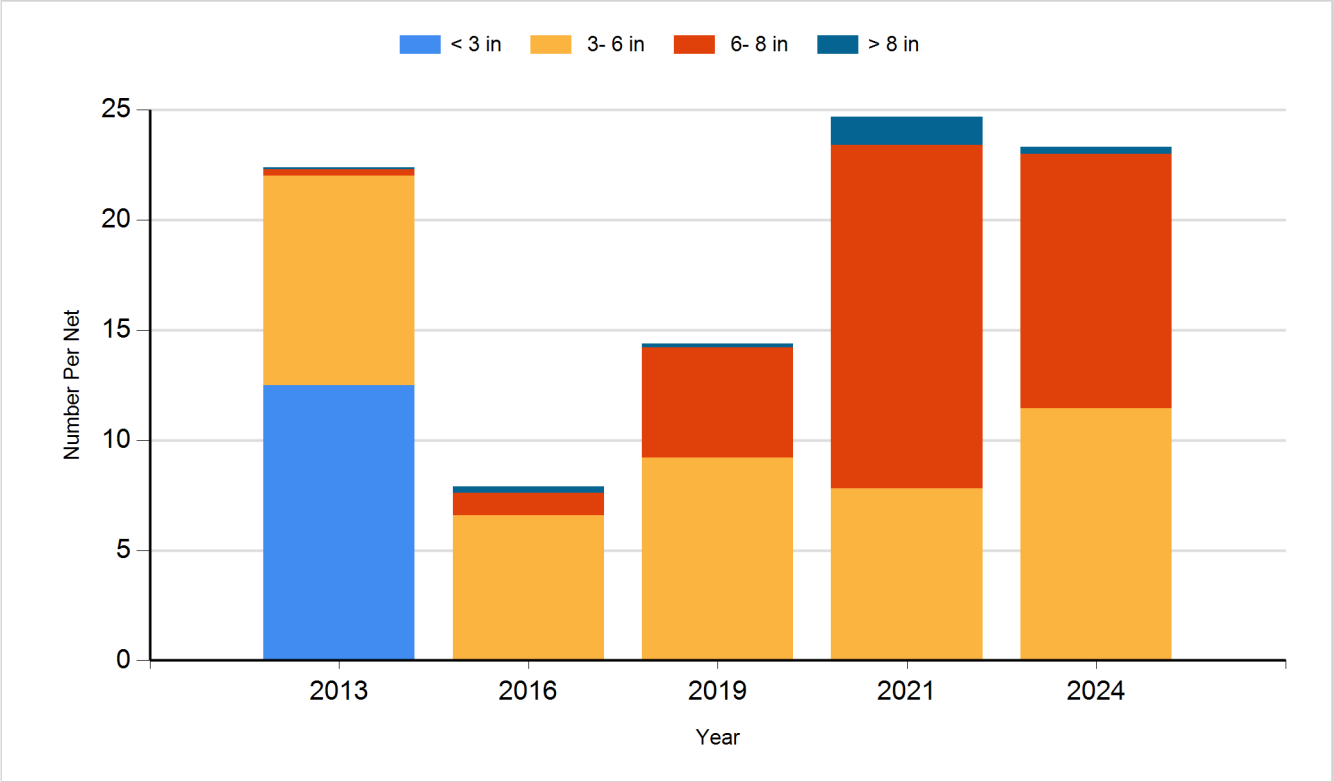
Historic Fish Sizes and Relative Abundance

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

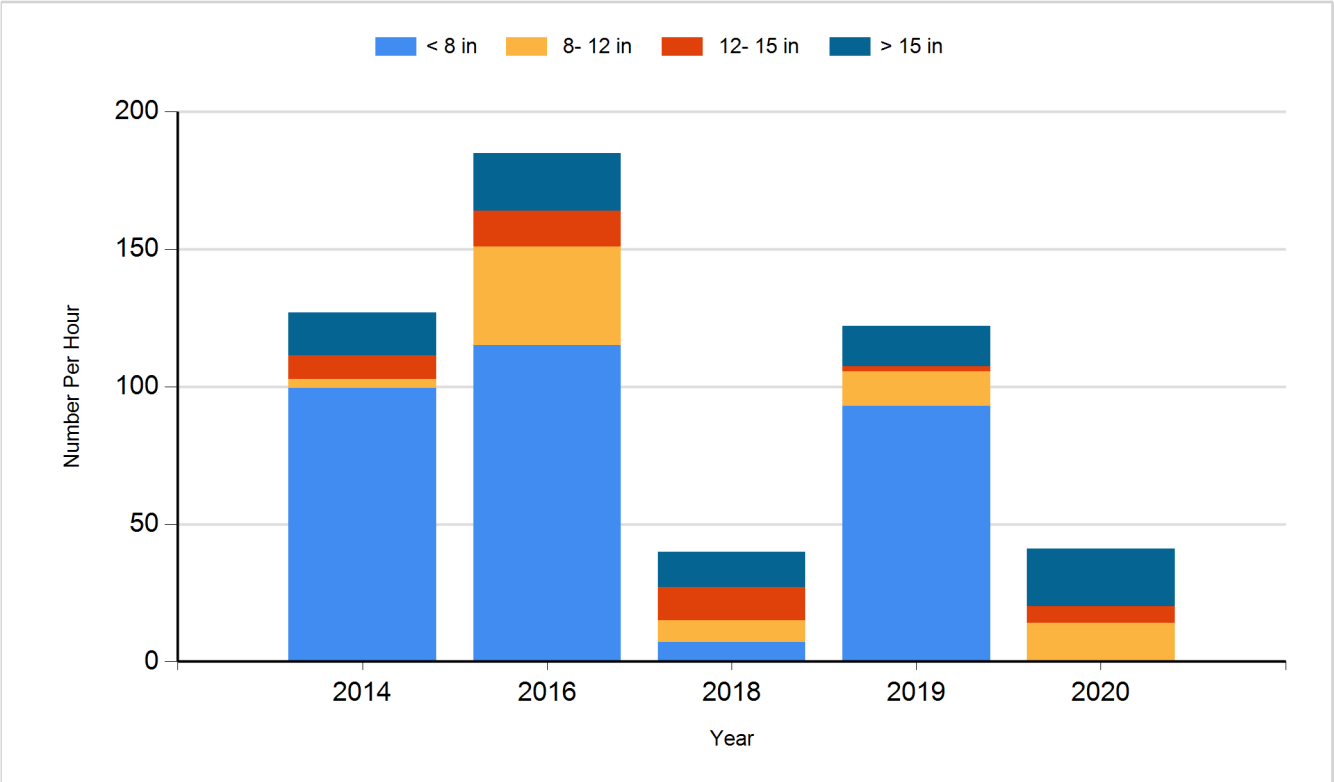
Species: Black Crappie
Gear: frame net (std 3/4 in)



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



Species: Largemouth Bass
Gear: boat shocker (night)



Fish Stocking

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

Year	Species	Size	Number
2013	Largemouth Bass	Fingerling	1,300
2016	Black Crappie	Adult	205
2016	Yellow Perch	Adult	65
2017	Black Crappie	Adult	153