

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

Marindahl, Yankton County

VER-Lake-276-000

2024

Lake Information

Name: Marindahl **Maximum Depth:** 30 Feet
County: Yankton **Mean Depth:** 13 Feet
Legal Description: T95N-R54W-Sec. 7, 17, 18, 20
Surface Area: 147 Acres

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	May 23, 2024	4 net-nights
frame net (std 3/4 in)	May 23, 2024	5 net-nights

Common Fish Species Present

Largemouth Bass

Bluegill

Black Crappie

White Sucker

Black Bullhead

Channel Catfish

Green Sunfish

Yellow Perch

Common Carp

Walleye

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
AFS std gill net	Black Bullhead	11	2.8	2.3	18		0		
	Bluegill	1	0.3	0.4	0		0	109	
	Channel Catfish	24	6.0	1.8	38	16	0	100	3
	Common Carp	1	0.3	0.4	100		0		
	Walleye	8	0.3	0.4	0		0	103	
	White Sucker	50	12.5	6.1	72	10	70	10	
	Yellow Perch	2	0.5	0.5	100		50	108	5
frame net (std 3/4 in)	Black Bullhead	89	17.8	13.5	27	7	1		
	Black Crappie	5	1.0	1.5	100		60	103	4
	Bluegill	47	9.4	13.3	9		6	108	3
	Channel Catfish	9	1.8	2.0	44		0	97	7
	Green Sunfish	22	4.4	4.5	18		0		
	Pumpkinseed	1	0.2	0.3	100		0	126	
	Sunfish Hybrid	1	0.2	0.3	100		100		
White Sucker	100	20.0	6.4	89	5	79	6		

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
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
AFS std frame net	Black Bullhead			41.8								41.80
	Black Crappie			68.0								68.00
	Common Carp			0.0								0.00
	White Sucker			5.6								5.60
	Yellow Perch			0.2								0.20
AFS std gill net	Black Bullhead			12.0	0.7	0.3		0.2		1.3	2.8	2.88
	Black Crappie			2.8	0.7	0.3		3.8		1.0	0.0	1.43
	Bluegill			0.2	0.0	0.0		0.0		0.0	0.3	0.08
	Channel Catfish			3.8	0.7	1.3		6.8		6.7	6.0	4.22
	Common Carp			1.2	2.0	0.0		3.4		1.3	0.3	1.37
	Gizzard Shad			3.3	0.0	0.0		0.0		0.0	0.0	0.55
	Northern Pike			0.0	0.0	0.0		0.2		0.0	0.0	0.03
	Smallmouth Bass			0.3	0.0	0.0		0.0		0.0	0.0	0.05
	Walleye			0.0	0.0	0.0		0.8		0.3	0.3	0.23
	White Sucker			5.0	0.3	1.0		11.8		6.7	12.5	6.22
Yellow Perch			4.2	3.0	0.0		4.2		0.7	0.5	2.10	
boat shocker (night)	Largemouth Bass	7.5	6.0									6.75
	Smallmouth Bass	0.5	0.0									0.25
frame net (std 3/4 in)	Black Bullhead	185.2	51.3		16.0	17.2		0.0		0.8	17.8	41.19
	Black Crappie	19.0	49.4		68.2	42.2		217.2		61.2	1.0	65.46
	Bluegill	21.9	17.9		0.2	20.0		4.8		0.3	9.4	10.64
	Channel Catfish	1.3	0.6		0.4	1.4		0.0		0.2	1.8	0.81
	Common Carp	0.1	0.6		1.4	2.6		0.0		0.0	0.0	0.67
	Green Sunfish	1.2	1.2		0.0	4.8		3.0		0.5	4.4	2.16
	Largemouth Bass	0.0	0.0		0.2	0.0		0.0		0.0	0.0	0.03
	Pumpkinseed	0.0	0.0		0.0	0.0		0.0		0.0	0.2	0.03
	Sunfish Hybrid	0.0	0.0		0.0	0.0		1.6		0.0	0.2	0.26
	Walleye	0.0	0.0		0.0	0.0		0.2		0.0	0.0	0.03
	White Sucker	19.8	12.6		3.8	12.0		26.4		3.8	20.0	14.06
Yellow Perch	0.0	0.0		1.0	0.2		0.6		0.0	0.0	0.26	

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											
			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024		
AFS std frame net	Black Bullhead	PSD			13									
		PSD-P			1									
	Black Crappie	PSD			94									
		PSD-P			4									
	Common Carp	Wr			94									
		PSD			0									
		PSD-P			0									
		PSD			96									
	White Sucker	PSD-P			64									
		PSD			100									
	Yellow Perch	PSD-P			100									
		Wr			75									
AFS std gill net	Black Bullhead	PSD			18	0	0		100		0	18		
		PSD-P			1	0	0		0		0	0		
		Wr				89								
	Black Crappie	PSD			94	100	0		16		100			
		PSD-P			0	100	0		0		0			
		Wr			96	97	73		129		91			
	Bluegill	PSD			0								0	
		PSD-P			0								0	
		Wr			85								109	
	Channel Catfish	PSD			91	50	75		38		15	38		
		PSD-P			9	0	25		0		0	0		
		Wr			103	95	114		85		85	100		
	Common Carp	PSD			0	0	0		47		100	100		
		PSD-P			0	0	0		18		25	0		
	Walleye	PSD				0			25		100	0		
		PSD-P				0			25		0	0		
		Wr							92		85	103		
	White Sucker	PSD			90	100	67		100		100	72		
		PSD-P			63	0	67		66		95	70		
	Yellow Perch	PSD			96	0			62		0	100		
		PSD-P			80	0			0		0	50		

Gear	Species	Index	Year									
			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AFS std gill net	Yellow Perch	Wr			82	88			91		103	108
boat shocker (night)	Largemouth Bass	PSD	13	58								
		PSD-P	13	17								
		Wr	98	95								
frame net (std 3/4 in)	Black Bullhead	PSD	1	1		5	22				20	27
		PSD-P	0	0		0	0				0	1
	Black Crappie	PSD	2	9		67	37		78		84	100
		PSD-P	1	7		63	36		4		3	60
		Wr	115	99		98	100		109		92	103
	Bluegill	PSD	49	61		0	77		96		50	9
		PSD-P	1	1		0	0		4		0	6
		Wr	93	95			102		102			108
	Channel Catfish	PSD	31	50		0	14				0	44
		PSD-P	8	0		0	0				0	0
		Wr	78	117		84	95				81	97
	Common Carp	PSD	0	0		0	15					
		PSD-P	0	0		0	8					
	Green Sunfish	PSD	17	58			17		13		0	18
		PSD-P	0	0			0		0		0	0
		Wr	91	100			113		105			
	Largemouth Bass	PSD	0			100						
		PSD-P	0			100						
		Wr				99						
	Walleye	PSD							0			
		PSD-P							0			
		Wr							80			
	White Sucker	PSD	100	100		100	100		99		100	89
		PSD-P	99	100		68	87		82		96	79
		Wr				58						
	Yellow Perch	PSD				40	100		100			
		PSD-P				0	0		0			
		Wr				97	88		90			

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+
2021	1053		180 (237)	216 (651)	229 (128)	265 (21)	297 (16)				
2018	229		215 (1)	258 (28)	272 (142)	270 (49)		301 (9)			
2017	340		174 (16)	213 (60)	226 (249)	256 (4)		302 (8)	294 (4)		
2015	191	147 (188)	216 (1)	241 (1)	250 (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	47	112 (39)	130 (3)	192 (5)							
2021	24		154 (5)	183 (19)							
2015	217	118 (107)	162 (52)	171 (50)	181 (9)						

Species: Walleye

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2024	8	220 (8)									
2021	4		255 (3)		575 (1)						

Species: Yellow Perch

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2021	21	157 (7)		212 (14)							

Fish Condition

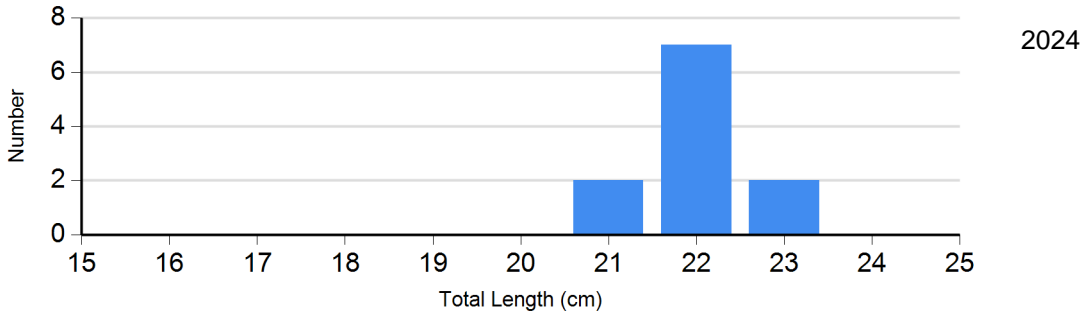
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Crappie Frame Net	2021	237	117 (1.2)	802	106 (0.6)	43	86 (1.9)	4	82
	2023	58	120	298	91 (0.8)	10		1	
	2024	0		2	106 (0.4)	3	100 (4.7)	0	
Bluegill Frame Net	2021	1	86	22	102 (1.9)	1	100	0	
	2024	43	108 (2.8)	1	112	3	117 (2.0)	0	
Channel Catfish Gill Net	2021	21	81 (1.0)	13	92 (3.3)	0		0	
	2023	17	85 (3.1)	3	87 (5.6)	0		0	
	2024	15	100 (2.1)	9	101 (4.0)	0		0	
Walleye Gill Net	2021	3	87 (4.0)	0		1	106	0	
	2023	0		1	85	0		0	
	2024	1	103	0		0		0	
Yellow Perch Gill Net	2021	8	88 (1.5)	13	93 (2.6)	0		0	
	2023	2	103 (9.0)	0		0		0	
	2024	0		1	111	1	104	0	

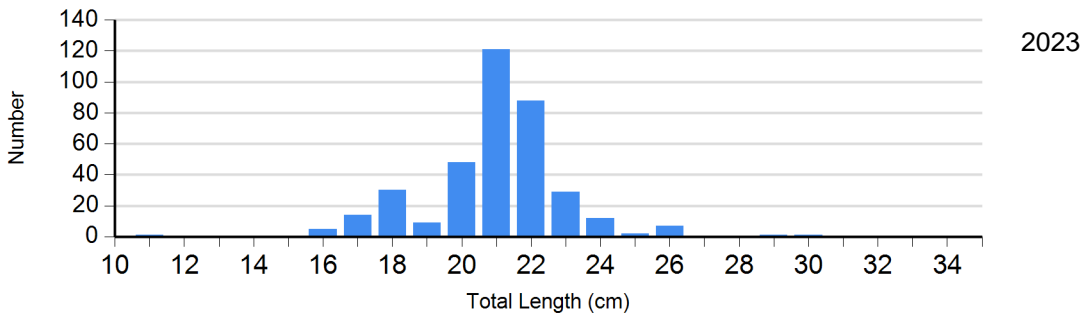
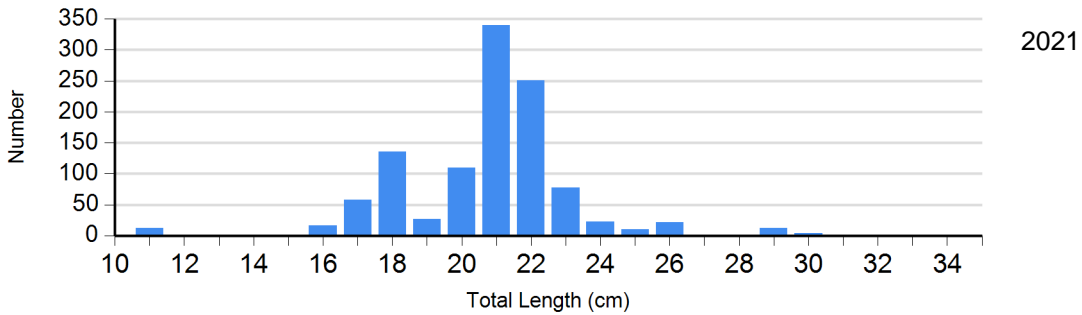
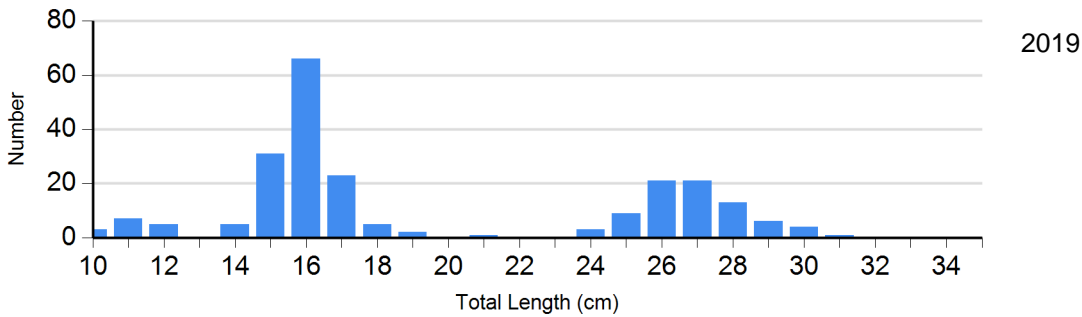
Length Frequency Distribution

Length frequency histogram of species sampled by year.

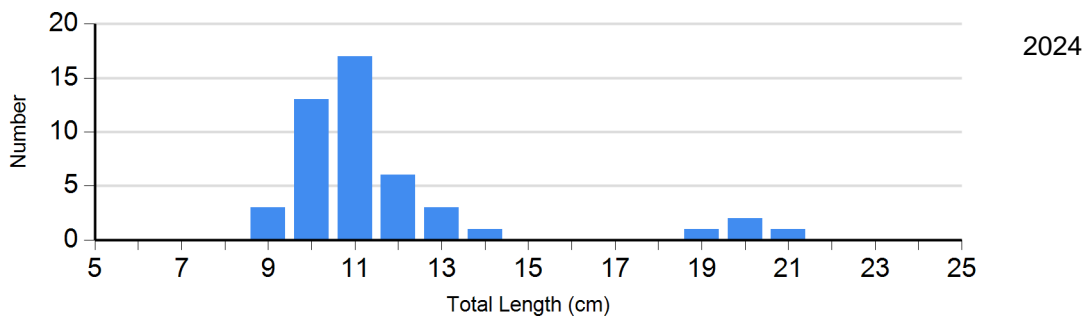
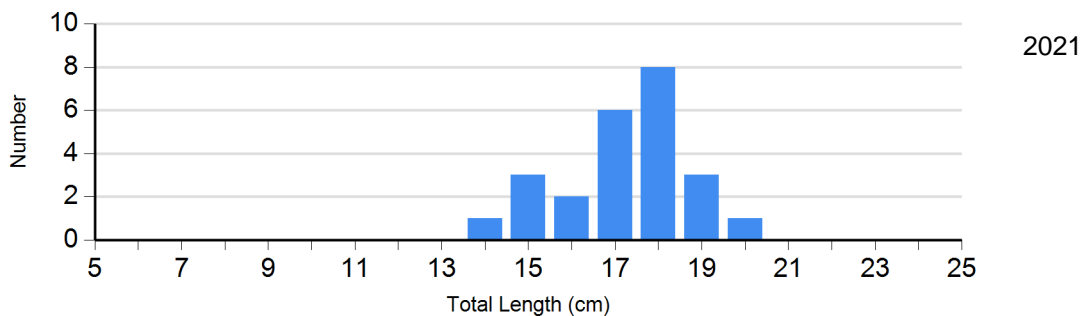
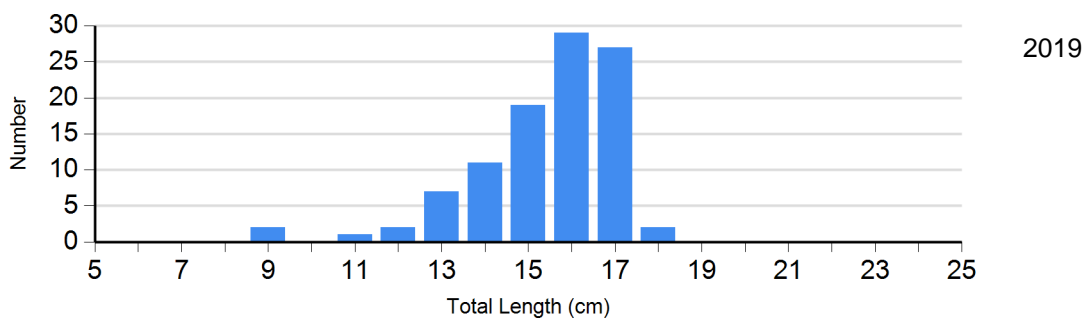
Species: Black Bullhead
Gear: AFS std gill net



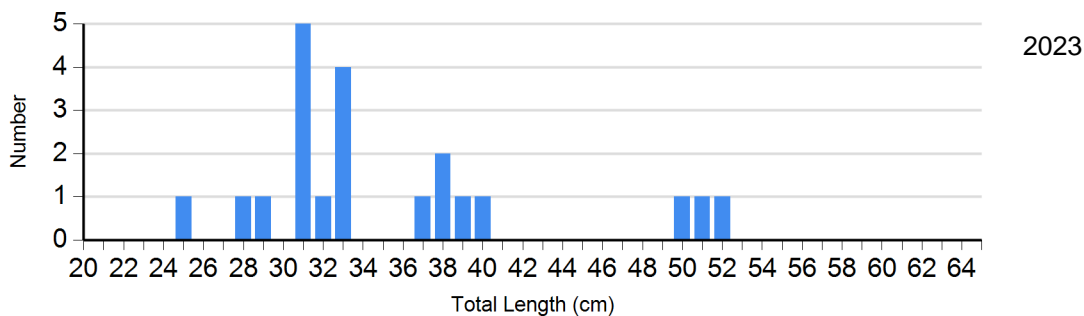
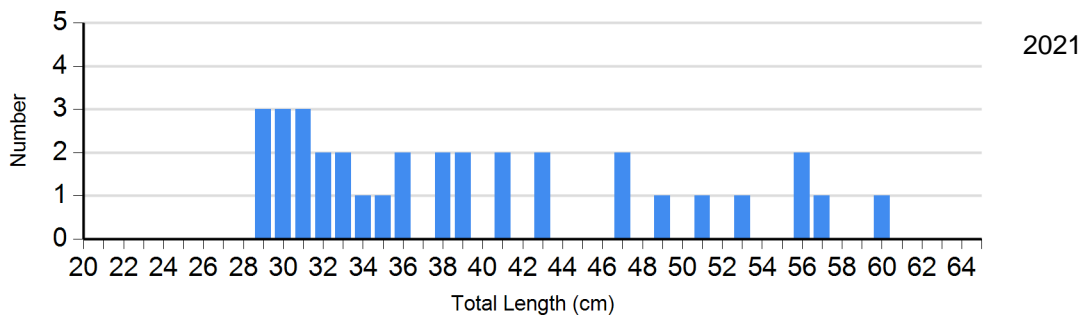
Species: Black Crappie
Gear: frame net (std 3/4 in)

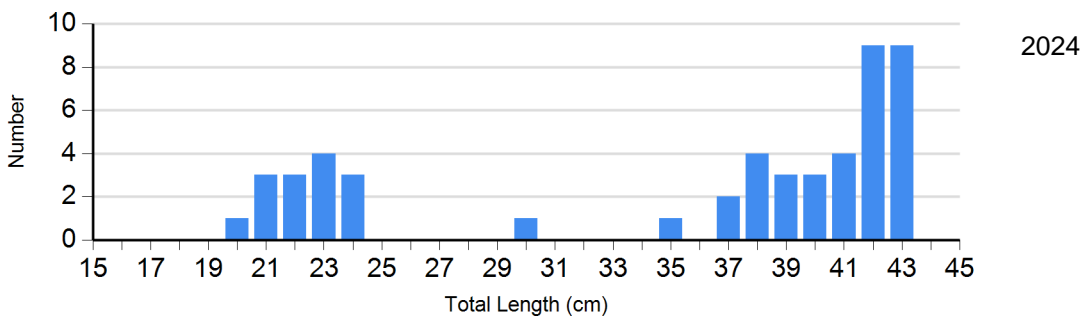
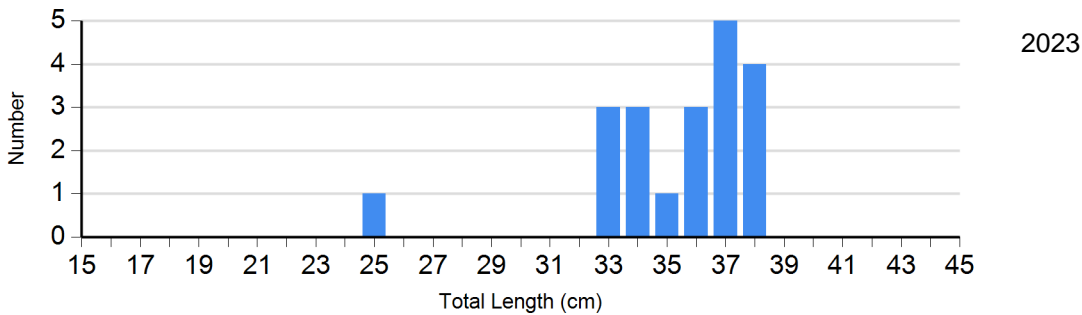
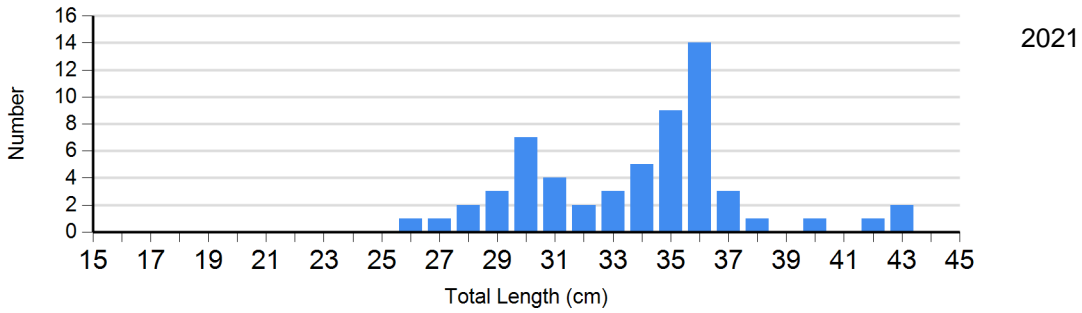
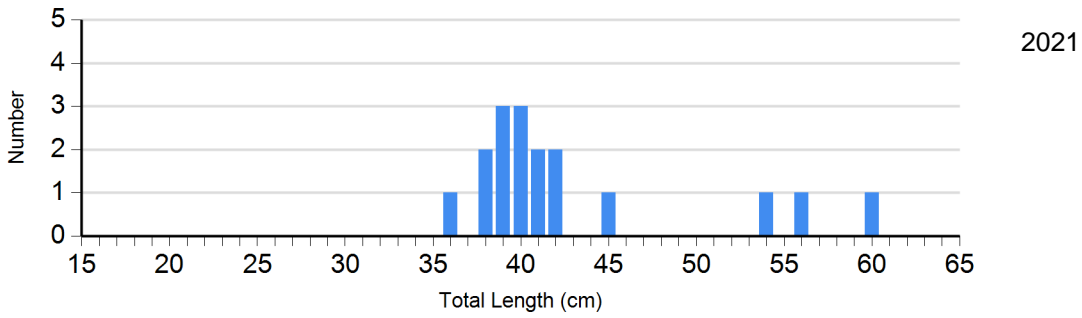
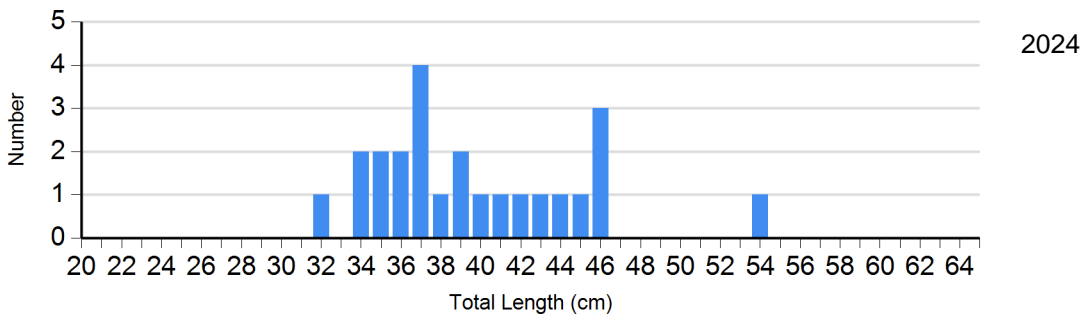


Species: Bluegill
 Gear: frame net (std 3/4 in)

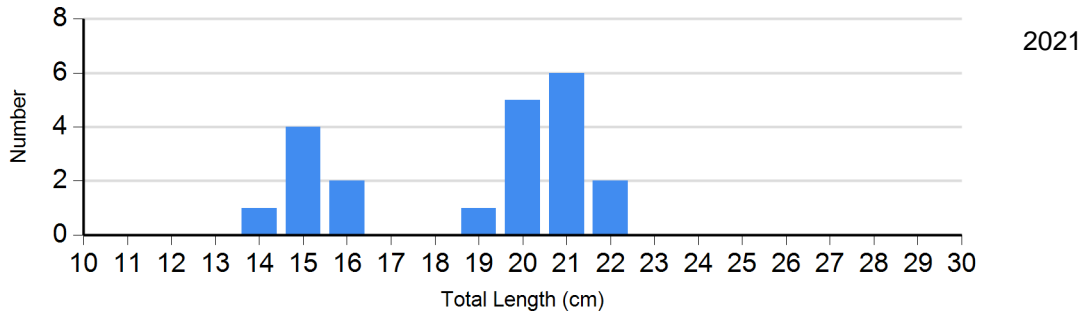


Species: Channel Catfish
 Gear: AFS std gill net





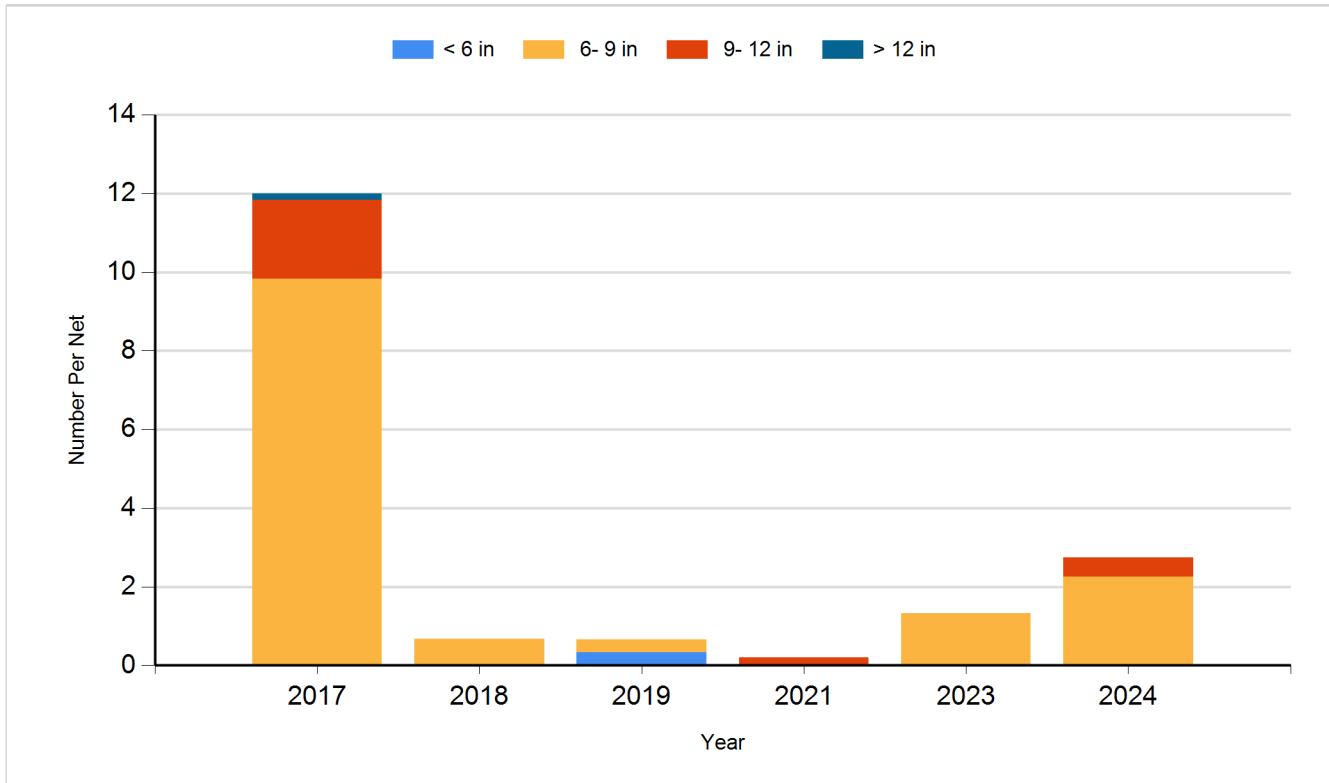
Species: Yellow Perch
Gear: AFS std gill net



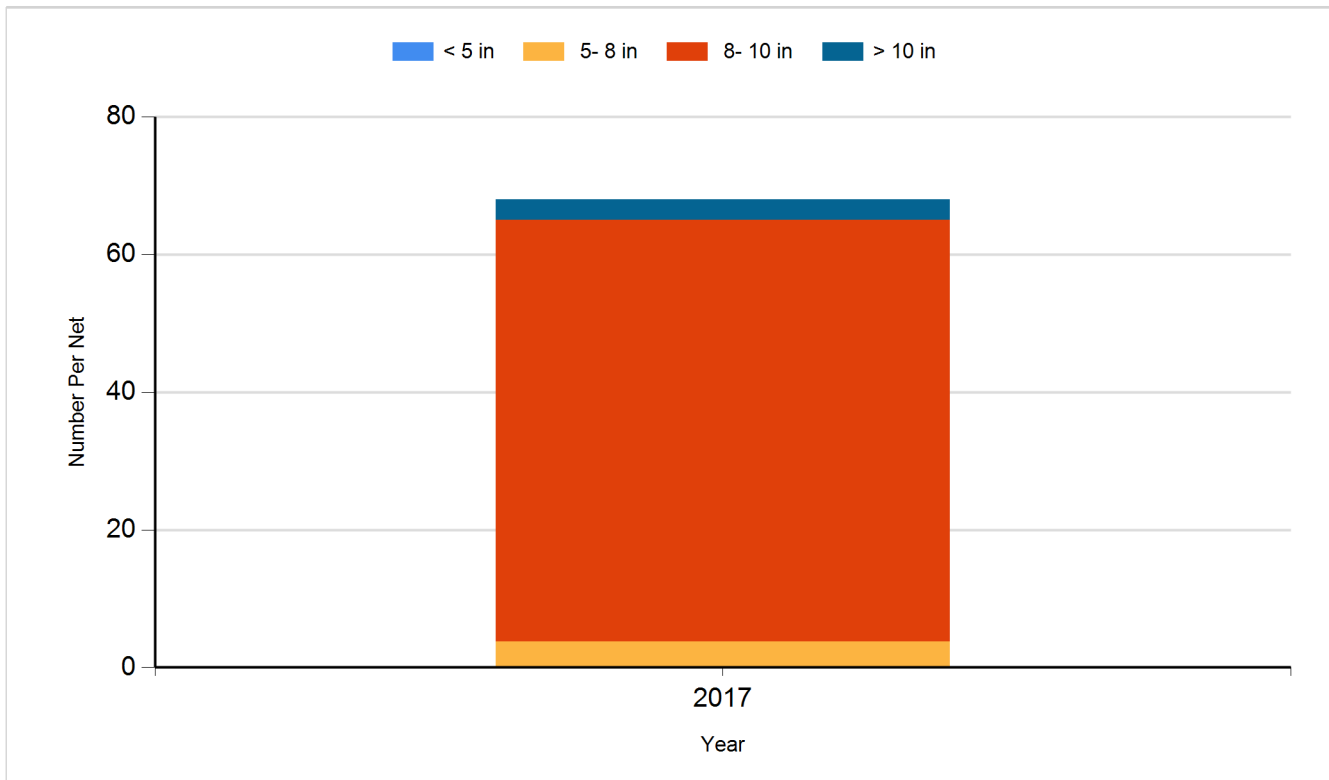
Historic Fish Sizes and Relative Abundance

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

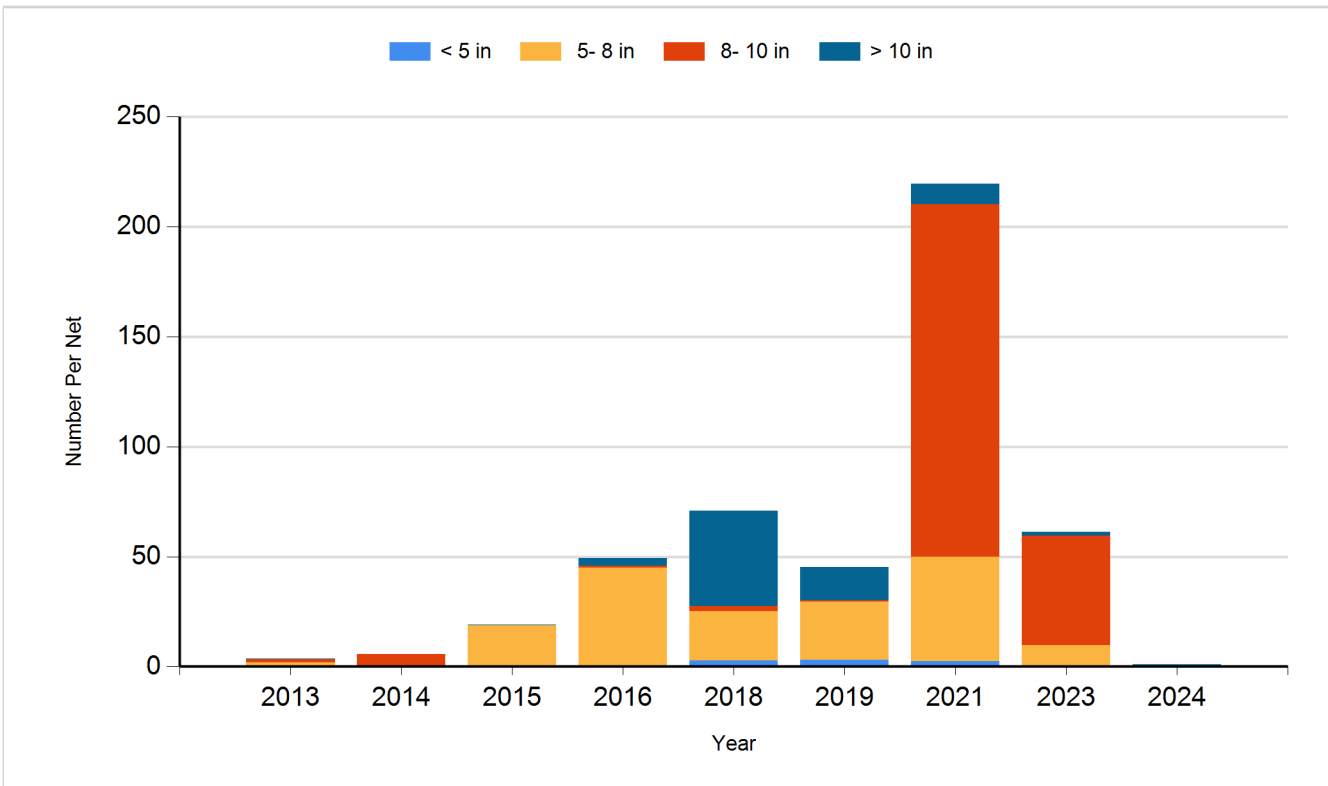
Species: Black Bullhead
Gear: AFS std gill net



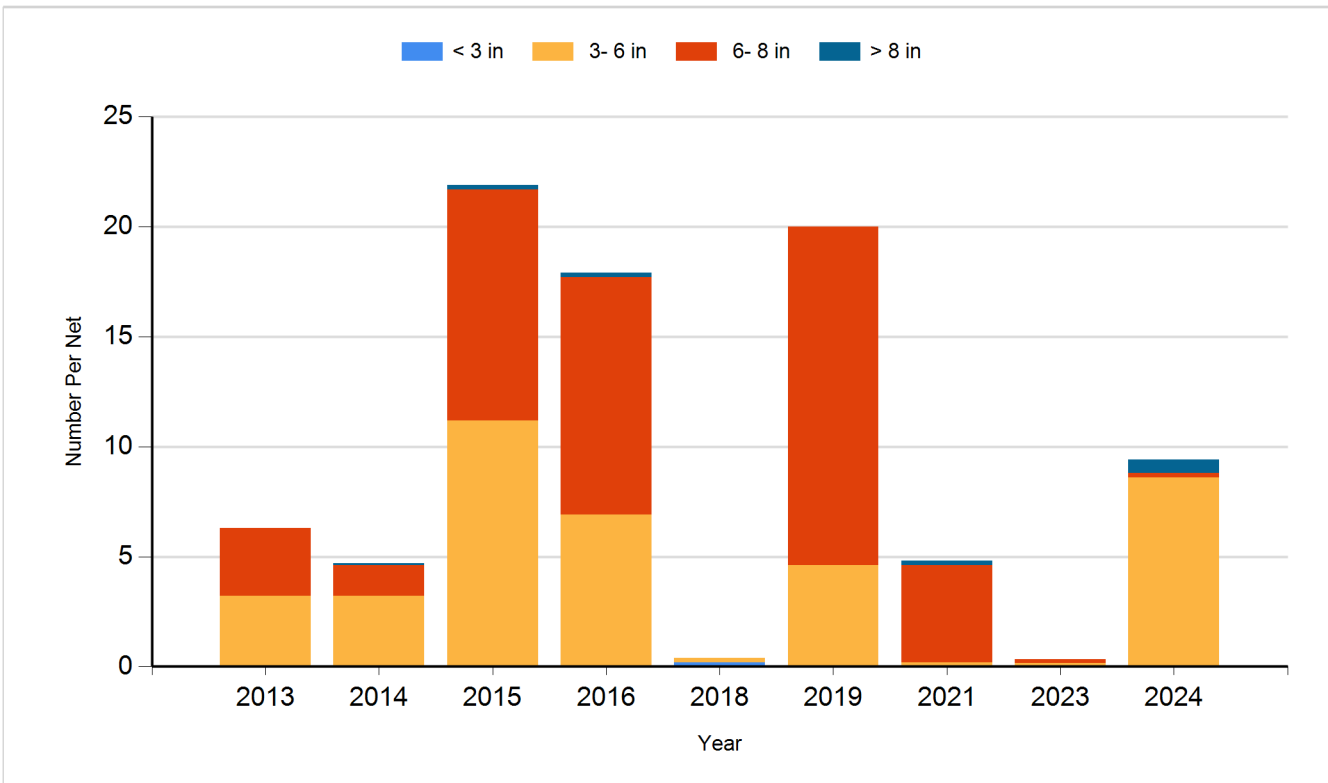
Species: Black Crappie
Gear: AFS std frame net



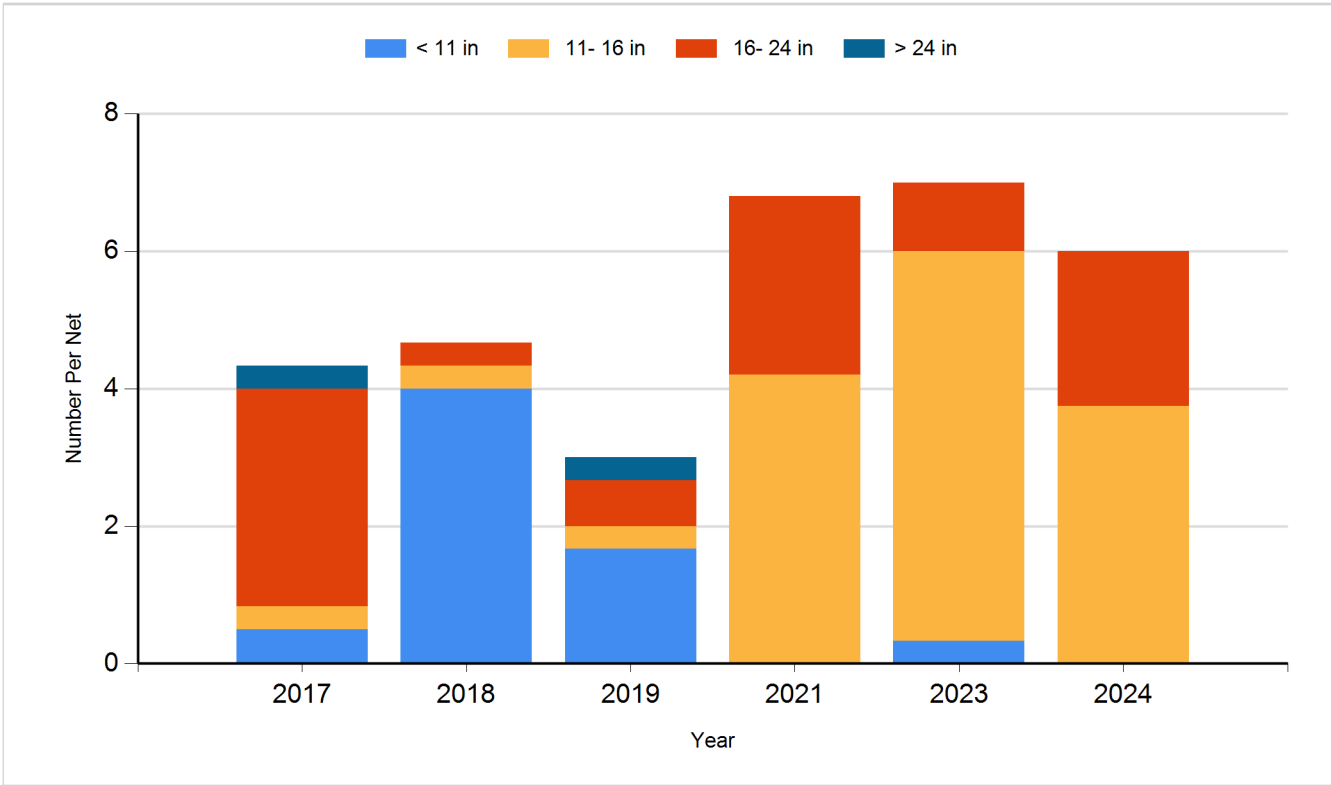
Species: Black Crappie
Gear: frame net (std 3/4 in)



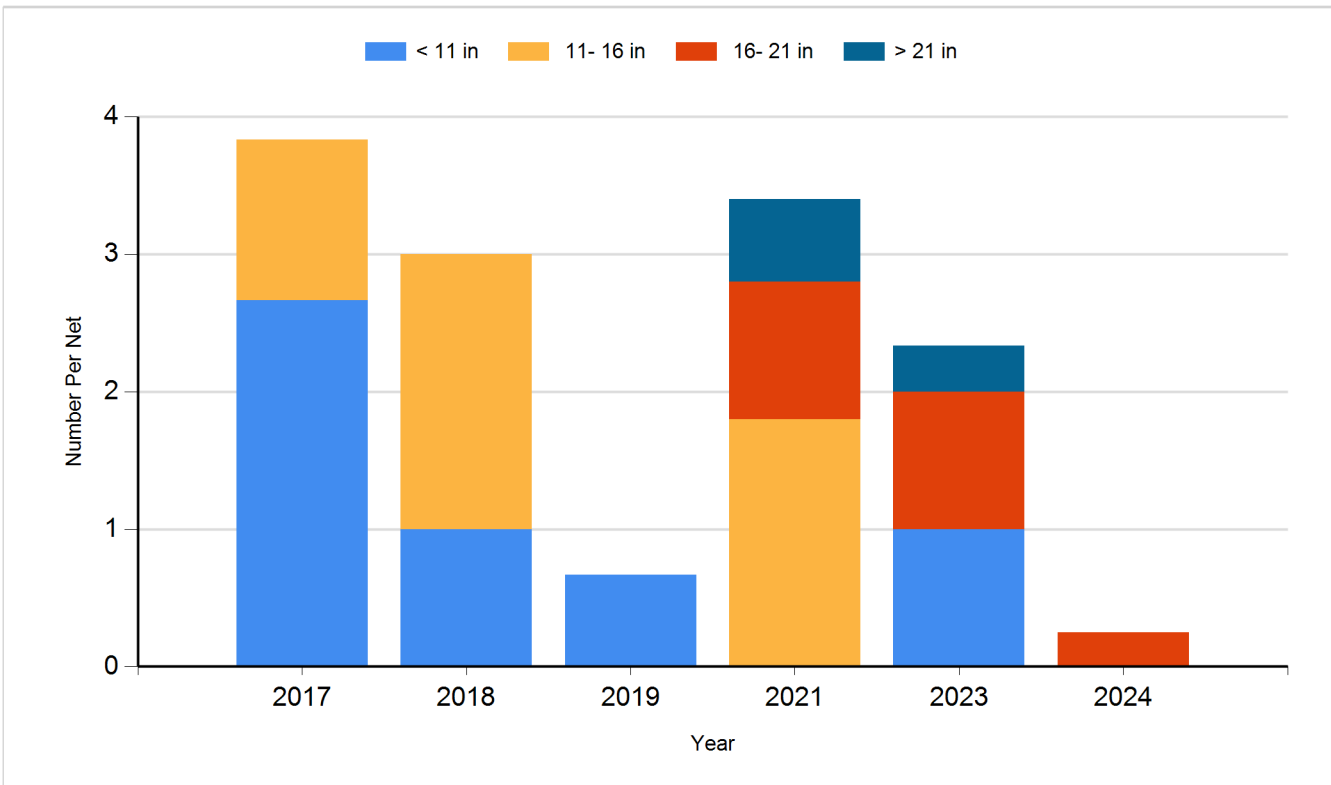
Species: Bluegill
Gear: frame net (std 3/4 in)



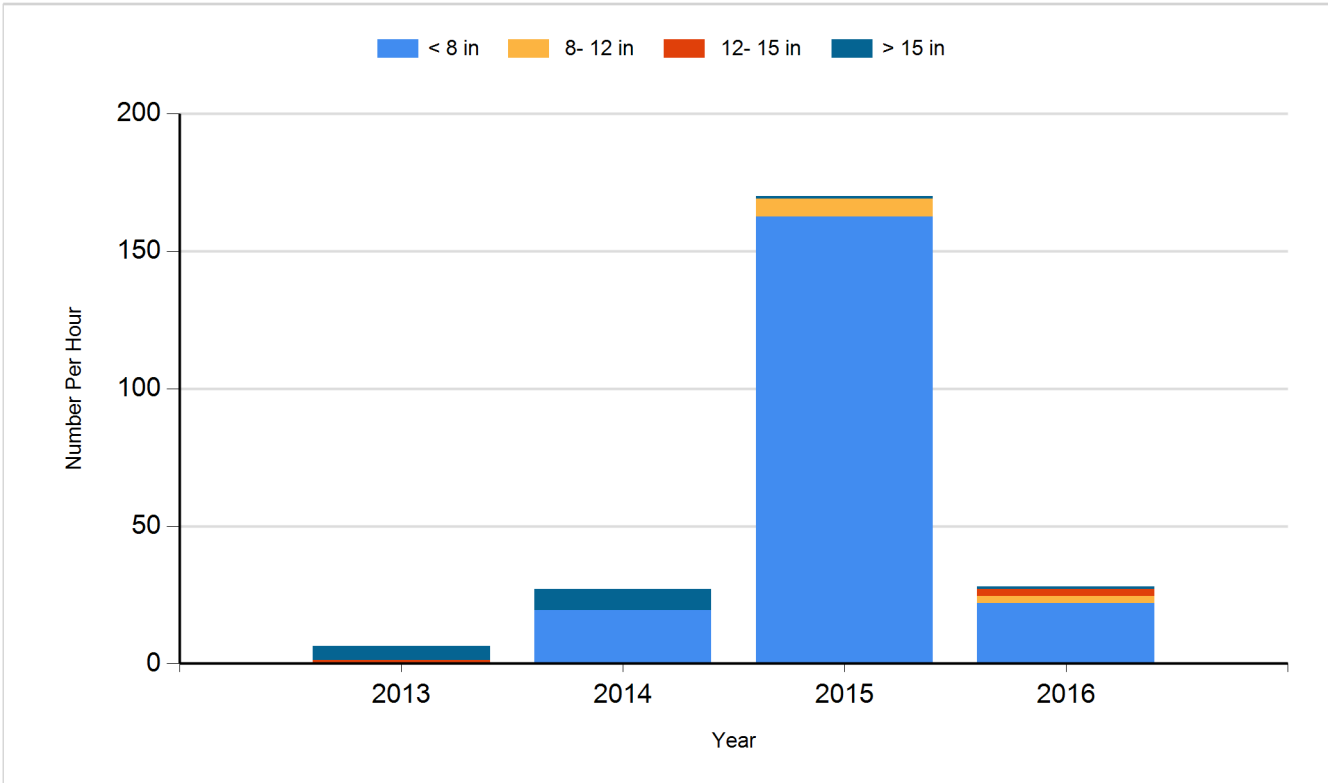
Species: Channel Catfish
Gear: AFS std gill net



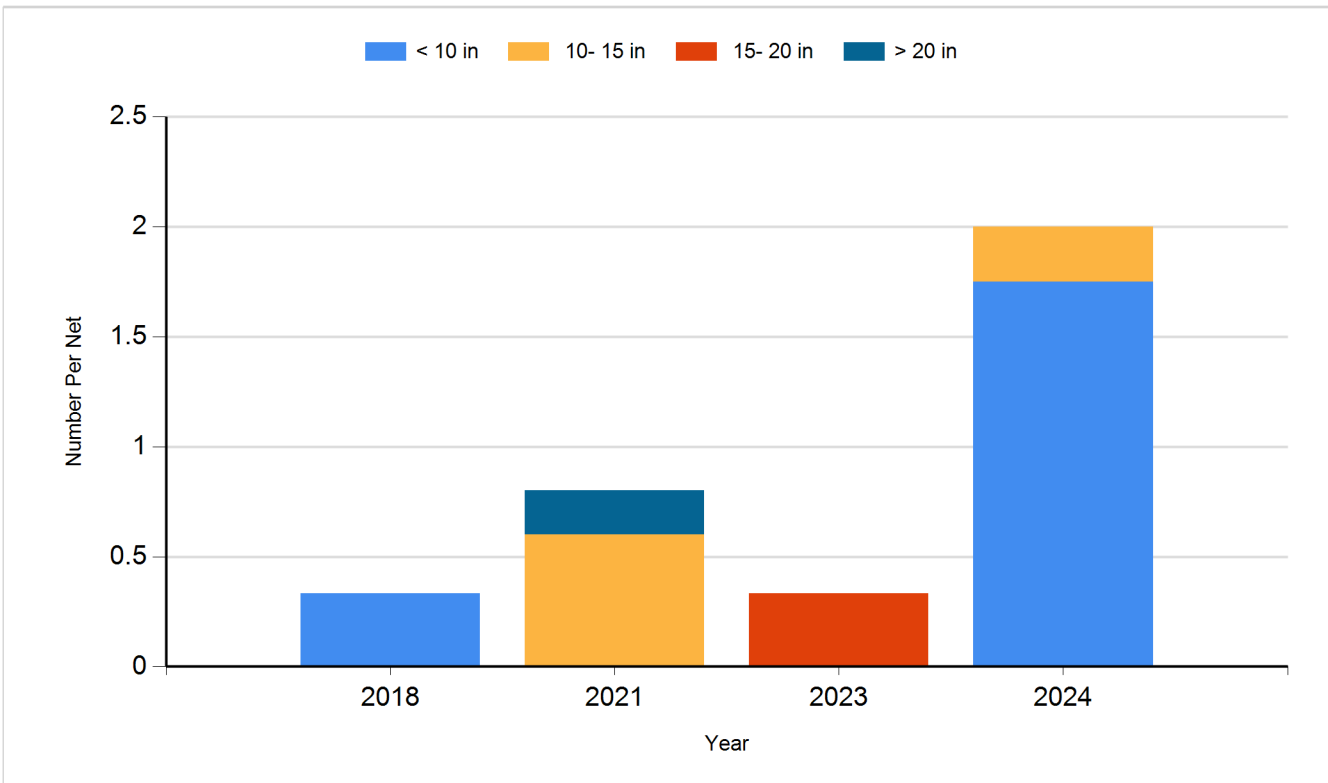
Species: Common Carp
Gear: AFS std gill net



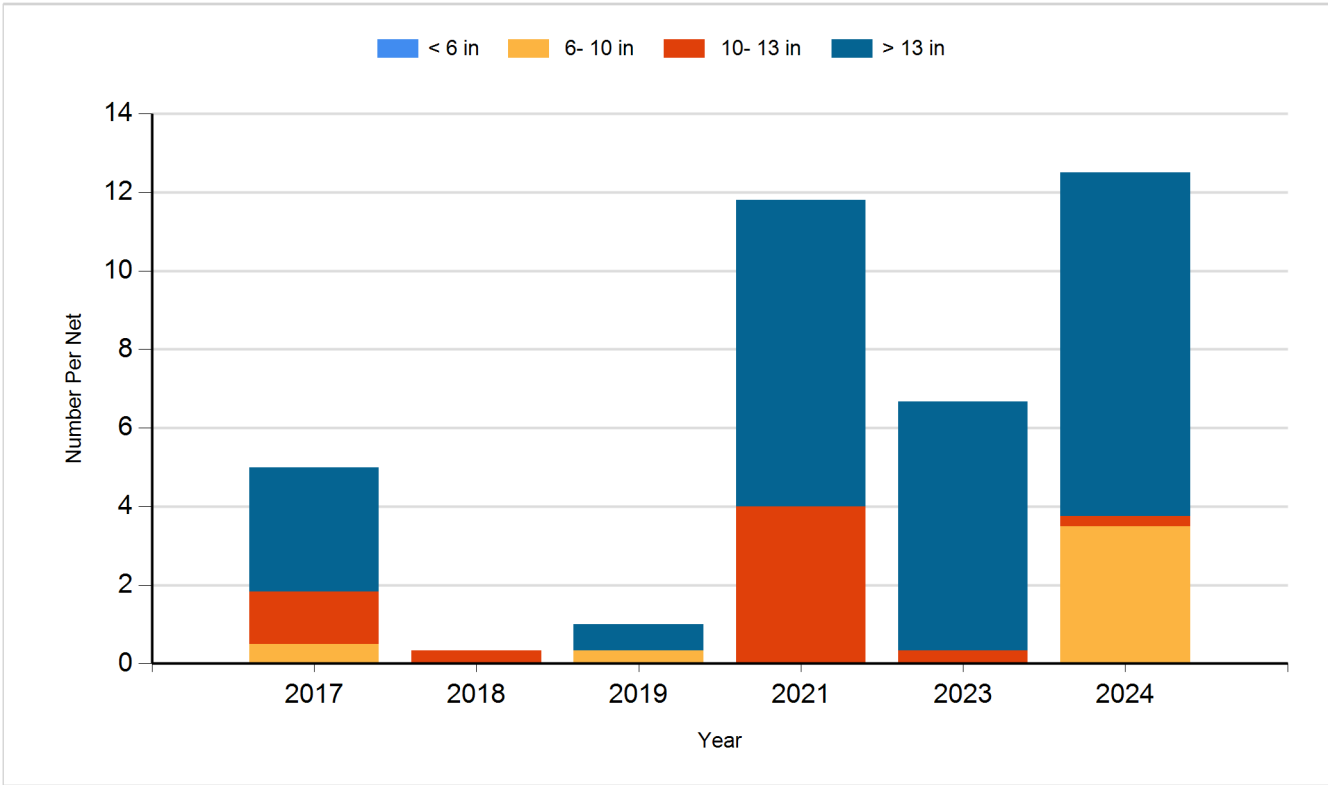
Species: Largemouth Bass
Gear: boat shocker (night)



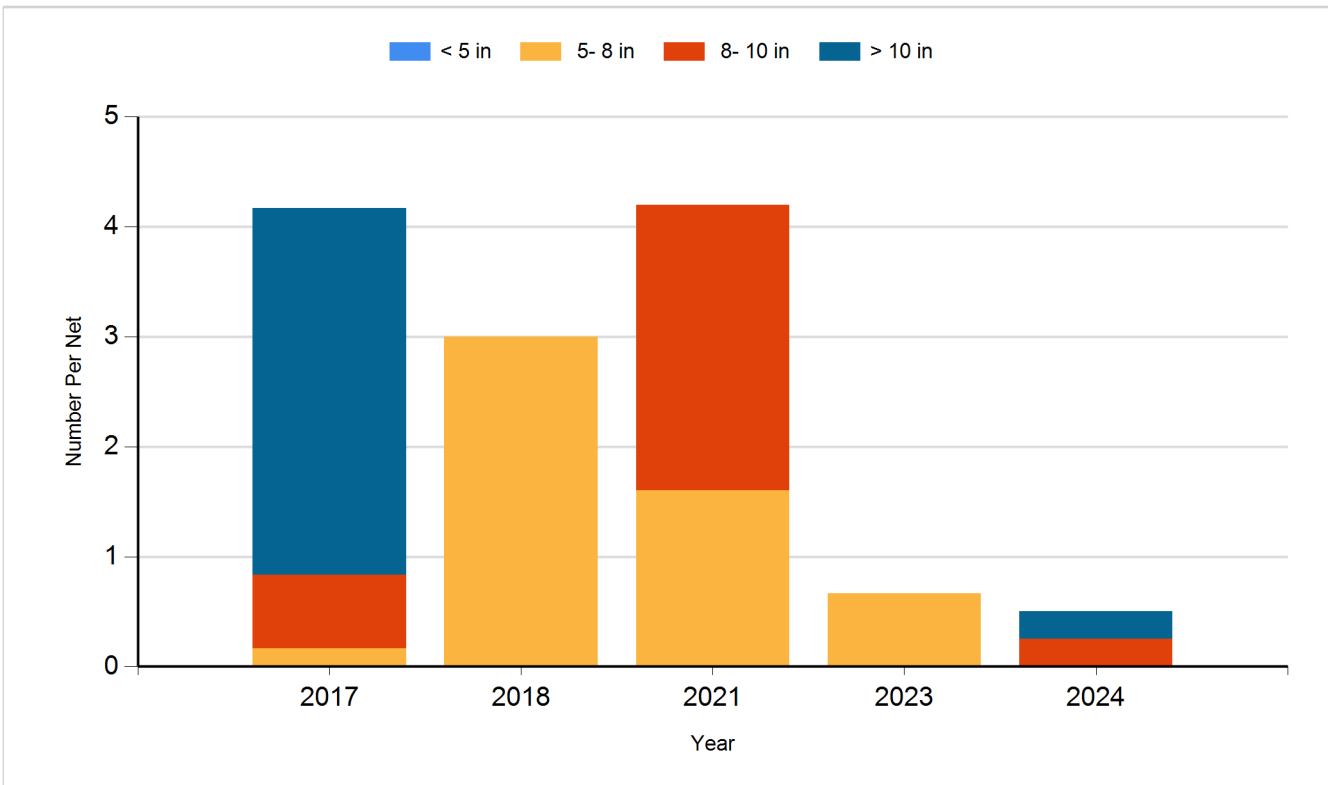
Species: Walleye
Gear: AFS std gill net



Species: White Sucker
Gear: AFS std gill net



Species: Yellow Perch
Gear: AFS std gill net



Fish Stocking

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

Year	Species	Size	Number
2013	Largemouth Bass	Large Fingerling	3,104
2013	Rainbow Trout	Fingerling	3,424
2014	Bluegill	Adult	144
2014	Channel Catfish	Adult	3
2015	Gizzard Shad	Adult	74
2015	Largemouth Bass	Juvenile	1,590
2016	Gizzard Shad	Adult	360
2017	Walleye	Fingerling	1,200
2017	Walleye	Juvenile	225
2017	Yellow Perch	Adult	7,437
2018	Gizzard Shad	Adult	
2019	Walleye	Fingerling	818
2019	Walleye	Small Fingerling	10,800
2021	Gizzard Shad	Juvenile	136
2022	Saugeye	Juvenile	17,290
2022	Walleye	Fry	493,000
2023	Walleye	Fry	400,000
2024	Gizzard Shad	Adult	50
2024	Saugeye	Juvenile	10,266