Note: Zebra mussels, an invasive species, have been found in Lake Cochrane. Care should be taken by all user groups to prevent their spread. For more information regarding aquatic invasive species please visit https://sdleastwanted.sd.gov/

Lake Cochrane Survey Summary

Lake Cochrane, located 10.0 miles east and 2.5 miles south of Clear Lake, is managed as a multiple species fishery including panfish (i.e., black crappie, bluegill [includes bluegill, green sunfish, and sunfish hybrids], and yellow perch), largemouth bass and walleye.

- **Black crappie.** Black crappies were not abundant (0.1 per frame net) in 2024. Frame nets collected a single black crappie that measured 6.7 inches.

- **Bluegill.** Bluegills are typically the most abundant fish species in the frame net catch at Lake Cochrane. The 2024 mean frame net CPUE was 45.8 and suggested moderate relative abundance. Sampled bluegills ranged in length from 3.9 to 9.1 inches, 67% were ≥ 6.0 inches and 2% were ≥ 8.0 inches. Four consecutive year classes (2019 – 2022) contributed to the catch. Individuals from the 2021 (age-3) cohort were the most abundant accounting for 55% of bluegills sampled, while those from the 2019 (age-5) year class made up an additional 40%. Since 2015, mean length at captures at age 5 have ranged from 6.1 to 7.4 inches. In 2024, age-5 bluegills had a mean length of 6.9 inches.

- **Largemouth bass.** Considerably fewer largemouth bass were sampled by electrofishing in 2024 (45.6 per hour) than in 2016 (231.0 per hour). Largemouth bass in the 2024 electrofishing catch ranged in length from 8.7 to 17.3 inches, 76% were ≥ 12.0 inches and 42% were ≥ 15.0 inches.

- **Walleye.** Walleye numbers were lower in 2024 than in 2022. At 3.8 per gill net, relative abundance was considered low to moderate for Lake Cochrane. Sampled walleyes ranged in length from 9.4 to 28.0 inches, of those at least 10.0 inches, 78% were ≥15.0 inches and 39% were ≥ 20.0 inches. Individuals from six year classes contributed to the catch, none were particularly strong. Fish from the 2019 (age-5) cohort, which coincided with a large fingerling stocking, were the most abundant accounting for 11 of 24 walleyes in the sample. The oldest walleye sampled was from the 2013 (age-11) year class. The 2024 sample suggests good walleye growth with a mean length at capture at age 5 of 19.9 inches.

- **Yellow perch**. Yellow perch were the most abundant fish species in the 2024 gill net catch. At 98.8 per gill net, relative abundance was high. Those sampled ranged from 5.1 to 10.2 inches, 21% were ≥ 8.0 inches and 1% were ≥ 8.0 inches. Individuals from four consecutive year classes (2019 -2022) contributed to the catch. Fish from cohorts produced in 2020 (age-4) and 2021 (age-3) were the most abundant accounting for more than 80% of yellow perch in the sample. Growth tends to be slow to moderate with mean length at captures from 7.6 to 9.6 inches at age 4 in surveys conducted from 2015 – 2024. In 2024, the mean length of age-4 fish was 7.6 inches.
-

For more detailed results see the computer generated South Dakota Statewide Fisheries Survey for Cochrane (Deuel; below)

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Cochrane, Deuel County
LQP-Lake-56-000
2024

Lake Information

Name:	Cochrane	**Maximum Depth:**	24 Feet
County:	Deuel	**Mean Depth:**	13 Feet
		OHWM Elevation:	1,684
Surface Area:	366 Acres	**Outlet Elevation:**	1,683

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jun 11, 2024	3 net-nights
AFS std gill net	Jun 12, 2024	3 net-nights
frame net (std 3/4 in)	Jun 11, 2024	6 net-nights
frame net (std 3/4 in)	Jun 12, 2024	6 net-nights
spring night EF-LMB	Jun 11, 2024	3000 seconds

Common Fish Species Present

Yellow Perch

Walleye

Largemouth Bass

Bluegill

Black Crappie

Black Bullhead

Northern Pike

Common Carp

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
AFS std gill net	Black Bullhead	1	0.2	0.2	100		100		121	
	Black Crappie	1	0.2	0.2	0		0		108	
	Common Carp	2	0.0	0.0	0		0			
	Northern Pike	7	1.2	0.9	100		57		93	4
	Walleye	24	3.8	2.3	78	14	39	16	98	2
	Yellow Perch	593	98.8	20.7	21	2	1	1	98	1
frame net (std 3/4 in)	Black Bullhead	27	2.3	1.0	96		70	14	97	5
	Black Crappie	1	0.1	0.1	0		0		111	
	Bluegill	550	45.8	13.2	67	3	2	1	106	1
	Largemouth Bass	7	0.2	0.2	50		0			
	Northern Pike	3	0.3	0.2	100		67		90	4
	Walleye	31	1.9	0.6	70	15	57	16	90	2
	Yellow Perch	42	3.5	2.1	26	10	0		78	2
spring night EF-LMB*	Largemouth Bass	38	45.6	22.6	76	11	42	12	97	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.

***AFS standard frame nets used in 2016 (Avg excludes 2016)**

		CPUE										
Gear	Species	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Avg
AFS std gill net	Black Bullhead		0.0		3.2		4.8		3.5		0.2	2.34
	Black Crappie		5.2		30.3		37.0		4.2		0.2	15.38
	Bluegill		0.2		1.3		0.7		1.7		0.0	0.78
	Common Carp		0.0		0.0		0.2		0.0		0.0	0.04
	Largemouth Bass		0.2		0.7		0.5		0.0		0.0	0.28
	Northern Pike		2.0		0.3		1.3		0.5		1.2	1.06
	Walleye		10.0		6.2		2.3		11.3		3.8	6.72
	Yellow Perch		36.8		47.2		16.0		40.5		98.8	47.86
frame net (std 3/4 in)	Black Bullhead		0.0		32.5		19.0		7.1		2.3	15.23
	Black Crappie		17.6		12.3		3.6		59.2		0.1	18.80
	Bluegill		65.1		46.7		19.9		62.0		45.8	43.60
	Common Carp		0.0		0.1		0.0		0.0		0.0	0.03
	Largemouth Bass		0.0		0.2		0.0		0.1		0.2	0.13
	Northern Pike		0.2		0.1		0.2		0.1		0.3	0.18
	Walleye		0.1		0.8		0.3		0.4		1.9	0.85
	Yellow Perch		3.9		0.8		1.4		25.7		3.5	7.85
spring night EF-LMB	Largemouth Bass		231.0								45.6	45.60

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. ***AFS standard frame nets used in 2016**

			Year								
Gear	Species	Index	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AFS std gill net	Walleye	PSD		80		95		43		71		78
		PSD-P		10		54		36		15		39
		Wr		95		92		86		89		98
	Yellow Perch	PSD		19		11		54		20		21
		PSD-P		1		0		2		4		1
		Wr		94		103		105		94		98
frame net (std 3/4 in)	Black Crappie	PSD		11		22		100		15		0
		PSD-P		5		3		5		8		0
		Wr		94		90		95		101		111
	Bluegill	PSD		33		91		99		49		67
		PSD-P		0		3		15		5		2
		Wr		105		103		109		99		106
spring night EF-LMB	Largemouth Bass	PSD		34								76
		PSD-P		13								42
		Wr		103								97

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+
2024	534		112 (15)	151 (292)	166 (14)	175 (214)					
2022	744		100 (3)	145 (539)				179 (100)	233 (9)	197 (93)	
2020	239			143 (1)		188 (82)	191 (22)	191 (125)	207 (7)	208 (5)	
2018	555					160 (398)	163 (48)	185 (92)	192 (10)		194 (7)
2016	781		93 (108)	109 (343)	142 (81)	156 (115)	178 (59)	175 (58)	164 (19)		

Species: Walleye

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2024	23	253 (3)	310 (3)	420 (3)		506 (11)		553 (1)			679 (2)
2022	68			381 (51)		476 (12)				616 (3)	548 (2)
2020	14		325 (2)	340 (6)				557 (5)			691 (1)
2018	37				493 (3)	499 (26)	556 (5)		620 (1)		665 (2)
2016	64	216 (4)	314 (8)	423 (43)	505 (4)		518 (2)		588 (2)		670 (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+
2024	585		144 (82)	171 (209)	192 (283)	238 (11)					
2022	243		138 (16)	179 (208)	243 (6)	243 (6)	255 (1)		261 (1)	262 (3)	
2020	96	134 (2)	175 (28)	196 (28)	223 (3)		214 (4)	228 (31)			
2018	285					154 (253)	211 (29)	244 (1)		215 (2)	
2016	221			179 (197)	219 (17)	214 (1)	248 (5)	293 (1)			

Fish Condition

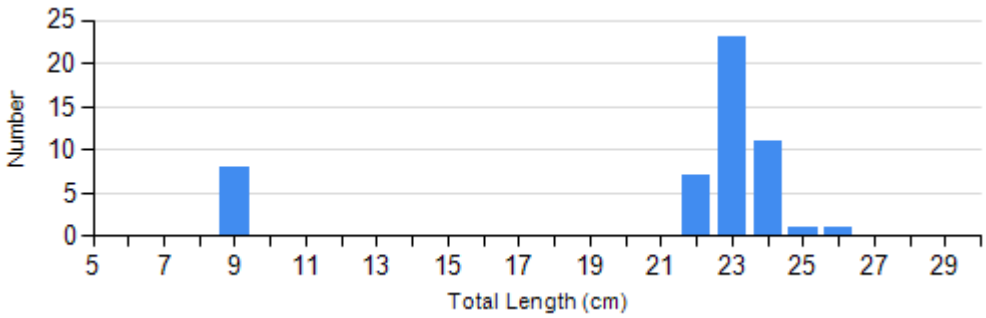
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		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	0		41	95 (0.8)	2	89 (1.6)	0	
	2022	602	104 (0.7)	50	93 (0.6)	58	84 (0.5)	0	
	2024	1	111	0		0		0	
Bluegill Frame Net	2020	2	115 (2.3)	200	109 (0.6)	37	110 (1.8)	0	
	2022	376	102 (0.7)	329	95 (0.9)	39	92 (1.8)	0	
	2024	180	111 (1.2)	357	104 (0.8)	13		0	
Largemouth Bass Electro Fishing	2024	9	108 (2.9)	13	95 (1.4)	16	93 (1.3)	0	
Walleye Gill Net	2020	8	85 (1.0)	1	86	4	89 (3.0)	1	80
	2022	20	89 (1.2)	38	89 (0.7)	9	90 (1.5)	1	84
	2024	5	98 (2.6)	9	100 (2.2)	6	101 (2.0)	3	89 (3.6)
Yellow Perch Gill Net	2020	44	107 (0.9)	50	102 (0.9)	2	106 (3.2)	0	
	2022	195	96 (0.7)	39	84 (1.1)	9	91 (2.3)	0	
	2024	468	99 (0.7)	117	92 (0.8)	8		0	

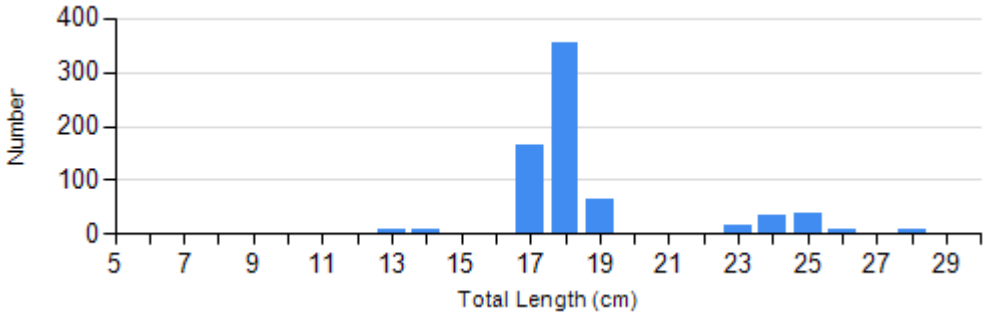
Length Frequency Distribution

Length frequency histogram of species sampled by year.

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

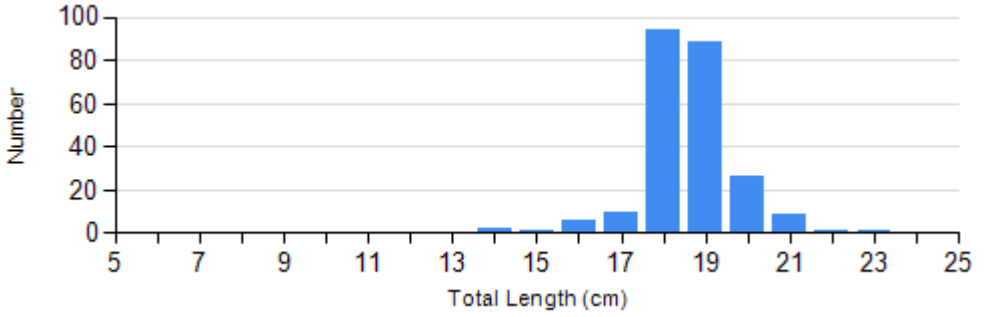


2020

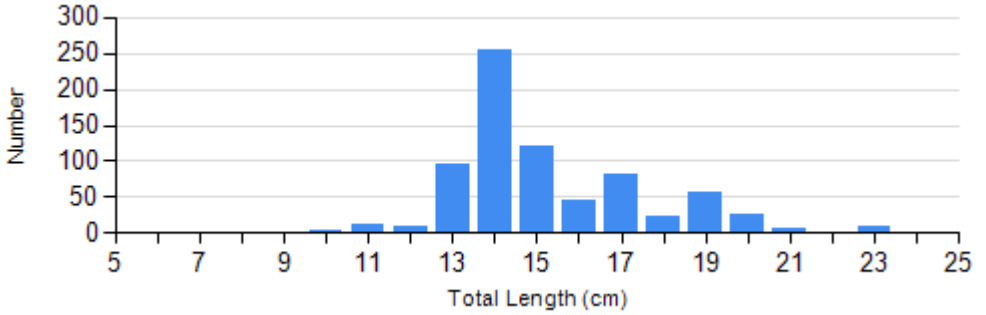


2022

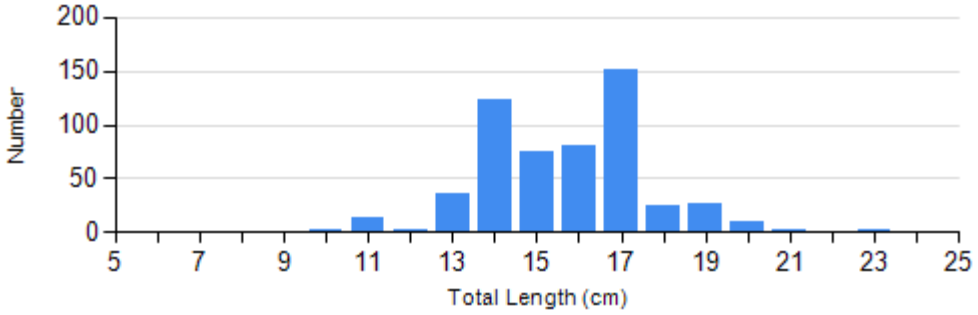
Species: Bluegill
Gear: frame net (std 3/4 in)



2020

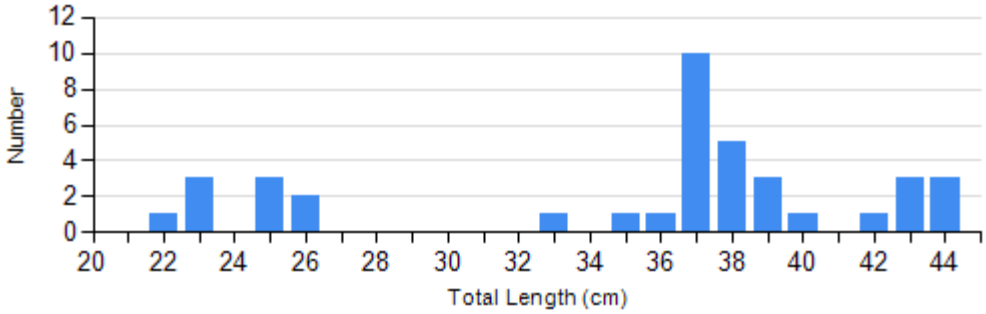


2022



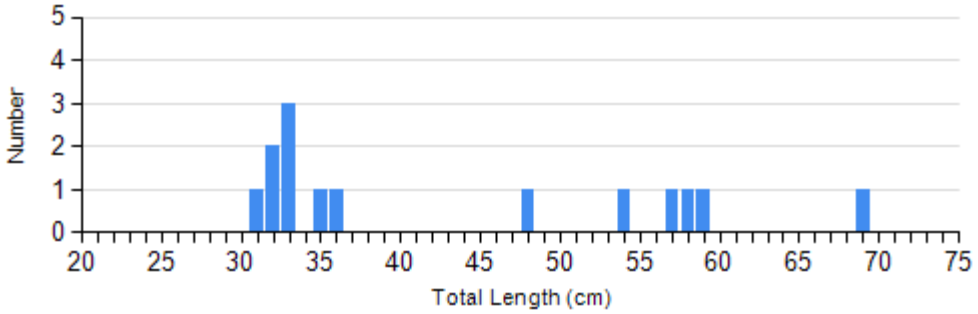
2024

Species: Largemouth Bass
Gear: spring night EF-LMB

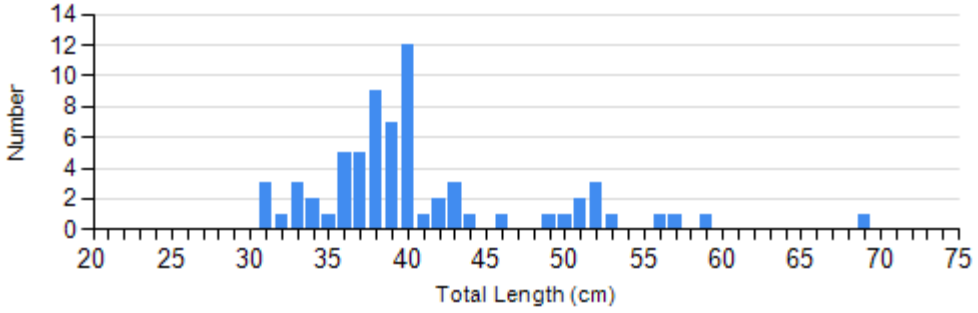


2024

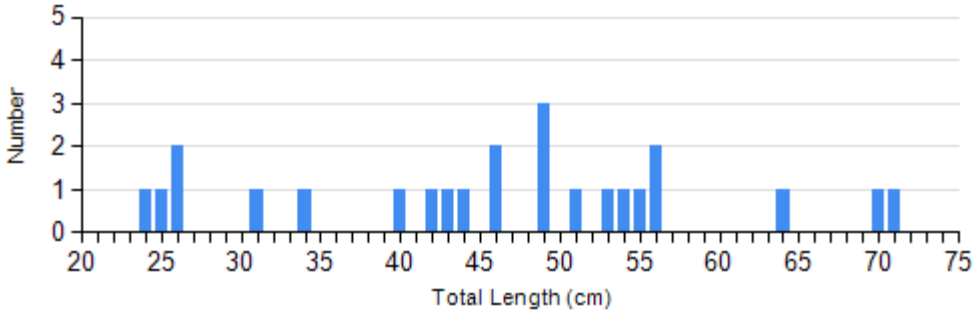
Species: Walleye
Gear: AFS std gill net



2020

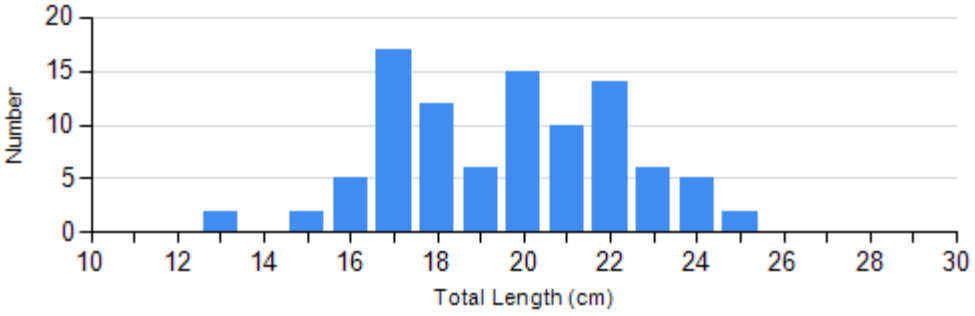


2022

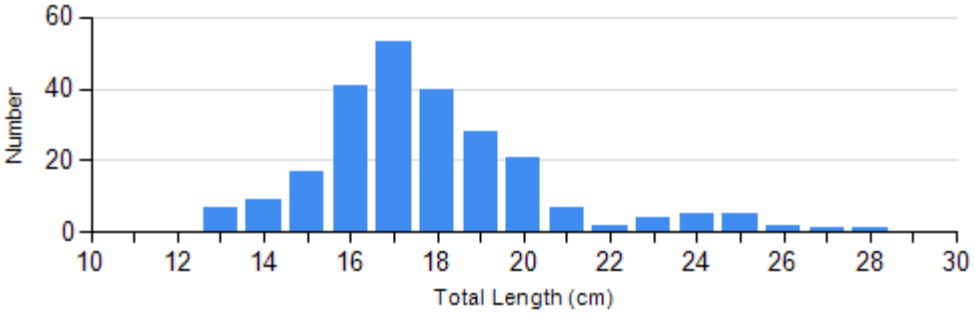


2024

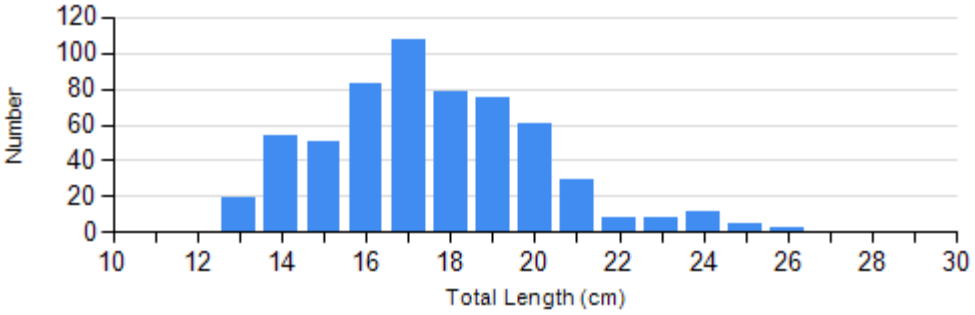
Species: Yellow Perch
Gear: AFS std gill net



2020



2022

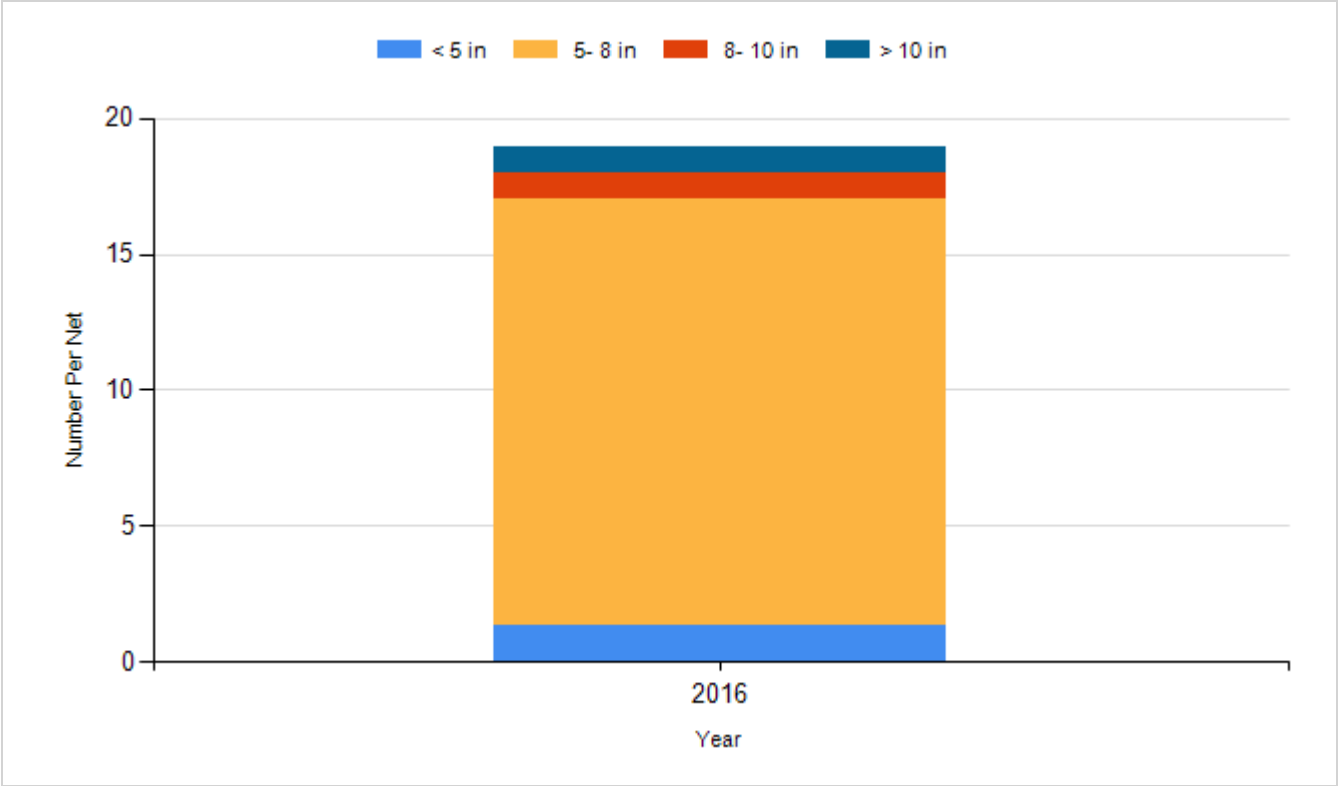


2024

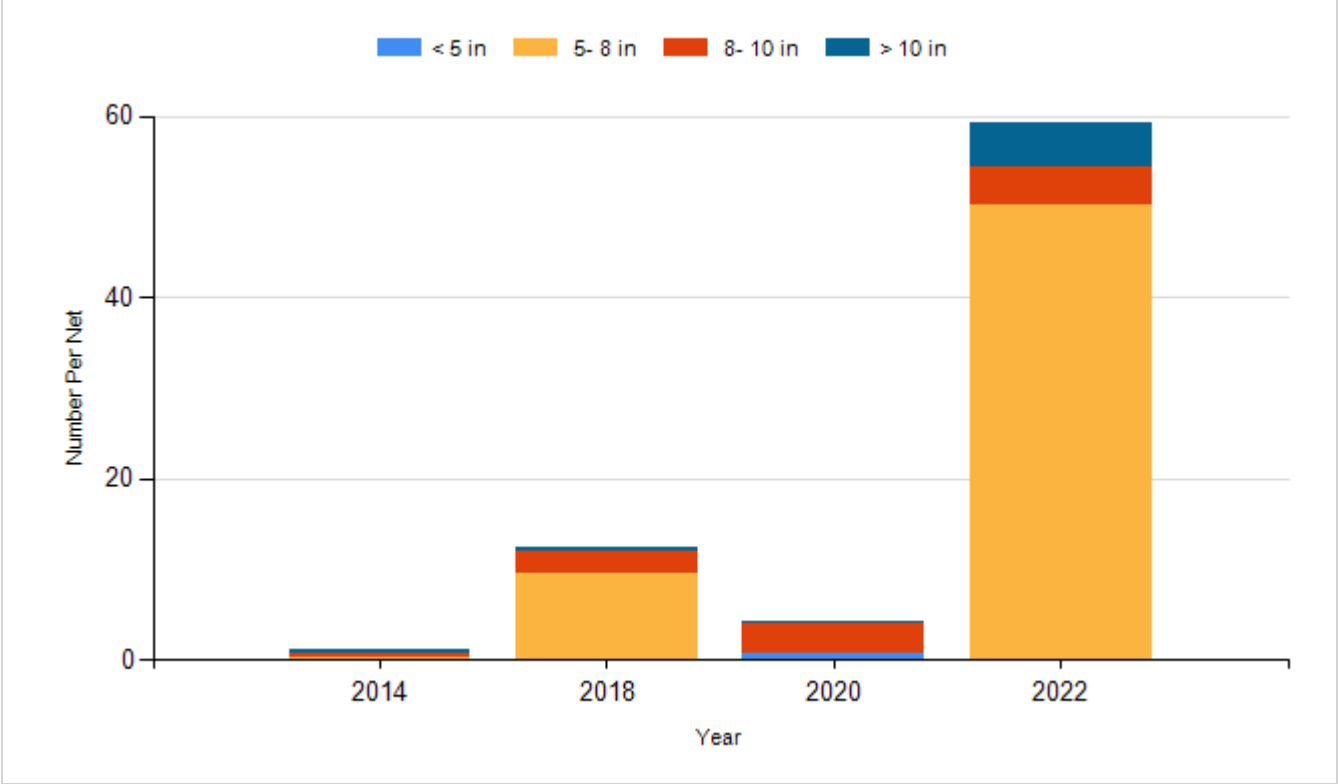
Historic Fish Sizes and Relative Abundance

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

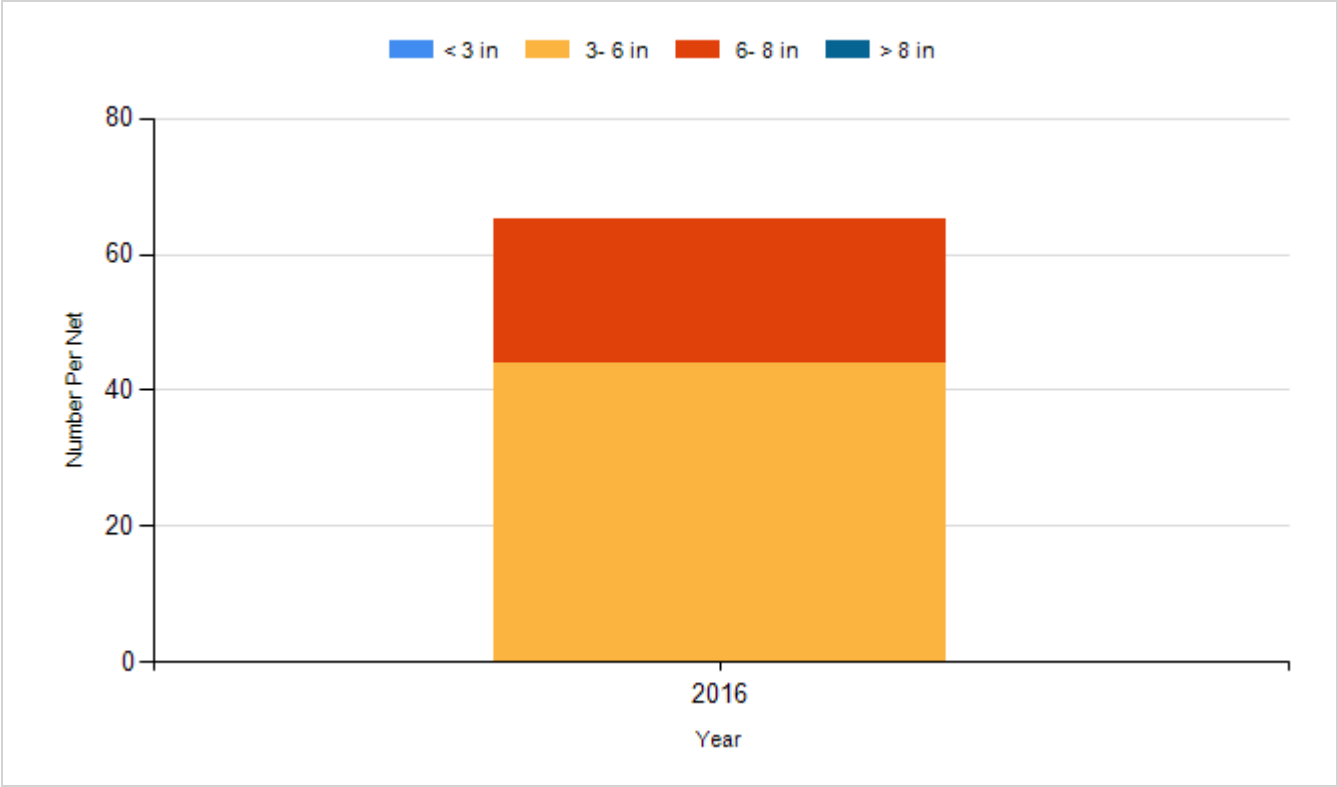
Species: Black Crappie
Gear: AFS std frame net



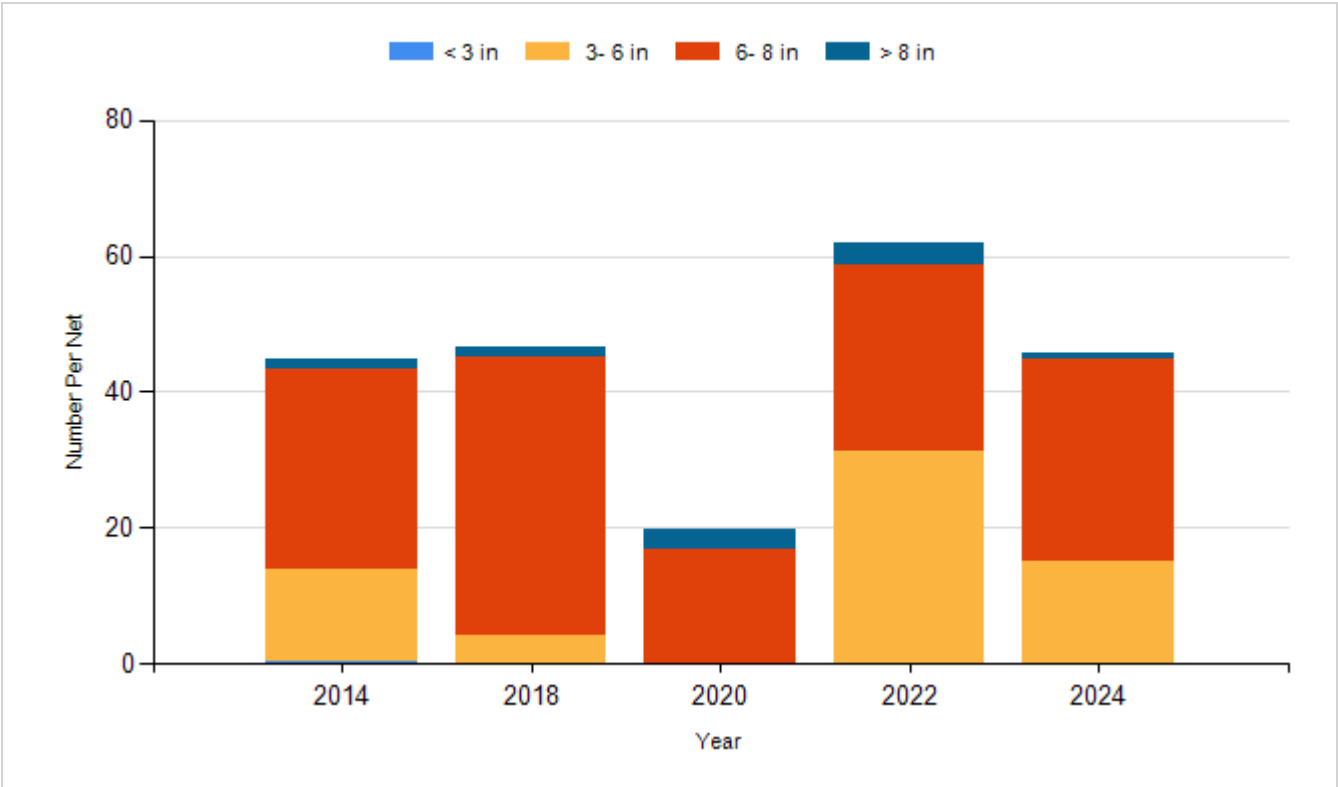
Species: Black Crappie
Gear: frame net (std 3/4 in)



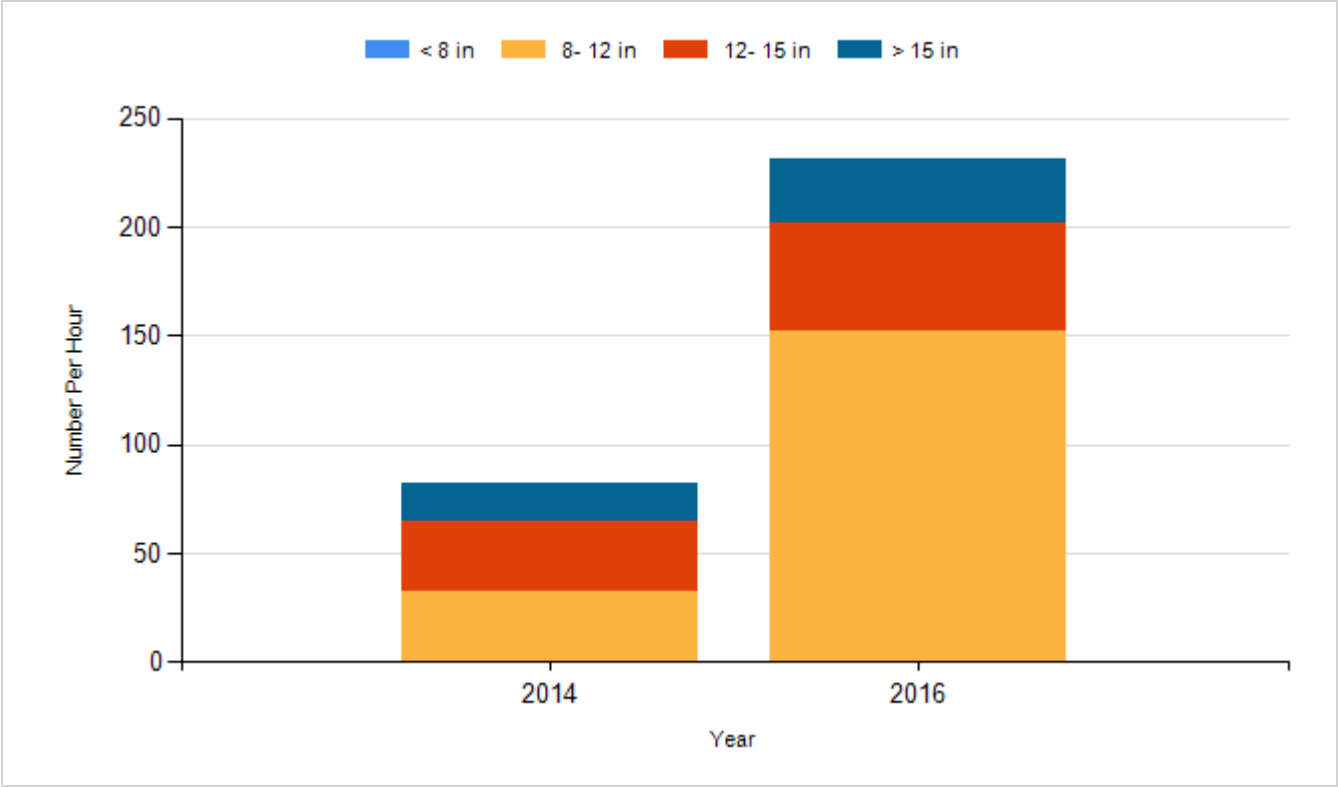
Species: Bluegill
Gear: AFS std frame net



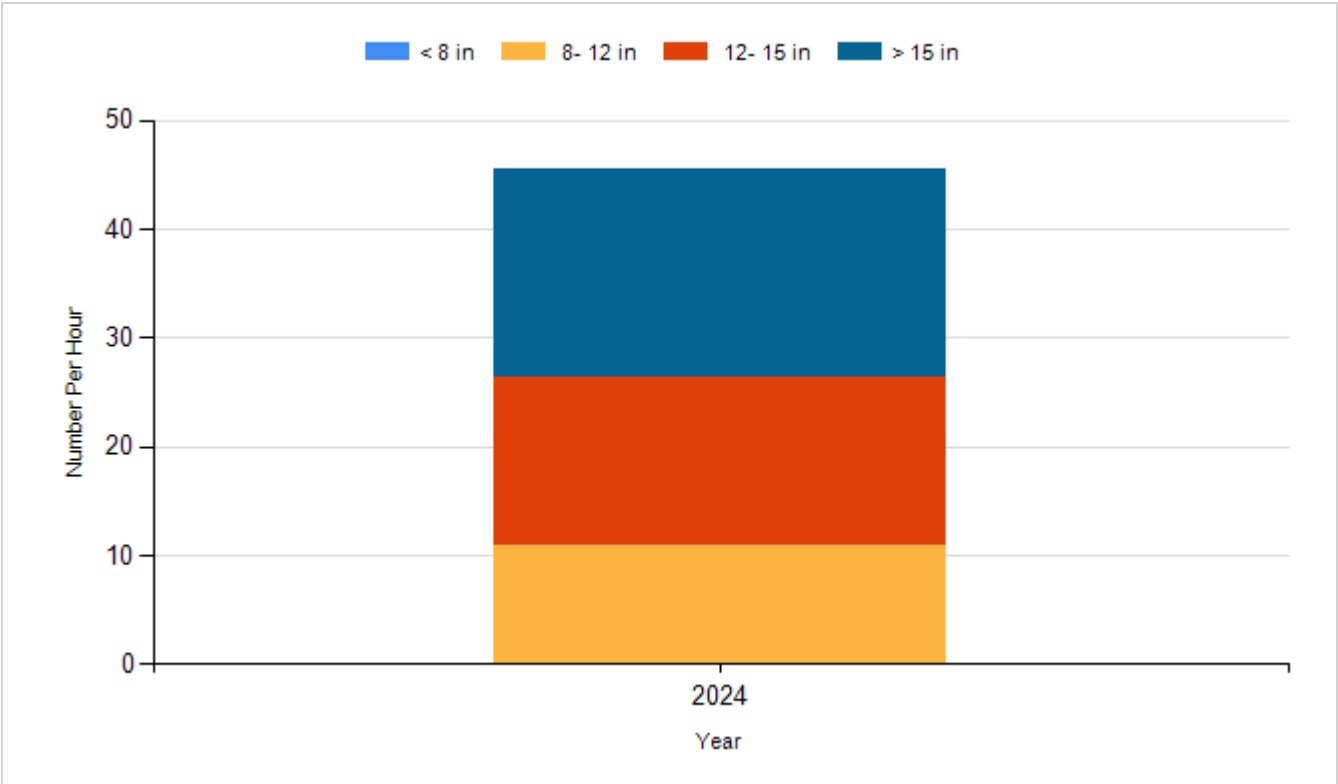
Species: Bluegill
Gear: frame net (std 3/4 in)



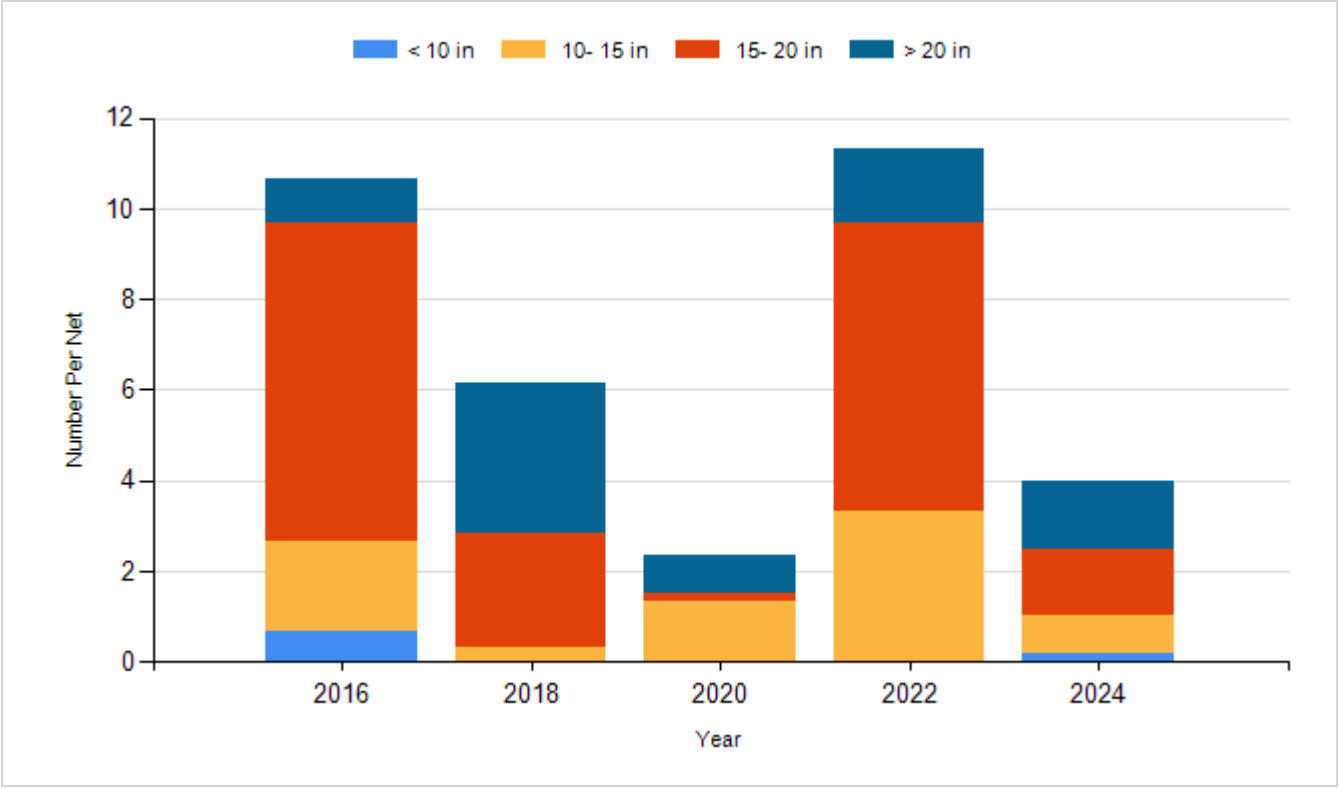
Species: Largemouth Bass
Gear: boat shocker (night, AC)



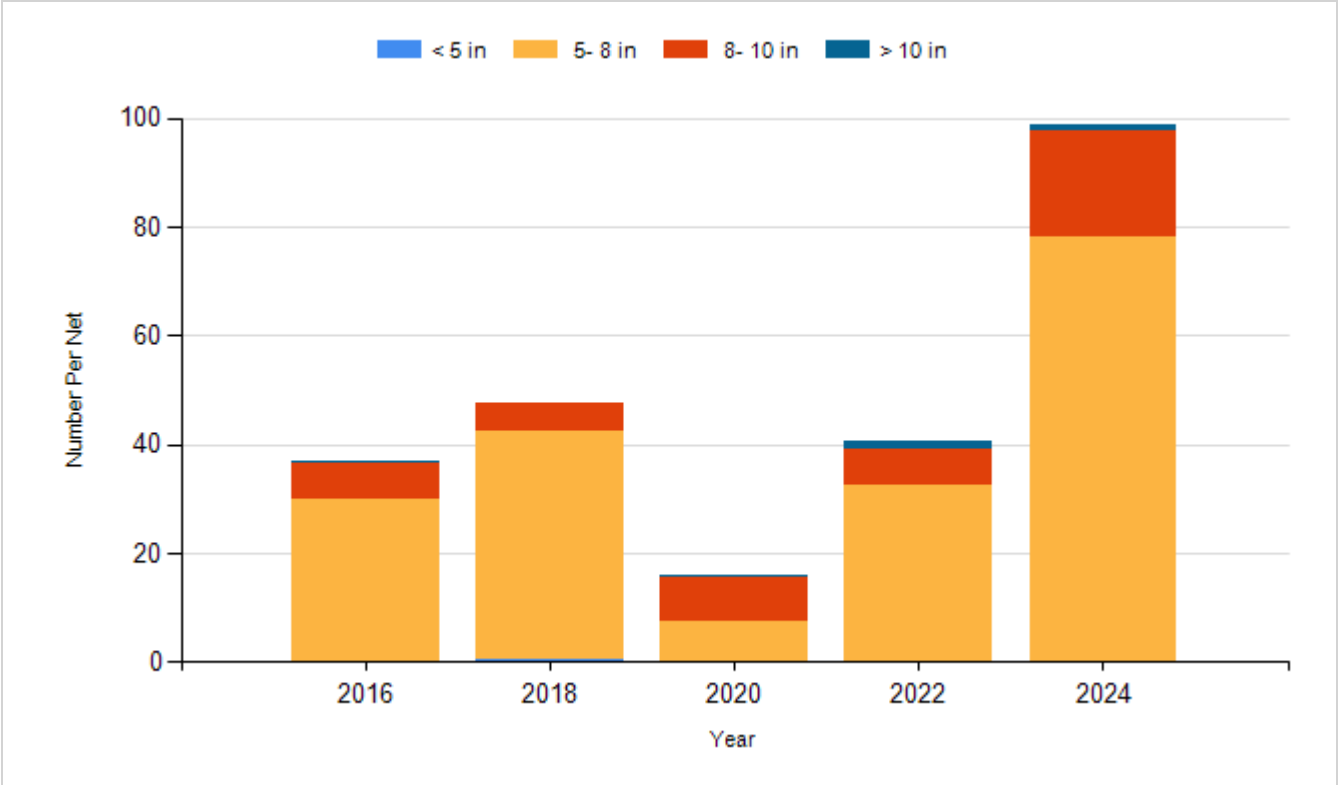
Species: Largemouth Bass
Gear: spring night EF-LMB



Species: Walleye
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	Walleye	Large Fingerling	11,132
2015	Walleye	Large Fingerling	4,026
2017	Walleye	Large Fingerling	16,000
2019	Walleye	Large Fingerling	8,700
2021	Walleye	Juvenile	4,467
2022	Walleye	Juvenile	9,150