Henry (Kingsbury) Lake Survey Summary

Lake Henry, located 5 miles south and 3 miles east of De Smet, SD, is managed as a walleye and yellow perch fishery; other fish species (e.g., black crappie and northern pike) provide additional angling opportunities.

- **Walleye**. Gill netting efforts produced one of the highest walleye catch rates in the region (CPUE = 6.8 fish per net in 2024). Relative abundance was higher than the previous sample year (CPUE = 2.2 fish per net in 2022) and the long term mean (CPUE = 4.6 fish per net). Netted fish ranged from 7.1 to 27.2 inches in length with approximately 80% measuring >15 inches. A large proportion (34%) also measured in the preferred (>20 inches) length category. Sampled fish were in average condition (Wr = 81). Walleye stockings usually occur on a semiannual basis in order to supplement the current population. Any angler targeting walleye in the region should be sure to consider trying Lake Henry.

- **Yellow Perch**. Yellow perch abundance increased to a catch rate of 4.2 fish per gill net in 2024. Relative abundance was higher than the previous sample year (CPUE = 1.2 fish per net in 2022) and long term mean (CPUE = 2.9 fish per net). Netted fish ranged from 5.9 to 13.4 inches in length with a majority (64%) measuring >8 inches. Preferred (>10 inches) and memorable (>12 inches) length yellow perch comprised a considerable proportion of the sample as well (24 and 12%, respectively). An average relative weight score of 116 indicates sampled fish were in excellent condition.

For more detailed results see the computer-generated South Dakota Statewide Fisheries Survey for Lake Henry (below).

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Henry, Bon Homme County
LJA-Lake-588-000
2024

Lake Information

Name: Henry

County: Bon Homme

Legal Description: T96-R58-Sec.9-10

Surface Area: 104 Acres

Maximum Depth: 37 Feet

Mean Depth: 14 Feet

Surveys and Investigations

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

Gear	Date	Effort
frame net (std 3/4 in)	Jun 11, 2024	5 net-nights

Common Fish Species Present

Largemouth Bass

Bluegill

Channel Catfish

White Sucker

Black Crappie

Sunfish Hybrid

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	2	0.4	0.4	100		0		89	2
	Bluegill	197	39.4	17.8	69	5	0		99	1
	Channel Catfish	34	6.6	4.8	64	13	15		103	2
	Sunfish Hybrid	1	0.2	0.3	100		0		99	
	White Sucker	3	0.6	0.6	67		67			

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			0.4								0.40
	Black Crappie			4.0								4.00
	Bluegill			1.8								1.80
	Green Sunfish			0.2								0.20
	White Sucker			1.0								1.00
AFS std gill net	Black Bullhead			0.3								0.30
	Black Crappie			3.0								3.00
	Common Carp			0.0								0.00
	Green Sunfish			0.2								0.20
	Largemouth Bass			0.2								0.20
	Saugeye			0.2								0.20
	White Sucker			4.0								4.00
	Yellow Perch			5.0								5.00
boat shocker (day)	Largemouth Bass					91.3			39.0	46.0		58.77
boat shocker (night)	Largemouth Bass	25.5										25.50
frame net (std 3/4 in)	Black Bullhead	0.0	0.2		0.0	1.2			0.7		0.0	0.35
	Black Crappie	16.9	2.2		10.4	24.2			10.4		0.4	10.75
	Bluegill	20.5	16.1		5.0	6.4			18.9		39.4	17.72
	Channel Catfish	0.1	0.1		0.0	0.0			0.1		6.6	1.15
	Common Carp	0.1	0.1		0.2	0.4			0.4		0.0	0.20
	Green Sunfish	0.0	0.1		0.0	0.0			0.2		0.0	0.05
	Largemouth Bass	0.0	0.0		0.0	0.4			0.0		0.0	0.07
	Sunfish Hybrid	0.0	0.0		0.0	0.2			0.4		0.2	0.13
	Walleye	0.0	0.0		0.0	0.0			0.0		0.0	0.00
	White Sucker	0.6	0.4		1.0	1.4			1.9		0.6	0.98
	Yellow Perch	0.0	0.4		0.4	0.2			0.4		0.0	0.23

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			65							
		PSD-P			20							
		Wr			89							
	Bluegill	PSD			78							
		PSD-P			0							
		Wr			99							
	White Sucker	PSD			100							
		PSD-P			80							
AFS std gill net	Black Crappie	PSD			33							
		PSD-P			6							
		Wr			96							
	Largemouth Bass	PSD			100							
		PSD-P			100							
		Wr			99							
	White Sucker	PSD			92							
		PSD-P			67							
boat shocker (day)	Largemouth Bass	PSD					33			38	70	
		PSD-P					24			4	48	
		Wr					95			89	84	
boat shocker (night)	Largemouth Bass	PSD	78									
		PSD-P	29									
		Wr	92									
frame net (std 3/4 in)	Black Crappie	PSD	36	41		23	19			99		100
		PSD-P	0	9		10	1			66		0
		Wr	93	97		93	85			96		89
	Bluegill	PSD	84	58		32	53			30		69
		PSD-P	2	2		0	0			0		0
		Wr	90	107		88	87			91		99
	Channel Catfish	PSD	100	100						100		64
		PSD-P	0	0						0		15
		Wr	91	102						85		103

			Year									
Gear	Species	Index	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
frame net (std 3/4 in)	Largemouth Bass	PSD					100					
		PSD-P					100					
		Wr					107					
	White Sucker	PSD	100	75		100	100			100		67
		PSD-P	100	75		100	100			100		67

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+
2015	172	132 (12)	191 (112)		226 (15)	236 (34)					

Species: Bluegill

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2022	187		98 (84)	138 (63)	168 (40)						
2015	205		150 (75)	161 (18)	183 (42)	186 (66)	212 (4)				

Fish Condition

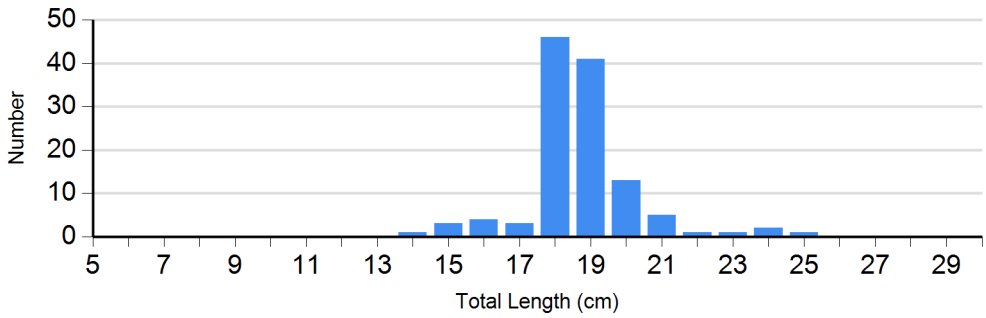
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		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	2022	1	95	34	100 (1.7)	69	95 (0.6)	0	
	2024	0		2	89 (1.3)	0		0	
Bluegill Frame Net	2022	133	92 (1.5)	56	88 (1.9)	0		0	
	2024	61	117 (1.5)	136	97 (0.7)	0		0	
Largemouth Bass Electro Fishing	2022	16	87 (1.4)	9	92 (3.2)	1	89	0	
	2023	7	79 (1.9)	5	80 (1.6)	11	88 (2.6)	0	

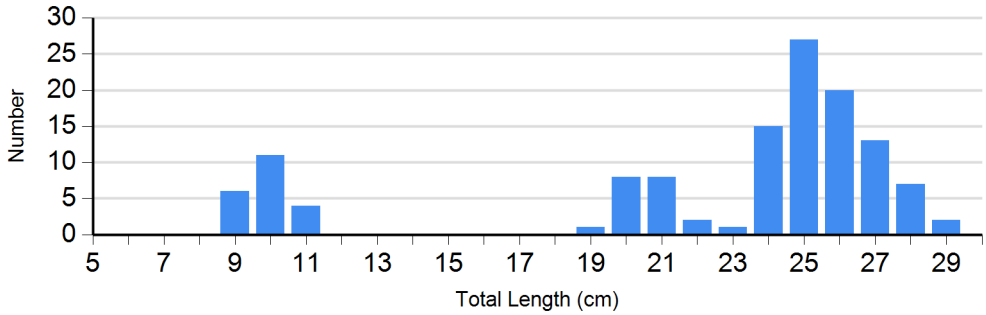
Length Frequency Distribution

Length frequency histogram of species sampled by year.

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

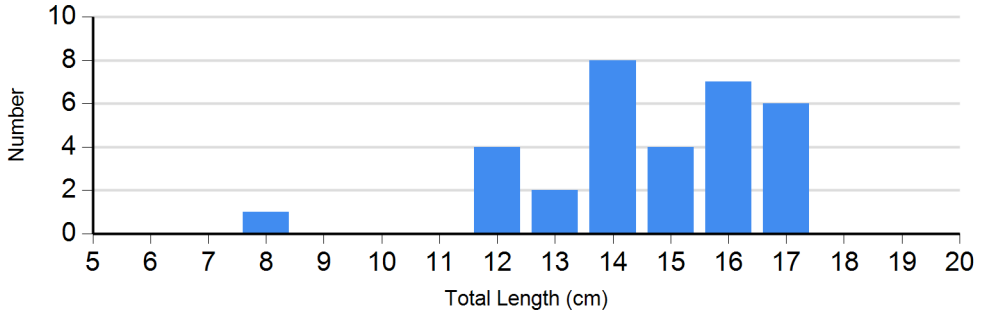


2019

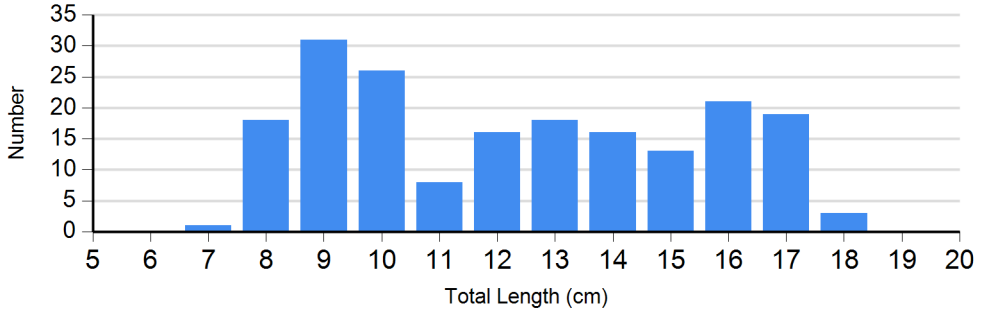


2022

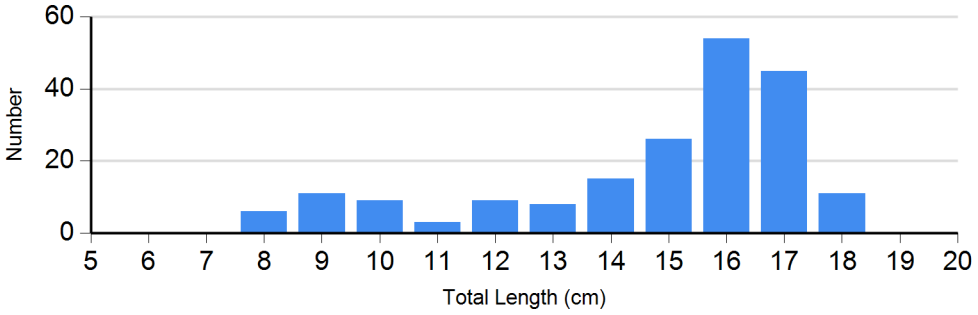
Species: Bluegill
Gear: frame net (std 3/4 in)



2019

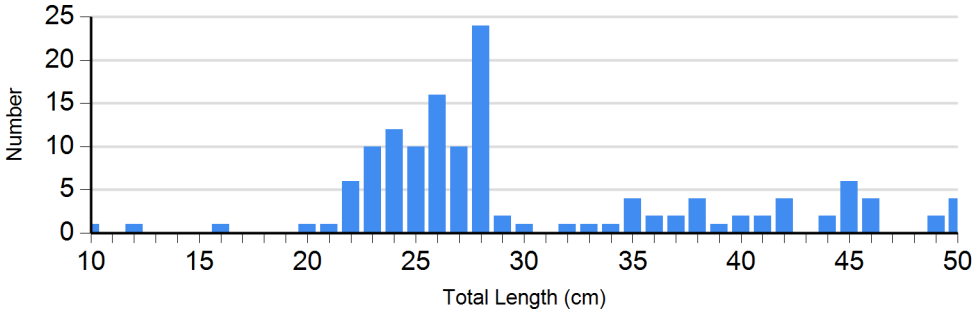


2022



2024

Species: Largemouth Bass
Gear: boat shocker (day)



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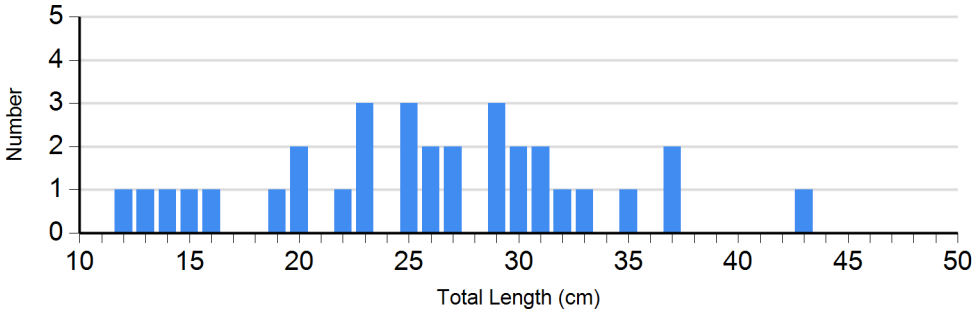
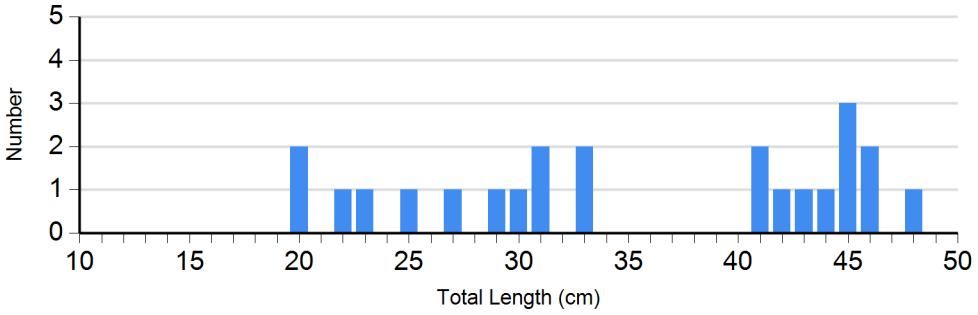


2022

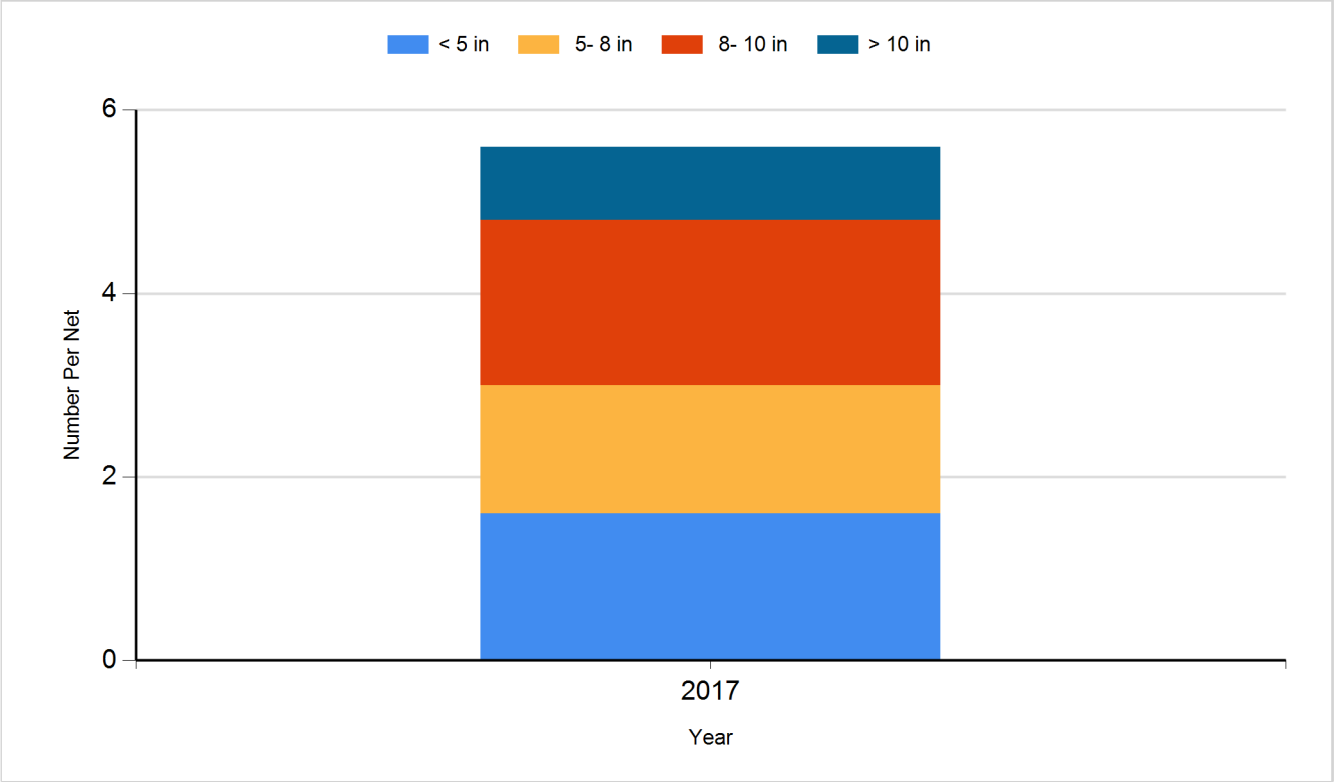


2023

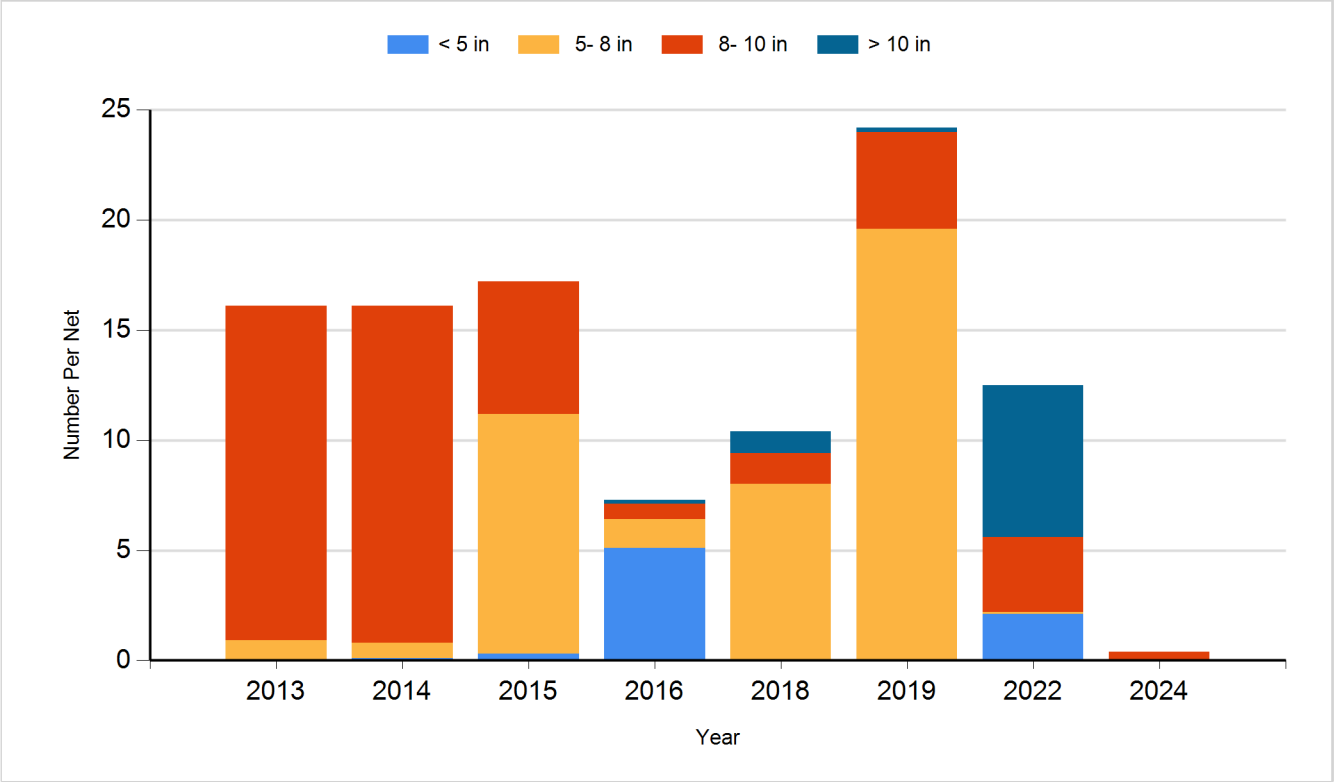
Historic Fish Sizes and Relative Abundance

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

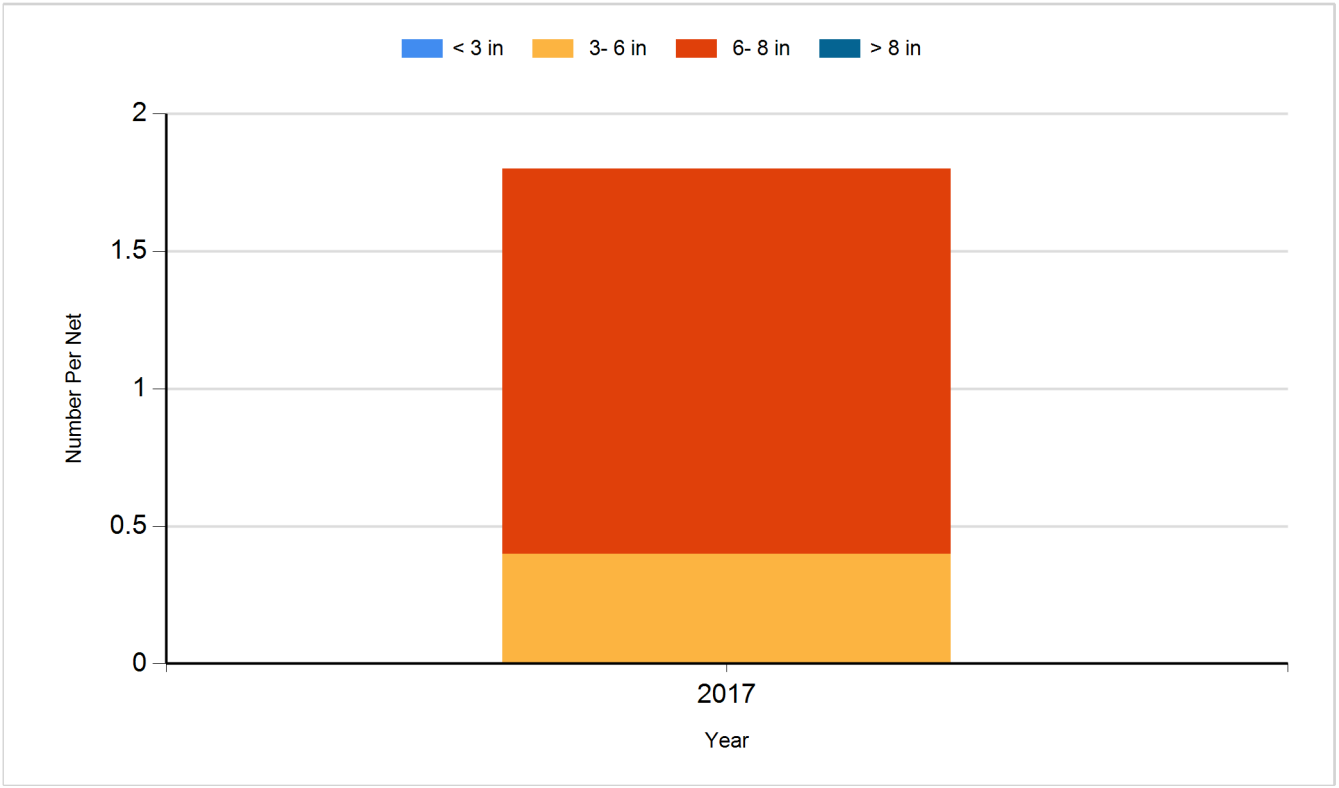
Species: Black Crappie
Gear: AFS std frame net



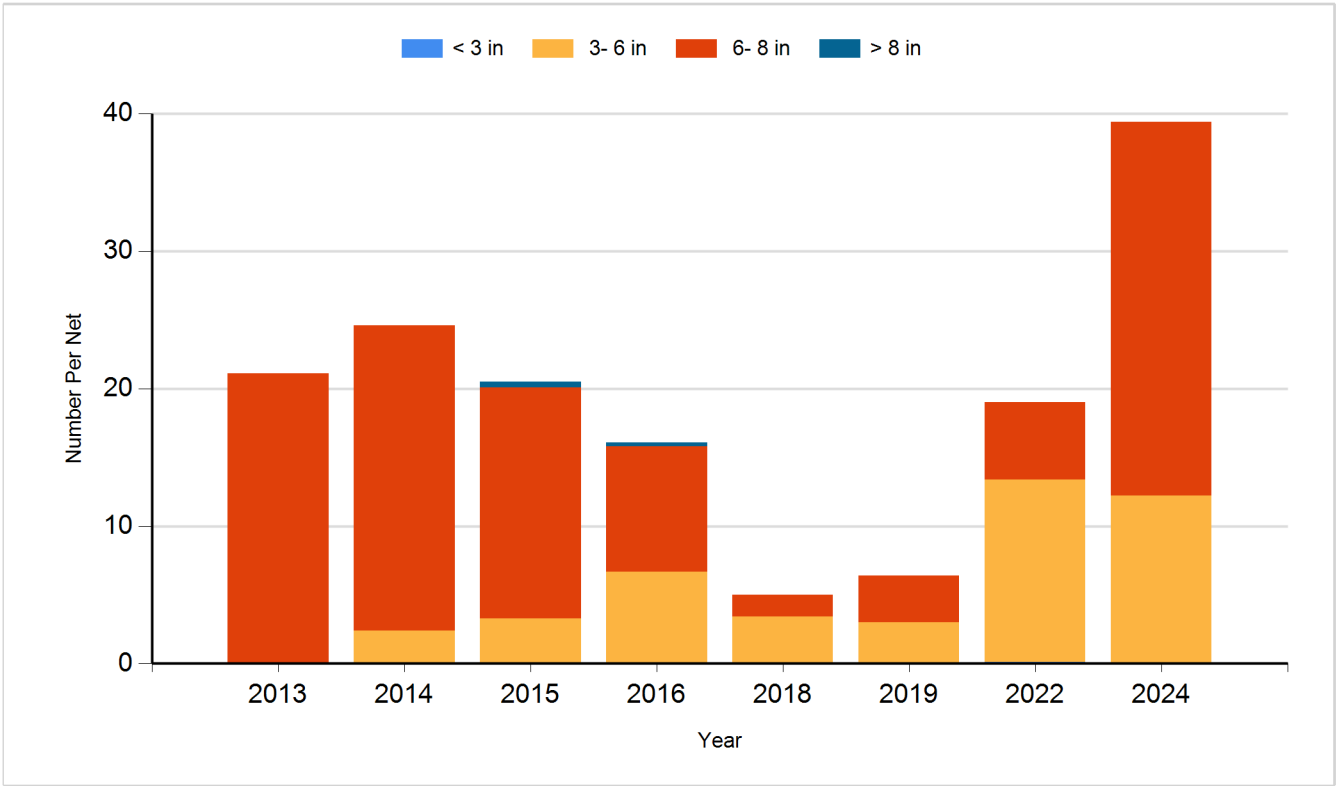
Species: Black Crappie
Gear: frame net (std 3/4 in)



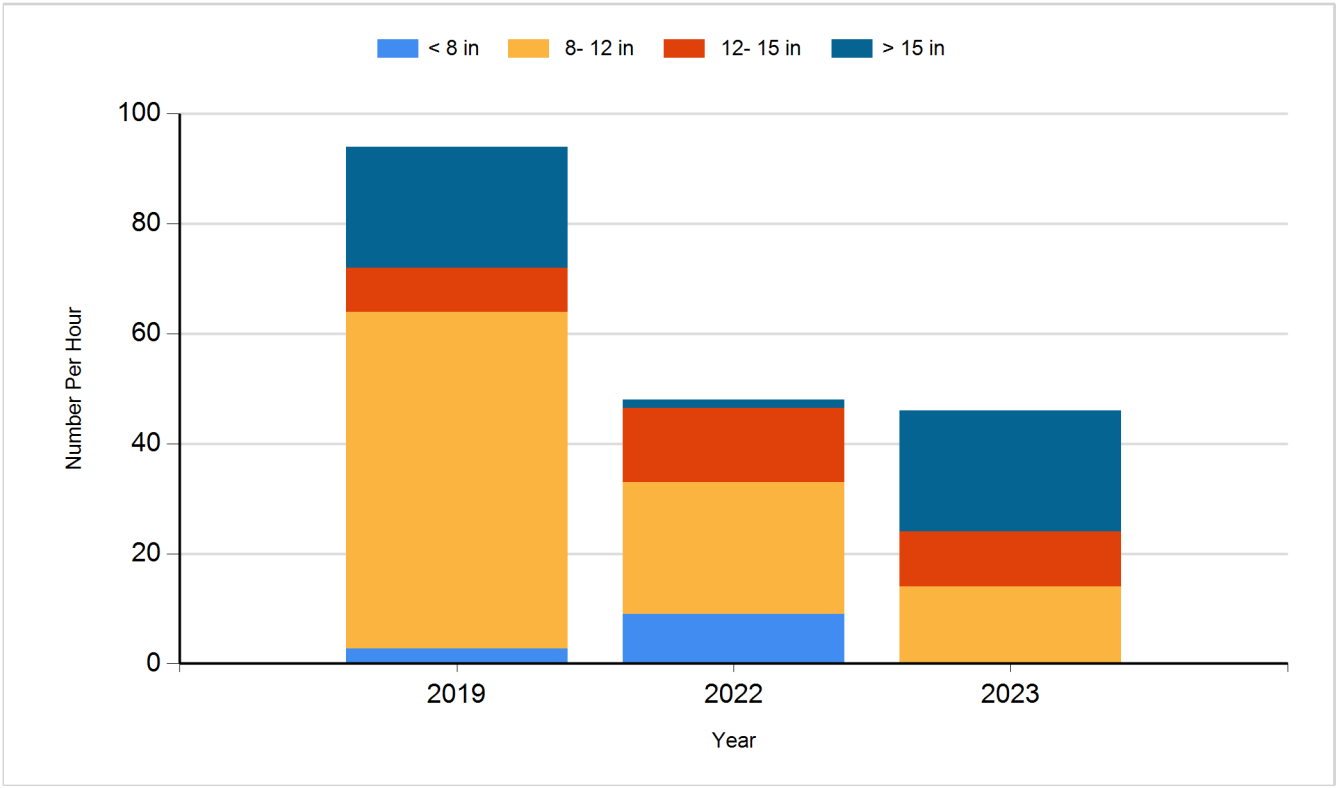
Species: Bluegill
Gear: AFS std frame net



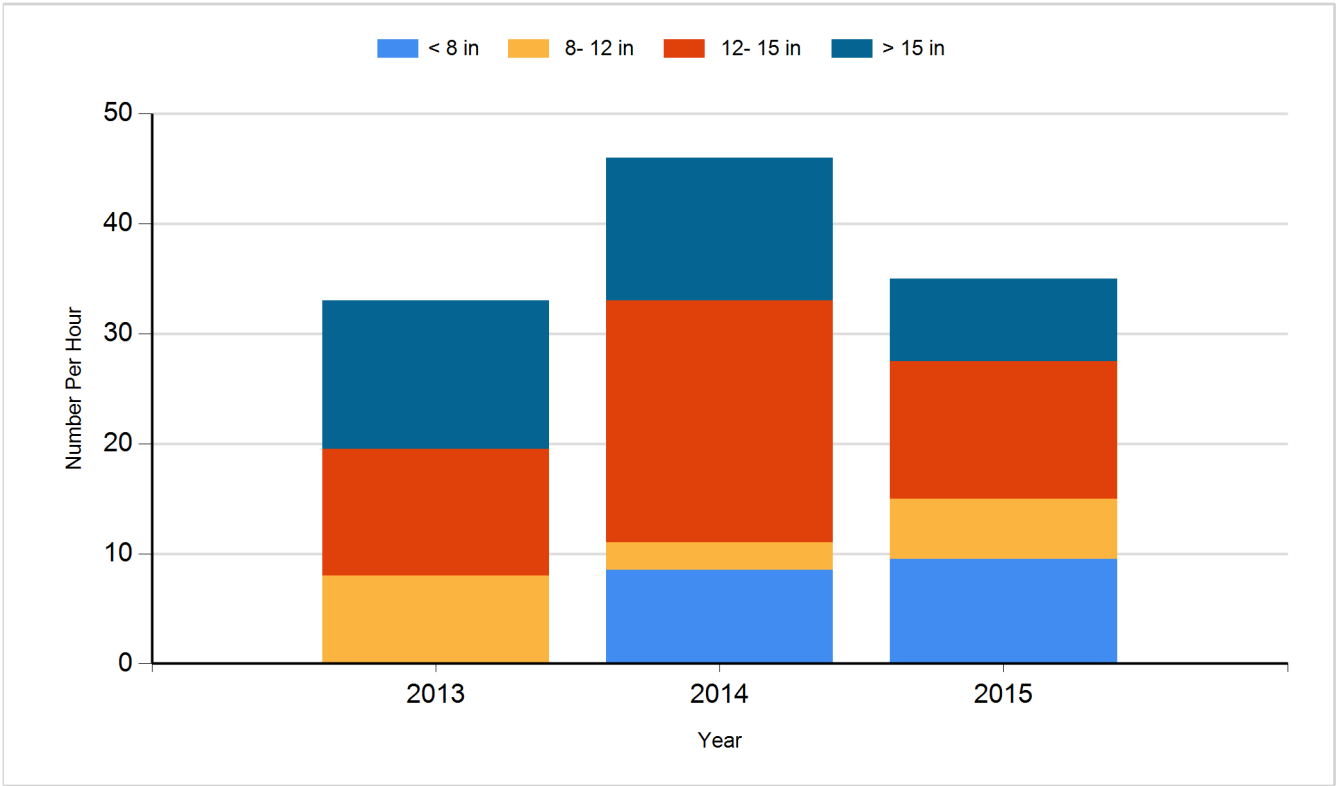
Species: Bluegill
Gear: frame net (std 3/4 in)



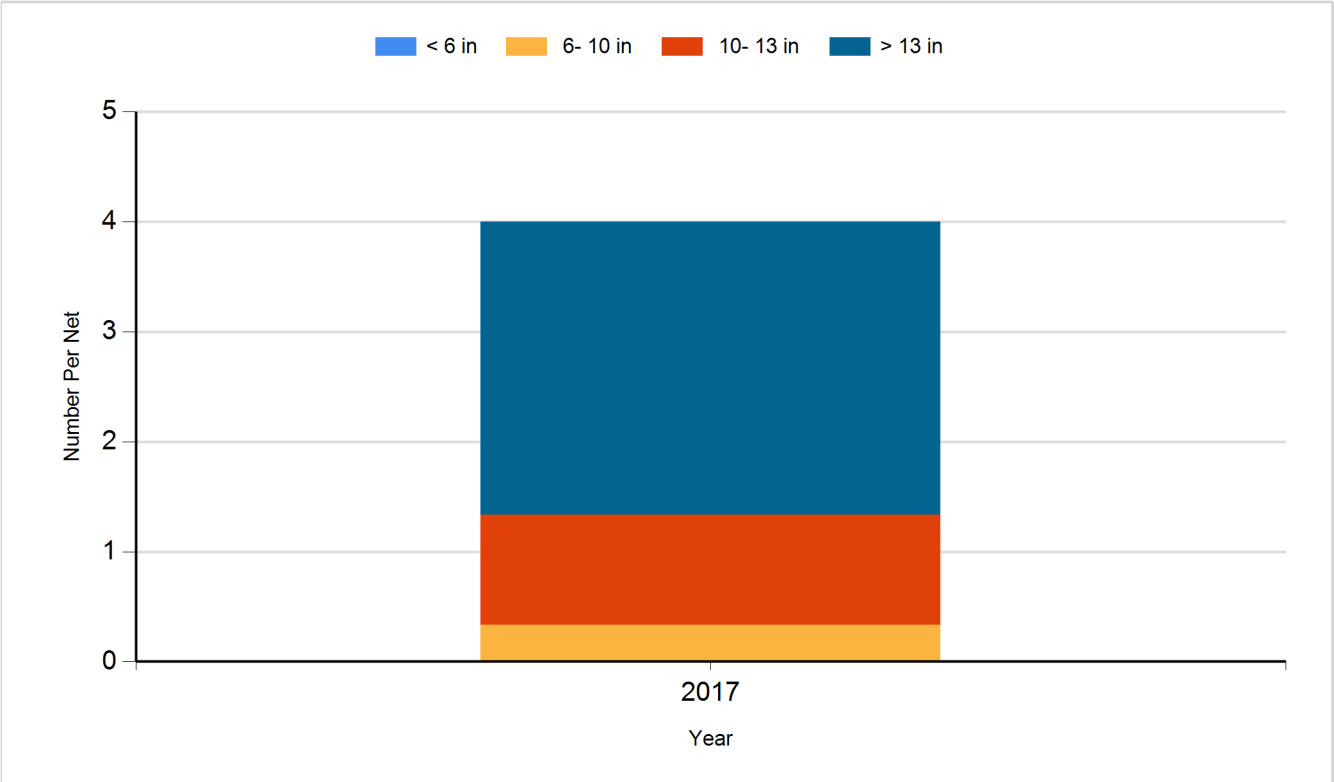
Species: Largemouth Bass
Gear: boat shocker (day)



Species: Largemouth Bass
Gear: boat shocker (night)



Species: White Sucker
Gear: AFS std gill net



Fish Stocking

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

Year	Species	Size	Number
2013	Channel Catfish	Large Fingerling	3,300
2014	Yellow Perch	Small Fingerling	40,820
2015	Largemouth Bass	Fingerling	11,400
2016	Yellow Perch	Adult	5,445
2023	Channel Catfish	Juvenile	948
2024	Saugeye	Juvenile	11,977