Lake Hanson (Hanson) Survey Summary

Lake Hanson, located 2 miles south of Alexandria, SD, is managed as a crappie and saugeye fishery; other fish species (e.g., bluegill, channel catfish, and green sunfish) are also present.

- **Black crappie.** Black crappie abundance increased to a 10 year high in 2024 (CPUE = 13.0 fish per frame net). Catches were higher than both the previous sample year (CPUE = 9.2 fish per net in 2022) and the long term mean (CPUE = 6.0 fish per net). Netted fish ranged from 3.9 to 13.0 inches in length with approximately 38% measuring >8 inches. A fair proportion also measured in the preferred (>10 inch) and memorable (>12 inch) length categories (12 and 17% of sample, respectively). An average relative weight score of 90 indicated that sampled fish were in good condition. Fisheries staff did detect a major crappie die off later in the summer of 2024. Additional sampling produced some black crappies but at a much reduced catch rate.

- **White crappie.** Frame netting efforts produced a catch rate of 10.4 white crappie per net in 2024. Relative abundance was significantly higher than the previous sample year (CPUE = 2.6 fish per net in 2022) and long term mean (CPUE = 5.5 fish per net). Sampled fish ranged from 3.5 to 13.8 inches in length with approximately 44% measuring >8 inches. Preferred (>10 inches) and memorable (>12 inches) length white crappie also represented a considerable proportion of catches (13 and 19%, respectively). Similar to black crappies, the white crappie population experienced a significant die off event later in the summer. Abundances are now likely much lower than these survey results indicate.

- **Saugeye.** Gill netting efforts produced a catch rate of 1.8 saugeye per net in 2024. Sampled fish ranged from 16.1 to 18.3 inches in length. Age 2 (2022 year class) saugeye dominated catches comprising 86% of the sample. This cohort (age 2) had a mean length of 17.2 inches indicating excellent growth. Fisheries staff began stocking saugeye into Lake Hanson in 2022 to provide an additional option for anglers.

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

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

Hanson, Hanson County

LJA-Lake-425-000

2024

Lake Information

Name:	Hanson	**Maximum Depth:**	15 Feet
County:	Hanson	**Mean Depth:**	6 Feet
Legal Description:	T102-R58-Sec. 21		
Surface Area:	59 Acres		

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jun 18, 2024	4 net-nights
frame net (std 3/4 in)	Jun 18, 2024	5 net-nights

Common Fish Species Present

Walleye

Black Bullhead

Black Crappie

White Crappie

Bluegill

Saugeye

Channel Catfish

Common Carp

Northern Pike

White Sucker

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	5	1.3	1.0	80		0			
	Black Crappie	26	1.0	0.7	75		75		91	9
	Channel Catfish	11	1.5	1.1	100		0		87	13
	Common Carp	2	0.3	0.4	100		0			
	Northern Pike	1	0.3	0.4	100		0		91	
	Saugeye	7	1.8	1.4	86		14		96	2
	White Crappie	35	1.8	1.0	43		43		90	1
frame net (std 3/4 in)	Black Bullhead	81	16.2	7.1	79	7	0			
	Black Crappie	90	13.0	7.3	38	9	29	8	90	2
	Bluegill	29	5.8	8.1	41	14	3		103	5
	Channel Catfish	35	0.6	0.6	67		0		91	2
	Common Carp	2	0.4	0.4	100		0			
	Northern Pike	1	0.2	0.3	100		0		76	
	Saugeye	4	0.8	0.9	100		25		92	2
	White Crappie	105	10.4	4.4	44	10	33	10	90	3
	White Sucker	1	0.2	0.3	100		100			

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			113.0								113.00
	Black Crappie			6.6								6.60
	Bluegill			10.2								10.20
	Channel Catfish			0.0								0.00
	Common Carp			0.4								0.40
	Gizzard Shad			6.4								6.40
	Green Sunfish			2.2								2.20
	Largemouth Bass			0.2								0.20
	Walleye			1.6								1.60
	White Crappie			4.8								4.80
	White Sucker			0.4								0.40
AFS std gill net	Black Bullhead			22.0	12.7	18.3					1.3	13.58
	Black Crappie			0.0	0.2	0.0					1.0	0.30
	Channel Catfish			0.5	7.3	4.0					1.5	3.33
	Common Carp			4.0	1.7	1.0					0.3	1.75
	Gizzard Shad			3.5	0.0	0.0					0.0	0.88
	Northern Pike			1.5	0.0	0.0					0.3	0.45
	Saugeye			0.0	0.0	0.0					1.8	0.45
	Walleye			3.5	0.0	0.0					0.0	0.88
	White Crappie			0.0	0.0	0.0					1.8	0.45
	White Sucker			0.5	0.5	2.3					0.0	0.83
frame net (std 3/4 in)	Black Bullhead	70.4	42.2		148.5	78.4			31.4		16.2	64.52
	Black Crappie	4.4	4.6		1.3	3.2			9.2		13.0	5.95
	Bluegill	2.4	8.0		15.8	17.6			4.4		5.8	9.00
	Channel Catfish	0.0	0.0		0.0	1.4			2.2		0.6	0.70
	Common Carp	0.4	0.0		0.0	0.4			1.2		0.4	0.40
	Green Sunfish	0.0	0.0		1.3	1.0			0.2		0.0	0.42
	Northern Pike	0.6	1.4		0.0	0.0			0.0		0.2	0.37
	Saugeye	0.0	0.0		0.0	0.0			0.0		0.8	0.13
	Walleye	0.0	0.4		0.3	0.0			0.0		0.0	0.12
	White Crappie	0.6	13.4		0.5	5.6			2.6		10.4	5.52
	White Sucker	0.0	0.2		0.0	0.4			0.6		0.2	0.23
	Yellow Perch	0.8	0.0		0.0	0.0			0.0		0.0	0.13

		CPUE										
Gear	Species	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Avg
std exp gill net	Black Bullhead	0.0	5.3									2.65
	Black Crappie	1.3	1.0									1.15
	Bluegill	0.0	0.0									0.00
	Channel Catfish	0.7	0.3									0.50
	Common Carp	3.3	10.3									6.80
	Northern Pike	4.0	2.0									3.00
	White Crappie	0.3	1.0									0.65
	White Sucker	0.3	0.0									0.15

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			0							
		PSD-P			0							
	Black Crappie	PSD			76							
		PSD-P			9							
		Wr			85							
	Bluegill	PSD			78							
		PSD-P			0							
		Wr			93							
	Channel Catfish	PSD			0							
		PSD-P			0							
	Common Carp	PSD			50							
		PSD-P			0							
	Walleye	PSD			0							
		PSD-P			0							
		Wr			79							
	White Crappie	PSD			75							
		PSD-P			4							
		Wr			81							
	White Sucker	PSD			100							
		PSD-P			100							
AFS std gill net	Black Bullhead	PSD			0	0	0					80
		PSD-P			0	0	0					0
	Black Crappie	PSD				100						75
		PSD-P				0						75
		Wr				84						91
	Channel Catfish	PSD			0	2	0					100
		PSD-P			0	0	0					0
		Wr			99	95	97					87
	Common Carp	PSD			13	10	67					100
		PSD-P			0	0	0					0
	Northern Pike	PSD			100							100
		PSD-P			100							0
		Wr			105							91

			Year									
Gear	Species	Index	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AFS std gill net	Saugeye	PSD										86
		PSD-P										14
		Wr										96
	Walleye	PSD			29							
		PSD-P			0							
		Wr			84							
	White Crappie	PSD										43
		PSD-P										43
		Wr										90
	White Sucker	PSD			100	100	14					
		PSD-P			100	100	14					
frame net (std 3/4 in)	Black Bullhead	PSD	14	0		0	0			35		79
		PSD-P	0	0		0	0			0		0
	Black Crappie	PSD	41	9		100	100			98		38
		PSD-P	18	9		100	100			70		29
		Wr	89	96		79	92			85		90
	Bluegill	PSD	8	65		29	44			18		41
		PSD-P	0	0		0	0			0		3
		Wr	94	108		102	111			103		103
	Channel Catfish	PSD	0	0		0	29			100		67
		PSD-P	0	0		0	0			0		0
		Wr					104			89		91
	Common Carp	PSD	50				100			33		100
		PSD-P	50				0			0		0
	Northern Pike	PSD	100	100								100
		PSD-P	0	57								0
		Wr	86	79								76
	Saugeye	PSD										100
		PSD-P										25
		Wr										92
	Walleye	PSD		0		100						
		PSD-P		0		0						
		Wr		86		82						
	White Crappie	PSD	67	3		100	100			92		44
		PSD-P	33	1		100	100			85		33
		Wr	86	103		83	100			86		90
	White Sucker	PSD		100			100			100		100

			Year									
Gear	Species	Index	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
frame net (std 3/4 in)	White Sucker	PSD-P		100			0			100		100
std exp gill net	Black Bullhead	PSD	0	0								
		PSD-P	0	0								
	Black Crappie	PSD	0	0								
		PSD-P	0	0								
		Wr	83	92								
	Channel Catfish	PSD	100	0								
		PSD-P	100	0								
		Wr	88	85								
	Common Carp	PSD	30	6								
		PSD-P	0	0								
	Northern Pike	PSD	100	100								
		PSD-P	25	33								
		Wr	88	78								
	White Crappie	PSD	0	0								
		PSD-P	0	0								
		Wr	91	95								
	White Sucker	PSD	100									
		PSD-P	100									

Length at Capture

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

Species: Saugeye

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2024	7	293 (1)	438 (6)								

Fish Condition

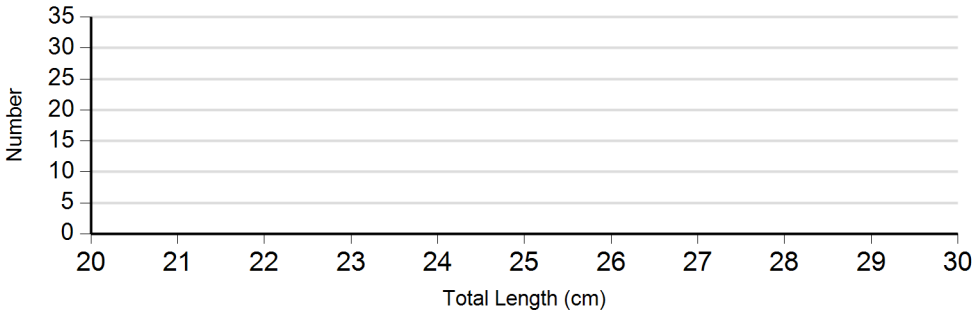
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		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	2022	1	92	13	87 (1.7)	32	84 (0.8)	0	
	2024	40	93 (1.8)	6	88 (4.0)	8	91 (2.3)	11	79 (2.6)
Bluegill Frame Net	2022	18	106 (3.8)	4	93 (3.7)	0		0	
	2024	17	104 (6.1)	11	102 (4.6)	1	86	0	
Channel Catfish Gill Net	2024	0		6	87 (10.4)	0		0	
Northern Pike Gill Net	2024	0		1	91	0		0	
Saugeye Gill Net	2024	1	95	5	94 (1.3)	1	103	0	
White Crappie Frame Net	2022	1	97	1	95	11	84 (2.2)	0	
	2024	29	93 (3.7)	6	71	7	85 (2.3)	10	91 (2.1)

Length Frequency Distribution

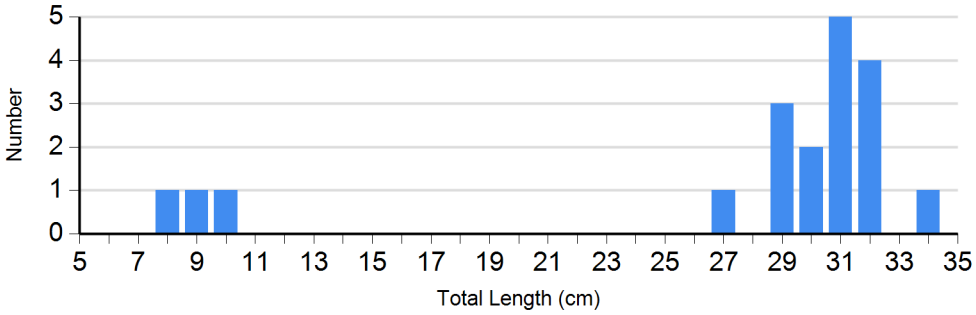
Length frequency histogram of species sampled by year.

Species: Black Bullhead
Gear: AFS std gill net

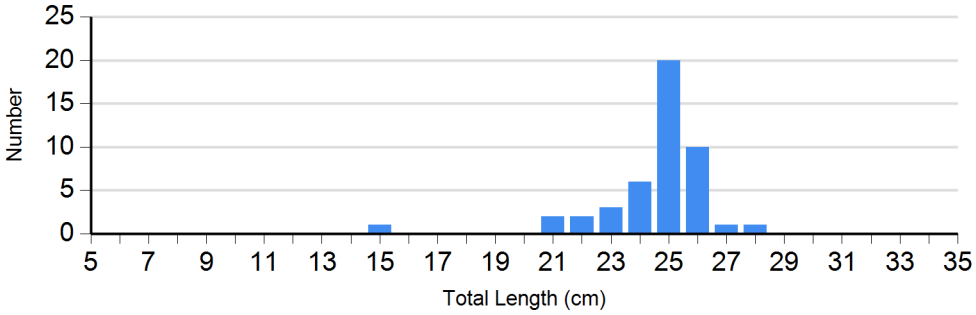


2019

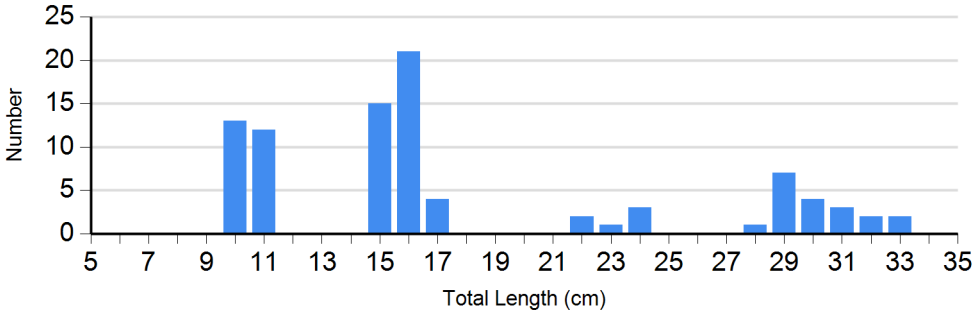
Species: Black Crappie
Gear: frame net (std 3/4 in)



2019



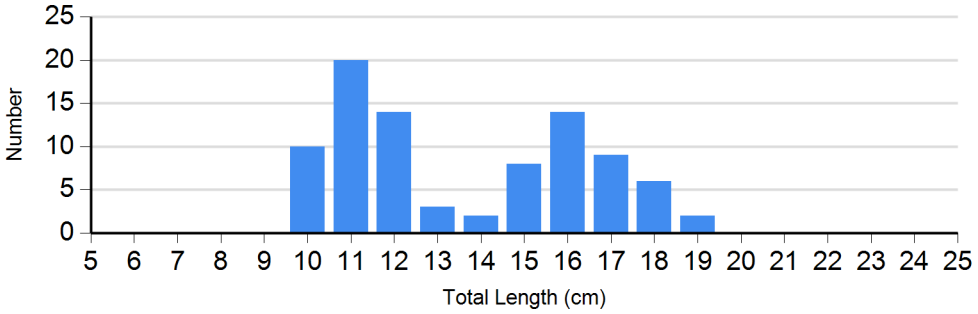
2022



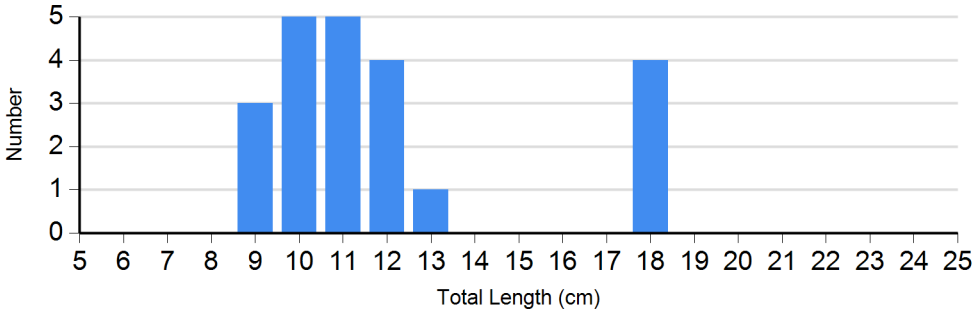
2024

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

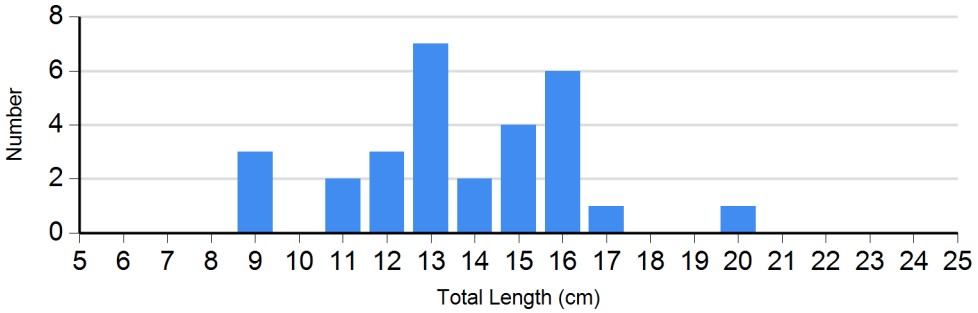
2019



2022

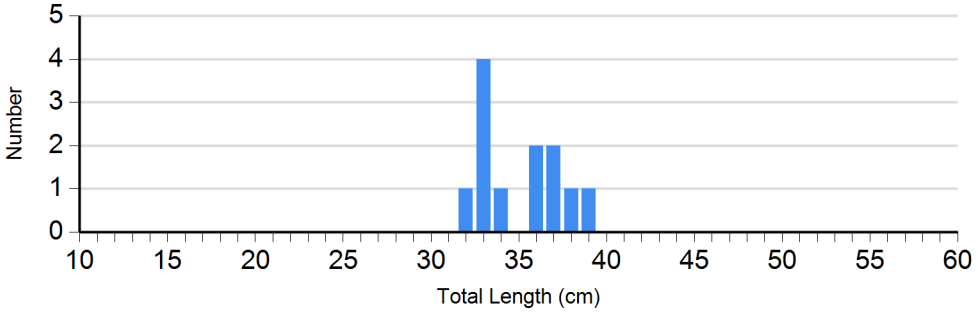


2024

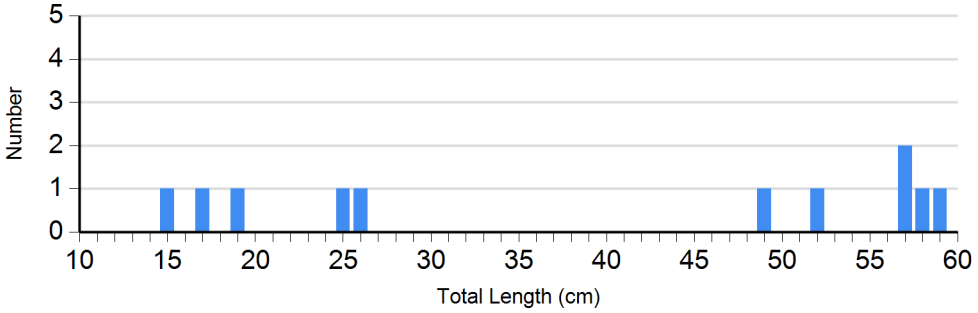


Species: Channel Catfish
Gear: AFS std gill net

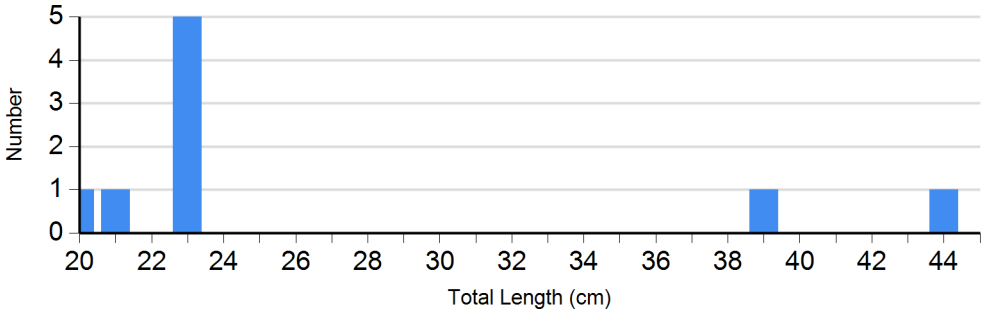
2019



2024

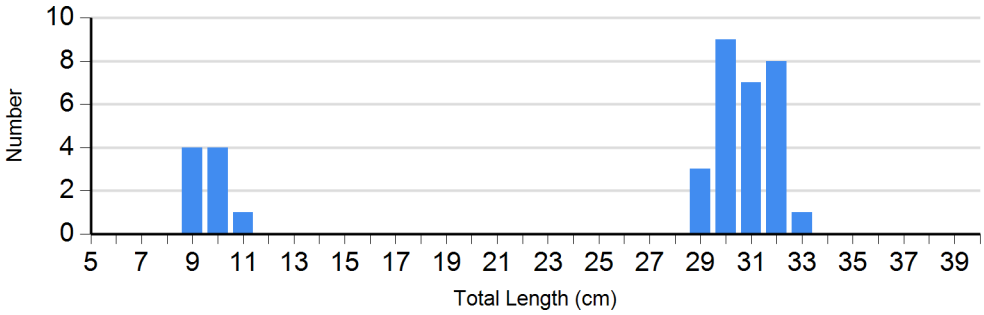


Species: Common Carp
Gear: AFS std gill net

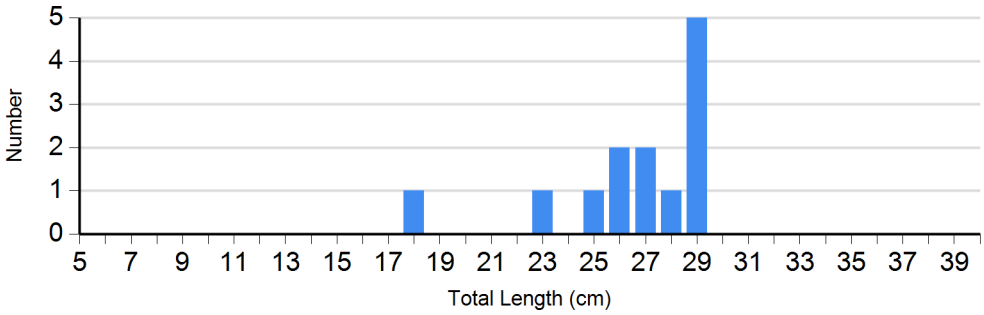


2019

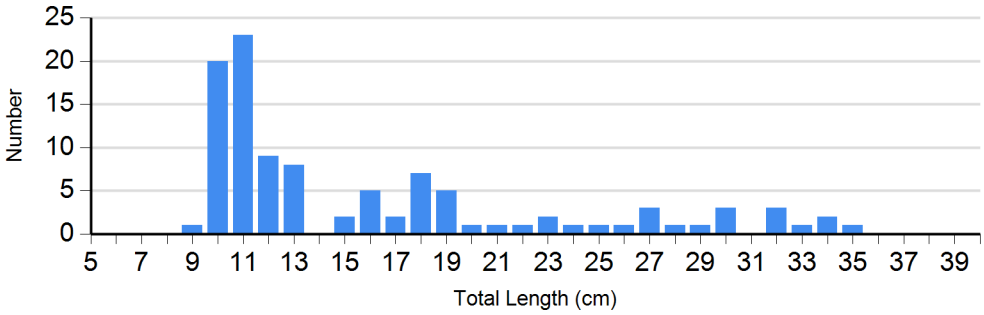
Species: White Crappie
Gear: frame net (std 3/4 in)



2019



2022

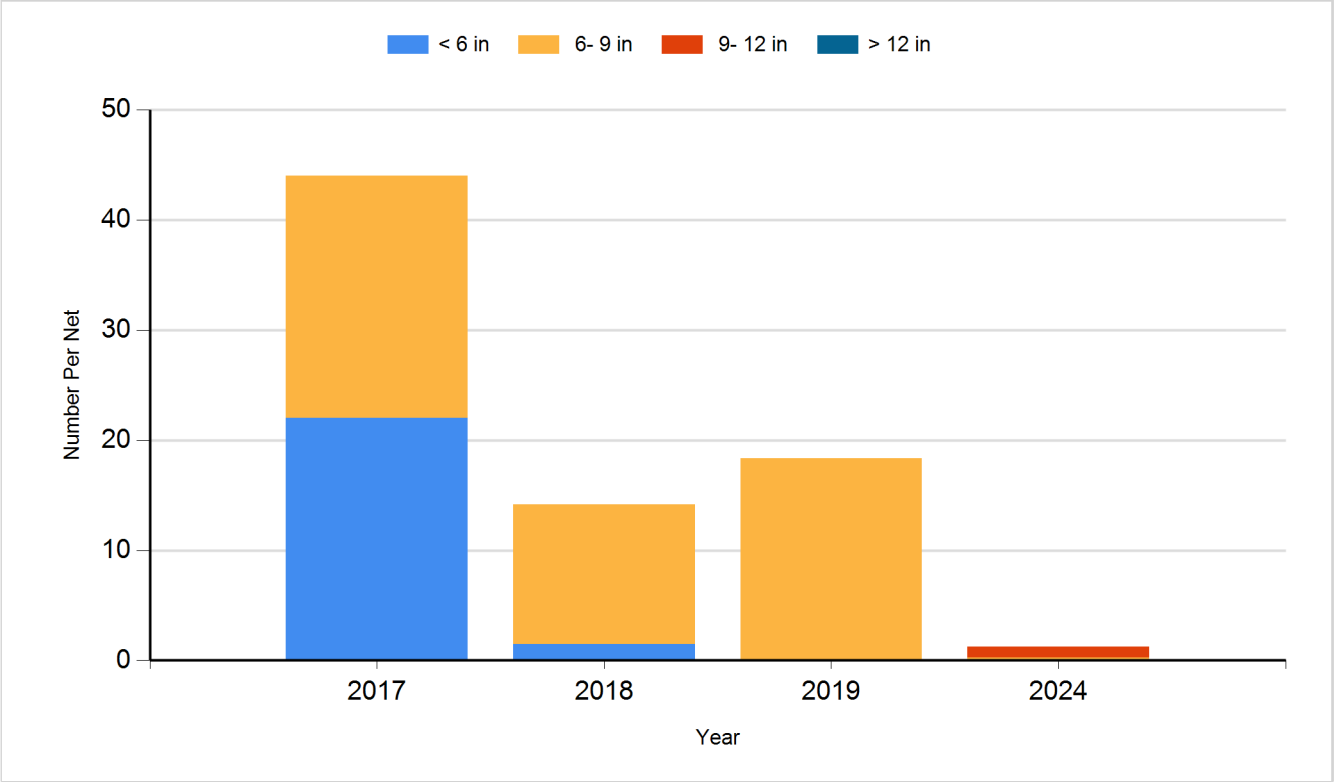


2024

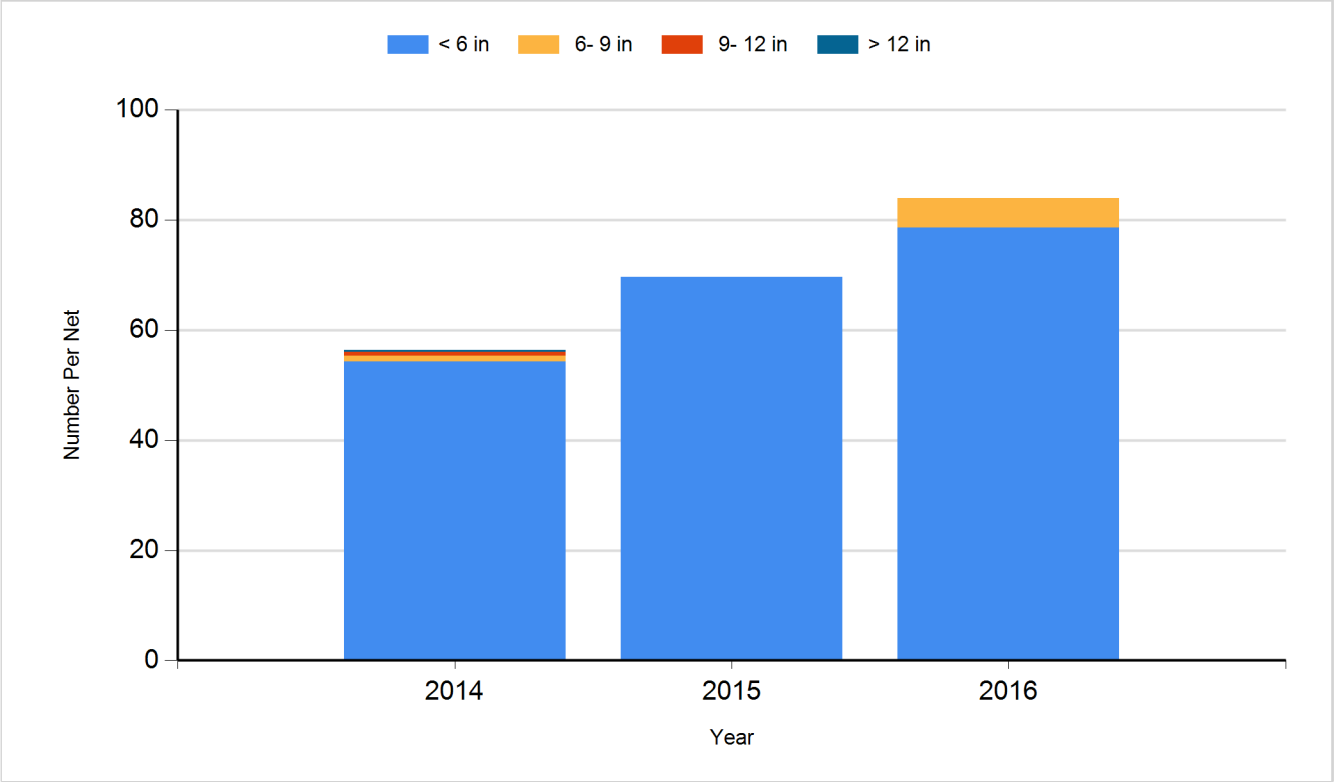
Historic Fish Sizes and Relative Abundance

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

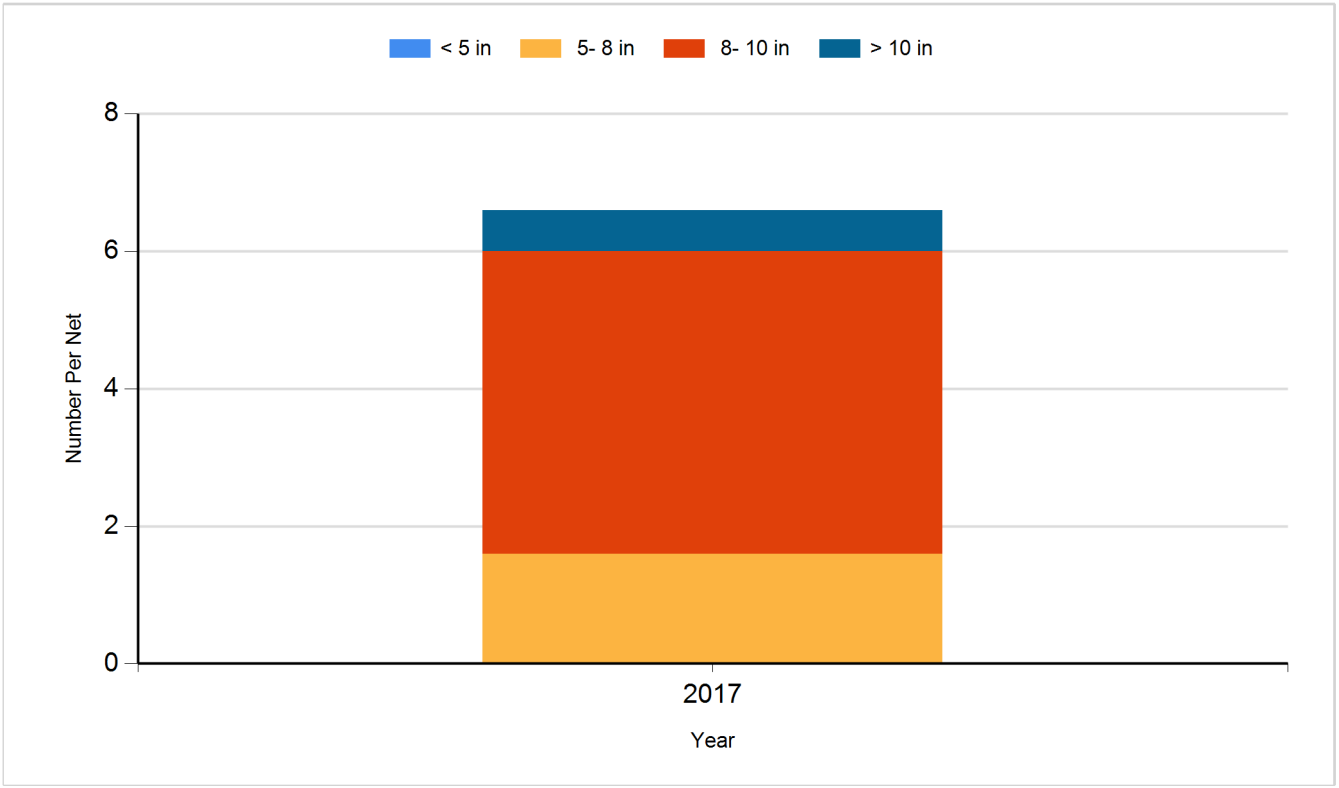
Species: Black Bullhead
Gear: AFS std gill net



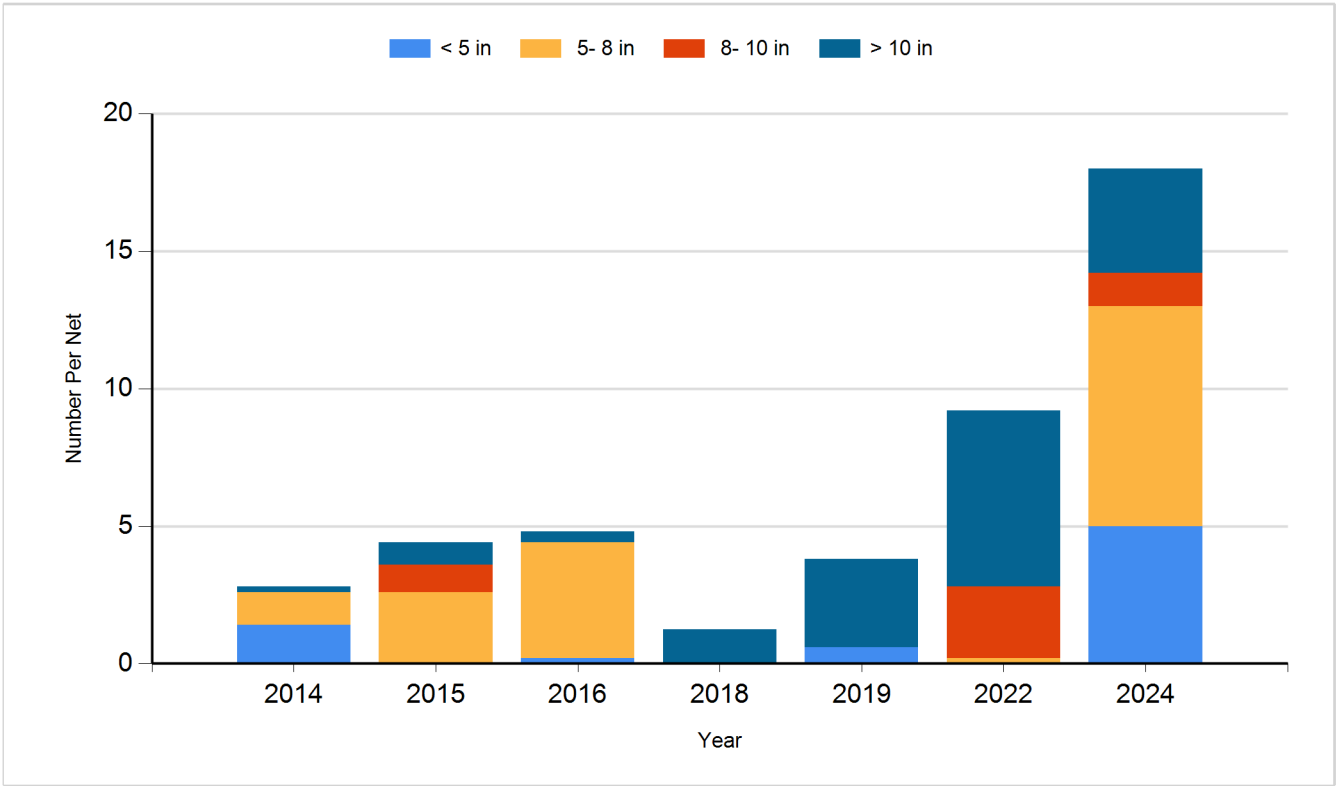
Species: Black Bullhead
Gear: std exp gill net



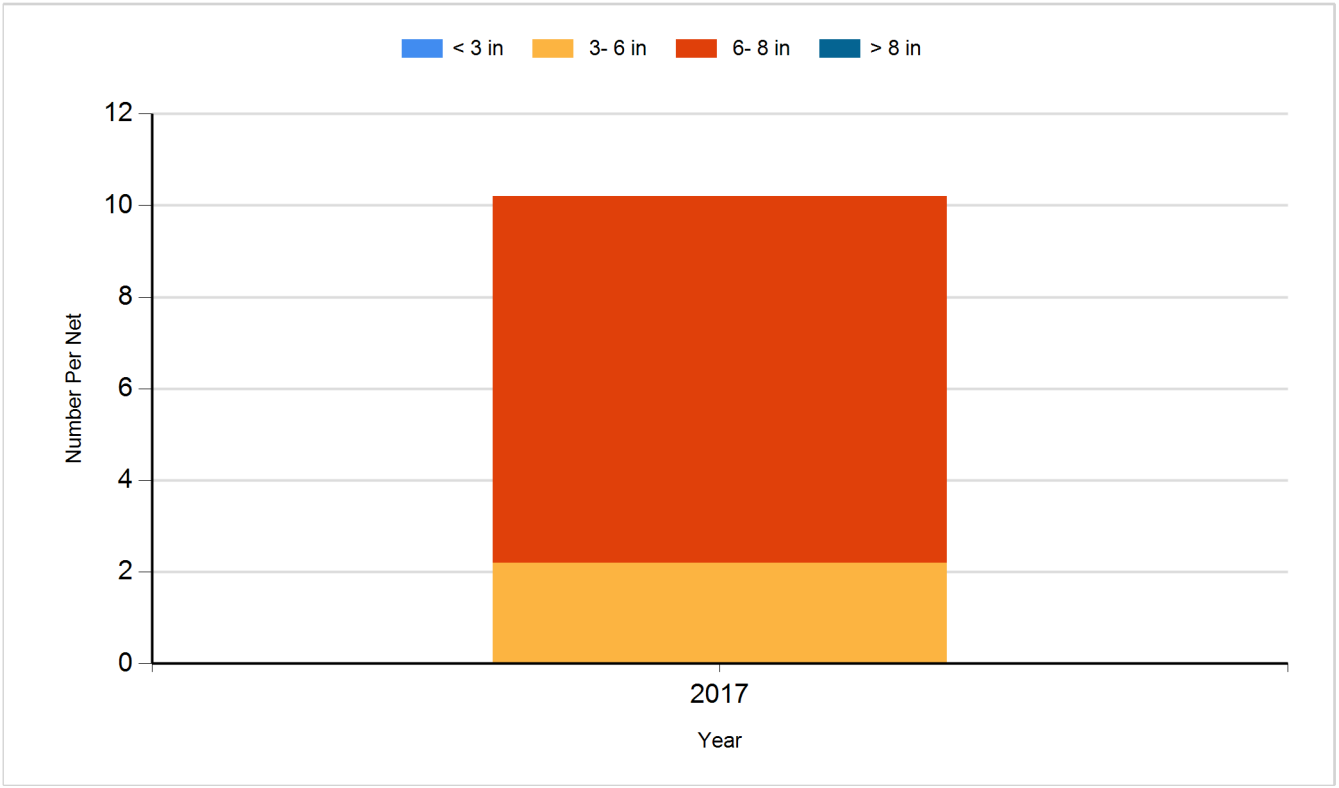
Species: Black Crappie
Gear: AFS std frame net



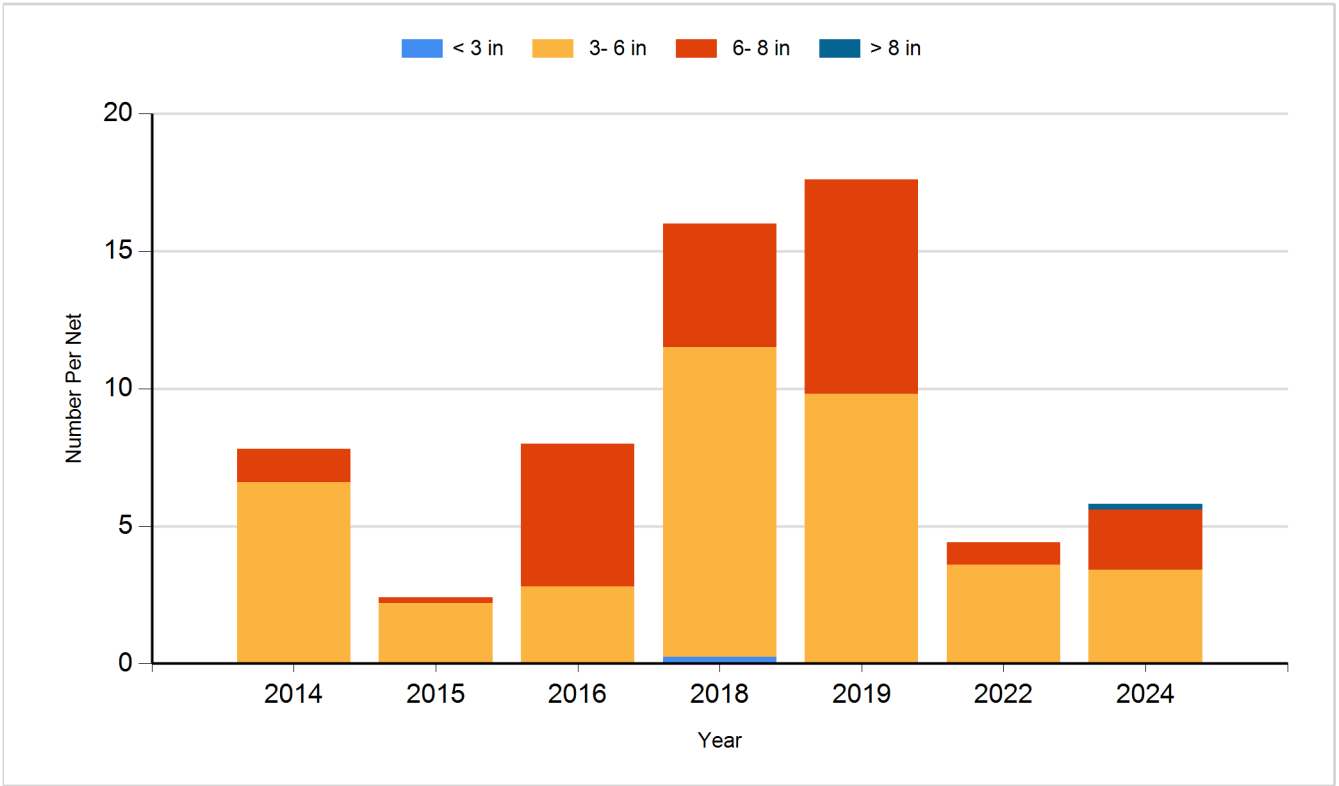
Species: Black Crappie
Gear: frame net (std 3/4 in)



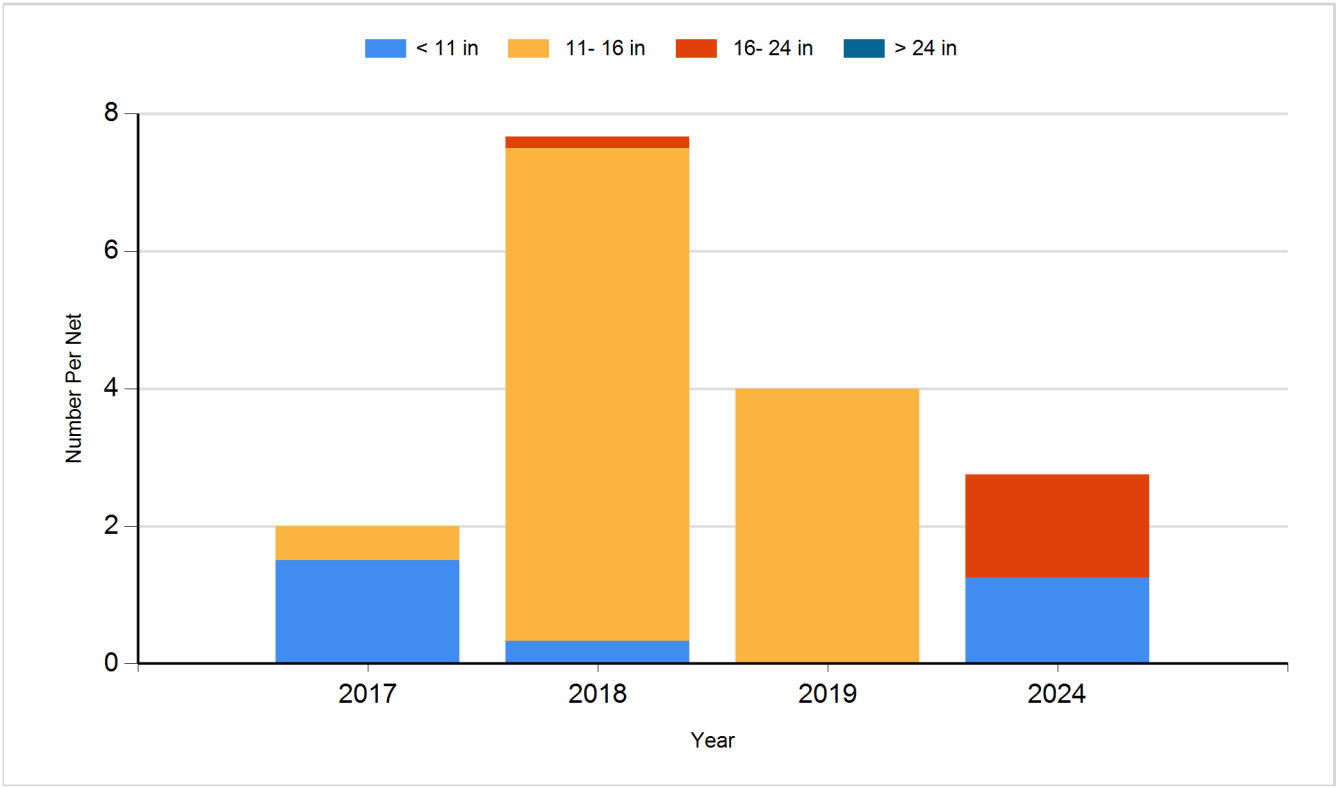
Species: Bluegill
Gear: AFS std frame net



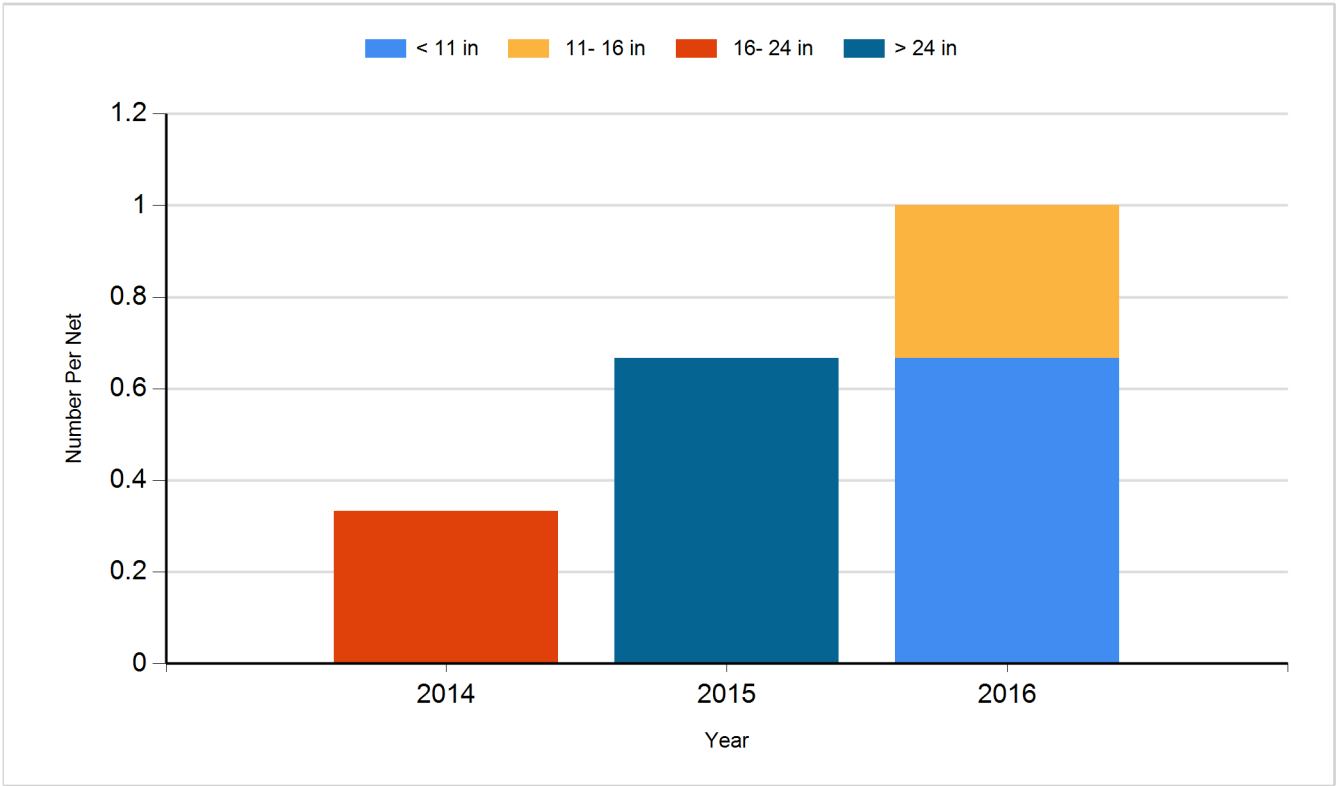
Species: Bluegill
Gear: frame net (std 3/4 in)



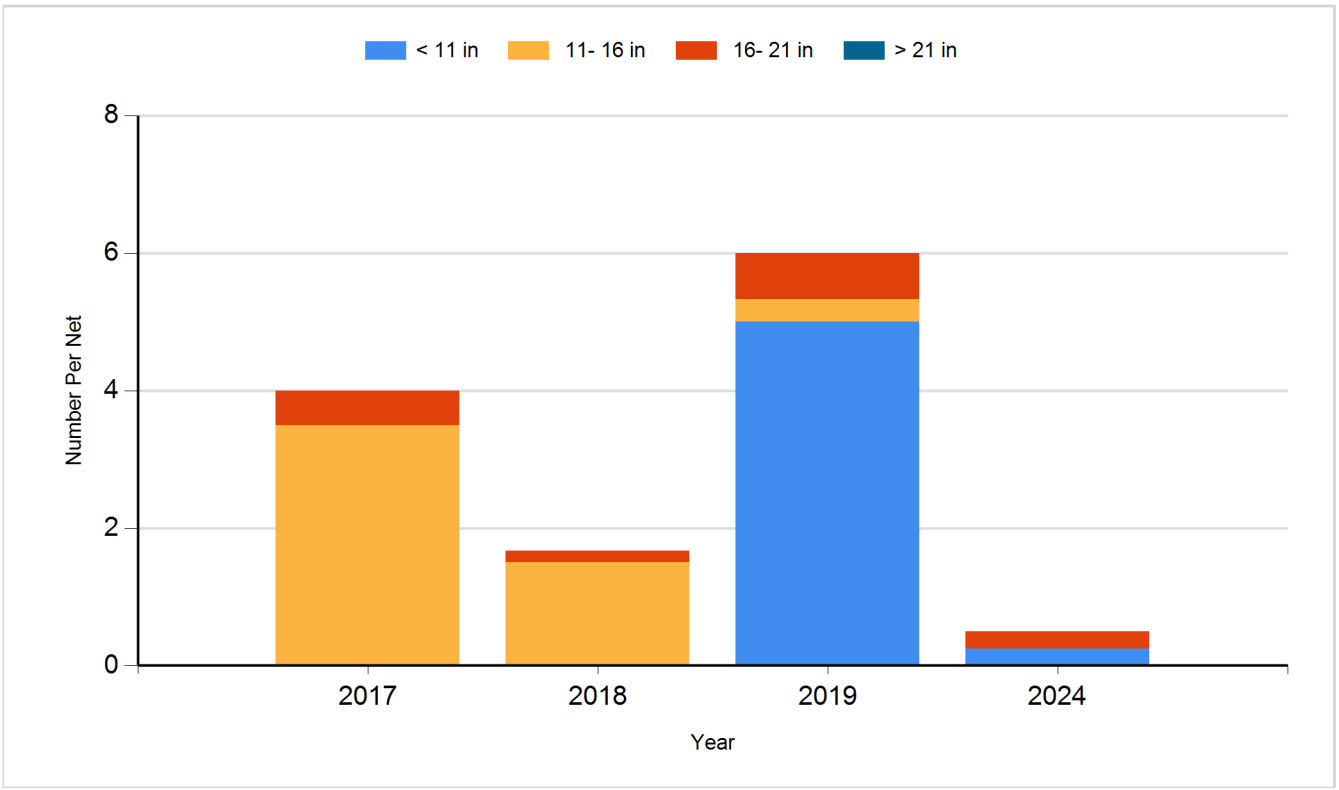
Species: Channel Catfish
Gear: AFS std gill net



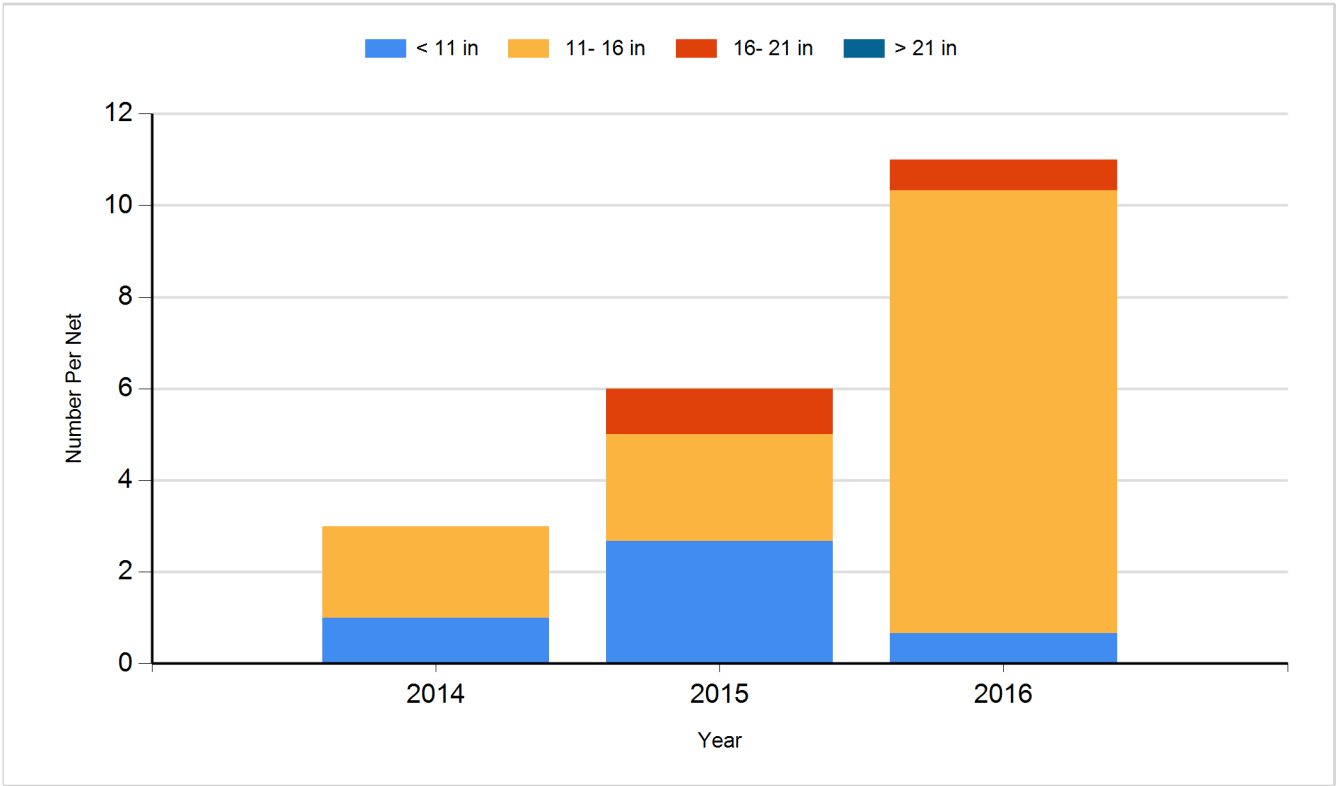
Species: Channel Catfish
Gear: std exp gill net



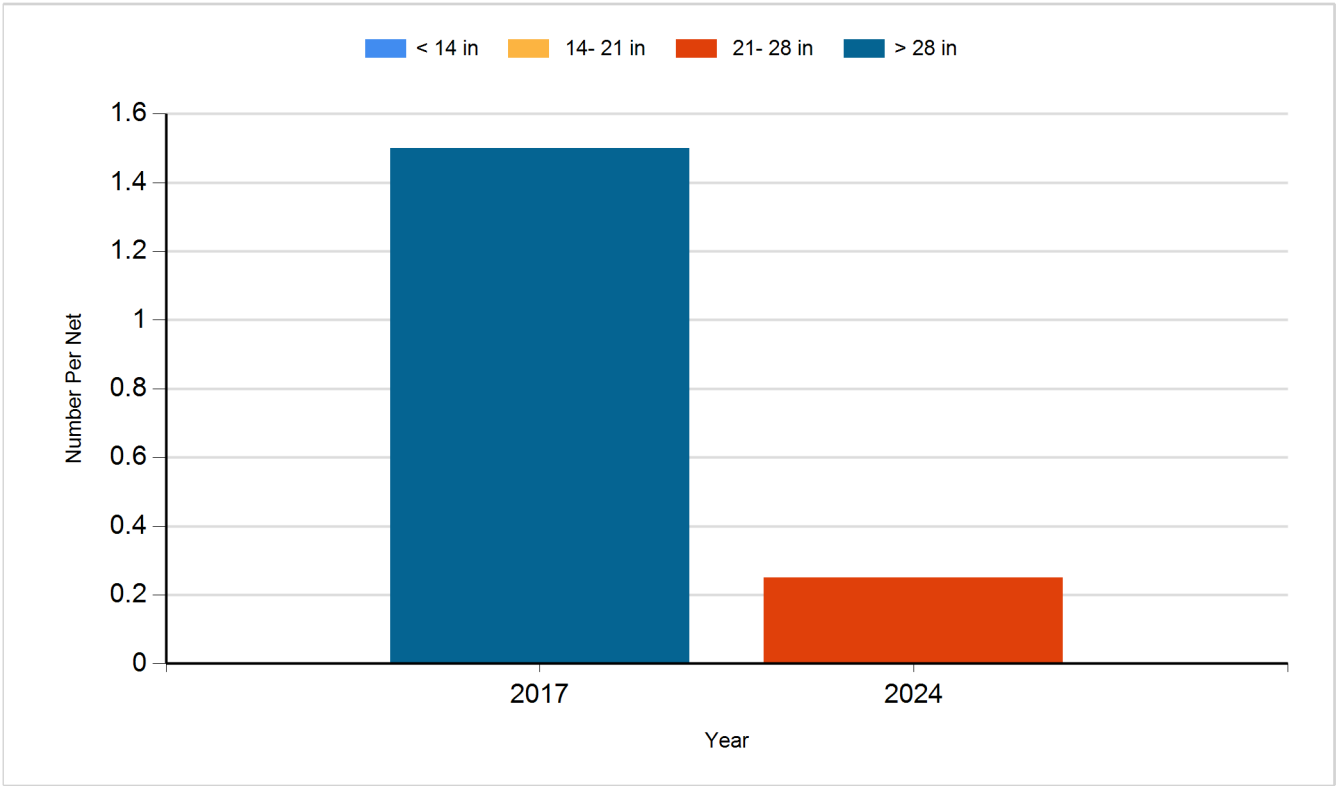
Species: Common Carp
Gear: AFS std gill net



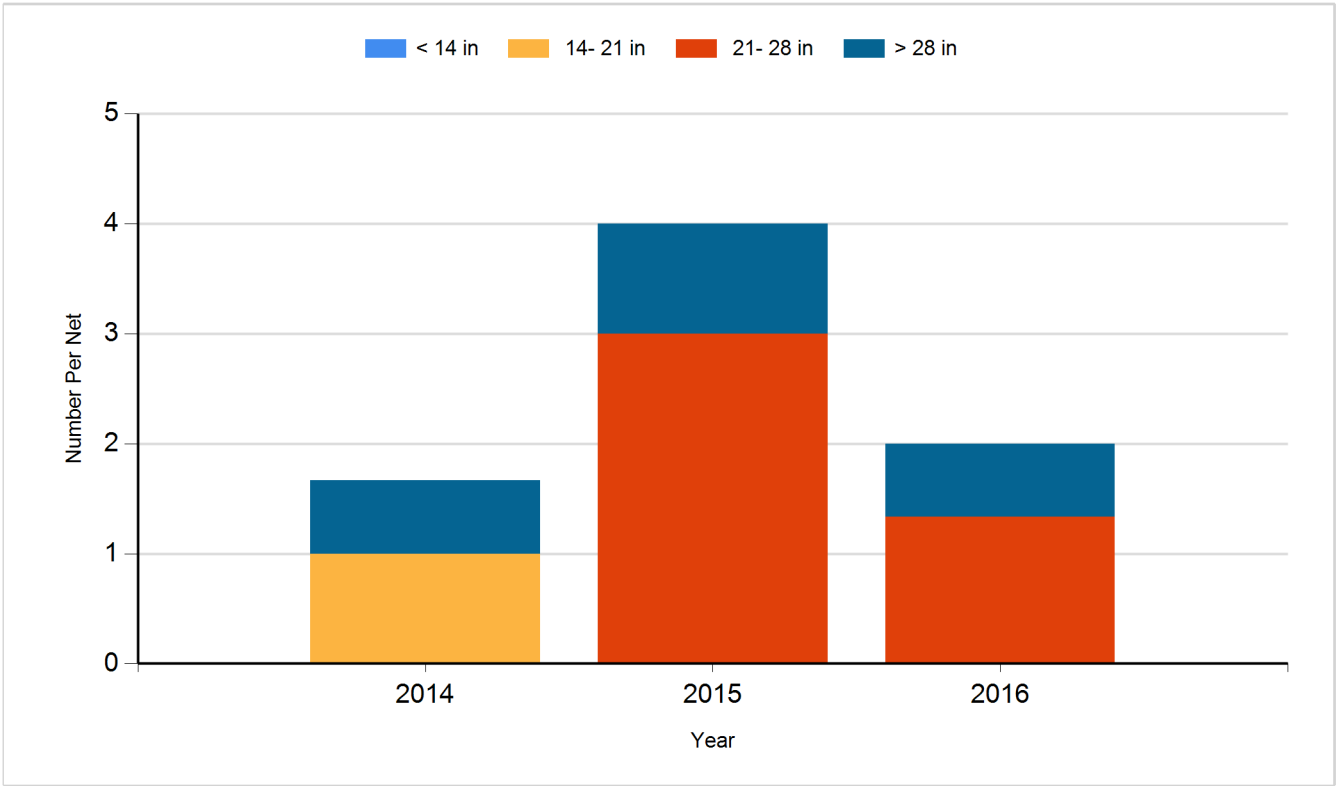
Species: Common Carp
Gear: std exp gill net



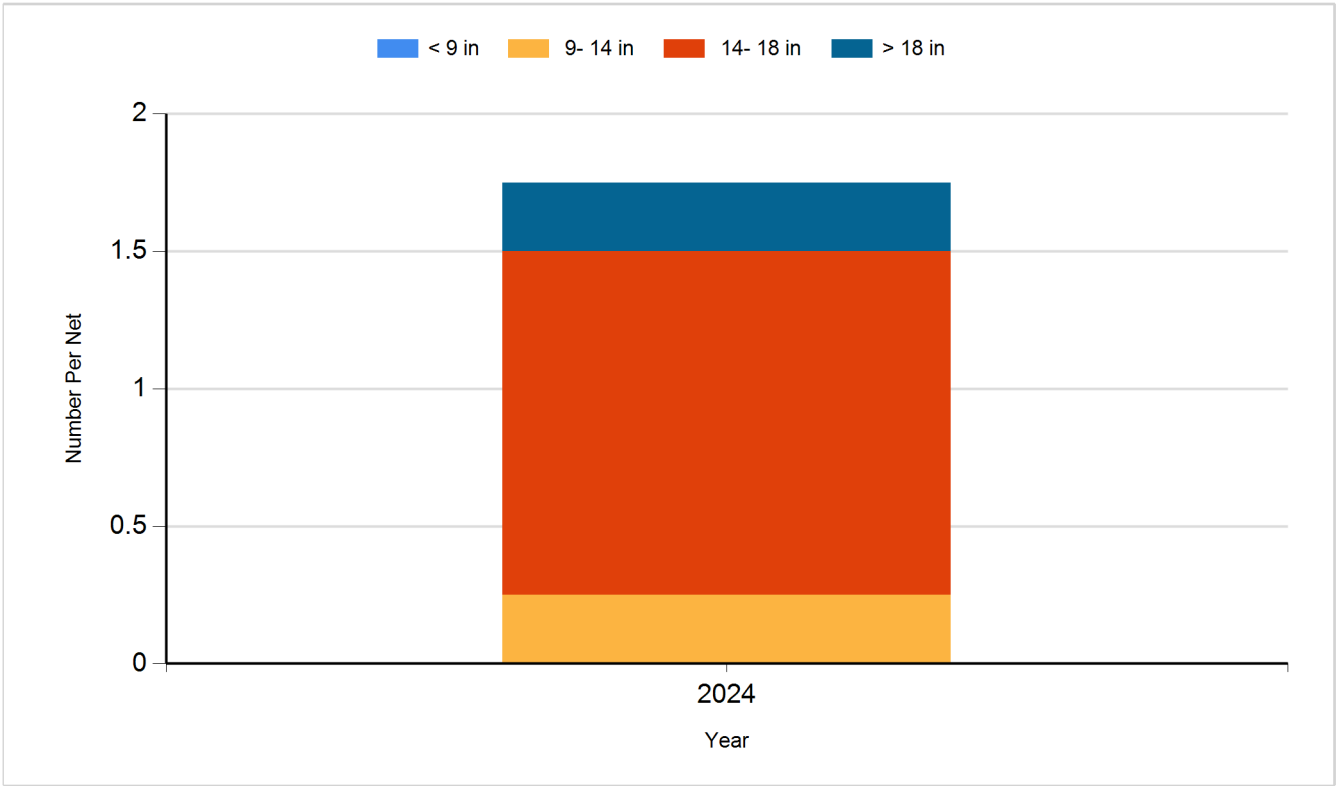
Species: Northern Pike
Gear: AFS std gill net



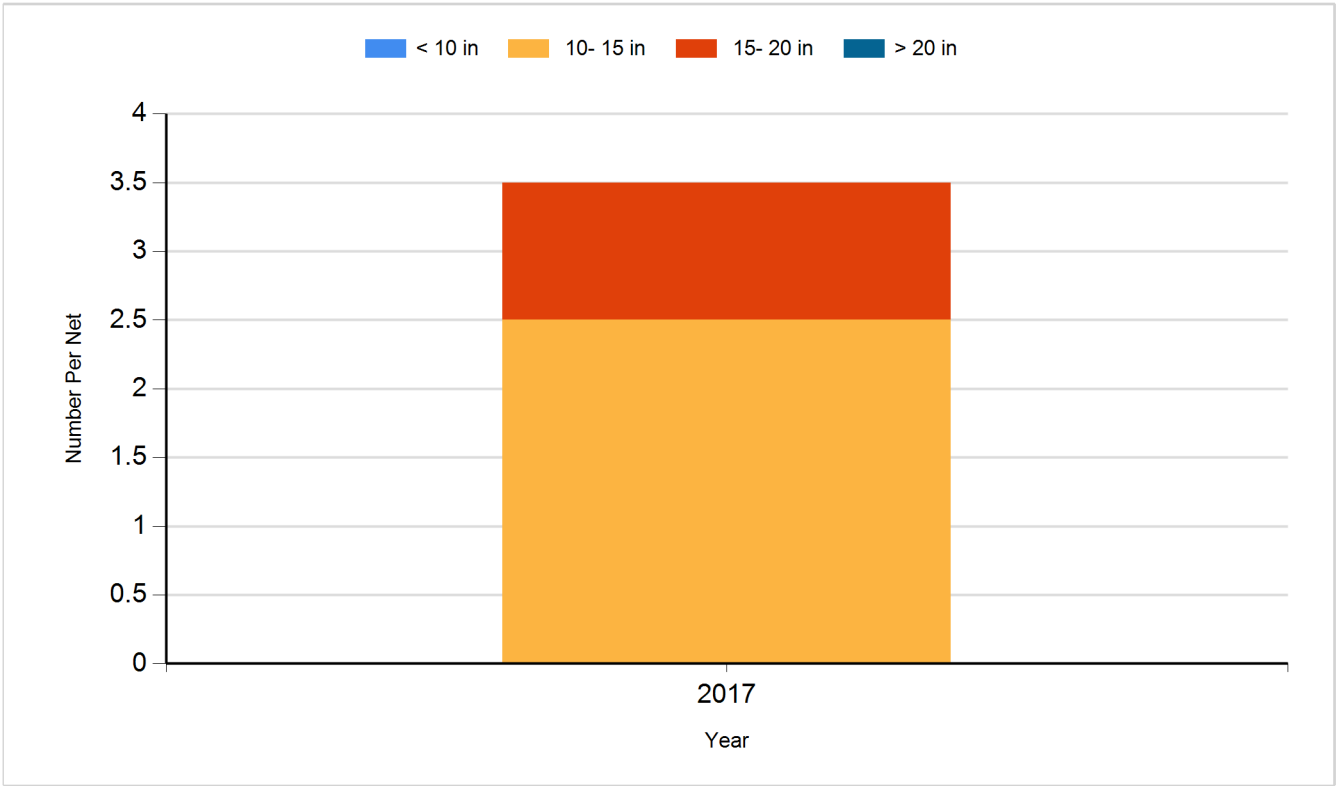
Species: Northern Pike
Gear: std exp gill net



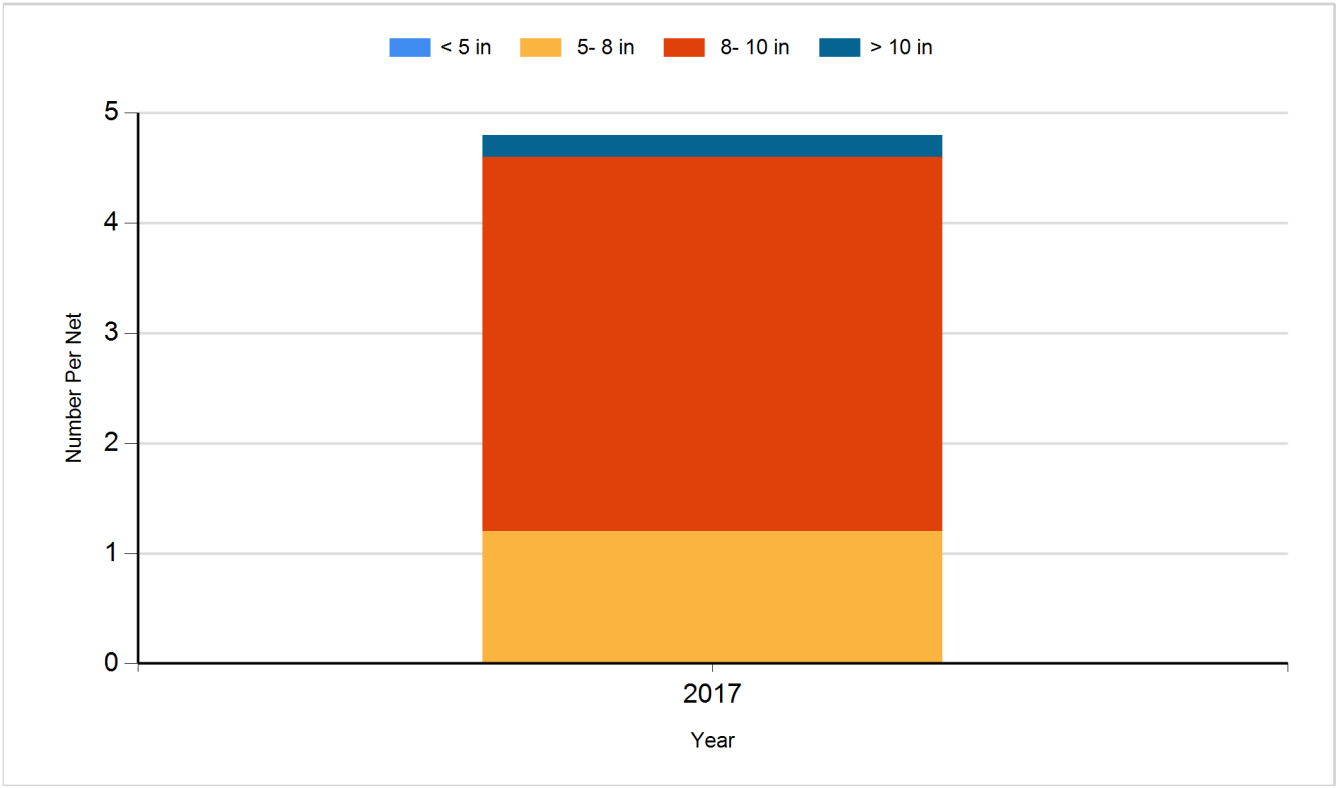
Species: Saugeye
Gear: AFS std gill net



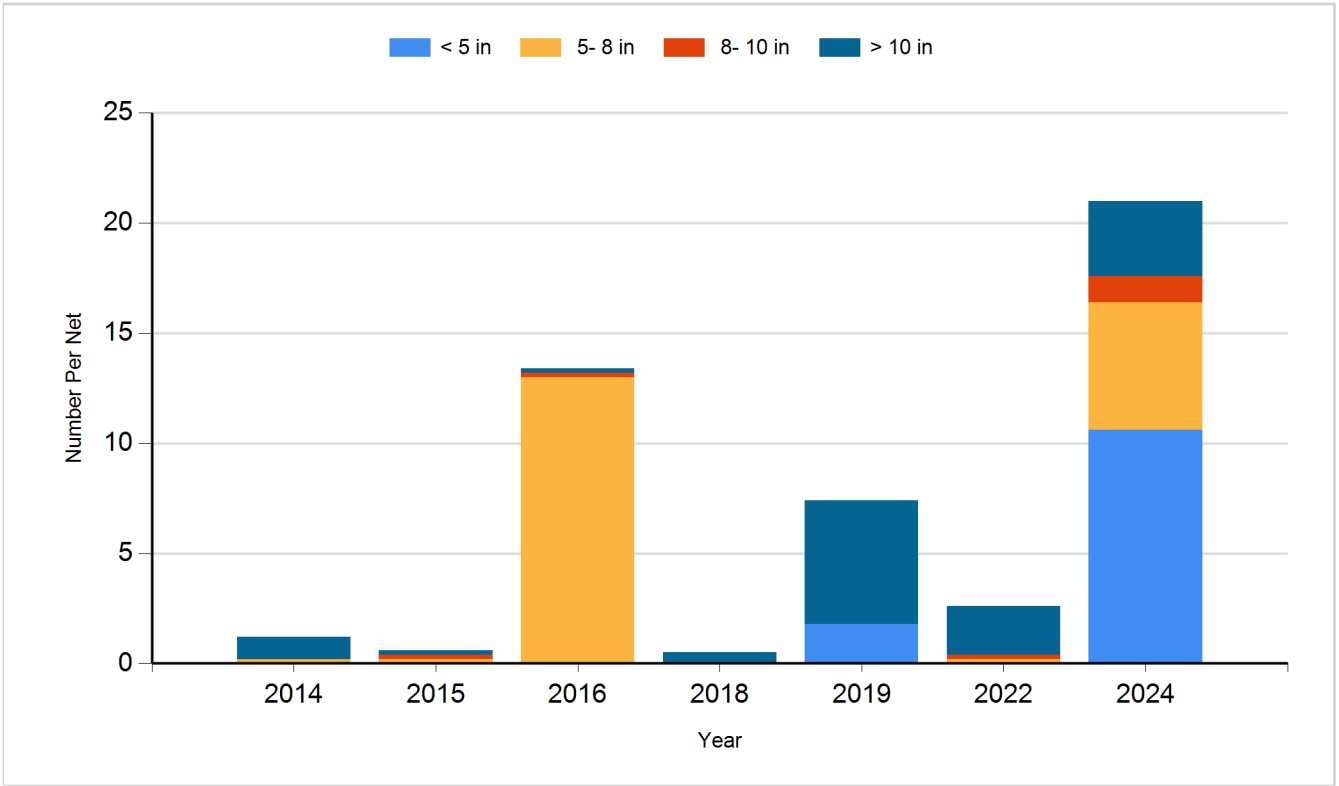
Species: Walleye
Gear: AFS std gill net



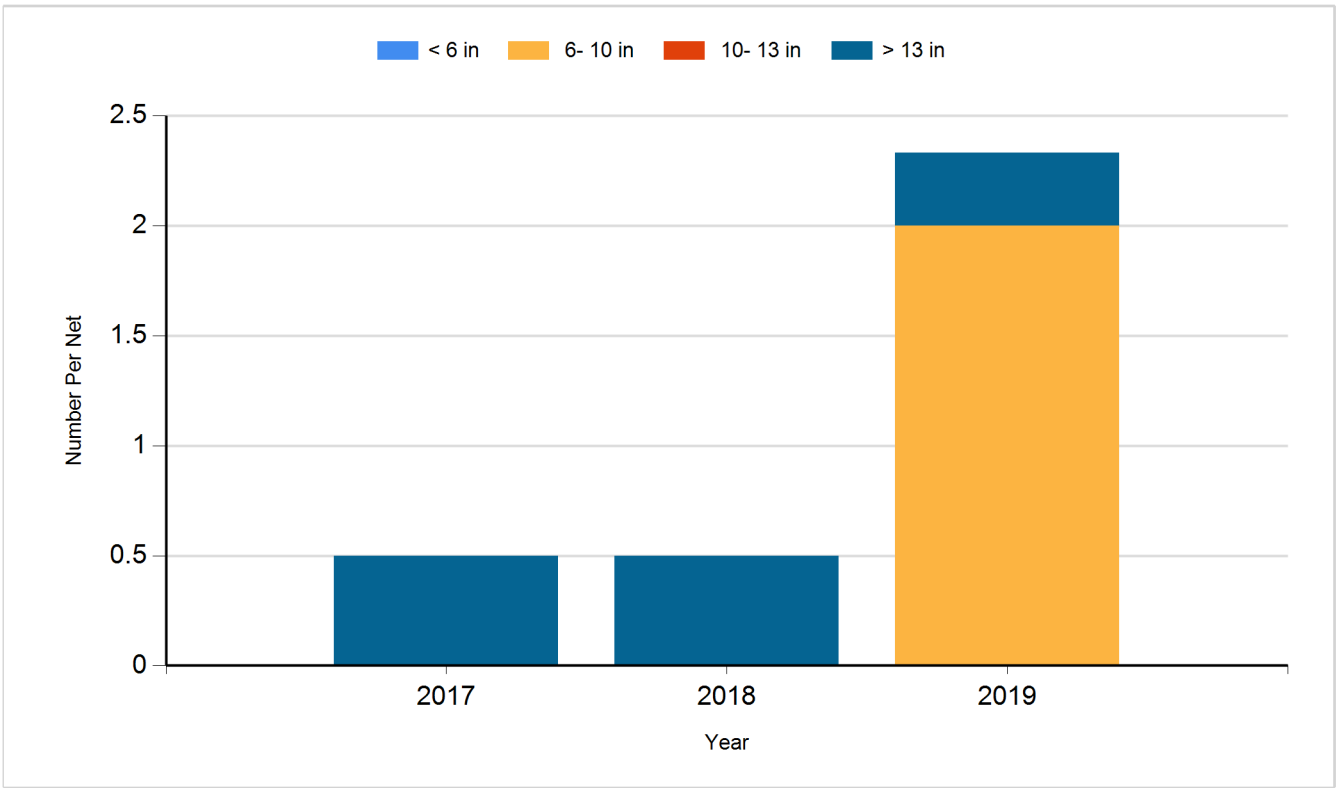
Species: White Crappie
Gear: AFS std frame net



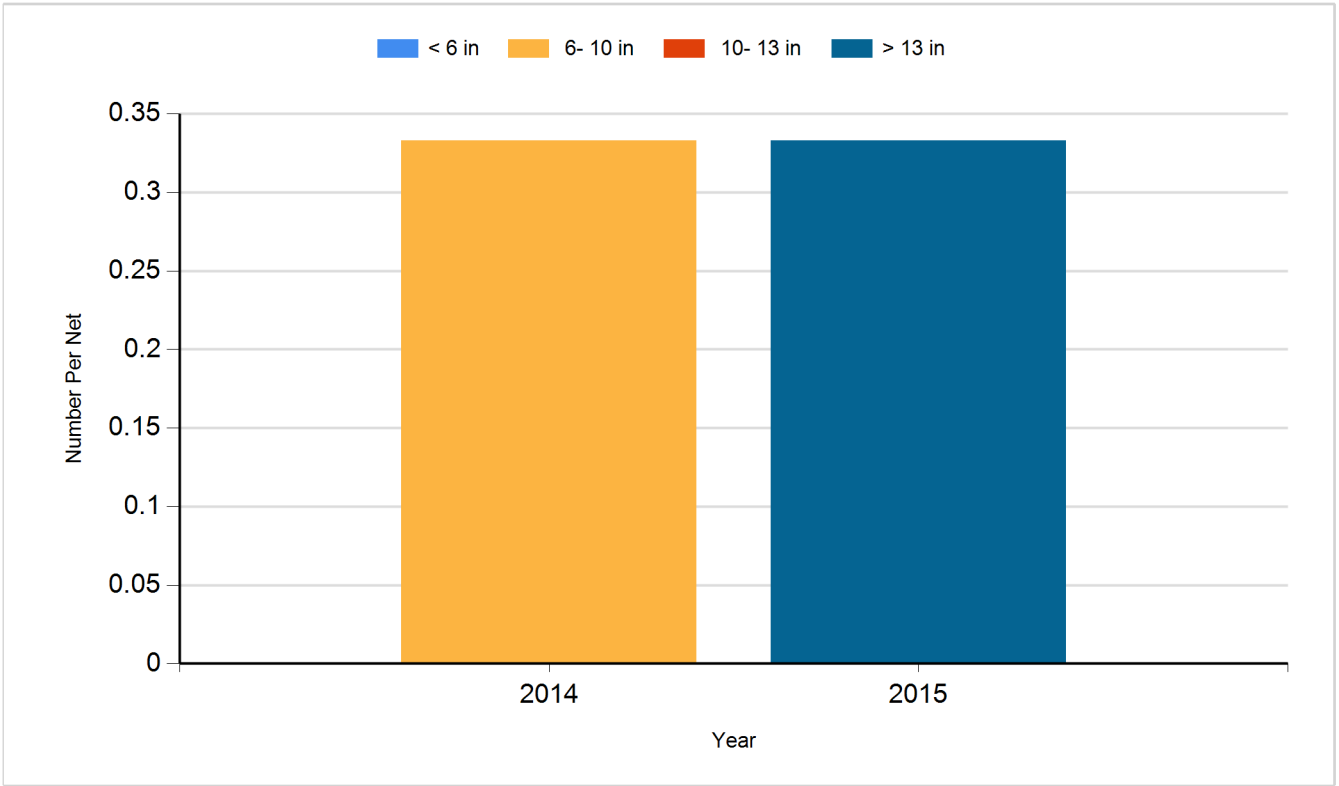
Species: White Crappie
Gear: frame net (std 3/4 in)



Species: White Sucker
Gear: AFS std gill net



Species: White Sucker
Gear: std exp gill net



Fish Stocking

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

Year	Species	Size	Number
2014	Walleye	Fry	55,000
2015	Walleye	Small Fingerling	3,840
2016	Gizzard Shad	Adult	130
2016	Walleye	Juvenile	505
2019	Walleye	Small Fingerling	4,900
2021	Black Crappie	Adult	440
2022	Saugeye	Juvenile	5,320
2024	Channel Catfish	Juvenile	1,184
2024	Saugeye	Juvenile	5,133