

**SOUTH DAKOTA STATEWIDE FISHERIES SURVEY**  
**Whitewood, Kingsbury County**  
**LKT-Lake-55-800**  
**2024**

**Lake Information**

<b>Name:</b>	Whitewood	<b>Maximum Depth:</b>	7 Feet
<b>County:</b>	Kingsbury	<b>Mean Depth:</b>	4 Feet
<b>Legal Description:</b>	T110N- R54W-Sec. 2, 3, 9-21; T110N- R53W-Sec.18-19		
<b>Surface Area:</b>	5,815 Acres		

**Surveys and Investigations**

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

Gear	Date	Effort
AFS std gill net	Aug 07, 2024	8 net-nights
frame net (std 3/4 in)	Aug 07, 2024	5 net-nights

## **Common Fish Species Present**

Walleye

Common Carp

Yellow Perch

Black Crappie

White Sucker

Northern Pike

Bigmouth Buffalo

White Bass

Black Bullhead

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## 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	Bigmouth Buffalo	11	1.4	1.3	18		9		
	Black Bullhead	3	0.4	0.3	67		0		
	Black Crappie	2	0.3	0.2	50		50	105	6
	Common Carp	125	15.3	4.7	18	5	0		
	Northern Pike	5	0.6	0.5	100		20	89	3
	Walleye	27	3.4	1.3	37	15	0	93	2
	White Bass	7	0.9	0.6	100		100	88	3
	White Sucker	11	1.4	0.5	100		100		
	Yellow Perch	73	9.1	2.8	77	7	12	6	117
frame net (std 3/4 in)	Black Bullhead	3	0.6	0.9	100		100		
	Black Crappie	29	5.8	4.0	100		100	103	2
	Common Carp	28	5.6	3.3	43	15	18	12	
	Northern Pike	9	1.8	0.6	100		56	84	4
	Walleye	4	0.6	0.9	33		0	91	8
	White Sucker	19	3.8	2.3	100		95		
	Yellow Perch	1	0.2	0.3	100		100	91	

## 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 gill net	Bigmouth Buffalo			0.0	5.8	10.3	4.1	0.3	0.1		1.4	3.14
	Black Bullhead			13.8	12.4	0.3	5.8	14.4	4.0		0.4	7.30
	Black Crappie			0.0	0.0	0.0	0.1	2.6	0.4		0.3	0.49
	Common Carp			19.2	6.3	0.3	1.5	0.9	1.3		15.3	6.40
	Northern Pike			2.0	0.6	0.0	4.0	6.9	2.0		0.6	2.30
	Walleye			4.7	5.6	0.5	7.6	20.5	3.9		3.4	6.60
	White Bass			0.0	0.0	0.0	0.1	1.4	0.3		0.9	0.39
	White Sucker			2.3	1.0	0.8	2.9	6.8	6.5		1.4	3.10
	Yellow Perch			21.0	19.0	9.3	10.0	15.8	6.6		9.1	12.97
frame net (std 3/4 in)	Black Bullhead										0.6	0.60
	Black Crappie										5.8	5.80
	Common Carp										5.6	5.60
	Northern Pike										1.8	1.80
	Walleye										0.6	0.60
	White Sucker										3.8	3.80
	Yellow Perch										0.2	0.20
std exp gill net	Black Bullhead	17.0	25.7									21.35
	Common Carp	3.0	13.7									8.35
	Northern Pike	10.3	3.7									7.00
	Walleye	22.7	11.3									17.00
	White Sucker	7.3	3.3									5.30
	Yellow Perch	79.0	69.7									74.35

## 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 gill net	Bigmouth Buffalo	PSD				0	0	0	50	0		18
		PSD-P				0	0	0	0	0		9
	Black Bullhead	PSD			90	93	0	35	36	97		67
		PSD-P			0	0	0	0	1	6		0
	Black Crappie	PSD							100	95	100	50
		PSD-P							0	71	67	50
		Wr							147	117	110	105
	Common Carp	PSD			65	86	50	8	57	80		18
		PSD-P			8	16	50	0	0	40		0
	Northern Pike	PSD			83	40	0	31	89	94		100
		PSD-P			8	20	0	0	2	19		20
		Wr			85	88			96	83	86	89
	Walleye	PSD			100	29	100	8	74	81		37
		PSD-P			57	9	100	3	1	0		0
		Wr			98	89	92	101	96	85		93
	White Bass	PSD							100	100	100	100
		PSD-P							100	18	100	100
		Wr							106	101	97	88
	White Sucker	PSD			100	100	100	39	100	100		100
		PSD-P			100	100	100	13	100	100		100
Yellow Perch	PSD			94	35	0	63	90	87		77	
	PSD-P			66	11	0	6	48	60		12	
	Wr			95	100	112	113	102	97		117	
frame net (std 3/4 in)	Black Bullhead	PSD										100
		PSD-P										100
	Black Crappie	PSD										100
		PSD-P										100
		Wr										103
	Common Carp	PSD										43
		PSD-P										18
	Northern Pike	PSD										100
		PSD-P										56
		Wr										84

Gear	Species	Index	Year										
			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
frame net (std 3/4 in)	Walleye	PSD											33
		PSD-P											0
		Wr											91
	White Sucker	PSD											100
		PSD-P											95
	Yellow Perch	PSD											100
		PSD-P											100
		Wr											91
	std exp gill net	Black Bullhead	PSD	20	61								
PSD-P			0	0									
Wr													
Common Carp		PSD	78	39									
		PSD-P	44	15									
		Wr											
Northern Pike		PSD	32	64									
		PSD-P	0	0									
		Wr	89	81									
Walleye		PSD	87	94									
		PSD-P	12	24									
		Wr	99	92									
White Sucker		PSD	100	100									
		PSD-P	36	100									
Yellow Perch		PSD	64	75									
	PSD-P	5	8										
	Wr	97	88										



## **Fish Condition**

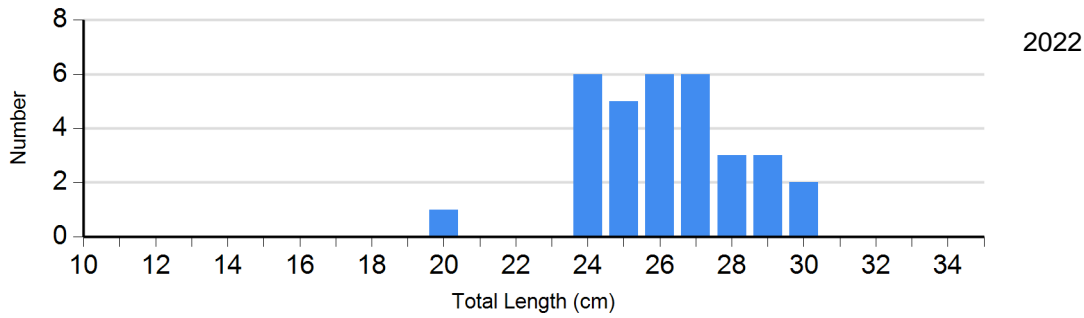
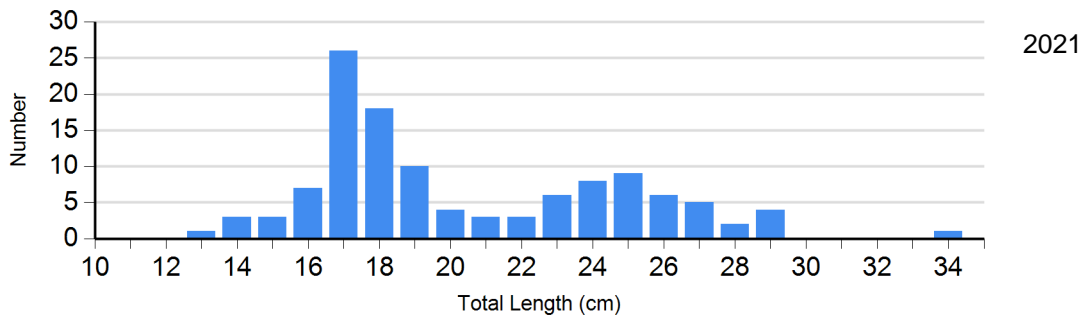
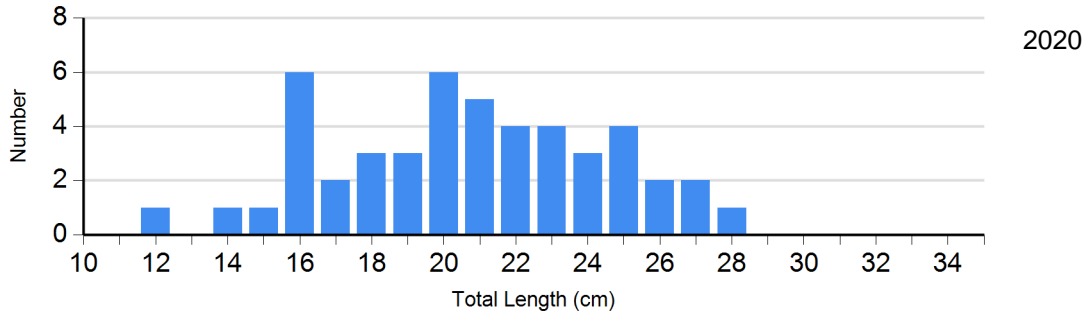
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

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	2024	0		0		20	105 (1.7)	9	97 (3.0)
Northern Pike Gill Net	2020	22	96 (1.4)	10	96 (2.0)	0		0	
	2021	6	87 (1.4)	48	83 (1.0)	1	82	0	
	2022	1	78	12	81 (1.8)	3	106 (2.7)	0	
	2024	0		4	89 (3.1)	1	92	0	
Walleye Gill Net	2020	56	101 (1.0)	3	101 (3.6)	1	93	1	95
	2021	42	93 (0.8)	121	97 (0.8)	0		1	72
	2022	6	80 (5.2)	25	87 (1.0)	0		0	
	2024	17	96 (1.8)	10	89 (1.6)	0		0	
White Bass Gill Net	2020	0		0		0		1	106
	2021	0		9	103 (1.8)	0		2	94 (2.1)
	2022	0		0		2	97 (0.0)	0	
	2024	0		0		7	88 (2.6)	0	
Yellow Perch Gill Net	2020	30	113 (2.2)	45	113 (1.7)	4	118 (1.8)	1	105
	2021	13	103 (3.1)	52	99 (0.7)	59	103 (0.9)	2	105 (3.2)
	2022	7	104 (3.7)	14	98 (1.7)	31	94 (1.8)	1	92
	2024	17	119 (4.2)	47	117 (1.5)	9	111 (2.4)	0	

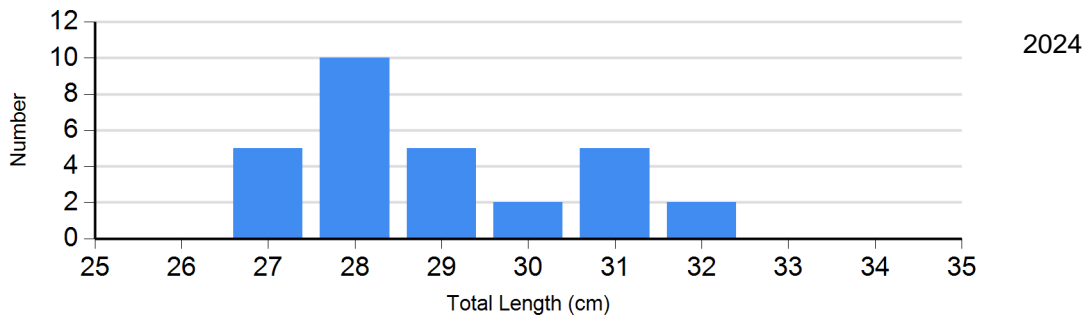
## Length Frequency Distribution

Length frequency histogram of species sampled by year.

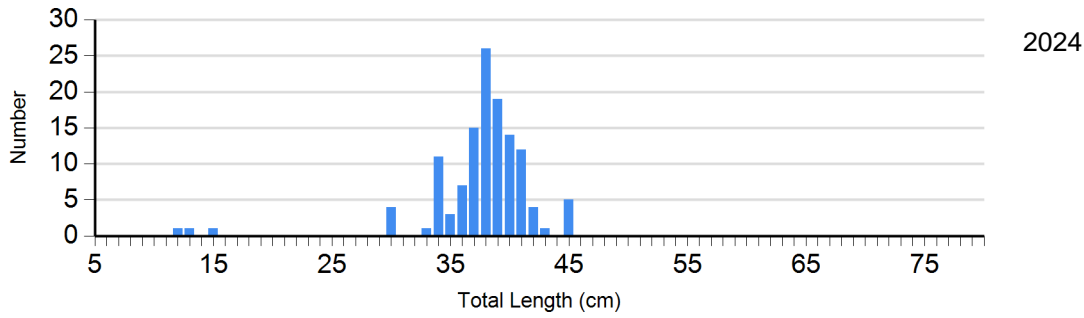
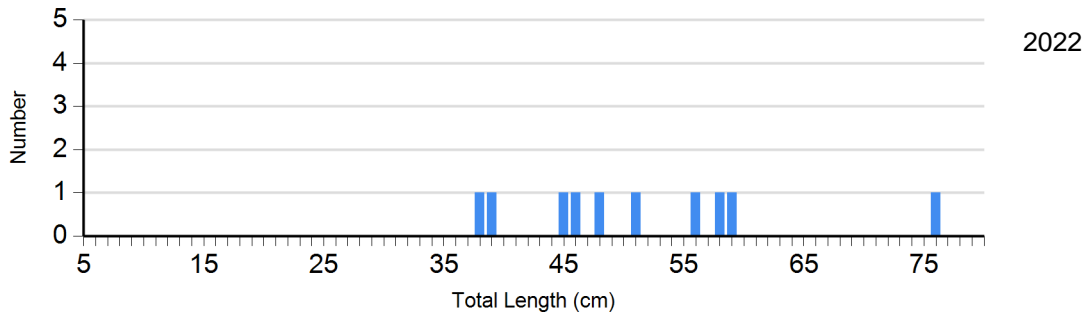
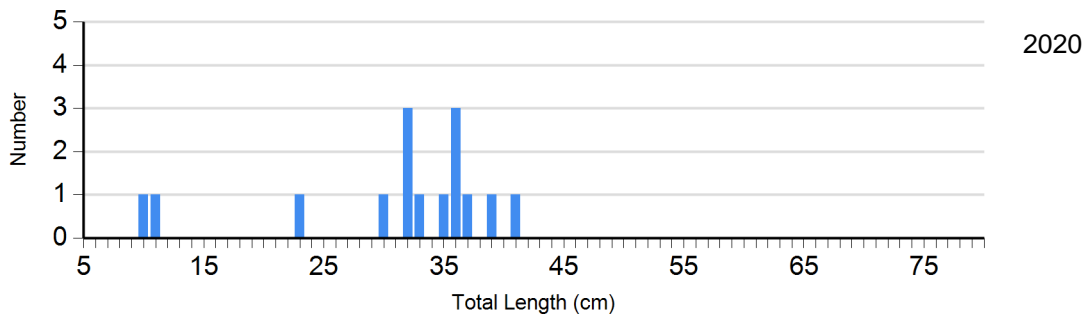
Species: Black Bullhead  
Gear: AFS std gill net



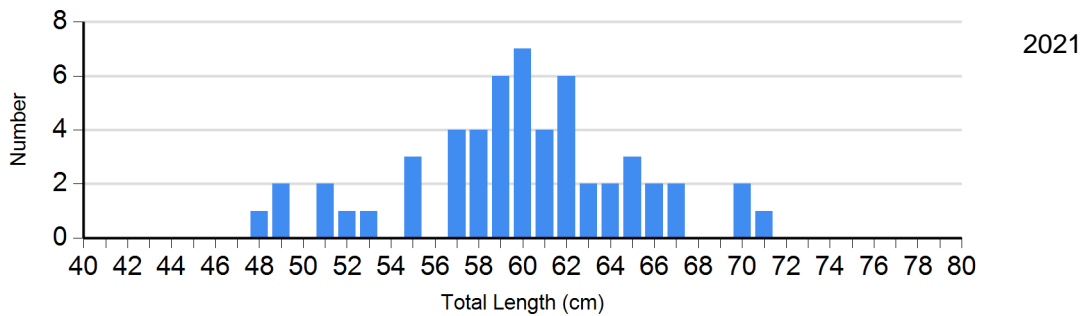
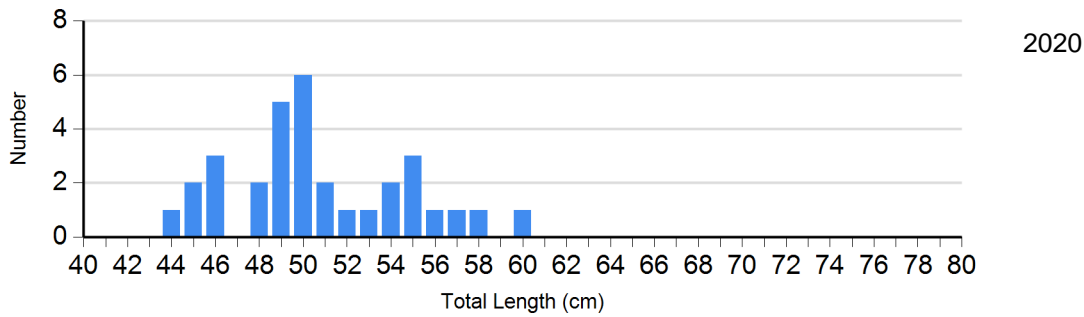
Species: Black Crappie  
Gear: frame net (std 3/4 in)

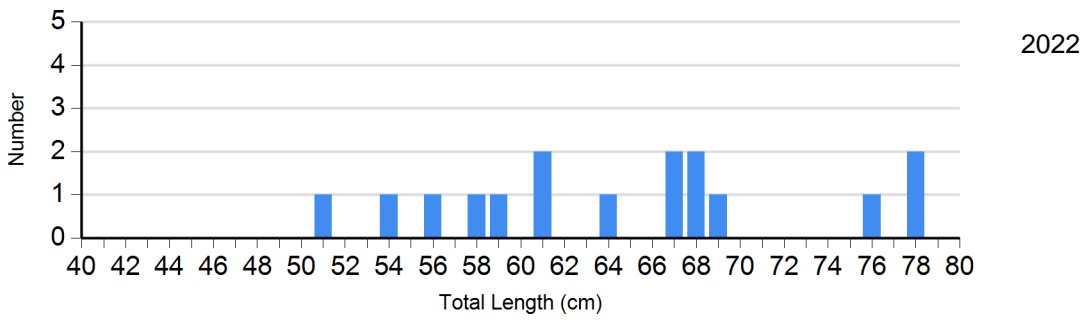


Species: Common Carp  
 Gear: AFS std gill net

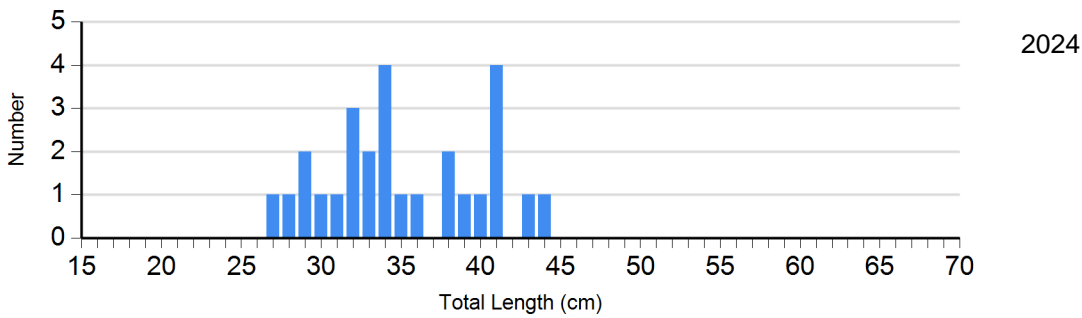
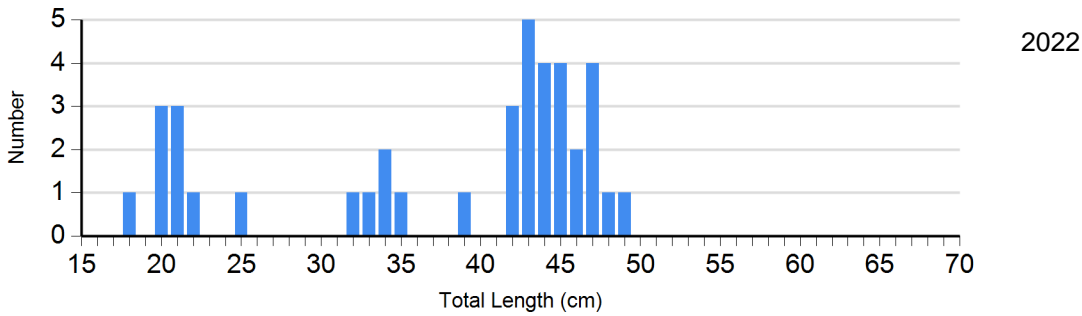
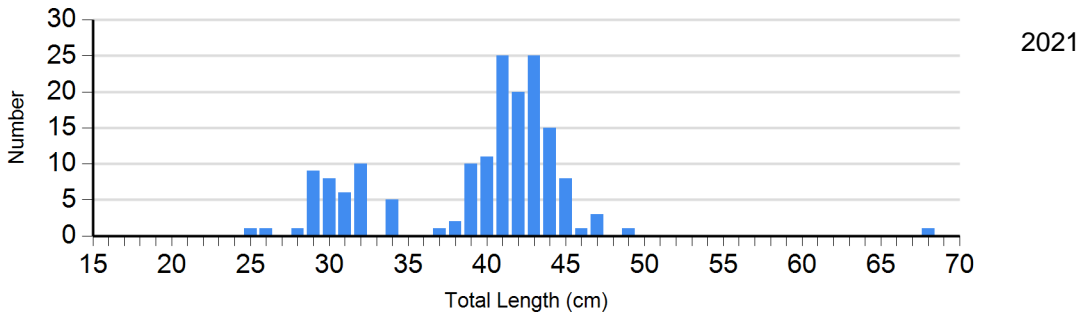
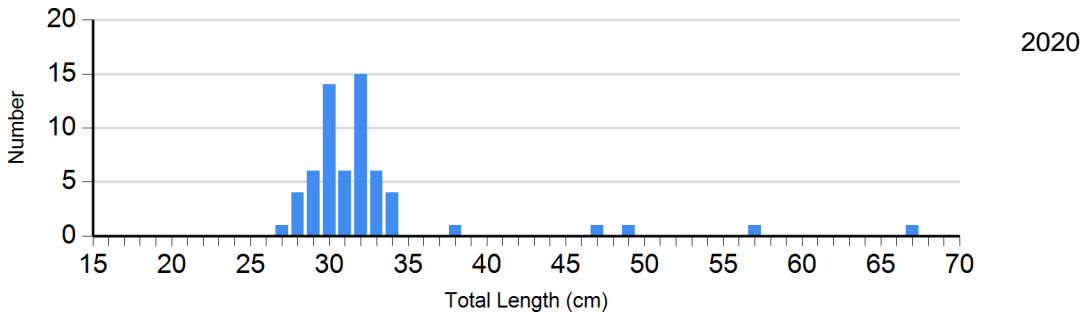


Species: Northern Pike  
 Gear: AFS std gill net

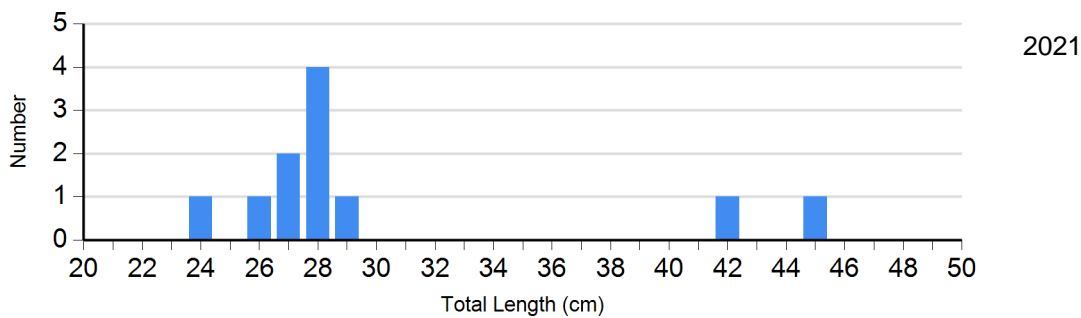




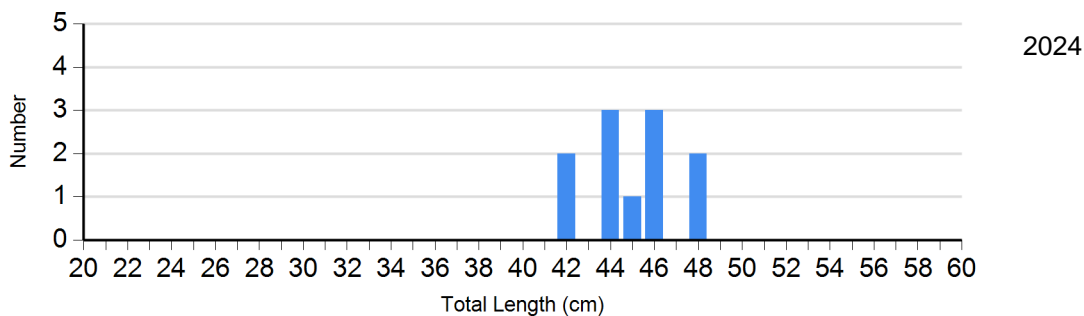
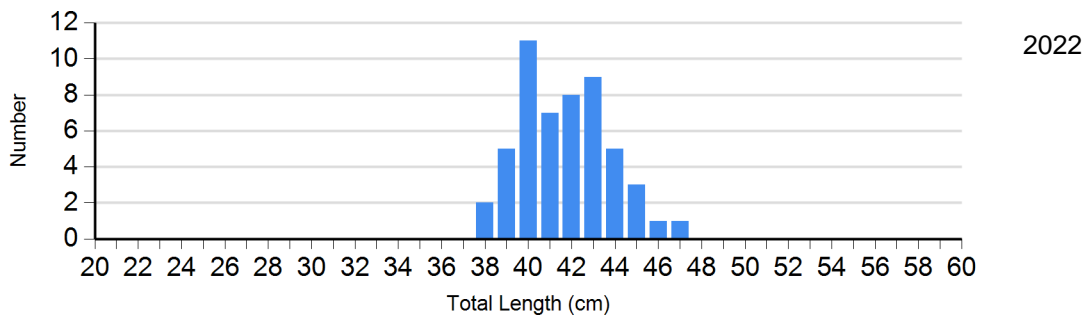
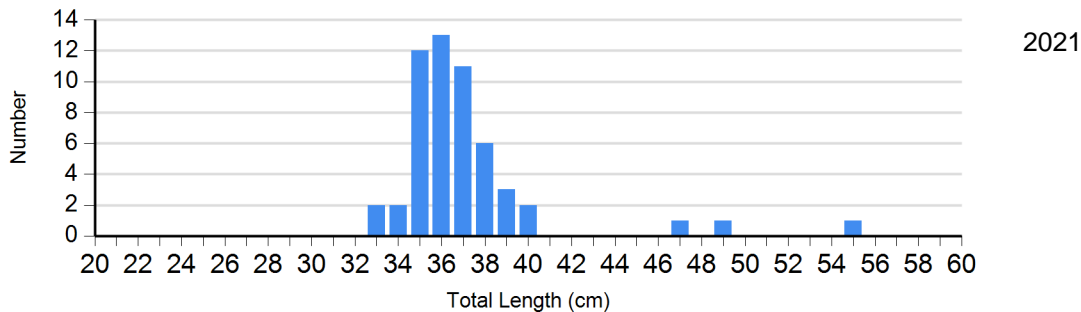
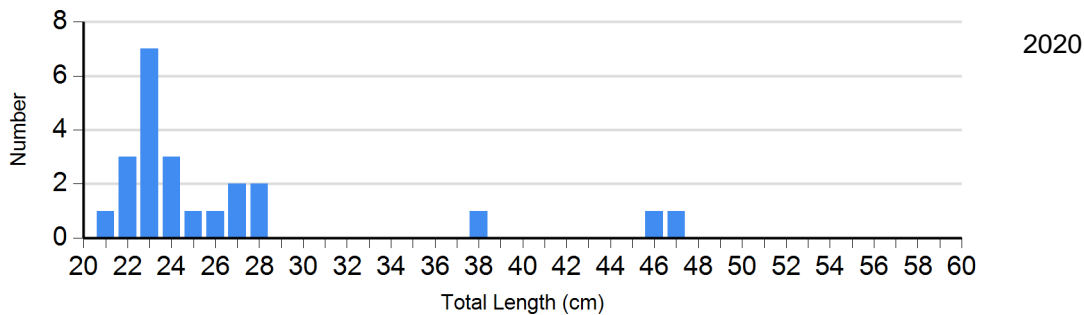
Species: Walleye  
Gear: AFS std gill net



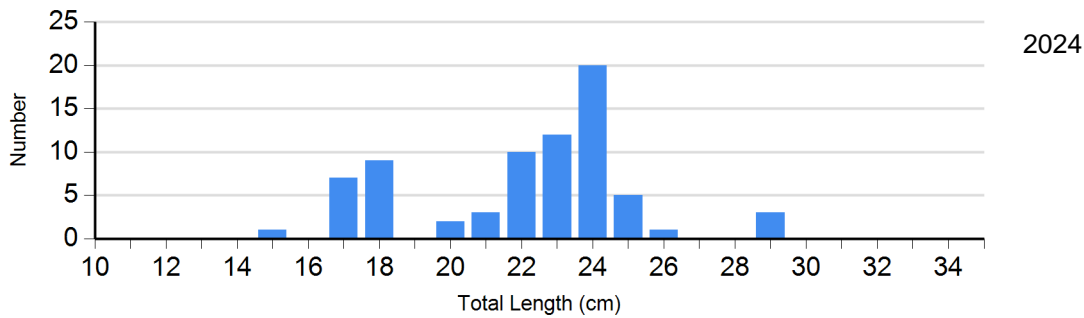
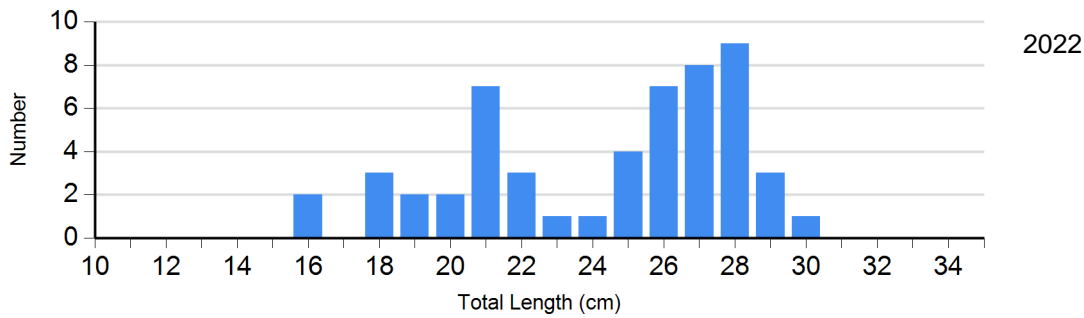
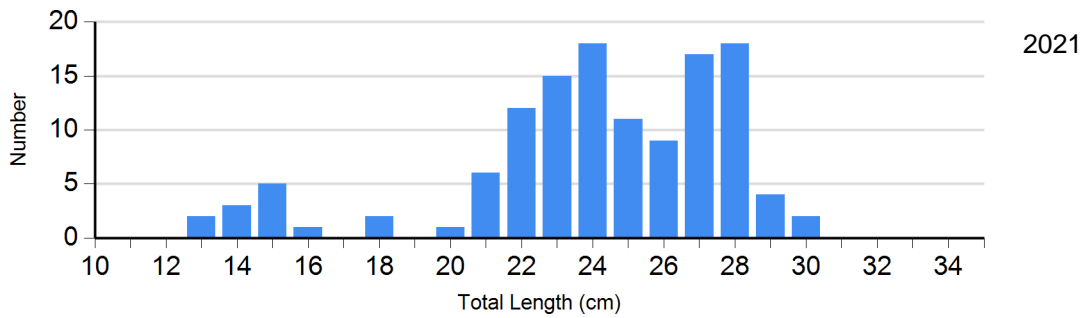
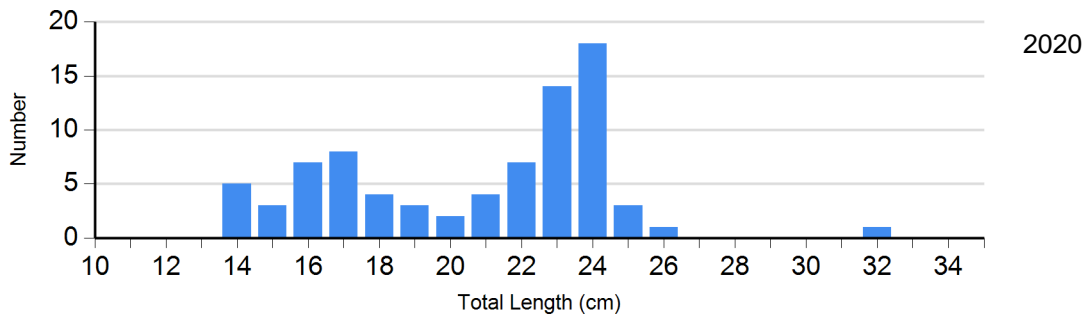
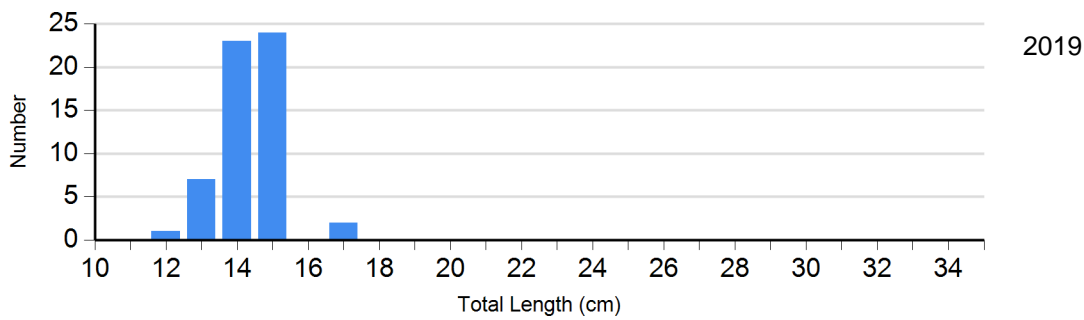
Species: White Bass  
Gear: AFS std gill net



Species: White Sucker  
Gear: AFS std gill net



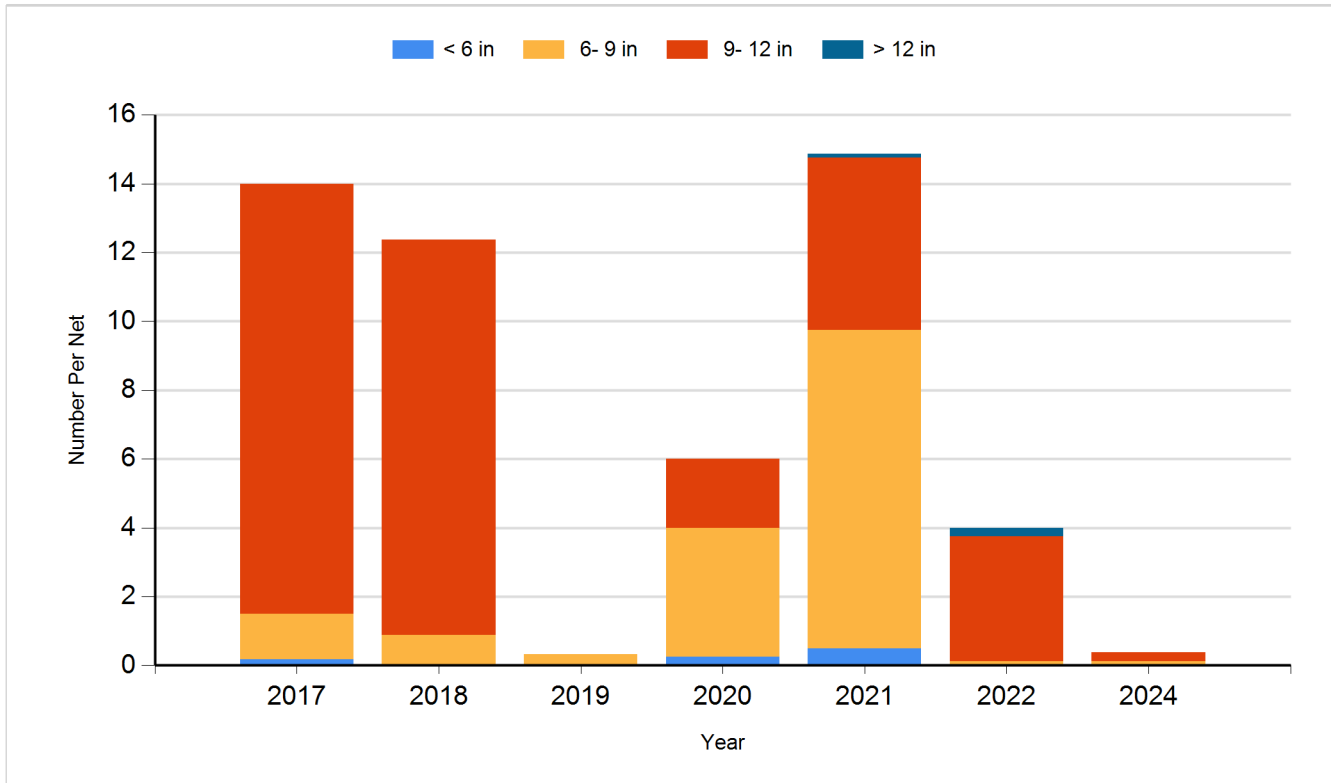
Species: Yellow Perch  
Gear: AFS std gill net



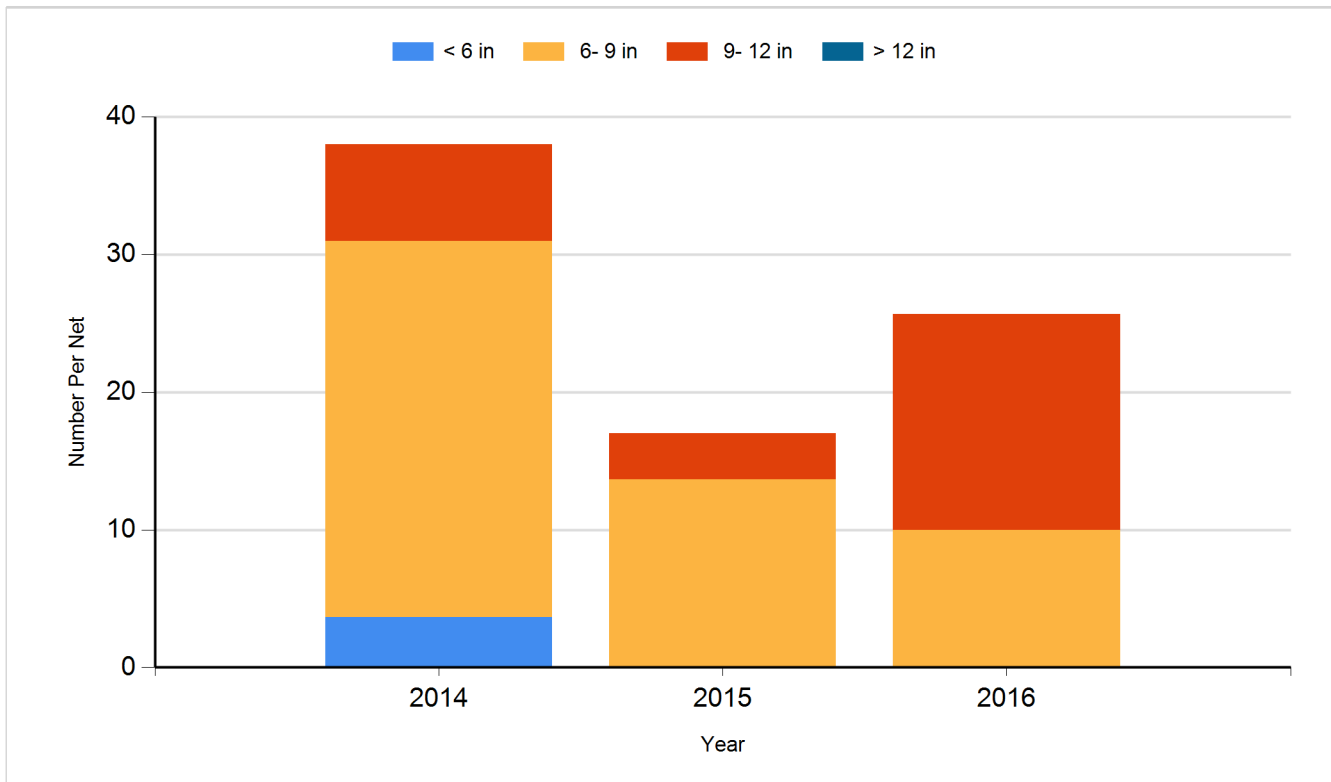
## Historic Fish Sizes and Relative Abundance

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

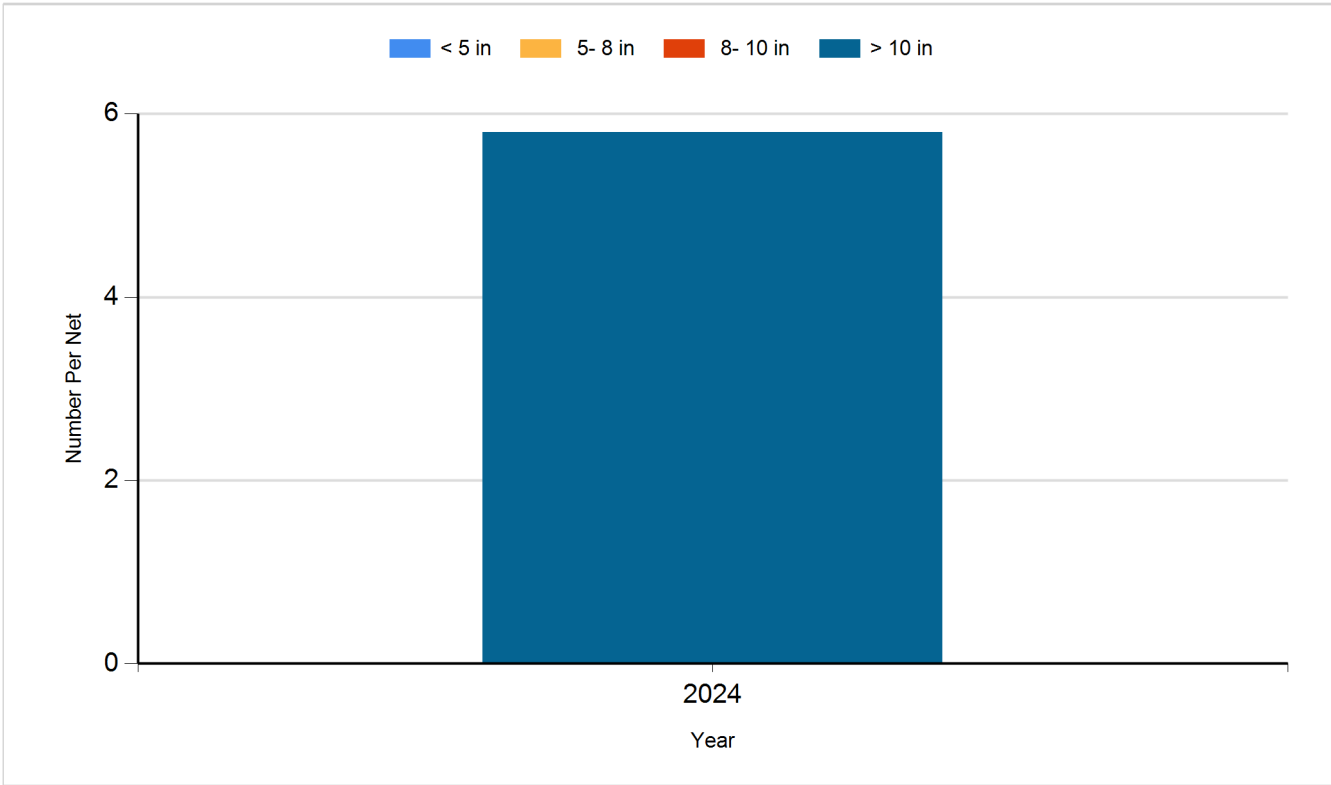
Species: Black Bullhead  
Gear: AFS std gill net



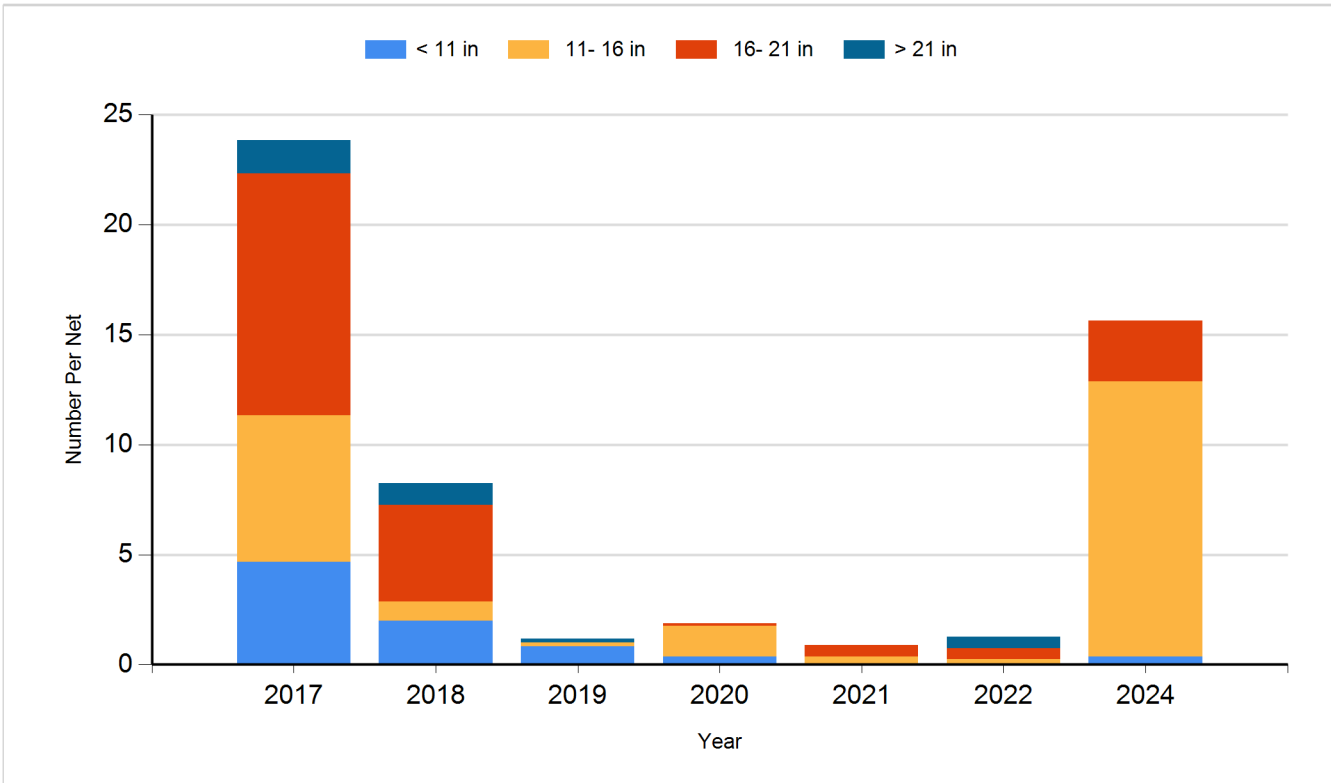
Species: Black Bullhead  
Gear: std exp gill net



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

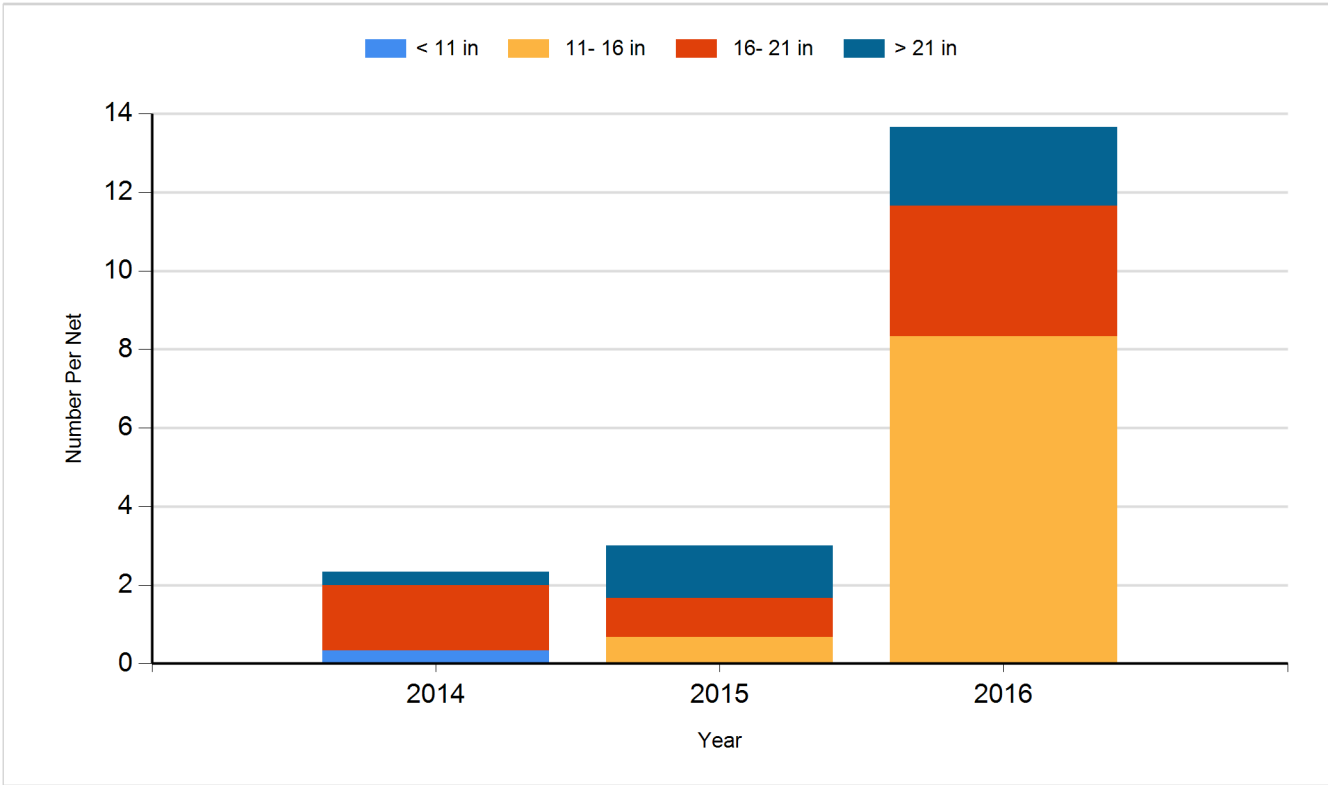


Species: Common Carp  
Gear: AFS std gill net

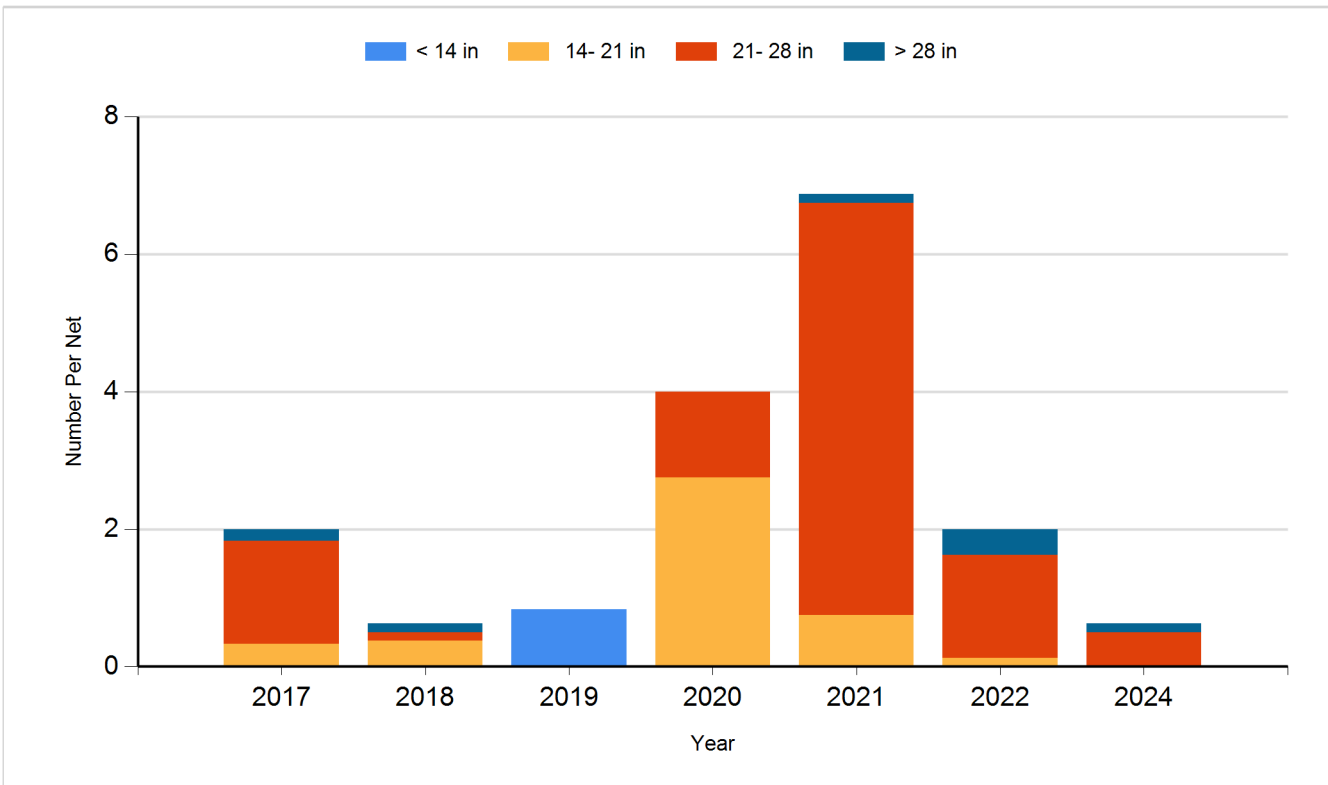




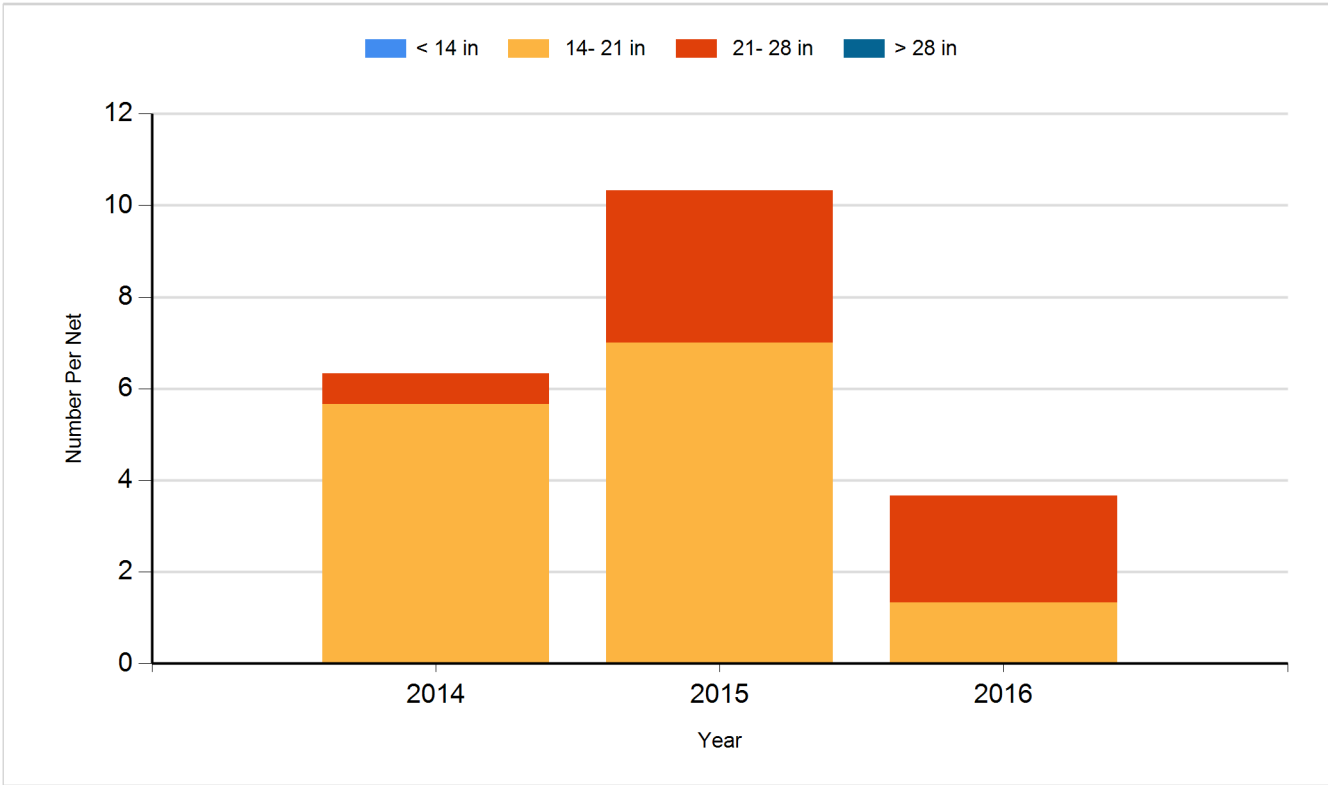
Species: Common Carp  
Gear: std exp gill net



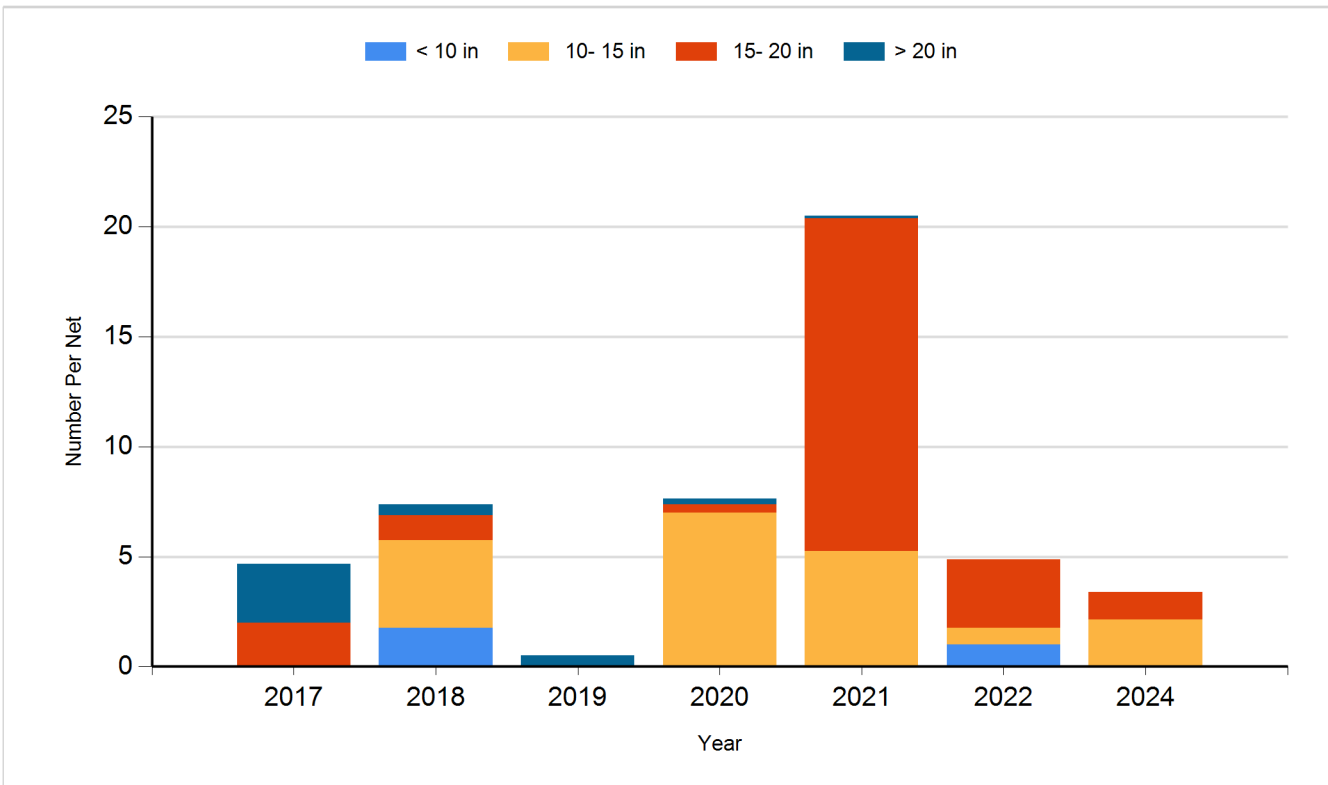
Species: Northern Pike  
Gear: AFS std gill net



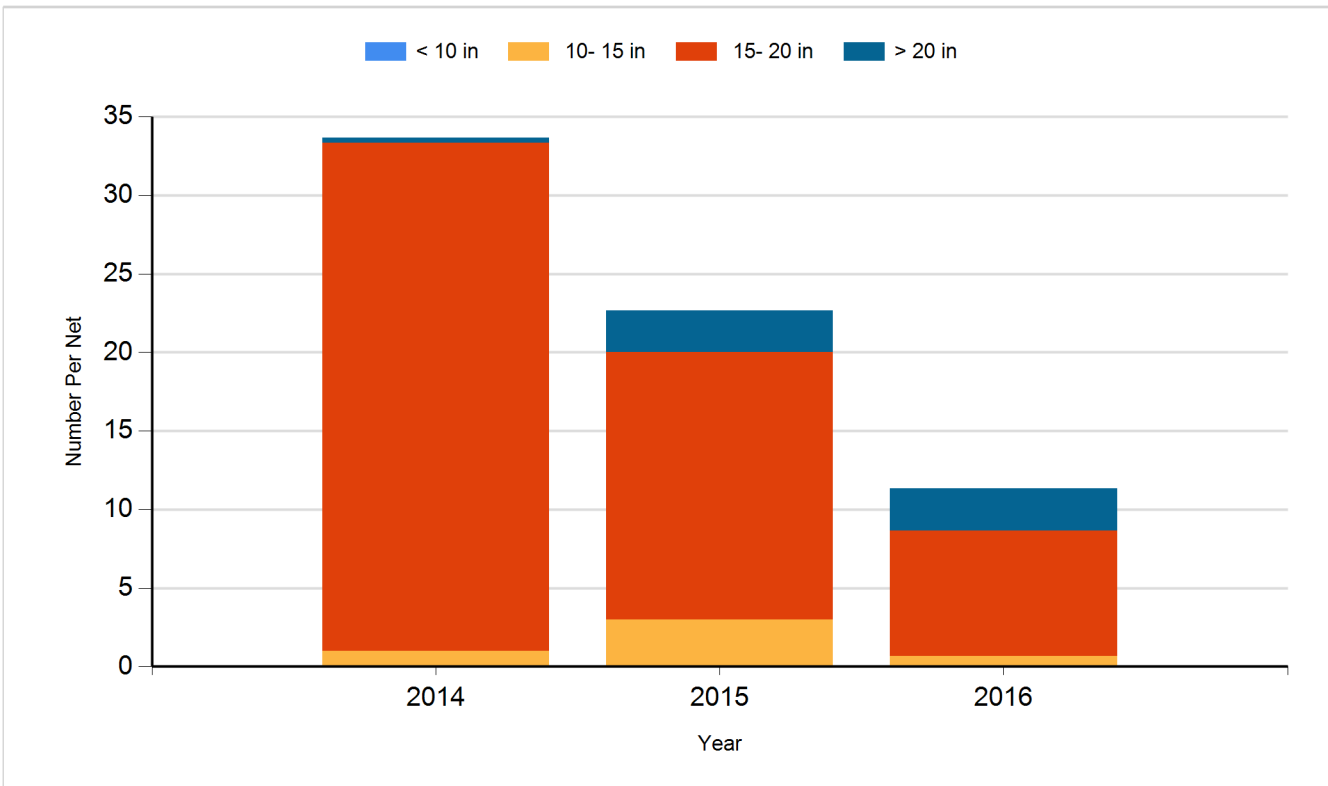
Species: Northern Pike  
Gear: std exp gill net



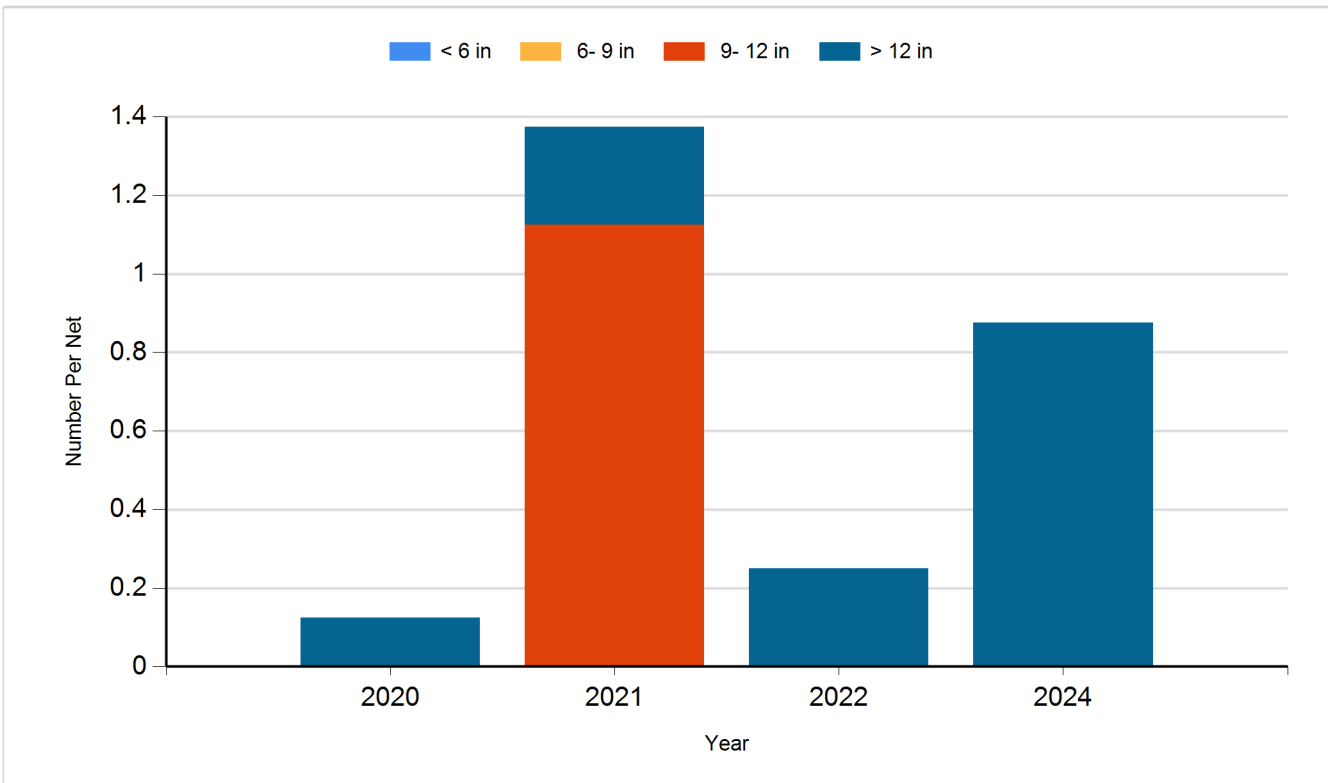
Species: Walleye  
Gear: AFS std gill net



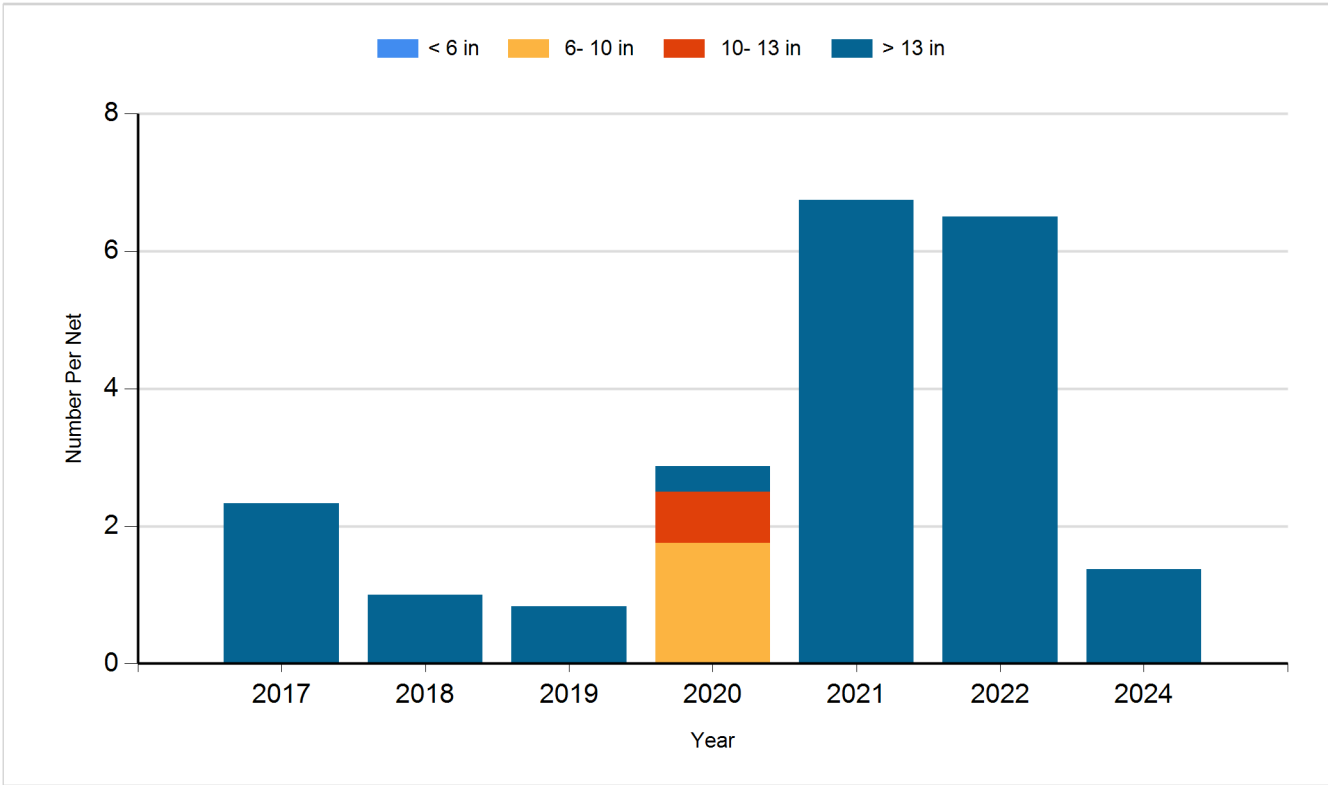
Species: Walleye  
Gear: std exp gill net



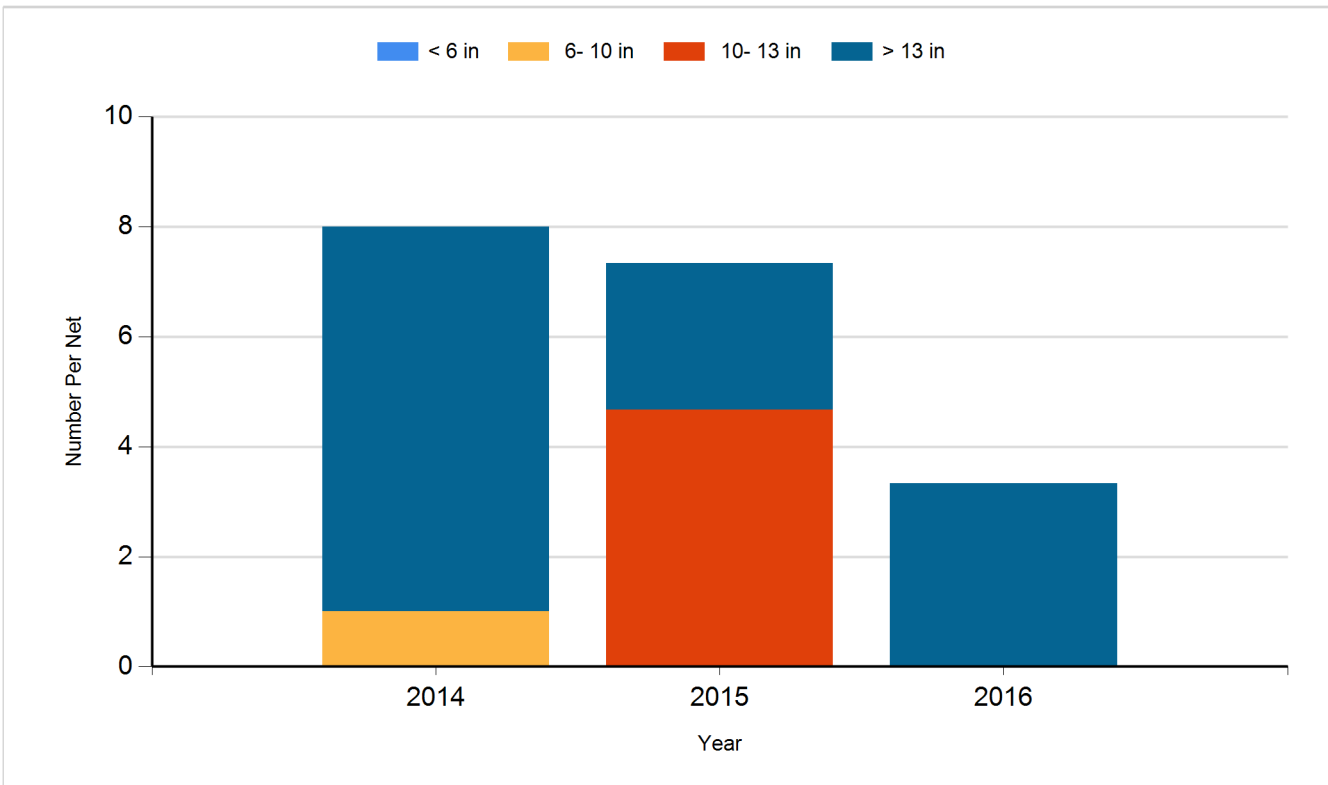
Species: White Bass  
Gear: AFS std gill net



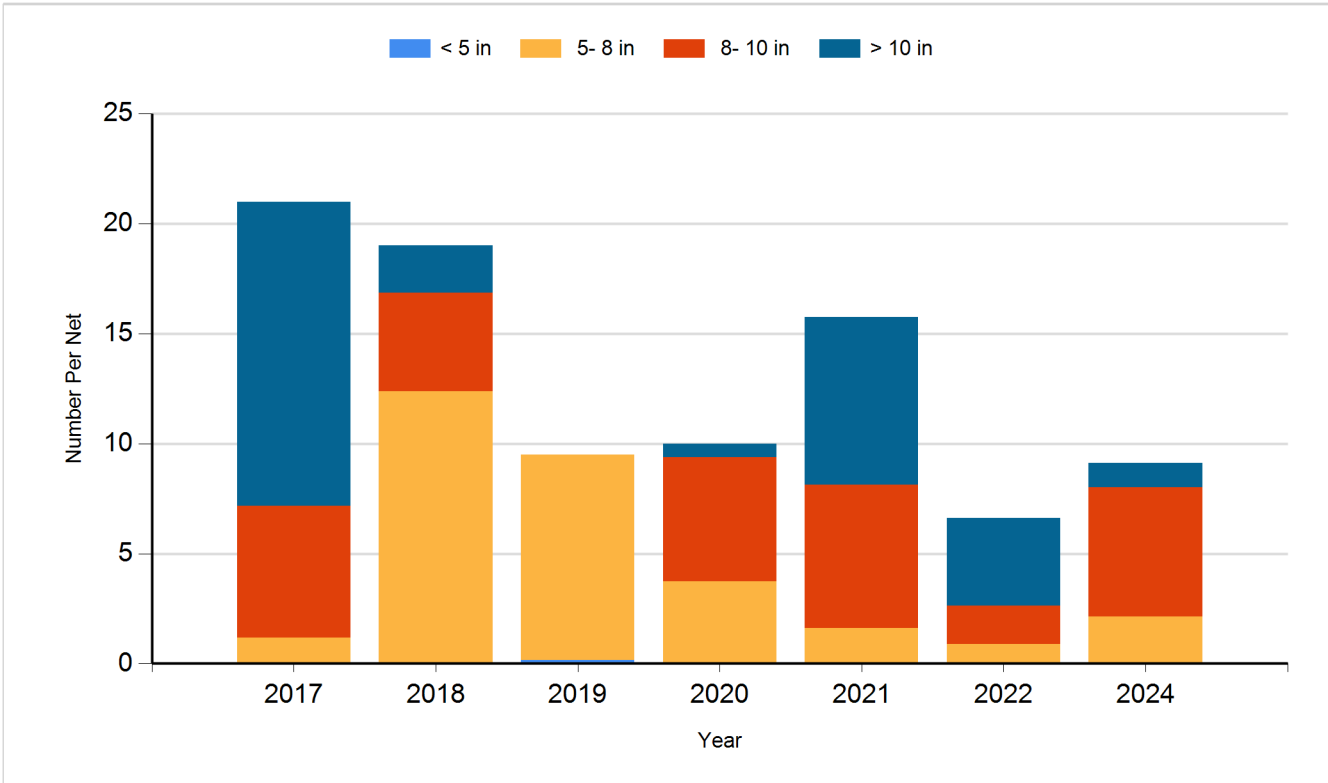
Species: White Sucker  
Gear: AFS std gill net



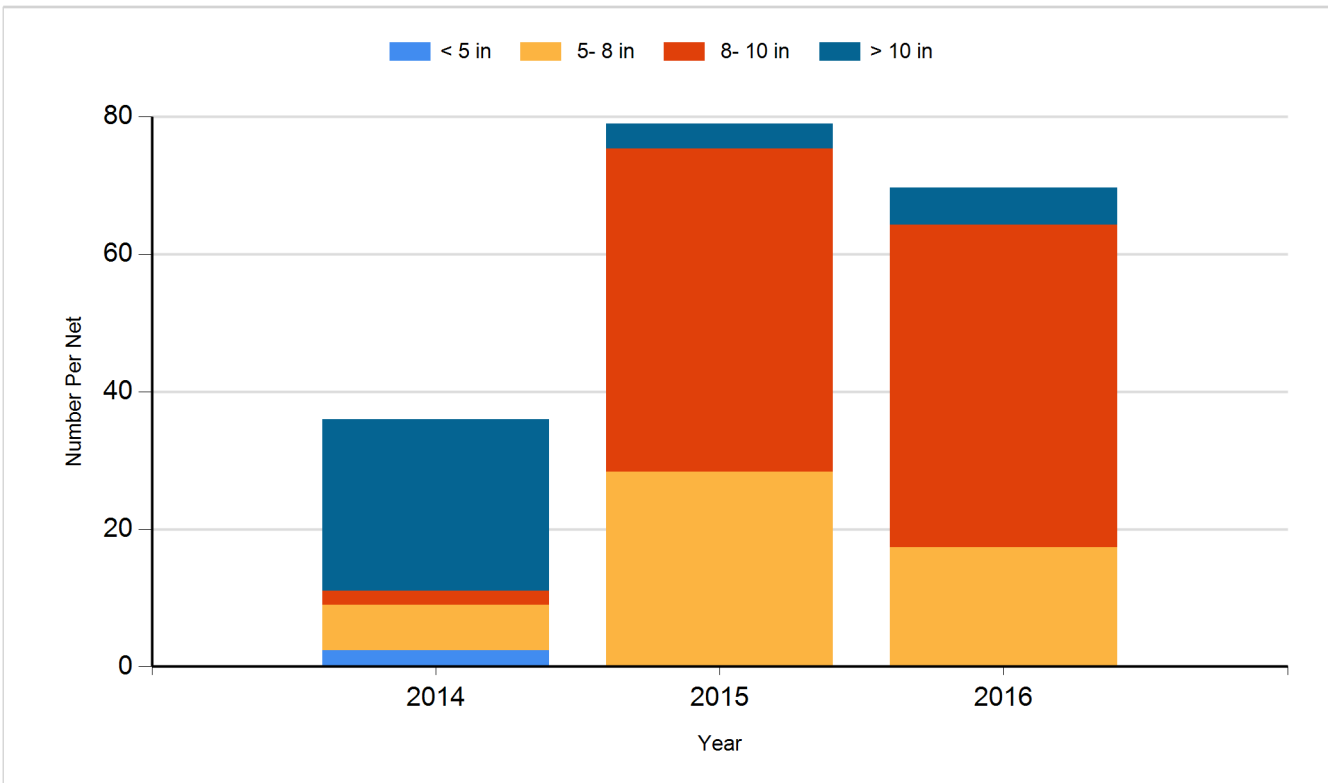
Species: White Sucker  
Gear: std exp gill net



Species: Yellow Perch  
Gear: AFS std gill net



Species: Yellow Perch  
Gear: std exp gill net



## **Fish Stocking**

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

Year	Species	Size	Number
2019	Walleye	Fry	4,500,000
2021	Walleye	Fry	4,600,000
2022	Walleye	Fry	4,600,000
2023	Walleye	Fry	5,000,000
2024	Walleye	Juvenile	387,425