

**SOUTH DAKOTA STATEWIDE FISHERIES SURVEY**  
**Whitewood, Kingsbury County**  
**LKT-Lake-55-800**  
**2022**

**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 04, 2022	8 net-nights

## **Common Fish Species Present**

Walleye

Yellow Perch

White Sucker

Black Bullhead

Northern Pike

Common Carp

Black Crappie

White Bass

Bigmouth Buffalo

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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	CI-80
AFS std gill net	Bigmouth Buffalo	1	0.1	0.2	0		0			
	Black Bullhead	32	4.0	2.0	97		6			
	Black Crappie	3	0.4	0.4	100		67	110	4	
	Common Carp	10	1.3	1.1	80		40			
	Northern Pike	16	2.0	0.6	94		19		86	4
	Walleye	39	3.9	2.0	81	11	0		85	2
	White Bass	2	0.3	0.4	100		100		97	0
	White Sucker	52	6.5	1.8	100		100			
	Yellow Perch	53	6.6	2.0	87	7	60	10	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.

\* **Methods/Species that ignore stock length**

Gear	Species	CPUE										Avg
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
AFS std gill net	Bigmouth Buffalo					0.0	5.8	10.3	4.1	0.3	0.1	3.43
	Black Bullhead					13.8	12.4	0.3	5.8	14.4	4.0	8.45
	Black Crappie					0.0	0.0	0.0	0.1	2.6	0.4	0.52
	Common Carp					19.2	6.3	0.3	1.5	0.9	1.3	4.92
	Northern Pike					2.0	0.6	0.0	4.0	6.9	2.0	2.58
	Walleye					4.7	5.6	0.5	7.6	20.0	3.9	7.05
	White Bass					0.0	0.0	0.0	0.1	1.4	0.3	0.30
	White Sucker					2.3	1.0	0.8	2.9	6.8	6.5	3.38
	Yellow Perch					21.0	19.0	9.3	10.0	15.9	6.6	13.63
std exp gill net	Bigmouth Buffalo		0.0	0.0	0.0							0.00
	Black Bullhead		34.3	17.0	25.7							25.67
	Common Carp		2.0	3.0	13.7							6.23
	Northern Pike		6.3	10.3	3.7							6.77
	Walleye		33.7	22.7	11.3							22.57
	White Sucker		8.0	7.3	3.3							6.20
	Yellow Perch		33.7	79.0	69.7							60.80

## 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										
			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
AFS std gill net	Bigmouth Buffalo	PSD							0	0	0	50	0
		PSD-P							0	0	0	0	0
	Black Bullhead	PSD						90	93	0	35	35	97
		PSD-P						0	0	0	0	1	6
	Black Crappie	PSD									100	95	100
		PSD-P									0	71	67
		Wr									147	117	110
	Common Carp	PSD						65	86	50	8	57	80
		PSD-P						8	16	50	0	0	40
	Northern Pike	PSD						83	40	0	31	89	94
		PSD-P						8	20	0	0	2	19
		Wr						85	88		96	83	86
	Walleye	PSD						100	29	100	8	78	81
		PSD-P						57	9	100	3	1	0
		Wr						98	89	92	101	96	85
	White Bass	PSD									100	100	100
		PSD-P									100	18	100
		Wr									106	101	97
	White Sucker	PSD						100	100	100	39	100	100
		PSD-P						100	100	100	13	100	100
Yellow Perch	PSD						94	35	0	63	91	87	
	PSD-P						66	11	0	6	53	60	
	Wr						95	100	112	113	102	97	
std exp gill net	Black Bullhead	PSD		20	20	61							
		PSD-P		0	0	0							
	Common Carp	PSD		100	78	39							
		PSD-P		17	44	15							
	Northern Pike	PSD		11	32	64							
		PSD-P		0	0	0							
		Wr		90	89	81							
	Walleye	PSD		97	87	94							
		PSD-P		1	12	24							
		Wr		104	99	92							

Gear	Species	Index	Year									
			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
std exp gill net	White Sucker	PSD		88	100	100						
		PSD-P		88	36	100						
	Yellow Perch	PSD		80	64	75						
		PSD-P		74	5	8						
		Wr		105	97	88						



## Fish Condition

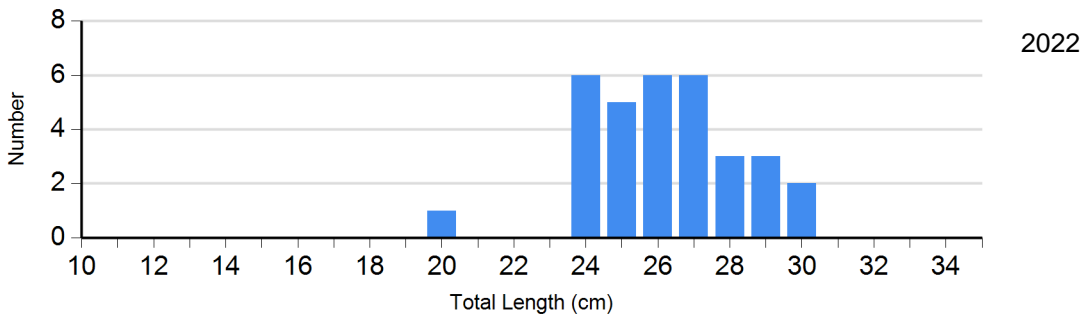
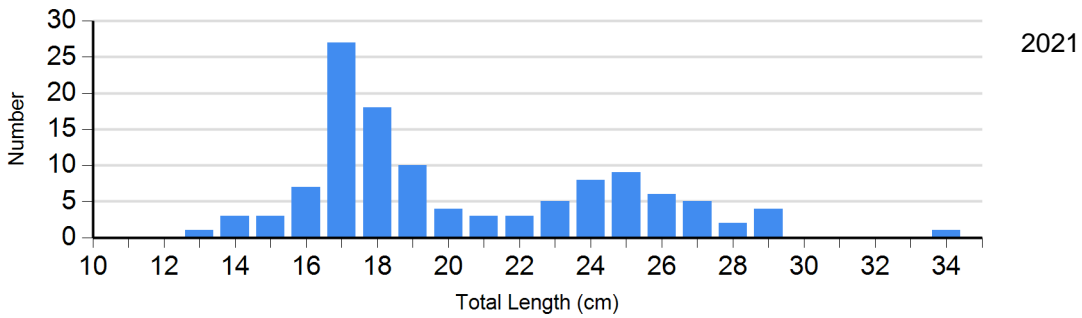
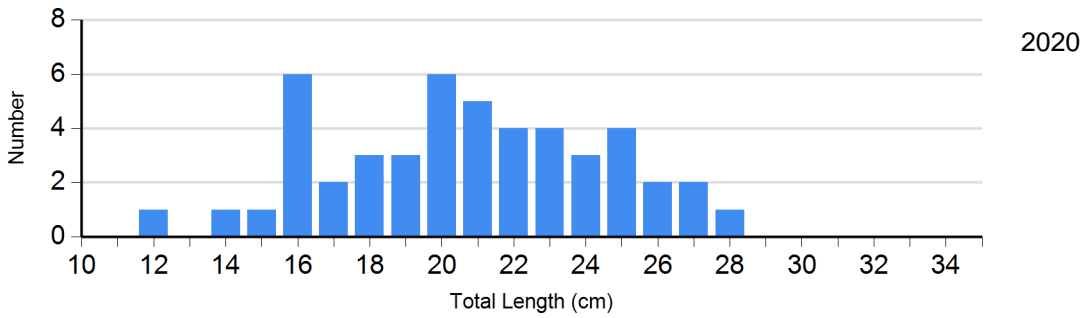
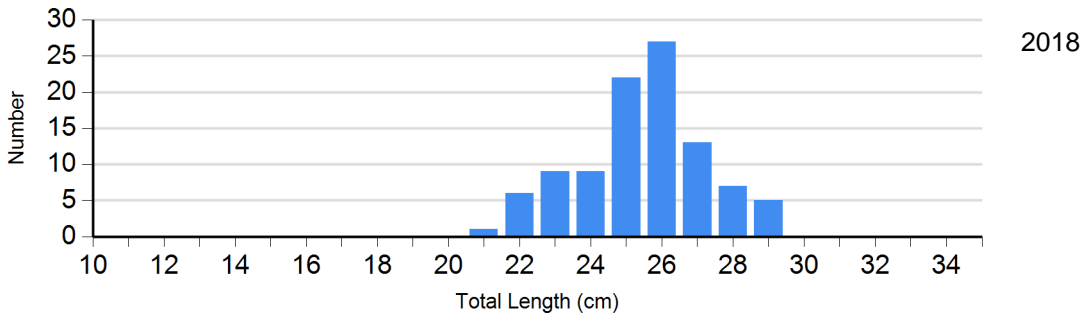
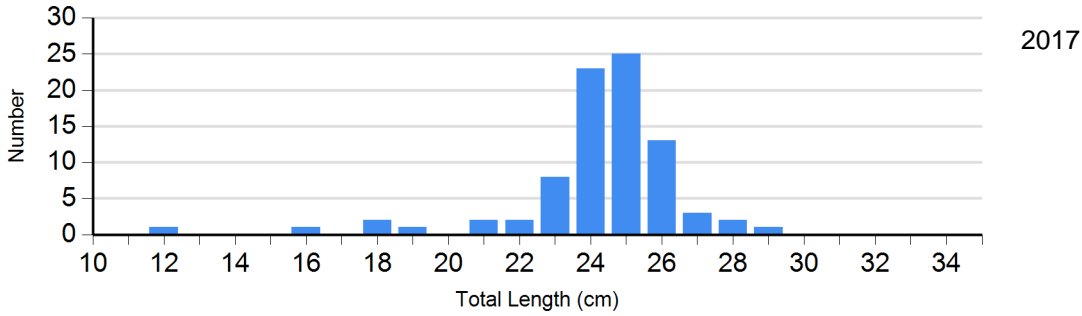
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Northern Pike Gill Net	2018	3	88 (0.4)	1	96	1	82	0	
	2019	0		0		0		0	
	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	
Walleye Gill Net	2018	32	90 (0.9)	9	88 (2.3)	4	85 (4.9)	0	
	2019	0		0		3	92 (2.4)	0	
	2020	56	101 (1.0)	3	101 (3.6)	1	93	1	95
	2021	36	93 (0.9)	123	97 (0.8)	0		1	72
	2022	6	80 (5.2)	25	87 (1.0)	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	
Yellow Perch Gill Net	2018	99	107 (1.5)	36	93 (1.1)	17	87 (1.5)	0	
	2019	56	112 (2.5)	0		0		0	
	2020	30	113 (2.2)	45	113 (1.7)	4	118 (1.8)	1	105
	2021	11	103 (3.4)	49	99 (0.7)	65	103 (0.9)	2	105 (3.2)
	2022	7	104 (3.7)	14	98 (1.7)	31	94 (1.8)	1	92

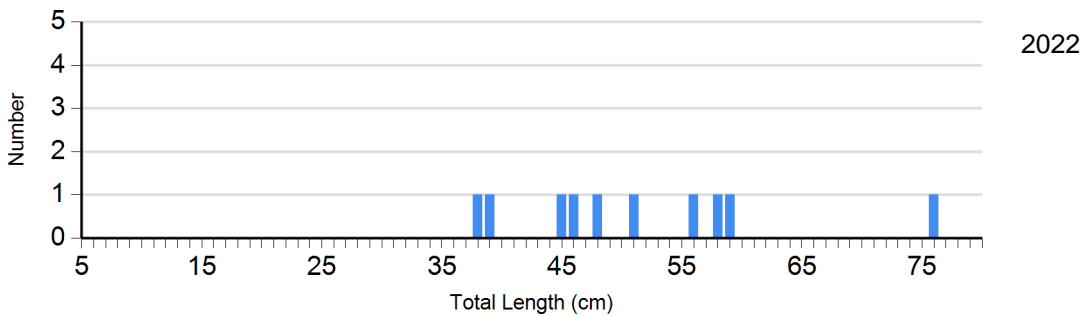
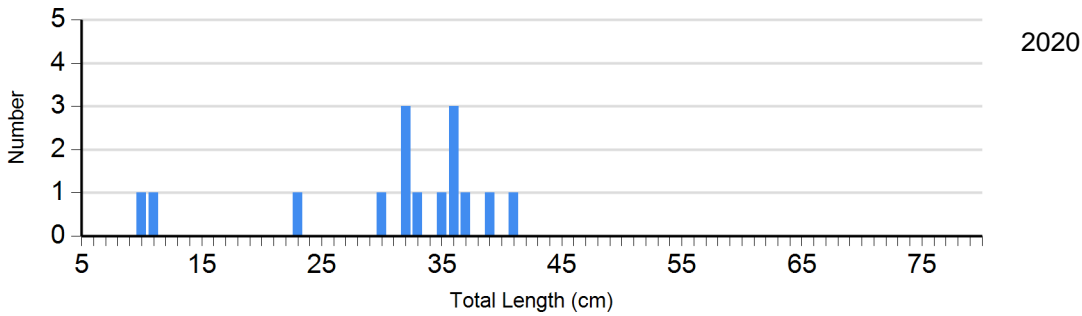
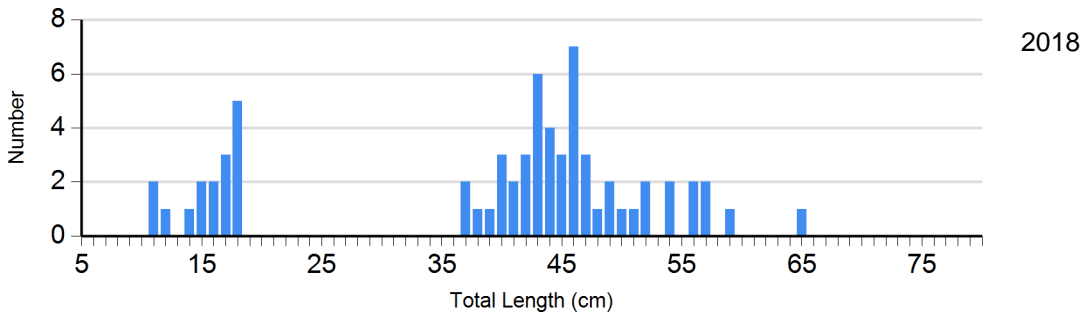
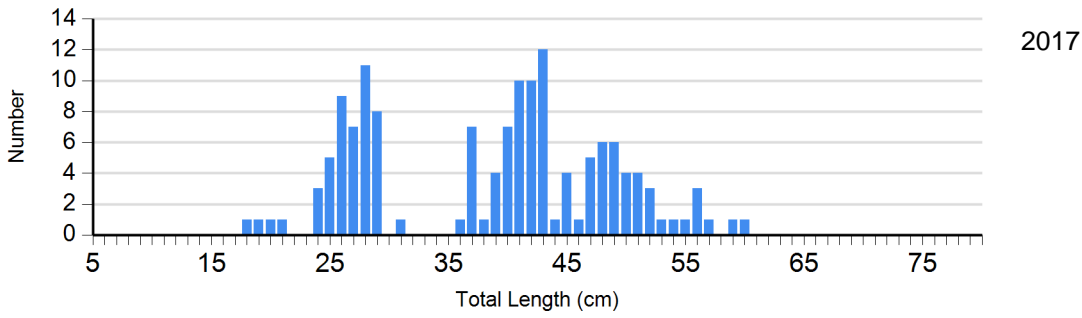
# Length Frequency Distribution

Length frequency histogram of species sampled by year.

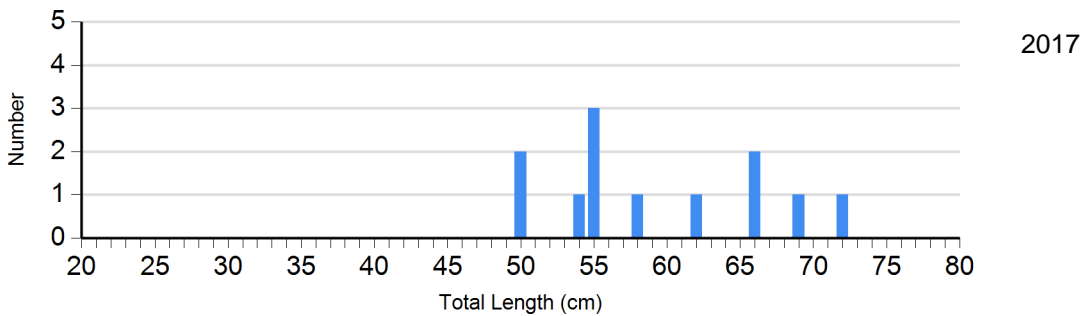
Species: Black Bullhead  
Gear: AFS std gill net

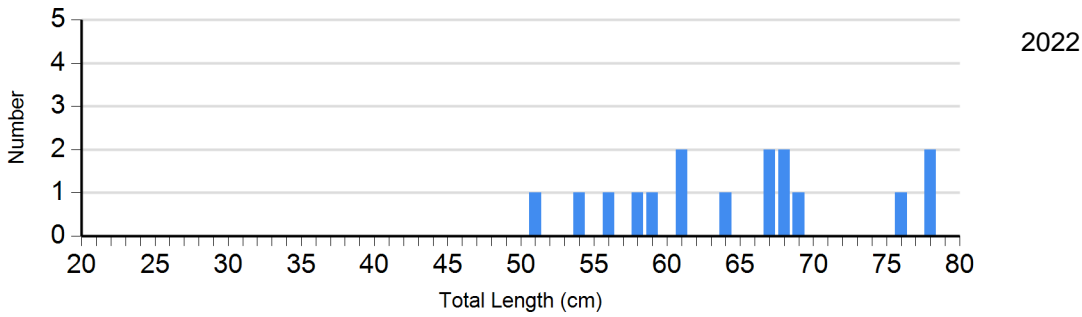
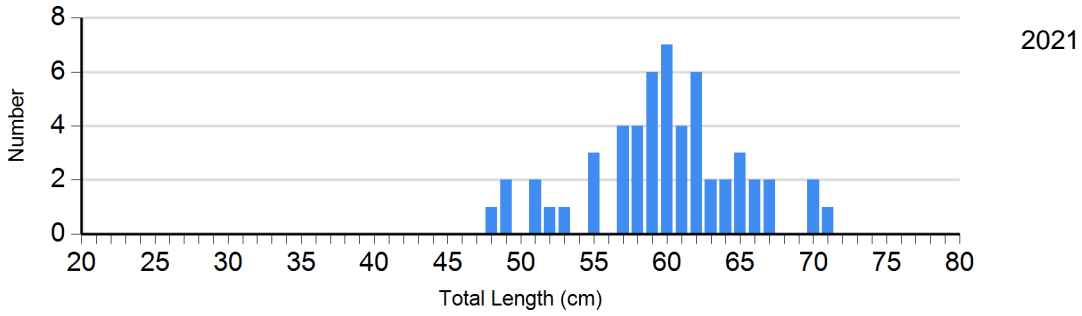
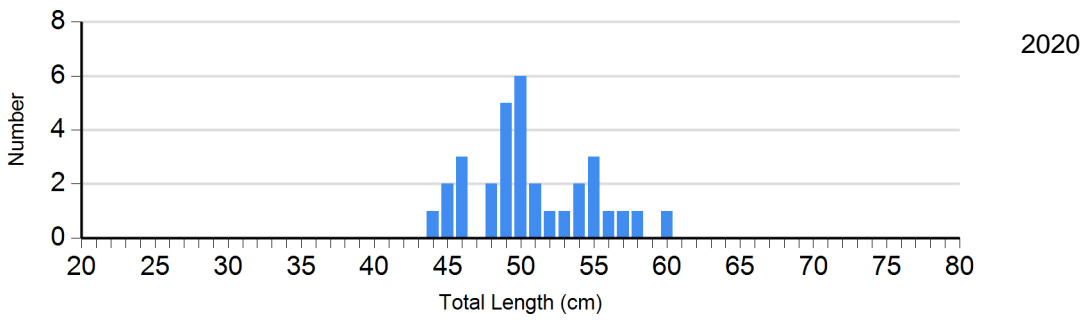


Species: Common Carp  
 Gear: AFS std gill net

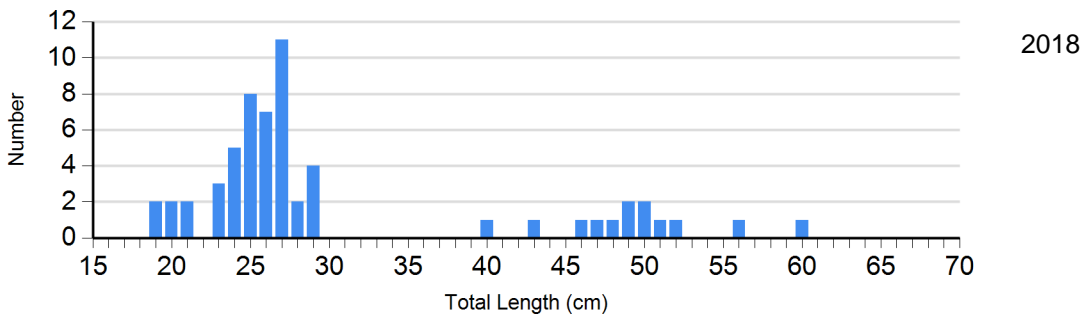
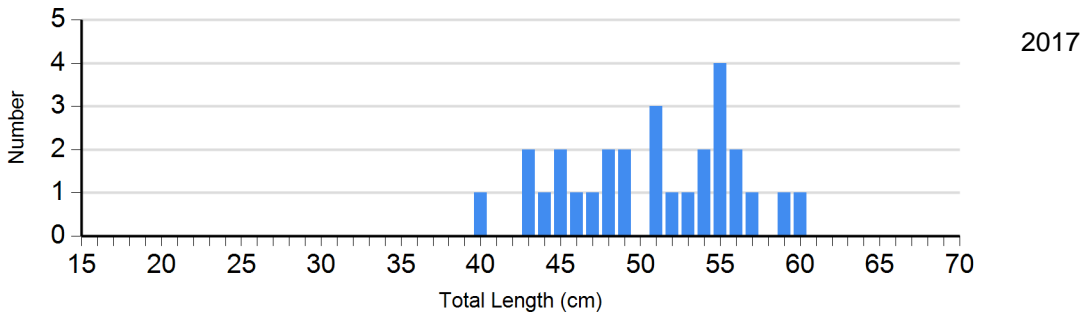


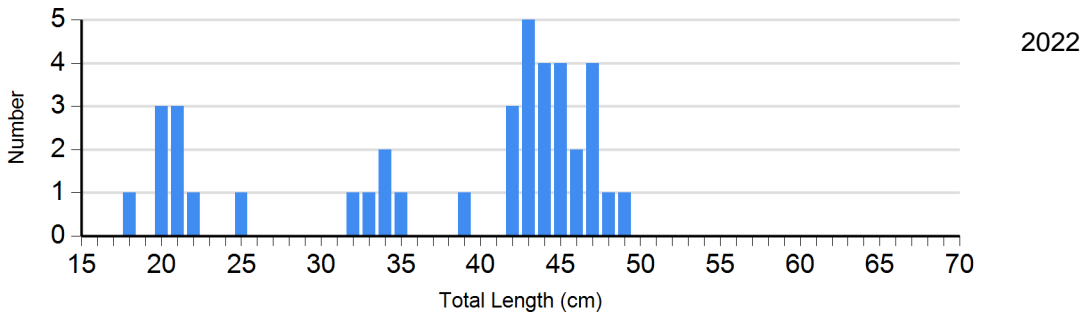
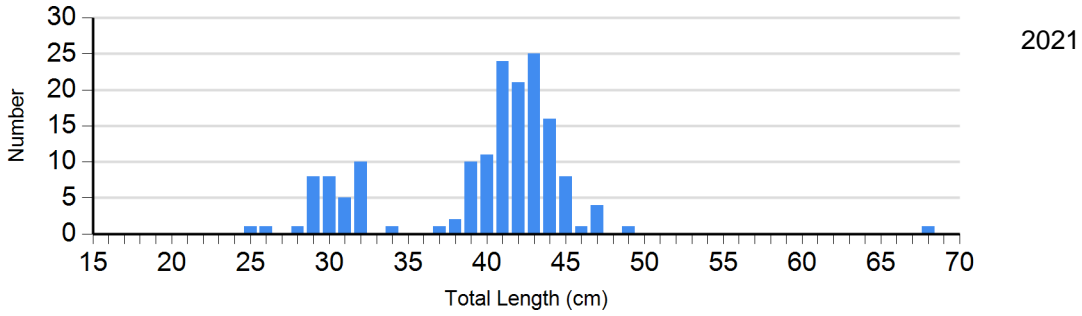
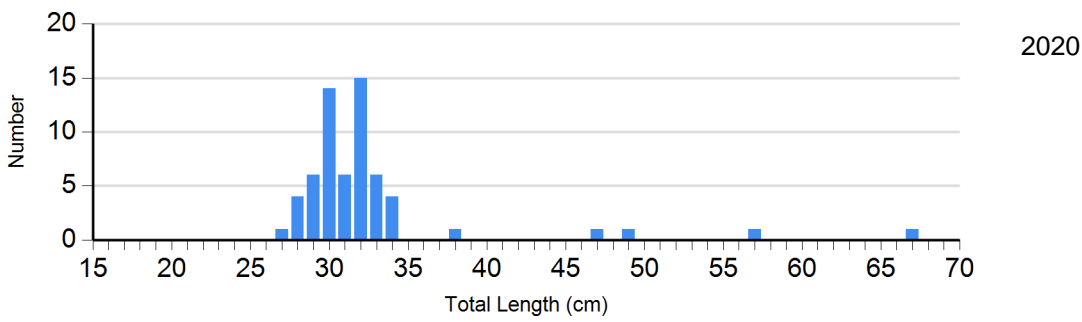
Species: Northern Pike  
 Gear: AFS std gill net



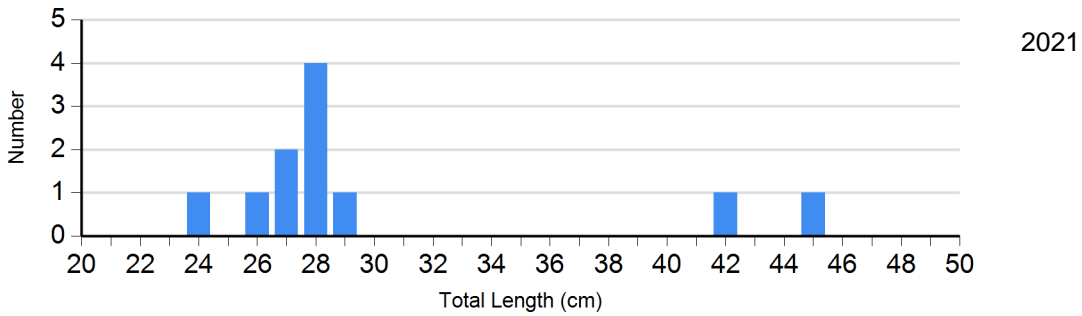


Species: Walleye  
 Gear: AFS std gill net

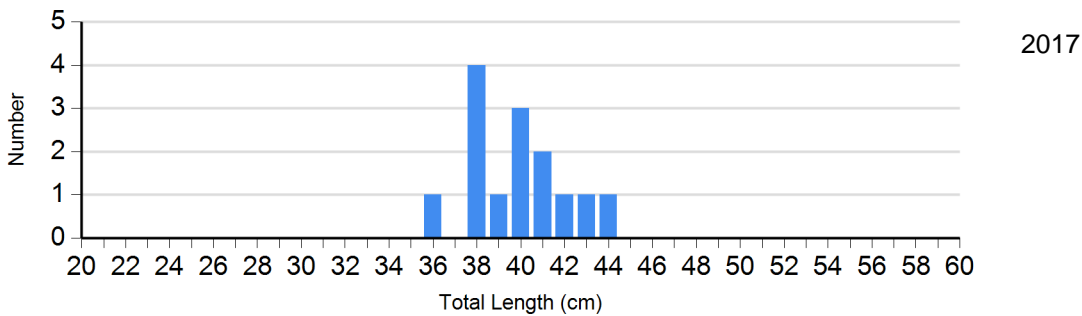


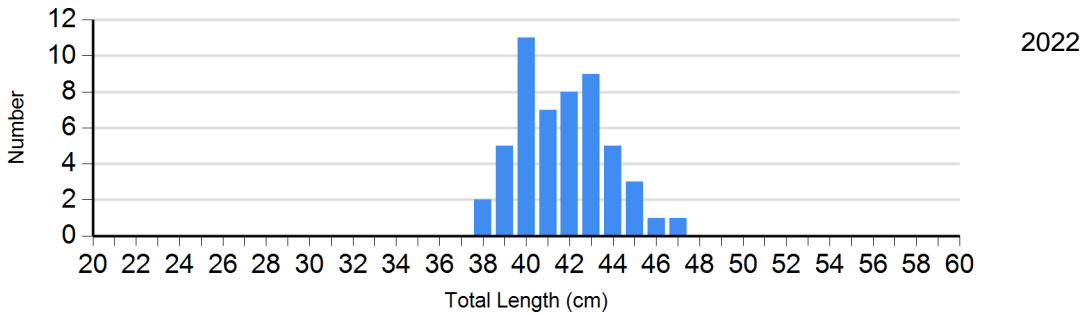
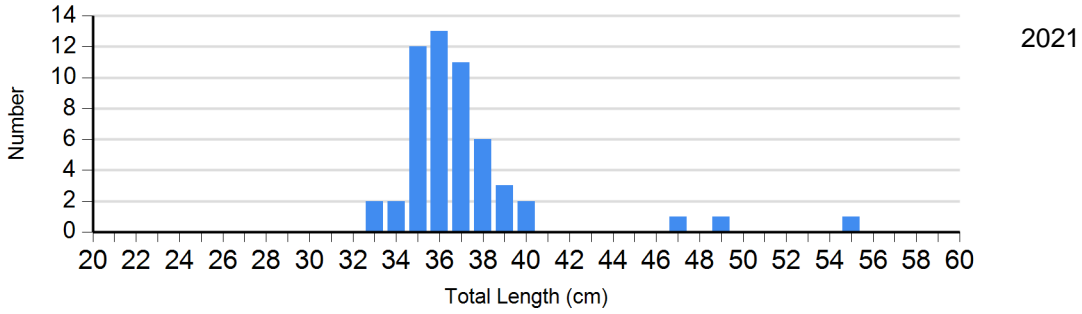
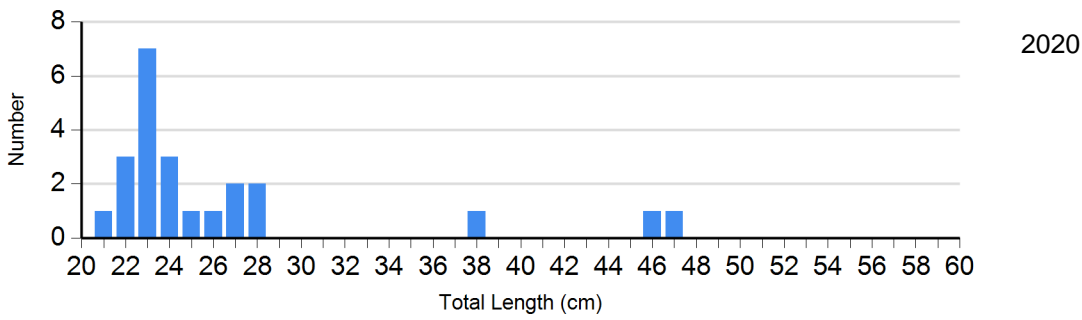


Species: White Bass  
Gear: AFS std gill net

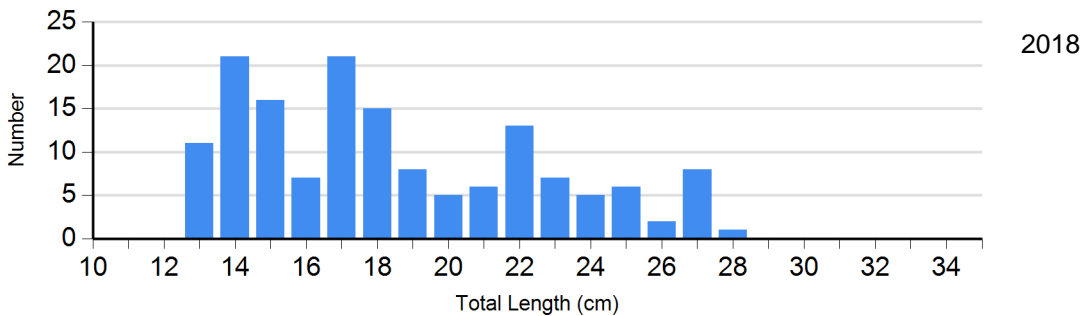
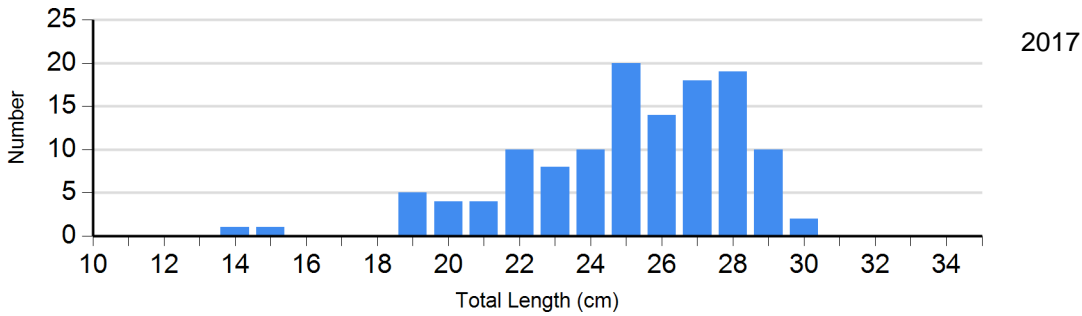


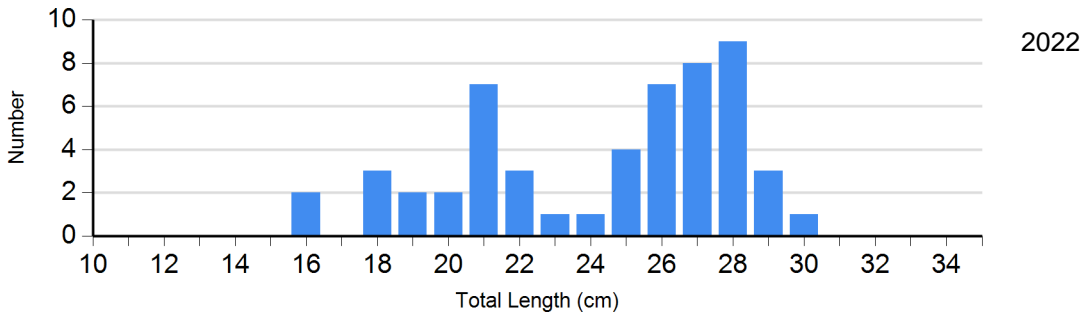
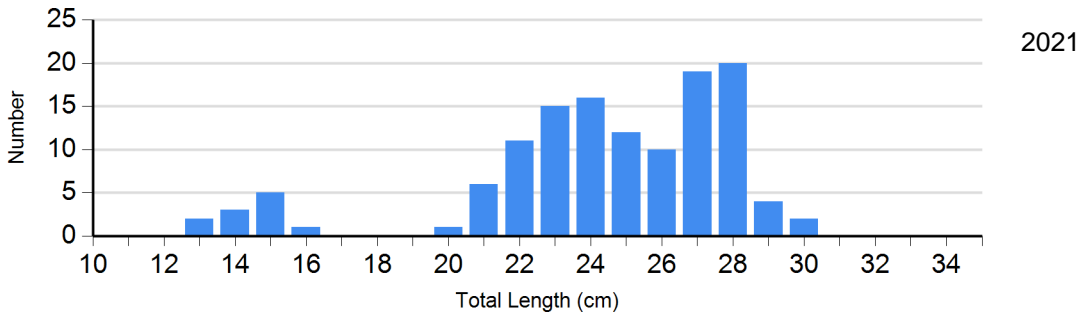
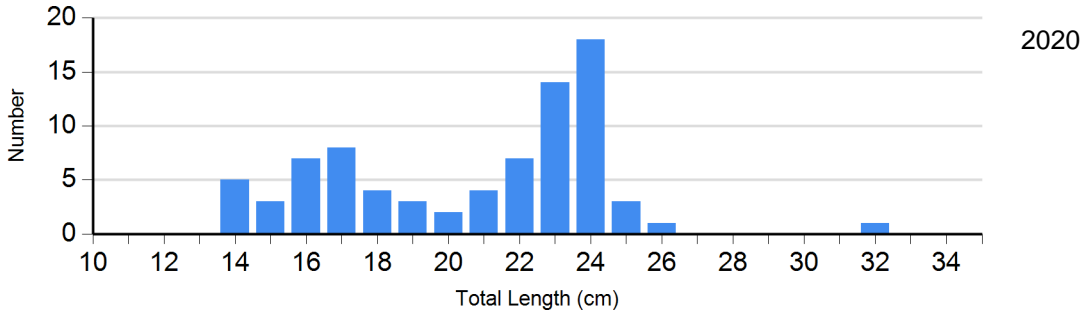
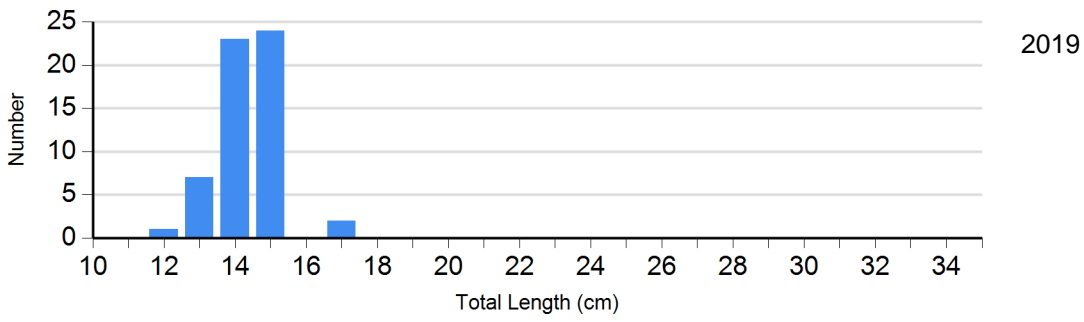
Species: White Sucker  
Gear: AFS std gill net





Species: Yellow Perch  
 Gear: AFS std gill net

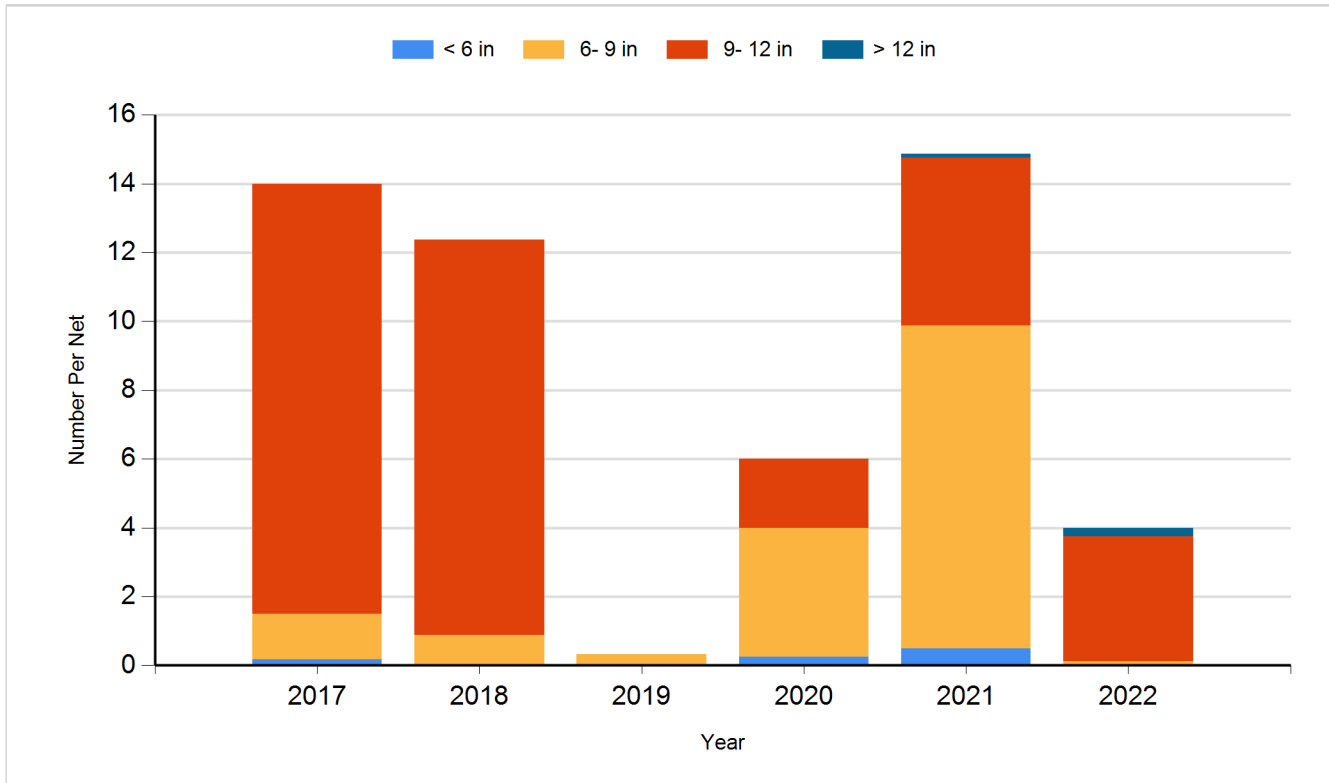




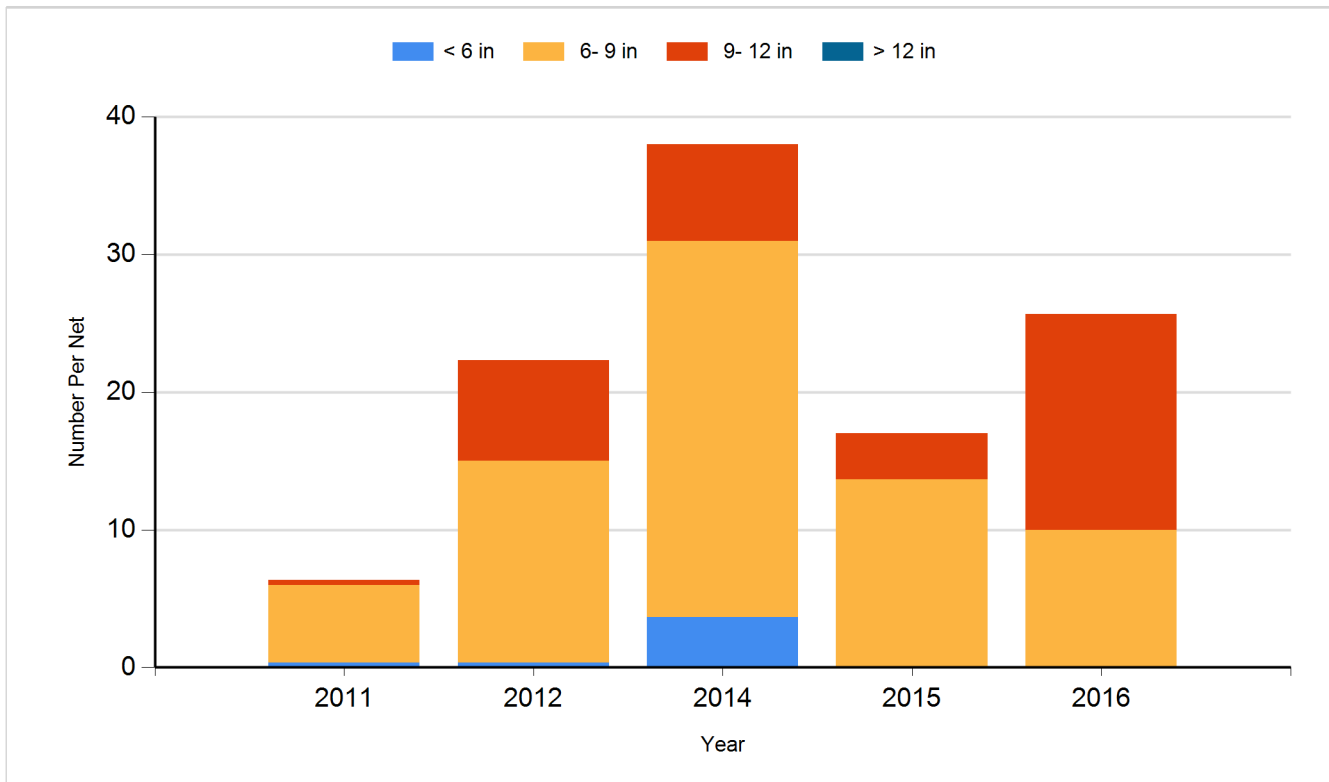
## Historic Fish Sizes and Relative Abundance

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

Species: Black Bullhead  
Gear: AFS std gill net

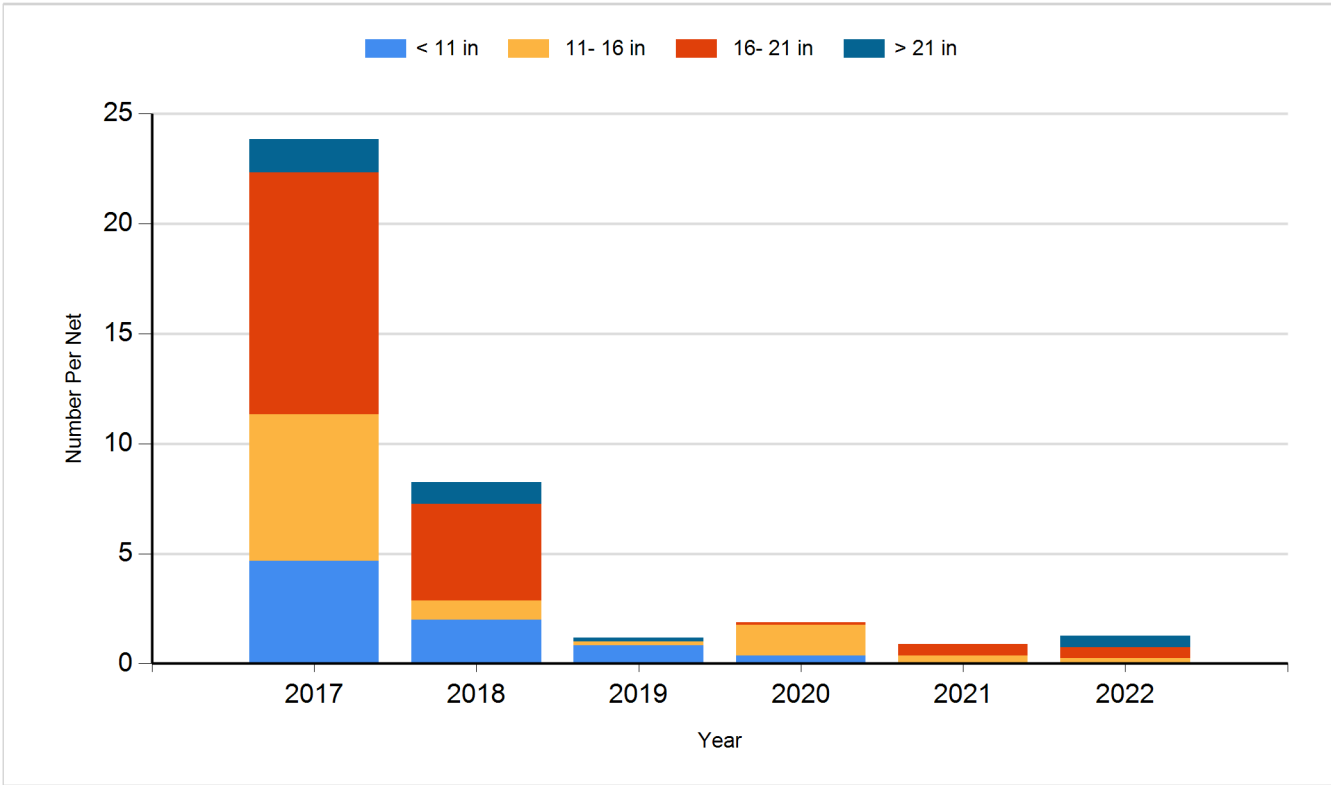


Species: Black Bullhead  
Gear: std exp gill net

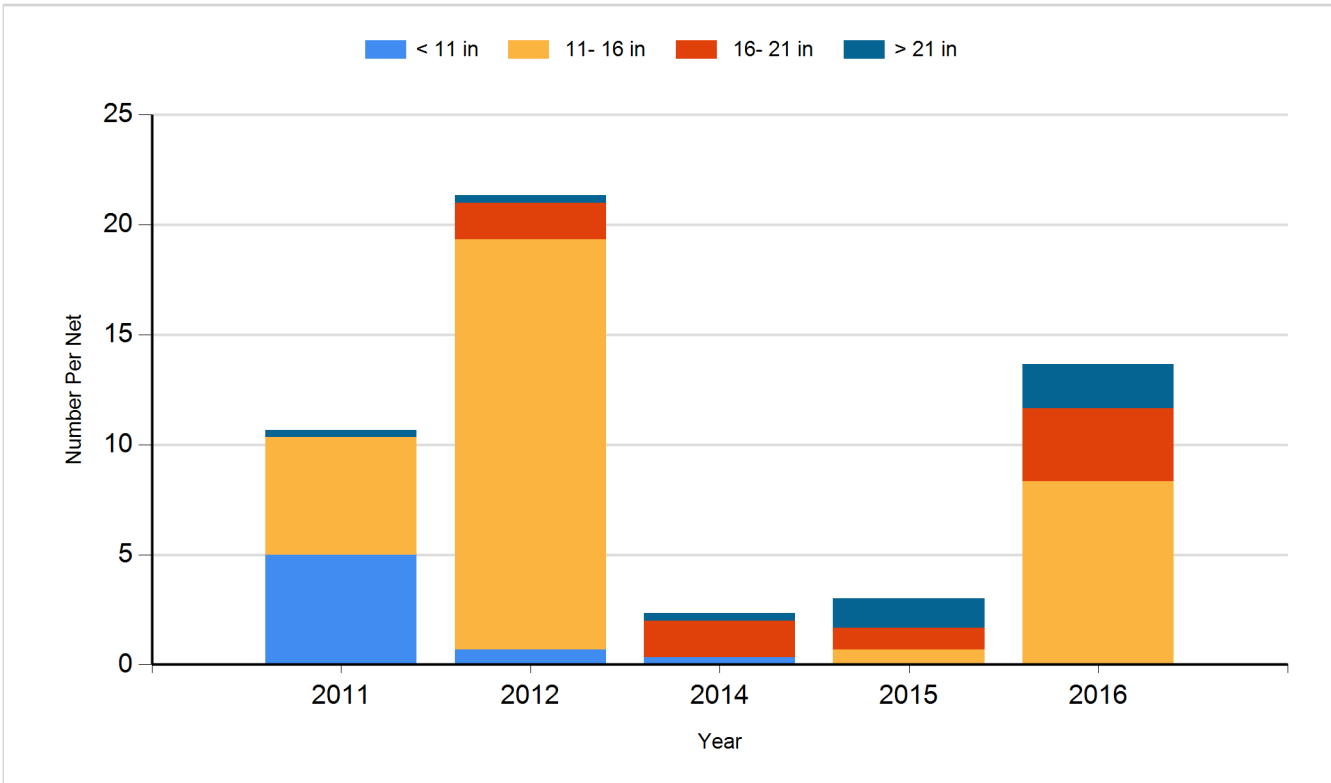




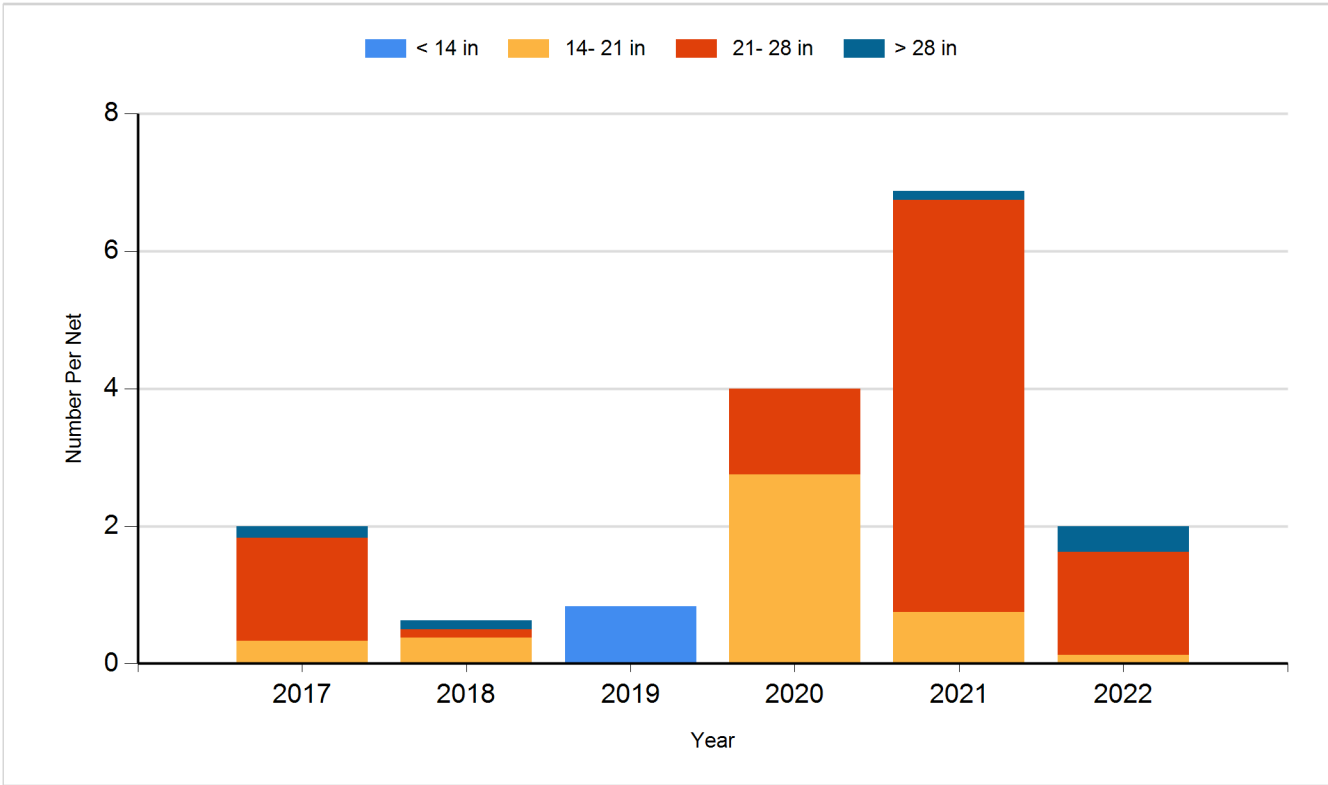
Species: Common Carp  
Gear: AFS std gill net



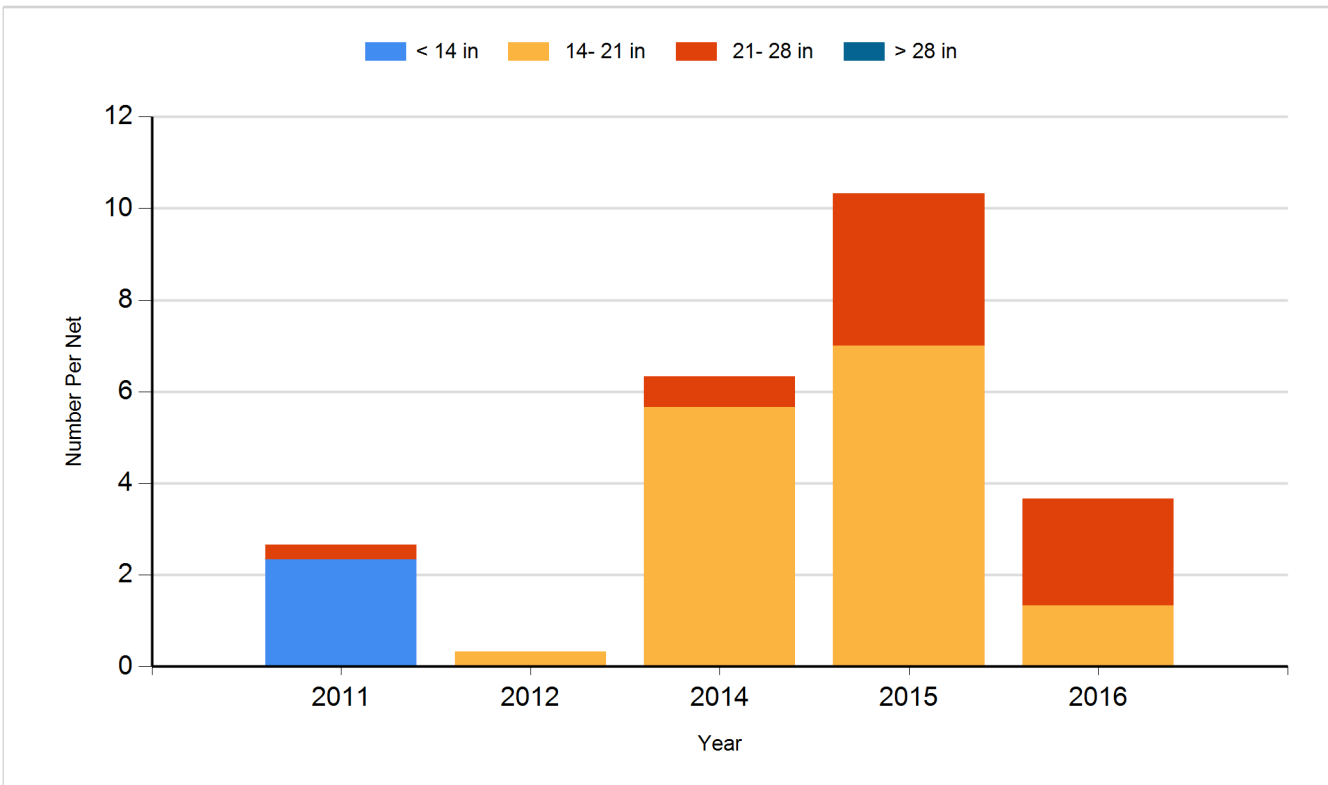
Species: Common Carp  
Gear: std exp gill net



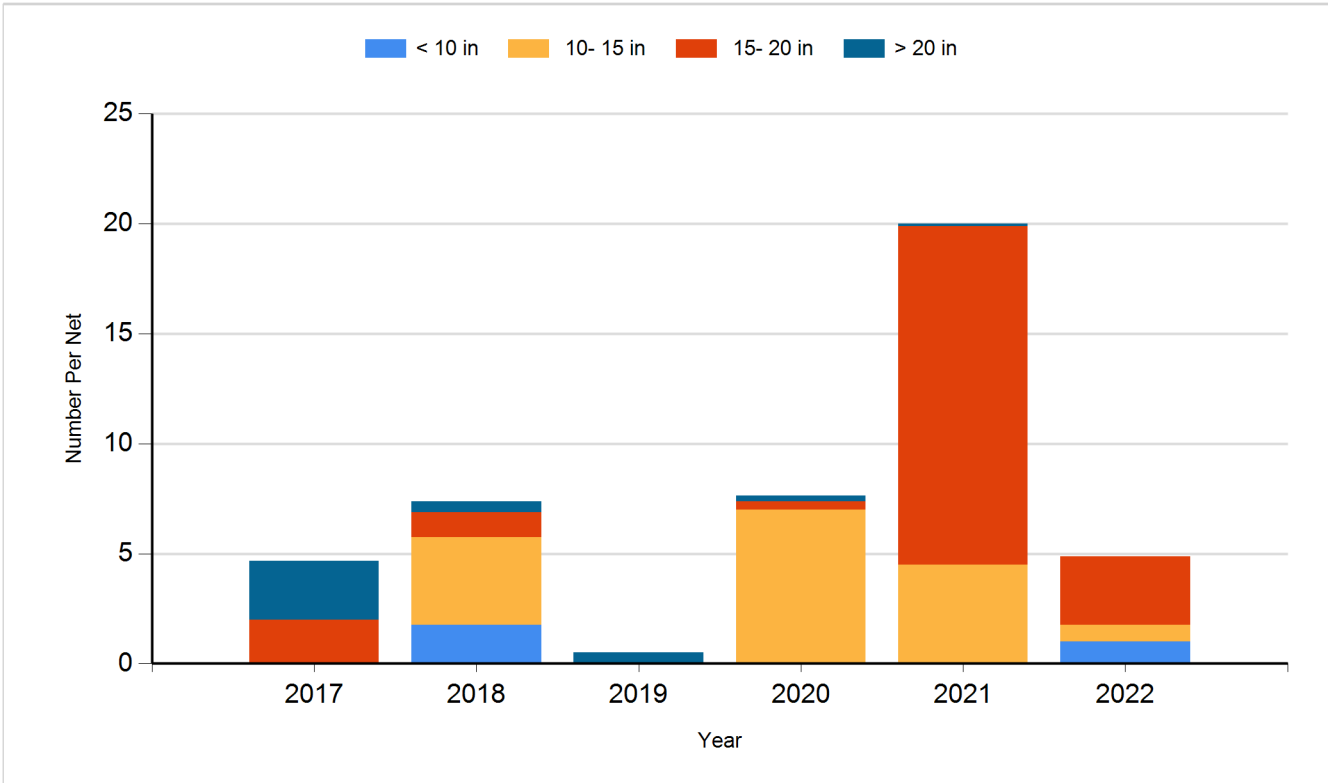
Species: Northern Pike  
Gear: AFS std gill net



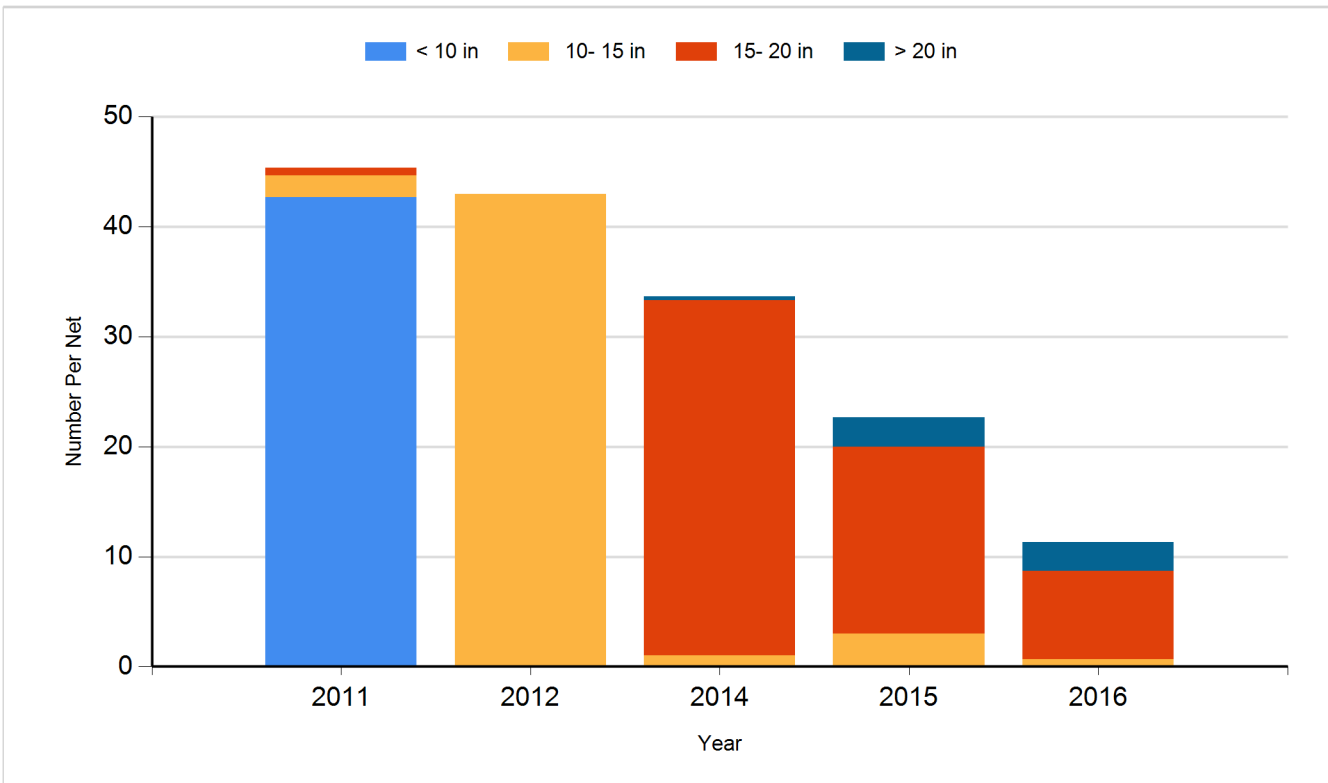
Species: Northern Pike  
Gear: std exp gill net



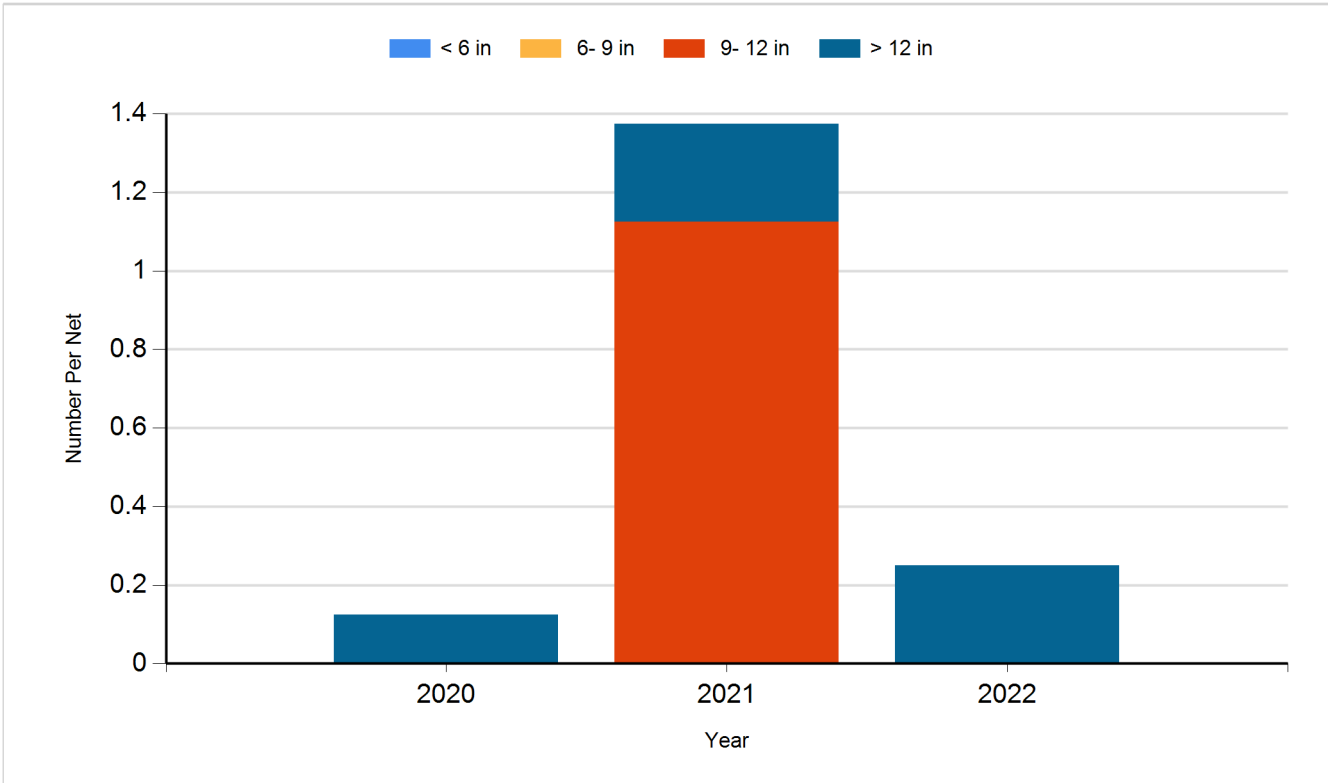
Species: Walleye  
Gear: AFS std gill net



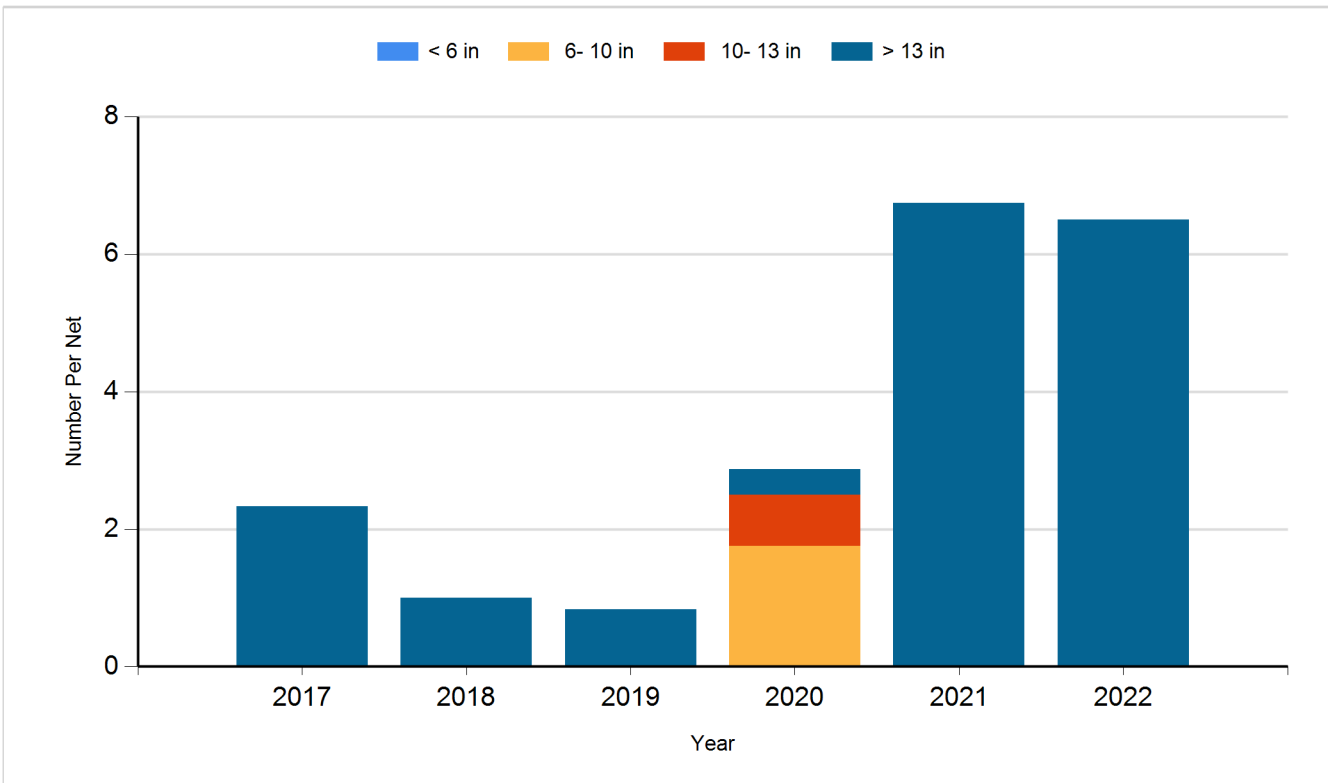
Species: Walleye  
Gear: std exp gill net



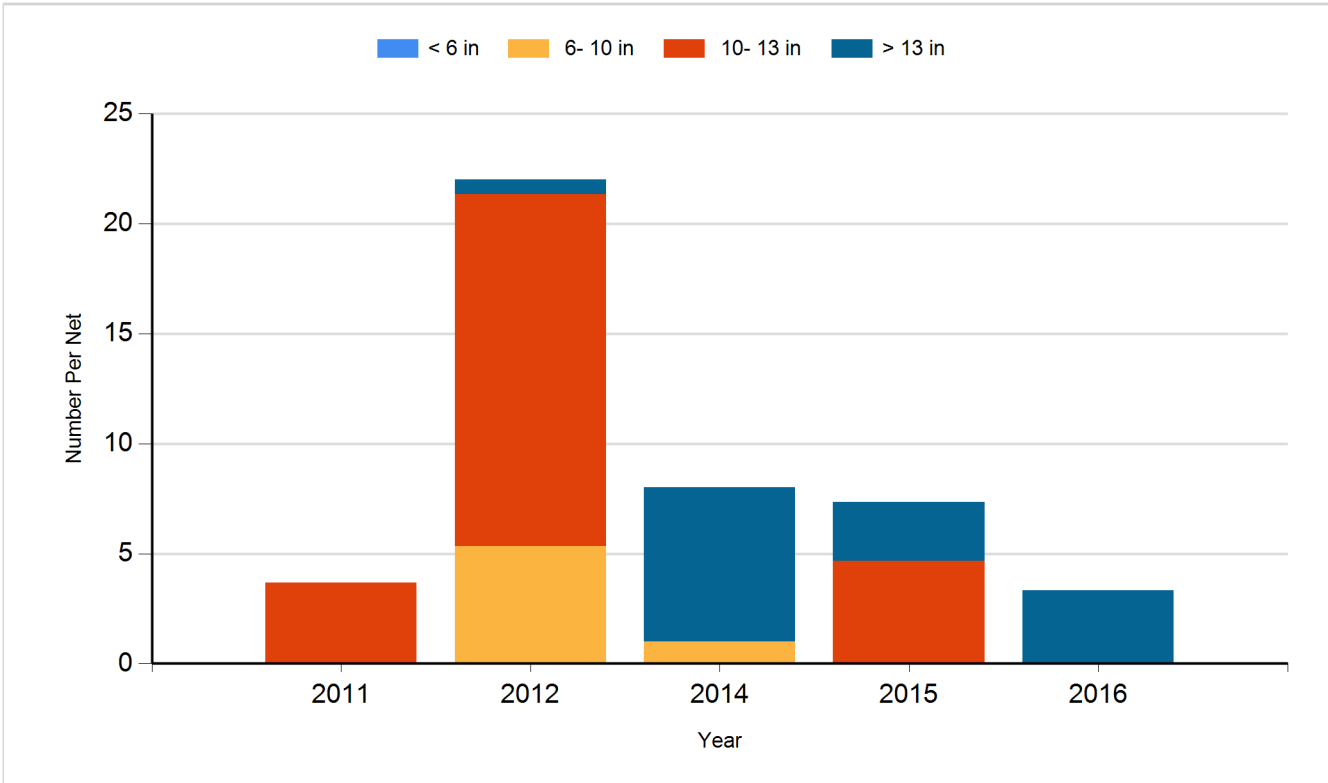
Species: White Bass  
Gear: AFS std gill net



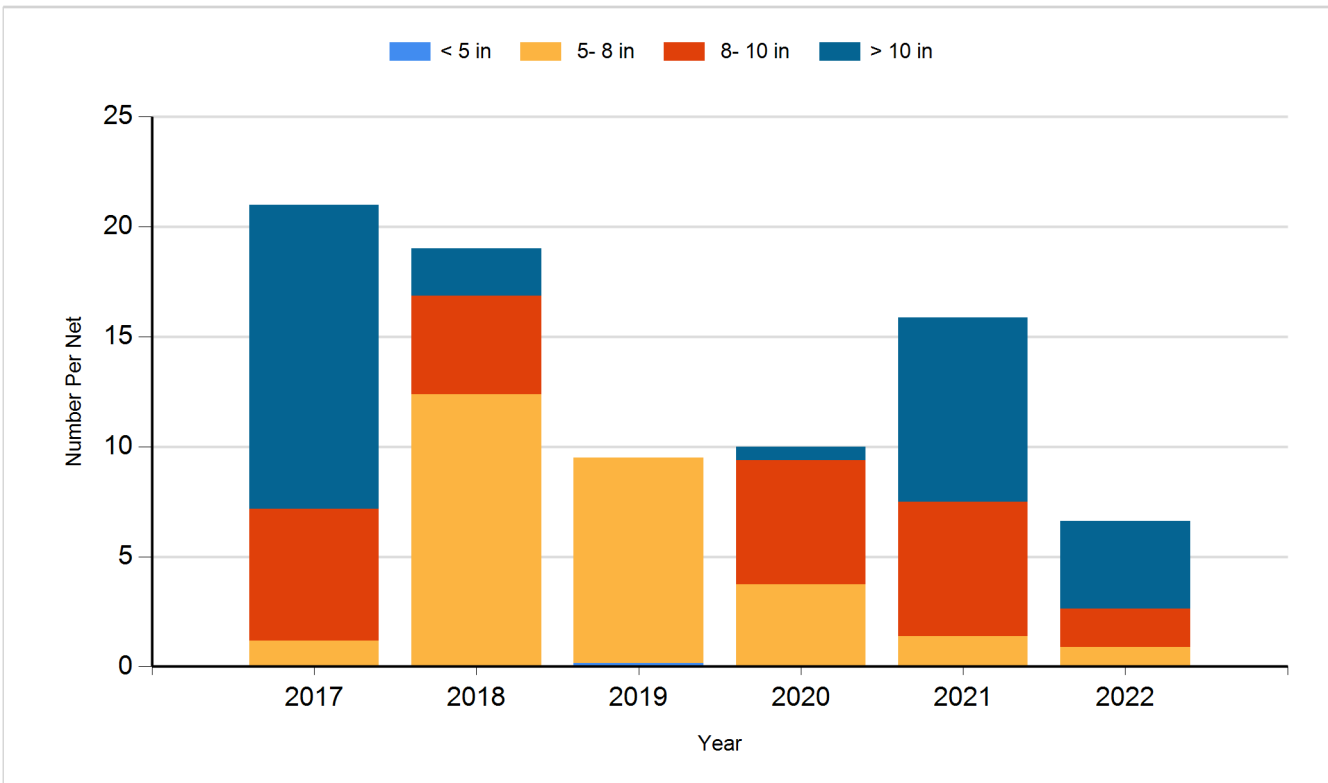
Species: White Sucker  
Gear: AFS std gill net



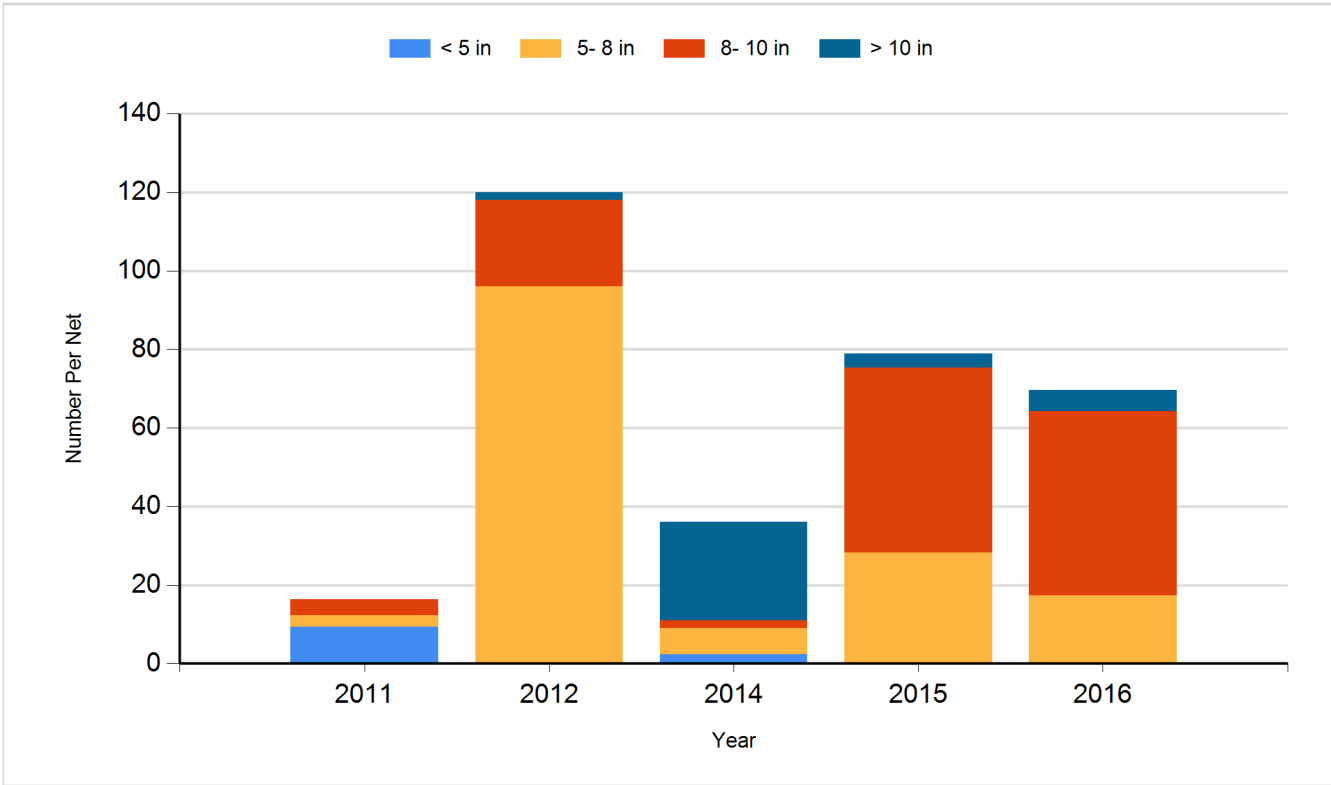
Species: White Sucker  
Gear: std exp gill net



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