

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

Wall, Minnehaha County

LBS-Lake-95-000

2024

Lake Information

Name:	Wall	Maximum Depth:	23 Feet
County:	Minnehaha	Mean Depth:	11 Feet
Legal Description:	T101N-R51W-Sec. 21 & 28	OHWM Elevation:	1,560
Surface Area:	222 Acres	Outlet Elevation:	1,559

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jun 06, 2024	5 net-nights
frame net (std 3/4 in)	Jun 06, 2024	5 net-nights

Common Fish Species Present

Walleye

Black Bullhead

Common Carp

Yellow Bullhead

White Crappie

Black Crappie

Channel Catfish

Yellow Perch

Bigmouth Buffalo

Green Sunfish

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	Black Bullhead	35	7.0	1.9	100		17	10		
	Channel Catfish	10	2.0	1.1	100		0		108	4
	Common Carp	34	6.8	1.3	97		29	12		
	Pumpkinseed	1	0.2	0.3	100		0		124	
	Walleye	9	0.8	0.3	75		50		81	5
	Yellow Perch	7	1.4	1.4	86		29		110	6
frame net (std 3/4 in)	Bigmouth Buffalo	2	0.4	0.6	100		100			
	Black Bullhead	502	100.4	57.8	99	1	10	2		
	Black Crappie	12	2.4	2.1	83		25		107	4
	Channel Catfish	1	0.2	0.3	100		0		115	
	Common Carp	9	1.8	1.1	100		11			
	Green Sunfish	2	0.4	0.4	50		0		128	22
	Pumpkinseed	1	0.2	0.3	100		0		124	
	Walleye	2	0.2	0.3	100		100		86	
	White Crappie	17	3.4	2.8	65	19	12		111	4
	Yellow Bullhead	20	4.0	2.6	100		90			

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 frame net	Black Bullhead			5.0								5.00
	Bluegill			0.2								0.20
	Pumpkinseed			7.4								7.40
	Sunfish Hybrid			0.4								0.40
	Yellow Perch			0.6								0.60
AFS std gill net	Bigmouth Buffalo			0.0	0.2	0.0		0.0	0.5		0.0	0.12
	Black Bullhead			1.0	1.5	6.5		11.8	19.3		7.0	7.85
	Black Crappie			0.0	0.0	0.0		0.0	0.0		0.0	0.00
	Channel Catfish			4.0	5.2	2.7		2.8	2.0		2.0	3.12
	Common Carp			0.7	0.2	2.2		0.8	4.8		6.8	2.58
	Green Sunfish			0.0	0.2	0.0		0.0	0.0		0.0	0.03
	Northern Pike			0.5	0.2	1.7		1.3	1.3		0.0	0.83
	Pumpkinseed			0.0	0.2	0.2		0.5	0.0		0.2	0.18
	Walleye			0.8	5.0	10.0		3.0	2.5		0.8	3.68
	White Sucker			0.3	1.0	0.2		0.5	0.0		0.0	0.33
	Yellow Perch			8.3	1.0	3.5		2.0	0.0		1.4	2.70
frame net (std 3/4 in)	Bigmouth Buffalo	1.2	0.8		0.2	0.6		0.8	0.0		0.4	0.57
	Black Bullhead	80.8	24.6		55.2	161.4		686.4	262.3		100.4	195.87
	Black Crappie	0.0	0.0		0.0	0.0		3.4	0.5		2.4	0.90
	Bluegill	0.4	0.0		0.0	0.2		0.8	0.0		0.0	0.20
	Channel Catfish	3.4	0.6		0.2	0.6		1.6	0.3		0.2	0.99
	Common Carp	0.6	0.0		0.0	1.6		0.6	0.8		1.8	0.77
	Green Sunfish	0.0	0.0		2.0	0.4		0.0	0.0		0.4	0.40
	Northern Pike	0.4	0.0		0.4	0.0		0.0	0.3		0.0	0.16
	Orangespotted Sunfish	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.00
	Pumpkinseed	12.4	2.6		6.0	1.2		3.4	0.0		0.2	3.69
	Sunfish Hybrid	0.0	0.4		0.6	0.0		0.0	0.0		0.0	0.14
	Walleye	0.8	0.6		1.6	1.0		0.2	0.0		0.2	0.63
	White Crappie	0.0	0.0		0.0	0.0		0.0	0.0		3.4	0.49
	White Sucker	0.2	0.0		0.0	0.0		0.2	0.0		0.0	0.06
	Yellow Bullhead	1.0	0.0		0.2	0.4		0.0	0.3		4.0	0.84
Yellow Perch	0.0	1.8		0.0	0.0		0.0	0.0		0.0	0.26	
hoop net	Black Bullhead		3.0									3.00

CPUE

Gear	Species	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Avg
hoop net	Green Sunfish		0.3									0.30
	Pumpkinseed		3.7									3.70
	Sunfish Hybrid		0.3									0.30
std exp gill net	Bigmouth Buffalo	0.0	0.0									0.00
	Black Bullhead	10.3	4.3									7.30
	Black Crappie	0.0	0.3									0.15
	Channel Catfish	13.0	4.7									8.85
	Common Carp	3.3	0.0									1.65
	Northern Pike	0.0	6.7									3.35
	Pumpkinseed	0.3	0.0									0.15
	Walleye	0.3	0.3									0.30
	White Sucker	0.3	0.0									0.15
	Yellow Perch	1.3	5.3									3.30

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 frame net	Black Bullhead	PSD			100								
		PSD-P			52								
	Yellow Perch	PSD			100								
		PSD-P			67								
		Wr			88								
AFS std gill net	Bigmouth Buffalo	PSD				100					50		
		PSD-P				0					50		
	Black Bullhead	PSD			100	11	13			96	97		100
		PSD-P			83	0	5			0	0		17
	Black Crappie	PSD							0				
		PSD-P							0				
	Channel Catfish	PSD			100	100	100			88	75		100
		PSD-P			0	6	6			24	0		0
		Wr			104	105	108			102	98		108
	Common Carp	PSD			100	100	38			80	26		97
		PSD-P			75	100	15			20	5		29
	Green Sunfish	PSD					0						
		PSD-P					0						
		Wr					112						
	Walleye	PSD			40	27	93			50	60		75
		PSD-P			20	7	0			22	10		50
		Wr			89	91	91			85	91		81
	Yellow Perch	PSD			80	100	19			83			86
		PSD-P			4	17	10			8			29
		Wr			96	96	104			98			110
frame net (std 3/4 in)	Bigmouth Buffalo	PSD	0	100		100	100		100			100	
		PSD-P	0	25		0	33		100			100	
	Black Bullhead	PSD	98	100		55	49		99	99		99	
		PSD-P	3	28		18	18		7	8		10	
	Black Crappie	PSD							100	100		83	
		PSD-P							29	100		25	
		Wr							103	100		107	

Gear	Species	Index	Year									
			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
frame net (std 3/4 in)	Channel Catfish	PSD	100	100		100	100		88	0		100
		PSD-P	0	0		0	0		25	0		0
		Wr	109	103		110	108		102	84		115
	Common Carp	PSD	33				63		33	67		100
		PSD-P	0				25		33	33		11
	Green Sunfish	PSD				50	50					50
		PSD-P				0	0					0
		Wr				121	95					128
	Walleye	PSD	25	0		0	100		100			100
		PSD-P	25	0		0	0		0			100
		Wr	76	81		85	92		84			86
	White Crappie	PSD	0									65
		PSD-P	0									12
		Wr										111
	Yellow Bullhead	PSD	100			100	100			100		100
		PSD-P	100			100	100			100		90
	Yellow Perch	PSD		33								
		PSD-P		0								
Wr			101									
hoop net	Black Bullhead	PSD		100								
		PSD-P		22								
	Green Sunfish	PSD		100								
PSD-P			0									
Wr			118									
std exp gill net	Black Bullhead	PSD	74	77								
		PSD-P	0	8								
	Black Crappie	PSD		100								
		PSD-P		0								
		Wr		103								
	Channel Catfish	PSD	97	100								
		PSD-P	0	0								
		Wr	99	106								
	Common Carp	PSD	50									
		PSD-P	10									
	Walleye	PSD	0	0								
		PSD-P	0	0								

Gear	Species	Index	Year										
			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
std exp gill net	Walleye	Wr	77	85									
	Yellow Perch	PSD	100	38									
		PSD-P	0	6									
		Wr	111	95									

Length at Capture

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

Species: Walleye

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2018	30		328 (10)	356 (6)	374 (9)	353 (2)			570 (2)		

Species: Yellow Perch

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2018	6		220 (2)		238 (3)	230 (1)					

Fish Condition

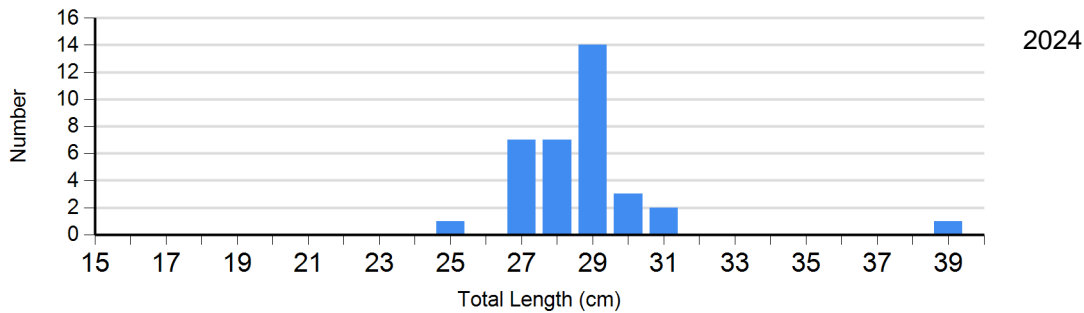
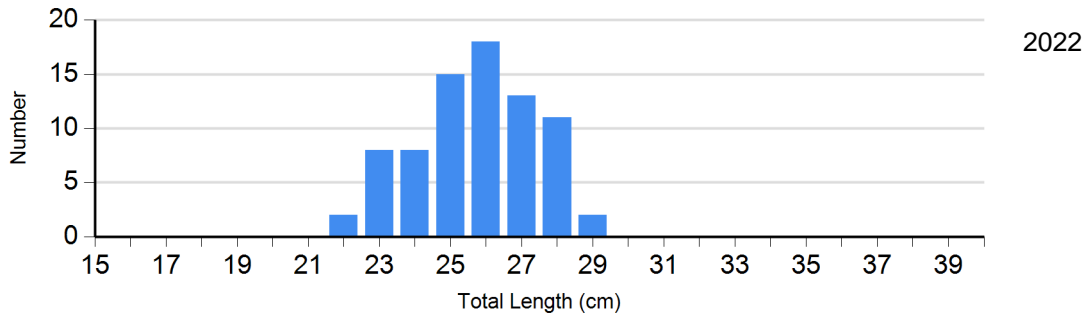
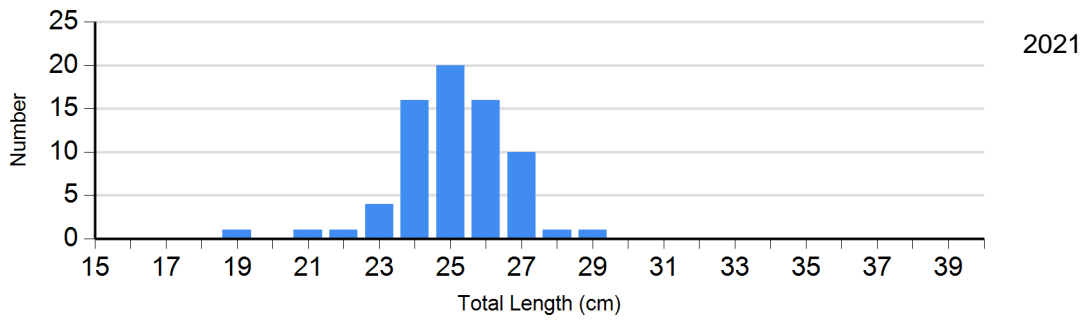
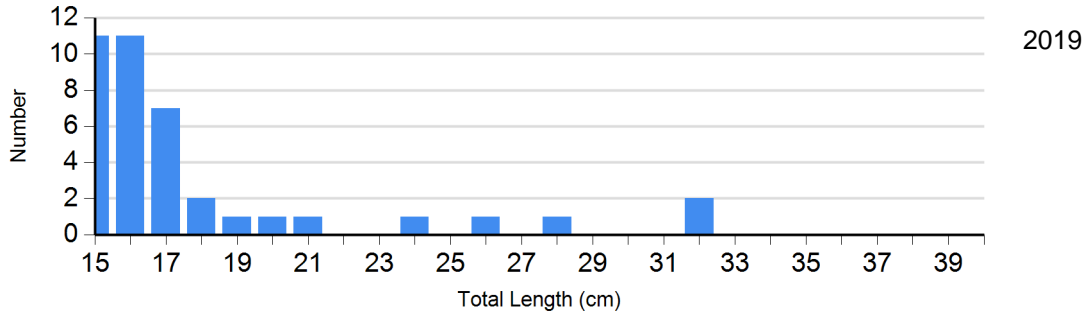
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

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	2021	0		12	104 (1.3)	4	102 (3.0)	1	99
	2022	0		0		2	100 (0.9)	0	
	2024	2	116 (6.9)	7	108 (5.0)	3	99 (2.3)	0	
Channel Catfish Gill Net	2021	2	93 (9.4)	11	101 (2.0)	3	113 (3.2)	1	95
	2022	2	93 (7.6)	6	100 (2.8)	0		0	
	2024	0		10	108 (3.0)	0		0	
Walleye Gill Net	2021	9	83 (3.0)	5	85 (2.4)	4	87 (1.8)	0	
	2022	4	89 (1.4)	5	91 (2.7)	1	99	0	
	2024	1	89	1	82	2	74	0	
White Crappie Frame Net	2024	6	115 (5.3)	9	112 (3.9)	2	95 (1.1)	0	
Yellow Perch Gill Net	2021	2	96 (2.5)	9	99 (3.2)	1	88	0	
	2024	1	112	4	114 (7.1)	2	100 (4.0)	0	

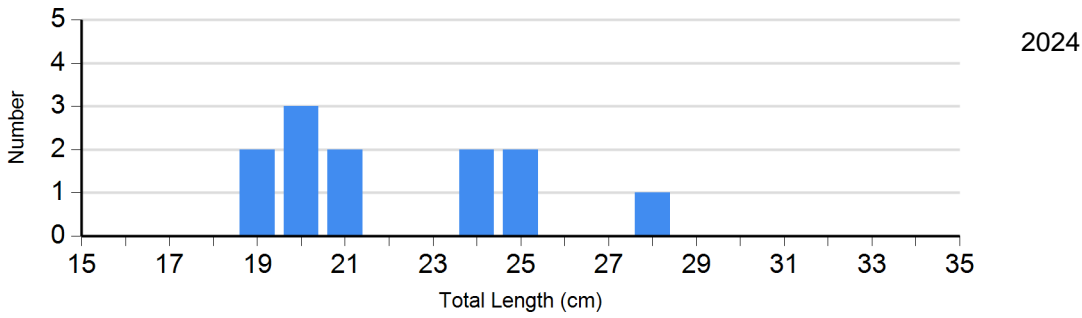
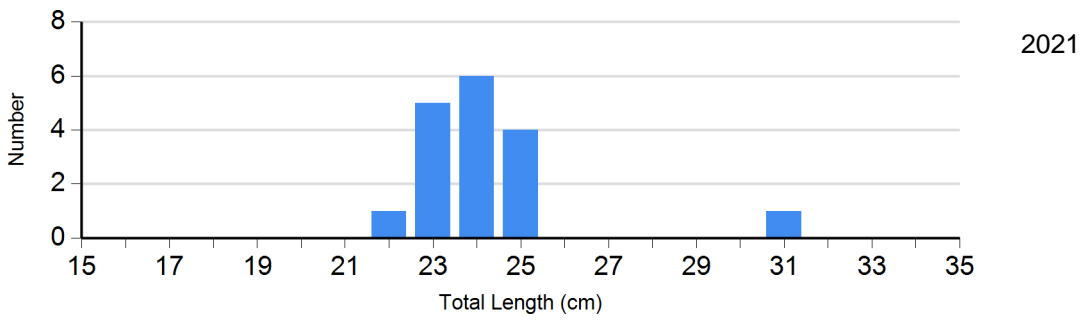
Length Frequency Distribution

Length frequency histogram of species sampled by year.

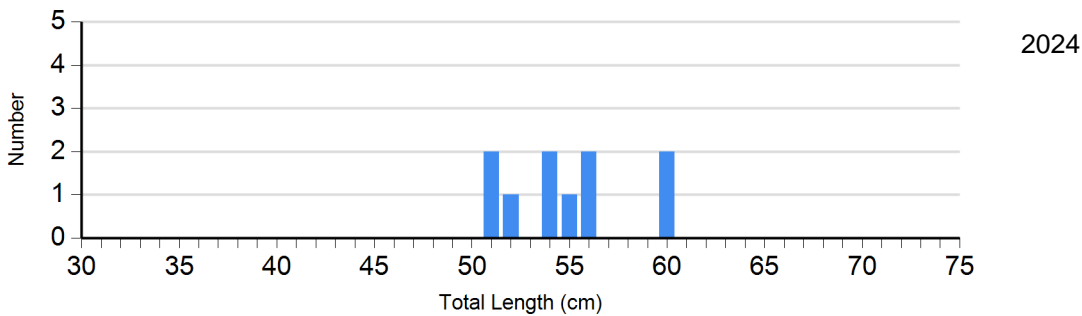
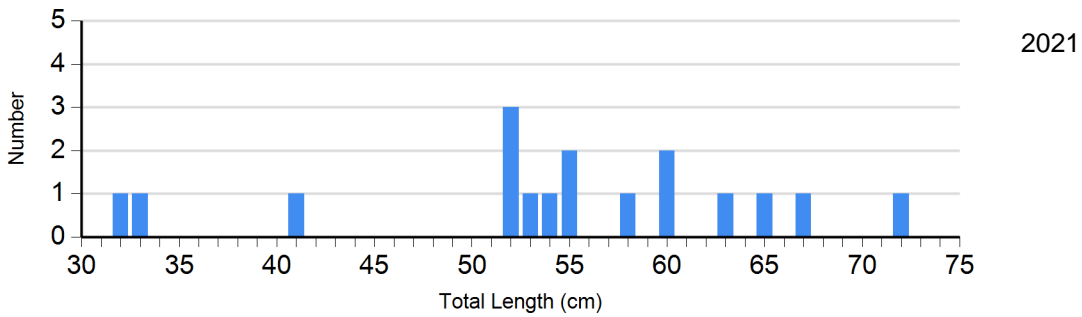
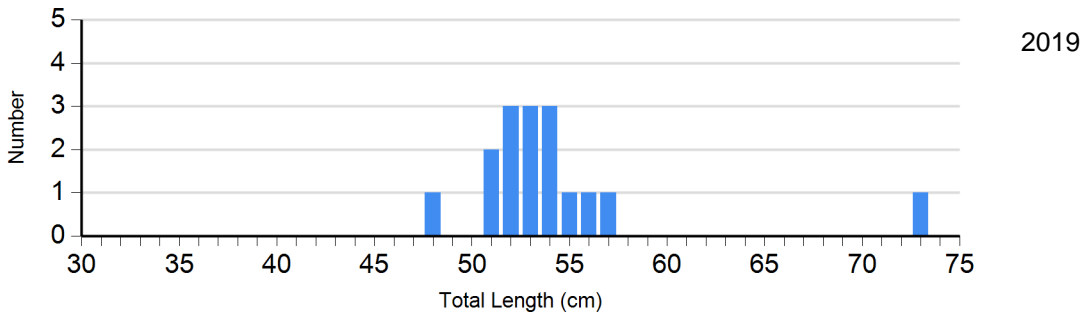
Species: Black Bullhead
Gear: AFS std gill net



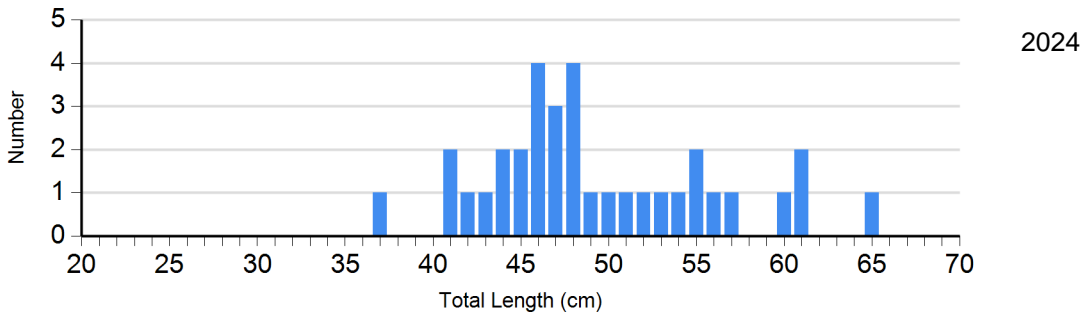
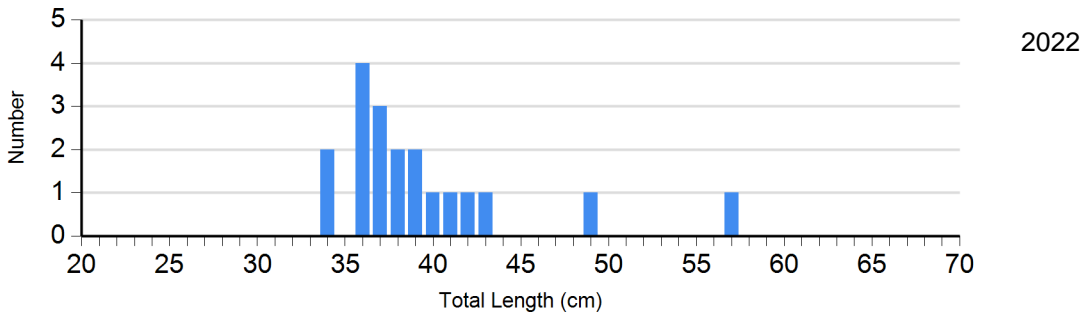
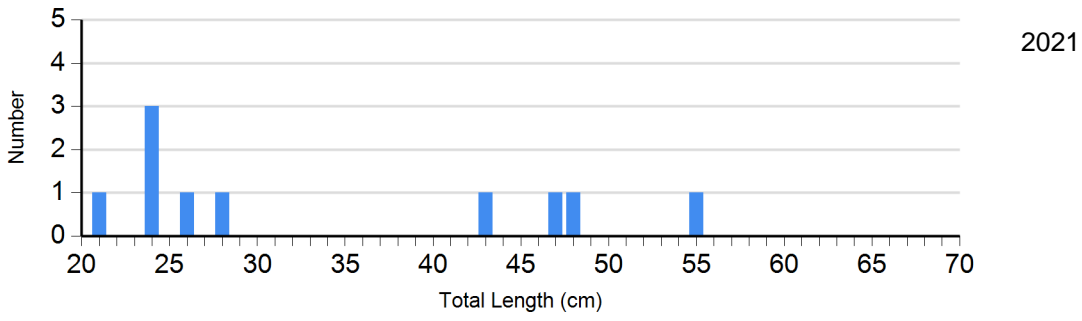
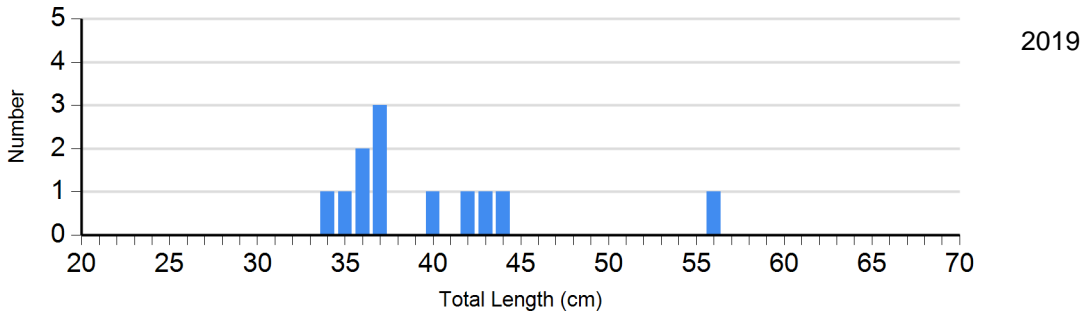
Species: Black Crappie
 Gear: frame net (std 3/4 in)



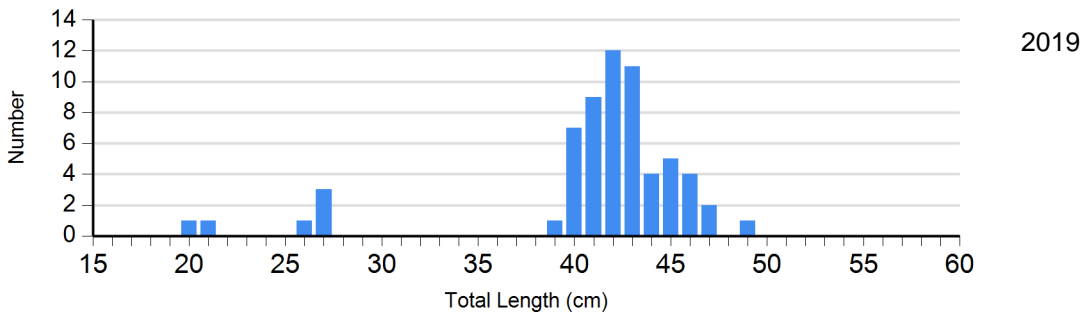
Species: Channel Catfish
 Gear: AFS std gill net

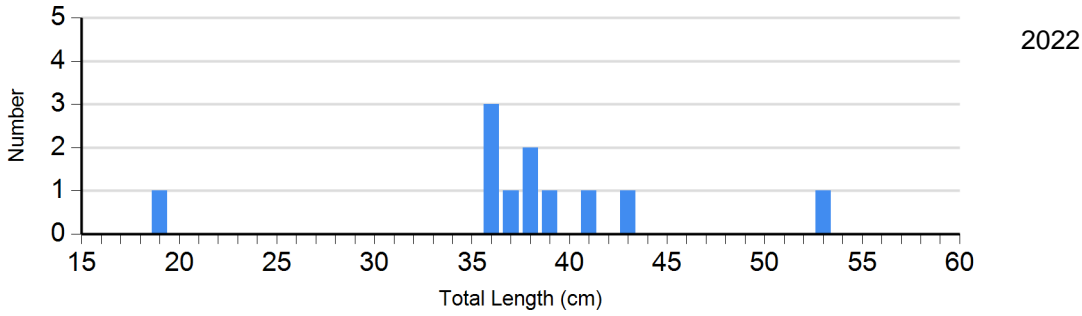
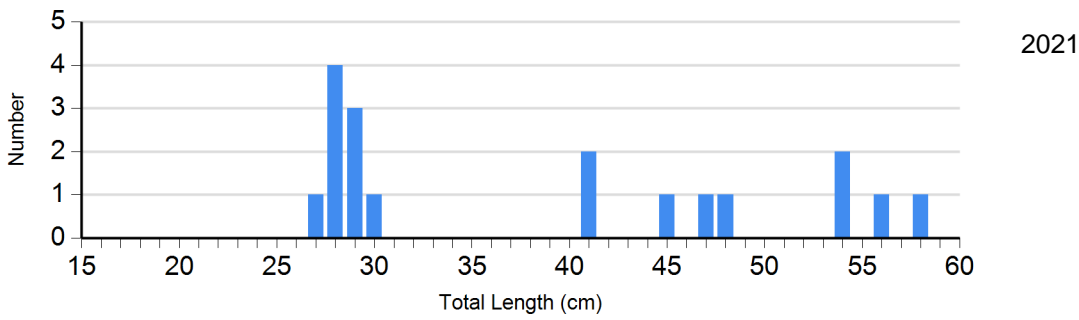


Species: Common Carp
 Gear: AFS std gill net

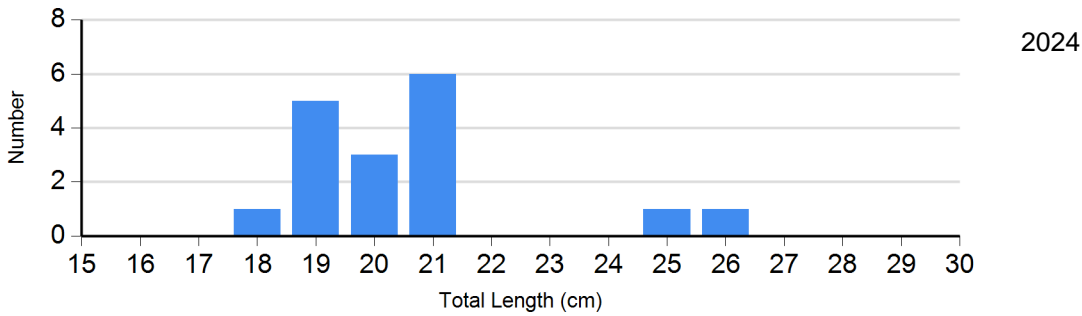


Species: Walleye
 Gear: AFS std gill net

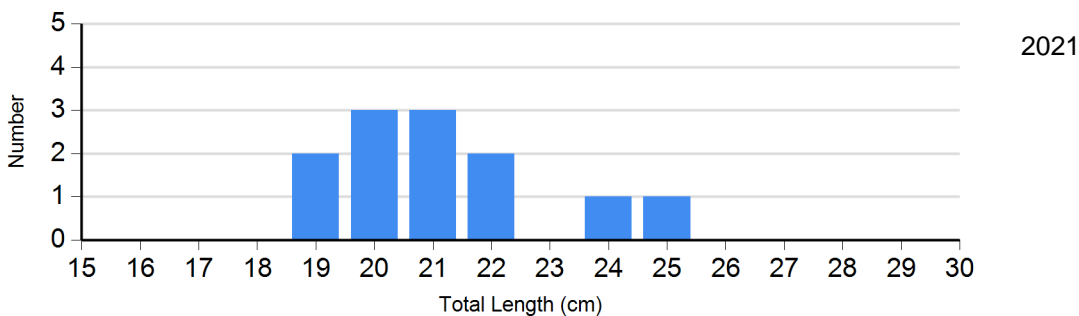
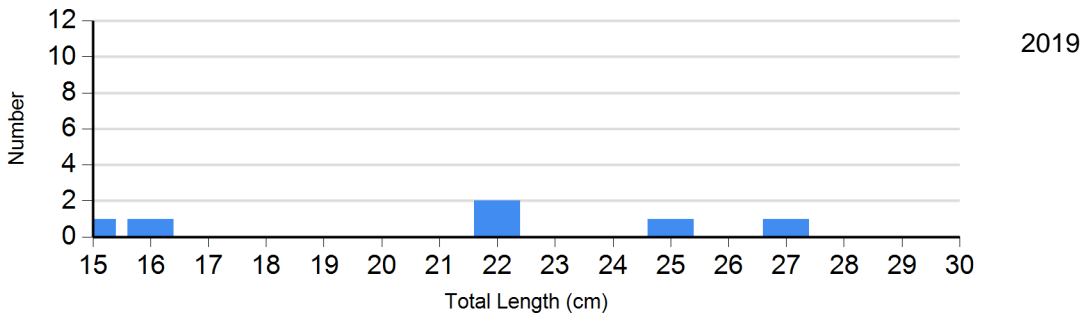




Species: White Crappie
 Gear: frame net (std 3/4 in)



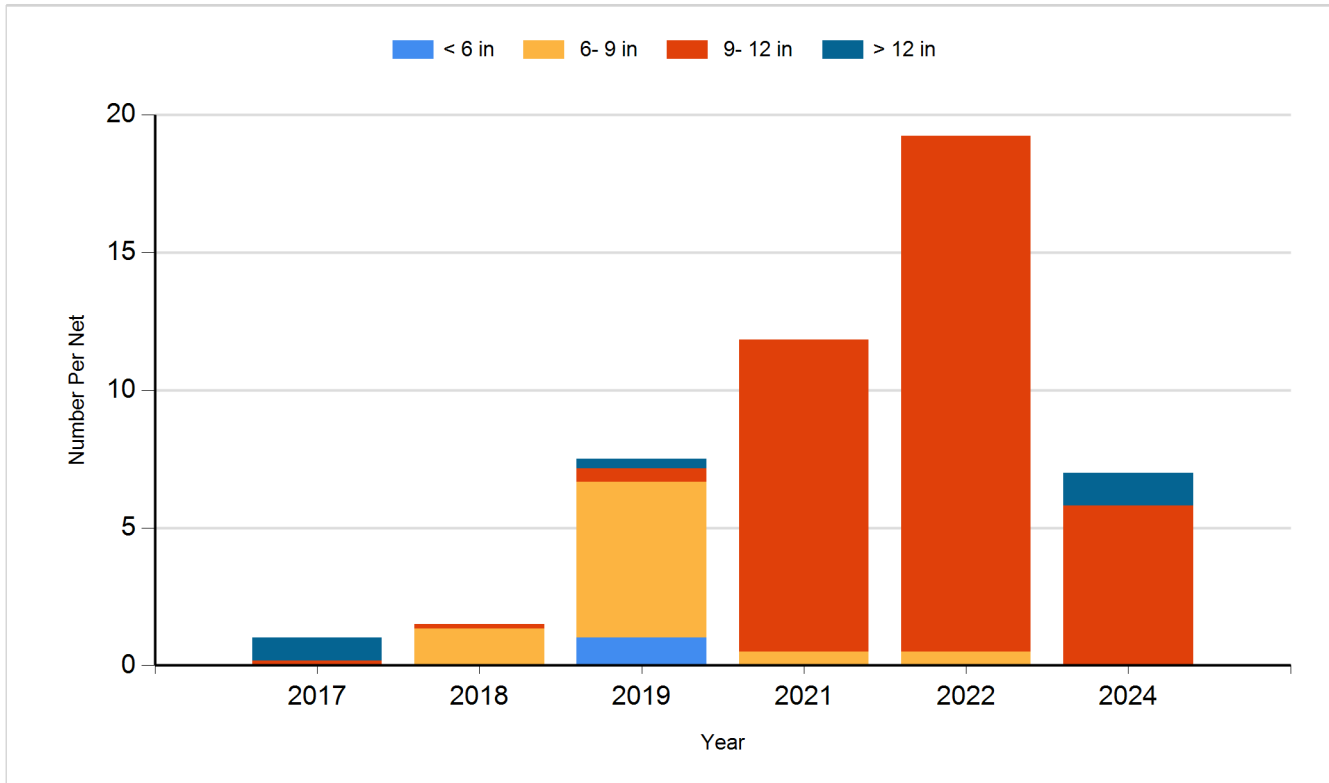
Species: Yellow Perch
 Gear: AFS std gill net



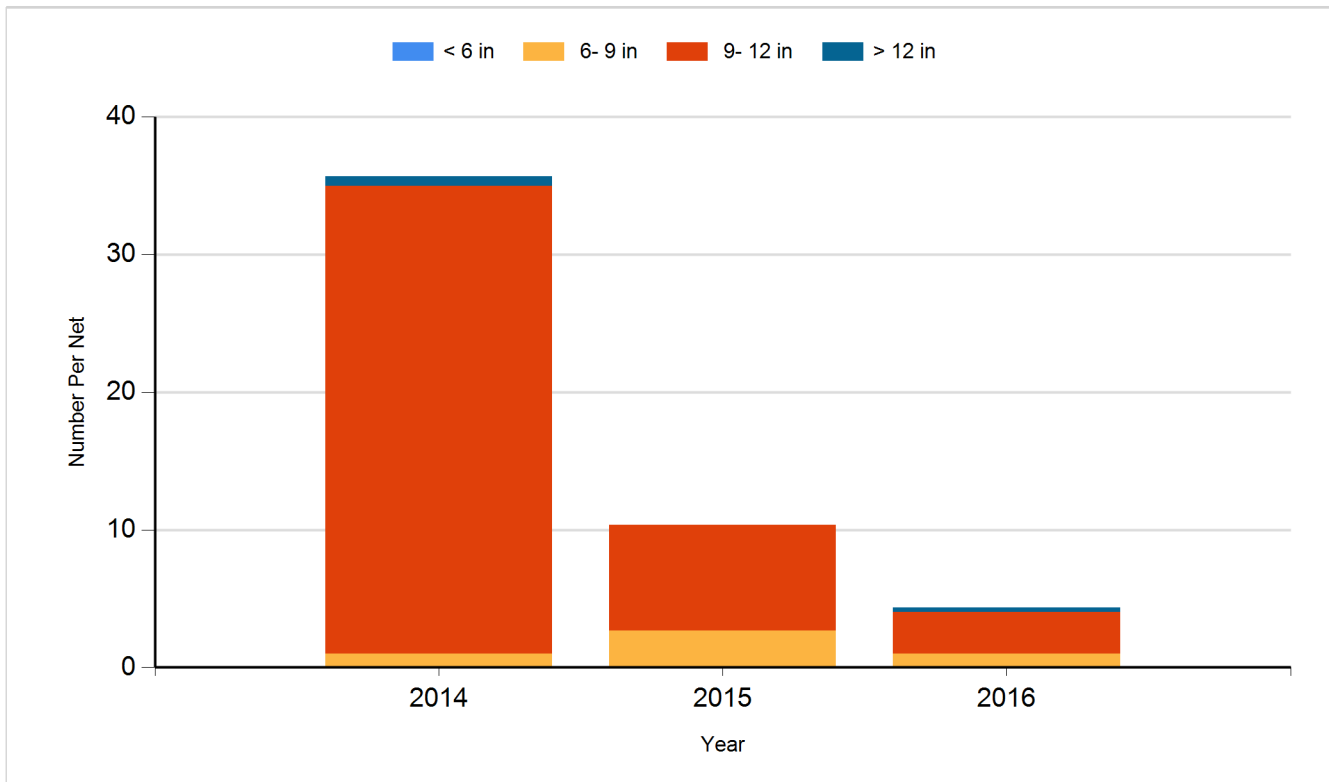
Historic Fish Sizes and Relative Abundance

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

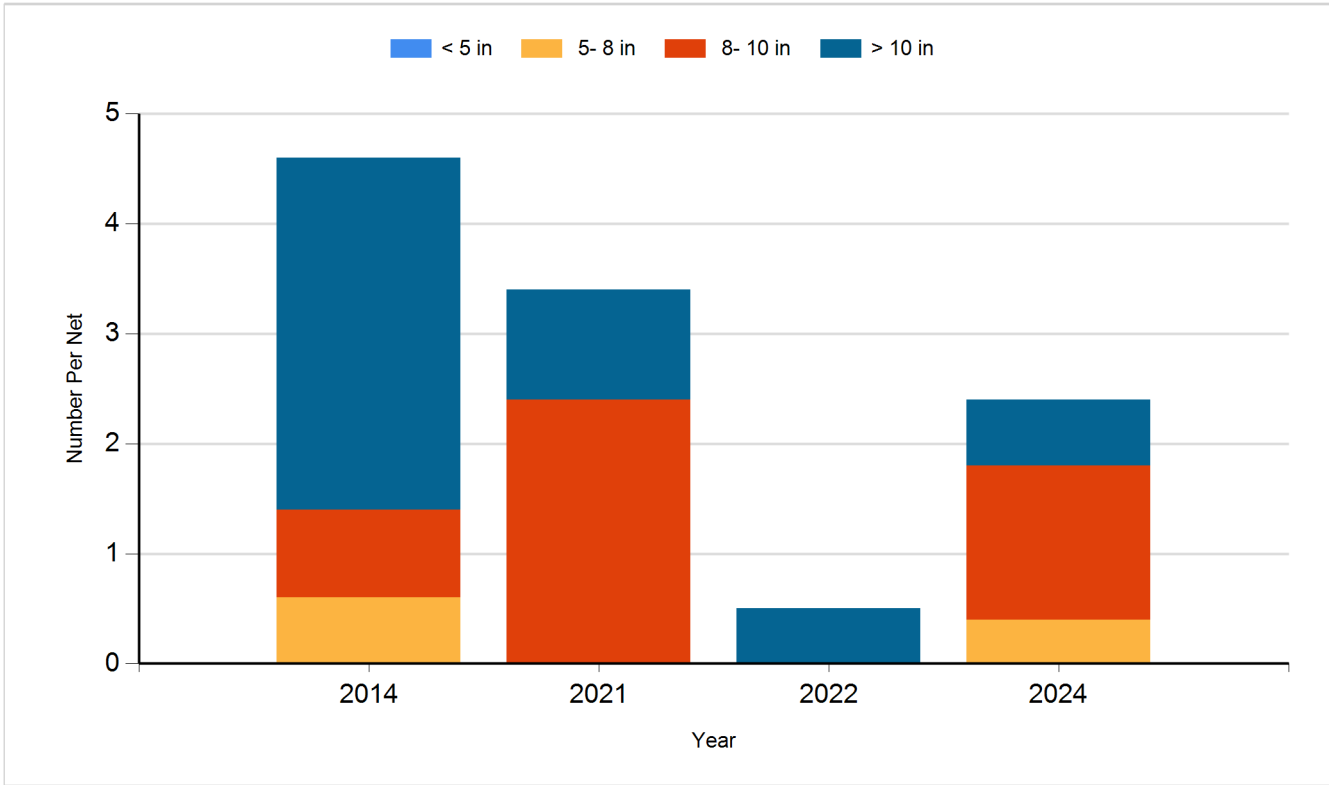
Species: Black Bullhead
Gear: AFS std gill net



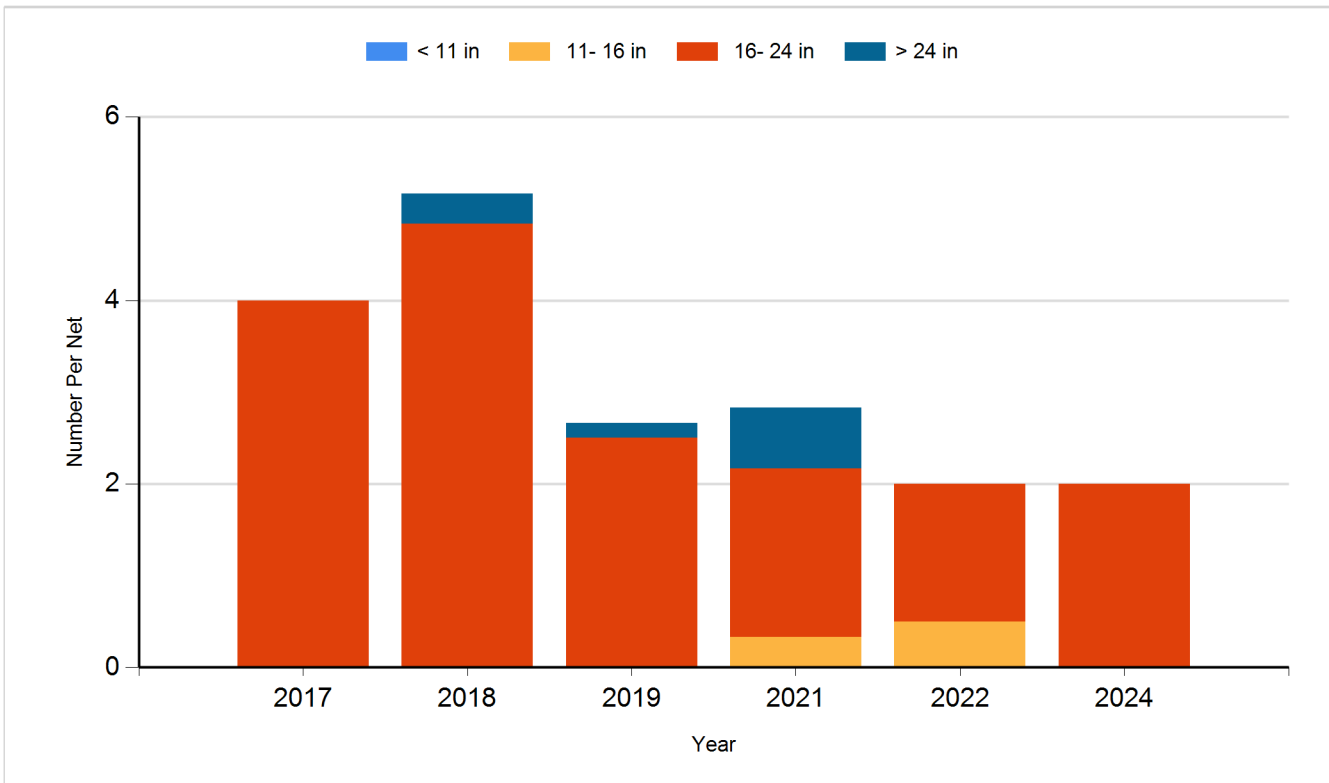
Species: Black Bullhead
Gear: std exp gill net



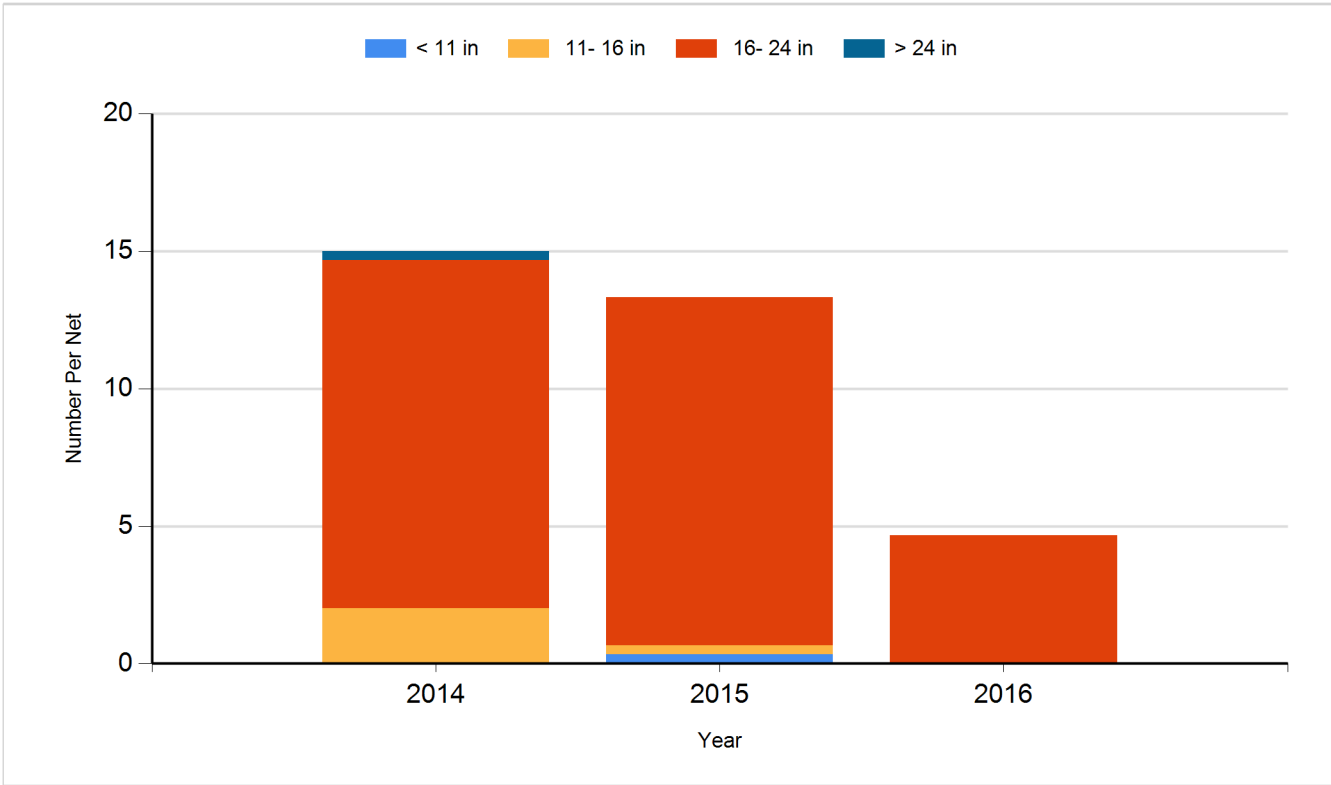
Species: Black Crappie
Gear: frame net (std 3/4 in)



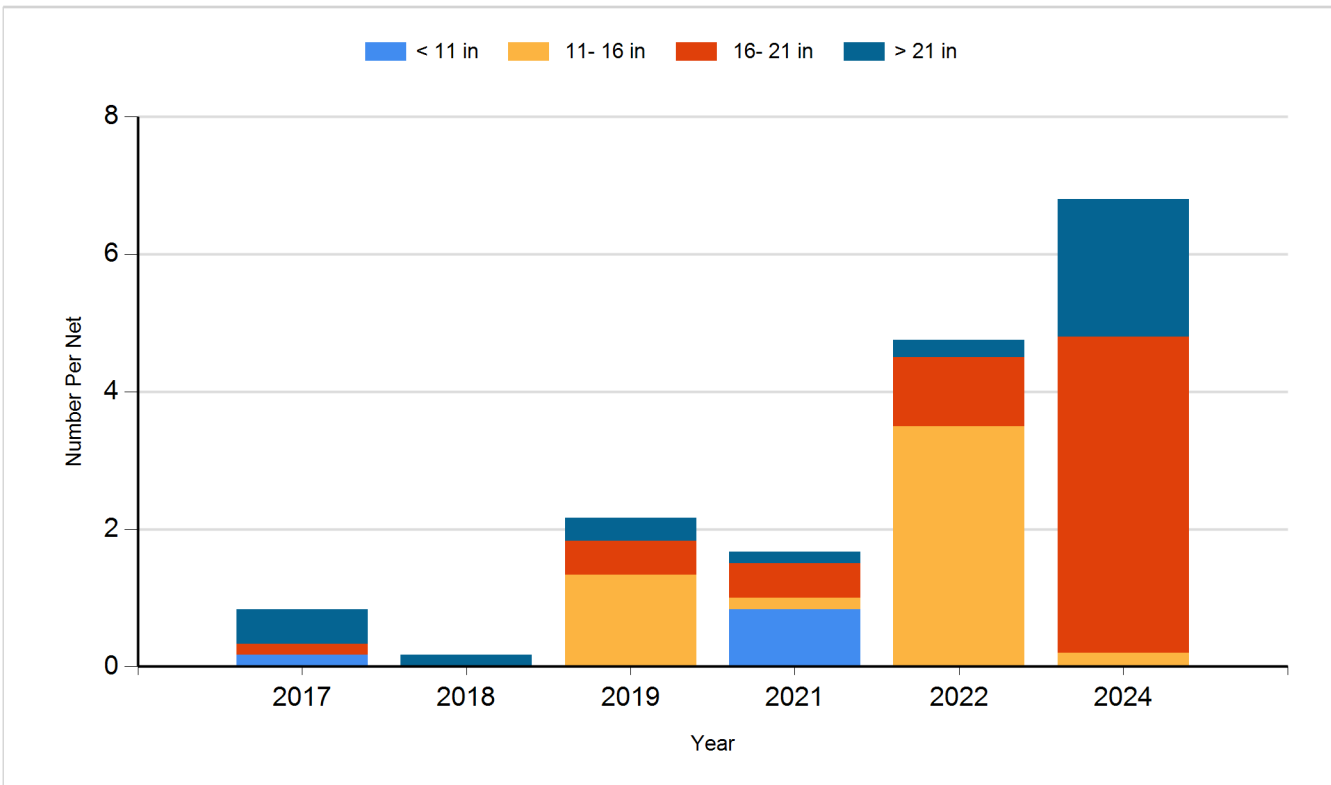
Species: Channel Catfish
Gear: AFS std gill net



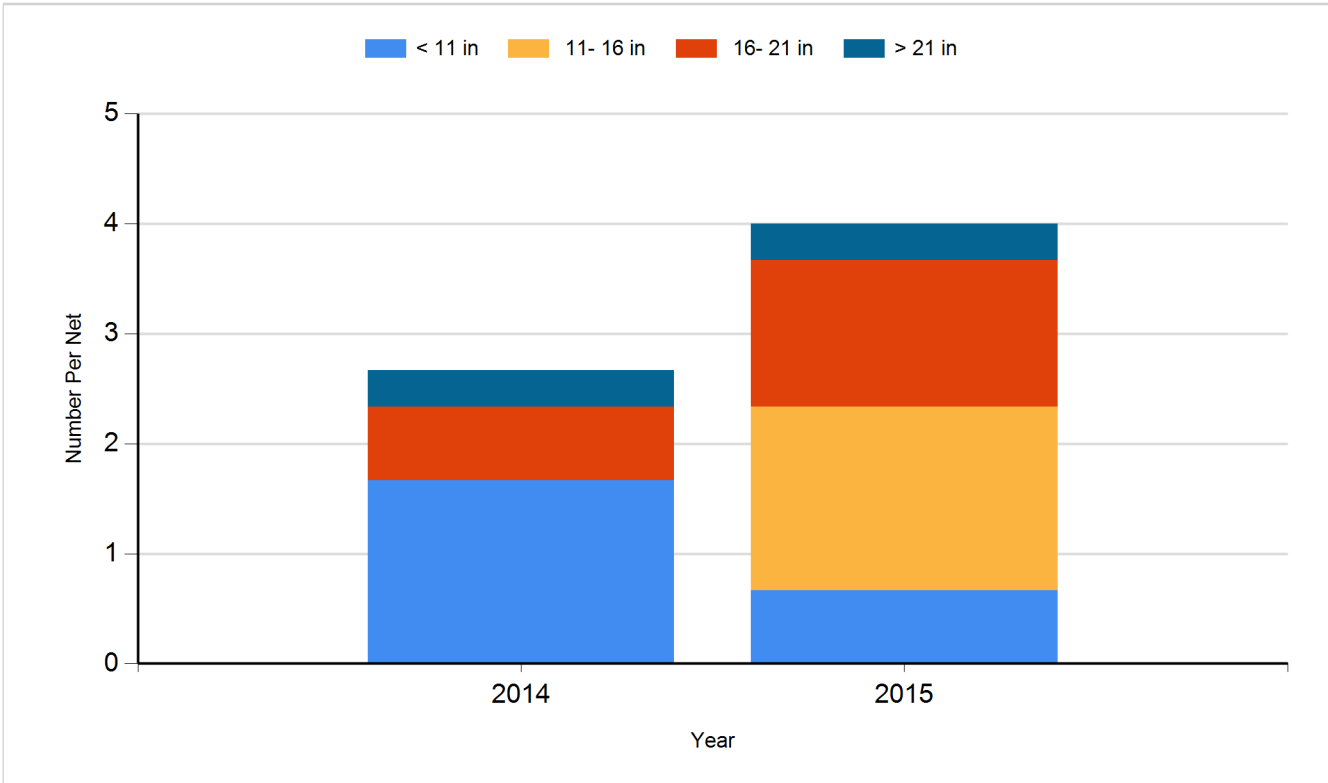
Species: Channel Catfish
Gear: std exp gill net



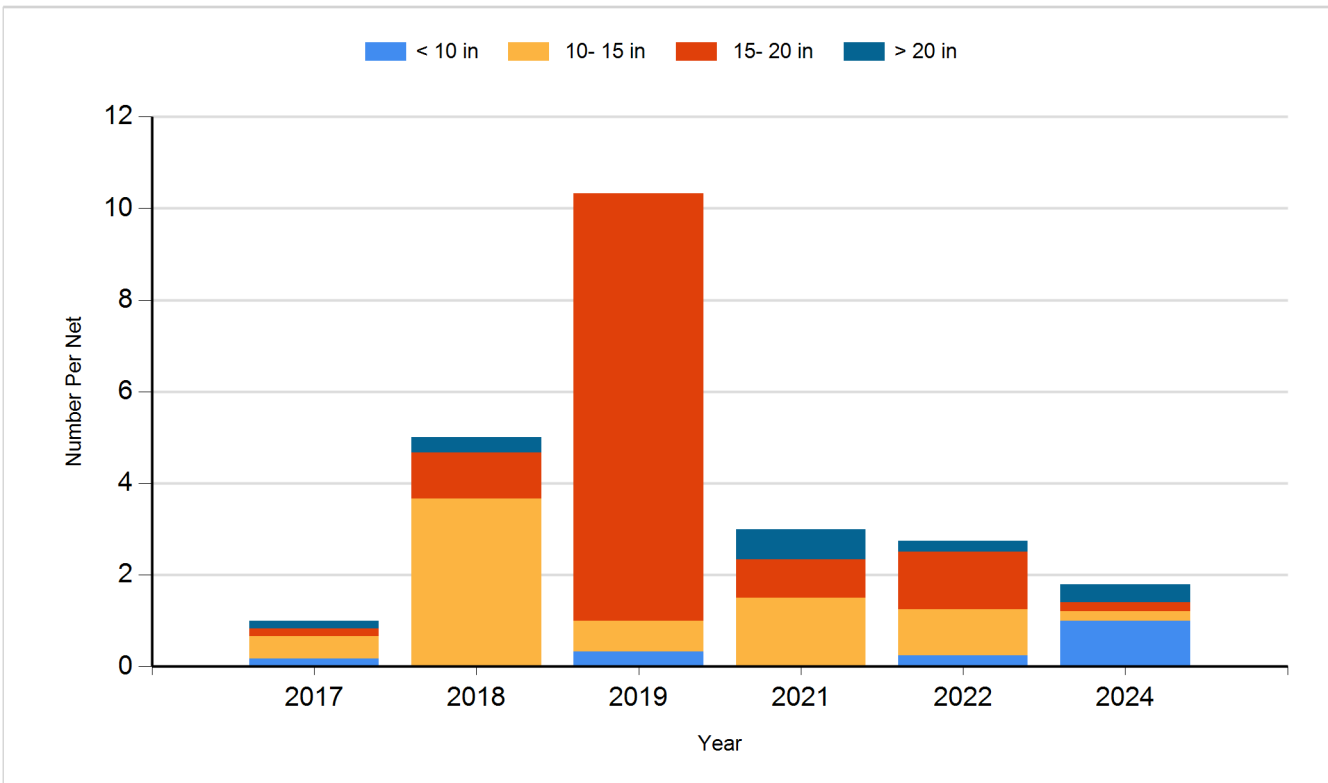
Species: Common Carp
Gear: AFS std gill net



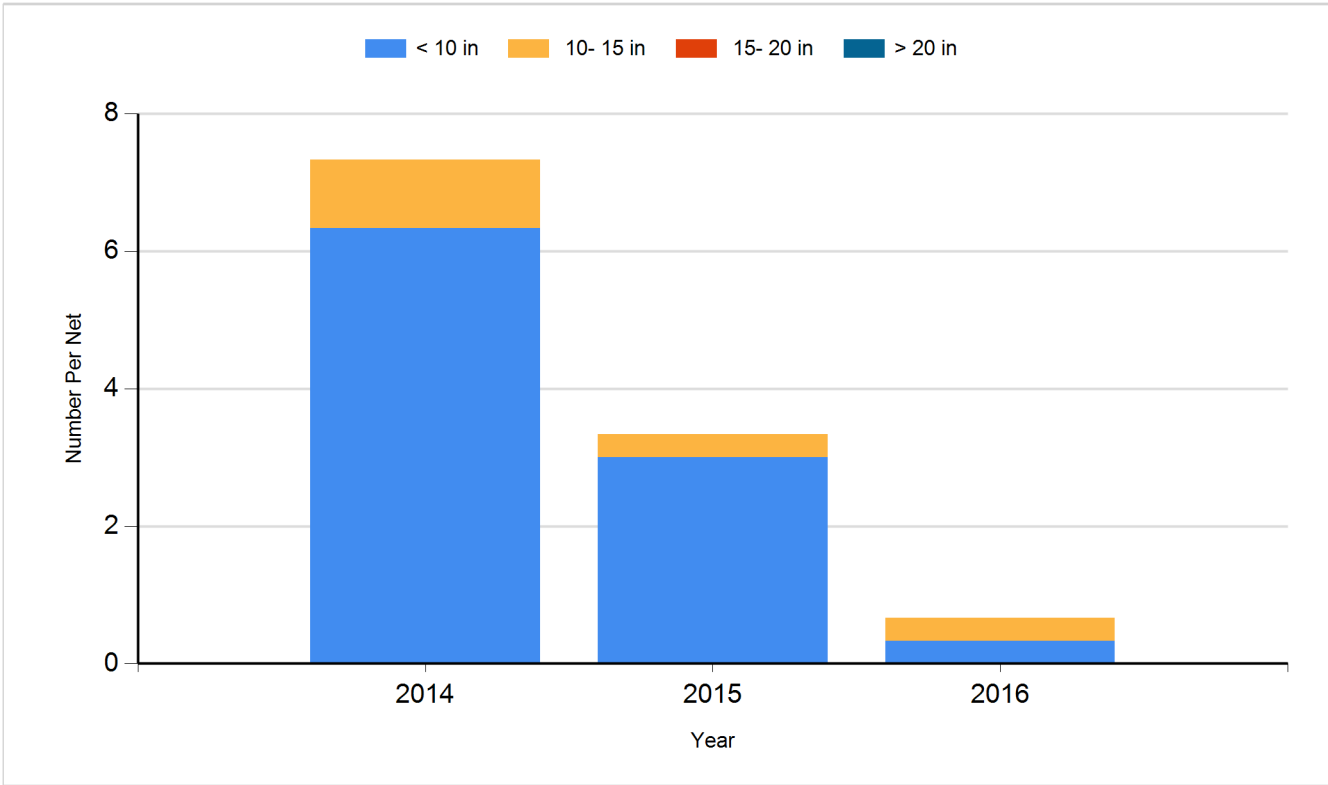
Species: Common Carp
Gear: std exp gill net



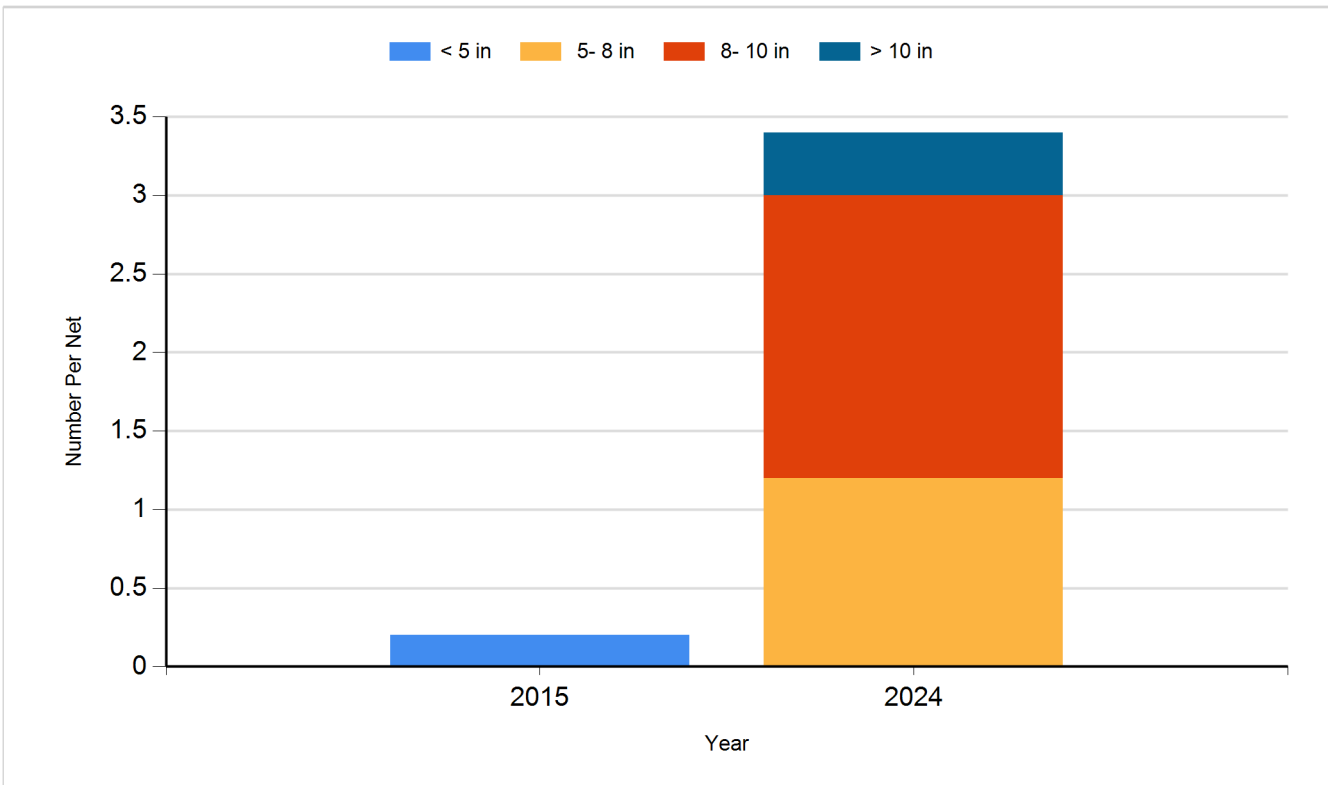
Species: Walleye
Gear: AFS std gill net



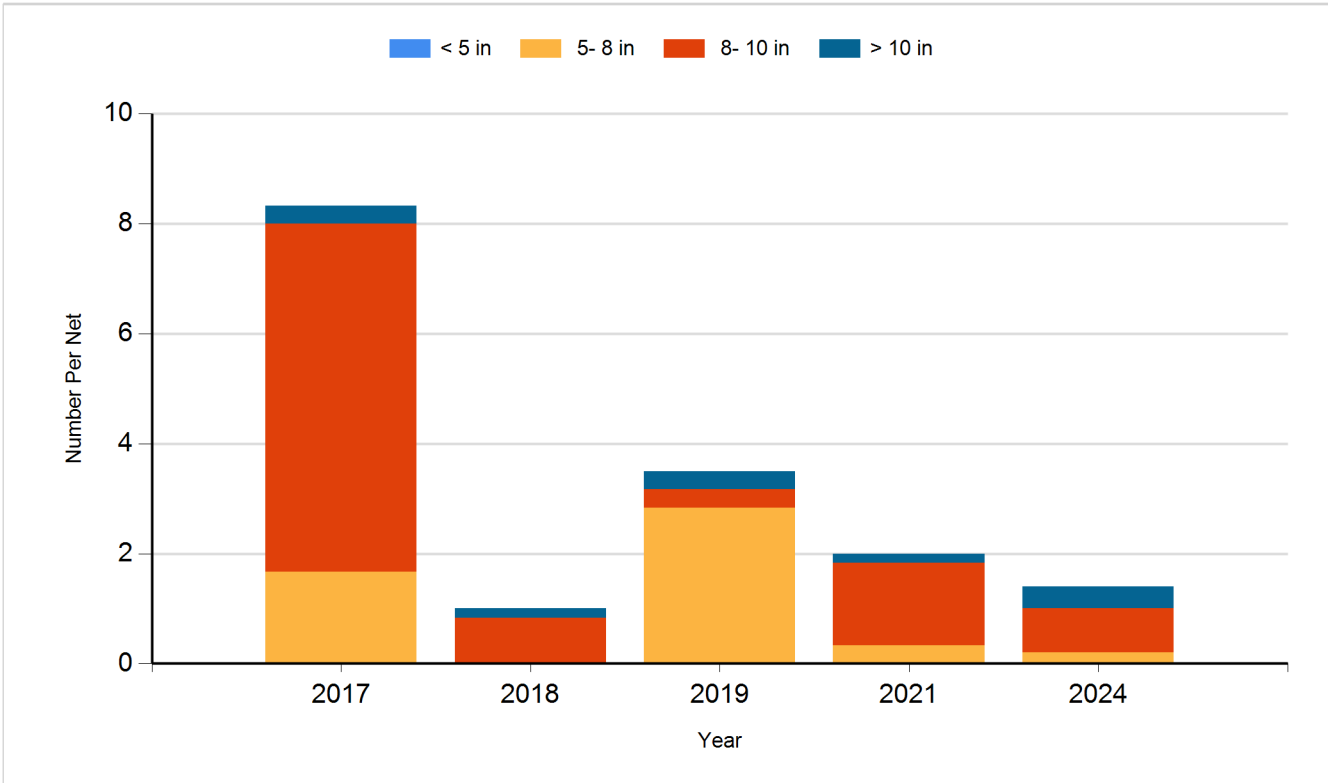
Species: Walleye
Gear: std exp gill net



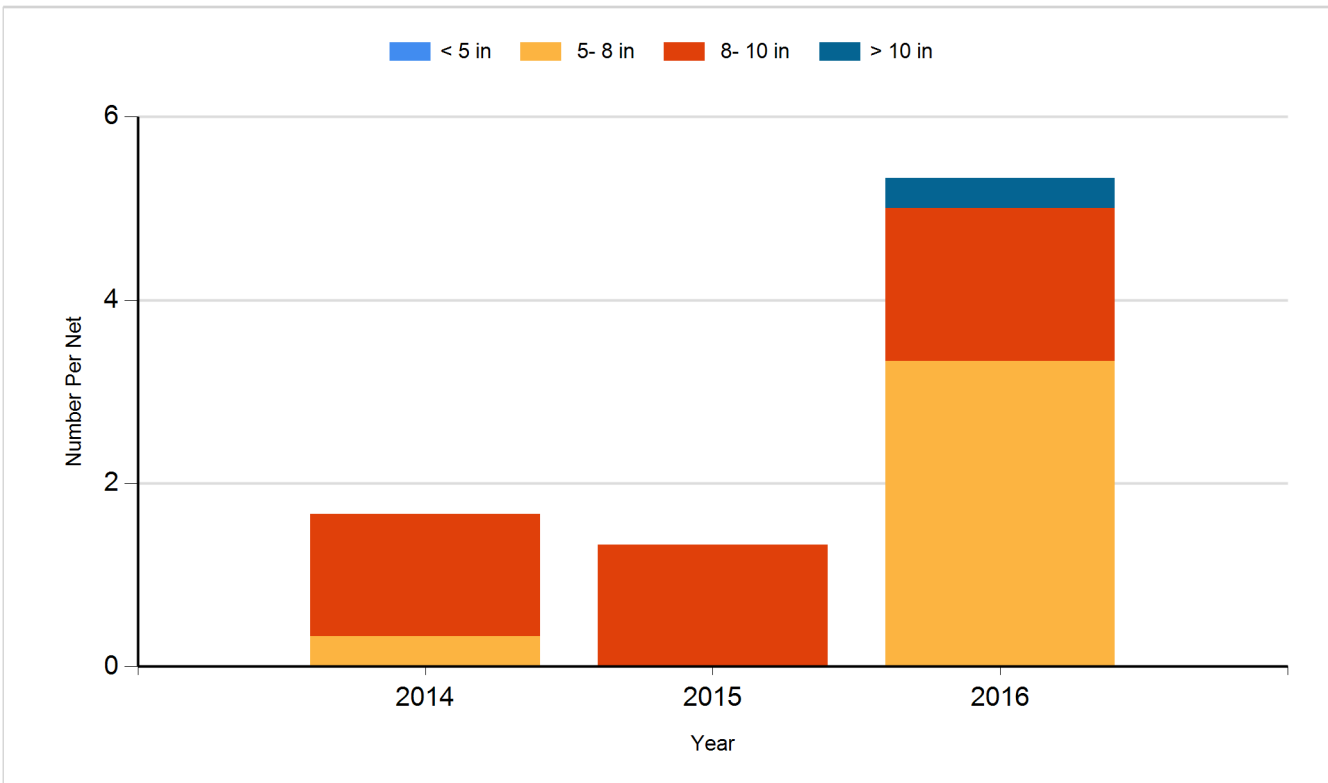
Species: White Crappie
Gear: frame net (std 3/4 in)



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
2013	Walleye	Small Fingerling	14,850
2014	Walleye	Small Fingerling	20,900
2015	Northern Pike	Adult	862
2015	Walleye	Fingerling	457
2015	Walleye	Small Fingerling	15,120
2016	Walleye	Juvenile	1,135
2016	Walleye	Small Fingerling	15,120
2016	Yellow Perch	Adult	10,350
2017	Walleye	Large Fingerling	384
2017	Yellow Perch	Adult	10,337
2018	Walleye	Large Fingerling	911
2019	Walleye	Small Fingerling	14,640
2021	Walleye	Adult	660
2021	Walleye	Fingerling	15,200
2022	Black Crappie	Adult	520
2022	Walleye	Juvenile	16,555
2024	Black Crappie	Adult	600
2024	Channel Catfish	Juvenile	3,200
2024	Saugeye	Fry	150,000
2024	Saugeye	Juvenile	17,110
2024	Walleye	Juvenile	460
2024	White Crappie	Adult	600
2024	Yellow Perch	Juvenile	640