

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

Thompson, Kingsbury County

LKT-Lake-55-801

2023

Lake Information

Name: Thompson **Maximum Depth:** 26 Feet
County: Kingsbury **Mean Depth:** 15 Feet
Legal Description: T110N-R55W-Sec.20-22, 28-33;
T109N-R55W-Sec.4-9, 16-17;
Surface Area: 14,526 Acres

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jul 25, 2023	12 net-nights
AFS std gill net	Jul 26, 2023	12 net-nights
frame net (std 3/4 in)	Jul 25, 2023	5 net-nights
frame net (std 3/4 in)	Jul 26, 2023	5 net-nights

Common Fish Species Present

Walleye

Northern Pike

Yellow Perch

Black Crappie

White Bass

Common Carp

Smallmouth Bass

Bigmouth Buffalo

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.
- **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 Crappie	23	1.0	0.4	100		96		117	7
	Common Carp	1	0.0	0.1	100		100		88	
	Northern Pike	28	1.2	0.2	82	12	21	12	74	3
	Walleye	95	3.1	0.6	69	8	23	7	85	1
	White Bass	86	3.6	1.2	99		99		93	1
	White Sucker	2	0.1	0.1	100		100			
	Yellow Perch	122	5.0	1.3	60	6	55	6	119	3
frame net (std 3/4 in)	Bigmouth Buffalo	6	0.6	0.4	100		17			
	Black Crappie	40	4.0	1.4	100		100		109	2
	Common Carp	14	1.4	0.8	100		93		92	2
	Northern Pike	84	8.4	4.8	92	5	7	4	74	1
	Smallmouth Bass	9	0.9	0.4	56		33		98	4
	Walleye	32	2.6	1.7	77	13	58	15	80	2
	White Bass	9	0.9	0.6	100		100		93	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	
		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
AFS std frame net	Black Bullhead				0.3								0.30
	Black Crappie				0.2								0.20
	Common Carp				5.0								5.00
	Northern Pike				0.8								0.80
	Smallmouth Bass				0.7								0.70
	Walleye				2.0								2.00
	White Bass				0.7								0.70
	Yellow Perch				0.2								0.20
AFS std gill net	Bigmouth Buffalo				0.2	0.1	0.3	0.6	0.1	0.1	0.0		0.20
	Black Bullhead				0.5	0.0	0.0	0.5	1.2	0.6	0.0		0.40
	Black Crappie				0.6	0.1	0.1	1.5	1.5	1.8	1.0		0.94
	Common Carp				2.7	2.2	0.9	1.7	1.0	0.9	0.0		1.34
	Northern Pike				0.5	0.3	0.0	0.8	1.9	1.6	1.2		0.90
	Smallmouth Bass				0.0	0.1	0.0	0.0	0.1	0.0	0.0		0.03
	Walleye				6.0	3.1	2.1	3.9	4.4	4.7	3.1		3.90
	White Bass				14.0	5.9	2.6	3.4	2.2	1.8	3.6		4.79
	White Sucker				0.0	0.0	0.0	0.0	0.1	0.0	0.1		0.03
Yellow Perch				4.6	1.6	8.9	8.2	2.5	1.8	5.0		4.66	
fall night EF-WAE*	Walleye	40.5	35.5										38.00
frame net (std 3/4 in)	Bigmouth Buffalo	0.0	0.3	0.4		1.7	1.4	8.4	27.8	0.7	0.6		4.59
	Black Bullhead	3.6	0.4	0.4		0.3	3.1	3.5	15.6	0.6	0.0		3.06
	Black Crappie	5.6	1.7	0.6		6.4	10.1	10.1	9.4	2.3	4.0		5.58
	Bluegill	0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.0	0.0		0.01
	Common Carp	2.1	10.0	6.7		1.5	5.0	5.0	3.4	0.3	1.4		3.93
	Northern Pike	2.5	5.8	5.4		1.2	0.0	3.3	11.4	2.7	8.4		4.52
	Smallmouth Bass	0.2	0.1	1.0		0.1	0.1	0.7	1.4	1.0	0.9		0.61
	Walleye	1.7	1.0	3.1		2.5	1.6	2.8	5.9	1.4	2.6		2.51
	White Bass	0.5	0.6	3.6		4.4	0.6	1.8	2.4	0.6	0.9		1.71
	White Sucker	0.6	0.0	0.4		0.1	0.1	0.1	0.1	0.0	0.0		0.16
Yellow Perch	0.1	0.0	0.0		0.0	0.4	0.3	0.0	0.0	0.0		0.09	
std exp gill net	Black Bullhead	1.2	0.0	0.3									0.50
	Black Crappie	1.6	2.3	2.3									2.07
	Common Carp	1.0	1.0	1.0									1.00

CPUE

Gear	Species	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Avg
std exp gill net	Lamprey Family	0.0	0.0	0.0								0.00
	Northern Pike	4.0	1.5	0.7								2.07
	Spottail Shiner	0.0	0.0	0.0								0.00
	Walleye	13.4	20.5	22.3								18.73
	White Bass	4.6	6.8	5.3								5.57
	White Sucker	0.2	0.0	0.0								0.07
	Yellow Perch	20.2	12.8	10.7								14.57

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											
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
AFS std frame net	Black Crappie	PSD				0								
		PSD-P				0								
		Wr				113								
	Common Carp	PSD				97								
		PSD-P				87								
		Wr												
	Northern Pike	PSD				100								
		PSD-P				60								
		Wr				83								
	Smallmouth Bass	PSD				25								
		PSD-P				0								
		Wr				91								
	Walleye	PSD				25								
		PSD-P				17								
		Wr				82								
	White Bass	PSD				25								
		PSD-P				0								
		Wr				90								
Yellow Perch	PSD				100									
	PSD-P				100									
	Wr				105									
AFS std gill net	Bigmouth Buffalo	PSD				0	50	0	13	100	0			
		PSD-P				0	0	0	13	0	0			
	Black Crappie	PSD				100	100	0	100	95	100	100		
		PSD-P				100	100	0	5	70	100	96		
		Wr				98	99	110	117	111	105	117		
	Common Carp	PSD				97	100	58	86	92	100	100		
		PSD-P				46	81	50	50	46	100	100		
		Wr											88	
	Northern Pike	PSD				100	100		50	88	81	82		
		PSD-P				43	75		0	4	10	21		
		Wr				80	89		87	78	76	74		
	Smallmouth Bass	PSD							0		100			
		PSD-P							0		100			

Gear	Species	Index	Year												
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023			
AFS std gill net	Smallmouth Bass	Wr					97			100					
		PSD				15	42	17	22	28	59	69			
	Walleye	PSD-P				1	7	3	4	11	16	23			
		Wr				83	79	86	85	86	83	85			
		PSD				99	100	100	93	100	100	99			
	White Bass	PSD-P				51	90	100	91	100	100	99			
		Wr				92	86	97	101	94	94	93			
		PSD									100		100		
	White Sucker	PSD-P									100		100		
		PSD													
	Yellow Perch	PSD				78	100	49	90	91	96	60			
		PSD-P				48	70	38	21	47	67	55			
		Wr				114	106	112	118	114	107	119			
	frame net (std 3/4 in)	Bigmouth Buffalo	PSD		67	75		88	9	6	96	100	100		
			PSD-P		33	50		76	9	1	4	33	17		
Black Crappie		PSD	91	100	100		98	27	95	95	100	100			
		PSD-P	88	88	100		95	16	48	53	100	100			
		Wr	112	106	115		97	110	113	115	105	109			
Common Carp		PSD	90	95	98		87	98	92	93	100	100			
		PSD-P	90	57	83		80	83	44	74	100	93			
		Wr											92		
Northern Pike		PSD	80	95	100		100	0	67	70	92	92			
		PSD-P	32	31	65		67	0	24	11	21	7			
		Wr	86	79	91		71		87	77	81	74			
Smallmouth Bass		PSD	50	0	22		100	100	0	45	33	56			
		PSD-P	0	0	11		100	100	0	18	11	33			
		Wr	100	98	134		74	98	107	138	104	98			
Walleye		PSD	41	60	50		36	46	39	17	77	77			
		PSD-P	18	10	21		20	23	18	11	8	58			
		Wr	84	86	89		77	87	84	88	83	80			
White Bass		PSD	100	50	44		100	100	94	100	100	100			
		PSD-P	100	17	41		100	100	94	84	100	100			
		Wr	91	89	103		83	97	100	95	88	93			
White Sucker		PSD	83		100		100	100	100	100					
	PSD-P	83		100		100	100	100	100						
Yellow Perch	PSD	0						0	100						
	PSD-P	0						0	67						

Gear	Species	Index	Year									
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
frame net (std 3/4 in)	Yellow Perch	Wr	116						104	112		
std exp gill net	Black Crappie	PSD	100	100	100							
		PSD-P	100	100	86							
Wr		107	101	104								
	Common Carp	PSD	80	100	100							
		PSD-P	60	75	100							
	Northern Pike	PSD	80	100	100							
		PSD-P	15	33	0							
		Wr	83	80	80							
Walleye		PSD	22	20	12							
		PSD-P	0	5	0							
		Wr	80	86	83							
White Bass		PSD	96	100	69							
		PSD-P	96	96	69							
		Wr	90	93	91							
White Sucker		PSD	100									
		PSD-P	100									
Yellow Perch		PSD	54	82	63							
		PSD-P	23	31	44							
		Wr	106	110	100							

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+
2023	95	196 (20)	283 (5)	373 (7)	396 (34)	452 (11)	492 (3)	614 (1)	533 (8)	516 (3)	608 (4)
2022	62	212 (1)	300 (3)	350 (21)	420 (20)	458 (3)		525 (8)	555 (5)		605 (1)
2021	59	251 (2)	306 (28)	369 (18)	431 (1)	443 (1)	491 (4)	574 (1)	459 (2)		637 (2)
2020	52	251 (2)	307 (36)	378 (3)		427 (4)	444 (3)	486 (2)			628 (2)
2019	70	209 (42)	275 (1)	317 (2)	348 (15)	380 (8)	382 (1)				647 (1)
2018	49	250 (7)	259 (5)	338 (17)	387 (10)	412 (4)		509 (3)	515 (2)		703 (1)
2017	81	219 (3)	291 (40)	352 (23)	391 (11)		343 (1)				507 (2)
2016	88	218 (21)	294 (41)	346 (19)	412 (3)	471 (4)					
2015	129	214 (49)	280 (45)	363 (7)	374 (17)	412 (8)	434 (1)	544 (1)	525 (1)	555 (1)	
2014	93	209 (26)	324 (2)	326 (50)	398 (11)			465 (4)			

Species: Yellow Perch

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2023	122	152 (49)	233 (6)	274 (12)	288 (28)	287 (28)		321 (1)			
2022	24		227 (6)	269 (13)	279 (5)						
2021	32	140 (1)	230 (13)	256 (18)							
2019	125	163 (63)	230 (15)	263 (11)	278 (13)	305 (1)	290 (18)	310 (2)		322 (1)	
2018	23		230 (5)	268 (12)	270 (3)	292 (2)			337 (1)		
2015	51	153 (4)	210 (27)	255 (4)	264 (11)	286 (4)	245 (1)				
2014	102	147 (45)	215 (14)	240 (27)	268 (9)	260 (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).

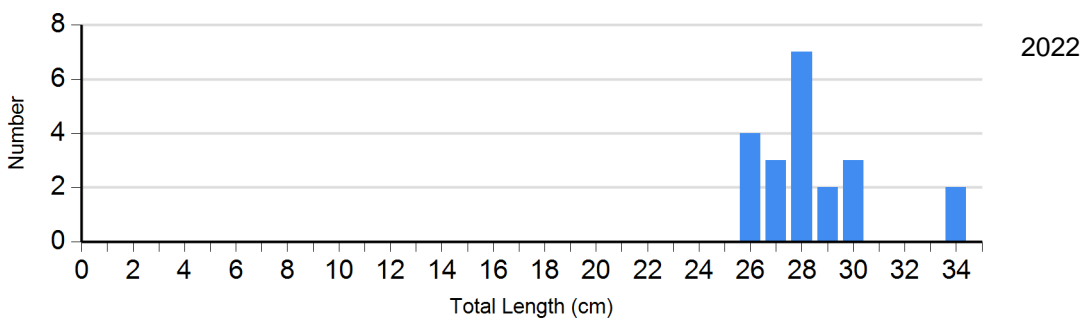
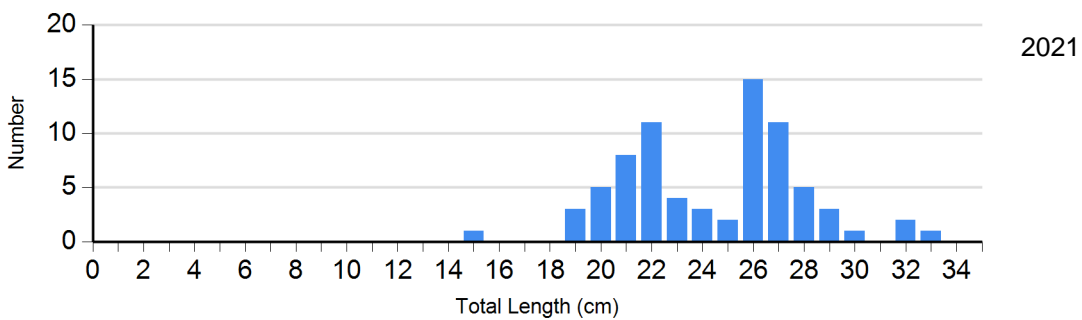
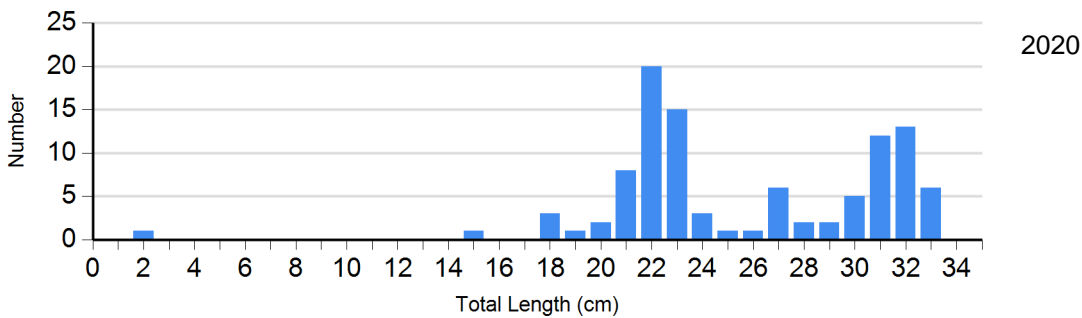
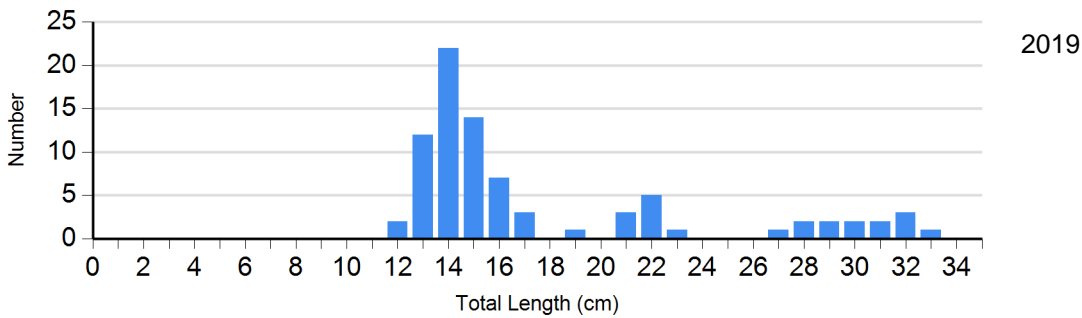
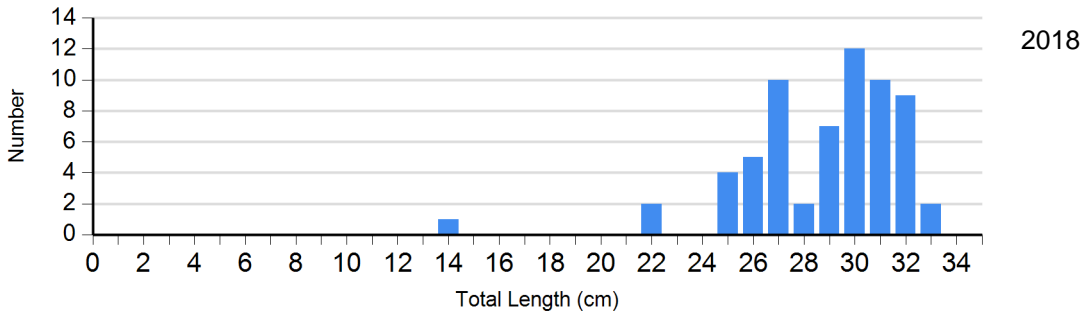
Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Crappie Frame Net	2019	59	111 (3.5)	9	113 (1.9)	5	106 (0.3)	8	100 (1.9)
	2020	5	139 (6.4)	48	118 (1.5)	12	111 (1.5)	36	107 (1.1)
	2021	4	114	31	119 (1.3)	36	112 (1.0)	4	106 (5.2)
	2022	0		0		16	107 (1.4)	5	102 (2.6)
	2023	0		0		22	111 (1.7)	18	106 (1.6)
Common Carp Gill Net	2023	0		0		0		1	88
Northern Pike Gill Net	2020	5	82 (3.9)	5	92 (3.7)	0		0	
	2021	3	79 (7.7)	21	78 (1.4)	0		1	83
	2022	4	72 (0.8)	15	76 (1.6)	2	81 (13.4)	0	
	2023	5	70 (2.1)	17	71 (2.5)	4	88 (4.7)	2	85 (6.7)
Walleye Gill Net	2019	24	86 (1.2)	4	83 (3.6)	0		1	96
	2020	40	85 (1.1)	9	85 (1.0)	1	89	1	89
	2021	41	86 (1.0)	10	90 (2.1)	5	84 (2.5)	1	90
	2022	25	80 (1.1)	26	83 (1.2)	10	91 (2.2)	0	
	2023	23	86 (1.0)	35	84 (1.2)	16	87 (2.1)	1	80
White Bass Gill Net	2019	0		0		33	98 (0.6)	4	91 (1.7)
	2020	3	103 (2.2)	1	105	18	101 (1.2)	22	100 (1.0)
	2021	0		0		12	95 (1.3)	17	93 (1.0)
	2022	0		0		10	95 (1.4)	14	93 (1.6)
	2023	1		0		30	97 (1.2)	55	90 (0.8)
Yellow Perch Gill Net	2019	64	107 (1.3)	13	124 (3.0)	37	117 (1.3)	11	104 (6.7)
	2020	11	114 (3.8)	73	118 (1.0)	17	119 (2.8)	6	123 (3.3)

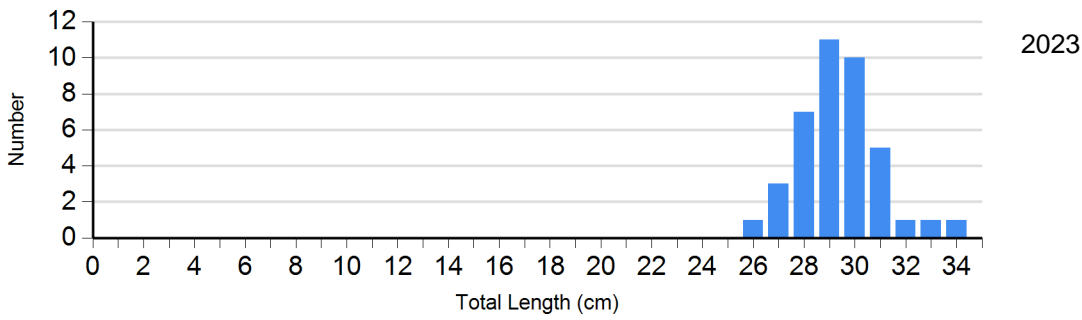
Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Yellow Perch Gill Net	2021	3	105 (1.2)	14	113 (2.8)	15	117 (2.6)	0	
	2022	1	105	7	107 (4.1)	16	107 (2.4)	0	
	2023	48	134 (4.7)	7	114 (3.0)	51	112 (1.3)	15	107 (2.1)

Length Frequency Distribution

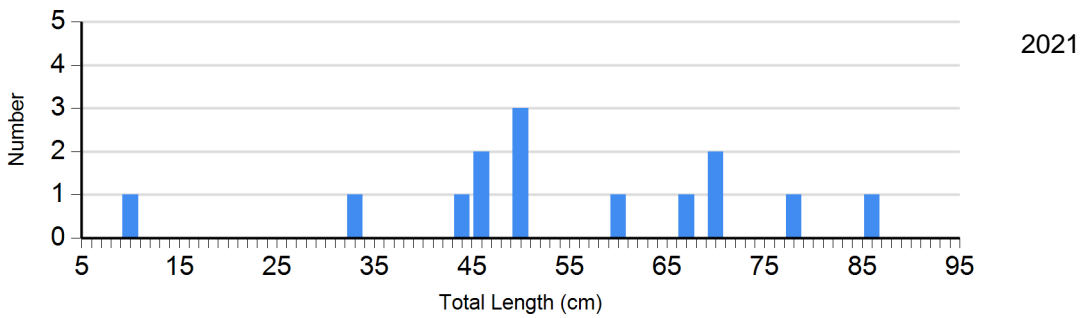
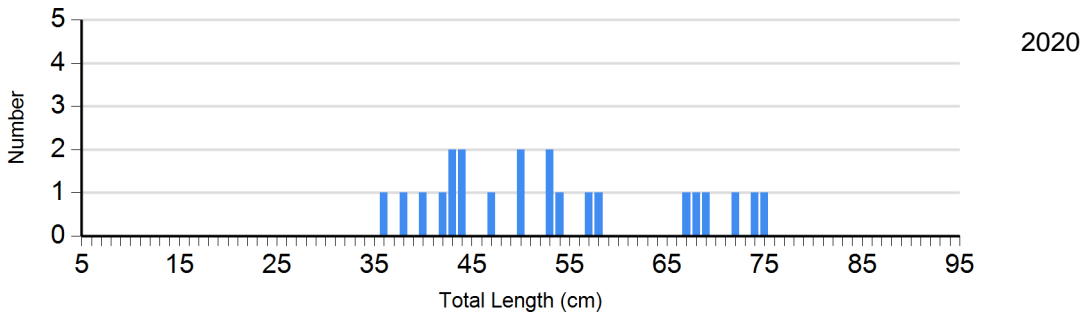
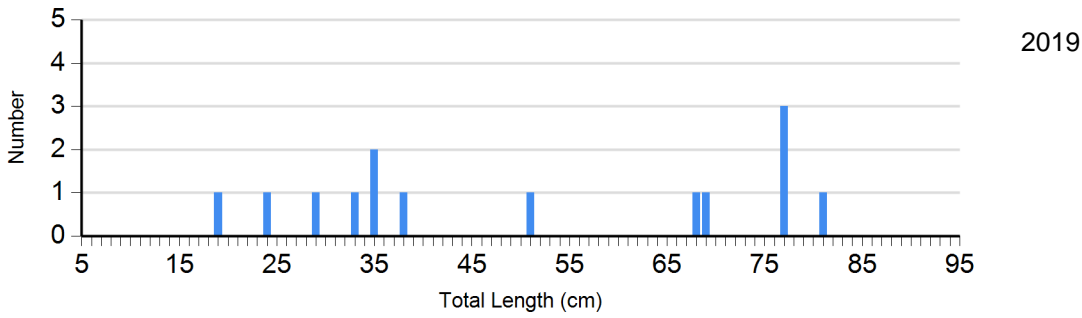
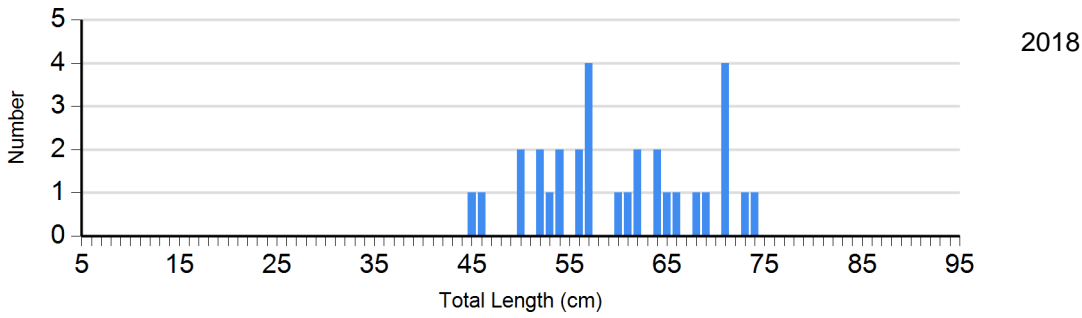
Length frequency histogram of species sampled by year.

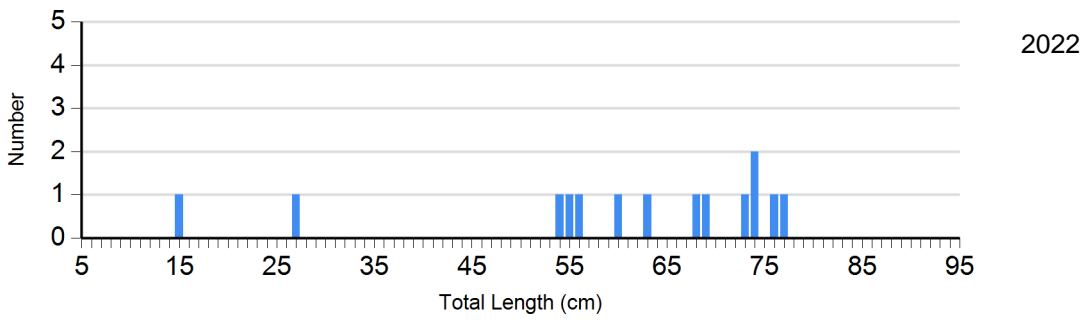
Species: Black Crappie
Gear: frame net (std 3/4 in)



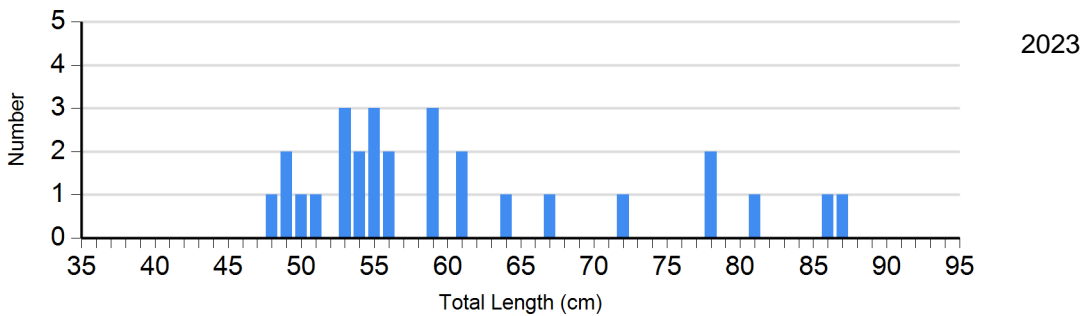
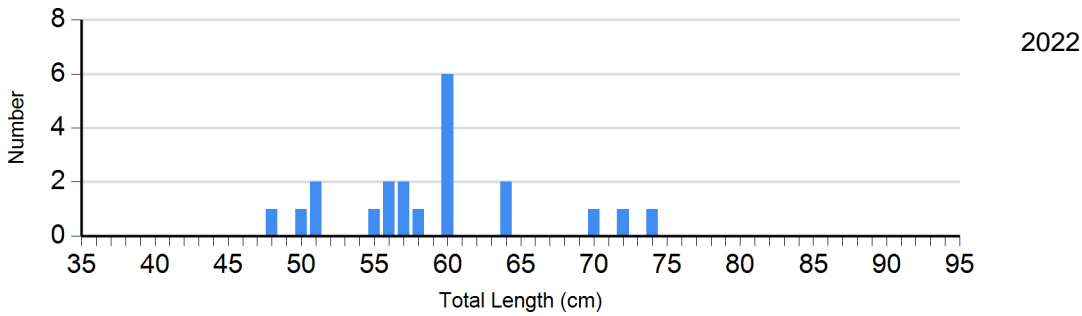
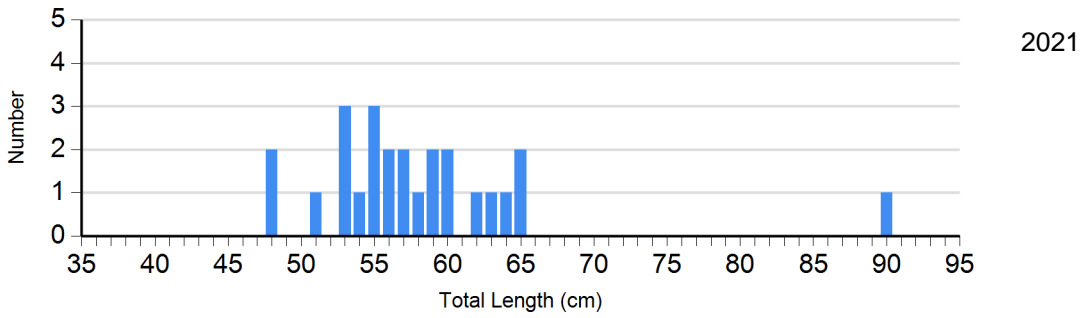
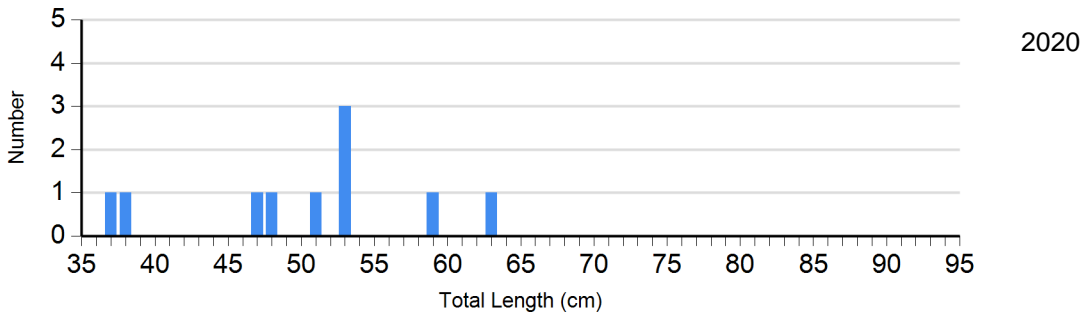


Species: Common Carp
Gear: AFS std gill net

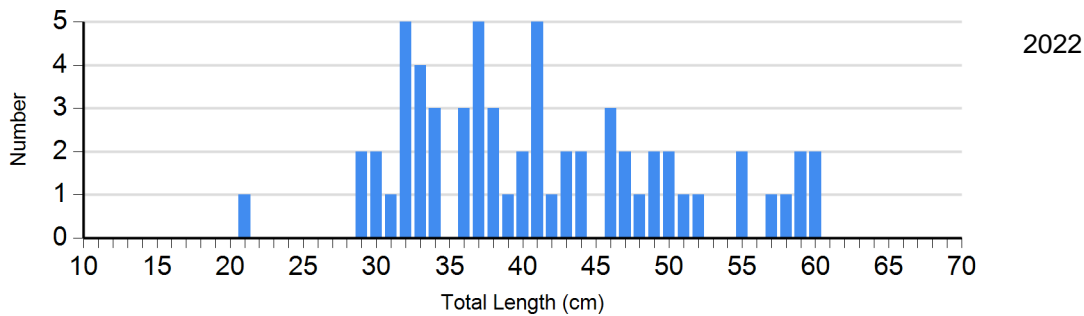
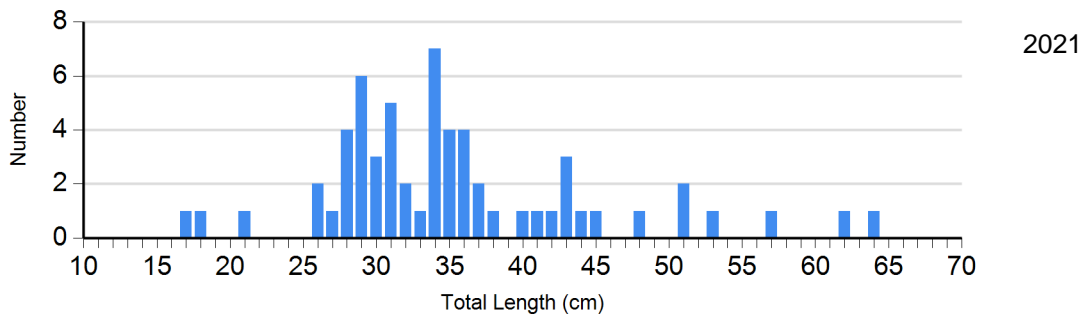
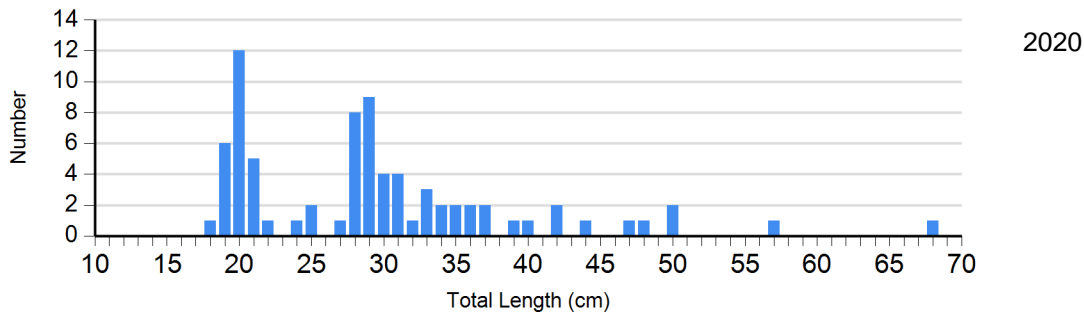
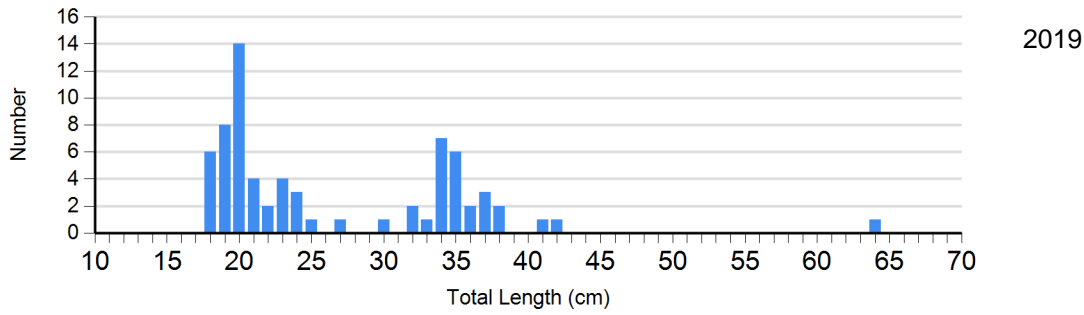
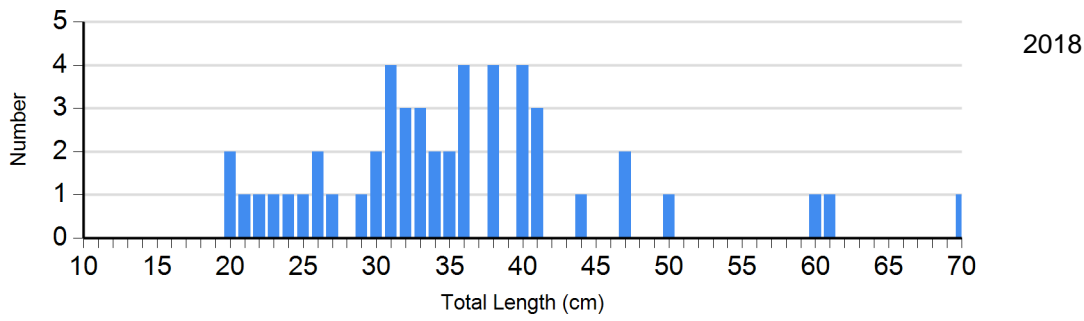


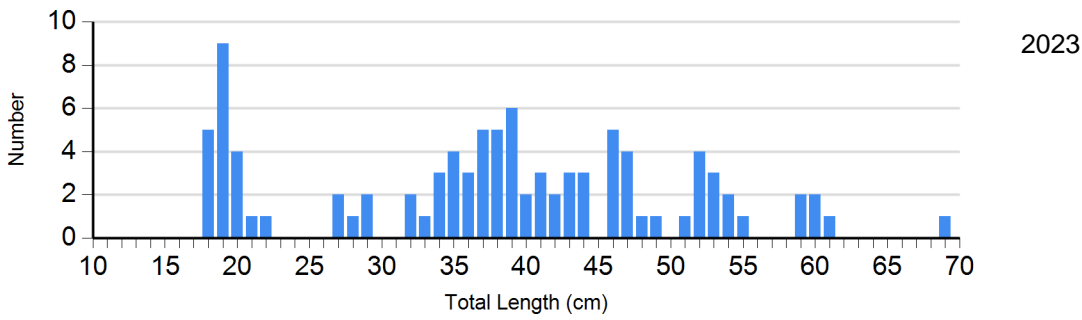


Species: Northern Pike
 Gear: AFS std gill net

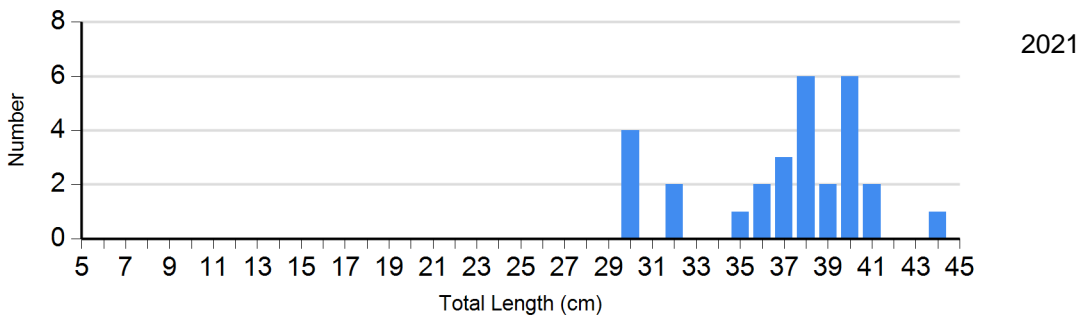
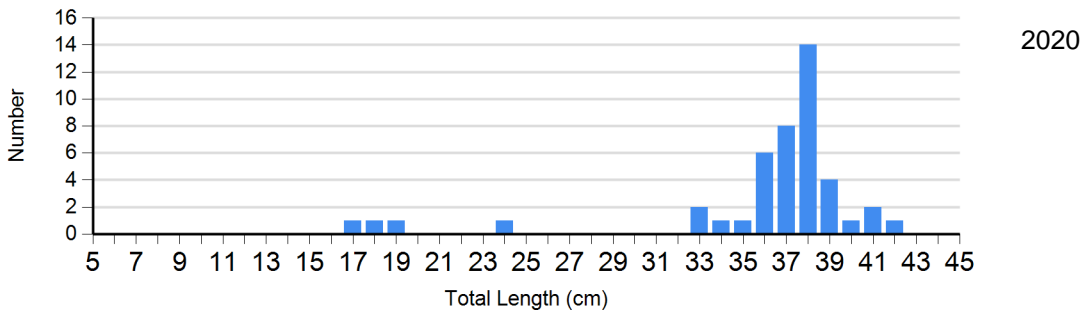
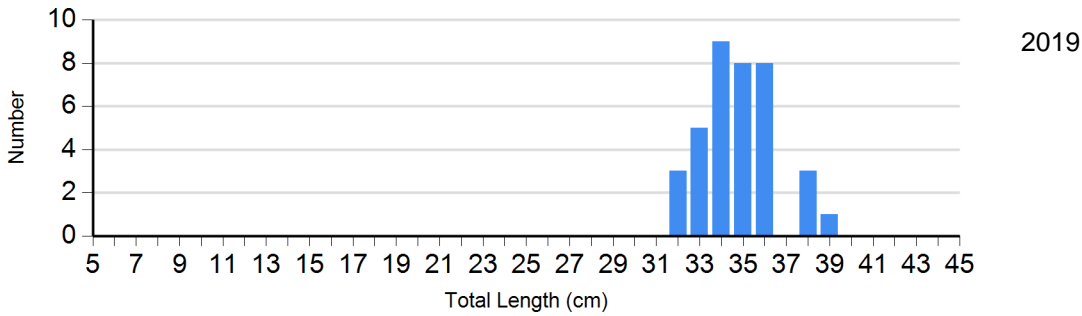
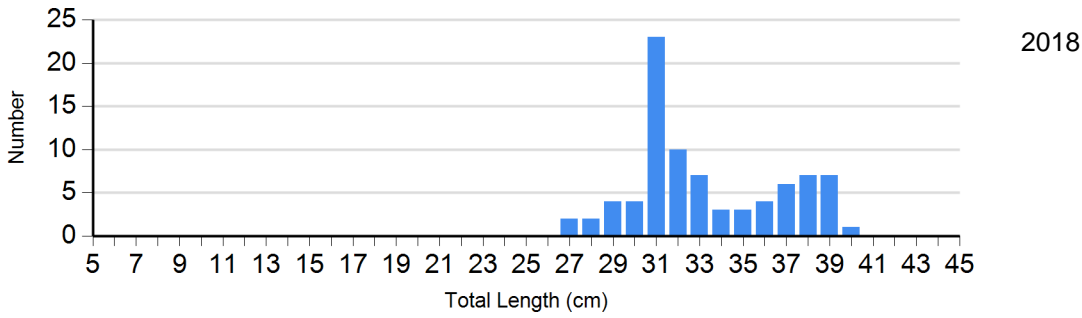


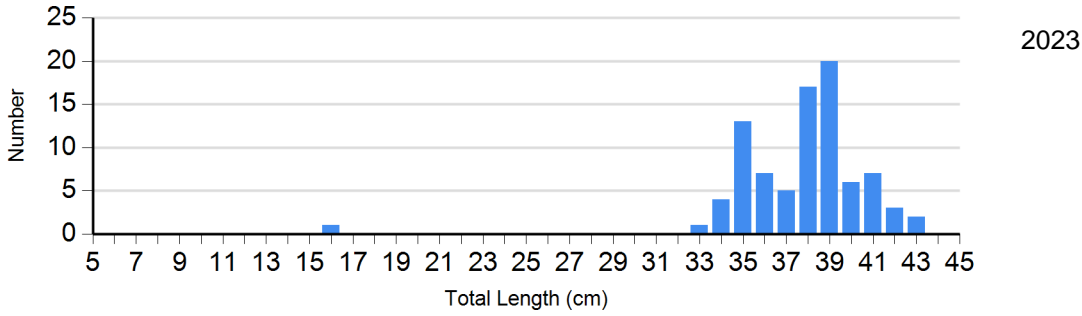
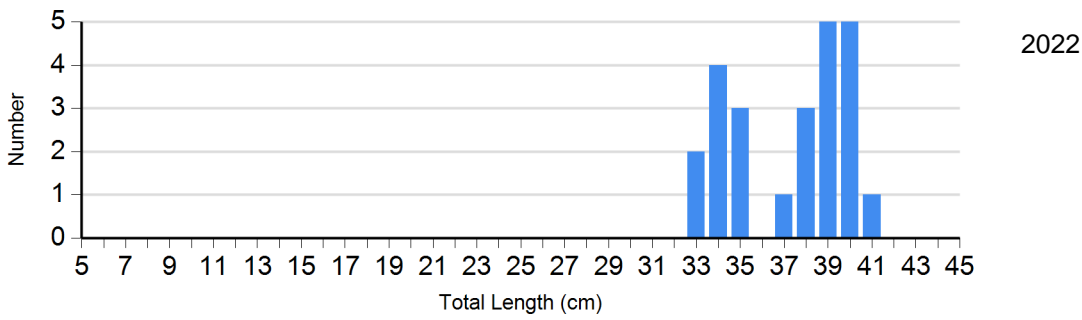
Species: Walleye
Gear: AFS std gill net



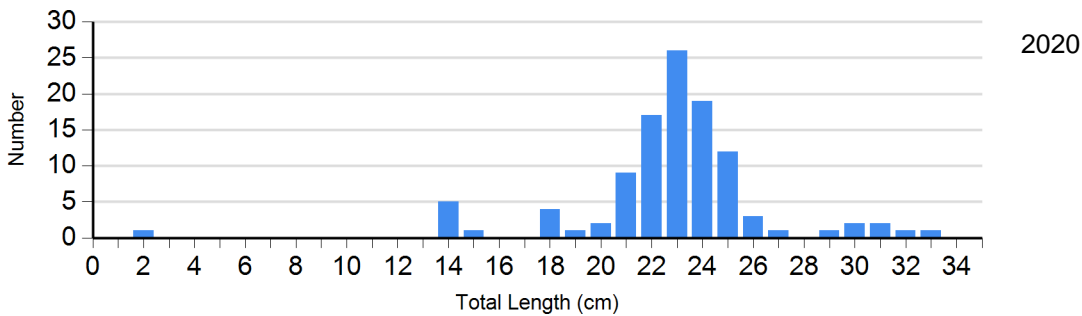
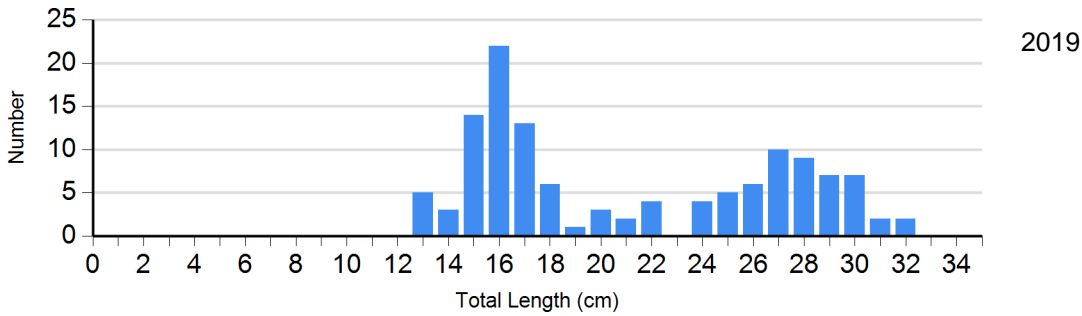
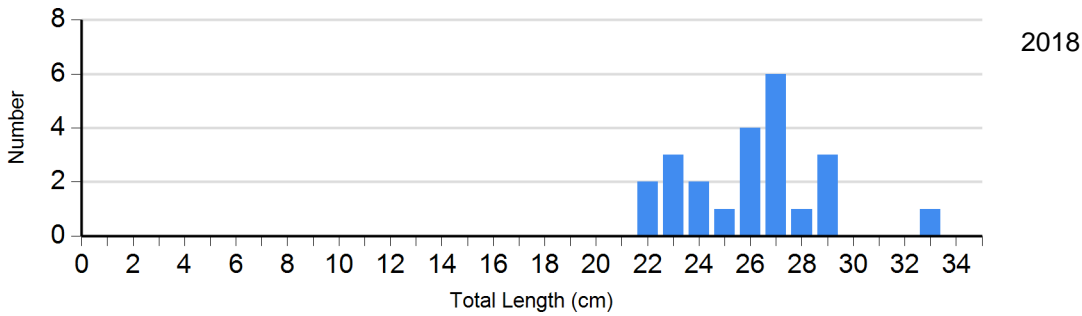


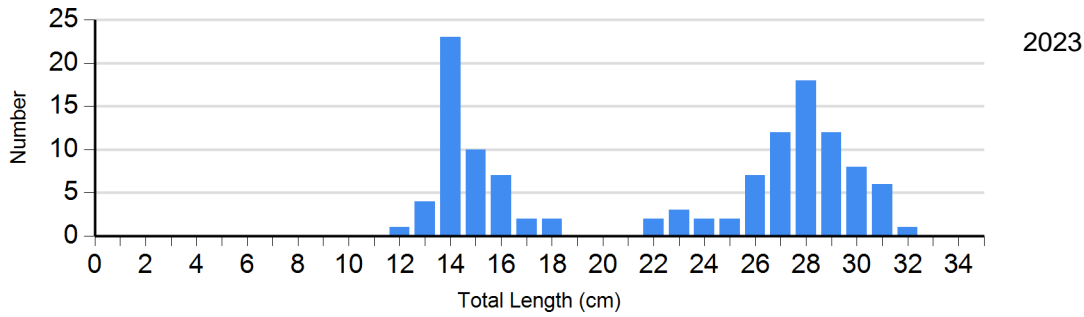
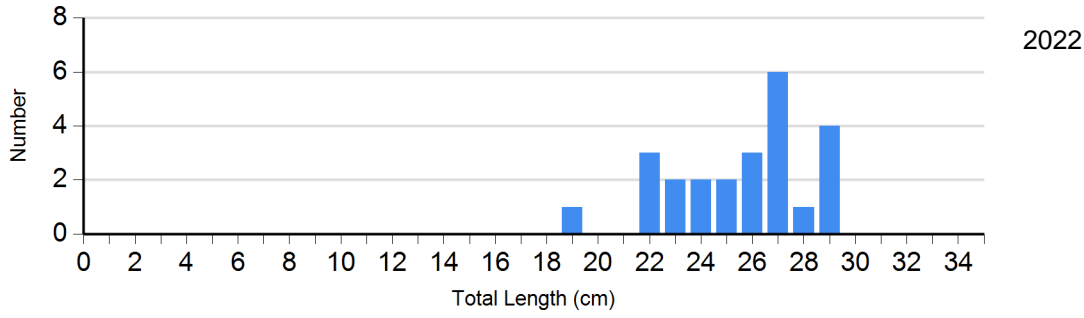
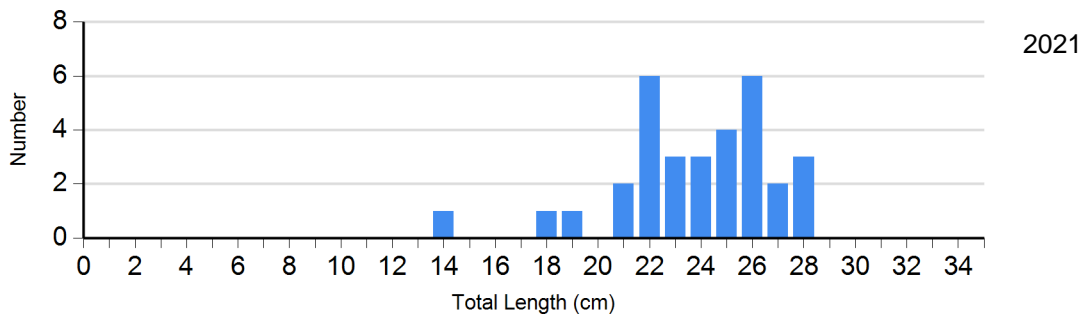
Species: White Bass
Gear: AFS std gill net





Species: Yellow Perch
Gear: AFS std gill net

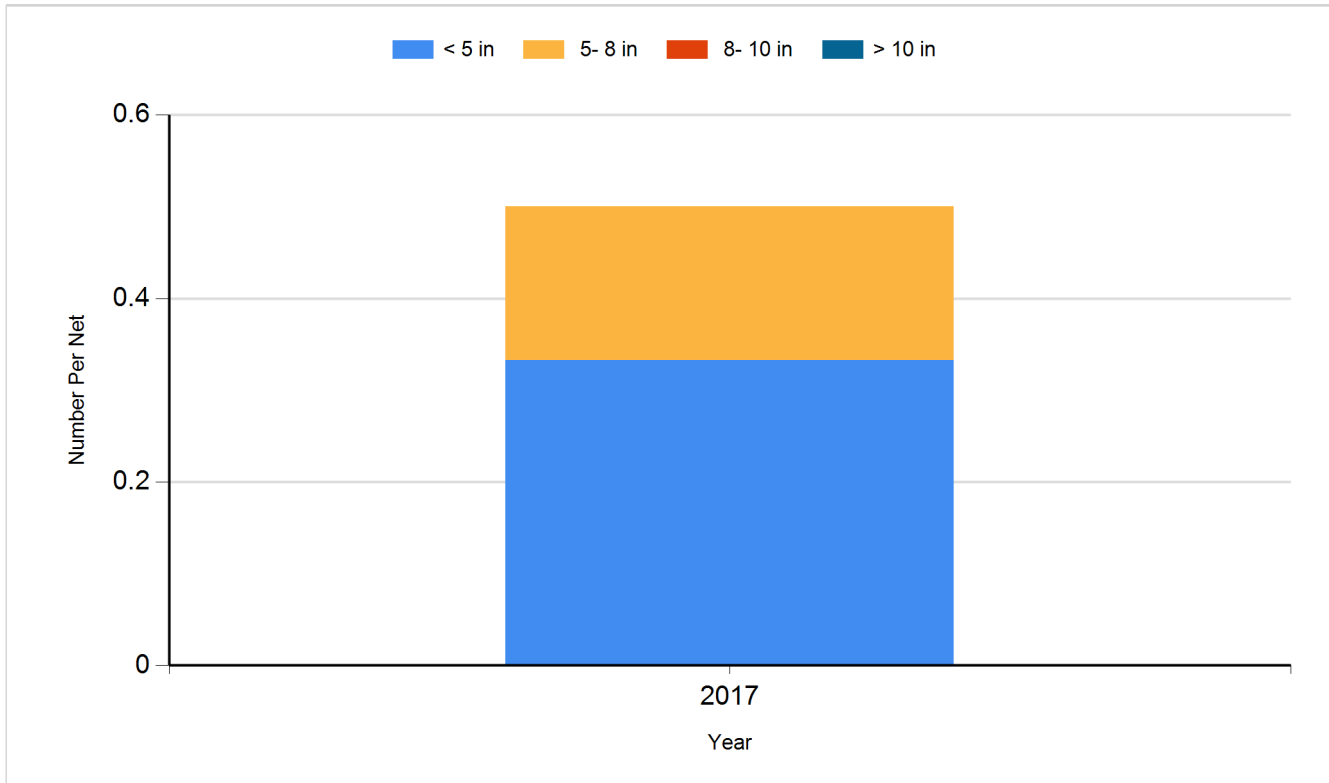




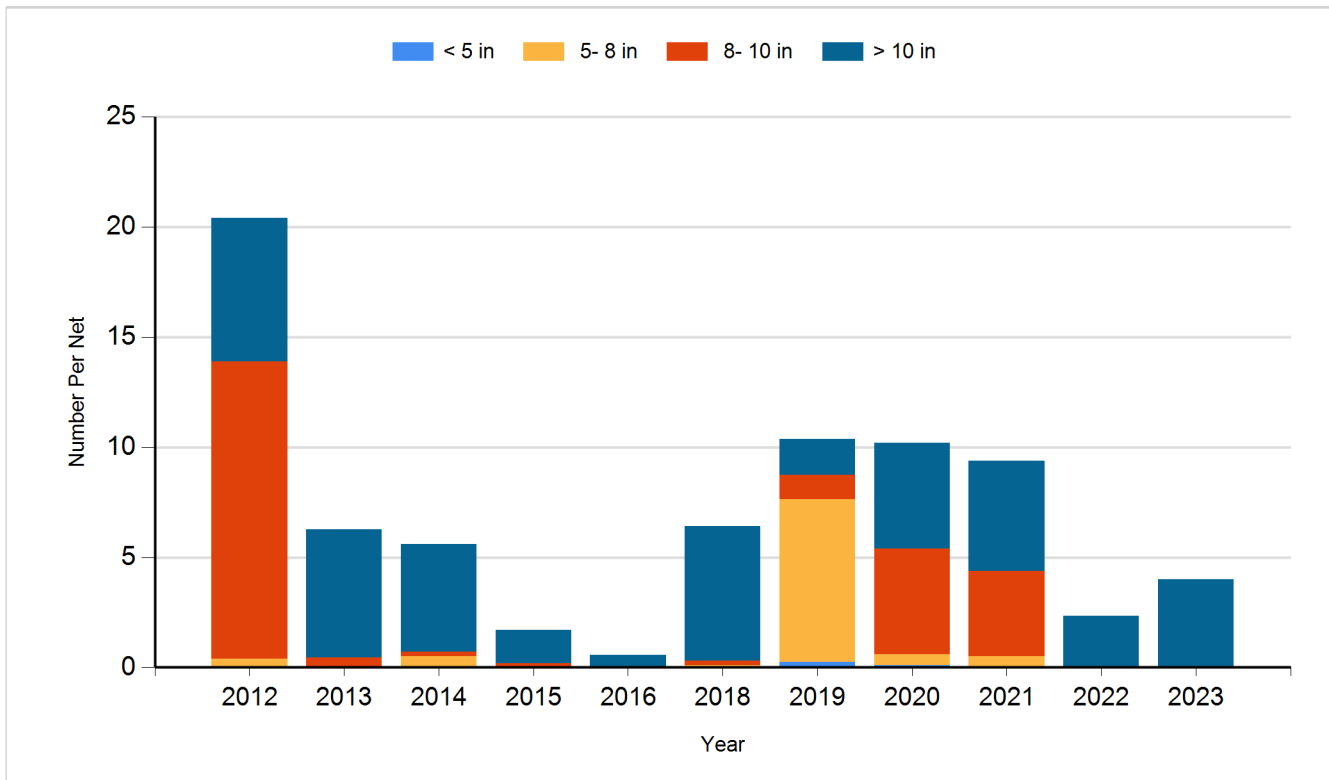
Historic Fish Sizes and Relative Abundance

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

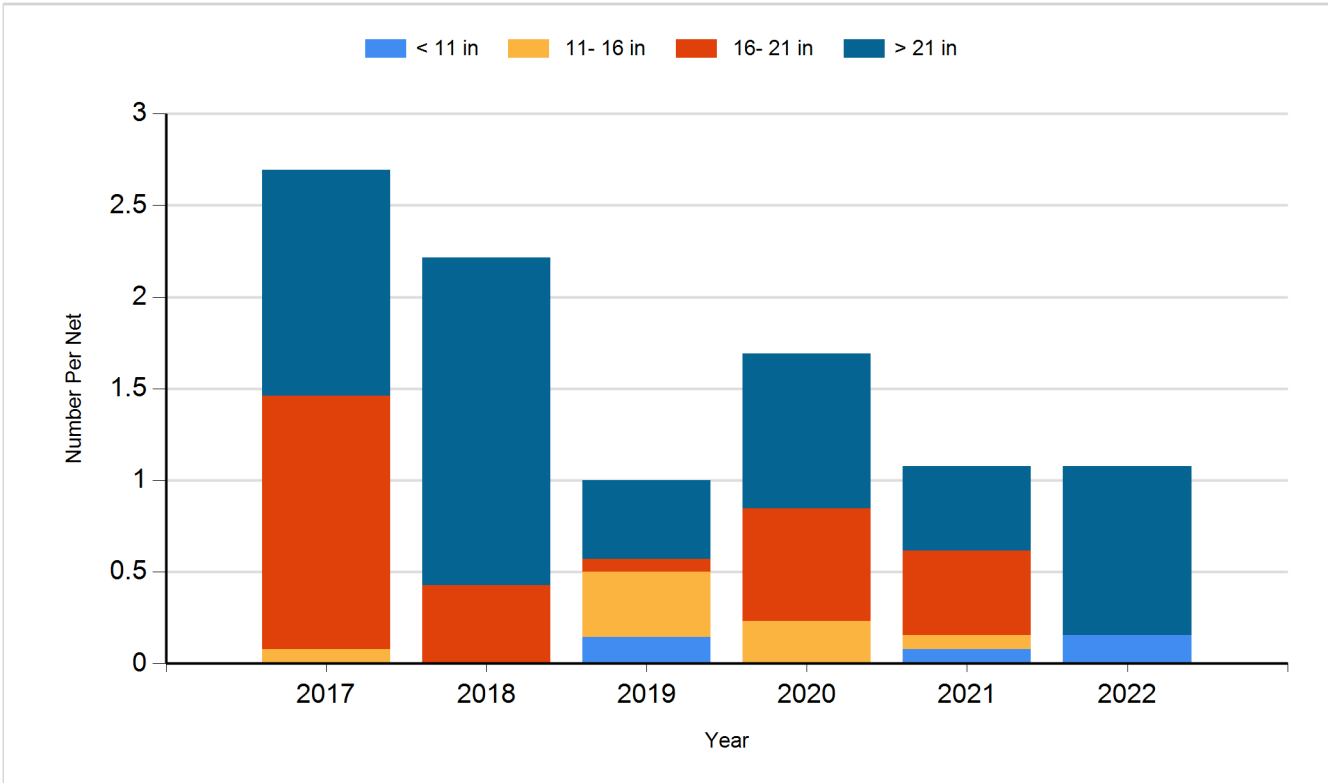
Species: Black Crappie
Gear: AFS std frame net



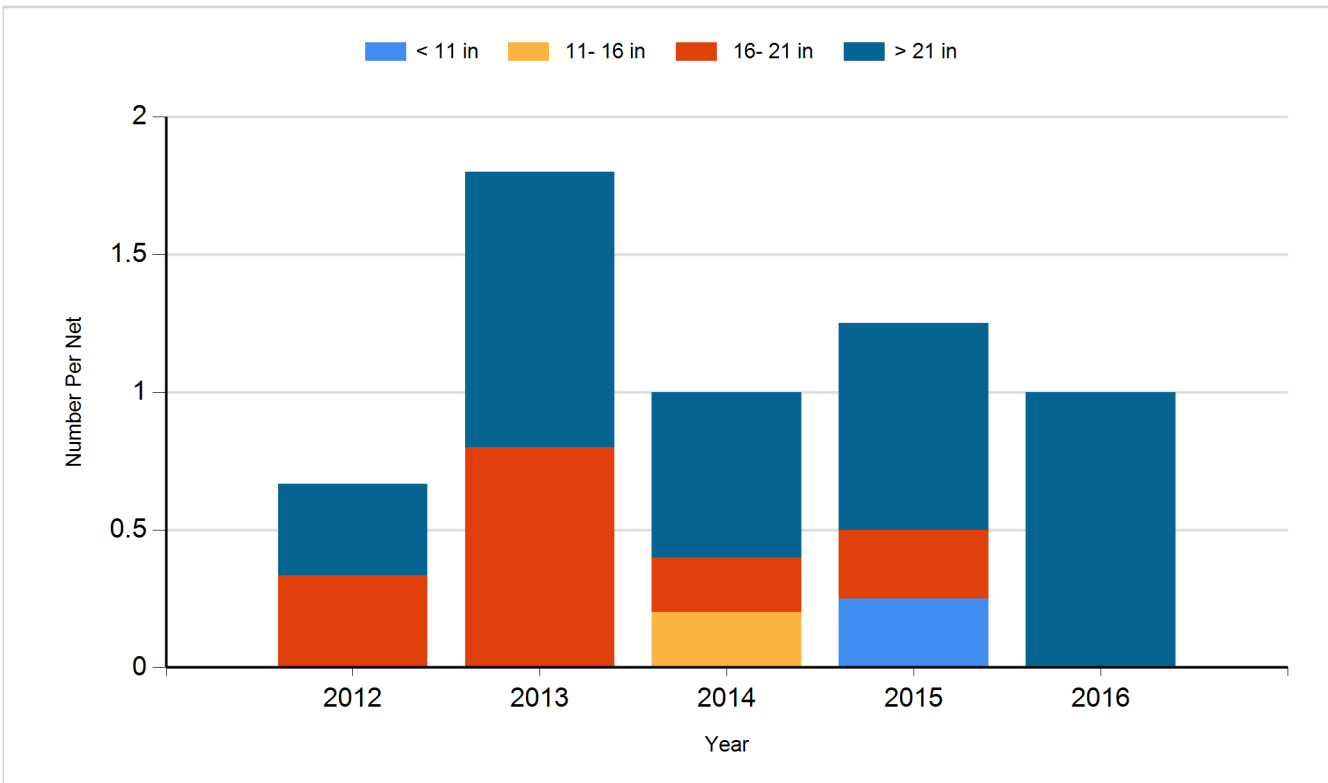
Species: Black Crappie
Gear: frame net (std 3/4 in)



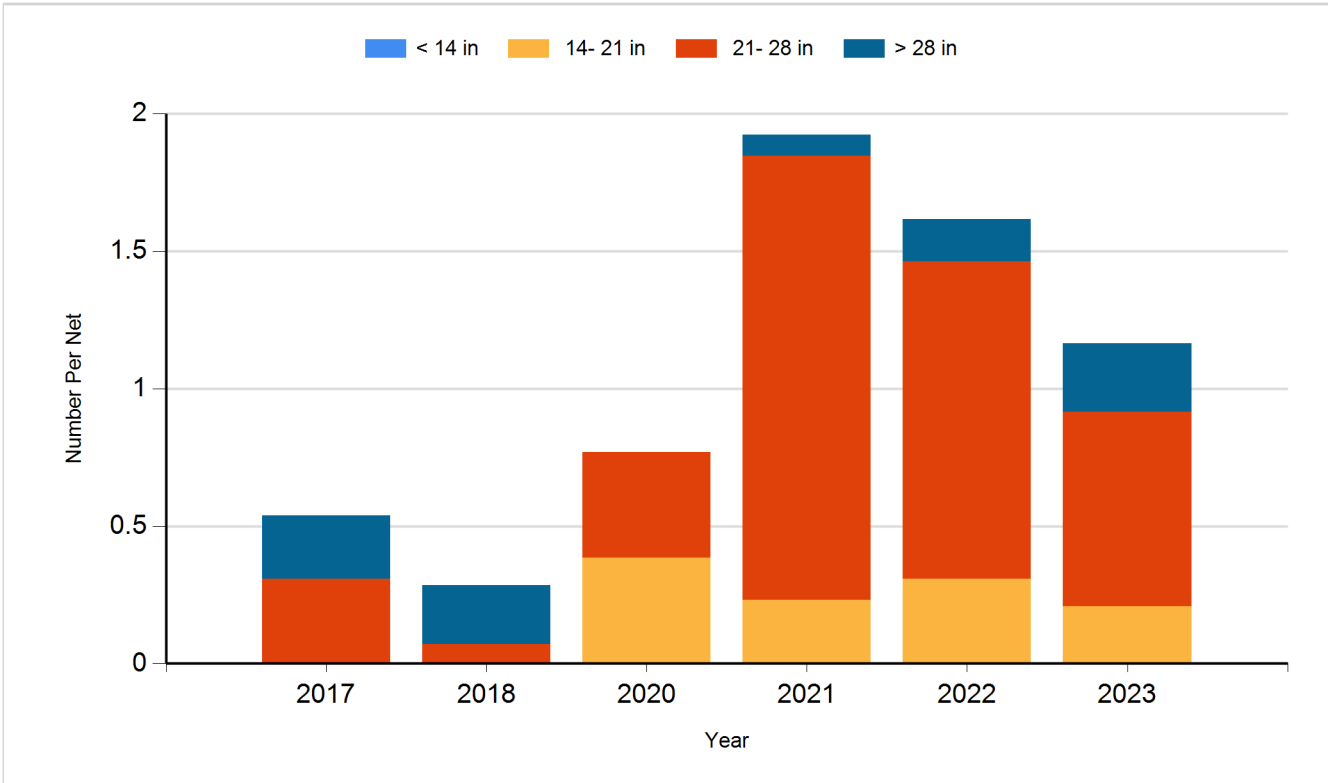
Species: Common Carp
Gear: AFS std gill net



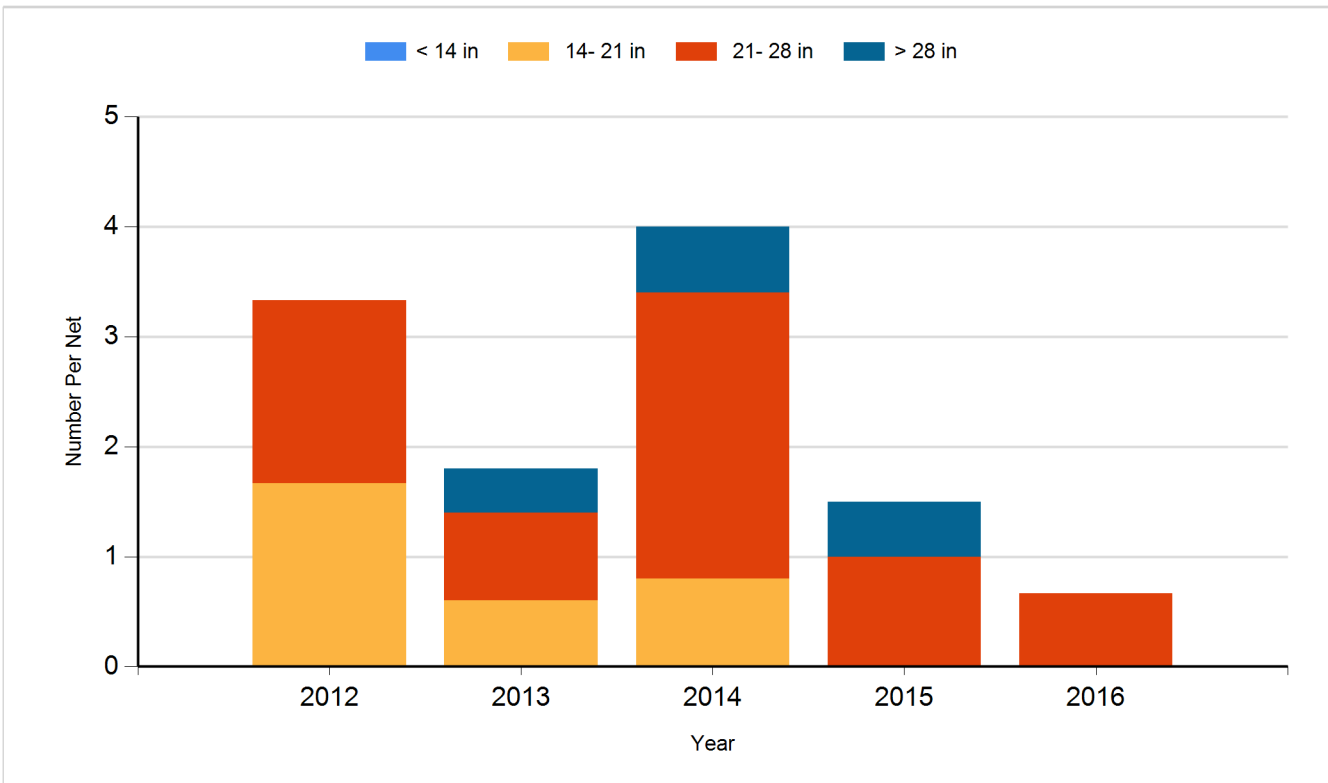
Species: Common Carp
Gear: std exp gill net



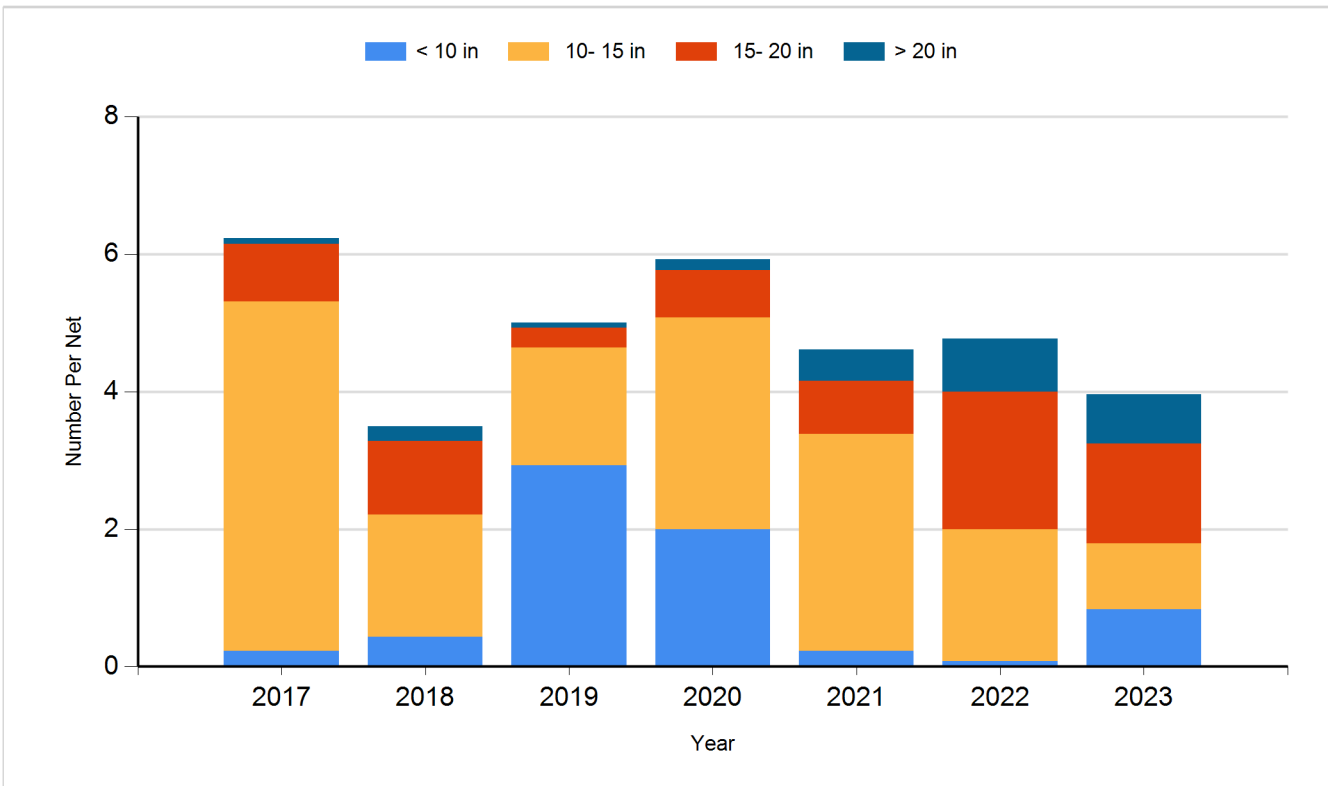
Species: Northern Pike
Gear: AFS std gill net



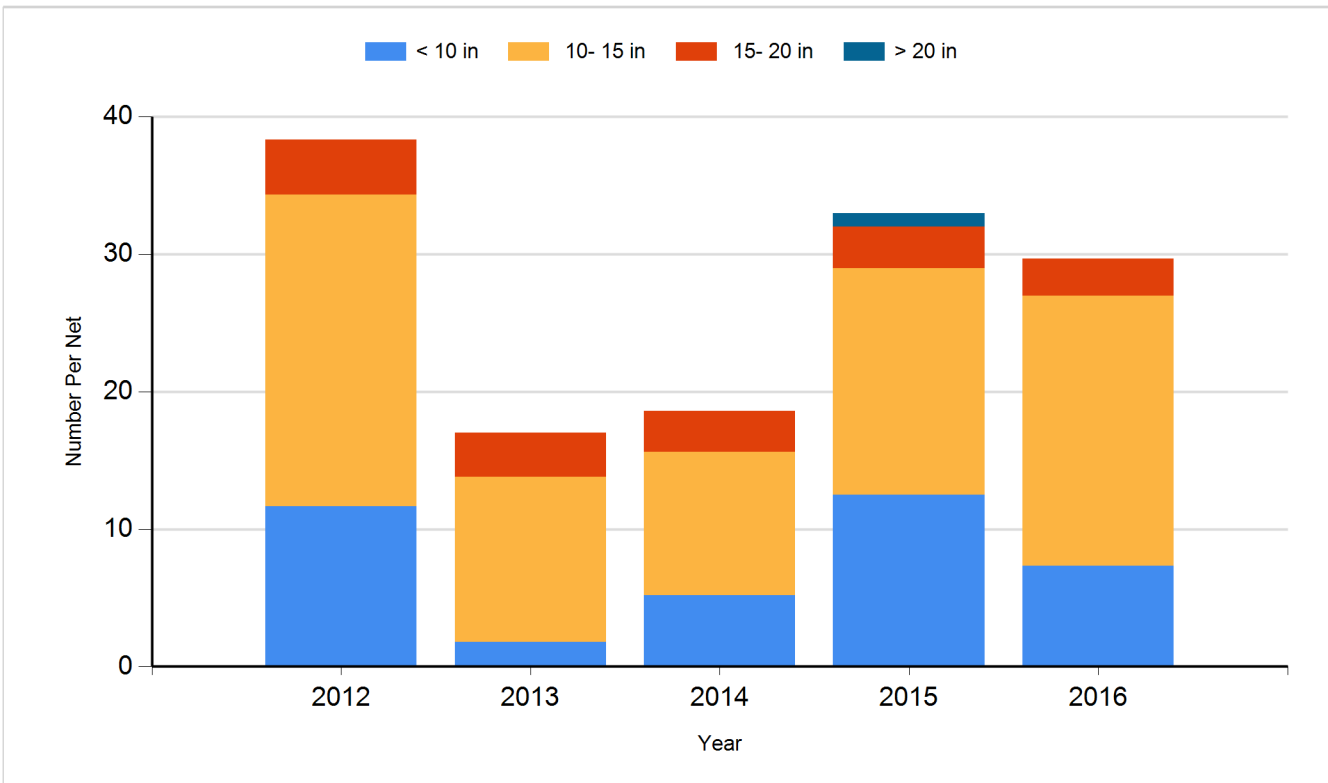
Species: Northern Pike
Gear: std exp gill net



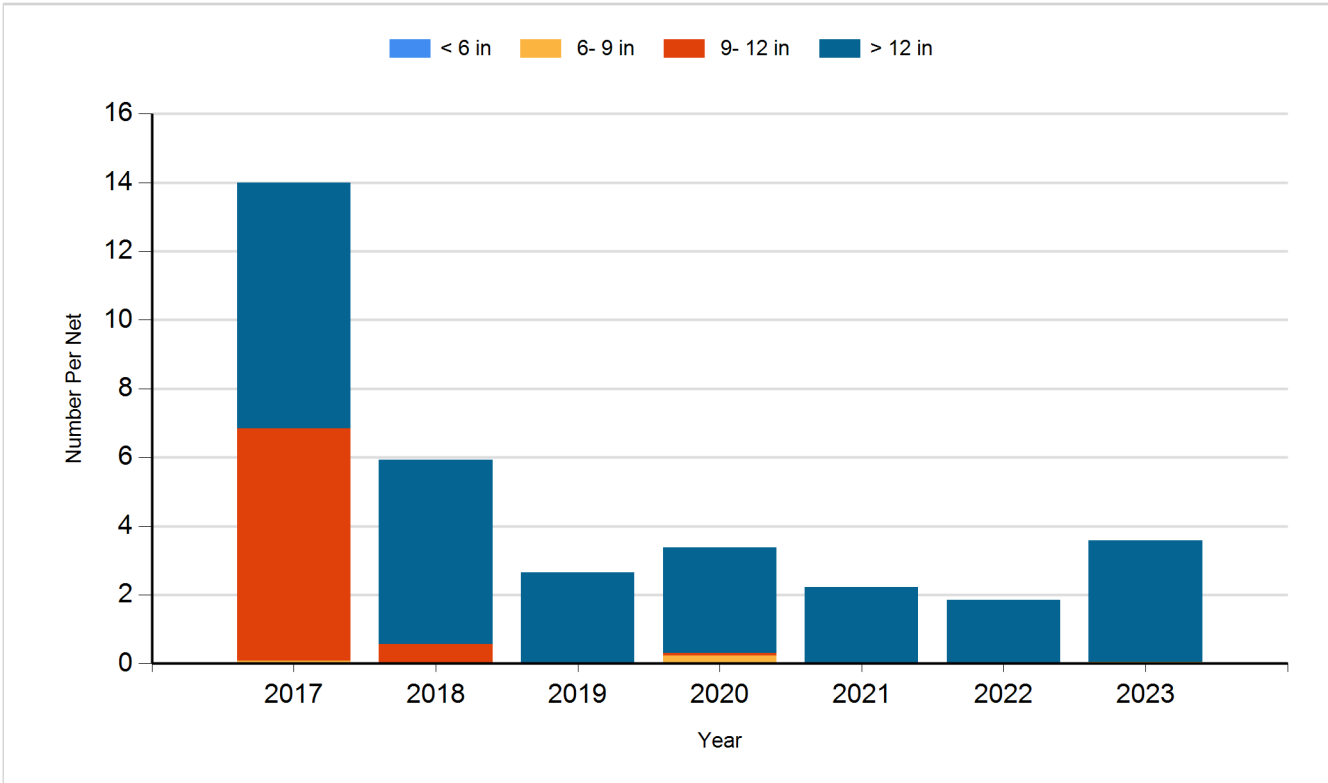
Species: Walleye
Gear: AFS std gill net



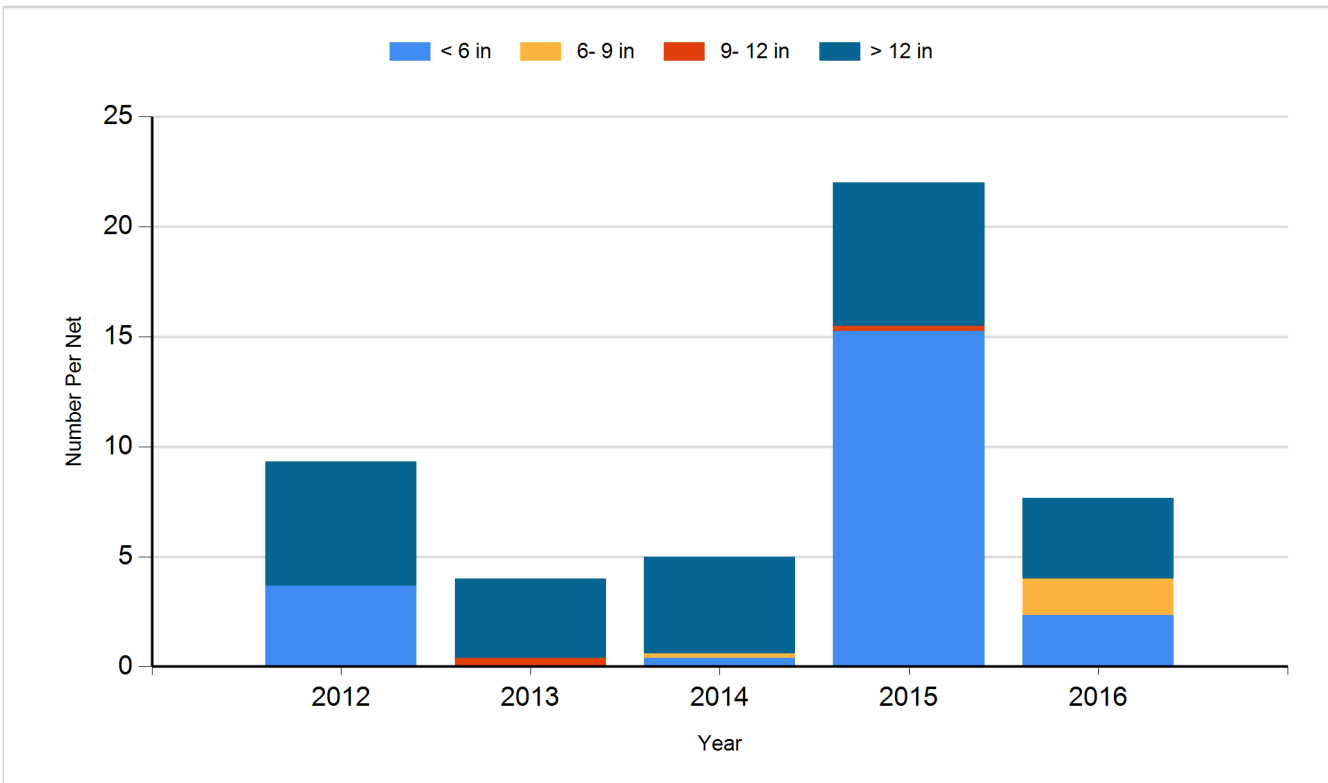
Species: Walleye
Gear: std exp gill net



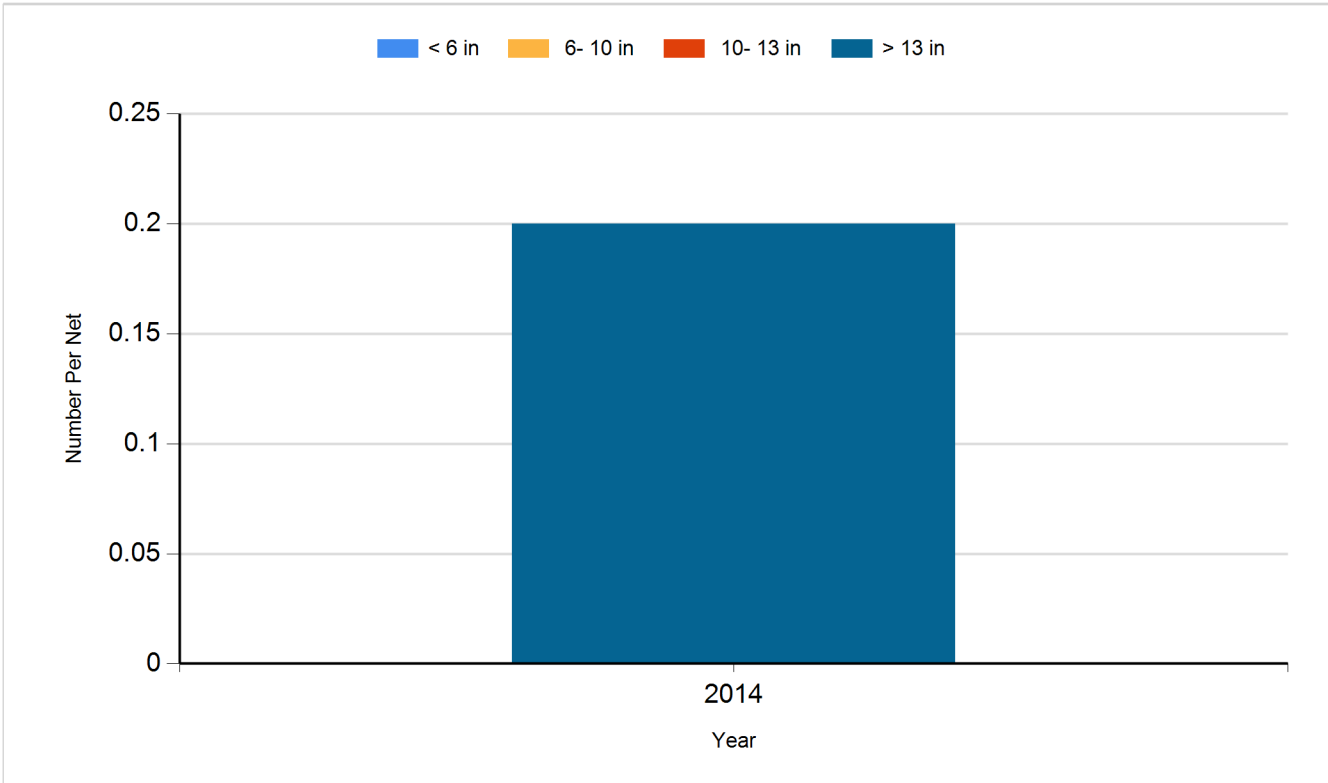
Species: White Bass
Gear: AFS std gill net



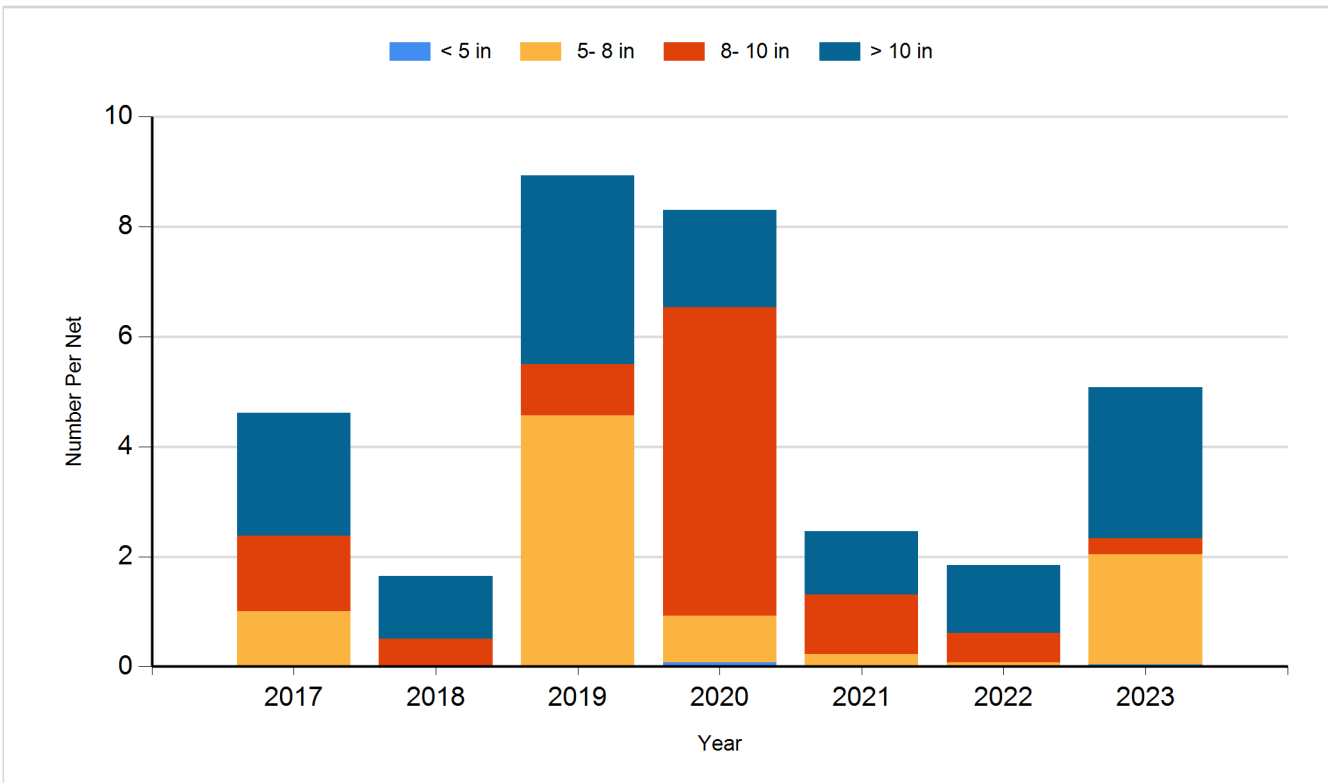
Species: White Bass
Gear: std exp gill net



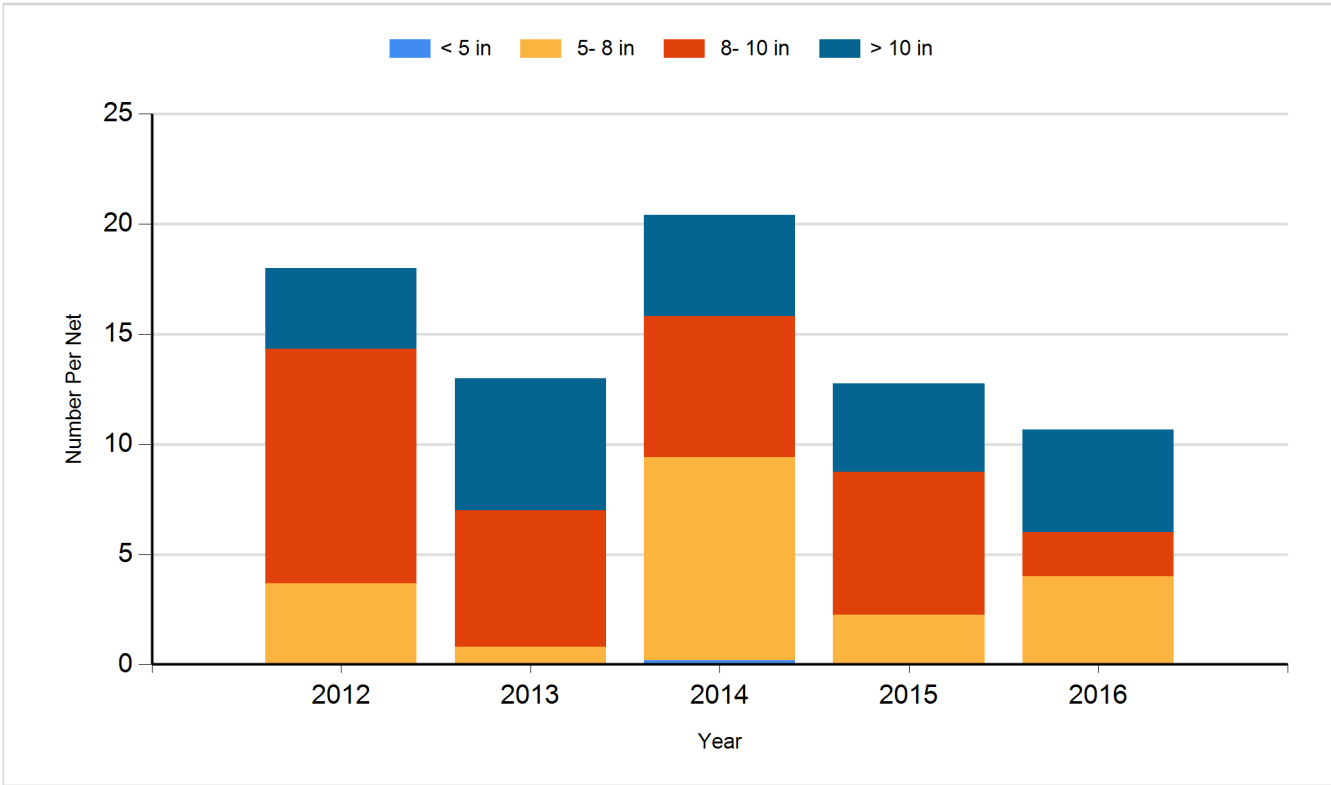
Species: White Sucker
Gear: std exp gill net



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
2014	Walleye	Fry	6,200,000
2015	Walleye	Fry	6,200,000
2018	Walleye	Fry	6,200,000
2019	Walleye	Fry	6,200,000
2022	Walleye	Fry	11,800,000