

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Kampeska, Codington County
UBS-Lake-171-000
2024

Lake Information

Name:	Kampeska	Maximum Depth:	16 Feet
County:	Codington	Mean Depth:	7 Feet
		OHWM Elevation:	1,718
Surface Area:	4,987 Acres	Outlet Elevation:	1,718

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jul 16, 2024	4 net-nights
AFS std gill net	Jul 17, 2024	4 net-nights
AFS std gill net	Jul 18, 2024	4 net-nights
fall night EF-WAE	Oct 02, 2024	3600 seconds

Common Fish Species Present

White Crappie

Walleye

Smallmouth Bass

Black Crappie

Yellow Perch

Channel Catfish

Bigmouth Buffalo

White Bass

Yellow Bullhead

Northern Pike

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	33	2.8	1.3	94		3		88	1
	Bluegill	1	0.1	0.1	100		0		128	
	Channel Catfish	36	3.0	0.8	100		19	10	100	2
	Common Carp	4	0.3	0.3	100		75		102	7
	Northern Pike	4	0.3	0.3	100		100		86	6
	Shorthead Redhorse	1	0.1	0.1	100		100		109	
	Smallmouth Bass	12	1.0	0.4	58	24	33		92	4
	Walleye	29	2.3	0.6	32	14	4		80	1
	White Bass	27	2.3	0.8	85		85		77	2
	White Sucker	3	0.3	0.2	100		100		108	7
	Yellow Bullhead	9	0.8	0.6	100		100		94	2
	Yellow Perch	61	5.1	1.3	69	9	21	8	101	1

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	Bigmouth Buffalo			0.6									0.60
	Black Bullhead			0.7									0.70
	Black Crappie			1.2									1.20
	Bluegill			0.5									0.50
	Channel Catfish			0.1									0.10
	Common Carp			0.1									0.10
	Northern Pike			0.2									0.20
	Smallmouth Bass			0.4									0.40
	Walleye			0.1									0.10
	White Bass			3.1									3.10
	White Crappie			0.1									0.10
	Yellow Bullhead			1.6									1.60
Yellow Perch			0.1									0.10	
AFS std gill net	Bigmouth Buffalo		0.0	0.0	8.3	5.6		6.1	3.6	1.5	2.8		3.49
	Black Bullhead		0.4	0.4	0.3	0.0		0.8	0.0	0.0	0.0		0.24
	Black Crappie		0.0	0.1	0.0	0.0		0.1	0.0	0.0	0.0		0.03
	Bluegill		0.0	0.1	0.0	0.0		0.0	0.1	0.0	0.1		0.04
	Channel Catfish		1.0	0.9	0.3	0.4		1.8	3.1	2.3	3.0		1.60
	Common Carp		0.1	0.0	0.3	0.6		0.1	0.0	0.3	0.3		0.21
	Northern Pike		0.5	0.2	0.7	0.8		0.9	0.6	0.6	0.3		0.58
	Rock Bass		0.0	0.0	0.0	0.0		0.0	0.1	0.1	0.0		0.03
	Shorthead Redhorse		0.2	0.0	0.1	0.2		0.0	0.0	0.2	0.1		0.10
	Smallmouth Bass		0.8	1.3	0.6	0.0		1.2	1.9	0.8	1.0		0.95
	Walleye		4.6	2.7	2.6	4.0		3.3	2.1	2.8	2.3		3.05
	White Bass		1.8	1.5	1.4	2.0		1.7	1.8	1.0	2.3		1.69
	White Crappie		1.1	0.5	0.2	2.6		0.9	0.6	0.2	0.0		0.76
	White Sucker		0.6	0.6	0.8	0.3		0.0	0.4	0.1	0.3		0.39
	Yellow Bullhead		1.1	0.7	0.6	0.3		6.6	0.3	0.1	0.8		1.31
Yellow Perch		5.3	5.3	3.3	4.3		2.3	4.7	4.4	5.1		4.34	
boat shocker (day)	Smallmouth Bass					97.0							97.00
boat shocker (night)	Walleye*	7.0	7.0	41.0									18.33
boat shocker (night, DC)	Smallmouth Bass		159.8										159.80

		CPUE										
Gear	Species	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Avg
fall night EF-WAE*	Walleye				75.0	54.2		36.6		126.0	2.0	58.76
frame net (std 3/4 in)	Bigmouth Buffalo									5.6		5.60
	Black Bullhead									0.1		0.10
	Black Crappie									0.0		0.00
	Bluegill									1.3		1.30
	Channel Catfish									0.1		0.10
	Common Carp									0.2		0.20
	Northern Pike									0.5		0.50
	Rock Bass									0.1		0.10
	Smallmouth Bass									2.7		2.70
	Walleye									0.3		0.30
	White Bass									0.4		0.40
	White Crappie									0.0		0.00
	White Sucker									0.2		0.20
	Yellow Bullhead									1.2		1.20
Yellow Perch									0.1		0.10	
std exp gill net	Black Bullhead	2.3										2.30
	Channel Catfish	0.2										0.20
	Common Carp	0.0										0.00
	Northern Pike	1.0										1.00
	Shorthead Redhorse	0.3										0.30
	Smallmouth Bass	1.2										1.20
	Walleye	11.5										11.50
	White Bass	4.7										4.70
	White Crappie	0.3										0.30
	White Sucker	2.2										2.20
Yellow Bullhead	0.8										0.80	
Yellow Perch	13.0										13.00	

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	Bigmouth Buffalo	PSD			100																			
		PSD-P			100																			
		Wr			104																			
	Black Crappie	PSD			65																			
		PSD-P			17																			
		Wr			104																			
	Channel Catfish	PSD			100																			
		PSD-P			100																			
		Wr			104																			
	Northern Pike	PSD			100																			
		PSD-P			100																			
		Wr			104																			
	Smallmouth Bass	PSD			57																			
		PSD-P			0																			
		Wr			93																			
	Walleye	PSD			0																			
		PSD-P			0																			
		Wr			76																			
	White Bass	PSD			100																			
		PSD-P			87																			
		Wr			79																			
	White Crappie	PSD			100																			
		PSD-P			100																			
		Wr			82																			
Yellow Bullhead	PSD			100																				
	PSD-P			100																				
	Wr			98																				
Yellow Perch	PSD			100																				
	PSD-P			0																				
	Wr			86																				
AFS std gill net	Bigmouth Buffalo	PSD					3	27		81	77	94	94											
		PSD-P					1	0		5	2	0	3											
		Wr					89	90		89	87	89	88											
	Black Crappie	PSD			100						100													
		PSD-P			100						100													
		Wr			73						99													

Gear	Species	Index	Year									
			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AFS std gill net	Channel Catfish	PSD		100	100	100	100		33	92	96	100
		PSD-P		42	70	67	80		0	0	0	19
		Wr		101	100	112	114		95	107	110	100
	Northern Pike	PSD		83	50	100	70		82	100	100	100
		PSD-P		17	0	38	20		0	14	71	100
		Wr		86	68	73	86		76	86	71	86
	Smallmouth Bass	PSD		33	57	100			71	74	78	58
		PSD-P		0	21	14			14	9	11	33
		Wr		88	90	88			85	86	92	92
	Walleye	PSD		18	7	3	69		51	40	21	32
		PSD-P		2	3	0	2		3	0	9	4
		Wr		79	75	85	88		84	81	85	80
	White Bass	PSD		48	94	100	92		90	100	100	85
		PSD-P		48	50	88	92		80	81	83	85
		Wr		86	80	88	85		87	81	89	77
	White Crappie	PSD		100	100	100	6		100	100	100	
		PSD-P		100	100	100	6		18	14	0	
		Wr		90	91	97	112		93	94	99	
	Yellow Bullhead	PSD		100	100	100	100		100	100	100	100
		PSD-P		100	100	100	100		99	100	100	100
		Wr		94	100	95	97		97	98	97	94
Yellow Perch	PSD		90	97	92	81		96	68	74	69	
	PSD-P		40	48	67	73		26	14	23	21	
	Wr		108	109	105	100		99	106	106	101	
boat shocker (day)	Smallmouth Bass	PSD					66					
		PSD-P					13					
		Wr					90					
boat shocker (night)	Walleye	PSD	0	0	0							
		PSD-P	0	0	0							
		Wr	91	92	90							
boat shocker (night, DC)	Smallmouth Bass	PSD		61								
		PSD-P		18								
		Wr		96								
frame net (std 3/4 in)	Bigmouth Buffalo	PSD									100	
		PSD-P									12	
		Wr									91	

Gear	Species	Index	Year									
			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
frame net (std 3/4 in)	Channel Catfish	PSD										100
		PSD-P										100
		Wr										112
	Northern Pike	PSD										78
		PSD-P										44
		Wr										74
	Smallmouth Bass	PSD										45
		PSD-P										16
		Wr										97
	Walleye	PSD										50
		PSD-P										17
		Wr										83
	White Bass	PSD										100
		PSD-P										100
		Wr										86
	Yellow Bullhead	PSD										100
		PSD-P										100
		Wr										101
	Yellow Perch	PSD										100
		PSD-P										50
		Wr										97
std exp gill net	Channel Catfish	PSD	100									
		PSD-P	100									
		Wr	102									
	Northern Pike	PSD	17									
		PSD-P	0									
		Wr	83									
	Smallmouth Bass	PSD	71									
		PSD-P	14									
		Wr	89									
	Walleye	PSD	12									
		PSD-P	1									
		Wr	82									
	White Bass	PSD	96									
		PSD-P	93									
		Wr	84									
White Crappie	PSD	100										

Gear	Species	Index	Year										
			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
std exp gill net	White Crappie	PSD-P	50										
		Wr	94										
	Yellow Bullhead	PSD	100										
		PSD-P	100										
		Wr	111										
	Yellow Perch	PSD	65										
		PSD-P	41										
		Wr	109										

Length at Capture

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

Species: Smallmouth Bass

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2019	91		196 (20)	248 (10)	284 (24)	333 (28)	339 (10)	384 (1)			
2016	160		196 (5)	256 (45)	278 (24)	310 (32)	337 (26)	341 (20)	386 (2)	414 (5)	

Species: Walleye

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2024	29		266 (5)	341 (15)	373 (4)	386 (1)	470 (3)				478 (1)
2023	38	193 (2)	258 (18)	329 (8)	371 (4)	463 (2)				598 (1)	539 (3)
2022	26	222 (1)	296 (8)	376 (9)	418 (3)	446 (1)			462 (3)	466 (1)	
2021	40	217 (1)	326 (8)	384 (24)	490 (1)	474 (1)		503 (2)	466 (3)		
2019	67	211 (20)	348 (8)	396 (1)	367 (2)	410 (23)	426 (6)	446 (1)	463 (6)		
2018	38	232 (7)		324 (2)	319 (14)	325 (10)	354 (2)	367 (2)			
2017	30			276 (12)	313 (10)		359 (7)			659 (1)	
2016	58	205 (1)	260 (14)	305 (19)		365 (20)		480 (1)	608 (1)	404 (1)	432 (1)
2015	88	198 (17)	264 (35)		334 (29)	351 (2)	555 (1)	432 (2)	422 (1)	414 (1)	

Species: Yellow Perch

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2024	61	145 (6)	200 (25)	234 (8)	248 (16)		257 (7)				
2023	53	142 (7)	198 (11)	220 (19)	232 (1)	260 (13)	293 (2)				
2022	56		184 (16)	203 (6)	241 (33)			316 (1)			
2021	27		191 (2)	219 (16)	242 (3)	282 (1)	291 (3)		299 (2)		
2019	53	120 (1)	187 (13)	234 (1)	278 (17)		294 (13)	293 (1)	304 (4)	313 (1)	304 (2)
2018	38	138 (2)	214 (2)	249 (14)	274 (4)	271 (13)	287 (3)				307 (1)
2017	58	138 (1)	215 (22)	237 (4)	264 (22)	303 (5)	289 (3)	256 (1)			
2016	63	142 (3)	187 (3)	234 (31)		274 (11)	277 (11)	279 (3)	255 (1)		

Mean Length (expanded sample number) at capture by age

Year	N	1	2	3	4	5	6	7	8	9	10+
2015	78		191 (33)	242 (7)	253 (22)	261 (7)	270 (9)	296 (1)			

Fish Condition

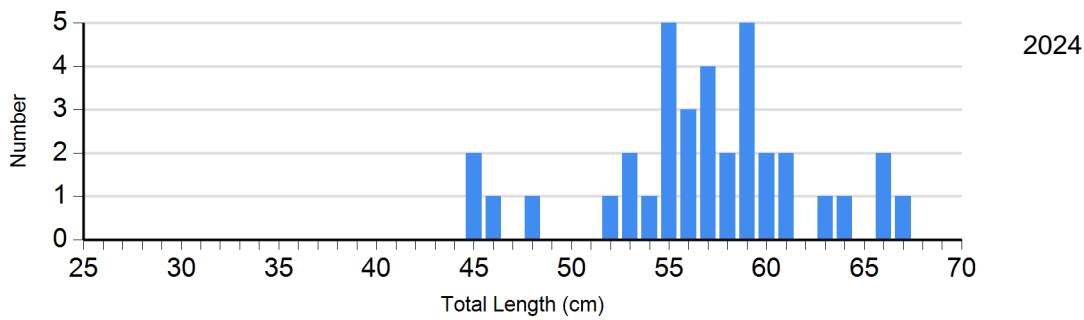
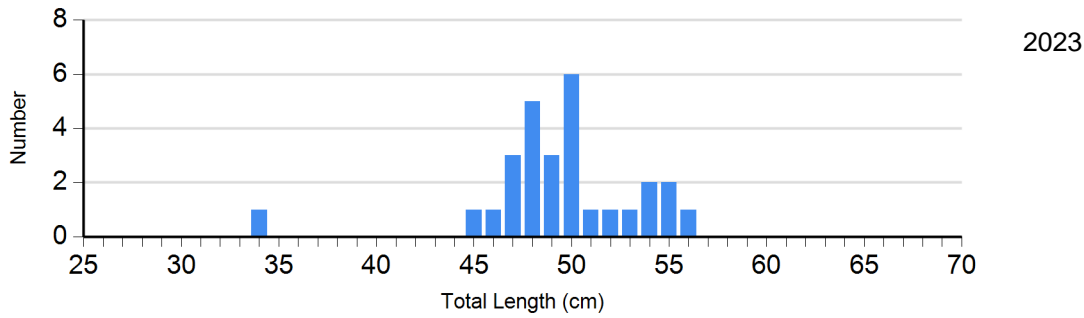
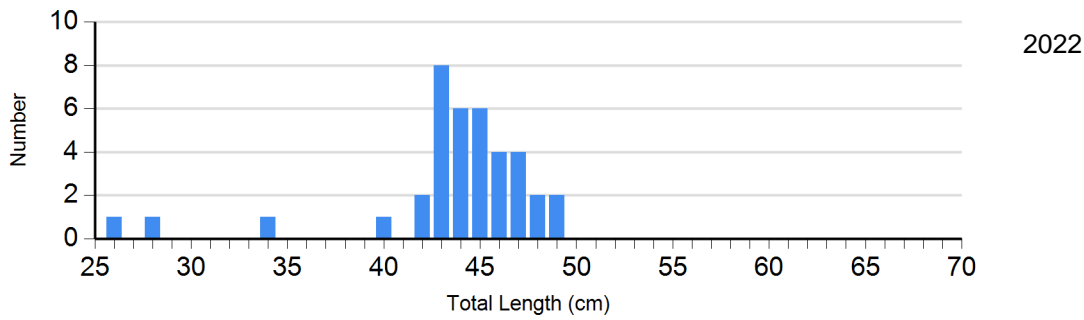
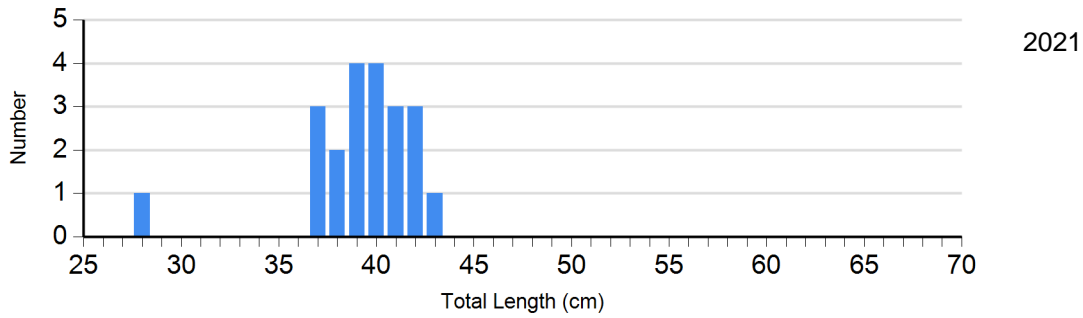
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Channel Catfish Gill Net	2021	14	97 (2.1)	7	90 (3.0)	0		0	
	2022	3	103 (0.7)	34	107 (2.2)	0		0	
	2023	1	100	27	110 (2.4)	0		0	
	2024	0		29	101 (2.1)	7	96 (2.9)	0	
Northern Pike Gill Net	2021	2	84 (9.4)	9	74 (4.0)	0		0	
	2022	0		6	84 (4.7)	1	96	0	
	2023	0		2	73 (3.6)	5	70 (2.8)	0	
	2024	0		0		4	86 (4.6)	0	
Walleye Gill Net	2021	19	84 (1.1)	19	83 (0.7)	1	84	0	
	2022	15	82 (1.5)	10	79 (1.5)	0		0	
	2023	26	86 (1.2)	4	79 (1.5)	3	80 (4.1)	0	
	2024	19	80 (0.8)	8	80 (1.5)	1	80	0	
White Bass Gill Net	2021	2	96 (0.2)	2	89 (2.7)	15	85 (0.9)	1	84
	2022	0		4	90 (1.8)	17	79 (1.1)	0	
	2023	0		2	94 (5.5)	9	89 (1.2)	1	80
	2024	4	85 (6.0)	0		20	77 (0.8)	3	68 (3.2)
Yellow Perch Gill Net	2021	1	115	19	101 (1.3)	5	93 (3.2)	2	87 (4.6)
	2022	18	106 (1.6)	30	108 (1.0)	7	100 (2.3)	1	90
	2023	14	105 (1.9)	27	106 (1.0)	12	106 (2.0)	0	
	2024	19	101 (1.9)	29	102 (1.3)	13	98 (1.7)	0	

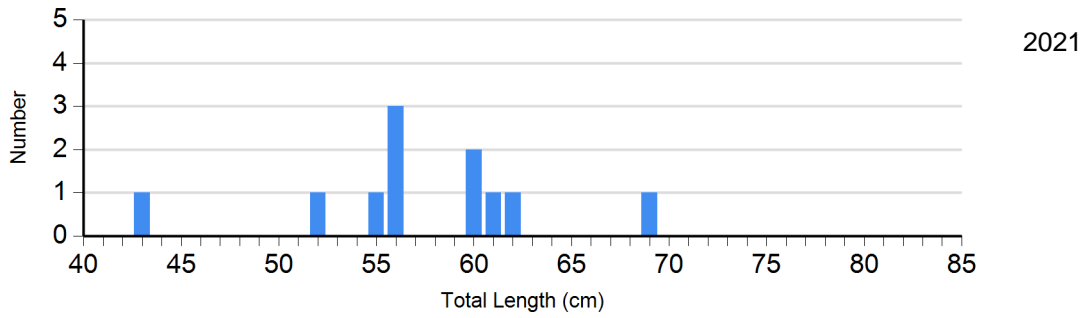
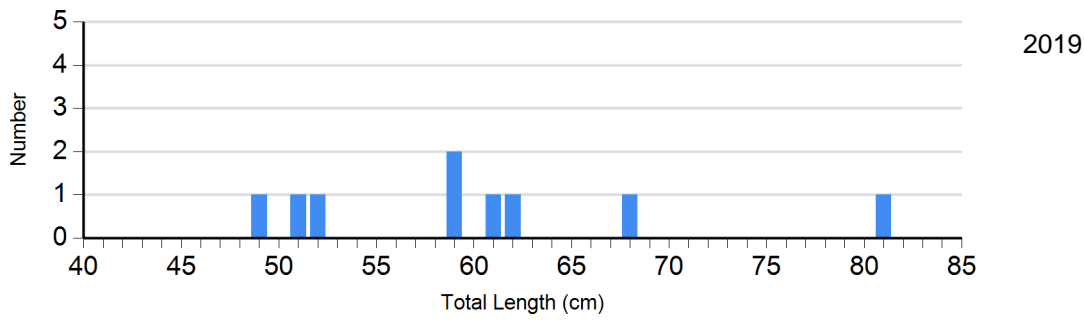
Length Frequency Distribution

Length frequency histogram of species sampled by year.

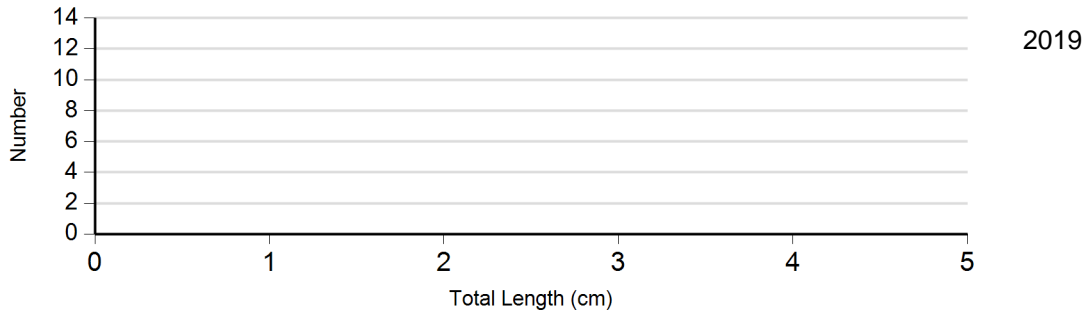
Species: Channel Catfish
Gear: AFS std gill net



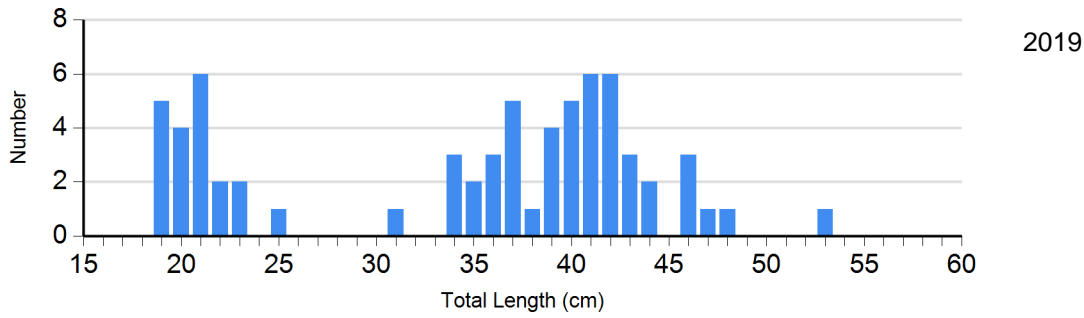
Species: Northern Pike
Gear: AFS std gill net

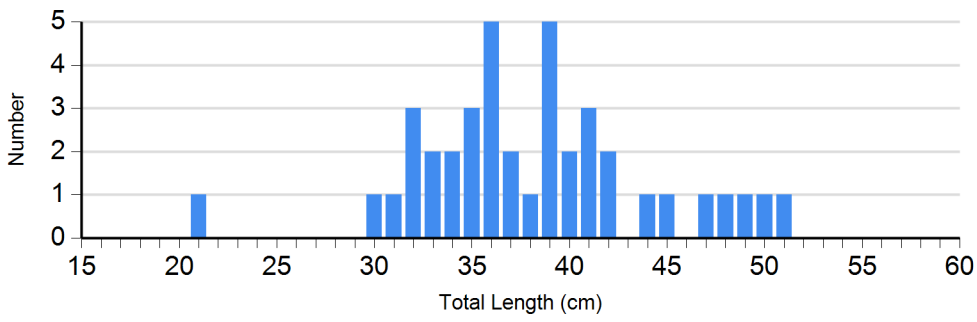


Species: Smallmouth Bass
Gear: boat shocker (day)

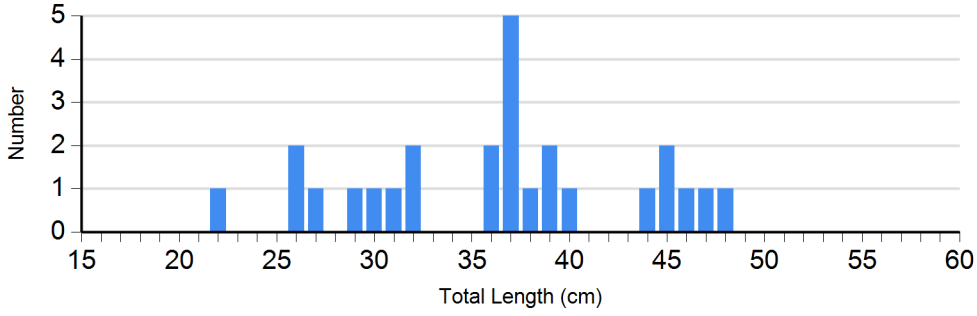


Species: Walleye
Gear: AFS std gill net

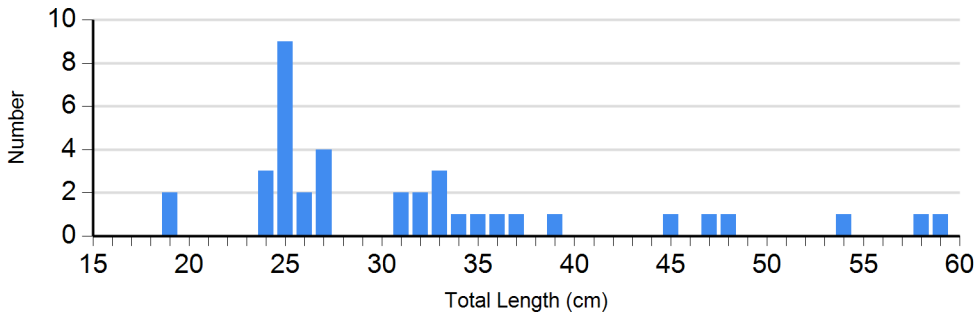




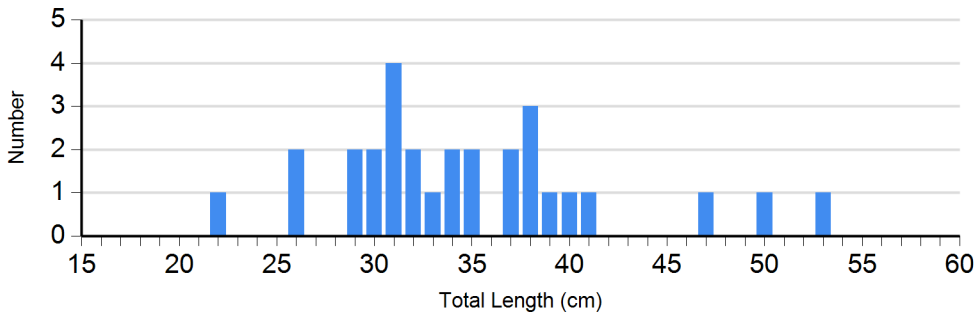
2021



2022

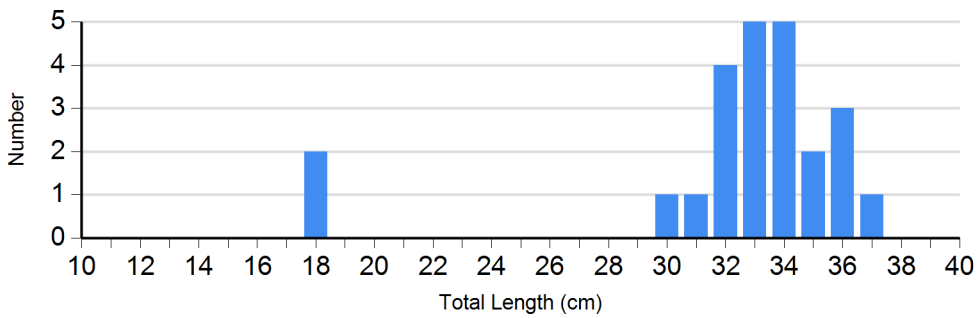


2023

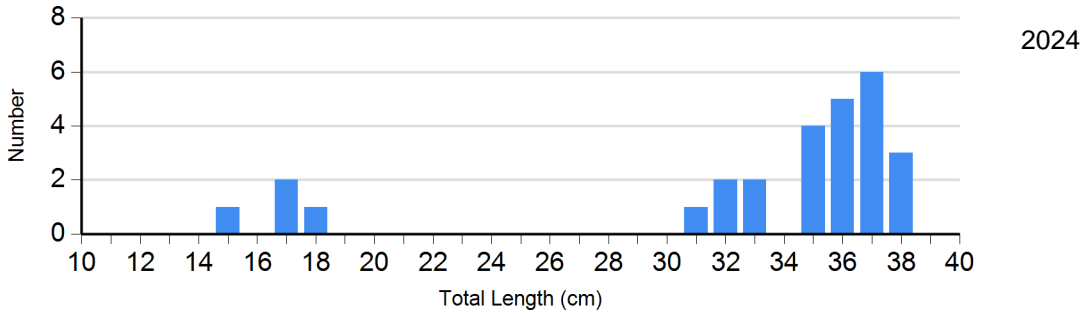
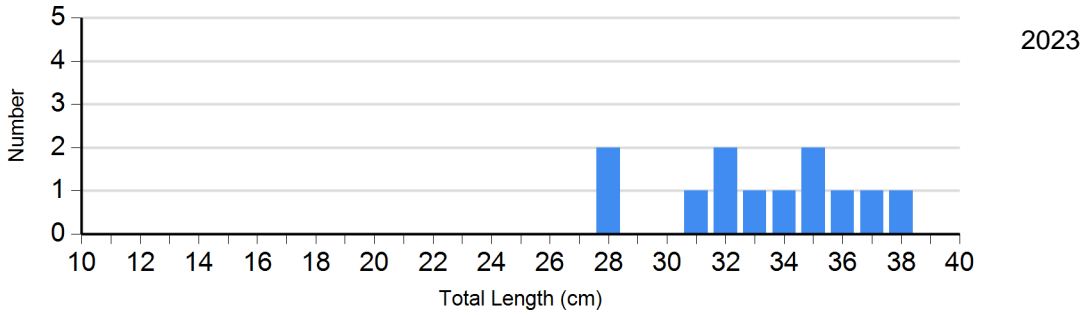
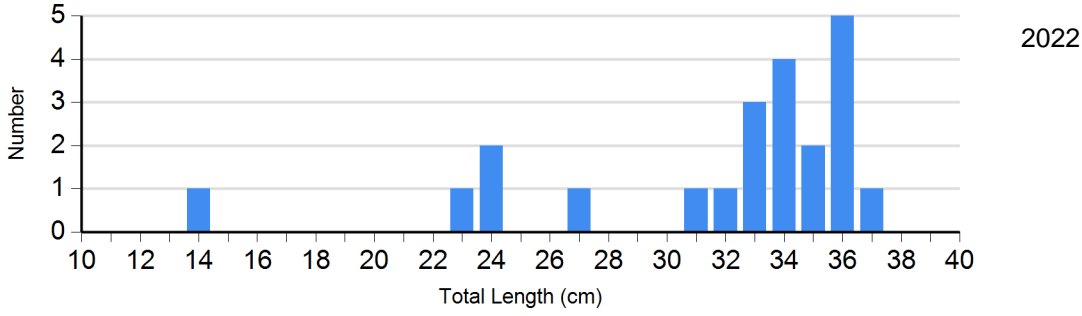
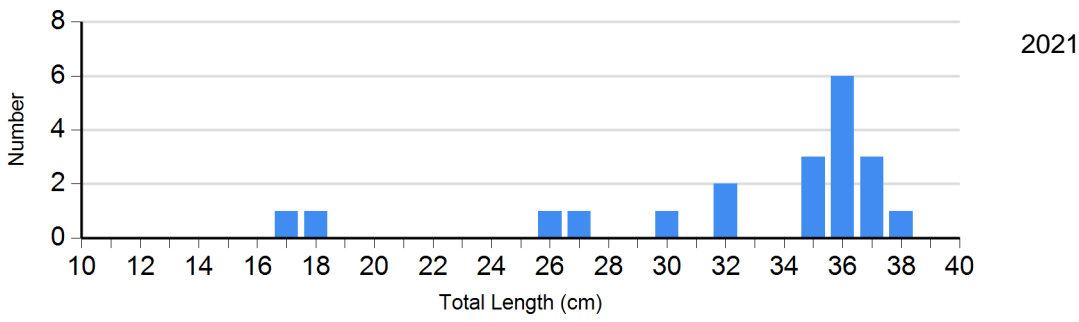


2024

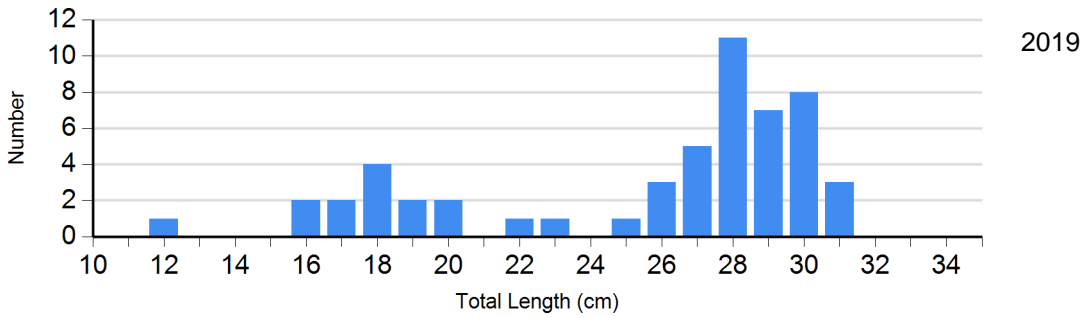
Species: White Bass
Gear: AFS std gill net

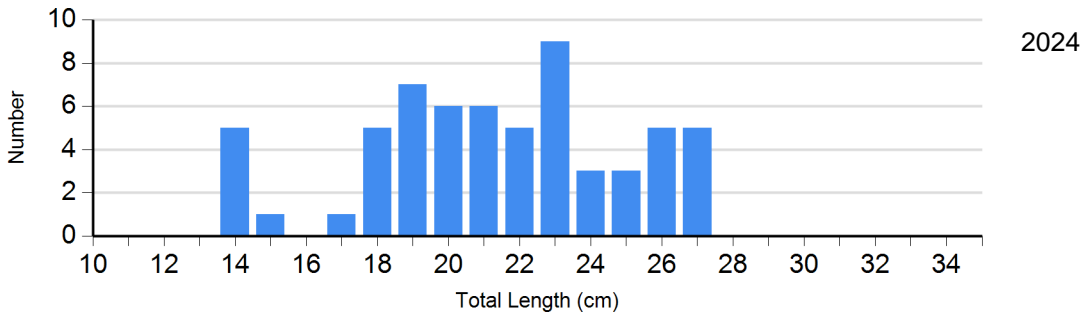
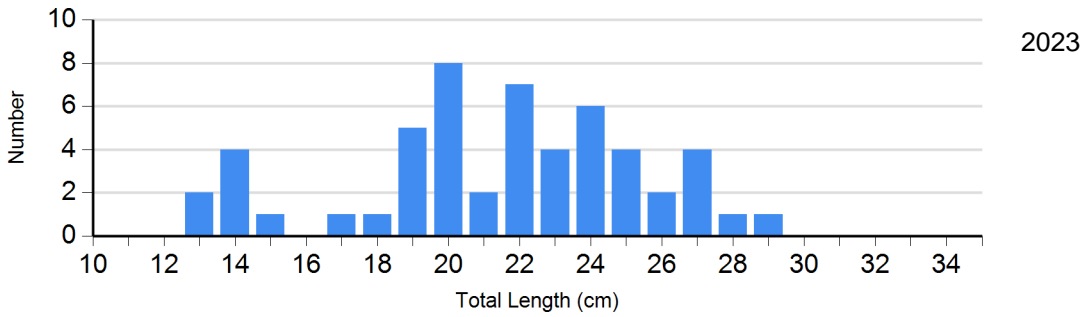
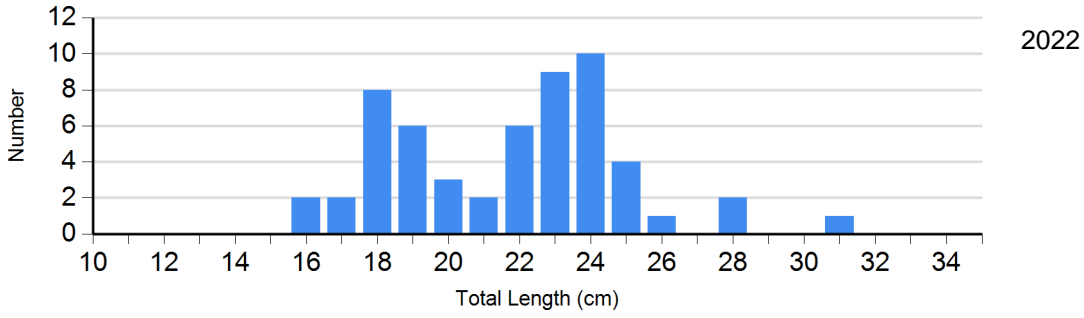
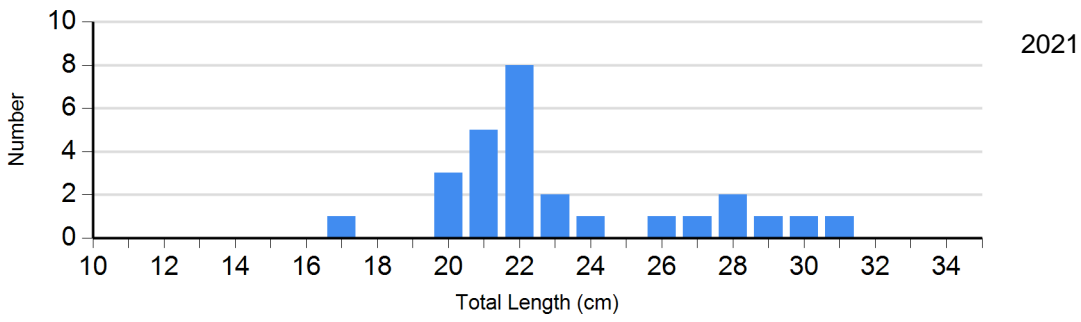


2019



Species: Yellow Perch
 Gear: AFS std gill net

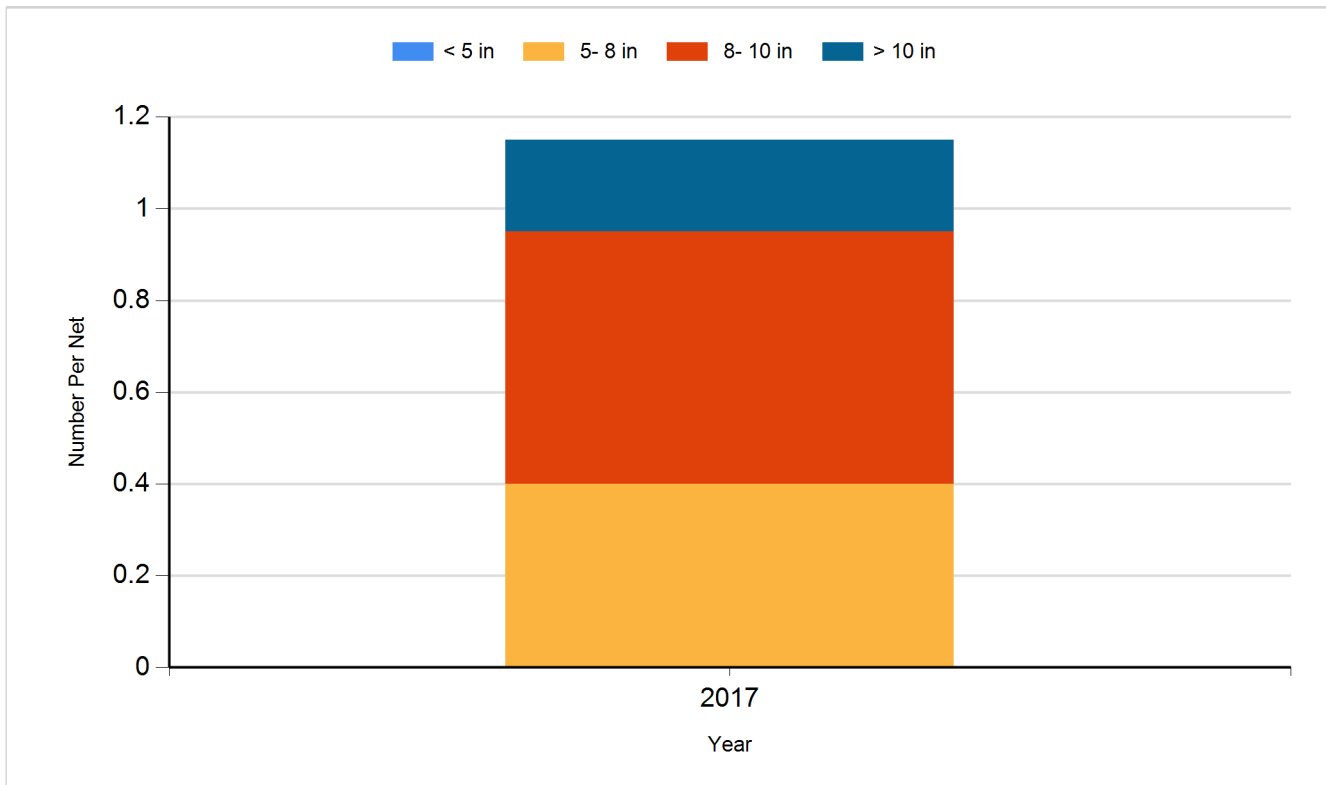




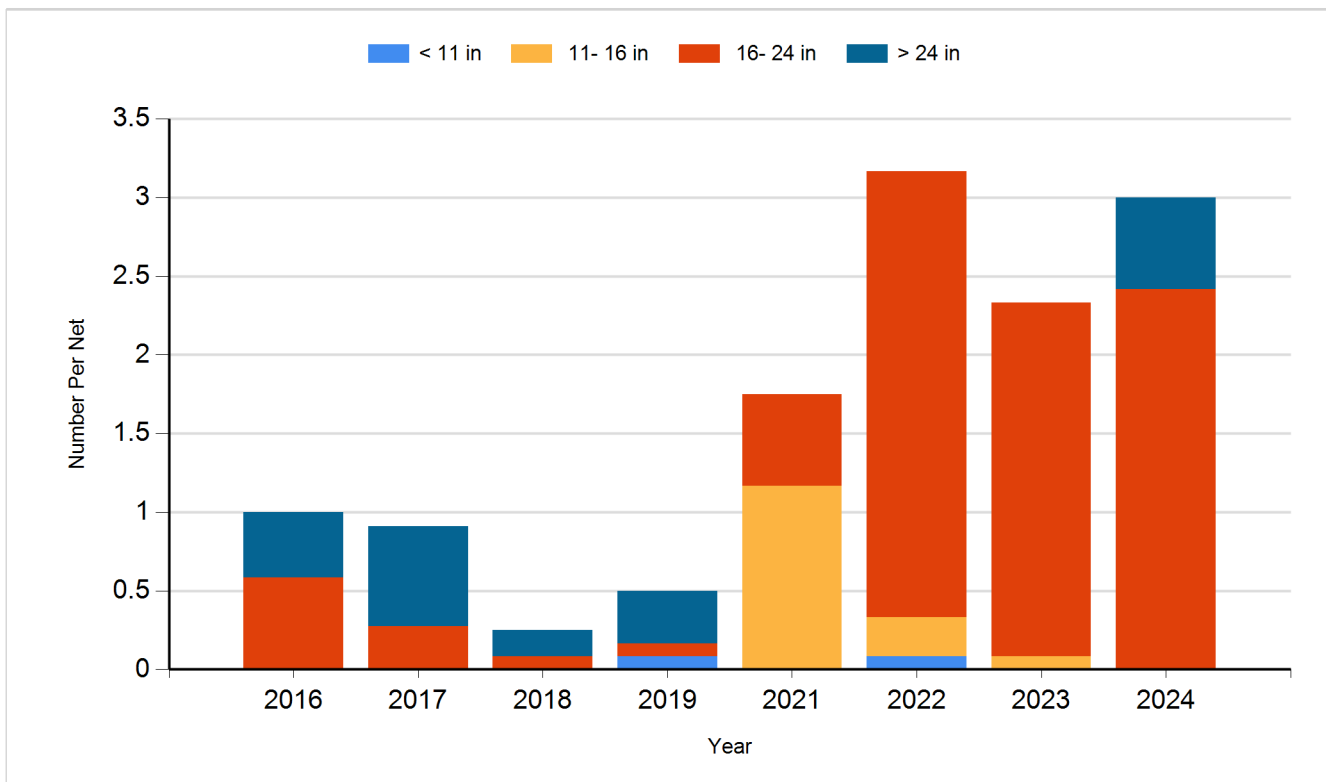
Historic Fish Sizes and Relative Abundance

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

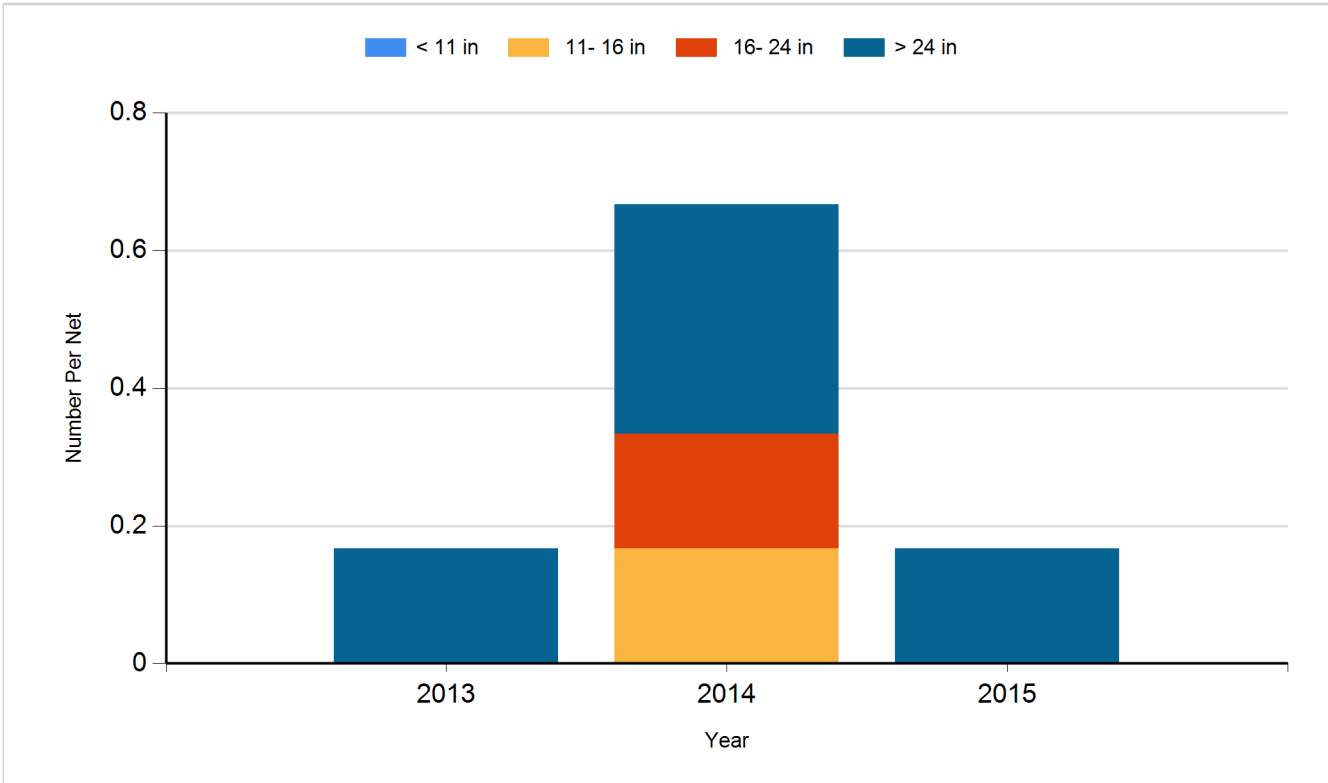
Species: Black Crappie
Gear: AFS std frame net



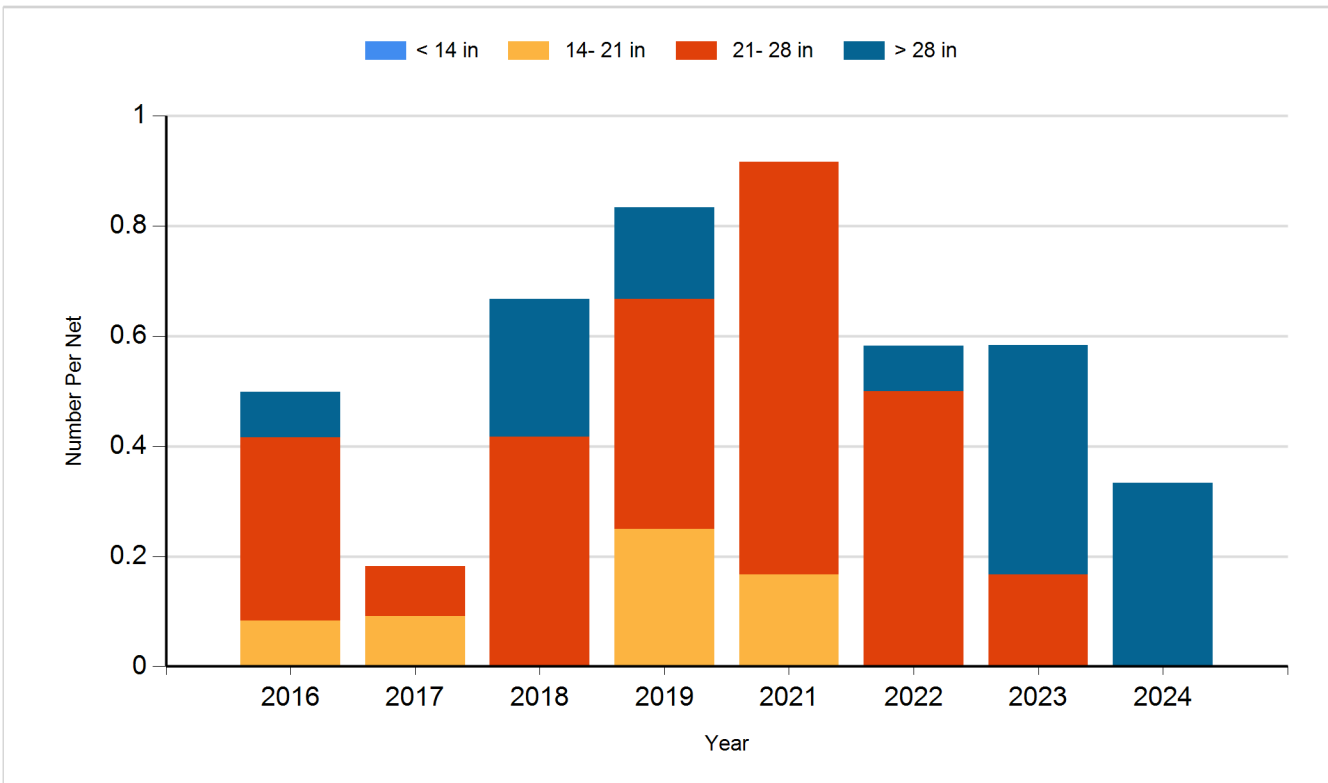
Species: Channel Cattfish
Gear: AFS std gill net



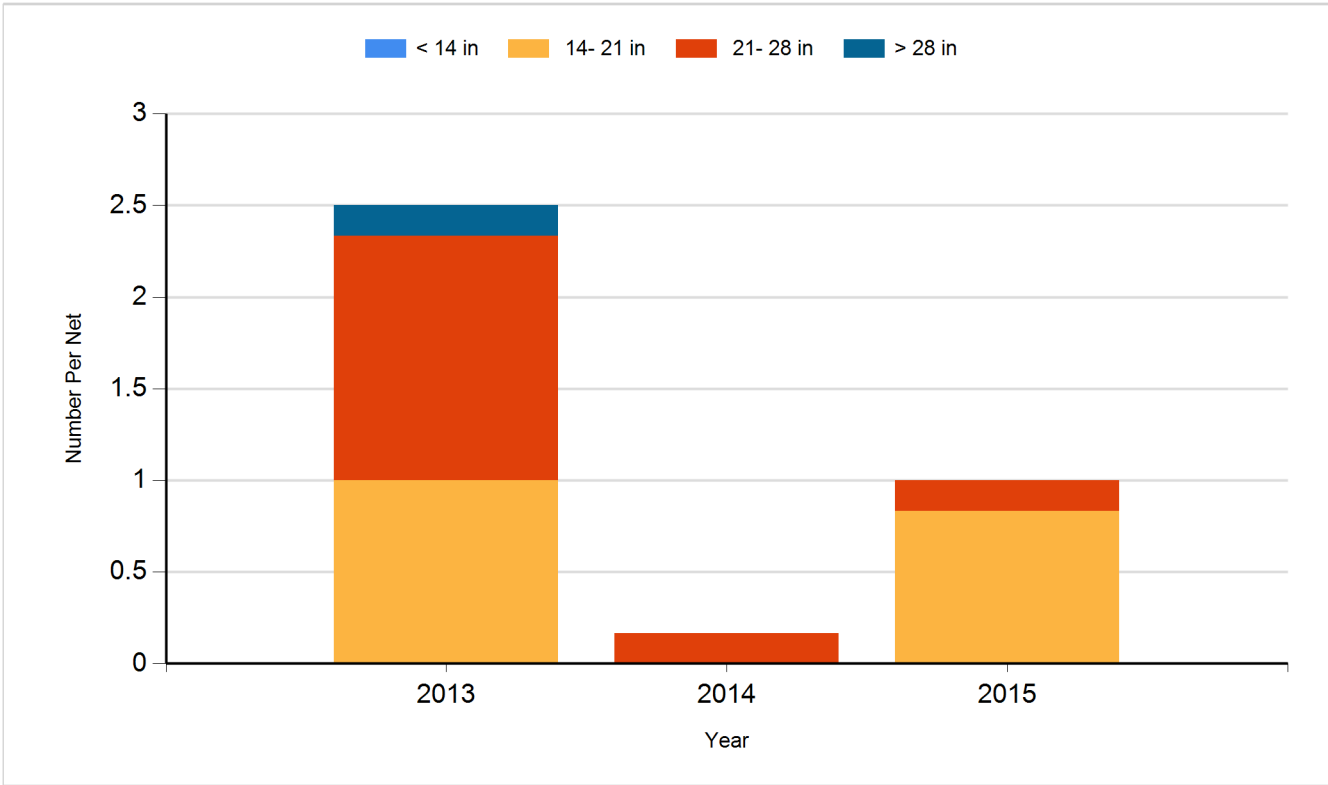
Species: Channel Catfish
Gear: std exp gill net



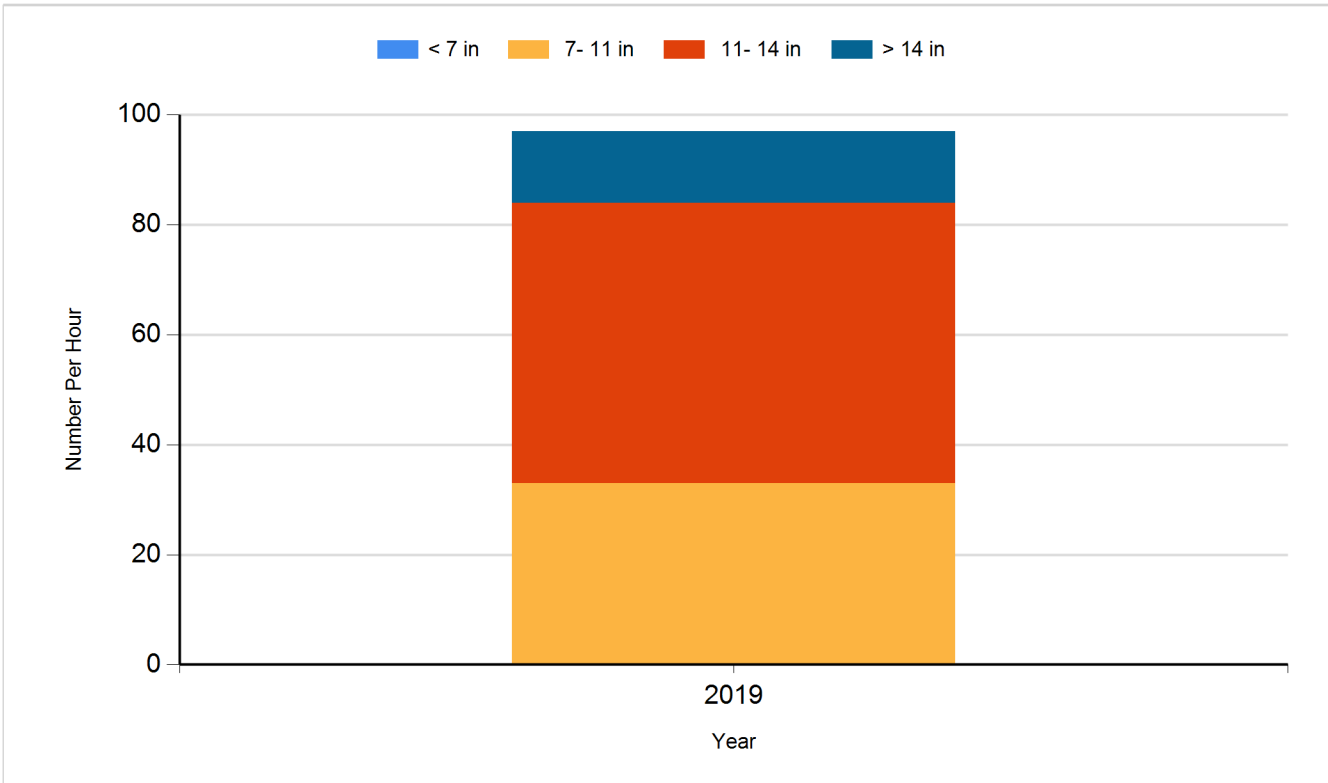
Species: Northern Pike
Gear: AFS std gill net



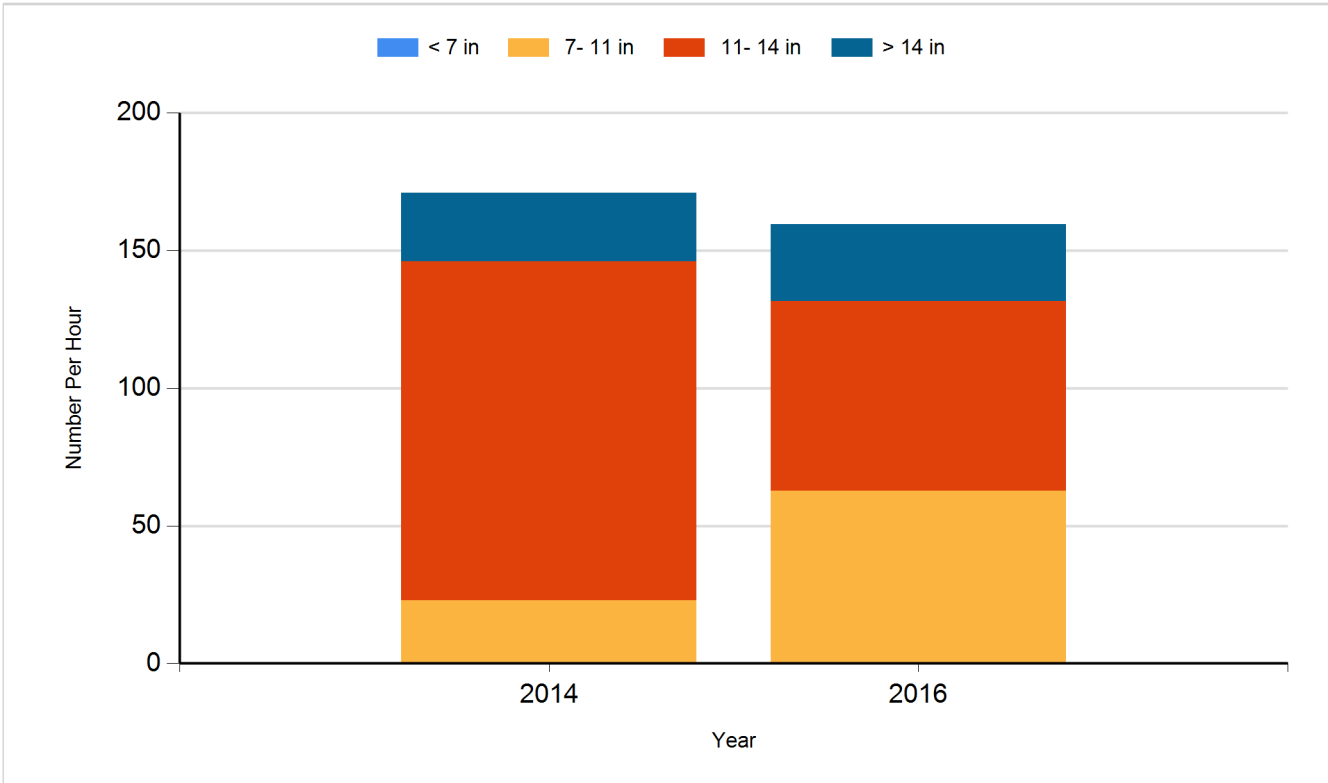
Species: Northern Pike
Gear: std exp gill net



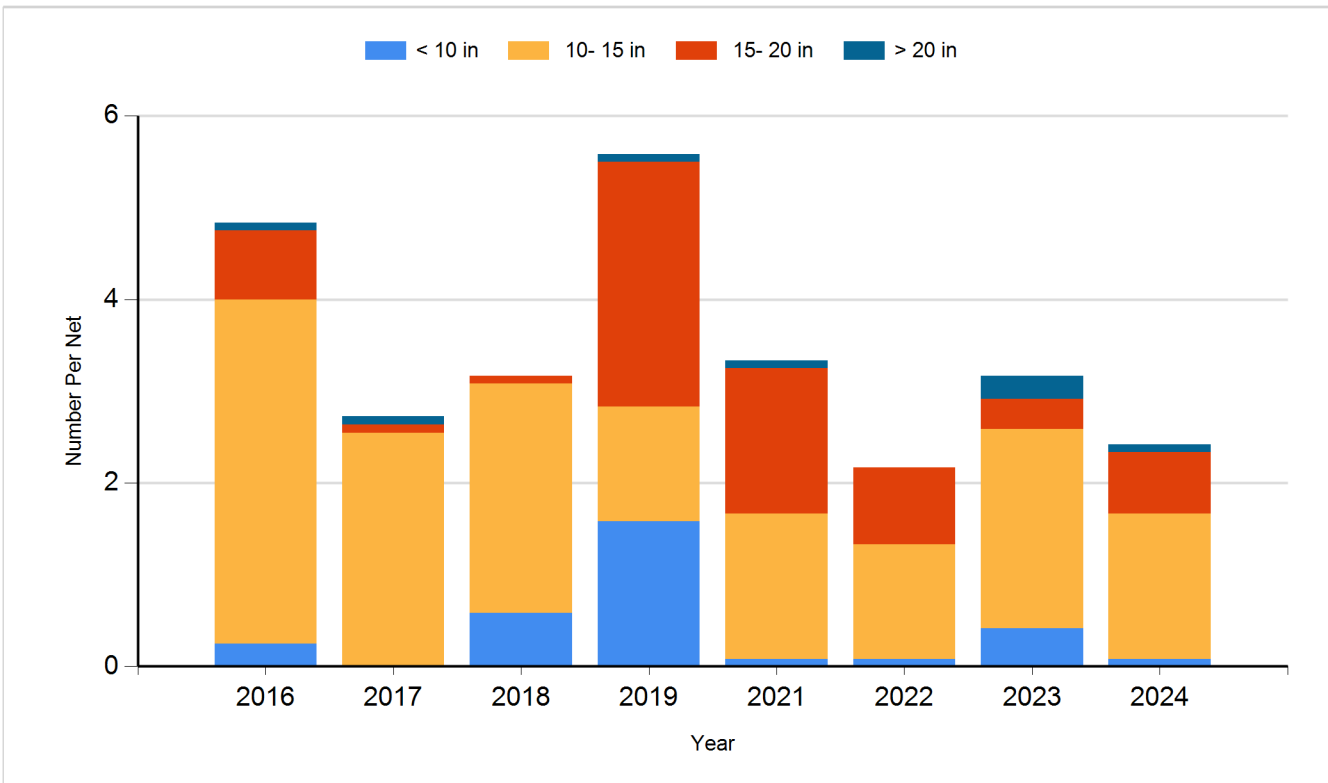
Species: Smallmouth Bass
Gear: boat shocker (day)



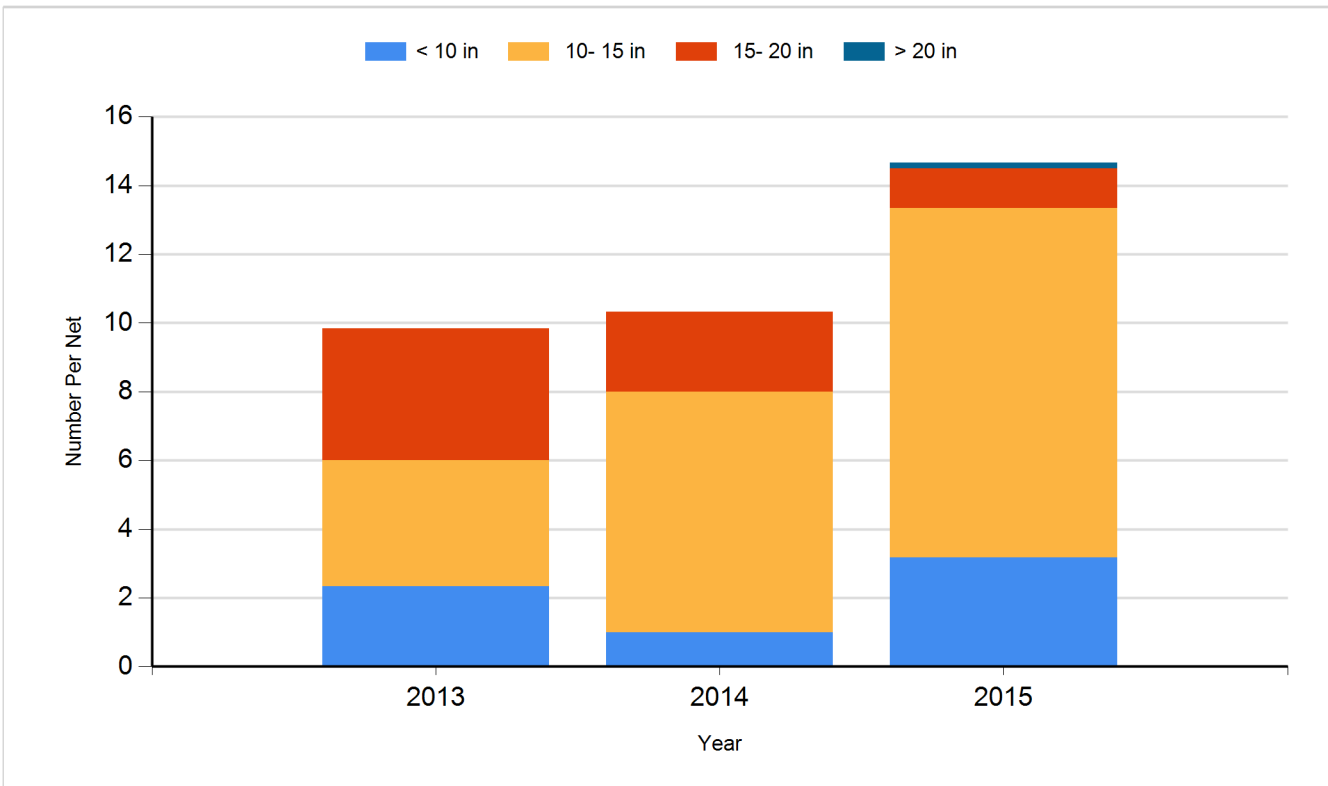
Species: Smallmouth Bass
Gear: boat shocker (night, DC)



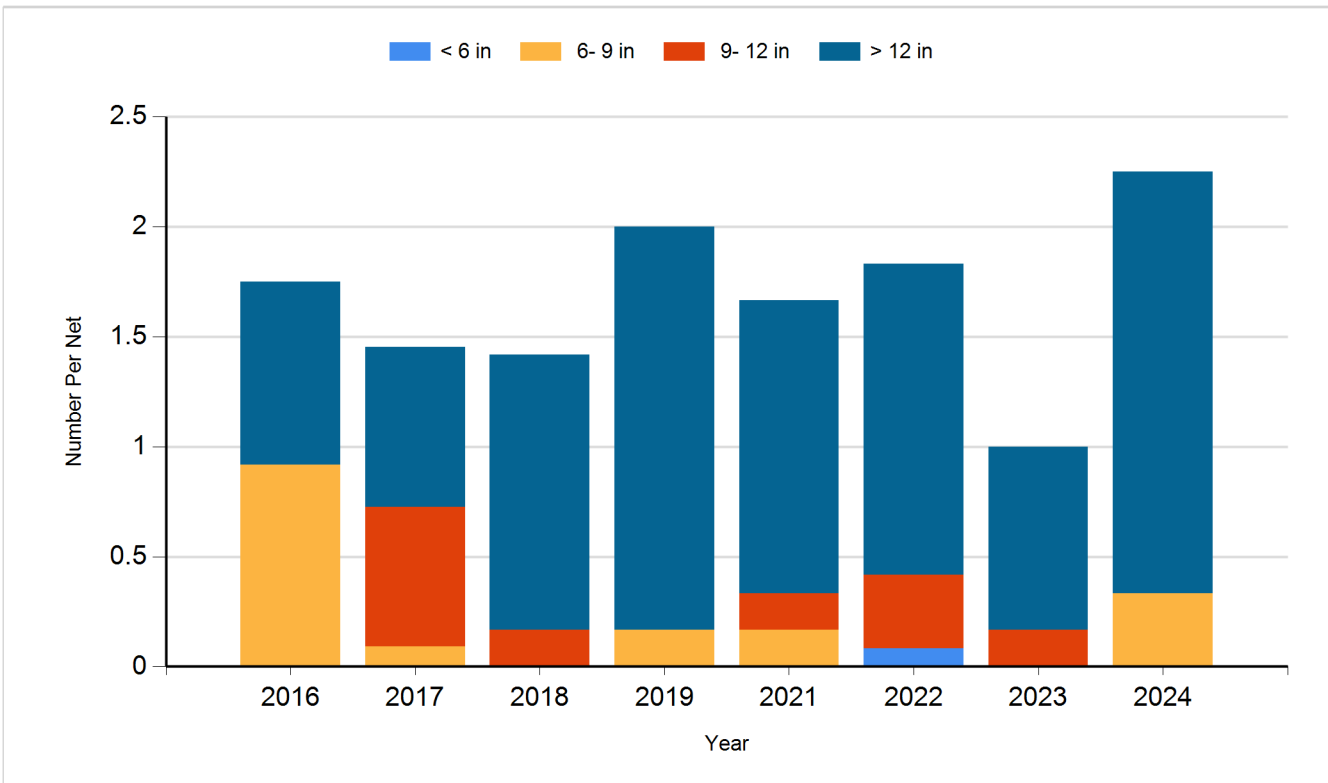
Species: Walleye
Gear: AFS std gill net



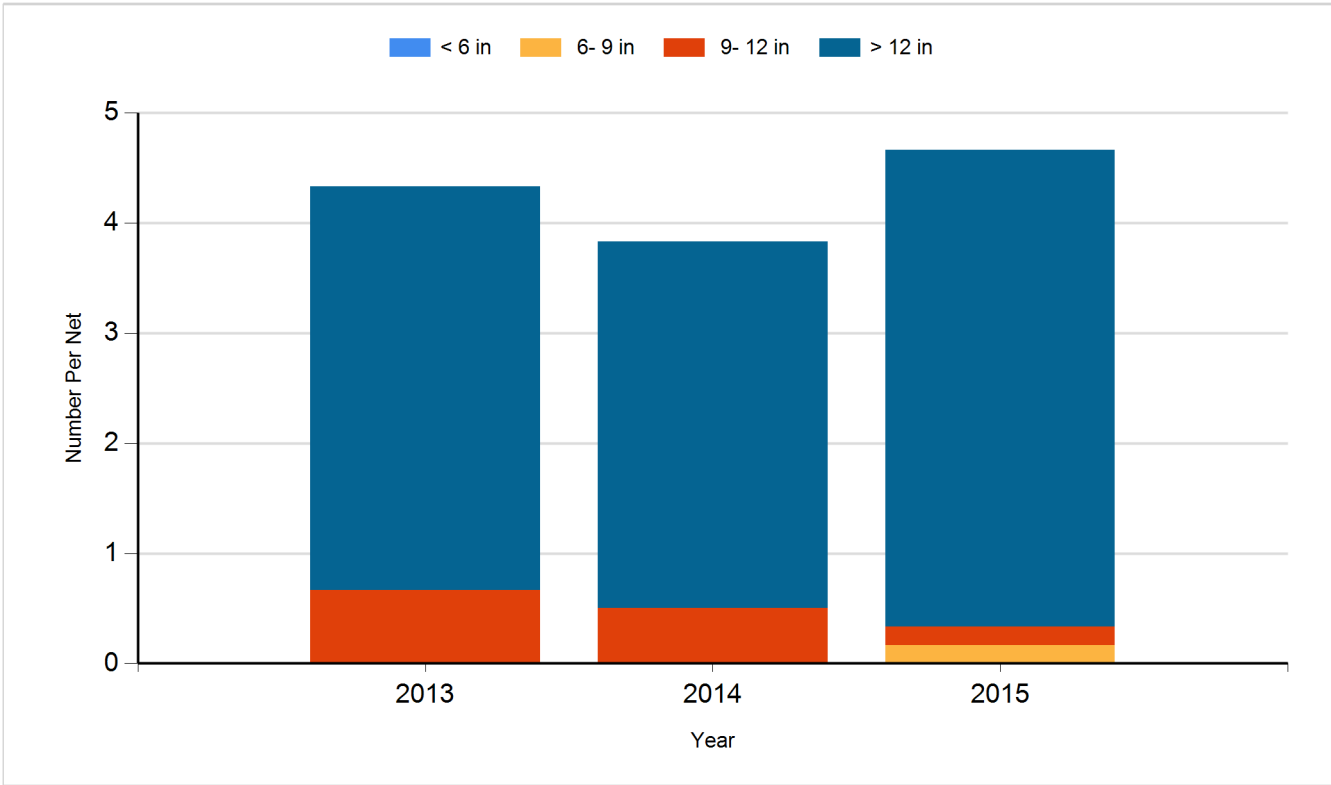
Species: Walleye
Gear: std exp gill net



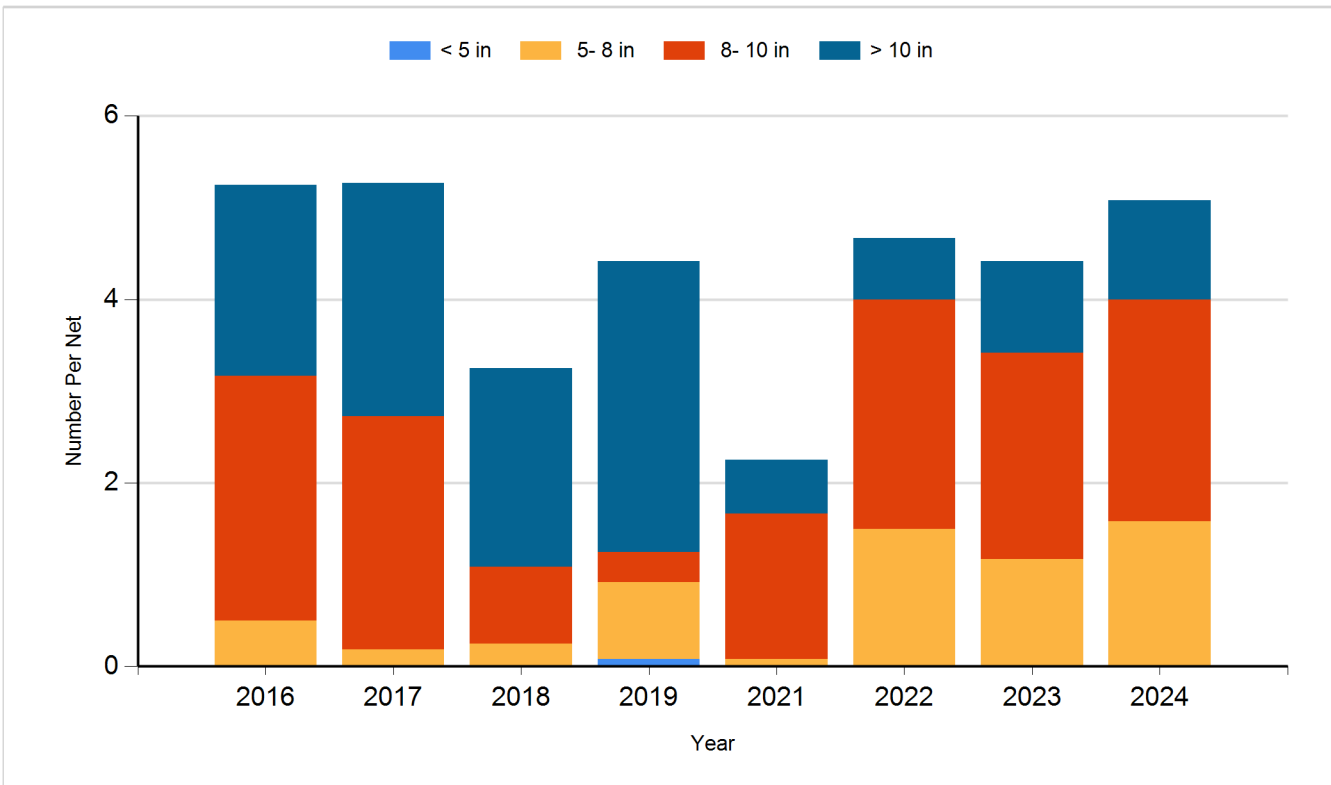
Species: White Bass
Gear: AFS std gill net



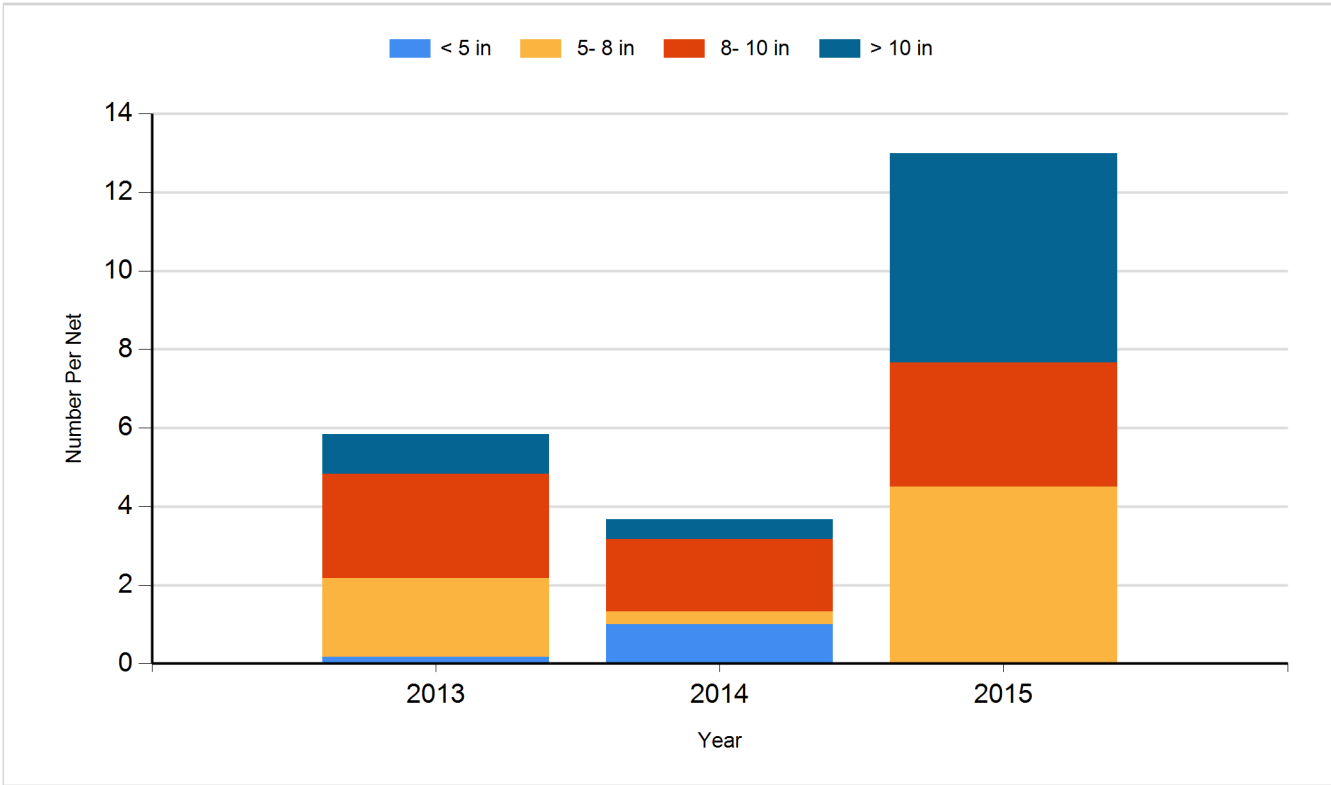
Species: White Bass
Gear: std exp gill net



Species: 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	Fry	2,400,000
2014	Walleye	Fry	2,500,000
2016	Walleye	Fry	2,400,000
2017	Walleye	Fry	2,400,000
2018	Walleye	Fry	2,400,000
2019	Walleye		2,400,000
2021	Walleye	Fry	2,400,000
2022	Walleye	Fry	2,500,000
2023	Walleye	Fry	5,100,000