

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

Thompson, Kingsbury County

LKT-Lake-55-801

2020

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 20, 2020	13 net-nights
frame net (std 3/4 in)	Jul 20, 2020	10 net-nights

Common Fish Species Present

Walleye

Black Crappie

Bigmouth Buffalo

Yellow Perch

Common Carp

Black Bullhead

White Bass

Northern Pike

Smallmouth Bass

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	Bigmouth Buffalo	8	0.6	0.6	13		13			
	Black Bullhead	8	0.5	0.2	29		0			
	Black Crappie	20	1.5	1.3	100		5	117	2	
	Common Carp	22	1.7	0.7	86		50	17		
	Northern Pike	10	0.8	0.3	50	28	0		87	4
	Walleye	77	3.9	0.6	22	9	4		85	1
	White Bass	44	3.4	2.4	93		91		101	1
	Yellow Perch	108	8.2	3.6	90	4	21	6	118	1
frame net (std 3/4 in)	Bigmouth Buffalo	84	8.4	4.1	6	4	1			
	Black Bullhead	39	3.5	1.8	37	12	0			
	Black Crappie	102	10.1	3.6	95	3	48	7	113	1
	Common Carp	50	5.0	1.9	92		44	10		
	Northern Pike	33	3.3	0.9	67	13	24	12	87	2
	Smallmouth Bass	8	0.7	0.5	0		0		107	4
	Walleye	35	2.8	1.0	39	14	18	12	84	1
	White Bass	18	1.8	0.8	94		94		100	2
	White Sucker	1	0.1	0.1	100		100			
	Yellow Perch	3	0.3	0.2	100		67		112	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	
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
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		0.30
	Black Bullhead							0.5	0.0	0.0	0.5		0.25
	Black Crappie							0.6	0.1	0.1	1.5		0.58
	Common Carp							2.7	2.2	0.9	1.7		1.88
	Northern Pike							0.5	0.3	0.0	0.8		0.40
	Smallmouth Bass							0.0	0.1	0.0	0.0		0.03
	Walleye							6.0	3.1	2.1	3.9		3.78
	White Bass							14.0	5.9	2.6	3.4		6.48
	Yellow Perch							4.6	1.6	8.9	8.2		5.83
fall night EF-WAE*	Walleye	186.5	3.5	31.0	40.5	35.5							59.40
frame net (std 3/4 in)	Bigmouth Buffalo	0.2	3.5	0.5	0.0	0.3	0.4		1.7	1.4	8.4		1.82
	Black Bullhead	2.6	29.7	4.7	3.6	0.4	0.4		0.3	3.1	3.5		5.37
	Black Crappie	50.8	20.4	6.3	5.6	1.7	0.6		6.4	10.1	10.1		12.44
	Bluegill	0.2	0.3	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.06
	Common Carp	10.4	15.9	4.6	2.1	10.0	6.7		1.5	5.0	5.0		6.80
	Northern Pike	4.4	13.6	3.4	2.5	5.8	5.4		1.2	0.0	3.3		4.40
	Smallmouth Bass	1.0	0.3	0.2	0.2	0.1	1.0		0.1	0.1	0.7		0.41
	Walleye	2.4	4.9	3.1	1.7	1.0	3.1		2.5	1.6	2.8		2.57
	White Bass	0.8	2.0	1.0	0.5	0.6	3.6		4.4	0.6	1.8		1.70
	White Sucker	0.0	0.0	0.3	0.6	0.0	0.4		0.1	0.1	0.1		0.18
	Yellow Perch	0.8	0.2	0.1	0.1	0.0	0.0		0.0	0.4	0.3		0.21
std exp gill net	Bigmouth Buffalo	0.0	0.0	0.0	0.0	0.0	0.0						0.00
	Black Bullhead	0.2	0.0	0.0	1.2	0.0	0.3						0.28
	Black Crappie	20.6	4.7	10.8	1.6	2.3	2.3						7.05
	Common Carp	5.6	0.7	1.8	1.0	1.0	1.0						1.85

		CPUE										
Gear	Species	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Avg
std exp gill net	Lamprey Family	0.0	0.0	0.0	0.0	0.0	0.0					0.00
	Northern Pike	2.8	3.3	1.8	4.0	1.5	0.7					2.35
	Spottail Shiner	0.0	0.0	0.0	0.0	0.0	0.0					0.00
	Walleye	22.2	26.7	15.2	13.4	20.5	22.3					20.05
	White Bass	0.6	5.7	4.0	4.6	6.8	5.3					4.50
	White Sucker	0.0	0.0	0.0	0.2	0.0	0.0					0.03
	Yellow Perch	29.0	18.0	13.0	20.2	12.8	10.7					17.28

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													
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020				
AFS std frame net	Black Bullhead	PSD									50					
		PSD-P									50					
		Wr									113					
	Black Crappie	PSD										0				
		PSD-P										0				
		Wr														
	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		
		PSD-P									0	0	0	13		
	Black Bullhead	PSD									100				29	
		PSD-P									57				0	
	Black Crappie	PSD									100	100	0	100		
		PSD-P									100	100	0	5		
		Wr									98	99	110	117		
	Common Carp	PSD									97	100	58	86		
		PSD-P									46	81	50	50		
	Northern Pike	PSD									100	100		50		
		PSD-P									43	75		0		

Gear	Species	Index	Year												
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020			
AFS std gill net	Northern Pike	Wr								80	89		87		
		PSD										0			
		PSD-P										0			
	Walleye	Wr										97			
		PSD								15	42	17	22		
		PSD-P								1	7	3	4		
	White Bass	Wr								83	79	86	85		
		PSD								99	100	100	93		
		PSD-P								51	90	100	91		
	Yellow Perch	Wr								92	86	97	101		
		PSD								78	100	49	90		
		PSD-P								48	70	38	21		
	frame net (std 3/4 in)	Bigmouth Buffalo	Wr									114	106	112	118
			PSD	100	94	100		67	75		88	9	6		
			PSD-P	0	17	0		33	50		76	9	1		
Black Bullhead		Wr	88	91	81										
		PSD	29	5	42	17	100	75		100	12	37			
		PSD-P	6	0	8	0	25	0		33	4	0			
Black Crappie		Wr	95	97	90										
		PSD	16	98	100	91	100	100		98	27	95			
		PSD-P	3	32	93	88	88	100		95	16	48			
Common Carp		Wr	124	115	103	112	106	115		97	110	113			
		PSD	34	96	94	90	95	98		87	98	92			
		PSD-P	11	23	73	90	57	83		80	83	44			
Northern Pike		Wr	107	101	95										
		PSD	64	35	76	80	95	100		100	0	67			
		PSD-P	13	3	14	32	31	65		67	0	24			
Smallmouth Bass	Wr	87	73	70	86	79	91		71		87				
	PSD	33	100	100	50	0	22		100	100	0				
	PSD-P	17	0	50	0	0	11		100	100	0				
Walleye	Wr	109	91	97	100	98	134		74	98	107				
	PSD	59	41	62	41	60	50		36	46	39				
	PSD-P	3	14	41	18	10	21		20	23	18				
White Bass	Wr	88	81	78	84	86	89		77	87	84				
	PSD	100	100	100	100	50	44		100	100	94				
	PSD-P	0	90	100	100	17	41		100	100	94				
	Wr	101	97	90	91	89	103		83	97	100				

Gear	Species	Index	Year										
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
frame net (std 3/4 in)	White Sucker	PSD			100	83		100		100	100	100	
		PSD-P			100	83		100		100	100	100	
		Wr			93								
	Yellow Perch	PSD	78	50	100	0					0	100	
		PSD-P	56	50	100	0					0	67	
		Wr	117	101	103	116					104	112	
	std exp gill net	Black Bullhead	PSD	0			0		0				
			PSD-P	0			0		0				
			Wr	97									
Black Crappie		PSD	1	64	100	100	100	100					
		PSD-P	0	7	83	100	100	86					
		Wr	123	120	88	107	101	104					
Common Carp		PSD	7	100	100	80	100	100					
		PSD-P	7	50	56	60	75	100					
		Wr	110	101	92								
Northern Pike		PSD	21	50	67	80	100	100					
		PSD-P	0	0	22	15	33	0					
		Wr	87	85	74	83	80	80					
Walleye		PSD	41	15	21	22	20	12					
		PSD-P	1	0	0	0	5	0					
		Wr	88	85	81	80	86	83					
White Bass		PSD	67	100	100	96	100	69					
		PSD-P	0	100	90	96	96	69					
		Wr	98	97	87	90	93	91					
White Sucker		PSD				100							
		PSD-P				100							
Yellow Perch		PSD	62	80	94	54	82	63					
		PSD-P	28	20	46	23	31	44					
		Wr	112	114	105	106	110	100					

Length at Capture

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

Species: Black Crappie

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2013	69		237 (4)	270 (51)	257 (12)		346 (2)	366 (1)			

Species: Walleye

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
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)			
2013	83	201 (1)	279 (55)	376 (20)	407 (2)	463 (1)	433 (4)				
2012	109	212 (34)	331 (63)	419 (5)	407 (3)	415 (4)					
2011	142	253 (55)	328 (7)	400 (11)	386 (70)	403 (1)				514 (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+
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)					
2013	65	173 (2)	215 (18)	257 (40)	290 (2)	296 (1)	294 (2)				
2012	54	161 (10)	229 (34)	259 (8)	254 (1)	284 (1)					
2011	145	175 (55)	230 (47)	264 (2)	268 (32)				271 (10)		332 (2)

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).

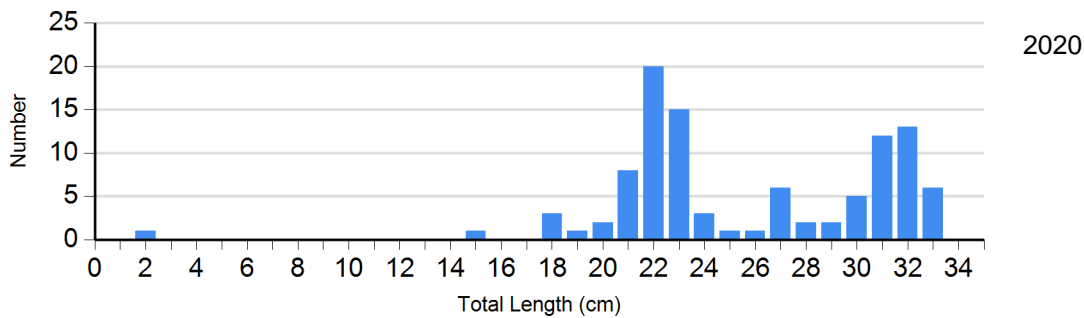
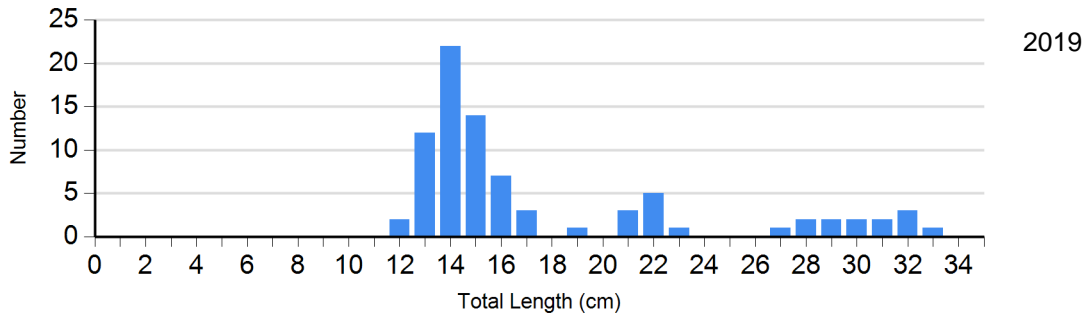
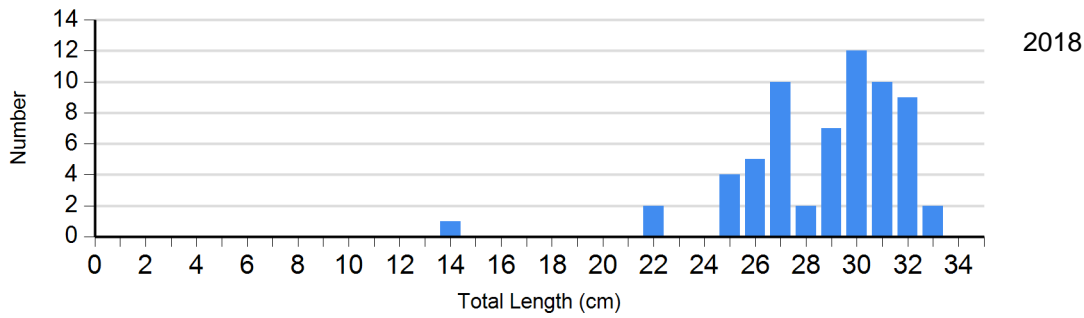
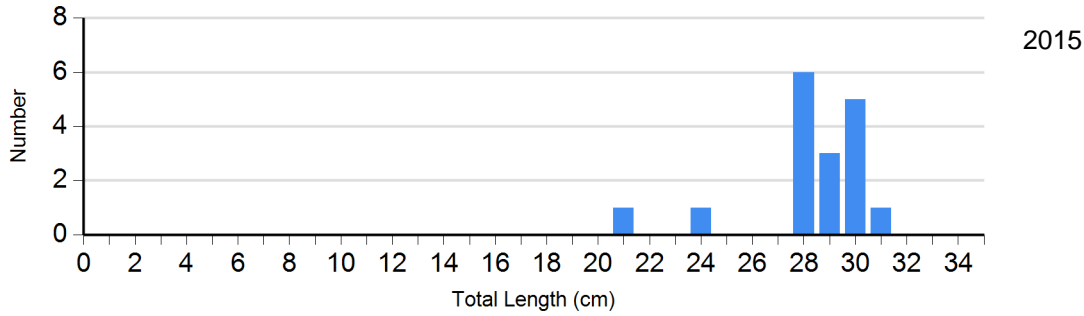
Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Crappie Frame Net	2016	0		0		3	119 (10.4)	2	109 (6.7)
	2017	1	113	0		0		0	
	2018	1		2	106	28	97 (1.0)	33	96 (1.1)
	2019	59	111 (3.5)	9	113 (1.9)	5	106 (0.3)	8	100 (1.9)
	2020	5	139 (6.4)	48	118 (1.5)	12	111 (1.5)	36	107 (1.1)
Northern Pike Gill Net	2016	0		2	80 (3.0)	0		0	
	2017	0		4	78 (1.2)	2	83 (3.3)	1	86
	2018	0		1		2	94 (23.2)	1	79
	2020	5	82 (3.9)	5	92 (3.7)	0		0	
Walleye Gill Net	2016	59	83 (0.9)	8	83 (1.4)	0		0	
	2017	66	83 (0.6)	11	80 (0.9)	1	115	0	
	2018	25	79 (1.3)	15	79 (1.4)	2	73 (5.7)	1	74
	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
White Bass Gill Net	2016	5	94 (4.1)	0		8	90 (1.3)	3	89 (3.0)
	2017	1		88	93 (0.7)	62	92 (0.9)	31	90 (0.6)
	2018	0		8	84 (2.9)	60	87 (0.4)	15	85 (0.4)
	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)
Yellow Perch Gill Net	2016	12	89 (5.8)	6	114 (4.1)	14	103 (2.6)	0	
	2017	13	114 (2.8)	18	114 (2.8)	25	115 (3.0)	4	108 (0.4)
	2018	0		7	102 (2.5)	15	109 (2.2)	1	94

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	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)

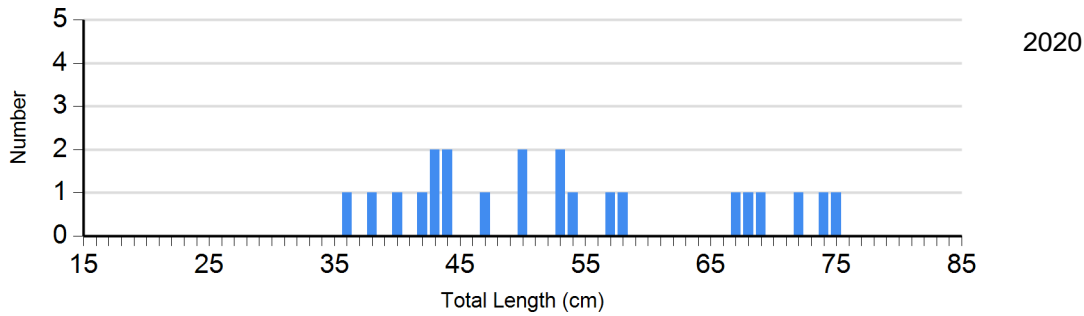
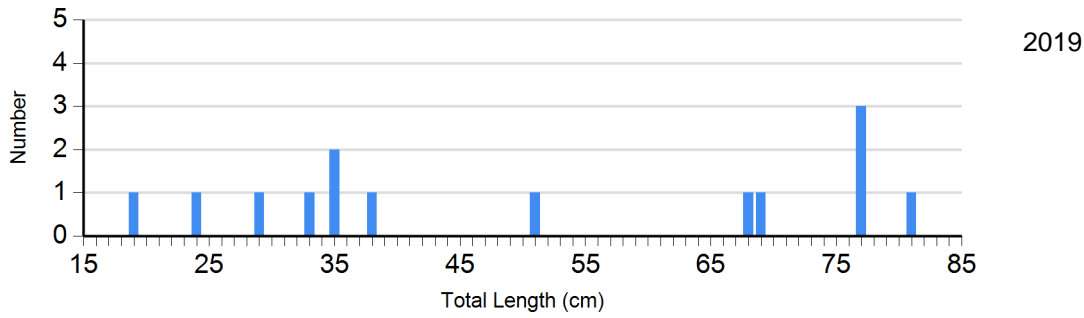
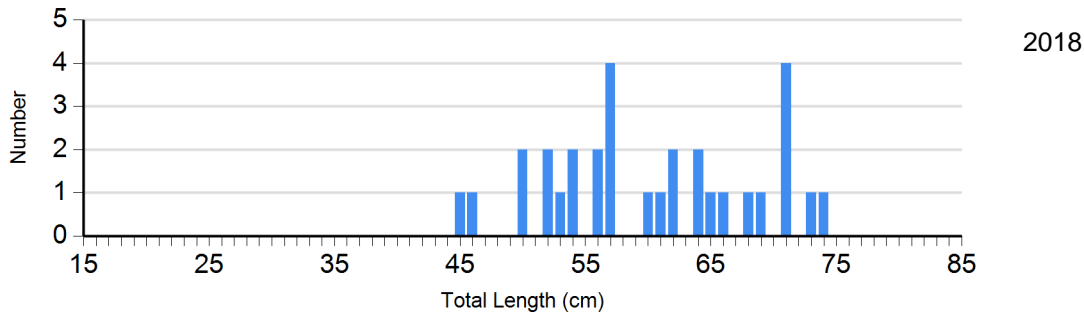
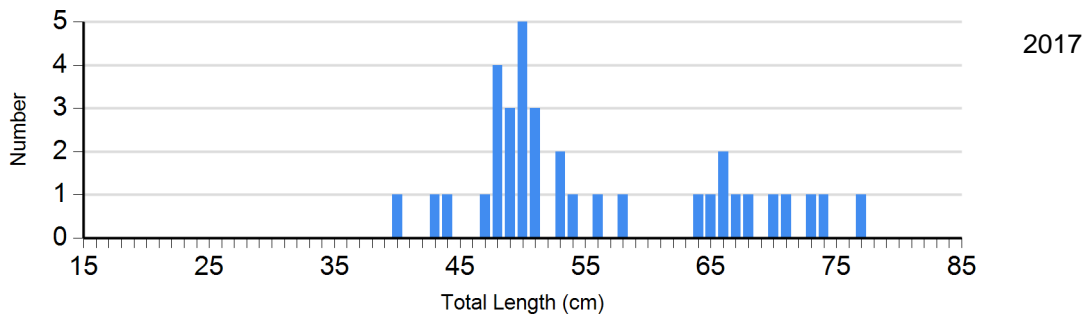
Length Frequency Distribution

Length frequency histogram of species sampled by year.

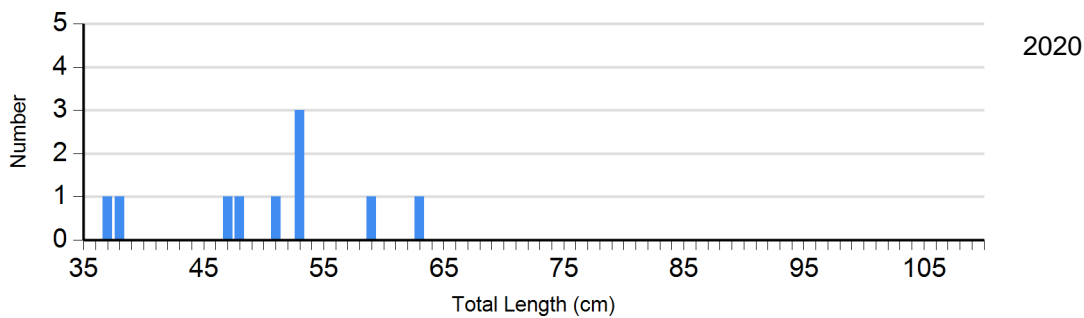
Species: Black Crappie
Gear: frame net (std 3/4 in)



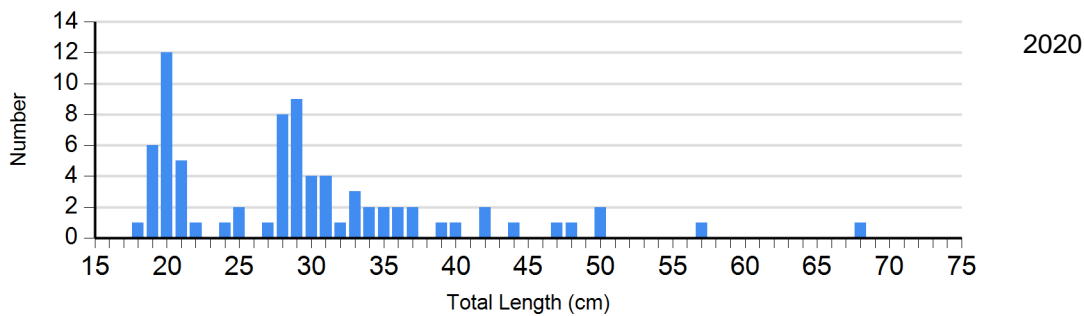
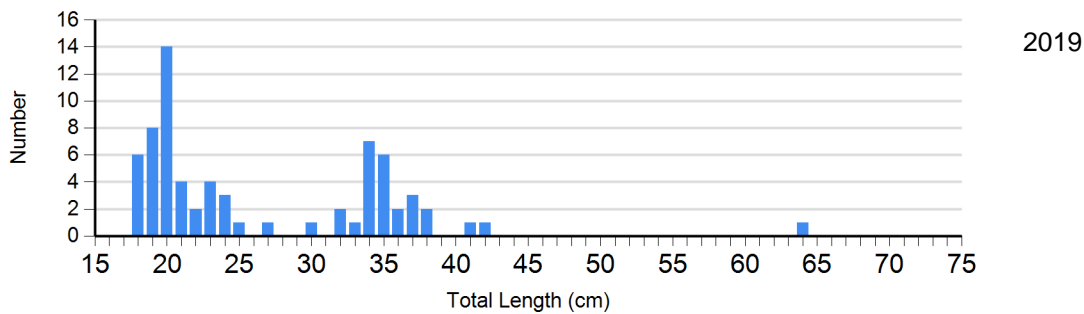
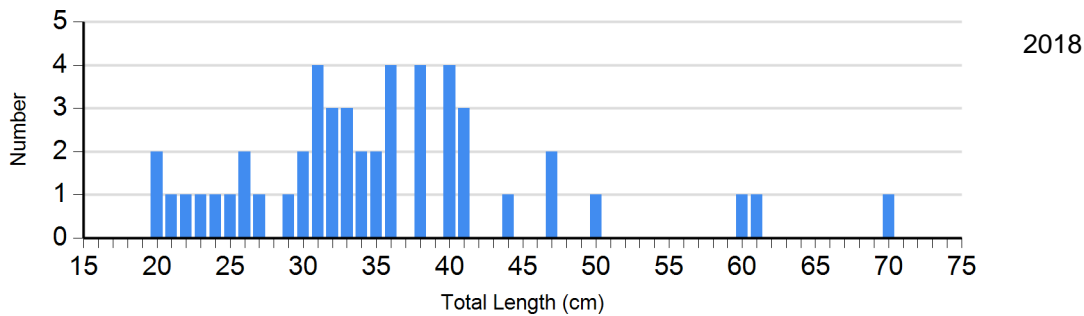
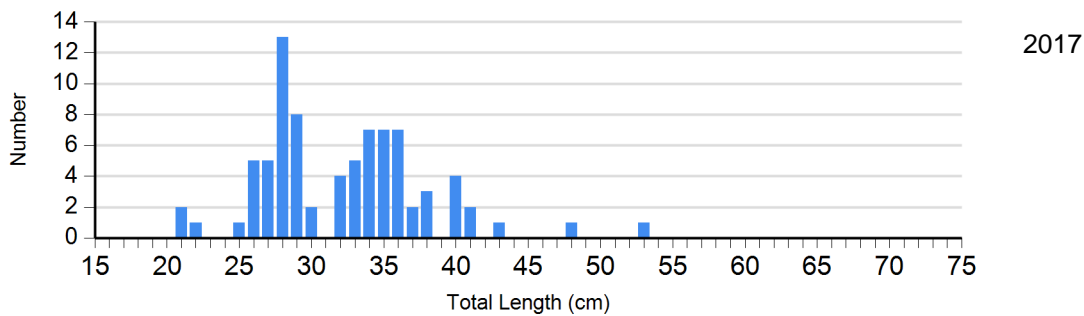
Species: Common Carp
Gear: AFS std gill net



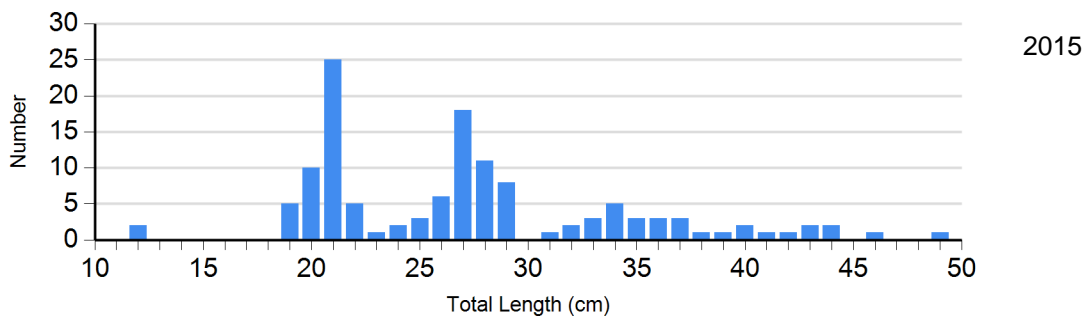
Species: Northern Pike
Gear: AFS std gill net

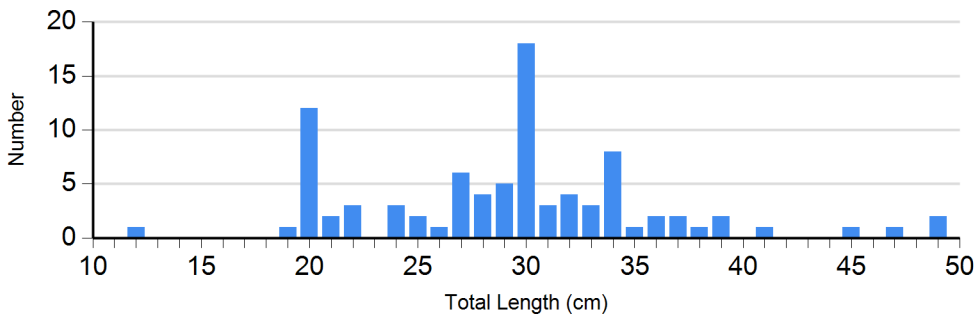


Species: Walleye
Gear: AFS std gill net



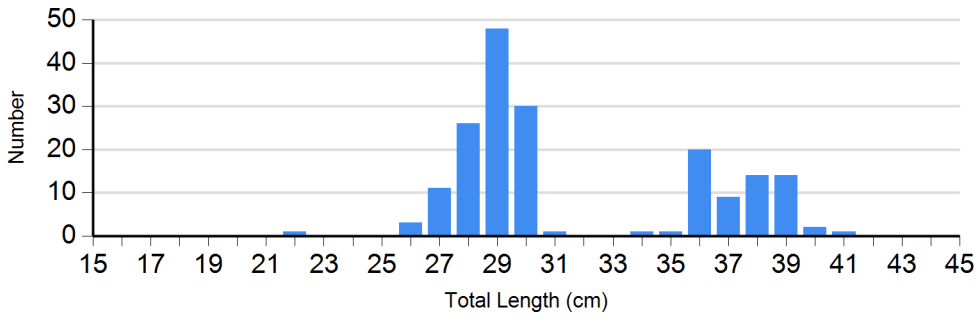
Species: Walleye
Gear: std exp gill net



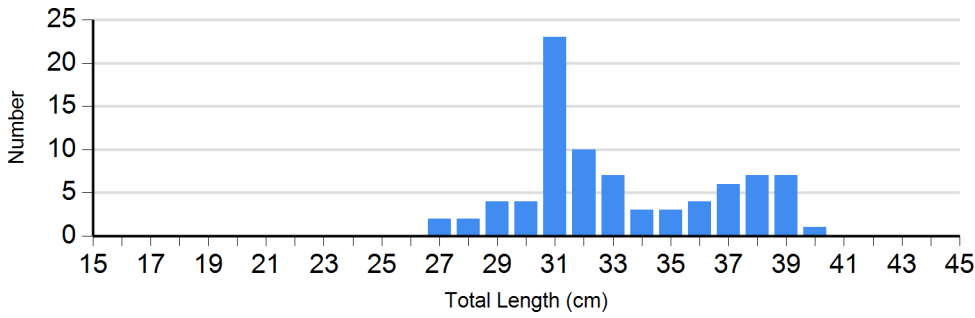


2016

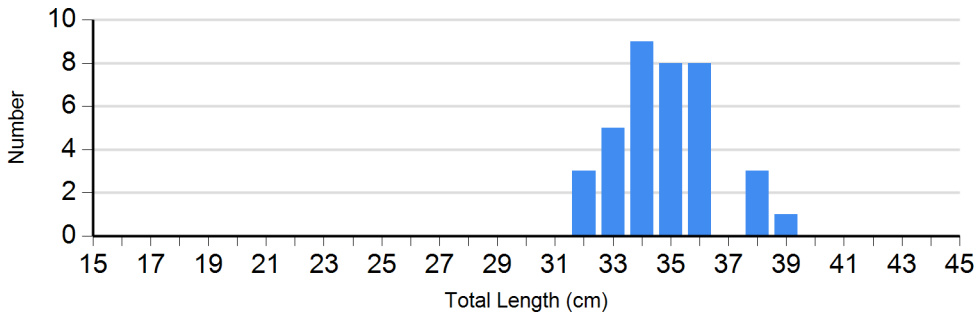
Species: White Bass
Gear: AFS std gill net



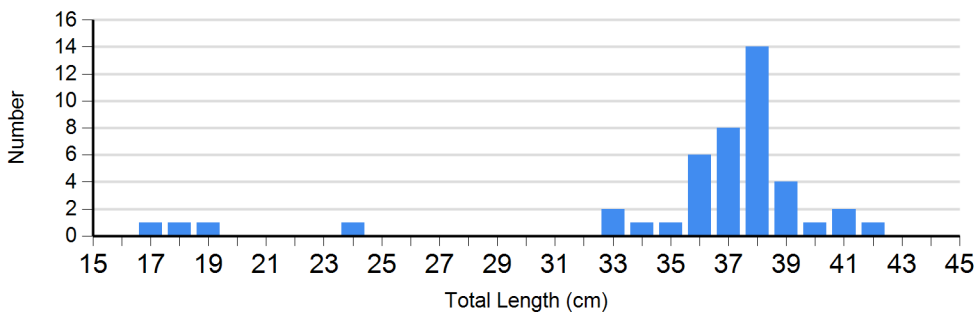
2017



2018

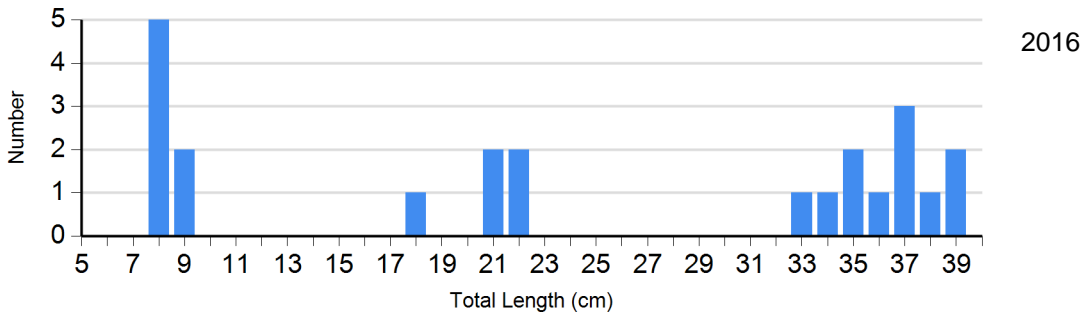
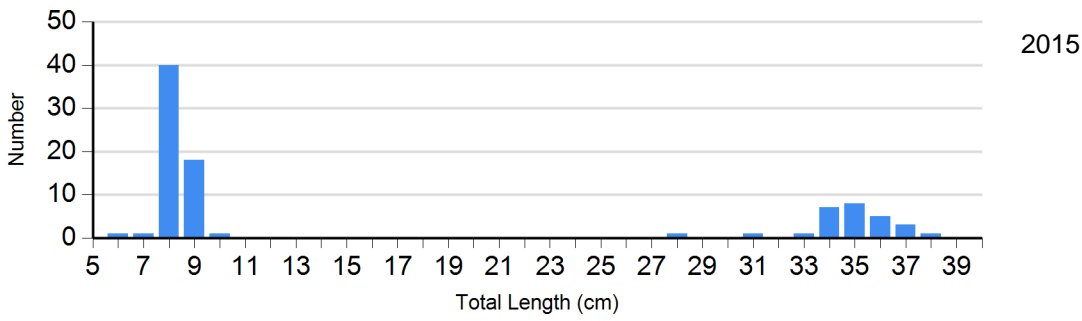


2019

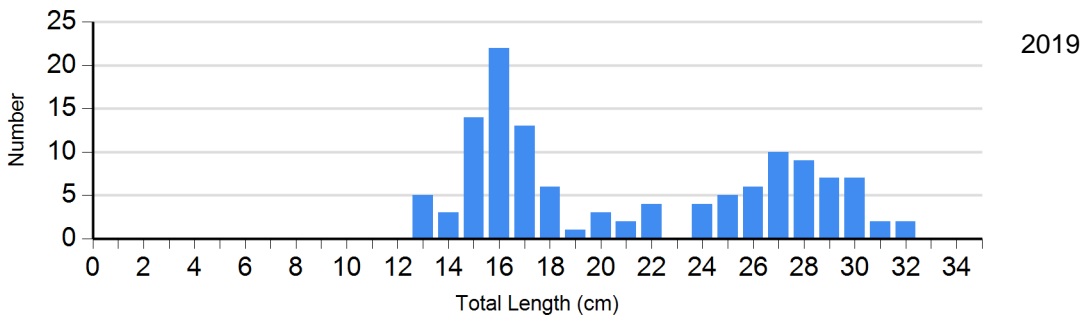
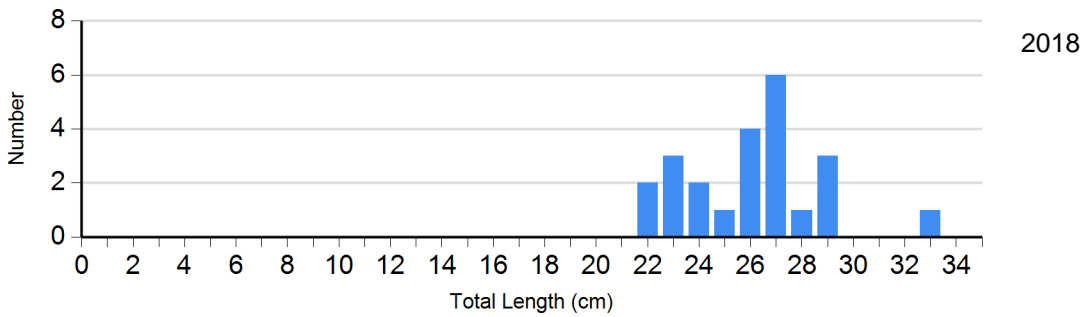
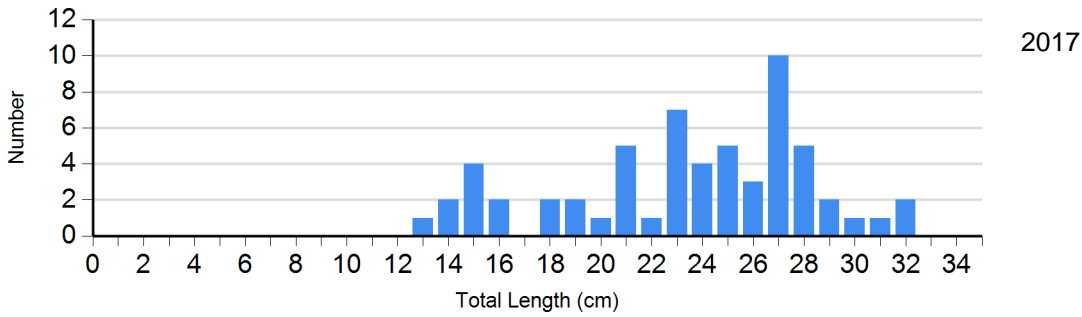


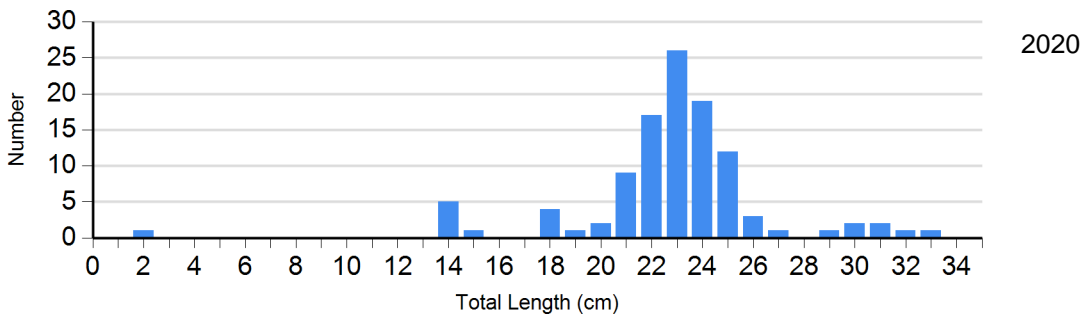
2020

Species: White Bass
 Gear: std exp gill net

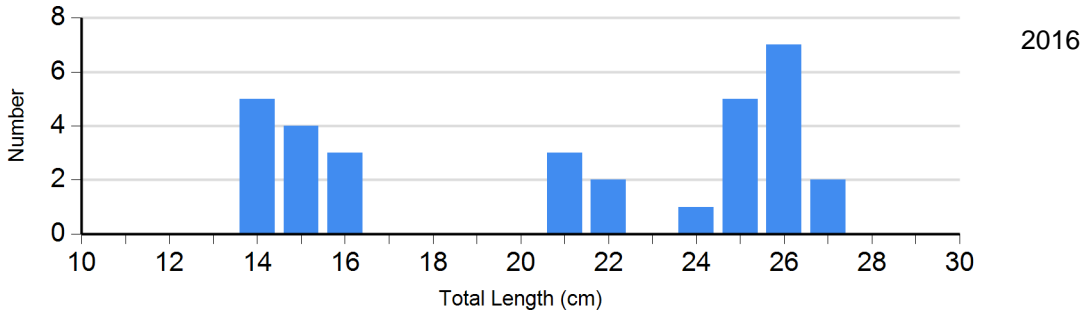
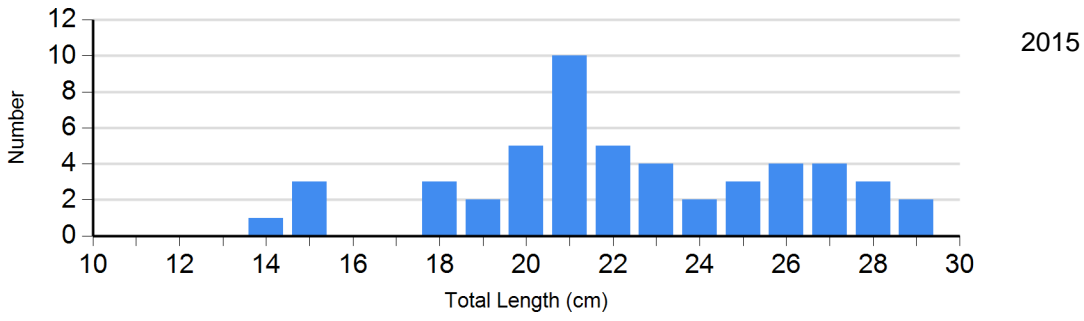


Species: Yellow Perch
 Gear: AFS std gill net





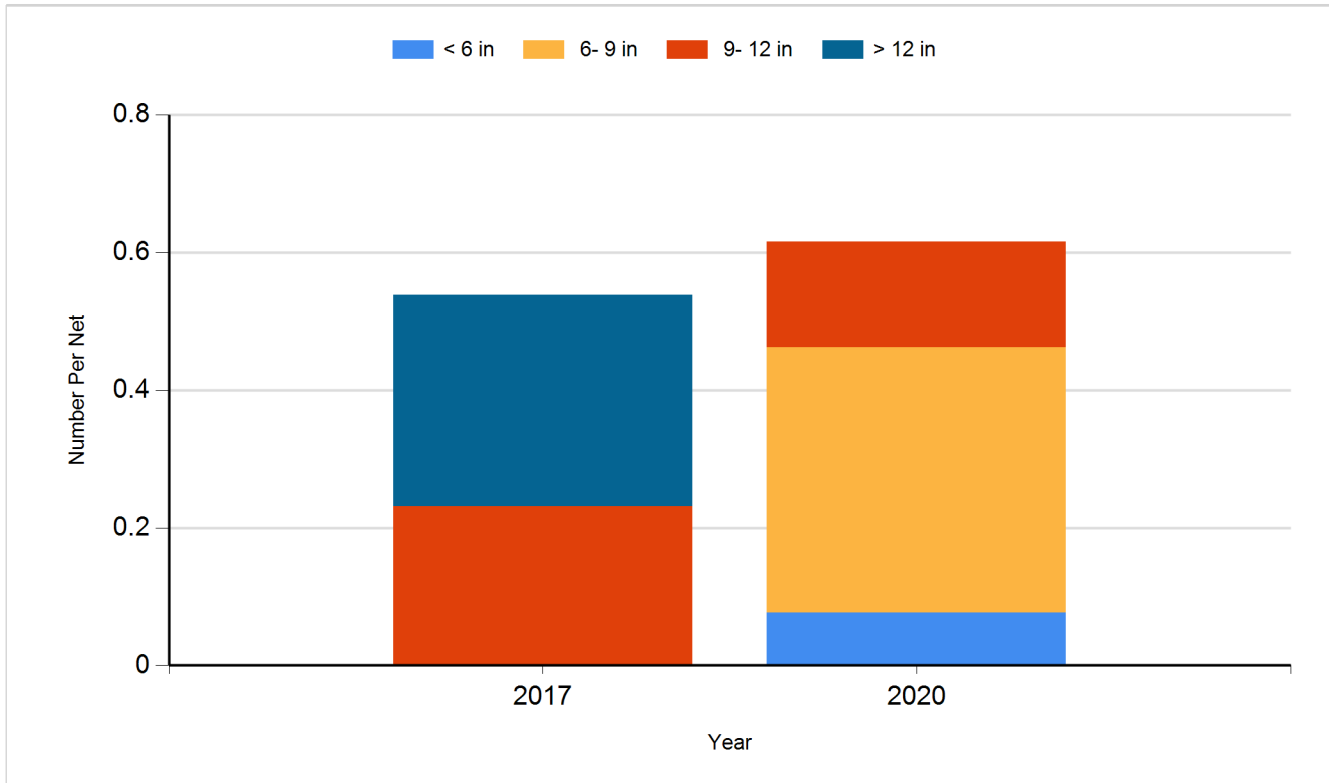
Species: Yellow Perch
 Gear: std exp gill net



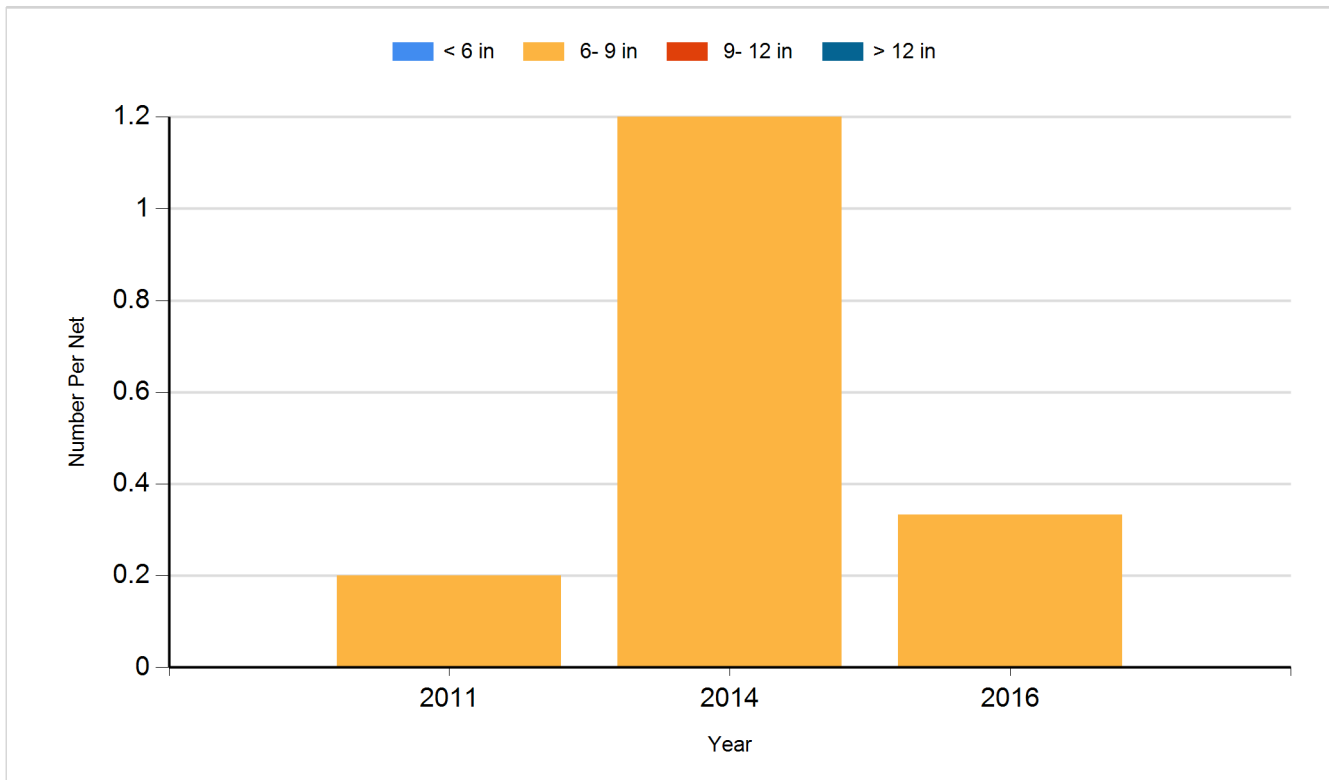
Historic Fish Sizes and Relative Abundance

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

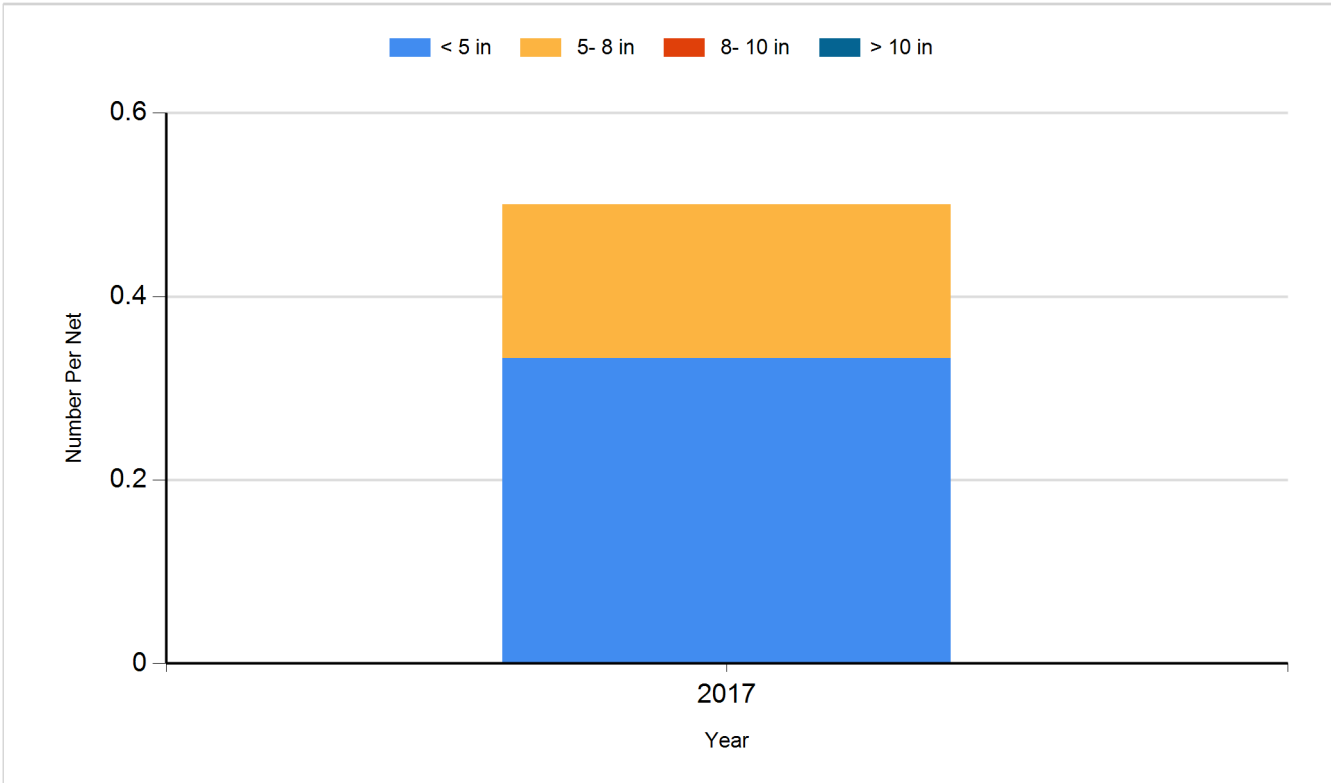
Species: Black Bullhead
Gear: AFS std gill net



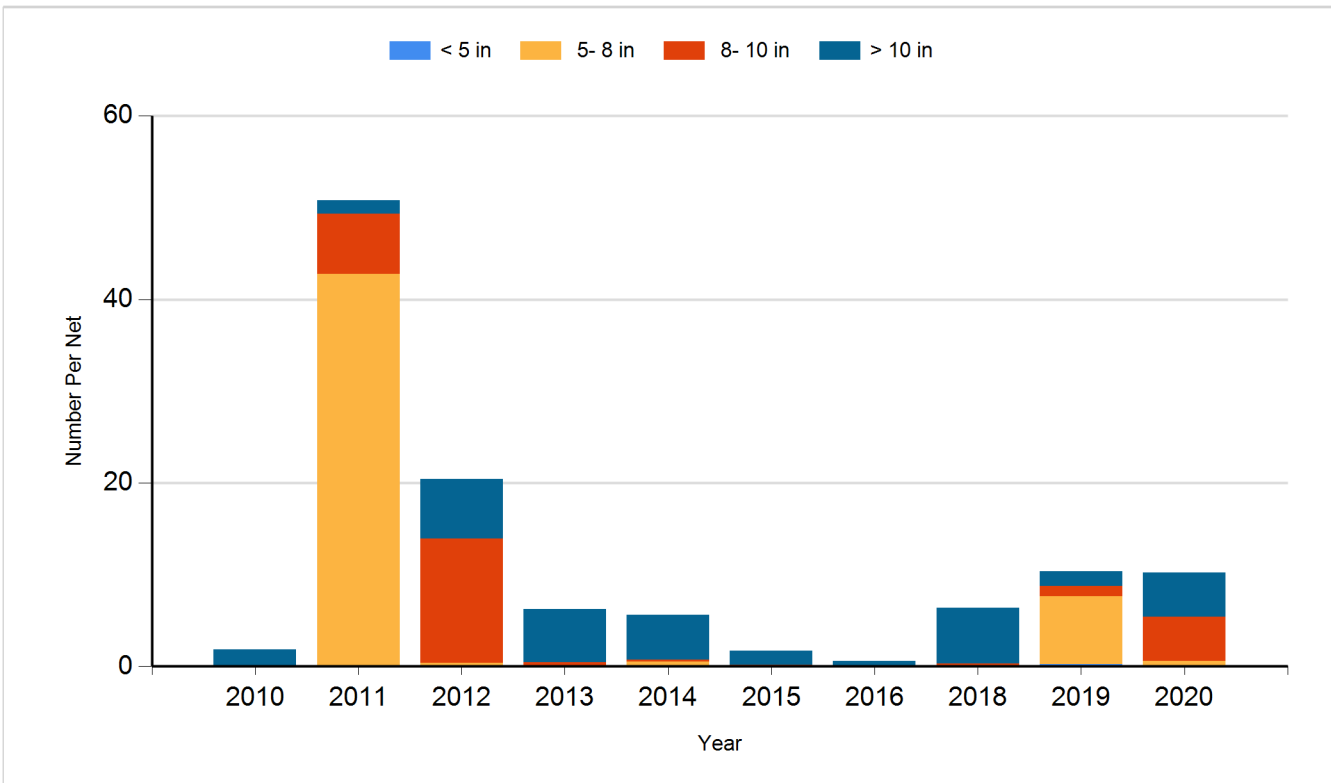
Species: Black Bullhead
Gear: std exp gill net



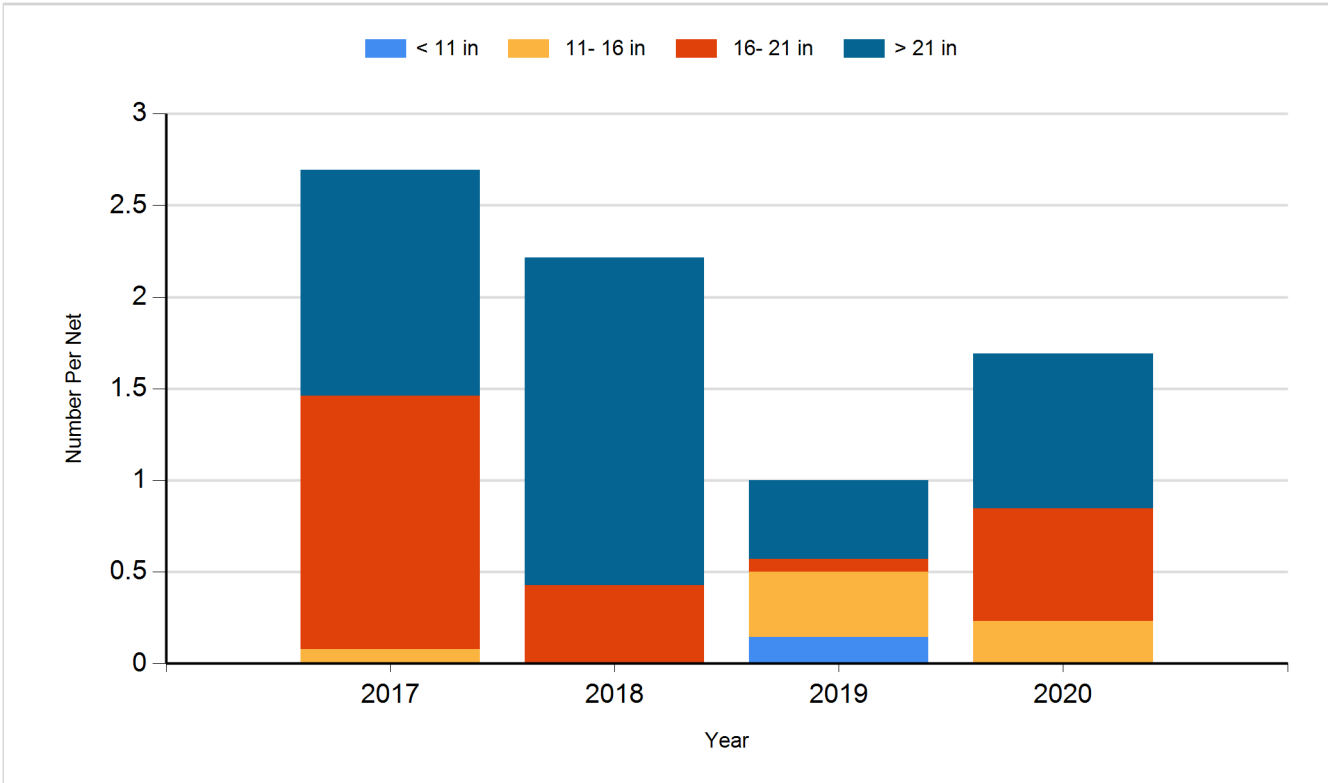
Species: Black Crappie
Gear: AFS std frame net



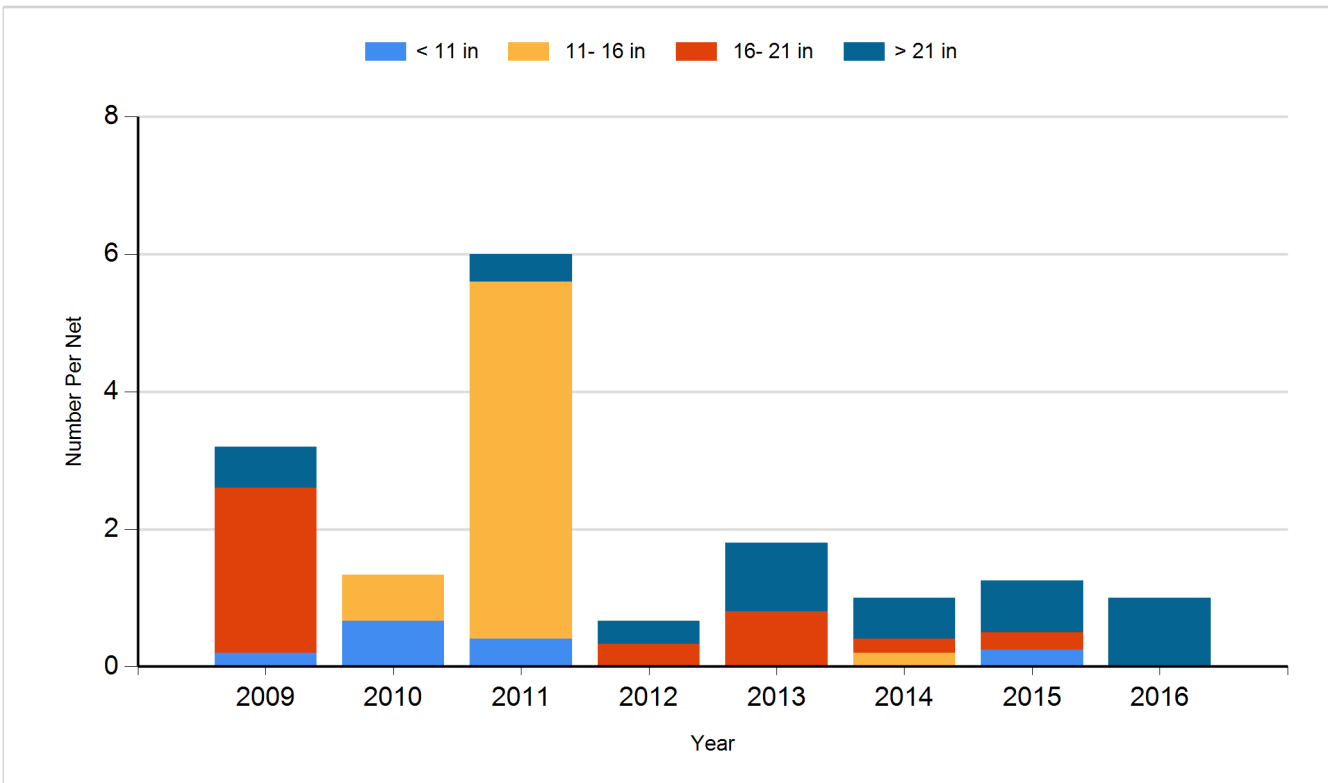
Species: Black Crappie
Gear: frame net (std 3/4 in)



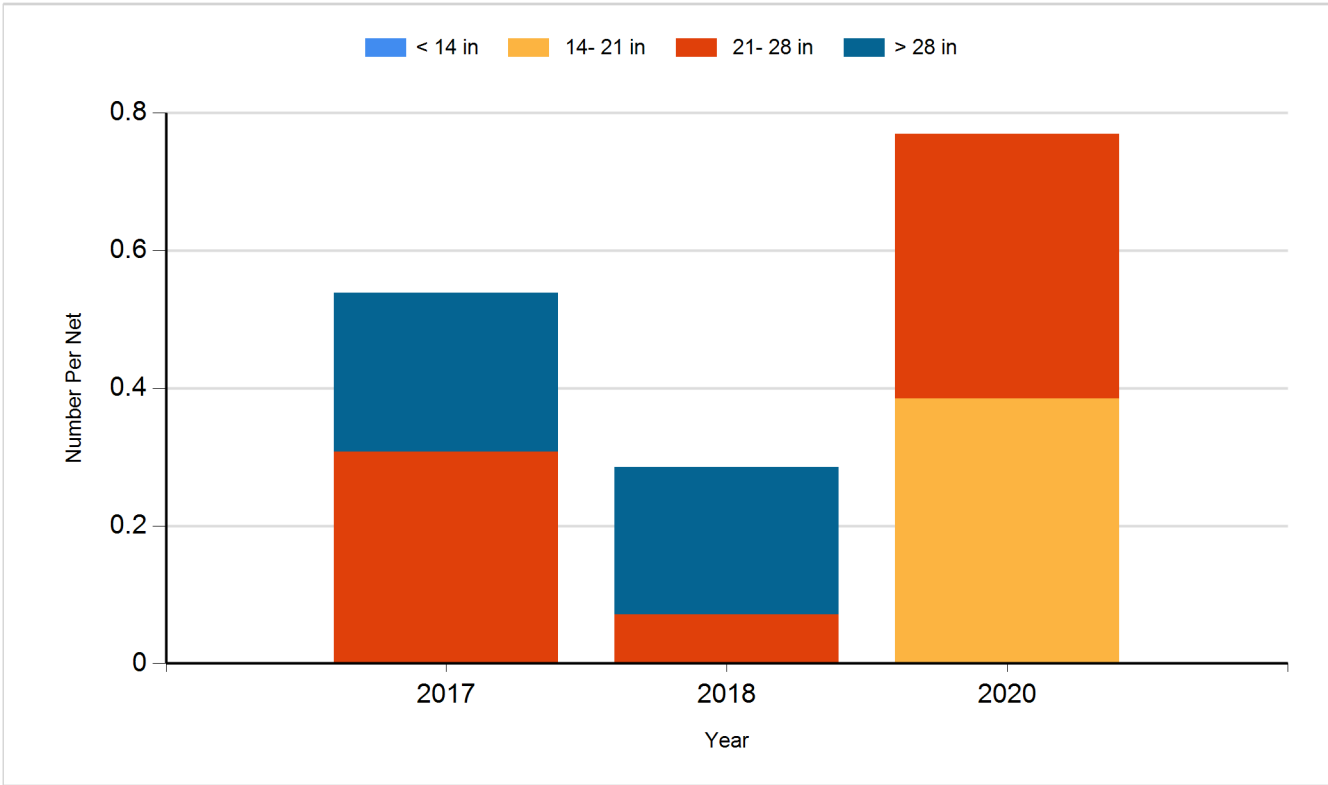
Species: Common Carp
Gear: AFS std gill net



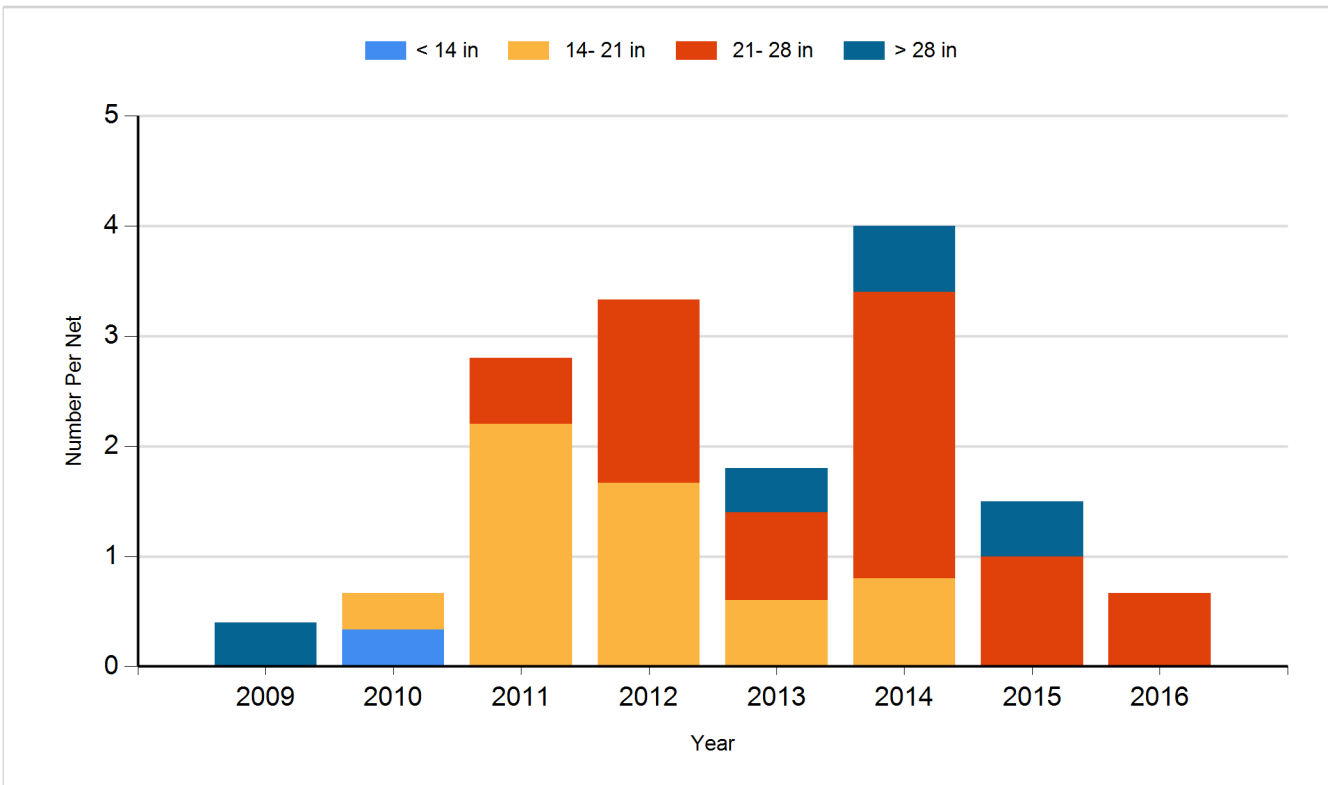
Species: Common Carp
Gear: std exp gill net



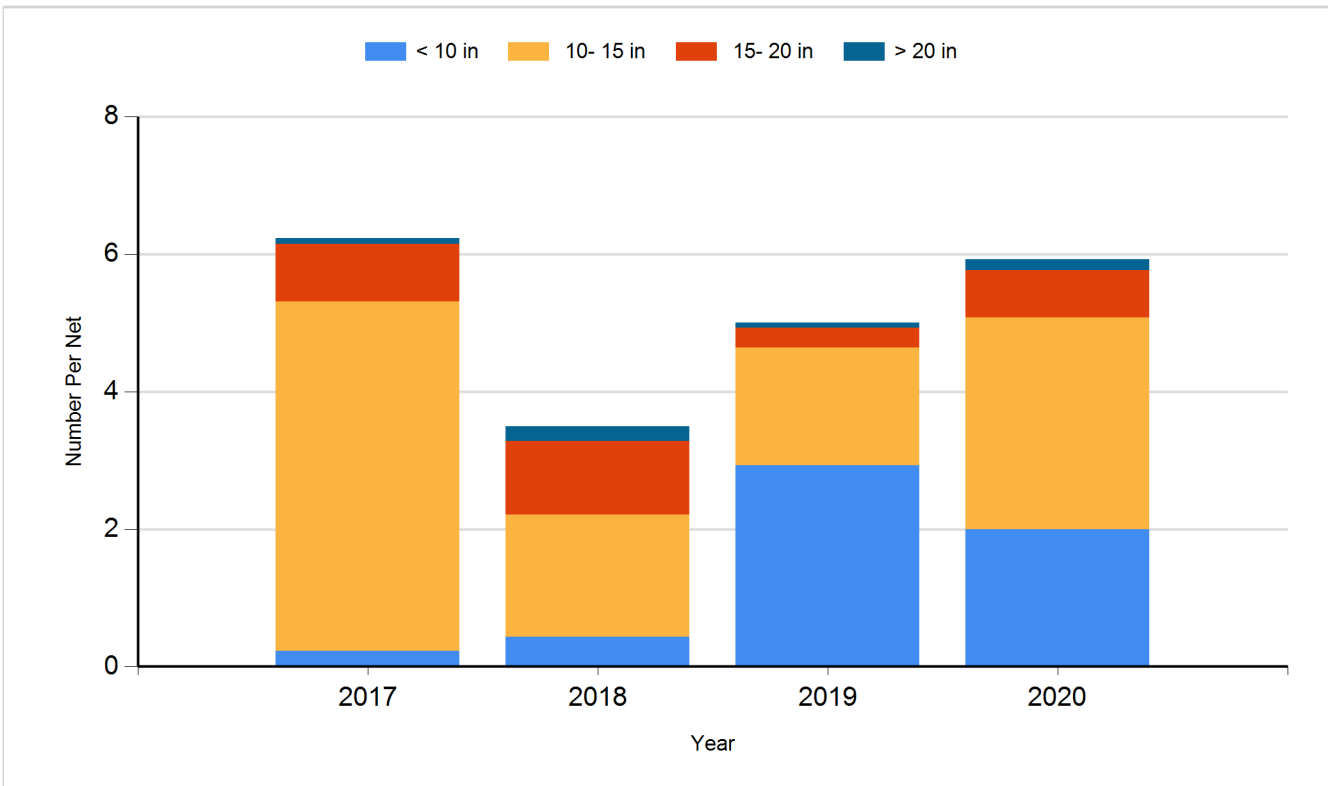
Species: Northern Pike
Gear: AFS std gill net



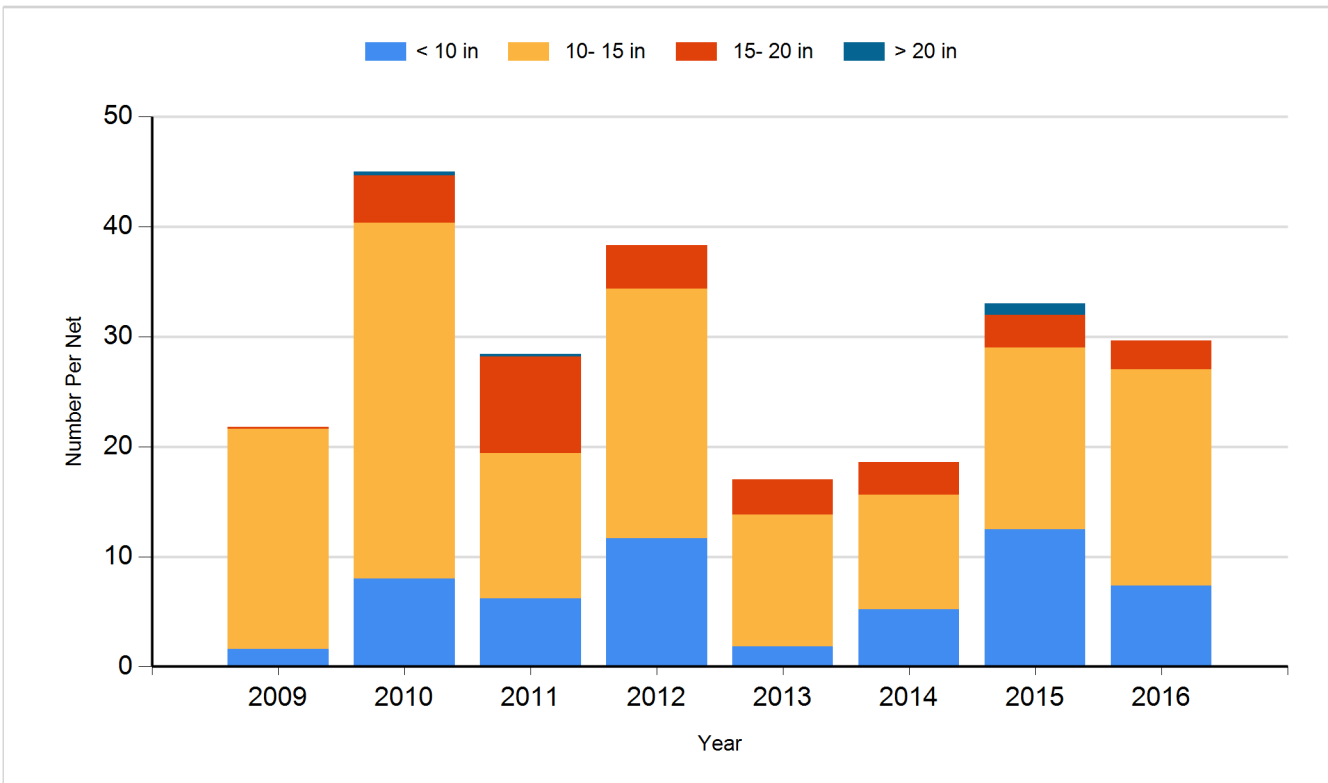
Species: Northern Pike
Gear: std exp gill net



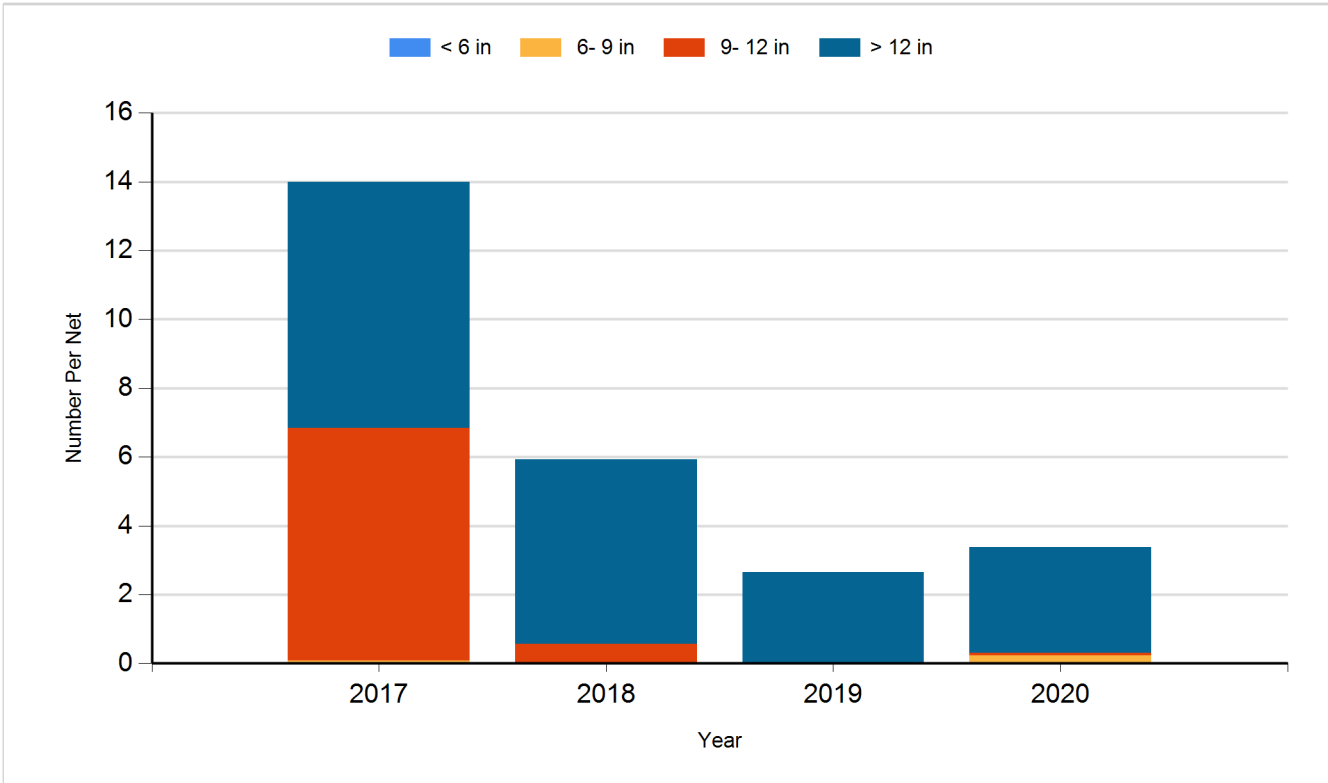
Species: Walleye
Gear: AFS std gill net



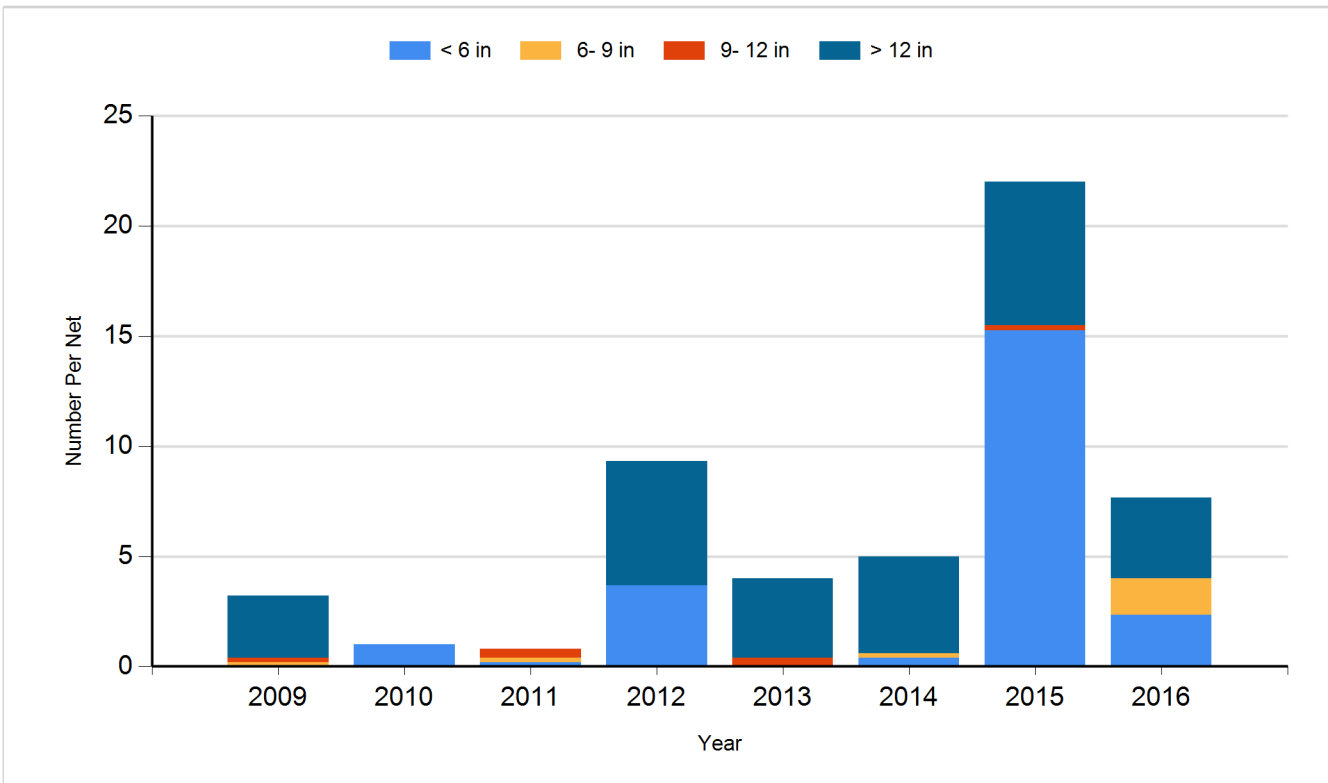
Species: Walleye
Gear: std exp gill net



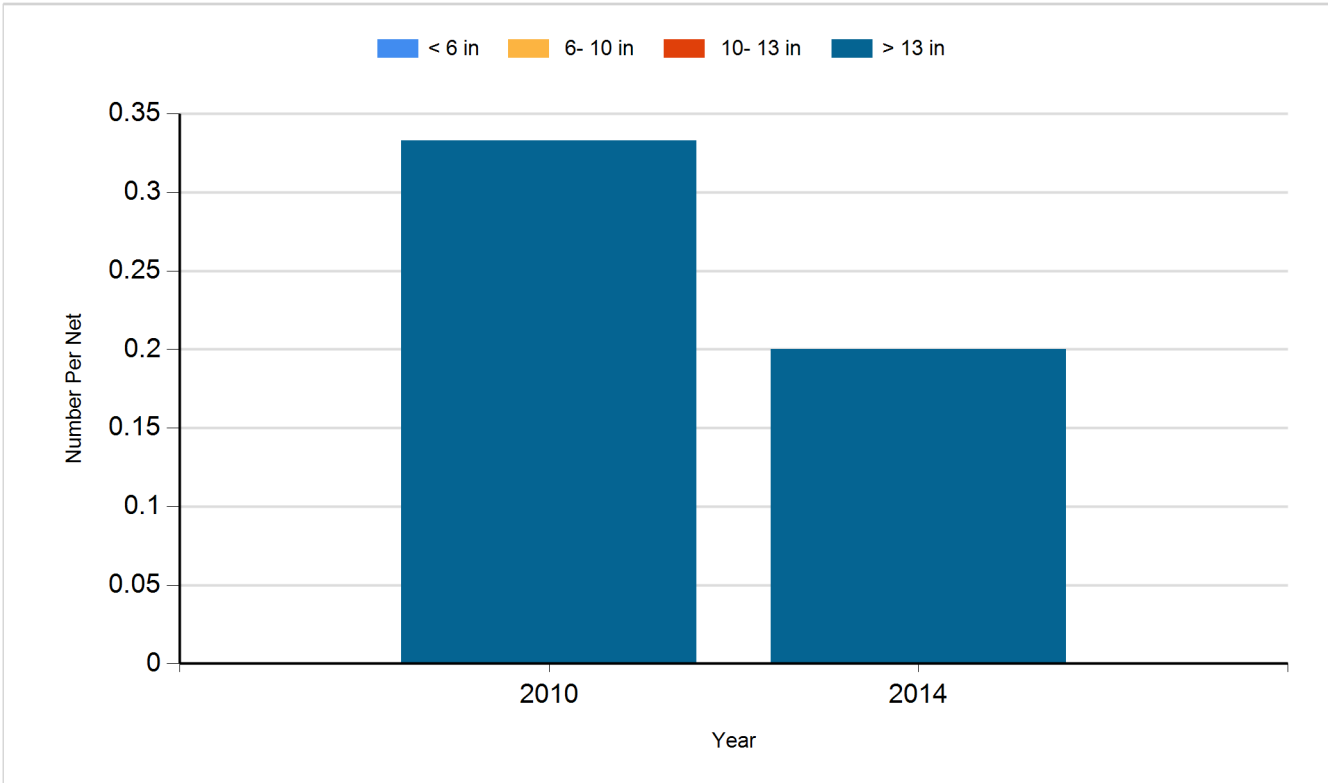
Species: White Bass
Gear: AFS std gill net



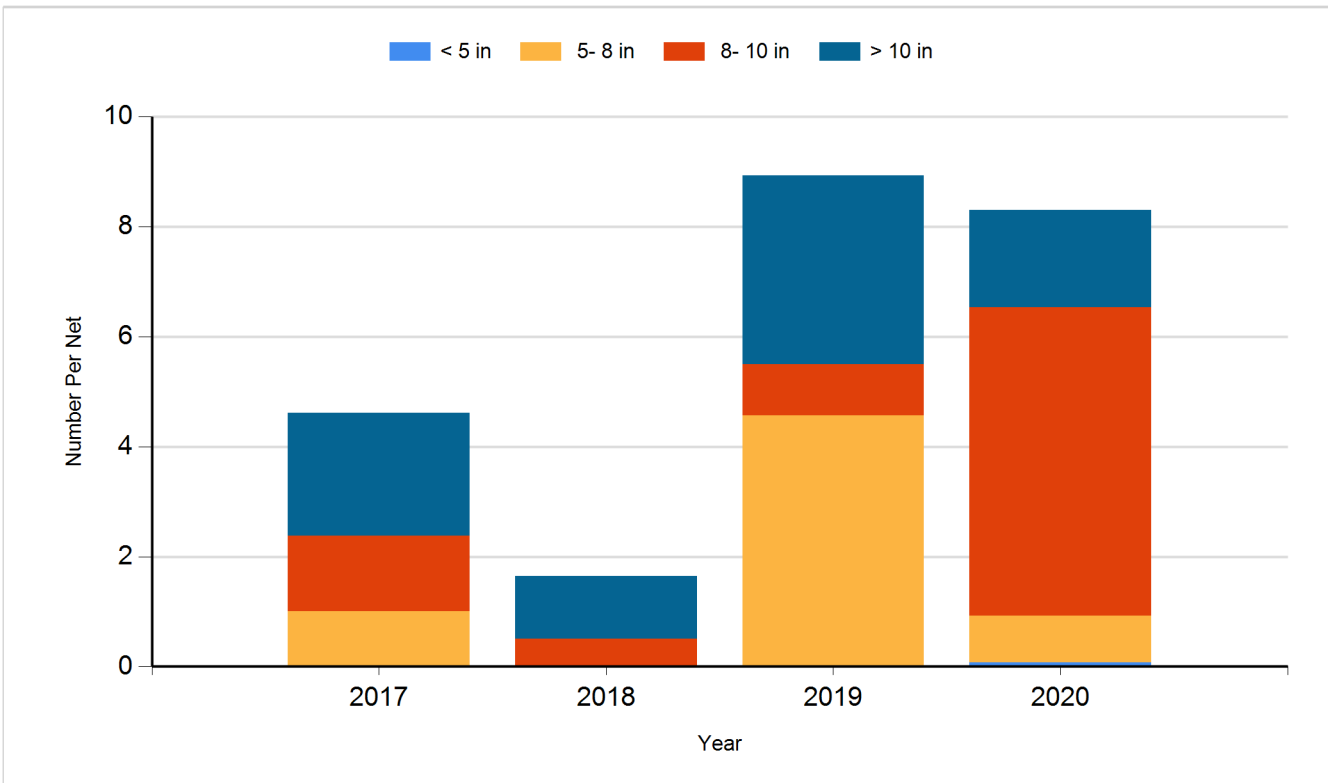
Species: White Bass
Gear: std exp gill net



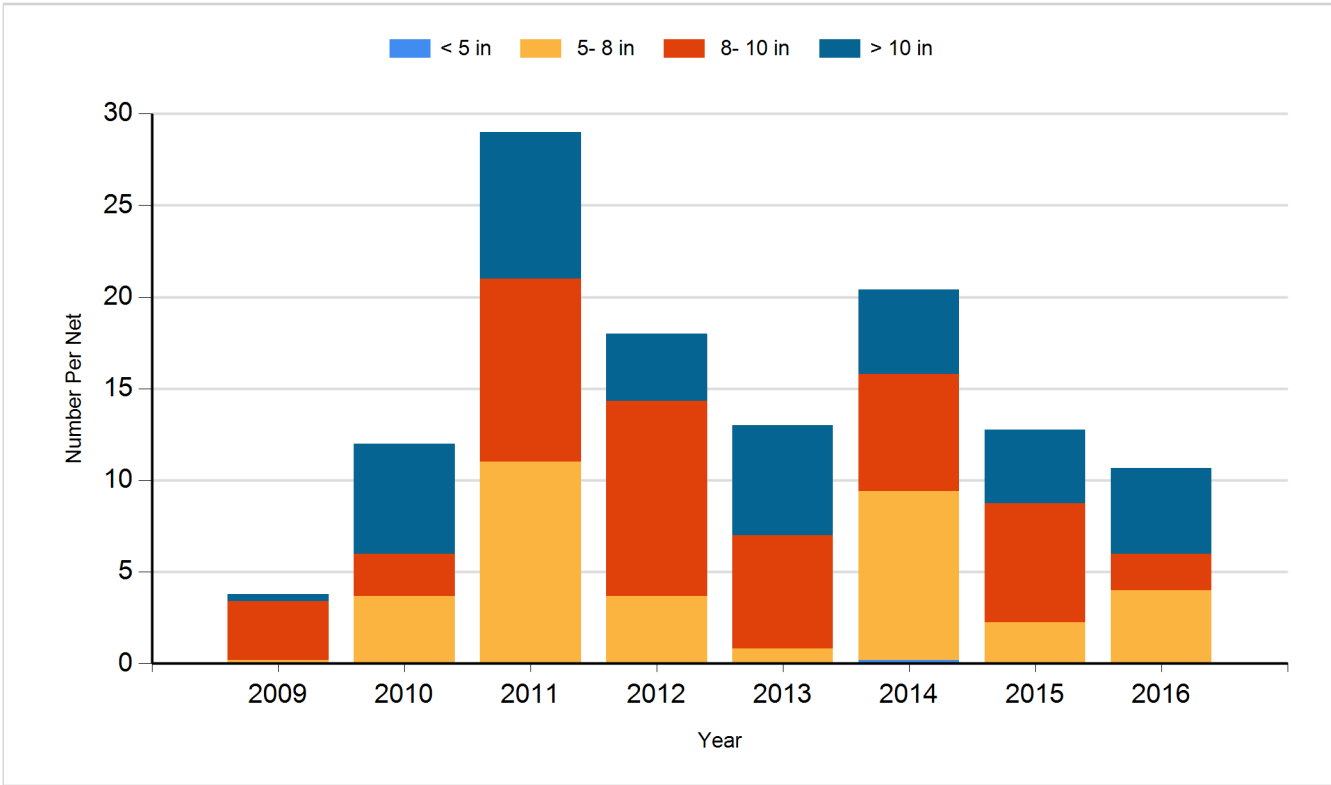
Species: White Sucker
Gear: std exp gill net



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
2011	Walleye	Fry	8,000,000
2014	Walleye	Fry	6,200,000
2015	Walleye	Fry	6,200,000
2018	Walleye	Fry	6,200,000
2019	Walleye	Fry	6,200,000