SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Thompson, Kingsbury County
LKT-Lake-55-801
2019

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 23, 2019	14 net-nights
frame net (std 3/4 in)	Jul 22, 2019	5 net-nights
frame net (std 3/4 in)	Jul 23, 2019	3 net-nights

Common Fish Species Present

Walleye

Black Crappie

Yellow Perch

Common Carp

Black Bullhead

White Bass

Bigmouth Buffalo

White Sucker

Smallmouth Bass

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.
- s**td 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.

$$CPUE = \frac{number\ of\ fish}{effort}$$

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.

$$PSD = \left(\frac{number\ of\ fish \geq quality\ length}{number\ of\ fish \geq stock\ length}\right) \text{x } 100$$

$$PSD - P = \left(\frac{number\ of\ fish \geq preferred\ length}{number\ of\ fish \geq stock\ length}\right) \text{x } 100$$

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.

$$Wr = \left(\frac{W}{Ws}\right) \text{x } 100$$

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).

	Stock		Quality		Preferred		Memorable		Trophy	
Species Name	(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**

			Abundance		Stock Density Indices				Condition	
Gear	Species	Sample Size (n)	CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
AFS std gill net	Bigmouth Buffalo	7	0.3	0.2	0		0			
	Black Crappie	2	0.1	0.1	0		0		110	6
	Common Carp	14	0.9	0.4	58	24	50	25		
	Walleye	70	2.1	0.7	17		3		86	2
	White Bass	37	2.6	1.5	100		100		97	1
	Yellow Perch	125	8.9	1.9	49	6	38	6	112	2
frame net (std 3/4 in)	Bigmouth Buffalo	12	1.4	1.1	9		9			
	Black Bullhead	25	3.1	2.6	12		4			
	Black Crappie	83	10.1	6.3	27	7	16	6	110	3
	Common Carp	44	5.0	2.8	98		83	9		
	Northern Pike	2	0.0	0.0	0		0			
	Smallmouth Bass	2	0.1	0.2	100		100		98	
	Walleye	36	1.6	0.8	46	23	23		87	3
	White Bass	5	0.6	0.5	100		100		97	4
	White Sucker	1	0.1	0.2	100		100			
	Yellow Perch	3	0.4	0.4	0		0		104	6

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.

		CPUE										
Gear	Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg
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	0.20
	Black Bullhead								0.5	0.0	0.0	0.17
	Black Crappie								0.6	0.1	0.1	0.27
	Common Carp								2.7	2.2	0.9	1.93
	Northern Pike								0.5	0.3	0.0	0.27
	Smallmouth Bass								0.0	0.1	0.0	0.03
	Walleye								6.0	3.1	2.1	3.73
	White Bass								14.0	5.9	2.6	7.50
	Yellow Perch								4.6	1.6	8.9	5.03
fall night EF-WAE	Walleye	24.0	186.5	3.5	31.0	40.5	35.5					53.50
frame net (std 3/4 in)	Bigmouth Buffalo	1.7	0.2	3.5	0.5	0.0	0.3	0.4		1.7	1.4	1.08
	Black Bullhead	0.1	2.6	29.7	4.7	3.6	0.4	0.4		0.3	3.1	4.99
	Black Crappie	1.8	50.8	20.4	6.3	5.6	1.7	0.6		6.4	10.1	11.52
	Bluegill	0.1	0.2	0.3	0.0	0.0	0.0	0.0		0.0	0.0	0.07
	Common Carp	7.0	10.4	15.9	4.6	2.1	10.0	6.7		1.5	5.0	7.02
	Northern Pike	1.4	4.4	13.6	3.4	2.5	5.8	5.4		1.2	0.0	4.19
	Smallmouth Bass	0.3	1.0	0.3	0.2	0.2	0.1	1.0		0.1	0.1	0.37
	Walleye	9.5	2.4	4.9	3.1	1.7	1.0	3.1		2.5	1.6	3.31
	White Bass	0.0	0.8	2.0	1.0	0.5	0.6	3.6		4.4	0.6	1.50
	White Sucker	0.0	0.0	0.0	0.3	0.6	0.0	0.4		0.1	0.1	0.17
	Yellow Perch	0.0	0.8	0.2	0.1	0.1	0.0	0.0		0.0	0.4	0.18
std exp gill net	Bigmouth Buffalo	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.00
	Black Bullhead	0.0	0.2	0.0	0.0	1.2	0.0	0.3				0.24
	Black Crappie	0.0	20.6	4.7	10.8	1.6	2.3	2.3				6.04
	Common Carp	0.7	5.6	0.7	1.8	1.0	1.0	1.0				1.69
	Lamprey Family	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.00

		CPUE										
Gear	Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg
std exp gill net	Northern Pike	0.3	2.8	3.3	1.8	4.0	1.5	0.7				2.06
	Spottail Shiner	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.00
	Walleye	37.0	22.2	26.7	15.2	13.4	20.5	22.3				22.47
	White Bass	0.0	0.6	5.7	4.0	4.6	6.8	5.3				3.86
	White Sucker	0.3	0.0	0.0	0.0	0.2	0.0	0.0				0.07
	Yellow Perch	12.0	29.0	18.0	13.0	20.2	12.8	10.7				16.53

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.

			Year									
Gear	Species	Index	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
AFS std frame net	Black Bullhead	PSD								50		
		PSD-P								50		
	Black Crappie	PSD								0		
		PSD-P								0		
		Wr								113		
	Common Carp	PSD								97		
		PSD-P								87		
	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
		PSD-P								0	0	0
	Black Bullhead	PSD								100		
		PSD-P								57		
	Black Crappie	PSD								100	100	0
		PSD-P								100	100	0
		Wr								98	99	110
	Common Carp	PSD								97	100	58
		PSD-P								46	81	50
	Northern Pike	PSD								100	100	
		PSD-P								43	75	

			Year									
Gear	Species	Index	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
AFS std gill net	Northern Pike	Wr								80	89	
	Smallmouth Bass	PSD									0	
		PSD-P									0	
		Wr									97	
	Walleye	PSD								15	42	17
		PSD-P								1	7	3
		Wr								83	79	86
	White Bass	PSD								99	100	100
		PSD-P								51	90	100
		Wr								92	86	97
	Yellow Perch	PSD								78	100	49
		PSD-P								48	70	38
		Wr								114	106	112
fall night EF-WAE	Walleye	Wr	91	90	82	81	85	83				
frame net (std 3/4 in)	Bigmouth Buffalo	PSD	100	100	94	100		67	75		88	9
		PSD-P	0	0	17	0		33	50		76	9
		Wr	80	88	91	81						
	Black Bullhead	PSD	100	29	5	42	17	100	75		100	12
		PSD-P	100	6	0	8	0	25	0		33	4
		Wr	88	95	97	90						
	Black Crappie	PSD	100	16	98	100	91	100	100		98	27
		PSD-P	95	3	32	93	88	88	100		95	16
		Wr	93	124	115	103	112	106	115		97	110
	Common Carp	PSD	92	34	96	94	90	95	98		87	98
		PSD-P	87	11	23	73	90	57	83		80	83
		Wr	89	107	101	95						
	Northern Pike	PSD	67	64	35	76	80	95	100		100	0
		PSD-P	33	13	3	14	32	31	65		67	0
		Wr	83	87	73	70	86	79	91		71	
	Smallmouth Bass	PSD	100	33	100	100	50	0	22		100	100
		PSD-P	33	17	0	50	0	0	11		100	100
		Wr	88	109	91	97	100	98	134		74	98
	Walleye	PSD	15	59	41	62	41	60	50		36	46
		PSD-P	0	3	14	41	18	10	21		20	23
		Wr	87	88	81	78	84	86	89		77	87
	White Bass	PSD		100	100	100	100	50	44		100	100

			Year									
Gear	Species	Index	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
frame net (std 3/4 in)	White Bass	PSD-P		0	90	100	100	17	41		100	100
		Wr		101	97	90	91	89	103		83	97
	White Sucker	PSD				100	83		100		100	100
		PSD-P				100	83		100		100	100
		Wr				93						
	Yellow Perch	PSD		78	50	100	0					0
		PSD-P		56	50	100	0					0
		Wr		117	101	103	116					104
std exp gill net	Black Bullhead	PSD		0			0		0			
		PSD-P		0			0		0			
		Wr		97								
	Black Crappie	PSD	0	1	64	100	100	100	100			
		PSD-P	0	0	7	83	100	100	86			
		Wr		123	120	88	107	101	104			
	Common Carp	PSD	0	7	100	100	80	100	100			
		PSD-P	0	7	50	56	60	75	100			
		Wr	97	110	101	92						
	Northern Pike	PSD	0	21	50	67	80	100	100			
		PSD-P	0	0	0	22	15	33	0			
		Wr	94	87	85	74	83	80	80			
	Walleye	PSD	13	41	15	21	22	20	12			
		PSD-P	1	1	0	0	0	5	0			
		Wr	89	88	85	81	80	86	83			
	White Bass	PSD	0	67	100	100	96	100	69			
		PSD-P	0	0	100	90	96	96	69			
		Wr		98	97	87	90	93	91			
	White Sucker	PSD	100				100					
		PSD-P	100				100					
		Wr	103									
	Yellow Perch	PSD	69	62	80	94	54	82	63			
		PSD-P	50	28	20	46	23	31	44			
		Wr	113	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+
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)	
2010	114	250 (11)	318 (18)	351 (83)	450 (1)	530 (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)
2010	36	168 (11)		251 (21)	269 (3)	310 (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).

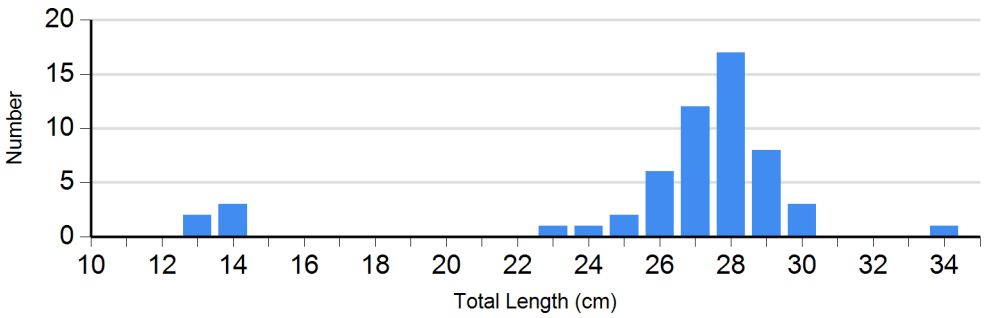
		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Crappie Frame Net	2015	0		2	113 (0.6)	9	108 (1.7)	6	102 (1.2)
	2016	0		0		3	119 (10.4)	2	109 (6.7)
	2017	1	113	0		0		0	
	2018	1		2	106	28	97 (1.0)	33	96 (1.1)
	2019	59	111 (3.5)	9	113 (1.9)	5	106 (0.3)	8	100 (1.9)
Northern Pike Gill Net	2015	0		4	78 (4.4)	2	83 (2.8)	0	
	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
Walleye Gill Net	2015	66	87 (0.8)	12	83 (1.7)	4	82 (4.1)	0	
	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
White Bass Gill Net	2015	0		1	87	25	93 (1.0)	1	94
	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)
Yellow Perch Gill Net	2015	9	112 (3.7)	26	110 (1.8)	16	110 (3.0)	0	
	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)

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Yellow Perch Gill Net	2018	0		7	102 (2.5)	15	109 (2.2)	1	94
	2019	64	107 (1.3)	13	124 (3.0)	37	117 (1.3)	11	104 (6.7)

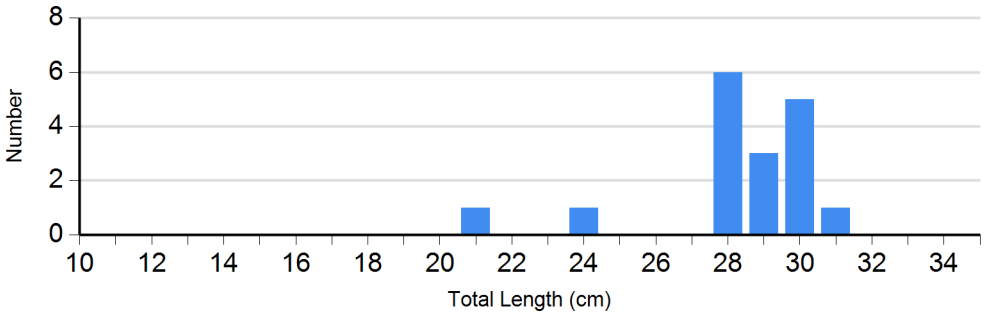
Length Frequency Distribution

Length frequency histogram of species sampled by year.

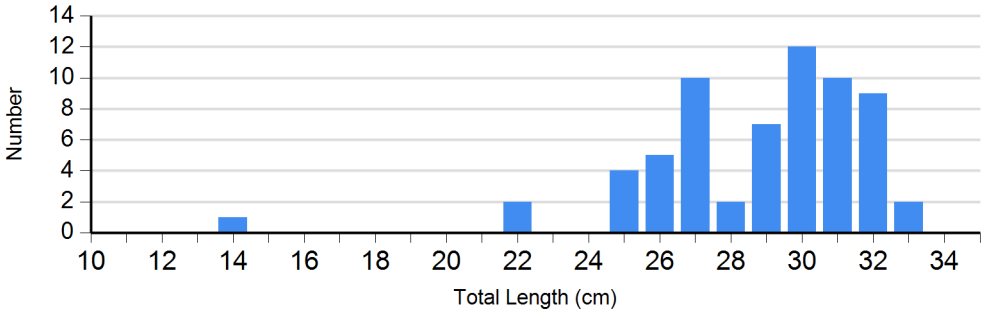
Species: Black Crappie
Gear: frame net (std 3/4 in)



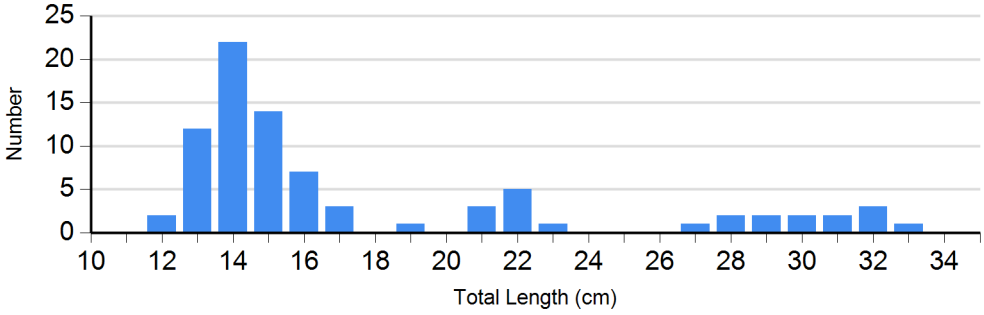
2014



2015

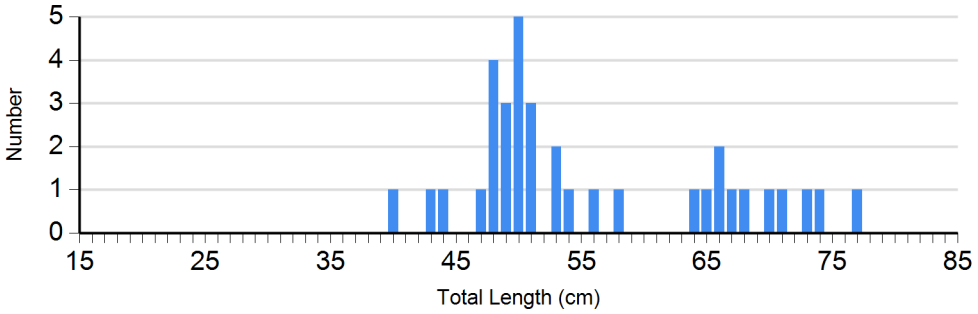


2018

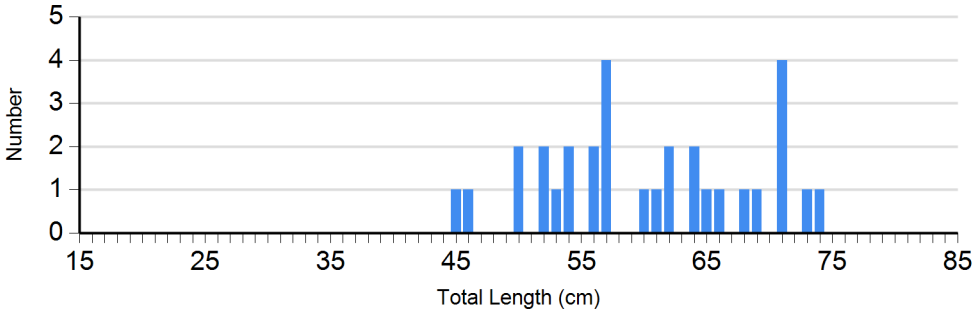


2019

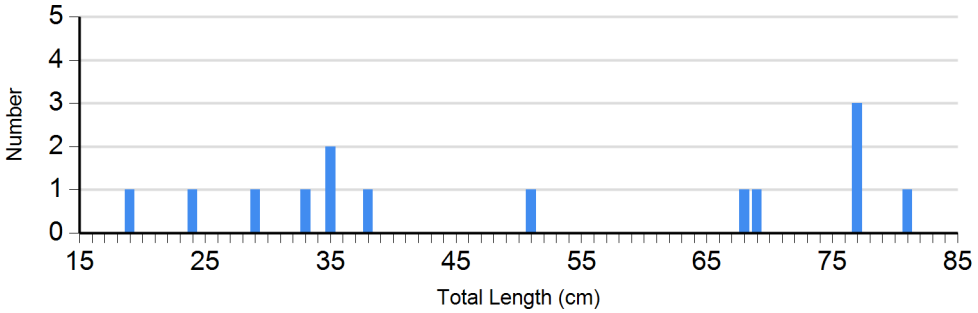
Species: Common Carp
Gear: AFS std gill net



2017

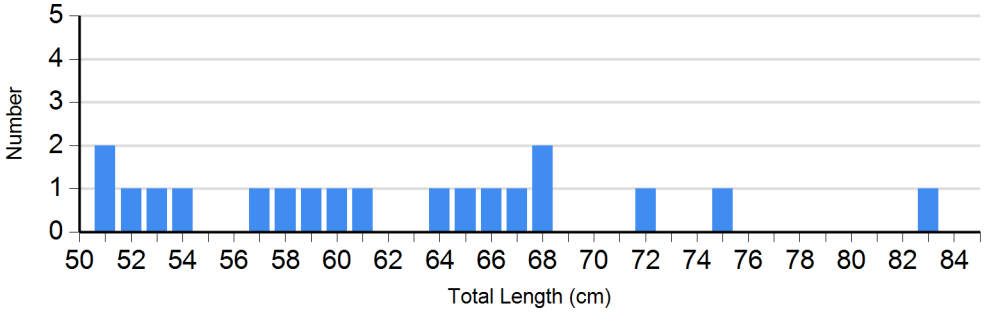


2018



2019

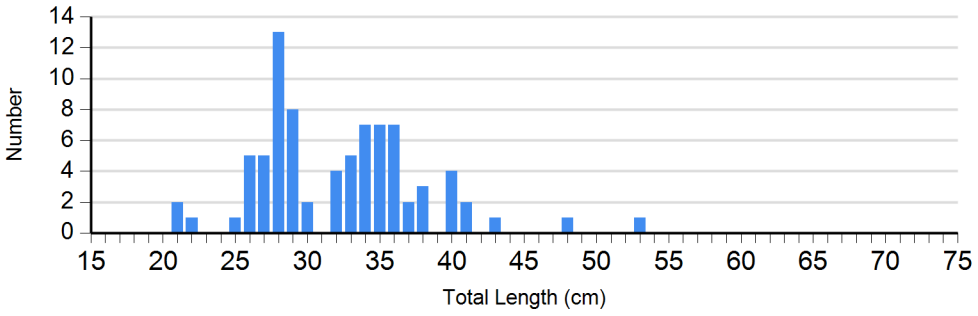
Species: Northern Pike
Gear: std exp gill net



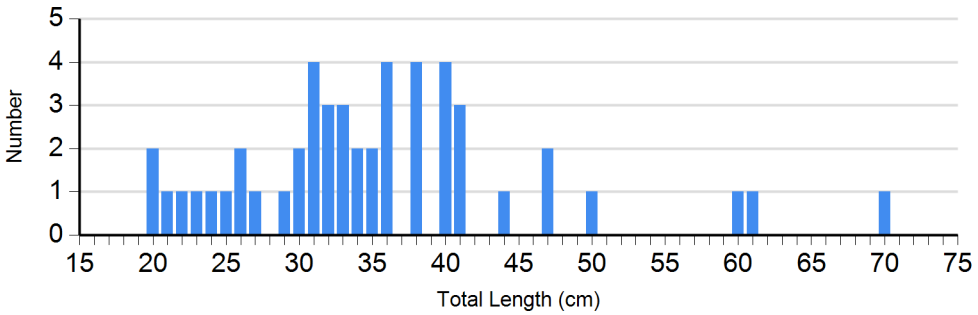
2014

Species: Walleye
Gear: AFS std gill net

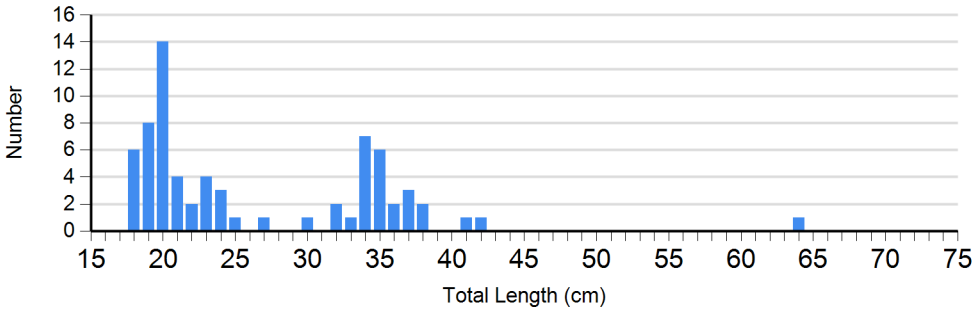
2017



2018

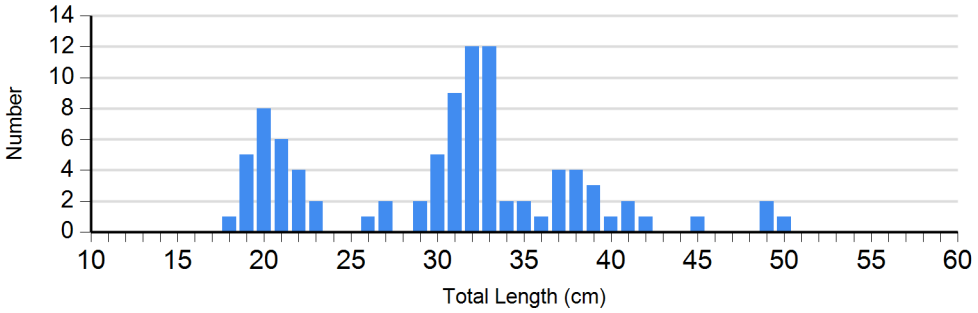


2019

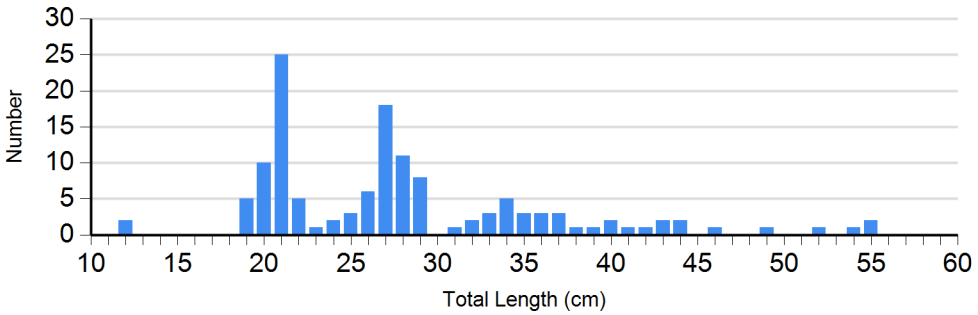


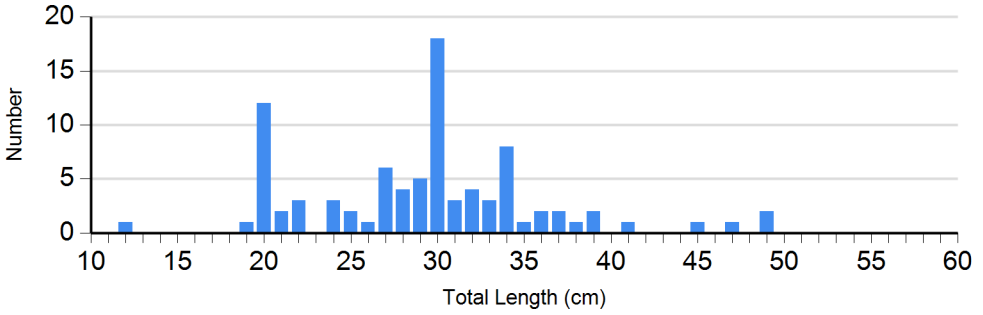
Species: Walleye
Gear: std exp gill net

2014



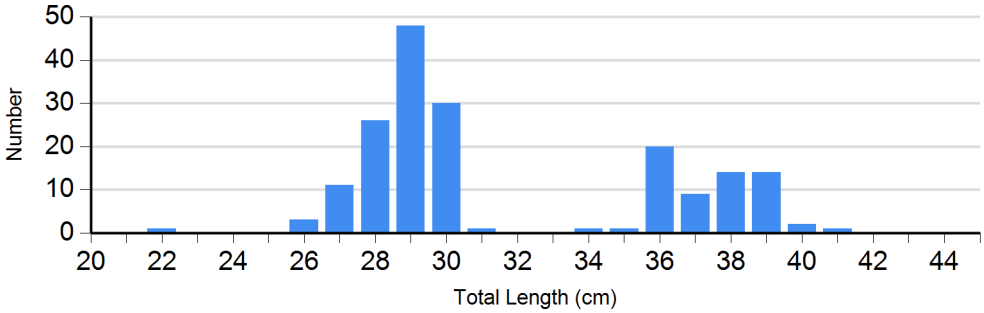
2015



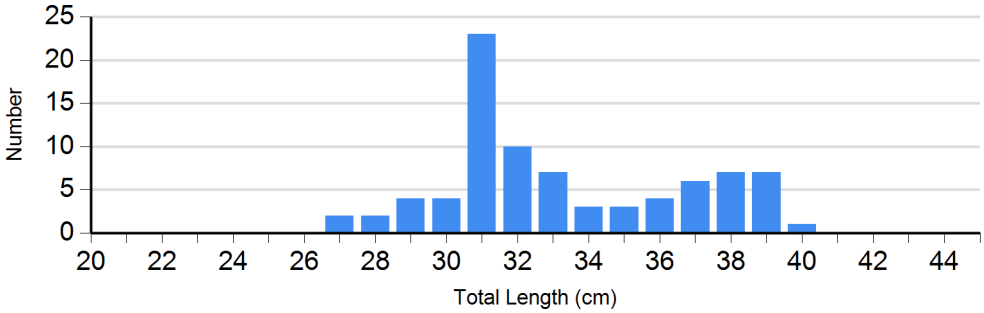


2016

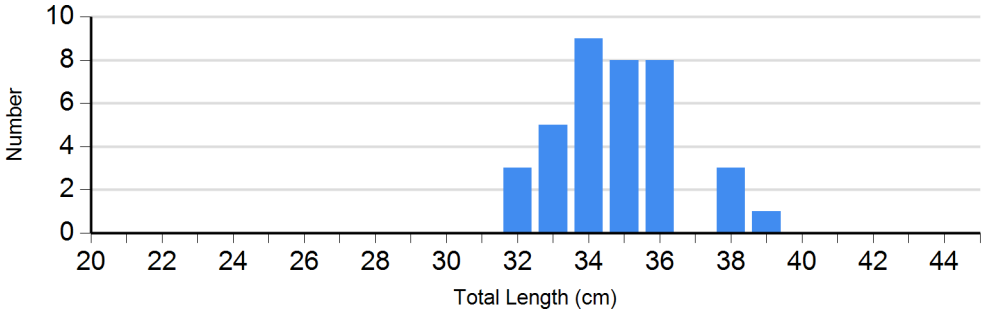
Species: White Bass
Gear: AFS std gill net



2017

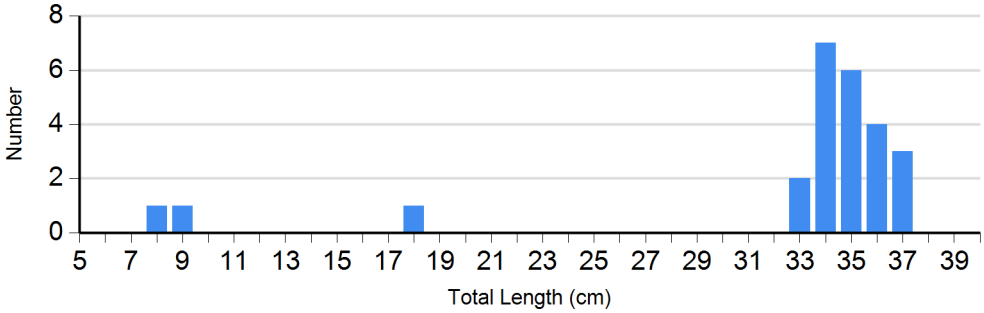


2018

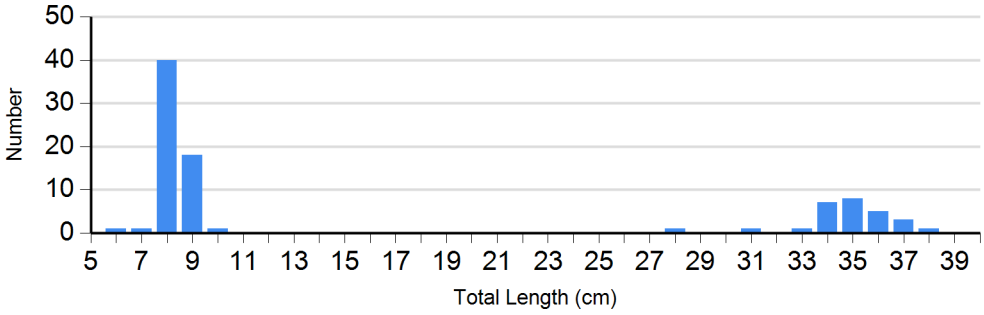


2019

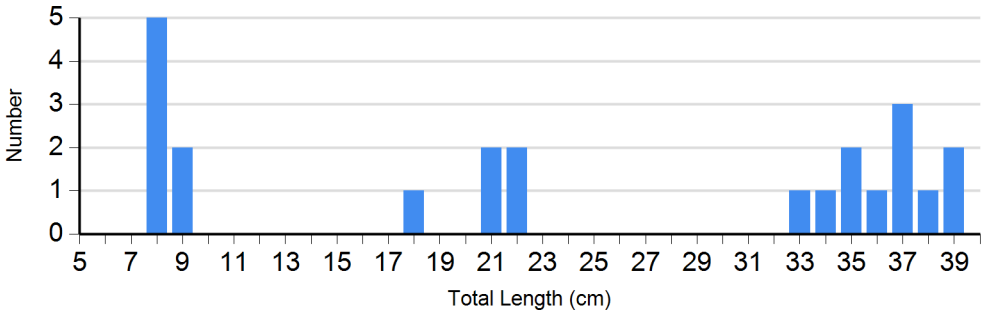
Species: White Bass
Gear: std exp gill net



2014

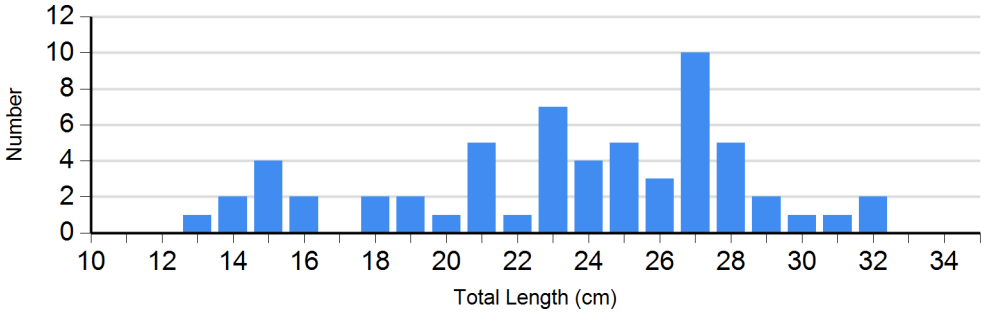


2015

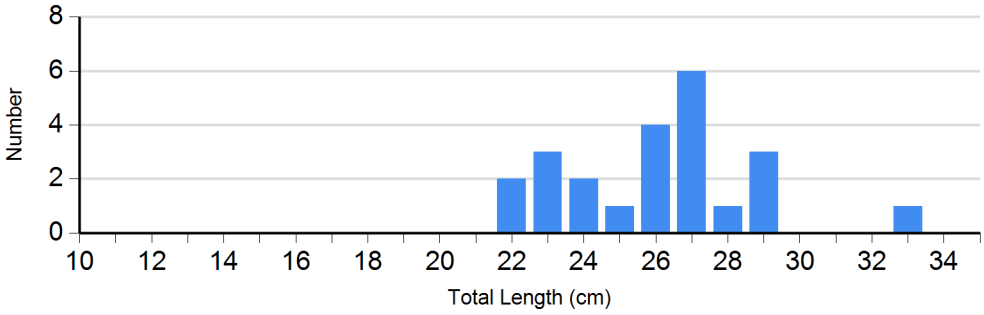


2016

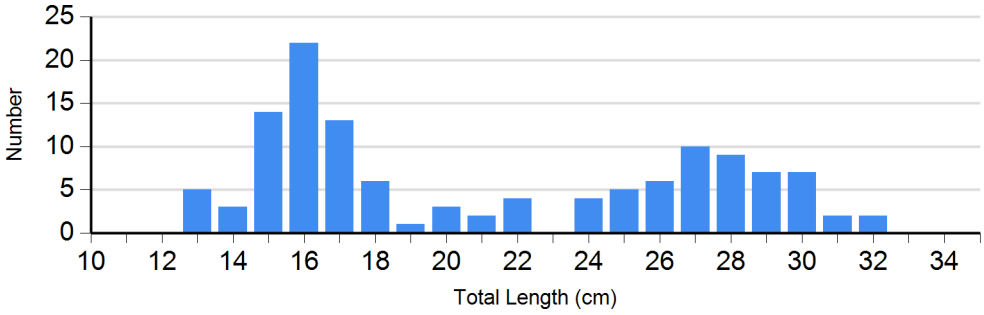
Species: Yellow Perch
Gear: AFS std gill net



2017

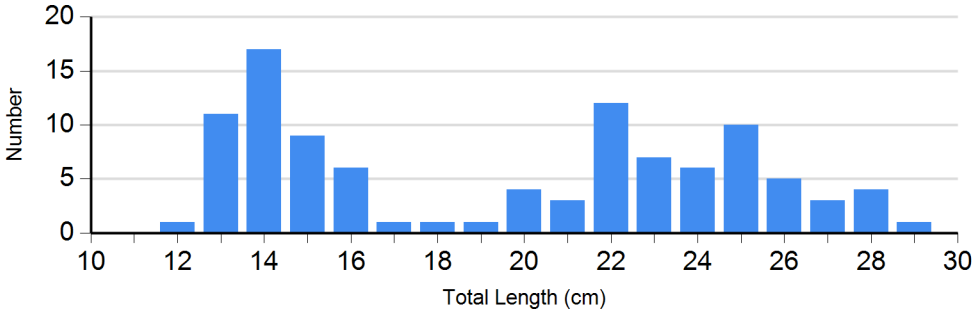


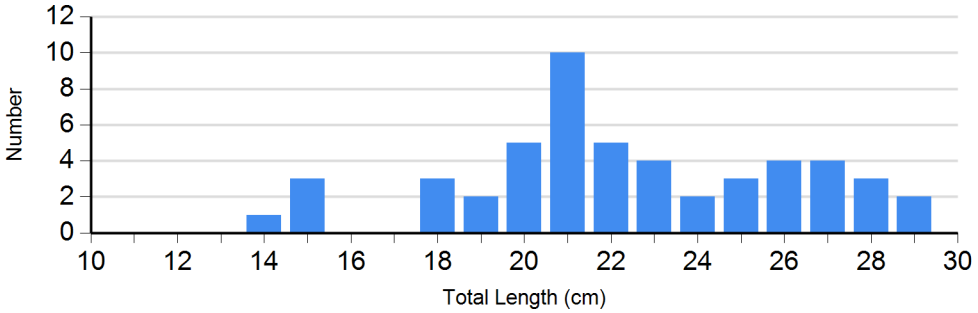
2018

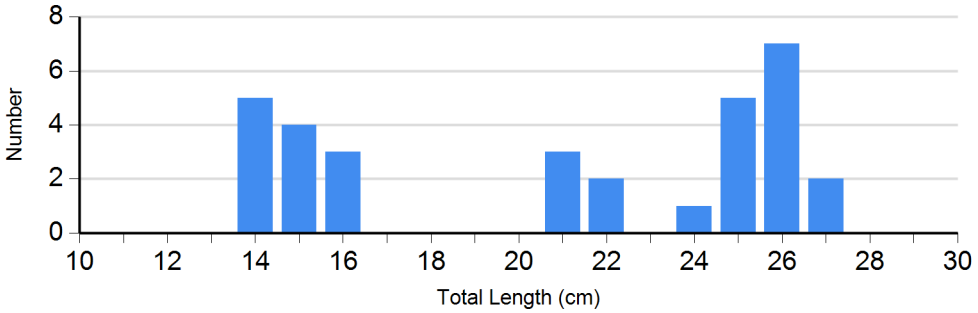


2019

Species: Yellow Perch
Gear: std exp gill net



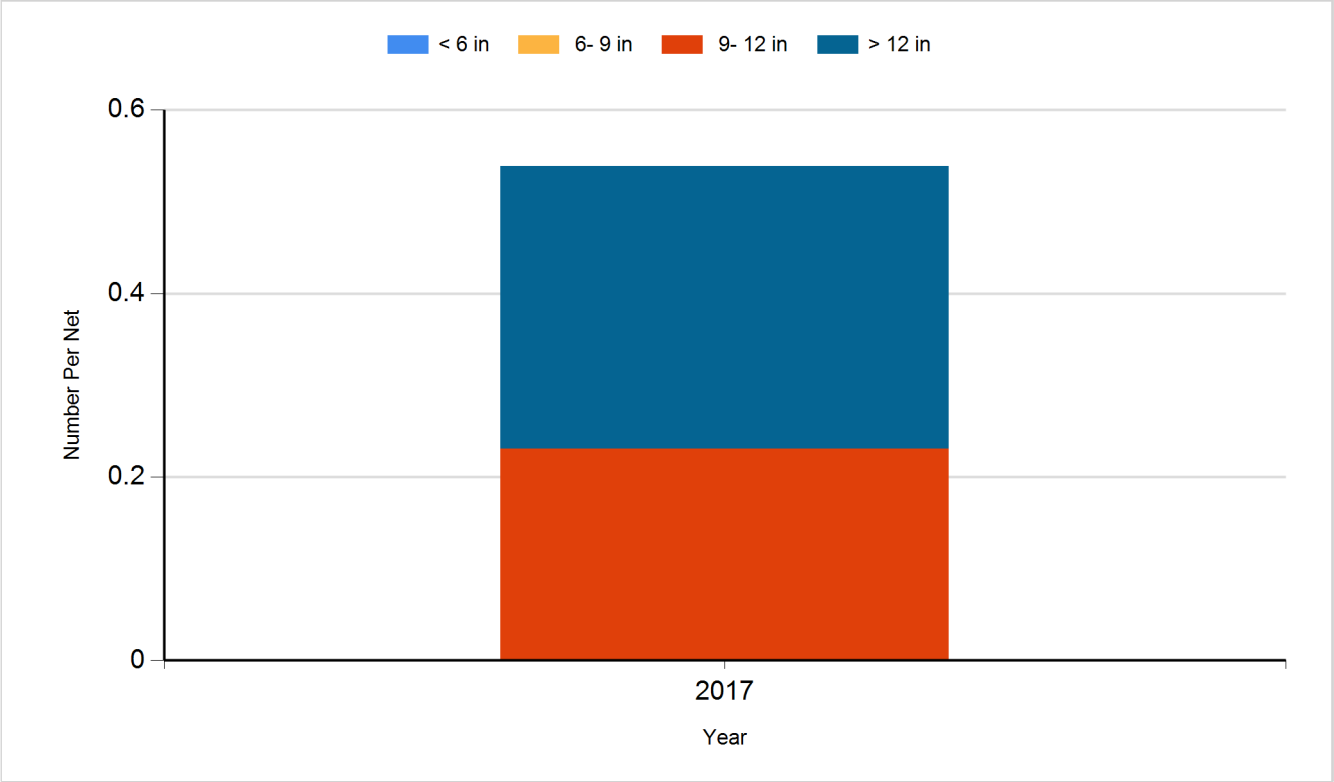




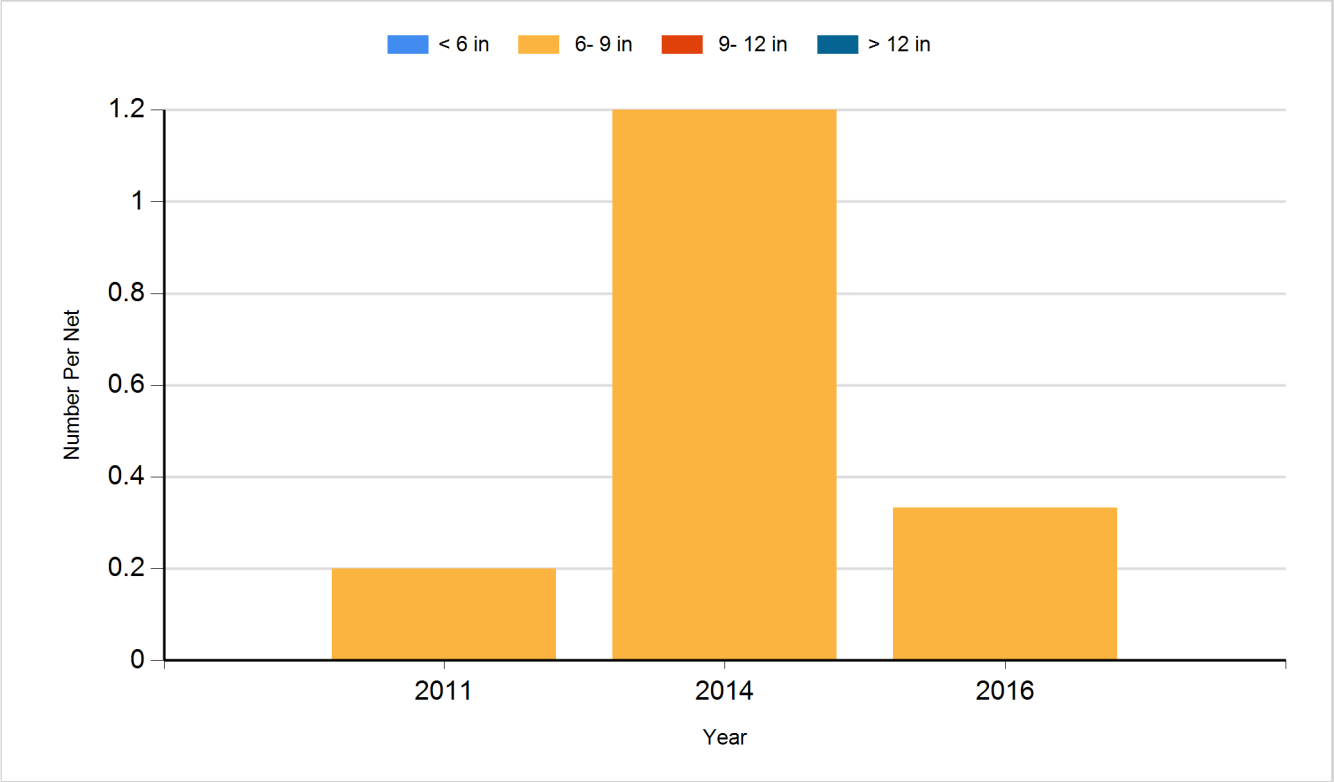
Historic Fish Sizes and Relative Abundance

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

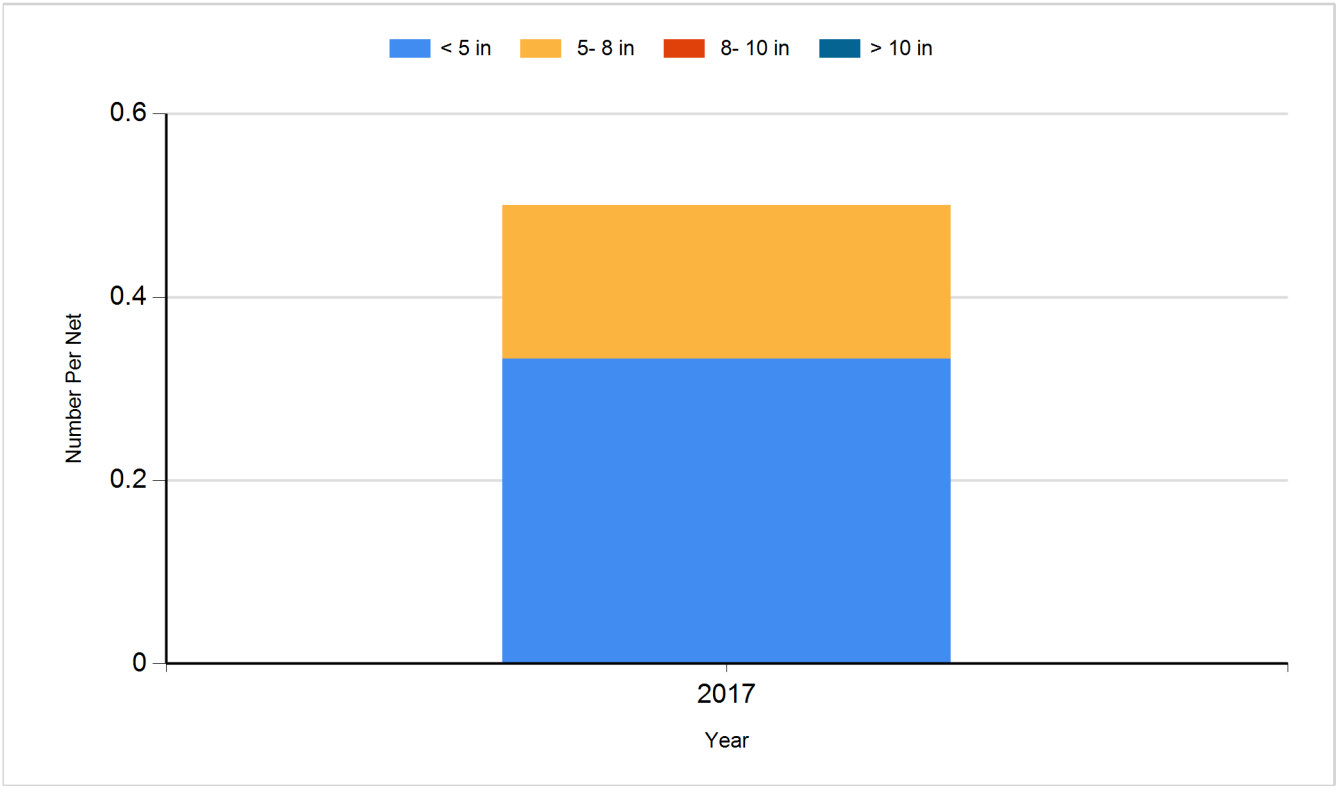
Species: Black Bullhead
Gear: AFS std gill net



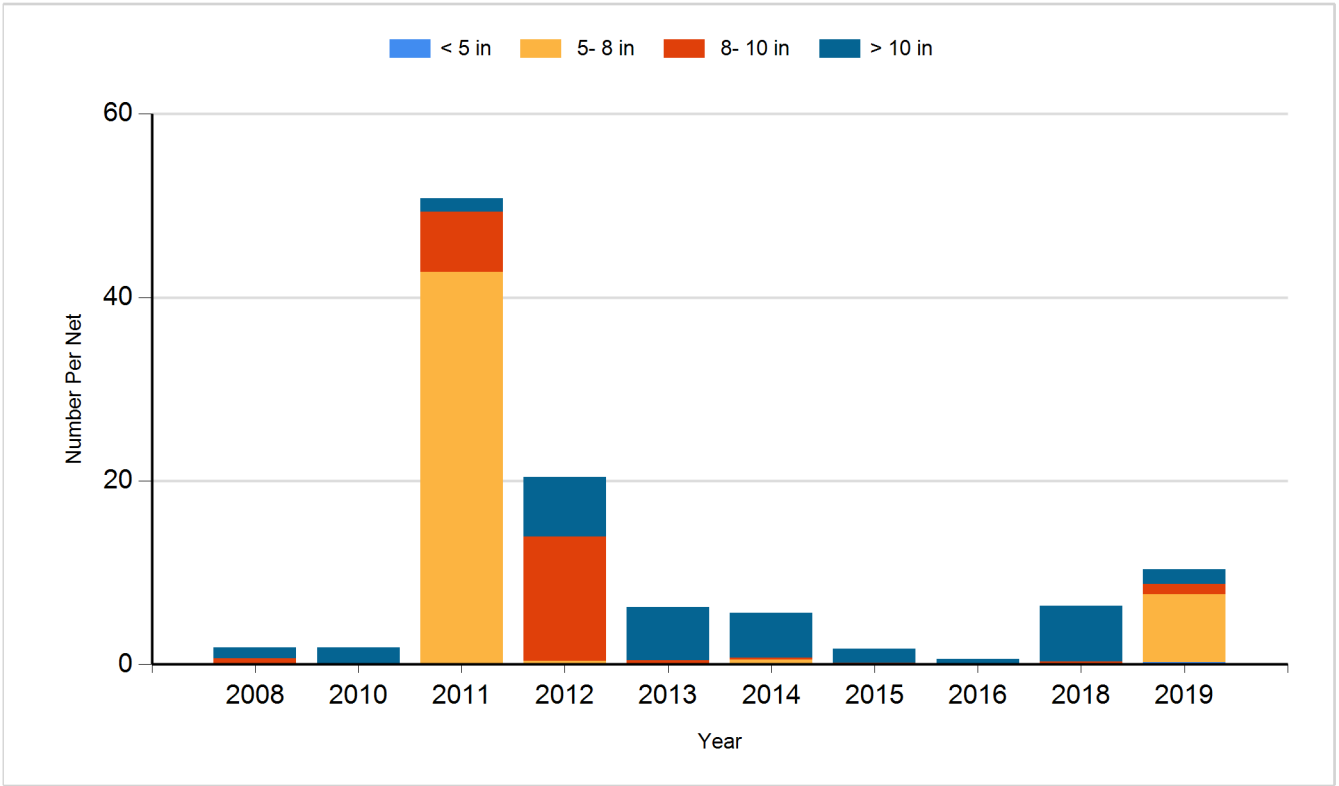
Species: Black Bullhead
Gear: std exp gill net



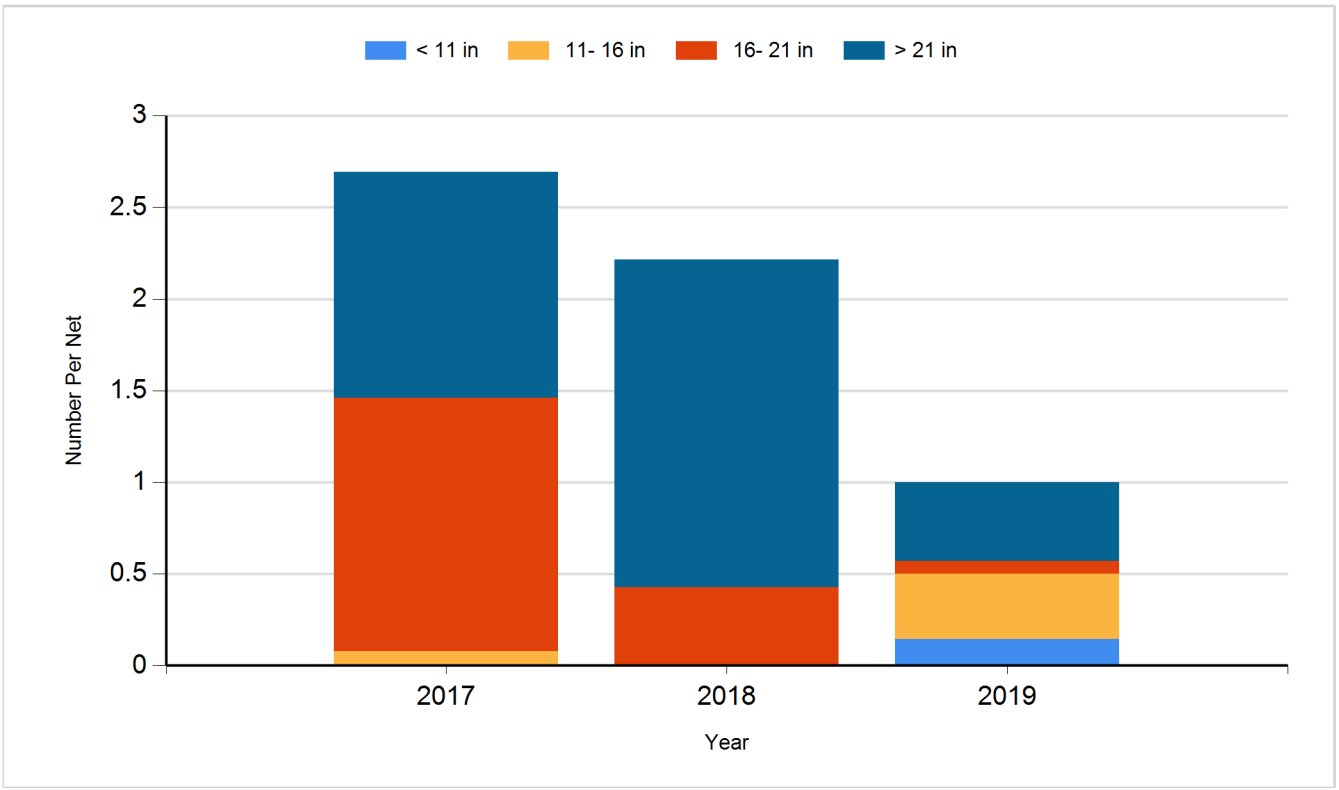
Species: Black Crappie
Gear: AFS std frame net



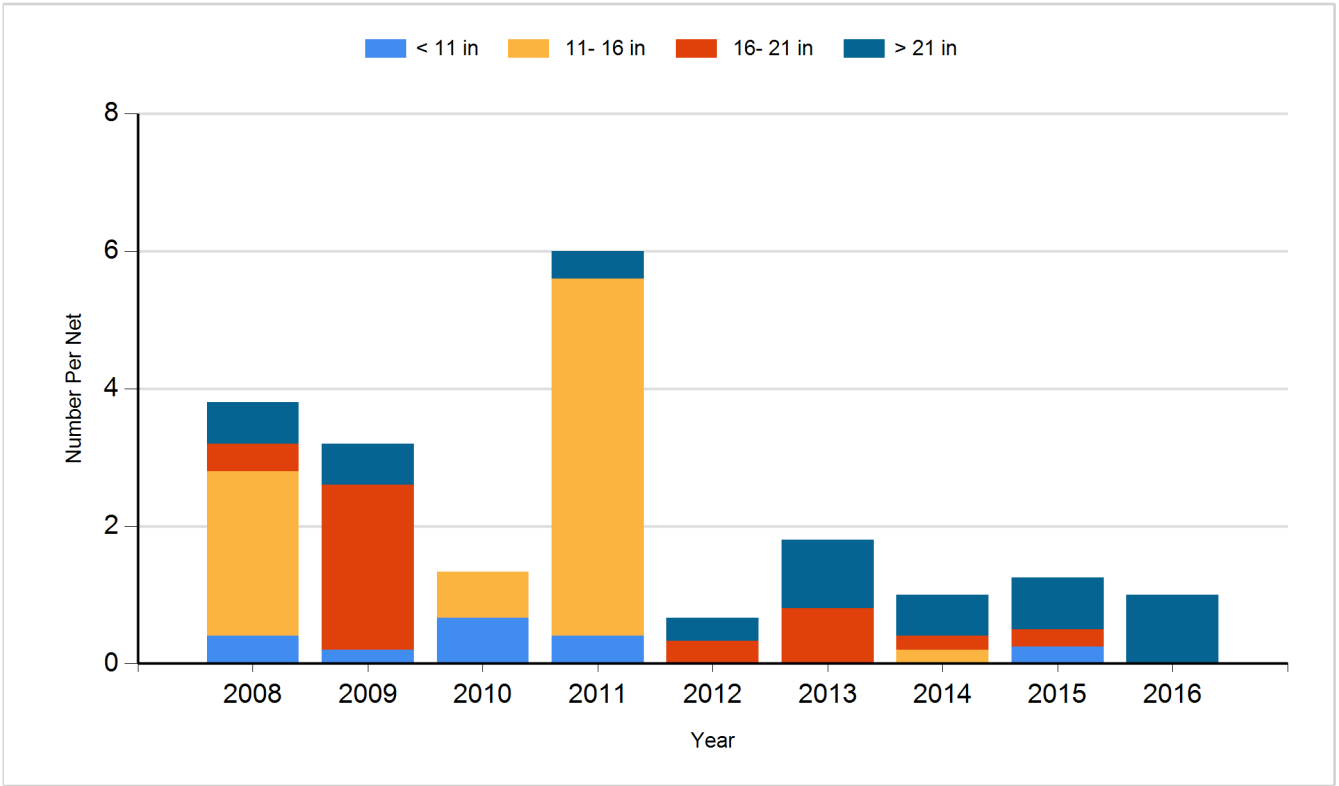
Species: Black Crappie
Gear: frame net (std 3/4 in)



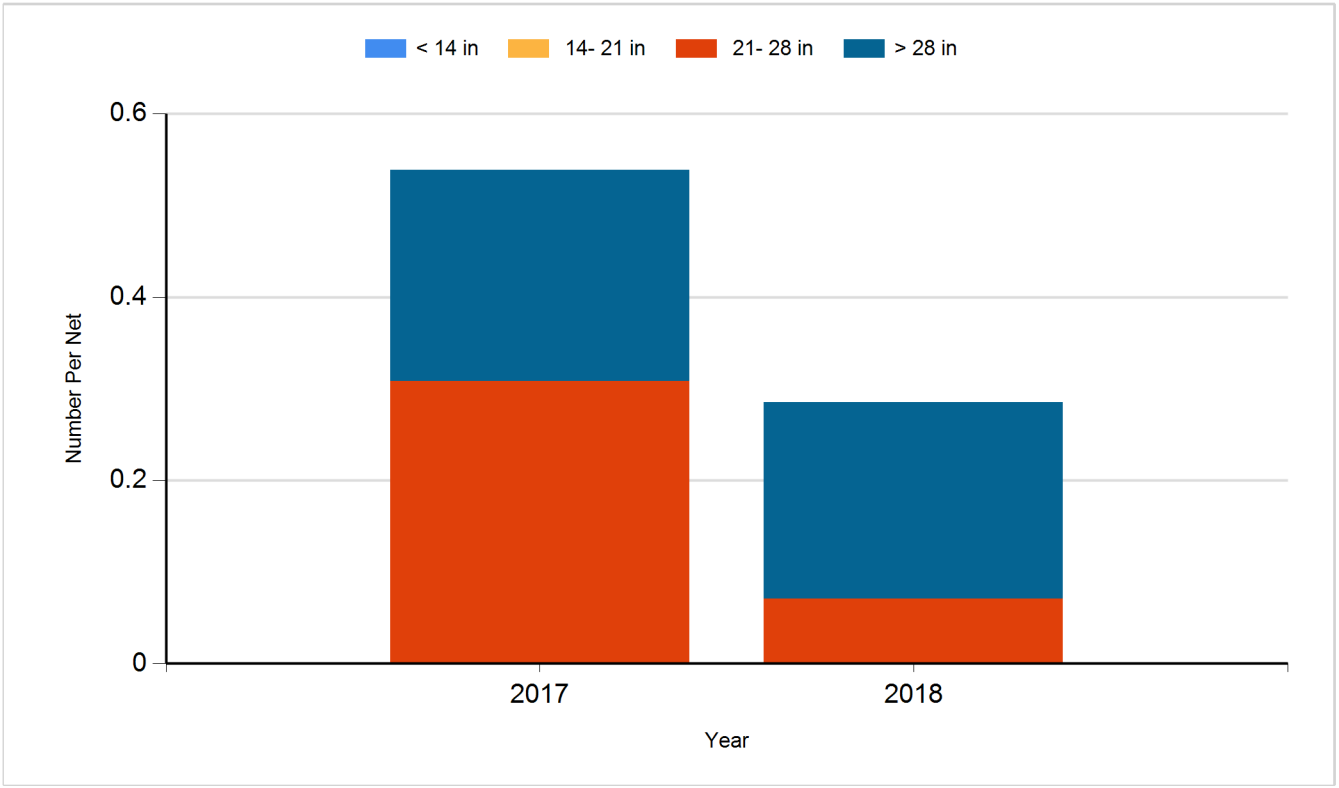
Species: Common Carp
Gear: AFS std gill net



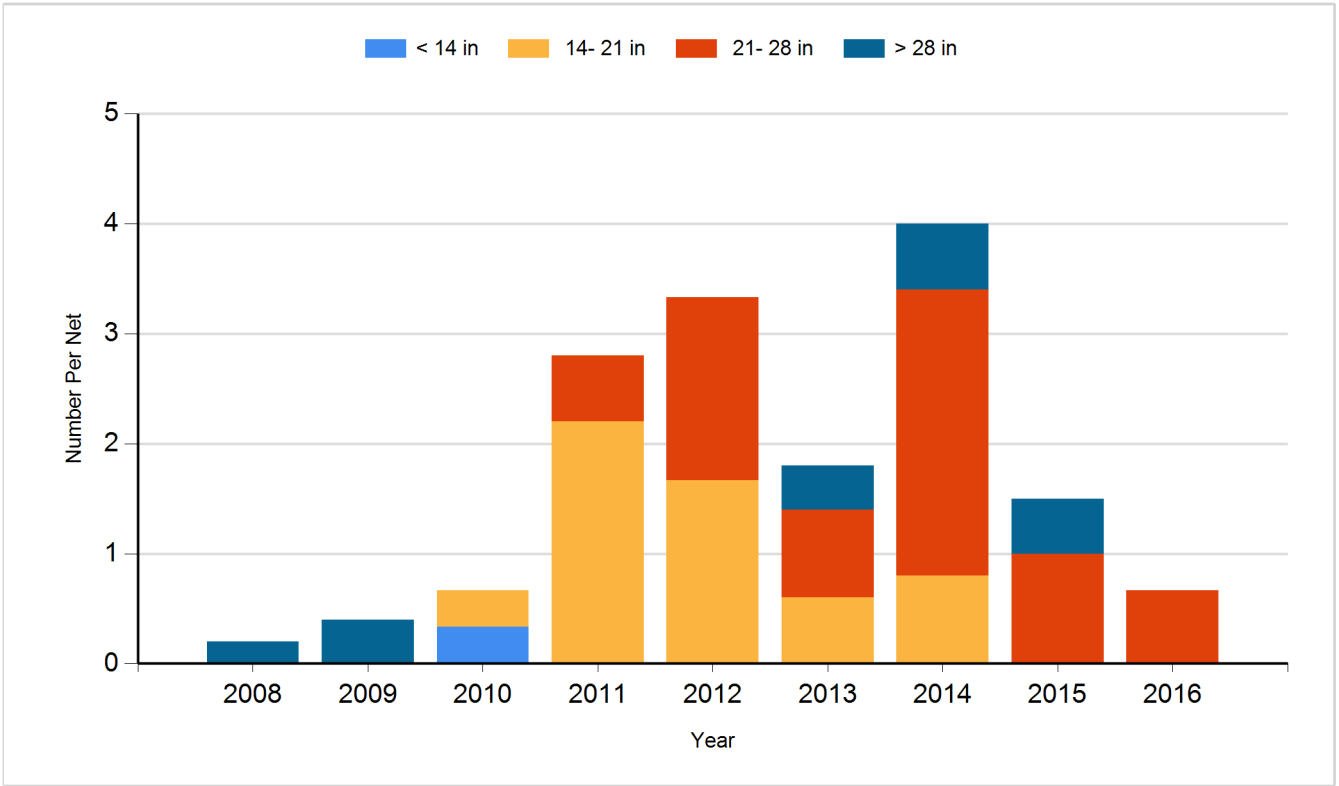
Species: Common Carp
Gear: std exp gill net



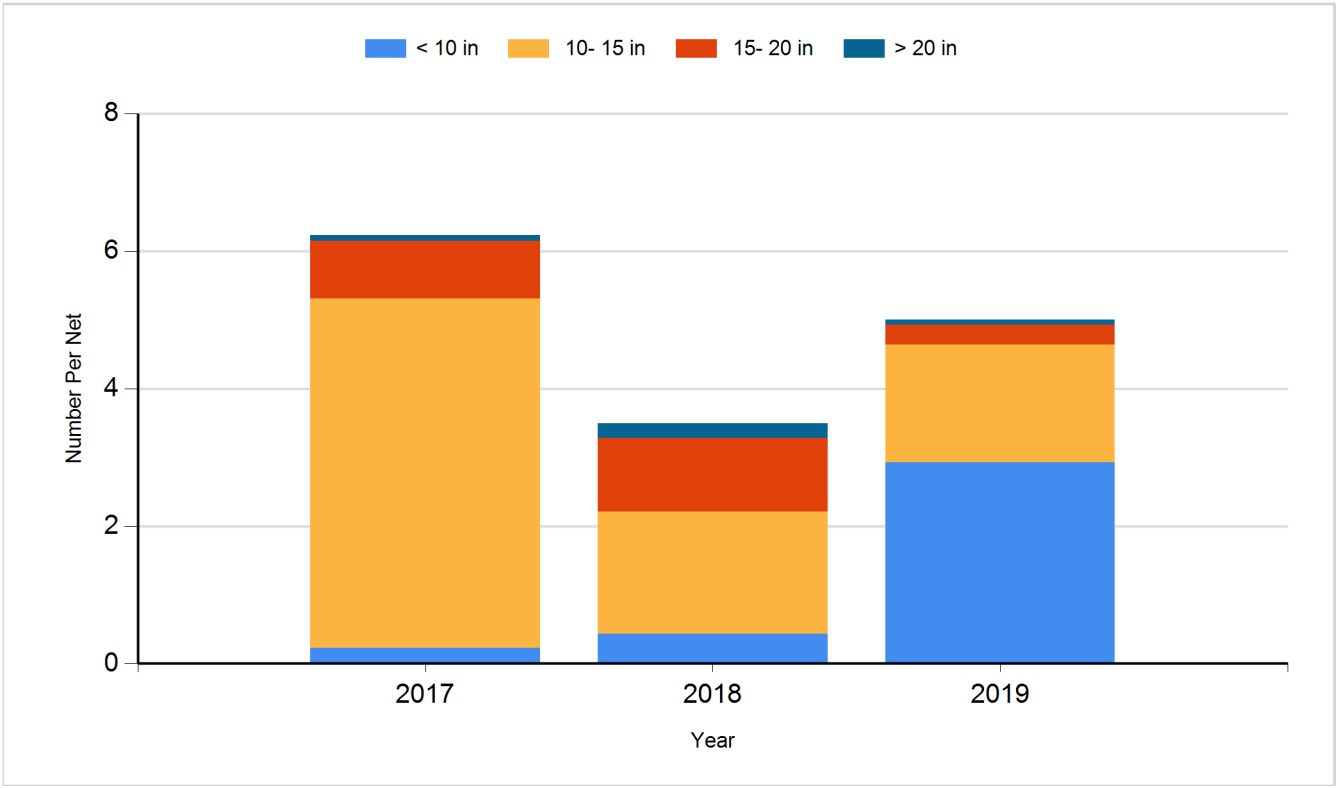
Species: Northern Pike
Gear: AFS std gill net



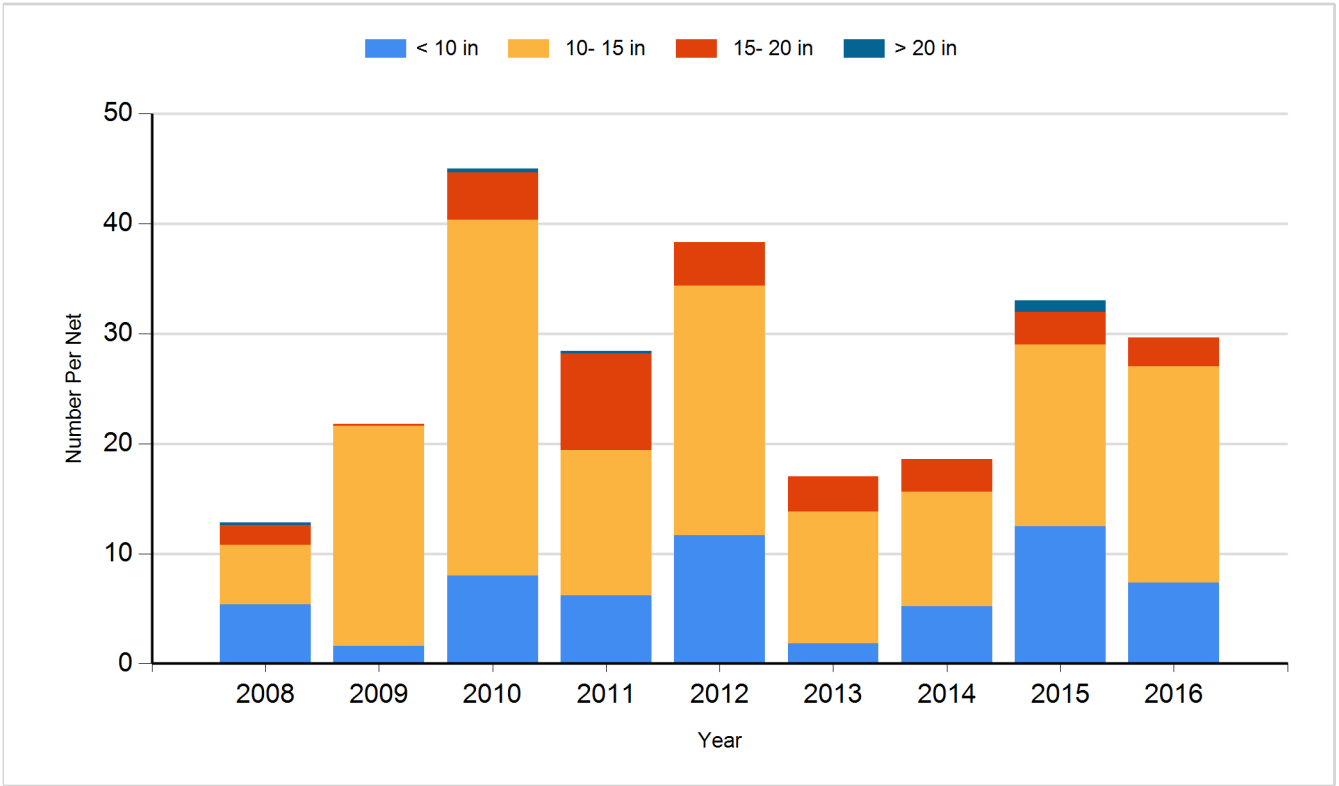
Species: Northern Pike
Gear: std exp gill net



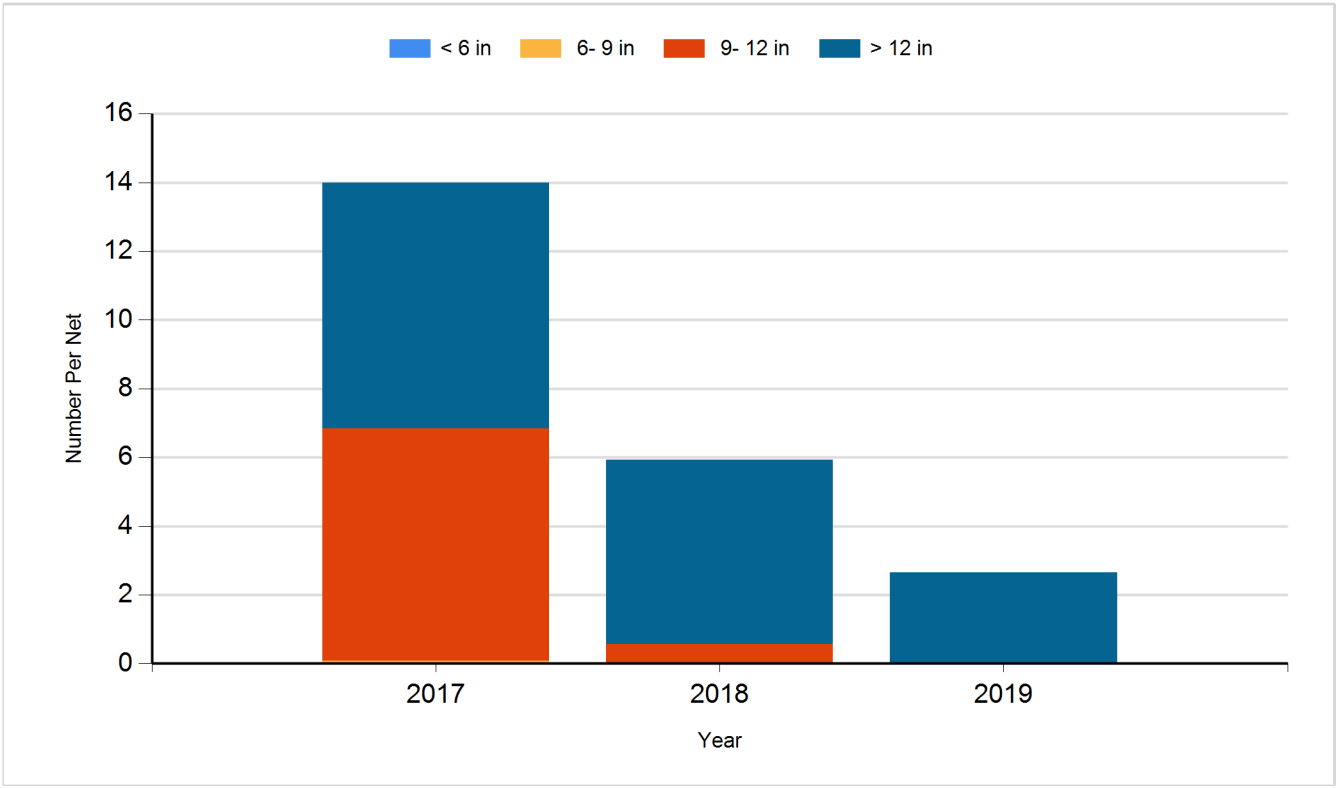
Species: Walleye
Gear: AFS std gill net



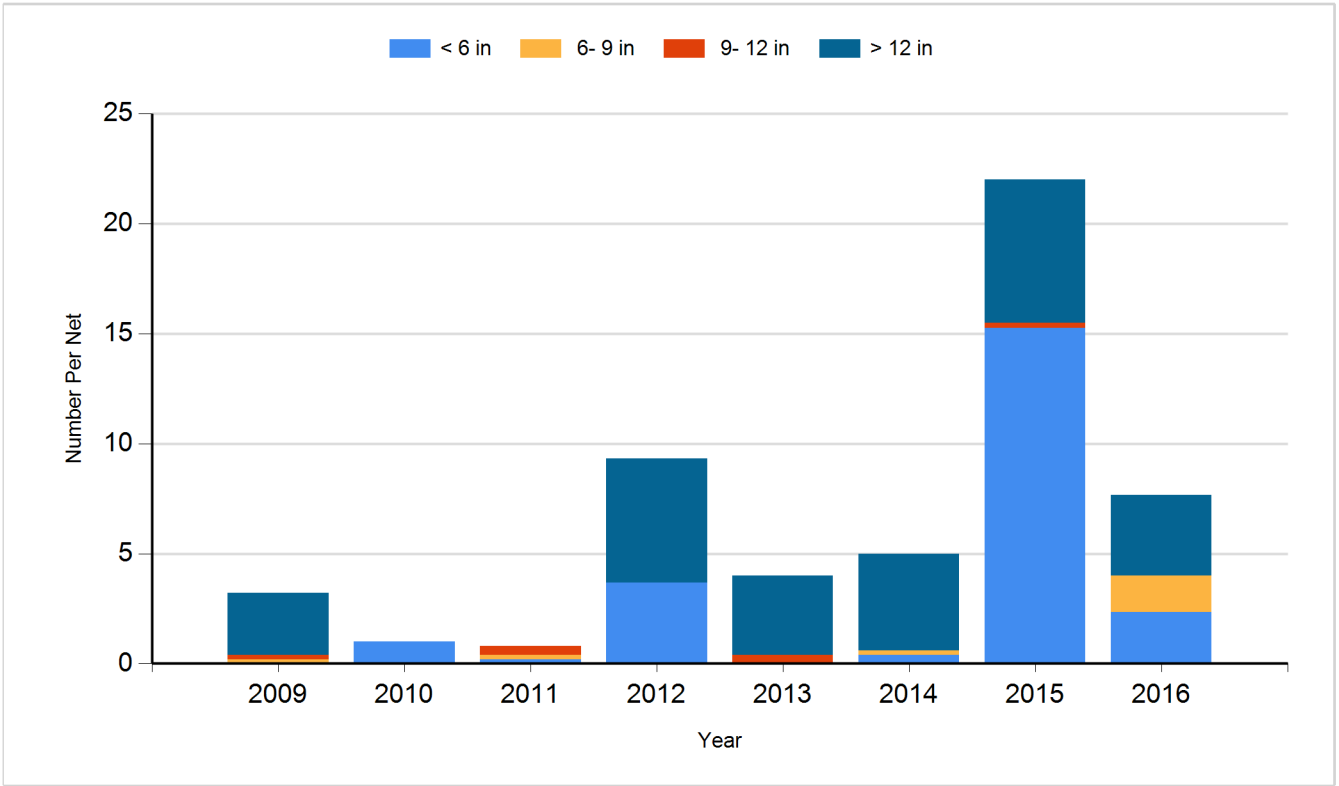
Species: Walleye
Gear: std exp gill net



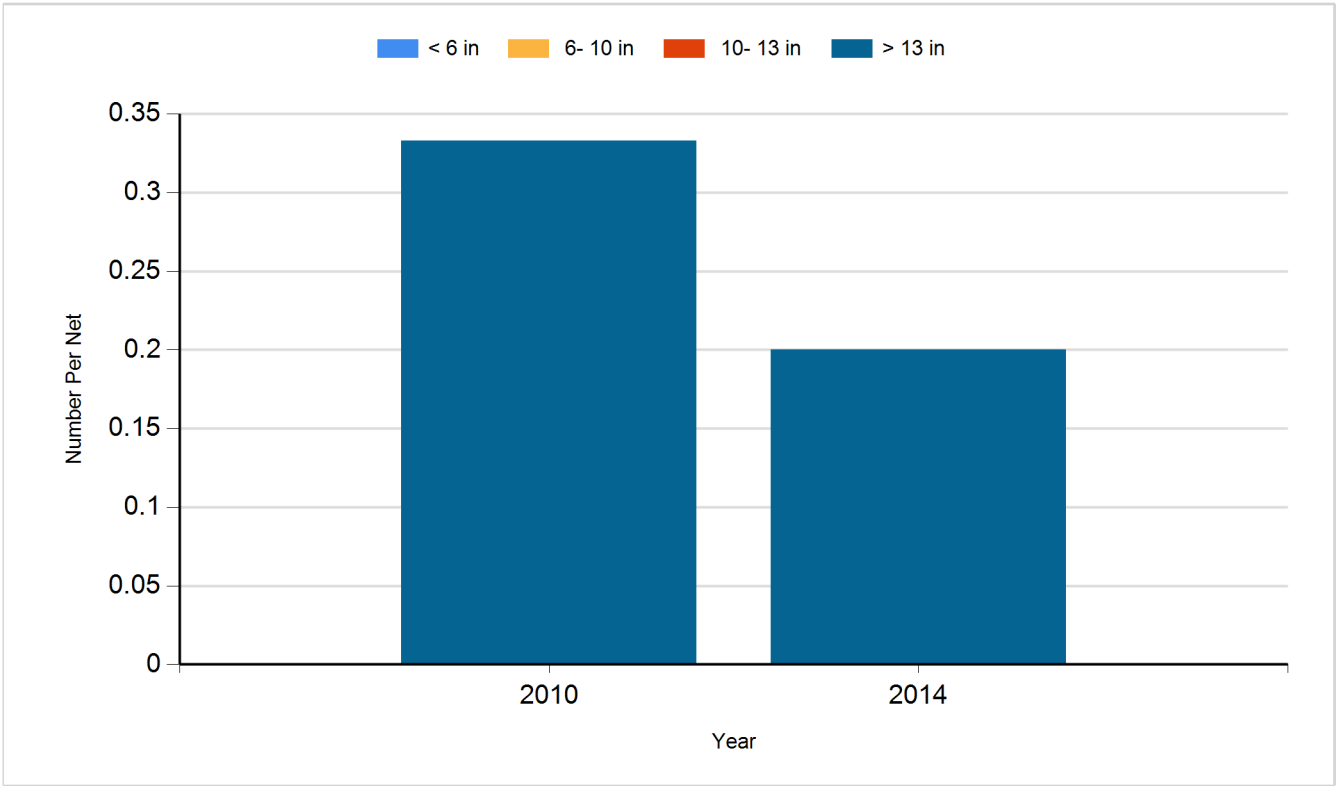
Species: White Bass
Gear: AFS std gill net



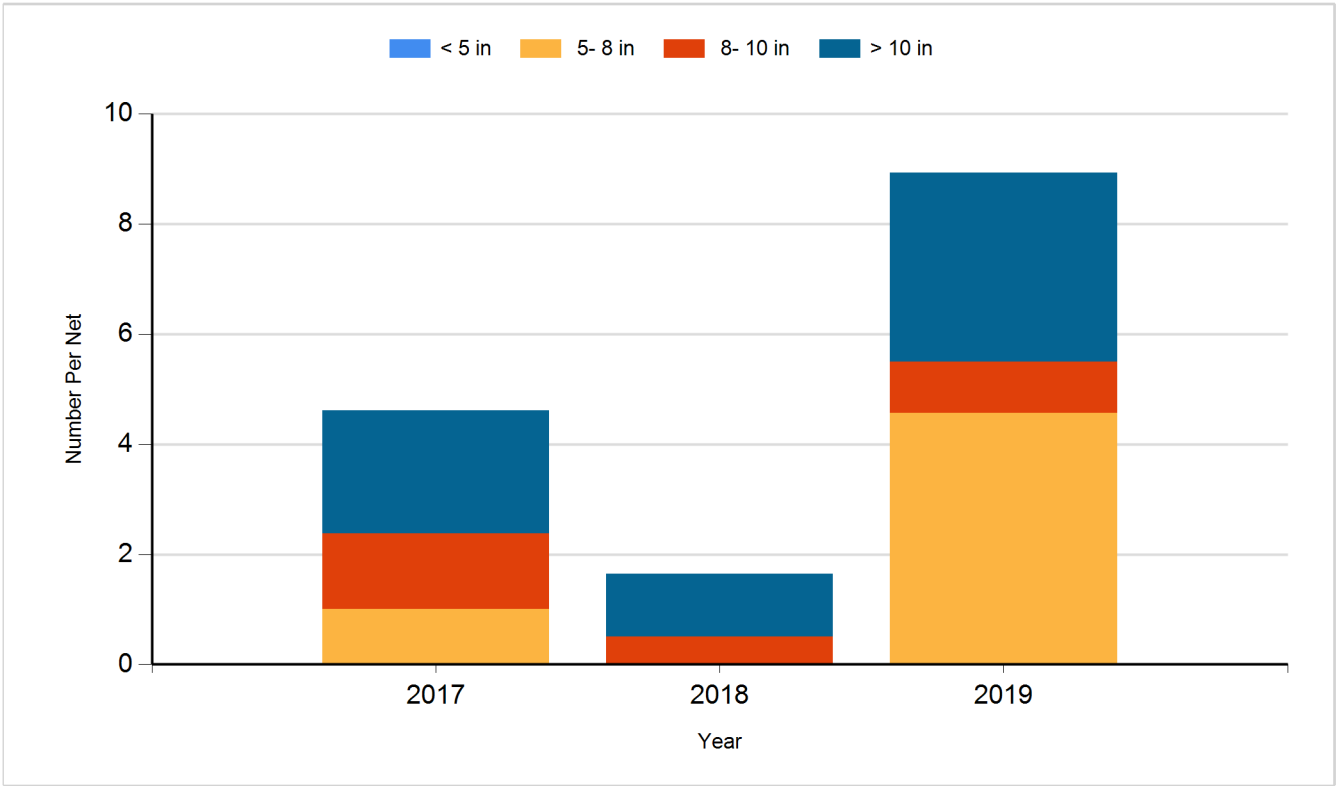
Species: White Bass
Gear: std exp gill net



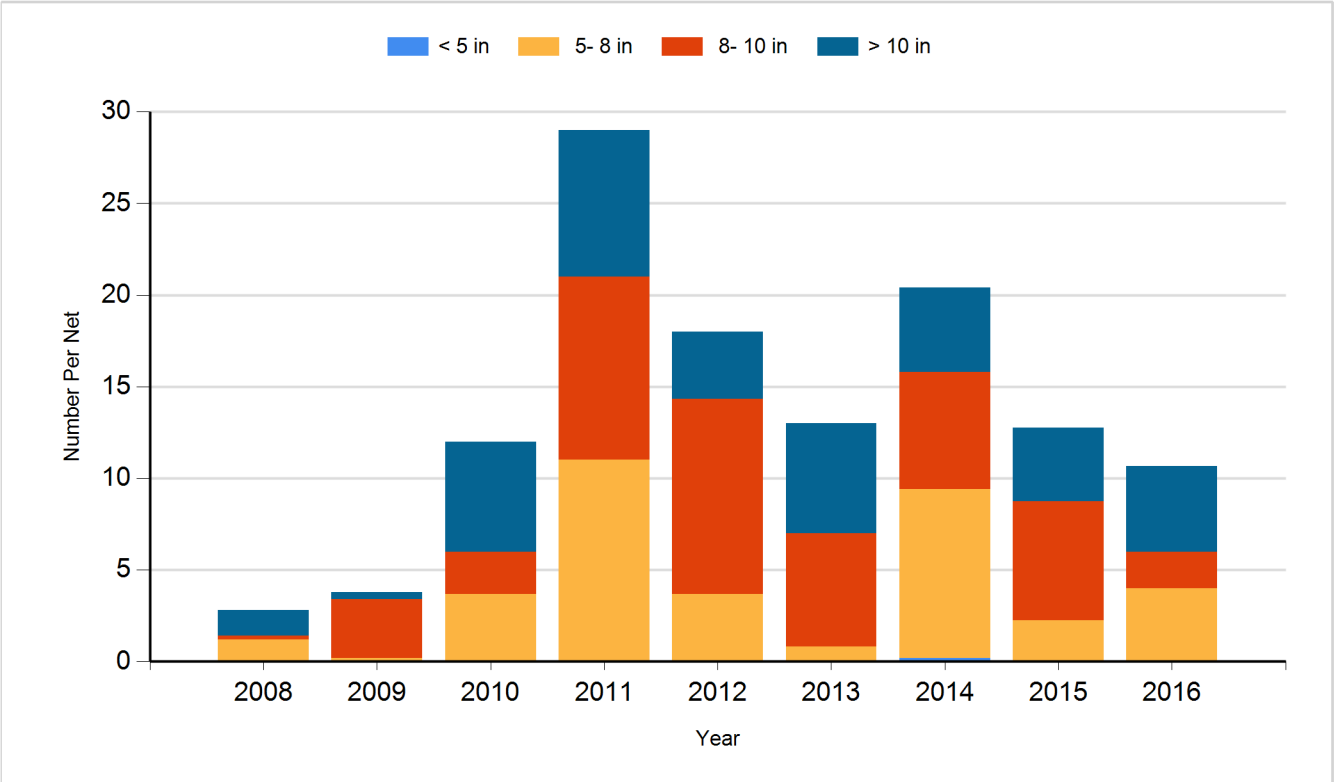
Species: White Sucker
Gear: std exp gill net



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