

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Thompson, Kingsbury County
LKT-Lake-55-801
2018

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 24, 2018	14 net-nights
frame net (std 3/4 in)	Jul 24, 2018	10 net-nights

Common Fish Species Present

Walleye

Black Crappie

White Bass

Common Carp

Bigmouth Buffalo

Yellow Perch

Northern Pike

Black Bullhead

White Sucker

Smallmouth Bass

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	2	0.1	0.2	50		0			
	Black Crappie	1	0.1	0.1	100		100		99	
	Common Carp	31	2.2	0.8	100		81	11		
	Northern Pike	4	0.3	0.2	100		75		89	16
	Smallmouth Bass	1	0.1	0.1	0		0		97	
	Walleye	49	3.1	0.8	42	11	7		79	1
	White Bass	83	5.9	2.0	100		90	5	86	1
	Yellow Perch	23	1.6	0.7	100		70	15	106	2
frame net (std 3/4 in)	Bigmouth Buffalo	17	1.7	1.8	88		76			
	Black Bullhead	5	0.3	0.3	100		33			
	Black Crappie	64	6.4	3.5	98		95		97	1
	Common Carp	20	1.5	0.7	87		80			
	Northern Pike	12	1.2	0.4	100		67		71	3
	Smallmouth Bass	2	0.1	0.1	100		100		74	
	Walleye	30	2.5	1.4	36	15	20	13	77	2
	White Bass	44	4.4	3.6	100		100		83	2
	White Sucker	1	0.1	0.1	100		100			

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.

Gear	Species	CPUE										Avg
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
AFS std frame net	Black Bullhead									0.3		0.3
	Black Crappie									0.2		0.2
	Common Carp									5.0		5.0
	Northern Pike									0.8		0.8
	Smallmouth Bass									0.7		0.7
	Walleye									2.0		2.0
	White Bass									0.7		0.7
	Yellow Perch									0.2		0.2
AFS std gill net	Bigmouth Buffalo									0.2	0.1	0.2
	Black Bullhead									0.5		0.5
	Black Crappie									0.6	0.1	0.4
	Common Carp									2.7	2.2	2.5
	Northern Pike									0.5	0.3	0.4
	Smallmouth Bass										0.1	0.1
	Walleye									6.0	3.1	4.6
	White Bass									14.0	5.9	10.0
	Yellow Perch								4.6	1.6	3.1	
fall night EF-WAE	Walleye	7.5	24.0	186.5	3.5	31.0	40.5	35.5				46.9
frame net (std 3/4 in)	Bigmouth Buffalo	1.8	1.7	0.2	3.5	0.5		0.3	0.4		1.7	1.3
	Black Bullhead		0.1	2.6	29.7	4.7	3.6	0.4	0.4		0.3	5.2
	Black Crappie	0.1	1.8	50.8	20.4	6.3	5.6	1.7	0.6		6.4	10.4
	Bluegill		0.1	0.2	0.3							0.2
	Common Carp	0.6	7.0	10.4	15.9	4.6	2.1	10.0	6.7		1.5	6.5
	Northern Pike	1.1	1.4	4.4	13.6	3.4	2.5	5.8	5.4		1.2	4.3
	Smallmouth Bass	0.7	0.3	1.0	0.3	0.2	0.2	0.1	1.0		0.1	0.4
	Walleye	8.3	9.5	2.4	4.9	3.1	1.7	1.0	3.1		2.5	4.1
	White Bass			0.8	2.0	1.0	0.5	0.6	3.6		4.4	1.8
	White Sucker	0.2				0.3	0.6		0.4		0.1	0.3
	Yellow Perch			0.8	0.2	0.1	0.1					0.3
std exp gill net	Bigmouth Buffalo	0.2										0.2
	Black Bullhead			0.2			1.2		0.3			0.6
	Black Crappie	0.2	0.0	20.6	4.7	10.8	1.6	2.3	2.3			5.3
	Common Carp	3.0	0.7	5.6	0.7	1.8	1.0	1.0	1.0			1.9
	Lamprey Family								0.0			0.0

		CPUE										
Gear	Species	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Avg
std exp gill net	Northern Pike	0.4	0.3	2.8	3.3	1.8	4.0	1.5	0.7			1.9
	Spottail Shiner	0.0		0.0	0.0	0.0	0.0					0.0
	Walleye	20.2	37.0	22.2	26.7	15.2	13.4	20.5	22.3			22.2
	White Bass	3.2	0.0	0.6	5.7	4.0	4.6	6.8	5.3			3.8
	White Sucker		0.3				0.2					0.3
	Yellow Perch	3.8	12.0	29.0	18.0	13.0	20.2	12.8	10.7			14.9

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											
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		
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	
		PSD-P										0	0	
	Black Bullhead	PSD											100	
		PSD-P											57	
	Black Crappie	PSD											100	100
		PSD-P											100	100
		Wr											98	99
	Common Carp	PSD											97	100
		PSD-P											46	81
	Northern Pike	PSD											100	100
		PSD-P											43	75

Gear	Species	Index	Year											
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		
AFS std gill net	Northern Pike	Wr										80	89	
		PSD											0	
		PSD-P											0	
	Walleye	Wr												97
		PSD											15	42
		PSD-P											1	7
	White Bass	Wr											83	79
		PSD											99	100
		PSD-P											51	90
	Yellow Perch	Wr											92	86
		PSD											78	100
		PSD-P											48	70
		Wr										114	106	
fall night EF-WAE	Walleye	Wr	107	91	90	82	81	85	83					
frame net (std 3/4 in)	Bigmouth Buffalo	PSD	10	100	100	94	100		67	75			88	
		PSD-P	10	0	0	17	0		33	50			76	
		Wr	91	80	88	91	81							
	Black Bullhead	PSD		100	29	5	42	17	100	75			100	
		PSD-P		100	6	0	8	0	25	0			33	
		Wr		88	95	97	90							
	Black Crappie	PSD	100	100	16	98	100	91	100	100			98	
		PSD-P	100	95	3	32	93	88	88	100			95	
		Wr	94	93	124	115	103	112	106	115			97	
	Common Carp	PSD	100	92	34	96	94	90	95	98			87	
		PSD-P	43	87	11	23	73	90	57	83			80	
		Wr	92	89	107	101	95							
	Northern Pike	PSD	85	67	64	35	76	80	95	100			100	
		PSD-P	46	33	13	3	14	32	31	65			67	
		Wr	75	83	87	73	70	86	79	91			71	
	Smallmouth Bass	PSD	63	100	33	100	100	50	0	22			100	
		PSD-P	25	33	17	0	50	0	0	11			100	
		Wr	91	88	109	91	97	100	98	134			74	
	Walleye	PSD	3	15	59	41	62	41	60	50			36	
		PSD-P	2	0	3	14	41	18	10	21			20	
		Wr	84	87	88	81	78	84	86	89			77	
	White Bass	PSD			100	100	100	100	50	44			100	

Gear	Species	Index	Year									
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
frame net (std 3/4 in)	White Bass	PSD-P			0	90	100	100	17	41		100
		Wr			101	97	90	91	89	103		83
	White Sucker	PSD	100				100	83		100		100
		PSD-P	100				100	83		100		100
		Wr	91				93					
	Yellow Perch	PSD			78	50	100	0				
		PSD-P			56	50	100	0				
		Wr			117	101	103	116				
	std exp gill net	Bigmouth Buffalo	PSD	0								
PSD-P			0									
Wr			99									
Black Bullhead		PSD			0			0		0		0
		PSD-P			0			0		0		0
		Wr			97							
Black Crappie		PSD	100	0	1	64	100	100	100	100		100
		PSD-P	100	0	0	7	83	100	100	100		86
		Wr	107		123	120	88	107	101	104		
Common Carp		PSD	100	0	7	100	100	80	100	100		100
		PSD-P	20	0	7	50	56	60	75	100		
		Wr	102	97	110	101	92					
Northern Pike		PSD	100	0	21	50	67	80	100	100		
		PSD-P	100	0	0	0	22	15	33	0		
		Wr	85	94	87	85	74	83	80	80		
Walleye		PSD	1	13	41	15	21	22	20	12		
		PSD-P	0	1	1	0	0	0	5	0		
		Wr	87	89	88	85	81	80	86	83		
White Bass		PSD	94	0	67	100	100	96	100	69		
		PSD-P	88	0	0	100	90	96	96	69		
		Wr	101		98	97	87	90	93	91		
White Sucker		PSD		100				100				
		PSD-P		100				100				
		Wr		103								
Yellow Perch		PSD	95	69	62	80	94	54	82	63		
		PSD-P	11	50	28	20	46	23	31	44		
		Wr	120	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+
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)					
2009	109	213 (4)	277 (95)	360 (10)							

Species: Yellow Perch

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2018	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)					
2009	19		224 (18)		280 (1)						

Fish Condition

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

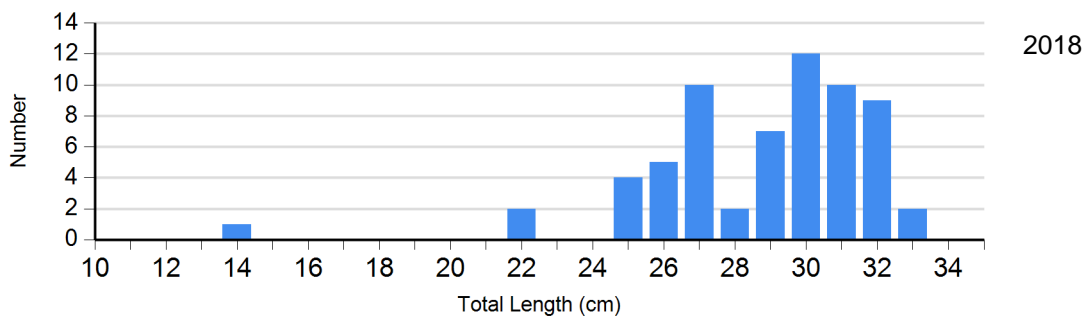
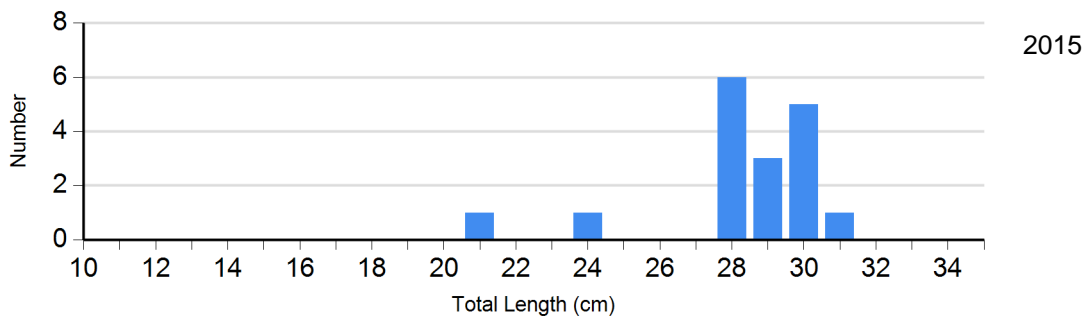
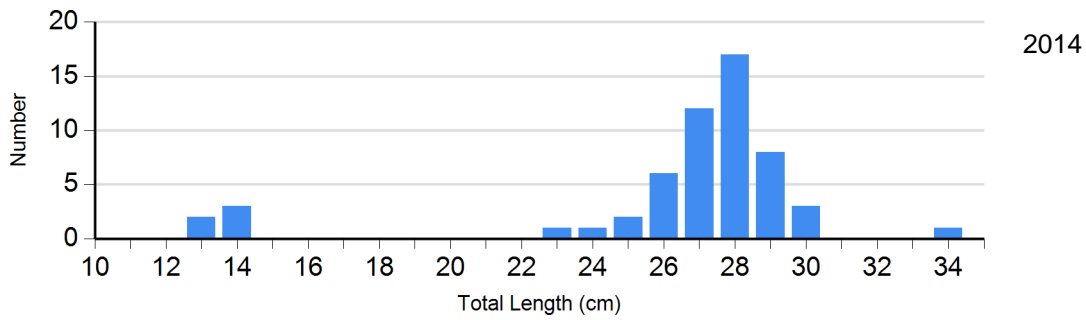
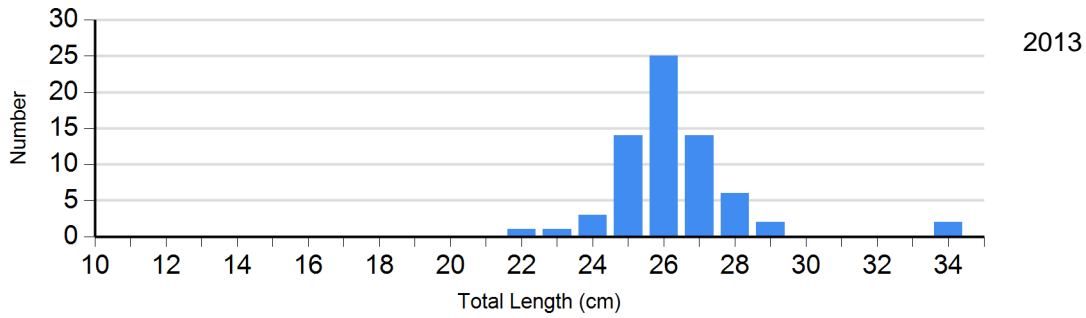
Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Crappie Frame Net	2014	5	120 (6.6)	2	111 (3.5)	45	112 (1.2)	4	108 (3.6)
	2015	0		2	113 (0.6)	9	108 (1.7)	6	102 (1.2)
	2016	0		0		3	119 (10.4)	2	109 (6.7)
	2017	1	113	0		0		0	
	2018	1		2	106	28	97 (1.0)	33	96 (1.1)
Northern Pike Gill Net	2014	4	79 (4.2)	13	85 (1.9)	3	80 (7.5)	0	
	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	2014	52	79 (0.6)	15	84 (2.0)	0		0	
	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
White Bass Gill Net	2018	0		8	84 (2.9)	60	87 (0.4)	15	85 (0.4)
White Bass Gill Net	2014	1	80	0		22	90 (0.9)	0	
	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)
Yellow Perch Gill Net	2014	46	101 (1.3)	32	113 (1.6)	23	105 (1.7)	0	
	2015	9	112 (3.7)	26	110 (1.8)	16	110 (3.0)	0	

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	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

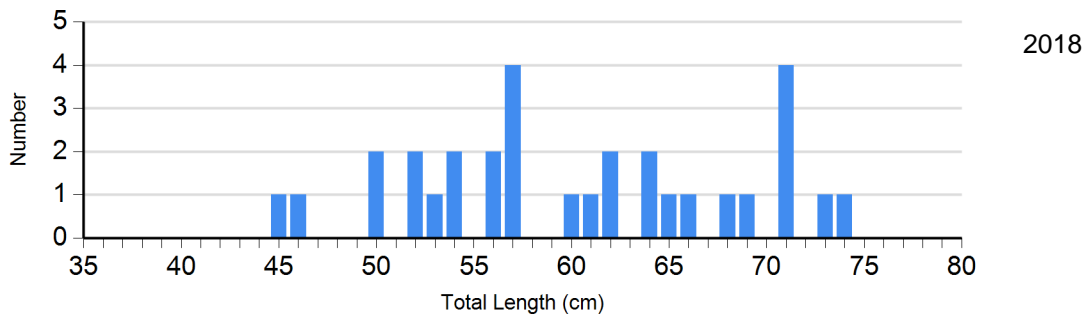
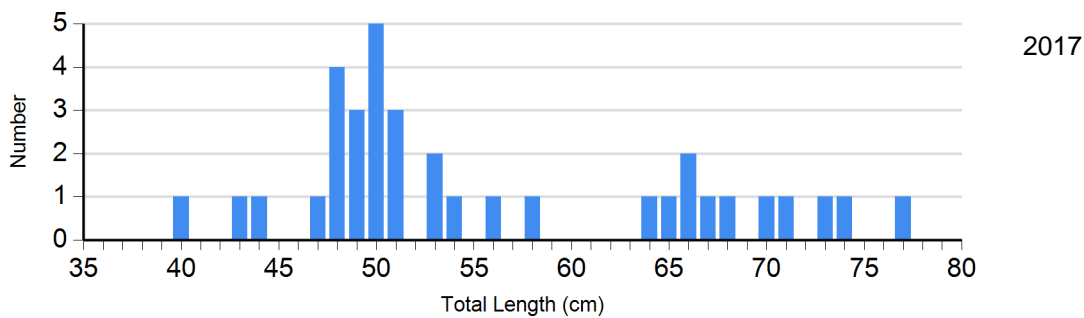
Length Frequency Distribution

Length frequency histogram of species sampled by year.

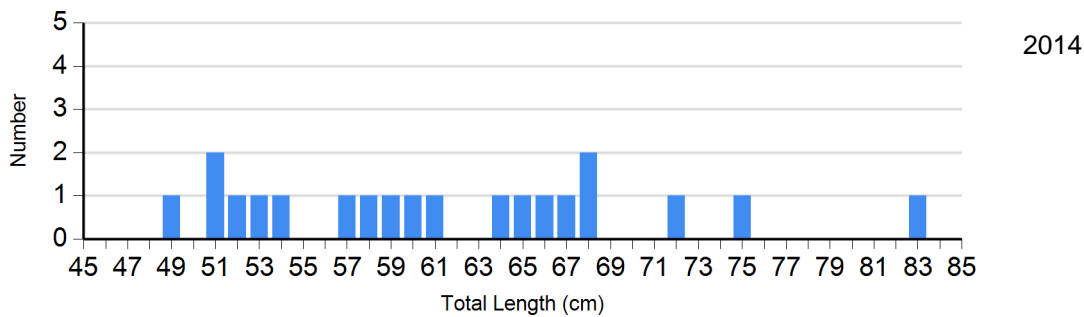
Species: Black Crappie
Gear: frame net (std 3/4 in)



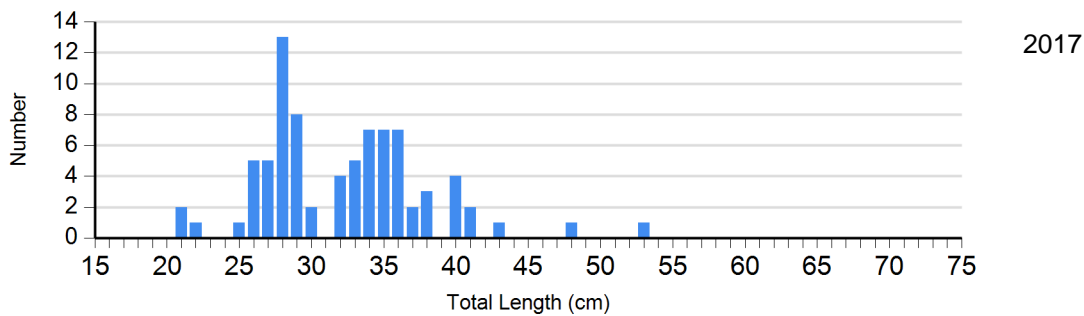
Species: Common Carp
 Gear: AFS std gill net

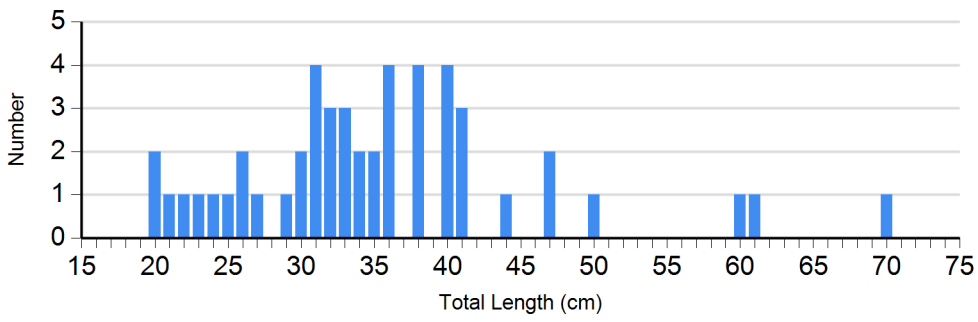


Species: Northern Pike
 Gear: std exp gill net



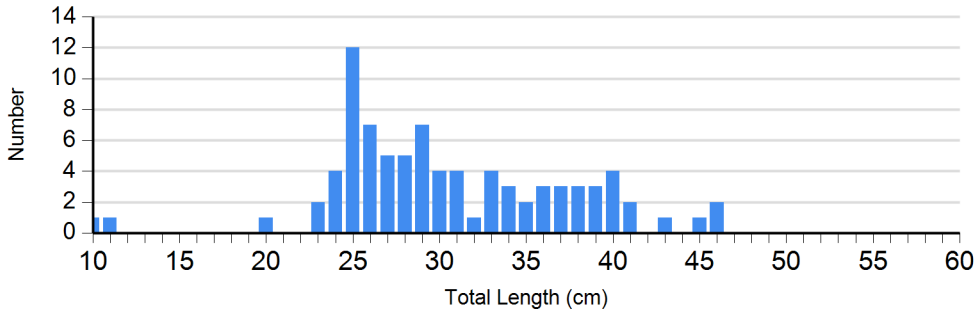
Species: Walleye
 Gear: AFS std gill net



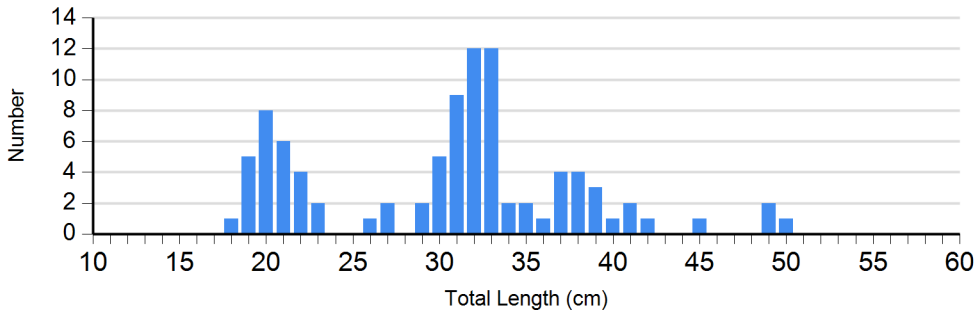


2018

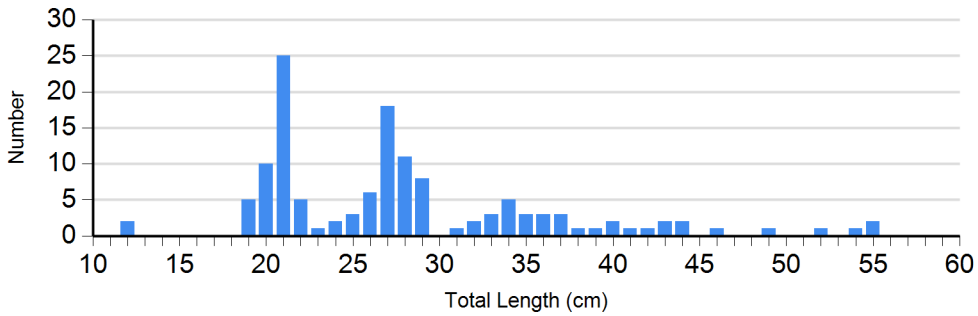
Species: Walleye
Gear: std exp gill net



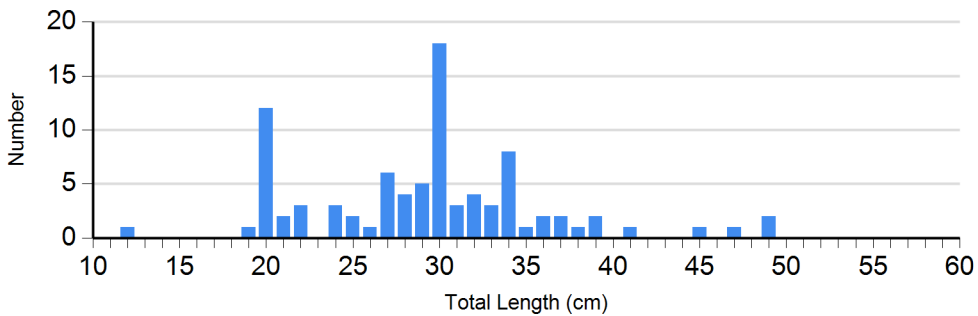
2013



2014

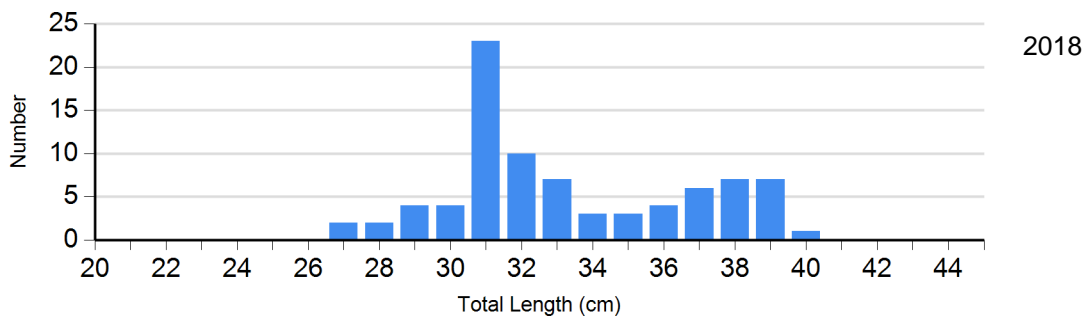


2015

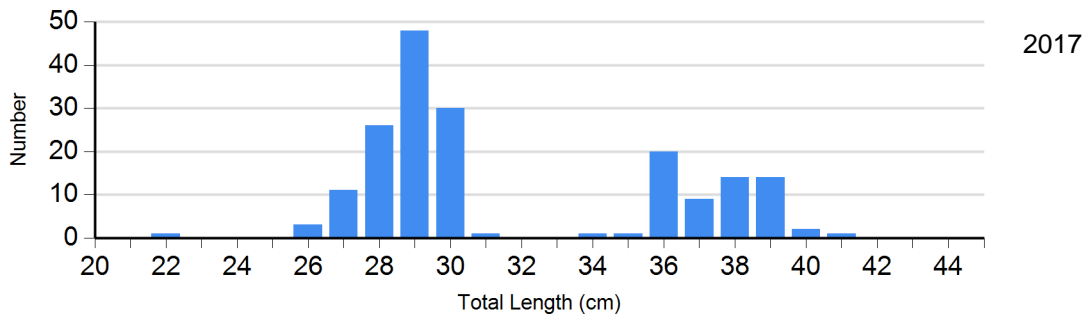


2016

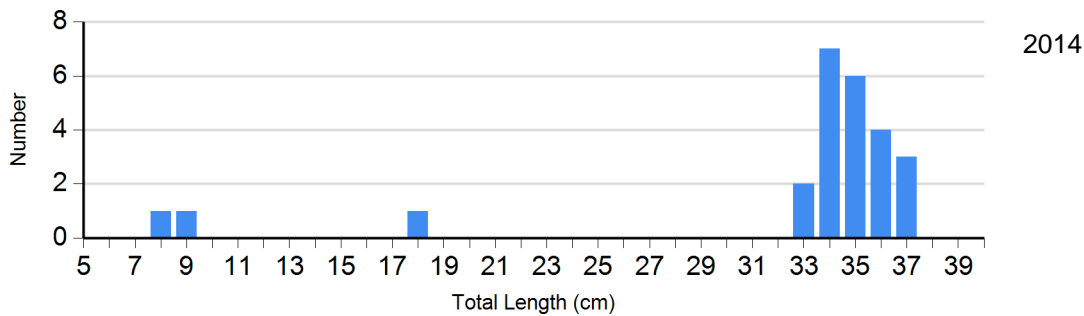
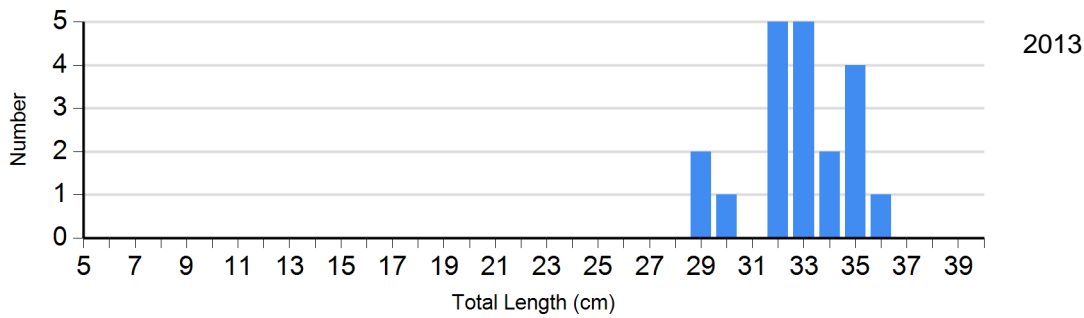
Species: White Bass
Gear: AFS std gill net

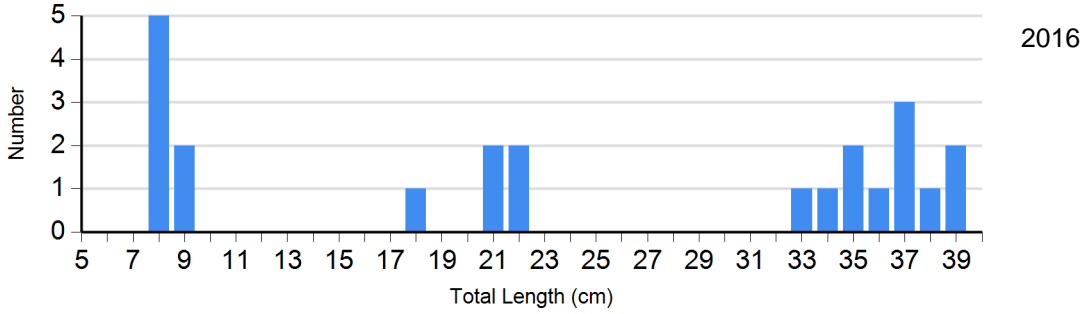
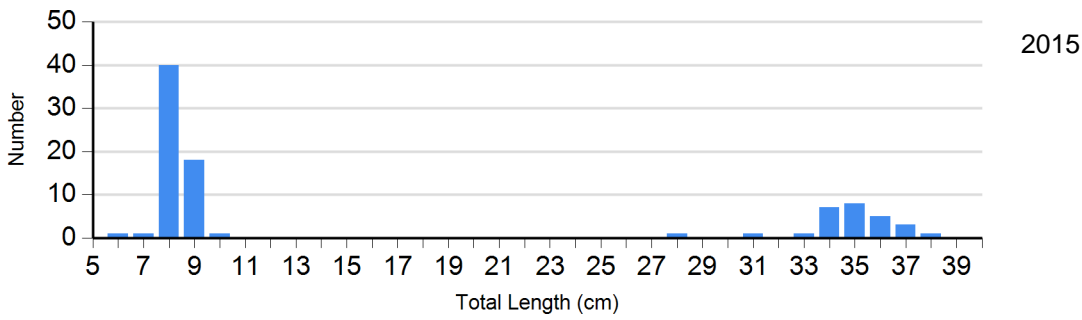


Species: White Bass
Gear: AFS std gill net

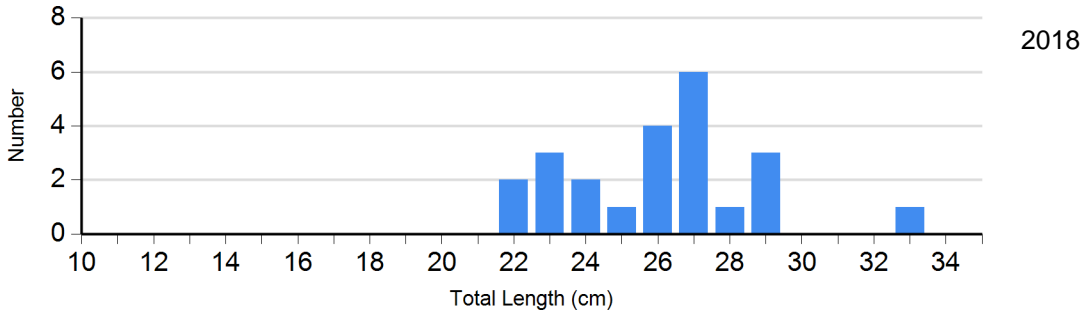
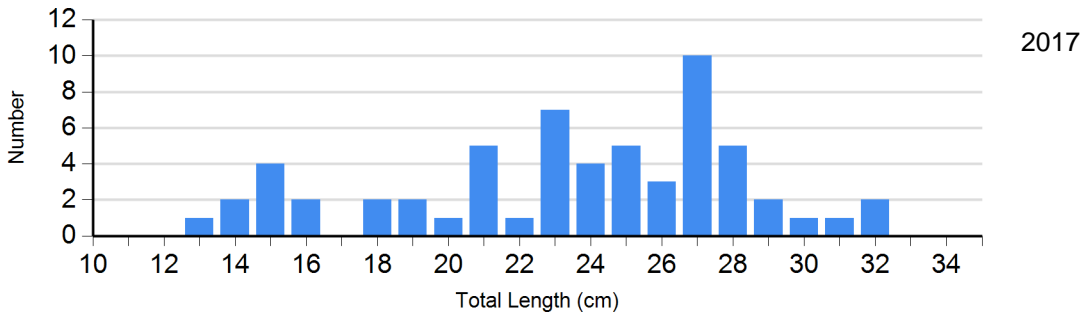


Species: White Bass
Gear: std exp gill net

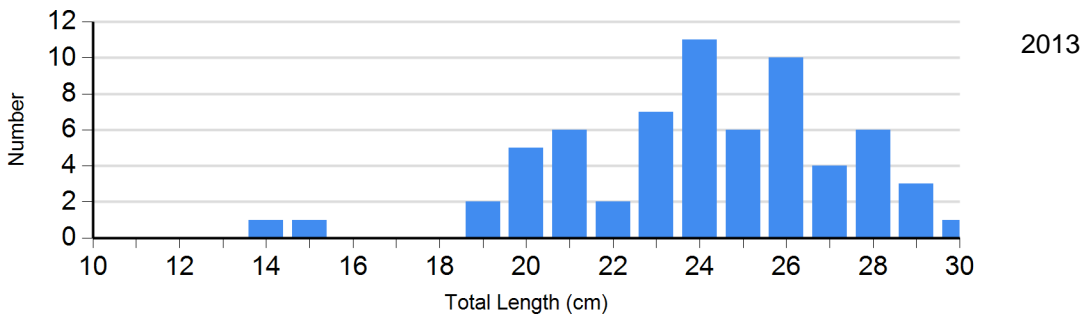


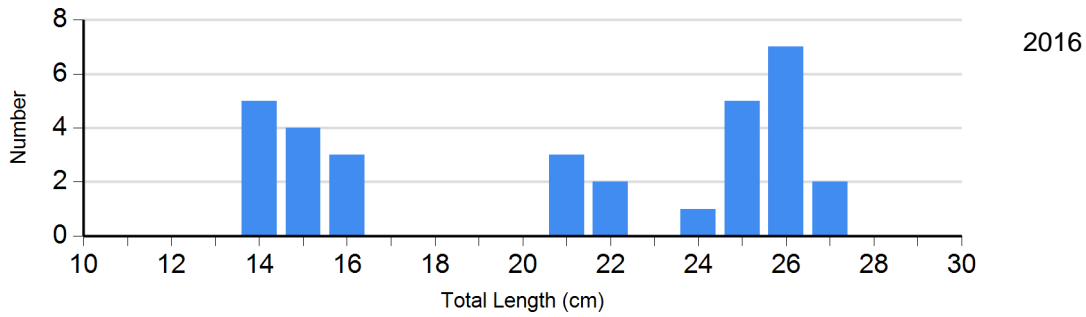
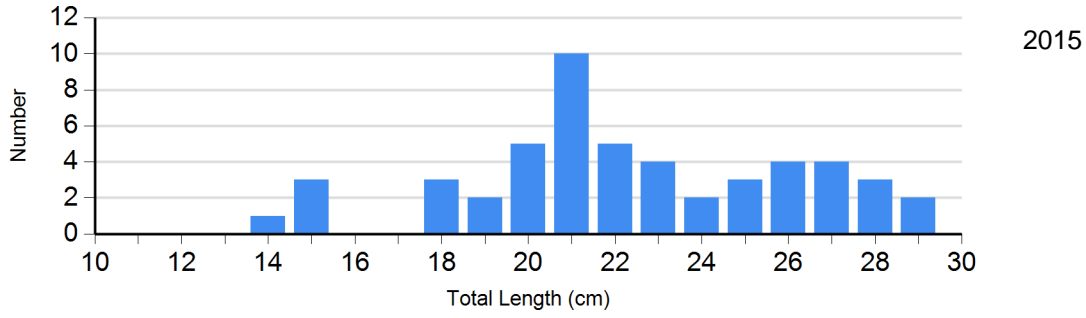
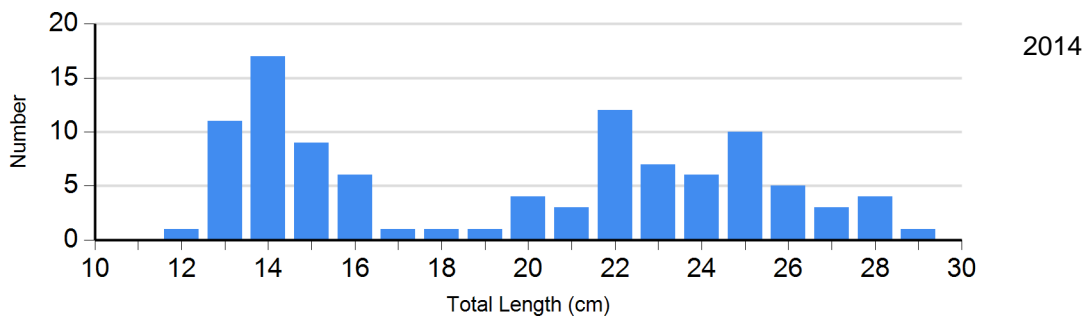


Species: Yellow Perch
Gear: AFS std gill net



Species: Yellow Perch
Gear: std exp gill net

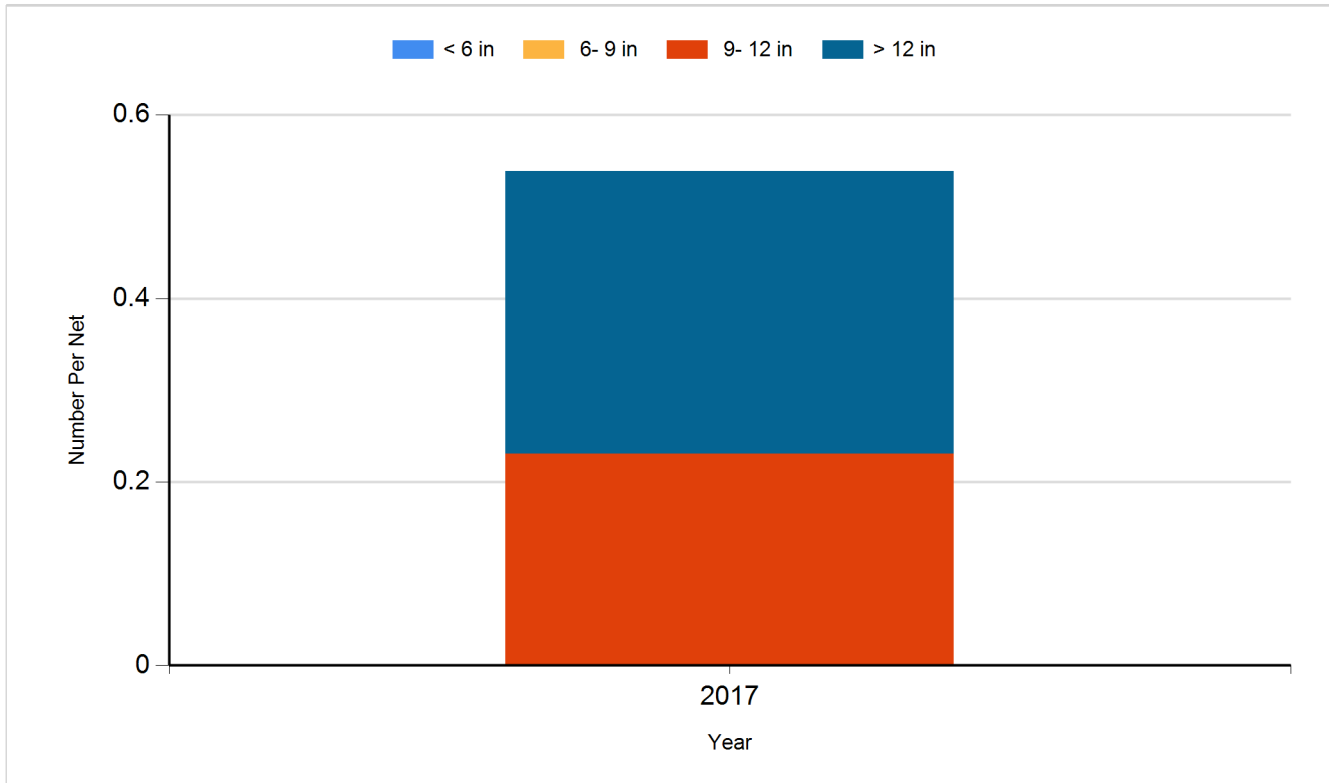




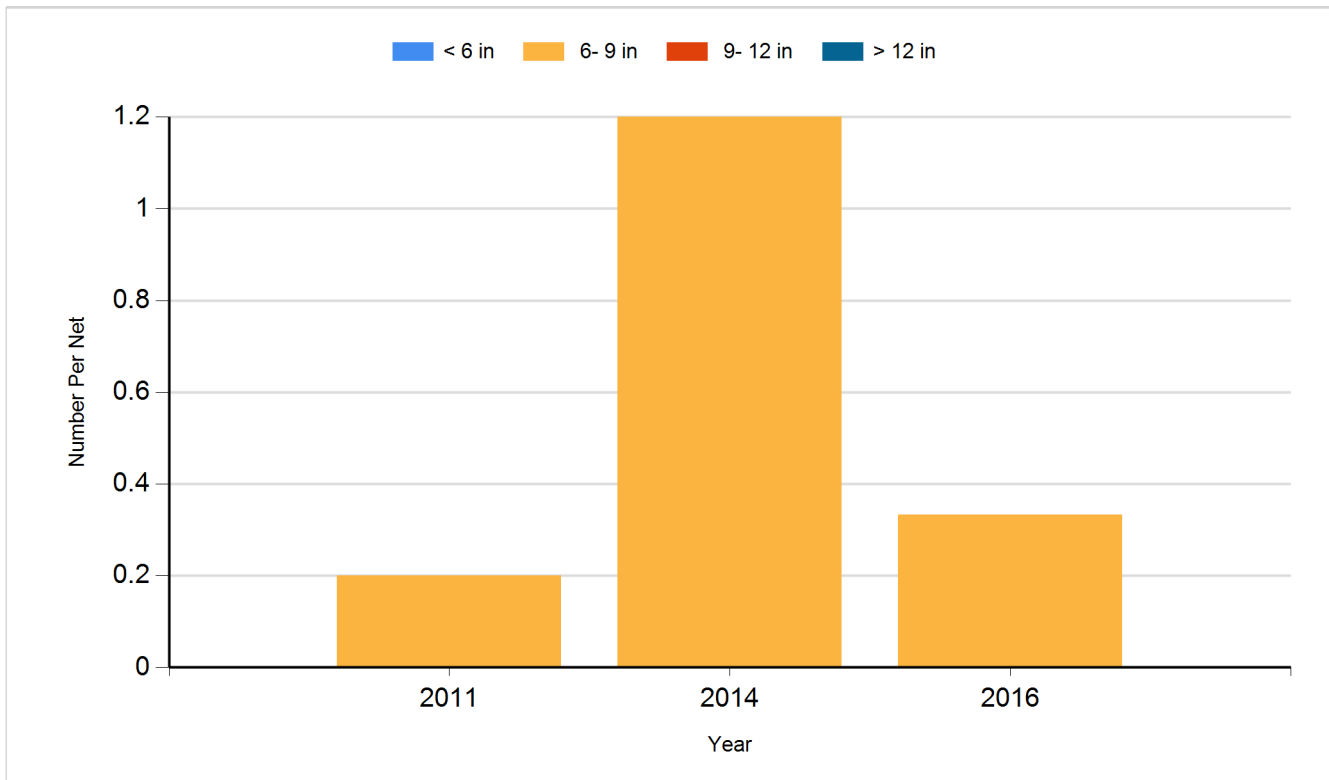
Historic Fish Sizes and Relative Abundance

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

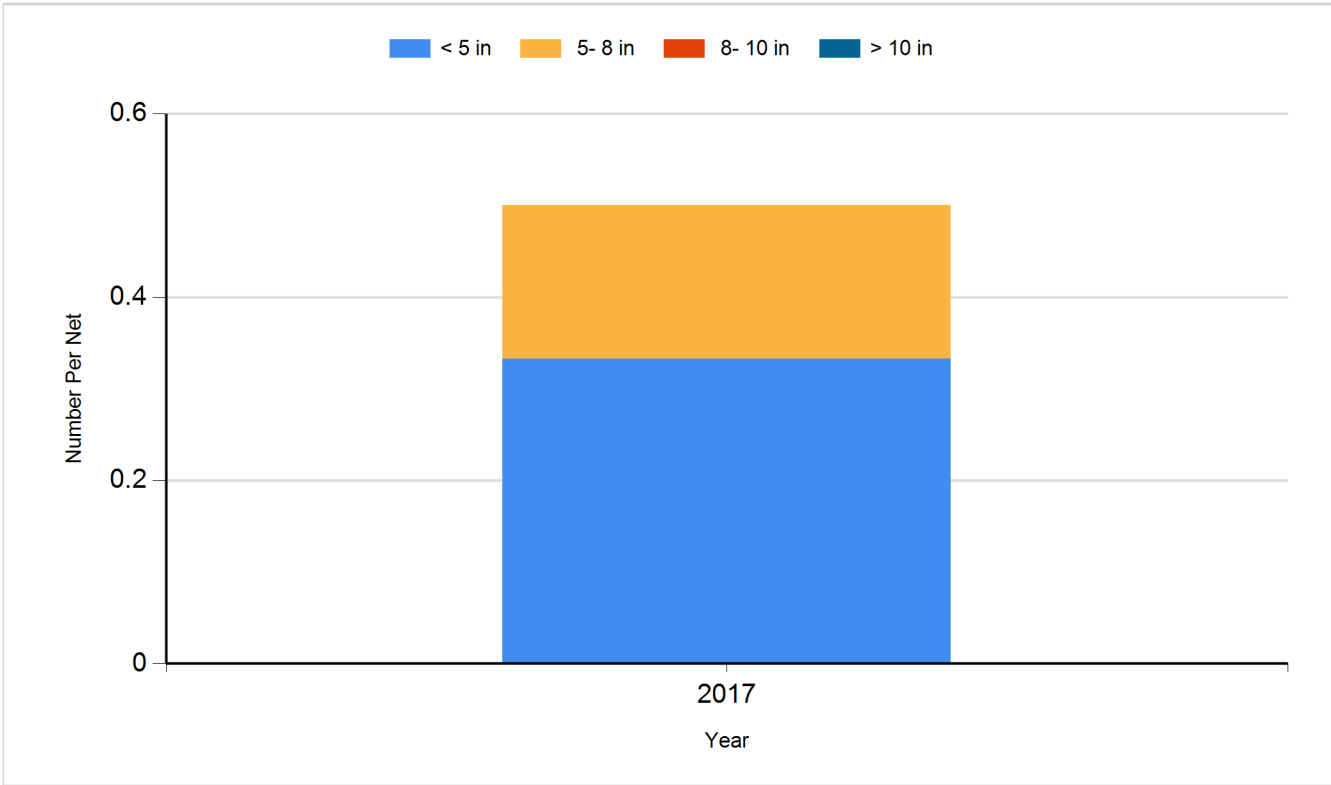
Species: Black Bullhead
Gear: AFS std gill net



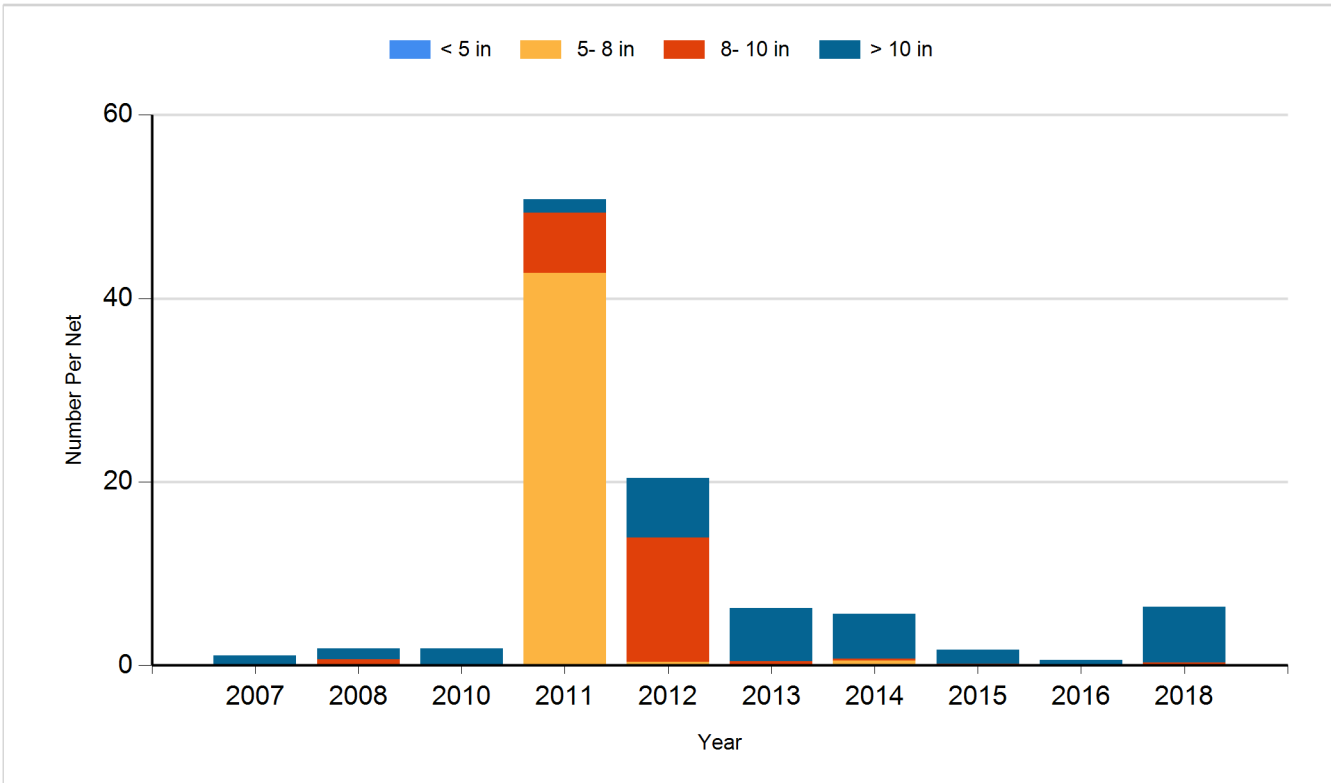
Species: Black Bullhead
Gear: std exp gill net



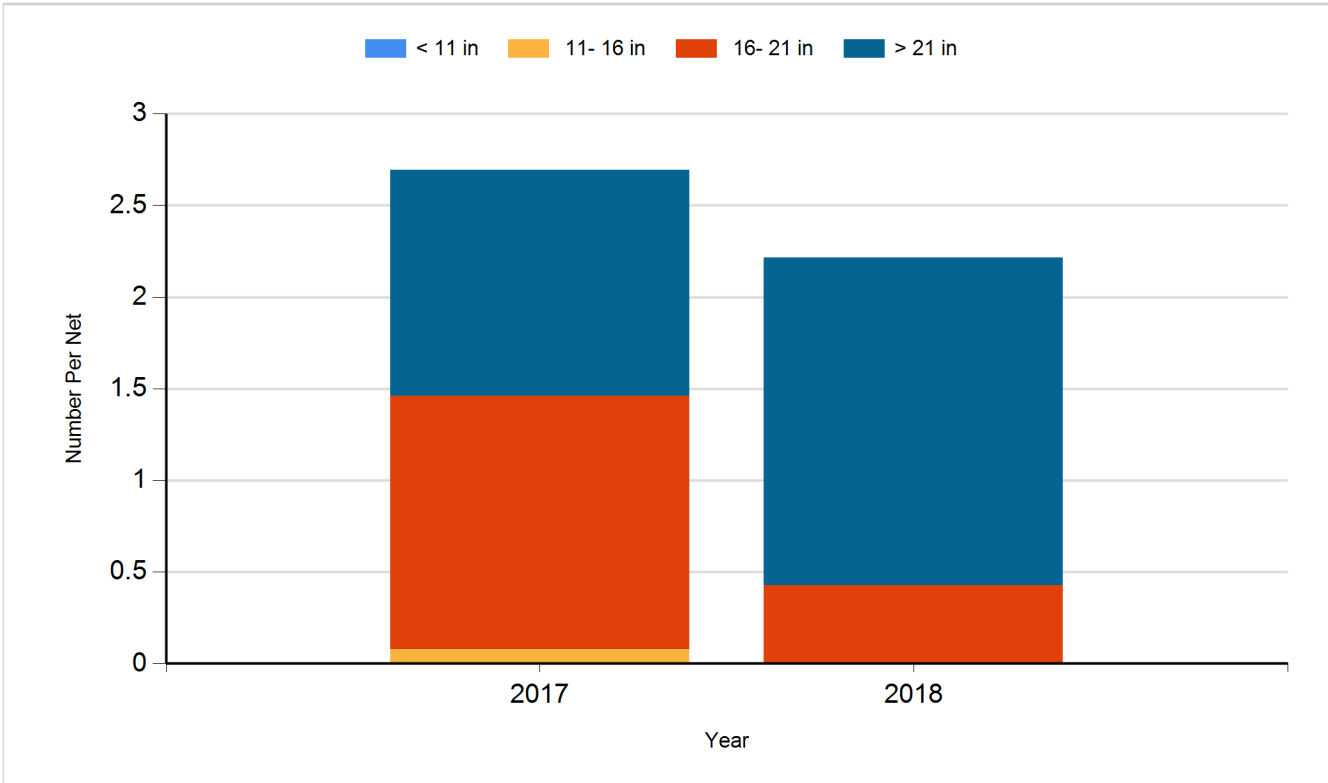
Species: Black Crappie
Gear: AFS std frame net



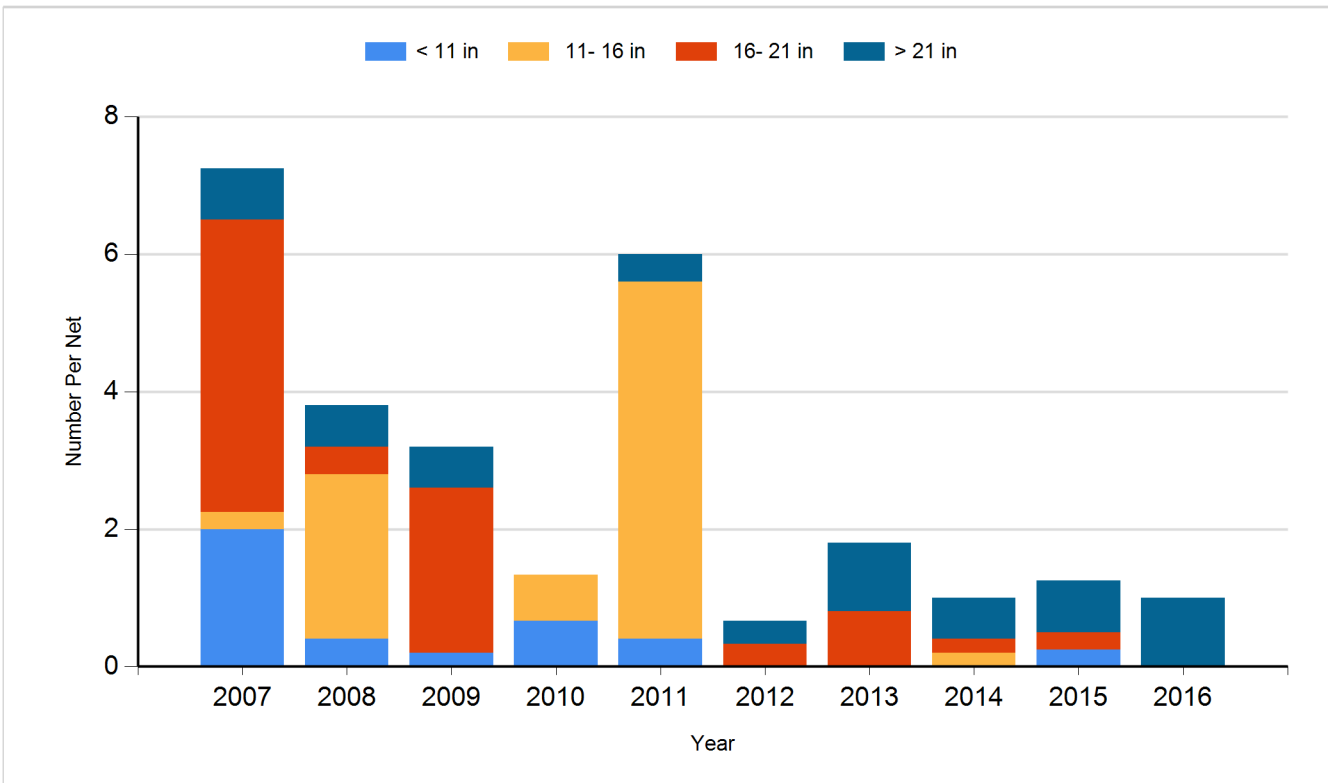
Species: Black Crappie
Gear: frame net (std 3/4 in)



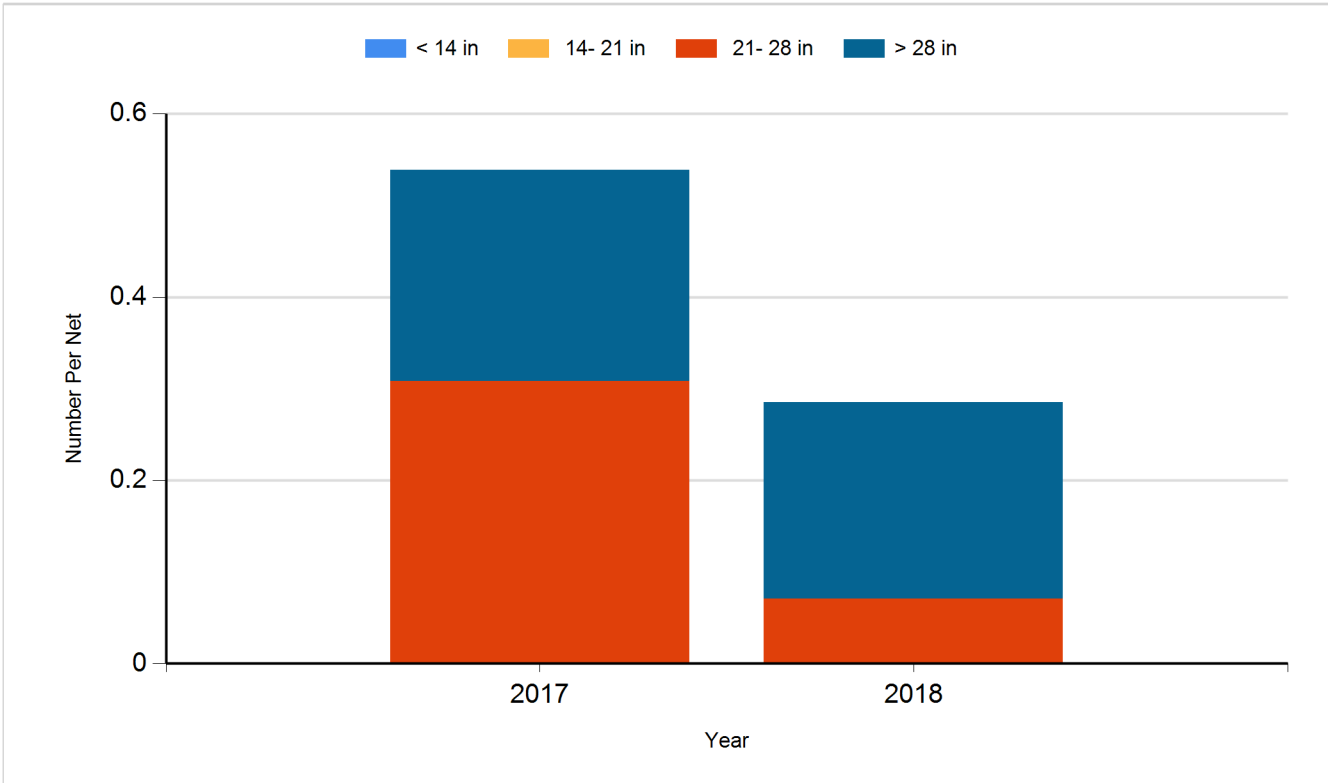
Species: Common Carp
Gear: AFS std gill net



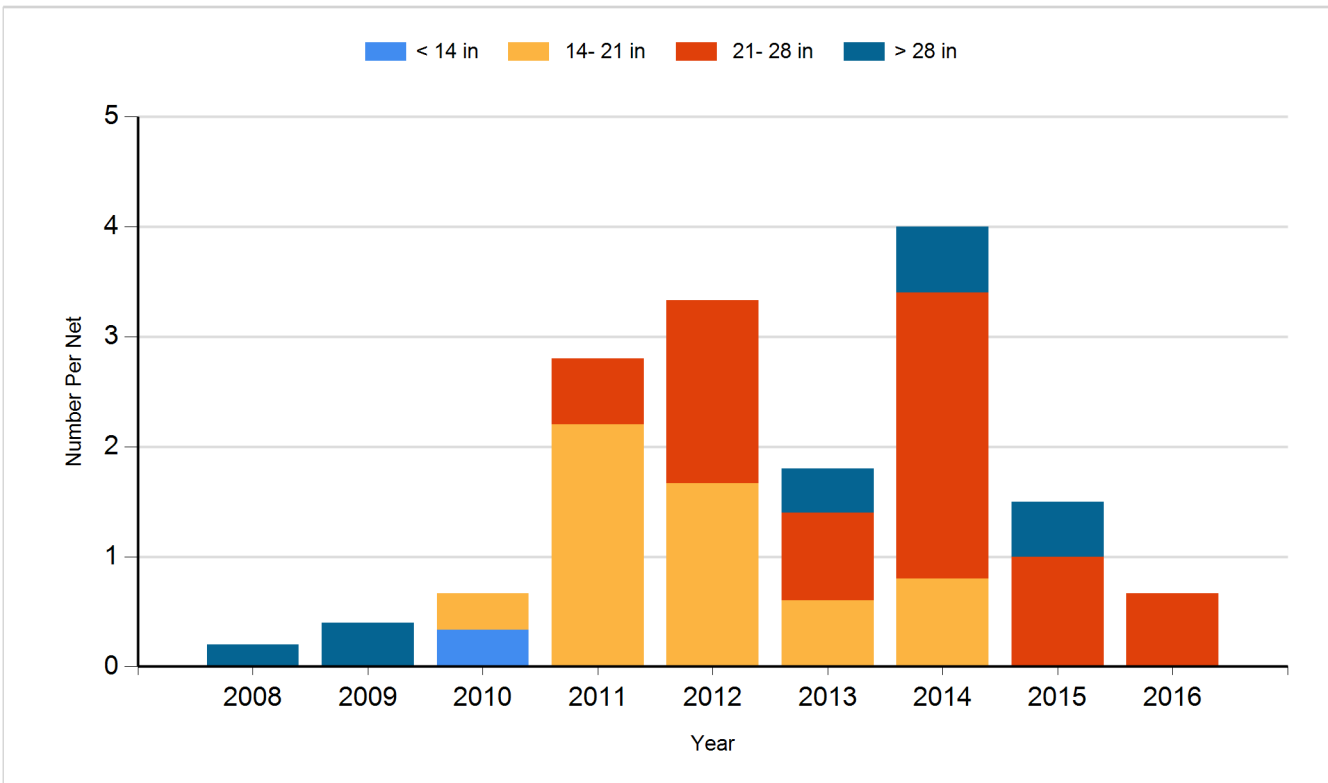
Species: Common Carp
Gear: std exp gill net



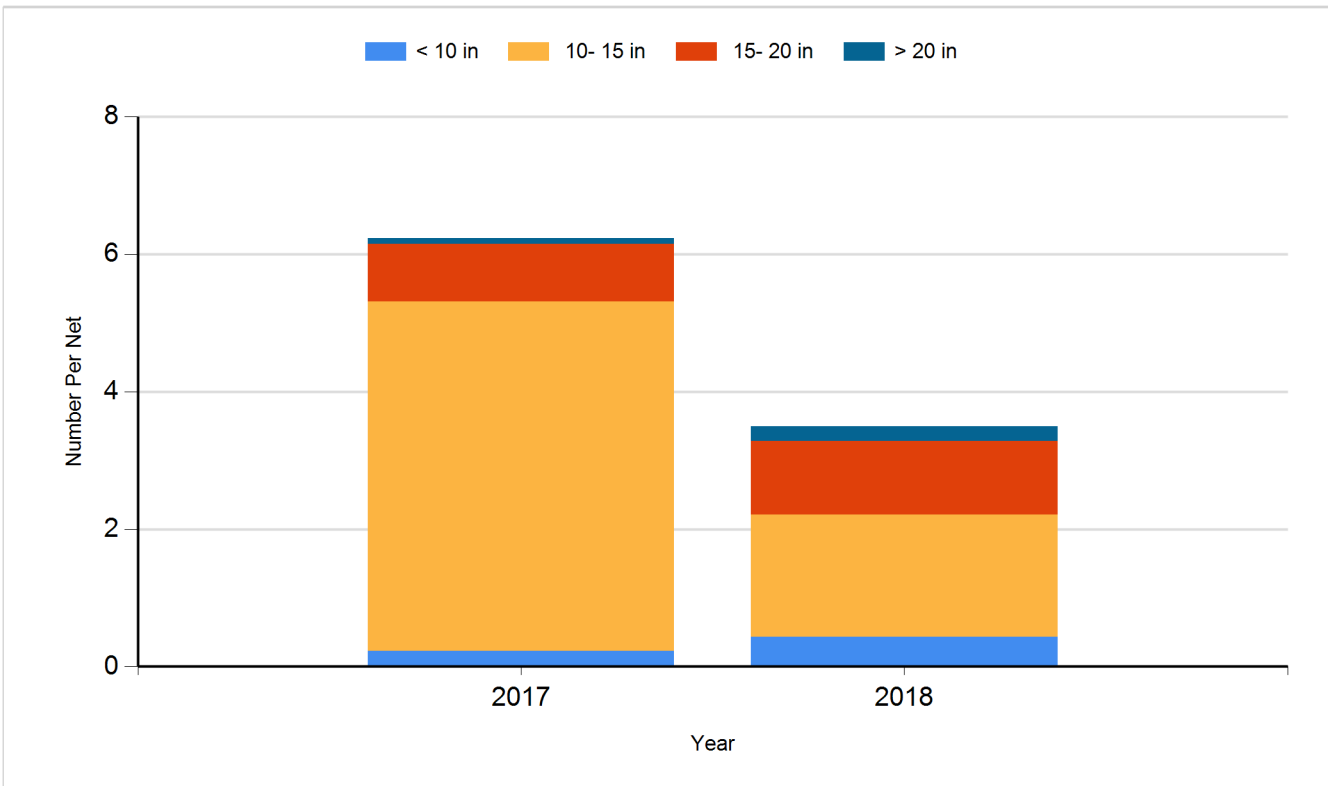
Species: Northern Pike
Gear: AFS std gill net



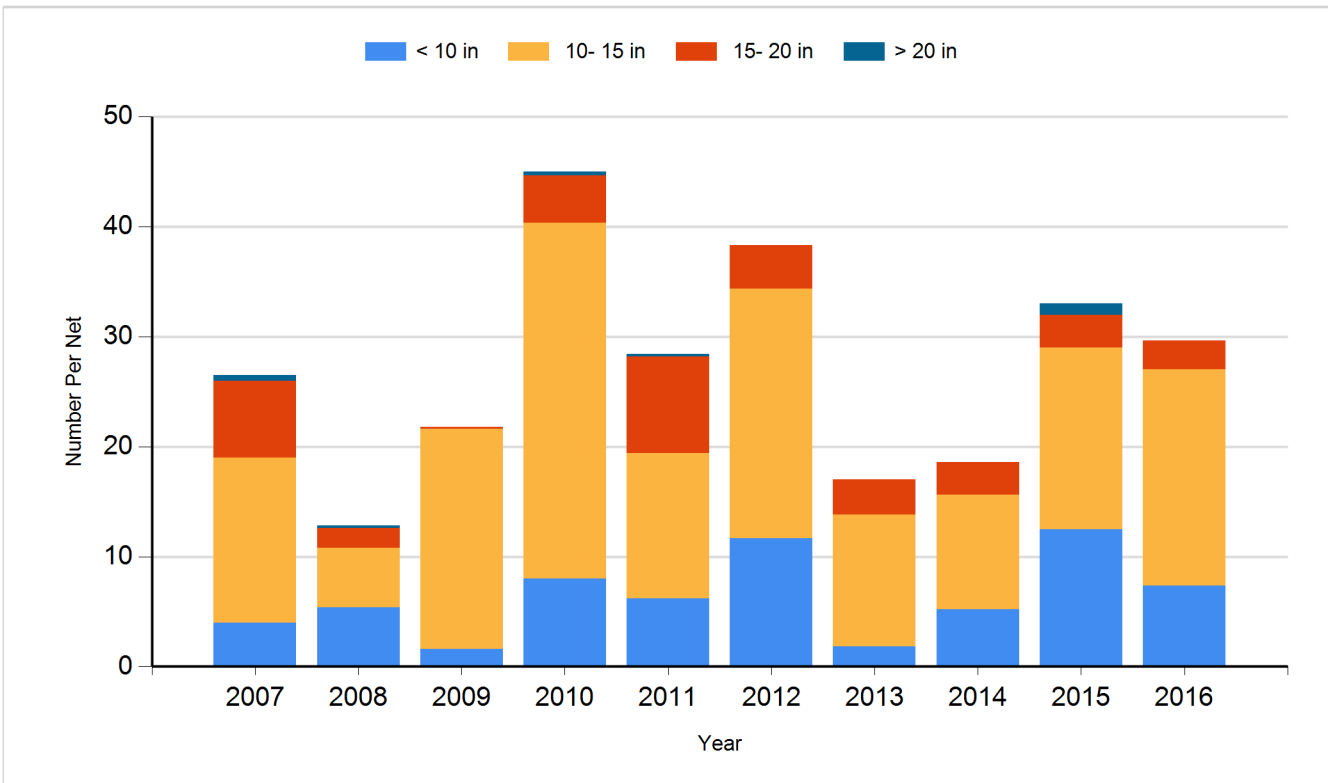
Species: Northern Pike
Gear: std exp gill net



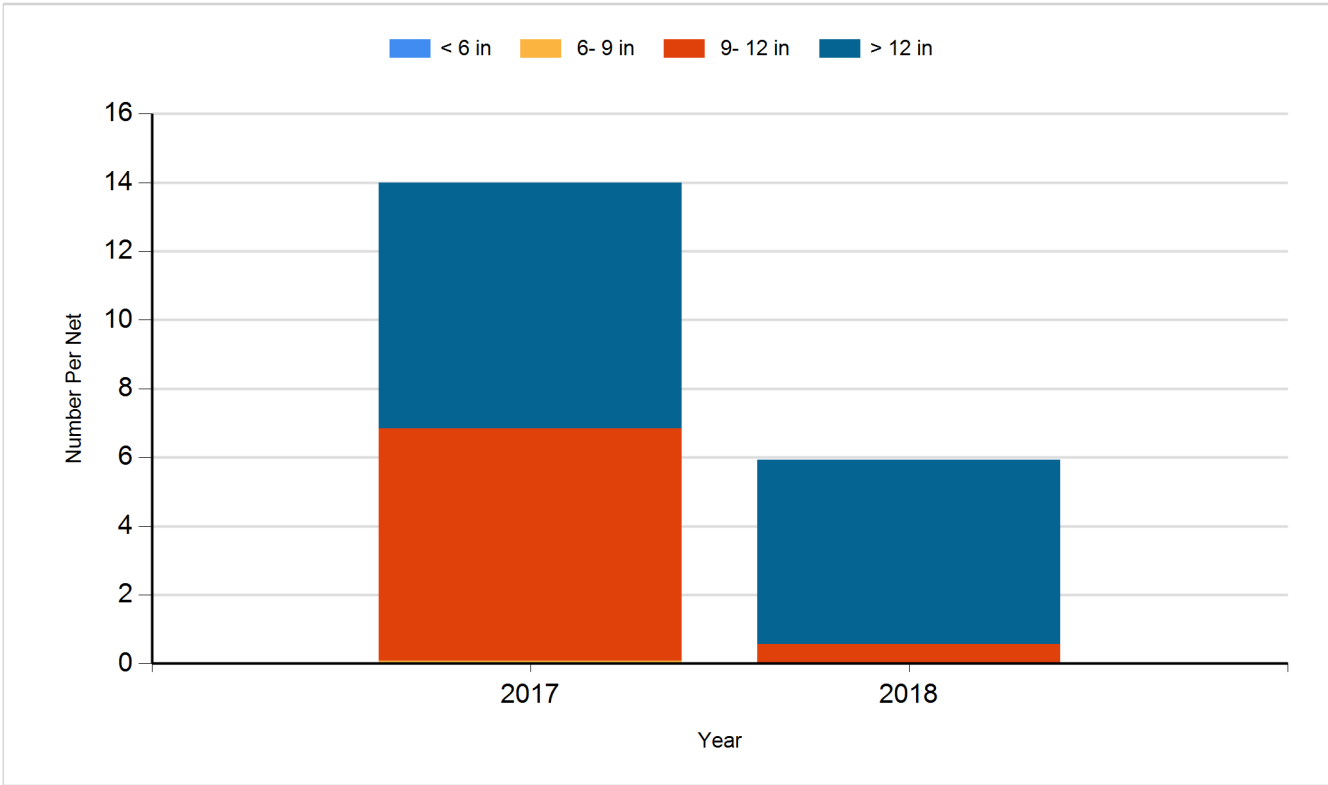
Species: Walleye
Gear: AFS std gill net



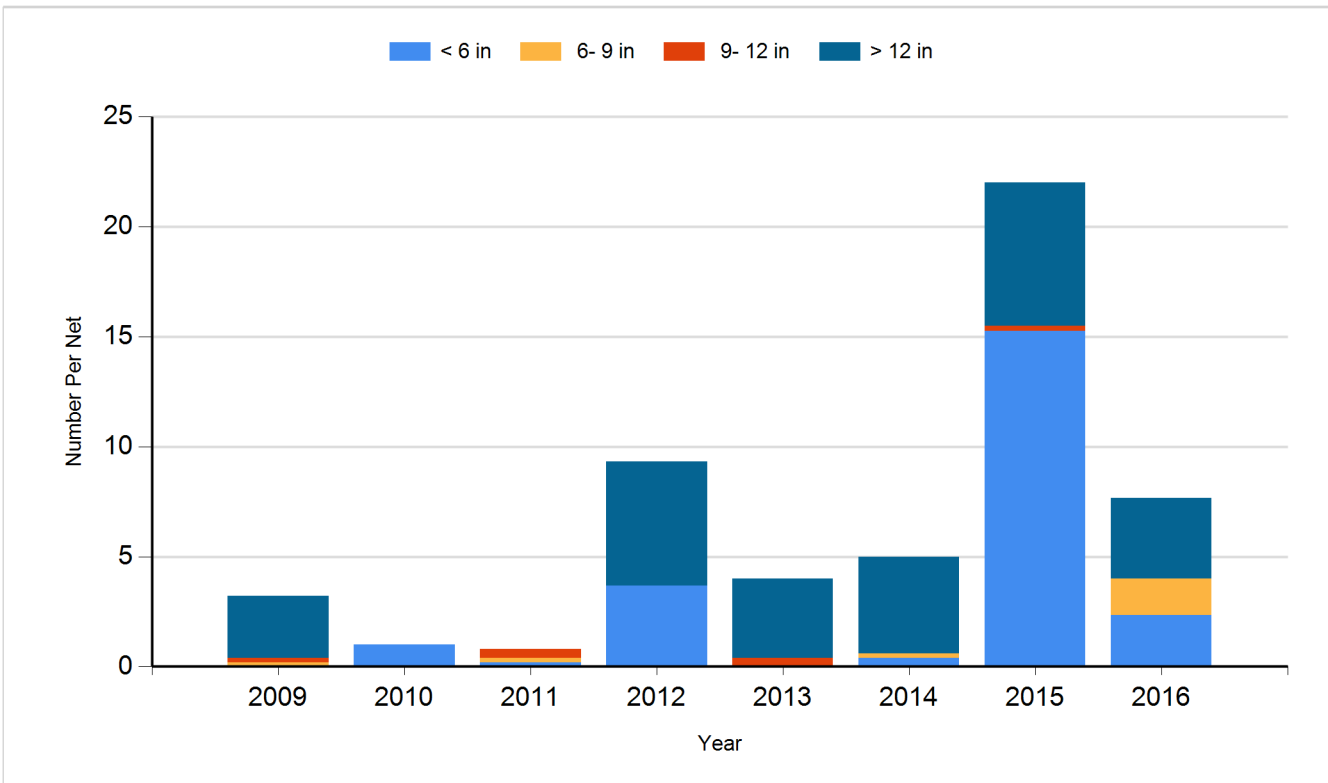
Species: Walleye
Gear: std exp gill net



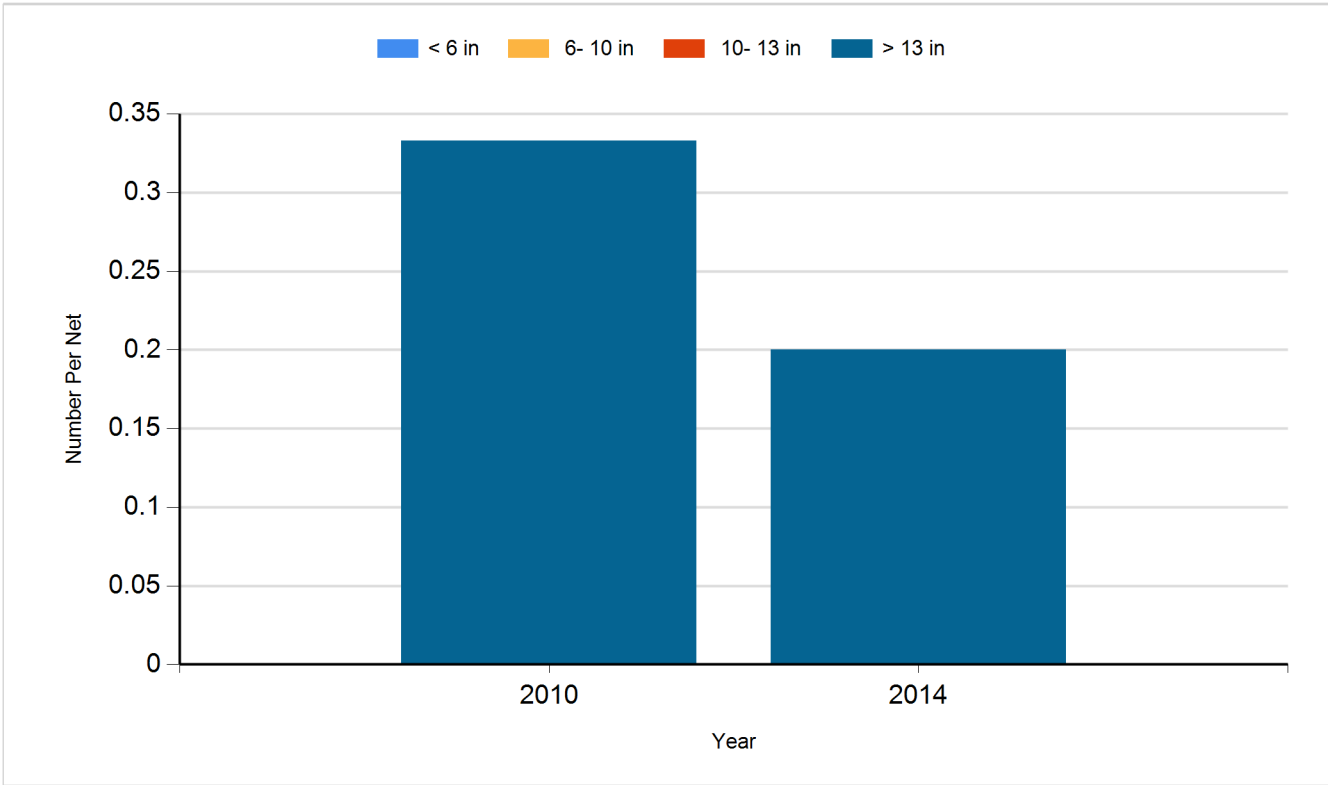
Species: White Bass
Gear: AFS std gill net



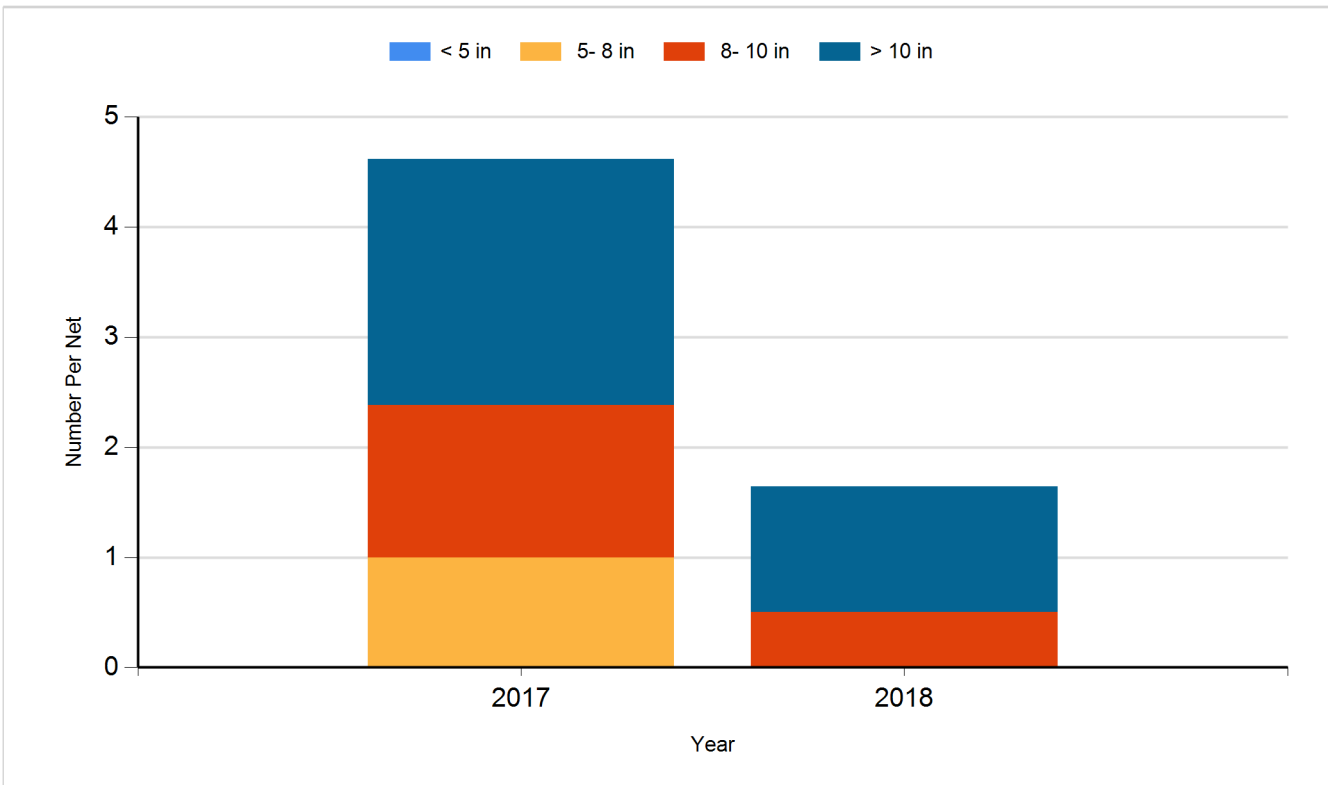
Species: White Bass
Gear: std exp gill net



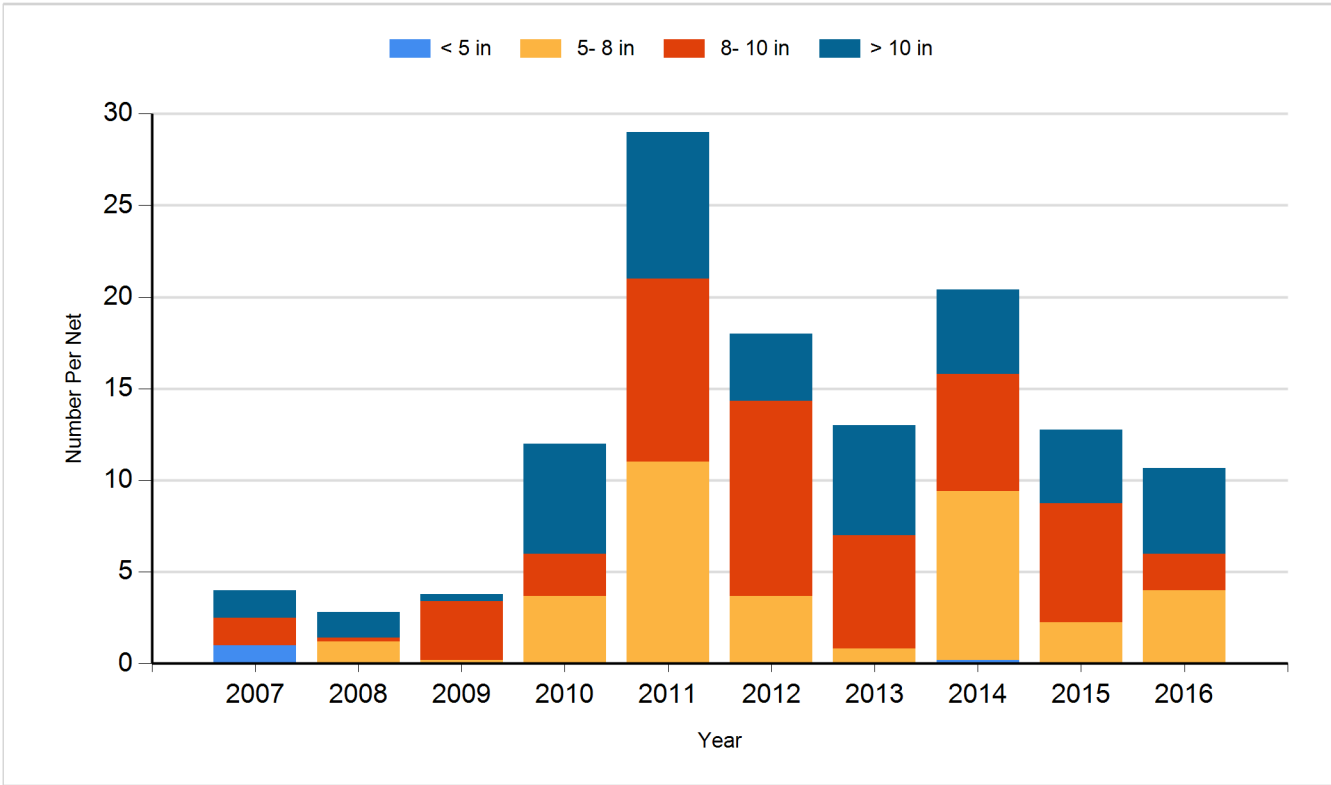
Species: White Sucker
Gear: std exp gill net



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