

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

Albert, Kingsbury County

MBS-Lake-176-000

2019

Lake Information

Name:	Albert	Maximum Depth:	13 Feet
County:	Kingsbury	Mean Depth:	9 Feet
Legal Description:	T112-R53W-Sec. 1-3, 10-12, 14-15, 22	OHWM Elevation:	1,653
Surface Area:	3,672 Acres	Outlet Elevation:	1,650

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jun 24, 2019	8 net-nights

Common Fish Species Present

Walleye

Yellow Perch

White Sucker

White Bass

Northern Pike

Black Bullhead

Common Carp

Bigmouth Buffalo

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
AFS std gill net	Bigmouth Buffalo	1	0.1	0.2	0		0		
	Black Bullhead	3	0.3	0.2	100		100		
	Common Carp	1	0.1	0.2	100		100		
	Northern Pike	4	0.5	0.4	100		100	97	12
	Walleye	18	2.1	0.7	76		6	86	2
	White Bass	5	0.6	0.3	100		100	94	2
	White Sucker	8	1.0	0.7	100		100		
	Yellow Perch	41	5.0	1.8	43	12	5	110	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.

Gear	Species	CPUE										Avg
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
AFS std gill net	Bigmouth Buffalo								4.3	1.3	0.1	1.90
	Black Bullhead								1.3	1.1	0.3	0.90
	Black Crappie								0.5	0.3	0.0	0.27
	Channel Catfish								0.0	0.1	0.0	0.03
	Common Carp								0.3	1.0	0.1	0.47
	Northern Pike								0.7	0.3	0.5	0.50
	Walleye								8.5	17.9	2.1	9.50
	White Bass								0.5	0.5	0.6	0.53
	White Sucker								1.2	1.0	1.0	1.07
	Yellow Perch							14.5	9.3	5.0	9.60	
frame net (std 3/4 in)	Bigmouth Buffalo			30.6								30.60
	Black Bullhead			57.6								57.60
	Channel Catfish			1.0								1.00
	Common Carp			5.6								5.60
	Northern Pike			4.8								4.80
	Smallmouth Bass			0.2								0.20
	Walleye			4.4								4.40
	White Bass			3.2								3.20
	White Sucker			0.8								0.80
	Yellow Bullhead			3.2								3.20
	Yellow Perch			0.2								0.20
std exp gill net	Bigmouth Buffalo		0.0	0.0		0.0	0.0	10.7				2.14
	Black Bullhead		0.0	3.3		1.7	15.3	4.3				4.92
	Channel Catfish		0.0	0.7		0.0	0.0	0.0				0.14
	Common Carp		0.0	1.0		1.0	0.0	0.0				0.40
	Northern Pike		2.3	4.3		2.0	1.0	1.0				2.12
	Orangespotted Sunfish		0.0	0.0		0.0	0.0	0.0				0.00
	Spottail Shiner		0.0	0.0		0.0	0.0	0.0				0.00
	Walleye		19.7	11.7		7.3	17.0	9.0				12.94
	White Bass		0.0	0.7		0.0	0.0	0.7				0.28
	White Sucker		0.0	1.7		1.3	6.3	3.3				2.52
	Yellow Perch		24.3	13.7		22.0	17.3	114.0				38.26

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										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
AFS std gill net	Bigmouth Buffalo	PSD									15	20	0
		PSD-P									4	0	0
	Black Bullhead	PSD									88	100	100
		PSD-P									88	67	100
	Common Carp	PSD									100	100	100
		PSD-P									100	100	100
	Northern Pike	PSD									100	100	100
		PSD-P									75	50	100
	Walleye	Wr									87	96	97
		PSD									67	91	76
		PSD-P									39	14	6
	White Bass	Wr									86	90	86
		PSD									67	100	100
		PSD-P									67	100	100
	White Sucker	Wr									97	106	94
		PSD									100	100	100
		PSD-P									100	100	100
	Yellow Perch	PSD									71	38	43
		PSD-P									16	22	5
		Wr									98	104	110
frame net (std 3/4 in)	Bigmouth Buffalo	PSD			100								
		PSD-P			17								
		Wr			88								
	Black Bullhead	PSD			73								
		PSD-P			3								
		Wr			100								
	Common Carp	PSD			100								
		PSD-P			75								
		Wr			88								
	Northern Pike	PSD			58								
		PSD-P			25								
		Wr			76								
	Walleye	PSD			18								

Gear	Species	Index	Year									
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
frame net (std 3/4 in)	Walleye	PSD-P			0							
		Wr			77							
	White Bass	PSD			31							
		PSD-P			19							
		Wr			88							
		White Sucker	PSD			100						
		PSD-P			100							
		Wr			87							
	Yellow Perch	PSD			100							
		PSD-P			0							
		Wr			105							
	std exp gill net	Bigmouth Buffalo	PSD						0	0		
PSD-P								0	0			
Black Bullhead		PSD			80		20	63	100			
		PSD-P			0		20	0	38			
		Wr			98							
Common Carp		PSD			100		100					
		PSD-P			33		100					
		Wr			106							
Northern Pike		PSD		14	54		83	100	67			
		PSD-P		0	8		17	33	33			
		Wr			85		91	106	89			
Walleye		PSD		7	23		91	94	41			
		PSD-P		0	0		0	24	11			
		Wr			85		96	102	96			
White Bass		PSD			100				0			
		PSD-P			100				0			
		Wr			100				100			
White Sucker		PSD			100		25	26	90			
		PSD-P			100		25	16	90			
		Wr			104							
Yellow Perch		PSD		40	71		18	96	13			
		PSD-P		22	34		15	25	11			
		Wr			109		106	121	110			

Length at Capture

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

Species: Walleye

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2019	18	173 (1)	320 (1)	411 (3)	395 (8)	467 (5)					
2018	141		371 (9)	432 (97)	468 (13)	499 (3)		554 (3)		640 (12)	623 (4)

Species: Yellow Perch

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2018	76	143 (48)	227 (12)	269 (15)		327 (1)					

Fish Condition

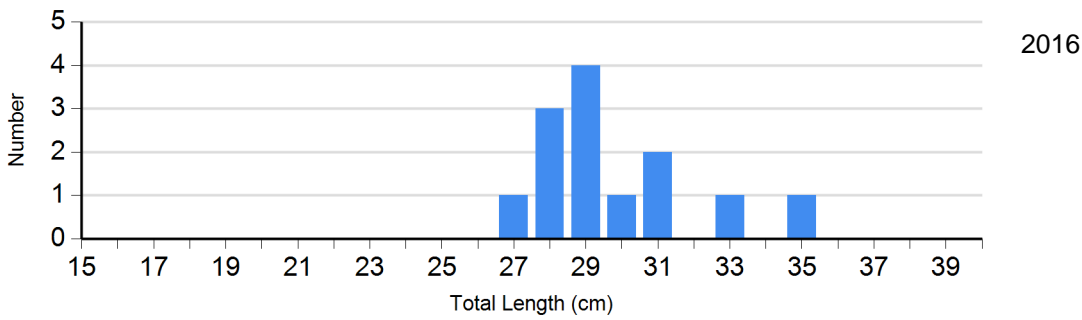
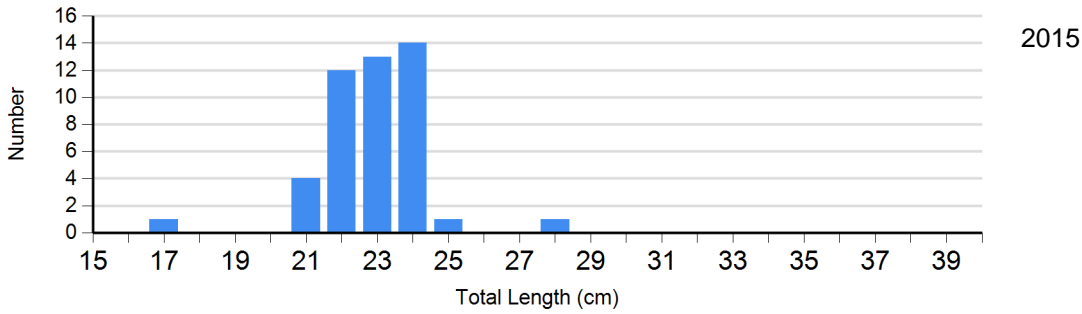
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Northern Pike Gill Net	2015	0		2	108 (0.4)	1	102	0	
	2016	1	82	1	96	1	90	0	
	2017	0		1	82	3	89 (1.4)	0	
	2018	0		1	91	1	101	0	
	2019	0		0		4	97 (9.5)	0	
Walleye Gill Net	2015	3	112 (12.8)	36	102 (1.0)	12	99 (1.2)	0	
	2016	16	95 (1.2)	8	99 (2.2)	3	94 (3.6)	0	
	2017	17	86 (1.6)	14	85 (3.8)	19	86 (1.6)	1	85
	2018	13	92 (2.0)	110	91 (0.6)	9	91 (1.7)	11	86 (2.3)
	2019	4	87 (3.4)	12	86 (1.9)	1	79	0	
White Bass Gill Net	2016	2	100 (1.1)	0		0		0	
	2017	1	96	0		2	98 (4.2)	0	
	2018	0		0		1	106	3	107 (3.0)
	2019	0		0		3	94 (1.0)	2	95 (4.6)
Yellow Perch Gill Net	2015	2	101 (2.3)	37	127 (24.4)	6	106 (2.7)	7	105 (2.1)
	2016	299	113 (0.8)	4	97	32	100 (1.6)	7	96 (0.4)
	2017	25	110 (1.4)	48	96 (0.9)	11	96 (2.3)	3	94 (3.2)
	2018	46	107 (1.5)	12	105 (2.9)	13	99 (1.4)	3	99 (5.7)
	2019	23	111 (2.1)	15	110 (1.8)	1	99	1	90

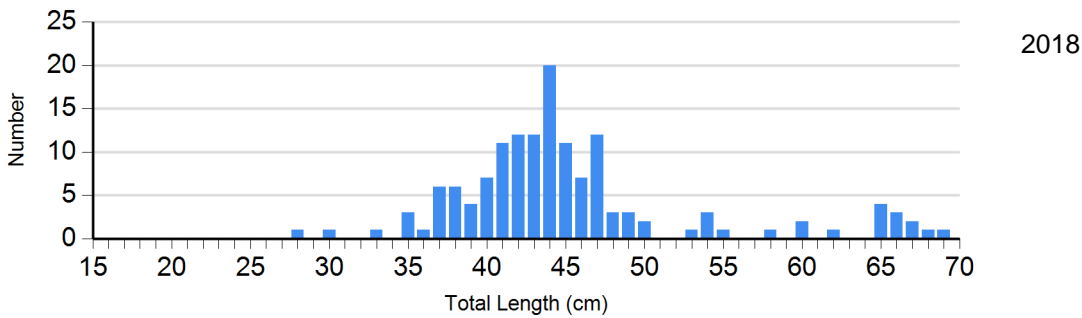
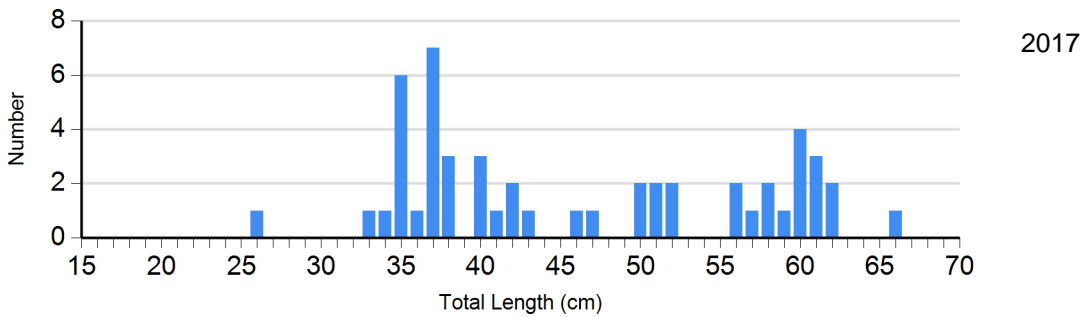
Length Frequency Distribution

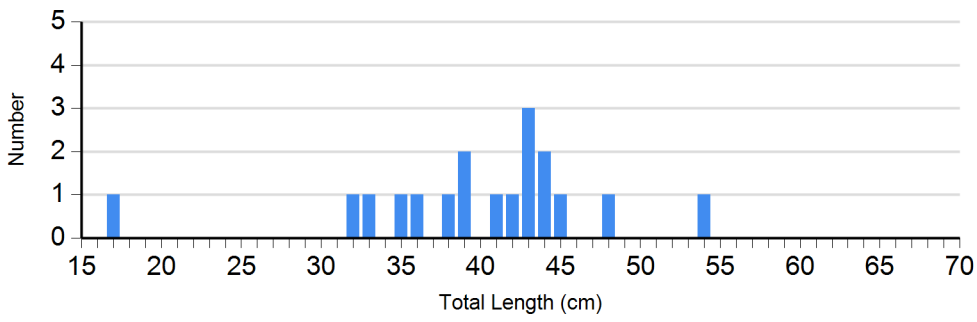
Length frequency histogram of species sampled by year.

Species: Black Bullhead
Gear: std exp gill net

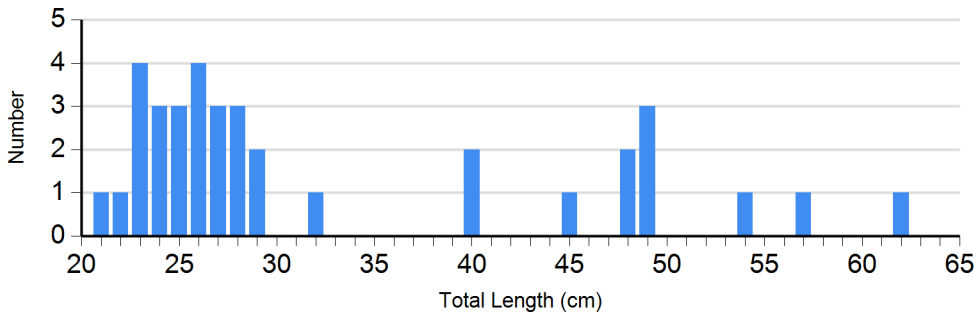
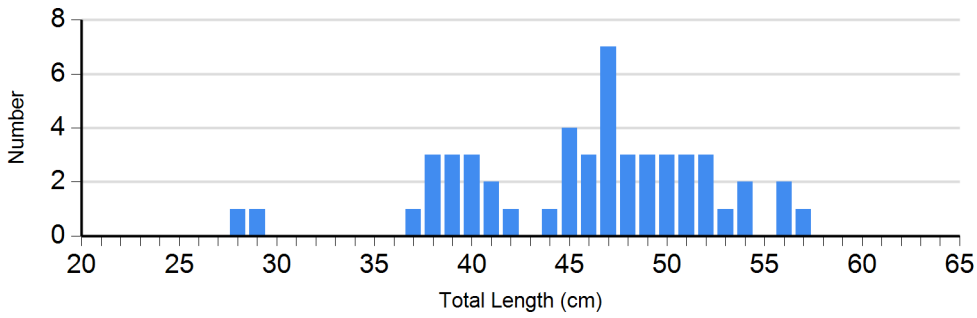
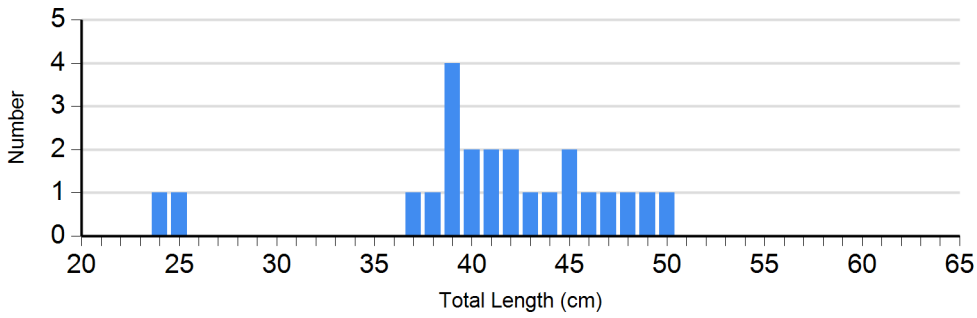


Species: Walleye
Gear: AFS std gill net

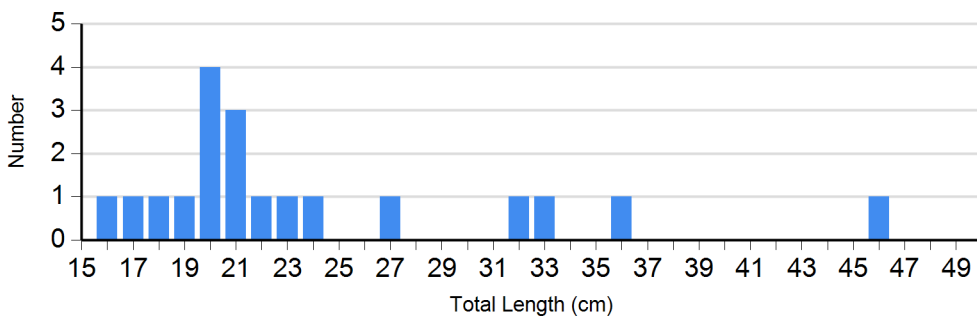


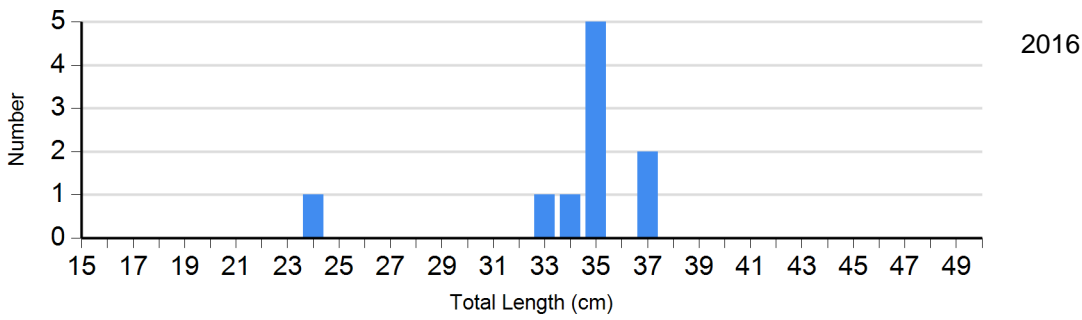


Species: Walleye
Gear: std exp gill net

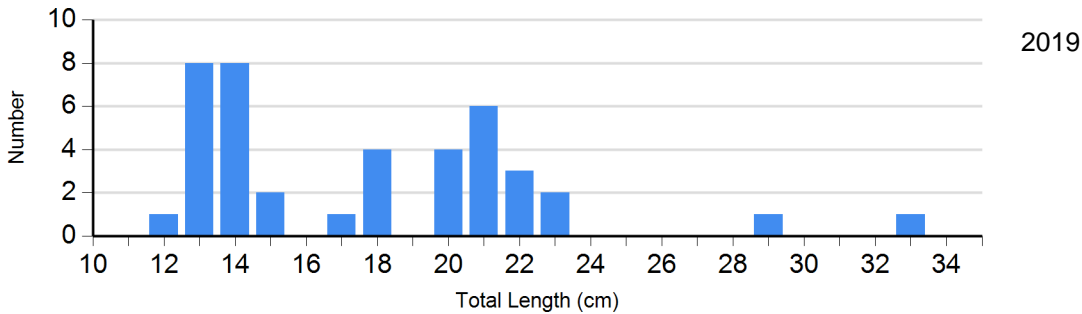
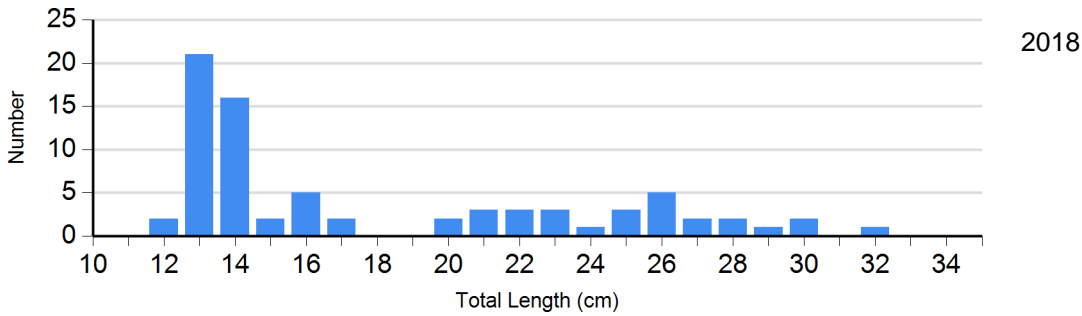
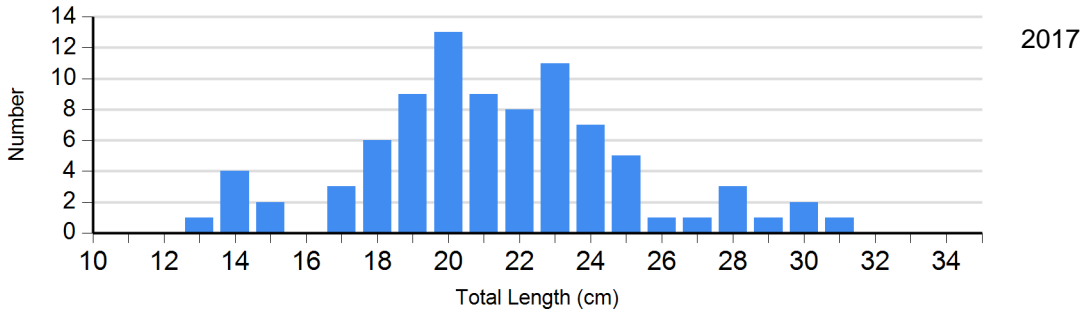


Species: White Sucker
Gear: std exp gill net

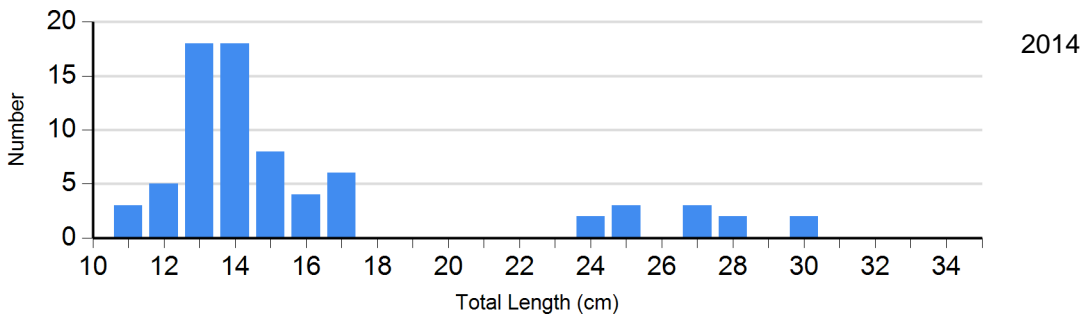


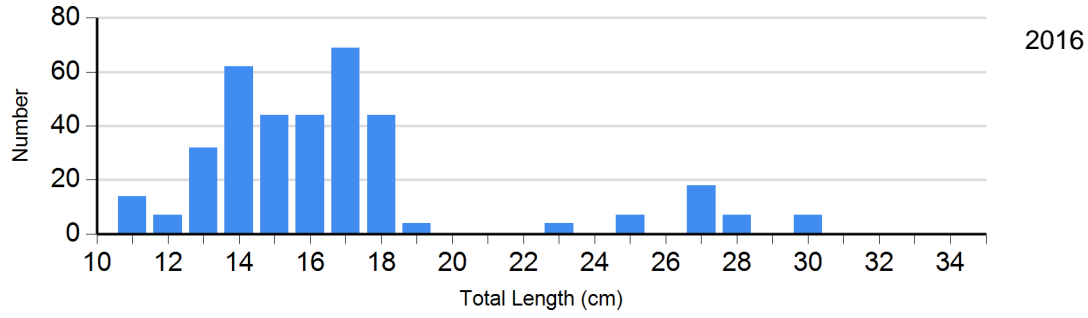
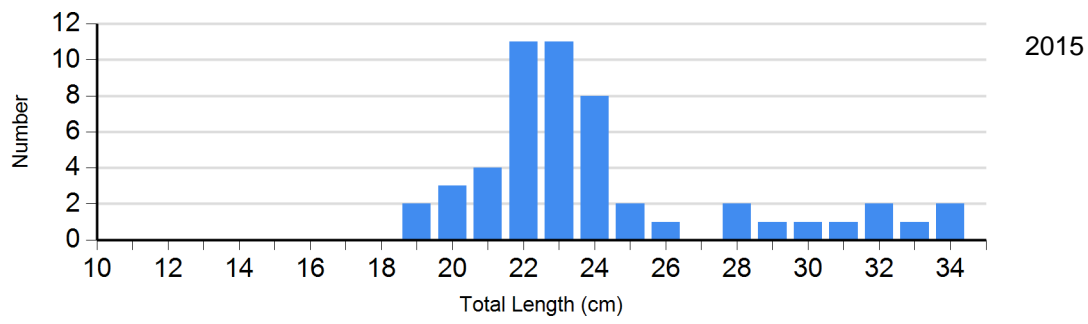


Species: Yellow Perch
Gear: AFS std gill net



Species: Yellow Perch
Gear: std exp gill net

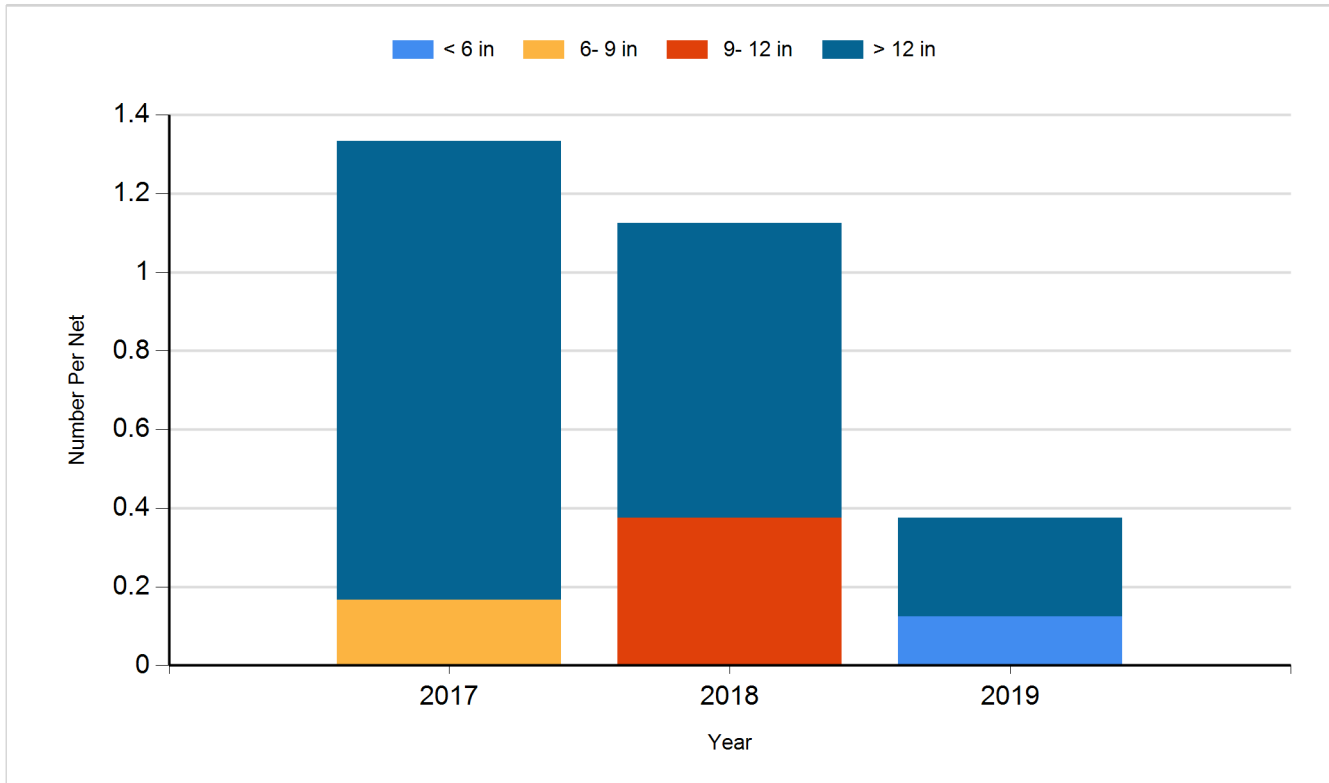




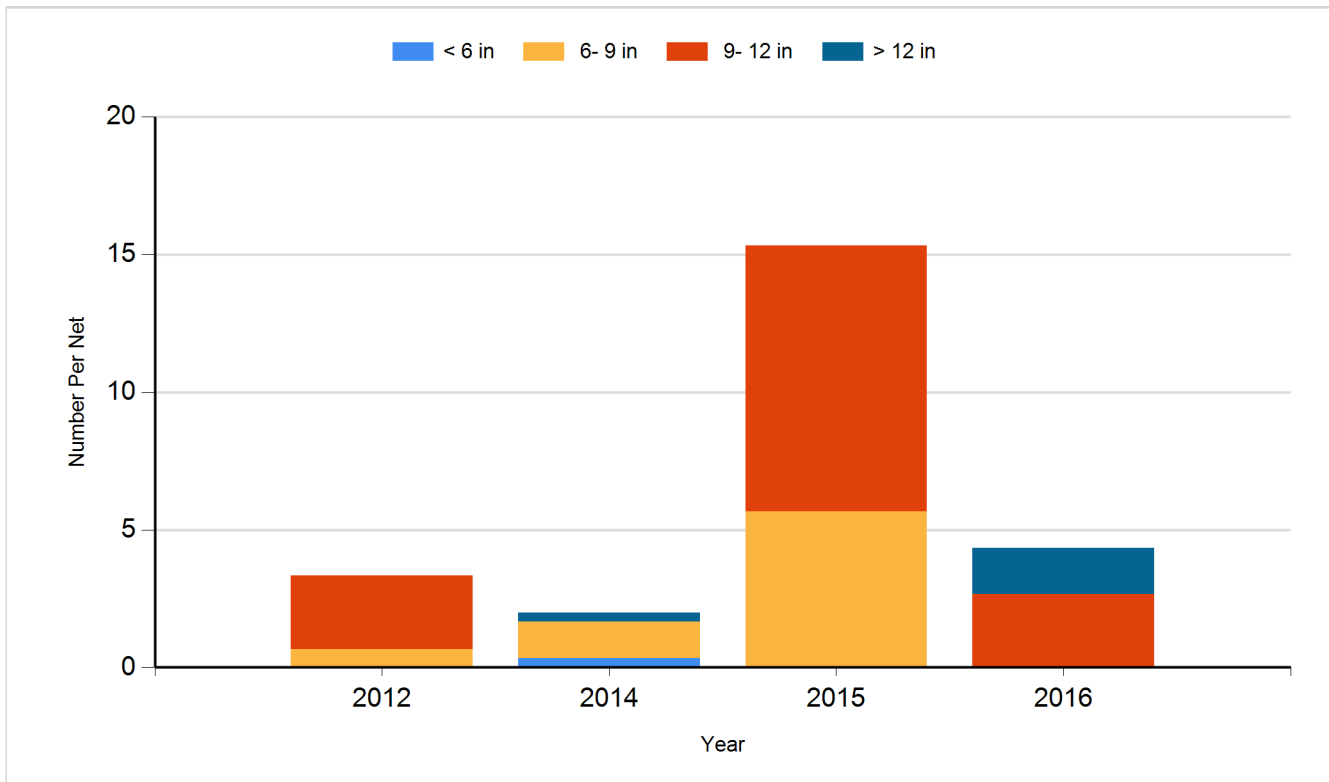
Historic Fish Sizes and Relative Abundance

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

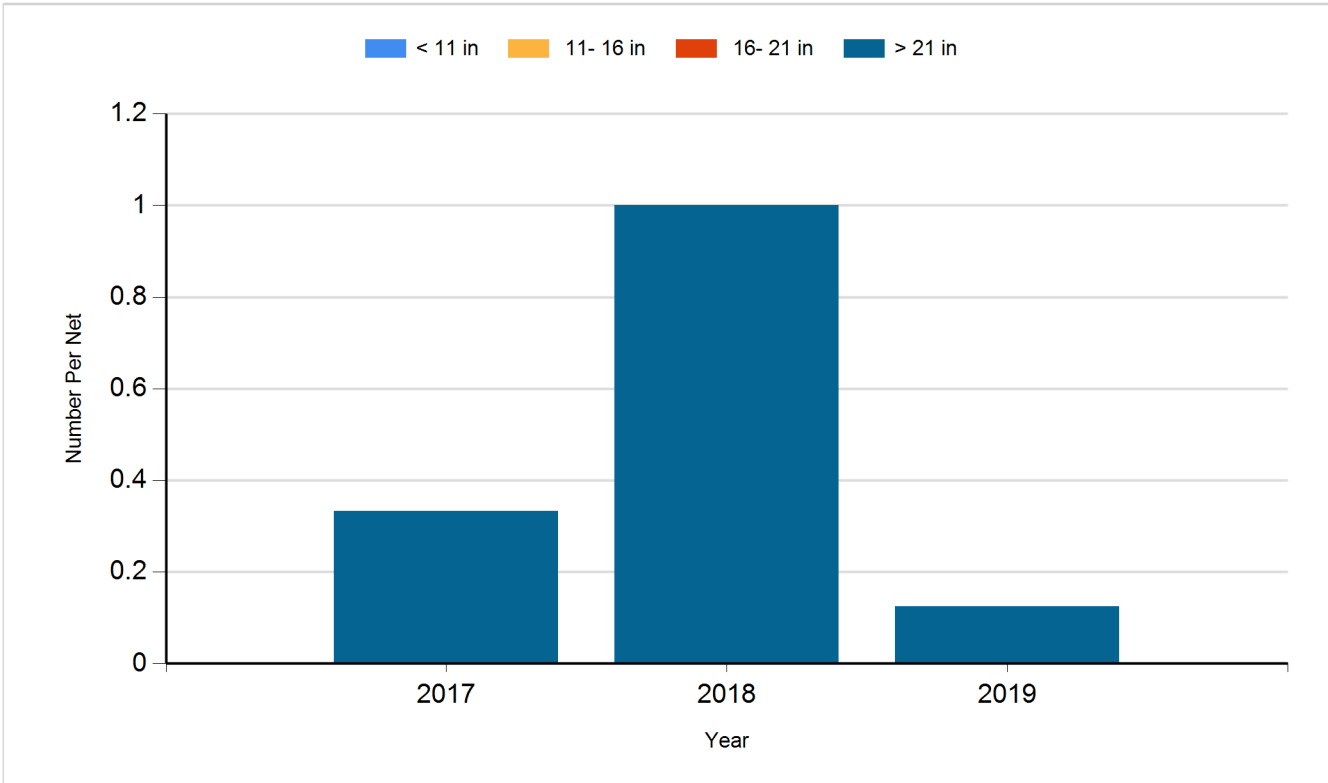
Species: Black Bullhead
Gear: AFS std gill net



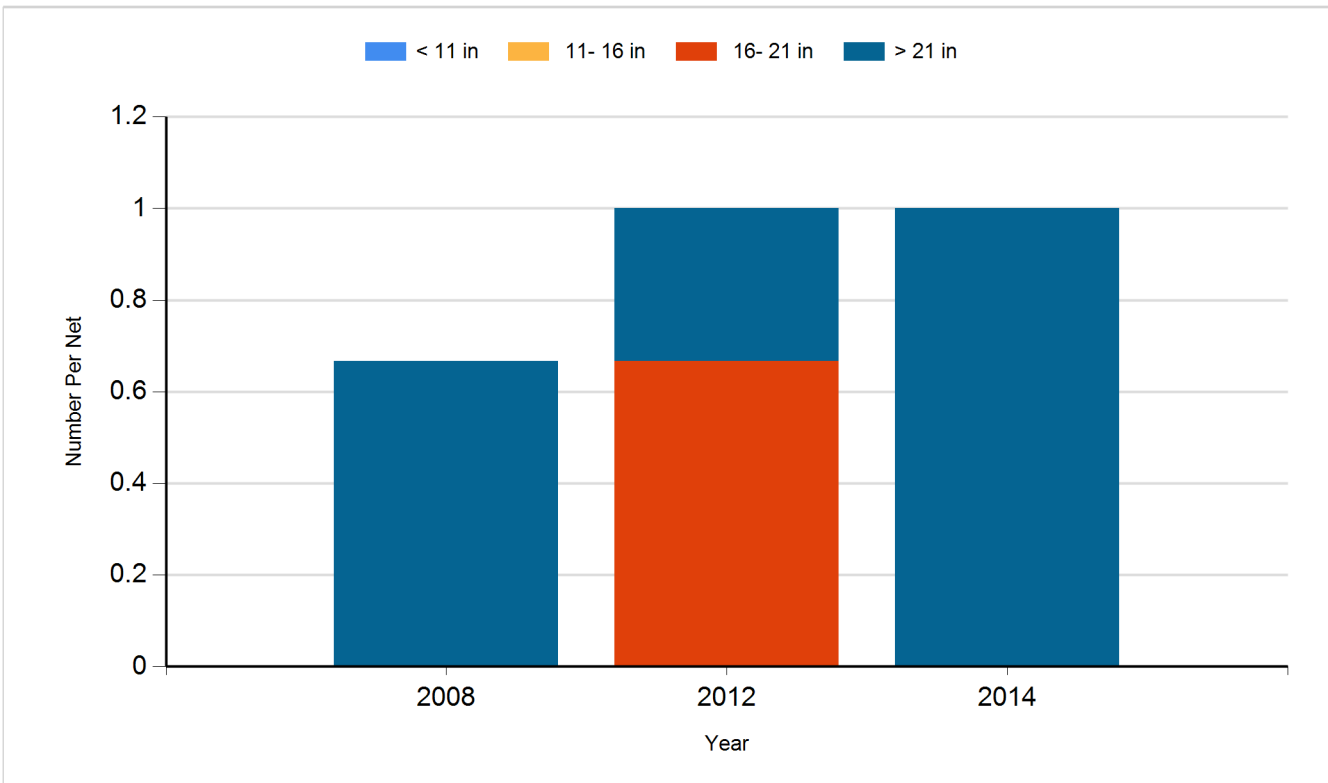
Species: Black Bullhead
Gear: std exp gill net



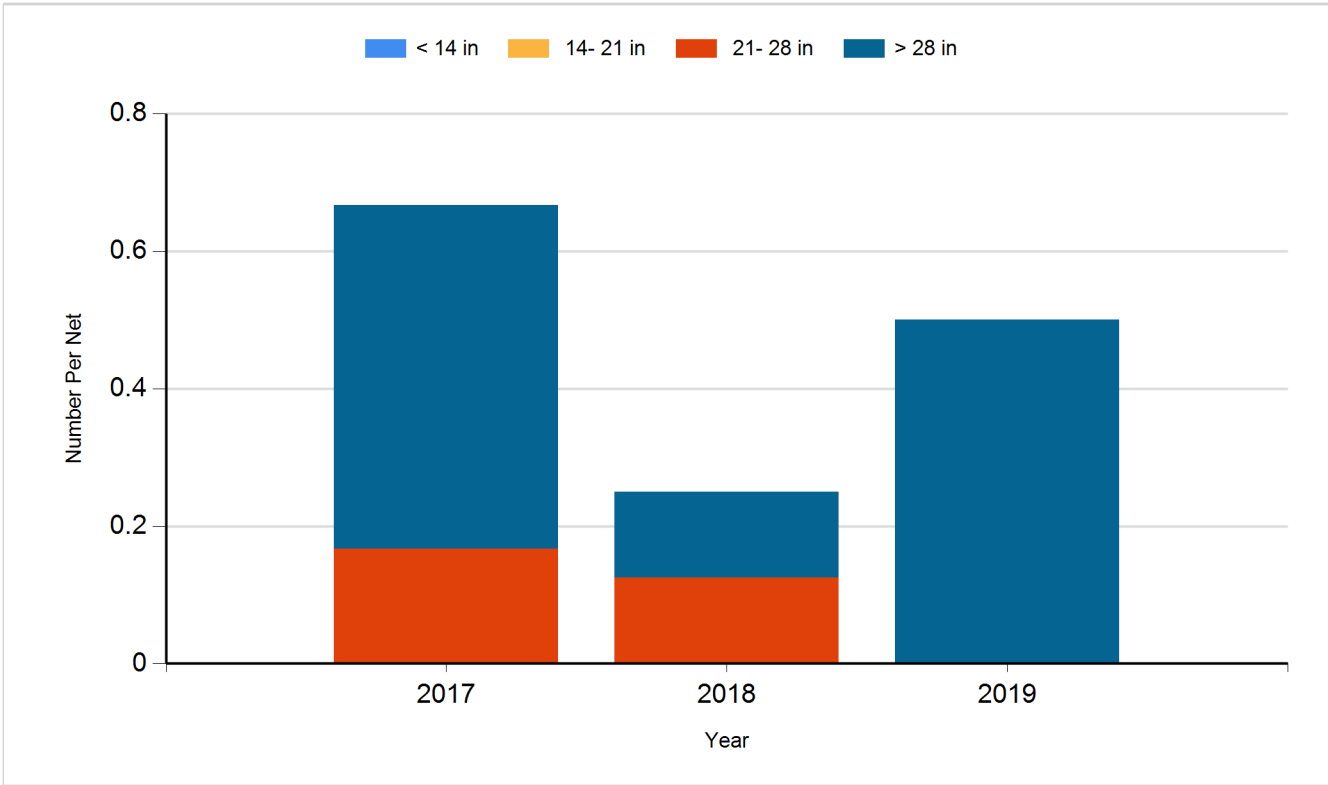
Species: Common Carp
Gear: AFS std gill net



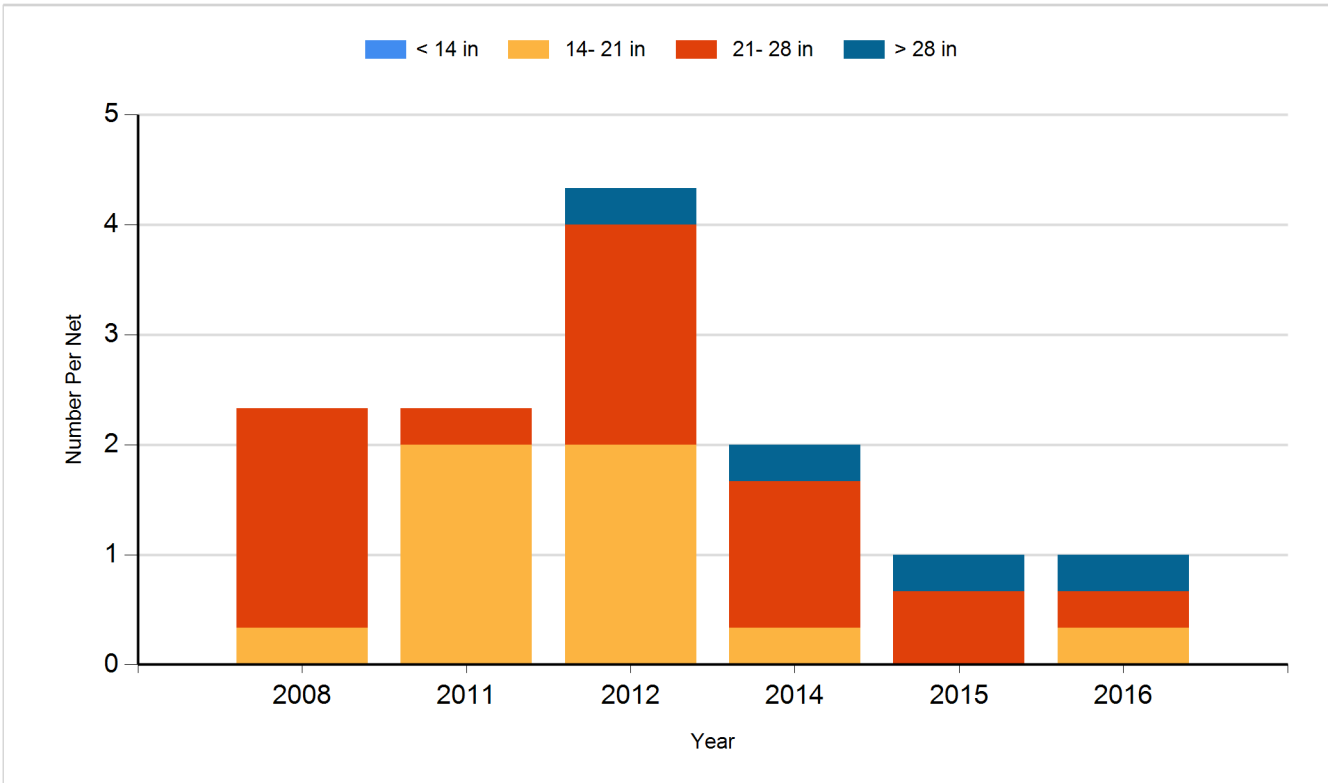
Species: Common Carp
Gear: std exp gill net



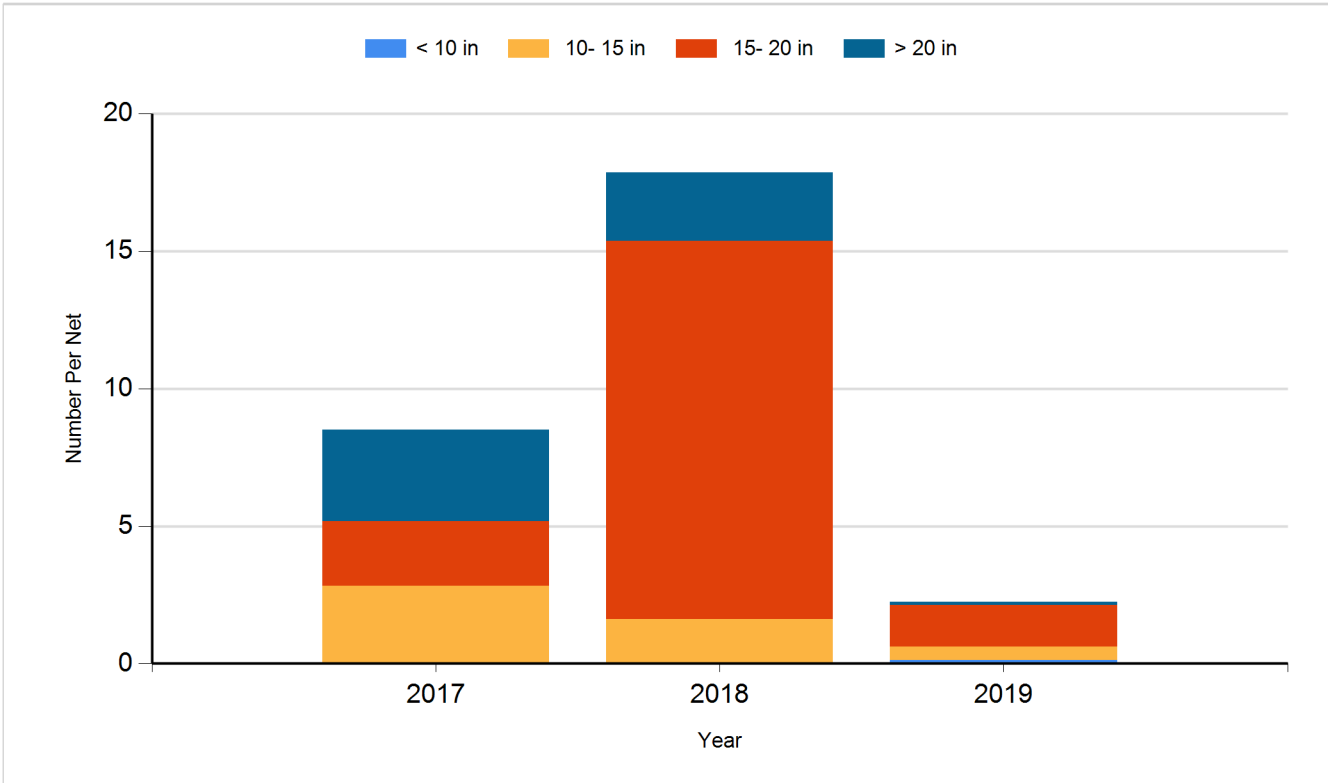
Species: Northern Pike
Gear: AFS std gill net



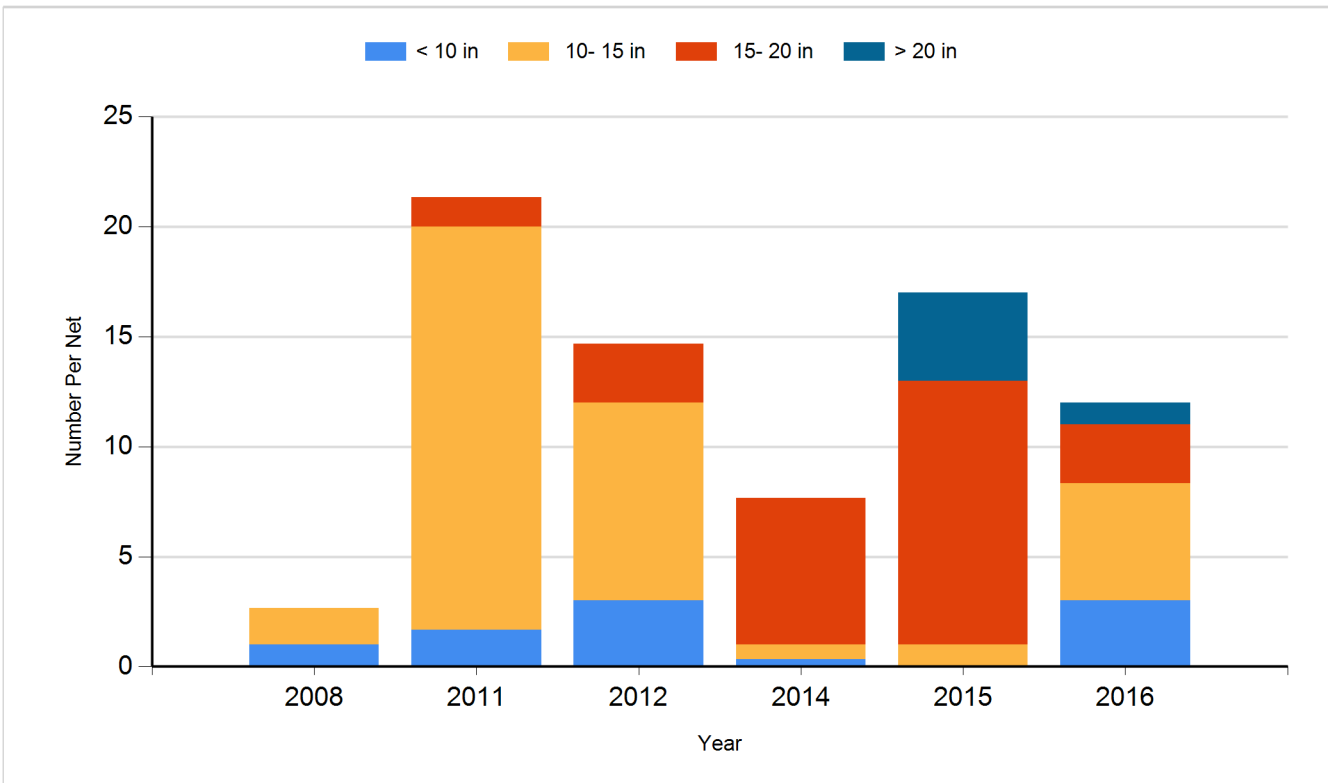
Species: Northern Pike
Gear: std exp gill net



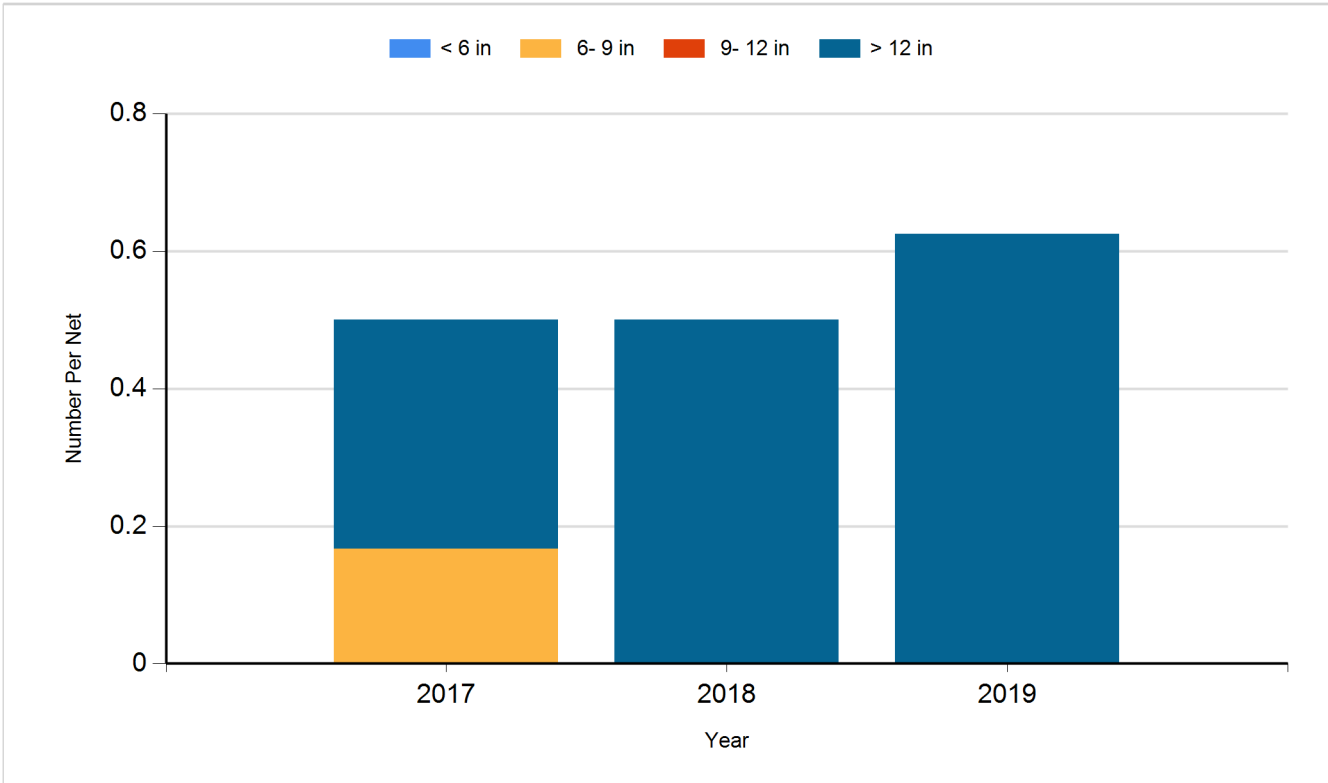
Species: Walleye
Gear: AFS std gill net



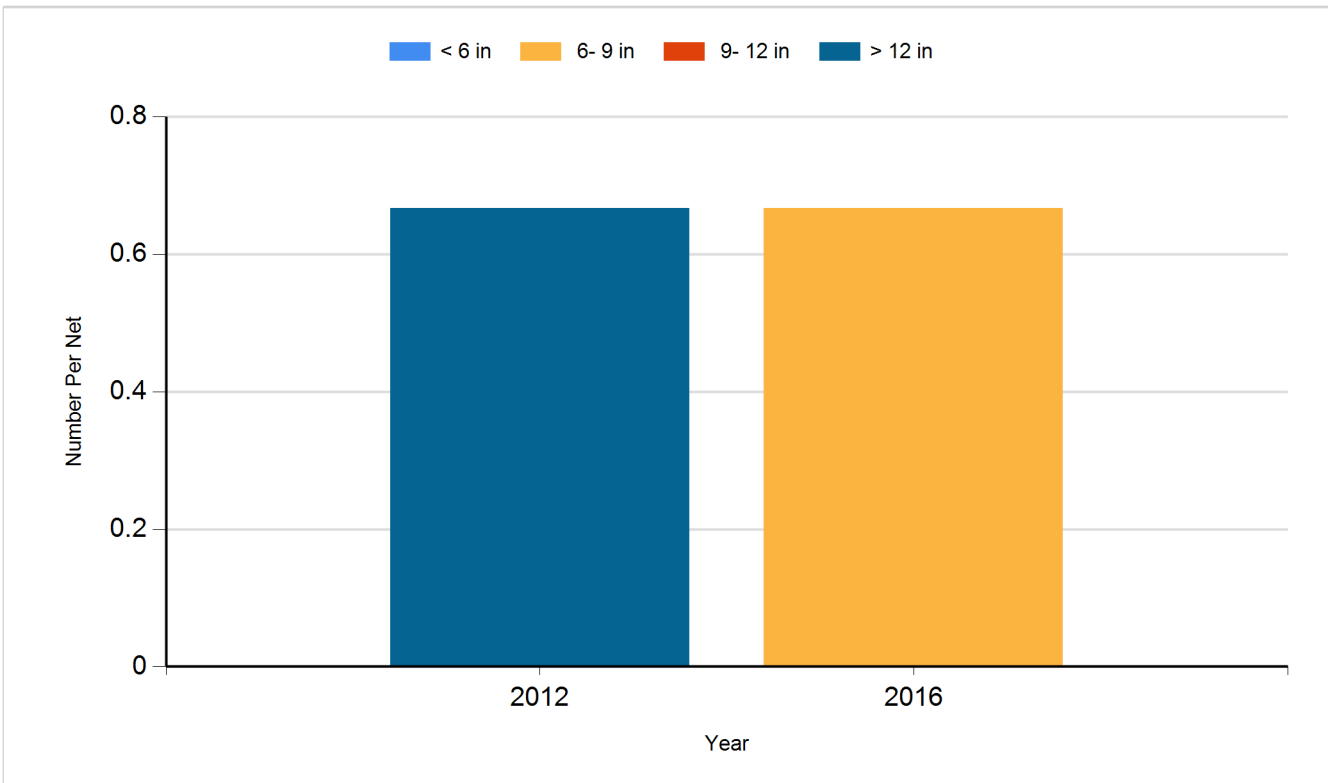
Species: Walleye
Gear: std exp gill net



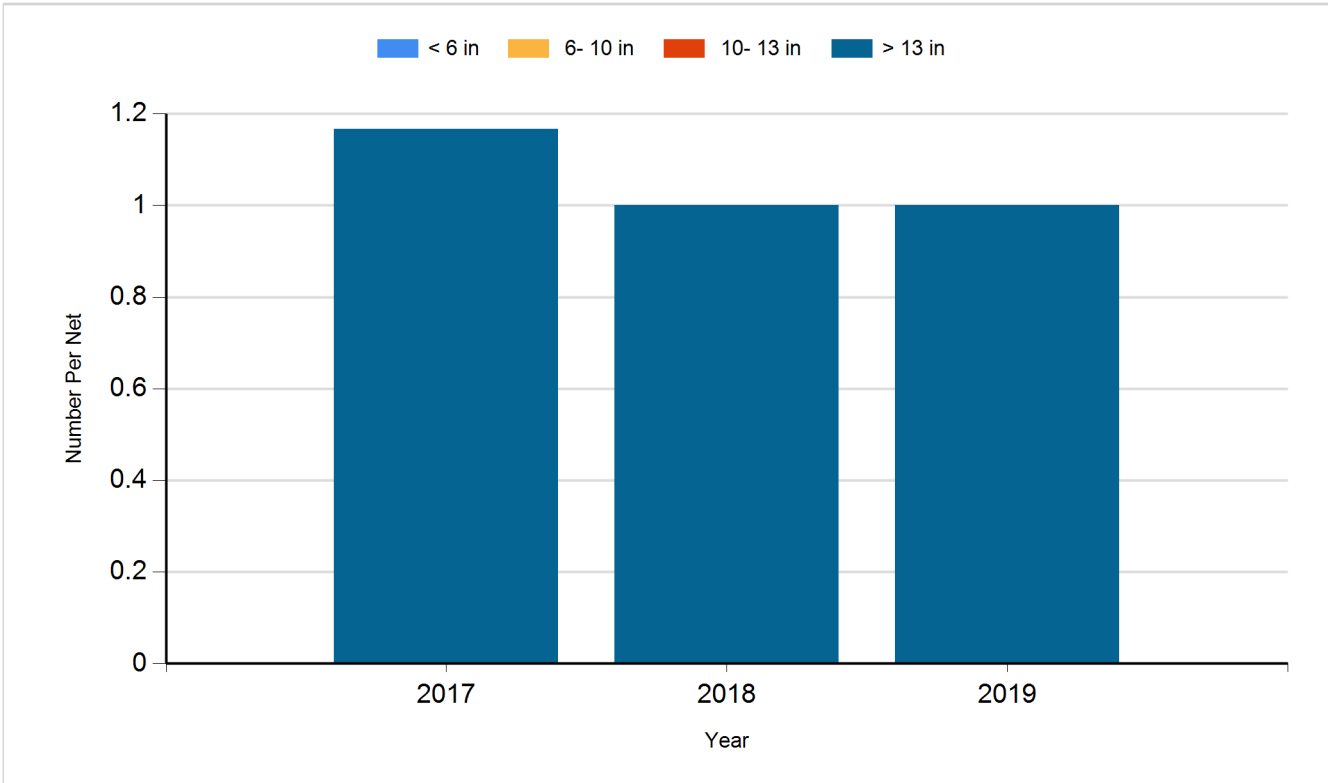
Species: White Bass
Gear: AFS std gill net



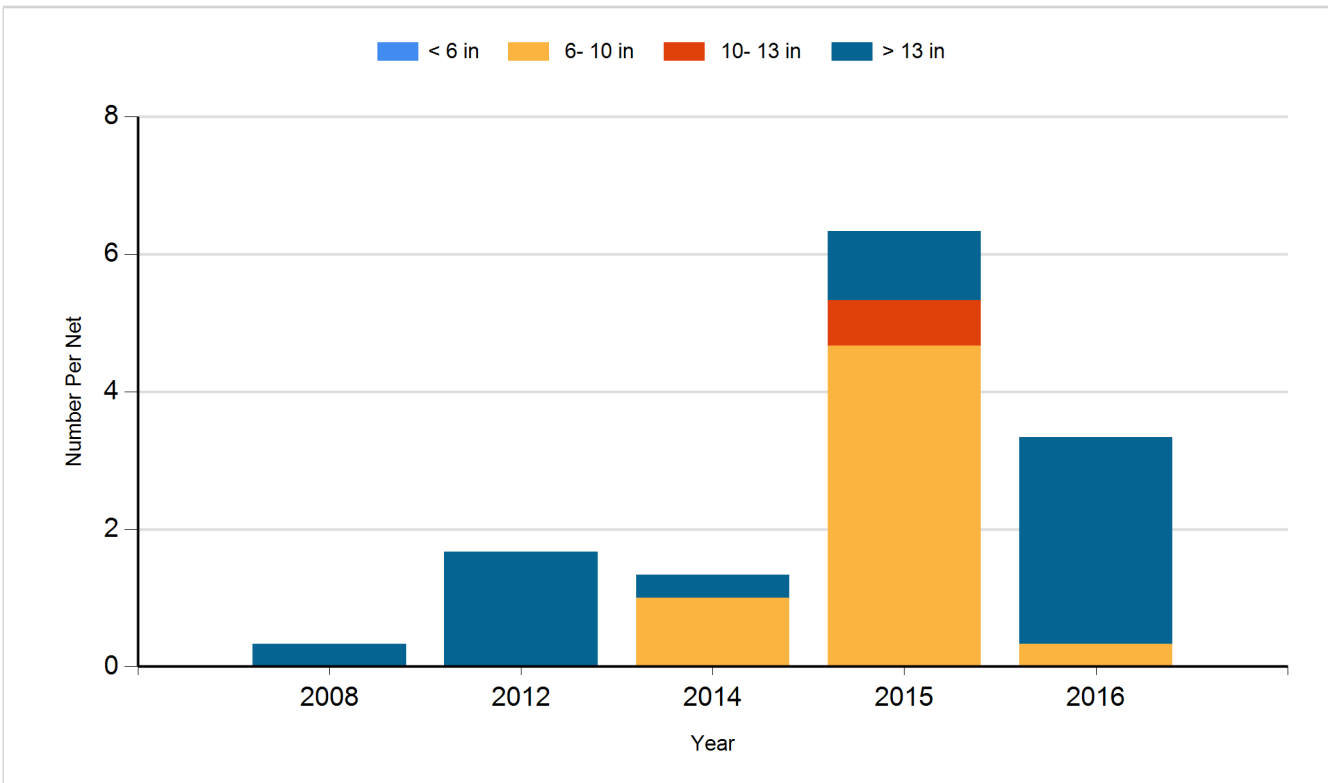
Species: White Bass
Gear: std exp gill net



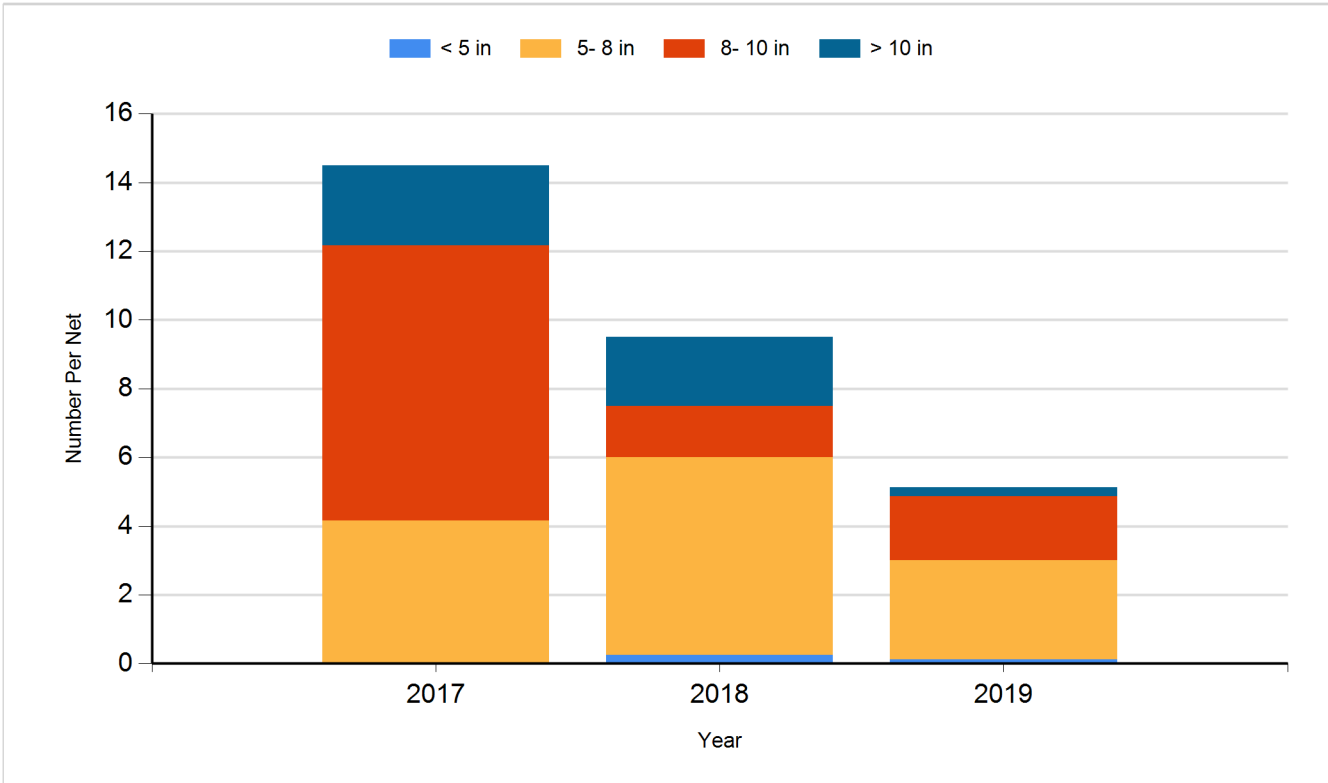
Species: White Sucker
Gear: AFS std gill net



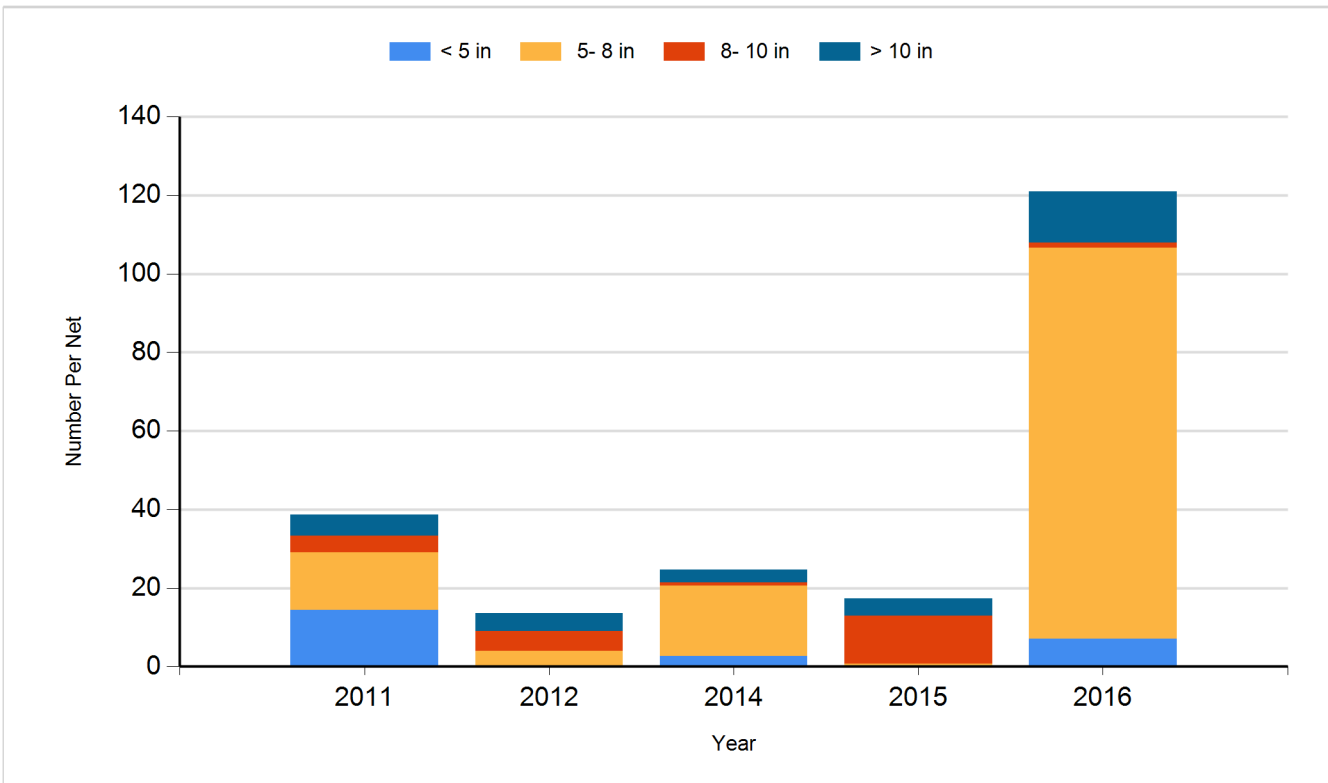
Species: White Sucker
Gear: std exp gill net



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
2008	Walleye	Fry	3,700,000
2008	Yellow Perch	Small Fingerling	242,520
2011	Walleye	Fry	3,700,000
2014	Walleye	Fry	1,850,000
2015	Walleye	Fry	1,850,000
2018	Walleye	Fry	3,700,000