SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Albert, Kingsbury County
MBS-Lake-176-000
2018

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 25, 2018	8 net-nights

Common Fish Species Present

Walleye

Yellow Perch

Bigmouth Buffalo

Black Bullhead

Common Carp

White Sucker

White Bass

Black Crappie

Northern Pike

Channel Catfish

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	10	1.3	0.7	20		0			
	Black Bullhead	9	1.1	0.4	100		67			
	Black Crappie	2	0.3	0.4	100		100		99	9
	Channel Catfish	1	0.1	0.2	100		100		98	
	Common Carp	8	1.0	0.5	100		100			
	Northern Pike	2	0.3	0.2	100		50		96	7
	Walleye	143	17.9	1.7	91	4	14	4	90	1
	White Bass	4	0.5	0.3	100		100		106	3
	White Sucker	8	1.0	0.7	100		100			
	Yellow Perch	76	9.3	3.0	38	8	22	7	104	1

10-Year Catch Per Unit Effort by Gear and Species

Catch per unit effort (CPUE) and average (Avg) of species across 10 years using different gear types.

		CPUE										
Gear	Species	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Avg
AFS std gill net	Bigmouth Buffalo									4.3	1.3	2.8
	Black Bullhead									1.3	1.1	1.2
	Black Crappie									0.5	0.3	0.4
	Channel Catfish										0.1	0.1
	Common Carp									0.3	1.0	0.7
	Northern Pike									0.7	0.3	0.5
	Walleye									8.5	17.9	13.2
	White Bass									0.5	0.5	0.5
	White Sucker									1.2	1.0	1.1
	Yellow Perch									14.5	9.3	11.9
frame net (std 3/4 in)	Bigmouth Buffalo				30.6							30.6
	Black Bullhead				57.6							57.6
	Channel Catfish				1.0							1.0
	Common Carp				5.6							5.6
	Northern Pike				4.8							4.8
	Smallmouth Bass				0.2							0.2
	Walleye				4.4							4.4
	White Bass				3.2							3.2
	White Sucker				0.8							0.8
	Yellow Bullhead				3.2							3.2
	Yellow Perch				0.2							0.2
std exp gill net	Bigmouth Buffalo							0.0	10.7			5.4
	Black Bullhead				3.3		1.7	15.3	4.3			6.2
	Channel Catfish				0.7							0.7
	Common Carp				1.0		1.0					1.0
	Northern Pike			2.3	4.3		2.0	1.0	1.0			2.1
	Orangespotted Sunfish						0.0					0.0
	Spottail Shiner				0.0		0.0	0.0	0.0			0.0
	Walleye			19.7	11.7		7.3	17.0	9.0			12.9
	White Bass				0.7				0.7			0.7
	White Sucker				1.7		1.3	6.3	3.3			3.2
	Yellow Perch			24.3	13.7		22.0	17.3	114.0			38.3

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	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
AFS std gill net	Bigmouth Buffalo	PSD									15	20
		PSD-P									4	0
	Black Bullhead	PSD									88	100
		PSD-P									88	67
	Black Crappie	PSD									100	100
		PSD-P									100	100
		Wr									98	99
	Channel Catfish	PSD										100
		PSD-P										100
		Wr										98
	Common Carp	PSD									100	100
		PSD-P									100	100
	Northern Pike	PSD									100	100
		PSD-P									75	50
		Wr									87	96
	Walleye	PSD									67	91
		PSD-P									39	14
		Wr									86	90
	White Bass	PSD									67	100
		PSD-P									67	100
		Wr									97	106
	White Sucker	PSD									100	100
		PSD-P									100	100
	Yellow Perch	PSD									71	38
		PSD-P									16	22
		Wr									98	104
frame net (std 3/4 in)	Bigmouth Buffalo	PSD				100						
		PSD-P				17						
		Wr				88						
	Black Bullhead	PSD				73						
		PSD-P				3						
		Wr				100						
	Channel Catfish	PSD				100						

			Year									
Gear	Species	Index	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
frame net (std 3/4 in)	Channel Catfish	PSD-P				0						
		Wr				99						
	Common Carp	PSD				100						
		PSD-P				75						
		Wr				88						
	Northern Pike	PSD				58						
		PSD-P				25						
		Wr				76						
	Walleye	PSD				18						
		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						
	Channel Catfish	PSD				100						
		PSD-P				0						
		Wr				119						
	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		

			Year									
Gear	Species	Index	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
std exp gill net	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+
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

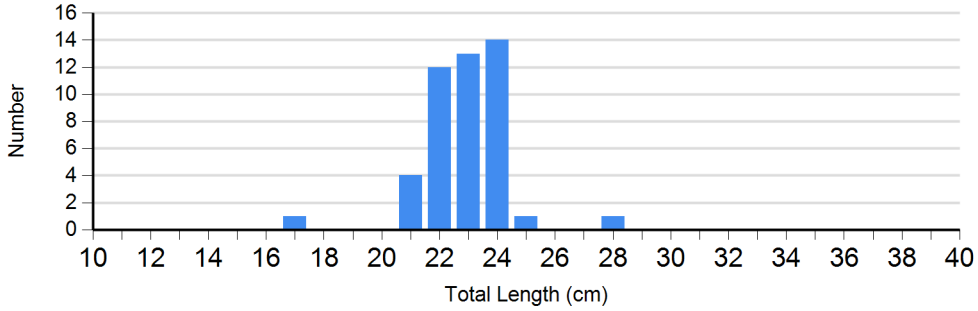
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Channel Catfish Gill Net	2018	0		0		1	98	0	
Northern Pike Gill Net	2014	1	95	4	88 (1.5)	1	99	0	
	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	
Walleye Gill Net	2014	2	103 (2.0)	20	95 (1.1)	0		0	
	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)
White Bass Gill Net	2018	0		0		1	106	3	107 (3.0)
White Bass Gill Net	2016	2	100 (1.1)	0		0		0	
	2017	1	96	0		2	98 (4.2)	0	
Yellow Perch Gill Net	2014	54	104 (1.2)	2	116 (0.2)	8	106 (2.5)	2	114 (1.6)
	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)

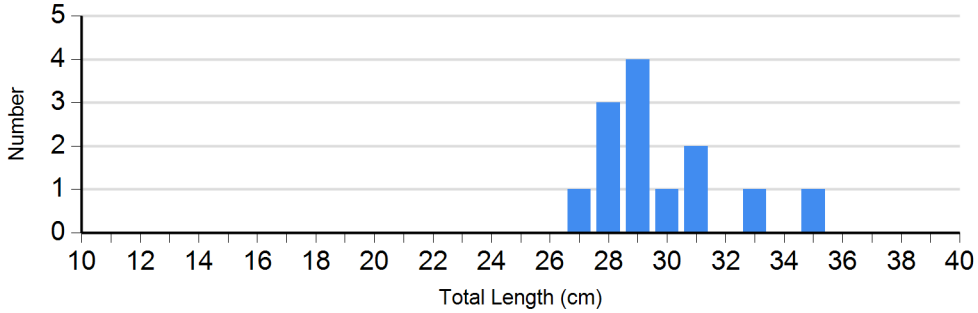
Length Frequency Distribution

Length frequency histogram of species sampled by year.

Species: Black Bullhead
Gear: std exp gill net

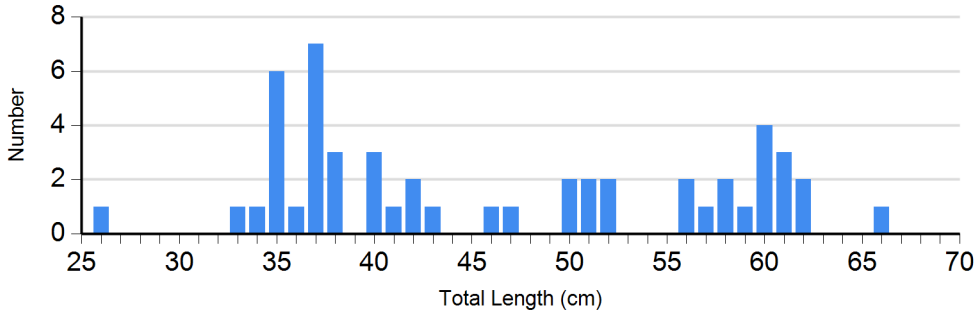


2015

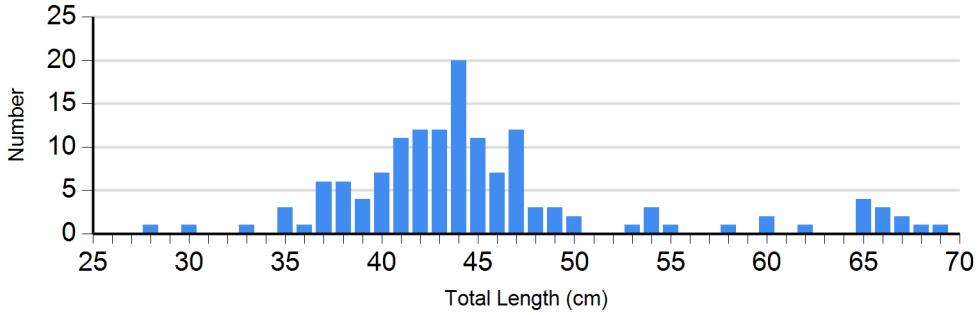


2016

Species: Walleye
Gear: AFS std gill net

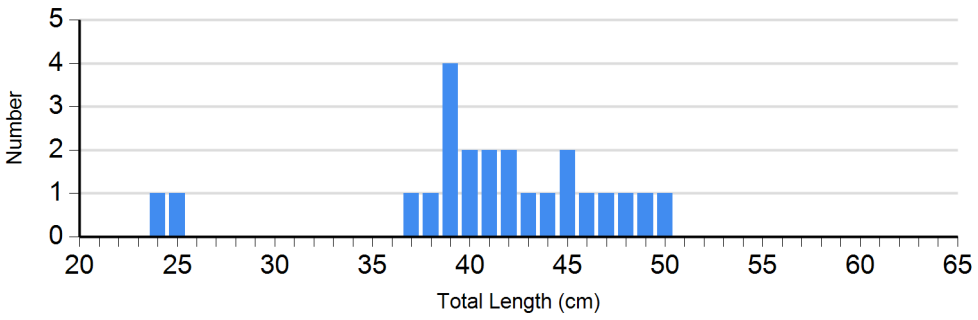


2017

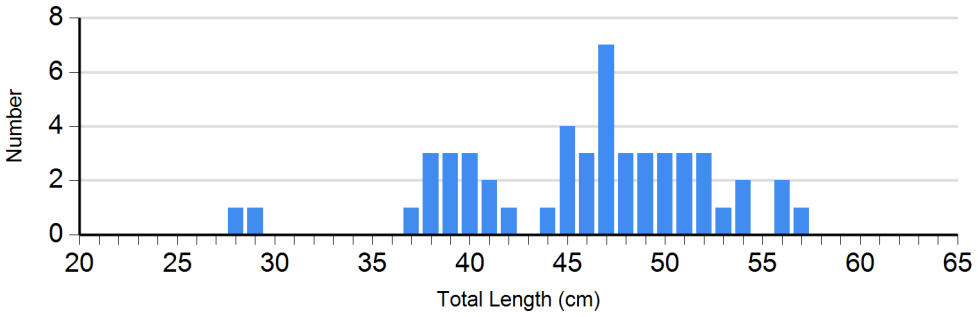


2018

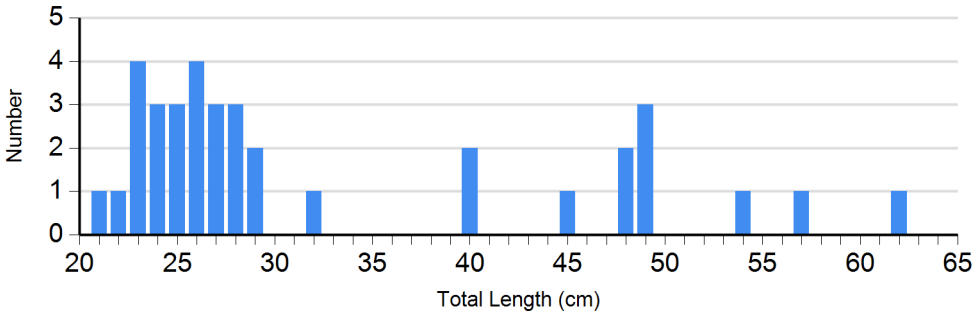
Species: Walleye
Gear: std exp gill net



2014

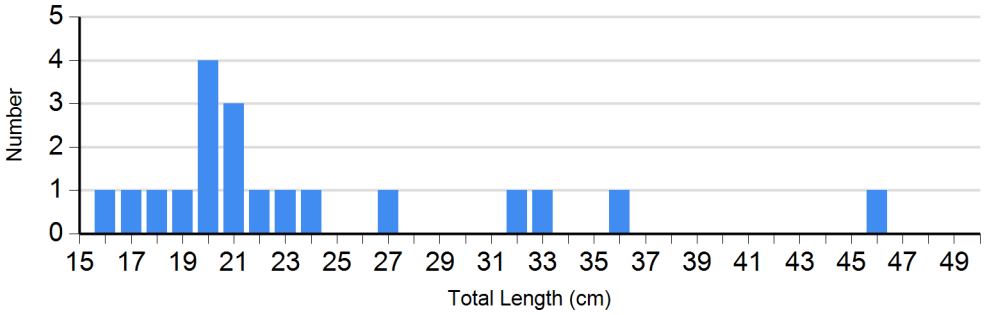


2015



2016

Species: White Sucker
Gear: std exp gill net



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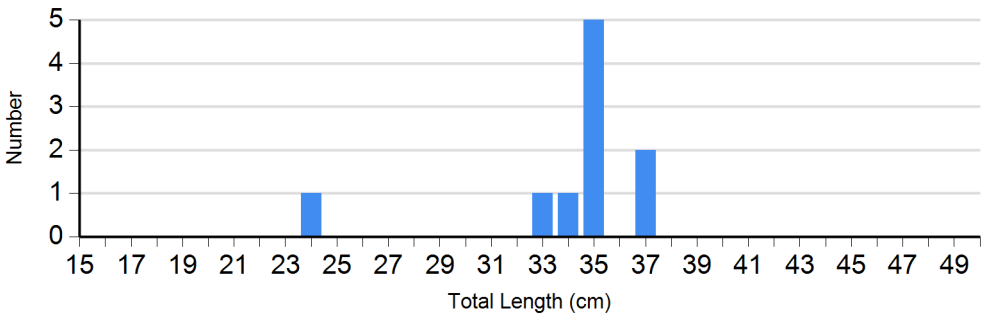
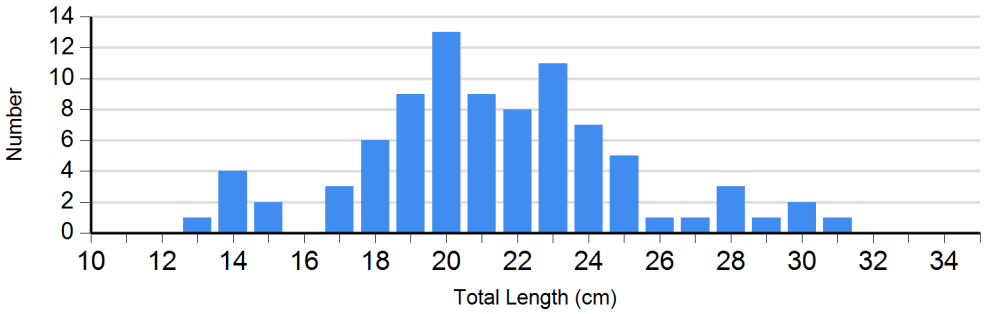
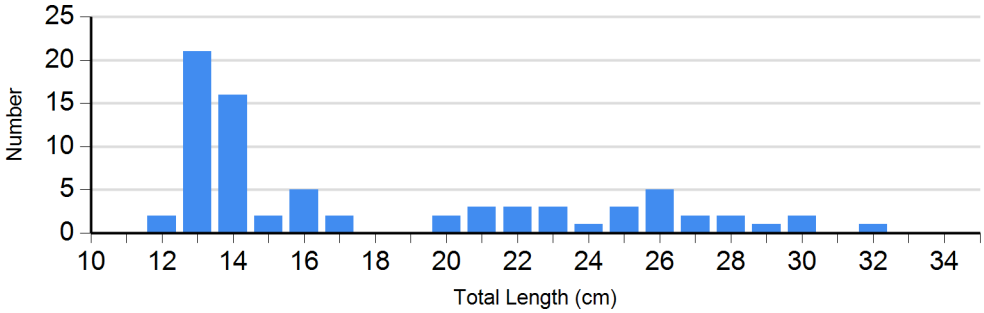


2016

Species: Yellow Perch
Gear: AFS std gill net

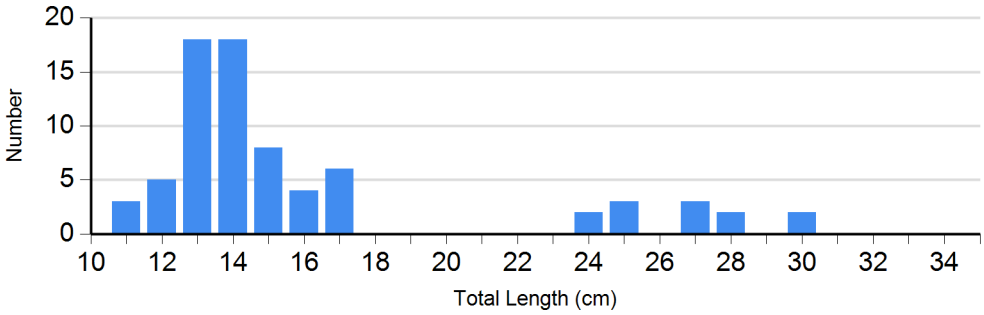


2017

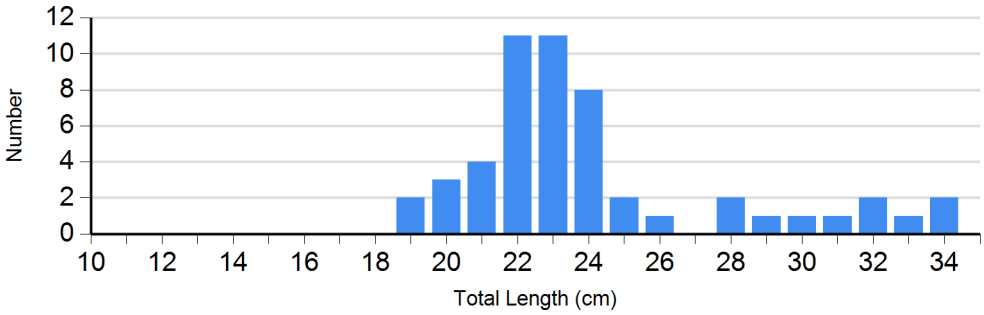


2018

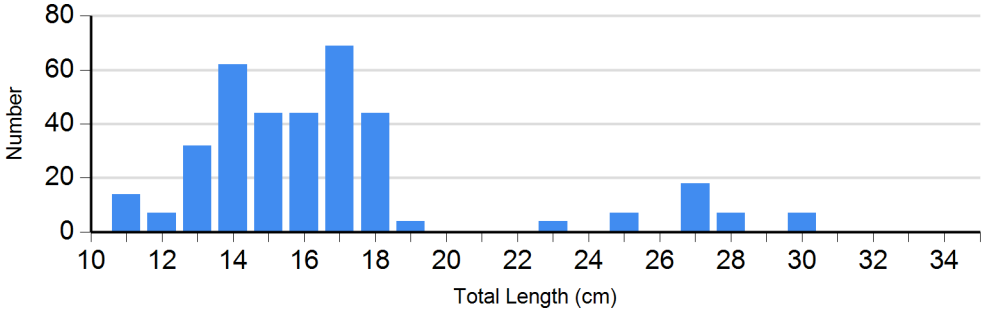
Species: Yellow Perch
Gear: std exp gill net



2014



2015

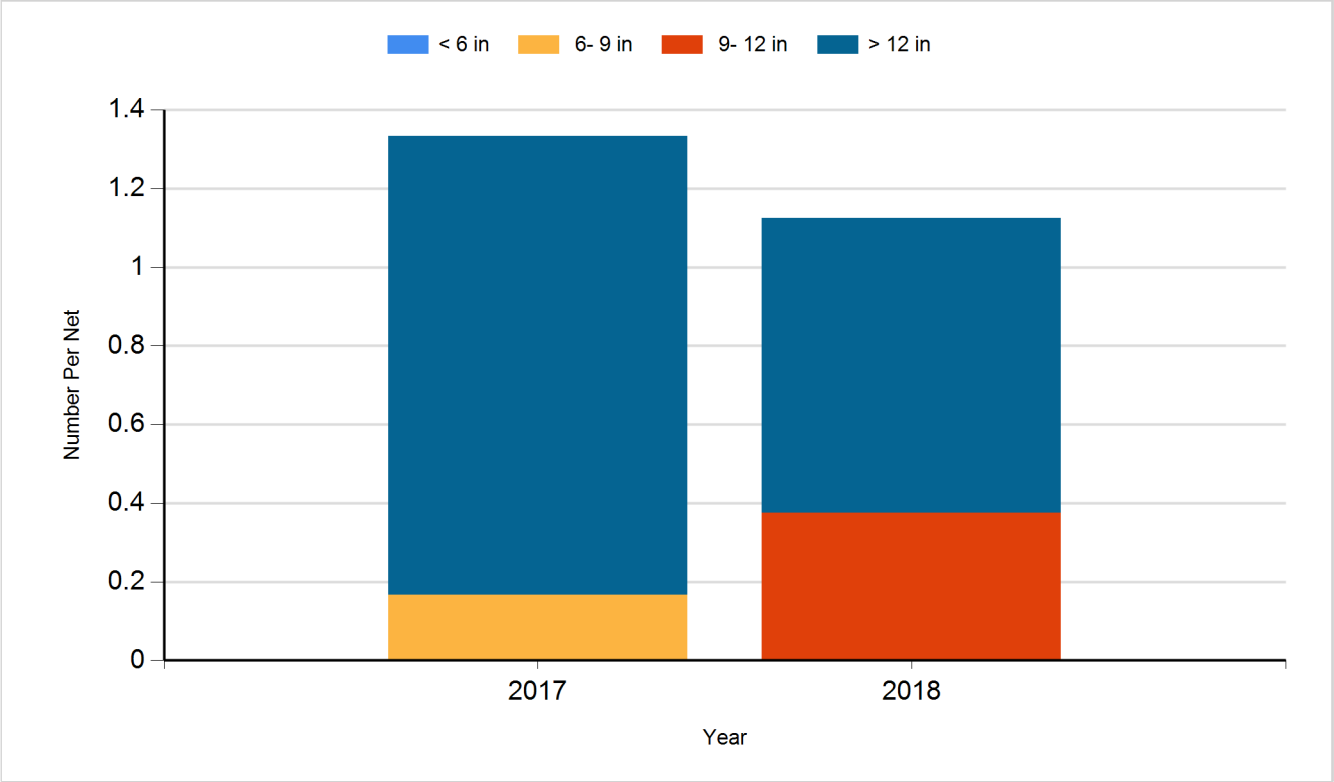


2016

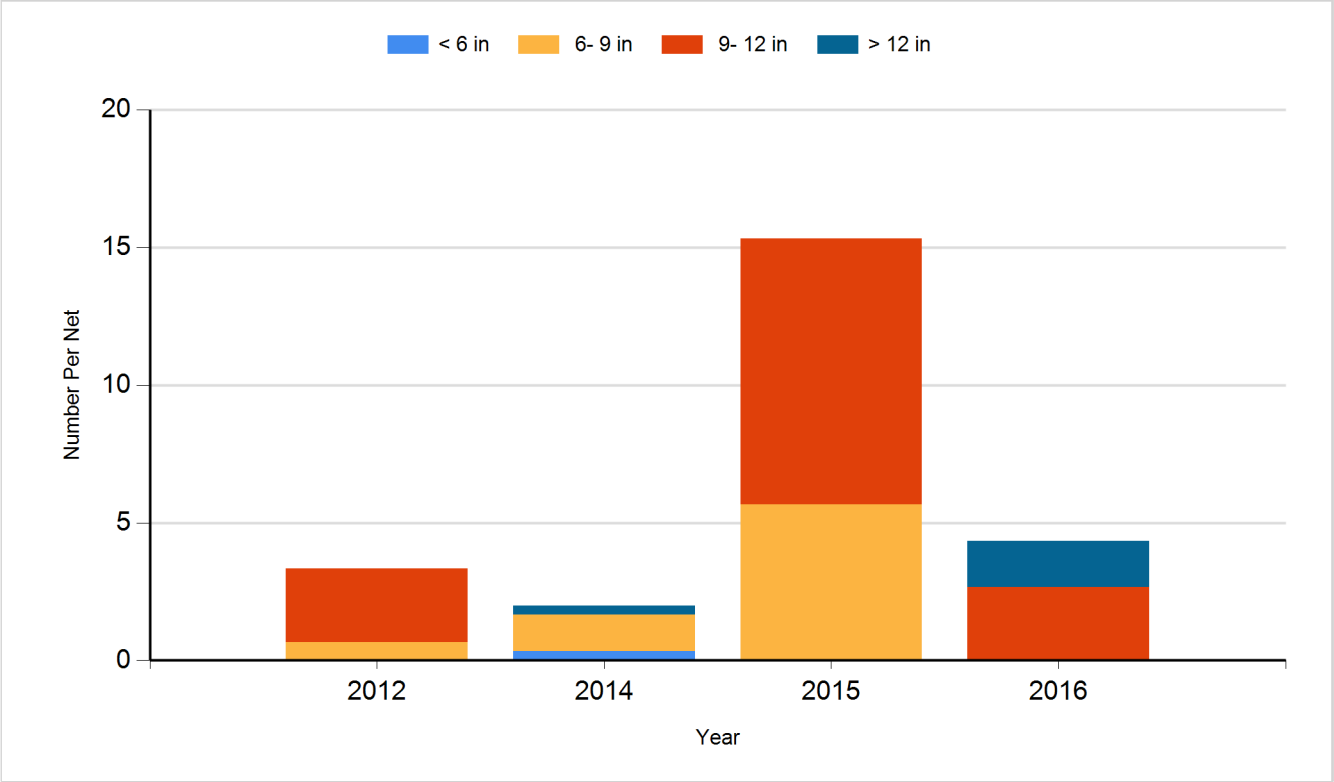
Historic Fish Sizes and Relative Abundance

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

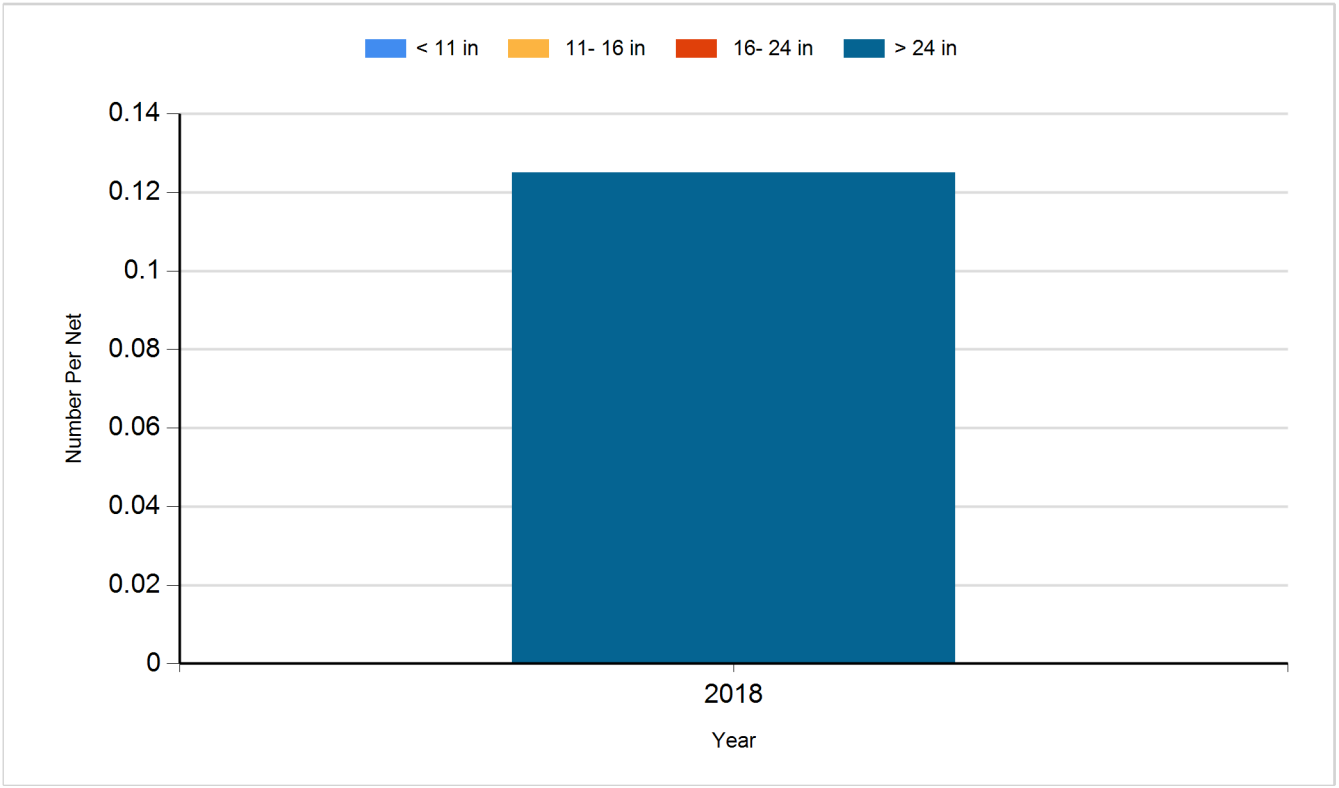
Species: Black Bullhead
Gear: AFS std gill net



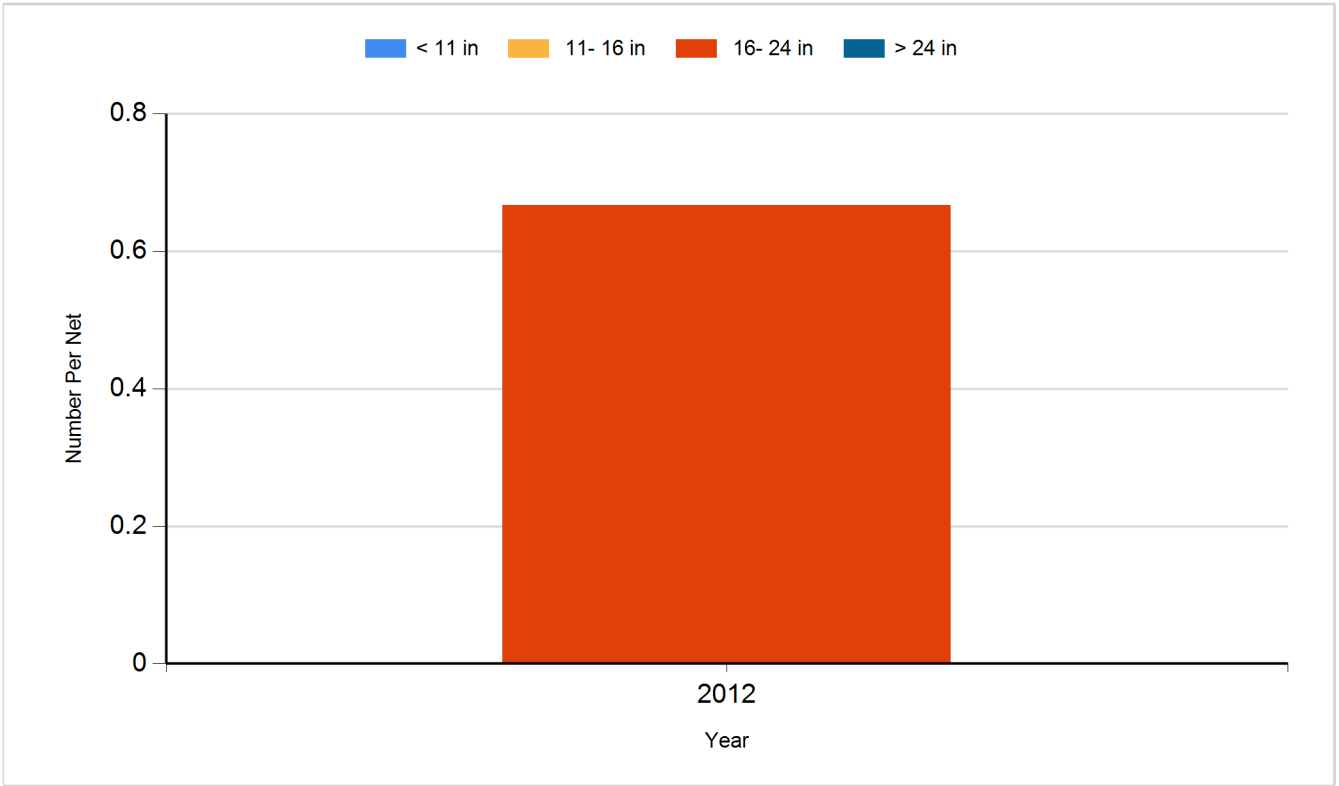
Species: Black Bullhead
Gear: std exp gill net



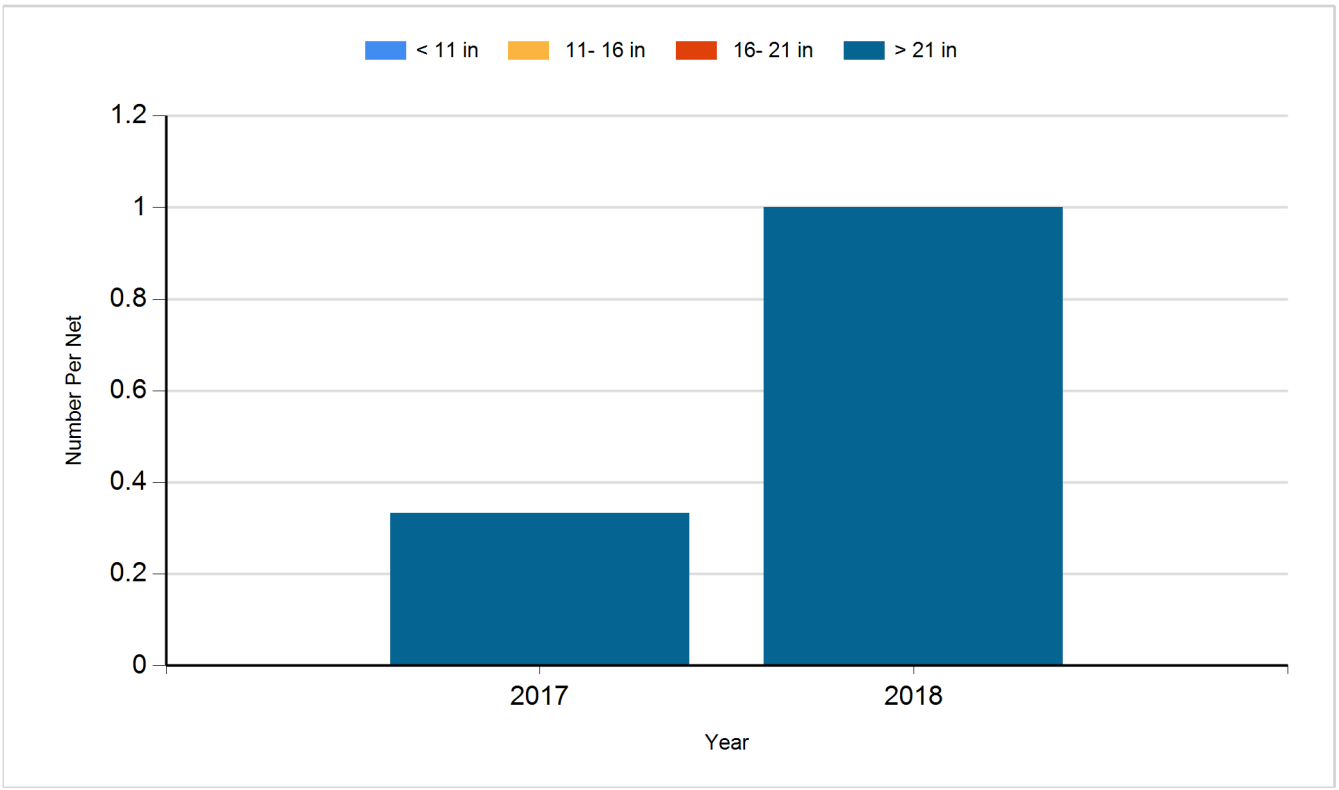
Species: Channel Catfish
Gear: AFS std gill net



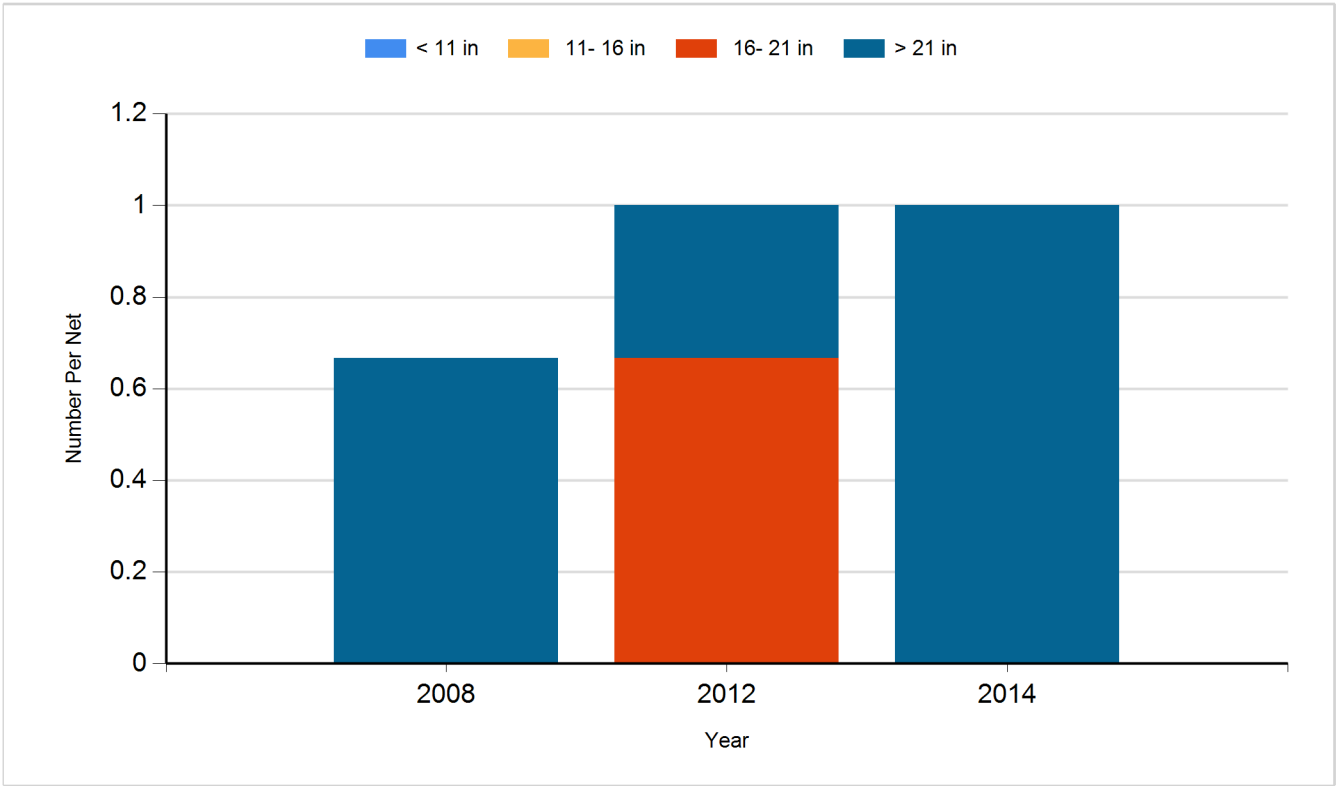
Species: Channel Catfish
Gear: std exp gill net



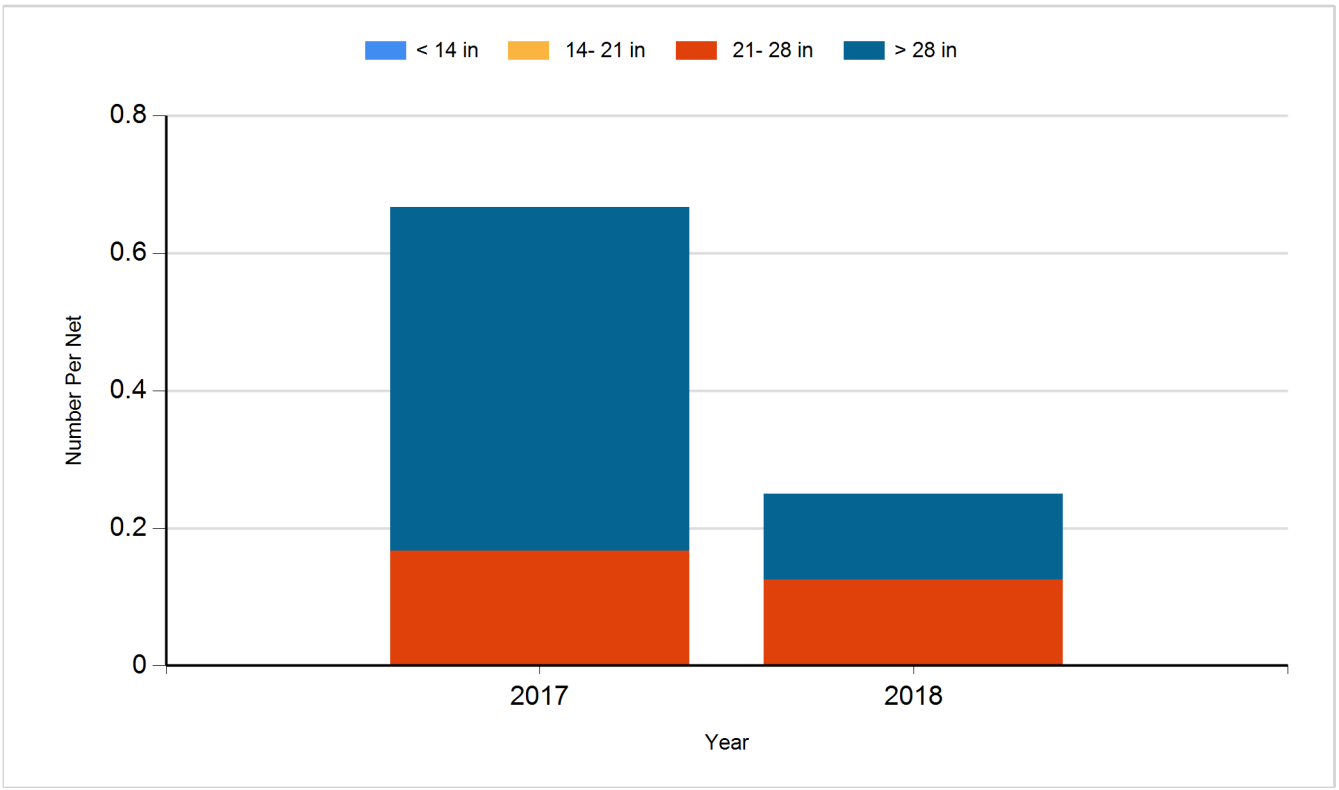
Species: Common Carp
Gear: AFS std gill net



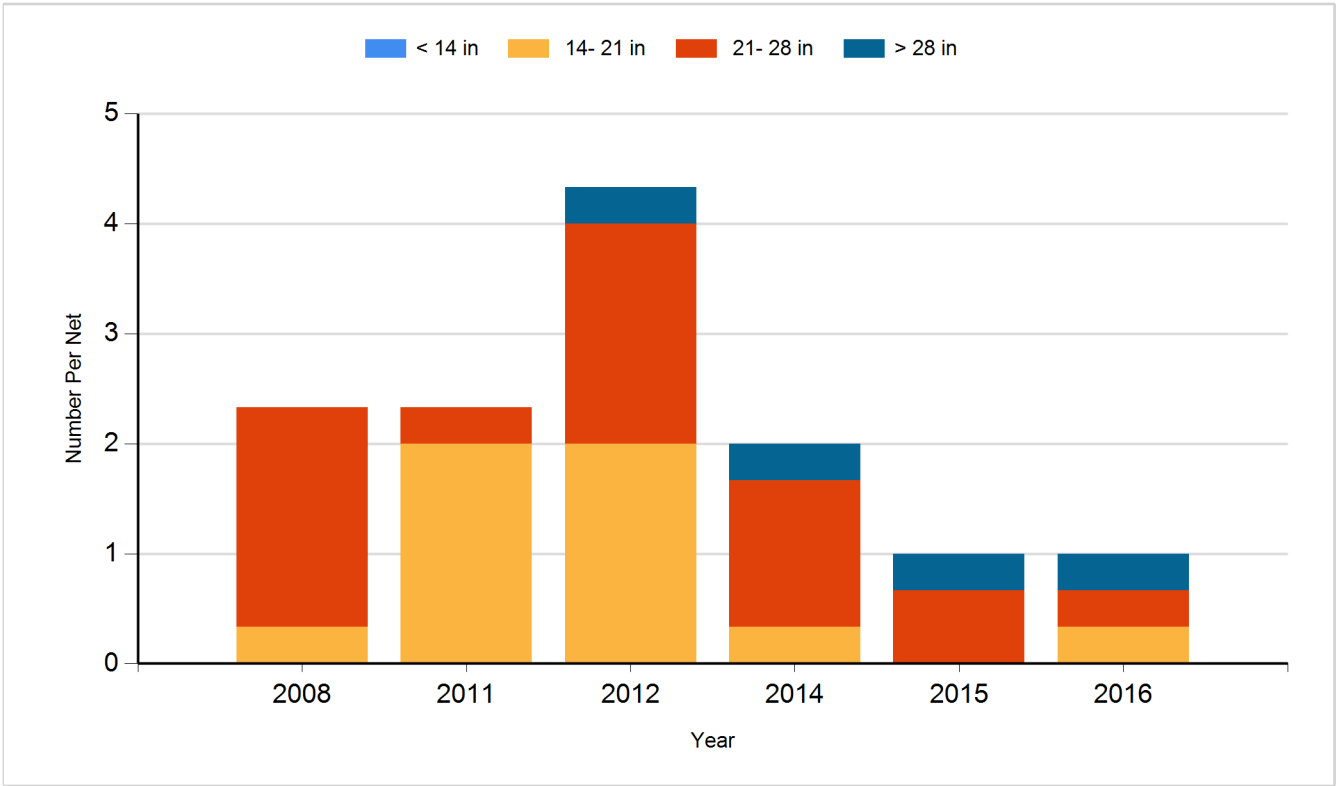
Species: Common Carp
Gear: std exp gill net



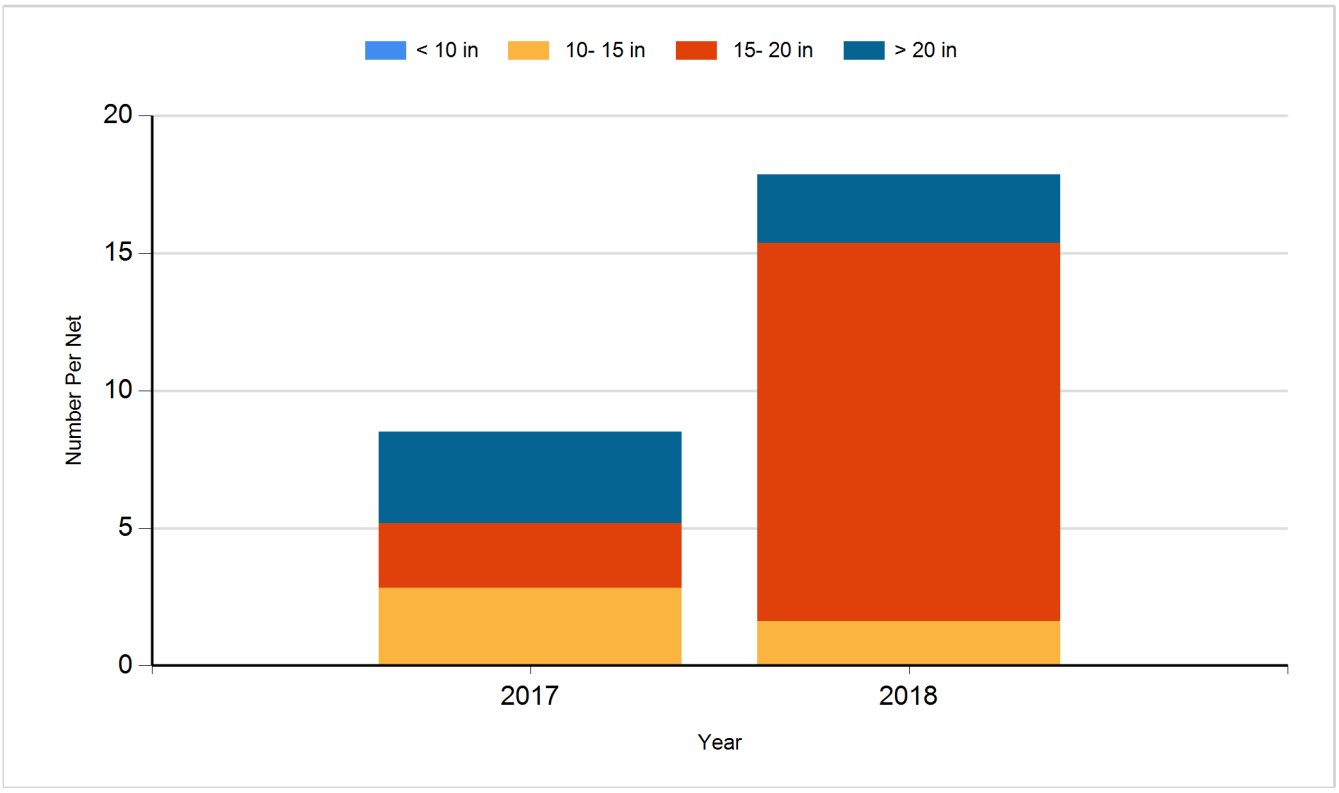
Species: Northern Pike
Gear: AFS std gill net



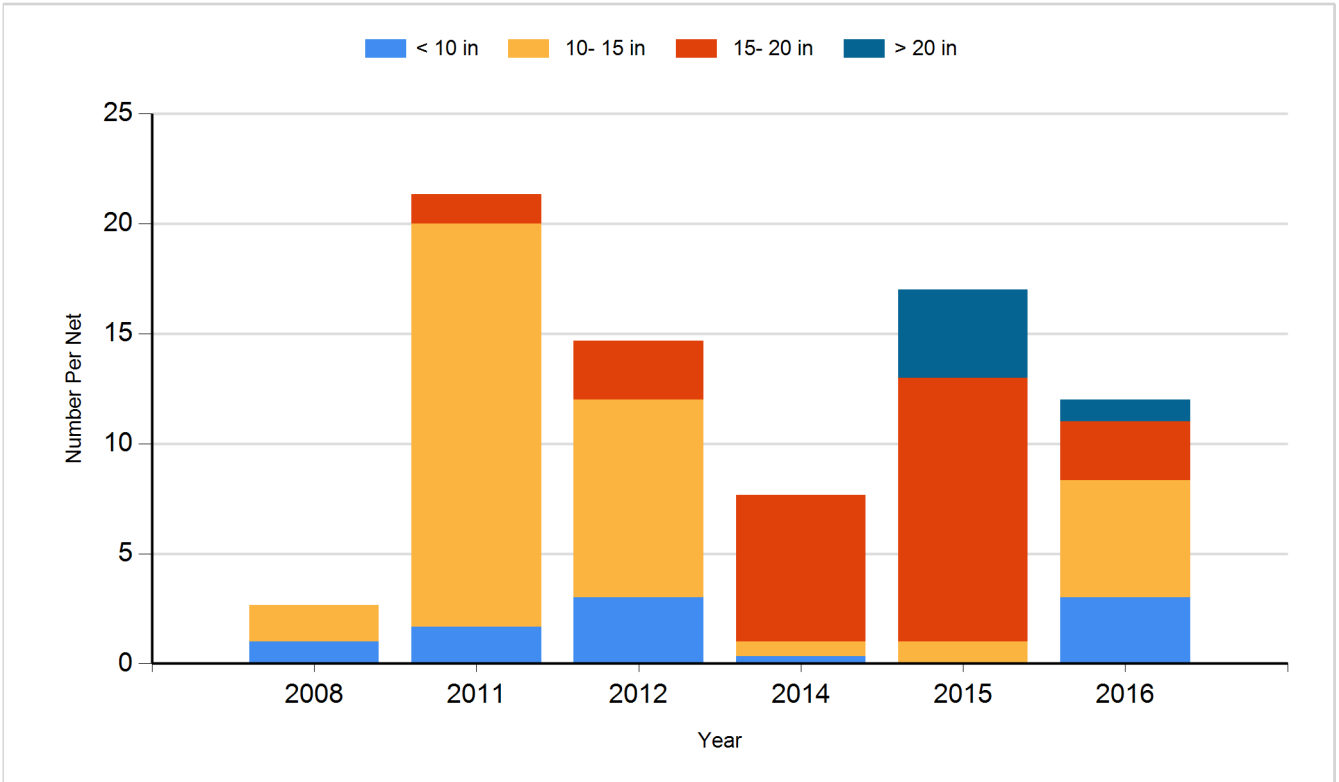
Species: Northern Pike
Gear: std exp gill net



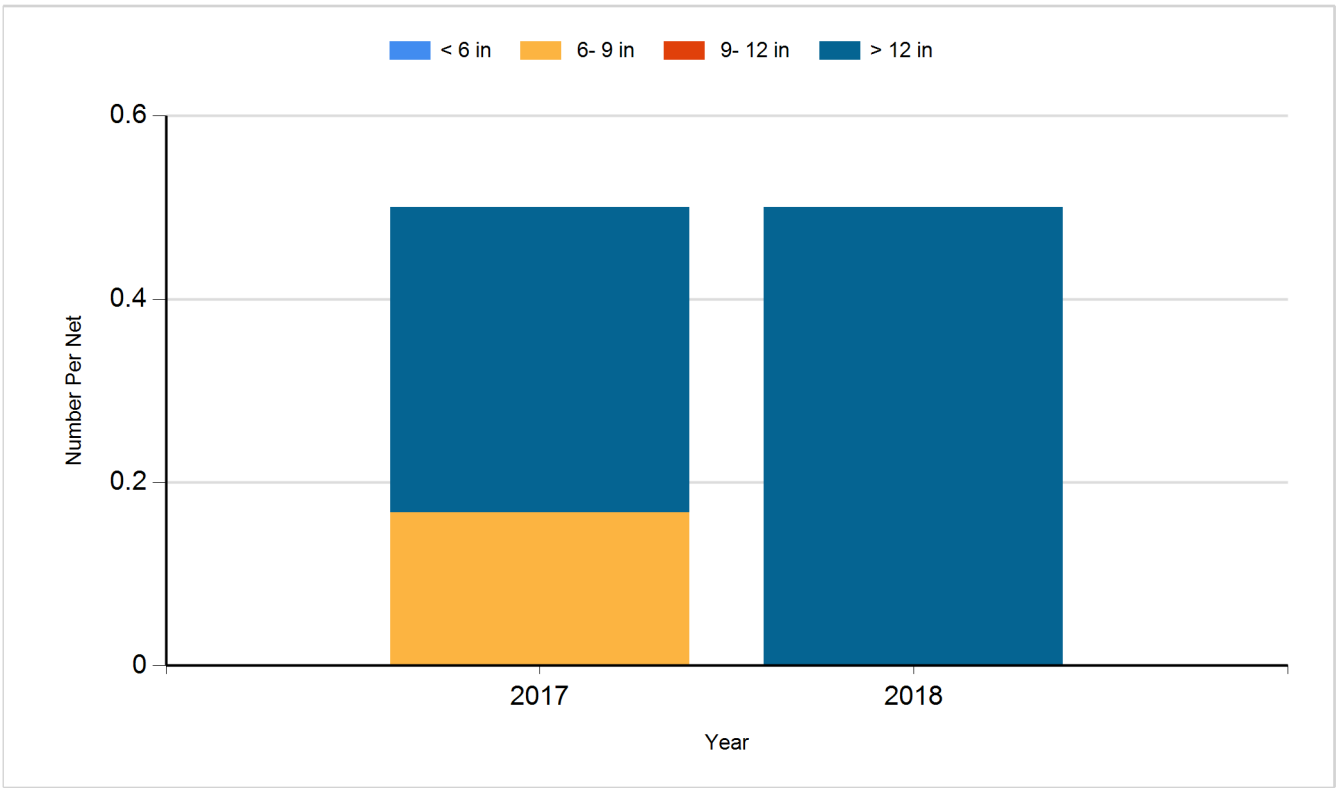
Species: Walleye
Gear: AFS std gill net



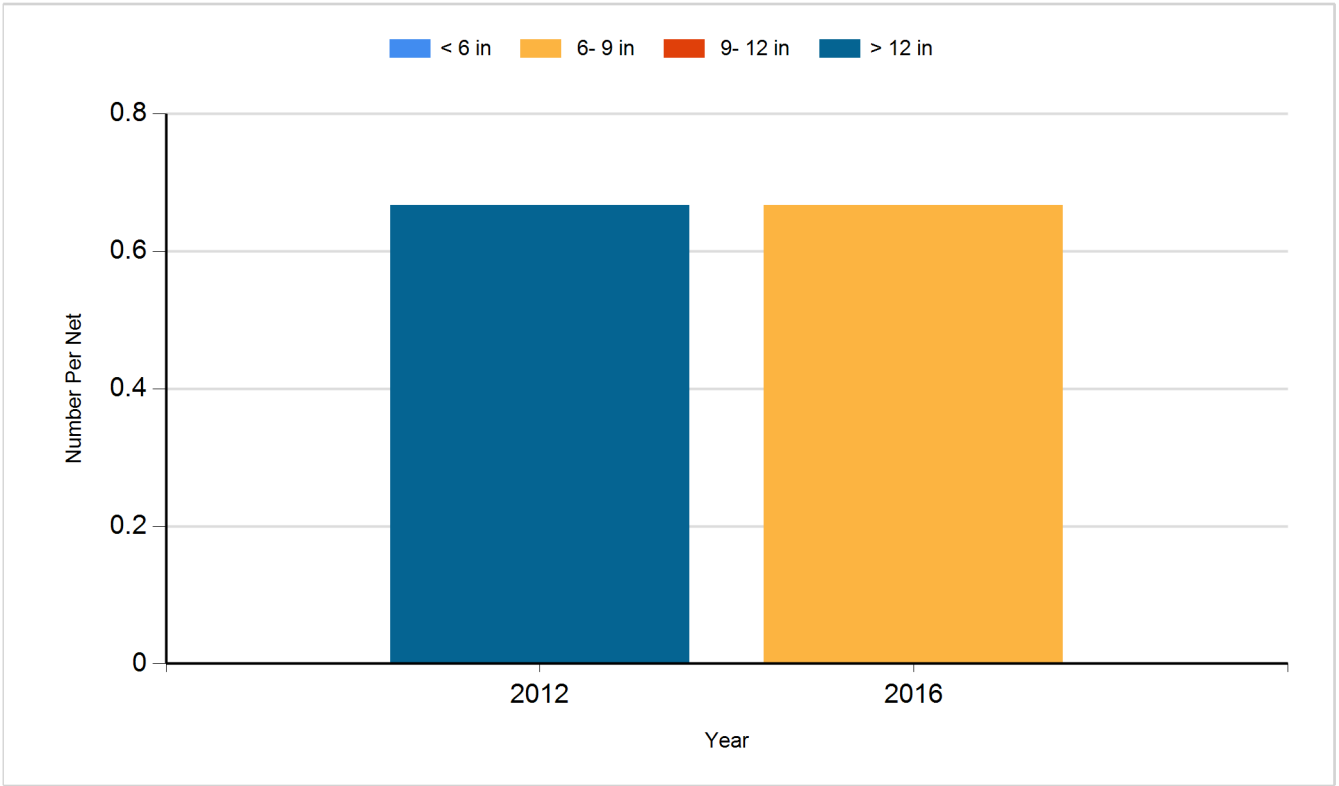
Species: Walleye
Gear: std exp gill net



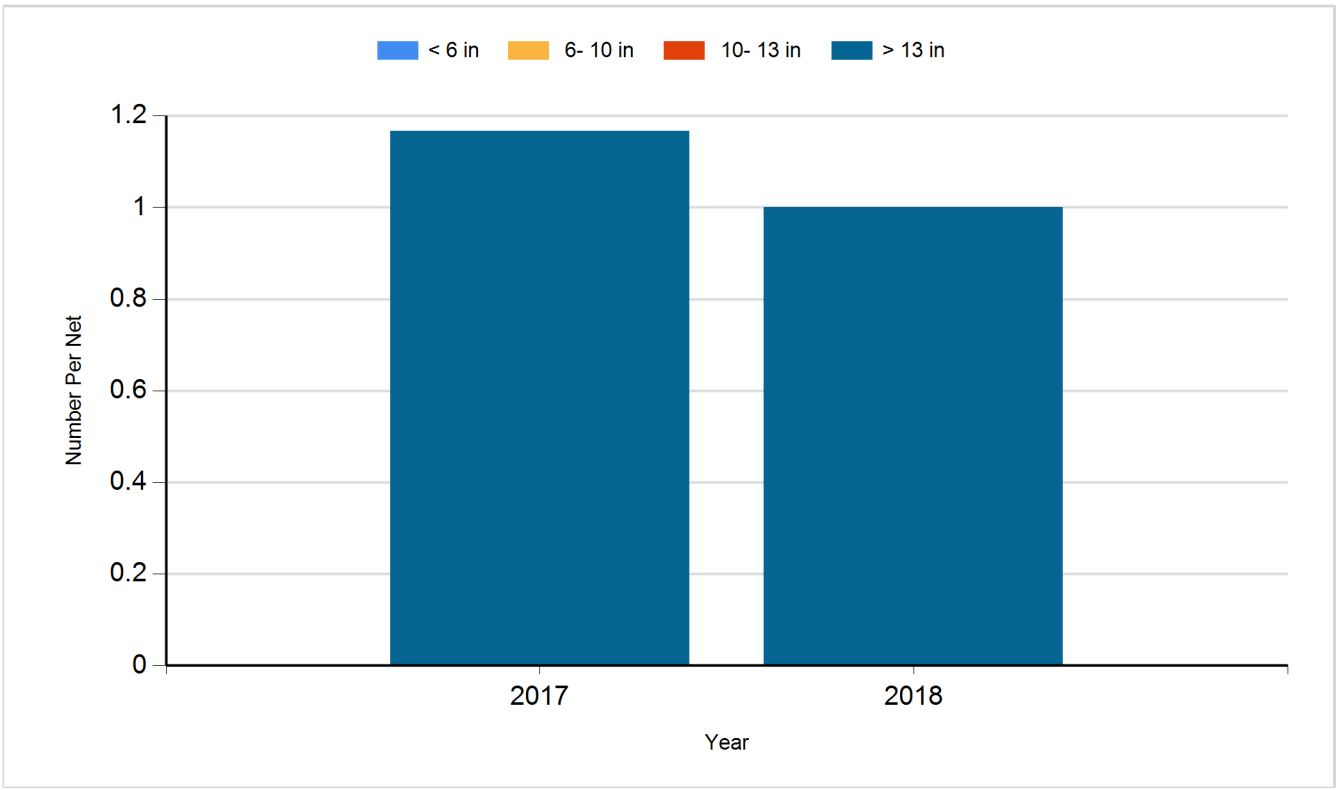
Species: White Bass
Gear: AFS std gill net



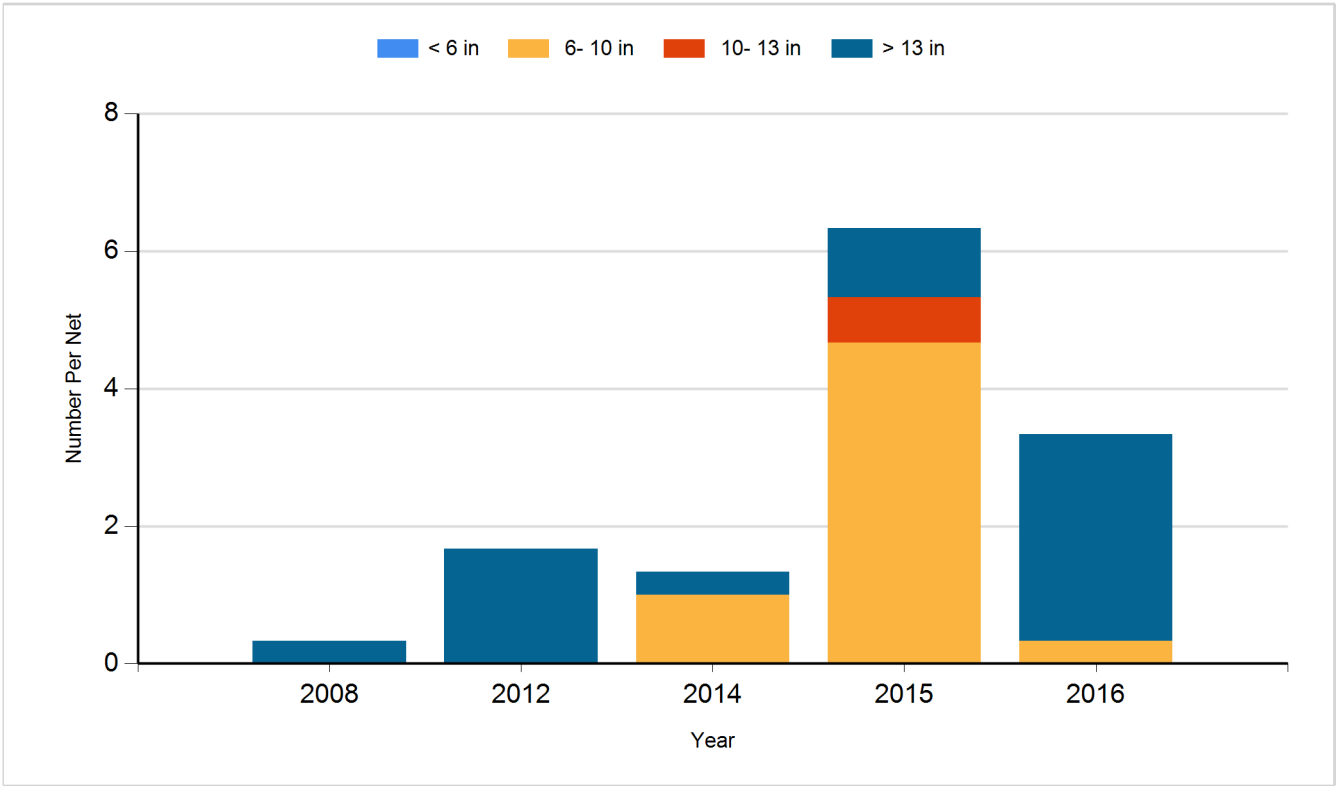
Species: White Bass
Gear: std exp gill net



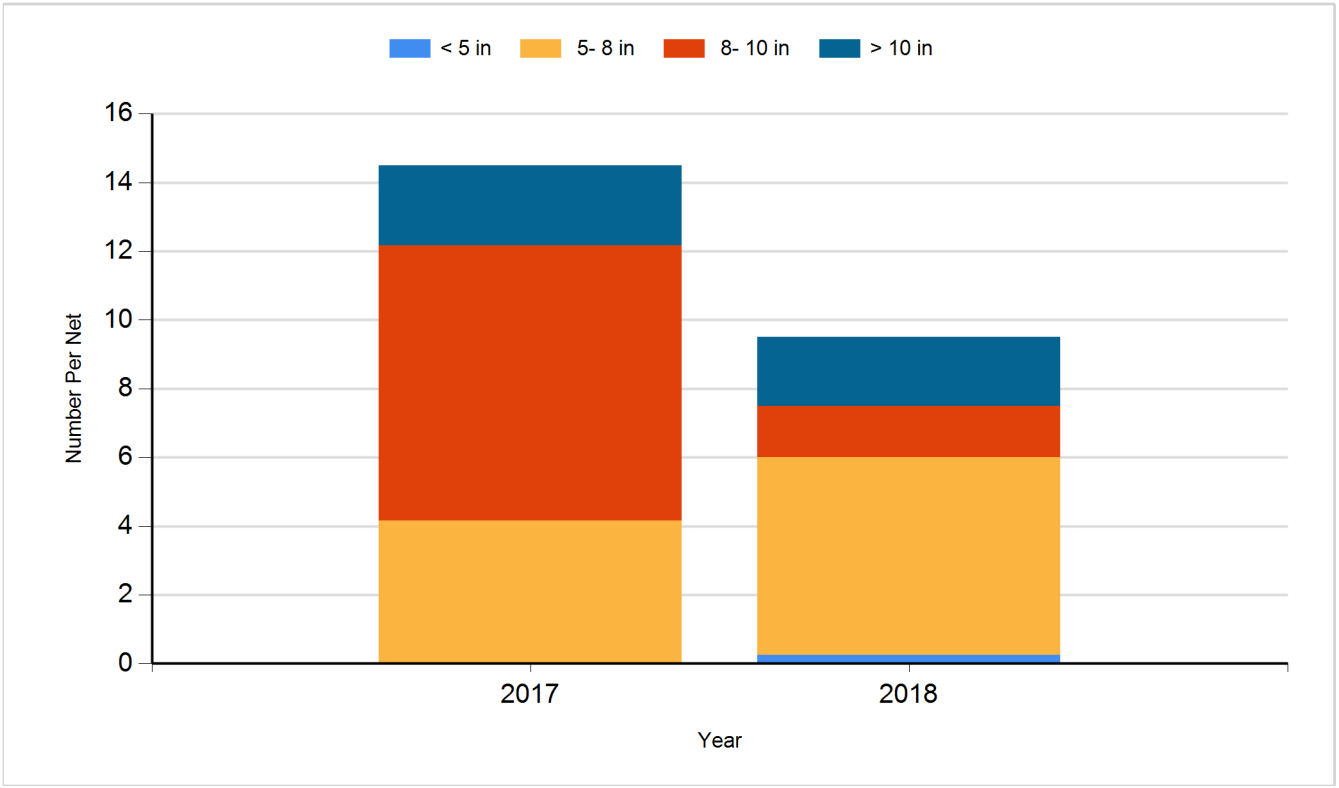
Species: White Sucker
Gear: AFS std gill net



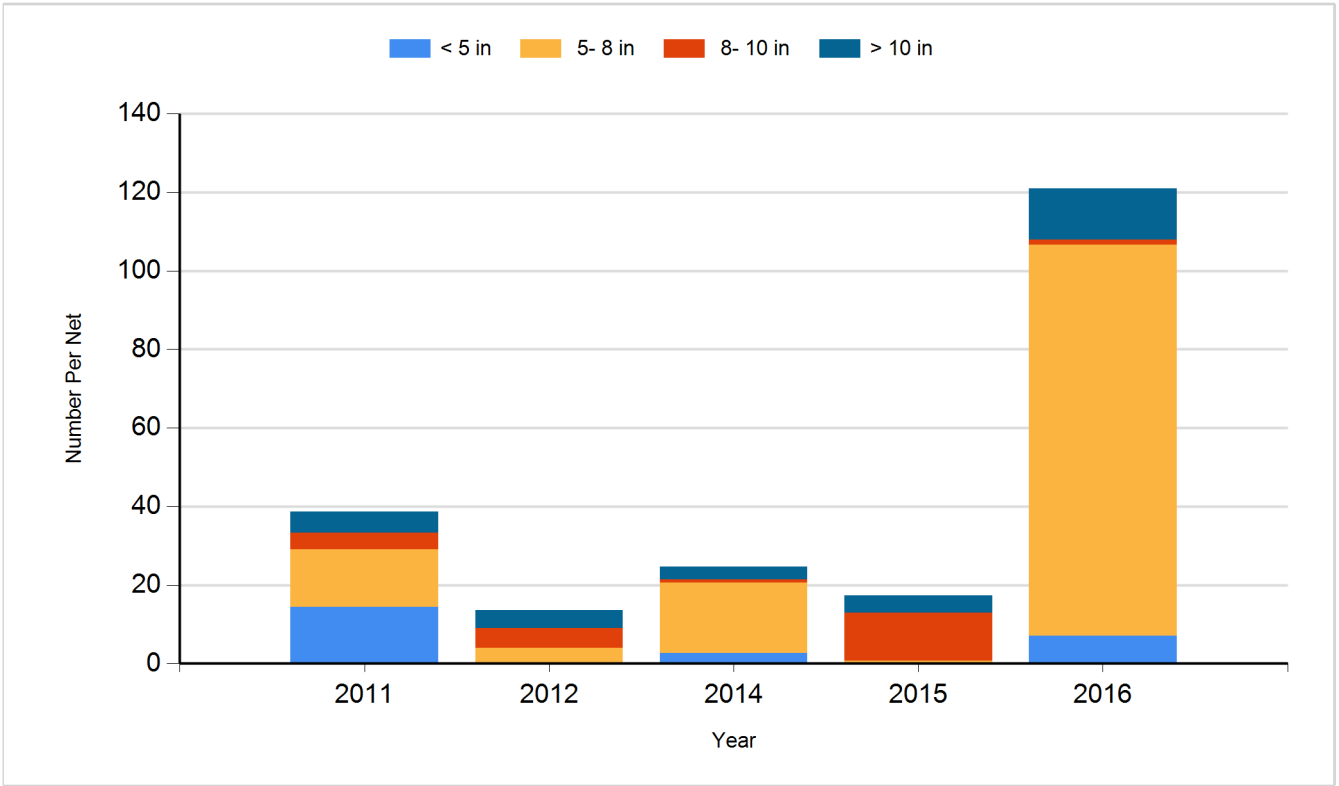
Species: White Sucker
Gear: std exp gill net



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
2007	Walleye	Fry	3,700,000
2008	Walleye	Fry	3,700,000
2008	Yellow Perch	Small Fingerling	242,520
2009	Walleye	Fry	3,700,000
2011	Walleye	Fry	3,700,000
2014	Walleye	Fry	1,850,000
2015	Walleye	Fry	1,850,000
2018	Walleye	Fry	3,700,000