SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Francis Case, Charles Mix County
FTR-Lake-6327-000
2019

Lake Information

Name: Francis Case

County: Charles Mix

Surface Area: 88,007 Acres

Surveys and Investigations

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

Gear	Date	Effort
AFS gill net (1/2 inch)	Sep 03, 2019	17 net-nights
AFS gill net (1/2 inch)	Sep 05, 2019	22 net-nights
AFS gill net (1/2 inch)	Sep 09, 2019	20 net-nights
AFS gill net (1/2 inch)	Sep 11, 2019	22 net-nights
AFS std gill net	Sep 03, 2019	17 net-nights
AFS std gill net	Sep 05, 2019	22 net-nights
AFS std gill net	Sep 09, 2019	20 net-nights
AFS std gill net	Sep 11, 2019	22 net-nights
boat shocker (night)	Jun 03, 2019	3600 seconds
boat shocker (night)	Jun 04, 2019	2700 seconds
boat shocker (night)	Jun 05, 2019	2700 seconds
boat shocker (night)	May 29, 2019	2700 seconds
boat shocker (night)	May 30, 2019	2700 seconds
fall night EF-WAE	Oct 17, 2019	3600 seconds
fall night EF-WAE	Oct 22, 2019	3600 seconds
fall night EF-WAE	Oct 24, 2019	3600 seconds
large seine	Jul 15, 2019	3 hauls
large seine	Jul 18, 2019	5 hauls
large seine	Jul 19, 2019	20 hauls

Common Fish Species Present

Gizzard Shad

Walleye

Smallmouth Bass

Yellow Perch

Fathead Minnow

White Bass

Black Crappie

Sauger

Emerald Shiner

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 gill net (1/2 inch)*	Bigmouth Buffalo	1	0.0	0.0	100		100		73	
	Channel Catfish	12	0.1	0.1	44		0		87	4
	Common Carp	3	0.0	0.0	67		0		91	1
	Freshwater Drum	32	0.4	0.1	0		0		107	14
	Gizzard Shad	128	1.6	0.5	0				84	4
	Goldeye	13	0.2	0.1						
	Lake Herring	1	0.0	0.0	0		0		73	
	Sauger	9	0.1	0.1	0		0		82	2
	Shortnose Gar	1	0.0	0.0						
	Smallmouth Bass	3	0.0	0.0	100		100		107	3
	Spottail Shiner	3	0.0	0.0						
	Walleye	44	0.5	0.1	21		0		111	13
	White Bass	2	0.0	0.0	0		0		80	26
	White Crappie	1	0.0	0.0	0		0		60	
	Yellow Perch	77	1.0	0.4	4		0		84	2
AFS std gill net		0	0.0	0.0						
	Bigmouth Buffalo	1	0.0	0.0	100		100		80	
	Black Bullhead	1	0.0	0.0	100		100		86	
	Channel Catfish	348	4.2	0.5	55	4	6	2	89	1
	Common Carp	44	0.5	0.1	88	8	7		84	2
	Flathead Catfish	1	0.0	0.0	100		0		48	
	Freshwater Drum	115	1.4	0.3	82	5	14	5	94	1
	Gizzard Shad	57	0.2	0.1	100				108	3
	Goldeye	46	0.0	0.0						
	Lake Herring	8	0.1	0.1	100		50		81	1
	River Carpsucker	9	0.1	0.0	100		89		106	6
	Sauger	91	1.1	0.2	65	7	24	6	86	1
	Shorthead Redhorse	3	0.0	0.0	67		67		97	4
	Shortnose Gar	26	0.0	0.0						
	Shovelnose Sturgeon	8	0.1	0.0						
	Smallmouth Bass	75	0.9	0.5	76	7	33	8	107	2

			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	Smallmouth Buffalo	7	0.1	0.0	83		50		79	6
	Walleye	445	5.4	0.8	47	3	4	1	91	0
	White Bass	37	0.4	0.2	100		78	11	106	2
	Yellow Perch	54	0.7	0.2	28	9	2		85	1
boat shocker (night)	Smallmouth Bass	327	79.0	11.8	58	3	35	3	96	1
fall night EF-WAE*	Sauger	21	7.0	2.6						
	Walleye	292	97.3	21.0						
large seine*	Bigmouth Buffalo	47	1.7	0.0						
	Black Crappie	207	7.4	0.1						
	Bluegill	5	0.2	0.0						
	Common Carp	99	3.5	0.0						
	Creek Chub	2	0.1	0.0						
	Emerald Shiner	161	5.8	0.1						
	Fathead Minnow	640	22.9	0.5						
	Flathead Chub	7	0.3	0.0						
	Freshwater Drum	32	1.1	0.0						
	Gizzard Shad	40268	1,438.1	10.0						
	Goldeye	39	1.4	0.1						
	Johnny Darter	38	1.4	0.2						
	Largemouth Bass	19	0.7	0.1						
	Orangespotted Sunfish	12	0.4	0.1						
	Red Shiner	3	0.1	0.0						
	River Carpsucker	19	0.7	0.0						
	Sauger	1	0.0	0.0						
	Shorthead Redhorse	9	0.3	0.1						
	Silverband Shiner	7	0.3	0.0						
	Smallmouth Bass	275	9.8	0.1						
	Smallmouth Buffalo	22	0.8	0.0						
	Spottail Shiner	22	0.8	0.0						
	Walleye	122	4.4	2.0						
	White Bass	506	18.1	0.1						
	White Crappie	34	1.2	0.0						
	Yellow Perch	2019	72.1	0.3						

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 gill net (1/2 inch)	Bigmouth Buffalo								0.0	0.0	0.0	0.00
	Black Crappie								0.0	0.0	0.0	0.00
	Channel Catfish								0.1	0.0	0.1	0.07
	Common Carp								0.2	0.0	0.0	0.07
	Emerald Shiner								0.0	0.0	0.0	0.00
	Freshwater Drum								0.2	0.3	0.4	0.30
	Gizzard Shad								1.2	0.4	1.6	1.07
	Goldeye								0.2	0.0	0.2	0.13
	Lake Herring								0.0	0.0	0.0	0.00
	Sauger								0.2	0.4	0.1	0.23
	Shortnose Gar								0.0	0.0	0.0	0.00
	Silverband Shiner								0.0	0.0	0.0	0.00
	Smallmouth Bass								0.0	0.0	0.0	0.00
	Spottail Shiner								0.1	0.2	0.0	0.10
	Walleye								0.8	1.3	0.5	0.87
	White Bass								0.1	0.1	0.0	0.07
	White Crappie								0.0	0.0	0.0	0.00
	Yellow Perch								0.1	0.5	1.0	0.53
AFS std gill net	Bigmouth Buffalo								0.0	0.0	0.0	0.00
	Black Bullhead								0.0	0.0	0.0	0.00
	Channel Catfish								3.7	3.1	4.2	3.67
	Common Carp								1.1	0.8	0.5	0.80
	Flathead Catfish								0.0	0.0	0.0	0.00
	Freshwater Drum								1.4	1.1	1.4	1.30
	Gizzard Shad								0.8	0.1	0.2	0.37
	Goldeye								0.0	0.0	0.0	0.00
	Lake Herring								0.0	0.0	0.1	0.03
	Largemouth Bass								0.0	0.0	0.0	0.00
	Paddlefish								0.0	0.0	0.0	0.00
	River Carpsucker								0.1	0.2	0.1	0.13
	Sauger								1.7	1.4	1.1	1.40
	Shorthead Redhorse								0.0	0.0	0.0	0.00
	Shortnose Gar								0.0	0.0	0.0	0.00
	Shovelnose Sturgeon								0.0	0.0	0.1	0.05

		CPUE										
Gear	Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg
AFS std gill net	Smallmouth Bass								1.2	0.4	0.9	0.83
	Smallmouth Buffalo								0.3	0.1	0.1	0.17
	Walleye								4.3	3.6	5.4	4.43
	White Bass								1.4	0.6	0.4	0.80
	Yellow Perch								0.4	0.2	0.7	0.43
boat shocker (night)	Smallmouth Bass	181.6	73.6	80.7	66.7	86.0	68.9	118.4	109.9	89.9	79.0	95.47
fall night EF-WAE	Sauger									34.2	7.0	20.60
	Walleye									117.1	97.3	107.20
large seine	Bigmouth Buffalo									0.0	1.7	0.84
	Black Crappie									0.1	7.4	3.73
	Bluegill									0.0	0.2	0.09
	Bluntnose Minnow									0.1	0.0	0.04
	Channel Catfish									0.1	0.0	0.04
	Common Carp									0.2	3.5	1.88
	Creek Chub									0.0	0.1	0.04
	Emerald Shiner									14.9	5.8	10.32
	Fathead Minnow									0.0	22.9	11.43
	Flathead Chub									0.2	0.3	0.23
	Freshwater Drum									0.4	1.1	0.75
	Gizzard Shad									861.2	1,438.1	1149.68
	Goldeye									0.2	1.4	0.80
	Johnny Darter									0.3	1.4	0.84
	Lake Herring									0.7	0.0	0.36
	Largemouth Bass									0.1	0.7	0.38
	Orangespotted Sunfish									0.0	0.4	0.21
	Red Shiner									0.1	0.1	0.09
	River Carpsucker									0.0	0.7	0.34
	Sauger									0.4	0.0	0.20
	Shorthead Redhorse									0.0	0.3	0.16
	Silverband Shiner									0.0	0.3	0.13
	Smallmouth Bass									6.4	9.8	8.13
	Smallmouth Buffalo									0.0	0.8	0.41
	Spotfin Shiner									0.0	0.0	0.02
	Spottail Shiner									1.7	0.8	1.25
	Walleye									0.6	4.4	2.50
	Western Mosquitofish									0.0	0.0	0.02

		CPUE										
Gear	Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg
large seine	Western Silvery Minnow									1.1	0.0	0.57
	White Bass									3.5	18.1	10.79
	White Crappie									0.1	1.2	0.68
	Yellow Perch									1.6	72.1	36.84
std exp gill net	Bigmouth Buffalo	0.0	0.0	0.0	0.0	0.1	0.0	0.0				0.01
	Black Bullhead	0.4	0.1	0.0	0.0	0.0	0.0	0.0				0.07
	Black Crappie	0.0	0.1	0.1	0.0	0.0	0.0	0.0				0.03
	Bluegill	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.00
	Brown Trout	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.00
	Channel Catfish	3.9	2.5	2.8	3.1	3.2	4.7	5.3				3.64
	Chinook Salmon	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.00
	Common Carp	0.7	1.0	1.8	1.3	1.0	1.8	2.0				1.37
	Flathead Catfish	0.1	0.0	0.0	0.0	0.0	0.0	0.0				0.01
	Freshwater Drum	0.2	0.2	0.5	0.7	0.4	0.2	0.3				0.36
	Gizzard Shad	0.2	0.4	0.1	0.6	0.0	0.3	4.4				0.86
	Goldeye	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.00
	Lake Herring	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.00
	Northern Pike	0.4	0.4	0.4	0.1	0.0	0.1	0.0				0.20
	Orangespotted Sunfish	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.00
	River Carpsucker	0.1	0.1	0.1	0.0	0.1	0.1	0.1				0.09
	Sauger	4.0	7.2	7.4	5.9	5.4	3.7	4.1				5.39
	Shorthead Redhorse	0.3	0.3	0.2	0.3	0.2	0.3	0.2				0.26
	Shortnose Gar	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.00
	Shovelnose Sturgeon	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.00
	Smallmouth Bass	0.6	0.8	0.6	0.2	0.2	1.0	0.1				0.50
	Smallmouth Buffalo	0.0	0.0	0.0	0.0	0.1	0.1	0.1				0.04
	Spottail Shiner	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.00
	Walleye	14.9	11.9	9.4	5.8	6.2	3.9	5.0				8.16
	Western Silvery Minnow	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.00
	White Bass	0.0	0.5	0.1	0.3	0.1	0.2	0.8				0.29
	White Crappie	0.0	0.1	0.0	0.0	0.0	0.0	0.1				0.03
	Yellow Perch	4.7	3.6	1.4	0.4	0.8	0.9	1.2				1.86

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 gill net (1/2 inch)	Black Crappie	PSD									0	
		PSD-P									0	
		Wr									163	
	Channel Catfish	PSD								0	0	44
		PSD-P								0	0	0
		Wr								87	70	87
	Gizzard Shad	PSD								0	0	0
		Wr								100	90	84
	Sauger	PSD								75	50	0
		PSD-P								50	50	0
		Wr								83	85	82
	Smallmouth Bass	PSD									0	100
		PSD-P									0	100
		Wr									85	107
	Walleye	PSD								14	0	21
		PSD-P								0	0	0
		Wr								91	90	111
	White Bass	PSD								0	0	0
		PSD-P								0	0	0
		Wr								102	94	80
	Yellow Perch	PSD								9	5	4
		PSD-P								0	0	0
		Wr								90	93	84
AFS std gill net	Channel Catfish	PSD								59	60	55
		PSD-P								5	7	6
		Wr								80	81	89
	Gizzard Shad	PSD								99	100	100
		Wr								96	100	108
	Sauger	PSD								86	74	65
		PSD-P								49	36	24
		Wr								77	78	86
	Smallmouth Bass	PSD								70	73	76
		PSD-P								18	33	33

			Year									
Gear	Species	Index	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
AFS std gill net	Smallmouth Bass	Wr								104	106	107
	Walleye	PSD								63	38	47
		PSD-P								5	3	4
		Wr								81	83	91
	White Bass	PSD								99	88	100
		PSD-P								80	86	78
		Wr								97	100	106
	Yellow Perch	PSD								51	17	28
		PSD-P								3	0	2
		Wr								83	90	85
boat shocker (night)	Smallmouth Bass	PSD	56	30	42	44	41	37	46	45	59	58
		PSD-P	11	17	7	12	12	12	16	14	18	35
		Wr			84		91	92	97	91	94	96
std exp gill net	Black Crappie	PSD		0	0	0	0	0				
		PSD-P		0	0	0	0	0				
		Wr		116	106			83				
	Channel Catfish	PSD	60	63	43	51	43	46	52			
		PSD-P	0	1	1	0	3	2	3			
		Wr	81	85	84	84	81	79	83			
	Gizzard Shad	PSD	0	40	0	0	0	88	32			
		Wr	86	82	77	103		94	89			
	Sauger	PSD	38	70	73	65	73	74	78			
		PSD-P	15	26	35	16	19	32	29			
		Wr	82	77	74	73	76	76	80			
	Smallmouth Bass	PSD	12	76	47	40	29	62	67			
		PSD-P	0	19	33	0	0	12	0			
		Wr	104	108	107	97	109	100	110			
	Walleye	PSD	47	44	40	20	33	60	46			
		PSD-P	1	2	9	4	2	9	4			
		Wr	88	83	82	82	84	84	86			
	White Bass	PSD	0	92	100	100	100	100	50			
		PSD-P	0	69	50	89	100	100	27			
		Wr		97	105	102	103	97	107			
	Yellow Perch	PSD	26	22	28	8	22	8	21			
		PSD-P	3	0	5	8	0	0	3			
		Wr	83	85	84	82	84	79	80			

Back-Calculated Lengths

Mean species back-calculated total length (mm) at age, standard error (SE), and sample size (N).

Species: Smallmouth Bass

Year Class	Age	N	Mean back-calculated length (SE) at age									
			1	2	3	4	5	6	7	8	9	10
2019	0	2										
2018	1	18	105 (6.1)									
2017	2	104	88 (1.3)	194 (3.7)								
2016	3	74	90 (2.6)	192 (5.7)	275 (6.9)							
2015	4	85	96 (1.9)	198 (4.8)	291 (5.5)	351 (5)						
2014	5	19	92 (2.5)	199 (8.7)	296 (10)	356 (9.6)	392 (9.4)					
2013	6	7	102 (7.4)	200 (11.4)	296 (14.4)	359 (13.3)	405 (9.3)	433 (7.9)				
2012	7	4	89 (5.2)	202 (37.2)	280 (33.7)	357 (25.8)	402 (17.9)	440 (11.1)	457 (8.5)			
2011	8	1	71	148	287	358	410	425	446	457		
2010	9	1	110	242	367	422	468	511	522	530	539	
Weighted Mean		315	92	195	286	353	399	441	466	494	539	

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2019	0	2										
2018	1	18										
2017	2	104										
2016	3	74										
2015	4	85										
2014	5	19										
2013	6	7										
2012	7	4										
2011	8	1										
2010	9	1										
Weighted Mean		315										

Length at Capture

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

Species: Channel Catfish

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2016	152	100 (1)	226 (5)	302 (12)	324 (7)	351 (14)	395 (21)	416 (26)	425 (11)	487 (12)	535 (41)
2011	70		270 (5)	311 (8)	337 (10)	377 (6)	416 (5)	463 (6)	492 (6)	506 (9)	525 (16)
2010	108	187 (2)	292 (4)	333 (15)	383 (11)	406 (18)	449 (16)	448 (14)	460 (7)	475 (5)	513 (14)

Species: Sauger

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2019	90	289 (44)	367 (33)	428 (9)	402 (1)	413 (2)			441 (1)		
2018	109	305 (39)	367 (29)	390 (19)	409 (14)	465 (4)		384 (3)		541 (1)	
2017	140	305 (41)	368 (40)	403 (42)	451 (8)	450 (6)	450 (2)	404 (2)			
2016	110	295 (37)	355 (38)	405 (13)	388 (9)	406 (10)	435 (2)	479 (1)			
2015	98	258 (25)	360 (33)	363 (5)	396 (26)	430 (4)	443 (4)				365 (1)
2014	177	261 (21)	293 (36)	350 (89)	390 (10)	400 (21)					
2013	159	237 (16)	300 (86)	371 (36)	402 (20)	433 (1)					
2012	199	267 (61)	360 (69)	405 (58)	459 (4)	455 (2)	440 (4)				462 (1)
2011	194	277 (73)	361 (99)	449 (8)	468 (9)	460 (2)	473 (3)				
2010	111	267 (88)	391 (10)	446 (7)	420 (5)	430 (1)					

Species: Smallmouth Bass

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2019	323	167 (21)	219 (108)	303 (76)	365 (87)	402 (20)	438 (8)	461 (4)	459 (1)	543 (1)	
2018	378	127 (27)	218 (110)	297 (148)	341 (77)	382 (12)	389 (4)				
2017	490	129 (14)	213 (273)	301 (137)	360 (42)	392 (17)	443 (6)	425 (1)			
2016	590	121 (66)	199 (253)	289 (176)	348 (58)	390 (17)	414 (15)	424 (3)	413 (1)	484 (1)	
2015	432	108 (84)	187 (210)	277 (63)	314 (44)	353 (22)	406 (8)	447 (1)			
2014	333	110 (43)	194 (98)	269 (104)	303 (71)	360 (14)	369 (2)				

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2013	307	128 (10)	182 (56)	234 (145)	316 (74)	344 (15)	404 (3)	417 (2)	440 (1)		
2012	475	123 (50)	197 (200)	279 (162)	318 (44)	389 (17)	415 (2)				
2011	308	118 (26)	217 (161)	281 (71)	362 (28)	396 (11)	422 (7)	437 (3)	473 (1)		
2010	298	111 (32)	177 (69)	284 (156)	344 (33)	399 (5)	414 (2)	434 (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	443	297 (158)	383 (197)	423 (47)	461 (8)	479 (11)	501 (2)	531 (3)	498 (4)	504 (6)	565 (6)
2018	299	297 (143)	377 (80)	407 (30)	423 (26)		576 (2)	468 (9)	534 (2)	492 (3)	521 (4)
2017	346	295 (76)	378 (83)	405 (91)	448 (6)	445 (13)	472 (37)	464 (16)	470 (15)	443 (1)	538 (4)
2016	142	273 (38)	353 (47)	411 (7)	450 (13)	463 (26)	488 (7)	467 (3)			446 (1)
2015	135	237 (46)	334 (9)	394 (13)	398 (37)	466 (7)	474 (6)	484 (3)	496 (3)		509 (11)
2014	208	255 (11)	316 (36)	353 (89)	392 (27)	405 (31)	441 (3)	482 (1)	519 (2)	509 (5)	505 (3)
2013	175	232 (21)	312 (107)	376 (31)	430 (8)	469 (2)	533 (3)	526 (1)	526 (1)		504 (1)
2012	298	256 (114)	350 (76)	398 (48)	477 (10)	475 (5)	475 (7)	513 (26)	513 (8)	465 (1)	526 (3)
2011	345	269 (99)	369 (156)	417 (41)	446 (11)	456 (10)	462 (25)	446 (1)		483 (1)	615 (1)
2010	427	267 (178)	359 (77)	416 (35)	437 (68)	441 (58)	456 (6)	493 (2)		478 (2)	526 (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+
2010	1				482 (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).

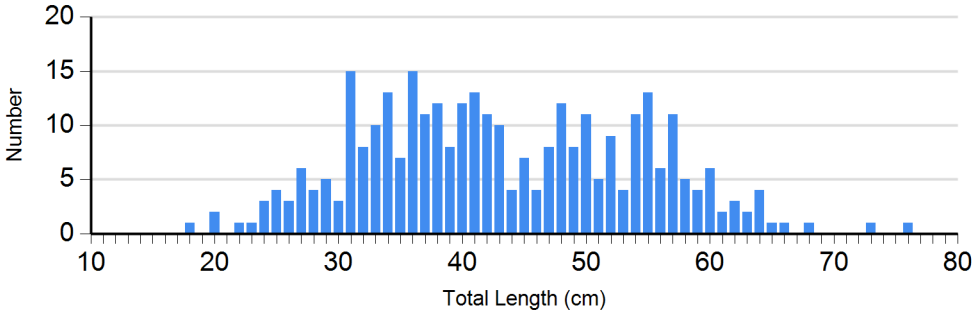
		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Channel Catfish Gill Net	2015	68	81 (0.8)	56	77 (1.1)	2	79 (3.4)	0	
	2016	69	85 (2.0)	71	80 (1.0)	4	88 (3.1)	0	
	2017	123	81 (1.2)	162	80 (0.7)	14	79 (2.5)	2	87 (8.3)
	2018	103	81 (0.7)	135	81 (0.7)	16	87 (3.0)	1	90
	2019	151	88 (0.7)	167	89 (0.7)	16	95 (3.1)	3	103 (6.0)
Sauger Gill Net	2015	26	76 (1.7)	41	77 (1.2)	31	74 (1.8)	1	74
	2016	25	83 (1.5)	54	80 (0.7)	32	76 (1.1)	1	83
	2017	19	79 (1.2)	53	78 (1.1)	68	76 (1.3)	0	
	2018	31	81 (1.0)	44	79 (0.8)	41	76 (0.8)	1	71
	2019	32	86 (2.7)	37	86 (1.0)	22	85 (1.4)	0	
Smallmouth Bass Electro Fishing	2015	159	91 (0.9)	64	93 (1.6)	29	95 (1.8)	2	99 (18.2)
	2016	241	99 (3.2)	130	95 (0.6)	66	96 (0.9)	7	97 (4.7)
	2017	227	91 (1.0)	129	92 (0.9)	49	90 (1.3)	7	90 (2.3)
	2018	139	97 (1.7)	137	93 (0.6)	58	90 (1.3)	3	82 (1.8)
	2019	126	93 (0.8)	72	96 (1.0)	92	99 (1.1)	13	96 (2.2)
Walleye Gill Net	2015	42	84 (0.9)	54	84 (1.0)	9	80 (1.9)	0	
	2016	73	86 (0.8)	57	87 (1.0)	6	80 (1.2)	0	
	2017	127	83 (0.4)	203	81 (0.4)	17	73 (1.7)	0	
	2018	183	83 (0.3)	101	83 (0.7)	10	75 (3.4)	0	
	2019	233	92 (0.4)	188	91 (0.5)	17	87 (1.7)	0	
White Bass Gill Net	2015	0		0		3	102 (2.2)	3	93 (2.8)
	2016	11	110 (1.9)	5	108 (1.3)	1	111	5	98 (2.8)

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
White Bass Gill Net	2017	1	77	21	100 (1.4)	38	104 (1.4)	50	92 (1.3)
	2018	6	99 (4.0)	1	101	22	103 (1.5)	20	96 (2.9)
	2019	0		8	107 (2.5)	19	107 (1.4)	9	103 (3.2)
Yellow Perch Gill Net	2015	23	79 (1.2)	2	79 (7.3)	0		0	
	2016	26	81 (2.7)	6	79 (2.2)	1	52	0	
	2017	17	86 (1.9)	17	79 (1.4)	1	91	0	
	2018	15	90 (2.8)	3	86 (6.8)	0		0	
	2019	38	85 (1.1)	14	86 (1.8)	1	79	0	

Length Frequency Distribution

Length frequency histogram of species sampled by year.

Species: Channel Catfish
Gear: AFS std gill net



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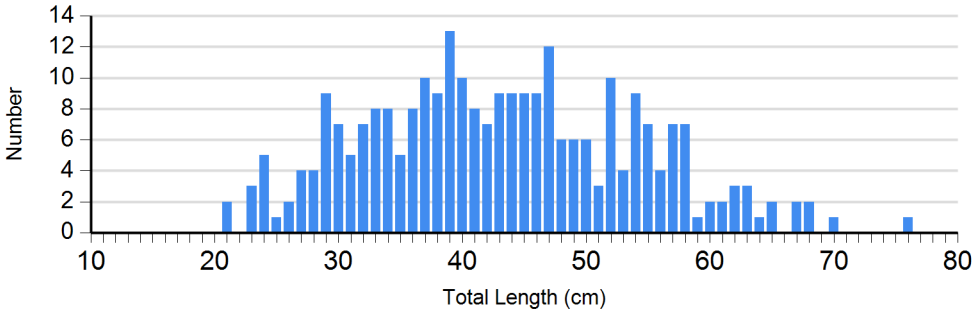
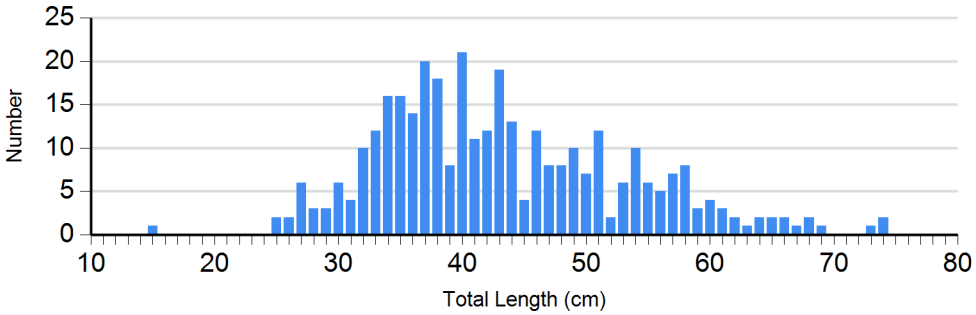
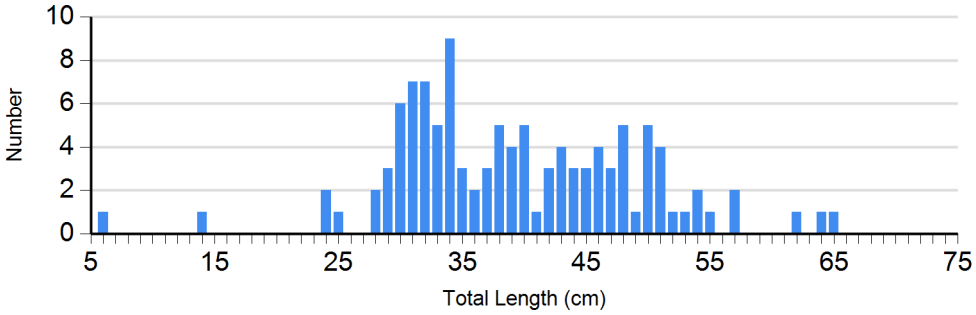


2018



2019

Species: Channel Catfish
Gear: std exp gill net



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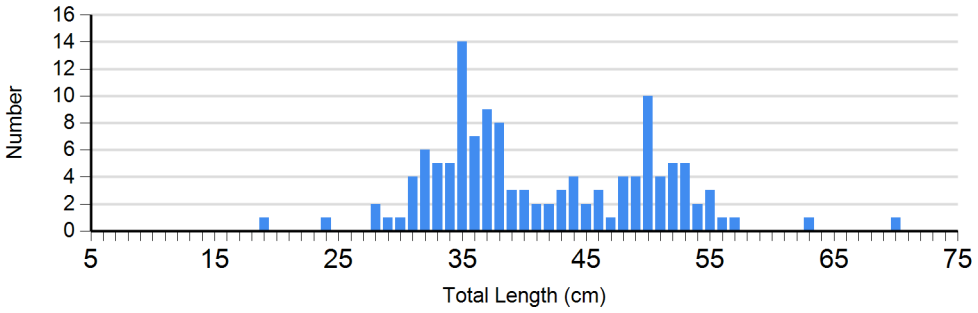

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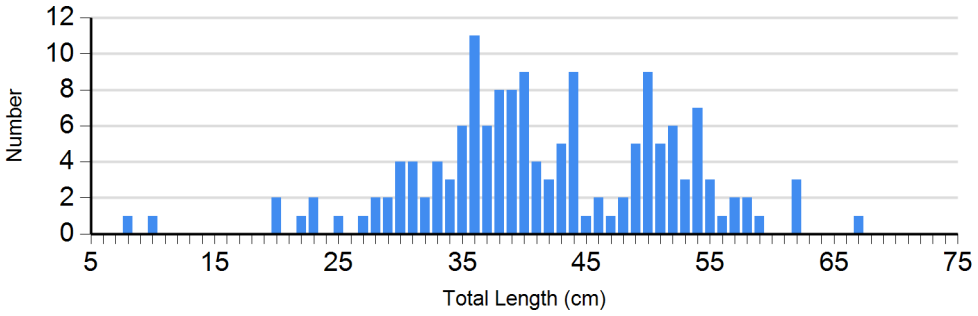
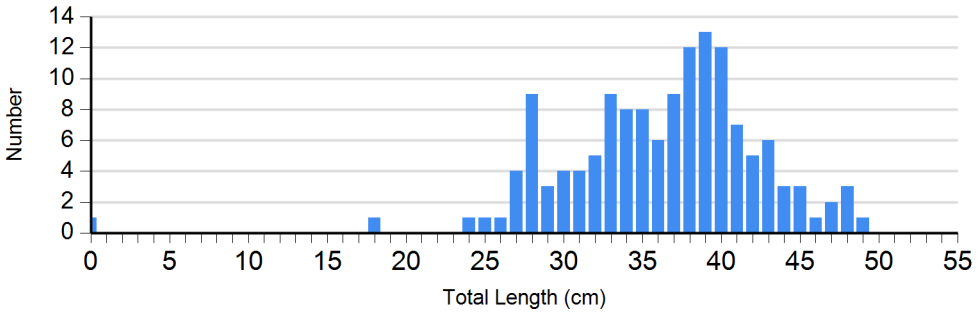


2016

Species: Sauger
Gear: AFS std gill net



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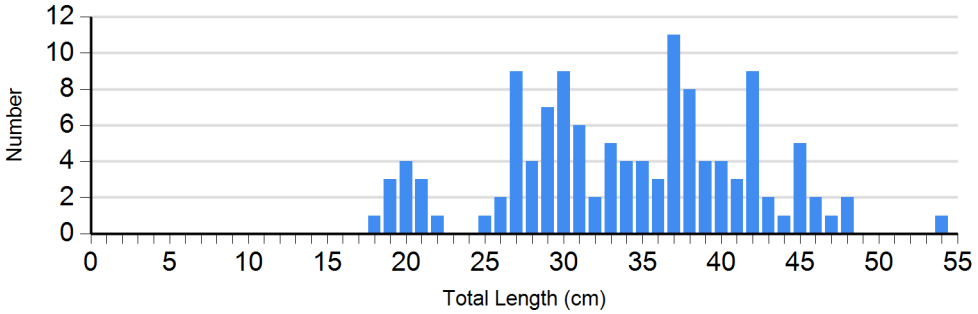

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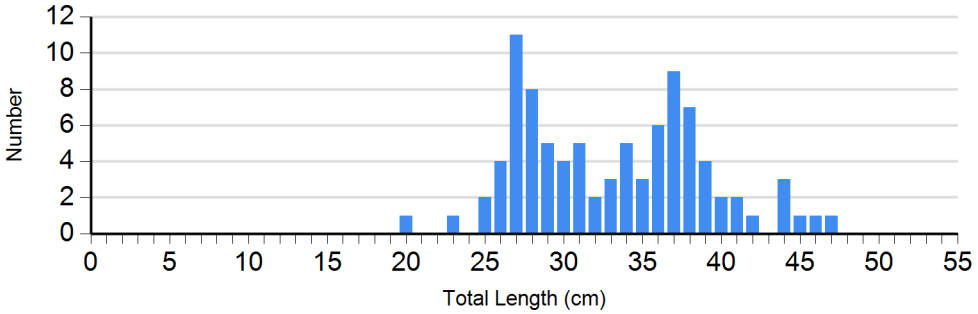
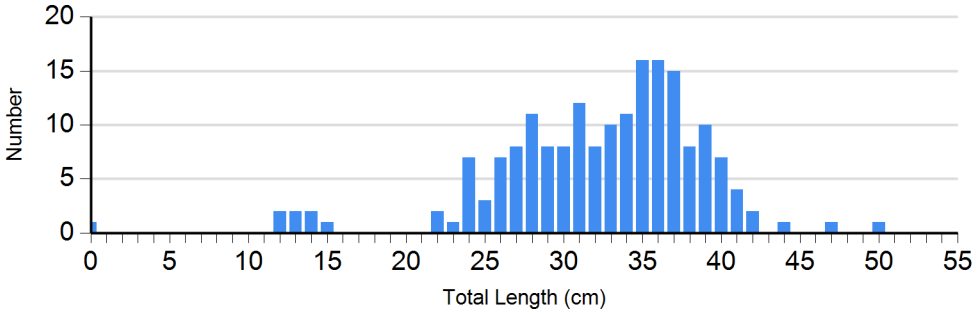


2019

Species: Sauger
Gear: std exp gill net



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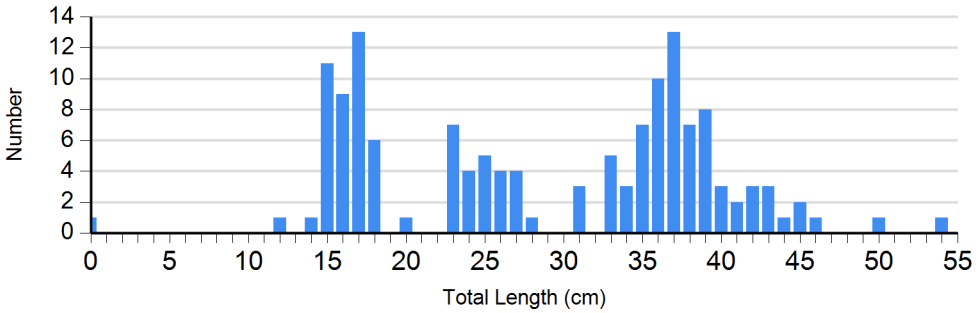

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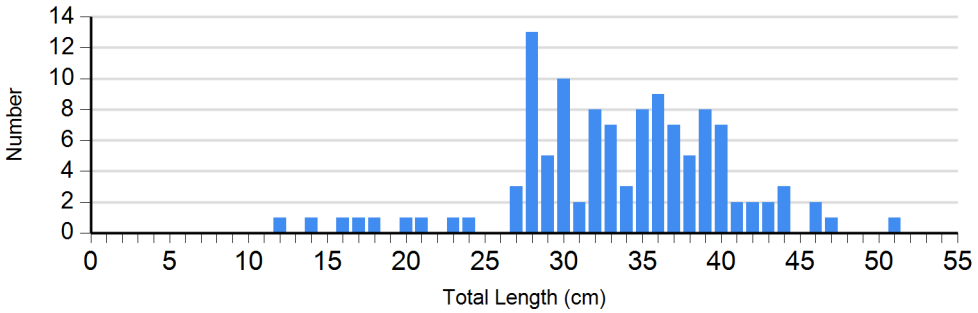
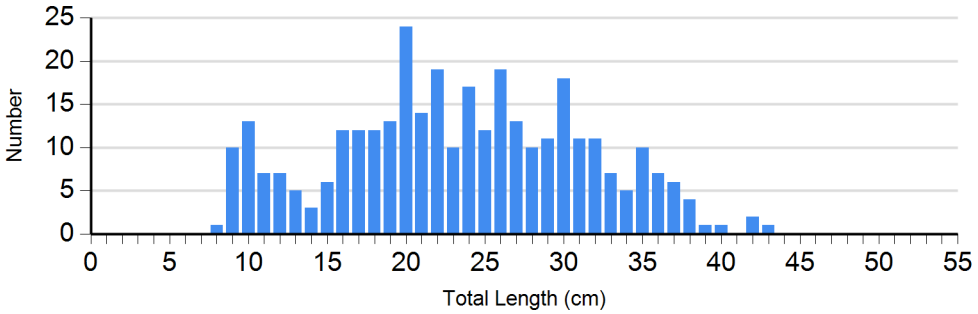


2016

Species: Smallmouth Bass
Gear: boat shocker (night)



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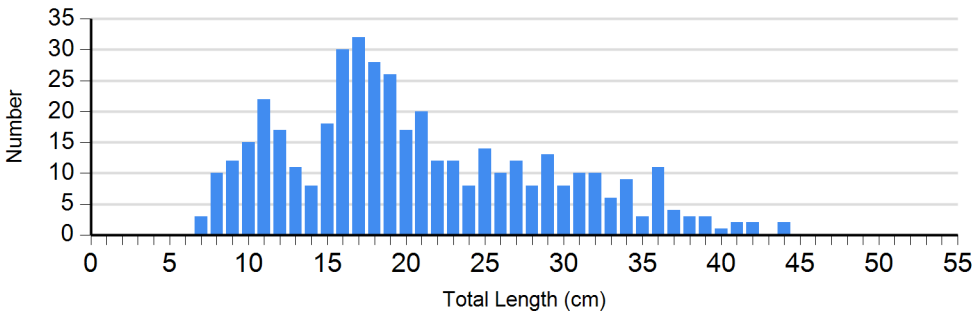

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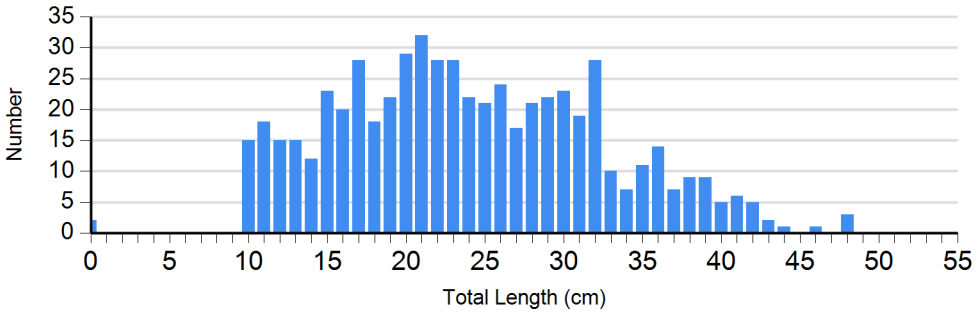

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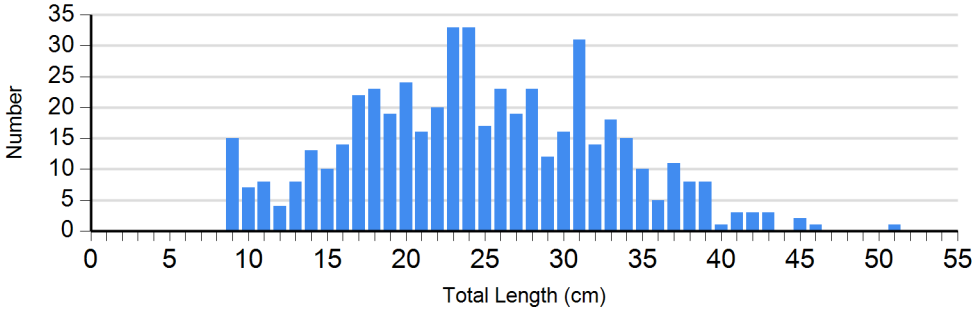
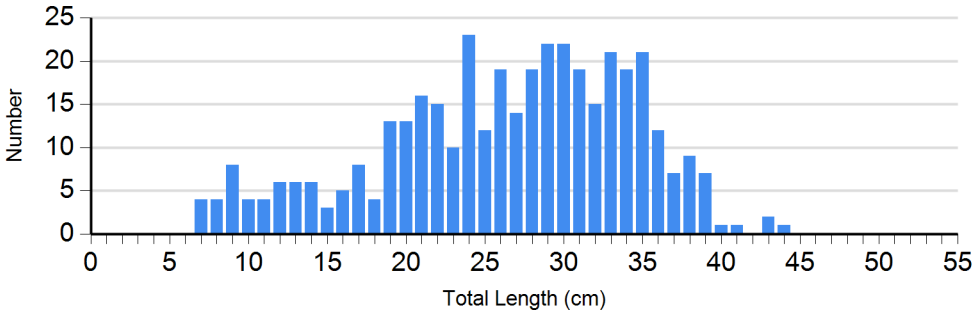


2017



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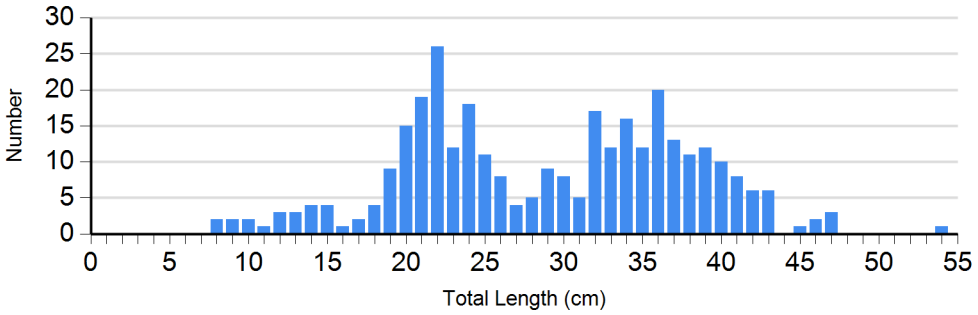
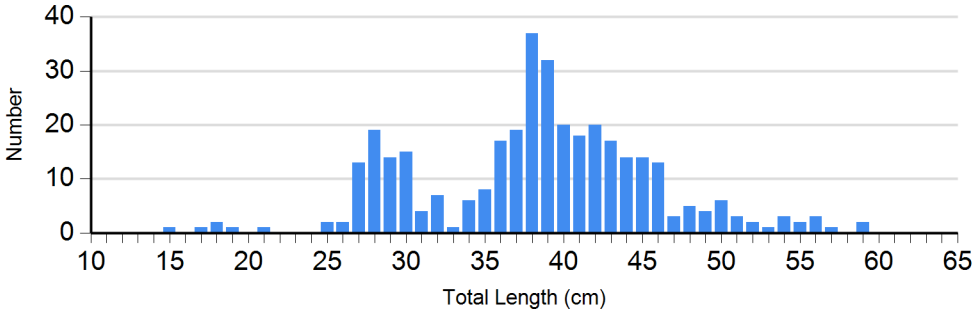
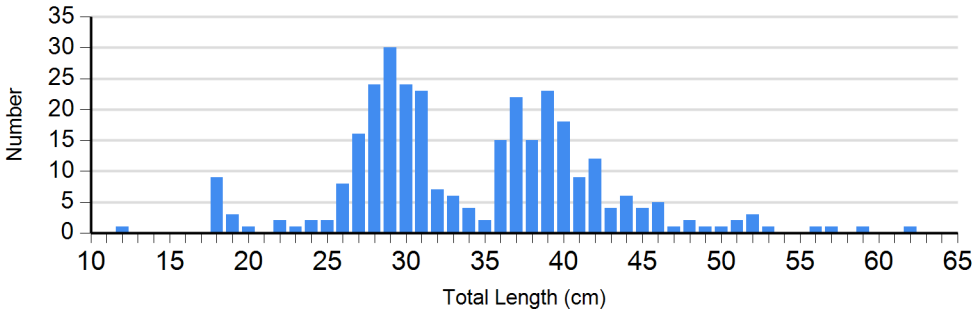


2019

Species: Walleye
Gear: AFS std gill net



2017



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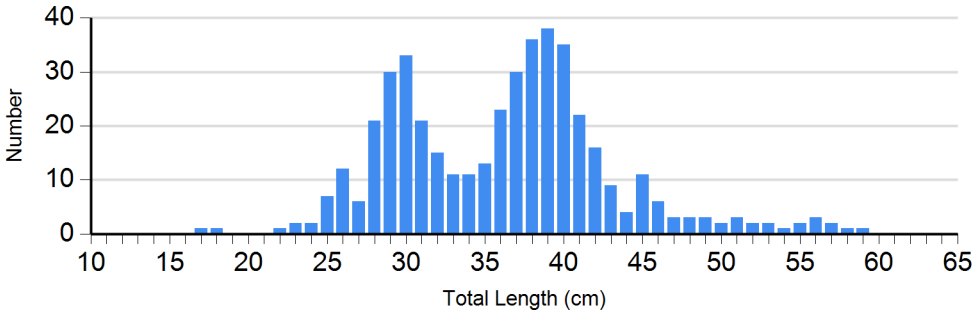
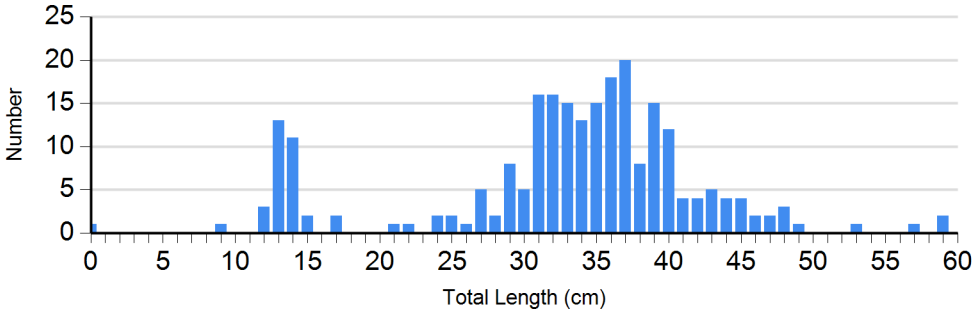


2019

Species: Walleye
Gear: std exp gill net



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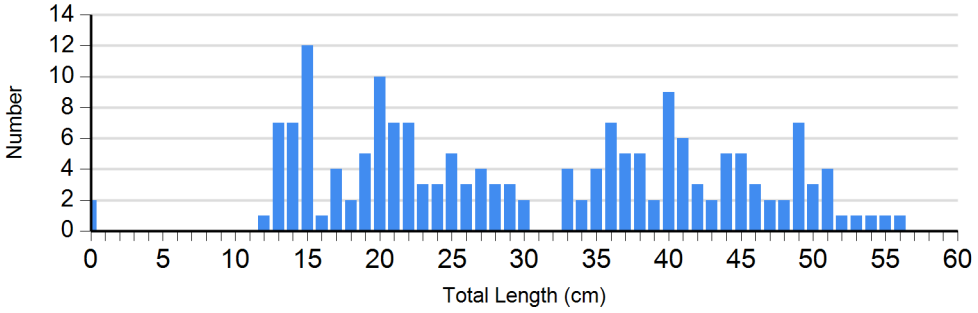

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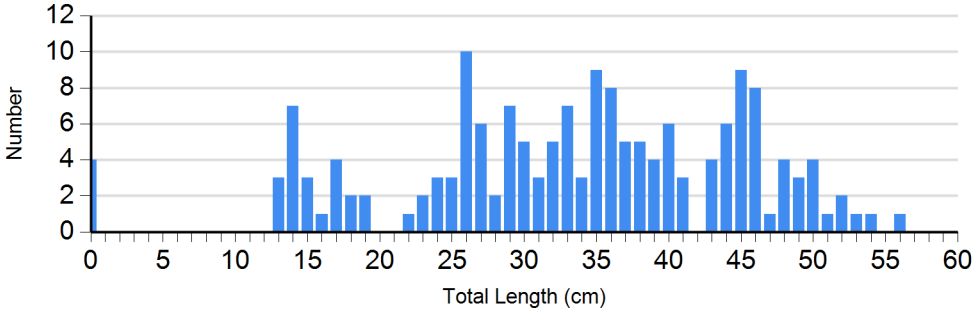
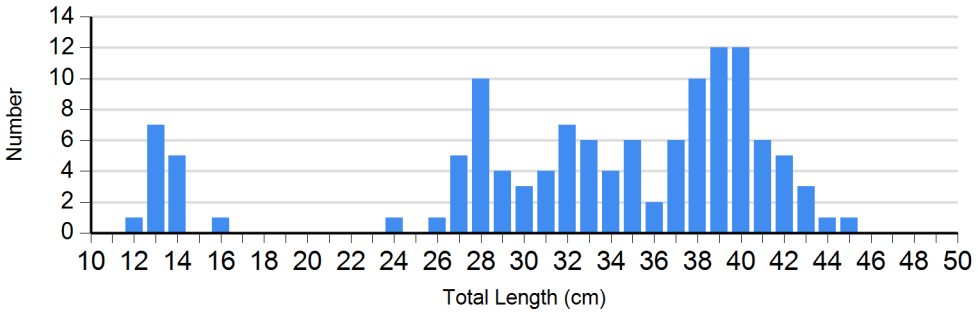


2016

Species: White Bass
Gear: AFS std gill net

2017



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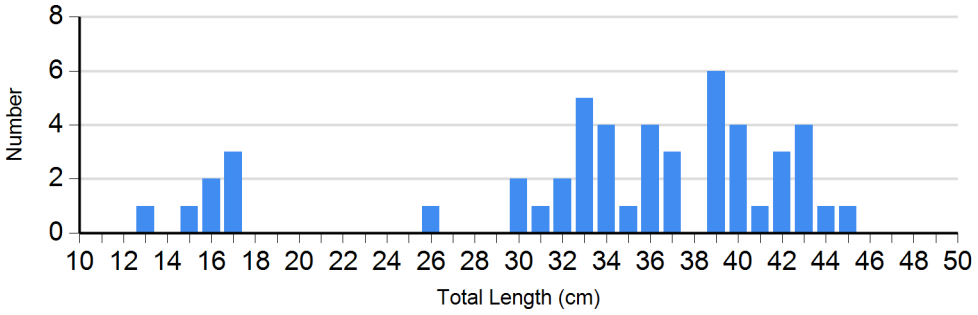

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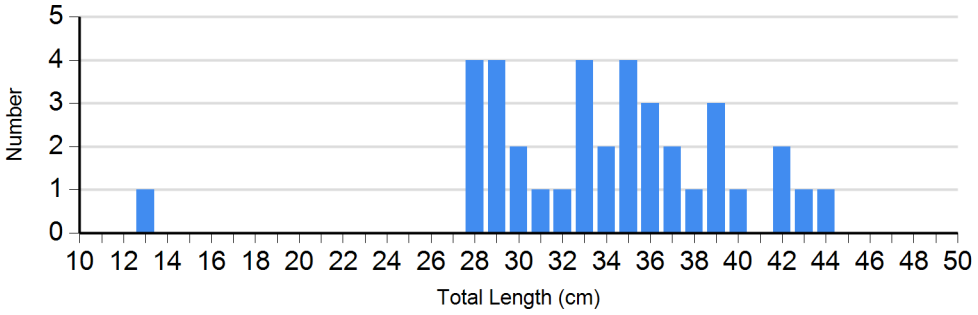
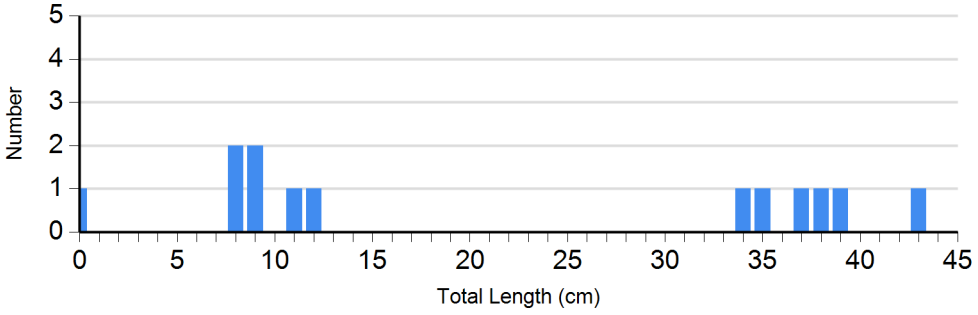
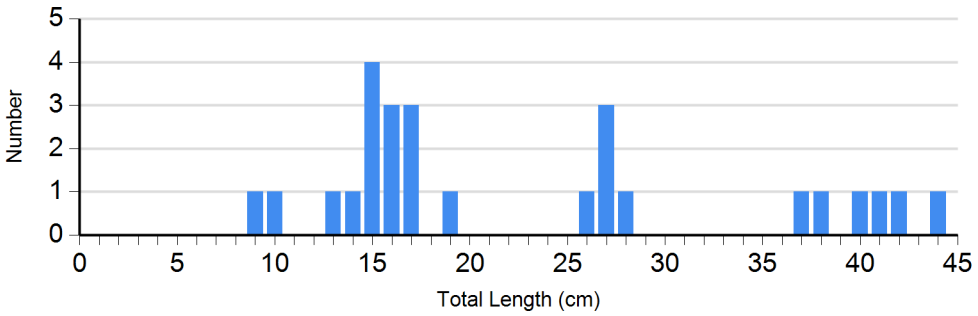


Species: White Bass
Gear: std exp gill net

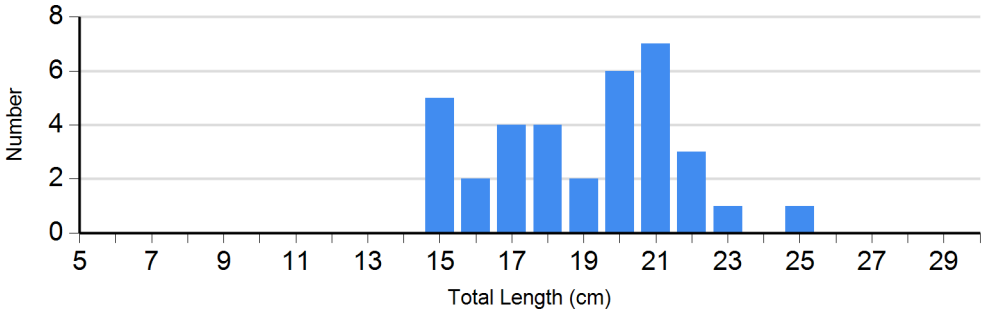
2015



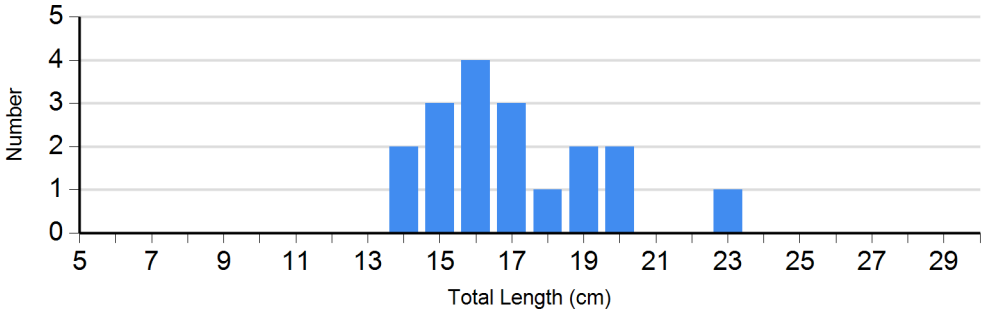
2016



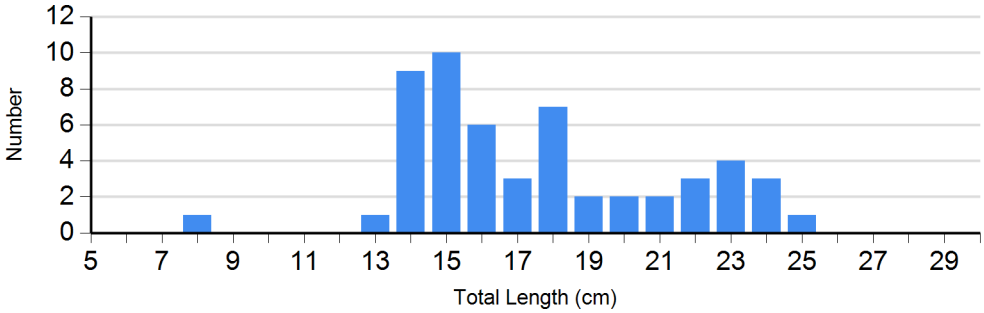
Species: Yellow Perch
Gear: AFS std gill net



2017

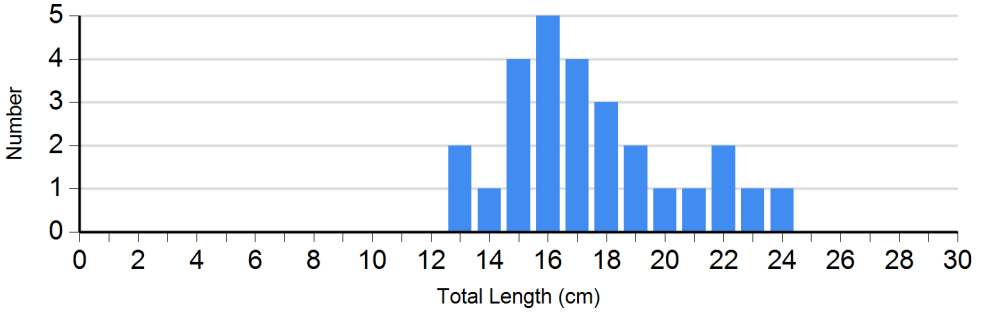


2018

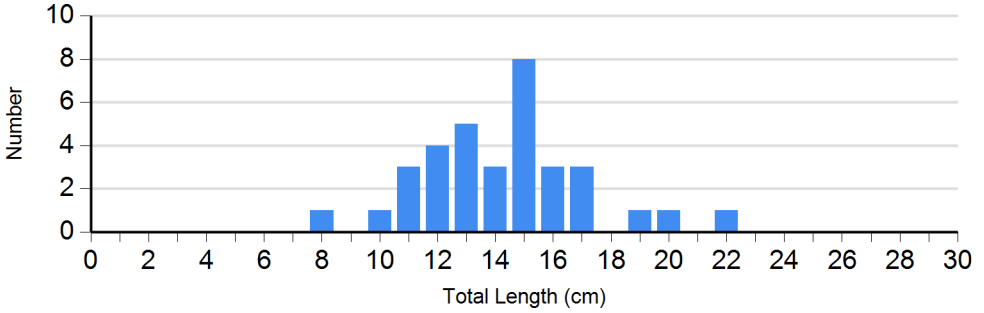


2019

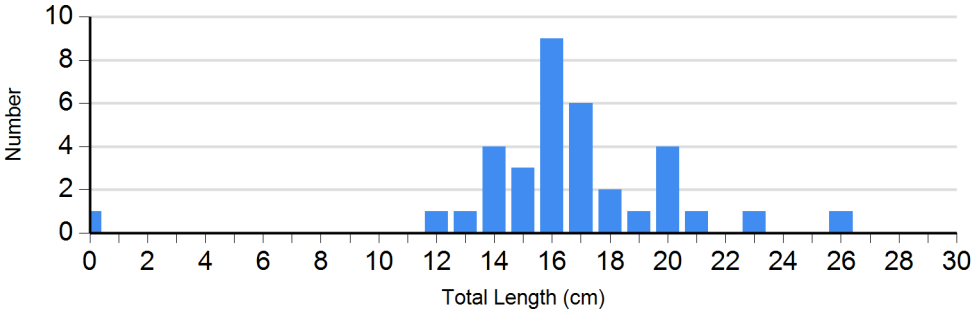
Species: Yellow Perch
Gear: std exp gill net



2014



2015

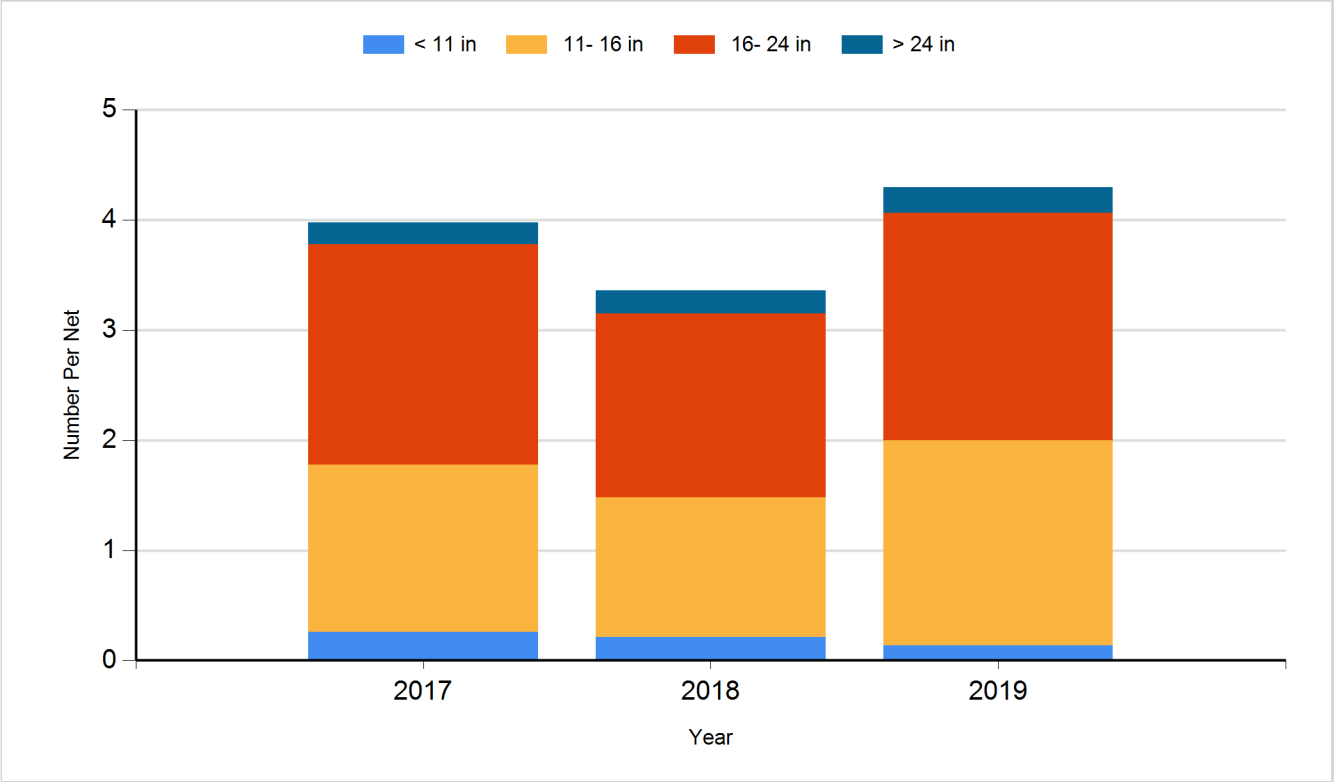

Number
10
8
6
4
2
0
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
Total Length (cm)

2016

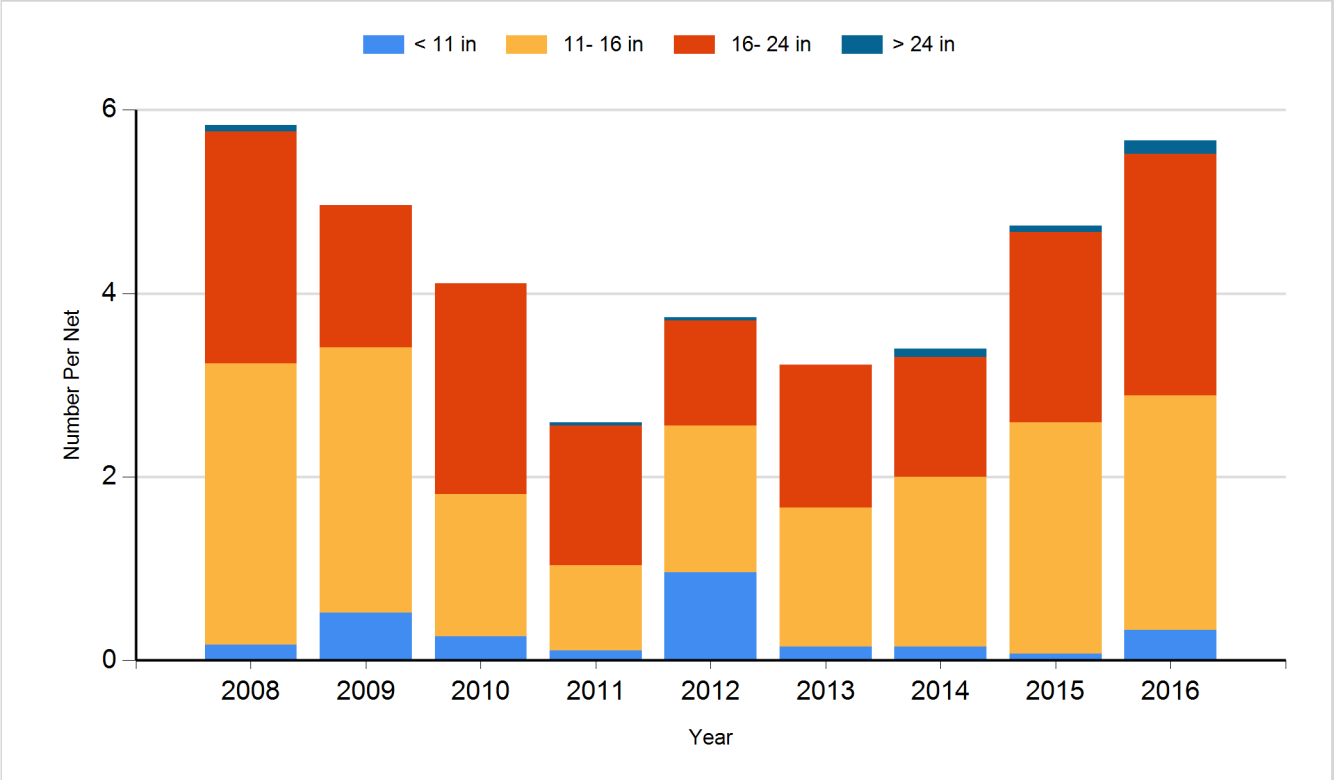
Historic Fish Sizes and Relative Abundance

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

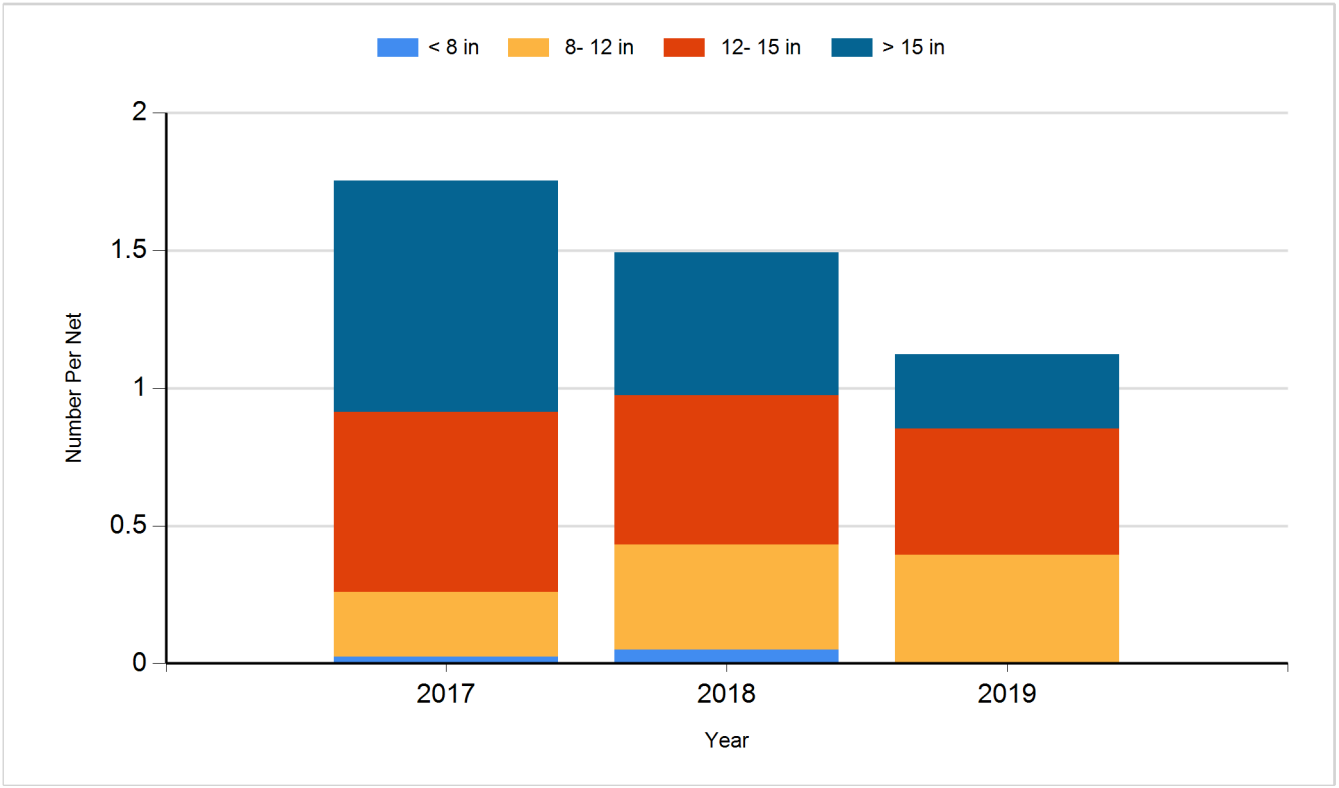
Species: Channel Catfish
Gear: AFS std gill net



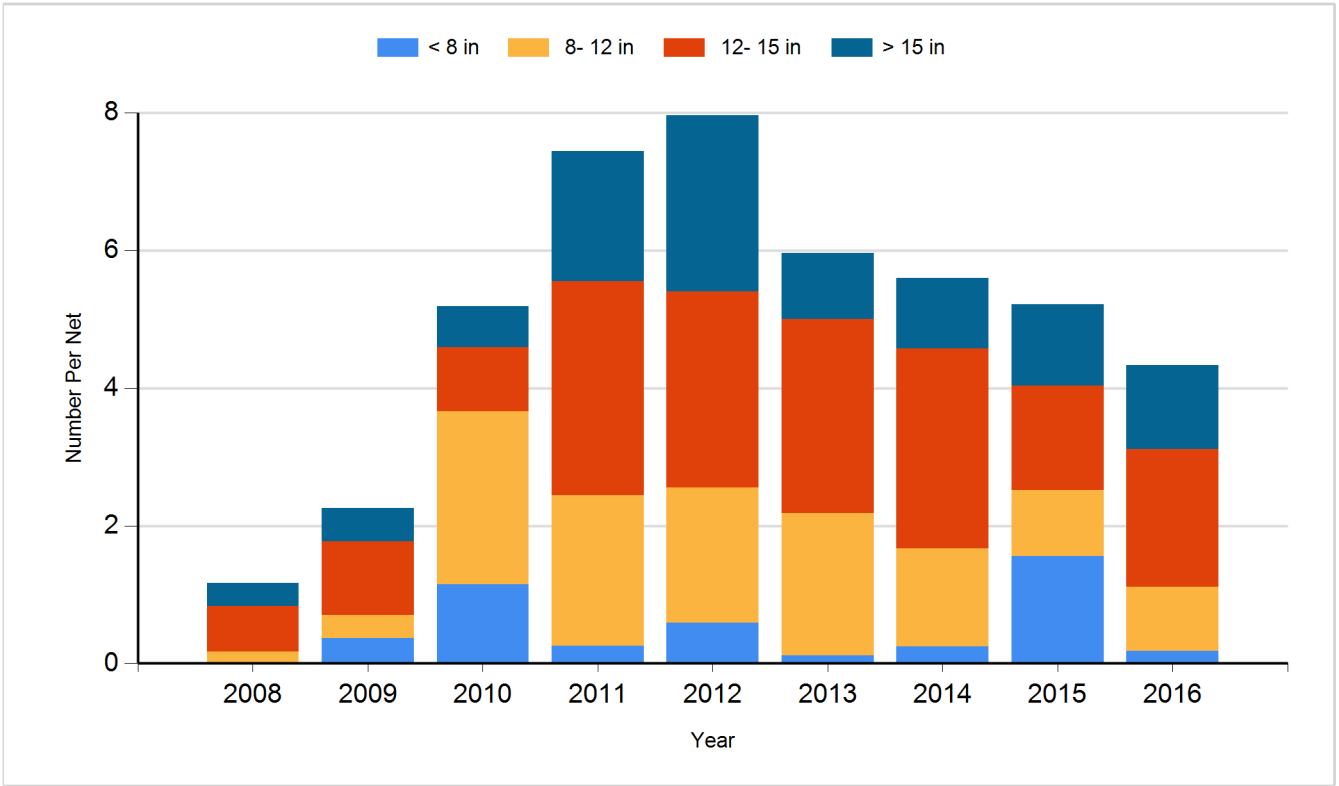
Species: Channel Catfish
Gear: std exp gill net



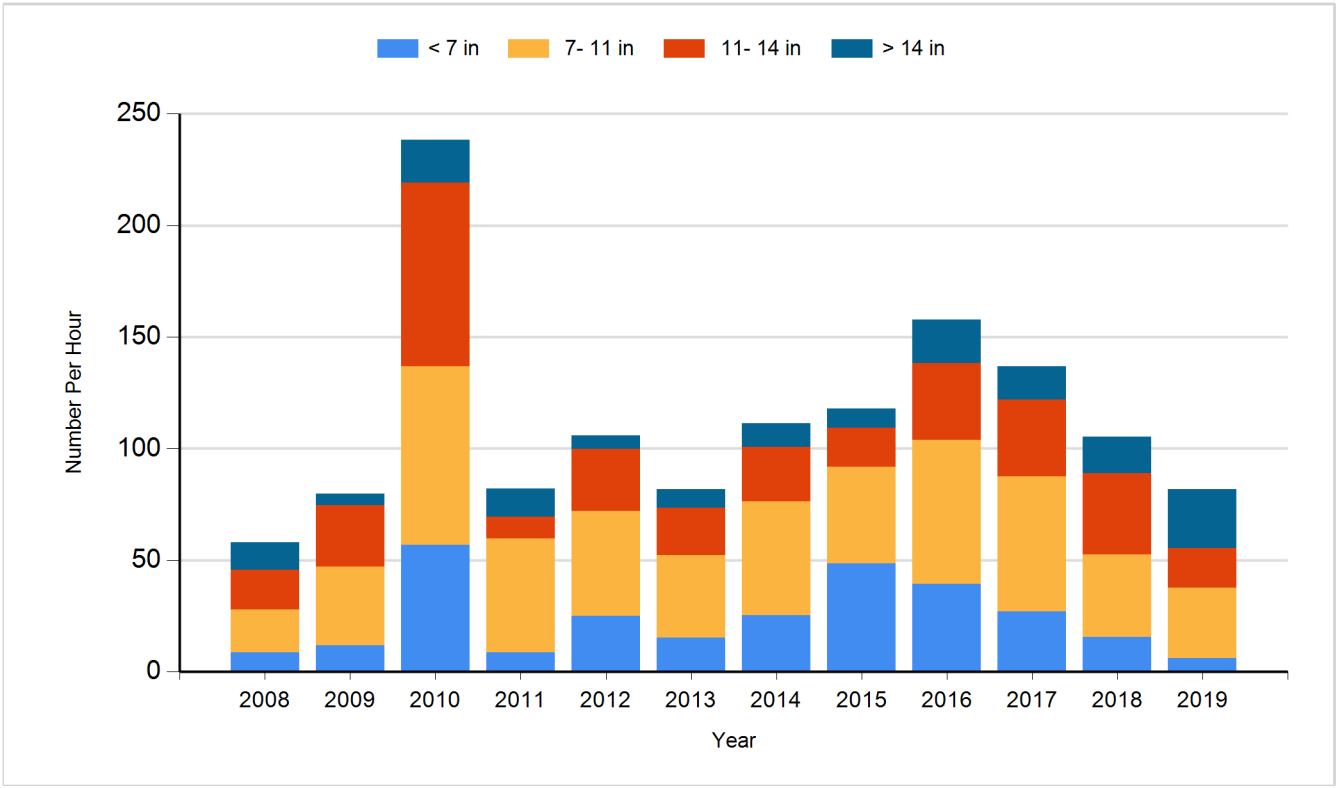
Species: Sauger
Gear: AFS std gill net



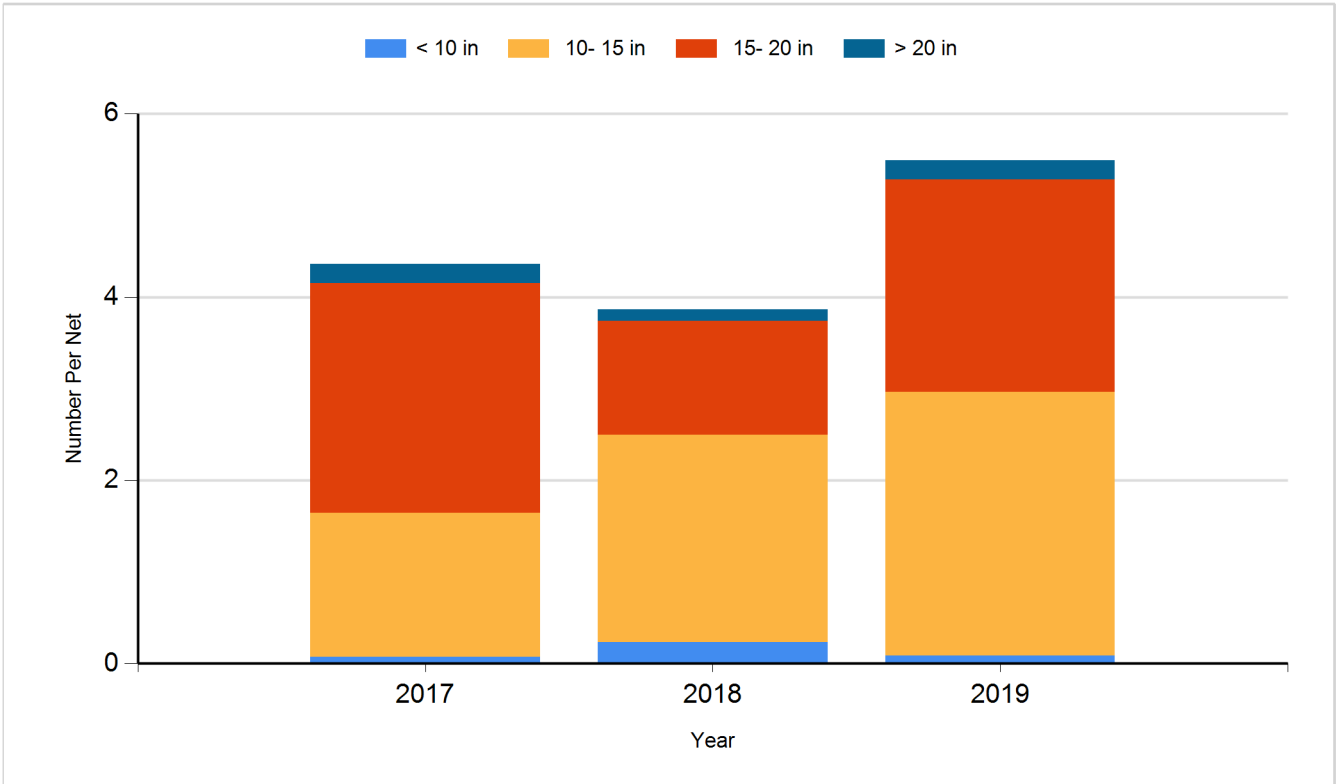
Species: Sauger
Gear: std exp gill net



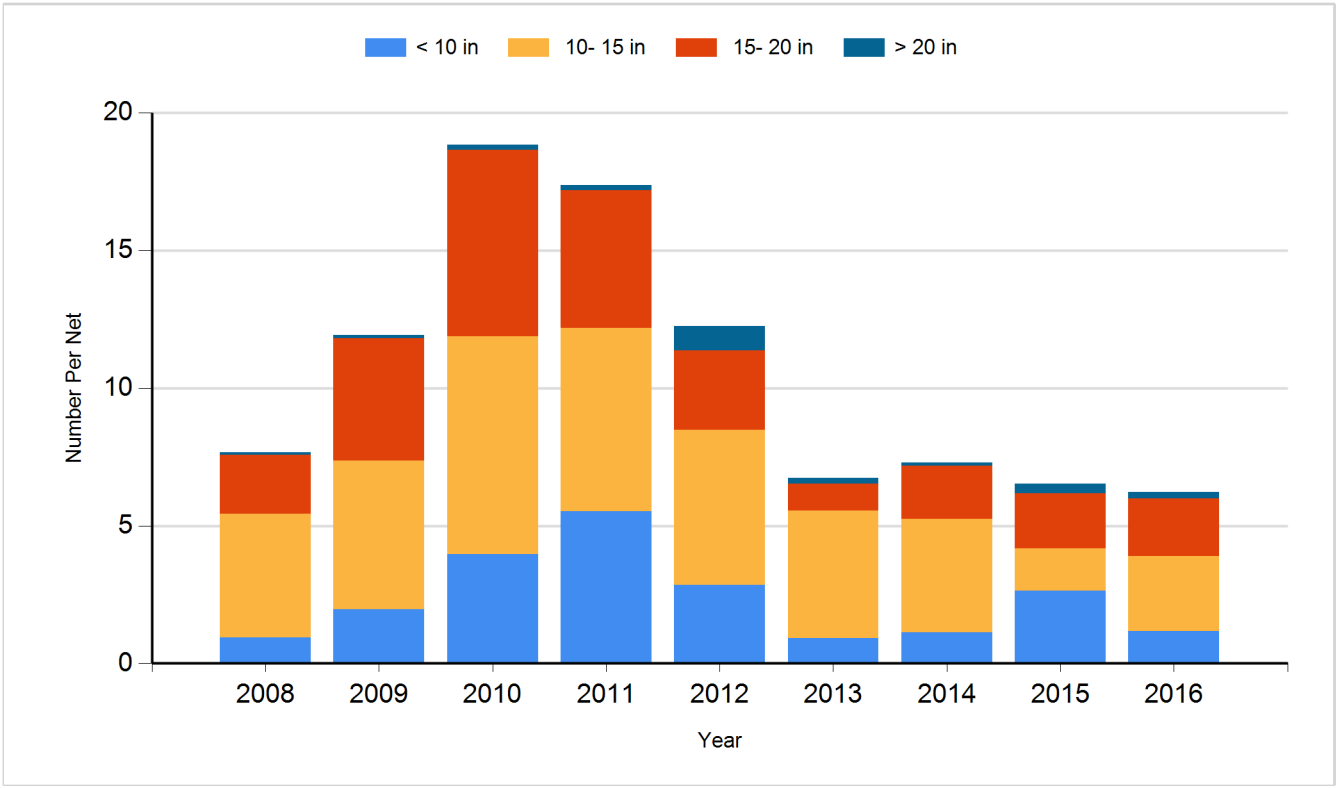
Species: Smallmouth Bass
Gear: boat shocker (night)



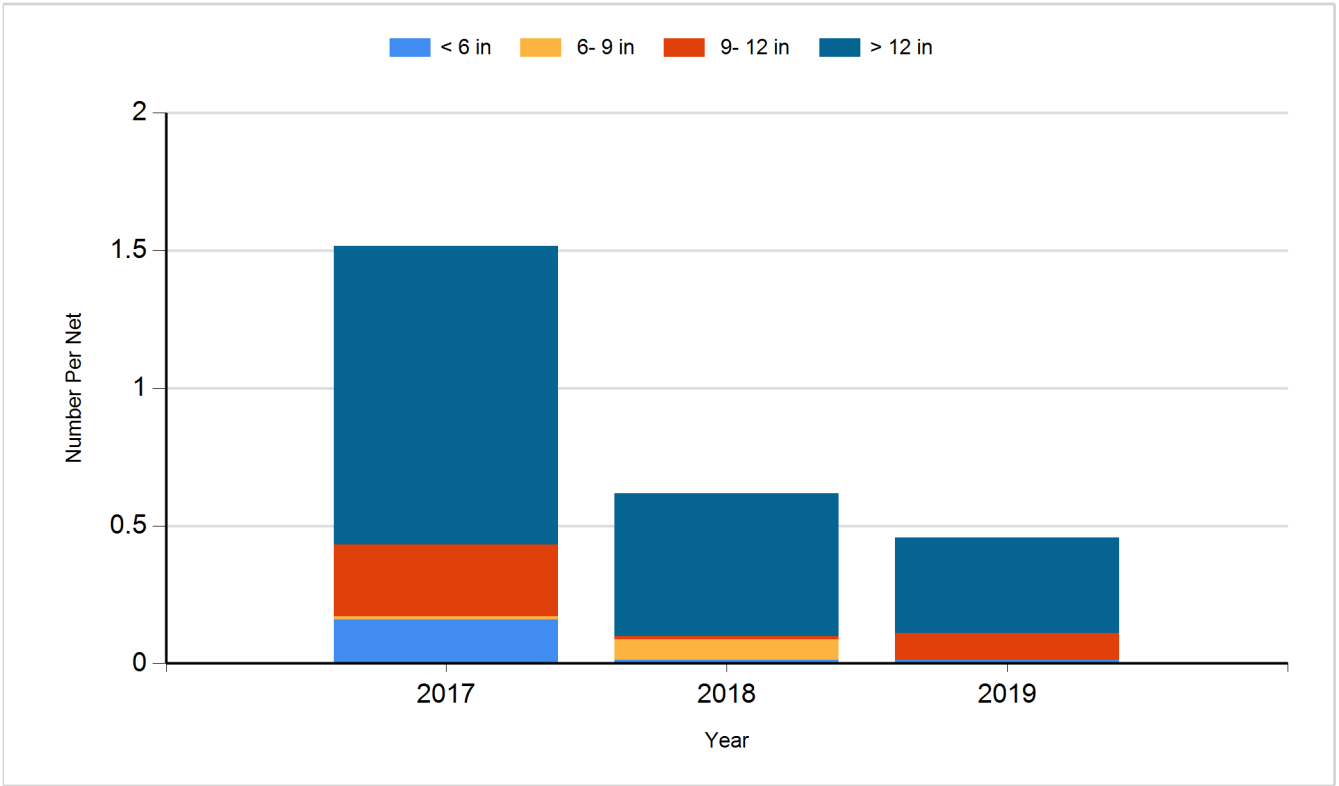
Species: Walleye
Gear: AFS std gill net



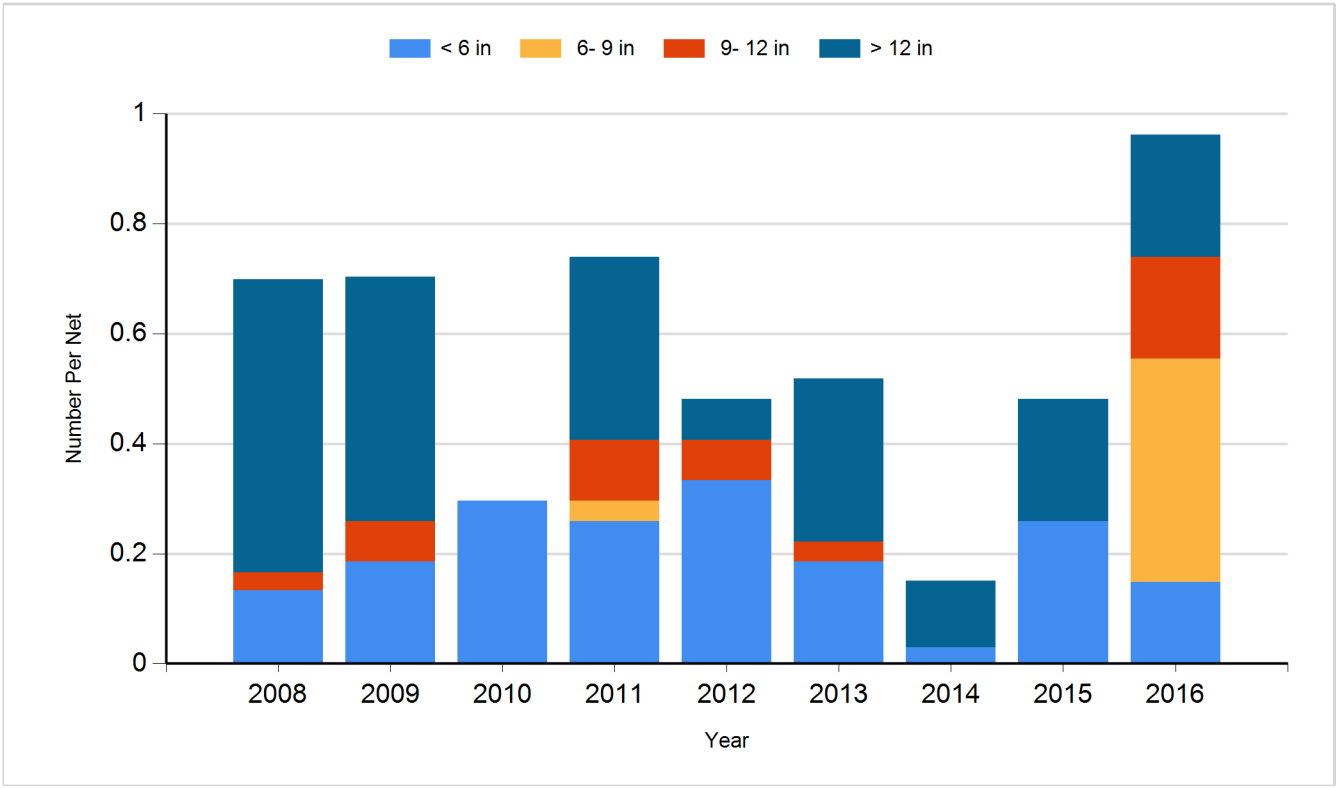
Species: Walleye
Gear: std exp gill net



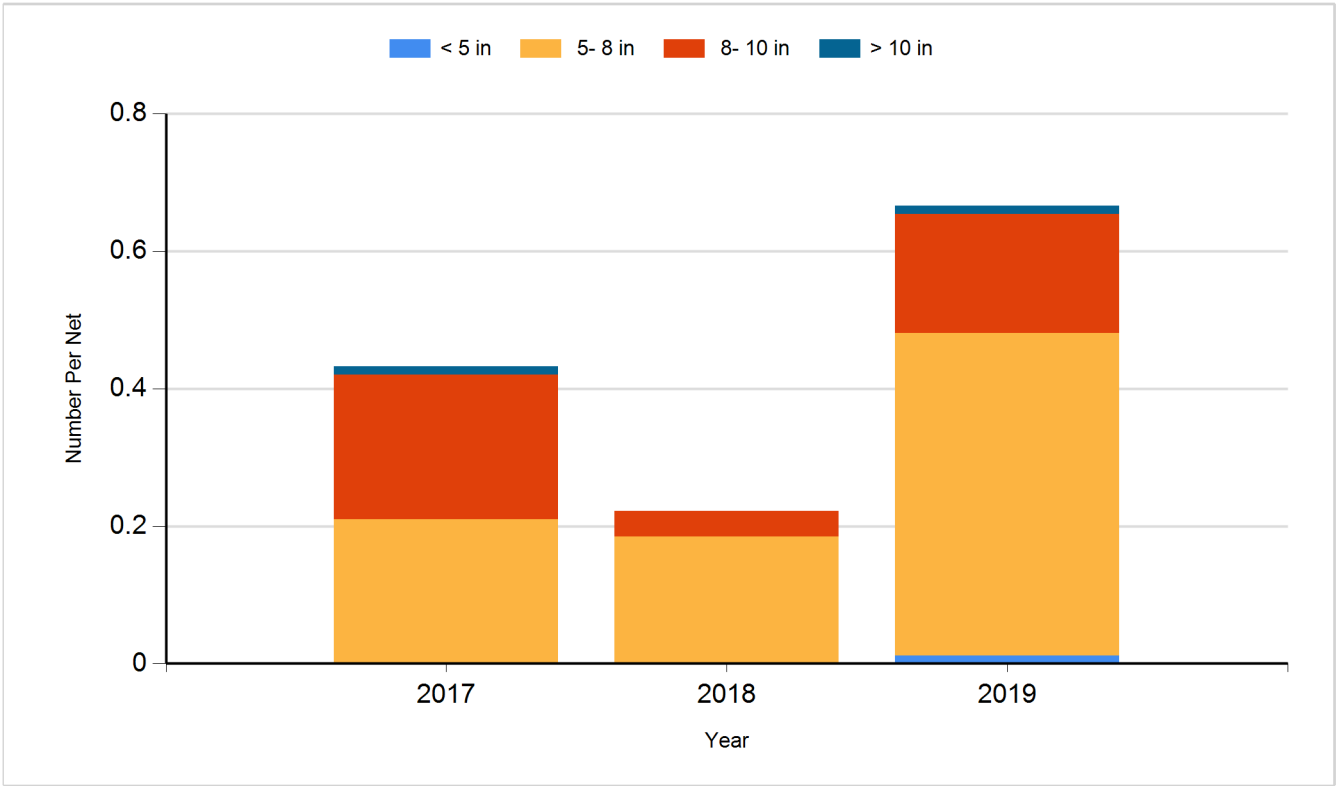
Species: White Bass
Gear: AFS std gill net



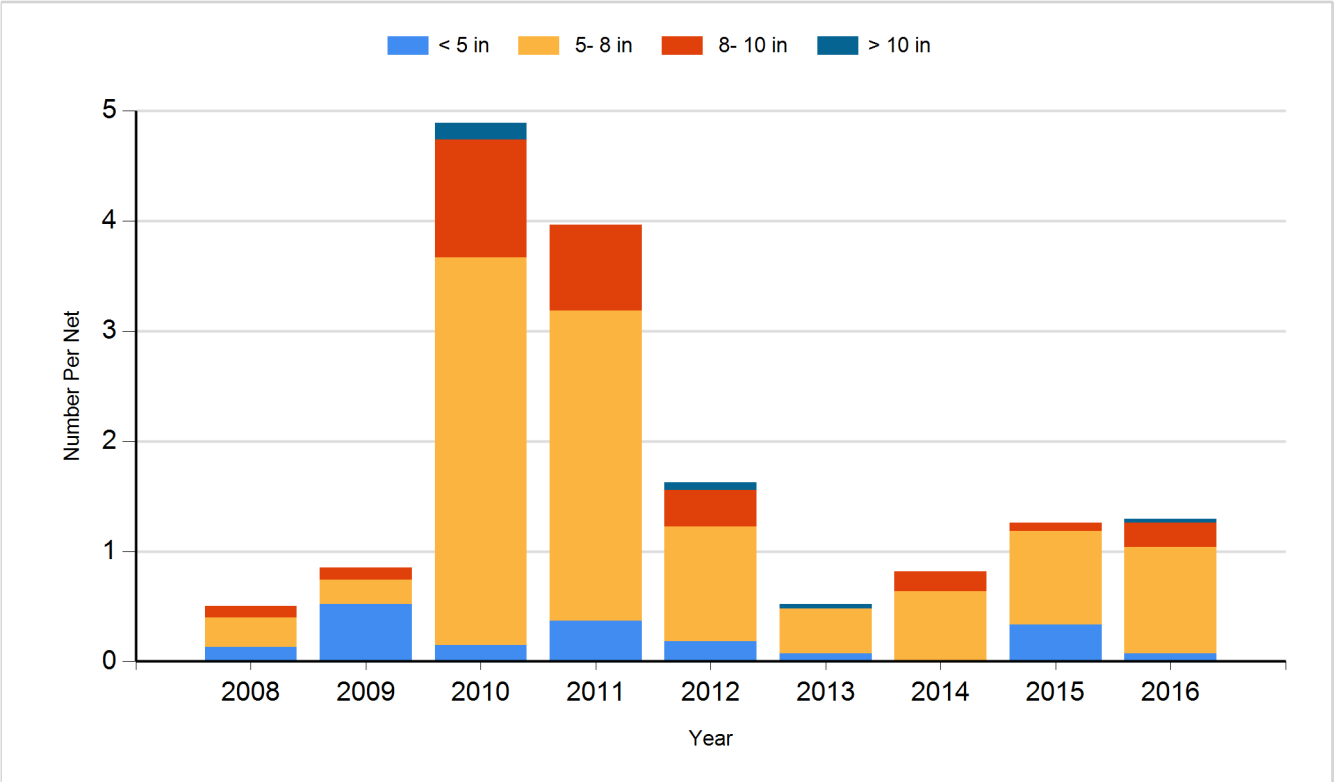
Species: White Bass
Gear: std exp gill net



Species: 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	Paddlefish	Large Fingerling	7,140
2012	Paddlefish	Large Fingerling	1,896
2013	Paddlefish	Large Fingerling	3,750
2014	Paddlefish	Juvenile	3,980
2015	Paddlefish	Large Fingerling	31,862
2018	Paddlefish	Large Fingerling	24,679