Lake Poinsett Survey Summary

Lake Poinsett, located 7.0 miles west of Estelline, is primarily managed as a walleye and yellow perch fishery but the lake supports a diverse fish community and a variety of species contribute to the fishery.

- **Channel catfish.** Although not abundant, opportunities exist for anglers to catch channel catfish at Lake Poinsett. In 2019, gill nets sampled 13 individuals ranging in length from 17.7 to 30.3 inches.

- **Walleye.** Relative abundance (5.3/gill net) was considered moderate in 2019. Gill net captured walleyes ranged in length from 7.5 to 26.4 inches, of those that were at least 10 inches 22% were ≥15.0 inches and 5% were 20.0 inches or longer. Fish from six year classes produced between 2009 and 2018 contributed to the catch, those from the 2015 cohort were the most numerous accounting for more than 50% of walleyes sampled. Growth of the 2015 year class has been slow through age 4 (mean length = 13.4 inches).

- **White bass.** At 1.8/gill net, relative abundance was lower in 2019 than surveys conducted from 2016 to 2018. Those sampled ranged in length from 12.2 to 15.4 inches.

- **Yellow perch**. Although fewer yellow perch were sampled in 2019 than 2016 – 2018, they remained the most abundant species in the gill net catch. The 2019 mean gill net CPUE was 9.3 and suggested moderate relative abundance. Sampled yellow perch ranged in length from 5.1 to 13.0 inches, most (87%) were ≥8.0 inches and 69% were 10.0 inches or longer. Individuals from seven cohorts (2011 and 2013 – 2018) contributed to the catch, those from the 2013, 2016, and 2017 year classes were the most abundant accounting for more than 80% of fish sampled. Yellow perch growth appears to be good with age-3 yellow perch exceeding 9.5 inches from 2010 to 2019. In 2019, the mean length at capture of age-3 fish was 10.3 inches.

For more detailed results see the computer generated South Dakota Statewide Fisheries Survey for Poinsett (Hamlin; below).

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Poinsett, Hamlin County
MBS-Lake-405-000
2019

Lake Information

Name:	Poinsett	**Maximum Depth:**	22 Feet
County:	Hamlin	**Mean Depth:**	17 Feet
		OHWM Elevation:	1,652
Surface Area:	7,978 Acres	**Outlet Elevation:**	1,651

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jul 23, 2019	6 net-nights
AFS std gill net	Jul 24, 2019	6 net-nights
fall night EF-WAE	Sep 19, 2019	3537 seconds

Common Fish Species Present

Walleye

Smallmouth Bass

Northern Pike

Yellow Perch

White Sucker

Bigmouth Buffalo

White Bass

Channel Catfish

Black Crappie

Common Carp

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	29	2.4	1.7	14		3		103	2
	Black Bullhead	7	0.6	0.5	100		71		94	5
	Black Crappie	13	1.1	0.6	69		31		121	3
	Channel Catfish	13	1.1	0.6	100		38		108	4
	Common Carp	10	0.8	0.6	100		20		107	4
	Northern Pike	3	0.3	0.2	100		100		87	14
	Smallmouth Bass	1	0.1	0.1	100		0		103	
	Walleye	70	5.3	1.3	22	8	5		91	1
	White Bass	21	1.8	0.9	100		100		103	1
	White Sucker	37	3.1	0.9	100		97		107	2
	Yellow Perch	112	9.3	3.8	87	5	69	6	113	1
fall night EF-WAE*	Walleye	84	86.9	27.2					88	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.

*** Methods/Species that ignore stock length**

		CPUE										
Gear	Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg
AFS std gill net	Bigmouth Buffalo							2.8	0.4	0.3	2.4	1.5
	Black Bullhead							0.4	0.3	0.4	0.6	0.4
	Black Crappie							3.9	0.8	1.3	1.1	1.8
	Channel Catfish							1.1	0.8	0.5	1.1	0.9
	Common Carp							0.2	0.4	1.7	0.8	0.8
	Northern Pike							0.0	0.1	0.2	0.3	0.2
	Shorthead Redhorse							0.0	0.0	0.2	0.0	0.1
	Smallmouth Bass							0.6	0.6	0.6	0.1	0.5
	Walleye							8.9	12.4	8.8	5.3	8.9
	White Bass							7.3	6.2	5.8	1.8	5.3
	White Sucker							4.5	3.0	2.3	3.1	3.2
	Yellow Bullhead							0.2	0.4	0.0	0.0	0.2
	Yellow Perch							25.1	14.3	22.3	9.3	17.8
fall night EF-WAE*	Walleye	0.0	4.0	305.0	2.0	992.2	1,722.0	335.0	49.7	29.8	86.9	352.7
std exp gill net	Bigmouth Buffalo	0.0	0.0	0.7	0.0	0.5	0.3					0.3
	Black Bullhead	0.0	0.0	2.5	0.2	0.5	3.2					1.1
	Black Crappie	0.0	0.0	0.0	0.0	0.3	2.0					0.4
	Channel Catfish	0.0	0.3	2.2	2.5	0.7	0.7					1.1
	Common Carp	0.1	0.1	2.8	1.3	0.8	0.5					0.9
	Northern Pike	0.3	2.4	2.0	1.3	1.2	0.0					1.2
	Orangespotted Sunfish*	0.5	0.0	0.0	0.0	0.0	0.0					0.1
	Shorthead Redhorse	0.1	0.0	0.0	0.0	0.0	0.2					0.1
	Smallmouth Bass	0.1	0.1	1.3	1.3	0.7	0.0					0.6
	Spottail Shiner*	0.0	0.0	0.0	0.0	0.0	0.0					0.0
	Walleye	3.3	9.2	12.5	6.7	11.7	15.3					9.8
	White Bass	1.2	0.4	2.2	0.8	0.8	2.2					1.3
	White Sucker	0.9	0.9	2.3	4.3	3.5	3.0					2.5
	Yellow Bullhead	0.0	0.0	2.7	0.3	0.0	0.3					0.6
	Yellow Perch	45.8	7.3	22.0	15.0	40.5	124.2					42.5

10-Year Size Structure and Condition Statistics by Gear and Species

Species proportional size distribution (PSD), proportional size distribution of preferred length fish (PSD-P), and relative weight (Wr) collected by different gear types across 10 years.

			Year									
Gear	Species	Index	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
AFS std gill net	Channel Catfish	PSD							79	100	100	100
		PSD-P							57	67	100	38
		Wr							124	118	101	108
	Walleye	PSD							18	7	19	22
		PSD-P							5	1	4	5
		Wr							82	79	84	91
	White Bass	PSD							98	99	100	100
		PSD-P							96	99	99	100
		Wr							102	100	103	103
	Yellow Perch	PSD							99	99	97	87
		PSD-P							84	57	56	69
		Wr							115	115	110	113
std exp gill net	Channel Catfish	PSD		100	100	100	100	75				
		PSD-P		20	31	20	75	75				
		Wr		109	105	111	117	110				
	Walleye	PSD	32	16	57	48	44	30				
		PSD-P	2	5	4	8	4	1				
		Wr	95	85	82	85	91	88				
	White Bass	PSD	95	100	54	100	100	62				
		PSD-P	90	100	54	80	100	23				
		Wr	105	100	88	96	104	102				
	Yellow Perch	PSD	9	93	83	81	26	92				
		PSD-P	3	5	55	23	11	14				
		Wr	107	107	107	110	115	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	70	216 (8)	314 (4)	379 (2)	341 (38)	391 (16)					655 (2)
2018	110	233 (5)	304 (2)	313 (78)	390 (21)			631 (1)		662 (3)	
2017	140	201 (3)	272 (79)	361 (55)					522 (3)		
2016	203	229 (74)	355 (121)	436 (1)	476 (2)	463 (3)		599 (1)			628 (1)
2015	125	255 (97)		408 (12)	451 (8)		462 (7)				540 (1)
2014	70	264 (1)	317 (12)	361 (32)	422 (2)	458 (22)	581 (1)				
2013	41		280 (8)	371 (12)	409 (18)	528 (1)	556 (1)	623 (1)			
2012	87	205 (12)	307 (1)	394 (68)	476 (2)	508 (2)	577 (1)			706 (1)	
2011	166		346 (145)	441 (7)	499 (8)	547 (3)	444 (2)		535 (1)		
2010	85	249 (51)	369 (21)	436 (8)	480 (3)		517 (2)				

Species: Yellow Perch

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2019	112	158 (3)	203 (23)	262 (47)	300 (10)	291 (5)	292 (22)		335 (1)		
2018	268	132 (1)	223 (111)	271 (100)	288 (30)	309 (25)					
2017	157		229 (65)	279 (10)	280 (79)		317 (3)				
2016	326	143 (3)	234 (24)	272 (282)	284 (16)			337 (1)			
2015	745	153 (16)	224 (570)	252 (146)	295 (13)						
2014	246	154 (140)	180 (56)	244 (41)	234 (2)	306 (8)					
2013	90	147 (8)	213 (56)	246 (7)	277 (19)						
2012	132	157 (23)	227 (11)	259 (98)							
2011	132	156 (6)	228 (126)								
2010	825	167 (762)	240 (47)	280 (14)	328 (2)						

Fish Condition

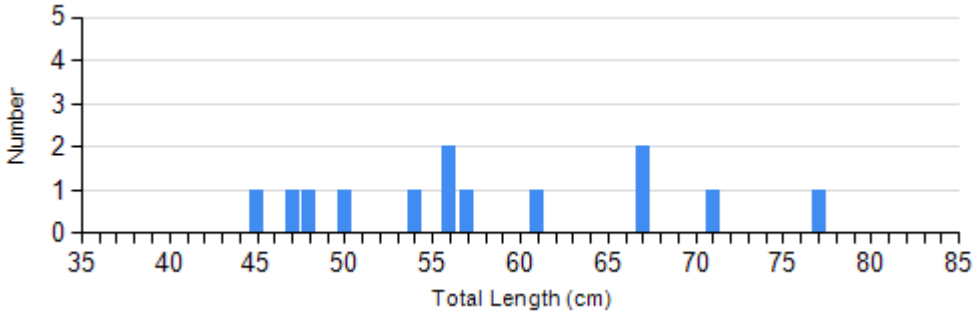
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		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	1	105	0		1	121	2	107 (8.3)
	2016	3	117 (7.2)	3	136 (8.0)	2	117 (14.8)	6	124 (5.5)
	2017	0		3	119 (3.5)	5	114 (10.5)	1	138
	2018	0		0		0		6	101 (6.6)
	2019	0		8	103 (2.6)	3	108 (7.5)	2	126 (6.1)
Walleye Gill Net	2015	64	87 (0.7)	27	91 (1.4)	1	89	0	
	2016	132	82 (0.4)	20	81 (1.1)	4	87 (4.6)	4	92 (5.0)
	2017	127	79 (0.5)	8	79 (2.8)	1	88	0	
	2018	86	84 (0.6)	16	84 (2.1)	0		4	91 (1.4)
	2019	49	91 (0.8)	11	92 (2.3)	1	97	2	90 (0.4)
White Bass Gill Net	2015	5	103 (3.0)	5	103 (1.3)	0		3	99 (4.1)
	2016	2	100 (5.4)	2	97 (7.3)	84	102 (0.8)	7	101 (2.7)
	2017	1	94	0		61	100 (0.7)	6	100 (1.5)
	2018	0		1	112	46	104 (0.8)	22	102 (1.1)
	2019	0		0		17	103 (1.1)	4	104 (1.4)
Yellow Perch Gill Net	2015	59	105 (1.5)	583	111 (0.6)	96	109 (1.3)	7	107 (2.2)
	2016	4	100 (3.7)	47	117 (1.4)	267	115 (0.6)	8	107 (3.9)
	2017	2	104 (1.5)	66	110 (1.2)	71	120 (1.2)	18	113 (1.9)
	2018	7	117 (5.1)	112	108 (1.2)	112	113 (1.2)	37	109 (1.7)
	2019	15	119 (3.5)	20	111 (2.1)	58	114 (1.1)	19	109 (1.5)

Length Frequency Distribution

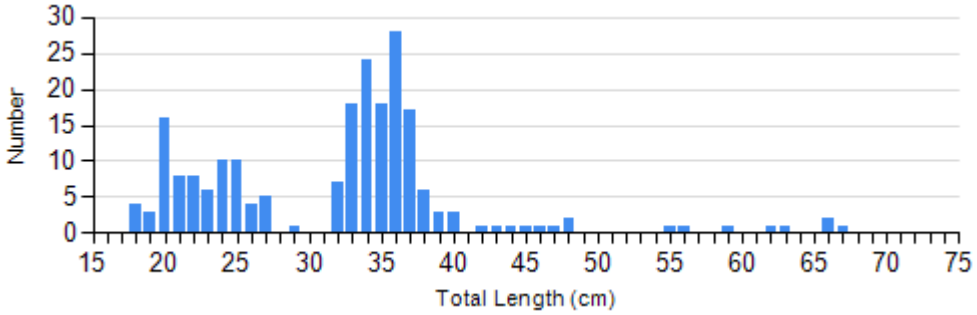
Length frequency histogram of species sampled by year.

Species: Channel Catfish
Gear: AFS std gill net



2019

Species: Walleye
Gear: AFS std gill net



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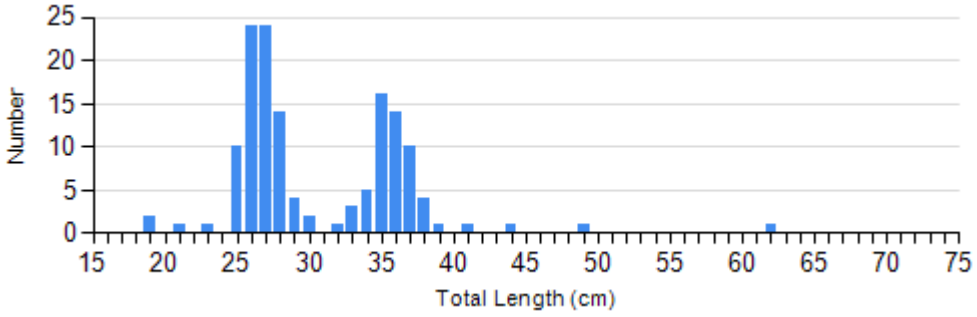

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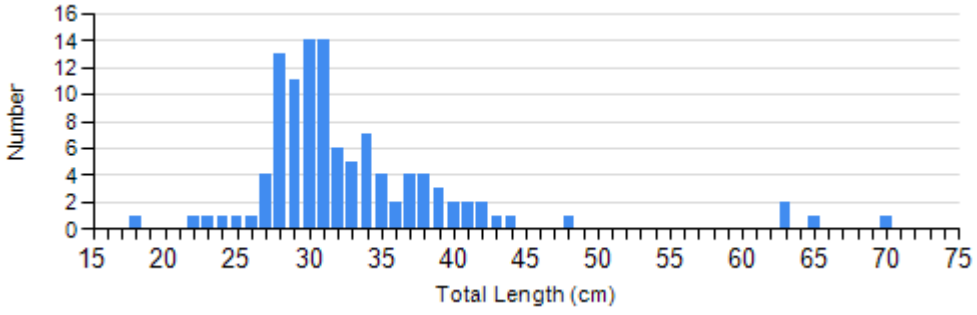

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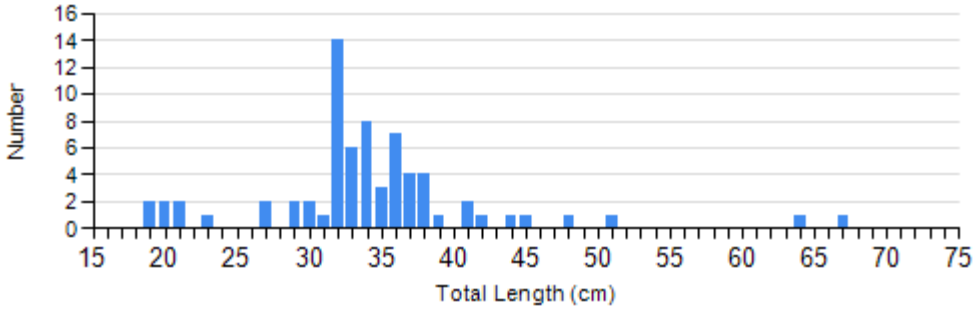

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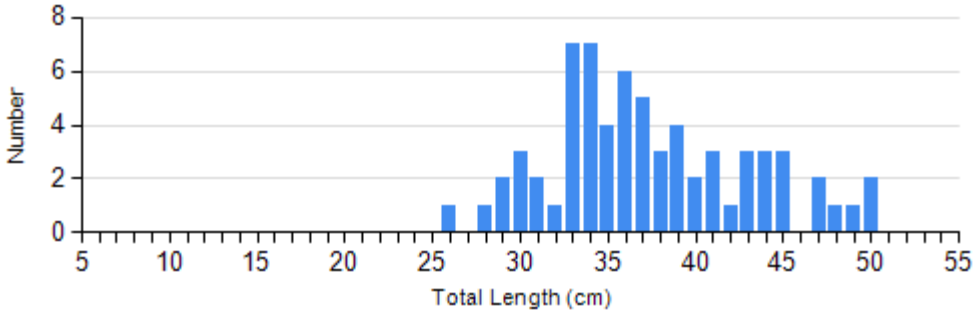
Species: Walleye
Gear: std exp gill net



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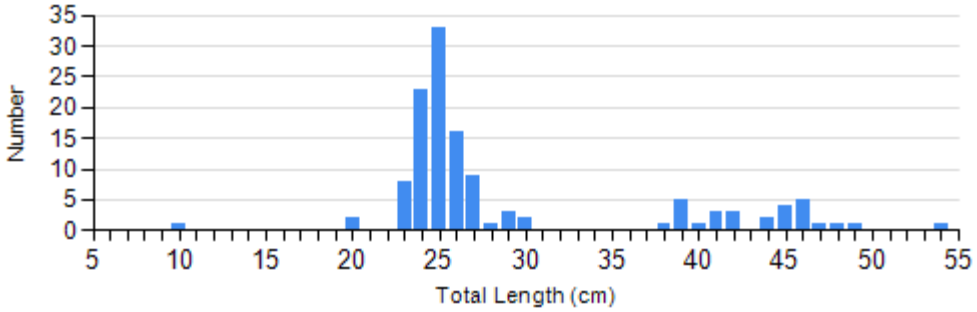
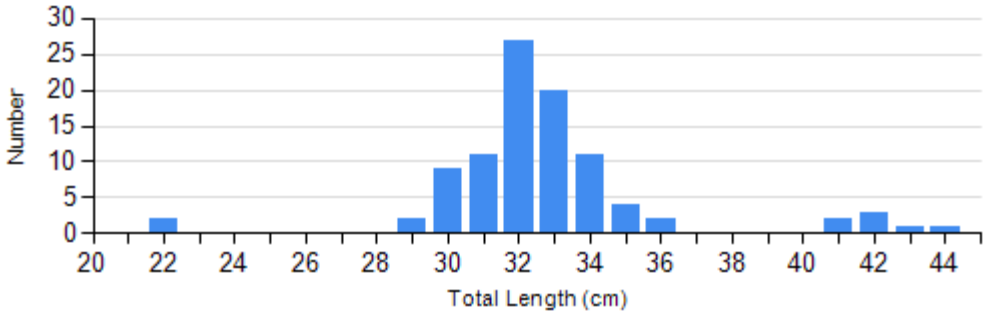


2015

Species: White Bass
Gear: AFS std gill net



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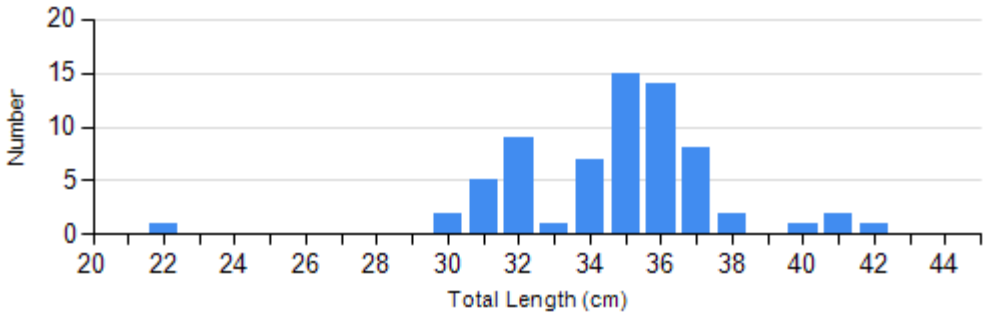

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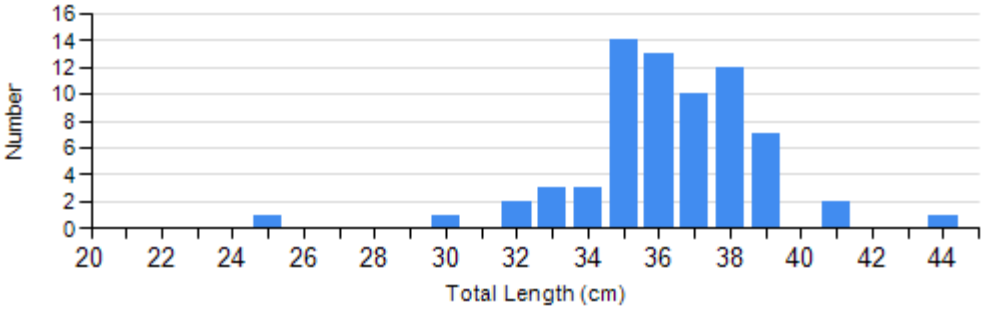

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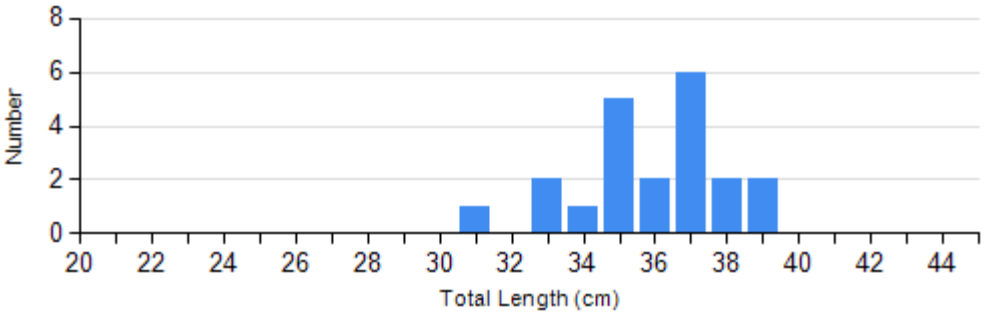
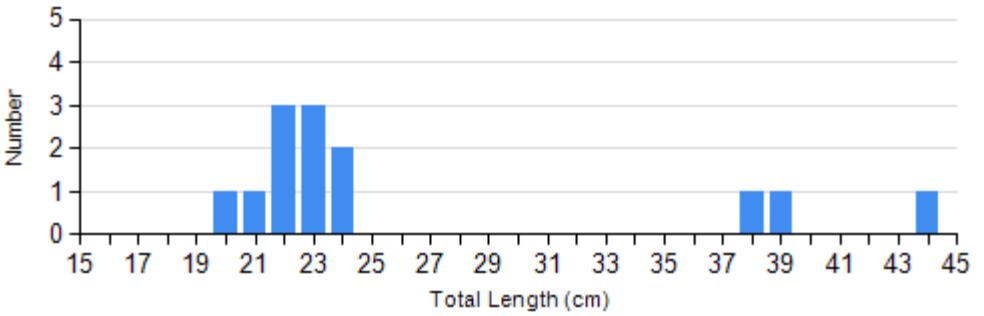


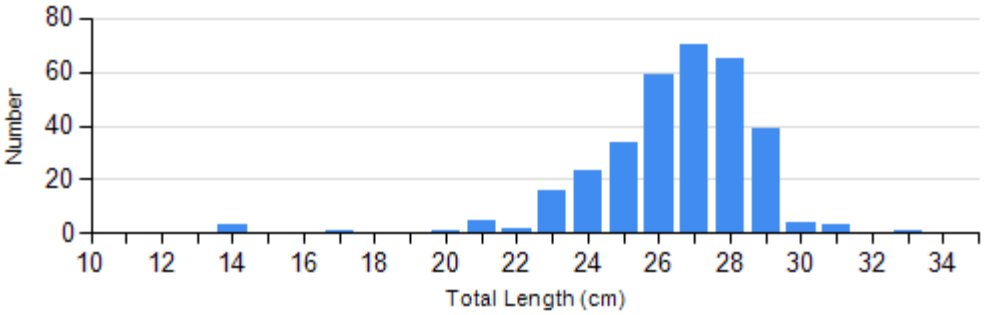
2019

Species: White Bass
Gear: std exp gill net



2015

Species: Yellow Perch
Gear: AFS std gill net



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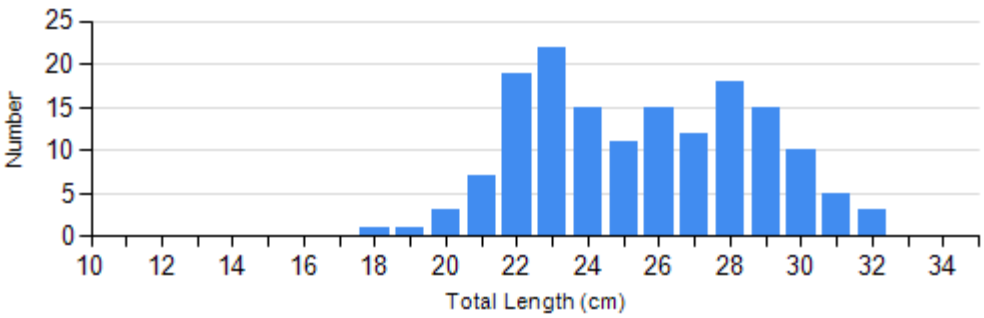

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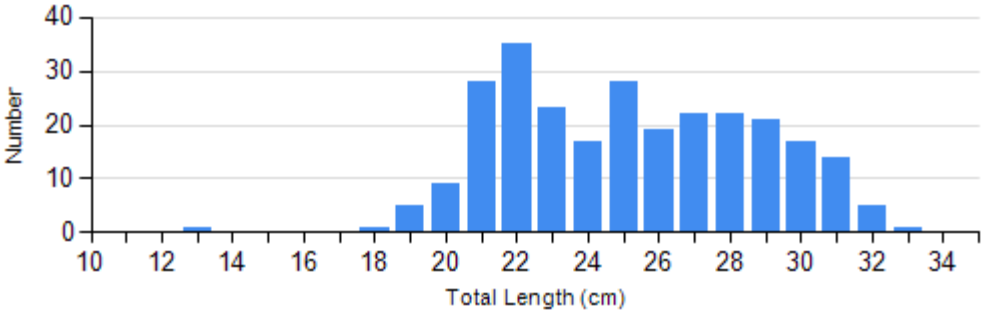

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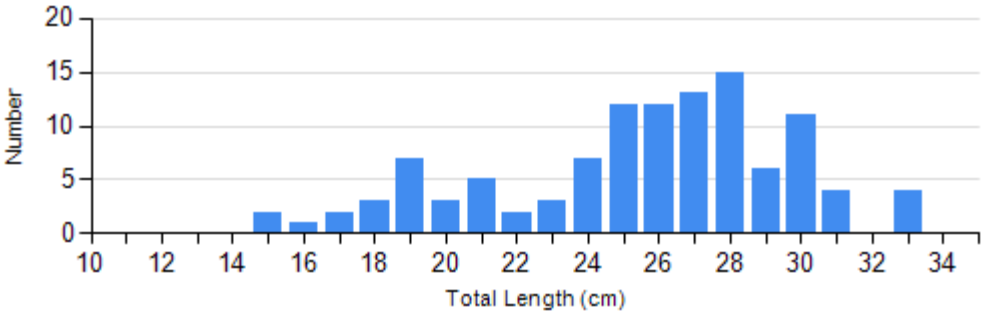
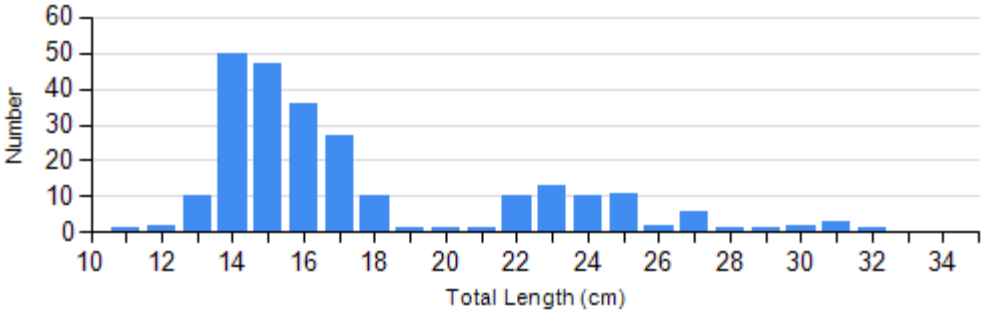
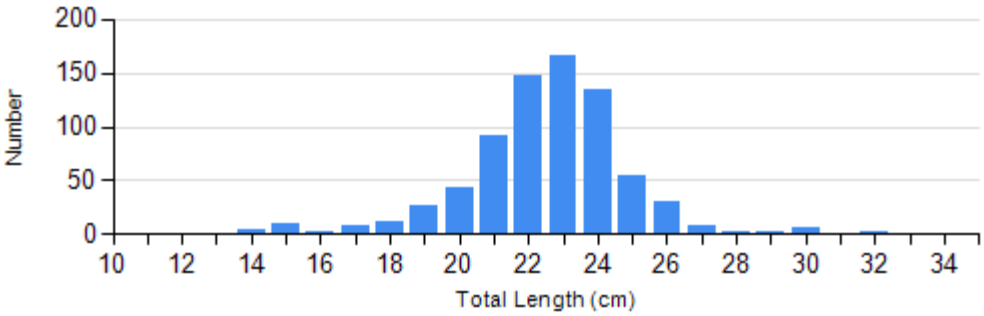


2019

Species: Yellow Perch
Gear: std exp gill net



2014

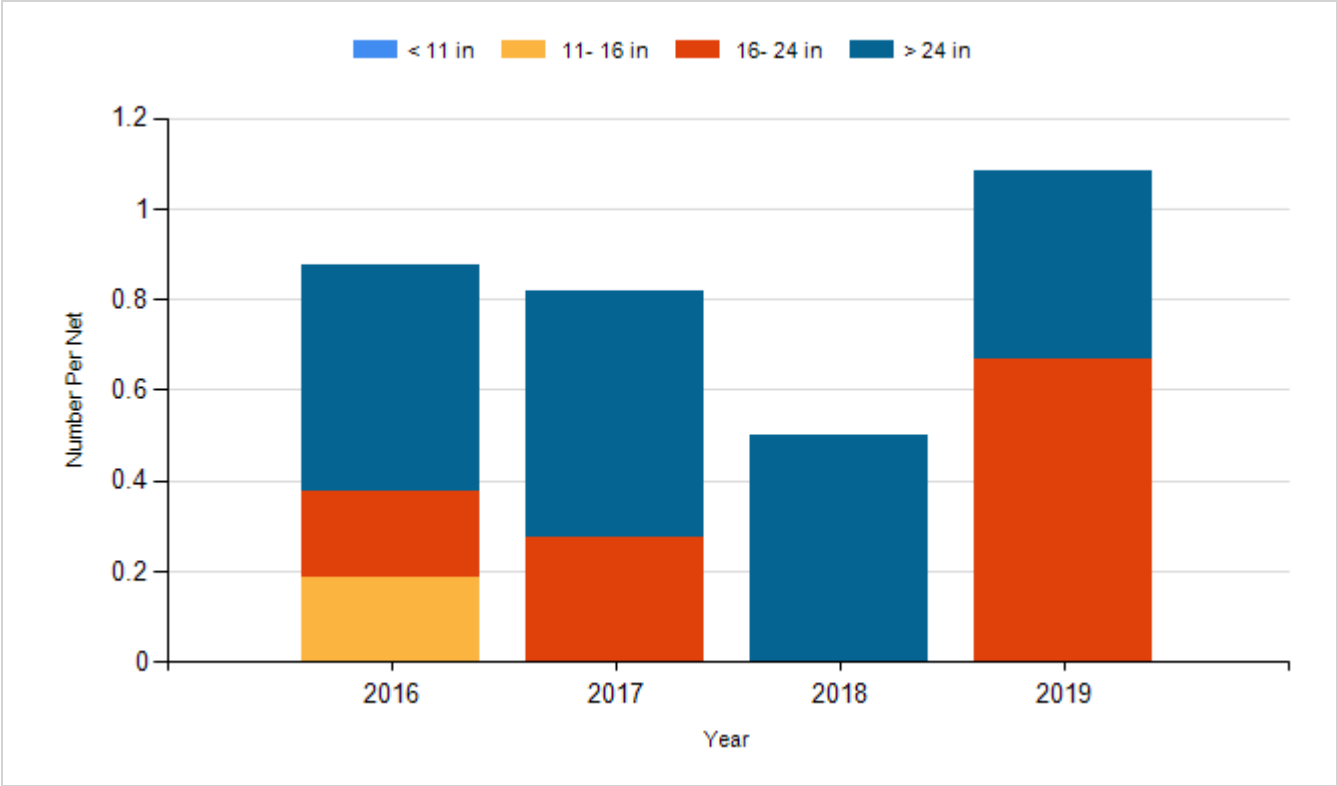


2015

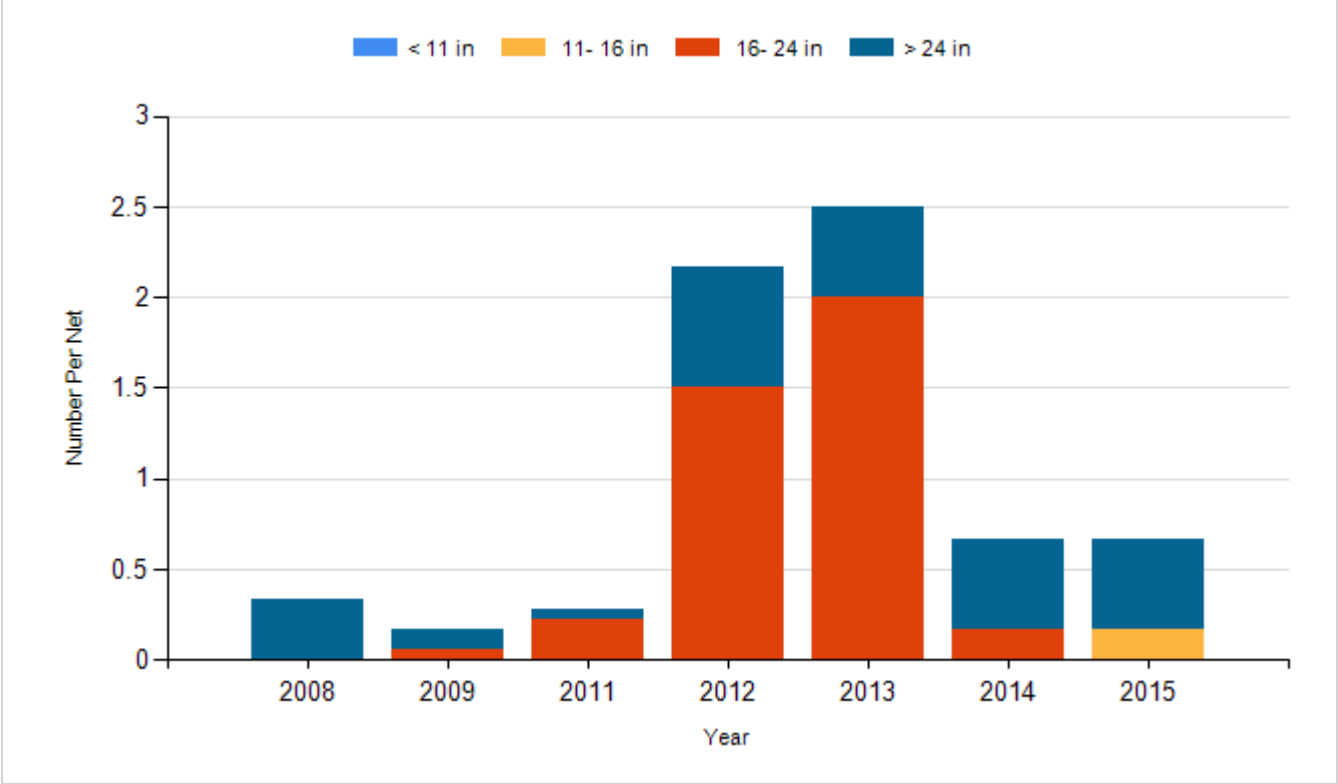
Historic Fish Sizes and Relative Abundance

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

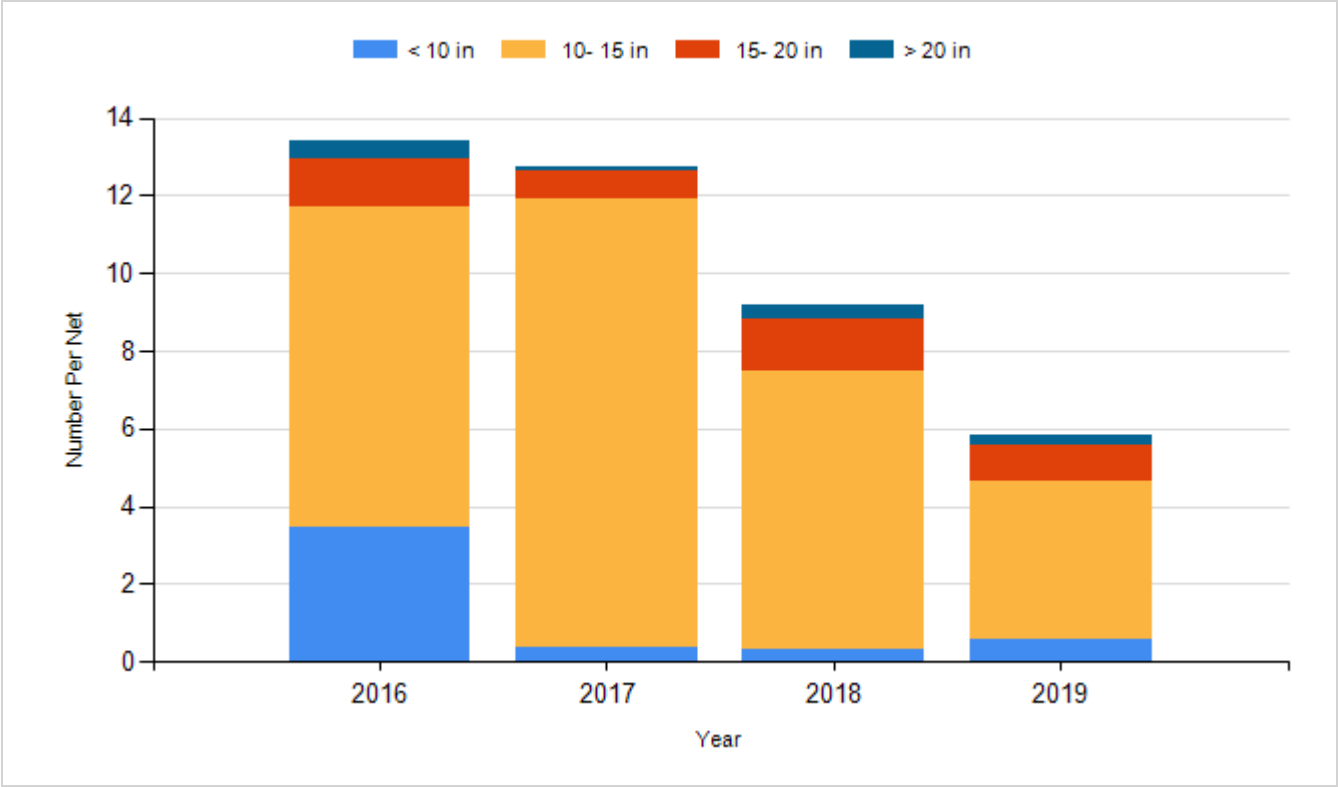
Species: Channel Catfish
Gear: AFS std gill net



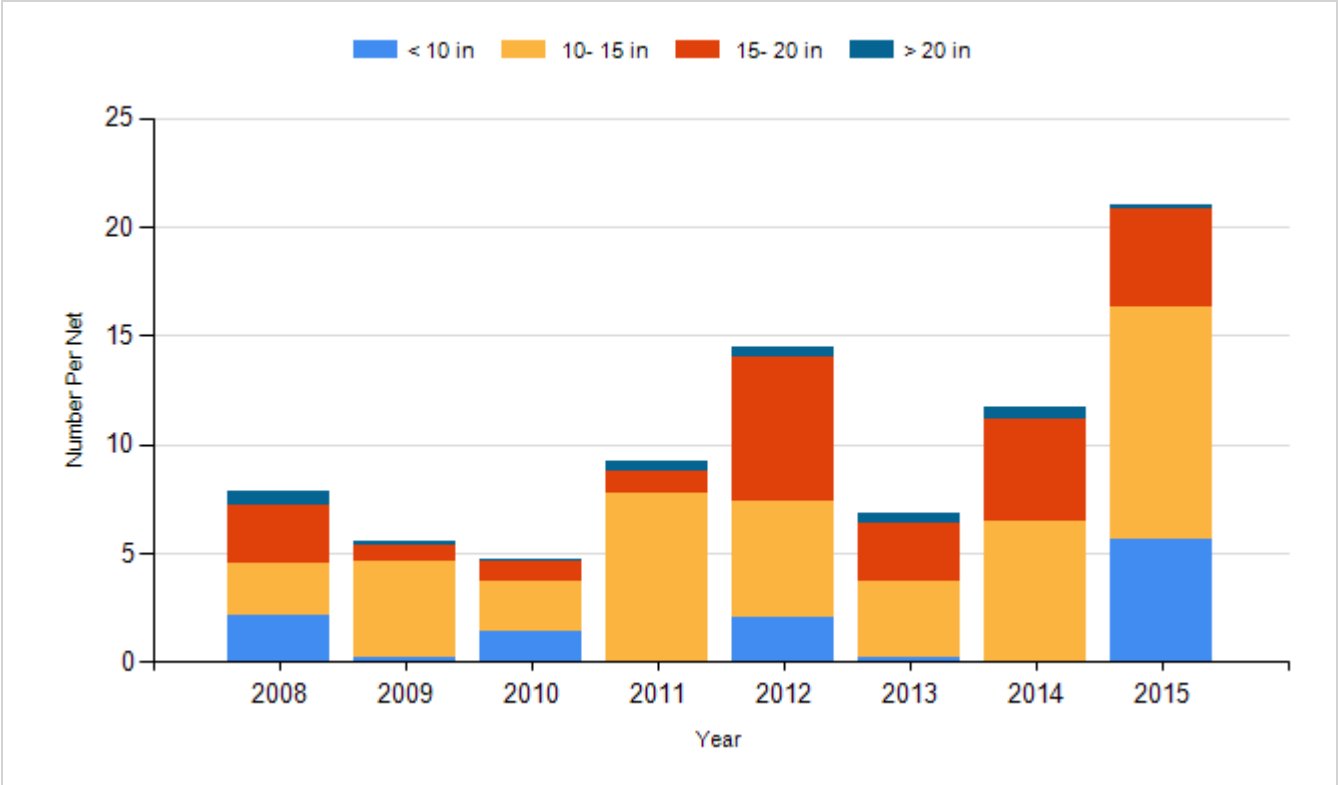
Species: Channel Catfish
Gear: std exp gill net



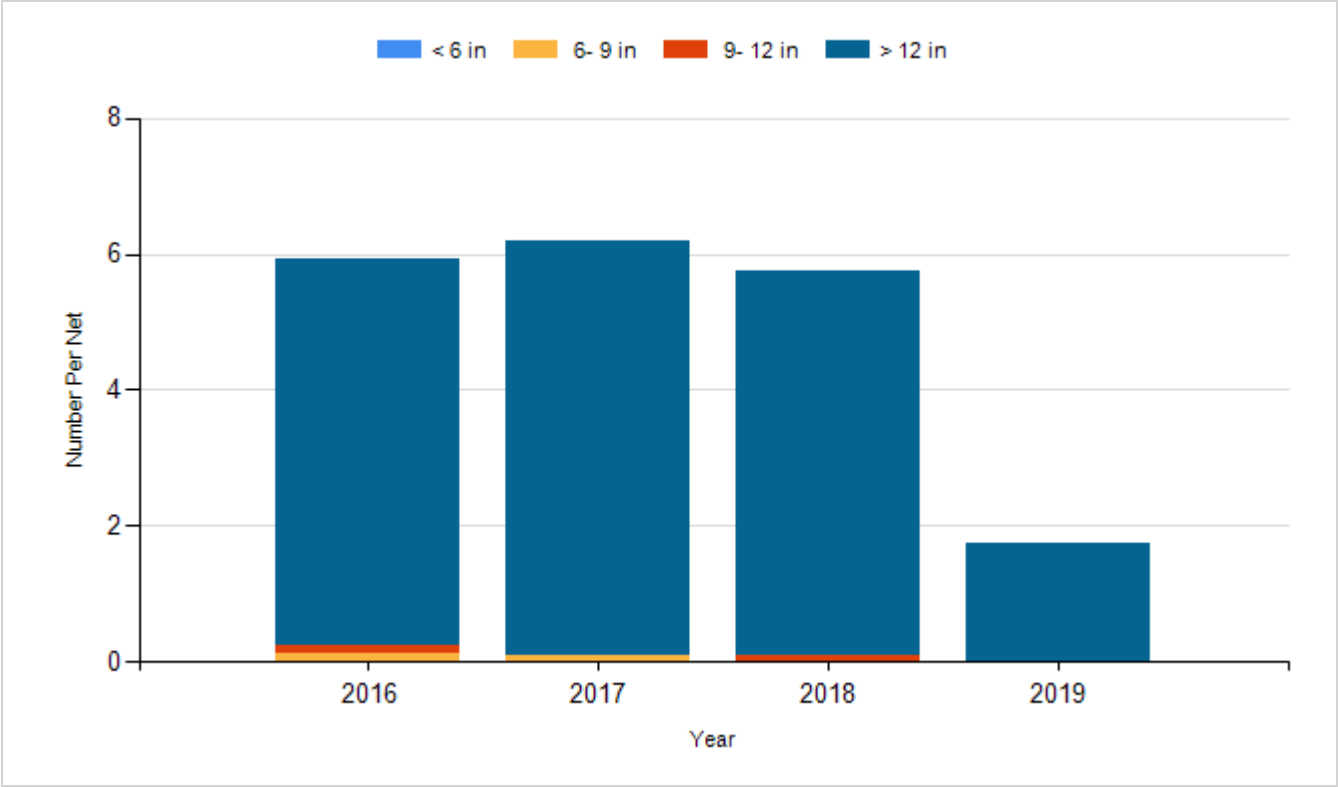
Species: Walleye
Gear: AFS std gill net



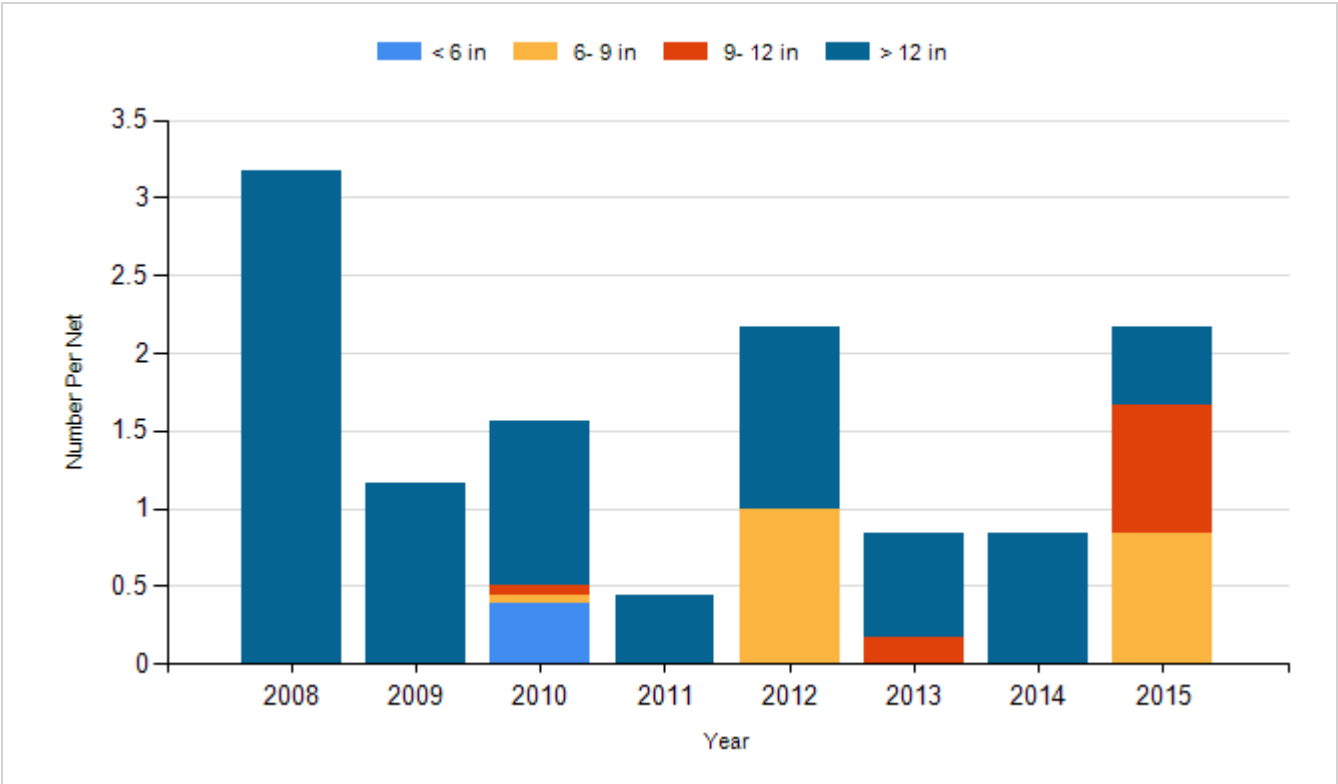
Species: Walleye
Gear: std exp gill net



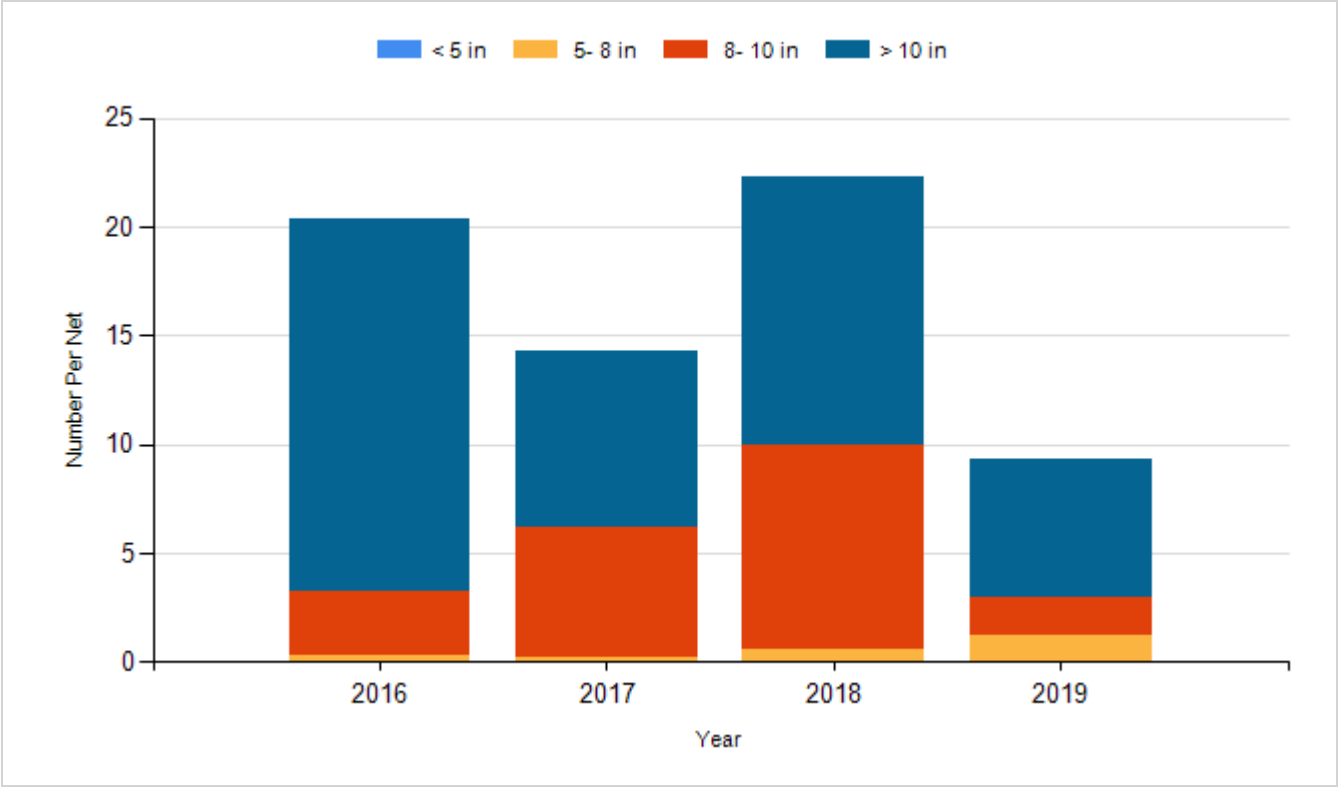
Species: White Bass
Gear: AFS std gill net



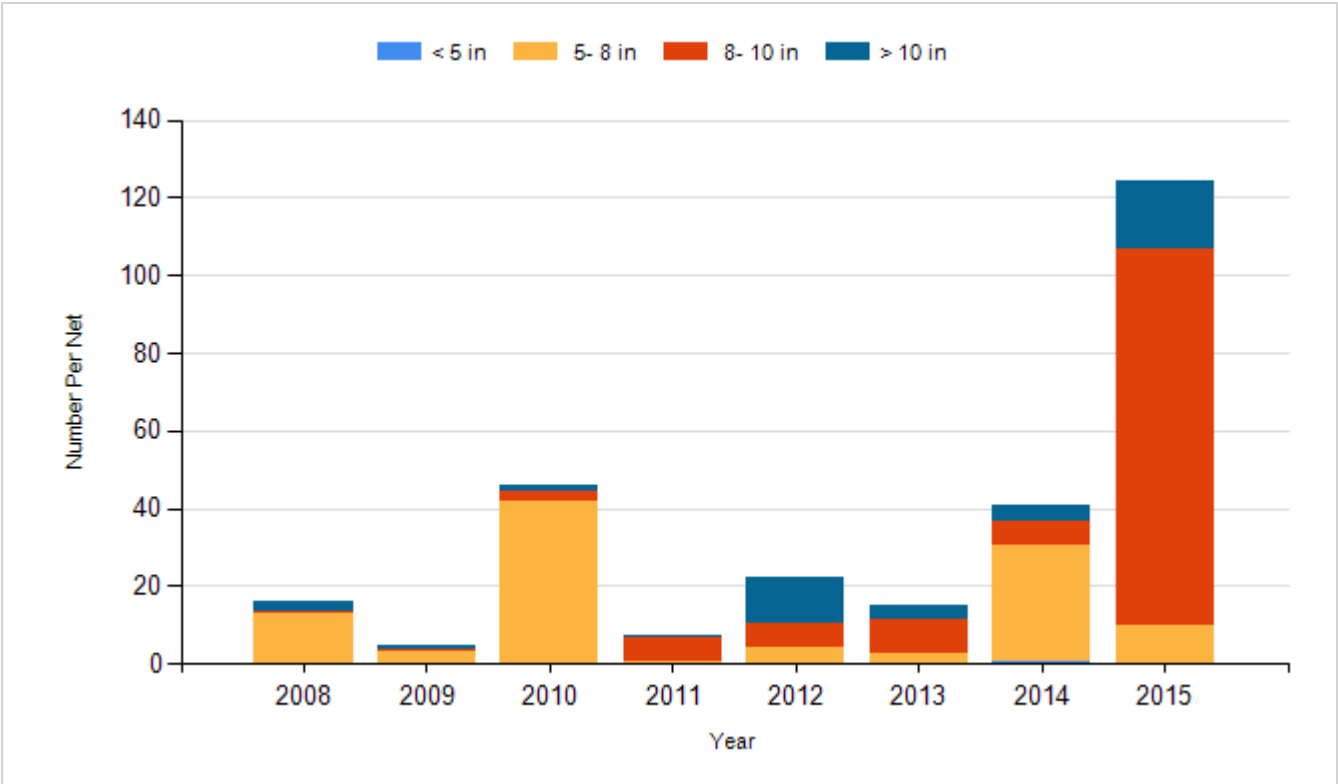
Species: White Bass
Gear: std exp gill net



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
2009	Walleye	Fry	4,000,000
2011	Walleye	Fry	3,000,000
2012	Walleye	Fry	4,000,000
2014	Walleye	Fry	4,000,000
2019	Walleye	Fry	2,000,000