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 2018, gill nets sampled six individuals that ranged in length from 29.1 to 32.7 inches.

- **Walleye.** Relative abundance (8.8/gill net) was considered moderate to high in 2018. Gill net captured walleyes ranged in length from 6.7 to 27.6 inches; most (82%) were less than 15.0 inches. Six year classes were represented in the gill net catch, those from the 2015 cohort accounted for more than 70% of the walleye catch. Growth of the 2015 year class has been slow through age 3 (mean length = 12.3 inches).

- **White bass.** At 5.8/gill net, relative abundance was similar to that of surveys conducted in 2016 (7.3/gill net) and 2017 (6.2/gill net). Sampled white bass ranged in length from 9.8 to 17.3 inches; most (≈70%) were 13.8 to 15.4 inches.

- **Yellow perch**. In 9 of the last 10 years, yellow perch have been the most abundant fish species in the gill net catch. In 2018, the mean gill net CPUE was 22.3 suggesting moderate to high relative abundance. Sampled yellow perch ranged in length from 5.1 to 13.0 inches; most (97%) were >8.0 inches and 56% exceeded 10.0 inches. Five consecutive year classes (2013 – 2017) were represented; those from the 2015 and 2016 cohorts were the most abundant and accounted for nearly 80% of fish sampled. Yellow perch growth appears to be good with age-3 yellow perch exceeding 9.5 inches from 2009 – 2018. In 2018, the mean length at capture of age-3 fish was 10.7 inches.

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

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Poinsett, Hamlin County
MBS-Lake-405-000
2018

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 24, 2018	4 net-nights
AFS std gill net	Jul 25, 2018	4 net-nights
AFS std gill net	Jul 26, 2018	4 net-nights
fall night EF-WAE	Oct 22, 2018	3615 seconds

Common Fish Species Present

Northern Pike

Walleye

Smallmouth Bass

Yellow Perch

White Bass

White Sucker

Common Carp

Black Crappie

Channel Catfish

Black Bullhead

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)
Bigmouth Buffalo	11	28	18	46	24	61	30	76	37	94
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
Channel Catfish	11	28	16	41	24	61	28	71	36	91
Common Carp	11	28	16	41	21	53	26	66	33	84
Freshwater Drum	8	20	12	30	15	38	20	51	25	63
Gizzard Shad	7	18	11	28						
Green Sunfish	3	8	6	15	8	20	10	25	12	30
Lake Herring	5	13	8	20	11	28	14	35	17	43
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
Rock Bass	4	10	7	18	9	23	11	28	13	33
Rudd	6	15	10	25	12	30	15	38	19	48
Saugeye	9	23	14	35	18	46	22	56	27	69
Shorthead Redhorse	6	15	10	25	13	33	16	41	20	51
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
White Sucker	6	15	10	25	13	33	16	41	20	51
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	CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
AFS std gill net	Bigmouth Buffalo	0.3	0.2	100		0		92	5
	Black Bullhead	0.4	0.2	80		80		85	7
	Black Crappie	1.3	0.6	13		7		123	6
	Channel Catfish	0.5	0.3	100		100		101	8
	Common Carp	1.7	0.9	35	17	35	17	105	3
	Northern Pike	0.2	0.2	100		100		83	11
	Shorthead Redhorse	0.2	0.2	100		100		113	11
	Smallmouth Bass	0.6	0.3	86		43		89	2
	Walleye	8.8	2.1	19	6	4		84	1
	White Bass	5.8	2.5	100		99		103	1
	White Sucker	2.3	1.0	100		100		104	2
	Yellow Perch	22.3	5.0	97	2	56	4	110	1
fall night EF-WAE*	Walleye	29.8	5.9					84	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.

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

		CPUE										
Gear	Species	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Avg
AFS std gill net	Bigmouth Buffalo								2.8	0.4	0.3	1.2
	Black Bullhead								0.4	0.3	0.4	0.4
	Black Crappie								3.9	0.8	1.3	2.0
	Channel Catfish								1.1	0.8	0.5	0.8
	Common Carp								0.2	0.4	1.7	0.8
	Northern Pike								0.0	0.1	0.2	0.1
	Shorthead Redhorse								0.0	0.0	0.2	0.1
	Smallmouth Bass								0.6	0.6	0.6	0.6
	Walleye								8.9	12.4	8.8	10.0
	White Bass								7.3	6.2	5.8	6.4
	White Sucker								4.5	3.0	2.3	3.3
	Yellow Bullhead								0.2	0.4	0.0	0.2
	Yellow Perch								25.1	14.3	22.3	20.6
fall night EF-WAE	Walleye	257.2	0.0	4.0	305.0	2.0	992.2	1,722.0	335.0	49.7	29.8	369.7
boat shocker (night, DC)	Smallmouth Bass				30.6				73.5			52.1
frame net (std 3/4 in)	Bigmouth Buffalo	1.8	0.4		0.0	4.2	0.5					1.4
	Black Bullhead	0.3	0.2		79.7	4.4	10.2					19.0
	Black Crappie	0.0	0.1		4.5	0.4	1.5					1.3
	Bluegill	0.0	0.0		0.1	0.0	0.0					0.0
	Channel Catfish	0.1	0.4		0.8	0.2	0.0					0.3
	Common Carp	1.1	0.6		0.3	2.7	0.2					1.0
	Northern Pike	0.6	0.5		5.9	3.6	1.0					2.3
	Shorthead Redhorse	0.1	0.0		0.2	0.1	0.0					0.1
	Smallmouth Bass	0.3	1.7		2.2	1.2	1.4					1.4
	Walleye	4.1	0.3		4.0	1.4	2.4					2.4
	White Bass	0.6	0.1		3.1	0.4	0.8					1.0
	White Sucker	2.4	0.7		1.1	0.2	0.4					1.0
	Yellow Bullhead	0.0	0.0		19.3	2.7	6.3					5.7
	Yellow Perch	0.4	22.4		0.6	0.1	0.1					4.7
std exp gill net	Bigmouth Buffalo	0.0	0.0	0.0	0.7	0.0	0.5	0.3				0.2
	Black Bullhead	0.2	0.0	0.0	2.5	0.2	0.5	3.2				0.9
	Black Crappie	0.0	0.0	0.0	0.0	0.0	0.3	2.0				0.3
	Channel Catfish	0.5	0.0	0.8	2.2	2.5	0.7	0.7				1.1

Common Carp	0.0	0.0	0.3	2.8	1.3	0.8	0.5	0.8
Northern Pike	0.0	1.0	7.3	2.0	1.3	1.2	0.0	1.8
Orangespotted Sunfish*	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.1
Shorthead Redhorse	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.1
Smallmouth Bass	0.2	0.2	0.3	1.3	1.3	0.7	0.0	0.6
Spottail Shiner	2.0	4.7	0.0	0.0	0.5	8.8	12.7	4.1
Walleye	16.0	10.0	27.7	12.5	6.7	11.7	15.3	14.3
White Bass	3.5	3.5	1.3	2.2	0.8	0.8	2.2	2.0
White Sucker	0.2	2.7	2.7	2.3	4.3	3.5	3.0	2.7
Yellow Bullhead	0.0	0.0	0.0	2.7	0.3	0.0	0.3	0.5
Yellow Perch	13.2	137.2	22.0	22.0	15.0	40.5	124.2	53.4

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	Walleye	PSD								18	7	19
		PSD-P								5	1	4
		Wr								82	79	84
	White Bass	PSD								98	99	100
		PSD-P								96	99	99
		Wr								102	100	103
	Yellow Perch	PSD								99	99	97
		PSD-P								84	57	56
		Wr								115	115	110
std exp gill net	Walleye	PSD	17	32	16	57	48	44	30			
		PSD-P	2	2	5	4	8	4	1			
		Wr	91	95	85	82	85	91	88			
	White Bass	PSD	100	95	100	54	100	100	62			
		PSD-P	100	90	100	54	80	100	23			
		Wr	111	105	100	88	96	104	102			
	Yellow Perch	PSD	27	9	93	83	81	26	92			
		PSD-P	15	3	5	55	23	11	14			
		Wr	107	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+
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)				
2009	99	265 (47)	358 (44)	468 (2)	478 (3)	497 (1)	514 (1)	580 (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+
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)						
2009	80	147 (59)	246 (19)	313 (1)	325 (1)						

Fish Condition

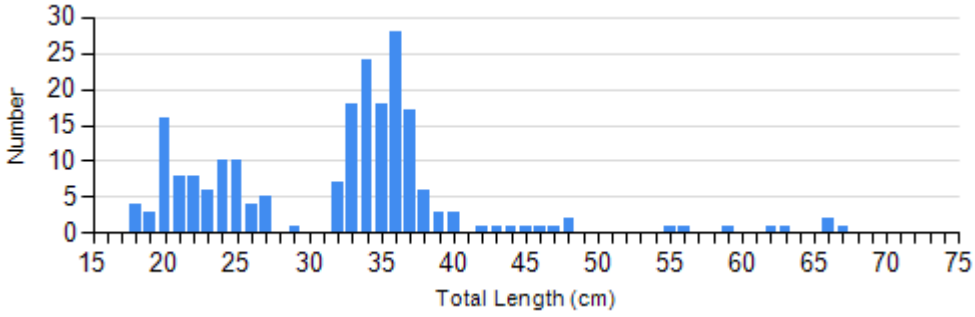
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Walleye Gill Net	2014	39	88 (0.8)	28	94 (1.4)	3	93 (0.7)	0	
	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)
White Bass Gill Net	2018	0		1	112	46	104 (0.8)	22	102 (1.1)
White Bass Gill Net	2014	0		0		2	103 (5.3)	3	104 (4.1)
	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)
Yellow Perch Gill Net	2014	181	114 (0.8)	35	123 (1.6)	21	117 (1.9)	6	115 (2.7)
	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)

Length Frequency Distribution

Length frequency histogram of species sampled by year.

Species: Walleye
Gear: AFS std gill net



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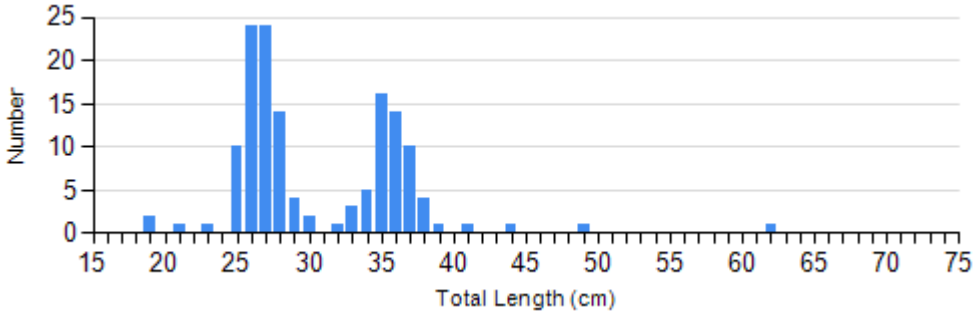
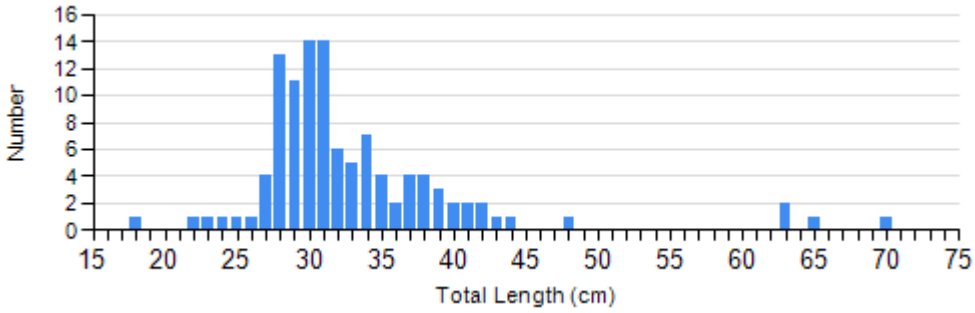
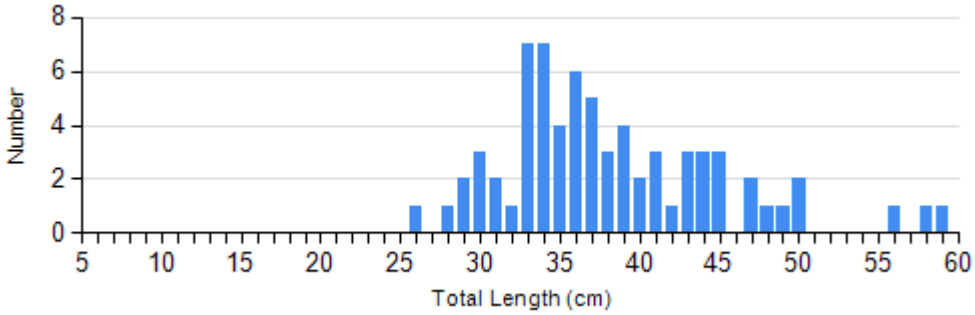


2017



2018

Species: Walleye
Gear: std exp gill net



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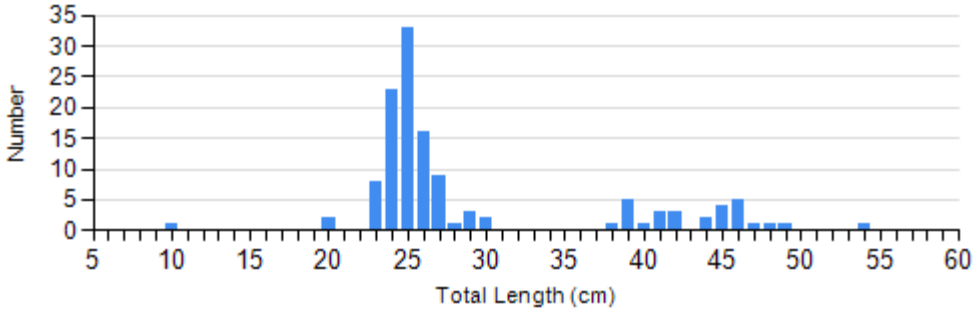
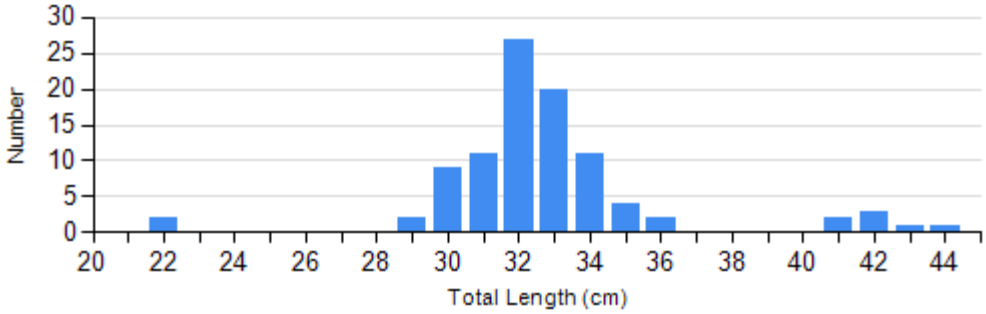


2015

Species: White Bass
Gear: AFS std gill net



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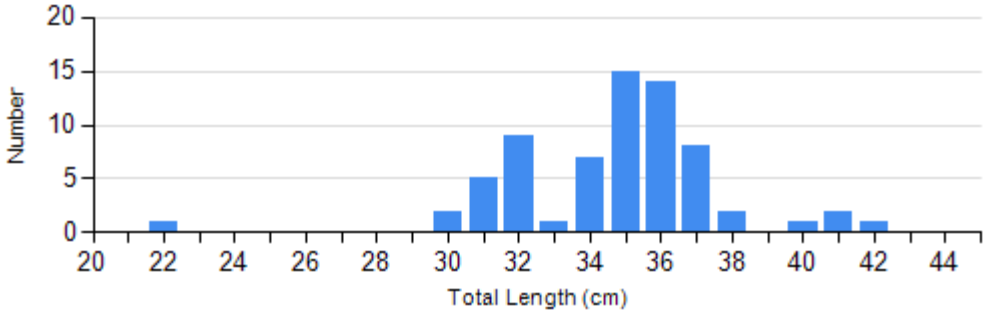

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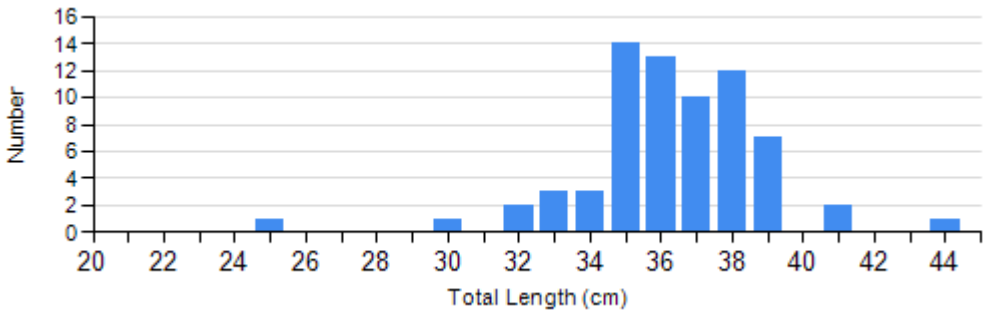

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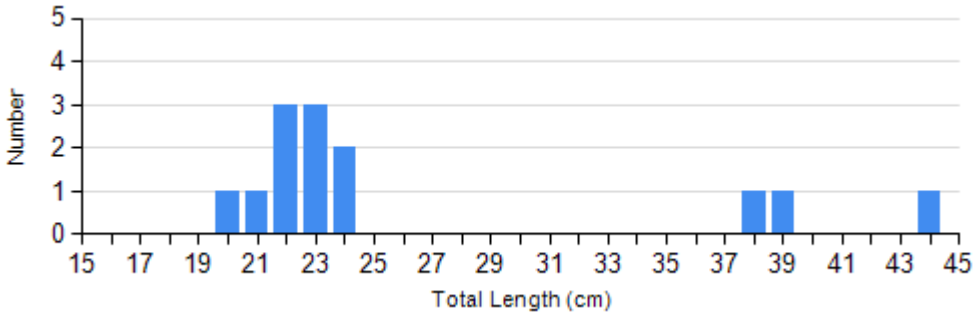
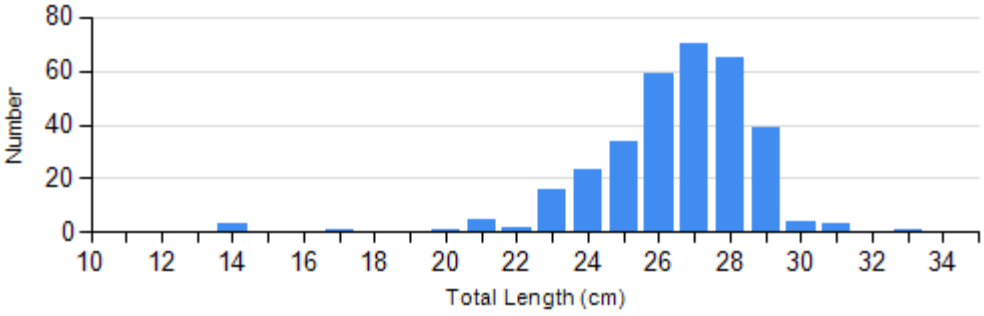
Species: White Bass
Gear: std exp gill net



2015

Species: Yellow Perch
Gear: AFS std gill net



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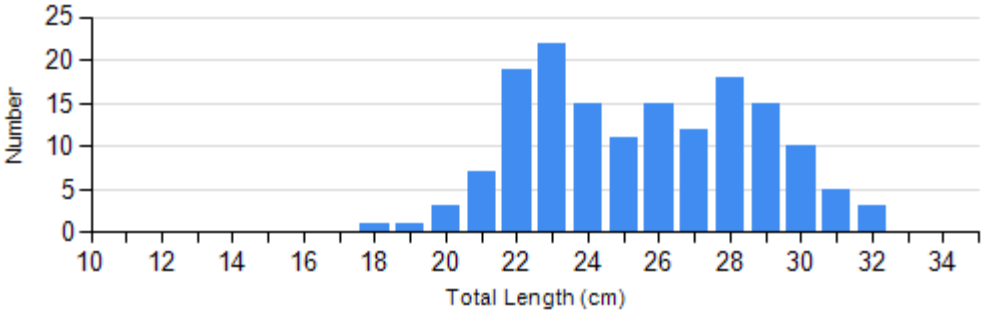

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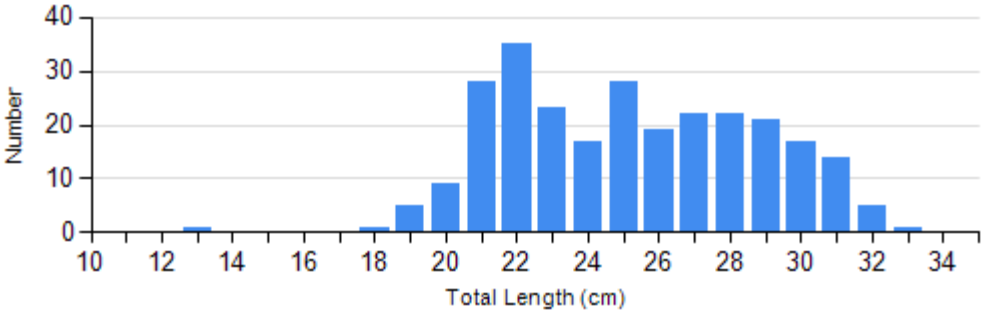
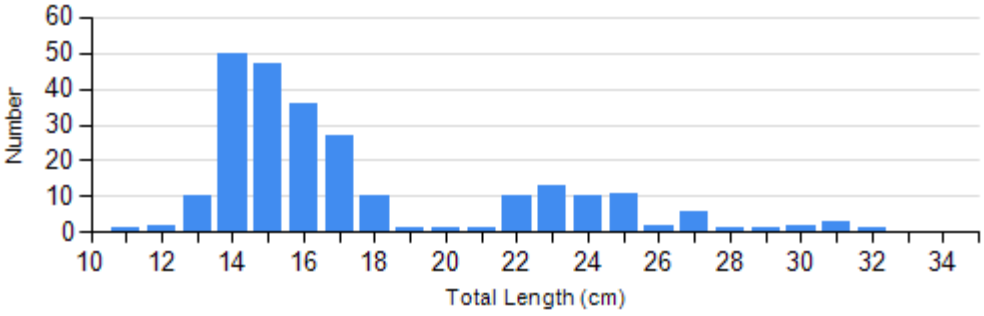
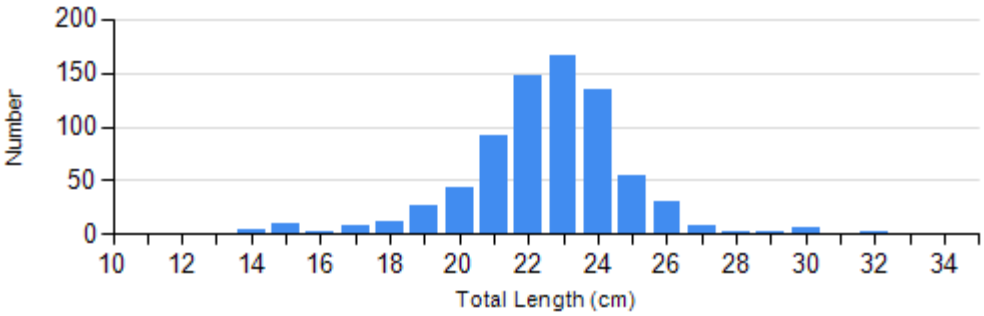


2018

Species: Yellow Perch
Gear: std exp gill net



2014

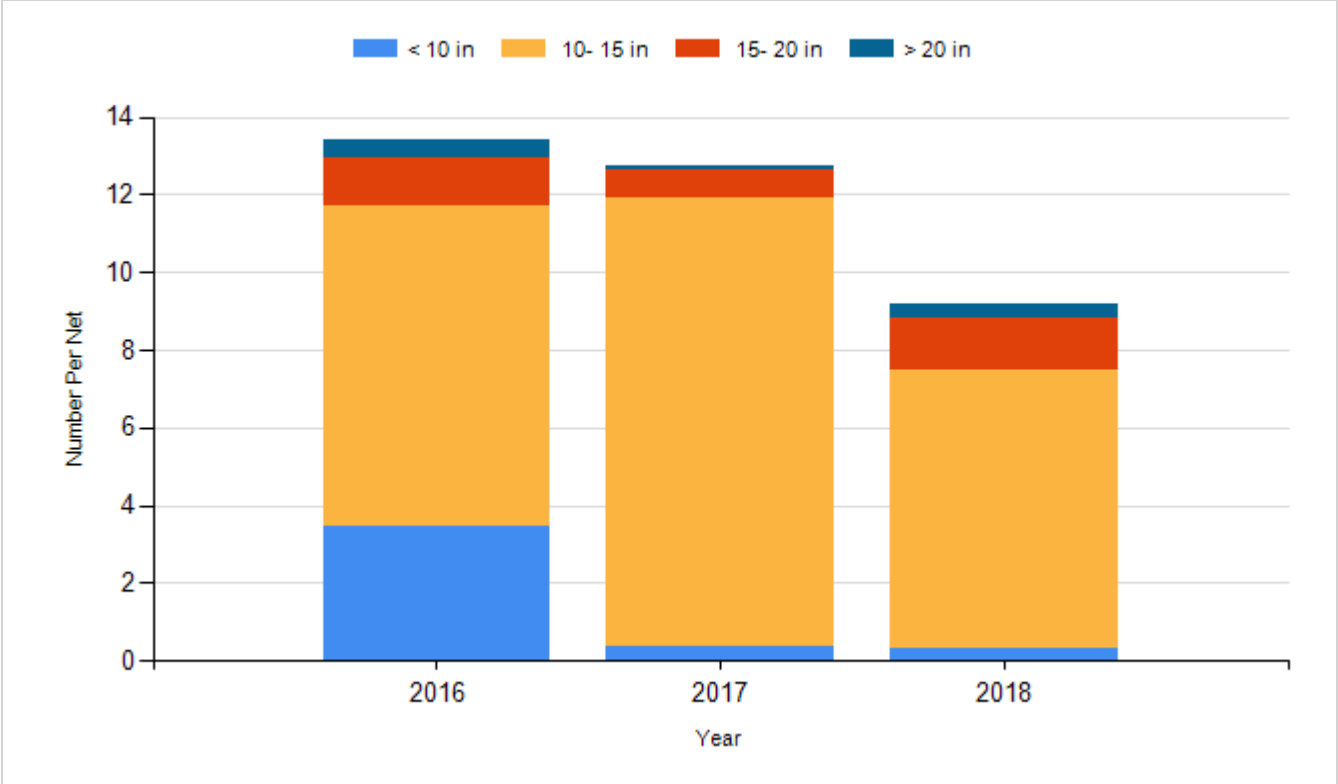


2015

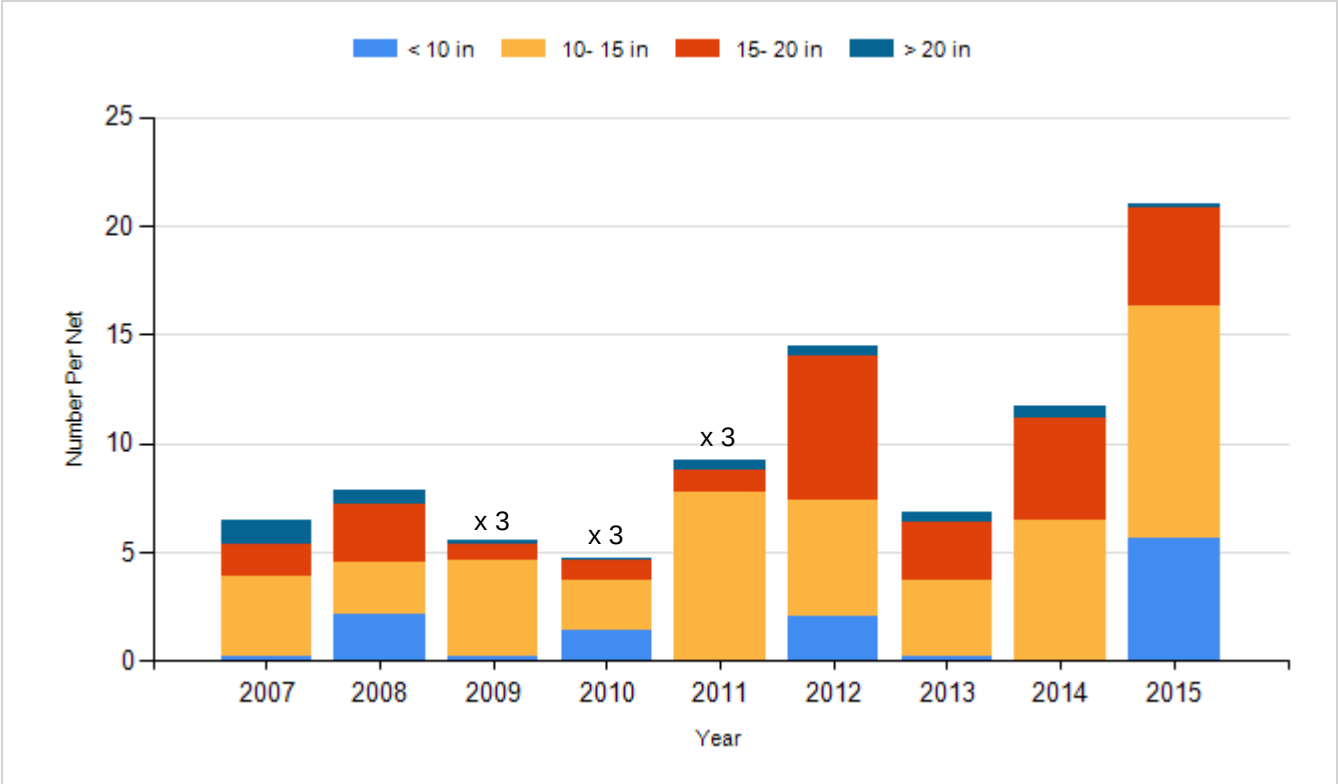
Historic Fish Sizes and Relative Abundance

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

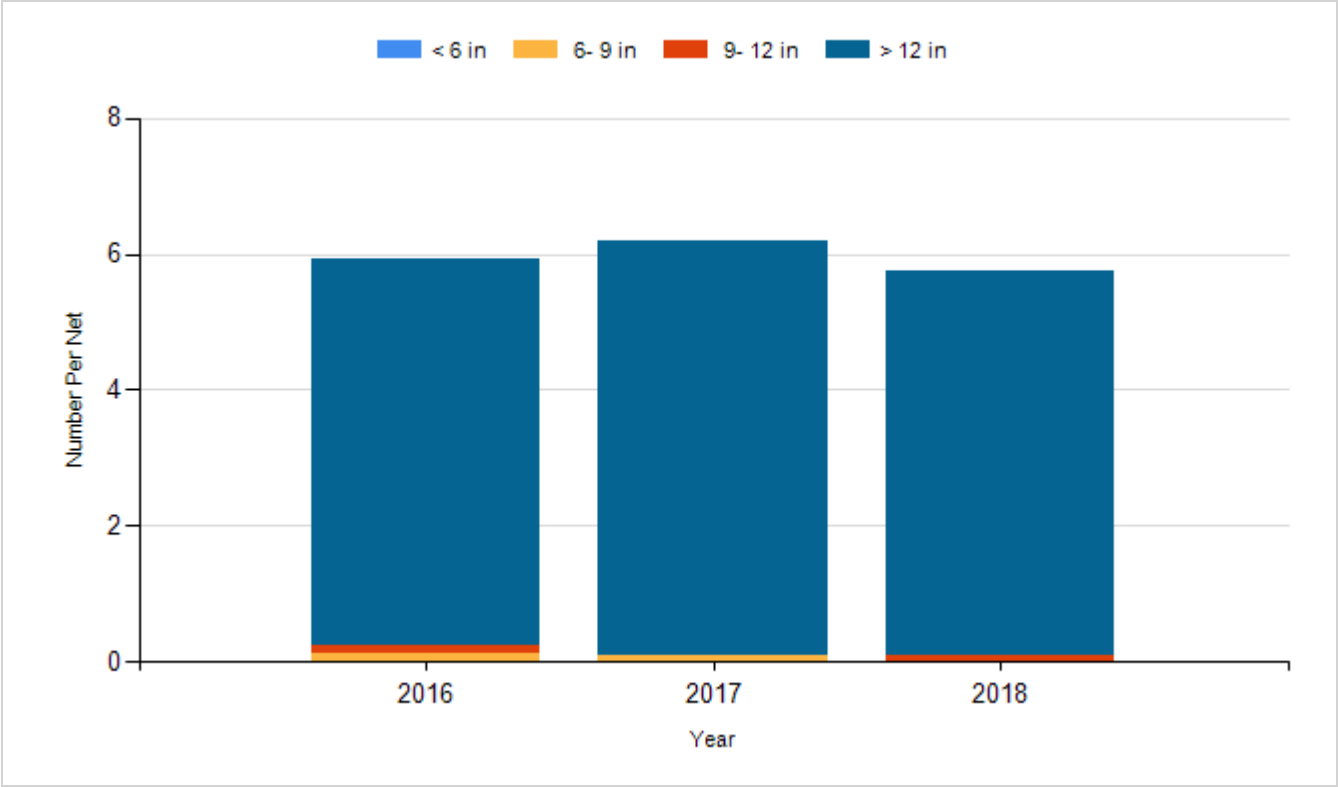
Species: Walleye
Gear: AFS std gill net



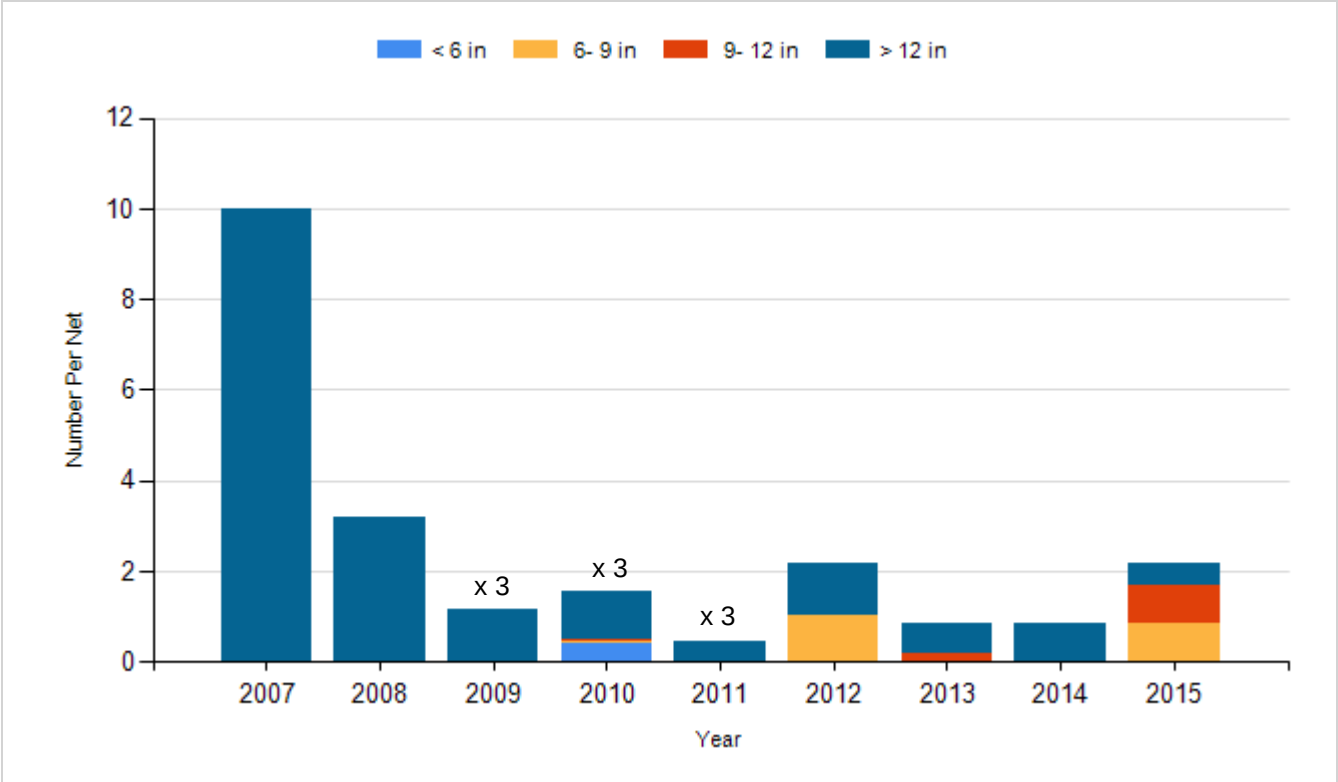
Species: Walleye
Gear: std exp gill net



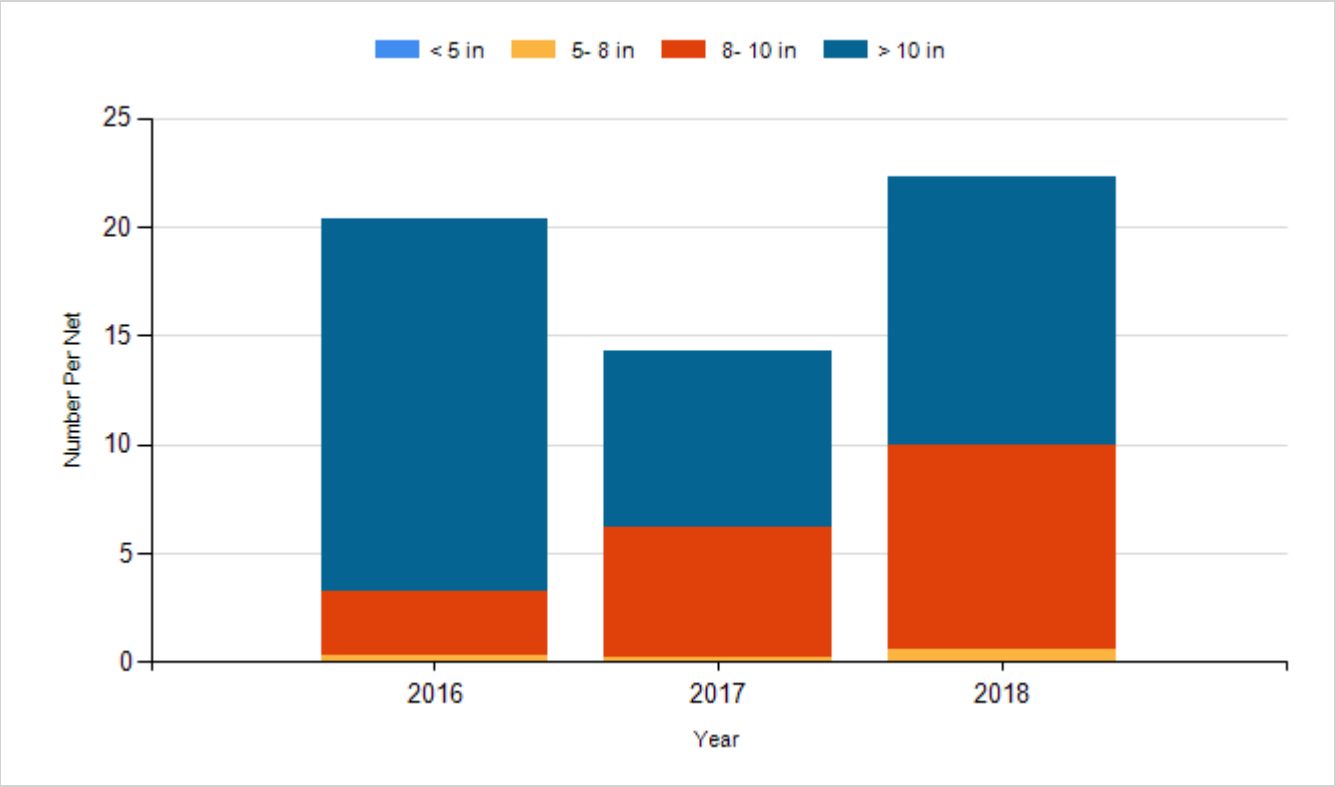
Species: White Bass
Gear: AFS std gill net



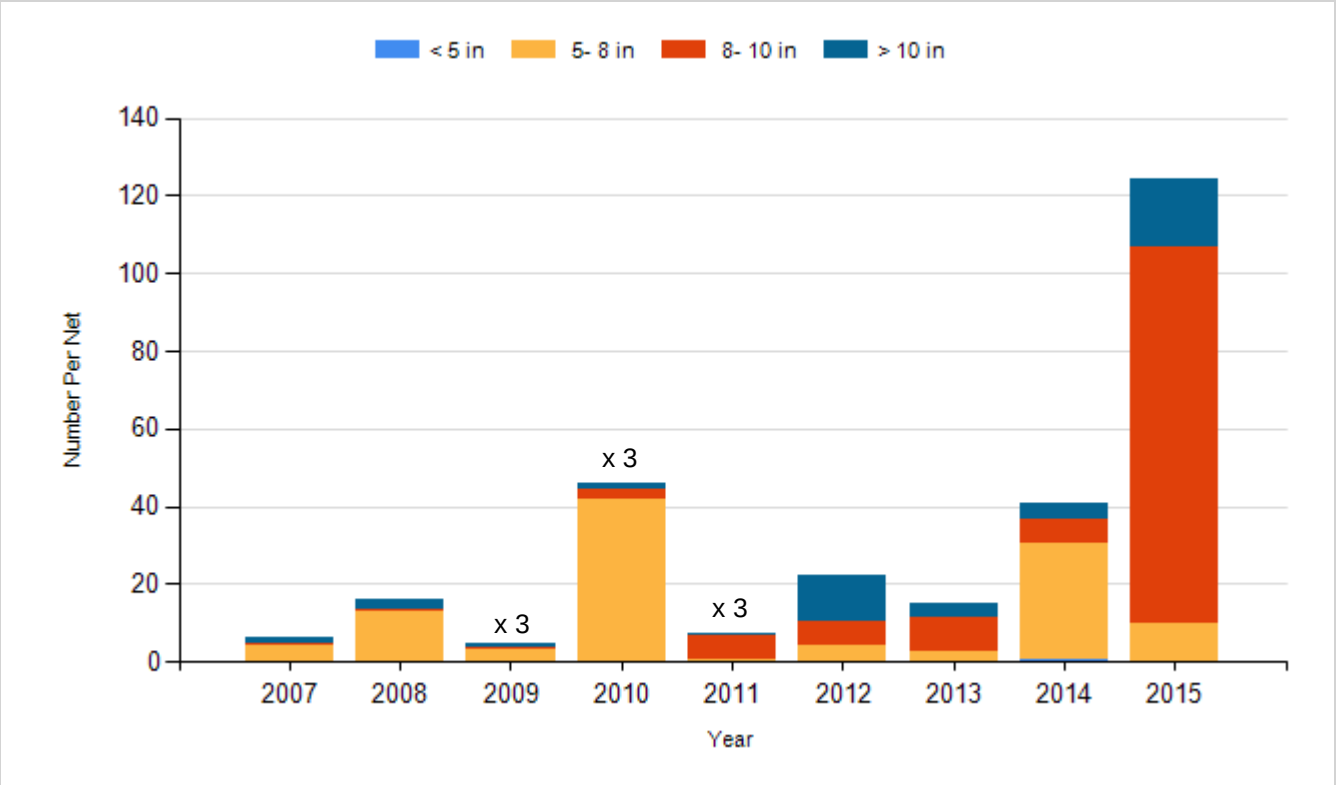
Species: White Bass
Gear: std exp gill net



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