Mina Lake Survey Summary

Mina Lake, located approximately 11.0 miles west of Aberdeen, is managed as a black crappie, bluegill, and walleye (includes saugeye) fishery; however, other fish species (e.g., yellow perch, channel catfish, northern pike, freshwater drum, etc.) are present and contribute to the fishery.

- **Bluegill.** Although bluegills were the most abundant fish species in the frame net catch, relative abundance was considered low at 7.6/frame net. Sampled bluegills ranged in length from 3.1 to 9.1 inches, 93% were ≥6.0 inches and 48% were 8.0 inches or longer. Individuals from four year classes (2015 – 2018) contributed to the catch, those from cohorts produced in 2015 (age 4) and 2017 (age 2) were the most abundant accounting for 85% of sampled bluegill. Growth appears to be fast with a mean length at capture of 8.5 inches at age 4 in 2019.

- **Channel catfish.** The opportunity exists for anglers to catch channel catfish from Mina Lake. In 2019, gill nets sampled 3.3/net ranging in length from 16.1 to 31.1, just under half (17 of 39) were 24.0 inches or longer.

- **Walleye.** Walleyes (includes saugeye) were not abundant in the 2019 gill net catch (1.1/gill net). Those sampled ranged in length from 7.5 to 24.4 inches; six year classes were present. Four of the six cohorts that contributed to the catch coincided with recent saugeye stockings (2016 – 2019), but each was represented by seven or fewer individuals.

- **Yellow Perch**. Yellow perch were the most abundant fish species in the 2019 gill net catch (10.9/gill net). Sampled yellow perch ranged in length from 5.1 to 11.8 inches, 46% were ≥8.0 inches and 18% were 10.0 inches or longer. Fish from six consecutive year classes (2013 – 2018) were present, those belonging to cohorts produced in 2017 (age 2) and 2018 (age 1) were the most abundant accounting for more than 75% of the sample. Growth is considered moderate with mean length at capture values at age 3 from 8.7 to 10.0 inches. In 2019, the mean length of age-3 fish was 10.0 inches.

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

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Mina, Edmunds County
SNK-Lake-23-800
2019

Lake Information

Name: Mina

County: Edmunds

Surface Area: 741 Acres

Maximum Depth: 27 Feet

Mean Depth: 9 Feet

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jul 29, 2019	4 net-nights
AFS std gill net	Jul 30, 2019	4 net-nights
AFS std gill net	Jul 31, 2019	4 net-nights
fall night EF-WAE	Oct 07, 2019	2400 seconds
frame net (std 3/4 in)	Jul 29, 2019	6 net-nights
frame net (std 3/4 in)	Jul 30, 2019	6 net-nights
frame net (std 3/4 in)	Jul 31, 2019	6 net-nights

Common Fish Species Present

Channel Catfish

Bluegill

Black Crappie

Walleye

Yellow Perch

Freshwater Drum

Black Bullhead

Northern Pike

White Sucker

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	1	0.0	0.0	0		0			
	Black Bullhead	28	2.3	0.8	93		71	13	91	3
	Bluegill	12	1.0	1.2	100		92		119	4
	Channel Catfish	39	3.3	1.3	100		44	12	110	3
	Common Carp	1	0.0	0.0	0		0			
	Freshwater Drum	51	4.3	1.5	100		31	10	90	1
	Northern Pike	11	0.9	0.7	45		0		78	4
	Walleye	18	1.1	0.7	46	23	8		86	2
	White Sucker	9	0.8	0.4	100		100		94	7
	Yellow Perch	131	10.9	4.5	46	6	18	5	106	1
fall night EF-WAE*	Walleye	66	99.0	15.3					85	1
frame net (std 3/4 in)	Black Bullhead	24	1.3	0.8	100		79	14	92	3
	Black Crappie	4	0.2	0.2	25		0		108	2
	Bluegill	137	7.6	2.8	93	3	48	6	124	1
	Channel Catfish	3	0.2	0.2	100		0		103	9
	Common Carp	1	0.1	0.1	100		100		88	
	Freshwater Drum	9	0.5	0.3	100		89		86	3
	Northern Pike	4	0.2	0.2	25		0		82	6
	Walleye	14	0.4	0.2	43		0		84	3
	White Sucker	2	0.1	0.1	100		100		93	2
	Yellow Perch	61	3.4	1.5	25	8	18	7	103	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 **AFS standard frame nets were used in 2017**

		CPUE										
Gear	Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg
AFS std gill net	Black Bullhead							16.8	9.3	6.8	2.3	8.8
	Bluegill							0.3	0.6	0.1	1.0	0.5
	Channel Catfish							3.3	2.2	1.4	3.3	2.6
	Common Carp							0.5	0.3	0.0	0.0	0.2
	Freshwater Drum							6.9	2.6	5.1	4.3	4.7
	Largemouth Bass							0.1	0.0	0.0	0.0	0.0
	Northern Pike							0.3	1.0	0.4	0.9	0.7
	Walleye							1.6	0.4	2.5	1.1	1.4
	White Sucker							0.7	1.2	0.6	0.8	0.8
	Yellow Perch							16.7	7.1	15.4	10.9	12.5
fall night EF-WAE*	Walleye	14.4	32.0		0.0	7.0	69.0	77.6	133.5	78.0	99.0	56.7
frame net (std 3/4 in)**	Black Bullhead	8.9	8.1	85.5	35.2	31.1	41.8		15.3		1.3	28.4
	Black Crappie	1.1	16.7	31.3	0.2	0.1	0.1		0.3		0.2	6.3
	Bluegill	1.8	3.9	5.6	6.7	16.5	5.7		14.1		7.6	7.7
	Channel Catfish	4.2	5.7	1.2	0.6	1.4	0.7		1.2		0.2	1.9
	Common Carp	1.0	1.1	0.5	0.2	0.6	0.6		0.2		0.1	0.5
	Freshwater Drum	1.1	1.0		0.4	0.3	0.9		0.1		0.5	0.6
	Northern Pike	2.4	1.1	2.0	0.9	0.8	0.4		0.6		0.2	1.1
	Orangespotted Sunfish*	0.5	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.1
	Walleye	0.3	0.5	0.7	0.1	0.3	0.1		0.2		0.4	0.3
	White Sucker	0.3	0.1	0.1	0.5	0.3	0.3		0.4		0.1	0.3
	Yellow Perch	1.0	1.4	2.1	1.2	9.6	1.6		1.1		3.4	2.7
std exp gill net	Black Bullhead	10.7	7.5	44.7	17.0	24.5	23.5					21.3
	Black Crappie	0.5	1.5	1.0	0.0	0.0	0.0					0.5
	Bluegill	0.0	0.0	0.0	0.7	0.2	0.0					0.2
	Channel Catfish	0.8	1.7	1.0	3.2	1.0	2.7					1.7
	Common Carp	0.2	0.2	1.2	0.2	0.5	1.2					0.6
	Freshwater Drum	6.0	7.2	3.3	7.3	5.5	2.3					5.3
	Largemouth Bass	0.0	0.0	0.2	0.0	0.0	0.0					0.0
	Northern Pike	3.3	0.3	1.3	0.7	0.5	2.3					1.4
	Orangespotted Sunfish*	0.0	0.0	0.0	0.0	0.2	0.0					0.0
	Walleye	0.7	1.8	1.2	3.5	0.7	1.7					1.6
	White Sucker	0.0	0.2	0.2	0.0	0.2	0.2					0.1
	Yellow Perch	6.0	8.3	14.8	8.7	27.2	32.5					16.3

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.

***AFS standard frame nets were used in 2017**

			Year									
Gear	Species	Index	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
AFS std gill net	Channel Catfish	PSD							77	54	100	100
		PSD-P							56	15	53	44
		Wr							110	109	108	110
	Walleye	PSD							74	100	7	46
		PSD-P							16	0	0	8
		Wr							97	82	90	86
	Yellow Perch	PSD							86	91	64	46
		PSD-P							36	22	14	18
		Wr							102	104	105	106
frame net (std 3/4 in)*	Bluegill	PSD	66	94	55	31	92	98		85		93
		PSD-P	19	13	21	13	2	24		8		48
		Wr	123	117	124	113	127	119		125		124
std exp gill net	Channel Catfish	PSD	60	90	100	100	100	100				
		PSD-P	0	0	0	16	67	56				
		Wr	105	100	116	102	119	93				
	Walleye	PSD	0	0	29	62	100	60				
		PSD-P	0	0	0	5	25	20				
		Wr	82	86	84	91	104	96				
	Yellow Perch	PSD	44	40	81	81	43	92				
		PSD-P	11	14	10	12	20	15				
		Wr	99	101	106	106	104	99				

Length at Capture

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

Species: Bluegill

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2019	137	93 (10)	173 (56)	198 (11)	215 (60)						
2017	268	75 (18)	111 (36)	160 (22)	177 (187)	229 (5)					
2015	102	137 (6)	176 (56)	201 (27)	208 (12)			240 (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	16	213 (5)	312 (7)	413 (2)		461 (1)					621 (1)
2018	48	248 (31)	324 (15)	390 (2)							
2017	6	201 (1)		418 (2)	436 (2)				492 (1)		
2016	19	267 (2)	393 (11)				551 (1)	533 (3)			404 (2)
2015	10	290 (4)	386 (2)		470 (2)		562 (1)	599 (1)			
2014	4				431 (1)	472 (3)					
2013	21		317 (5)	389 (4)	411 (11)		513 (1)				
2012	7			357 (7)							
2011	11		303 (11)								
2010	43	224 (43)									

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	130	159 (61)	209 (39)	253 (7)	265 (8)	275 (6)	262 (10)				
2018	185	160 (59)	219 (45)	236 (61)	268 (9)	256 (8)	225 (4)				
2017	85	162 (7)	213 (33)	242 (12)	249 (30)	287 (3)					
2016	200	159 (24)	223 (23)	244 (152)	282 (1)						
2015	195	159 (2)	221 (154)	249 (19)	270 (19)	302 (1)					
2014	163	164 (91)	225 (19)	248 (37)	258 (5)	267 (12)					
2013	52	159 (5)	213 (30)	220 (7)	247 (10)						
2012	89	152 (8)	203 (17)	227 (55)	264 (2)	244 (7)					

Fish Condition

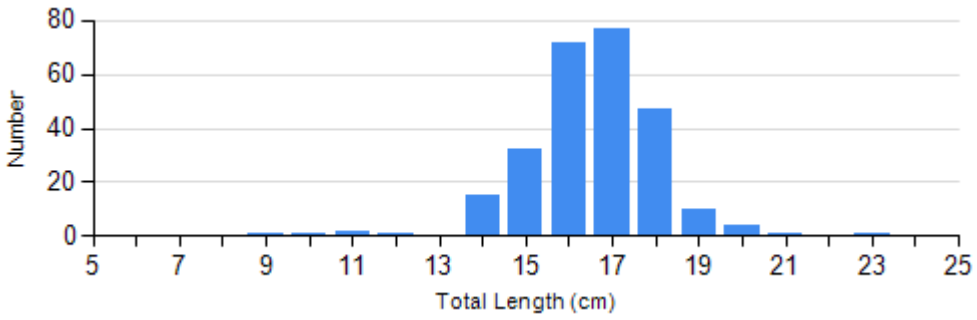
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Bluegill Frame Net	2015	2	133 (0.0)	76	119 (1.2)	24	118 (2.3)	0	
	2017	38	126 (2.2)	196	126 (0.8)	20	117 (2.2)	0	
	2019	10	126 (4.1)	61	131 (1.5)	66	116 (1.1)	0	
Channel Catfish Gill Net	2015	0		7	97 (4.8)	8	88 (5.4)	1	104
	2016	9	108 (3.2)	8	119 (4.9)	21	107 (2.9)	1	98
	2017	12	105 (3.8)	10	119 (3.4)	4	96 (8.7)	0	
	2018	0		8	104 (2.2)	7	110 (5.7)	2	116 (3.5)
	2019	0		22	111 (3.1)	14	109 (3.8)	3	102 (7.4)
Walleye Gill Net	2015	4	97 (3.0)	4	94 (3.0)	2	99 (5.9)	0	
	2016	5	96 (2.3)	11	100 (2.7)	3	89 (3.7)	0	
	2017	0		5	82 (3.0)	0		0	
	2018	28	90 (0.9)	2	89 (1.5)	0		0	
	2019	7	86 (1.6)	5	85 (2.0)	1	95	0	
Yellow Perch Gill Net	2015	16	104 (1.8)	149	99 (0.6)	28	96 (1.2)	2	93 (5.7)
	2016	28	109 (2.0)	101	104 (1.1)	71	97 (1.1)	0	
	2017	8	106 (1.6)	58	107 (0.9)	19	95 (1.0)	0	
	2018	66	111 (0.9)	93	103 (0.6)	26	97 (1.3)	0	
	2019	71	110 (1.2)	37	106 (1.7)	22	95 (1.8)	1	86

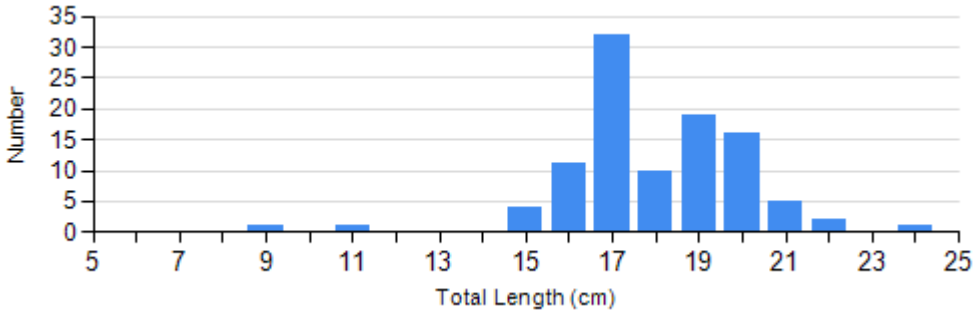
Length Frequency Distribution

Length frequency histogram of species sampled by year. ***AFS standard frame nets were used**

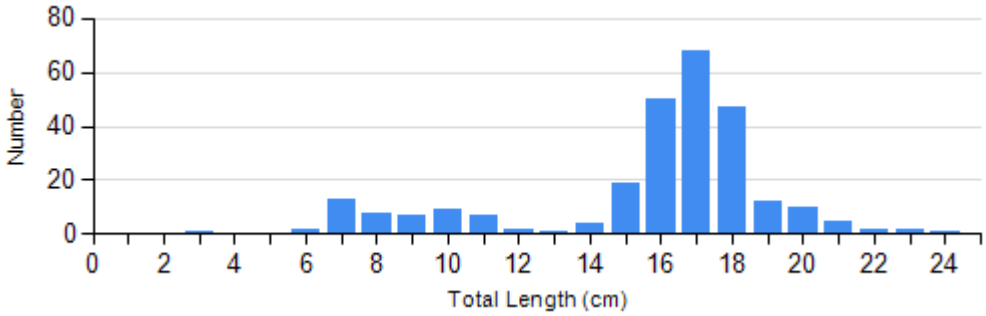
Species: Bluegill
Gear: frame net (std 3/4 in)



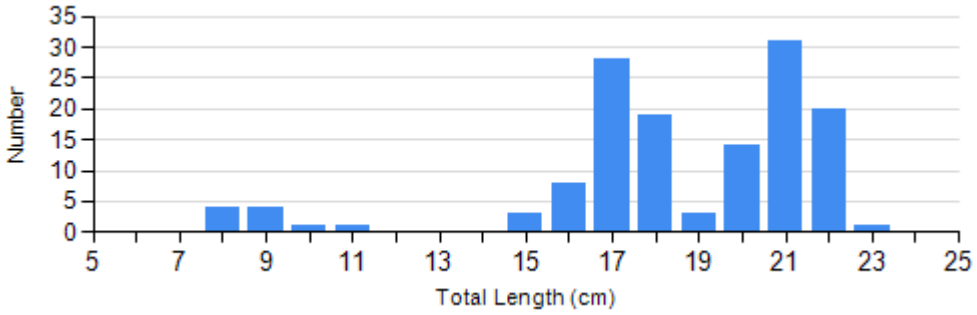
2014



2015

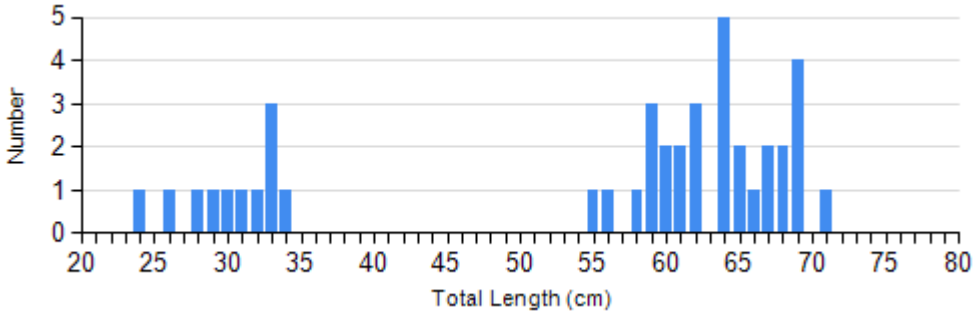


2017*

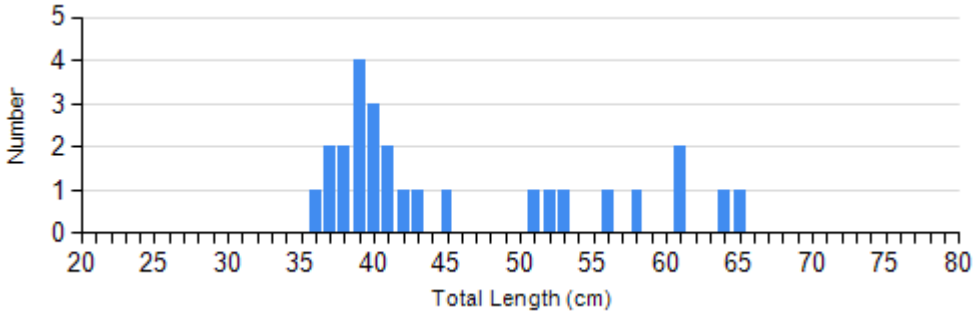


2019

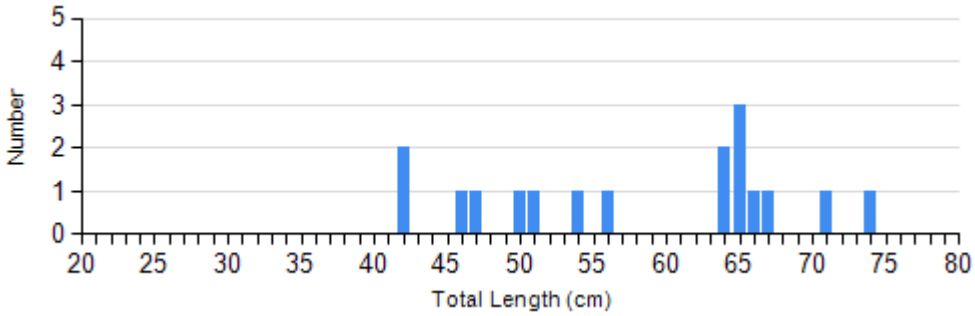
Species: Channel Catfish
Gear: AFS std gill net



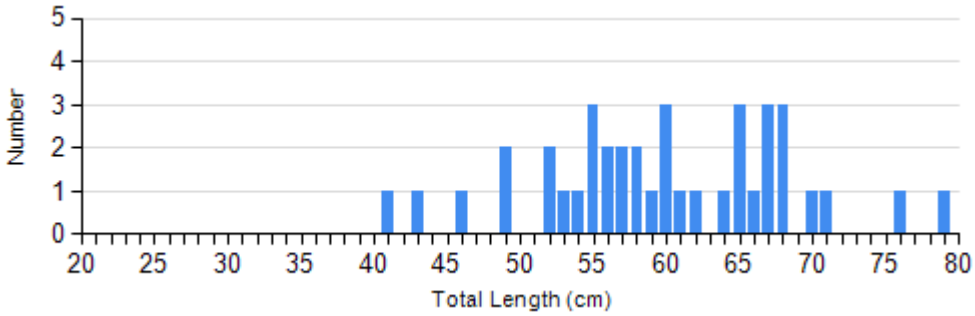
2016



2017

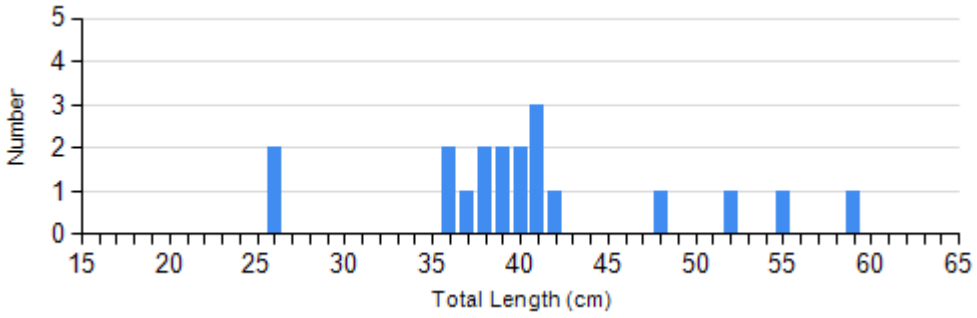


2018

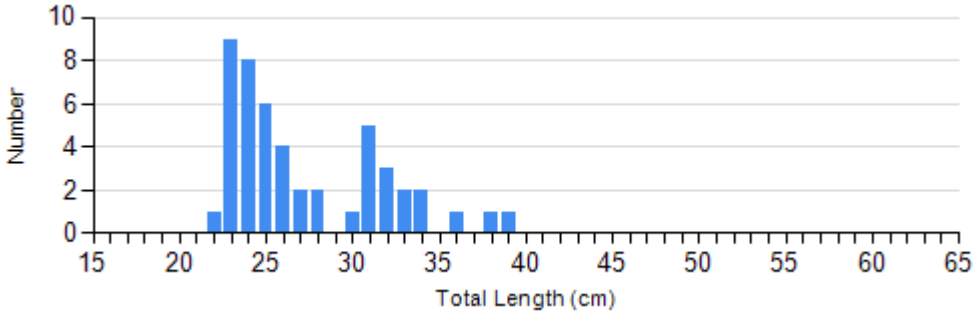


2019

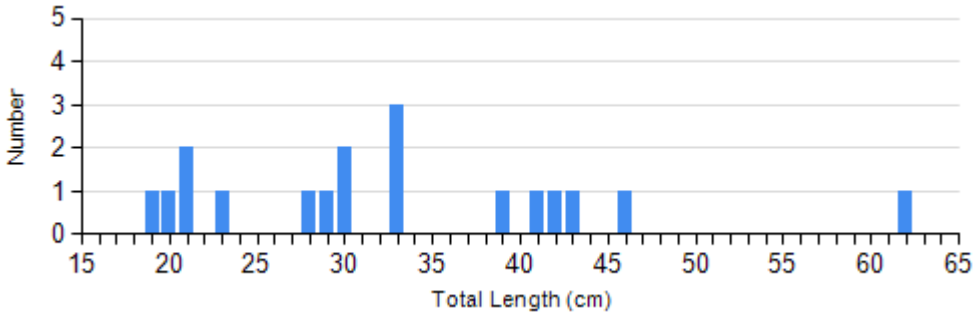
Species: Walleye
Gear: AFS std gill net



2016

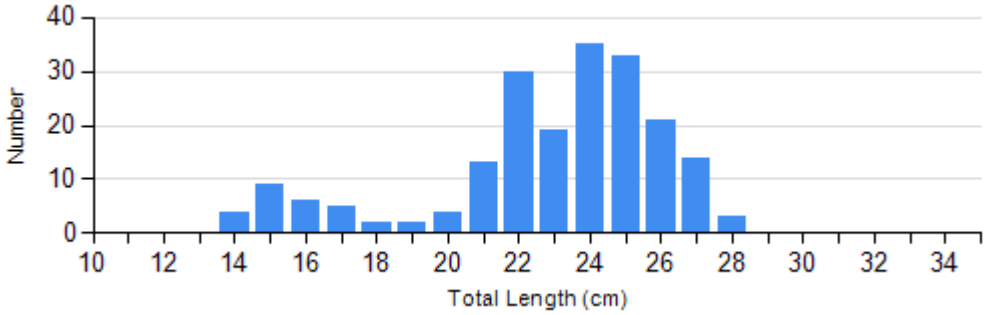


2018

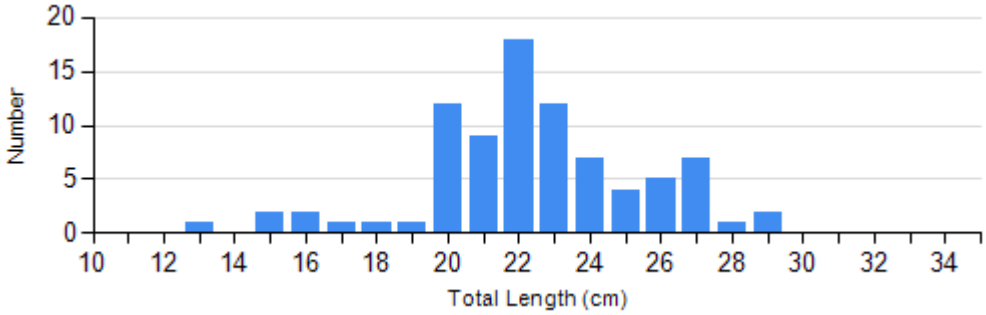


2019

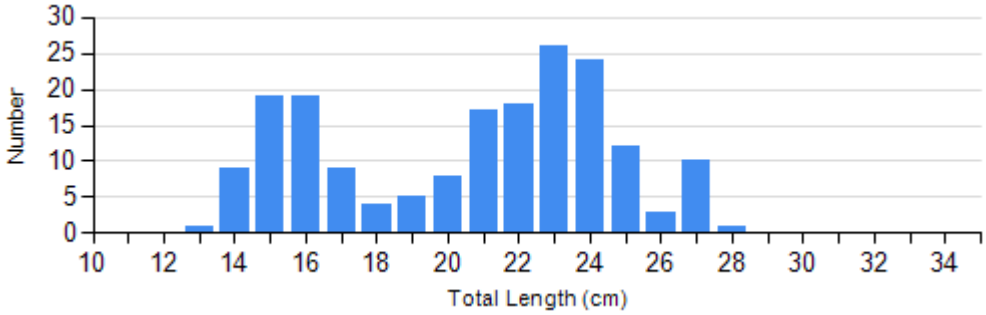
Species: Yellow Perch
Gear: AFS std gill net



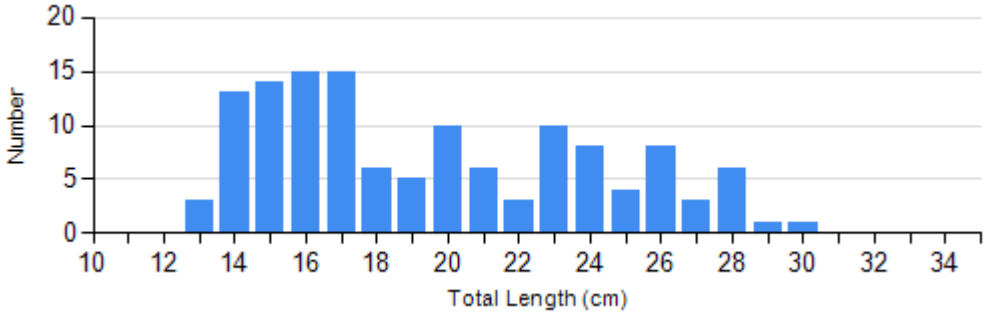
2016



2017



2018

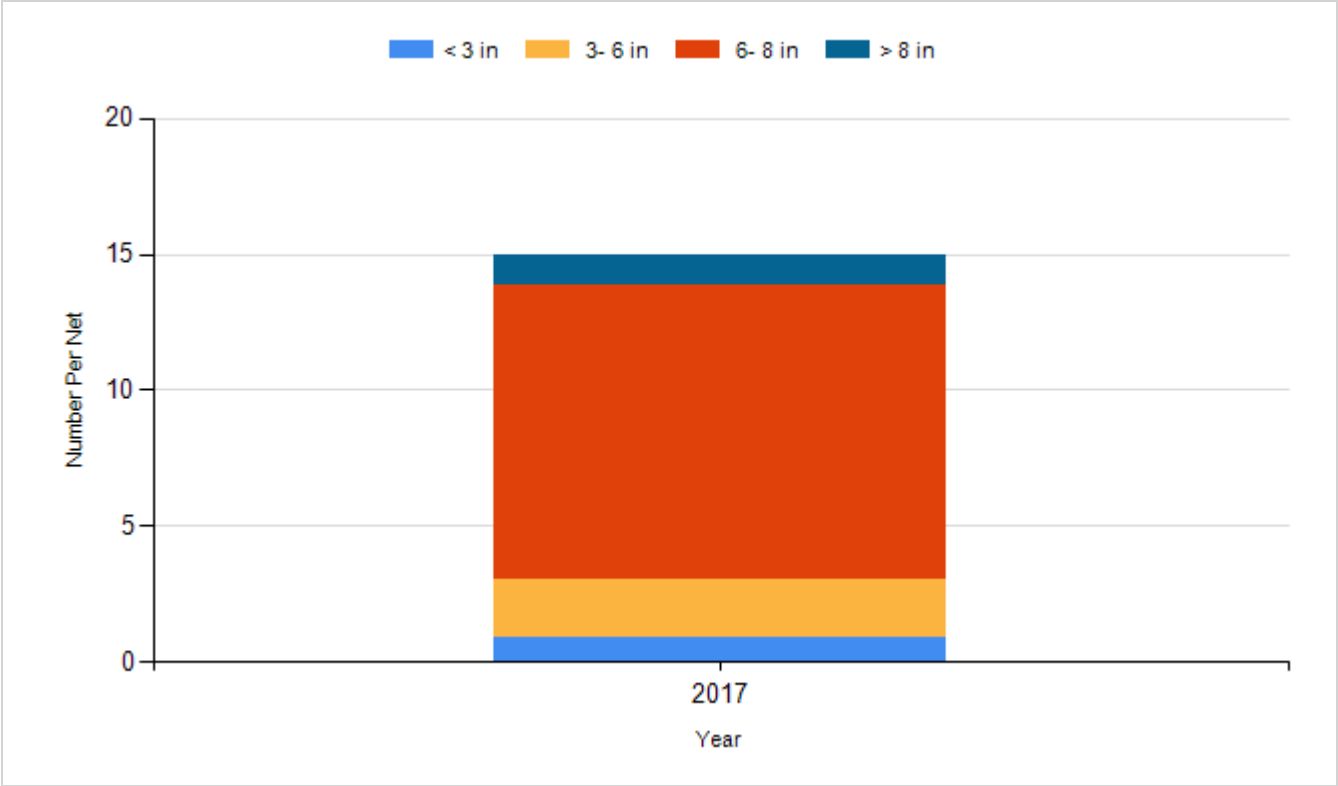


2019

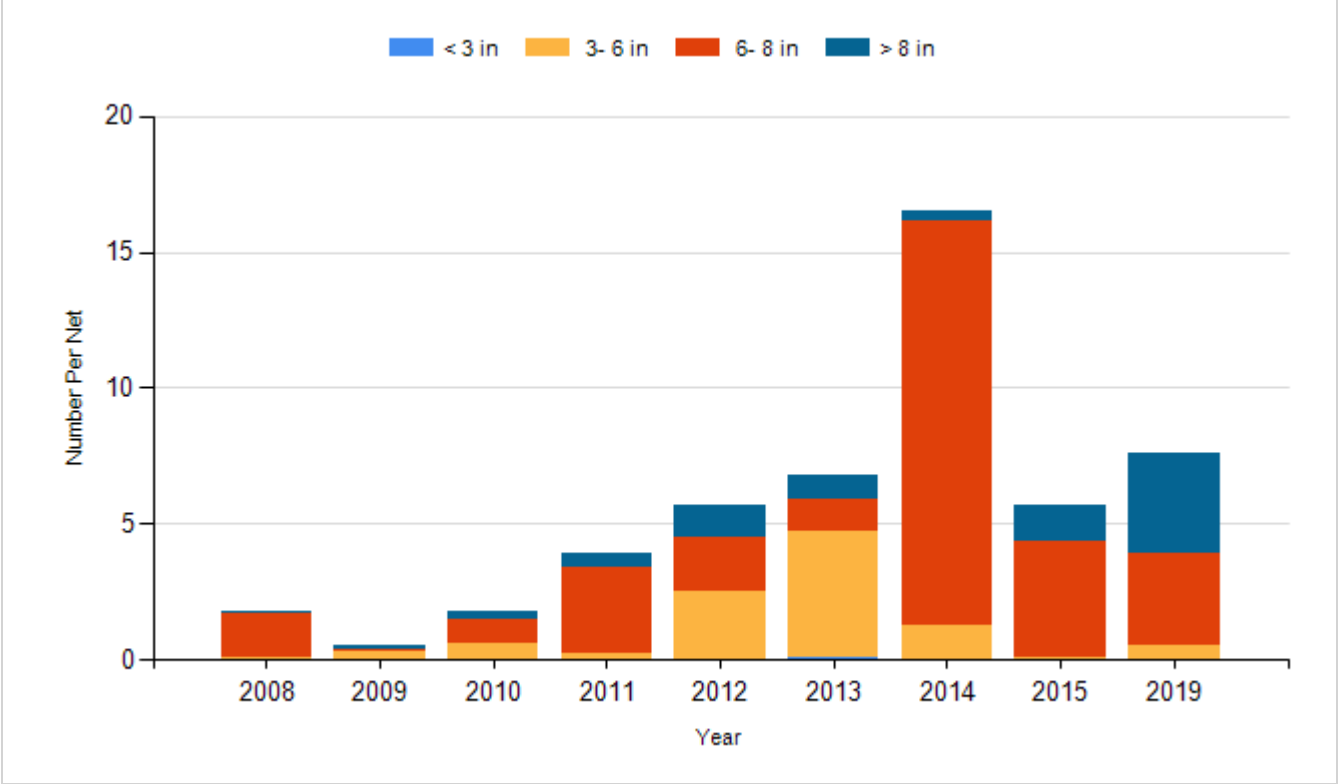
Historic Fish Sizes and Relative Abundance

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

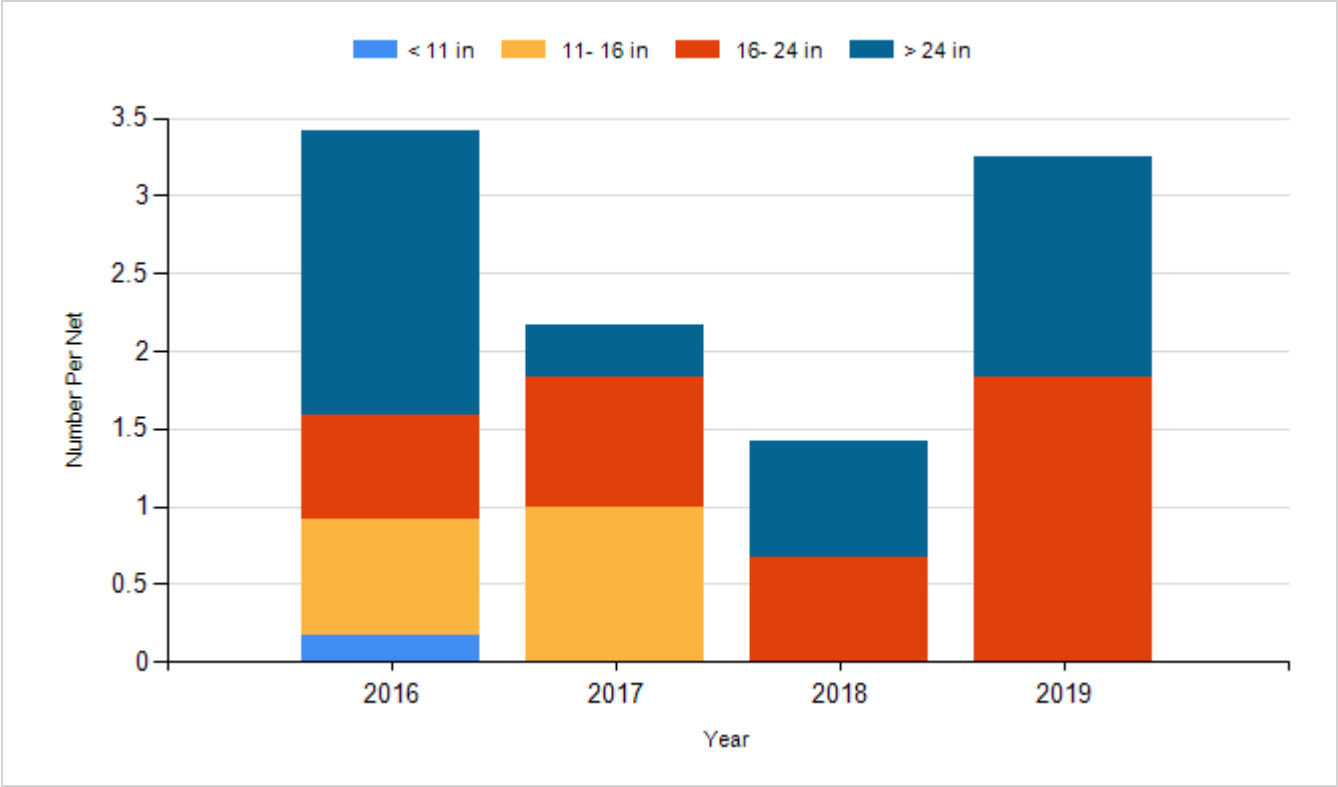
Species: Bluegill
Gear: AFS std frame net



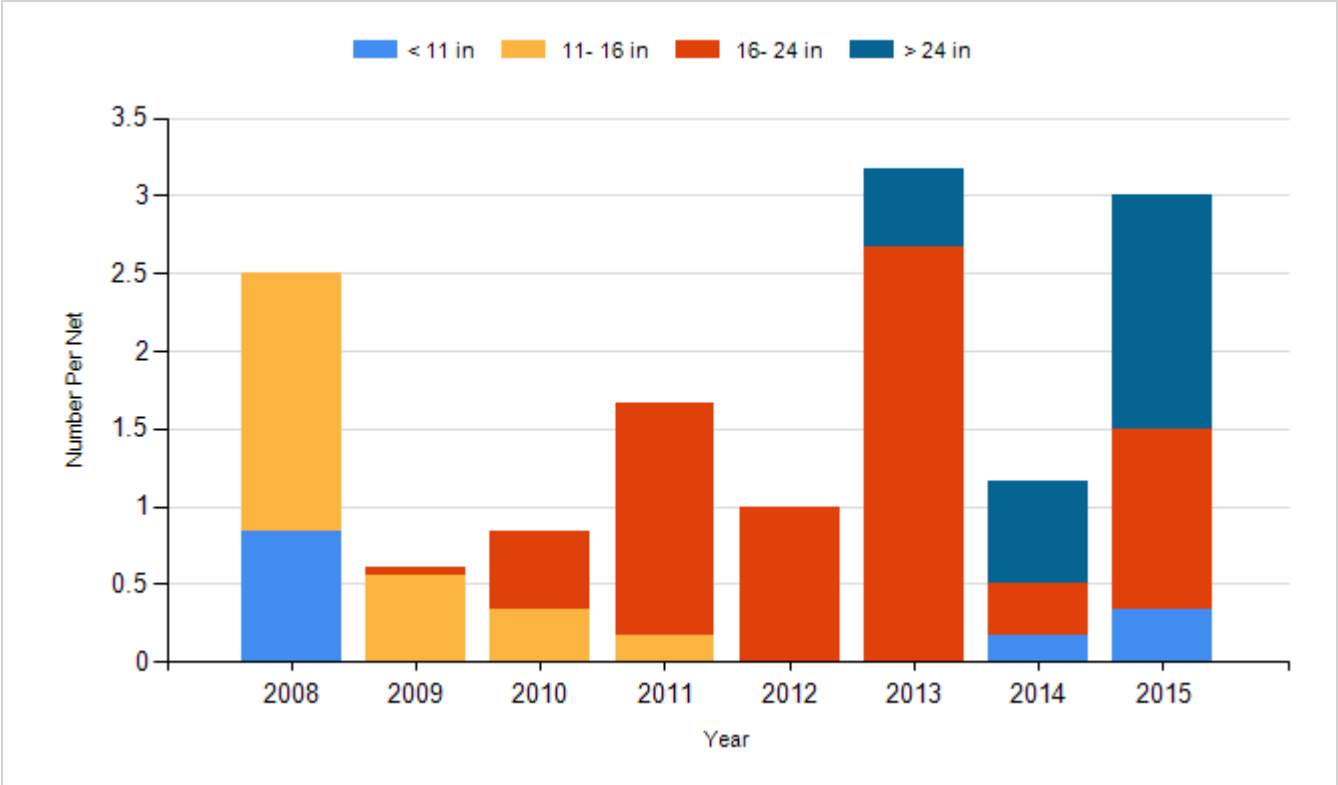
Species: Bluegill
Gear: frame net (std 3/4 in)



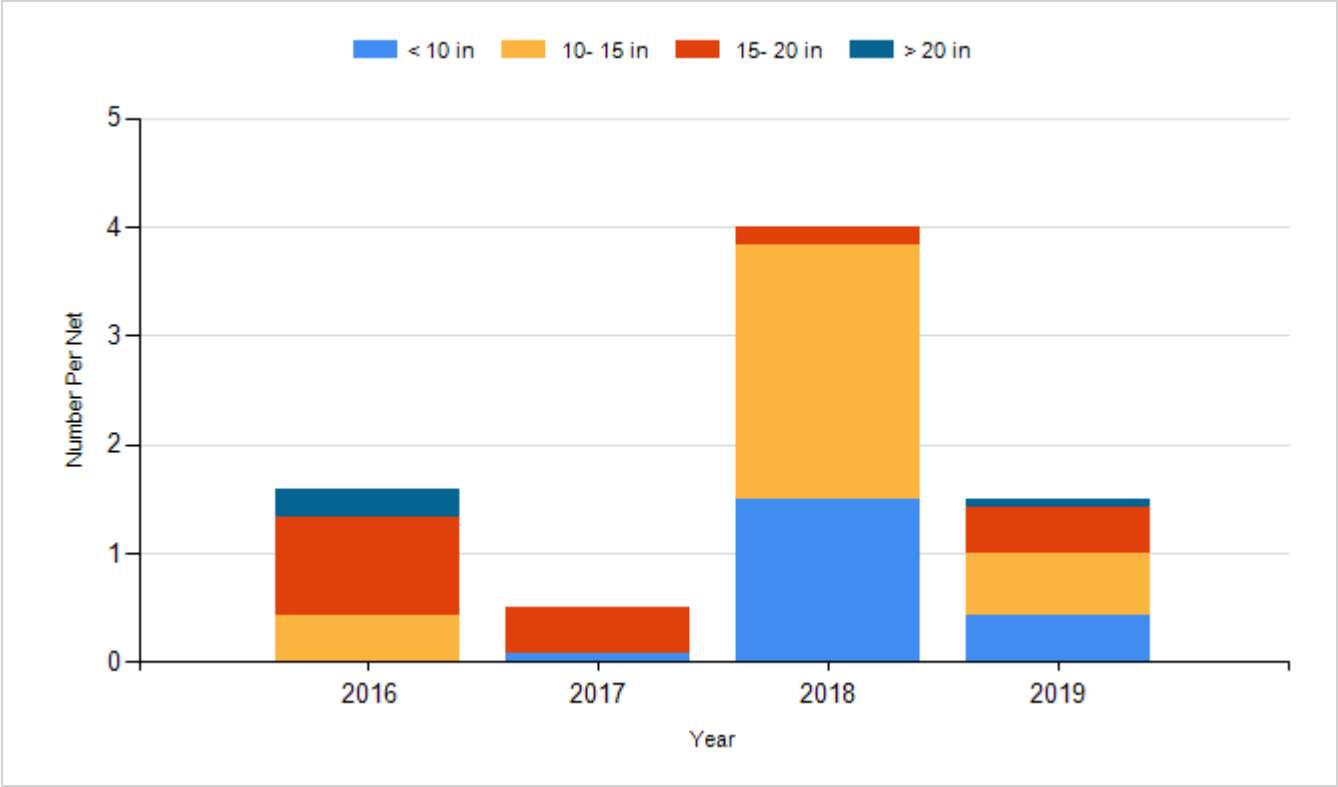
Species: Channel Catfish
Gear: AFS std gill net



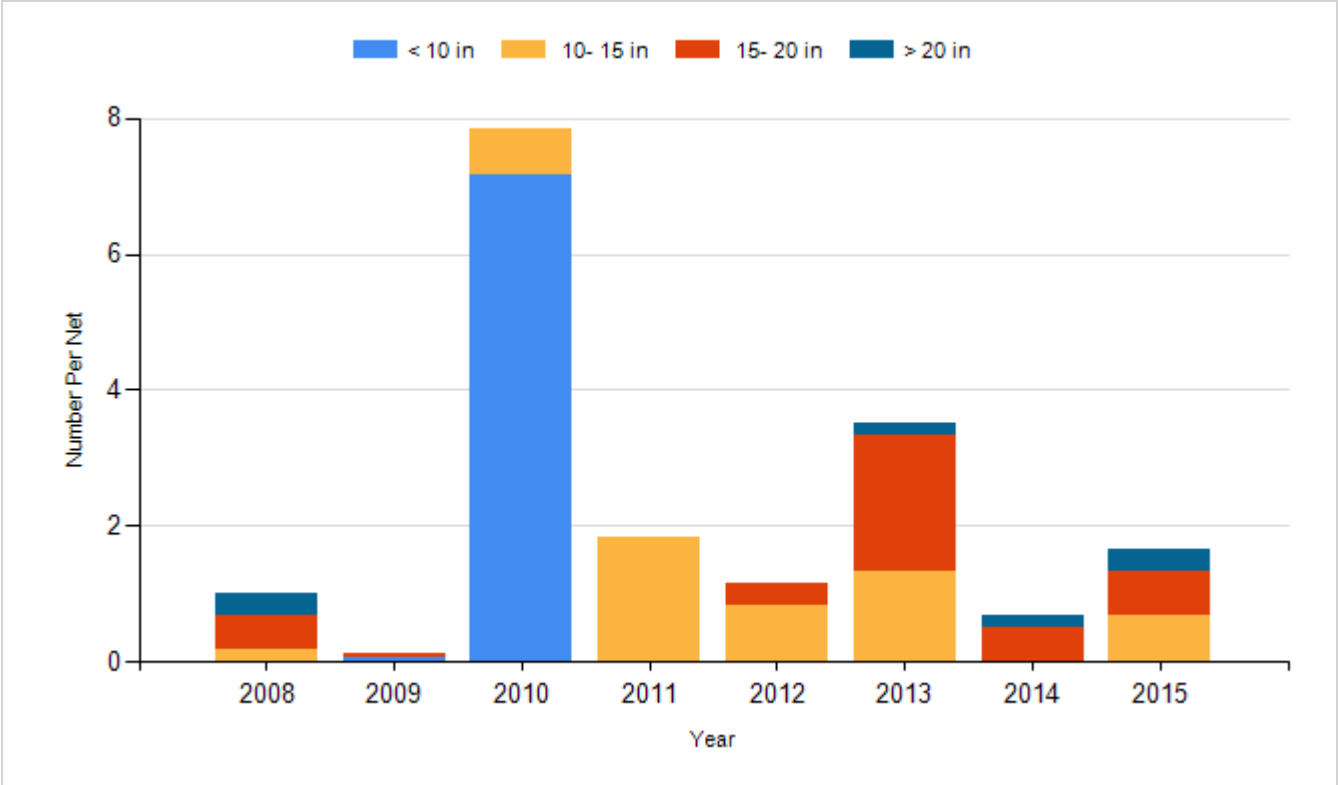
Species: Channel Catfish
Gear: std exp gill net



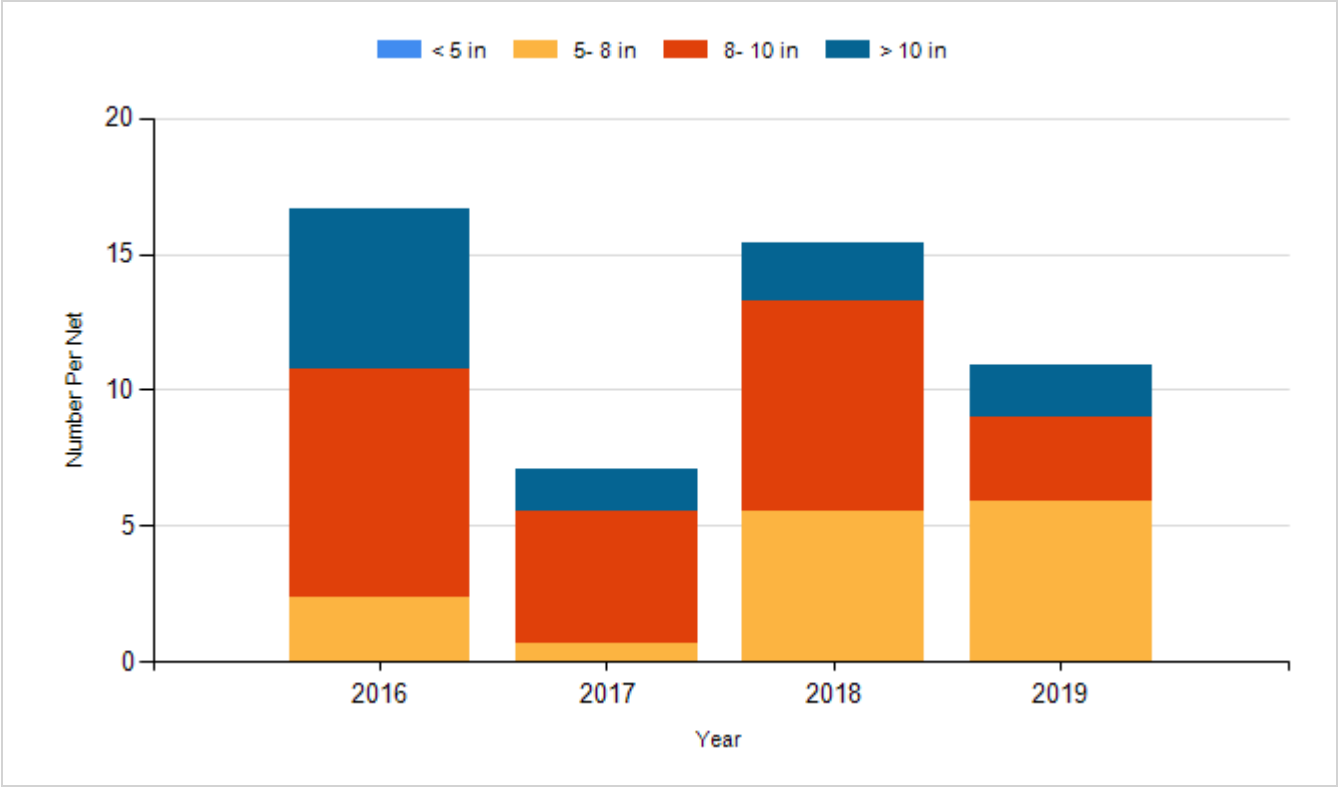
Species: Walleye
Gear: AFS std gill net



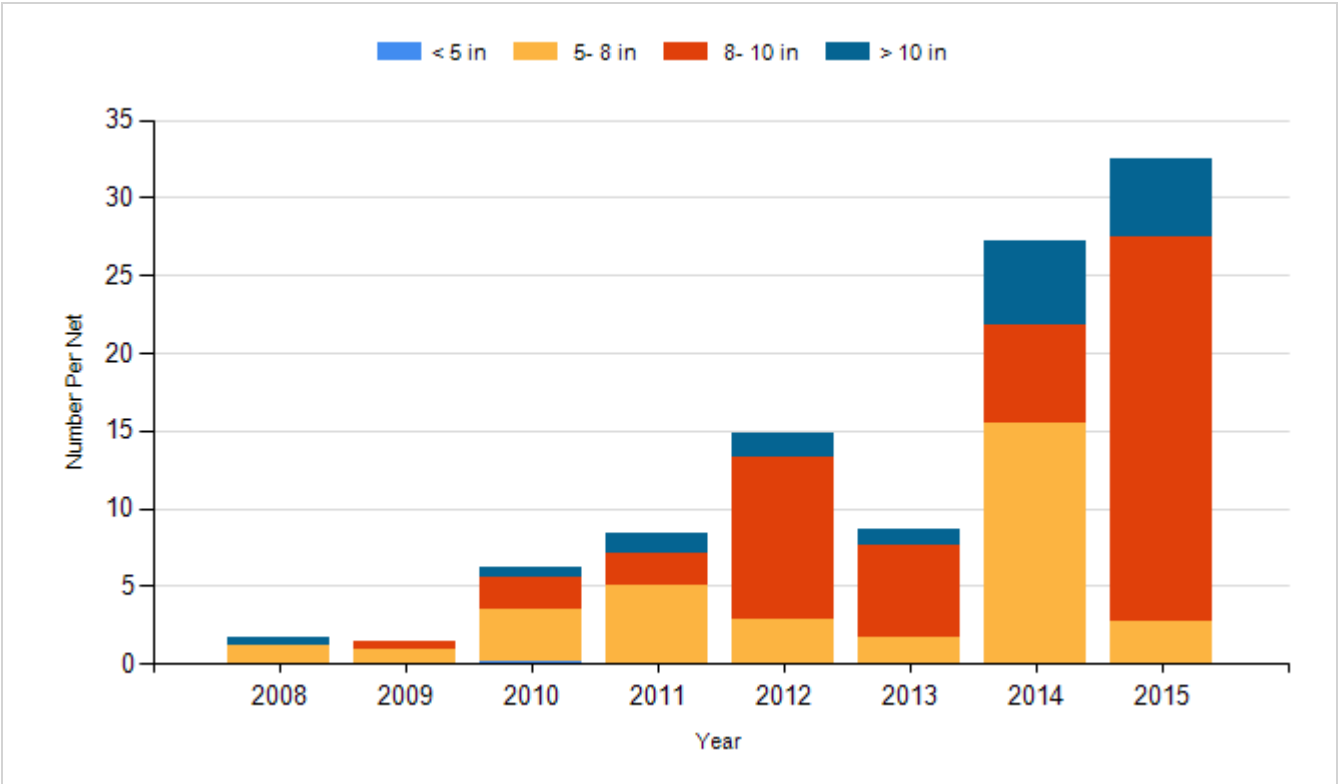
Species: Walleye
Gear: std exp gill net



Species: Yellow Perch
Gear: AFS std gill net



Species: Yellow Perch
Gear: std exp gill net



Fish Stocking

Number of fish stocked by year, species, and size.

Year	Species	Size	Number
2008	Walleye	Small Fingerling	80,000
2009	Walleye	Small Fingerling	80,115
2010	Walleye	Small Fingerling	80,300
2011	Walleye	Small Fingerling	79,980
2012	Channel Catfish	Fingerling	17,075
2012	Walleye	Large Fingerling	7,485
2012	Walleye	Small Fingerling	80,850
2013	Walleye	Small Fingerling	48,900
2014	Walleye	Small Fingerling	79,906
2015	Walleye	Small Fingerling	80,060
2016	Saugeye	Small Fingerling	115,890
2017	Saugeye	Small Fingerling	65,420
2018	Saugeye	Small Fingerling	60,180
2019	Saugeye	Small Fingerling	60,900