

## 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., channel catfish, northern pike, freshwater drum, etc.) are present and may contribute to the fishery.

- **Bluegill.** Although bluegills were second most abundant fish species in the frame net catch behind black bullheads, relative abundance was considered low at 6.6/frame net. Sampled bluegills ranged in length from 3.1 to 9.4 inches, 87% were  $\geq 6.0$  inches and 52% were  $\geq 8.0$  inches.
- **Channel catfish.** The opportunity exists for anglers to catch channel catfish from Mina Lake. In 2020, gill nets captured 36 channel catfish (3.0/gill net) that ranged in length from 16.1 to 30.7 inches, more than half (56%) were  $\geq 24.0$  inches.
- **Walleye.** At 1.4/gill net, relative abundance of walleyes (includes saugeye)  $\geq 10.0$  inches was low. Sampled walleyes ranged in length from 8.7 to 26.4 inches; four year classes were present. Three of the four cohorts that contributed to the catch coincided with recent saugeye stockings (2017 – 2019) and each was represented by 10 or fewer individuals.
- **Yellow Perch.** Yellow perch were the most abundant fish species in the 2020 gill net catch (22.4/gill net). Sampled yellow perch ranged in length from 5.5 to 11.0 inches, 72% were  $\geq 8.0$  inches and 7% were  $\geq 10.0$  inches. Fish from seven consecutive year classes (2013 – 2019) were present, those from the 2018 (age-2) cohort were the most abundant accounting for 78% of yellow perch in the sample. Growth tends to be moderate to fast with mean length at captures at age 2 from 8.0 to 8.9 inches in surveys conducted since 2012. In 2020, the mean length at capture of age-2 fish was 8.2 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

2020

## Lake Information

**Name:** Mina **Maximum Depth:** 27 Feet  
**County:** Edmunds **Mean Depth:** 9 Feet  
**Surface Area:** 741 Acres

## Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jul 28, 2020	4 net-nights
AFS std gill net	Jul 29, 2020	4 net-nights
AFS std gill net	Jul 30, 2020	4 net-nights
fall night EF-WAE	Oct 08, 2020	3500 seconds
frame net (std 3/4 in)	Jul 28, 2020	6 net-nights
frame net (std 3/4 in)	Jul 29, 2020	6 net-nights
frame net (std 3/4 in)	Jul 30, 2020	6 net-nights

## **Common Fish Species Present**

Walleye

Channel Catfish

Bluegill

Black Crappie

Yellow Perch

Black Bullhead

Freshwater Drum

Northern Pike

Common Carp

White Sucker

---

## 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.
- **std 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.

$$CPUE = \frac{\text{number of fish}}{\text{effort}}$$

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.

$$PSD = \left( \frac{\text{number of fish} \geq \text{quality length}}{\text{number of fish} \geq \text{stock length}} \right) \times 100$$

$$PSD - P = \left( \frac{\text{number of fish} \geq \text{preferred length}}{\text{number of fish} \geq \text{stock length}} \right) \times 100$$

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.

$$Wr = \left( \frac{W}{Ws} \right) \times 100$$

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).

Species Name	Stock		Quality		Preferred		Memorable		Trophy	
	(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**

Gear	Species	Sample Size (n)	Abundance		Stock Density Indices			Condition		
			CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
AFS std gill net	Black Bullhead	101	7.5	4.6	58	7	11	5	93	1
	Black Crappie	1	0.1	0.1	0		0		126	
	Bluegill	3	0.3	0.2	100		100		122	3
	Channel Catfish	36	3.0	0.9	100		56	13	101	2
	Common Carp	10	0.8	0.5	22		22		108	5
	Freshwater Drum	28	2.3	1.0	100		39	14	88	2
	Northern Pike	16	1.3	0.6	56	20	0		94	17
	Walleye	20	1.4	0.7	12		6		86	2
	White Sucker	4	0.3	0.3	100		100		99	3
	Yellow Perch	269	22.4	5.2	72	4	7	2	102	1
fall night EF-WAE*	Walleye	14	15.2	9.0					87	1
frame net (std 3/4 in)	Black Bullhead	180	5.7	4.2	19	6	11	5	84	1
	Black Crappie	15	0.8	0.5	73		27		110	2
	Bluegill	119	6.6	3.1	87	5	52	6	125	1
	Channel Catfish	38	2.1	1.1	97		21	10	94	2
	Common Carp	1	0.0	0.0	0		0			
	Freshwater Drum	12	0.7	0.3	100		67		84	2
	Northern Pike	20	1.1	0.3	32	17	0		79	3
	Sunfish Hybrid	2	0.0	0.0						
	Walleye	33	1.7	1.2	16		3		82	1
	White Sucker	1	0.1	0.1	100		100		86	
Yellow Perch	96	5.3	3.2	81	6	7	4	97	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; \*\*AFS standard frame nets used in 2017

Gear	Species	CPUE										
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Avg
AFS std gill net	Bigmouth Buffalo						0.0	0.0	0.0	0.0	0.0	0.00
	Black Bullhead						16.8	9.3	6.8	2.3	7.5	8.54
	Black Crappie						0.0	0.0	0.0	0.0	0.1	0.02
	Bluegill						0.3	0.6	0.1	1.0	0.3	0.46
	Channel Catfish						3.3	2.2	1.4	3.3	3.0	2.64
	Common Carp						0.5	0.3	0.0	0.0	0.8	0.32
	Freshwater Drum						6.9	2.6	5.1	4.3	2.3	4.24
	Largemouth Bass						0.1	0.0	0.0	0.0	0.0	0.02
	Northern Pike						0.3	1.0	0.4	0.9	1.3	0.78
	Walleye						1.6	0.4	2.5	1.1	1.4	1.40
	White Sucker						0.7	1.2	0.6	0.8	0.3	0.72
Yellow Perch						16.7	7.1	15.4	10.9	22.4	14.50	
fall night EF-WAE*	Walleye	32.0		0.0	7.0	69.0	77.6	133.5	74.0	96.0	15.2	56.03
frame net (std 3/4 in)**	Black Bullhead	8.1	85.5	35.2	31.1	41.8		15.3		1.3	5.7	28.00
	Black Crappie	16.7	31.3	0.2	0.1	0.1		0.3		0.2	0.8	6.21
	Bluegill	3.9	5.6	6.7	16.5	5.7		14.1		7.6	6.6	8.34
	Channel Catfish	5.7	1.2	0.6	1.4	0.7		1.2		0.2	2.1	1.64
	Common Carp	1.1	0.5	0.2	0.6	0.6		0.2		0.1	0.0	0.41
	Freshwater Drum	1.0	0.0	0.4	0.3	0.9		0.1		0.5	0.7	0.49
	Northern Pike	1.1	2.0	0.9	0.8	0.4		0.6		0.2	1.1	0.89
	Walleye	0.5	0.7	0.1	0.3	0.1		0.2		0.4	1.7	0.50
	White Sucker	0.1	0.1	0.5	0.3	0.3		0.4		0.1	0.1	0.24
	Yellow Perch	1.4	2.1	1.2	9.6	1.6		1.1		3.4	5.3	3.21
std exp gill net	Black Bullhead	7.5	44.7	17.0	24.5	23.5						23.50
	Black Crappie	1.5	1.0	0.0	0.0	0.0						0.00
	Bluegill	0.0	0.0	0.7	0.2	0.0						0.00
	Channel Catfish	1.7	1.0	3.2	1.0	2.7						2.70
	Common Carp	0.2	1.2	0.2	0.5	1.2						1.20
	Freshwater Drum	7.2	3.3	7.3	5.5	2.3						2.30
	Largemouth Bass	0.0	0.2	0.0	0.0	0.0						0.00
	Northern Pike	0.3	1.3	0.7	0.5	2.3						2.30
	Walleye	1.8	1.2	3.5	0.7	1.7						1.70
	White Sucker	0.2	0.2	0.0	0.2	0.2						0.20
Yellow Perch	8.3	14.8	8.7	27.2	32.5						32.50	

## 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 used in 2017**

Gear	Species	Index	Year									
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
AFS std gill net	Channel Catfish	PSD						77	54	100	100	100
		PSD-P						56	15	53	44	56
		Wr						110	109	108	110	101
	Walleye	PSD						74	100	7	46	12
		PSD-P						16	0	0	8	6
		Wr						97	82	90	86	86
	Yellow Perch	PSD						86	91	64	46	72
		PSD-P						36	22	14	18	7
		Wr						102	104	105	106	102
frame net (std 3/4 in)**	Bluegill	PSD	94	55	31	92	98		85		93	87
		PSD-P	13	21	13	2	24		8		48	52
		Wr	117	124	113	127	119		125		124	125
std exp gill net	Channel Catfish	PSD	90	100	100	100	100					
		PSD-P	0	0	16	67	56					
		Wr	100	116	102	119	93					
	Walleye	PSD	0	29	62	100	60					
		PSD-P	0	0	5	25	20					
		Wr	86	84	91	104	96					
	Yellow Perch	PSD	40	81	81	43	92					
		PSD-P	14	10	12	20	15					
		Wr	101	106	106	104	99					



## 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+
2020	20	226 (3)	296 (10)	357 (6)							675 (1)
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)								

Species: Yellow Perch

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2020	269	146 (7)	209 (231)	244 (16)	256 (3)	276 (5)	275 (2)	256 (6)			
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).

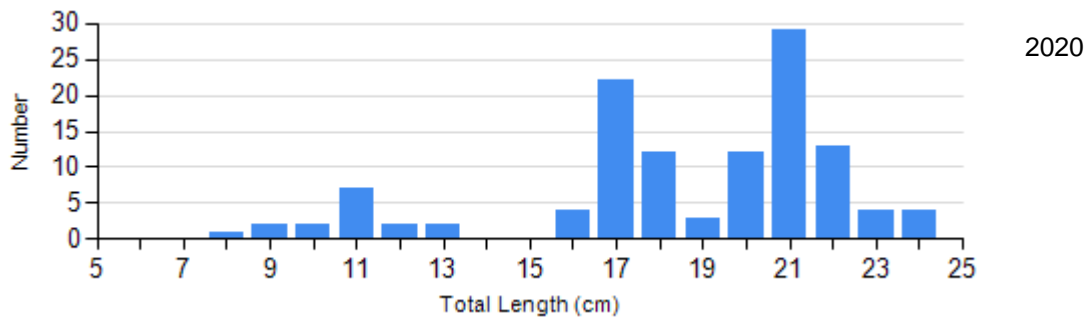
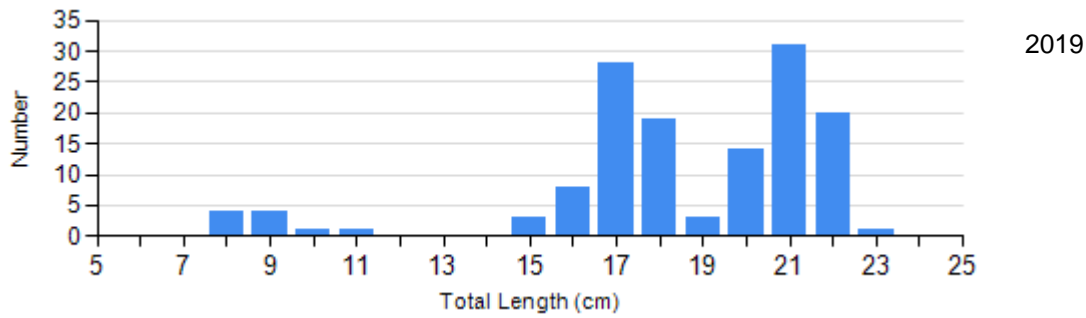
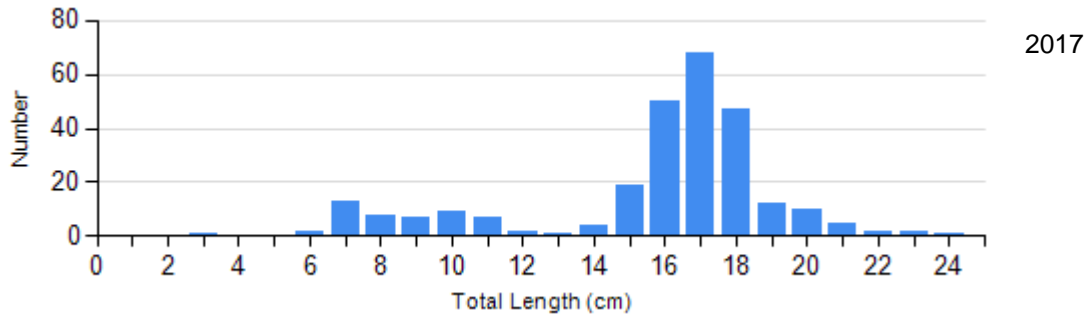
Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Bluegill Frame Net	2017	38	126 (2.2)	196	126 (0.8)	20	117 (2.2)	0	
	2019	10	126 (4.1)	61	131 (1.5)	66	116 (1.1)	0	
	2020	16	130 (3.1)	41	130 (1.3)	62	120 (1.3)	0	
Channel Catfish Gill Net	2016	9	108 (3.2)	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)
	2020	0		16	102 (2.5)	17	99 (2.7)	3	98
Walleye Gill Net	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	
	2020	15	85 (1.2)	1	85	0		1	93
Yellow Perch Gill Net	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
	2020	75	106 (1.0)	175	101 (0.6)	19	95 (1.8)	0	

## Length Frequency Distribution

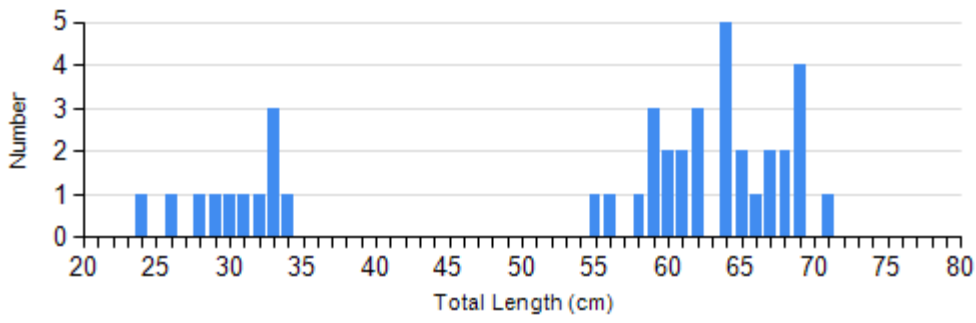
Length frequency histogram of species sampled by year.

Species: Bluegill

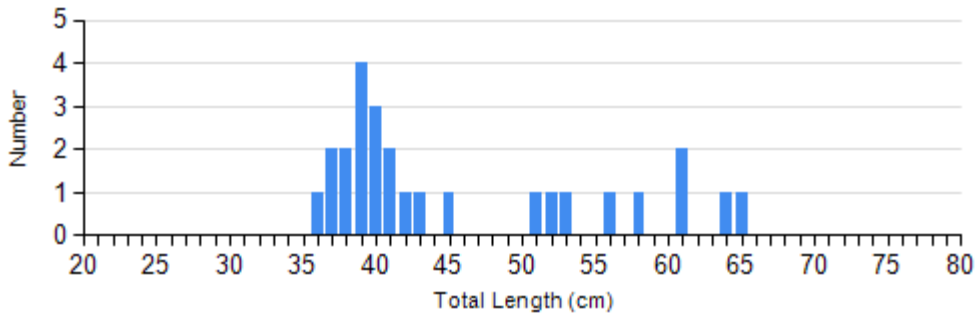
Gear: frame net (std 3/4 in); \*\*AFS standard frame nets used in 2017



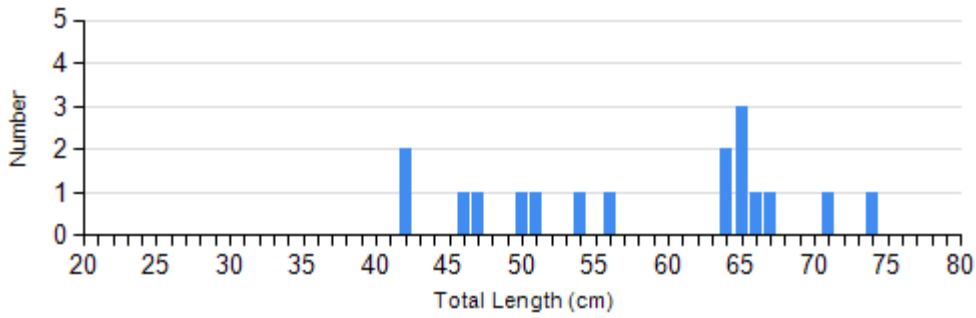
Species: Channel Catfish  
Gear: AFS std gill net



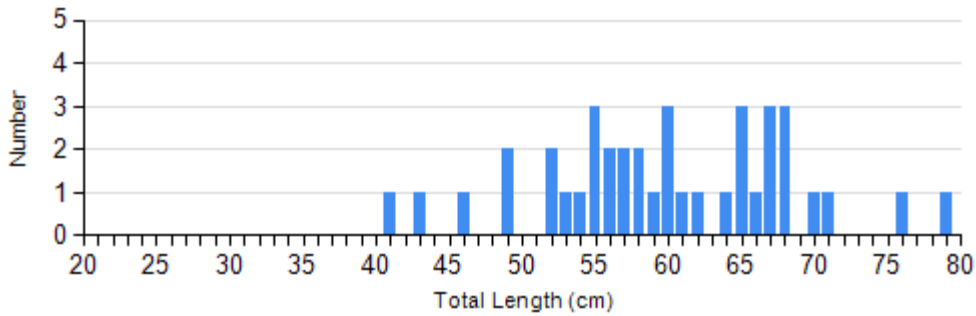
2016



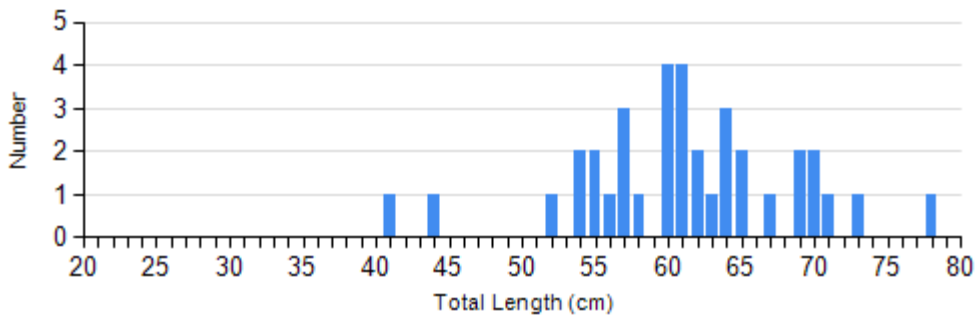
2017



2018

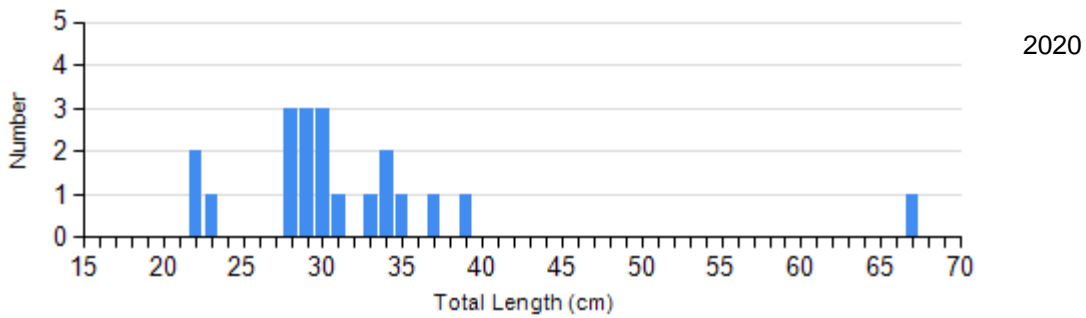
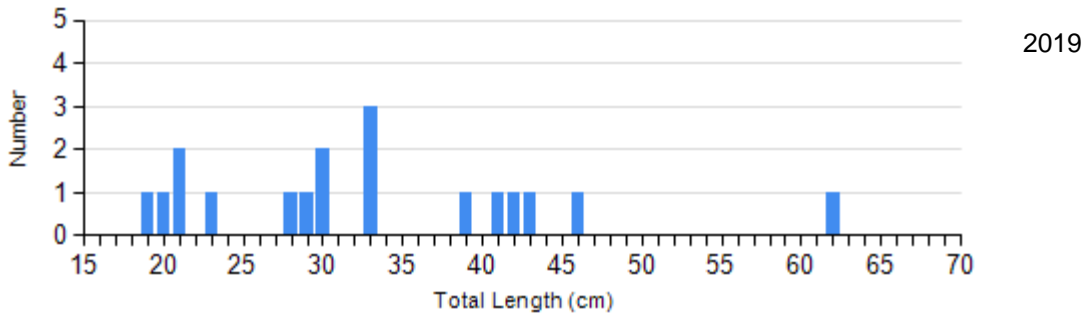
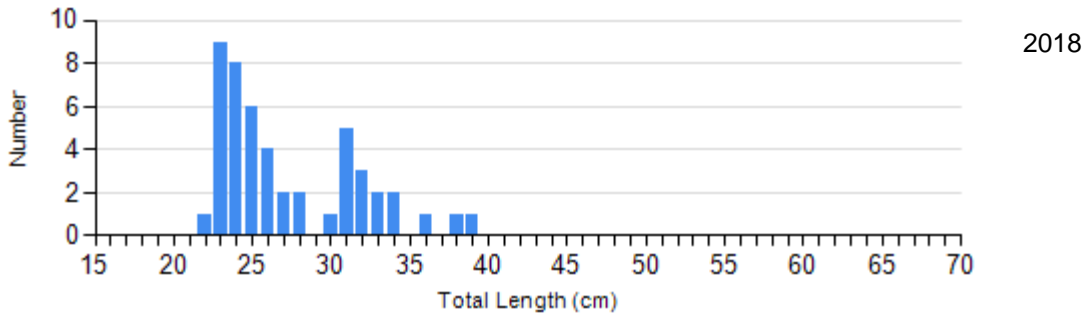
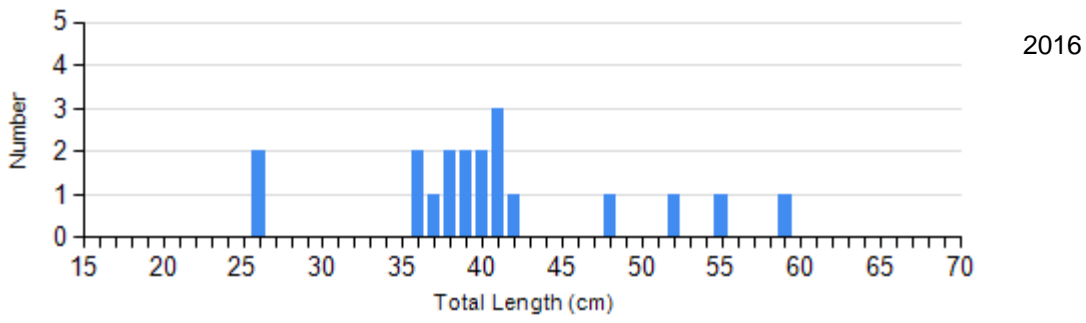


2019

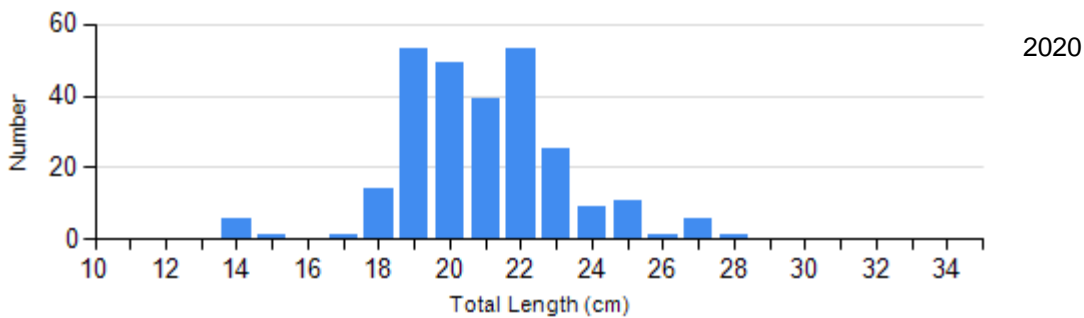
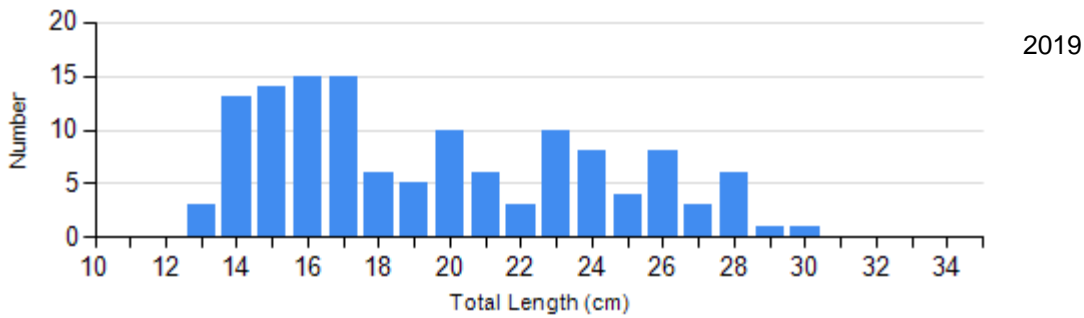
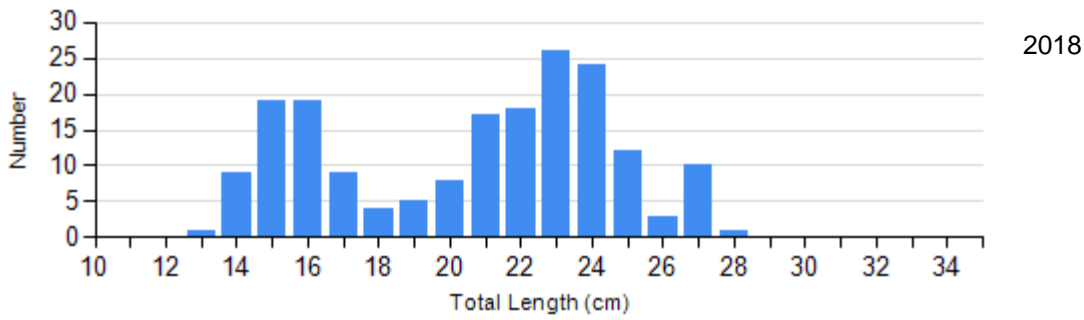
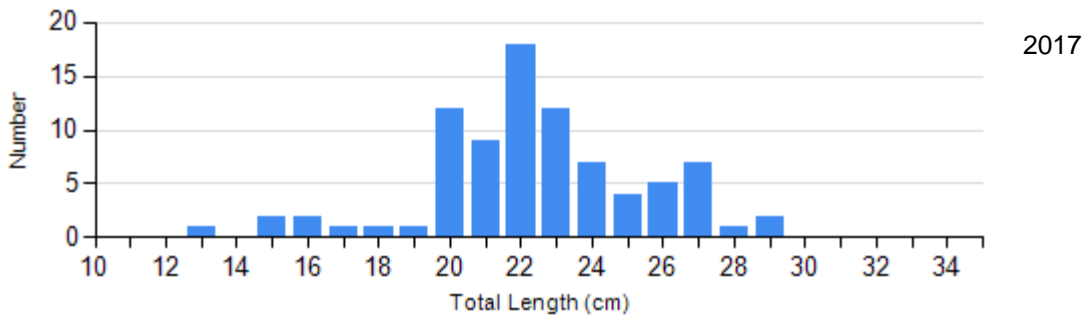
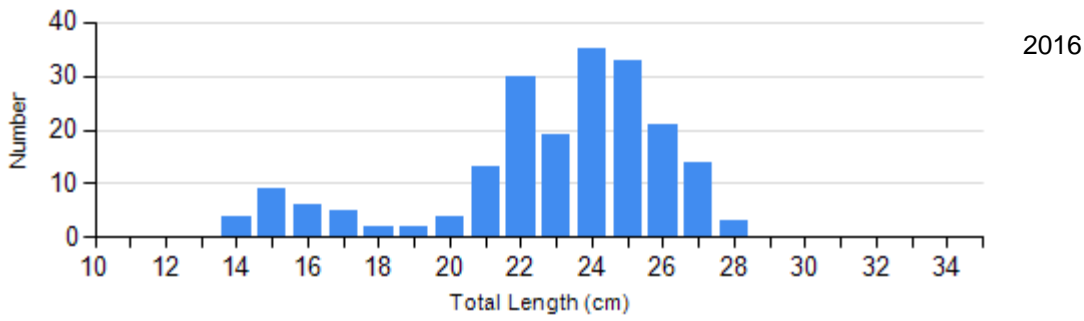


2020

Species: Walleye  
Gear: AFS std gill net



Species: Yellow Perch  
Gear: AFS std gill net

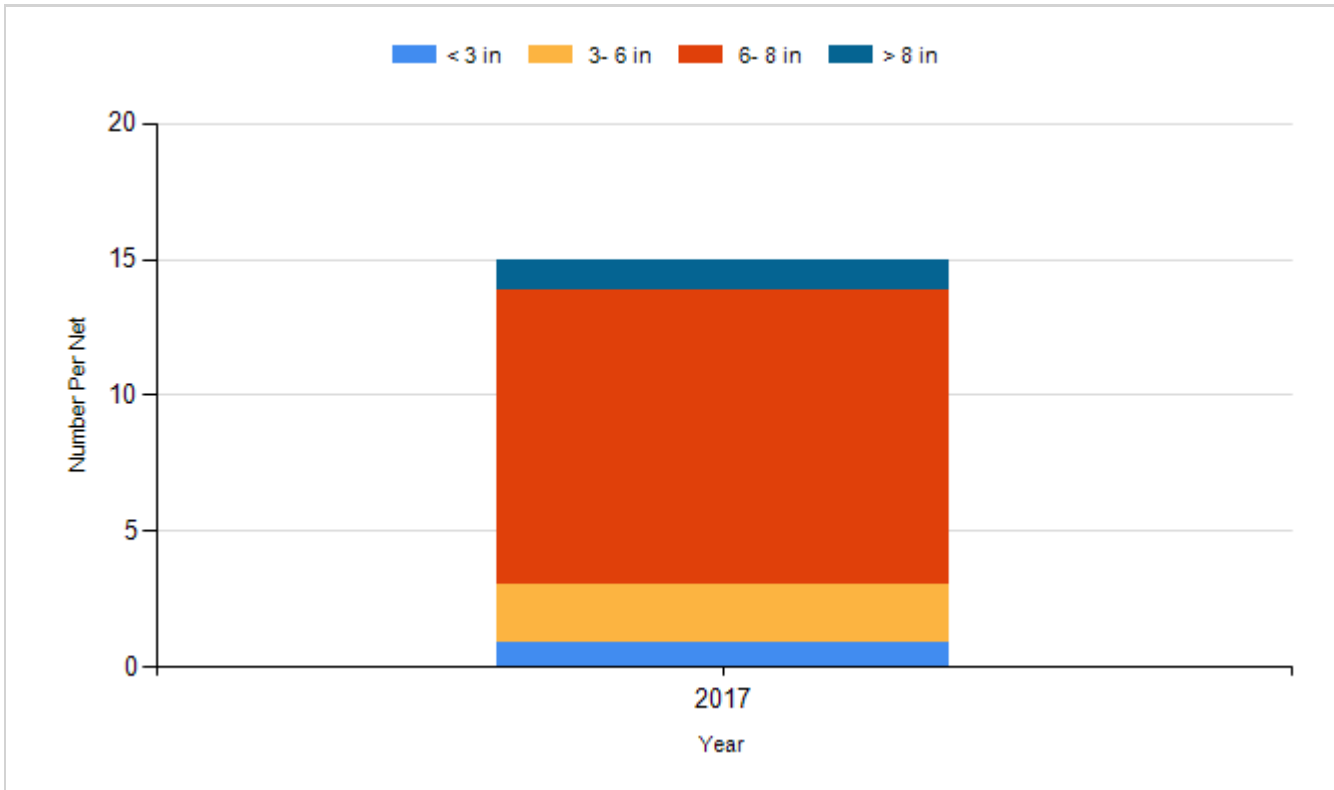


## Historic Fish Sizes and Relative Abundance

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

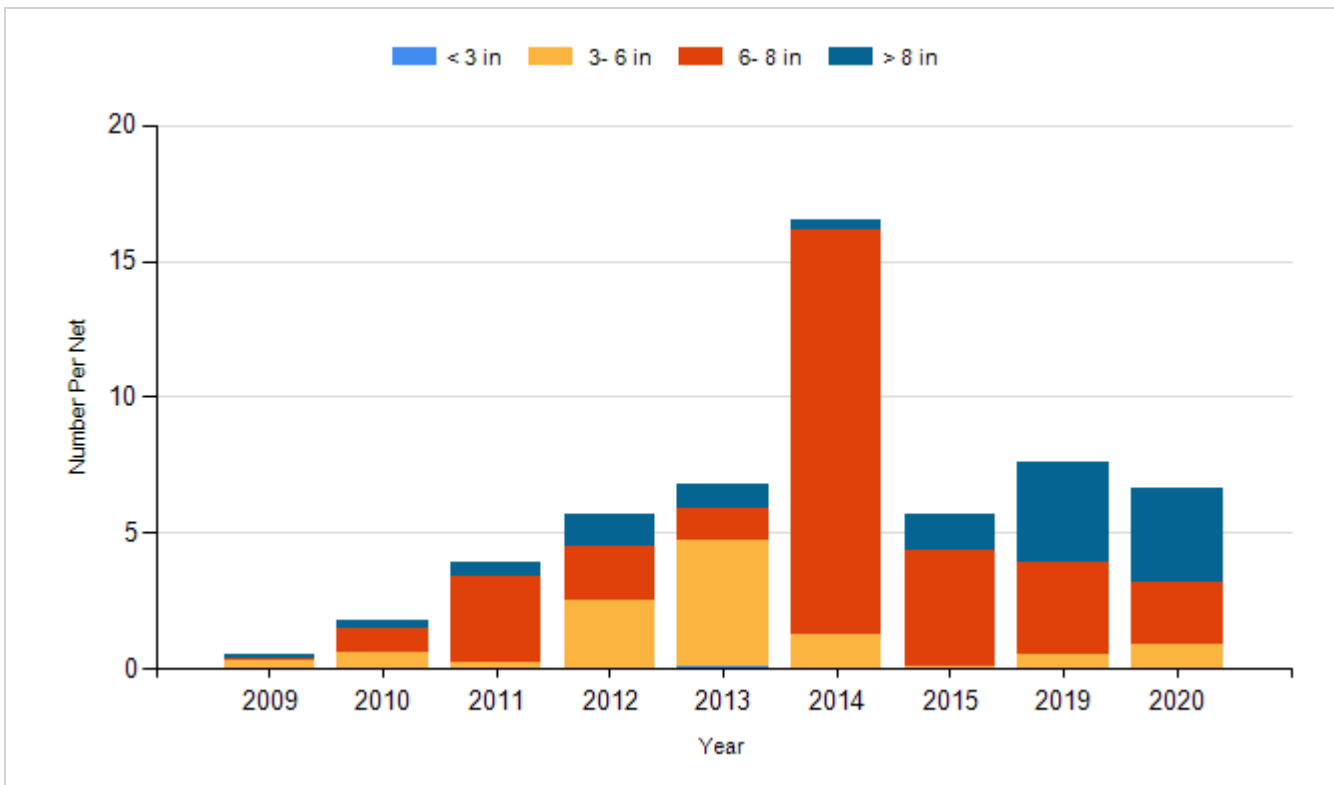
Species: Bluegill

Gear: AFS std frame net

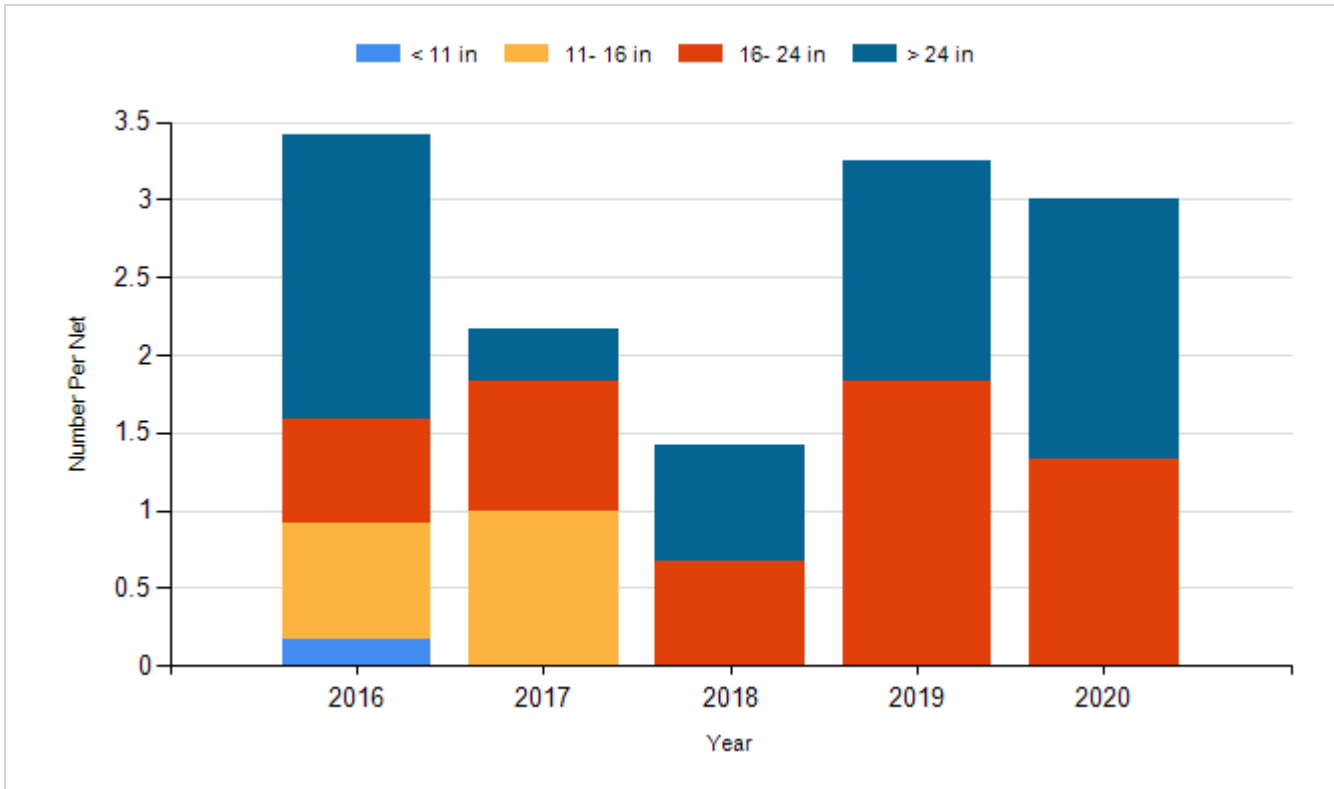


Species: Bluegill

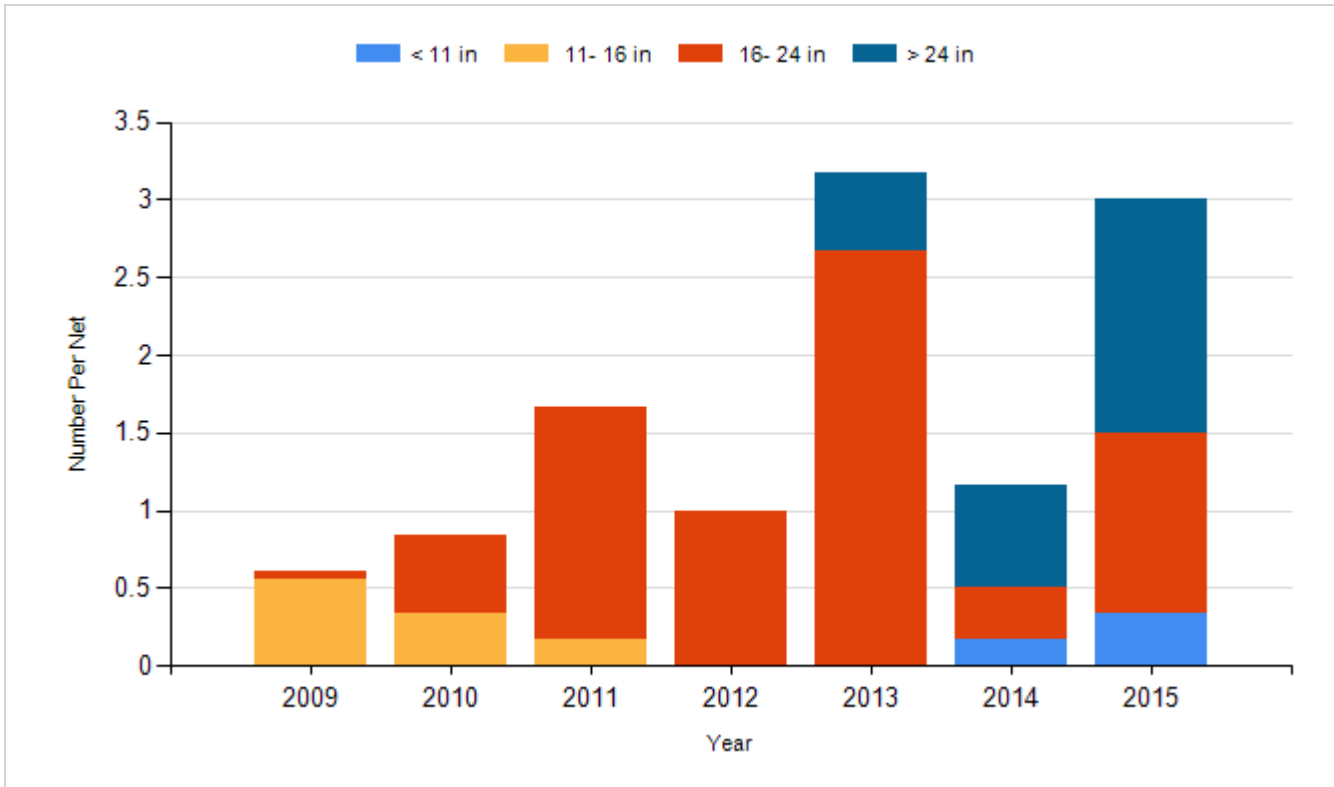
Gear: frame net (std 3/4 in)



Species: Channel Catfish  
Gear: AFS std gill net

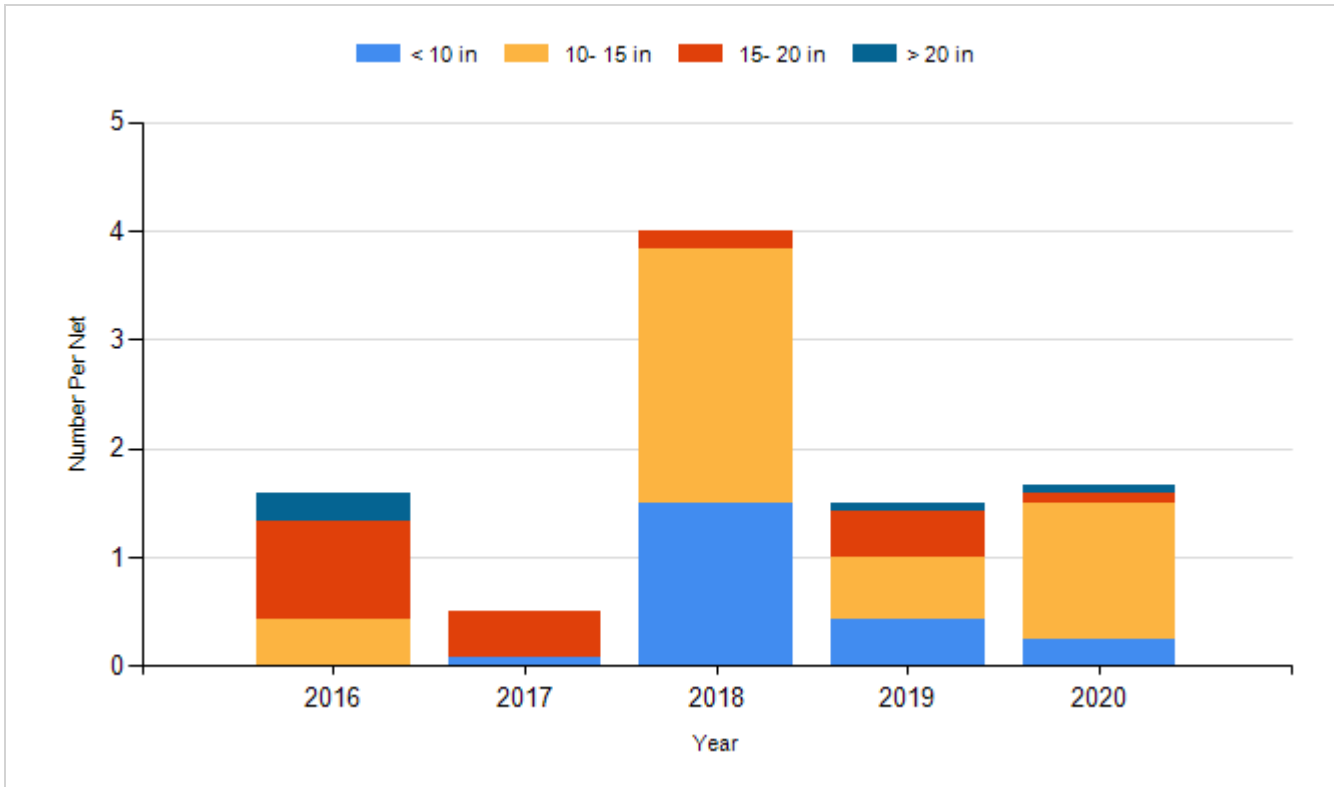


Species: Channel Catfish  
Gear: std exp gill net

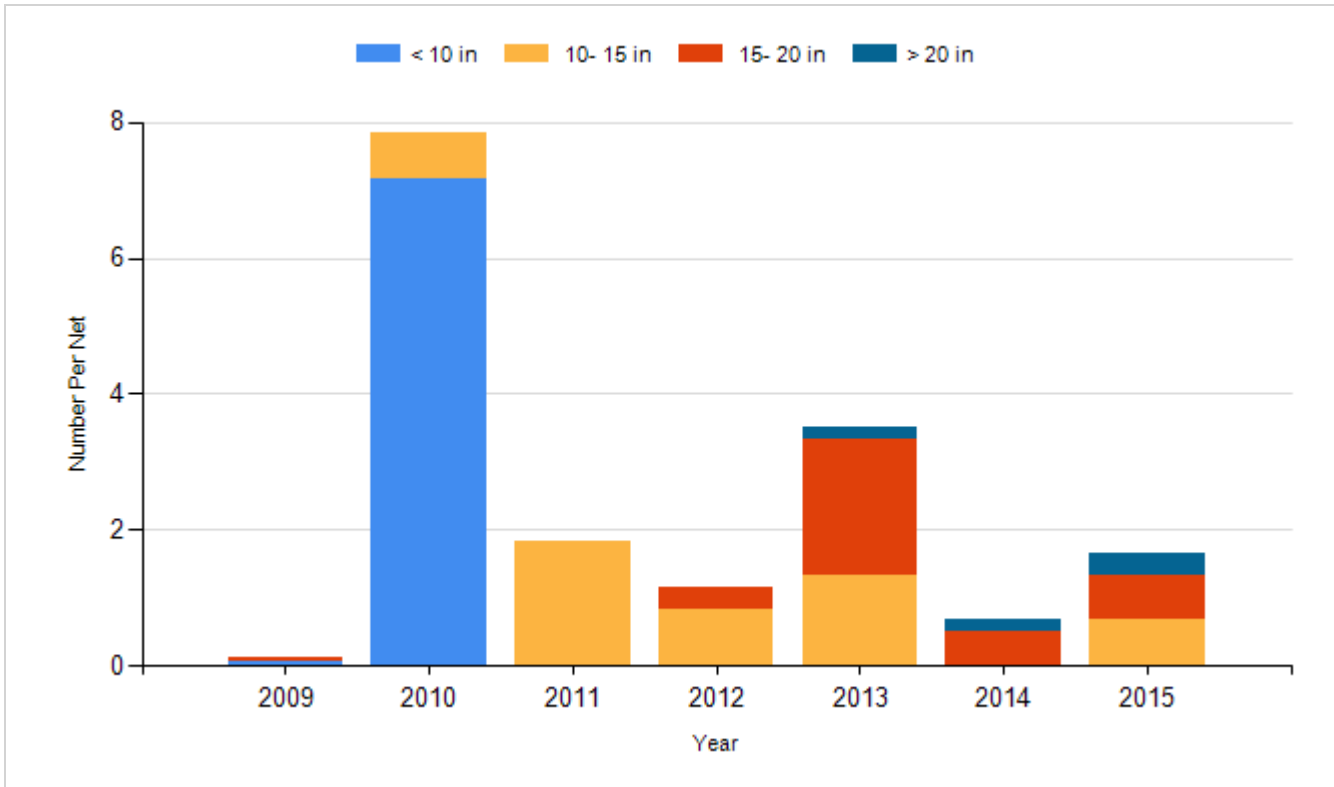




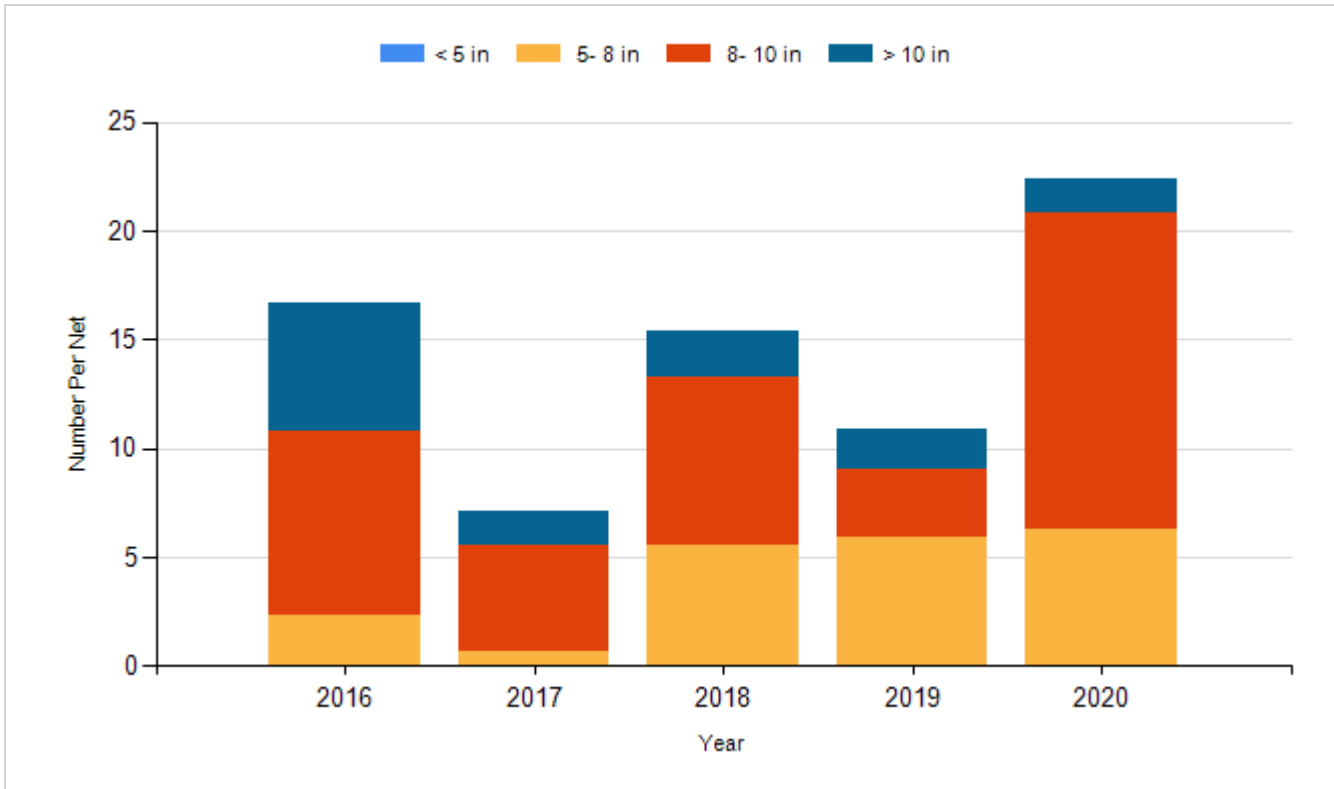
Species: Walleye  
Gear: AFS std gill net



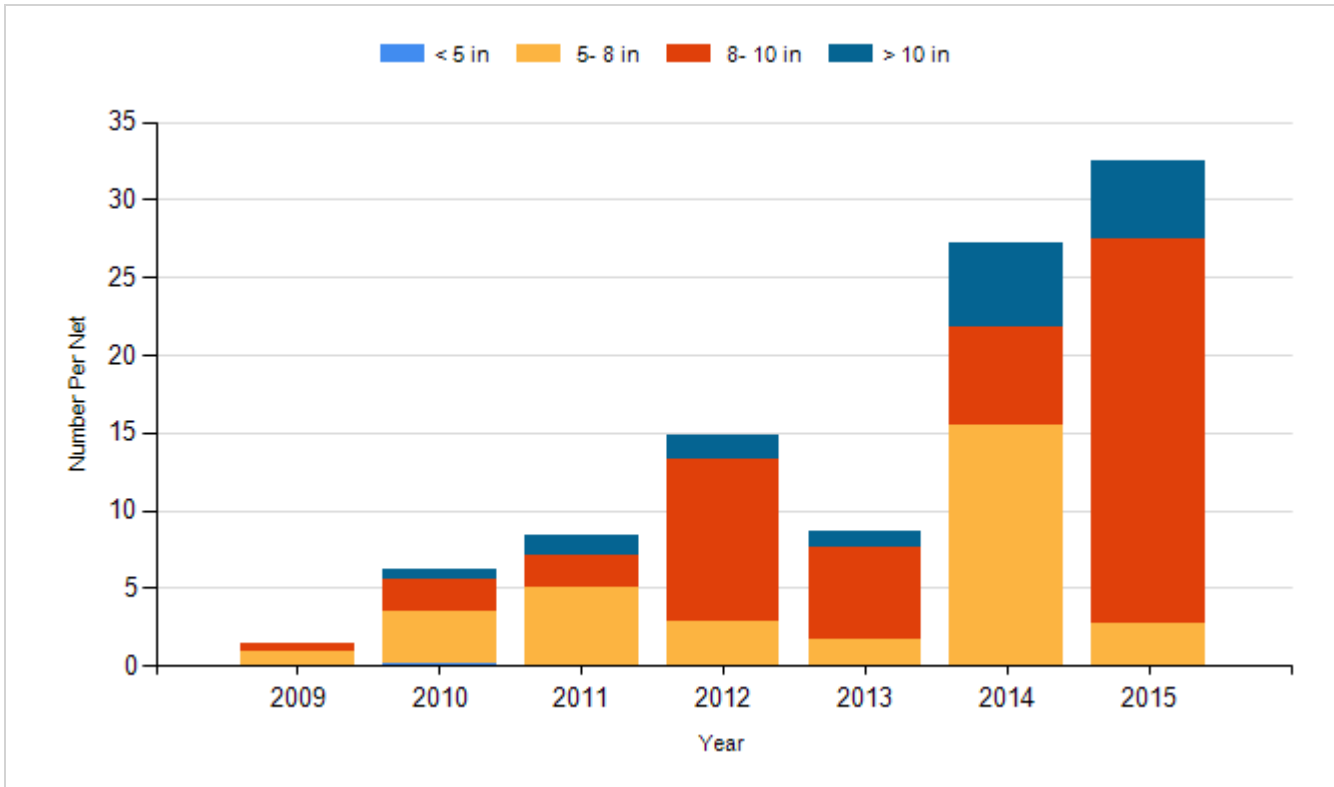
Species: Walleye  
Gear: std exp gill net



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
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