

## Durkee Lake Survey Summary

Durkee Lake is a 70-acre impoundment located three miles south of Faith. The primary species managed for include Largemouth Bass, Bluegill, Black Crappie, Yellow Perch and Northern Pike. Other species present include Black Bullhead and Golden Shiner. Durkee had been suffering from low water for multiple years and refilled from some big rain events in June of 2023.

**Largemouth Bass.** Durkee Lake has a healthy bass population with 86 fish sampled in 50 minutes of electrofishing. Sampled bass ranged in size from 4-19 inches.

**Bluegill.** Bluegill numbers remain high with 54 fish per net. Sizes were rather small with most fish between 4-7 inches.

**Northern Pike.** Sixteen pike were captured in the eight net sample. Pike ranged in length from 19 to 32 inches.

**Black Bullhead.** Bullhead numbers have steadily dropped the past 5 years, this year's average was 4.8 per net. Fish were large with 79% of the adult fish being over 12 inches.

# SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

Durkee, Meade County

CHE-Lake-516-000

2023

## Lake Information

**Name:** Durkee  
**County:** Meade  
**Surface Area:** 108 Acres

## Surveys and Investigations

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

Gear	Date	Effort
boat shocker (day)	Jun 05, 2023	6 seconds
boat shocker (day)	Oct 23, 2023	2981 seconds
frame net (std 3/4 in)	Jun 21, 2023	8 net-nights

## **Common Fish Species Present**

Largemouth Bass

Yellow Perch

Northern Pike

Bluegill

Black Crappie

Black Bullhead

Channel Catfish

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## 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.

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

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
boat shocker (day)	Largemouth Bass	119	12,824. 2	5,920.8	87	5	66	7	129	2
frame net (std 3/4 in)	Black Bullhead	50	4.6	3.0	95		78	11	97	2
	Black Crappie	12	0.6	0.5	60		0		104	5
	Bluegill	359	44.9	12.8	31	3	4	2	120	1
	Channel Catfish	1	0.1	0.2	100		0		93	
	Largemouth Bass	3	0.3	0.4	100		50		120	3
	Northern Pike	16	2.0	0.7	88		19		88	3
	Yellow Perch	15	1.6	1.5	23		0		101	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

Gear	Species	CPUE										Avg	
		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
AFS std frame net	Black Bullhead				27.0								27.00
	Black Crappie				9.4								9.40
	Bluegill				9.7								9.70
	Golden Shiner				0.0								0.00
	Largemouth Bass				0.3								0.30
	Northern Pike				0.6								0.60
	Yellow Perch				1.9								1.90
AFS std gill net	Black Bullhead				10.0	25.5	1.7						12.40
	Black Crappie				0.3	0.5	0.0						0.27
	Bluegill				0.0	0.5	0.0						0.17
	Channel Catfish				0.0	0.5	0.0						0.17
	Common Carp				0.0	0.0	1.3						0.43
	Freshwater Drum				0.0	0.0	0.7						0.23
	Golden Shiner				0.0	0.0	0.0						0.00
	Northern Pike				2.3	3.5	0.7						2.17
	Walleye				0.0	0.0	3.3						1.10
	White Bass				0.5	0.0	1.3						0.60
	Yellow Perch				5.0	13.5	2.7						7.07
boat shocker (day)	Largemouth Bass										12,824.2	12824.20	
	Largemouth Bass	28.2	22.5	47.1	59.0	39.6	9.0					34.23	
boat shocker (night)	Largemouth Bass	28.2	22.5	47.1	59.0	39.6	9.0					34.23	
	Black Bullhead	228.4	162.4	42.8		19.6	35.0	6.5	1.4	2.4	4.6	55.90	
	Black Crappie	73.4	10.3	23.9		11.4	14.9	12.3	31.8	3.4	0.6	20.22	
	Bluegill	45.0	12.1	85.5		34.4	0.1	24.5	45.4	19.2	44.9	34.57	
	Channel Catfish	0.1	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.1	0.02	
	Golden Shiner	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.00	
	Green Sunfish	0.0	0.3	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.03	
	Largemouth Bass	0.0	0.1	0.0		0.0	0.3	0.0	0.0	2.0	0.3	0.30	
	Northern Pike	0.3	0.0	1.5		1.6	1.0	0.5	5.2	3.2	2.0	1.70	
	Sunfish Hybrid	0.0	0.0	0.0		0.0	0.0	0.0	0.2	0.0	0.0	0.02	
frame net (std 3/4 in)	Yellow Perch	2.4	18.6	3.4		6.2	4.5	2.0	2.4	0.2	1.6	4.59	
	Black Bullhead	27.0	32.0	17.0								25.33	
	Black Crappie	42.0	1.0	7.0								16.67	
	Bluegill	0.0	1.0	0.0								0.33	
	Black Bullhead	27.0	32.0	17.0								25.33	
	Black Crappie	42.0	1.0	7.0								16.67	
	Bluegill	0.0	1.0	0.0								0.33	
	Black Bullhead	27.0	32.0	17.0								25.33	
	Black Crappie	42.0	1.0	7.0								16.67	
	Bluegill	0.0	1.0	0.0								0.33	

CPUE

Gear	Species	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Avg
std exp gill net	Channel Catfish	0.0	0.5	0.0								0.17
	Golden Shiner	0.0	0.0	0.0								0.00
	Northern Pike	2.5	1.0	6.0								3.17
	Yellow Perch	36.0	54.0	30.0								40.00



## 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.

Gear	Species	Index	Year													
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023				
AFS std frame net	Black Bullhead	PSD				89										
		PSD-P				0										
		Wr				89										
	Black Crappie	PSD				55										
		PSD-P				0										
		Wr				107										
	Bluegill	PSD				78										
		PSD-P				7										
		Wr				106										
	Largemouth Bass	PSD				100										
		PSD-P				0										
		Wr				110										
	Northern Pike	PSD				50										
		PSD-P				50										
		Wr				95										
	Yellow Perch	PSD				85										
		PSD-P				0										
		Wr				88										
AFS std gill net	Black Bullhead	PSD				88	100	60								
		PSD-P				0	0	0								
		Wr				92	90	101								
	Black Crappie	PSD				0	100									
		PSD-P				0	0									
		Wr				103	97									
	Bluegill	PSD					100									
		PSD-P					100									
		Wr					64									
	Channel Catfish	PSD					100									
		PSD-P					100									
		Wr					120									
	Northern Pike	PSD				89	100	0								
		PSD-P				33	14	0								
		Wr				91	84	92								

Gear	Species	Index	Year									
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AFS std gill net	Yellow Perch	PSD				40	11	0				
		PSD-P				0	0	0				
		Wr				91	98	90				
boat shocker (day)	Largemouth Bass	PSD										87
		PSD-P										66
		Wr										129
boat shocker (night)	Largemouth Bass	PSD	88	80	56	81	85	100				
		PSD-P	21	57	33	31	18	56				
		Wr	95	108	128	106	102	105				
frame net (std 3/4 in)	Black Bullhead	PSD	21	60	80		95	98	92	100	92	95
		PSD-P	0	0	0		0	0	0	14	25	78
		Wr	84	88	85		97	98	90	88	94	97
	Black Crappie	PSD	7	6	38		40	26	18	13	18	60
		PSD-P	0	0	1		2	6	4	0	0	0
		Wr	98	126	105		103	97	101	101	95	104
	Bluegill	PSD	84	80	94		80	100	35	41	23	31
		PSD-P	0	0	8		9	0	5	7	6	4
		Wr	112	115	106		105	125	109	102	110	120
	Channel Catfish	PSD	100									100
		PSD-P	0									0
		Wr	93									93
	Largemouth Bass	PSD		100				100			100	100
		PSD-P		0				100			50	50
		Wr		102				101			122	120
	Northern Pike	PSD	100	0	58		100	88	33	88	100	88
		PSD-P	50	0	8		38	25	33	12	25	19
		Wr	94		84		87	86	98	89	87	88
	Yellow Perch	PSD	0	46	48		52	17	33	42	100	23
		PSD-P	0	0	4		13	6	8	0	100	0
		Wr	91	102	89		87	86	91	94	79	101
std exp gill net	Black Bullhead	PSD	15	31	88							
		PSD-P	0	0	0							
		Wr	91	91	88							
	Black Crappie	PSD	92	0	14							
		PSD-P	0	0	0							

Gear	Species	Index	Year									
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
std exp gill net	Black Crappie	Wr	95	125	109							
		PSD		50								
		PSD-P		0								
	Channel Catfish	Wr		115								
		PSD		100								
		PSD-P		0								
		Wr		97								
	Northern Pike	PSD	100	100	67							
		PSD-P	20	100	17							
		Wr	98	94	94							
	Yellow Perch	PSD	0	15	23							
		PSD-P	0	0	0							
Wr		96	102	92								

## Length at Capture

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

Species: Black Crappie

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2016	380		162 (74)	197 (251)	185 (8)	214 (13)	225 (35)				
2014	1174		147 (14)	181 (1082)	205 (70)	222 (8)					

Species: Largemouth Bass

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2014	64			228 (2)	295 (2)	327 (12)	352 (44)	335 (2)	429 (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+
2016	60		131 (2)	175 (40)	204 (4)	215 (8)	216 (6)				
2014	228	103 (90)	149 (20)	156 (62)	165 (28)	181 (27)					

## **Fish Condition**

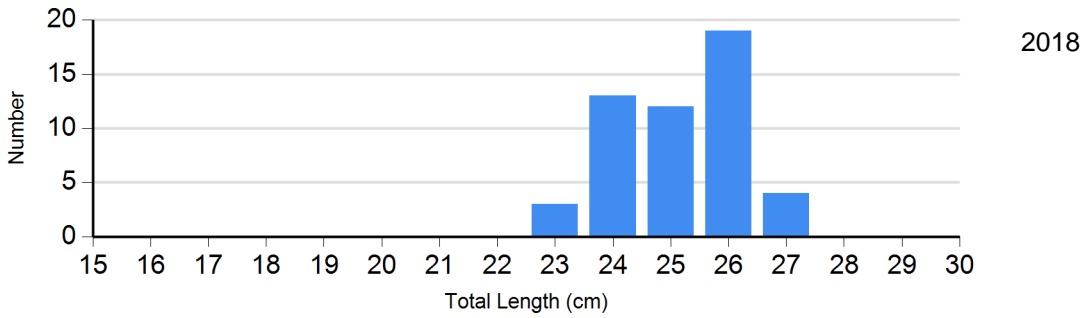
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Bullhead Gill Net	2019	2	111 (3.7)	3	94 (6.9)	0		0	
Black Crappie Frame Net	2019	88	99 (1.0)	24	92 (0.9)	7	96 (2.9)	0	
	2020	61	103 (0.9)	10	90 (2.9)	3	92 (4.0)	0	
	2021	139	102 (0.8)	20	91 (0.8)	0		0	
	2022	14	95 (2.6)	3	95 (3.8)	0		0	
	2023	2	100 (9.9)	3	107 (3.2)	0		0	
Bluegill Frame Net	2019	0		1	125	0		0	
	2020	96	109 (1.2)	44	110 (1.3)	7	106 (2.8)	0	
	2021	133	104 (1.2)	78	102 (1.3)	16	98 (1.3)	0	
	2022	74	110 (1.1)	16	108 (2.9)	6	111 (11.8)	0	
	2023	249	122 (1.3)	97	114 (1.8)	13		0	
Largemouth Bass Electro Fishing	2019	0		4	105 (6.3)	5	104 (4.7)	0	
	2023	12	121 (2.2)	19	125 (3.5)	61	132 (2.0)	0	
Northern Pike Gill Net	2019	2	92 (11.5)	0		0		0	
Yellow Perch Gill Net	2019	8	90 (4.0)	0		0		0	

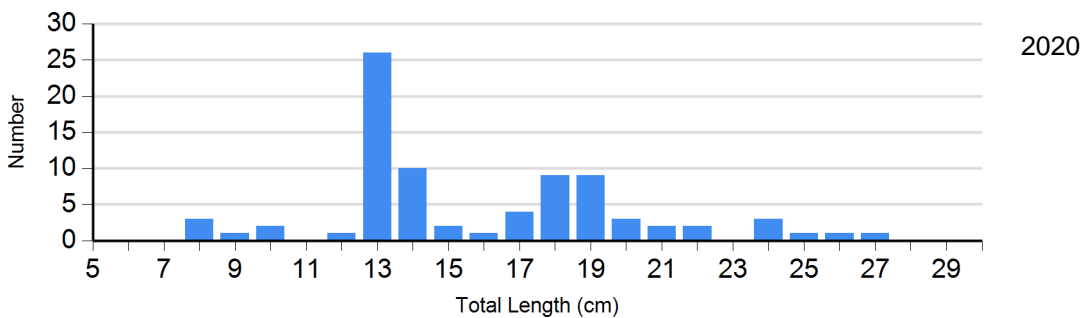
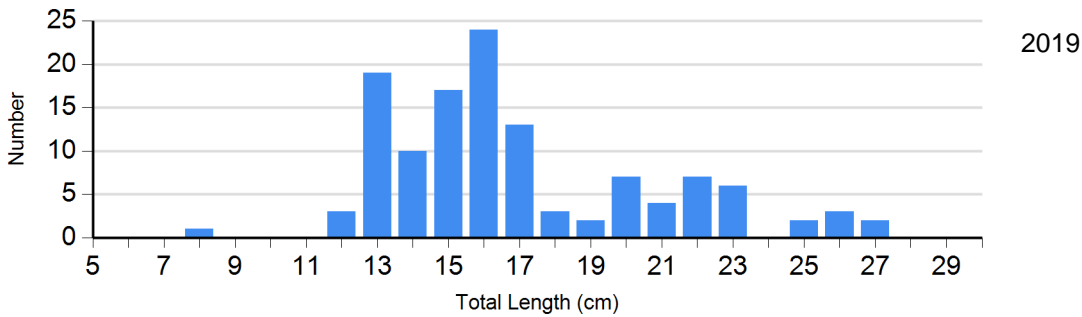
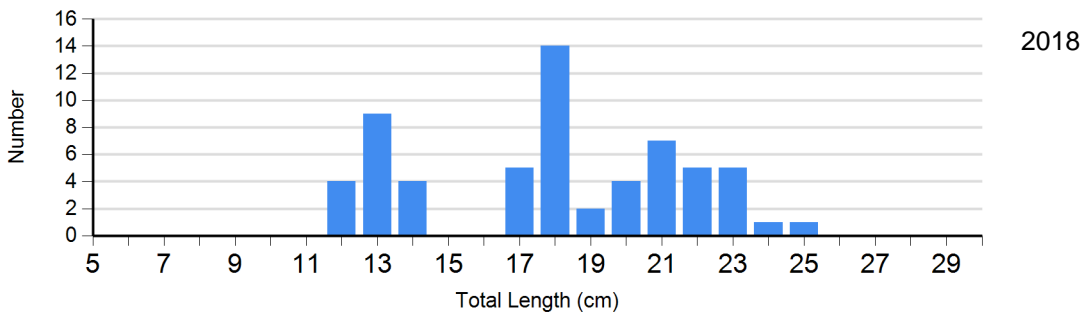
# Length Frequency Distribution

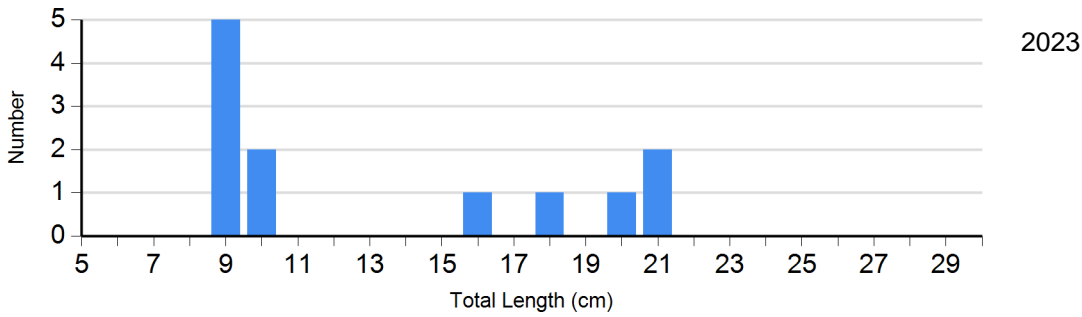
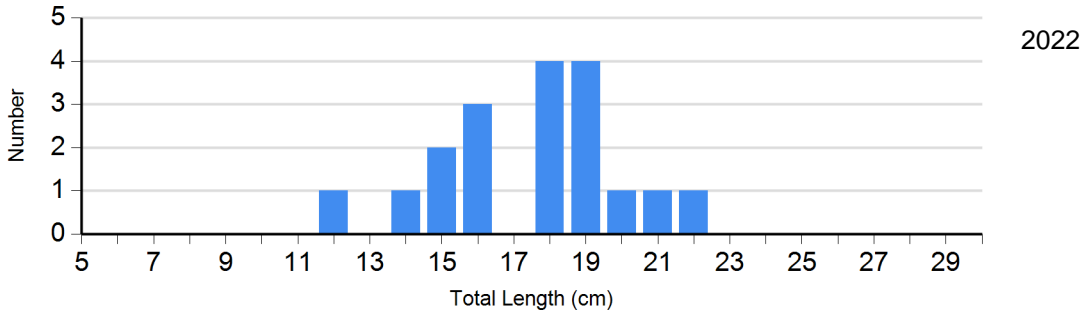
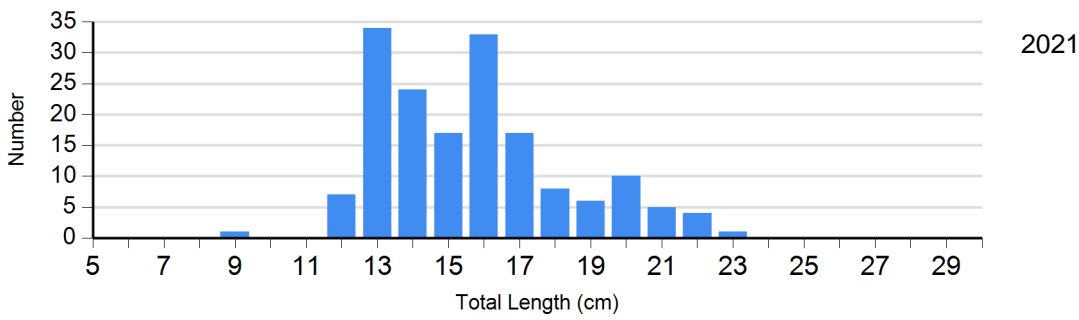
Length frequency histogram of species sampled by year.

Species: Black Bullhead  
Gear: AFS std gill net

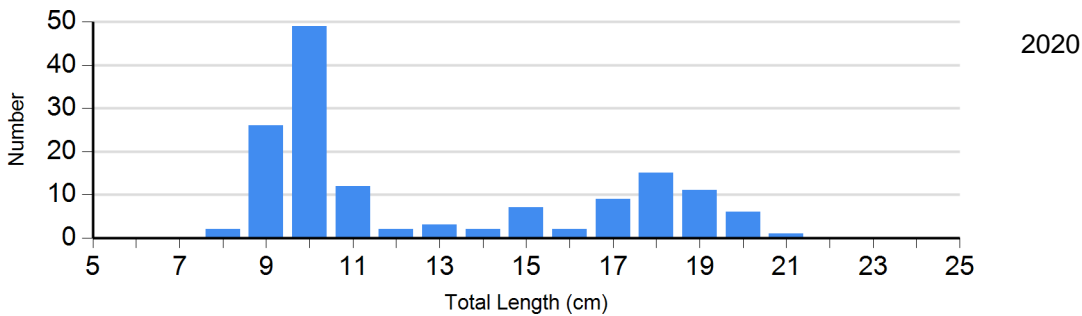
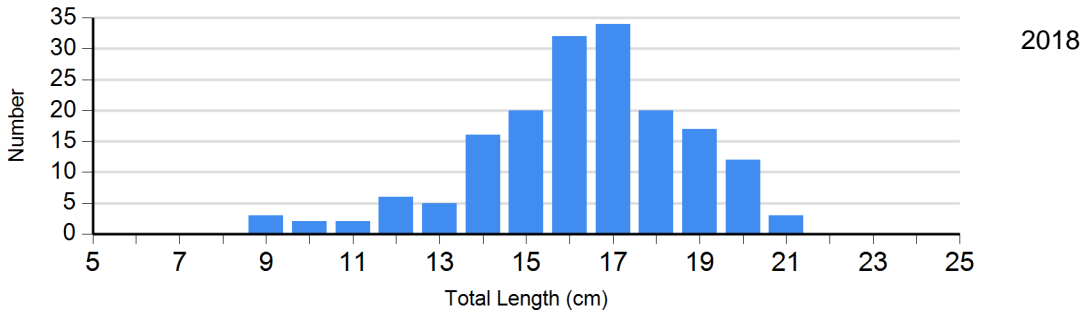


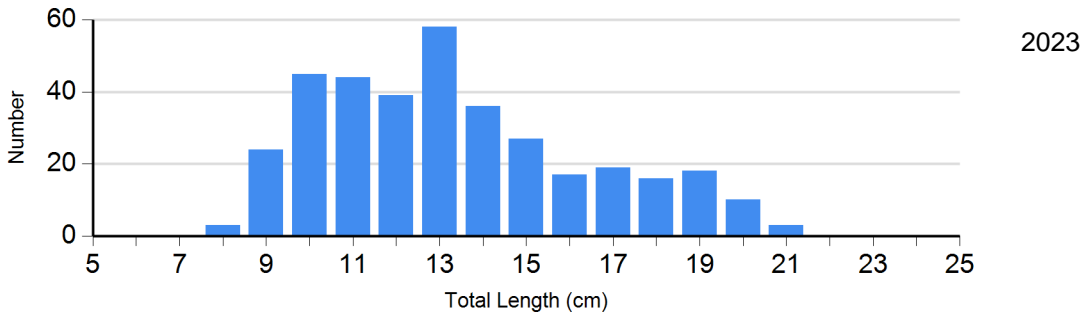
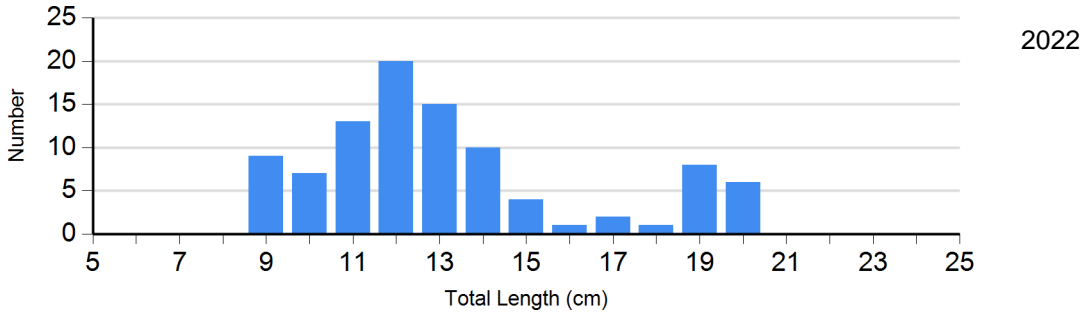
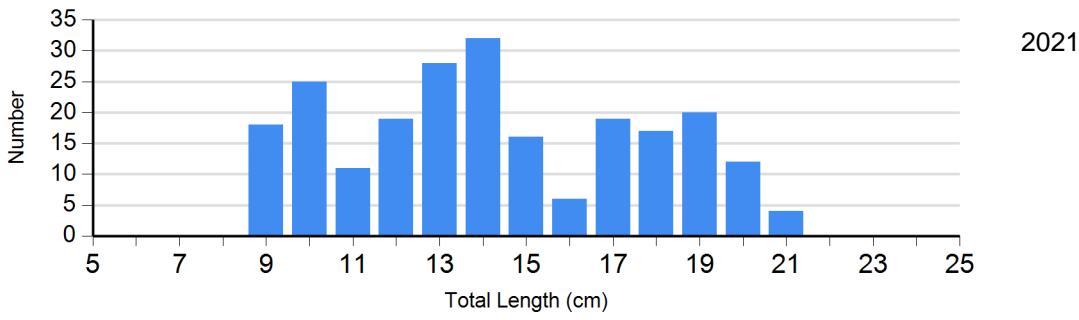
Species: Black Crappie  
Gear: frame net (std 3/4 in)



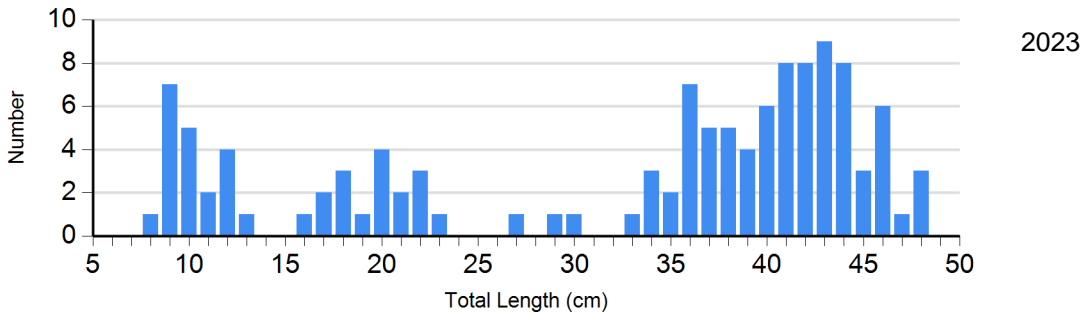


Species: Bluegill  
 Gear: frame net (std 3/4 in)

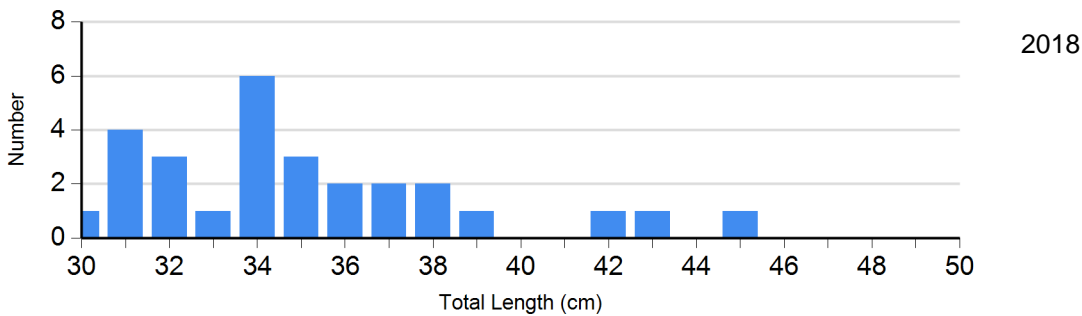




Species: Largemouth Bass  
Gear: boat shocker (day)

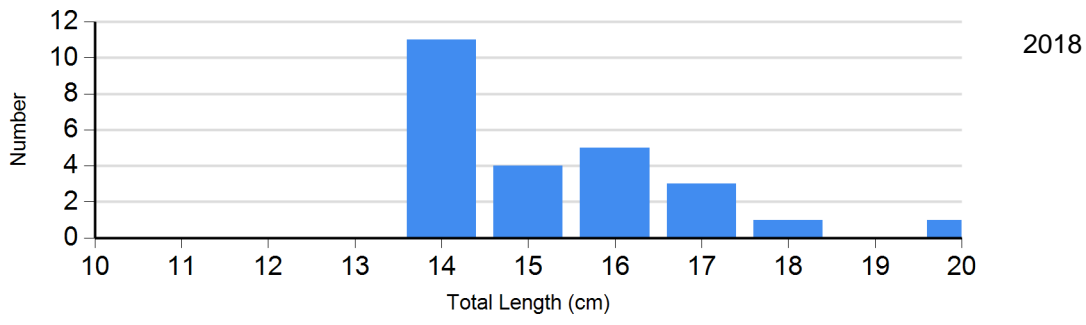


Species: Largemouth Bass  
Gear: boat shocker (night)





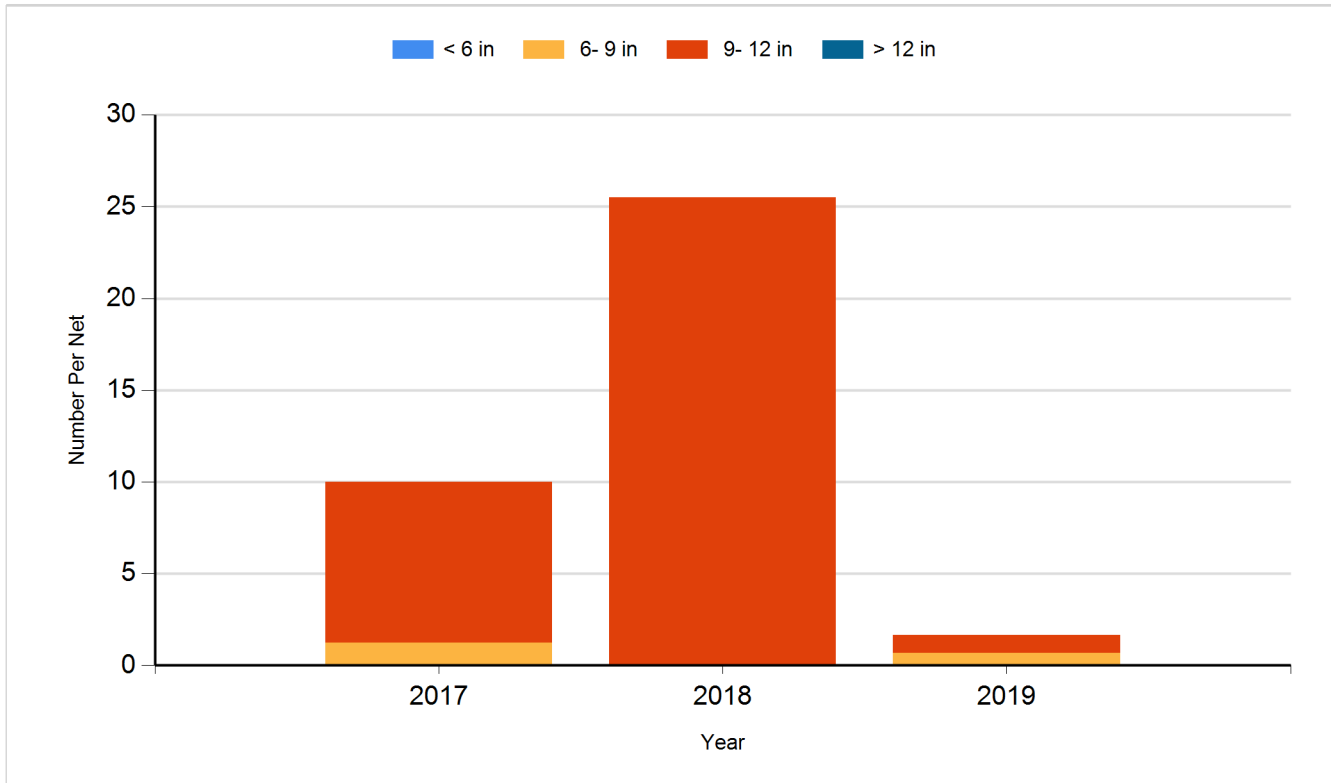
Species: Yellow Perch  
Gear: AFS std gill net



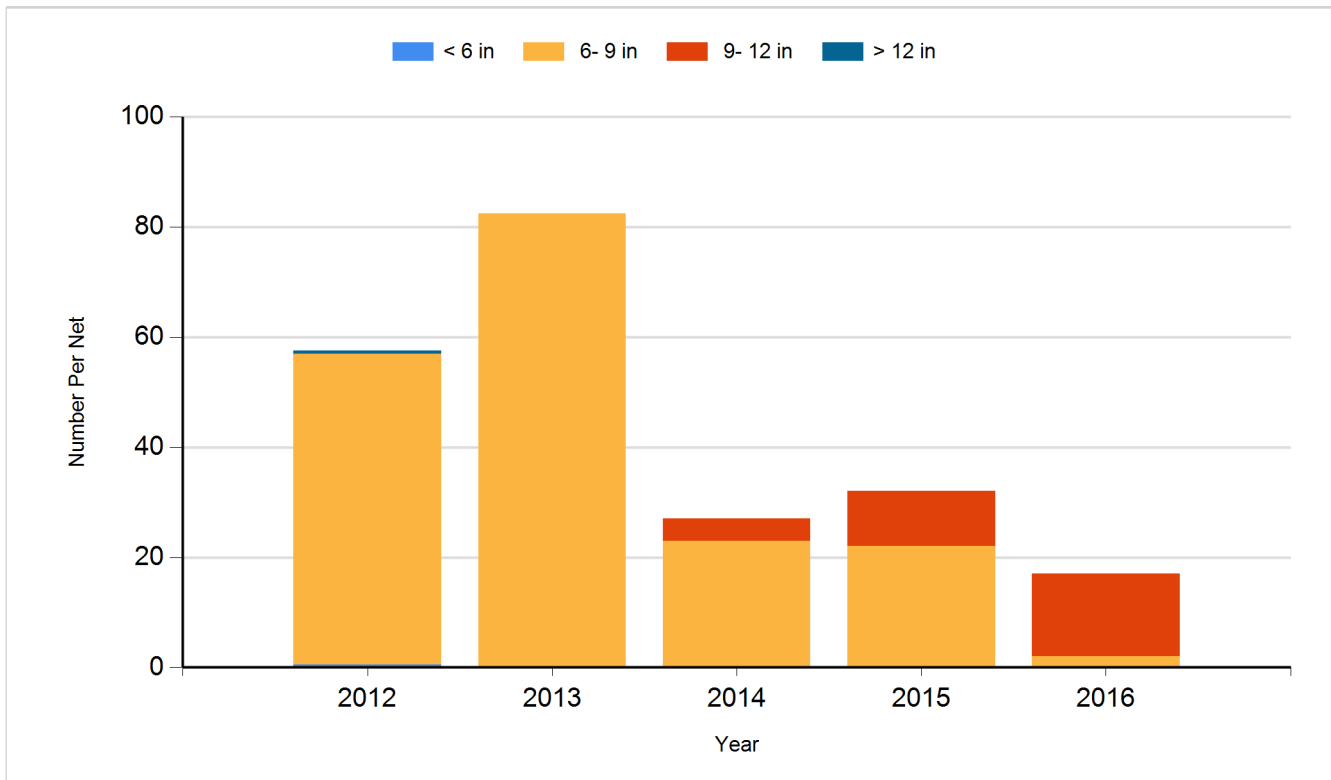
## Historic Fish Sizes and Relative Abundance

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

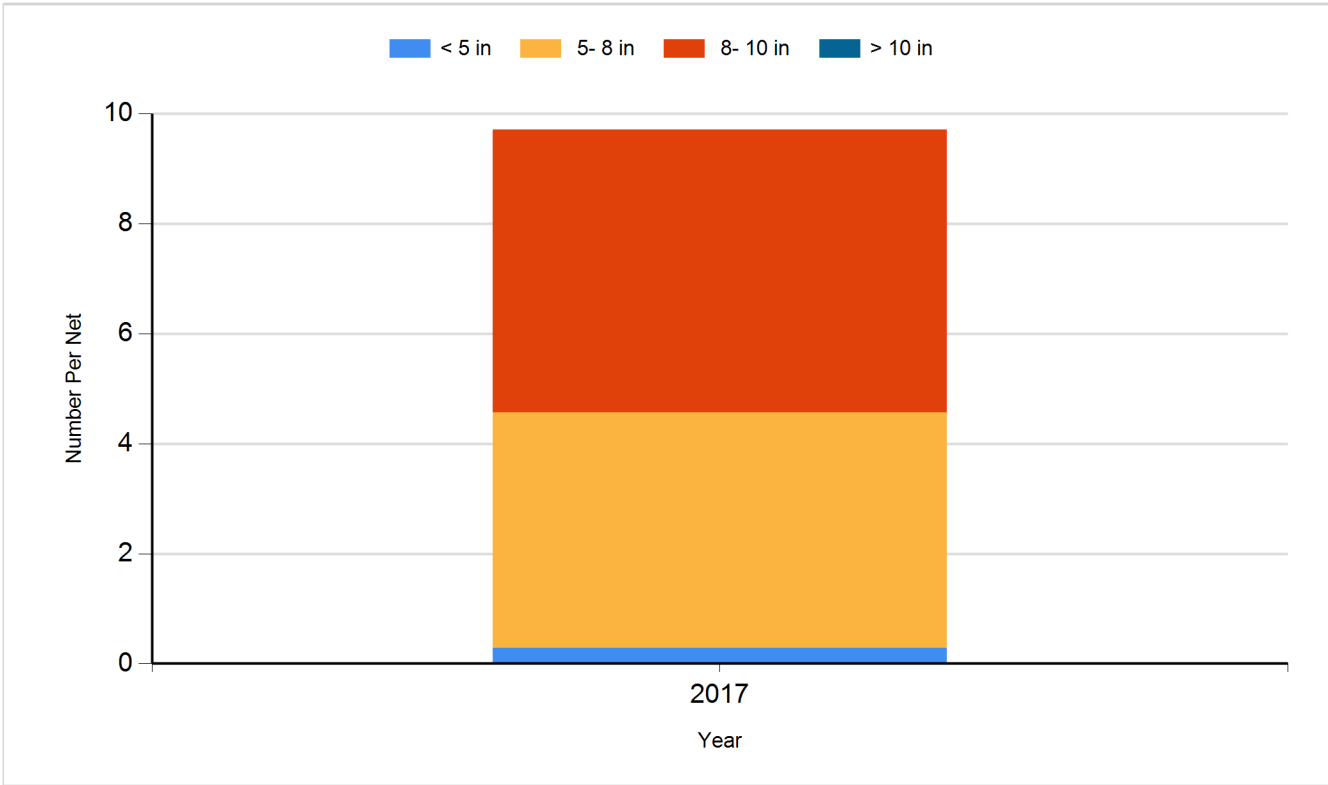
Species: Black Bullhead  
Gear: AFS std gill net



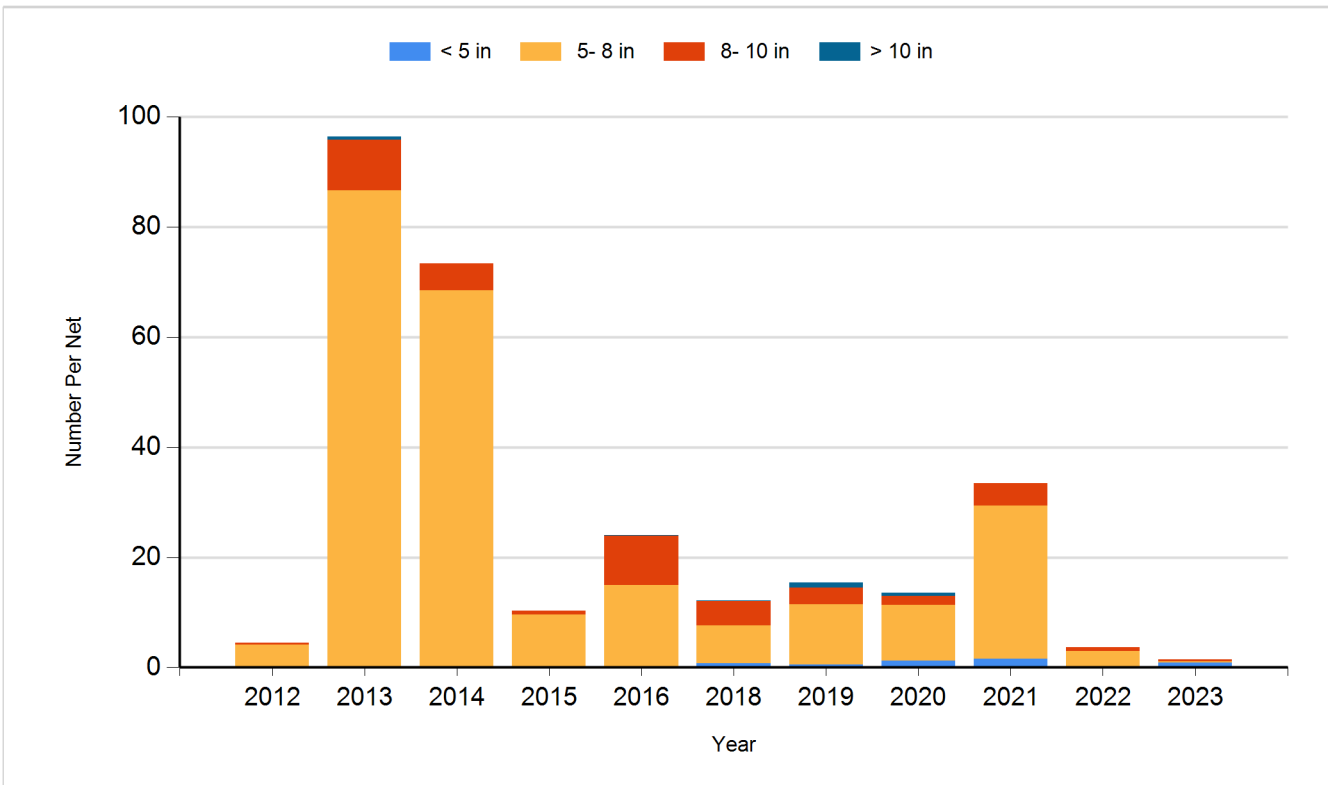
Species: Black Bullhead  
Gear: std exp gill net



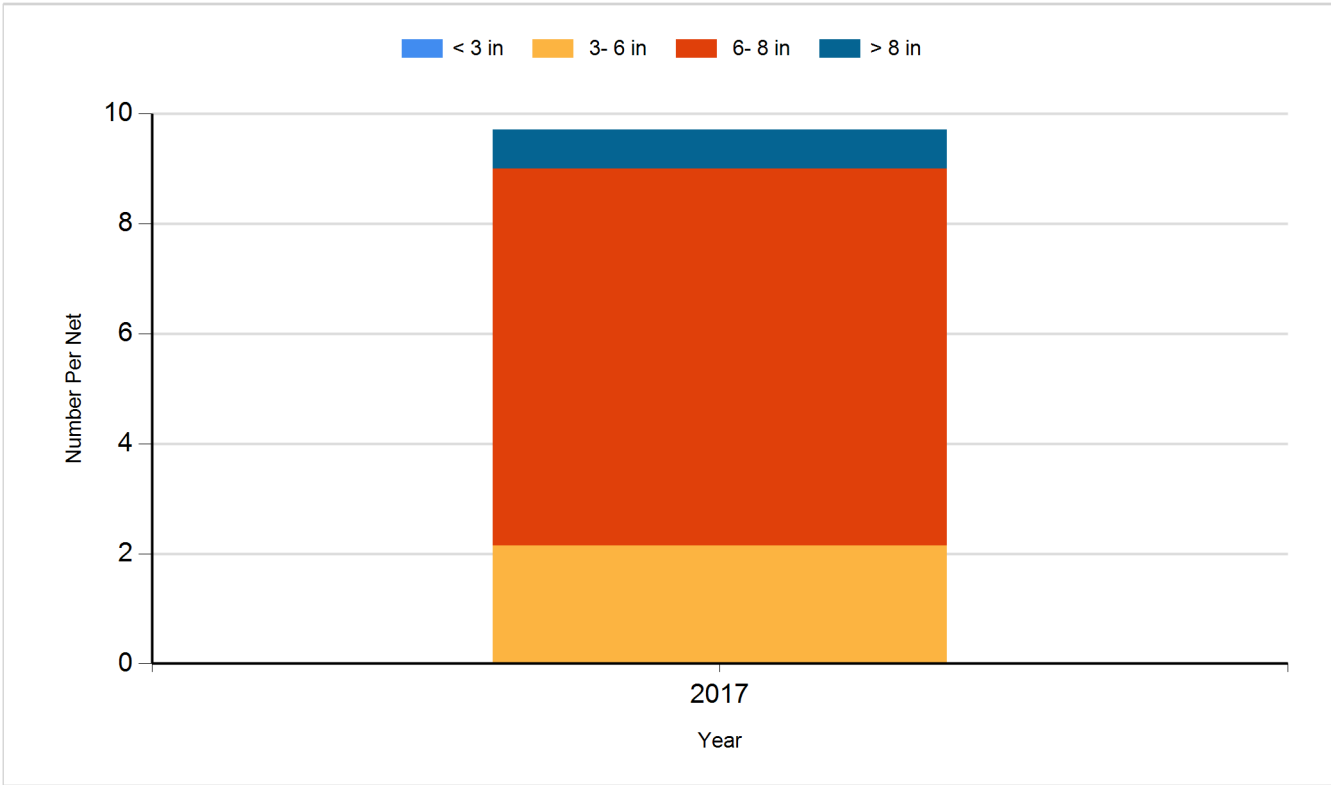
Species: Black Crappie  
Gear: AFS std frame net



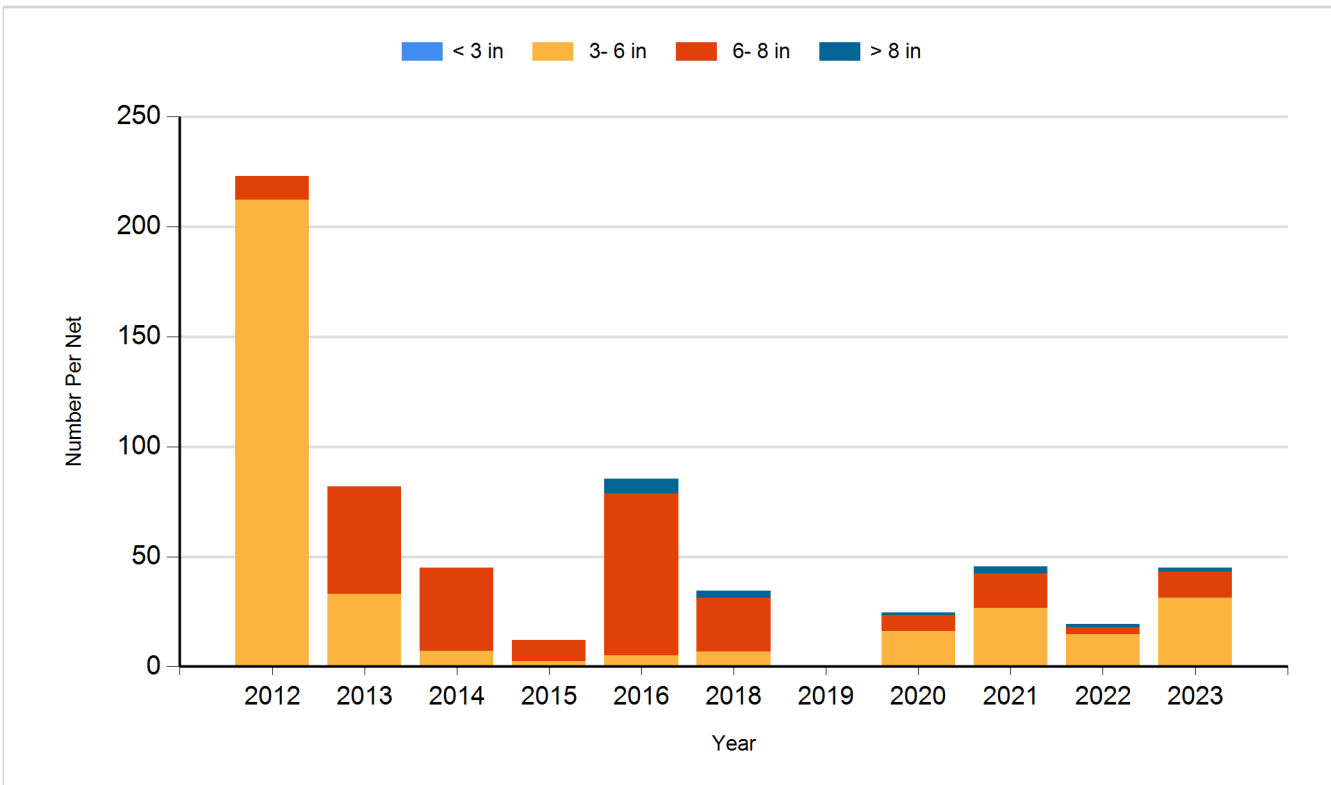
Species: Black Crappie  
Gear: frame net (std 3/4 in)



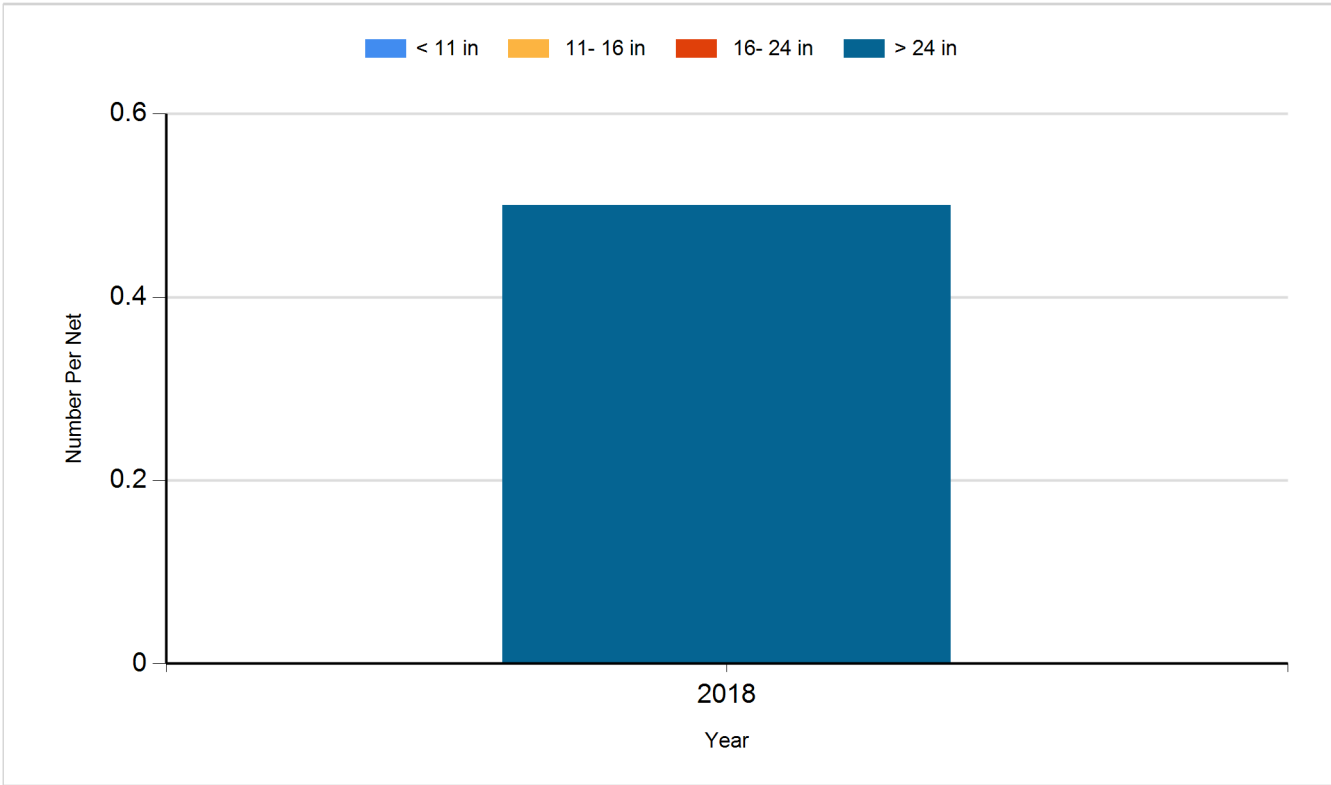
Species: Bluegill  
Gear: AFS std frame net



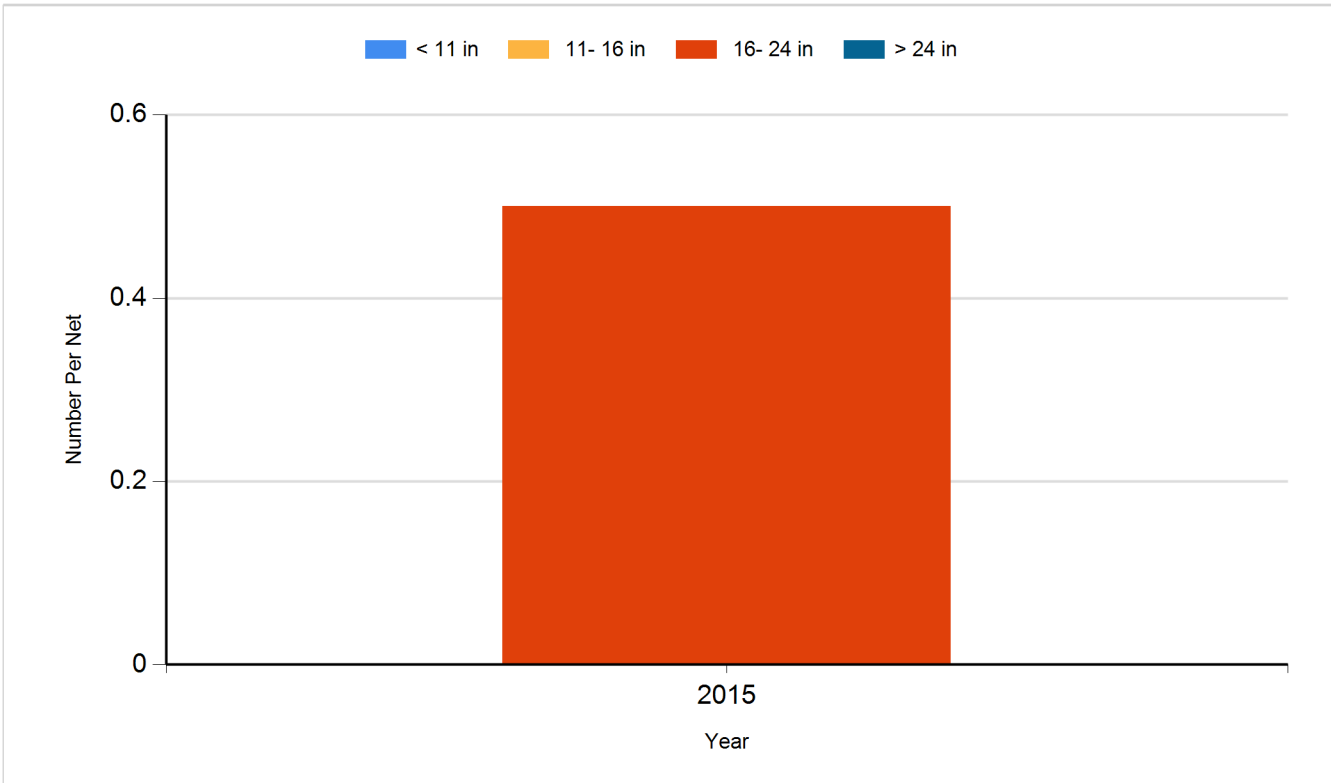
Species: Bluegill  
Gear: frame net (std 3/4 in)



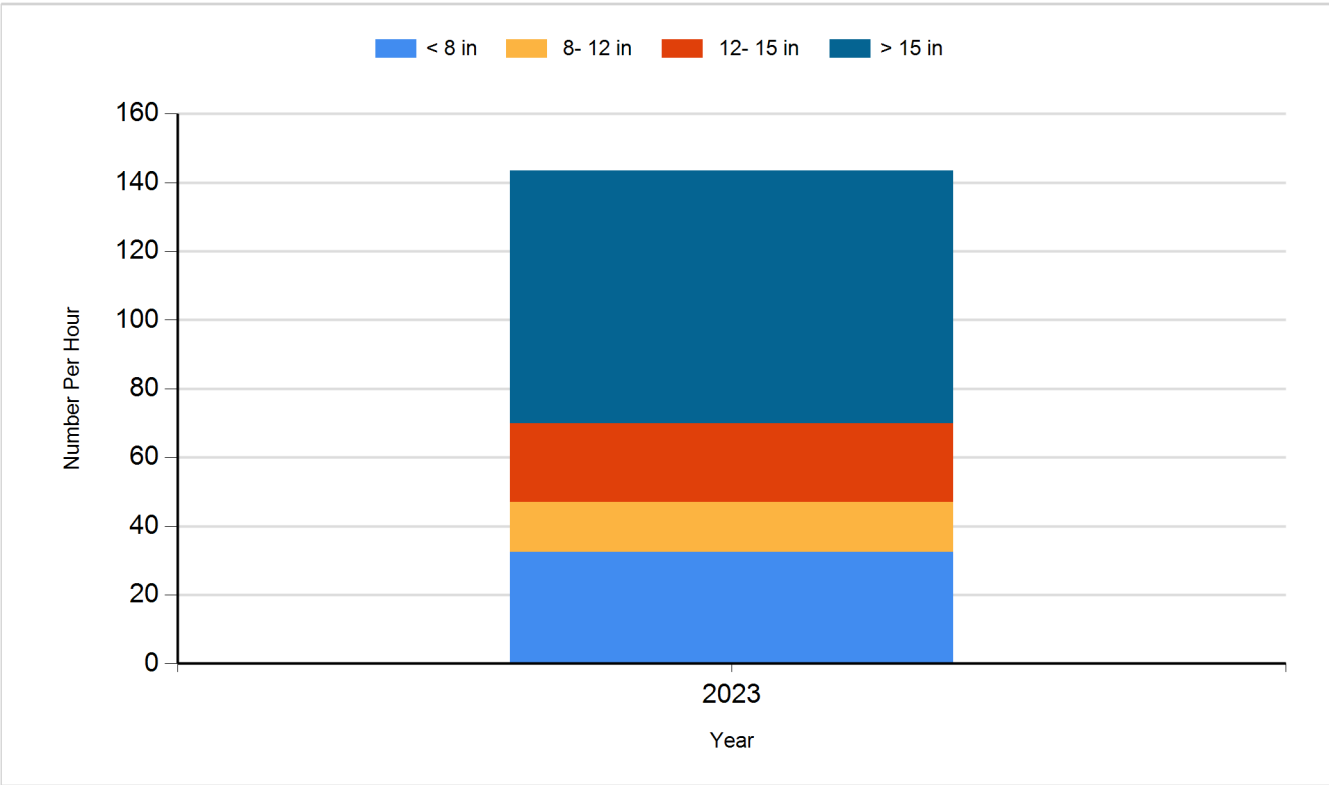
Species: Channel Catfish  
Gear: AFS std gill net



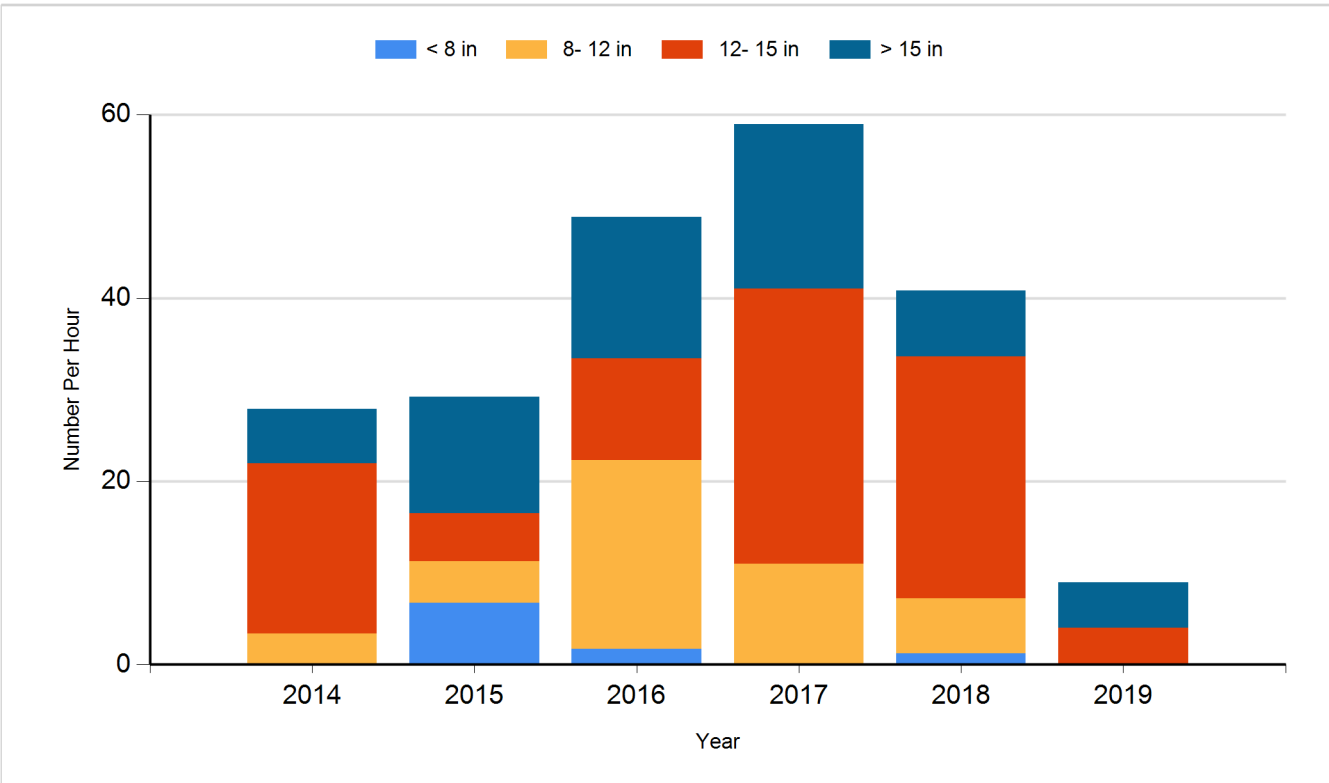
Species: Channel Catfish  
Gear: std exp gill net



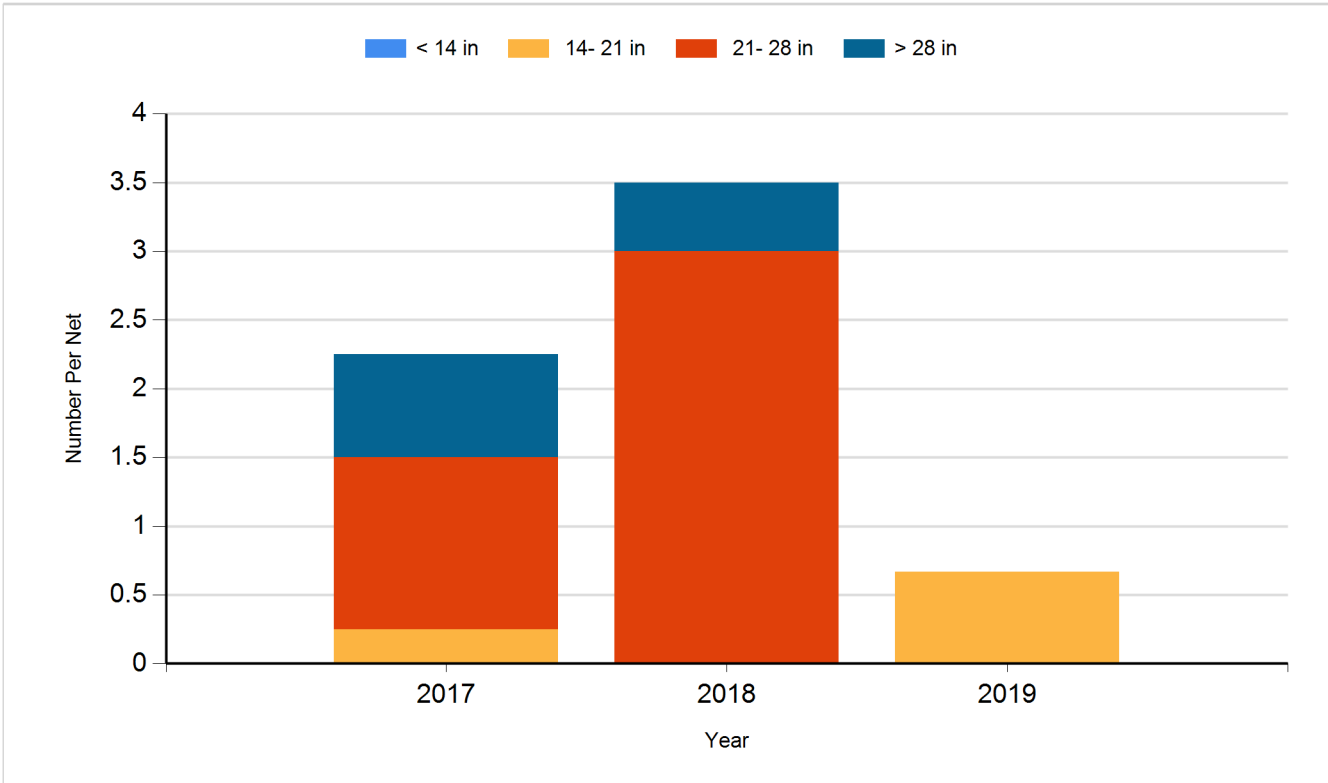
Species: Largemouth Bass  
Gear: boat shocker (day)



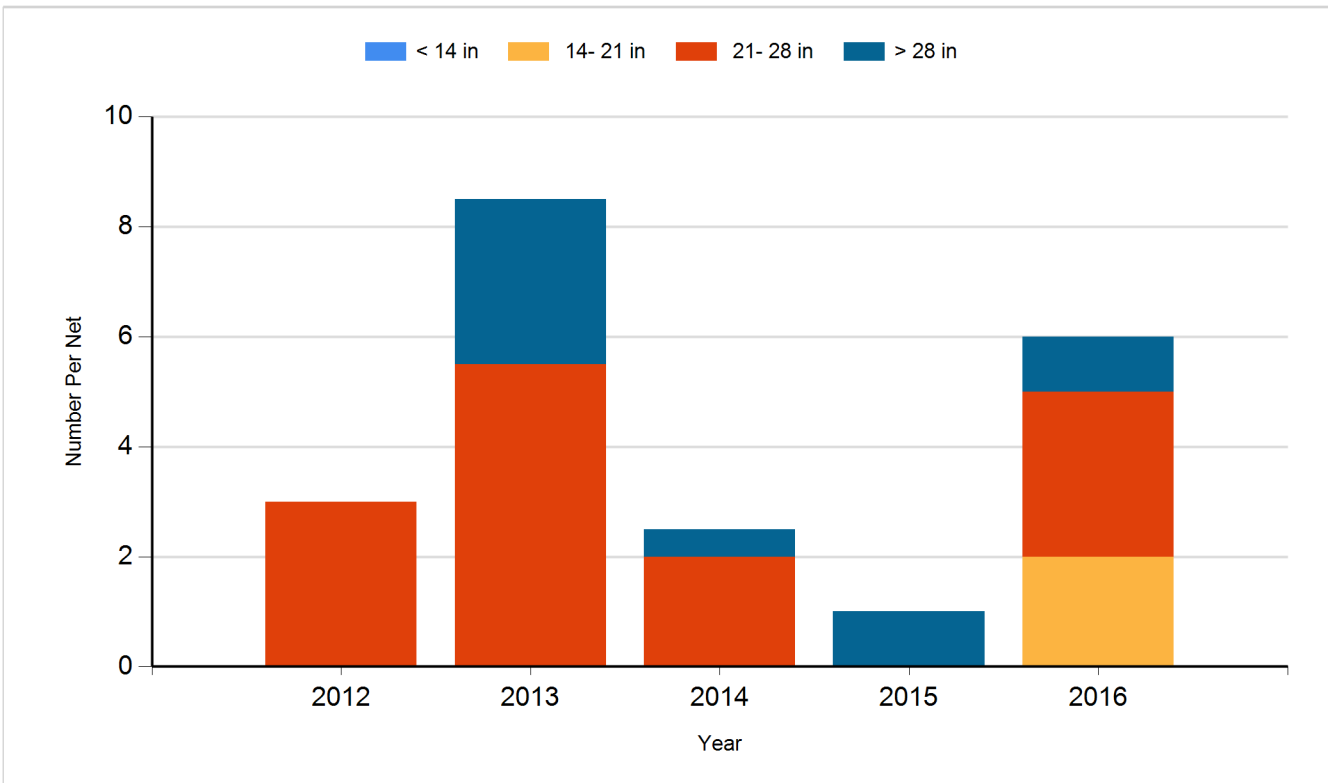
Species: Largemouth Bass  
Gear: boat shocker (night)



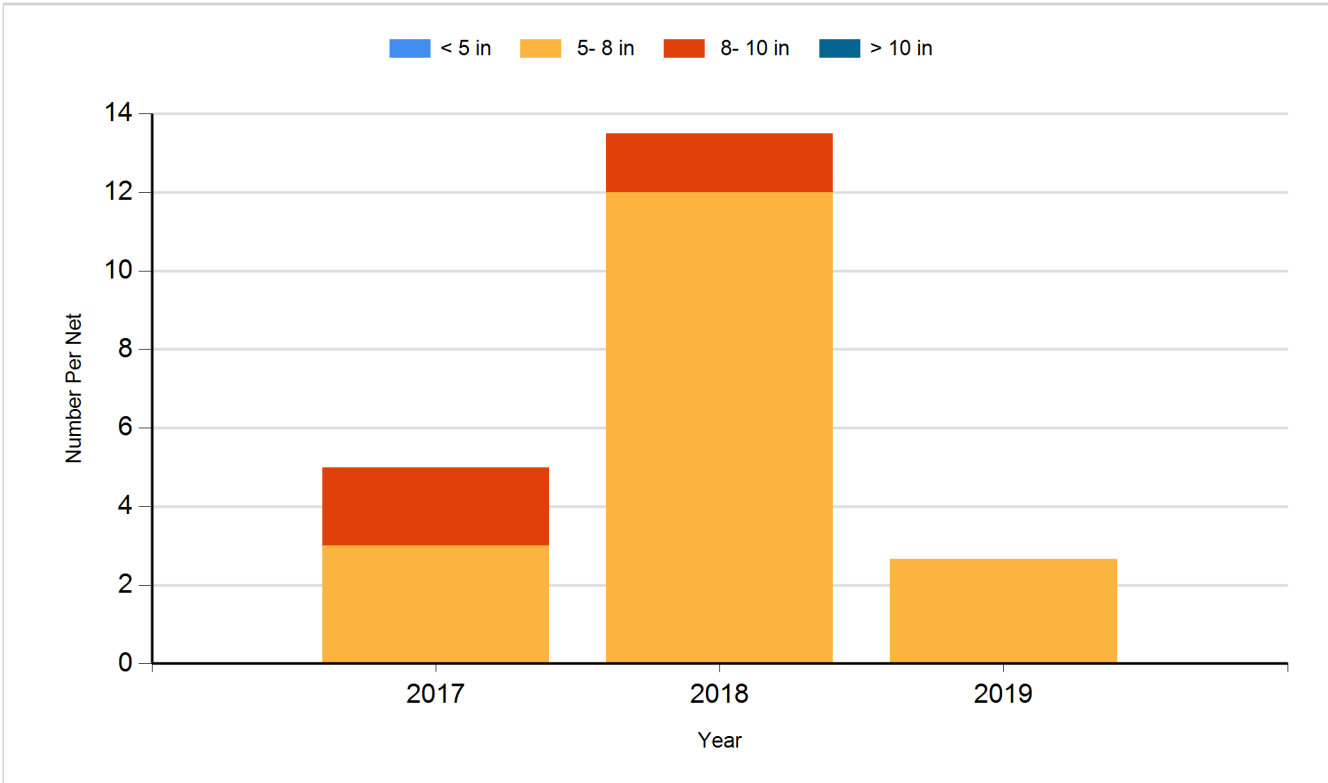
Species: Northern Pike  
Gear: AFS std gill net



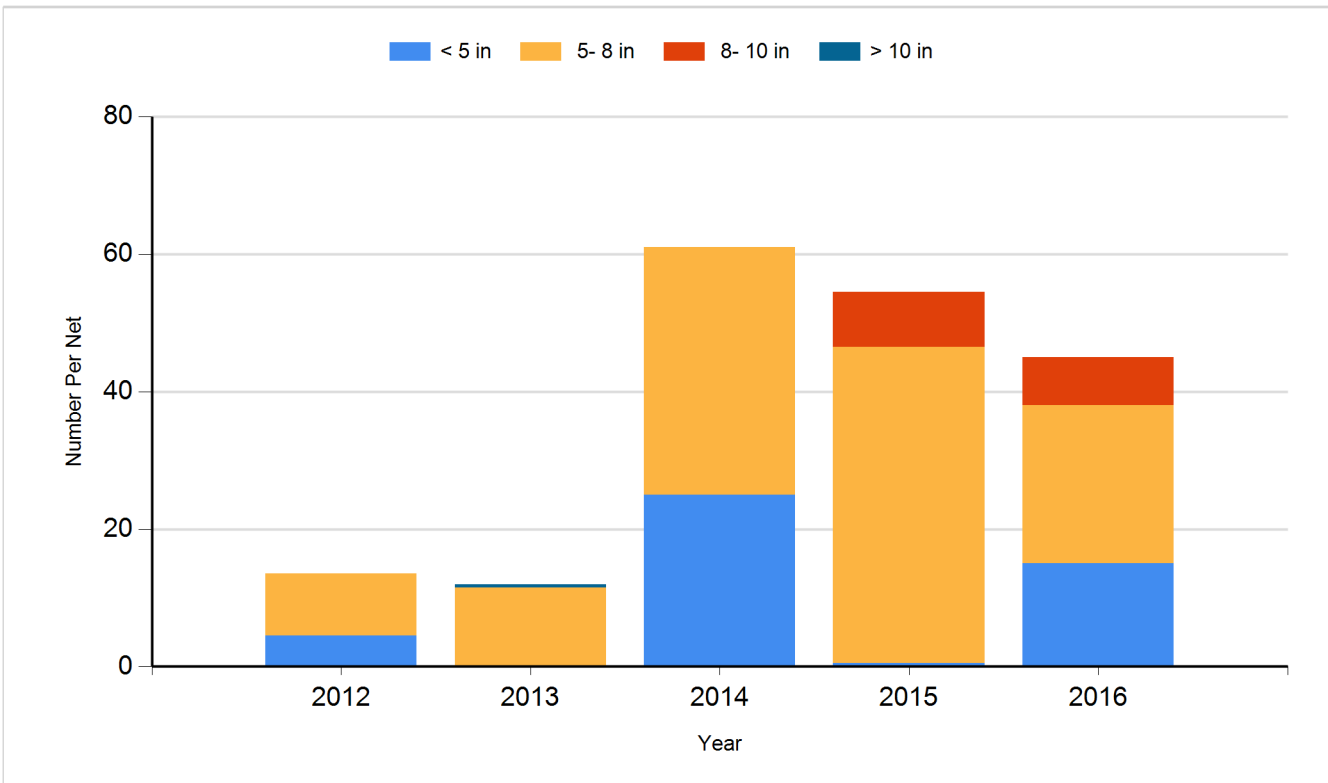
Species: Northern Pike  
Gear: std exp gill net



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
2014	Largemouth Bass	Adult	175
2014	Largemouth Bass	Juvenile	200
2015	Largemouth Bass	Adult	112
2018	Largemouth Bass	Juvenile	601
2023	Largemouth Bass	Adult	134