

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

Winner City Pond, Tripp County

LWH-Lake-477-000

2021

Lake Information

Name: Winner City Pond

County: Tripp

Surface Area: 1 Acres

Surveys and Investigations

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

Gear	Date	Effort
boat shocker (night)	Sep 28, 2021	381 seconds
frame net (std 3/4 in)	Jun 21, 2021	4 net-nights

Common Fish Species Present

Largemouth Bass

Black Crappie

Bluegill

Sauger

Green Sunfish

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 (night)	Largemouth Bass	5	47.2		80		0		88	5
frame net (std 3/4 in)	Black Crappie	114	28.5	9.1	87	5	38	6	106	7
	Bluegill	4	1.0	0.9	100		75		110	5
	Green Sunfish	1	0.3	0.4	100		0		99	
	Sauger	1	0.3	0.4	100		100		90	

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
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
AFS std frame net	Black Crappie							0.1				0.10
	Bluegill							0.3				0.30
	Bluegill X Gr. Sunfish Hybrid							0.4				0.40
boat shocker (night)	Largemouth Bass							135.8			47.2	91.50
frame net (std 3/4 in)	Black Crappie				0.3						28.5	14.40
	Bluegill				0.4						1.0	0.70
	Channel Catfish				0.3						0.0	0.15
	Green Sunfish				0.0						0.3	0.15
	Largemouth Bass				0.3						0.0	0.15
	Sauger				0.1						0.3	0.20
	Walleye				0.5						0.0	0.25

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											
			2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
AFS std frame net	Black Crappie	PSD								100				
		PSD-P								0				
		Wr								88				
	Bluegill	PSD									100			
		PSD-P									0			
		Wr									103			
boat shocker (night)	Largemouth Bass	PSD									50			80
		PSD-P									10			0
		Wr									78			88
frame net (std 3/4 in)	Black Crappie	PSD				100								87
		PSD-P				0								38
		Wr				104								106
	Bluegill	PSD				100								100
		PSD-P				67								75
		Wr				131								110
	Green Sunfish	PSD												100
		PSD-P												0
		Wr												99
	Largemouth Bass	PSD				0								
		PSD-P				0								
		Wr				100								
	Sauger	PSD				100								100
		PSD-P				100								100
		Wr				80								90

Back-Calculated Lengths

Mean species back-calculated total length (mm) at age, standard error (SE), and sample size (N).

Species: Largemouth Bass

Year Class	Age	N	Mean back-calculated length (SE) at age										
			1	2	3	4	5	6	7	8	9	10	
2017	4	1	74	111	167	233							
2016	5	1	93	180	264	309	338						
2015	6	3	63 (2.9)	111 (4.1)	166 (1.5)	216 (4.2)	261 (5.9)	303 (2.7)					
Weighted Mean		5	71	125	186	238	280	303					
Year Class	Age	N	11	12	13	14	15	16	17	18	19	20	
2017	4	1											
2016	5	1											
2015	6	3											
Weighted Mean		5											

Length at Capture

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

Species: Largemouth Bass

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2021	5				253 (1)	361 (1)	328 (3)				

Fish Condition

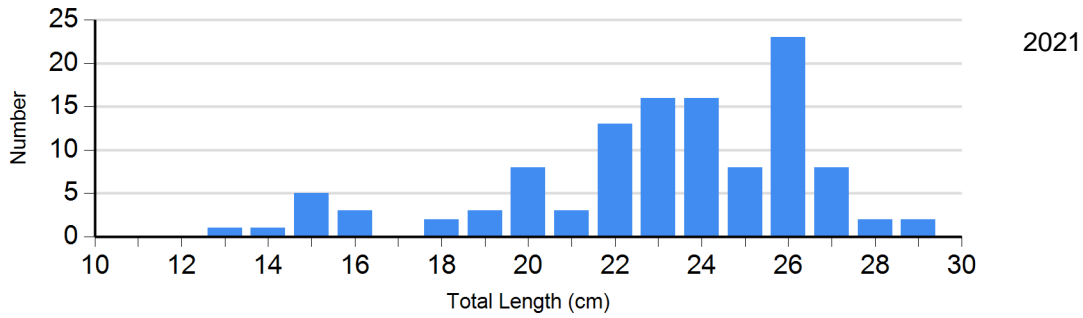
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Crappie Frame Net	2018	0		1	88	0		0	
	2021	15	169 (36.1)	56	100 (1.1)	43	91 (1.4)	0	
Bluegill Frame Net	2018	0		2	103 (2.5)	0		0	
	2021	0		1	111	3	110 (5.3)	0	
Largemouth Bass Electro Fishing	2018	10	78 (4.2)	8	82 (4.4)	2	60 (26.4)	0	
	2021	1	102	4	85 (0.8)	0		0	

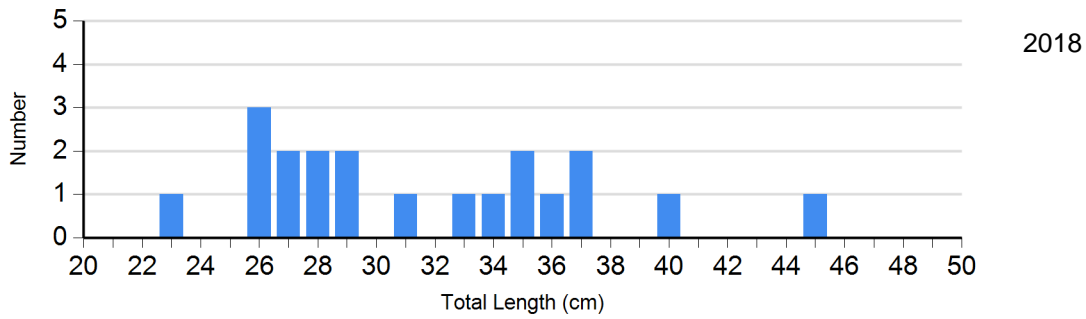
Length Frequency Distribution

Length frequency histogram of species sampled by year.

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



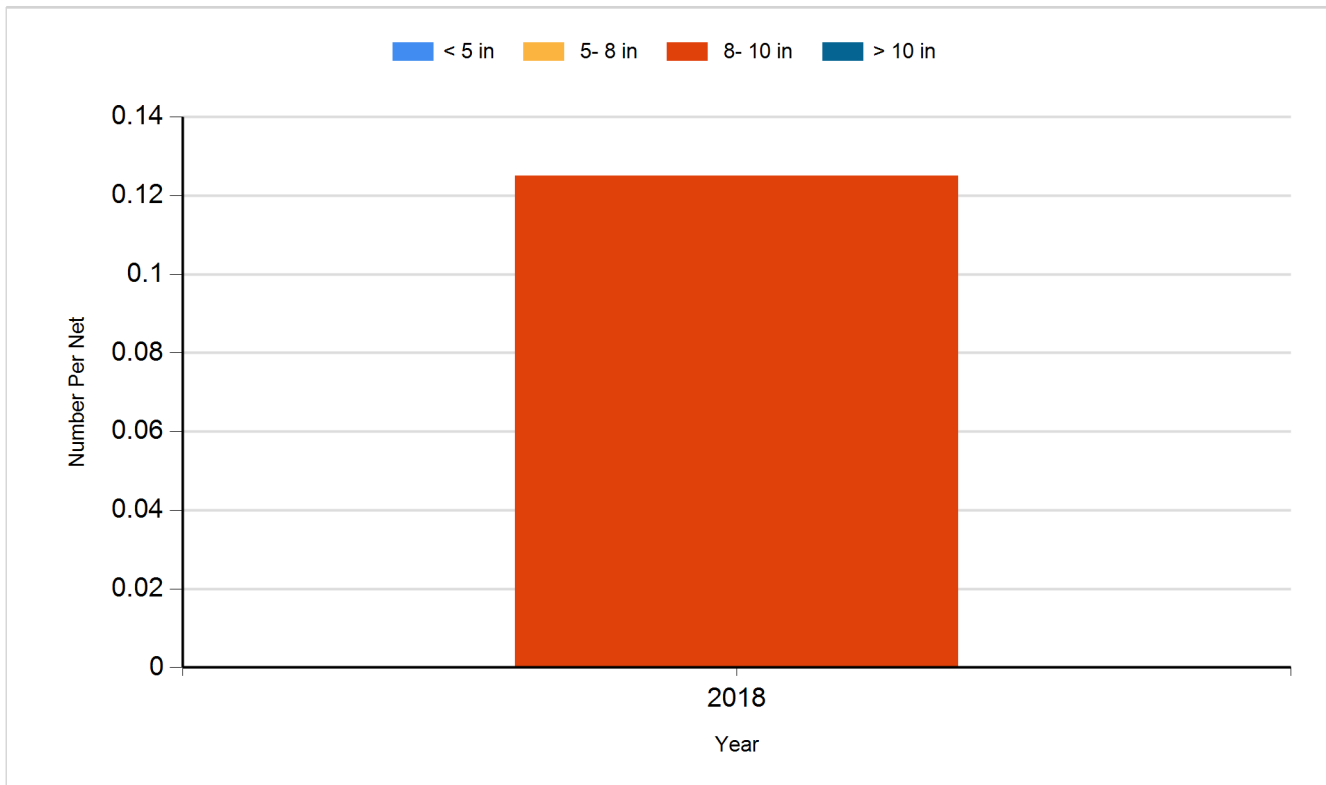
Species: Largemouth Bass
Gear: boat shocker (night)



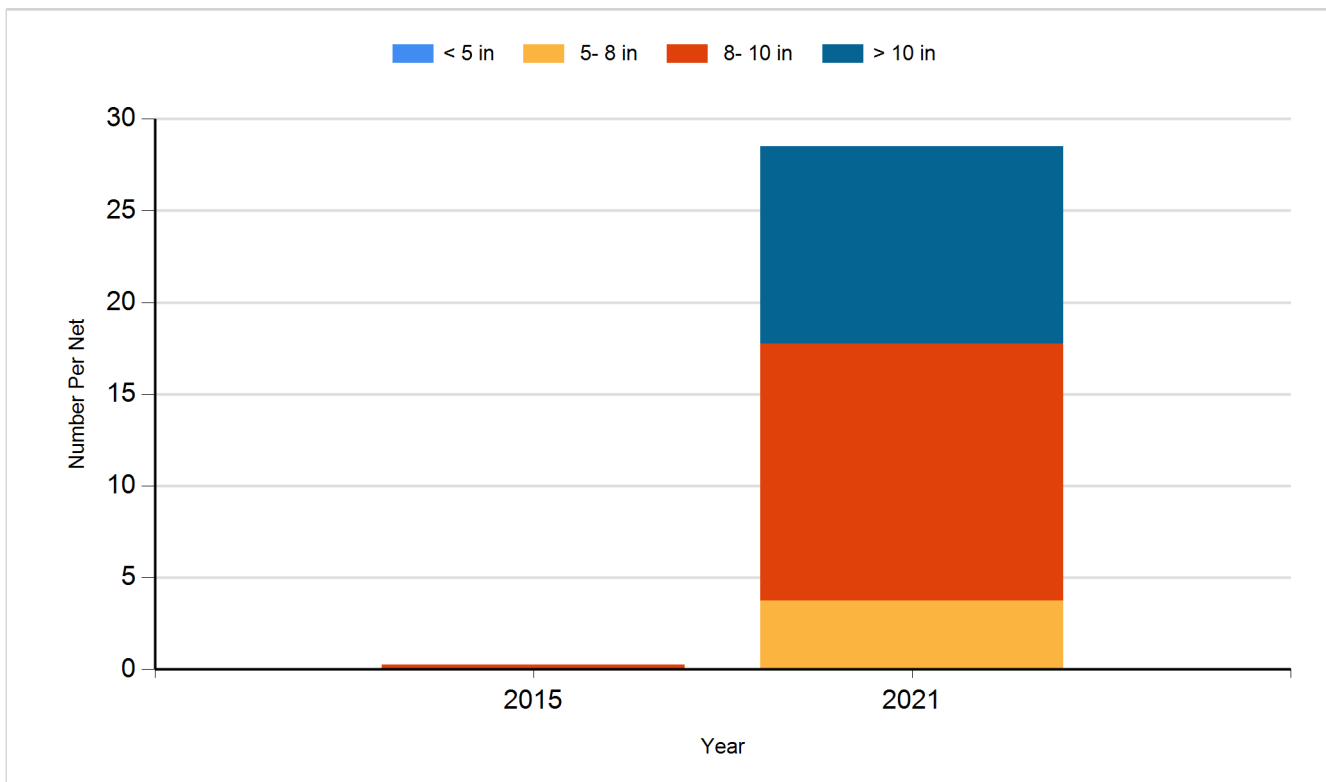
Historic Fish Sizes and Relative Abundance

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

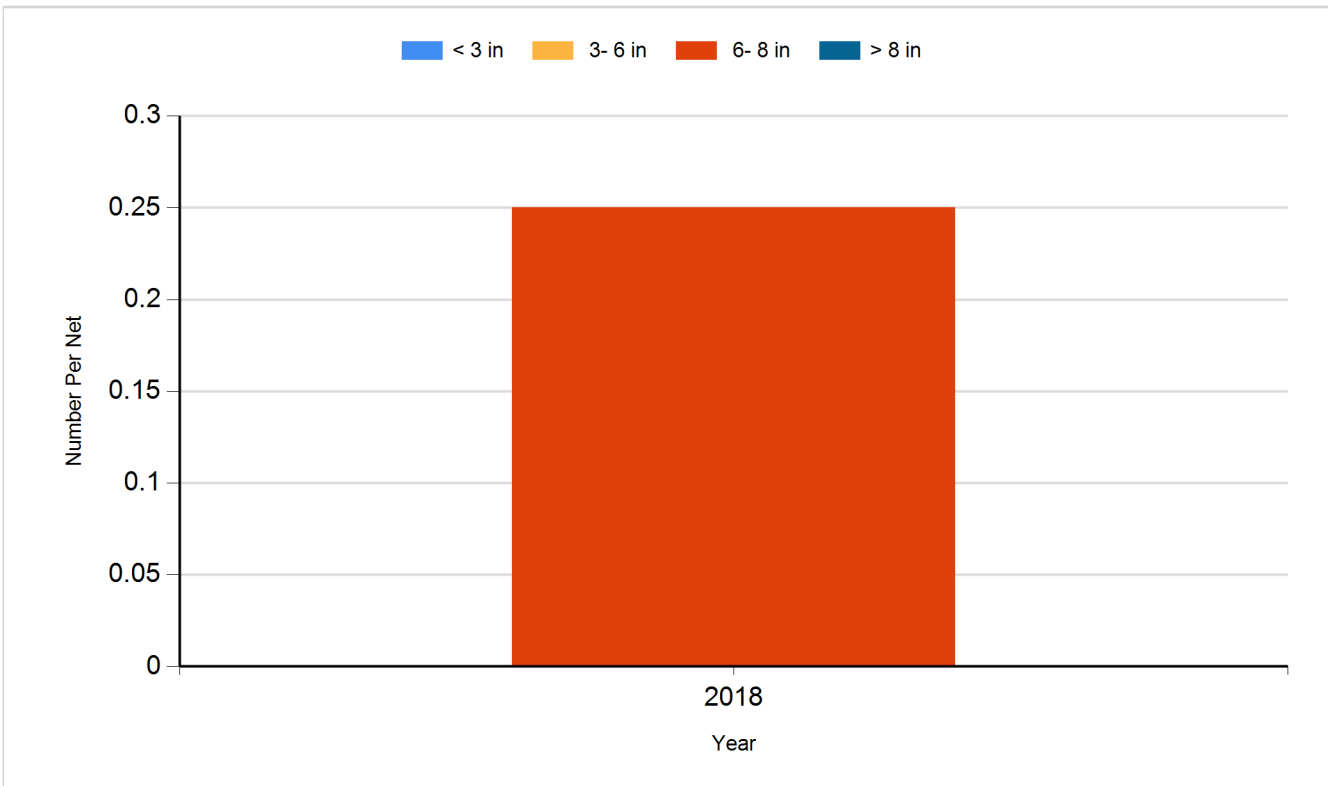
Species: Black Crappie
Gear: AFS std frame net



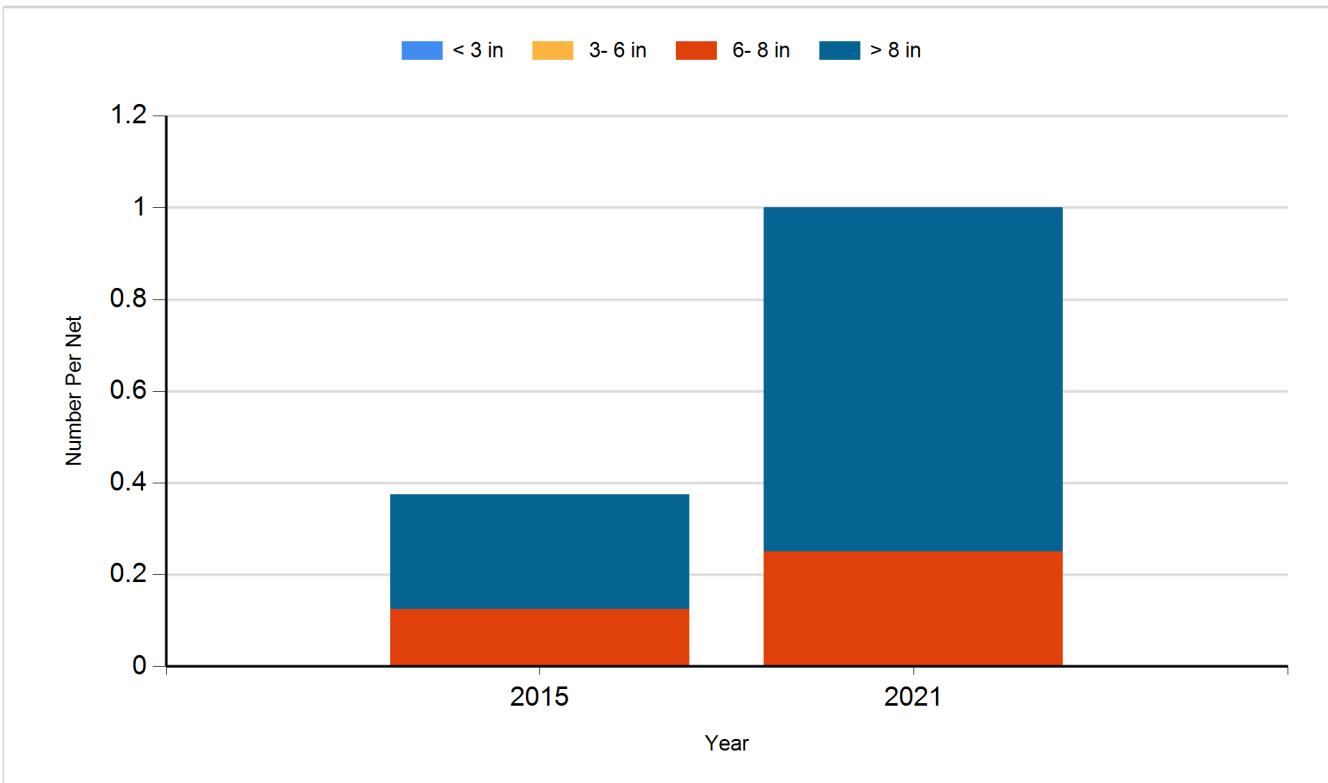
Species: Black Crappie
Gear: frame net (std 3/4 in)



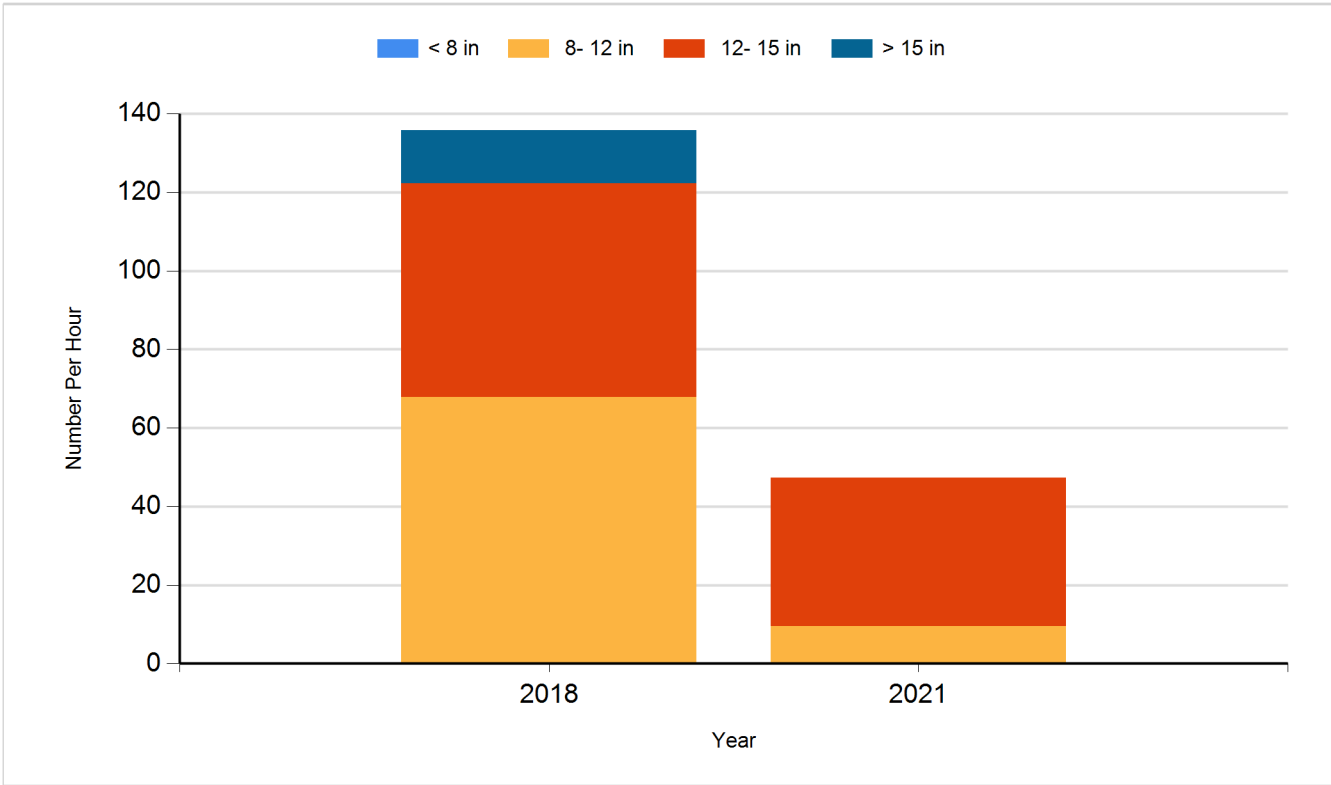
Species: Bluegill
Gear: AFS std frame net



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



Species: Largemouth Bass
Gear: boat shocker (night)



Fish Stocking

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

Year	Species	Size	Number
2014	Bluegill	Adult	90
2016	Largemouth Bass	Adult	100
2017	Bluegill	Adult	44
2017	Largemouth Bass	Adult	52
2018	Black Crappie	Adult	170
2018	Bluegill	Adult	148
2018	Channel Catfish	Adult	2
2018	Largemouth Bass	Adult	15
2019	Black Crappie	Adult	530
2019	Bluegill	Adult	796
2019	Largemouth Bass	Adult	55
2019	Yellow Perch	Adult	5
2020	Black Crappie	Adult	208
2021	Black Crappie	Small	300
2021	Bluegill	Adult	244
2021	Bluegill	Small	250