SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Dog Ear, Tripp County
KYP-Lake-116-000
2021

Lake Information

Name: Dog Ear

County: Tripp

Legal Description: T96-R77-S1

Surface Area: 252 Acres

Maximum Depth: 8 Feet

Mean Depth: 5 Feet

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jun 28, 2021	1 net-nights
AFS std gill net	Jun 29, 2021	1 net-nights
boat shocker (night)	Sep 27, 2021	3600 seconds
frame net (std 3/4 in)	Jun 28, 2021	5 net-nights
frame net (std 3/4 in)	Jun 29, 2021	5 net-nights

Common Fish Species Present

Yellow Perch

Northern Pike

Black Crappie

Bluegill

Black Bullhead

Largemouth Bass

Sunfish Hybrid

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	Black Bullhead	82	40.0	33.9	86	6	0		93	2
	Black Crappie	12	6.0	3.1	17		0		111	3
	Bluegill	11	5.5	1.5	45		0		134	31
	Largemouth Bass	2	0.5	1.5	100		100		74	
	Northern Pike	24	12.0	3.1	92		42	16	89	2
	Yellow Perch	25	12.5	1.5	24	14	0		101	3
boat shocker (night)	Largemouth Bass	22	11.0	9.5	18		18		123	19
frame net (std 3/4 in)	Black Bullhead	15	1.5	1.1	73		0		94	7
	Black Crappie	419	41.9	10.4	15	2	0		107	1
	Bluegill	406	40.6	14.1	38	3	0		99	1
	Northern Pike	19	1.9	0.8	74		47	18	84	3
	Sunfish Hybrid	175	0.0	0.0						
	Yellow Perch	39	3.9	1.9	28	11	8		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**

		CPUE										
Gear	Species	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Avg
AFS std frame net	Black Bullhead							18.0				18.00
	Black Crappie							1.1				1.10
	Bluegill							8.8				8.80
	Bluegill X Gr. Sunfish Hybrid							2.0				2.00
	Northern Pike							0.3				0.30
	Yellow Perch							6.6				6.60
AFS std gill net	Black Bullhead							46.0			40.0	43.00
	Black Crappie							2.5			6.0	4.25
	Bluegill							2.5			5.5	4.00
	Golden Shiner							0.0			0.0	0.00
	Largemouth Bass							1.5			0.5	1.00
	Northern Pike							3.5			12.0	7.75
	Yellow Perch							19.5			12.5	16.00
boat shocker (night)	Largemouth Bass							24.0			11.0	17.50
frame net (std 3/4 in)	Black Bullhead				5.1						1.5	3.30
	Black Crappie				0.0						41.9	20.95
	Bluegill				3.5						40.6	22.05
	Green Sunfish				0.5						0.0	0.25
	Northern Pike				0.4						1.9	1.15
	Sunfish Hybrid				0.0						0.0	0.00
	Yellow Perch				9.4						3.9	6.65

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	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
AFS std frame net	Black Bullhead	PSD							3			
		PSD-P							0			
		Wr							79			
	Black Crappie	PSD							0			
		PSD-P							0			
		Wr							104			
	Bluegill	PSD							36			
		PSD-P							3			
		Wr							114			
	Northern Pike	PSD							33			
		PSD-P							33			
		Wr							90			
	Yellow Perch	PSD							94			
		PSD-P							20			
		Wr							110			
AFS std gill net	Black Bullhead	PSD							2			86
		PSD-P							0			0
		Wr							81			93
	Black Crappie	PSD							0			17
		PSD-P							0			0
		Wr							102			111
	Bluegill	PSD							20			45
		PSD-P							20			0
		Wr							94			134
	Largemouth Bass	PSD							33			100
		PSD-P							0			100
		Wr							105			74
	Northern Pike	PSD							14			92
		PSD-P							14			42
		Wr							82			89
	Yellow Perch	PSD							82			24
		PSD-P							21			0

			Year									
Gear	Species	Index	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
AFS std gill net	Yellow Perch	Wr							79			101
boat shocker (night)	Largemouth Bass	PSD							63			18
		PSD-P							50			18
		Wr							117			123
frame net (std 3/4 in)	Black Bullhead	PSD				47						73
		PSD-P				0						0
		Wr				82						94
	Black Crappie	PSD										15
		PSD-P										0
		Wr										107
	Bluegill	PSD				29						38
		PSD-P				3						0
		Wr				124						99
	Northern Pike	PSD				25						74
		PSD-P				0						47
		Wr				89						84
	Yellow Perch	PSD				37						28
		PSD-P				26						8
		Wr				101						101

Back-Calculated Lengths

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

Species: Black Crappie

Year Class	Age	N	Mean back-calculated length (SE) at age									
			1	2	3	4	5	6	7	8	9	10
2019	2	21	74 (1.7)	138 (1.9)								
2018	3	13	76 (2)	133 (4.5)	181 (2.1)							
2017	4	2	76 (4.6)	128 (5.5)	178 (21.4)	203 (17.1)						
2016	5	1	93	150	184	215	231					
Weighted Mean		37	75	136	181	207	231					

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2019	2	21										
2018	3	13										
2017	4	2										
2016	5	1										
Weighted Mean		37										

Species: Bluegill

Year Class	Age	N	Mean back-calculated length (SE) at age									
			1	2	3	4	5	6	7	8	9	10
2020	1	6	80 (2.7)									
2019	2	15	61 (3.7)	101 (3.7)								
2018	3	10	55 (4.6)	101 (5.1)	136 (4.4)							
2017	4	11	55 (3.3)	96 (5.3)	136 (4.2)	162 (2.5)						
2016	5	2	42 (1.2)	82 (.6)	112 (15.3)	131 (15)	157 (10)					
Weighted Mean		44	60	99	134	157	157					

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2020	1	6										
2019	2	15										
2018	3	10										
2017	4	11										
2016	5	2										
Weighted Mean		44										

Species: Largemouth Bass

Year Class	Age	N	Mean back-calculated length (SE) at age									
			1	2	3	4	5	6	7	8	9	10
2021	0	4										
2020	1	5	104 (8.6)									
2019	2	2	91 (3.8)	149 (7.6)								
2018	3	4	94 (13.7)	155 (14.4)	220 (19.5)							
2017	4	5	84 (3.9)	144 (11.9)	195 (13.1)	236 (11.6)						
2014	7	1	111	166	230	303	398	442	468			
Weighted Mean		21	95	150	209	247	398	442	468			

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2021	0	4										
2020	1	5										
2019	2	2										
2018	3	4										
2017	4	5										
2014	7	1										
Weighted Mean		21										

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+
2021	419		171 (324)	199 (78)	213 (13)	247 (4)					

Species: Bluegill

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2021	406	107 (73)	119 (163)	157 (72)	171 (91)	169 (10)					
2015	35		138 (34)			216 (1)					

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	20	117 (8)	183 (2)	240 (4)	263 (5)			496 (1)			
2018	25	173 (1)		287 (8)	314 (4)	414 (8)	440 (2)	454 (1)	489 (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	44		116 (3)	159 (5)	218 (24)	254 (11)	270 (2)				

Fish Condition

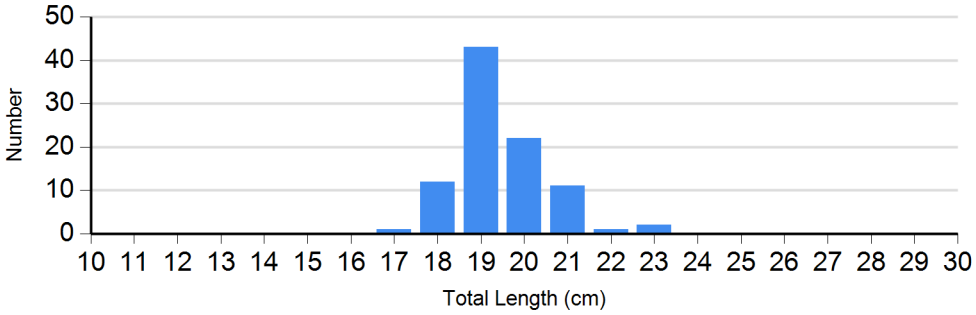
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Bullhead Gill Net	2018	90	81 (0.8)	2	63 (1.8)	0		0	
	2021	11	98 (2.3)	69	92 (1.3)	0		0	
Black Crappie Frame Net	2018	11	104 (3.3)	0		0		0	
	2021	356	108 (1.0)	63	102 (1.3)	0		0	
Bluegill Frame Net	2018	56	119 (3.6)	29	106 (1.7)	3	98 (3.9)	0	
	2021	251	102 (1.2)	155	94 (0.9)	0		0	
Largemouth Bass Electro Fishing	2018	9	105 (1.1)	3	120 (8.7)	12	125 (3.0)	0	
	2021	9	124 (18.4)	0		2	116 (9.6)	0	
Northern Pike Gill Net	2018	6	80 (0.8)	0		1	96	0	
	2021	2	87	12	87 (1.6)	9	90 (1.5)	1	106
Yellow Perch Gill Net	2018	7	90 (1.6)	24	78 (1.5)	8	73 (4.0)	0	
	2021	19	102 (3.0)	6	97 (4.1)	0		0	

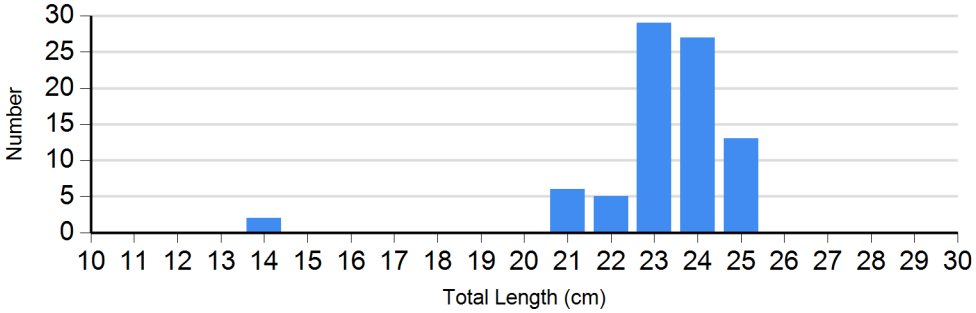
Length Frequency Distribution

Length frequency histogram of species sampled by year.

Species: Black Bullhead
Gear: AFS std gill net

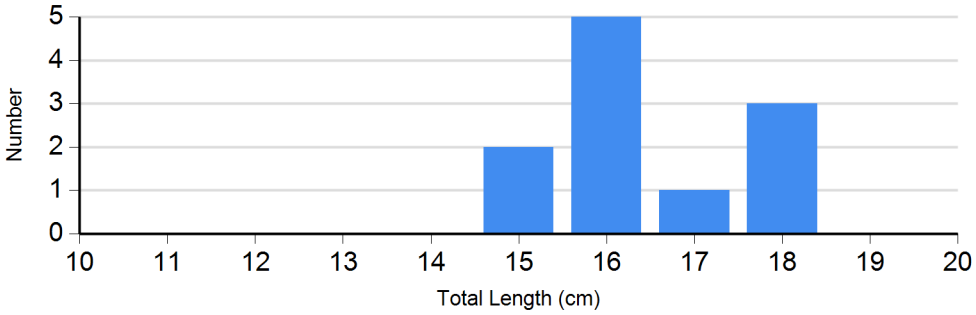


2018



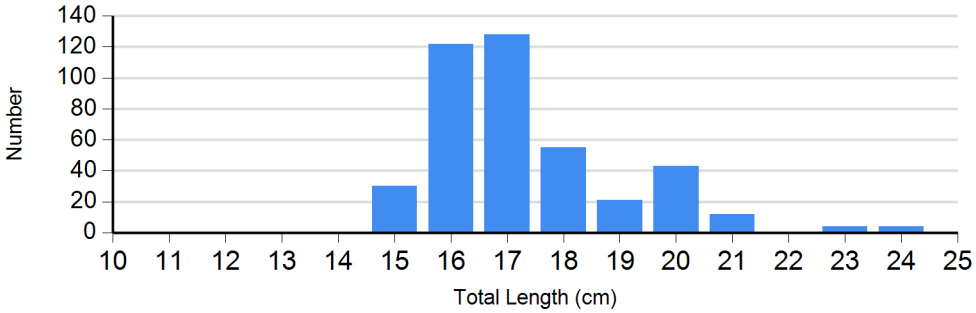
2021

Species: Black Crappie
Gear: AFS std frame net



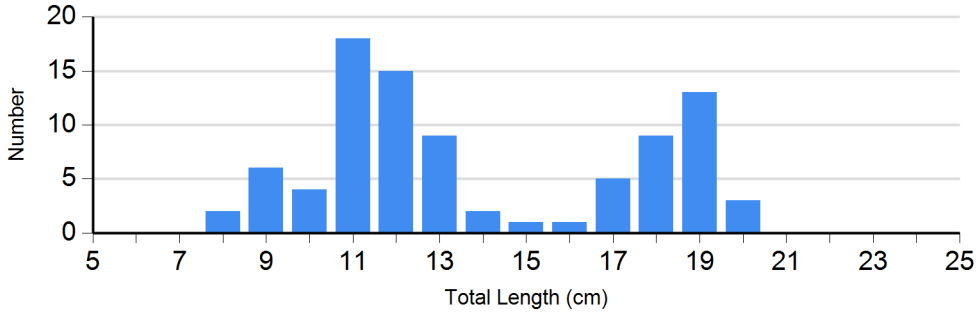
2018

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



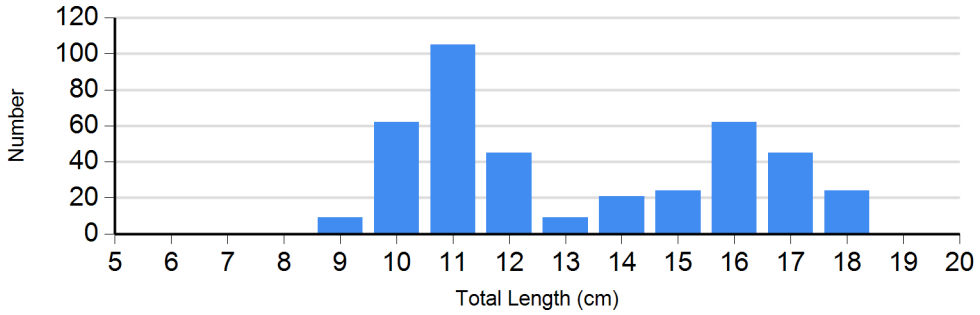
2021

Species: Bluegill
Gear: AFS std frame net



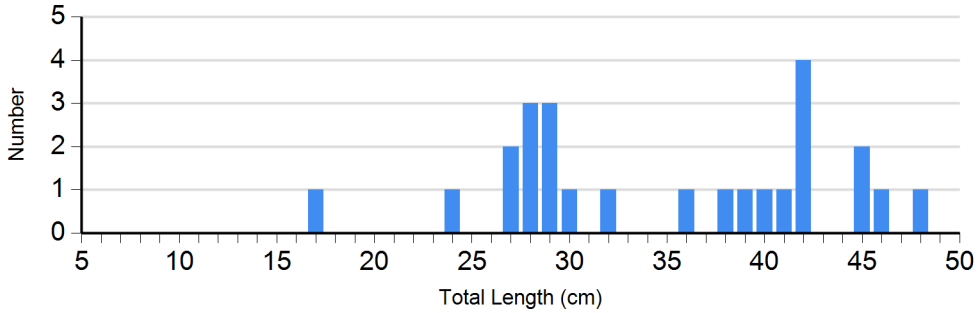
2018

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

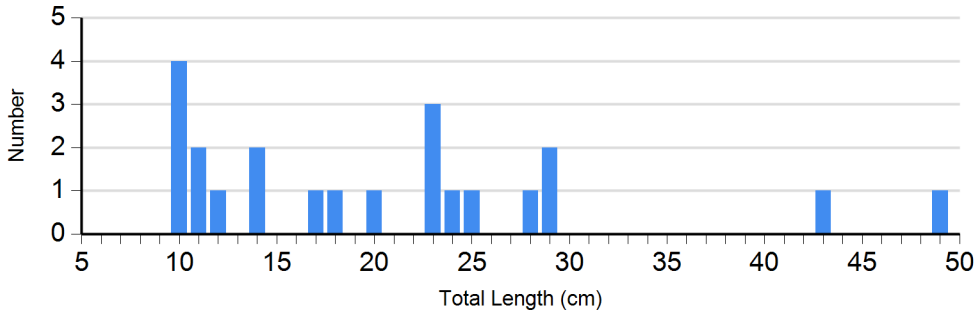


2021

Species: Largemouth Bass
Gear: boat shocker (night)

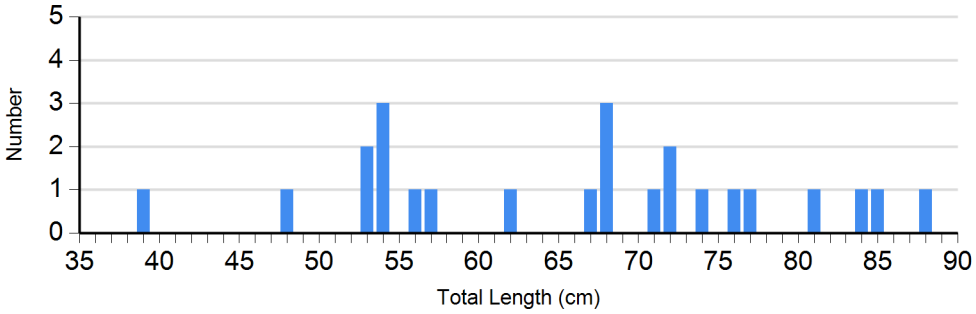


2018



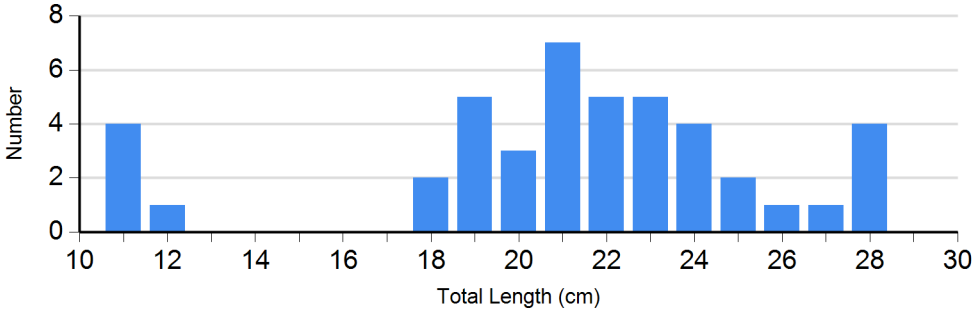
2021

Species: Northern Pike
Gear: AFS std gill net

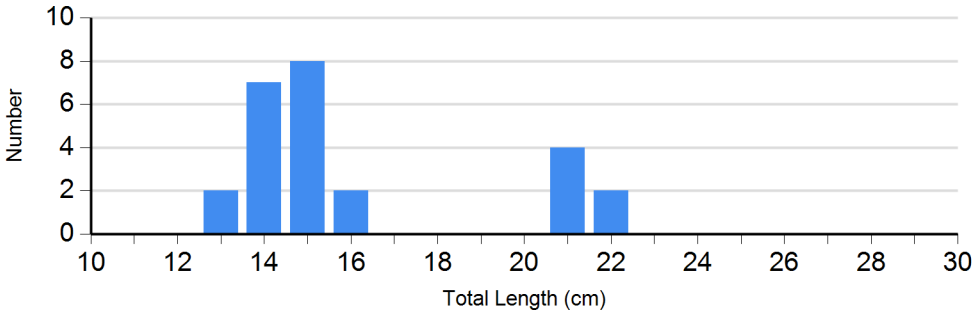


2021

Species: Yellow Perch
Gear: AFS std gill net



2018

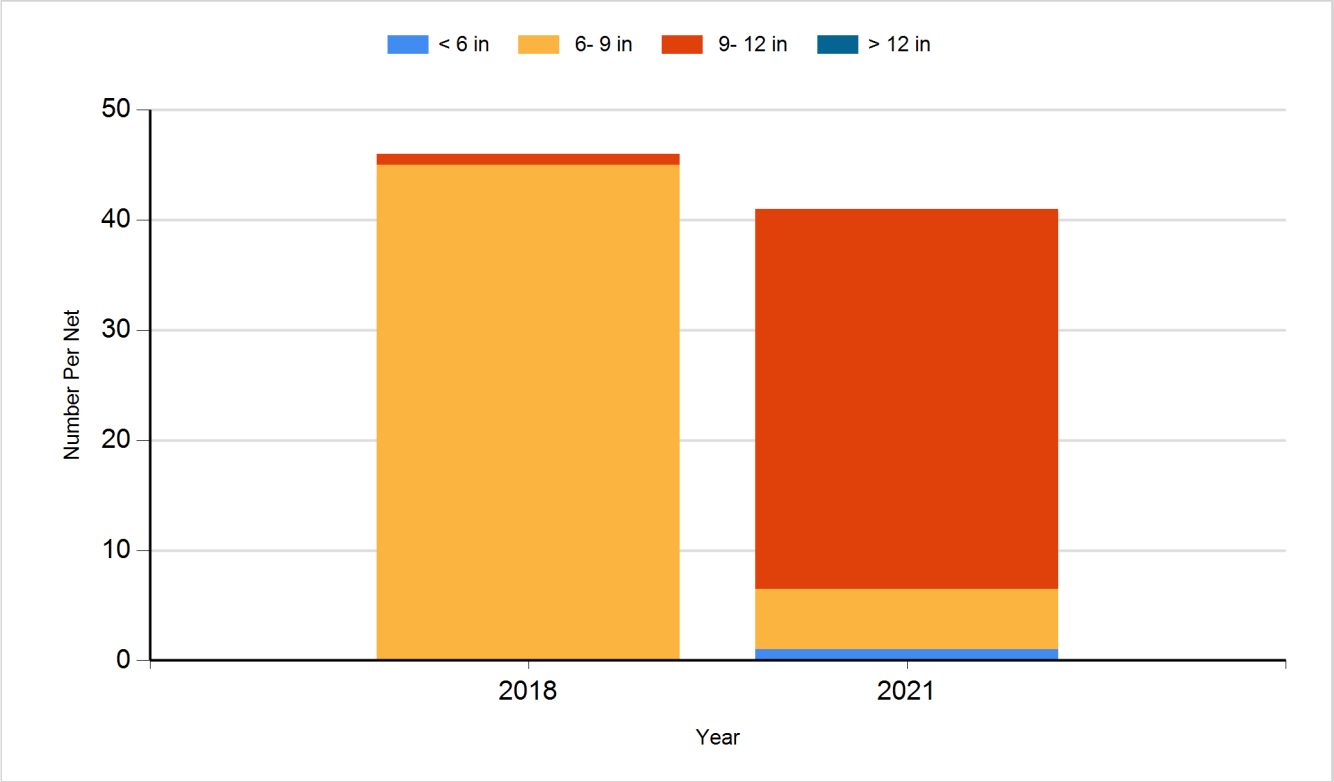


2021

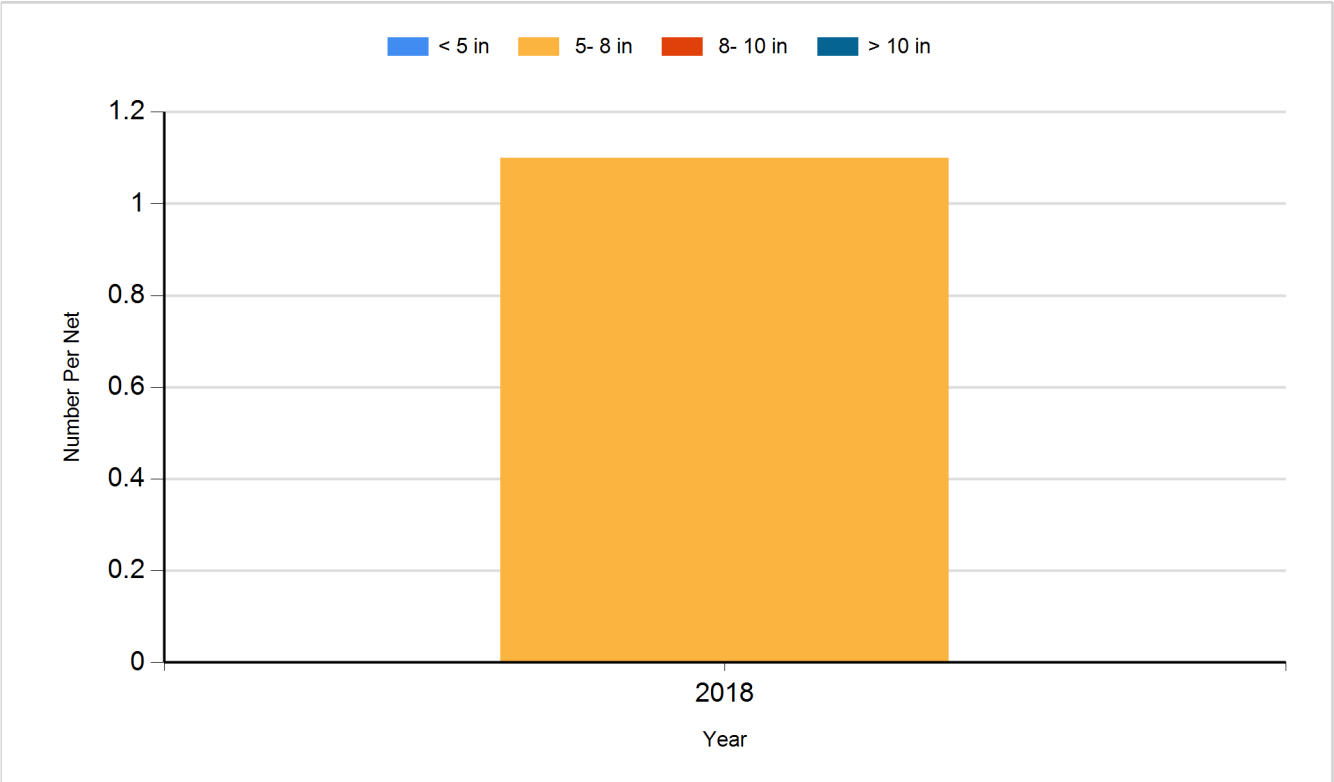
Historic Fish Sizes and Relative Abundance

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

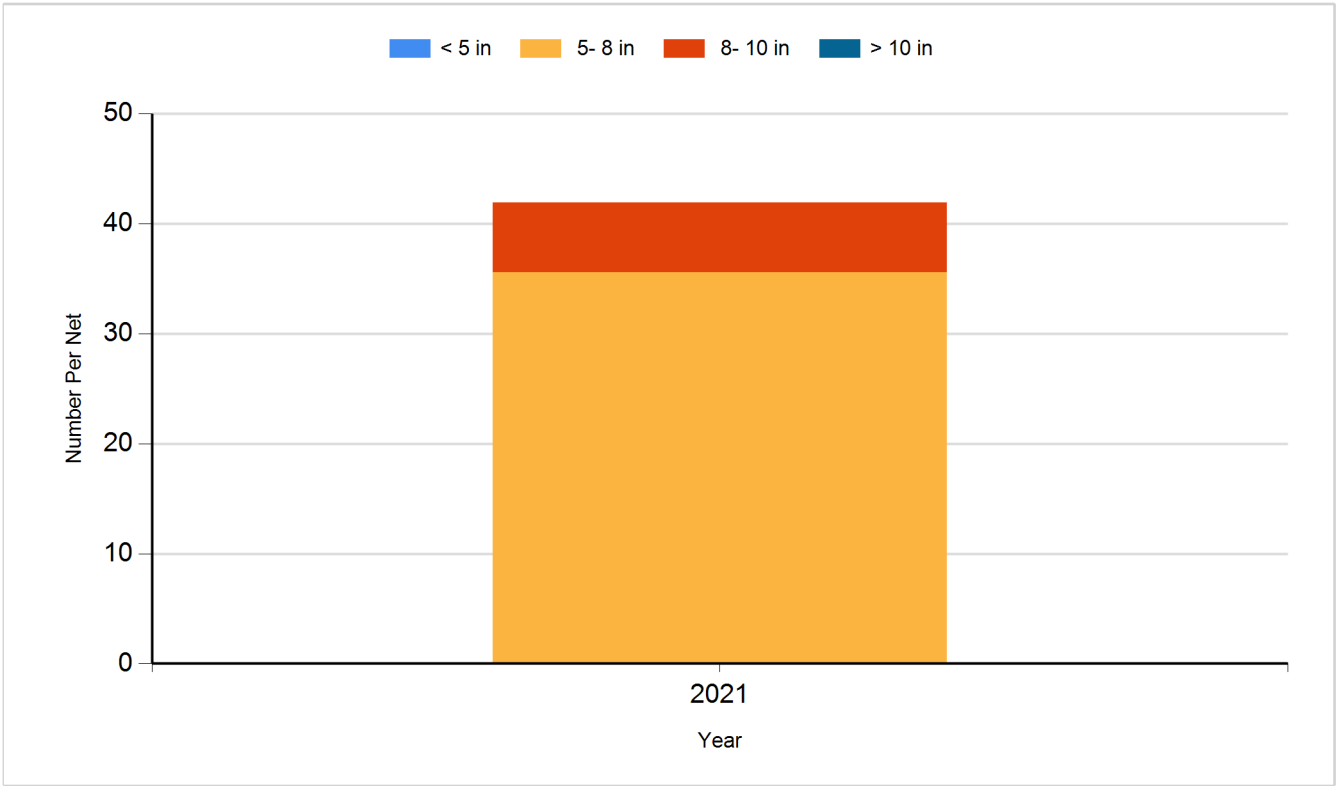
Species: Black Bullhead
Gear: AFS std gill net



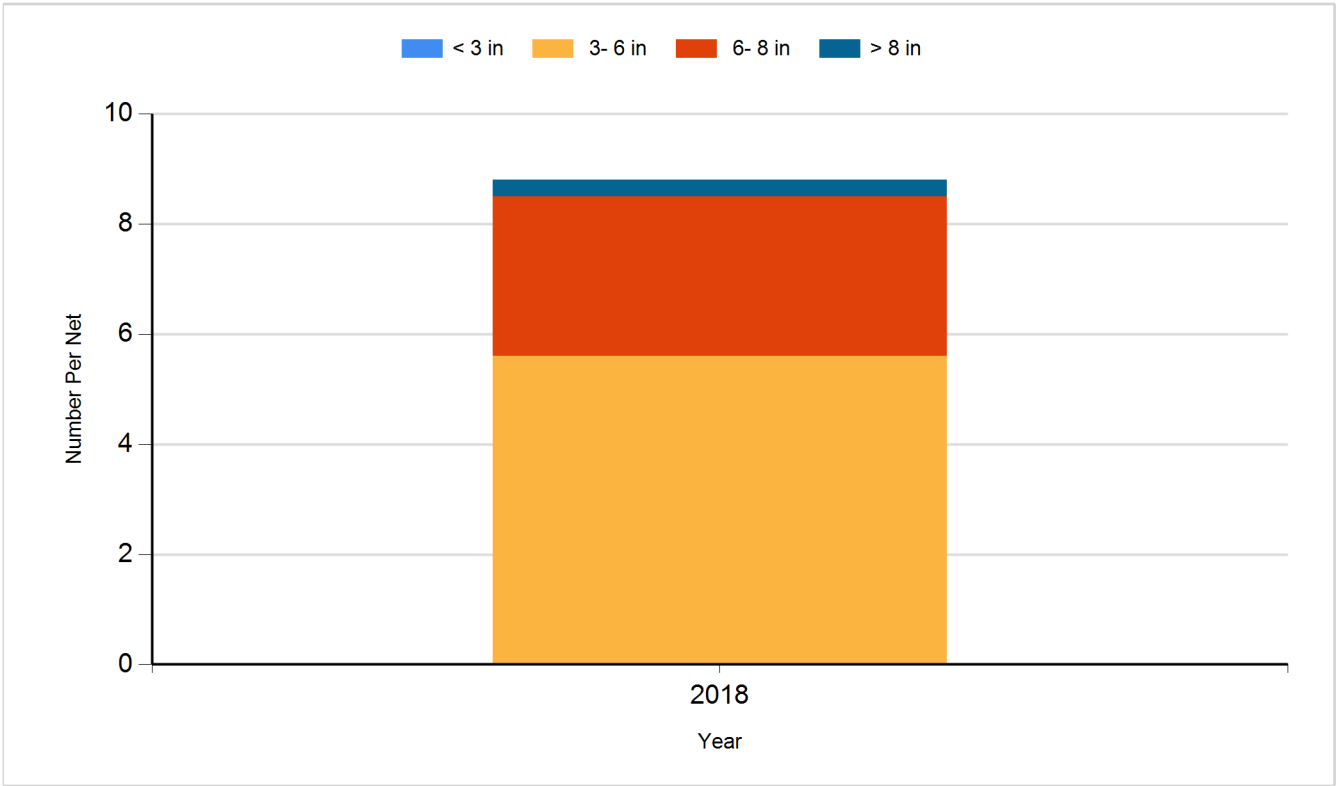
Species: Black Crappie
Gear: AFS std frame net



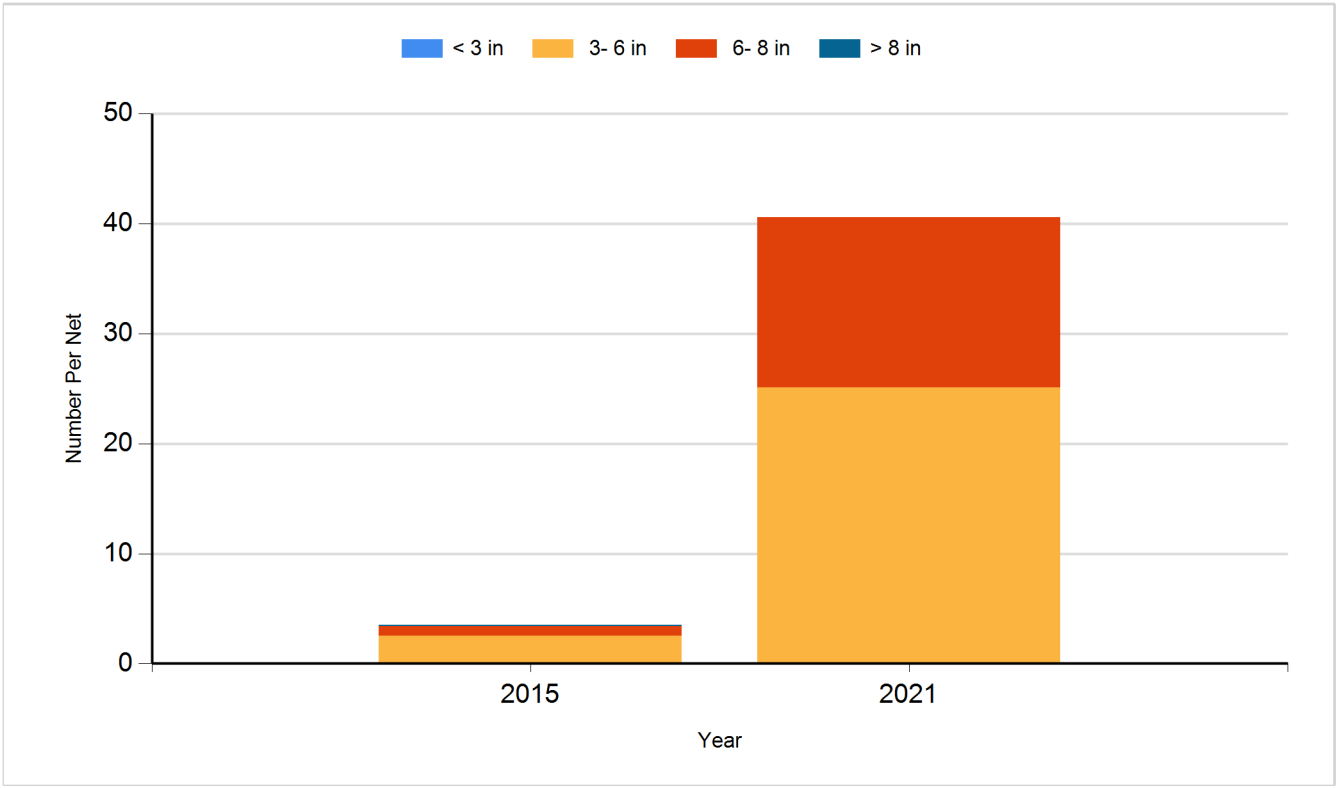
Species: Black Crappie
Gear: frame net (std 3/4 in)



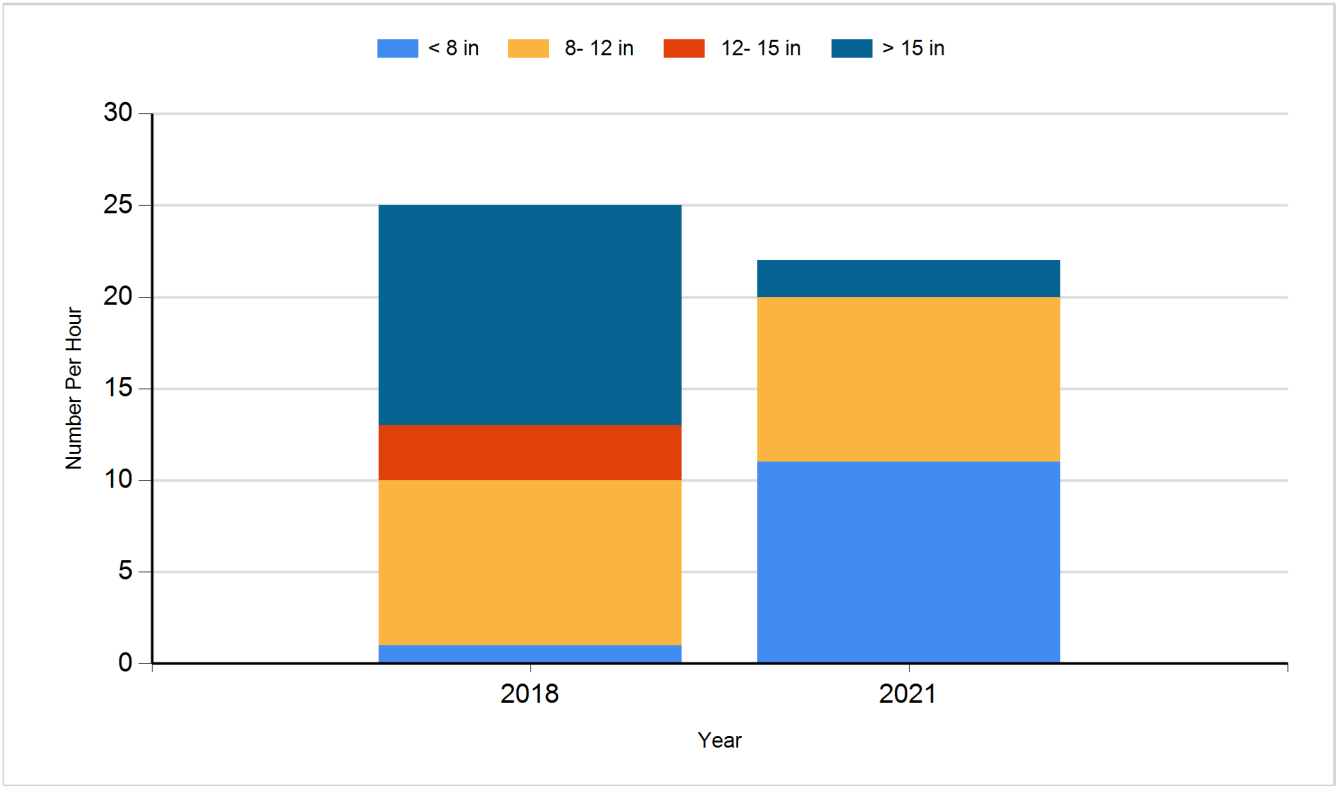
Species: Bluegill
Gear: AFS std frame net



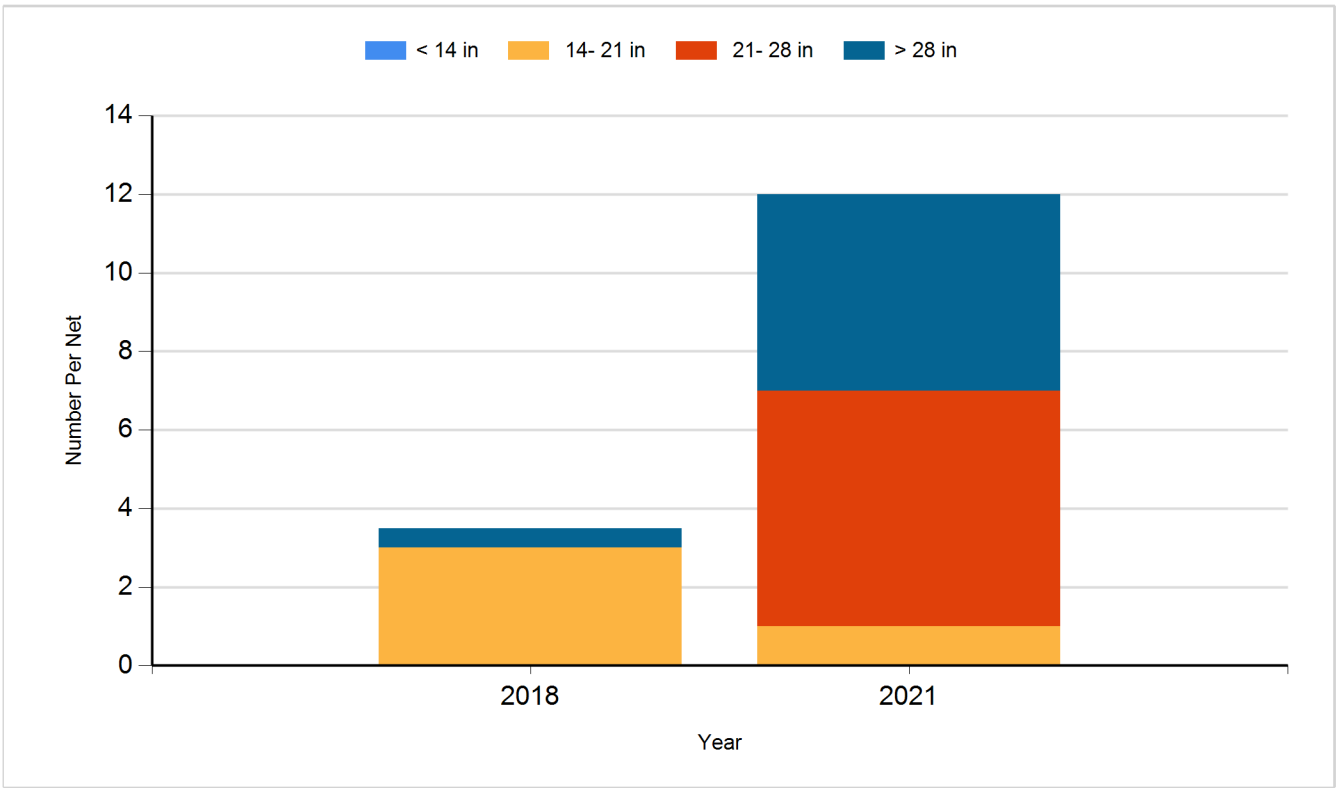
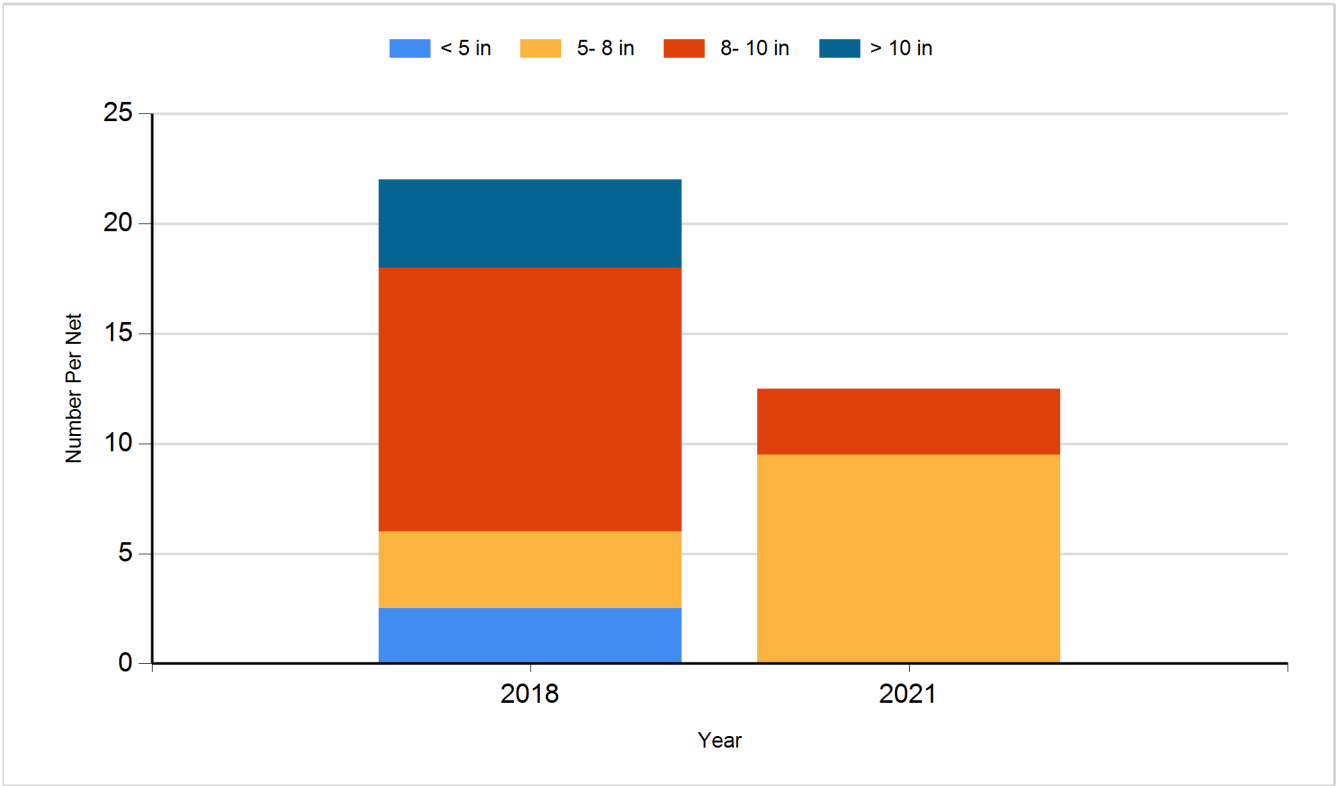
Species: Bluegill
Gear: frame net (std 3/4 in)



Species: Largemouth Bass
Gear: boat shocker (night)



Species: Northern Pike
Gear: AFS std gill net



Species: Yellow Perch
Gear: AFS std gill net