SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Wall, Minnehaha County
LBS-Lake-95-000
2022

Lake Information

Name:	Wall	**Maximum Depth:**	23 Feet
County:	Minnehaha	**Mean Depth:**	11 Feet
Legal Description:	T101N-R51W-Sec. 21 & 28	**OHWM Elevation:**	1,560
Surface Area:	222 Acres	**Outlet Elevation:**	1,559

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	May 24, 2022	4 net-nights
frame net (std 3/4 in)	May 24, 2022	4 net-nights

Common Fish Species Present

Walleye

Black Bullhead

Common Carp

Channel Catfish

Northern Pike

Black Crappie

Bigmouth Buffalo

Yellow Bullhead

Pumpkinseed

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	2	0.5	0.8	50		50			
	Black Bullhead	77	19.3	7.2	97		0			
	Channel Catfish	8	2.0	1.2	75		0		98	3
	Common Carp	19	4.8	1.4	26		5			
	Northern Pike	5	1.3	0.8	80		60		99	9
	Walleye	11	2.5	2.1	60		10		91	2
frame net (std 3/4 in)	Black Bullhead	1044	261.0	100.1	99	0	3	1		
	Black Crappie	2	0.5	0.8	100		100		100	1
	Channel Catfish	1	0.3	0.4	0		0		84	
	Common Carp	3	0.8	0.8	67		33			
	Northern Pike	1	0.3	0.4	100		100		59	
	Pumpkinseed	0	0.0	0.0	0		0			
	Yellow Bullhead	1	0.3	0.4	100		100			

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	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Avg
AFS std frame net	Black Bullhead					5.0						5.00
	Bluegill					0.2						0.20
	Pumpkinseed					7.4						7.40
	Sunfish Hybrid					0.4						0.40
	Yellow Perch					0.6						0.60
AFS std gill net	Bigmouth Buffalo					0.0	0.2	0.0		0.0	0.5	0.14
	Black Bullhead					1.0	1.5	6.5		12.0	19.3	8.06
	Black Crappie					0.0	0.0	0.0		0.0	0.0	0.00
	Channel Catfish					4.0	5.2	2.7		2.8	2.0	3.34
	Common Carp					0.7	0.2	2.2		0.8	4.8	1.74
	Green Sunfish					0.0	0.2	0.0		0.0	0.0	0.04
	Northern Pike					0.5	0.2	1.7		1.3	1.3	1.00
	Pumpkinseed					0.0	0.2	0.2		0.5	0.0	0.18
	Walleye					0.8	5.0	10.0		3.0	2.5	4.26
	White Sucker					0.3	1.0	0.2		0.5	0.0	0.40
	Yellow Perch					8.3	1.0	3.5		2.0	0.0	2.96
frame net (std 3/4 in)	Bigmouth Buffalo		0.2	1.2	0.8		0.2	0.6		0.8	0.0	0.54
	Black Bullhead		210.8	80.8	24.6		55.2	161.4		686.8	261.0	211.51
	Black Crappie		4.6	0.0	0.0		0.0	0.0		3.4	0.5	1.21
	Bluegill		0.4	0.4	0.0		0.0	0.2		0.8	0.0	0.26
	Channel Catfish		6.8	3.4	0.6		0.2	0.6		1.6	0.3	1.93
	Common Carp		0.6	0.6	0.0		0.0	1.6		0.6	0.8	0.60
	Green Sunfish		0.0	0.0	0.0		2.0	0.4		0.0	0.0	0.34
	Northern Pike		0.0	0.4	0.0		0.4	0.0		0.0	0.3	0.16
	Orangespotted Sunfish		0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.00
	Pumpkinseed		1.4	12.4	2.6		6.0	1.2		3.4	0.0	3.86
	Sunfish Hybrid		0.4	0.0	0.4		0.6	0.0		0.0	0.0	0.20
	Walleye		0.6	0.8	0.6		1.6	1.0		0.2	0.0	0.69
	White Crappie		0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.00
	White Sucker		0.2	0.2	0.0		0.0	0.0		0.2	0.0	0.09
	Yellow Bullhead		0.0	1.0	0.0		0.2	0.4		0.0	0.3	0.27
	Yellow Perch		0.0	0.0	1.8		0.0	0.0		0.0	0.0	0.26
hoop net	Black Bullhead				3.0							3.00

		CPUE										
Gear	Species	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Avg
hoop net	Green Sunfish				0.3							0.30
	Pumpkinseed				3.7							3.70
	Sunfish Hybrid				0.3							0.30
std exp gill net	Bigmouth Buffalo		0.7	0.0	0.0							0.23
	Black Bullhead		35.7	10.3	4.3							16.77
	Black Crappie		0.0	0.0	0.3							0.10
	Bluegill		0.0	0.0	0.0							0.00
	Channel Catfish		15.0	13.0	4.7							10.90
	Common Carp		1.0	3.3	0.0							1.43
	Northern Pike		0.0	0.0	6.7							2.23
	Pumpkinseed		0.0	0.3	0.0							0.10
	Sunfish Hybrid		0.0	0.0	0.0							0.00
	Walleye		1.0	0.3	0.3							0.53
	White Sucker		0.7	0.3	0.0							0.33
	Yellow Perch		1.7	1.3	5.3							2.77

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	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
AFS std frame net	Black Bullhead	PSD					100					
		PSD-P					52					
AFS std gill net	Bigmouth Buffalo	PSD						100				50
		PSD-P						0				50
	Black Bullhead	PSD					100	11	13		96	97
		PSD-P					83	0	5		0	0
	Black Crappie	PSD							0			
		PSD-P							0			
	Channel Catfish	PSD					100	100	100		88	75
		PSD-P					0	6	6		24	0
		Wr					104	105	108		102	98
	Common Carp	PSD					100	100	38		80	26
		PSD-P					75	100	15		20	5
	Northern Pike	PSD					67	100	30		100	80
		PSD-P					0	0	0		38	60
		Wr					87	77	89		109	99
	Walleye	PSD					40	27	93		50	60
		PSD-P					20	7	0		22	10
		Wr					89	91	91		85	91
frame net (std 3/4 in)	Bigmouth Buffalo	PSD		100	0	100		100	100		100	
		PSD-P		100	0	25		0	33		100	
		Wr		90								
	Black Bullhead	PSD		84	98	100		55	49		99	99
		PSD-P		0	3	28		18	18		2	3
		Wr		102								
	Black Crappie	PSD		87							100	100
		PSD-P		70							29	100
		Wr		95							103	100
	Channel Catfish	PSD		97	100	100		100	100		88	0
		PSD-P		0	0	0		0	0		25	0
		Wr		101	109	103		110	108		102	84
	Common Carp	PSD		33	33				63		33	67

			Year									
Gear	Species	Index	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
frame net (std 3/4 in)	Common Carp	PSD-P		33	0				25		33	33
		Wr		105								
	Northern Pike	PSD			100			50				100
		PSD-P			50			0				100
		Wr			95			82				59
	Walleye	PSD		33	25	0		0	100		100	
		PSD-P		0	25	0		0	0		0	
		Wr		82	76	81		85	92		84	
	Yellow Bullhead	PSD			100			100	100			100
		PSD-P			100			100	100			100
hoop net	Black Bullhead	PSD				100						
		PSD-P				22						
std exp gill net	Bigmouth Buffalo	PSD		100								
		PSD-P		50								
		Wr		81								
	Black Bullhead	PSD		97	74	77						
		PSD-P		2	0	8						
		Wr		94								
	Black Crappie	PSD				100						
		PSD-P				0						
		Wr				103						
	Channel Catfish	PSD		87	97	100						
		PSD-P		2	0	0						
		Wr		101	99	106						
	Common Carp	PSD		100	50							
		PSD-P		33	10							
		Wr		101								
	Northern Pike	PSD				85						
		PSD-P				0						
		Wr				79						
	Walleye	PSD		0	0	0						
		PSD-P		0	0	0						
		Wr		77	77	85						

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+
2018	30		328 (10)	356 (6)	374 (9)	353 (2)			570 (2)		

Fish Condition

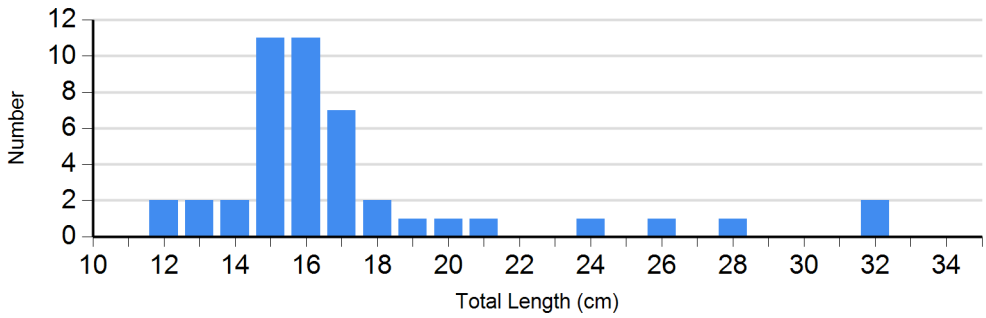
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Crappie Frame Net	2021	0		12	104 (1.3)	4	102 (3.0)	1	99
	2022	0		0		2	100 (0.9)	0	
Channel Catfish Gill Net	2018	0		29	105 (2.0)	2	101 (3.8)	0	
	2019	0		15	108 (2.1)	0		1	109
	2021	2	93 (9.4)	11	101 (2.0)	3	113 (3.2)	1	95
	2022	2	93 (7.6)	6	100 (2.8)	0		0	
Northern Pike Gill Net	2018	0		1	77	0		0	
	2019	7	88 (1.1)	3	91 (1.9)	0		0	
	2021	0		5	106 (3.8)	3	114 (8.4)	0	
	2022	1	93	1	93	3	102 (11.6)	0	
Walleye Gill Net	2018	22	92 (6.1)	6	90 (1.6)	2	85 (5.2)	0	
	2019	4	95 (2.2)	56	90 (1.0)	0		0	
	2021	9	83 (3.0)	5	85 (2.4)	4	87 (1.8)	0	
	2022	4	89 (1.4)	5	91 (2.7)	1	99	0	

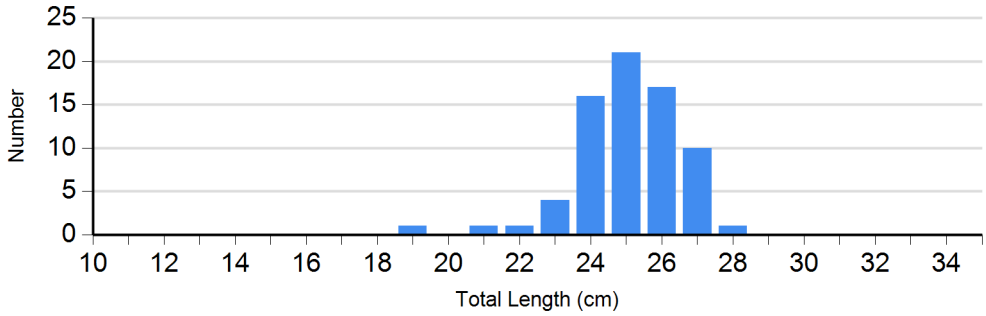
Length Frequency Distribution

Length frequency histogram of species sampled by year.

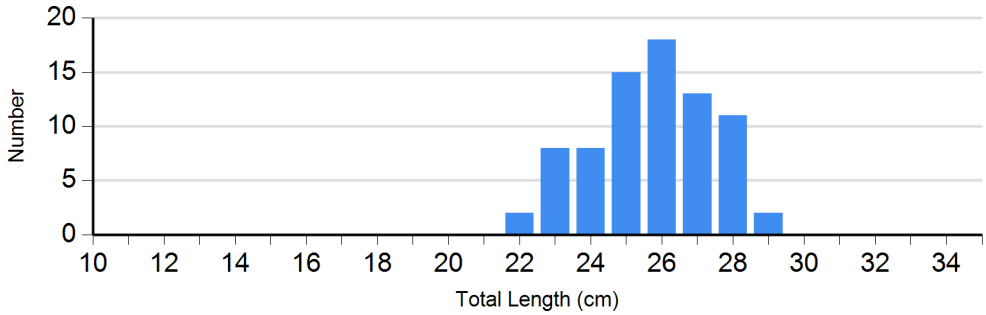
Species: Black Bullhead
Gear: AFS std gill net



2019

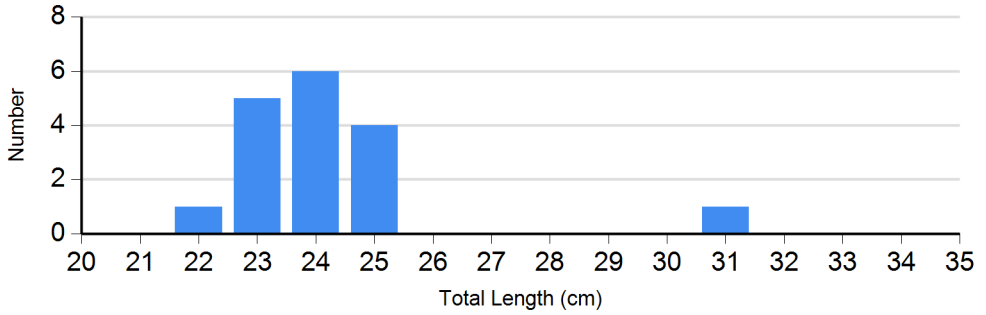


2021



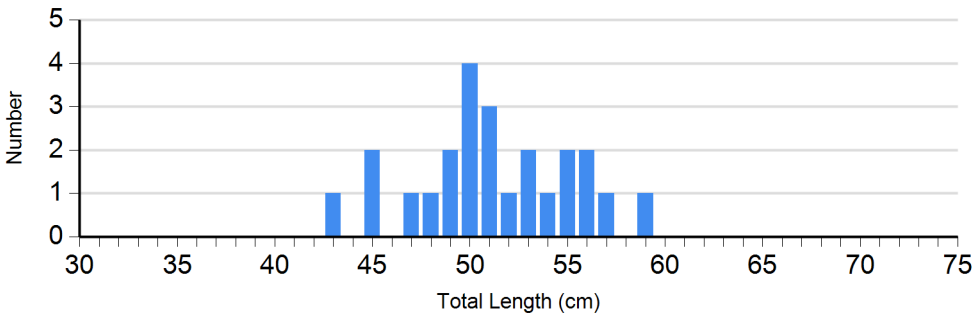
2022

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

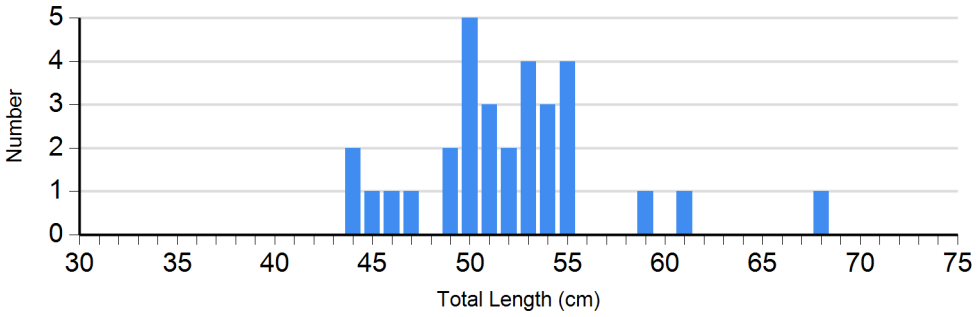


2021

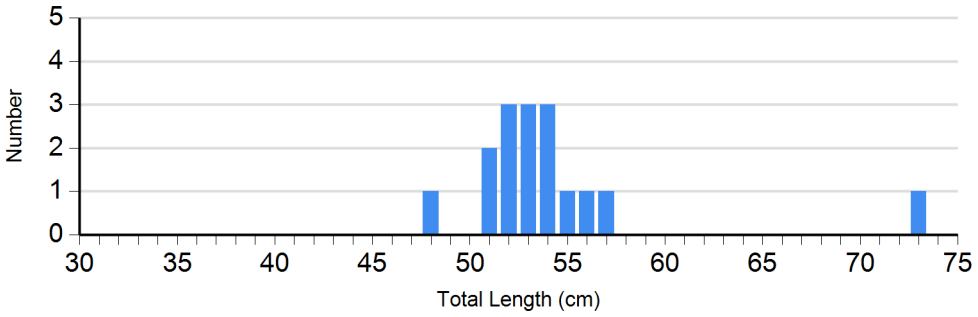
Species: Channel Catfish
Gear: AFS std gill net



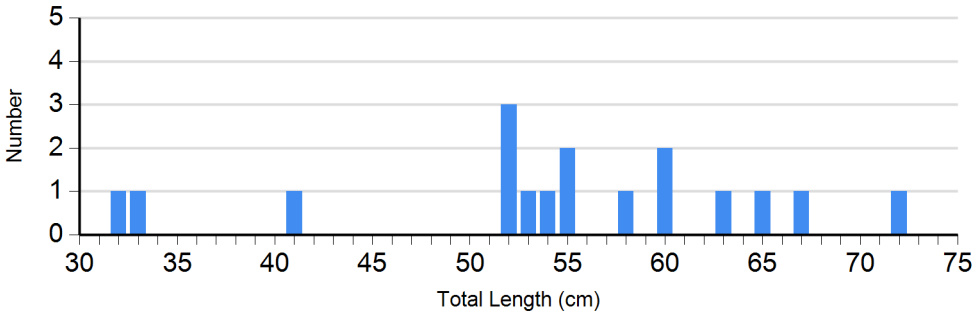
2017



2018

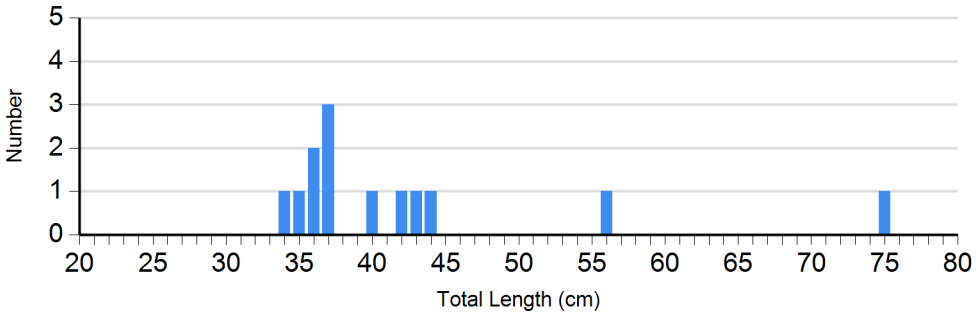


2019

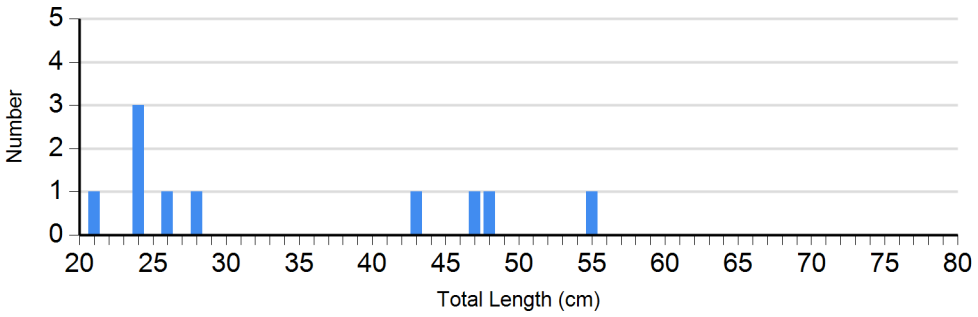


2021

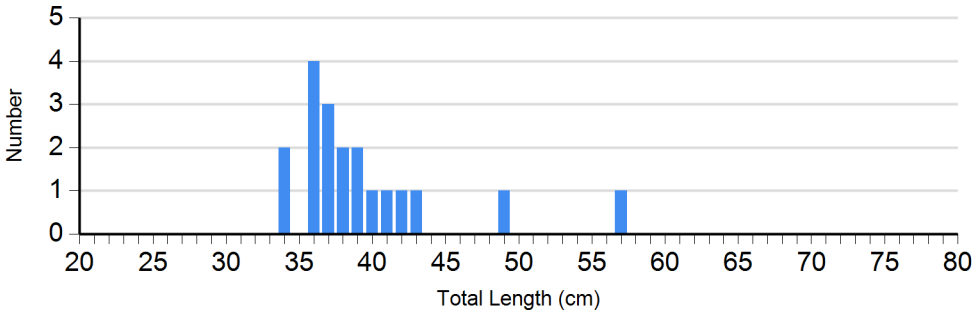
Species: Common Carp
Gear: AFS std gill net



2019

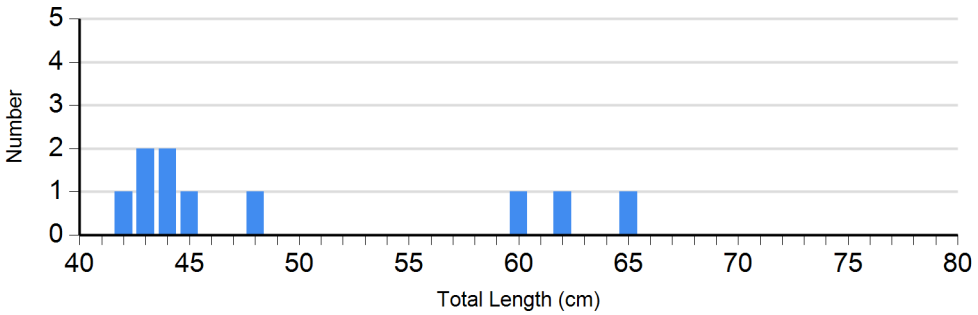


2021



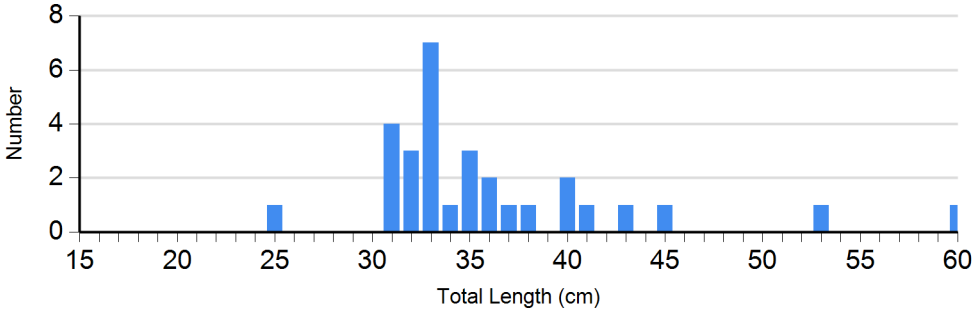
2022

Species: Northern Pike
Gear: AFS std gill net

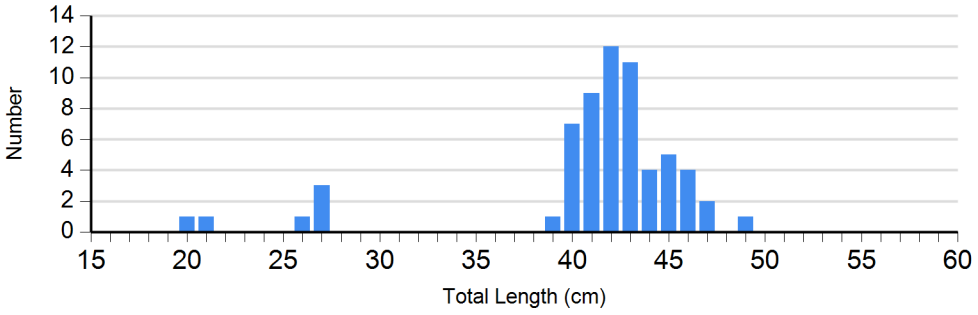


2019

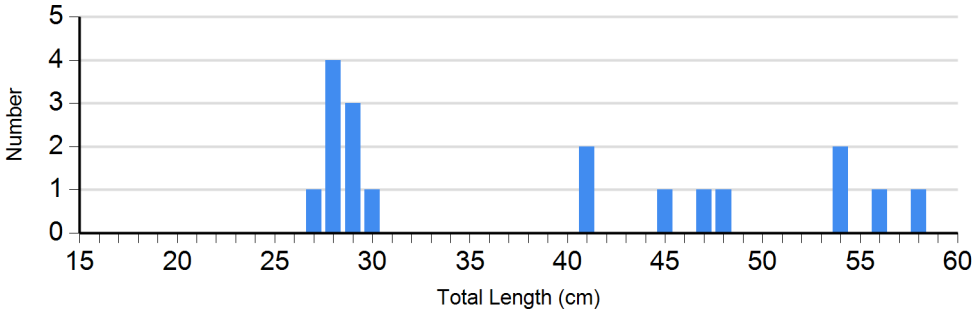
Species: Walleye
Gear: AFS std gill net



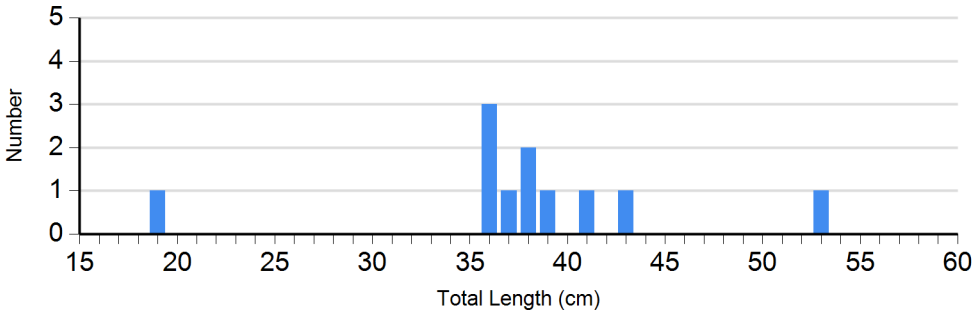
2018



2019


Number
5
4
3
2
1
0
15
20
25
30
35
40
45
50
55
60
Total Length (cm)

2021

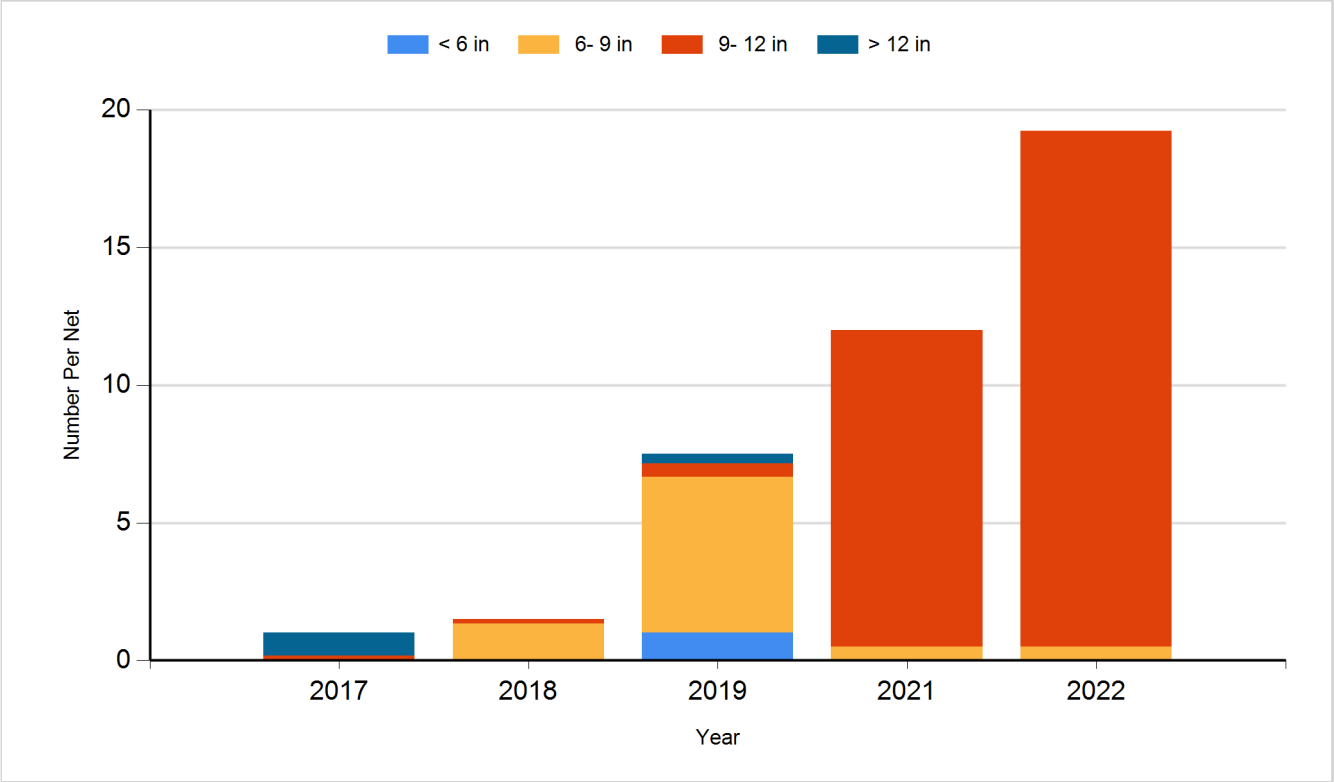

Number
5
4
3
2
1
0
15
20
25
30
35
40
45
50
55
60
Total Length (cm)

2022

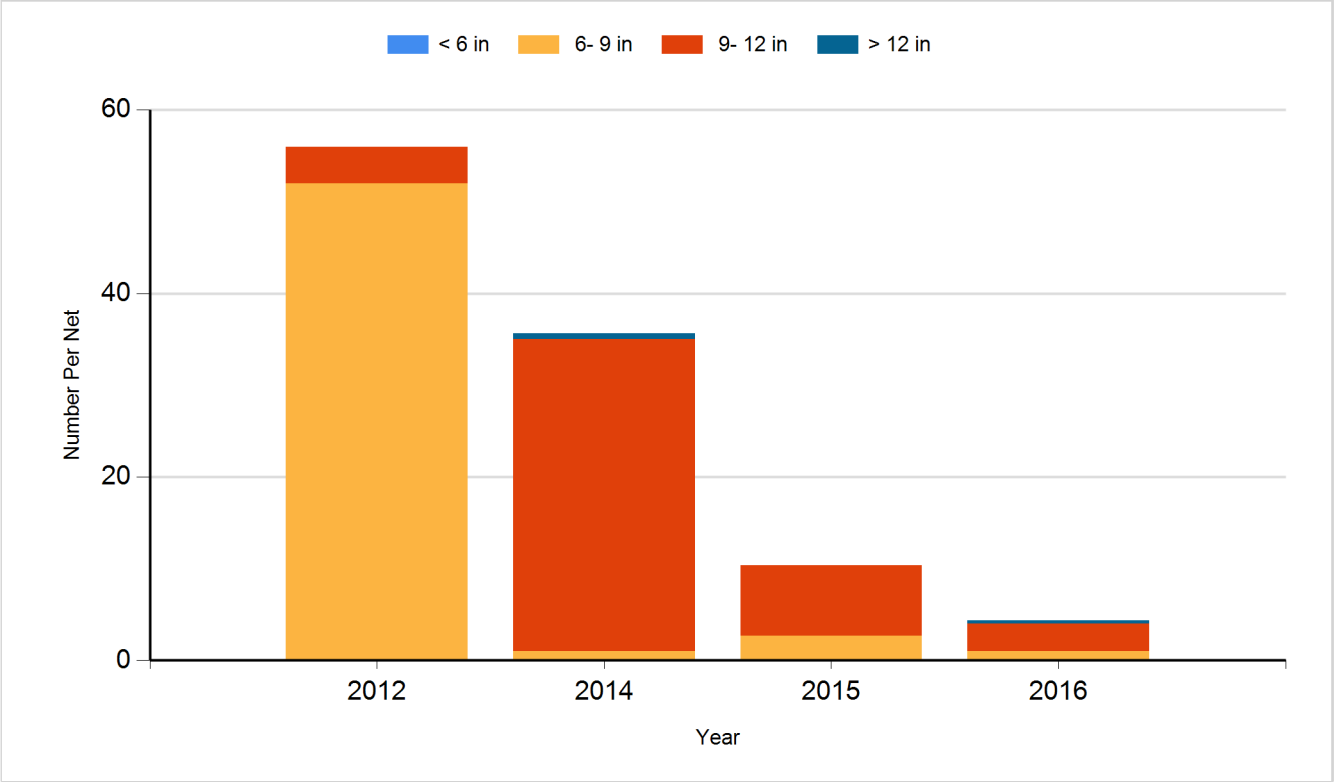
Historic Fish Sizes and Relative Abundance

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

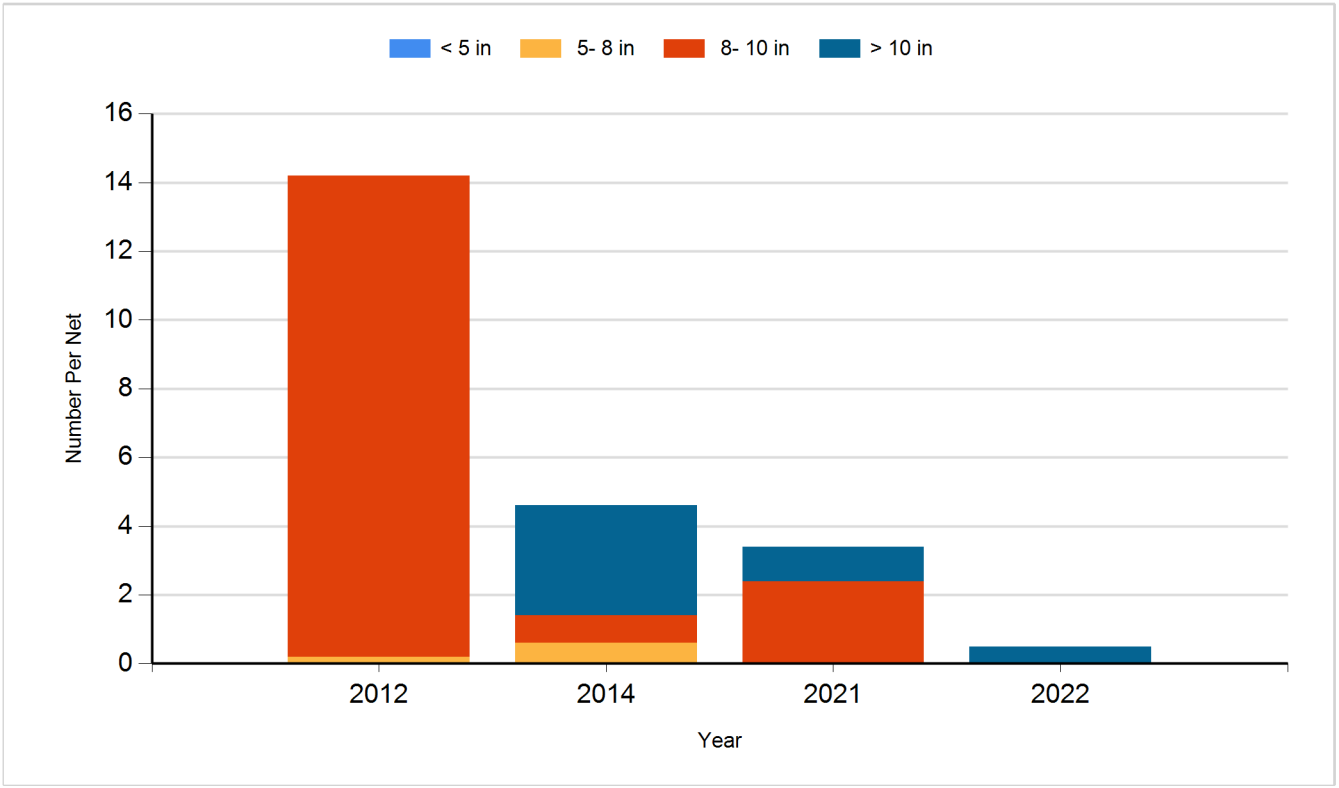
Species: Black Bullhead
Gear: AFS std gill net



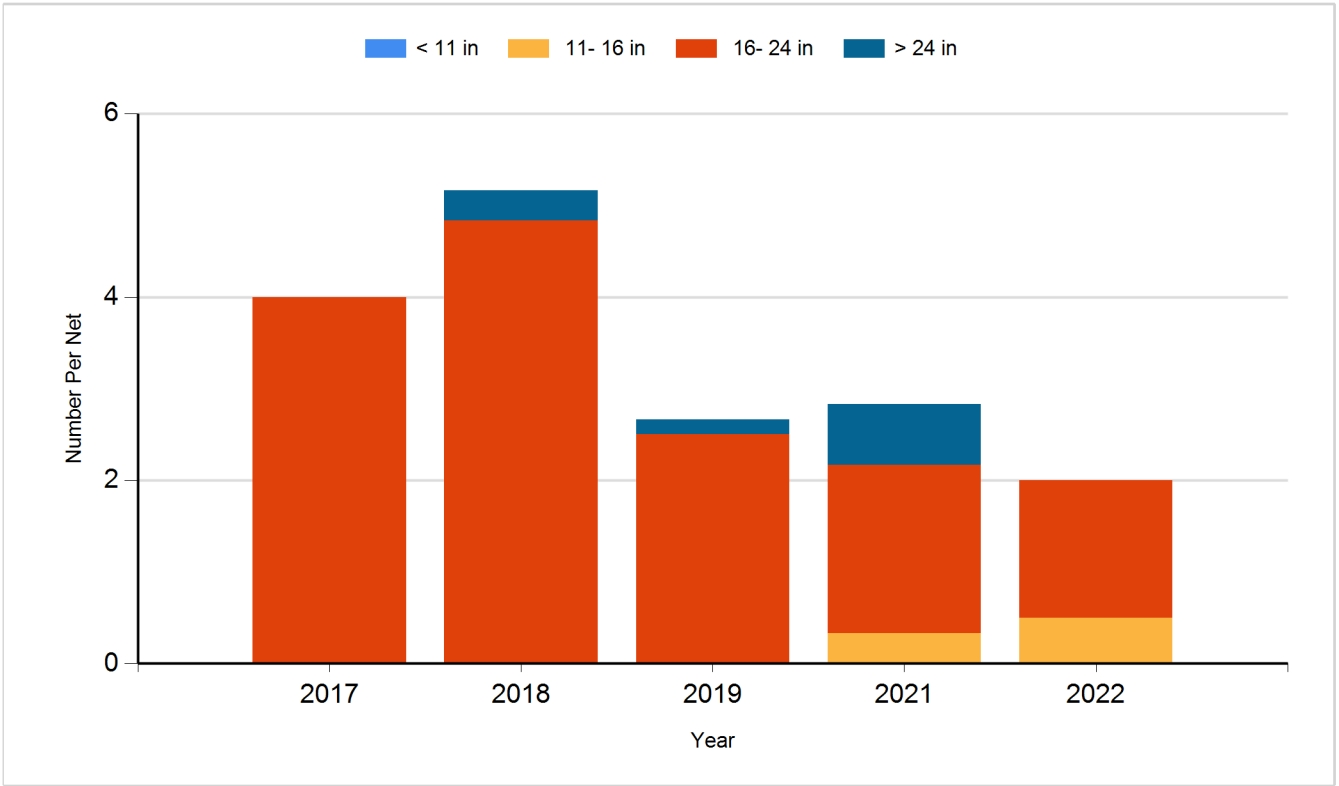
Species: Black Bullhead
Gear: std exp gill net



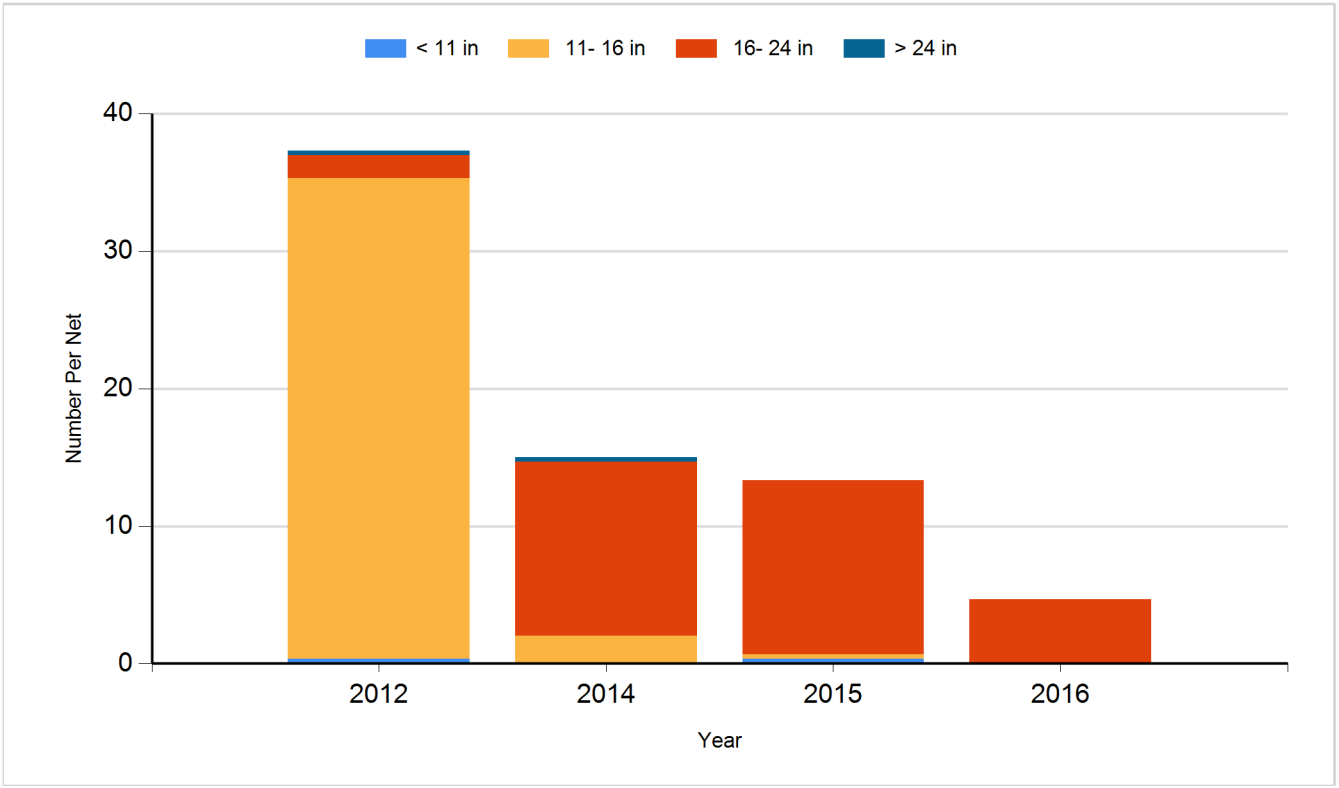
Species: Black Crappie
Gear: frame net (std 3/4 in)



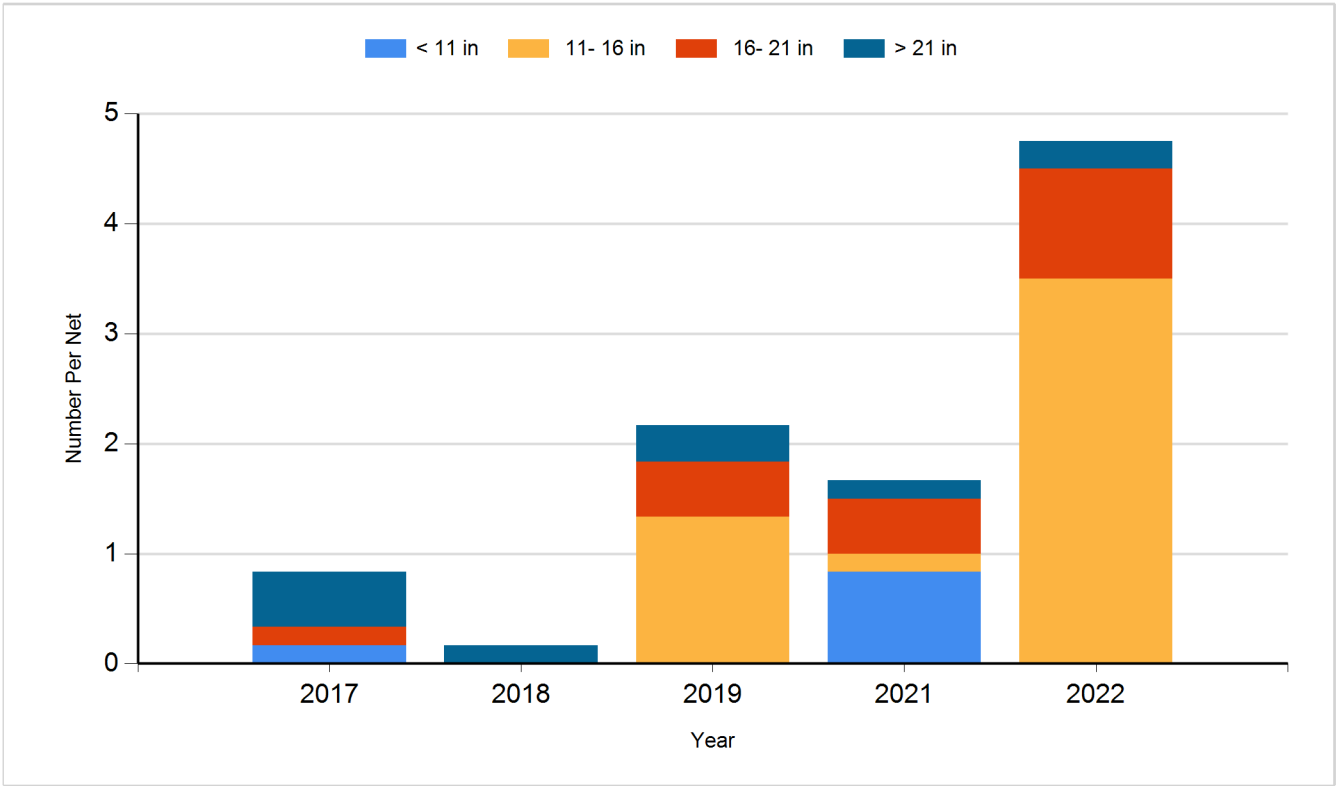
Species: Channel Catfish
Gear: AFS std gill net



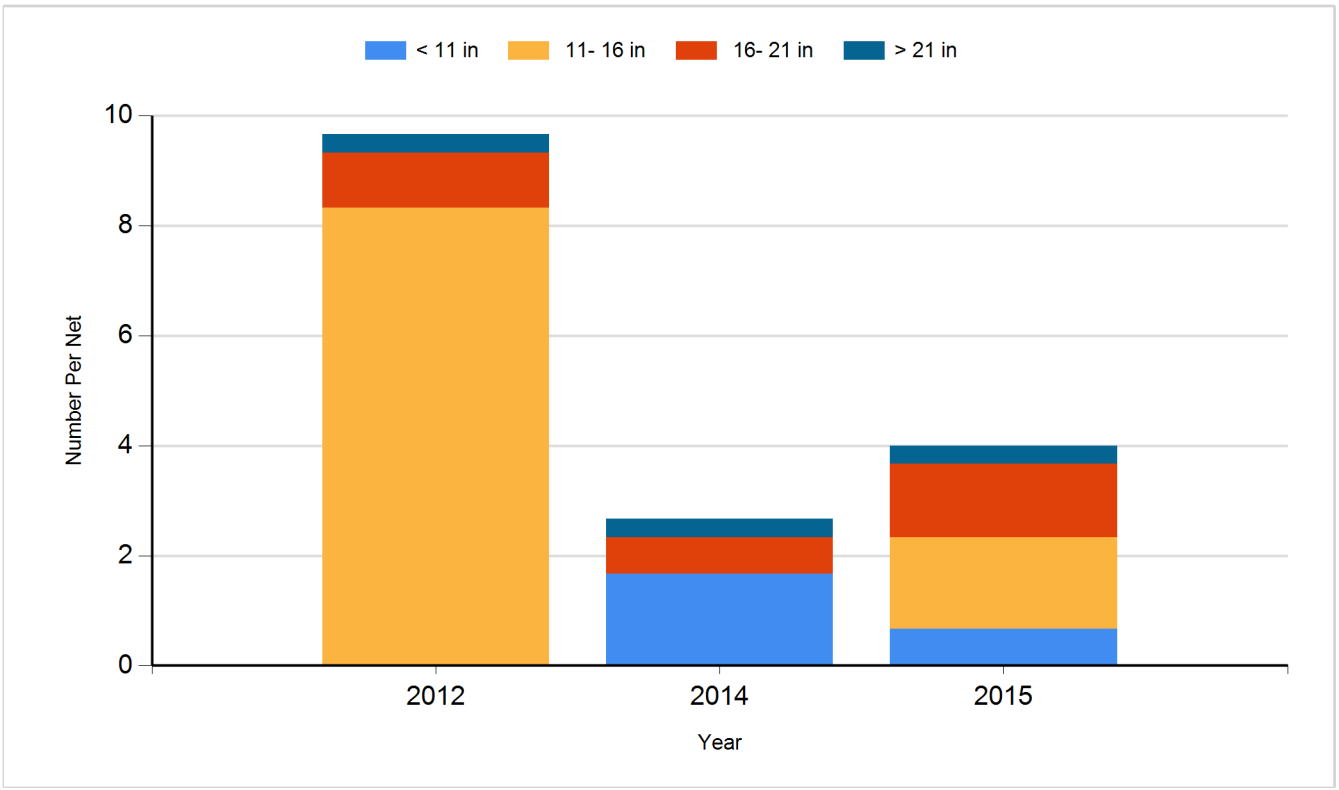
Species: Channel Catfish
Gear: std exp gill net



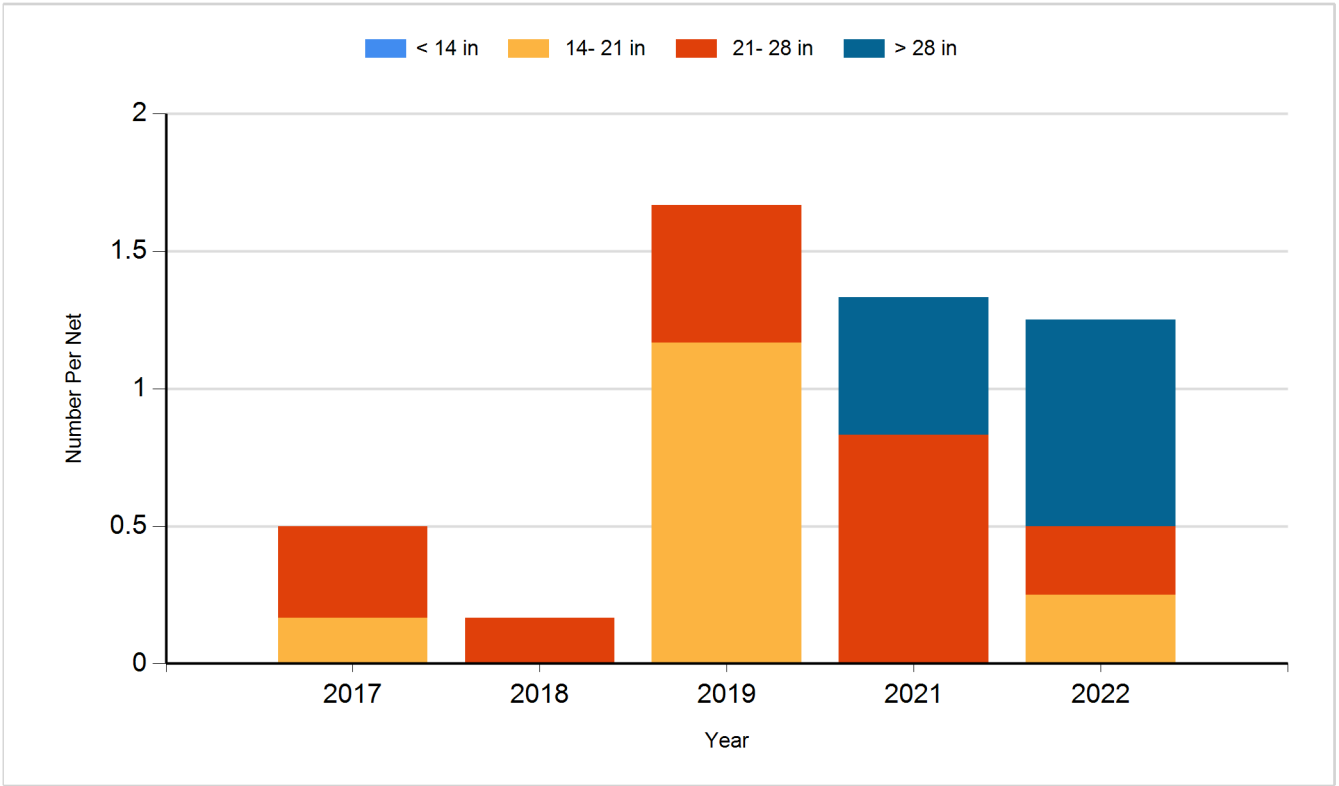
Species: Common Carp
Gear: AFS std gill net



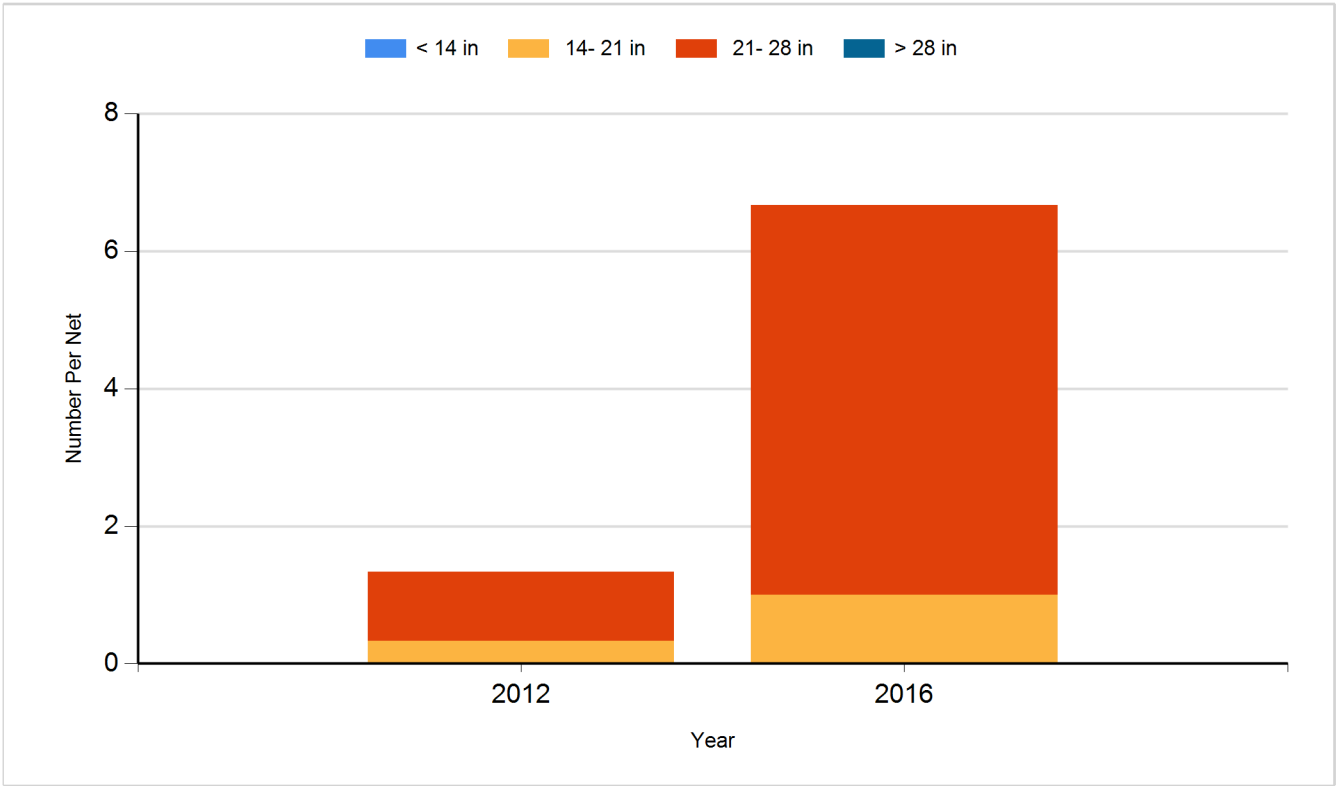
Species: Common Carp
Gear: std exp gill net



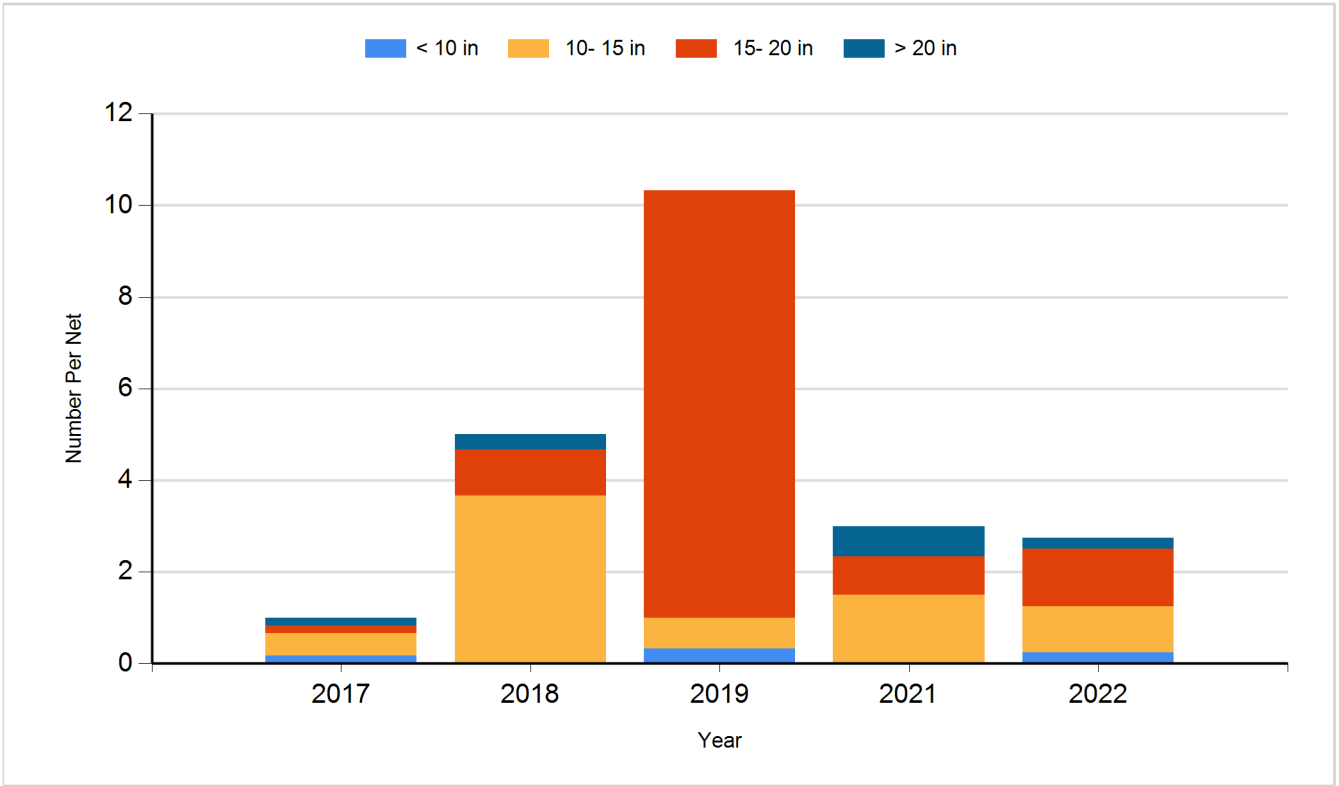
Species: Northern Pike
Gear: AFS std gill net



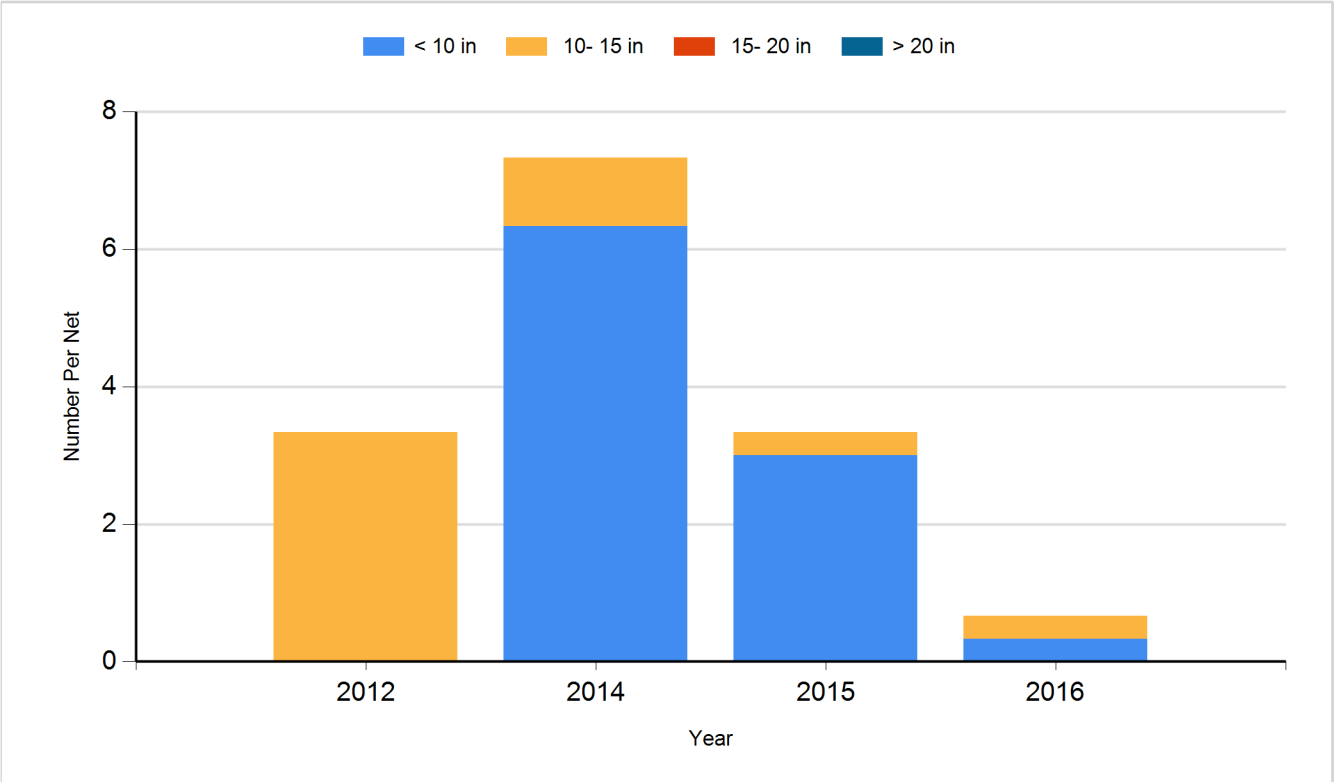
Species: Northern Pike
Gear: std exp gill net



Species: Walleye
Gear: AFS std gill net



Species: Walleye
Gear: std exp gill net



Fish Stocking

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

Year	Species	Size	Number
2011	Walleye	Small Fingerling	20,800
2011	Yellow Perch	Adult	2,124
2012	Northern Pike	Adult	6
2012	Walleye	Adult	724
2012	Walleye	Large Fingerling	178
2012	Yellow Perch	Adult	133
2013	Walleye	Small Fingerling	14,850
2014	Walleye	Small Fingerling	20,900
2015	Northern Pike	Adult	862
2015	Walleye	Fingerling	457
2015	Walleye	Small Fingerling	15,120
2016	Walleye	Juvenile	1,135
2016	Walleye	Small Fingerling	15,120
2016	Yellow Perch	Adult	10,350
2017	Walleye	Large Fingerling	384
2017	Yellow Perch	Adult	10,337
2018	Walleye	Large Fingerling	911
2019	Walleye	Small Fingerling	14,640
2021	Walleye	Adult	660
2021	Walleye	Fingerling	15,200
2022	Black Crappie	Adult	520
2022	Walleye	Juvenile	16,555