#### **Redfield Dam Survey Summary**

A sizeable portion of the shoreline at Redfield Dam, located on the southwest edge of Redfield, borders the Redfield City Park, which offers campground amenities and good public access to the lake including boat launch facilities and a fishing pier. Because the lake is shallow, fisheries management options are limited and less desirable fish species such as black bullheads and common carp tend to be the most abundant. However, species such as black crappie, channel catfish, and northern pike are commonly sampled and may provide angling opportunities beyond those for black bullhead.

- Black crappie. Black crappie numbers were considerably lower in 2023 than in 2019. In 2023, frame nets caught 26 individuals from 3.5 to 8.3 inches; only 4 of the 26 were ≥5.0 inches resulting in a mean frame net CPUE of 0.3.
- **Channel catfish**. Although not abundant, opportunities exist for anglers to catch channel catfish at Redfield Dam. In 2023, 28 individuals ranging in length from 7.1 to 21.7 inches were sampled.
- Northern pike. More northern pike were sampled in 2023 than in 2019. At 2.0/gill net, relative abundance was considered moderate to high for Redfield Dam. Twelve northern pike that ranged in length from 21.7 to 29.5 inches were netted.
- Walleye. Walleye (includes saugeye) fry or small fingerlings have been stocked on six occasions since 2014. Unfortunately, few have been sampled in surveys conducted from 2014 2023. In 2023, gill nets captured four individuals that ranged in length from 17.7 to 19.7 inches.

For more detailed results see the computer generated South Dakota Statewide Fisheries Survey for the Redfield (Spink; below).

# SOUTH DAKOTA STATEWIDE FISHERIES SURVEY Redfield, Spink County TUR-Lake-1-000

2023

# Lake Information

Name:	Redfield	Maximum Depth:	12 Feet
County:	Spink		
Surface Area:	242 Acres		

# Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jun 06, 2023	3 net-nights
AFS std gill net	Jun 07, 2023	3 net-nights
frame net (std 3/4 in)	Jun 06, 2023	6 net-nights
frame net (std 3/4 in)	Jun 07, 2023	6 net-nights

# **Common Fish Species Present**

Walleye Northern Pike Channel Catfish Black Crappie Black Bullhead Common Carp Yellow Bullhead Bigmouth Buffalo White Sucker Freshwater Drum

### **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.

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

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.

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

$$PSD - P = \left(\frac{number \ off ish \ge preferred \ length}{number \ of \ fish \ge stock \ length}\right) \ge 100$$

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.

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

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).

	St	ock	Qu	ality	Pref	erred	Mem	orable	Tro	ophy
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** 

			Abun	dance	St	ock Der	sity Indic	es	Cor	ndition
Gear	Species	Sample Size (n)	CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
AFS std gill net	Bigmouth Buffalo	33	1.2	0.6	57		0		89	4
	Black Bullhead	118	16.0	5.3	0		0		94	2
	Black Crappie	1	0.0	0.0	0		0			
	Channel Catfish	4	0.7	0.6	50		0		91	7
	Common Carp	23	3.7	2.3	100		64	16	87	3
	Freshwater Drum	3	0.5	0.5	100		67		99	4
	Northern Pike	12	2.0	0.9	100		25		101	3
	Walleye	4	0.7	0.5	100		0		93	3
	White Sucker	3	0.5	0.3	100		100		109	3
ame net (std 3/4	Bigmouth Buffalo	11	0.4	0.4	100		0		79	4
in)	Black Bullhead	386	29.9	11.8	4	2	0		85	1
	Black Crappie	26	0.3	0.3	100		0		97	7
	Bluegill	5	0.4	0.3	40		0		107	5
	Channel Catfish	24	1.5	1.2	39	19	0		96	3
	Common Carp	5	0.3	0.2	75		25		83	6
	Northern Pike	3	0.3	0.3	100		33		86	8
	Orangespotted Sunfish*	30	2.5	1.6						
	White Sucker	1	0.1	0.1	100		100		102	
	Yellow Bullhead	16	1.3	0.9	94		13		83	5

# 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	Ē				
Gear	Species	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Avg
AFS std gill net	Bigmouth Buffalo						0.0				1.2	0.60
	Black Bullhead						9.5				16.0	12.75
	Black Crappie						0.0				0.0	0.00
	Channel Catfish						1.2				0.7	0.95
	Common Carp						5.7				3.7	4.70
	Freshwater Drum						0.0				0.5	0.25
	Northern Pike						0.5				2.0	1.25
	Walleye						0.0				0.7	0.35
	White Sucker						0.0				0.5	0.25
	Yellow Bullhead						0.3				0.0	0.15
frame net (std	Bigmouth Buffalo		0.0				0.0				0.4	0.13
3/4 in)	Black Bullhead		378.8				62.9				29.9	157.20
	Black Crappie		17.1				28.2				0.3	15.20
	Bluegill		0.1				0.6				0.4	0.37
	Channel Catfish		0.3				0.7				1.5	0.83
	Common Carp		0.3				1.4				0.3	0.67
	Northern Pike		1.3				0.0				0.3	0.53
	Orangespotted Sunfish*		0.5				0.0				2.5	1.00
	Pumpkinseed		0.0				3.0				0.0	1.00
	Walleye		0.1				0.0				0.0	0.03
	White Sucker		0.0				0.0				0.1	0.03
	Yellow Bullhead		4.0				2.3				1.3	2.53
std exp gill net	Black Bullhead		84.7									84.70
	Black Crappie		0.3									0.30
	Channel Catfish		0.0									0.00
	Common Carp		13.0									13.00
	Northern Pike		3.0									3.00
	Walleye		1.3									1.30
	Yellow Bullhead		0.3									0.30
	Yellow Perch		0.3									0.30

# **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.

							Ye	ar				
Gear	Species	Index	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AFS std gill net	Channel Catfish	PSD						71				50
		PSD-P						0				0
		Wr						115				91
	Northern Pike	PSD						33				100
		PSD-P						0				25
		Wr						94				101
frame net (std	Black Crappie	PSD		83				34				100
3/4 in)		PSD-P		1				0				0
		Wr		99				112				97
	Channel Catfish	PSD		100				38				39
		PSD-P		0				0				0
		Wr		87								96
std exp gill net	Channel Catfish	PSD		0								
		PSD-P		0								
		Wr										
	Northern Pike	PSD		100								
		PSD-P		11								
		Wr		89								

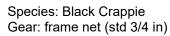
## **Fish Condition**

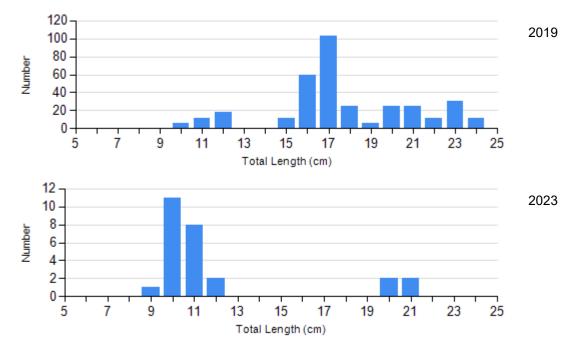
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

				Length	Group	S			
			S-Q		Q-P		P-M		М
Species	Year	Ν	Wr (SE)	Ν	Wr (SE)	Ν	Wr (SE)	Ν	Wr (SE)
Black Crappie Frame Net	2019	206	118 (1.6)	104	101 (1.4)	0		0	
	2023	0		4	97 (5.5)	0		0	
Channel Catfish Gill Net	2019	2	132 (4.5)	5	109 (1.8)	0		0	
	2023	2	81 (3.7)	2	100 (1.4)	0		0	
Northern Pike Gill Net	2019	2	90 (2.5)	1	100	0		0	
	2023	0		9	101 (2.6)	3	101 (5.9)	0	

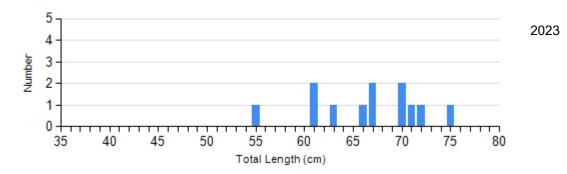
# Length Frequency Distribution

Length frequency histogram of species sampled by year.





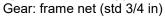
Species: Northern Pike Gear: AFS std gill net

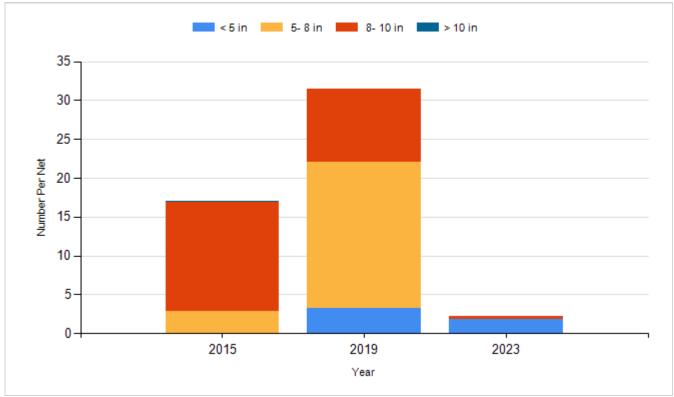


## **Historic Fish Sizes and Relative Abundance**

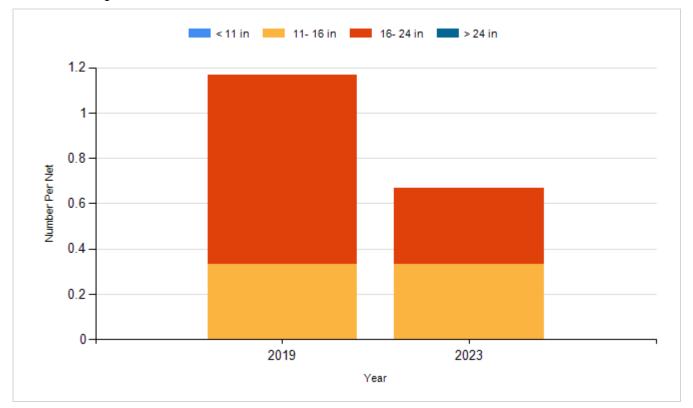
Size distribution per net by color for species sampled by year.

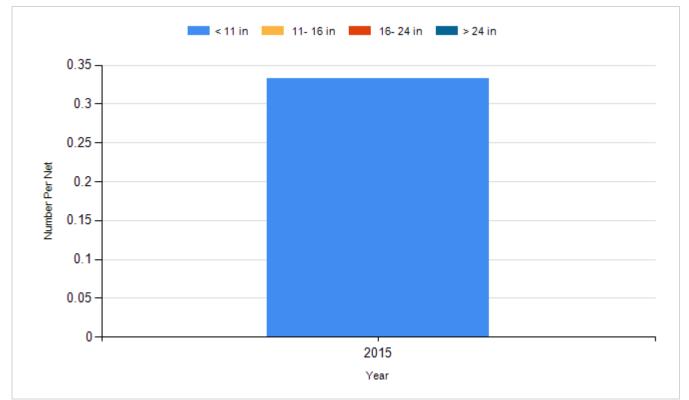
# Species: Black Crappie



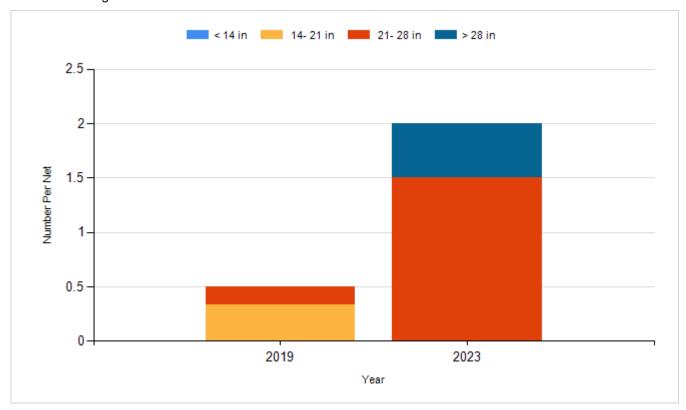


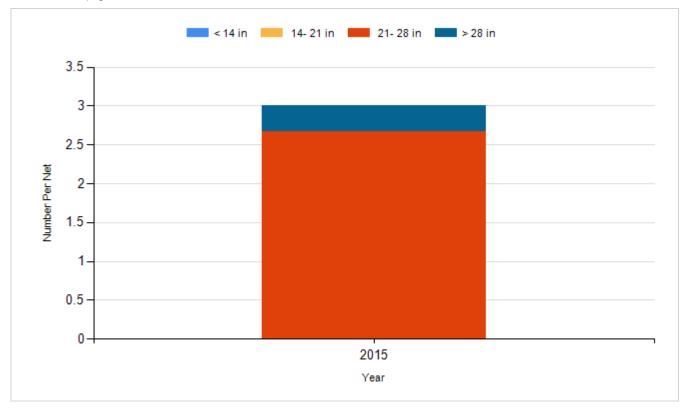
Species: Channel Catfish Gear: AFS std gill net





Species: Northern Pike Gear: AFS std gill net





# Fish Stocking

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

Species	Size	Number
Walleye	Fry	100,000
Yellow Perch	Juvenile	4,800
Walleye	Fry	100,000
Walleye	Fry	100,000
Saugeye	Fry	100,000
Saugeye	Juvenile	18,000
Saugeye	Fry	100,000
-	Yellow Perch Walleye Walleye Saugeye Saugeye	Yellow PerchJuvenileWalleyeFryWalleyeFrySaugeyeFrySaugeyeJuvenile

# SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

Redfield, Spink County

TUR-Lake-1-000

2023

#### Lake Information

Name:	Redfield	Maximum Depth:	12 Feet
County:	Spink		
Surface Area:	242 Acres		

### **Surveys and Investigations**

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

Gear	Date	Effort
AFS std gill net	Jun 06, 2023	3 net-nights
AFS std gill net	Jun 07, 2023	3 net-nights
frame net (std 3/4 in)	Jun 06, 2023	6 net-nights
frame net (std 3/4 in)	Jun 07, 2023	6 net-nights

# **Common Fish Species Present**

Walleye Northern Pike Channel Catfish Black Crappie Black Bullhead Common Carp Yellow Bullhead Bigmouth Buffalo White Sucker Freshwater Drum

### **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.

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

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.

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

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

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.

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

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).

	St	ock	Qu	ality	Pref	erred	Mem	orable	Tro	ophy
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

			Abund	dance	St	ock Der	nsity Indic	es	Cor	ndition
Gear	Species	Sample Size (n)	CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
AFS std gill net	Bigmouth Buffalo	33	1.2	0.6	57		0		89	4
	Black Bullhead	118	16.0	5.3	0		0		94	2
	Black Crappie	1	0.0	0.0	0		0			
	Channel Catfish	4	0.7	0.6	50		0		91	7
	Common Carp	23	3.7	2.3	100		64	16	87	3
	Freshwater Drum	3	0.5	0.5	100		67		99	4
	Northern Pike	12	2.0	0.9	100		25		101	3
	Walleye	4	0.7	0.5	100		0		93	3
	White Sucker	3	0.5	0.3	100		100		109	3
frame net (std 3/4	Bigmouth Buffalo	11	0.4	0.4	100		0		79	4
in)	Black Bullhead	386	29.9	11.8	4	2	0		85	1
	Black Crappie	26	0.3	0.3	100		0		97	7
	Bluegill	5	0.4	0.3	40		0		107	5
	Channel Catfish	24	1.5	1.2	39	19	0		96	3
	Common Carp	5	0.3	0.2	75		25		83	6
	Northern Pike	3	0.3	0.3	100		33		86	8
	Orangespotted Sunfish	30	0.0	0.0						
	White Sucker	1	0.1	0.1	100		100		102	
	Yellow Bullhead	16	1.3	0.9	94		13		83	5

# 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	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Avg
AFS std gill net	Bigmouth Buffalo						0.0				1.2	0.60
	Black Bullhead						9.5				16.0	12.75
	Black Crappie						0.0				0.0	0.00
	Channel Catfish						1.2				0.7	0.95
	Common Carp						5.7				3.7	4.70
	Freshwater Drum						0.0				0.5	0.25
	Northern Pike						0.5				2.0	1.25
	Sunfish Hybrid						0.2				0.0	0.10
	Walleye						0.0				0.7	0.35
	White Sucker						0.0				0.5	0.25
	Yellow Bullhead						0.3				0.0	0.15
frame net (std	Bigmouth Buffalo		0.0				0.0				0.4	0.13
3/4 in)	Black Bullhead		378.8				62.9				29.9	157.2 0
	Black Crappie		17.1				28.2				0.3	15.20
	Bluegill		0.1				0.6				0.4	0.37
	Channel Catfish		0.3				0.7				1.5	0.83
	Common Carp		0.3				1.4				0.3	0.67
	Northern Pike		1.3				0.0				0.3	0.53
	Orangespotted Sunfish		0.0				0.0				0.0	0.00
	Pumpkinseed		0.0				3.0				0.0	1.00
	Walleye		0.1				0.0				0.0	0.03
	Western Painted Turtle		0.0				0.0				0.0	0.00
	White Sucker		0.0				0.0				0.1	0.03
	Yellow Bullhead		4.0				2.3				1.3	2.53
std exp gill net	Black Bullhead		84.7									84.70
	Black Crappie		0.3									0.30
	Channel Catfish		0.0									0.00
	Common Carp		13.0									13.00
	Northern Pike		3.0									3.00
	Walleye		1.3									1.30
	Yellow Bullhead		0.3									0.30
	Yellow Perch		0.3									0.30

# **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.

							Ye	ar				
Gear	Species	Index	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AFS std gill net	Bigmouth Buffalo	PSD						0				57
		PSD-P						0				0
		Wr										89
	Black Bullhead	PSD						2				0
		PSD-P						0				0
		Wr						102				94
	Black Crappie	PSD										0
		PSD-P										0
	Channel Catfish	PSD						71				50
		PSD-P						0				0
		Wr						115				91
	Common Carp	PSD						85				100
		PSD-P						9				64
		Wr						92				87
	Northern Pike	PSD						33				100
		PSD-P						0				25
		Wr						94				101
	Walleye	PSD										100
		PSD-P										0
		Wr										93
	White Sucker	PSD										100
		PSD-P										100
		Wr										109
	Yellow Bullhead	PSD						100				
		PSD-P						50				
		Wr						105				
frame net (std	Bigmouth Buffalo	PSD						0				100
3/4 in)		PSD-P						0				0
		Wr										79
	Black Bullhead	PSD		0				0				4
		PSD-P		0				0				0
		Wr		85				95				85
	Black Crappie	PSD		83				34				100

11/12/2024

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Gear   Species   Index   2014   2015   2016   2017   2018   2019   2020   2021							Ye	ar				
3/4 in)   Wr   99   112     Channel Catfish   PSD   100   38     PSD-P   0   0     Wr   87   0     Common Carp   PSD   100   93     PSD-P   25   7   0     Wr   89   88     Northern Pike   PSD   93   88     PSD-P   40   0   95     Wr   84   95   100   95     PSD-P   40   95   100   95     Wr   84   95   100   95   100   95     Walleye   PSD   100   95   100   95   100   95   100   115 </th <th>ar</th> <th>Species</th> <th>Index</th> <th>2014 2015</th> <th>2016</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>2022</th> <th>2023</th>	ar	Species	Index	2014 2015	2016	2017	2018	2019	2020	2021	2022	2023
Wr   99   112     Channel Catfish   PSD   100   38     PSD-P   0   0     Wr   87   0     PSD-P   25   7     Wr   89   88     Northern Pike   PSD-9   93     PSD-P   40   95     PSD-9   40   95     Wr   84   95     Walleye   PSD-9   100     Wr   88   95     Wr   88   95     Wr   84   95     PSD-9   100   95     Wr   88   95     Wr   88   95     Wr   88   95     Std exp gill net   Black Bullhead   PSD-9     PSD-P   0   95     PSD-P   0   95     Wr   86   95     PSD-P   0   95     PSD-P   0   95     PSD-P	ne net (std	Black Crappie	PSD-P	1				0				0
PSD-P00Wr87PSD10093PSD-P257Wr8988Northern PikePSD93PSD-P4093PSD-P4095PSD-P10095PSD-P10095Wr88White SuckerPSD-PPSD-P100Wr88PSD-P100Wr81PSD-P100Wr83Std exp gill netPSD-PPSD-P2512Wr89175175Std exp gill netPSDBlack BullheadPSD-PPSD-P0Wr86PSD-P0Wr115PSD-P0PSD-P0PSD-P0PSD-P0PSD-P0PSD-P0PSD-P0PSD-P0PSD-P0PSD-P0PSD-P0PSD-P0PSD-P10PSD-P10PSD-P10PSD-P10PSD-P10PSD-P10PSD-P10PSD-P10PSD-P10PSD-P10PSD-P11Wr89	in)		Wr	99				112				97
Wr   87     PSD   100   93     PSD-P   25   7     Wr   89   88     Northern Pike   PSD   93     PSD-P   40   95     Wr   84   95     Walleye   PSD   100     PSD-P   100   95     Wr   84   95     White Sucker   PSD-P   100     PSD-P   100   95     Wr   88   84     PSD-P   100   95     Wr   88   84     PSD-P   100   95     Wr   89   175     Std exp gill net   Black Bullhead   PSD   0     PSD-P   0   115     PSD-P   0   115     PSD-P   0   11     PSD-P   0   11     PSD-P   0   11     PSD-P   10   11     PSD-P   10 <td></td> <td>Channel Catfish</td> <td>PSD</td> <td>100</td> <td></td> <td></td> <td></td> <td>38</td> <td></td> <td></td> <td></td> <td>39</td>		Channel Catfish	PSD	100				38				39
Common Carp   PSD   100   93     PSD-P   25   7     Wr   89   88     Northern Pike   PSD   93     PSD-P   40   Wr   84     Walleye   PSD   100   Wr   84     Walleye   PSD   100   PSD-P   100     Wr   88   Wr   88   PSD-P   100     Wr   88   PSD-P   100   PSD-P   100     Wr   88   PSD-P   Wr   86   100     PSD-P   Vr   89   175   12     Wr   89   175   12   Wr   86     Std exp gill net   Black Bullhead   PSD   0   Vr   86   12   12   Wr   86   12			PSD-P	0				0				0
PSD-P   25   7     Wr   89   88     Northern Pike   PSD   93     PSD-P   40   Wr   84     PSD-P   40   Wr   84     Walleye   PSD   100   PSD-P   100     PSD-P   100   Wr   88     White Sucker   PSD   93   100     PSD-P   100   Wr   88     White Sucker   PSD   100   100     PSD-P   Wr   88   12     Wr   89   175   12     Std exp gill net   Black Bullhead   PSD   0     PSD-P   0   115   115     Std exp gill net   PSD   0   115     Black Crappie   PSD   0   115     PSD-P   10   115   115     PSD-P   10   115   115     PSD-P   10   115   115     PSD-P   10 <td< td=""><td></td><td></td><td>Wr</td><td>87</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>96</td></td<>			Wr	87								96
Wr8988Northern PikePSD93PSD-P40WalleyePSD100PSD-P100Wr88White SuckerPSD-PPSD-P12Vr89PSD-P25Vr89PSD-P25Vr89PSD-P0PSD-P10PSD-P10PSD-P11PSD-P11PSD-P11PSD-P11PSD-P11PSD-P11PSD-P11PSD-P11PSD-P11PSD-P11PSD-P11PSD-P11PSD-P11PSD-P11PSD-P11PSD-P11PSD-P		Common Carp	PSD	100				93				75
Northern Pike   PSD   93     PSD-P   40     Wa   84     Walleye   PSD     PSD-P   100     Wr   88     White Sucker   PSD-P     PSD-P   10     PSD-P   100     Wr   88     PSD-P   12     Wr   89     PSD-P   25     PSD-P   25     Wr   89     Std exp gill mt   Black Bullhead     PSD-P   0     PSD-P   0     Wr   86     PSD-P   0     PSD-P   0     Wr   86     PSD-P   0     Wr   115     Channel Catfish   PSD     PSD-P   0     PSD-P   0     Qr   38     PSD-P   10     PSD-P   10     PSD-P   10     PSD-P   11			PSD-P	25				7				25
PSD-P   40     Wr   84     PSD   100     PSD-P   100     Wr   88     White Sucker   PSD-P     PSD-P   25     Wr   89     Yellow Bullhead   PSD-P     Wr   89     Std exp gill ne   Black Bullhead     PSD-P   0     Wr   86     PSD-P   0     Wr   86     PSD-P   0     Wr   86     PSD-P   0     Wr   86     PSD-P   0     Wr   115     PSD-P   0     Wr   115     PSD-P   0     Wr   115     PSD-P   0     PSD-P   0     Wr   95     PSD-P   10     Wr   95     PSD-P   10     Wr   95     PSD-P   11			Wr	89				88				83
Wr84PSD100PSD-P100Wr88White SuckerPSDPSD-P25Wr12Wr89Std exp gill netBlack BullheadPSD-P0PSD-P10Wr95PSD-P10PSD-P11Wr89		Northern Pike	PSD	93								100
WalleyePSD100PSD-P100Wr88PSD-PPSD-P2Wr100PSD-P212PSD-P212PSD-P212Wr89Std exp gill netPSDBlack BullheadPSDPSD-P0PSD-P10PSD-P10PSD-P11Wr89			PSD-P	40								33
PSD-P 100   Wr 88   PSD PSD   PSD-P PSD   PSD-P 25   PSD-P 25   Vr 89   Std exp gill net Black Bullhead   PSD-P 0   PSD-P 10   PSD-P 10   PSD-P 11   Wr 89			Wr	84								86
Write Sucker Write Sucker   PSD-P   Write   Yellow Bullhead PSD-P   PSD-P 25   Wr 89   Std exp gill ne PSD-P   Black Bullhead PSD-P   PSD-P 0   PSD-P 10   Wr 95   PSD-P 10   PSD-P 11   Wr 89		Walleye	PSD	100								
White SuckerPSDPSD-PVrYellow BullheadPSD5484PSD-P2512Vr89175std exp gill netPSD0PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P100PSD-P10PSD-P10PSD-P11Wr89			PSD-P	100								
PSD-P     Wr     PSD-P   25     PSD-P   25     PSD-P   25     Wr   89     std exp gill net   Black Bullhead     PSD-P   0     PSD-P   0     Wr   86     PSD-P   0     Wr   86     PSD-P   0     Wr   86     PSD-P   0     Wr   115     Channel Catfish   PSD     PSD-P   0     Wr   115     Common Carp   PSD     PSD-P   0     Wr   95     PSD-P   10     Wr   95     PSD-P   10     PSD-P   11     Wr   89			Wr	88								
Wr   84     Yellow Bullhead   PSD   54   84     PSD-P   25   12     Wr   89   175     std exp gill net   Black Bullhead   PSD   0     PSD-P   0   14     PSD-P   10   14     PSD-P   10   14     PSD-P   10   14     PSD-P   11   14     PSD-P   11   14     PSD-P   11   14     PSD-P   11   14		White Sucker	PSD									100
Yellow BullheadPSD5484PSD-P2512Wr89175std exp gill netPSD0PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P00PSD-P100PSD-P100PSD-P100PSD-P11Wr89			PSD-P									100
PSD-P2512Wr89175std exp gill netBack BullheadPSD0PSD-P0Wr86Black CrappiePSD0PSD-P0Wr115Channel CatfishPSD-P0PSD-P0PSD-PCommon CarpPSD-P0Wr38PSD-PVWr95100PSD-P10PSD-PWr95100PSD-P11Wr89			Wr									102
Wr89175std exp gill neBlack BullheadPSD0PSD-P0Wr86Black CrappiePSD0PSD-P0Wr115Channel CatfishPSD0PSD-P0PSD-PCommon CarpPSD38PSD-P10WrWr95Northern PikePSD100PSD-P11Wr89		Yellow Bullhead	PSD	54				84				94
std exp gill net Black Bullhead PSD 0 PSD-P 0 Wr 86 Black Crappie PSD 0 PSD-P 0 Wr 115 Channel Catfish PSD 0 PSD-P 0 Common Carp PSD 38 PSD-P 10 Wr 95 Northern Pike PSD 100 PSD-P 10 Wr 95			PSD-P	25				12				13
PSD-P 0   Wr 86   Black Crappie PSD   PSD-P 0   PSD-P 0   Wr 115   Channel Catfish PSD-P   PSD-P 0   PSD-P 0   PSD-P 0   PSD-P 0   PSD-P 10   Wr 95   Northern Pike PSD-P   PSD-P 10   PSD-P 11   Wr 89			Wr	89				175				83
Wr86Black CrappiePSD0PSD-P00Wr115Channel CatfishPSD0PSD-P00Common CarpPSD38PSD-P100Wr95100PSD-P10100PSD-P11WrWr89	exp gill net	Black Bullhead	PSD	0								
Black Crappie PSD 0   PSD-P 0   Wr 115   Channel Catfish PSD   PSD-P 0   PSD-P 0   PSD-P 10   Wr 95   Northern Pike PSD-P   PSD-P 100   PSD-P 11   Wr 89			PSD-P	0								
PSD-P 0   Wr 115   Channel Catfish PSD   PSD-P 0   Common Carp PSD-P   Vr 95   Northern Pike PSD-P   PSD-P 100   PSD-P 110   Wr 95   Northern Pike PSD-P   Wr 89			Wr	86								
PSD-P 0   Wr 115   Channel Catfish PSD   PSD-P 0   Common Carp PSD-P   Vr 95   Northern Pike PSD-P   PSD-P 100   PSD-P 110   Wr 95   Northern Pike PSD-P   Wr 89		Black Crappie	PSD	0								
Channel CatfishPSD0PSD-P0Common CarpPSDPSD-P10Wr95Northern PikePSD-PPSD-P10Wr89			PSD-P	0								
PSD-P 0   PSD 38   PSD-P 10   Wr 95   Northern Pike PSD-P   PSD-P 11   Wr 89			Wr	115								
Common CarpPSD38PSD-P10Wr95Northern PikePSDPSD-P11Wr89		Channel Catfish	PSD	0								
PSD-P 10   Wr 95   Northern Pike PSD   PSD-P 10   Wr 89			PSD-P	0								
Wr95Northern PikePSDPSD-P11Wr89		Common Carp	PSD	38								
Northern PikePSD100PSD-P11Wr89			PSD-P	10								
PSD-P 11 Wr 89			Wr	95								
Wr 89		Northern Pike	PSD	100								
			PSD-P	11								
			Wr	89								
Walleye FSD 75		Walleye	PSD	75								
PSD-P 50			PSD-P	50								
Wr 92			Wr	92								

			Year									
Gear	Species	Index	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
std exp gill net	Yellow Bullhead	PSD		0								
		PSD-P		0								
		Wr		138								

# Length at Capture

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

# Species: Black Crappie

				Mean Ler	ngth (expai	nded sam	ple numbe	r) at capt	ure by age	9	
Year	N	1	2	3	4	5	6	7	8	9	10+
2015	205		169 (23)	216 (14)	217 (153)	254 (6)	224 (9)				
Species: W	/alleye										
				Mean Ler	ngth (expai	nded sam	ple numbe	r) at capt	ure by age	9	
Year	N	1	2	3	4	5	6	7	8	9	10+
2023	4				474 (4)						
2015	4		333 (1)		463 (2)	554 (1)					

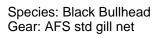
# Fish Condition

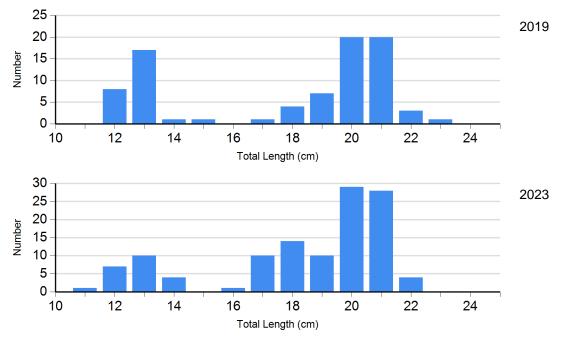
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

					Length				
			S-Q		Q-P		P-M		М
Species	Year	N	Wr (SE)	Ν	Wr (SE)	Ν	Wr (SE)	Ν	Wr (SE)
Black Bullhead Gill Net	2019	56	102 (1.6)	1	113	0		0	
	2023	96	94 (1.2)	0		0		0	
Black Crappie Frame Net	2019	206	118 (1.6)	104	101 (1.4)	0		0	
	2023	0		4	97 (5.5)	0		0	
Channel Catfish Gill Net	2019	2	132 (4.5)	5	109 (1.8)	0		0	
	2023	2	81 (3.7)	2	100 (1.4)	0		0	
Common Carp Gill Net	2019	5	100 (5.3)	26	91 (1.5)	3	80 (1.9)	0	
	2023	0		8	89 (3.0)	13	87 (2.8)	1	78
Northern Pike Gill Net	2019	2	90 (2.5)	1	100	0		0	
	2023	0		9	101 (2.6)	3	101 (5.9)	0	
Walleye Gill Net	2023	0		4	93 (1.9)	0		0	
White Sucker Gill Net	2023	0		0	· ·	1	107	2	111

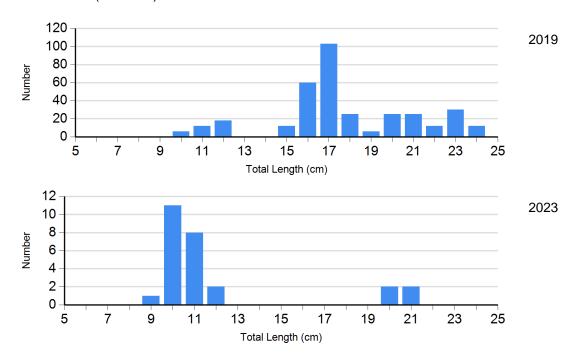
## **Length Frequency Distribution**

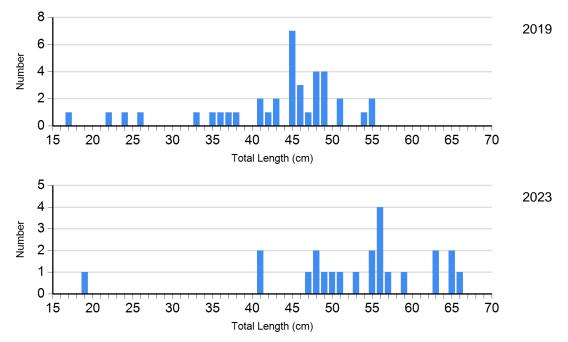
Length frequency histogram of species sampled by year.



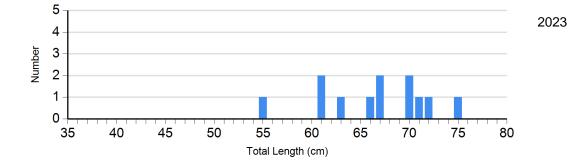


Species: Black Crappie Gear: frame net (std 3/4 in)





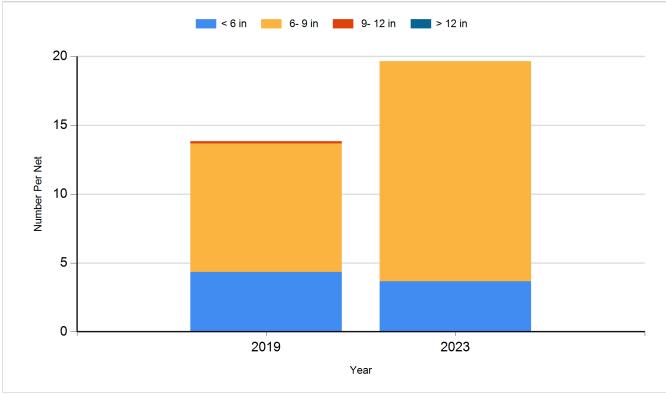
Species: Northern Pike Gear: AFS std gill net



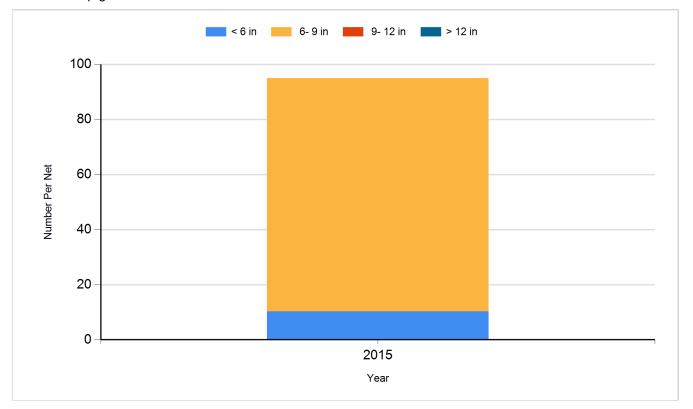
## **Historic Fish Sizes and Relative Abundance**

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

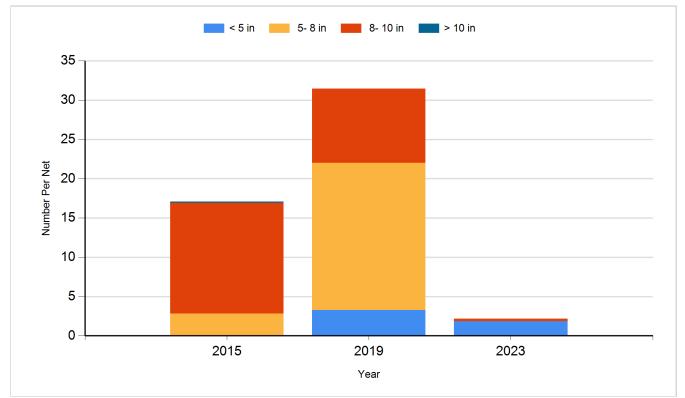
#### Species: Black Bullhead Gear: AFS std gill net



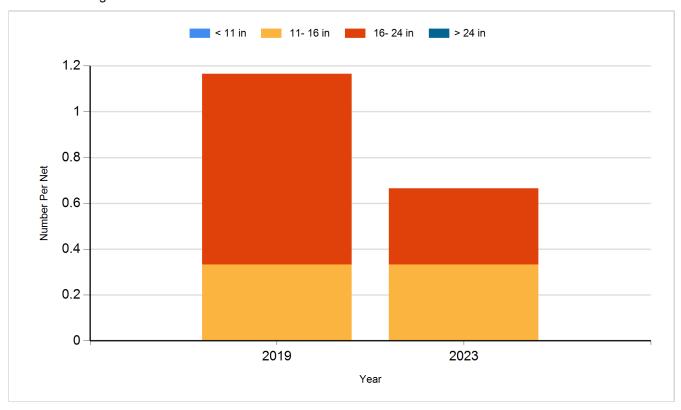
Species: Black Bullhead Gear: std exp gill net



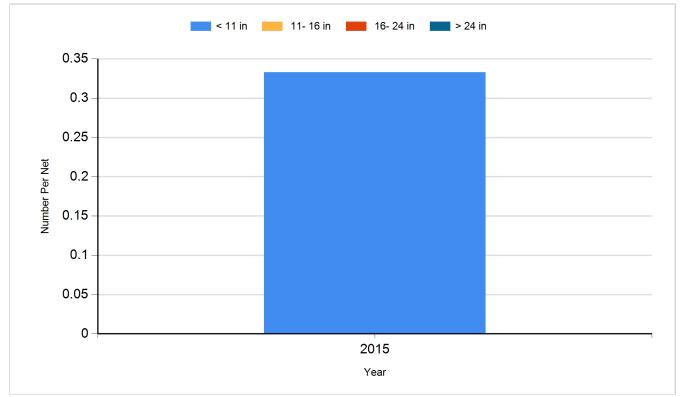
Species: Black Crappie Gear: frame net (std 3/4 in)



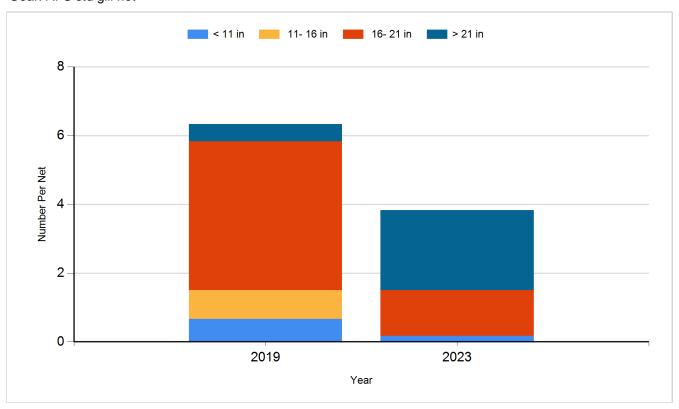
Species: Channel Catfish Gear: AFS std gill net

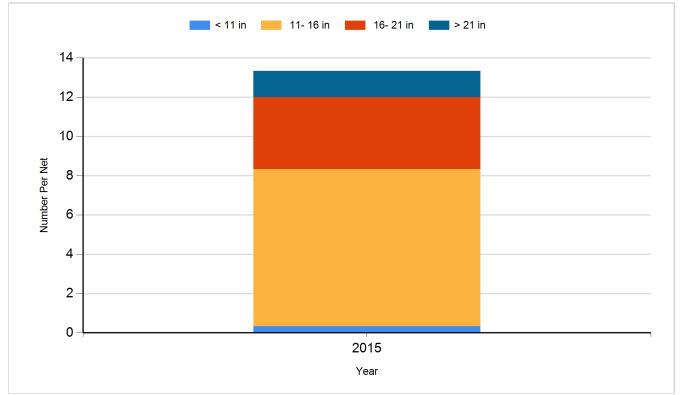


Species: Channel Catfish Gear: std exp gill net

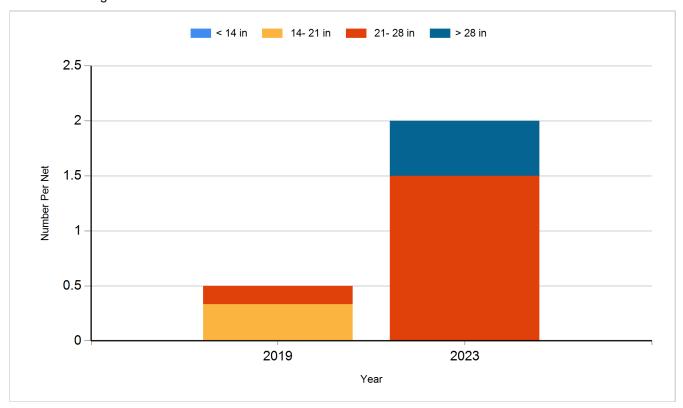


Species: Common Carp Gear: AFS std gill net

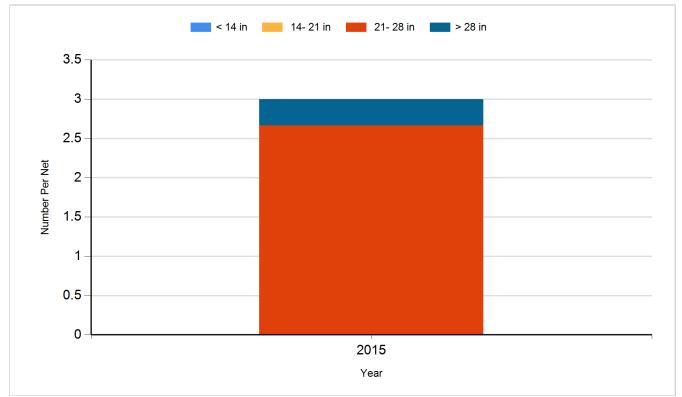




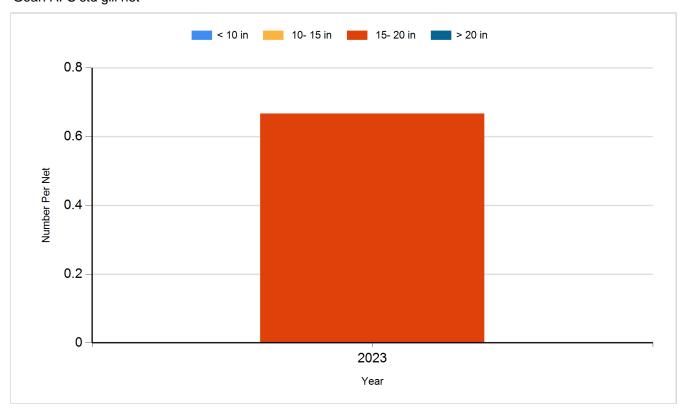
Species: Northern Pike Gear: AFS std gill net



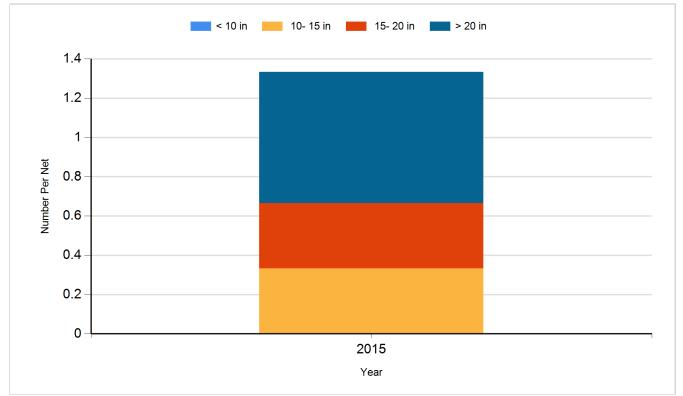
Species: Northern Pike Gear: std exp gill net



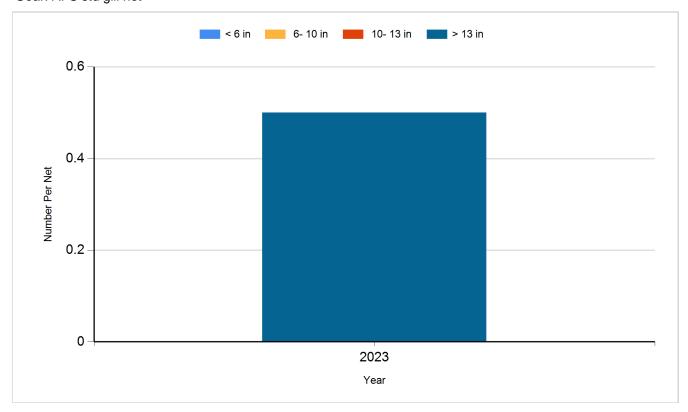
Species: Walleye Gear: AFS std gill net



Species: Walleye Gear: std exp gill net



Species: White Sucker Gear: AFS std gill net



# Fish Stocking

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

Year	Species	Size	Number
2012	Walleye	Fry	104,710
2014	Walleye	Fry	100,000
2016	Yellow Perch	Juvenile	4,800
2017	Walleye	Fry	100,000
2021	Walleye	Fry	100,000
2022	Saugeye	Fry	100,000
2022	Saugeye	Juvenile	18,000
2023	Saugeye	Fry	100,000