Amsden Dam Survey Summary

Amsden Dam, located 3.5 miles south and 3.0 miles west of Andover, is managed as a panfish (i.e., black crappie and bluegill) and walleye fishery; however, a variety of other fish species (e.g., northern pike, smallmouth bass, yellow perch) are present and contribute to the fishery.

- **Black crappie**. At 2.3/frame net, relative abundance was considered low in 2023. Sampled black crappies ranged in length from 3.1 to 13.4 inches, of those that were at least 5.0 inches, 100% were ≥8.0 inches and 57% were ≥10.0. Many small (<5.0 inches) black crappie were captured indicating relative abundance may increase in the next few years. Individuals from seven year classes produced between 2013 and 2021 contributed to the frame net catch. Growth is good with a mean length at capture of 10.7 inches at age 3.

- **Walleye.** Walleye relative abundance in 2023 increased from the previous survey in 2020. The 2023 mean gill net CPUE was 3.0, of those that were at least ≥10.0 inches, 94% were ≥15.0 inches and 41% were ≥20.0 inches. The 2019 (age-4) cohort was the strongest year-class comprising 50% of captured walleye, which had a mean length at capture of 19.9 inches indicating good growth.

- **Yellow perch**. Yellow perch were the most abundant species in the 2023 gill-net catch (17.5/gill net). Those sampled ranged in length from 5.1 to 11.8 inches, most (98%) were from the 2022 (age-1) cohort, which had a mean length of 7.2 inches.

For more detailed results see the computer-generated South Dakota Statewide Fisheries Survey for Amsden Dam (Day; below).

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

Amsden, Day County

MUD-Lake-22-000

2023

Lake Information

Name:	Amsden	**Maximum Depth:**	27 Feet
County:	Day	**Mean Depth:**	9 Feet
Surface Area:	209 Acres		

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Sep 19, 2023	3 net-nights
AFS std gill net	Sep 20, 2023	3 net-nights
frame net (std 3/4 in)	Sep 19, 2023	6 net-nights
frame net (std 3/4 in)	Sep 20, 2023	6 net-nights

Common Fish Species Present

Walleye

Smallmouth Bass

Muskellunge

Black Crappie

Yellow Perch

Black Bullhead

White Sucker

Bluegill

Northern Pike

Rock Bass

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	79	12.5	5.9	25	7	7	5	95	1
	Black Crappie	43	0.5	0.5	100		33		106	7
	Common Carp	2	0.0	0.0	0		0			
	Northern Pike	3	0.5	0.5	100		33		75	17
	Rock Bass	1	0.2	0.2	100		100		116	
	Smallmouth Bass	5	0.8	0.7	60		60		115	3
	Walleye	20	3.0	2.7	94		39	19	94	2
	White Sucker	41	6.8	2.1	93		93		106	2
	Yellow Perch	105	17.5	7.9	10	4	1		99	1
frame net (std 3/4 in)	Black Bullhead	91	7.2	3.0	49	8	15	6	87	1
	Black Crappie	396	2.3	1.2	100		57	15	110	2
	Bluegill	12	1.0	0.5	100		0		111	2
	Common Carp	1	0.0	0.0	0		0			
	Northern Pike	11	0.8	0.4	100		50	28	93	2
	Rock Bass	4	0.3	0.3	50		25		104	5
	Smallmouth Bass	69	1.3	0.7	38	20	19		117	3
	Walleye	27	1.3	0.5	100		53	21	95	3
	White Sucker	2	0.2	0.2	100		100			
	Yellow Perch	506	40.8	17.1	22	3	0		88	1

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.
*** AFS standard frame nets used in 2017**

		CPUE									
Gear	Species	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Avg
AFS std gill net	Black Bullhead				4.7			69.0			12.5	28.73
	Black Crappie				3.5			0.2			0.5	1.40
	Bluegill				0.7			0.3			0.0	0.33
	Common Carp				0.0			0.0			0.0	0.00
	Muskellunge				0.2			0.0			0.0	0.07
	Northern Pike				0.2			1.2			0.5	0.63
	Rock Bass				0.5			0.2			0.2	0.30
	Smallmouth Bass				1.2			0.3			0.8	0.77
	Walleye				8.5			0.7			3.0	4.07
	White Sucker				2.8			8.7			6.8	6.10
	Yellow Perch				8.5			11.5			17.5	12.50
frame net (std 3/4 in)	Black Bullhead	42.8			1.3			35.7			7.2	21.75
	Black Crappie	3.1			23.2			5.8			2.3	8.60
	Bluegill	1.3			28.2			1.6			1.0	8.03
	Common Carp	0.1			0.0			0.0			0.0	0.03
	Northern Pike	0.6			0.0			1.5			0.8	0.73
	Rock Bass	5.3			3.3			17.8			0.3	6.68
	Smallmouth Bass	2.3			0.4			1.3			1.3	1.33
	Walleye	0.5			0.1			0.4			1.3	0.58
	White Sucker	0.8			0.2			1.3			0.2	0.63
	Yellow Perch	0.9			2.0			2.5			40.8	11.55
std exp gill net	Black Bullhead	28.7										28.70
	Black Crappie	14.7										14.70
	Bluegill	0.3										0.30
	Common Carp	0.3										0.30
	Muskellunge	0.3										0.30
	Northern Pike	1.3										1.30
	Rock Bass	3.0										3.00
	Smallmouth Bass	3.7										3.70

Walleye	14.3	14.30
White Sucker	9.0	9.00
Yellow Perch	49.3	49.30

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.

***AFS standard frame nets used in 2017.**

			Year								
Gear	Species	Index	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AFS std gill net	Northern Pike	PSD				100			43			100
		PSD-P				100			14			33
		Wr				77			86			75
	Walleye	PSD				69			50			94
		PSD-P				25			25			39
		Wr				88			89			94
	Yellow Perch	PSD				61			9			10
		PSD-P				29			3			1
		Wr				97			100			99
frame net (std 3/4 in)*	Black Crappie	PSD	89			62			80			100
		PSD-P	86			25			28			57
		Wr	109			111			107			110
	Bluegill	PSD	31			15			89			100
		PSD-P	19			0			16			0
		Wr	112			102			111			111
std exp gill net	Northern Pike	PSD	50									
		PSD-P	0									
		Wr	83									
	Walleye	PSD	72									
		PSD-P	12									
		Wr	91									
	Yellow Perch	PSD	11									
		PSD-P	4									
		Wr	99									

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+
2023	28		234 (14)	271 (3)		317 (7)	323 (1)		334 (1)	334 (1)	345 (1)
2020	68	162 (12)	219 (30)	251 (14)	291 (1)			310 (11)			
2017	255	155 (68)	206 (123)		270 (64)						
2014	36	149 (4)		267 (3)	293 (27)	303 (1)			362 (1)		

Species: Walleye

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2023	18		402 (5)	434 (1)	505 (9)			578 (1)			636 (2)
2020	10	235 (8)		439 (1)				532 (1)			
2017	50	286 (12)	357 (3)	389 (4)	432 (9)	440 (5)	497 (8)	557 (1)	608 (3)	613 (4)	612 (1)
2014	43	312 (4)	366 (12)	430 (16)	453 (5)	503 (3)	540 (2)				671 (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+
2023	104	184 (102)		243 (1)	305 (1)						
2020	69	156 (63)	238 (6)								
2017	51	188 (23)			251 (27)	243 (1)					
2014	153	152 (137)	220 (7)	243 (6)	274 (3)						

Fish Condition

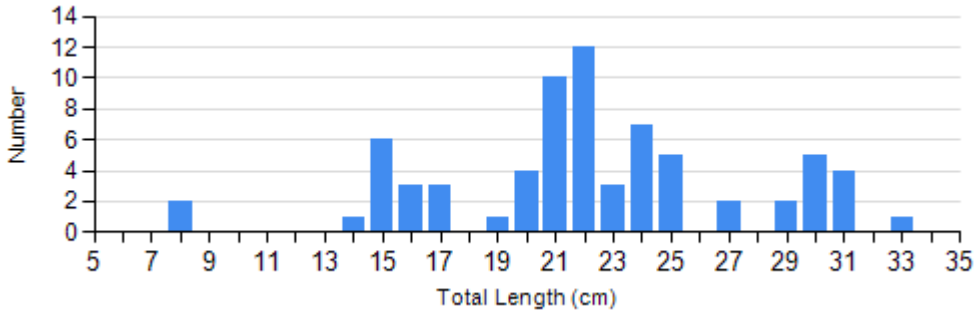
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		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	2020	14	112 (2.1)	36	110 (1.2)	9	106 (3.8)	10	91 (1.5)
	2023	0		12	111 (2.0)	5	112 (2.1)	11	109 (2.5)
Northern Pike Gill Net	2020	4	90 (3.7)	2	80 (5.7)	1	80	0	
	2023	0		2	70 (22.0)	1	83	0	
Walleye Gill Net	2020	2	90 (6.9)	1	85	1	90	0	
	2023	1	96	10	92 (1.9)	6	95 (2.8)	1	109
Yellow Perch Gill Net	2020	63	101 (0.8)	4	96 (1.7)	2	94 (3.0)	0	
	2023	94	100 (0.7)	10	92 (2.1)	0		1	96

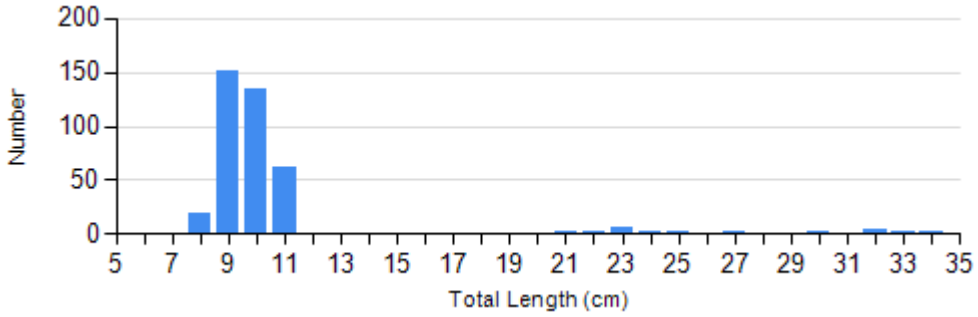
Length Frequency Distribution

Length frequency histogram of species sampled by year.

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

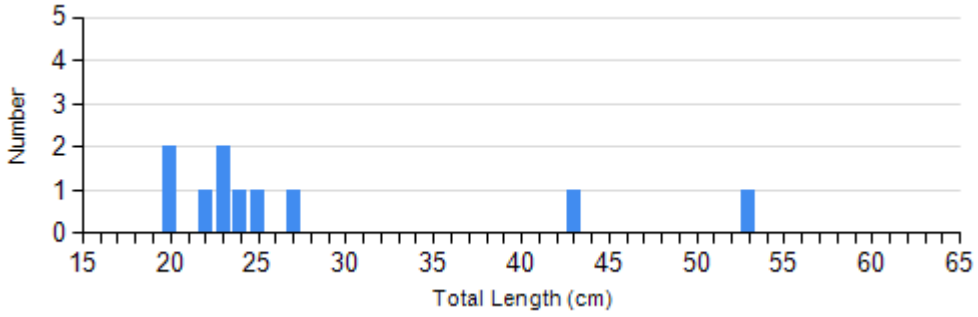


2020

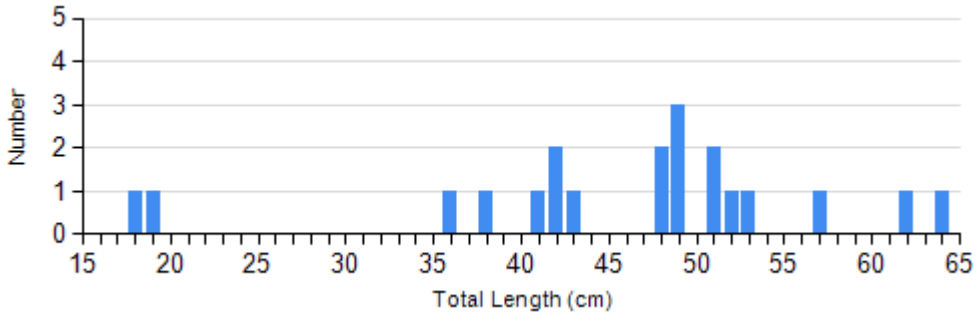


2023

Species: Walleye
Gear: AFS std gill net

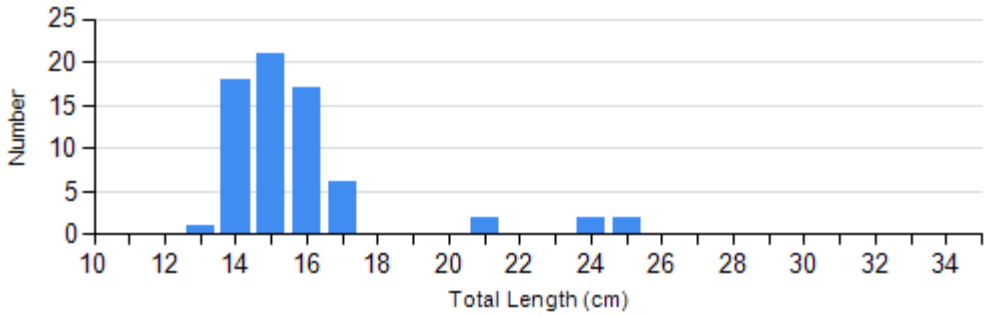


2020

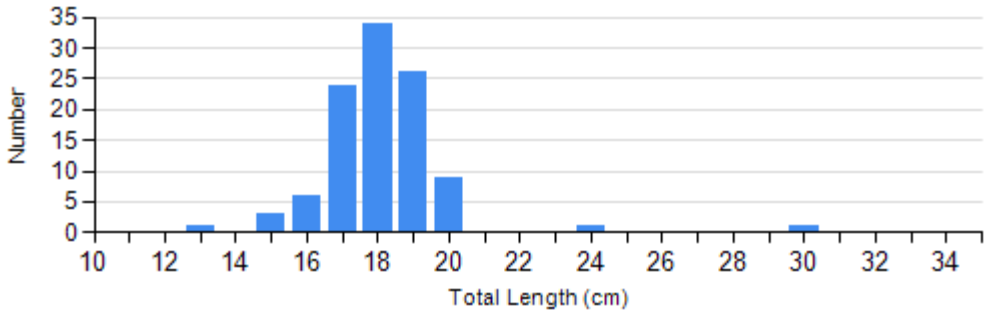


2023

Species: Yellow Perch
Gear: AFS std gill net



2020

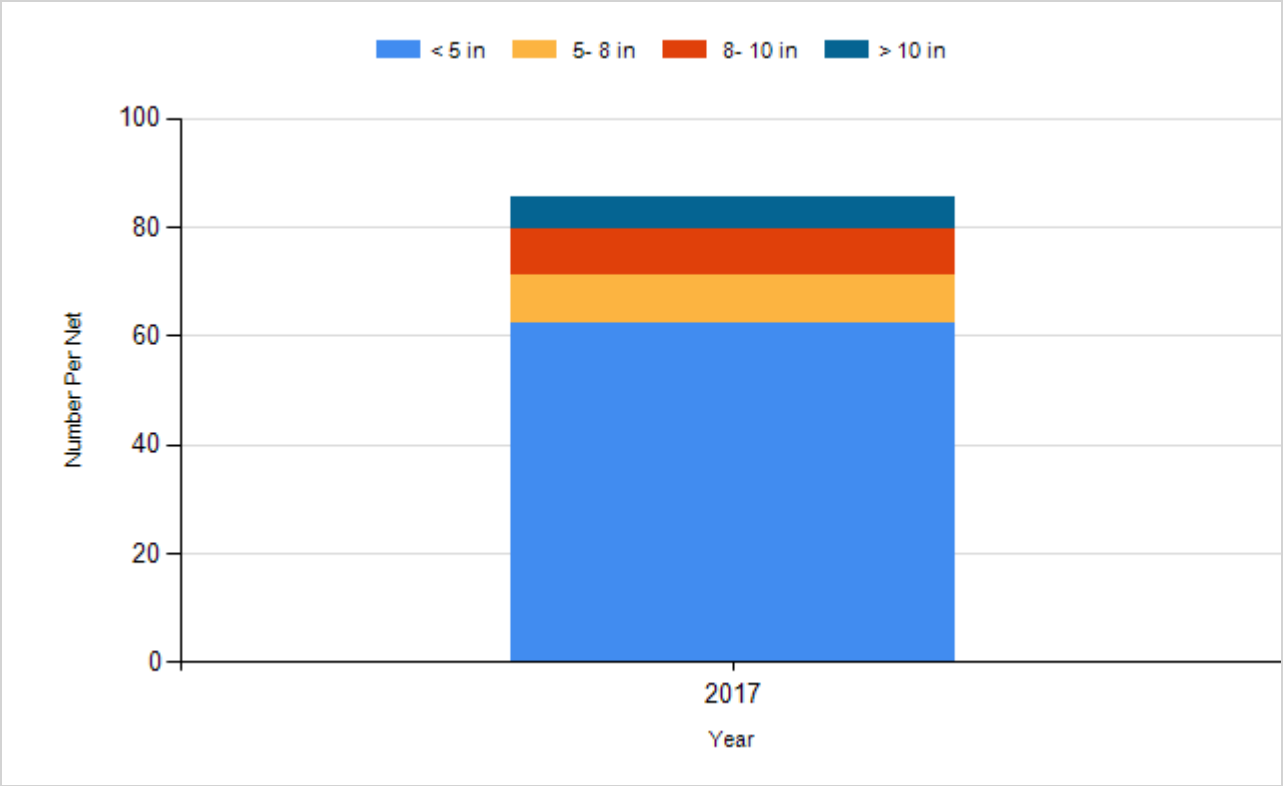


2023

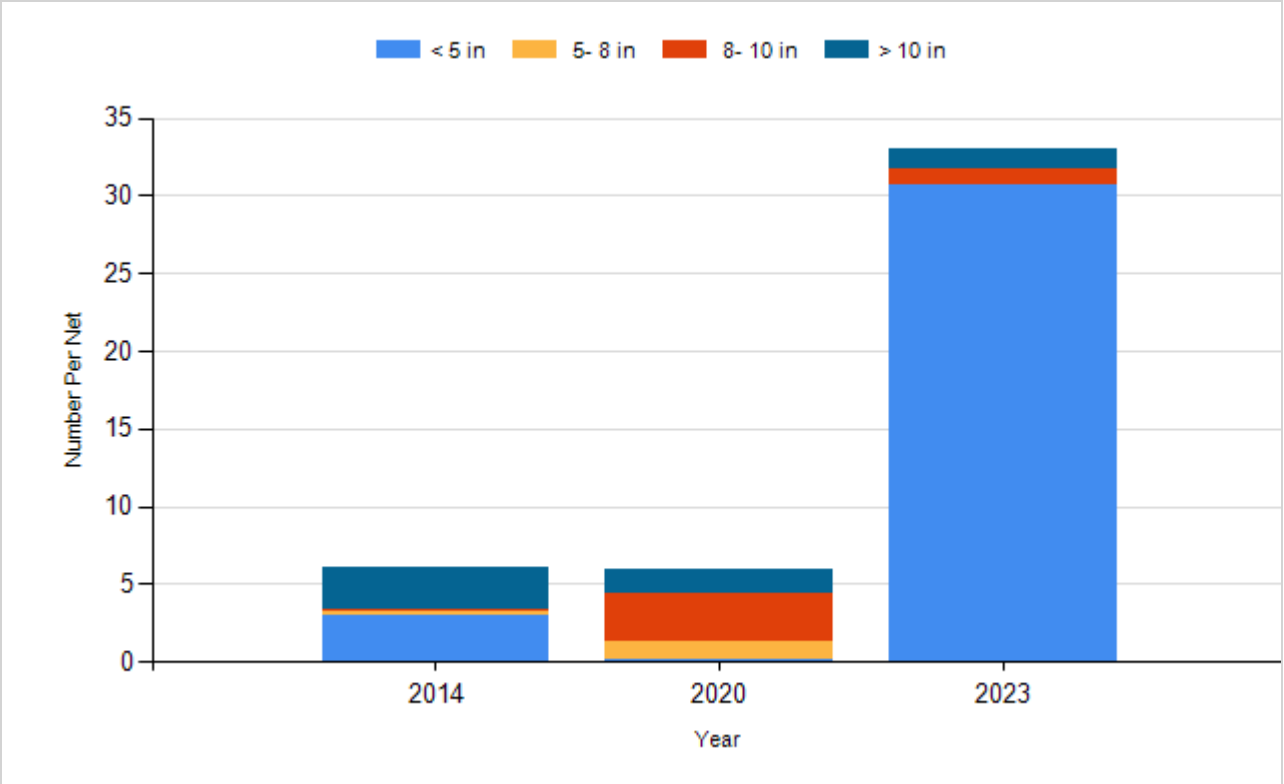
Historic Fish Sizes and Relative Abundance

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

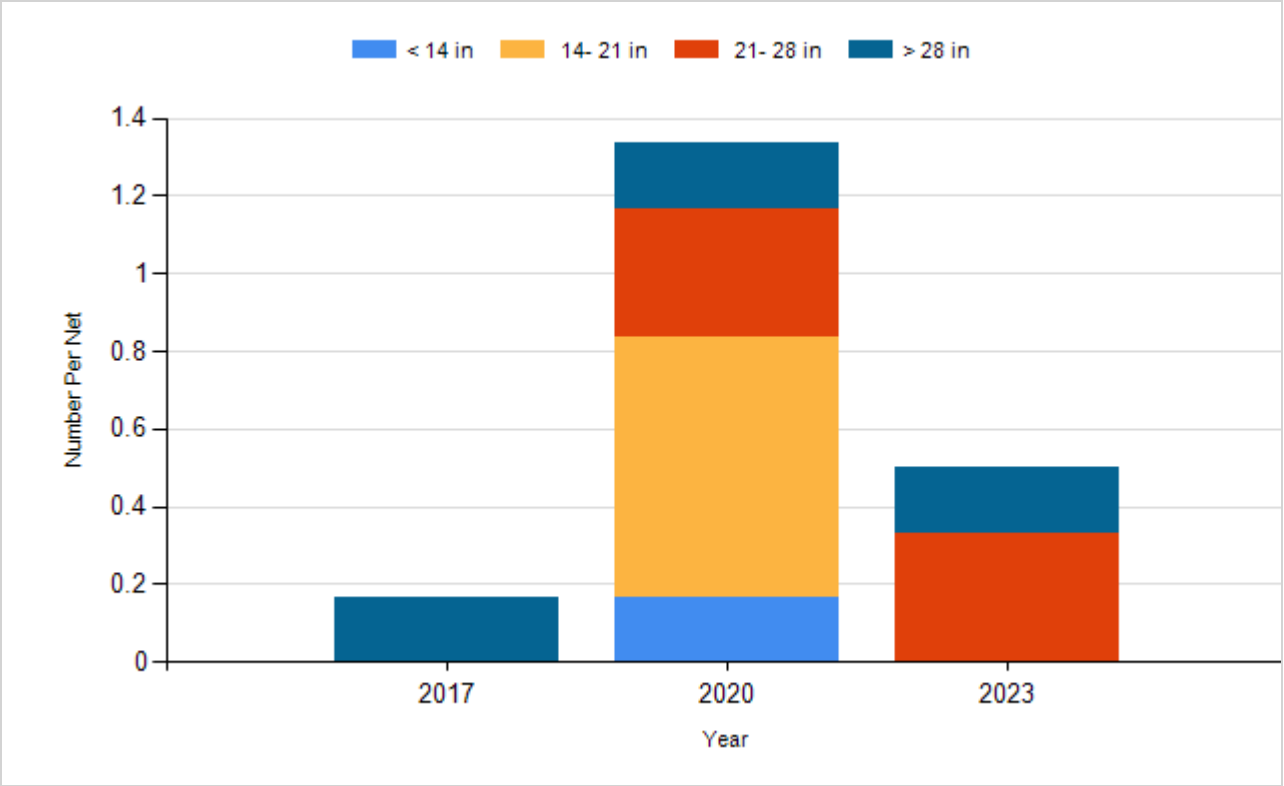
Species: Black Crappie
Gear: AFS std frame net



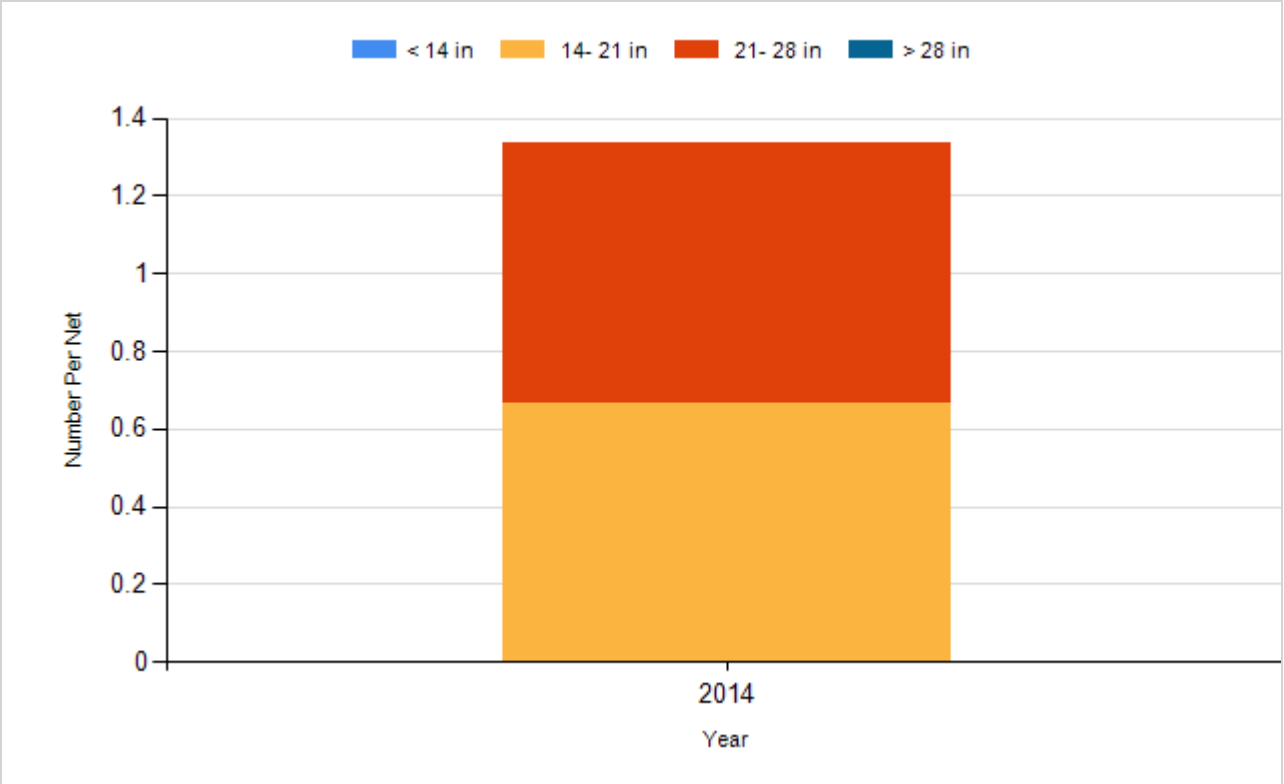
Species: Black Crappie
Gear: frame net (std 3/4 in)



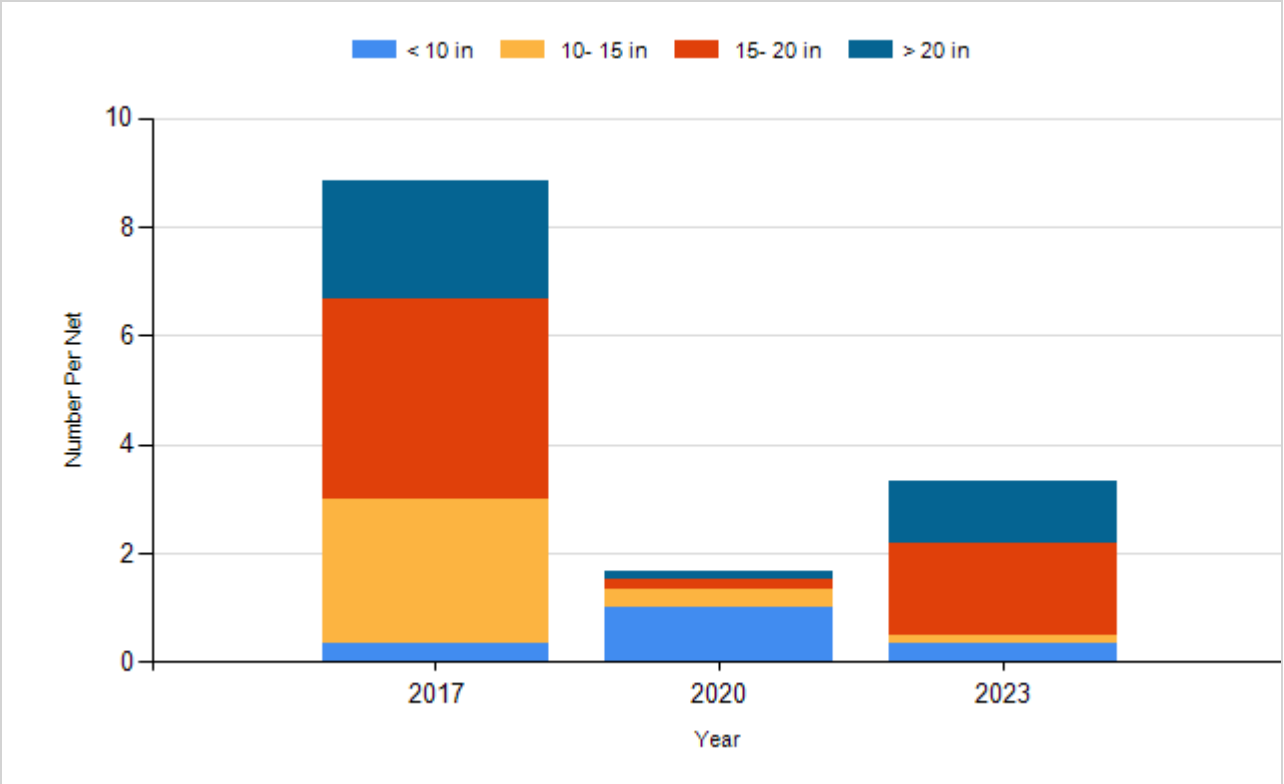
Species: Northern Pike
Gear: AFS std gill net



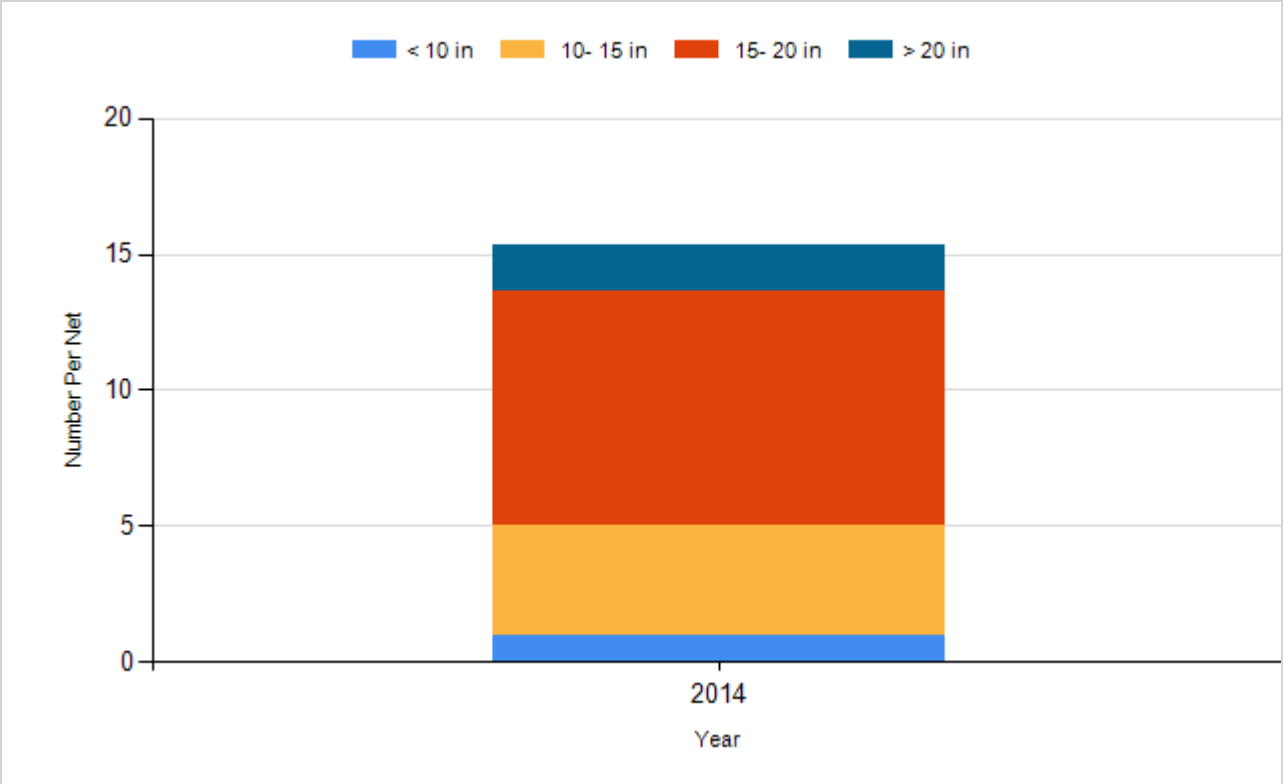
Species: Northern Pike
Gear: std exp gill net



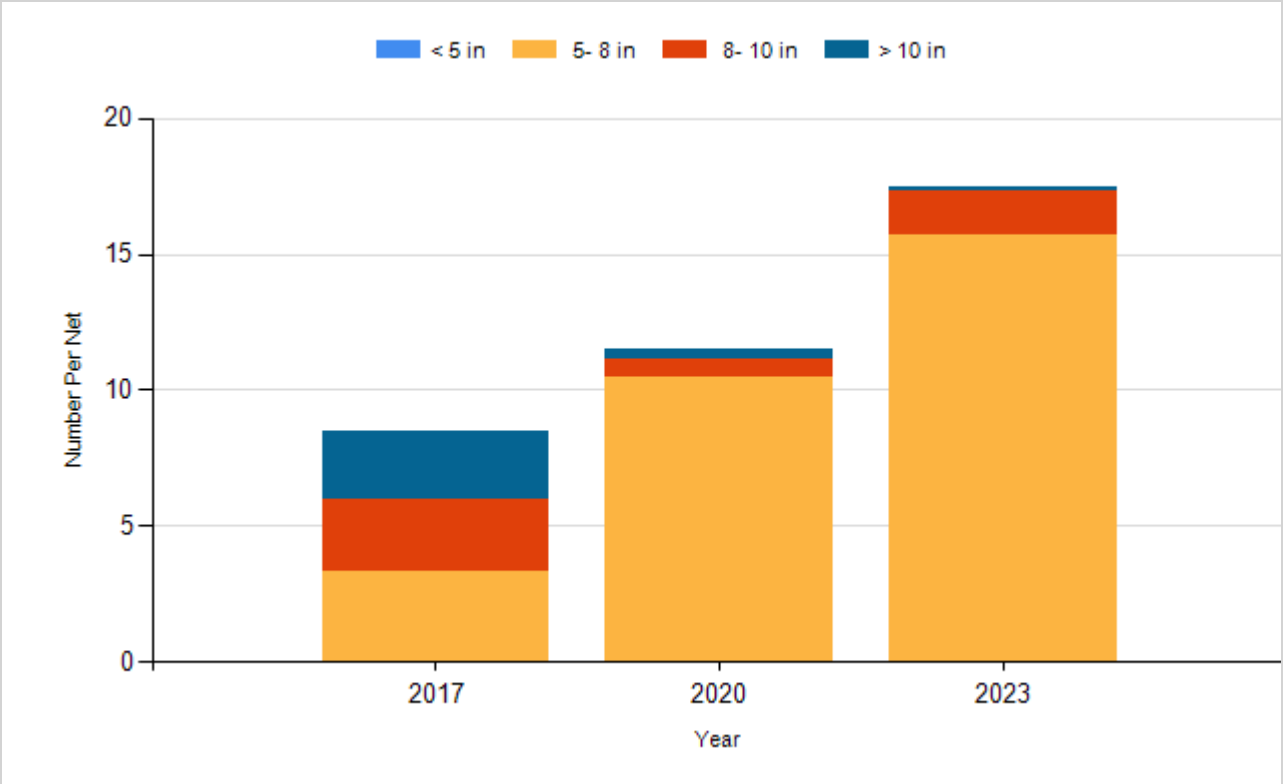
Species: Walleye
Gear: AFS std gill net



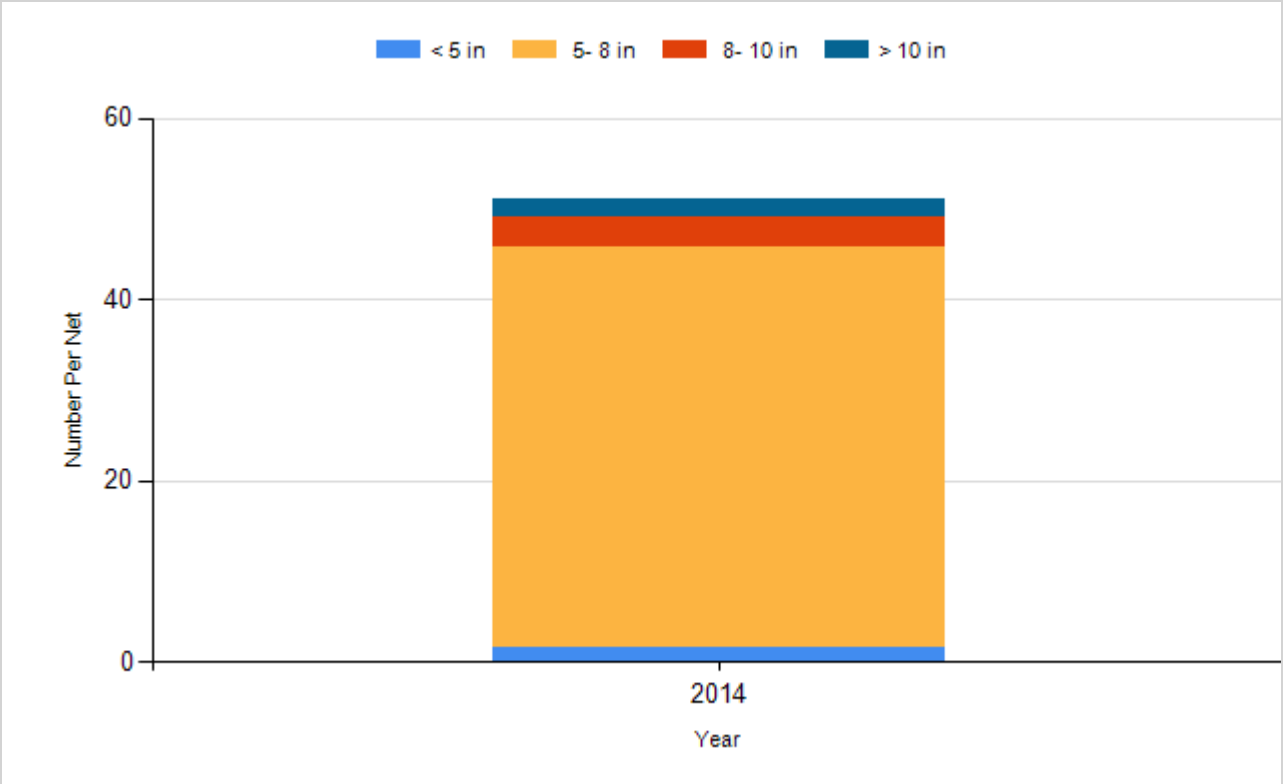
Species: Walleye
Gear: std exp gill net



Species: 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
2012	Muskellunge	Large Fingerling	509
2012	Walleye	Small Fingerling	23,370
2014	Muskellunge	Large Fingerling	505
2014	Walleye	Fry	120,000
2016	Walleye	Fry	120,000
2018	Walleye	Fry	120,000
2021	Walleye	Juvenile	41,310
2022	Walleye	Juvenile	22,165
2023	Walleye	Fry	150,000

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Amsden, Day County
MUD-Lake-22-000
2023

Lake Information

Name: Amsden
County: Day
Surface Area: 209 Acres
Maximum Depth: 27 Feet
Mean Depth: 9 Feet

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Sep 19, 2023	3 net-nights
AFS std gill net	Sep 20, 2023	3 net-nights
frame net (std 3/4 in)	Sep 19, 2023	6 net-nights
frame net (std 3/4 in)	Sep 20, 2023	6 net-nights

Common Fish Species Present

Walleye

Smallmouth Bass

Muskellunge

Black Crappie

Yellow Perch

Black Bullhead

White Sucker

Bluegill

Northern Pike

Rock Bass

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	79	12.5	5.9	25	7	7	5	95	1
	Black Crappie	43	0.5	0.5	100		33		106	7
	Common Carp	2	0.0	0.0	0		0			
	Northern Pike	3	0.5	0.5	100		33		75	17
	Rock Bass	1	0.2	0.2	100		100		116	
	Smallmouth Bass	5	0.8	0.7	60		60		115	3
	Walleye	20	3.0	2.7	94		39	19	94	2
	White Sucker	41	6.8	2.1	93		93		106	2
	Yellow Perch	105	17.5	7.9	10	4	1		99	1
frame net (std 3/4 in)	Black Bullhead	91	7.2	3.0	49	8	15	6	87	1
	Black Crappie	396	2.3	1.2	100		57	15	110	2
	Bluegill	12	1.0	0.5	100		0		111	2
	Common Carp	1	0.0	0.0	0		0			
	Northern Pike	11	0.8	0.4	100		50	28	93	2
	Rock Bass	4	0.3	0.3	50		25		104	5
	Smallmouth Bass	69	1.3	0.7	38	20	19		117	3
	Walleye	27	1.3	0.5	100		53	21	95	3
	White Sucker	2	0.2	0.2	100		100			
	Yellow Perch	506	40.8	17.1	22	3	0		88	1

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 frame net	Black Bullhead				1.3							1.30
	Black Crappie				23.2							23.20
	Bluegill				28.2							28.20
	Common Carp				0.0							0.00
	Creek Chub				0.0							0.00
	Northern Pike				0.0							0.00
	Rock Bass				3.3							3.30
	Smallmouth Bass				0.4							0.40
	Walleye				0.1							0.10
	White Sucker				0.2							0.20
	Yellow Perch				2.0							2.00
AFS std gill net	Black Bullhead				4.7			69.0			12.5	28.73
	Black Crappie				3.5			0.2			0.5	1.40
	Bluegill				0.7			0.3			0.0	0.33
	Common Carp				0.0			0.0			0.0	0.00
	Muskellunge				0.2			0.0			0.0	0.07
	Northern Pike				0.2			1.2			0.5	0.63
	Rock Bass				0.5			0.2			0.2	0.30
	Smallmouth Bass				1.2			0.3			0.8	0.77
	Walleye				8.5			0.7			3.0	4.07
	White Sucker				2.8			8.7			6.8	6.10
	Yellow Perch				8.5			11.5			17.5	12.50
frame net (std 3/4 in)	Black Bullhead	42.8						35.7			7.2	28.57
	Black Crappie	3.1						5.8			2.3	3.73
	Bluegill	1.3						1.6			1.0	1.30
	Common Carp	0.1						0.0			0.0	0.03
	Northern Pike	0.6						1.5			0.8	0.97
	Rock Bass	5.3						17.8			0.3	7.80
	Smallmouth Bass	2.3						1.3			1.3	1.63
	Walleye	0.5						0.4			1.3	0.73
	White Sucker	0.8						1.3			0.2	0.77
	Yellow Perch	0.9						2.5			40.8	14.73
std exp gill net	Black Bullhead	28.7										28.70
	Black Crappie	14.7										14.70

		CPUE										
Gear	Species	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Avg
std exp gill net	Bluegill	0.3										0.30
	Common Carp	0.3										0.30
	Muskellunge	0.3										0.30
	Northern Pike	1.3										1.30
	Rock Bass	3.0										3.00
	Smallmouth Bass	3.7										3.70
	Walleye	14.3										14.30
	White Sucker	9.0										9.00
	Yellow Perch	49.3										49.30

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.

			Year									
Gear	Species	Index	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AFS std frame net	Black Bullhead	PSD				79						
		PSD-P				71						
		Wr				92						
	Black Crappie	PSD				62						
		PSD-P				25						
		Wr				111						
	Bluegill	PSD				15						
		PSD-P				0						
		Wr				102						
	Northern Pike	PSD				0						
		PSD-P				0						
	Rock Bass	PSD				42						
		PSD-P				11						
		Wr				103						
	Smallmouth Bass	PSD				0						
		PSD-P				0						
		Wr				107						
	Walleye	PSD				100						
		PSD-P				100						
	White Sucker	PSD				100						
		PSD-P				100						
		Wr				91						
	Yellow Perch	PSD				41						
		PSD-P				9						
		Wr				91						
AFS std gill net	Black Bullhead	PSD				100			25			25
		PSD-P				96			0			7
		Wr				93			91			95
	Black Crappie	PSD				33			100			100
		PSD-P				14			100			33
		Wr				119			123			106
	Bluegill	PSD				25			100			
		PSD-P				0			0			

			Year									
Gear	Species	Index	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AFS std gill net	Bluegill	Wr				112			119			
	Muskellunge	PSD				100						
		PSD-P				0						
	Northern Pike	PSD				100			43			100
		PSD-P				100			14			33
		Wr				77			86			75
	Rock Bass	PSD				33			100			100
		PSD-P				0			0			100
		Wr				104			96			116
	Smallmouth Bass	PSD				71			100			60
		PSD-P				57			0			60
		Wr				107			92			115
	Walleye	PSD				69			50			94
		PSD-P				25			25			39
		Wr				88			89			94
	White Sucker	PSD				100			94			93
		PSD-P				100			77			93
		Wr				102			103			106
	Yellow Perch	PSD				61			9			10
		PSD-P				29			3			1
		Wr				97			100			99
frame net (std 3/4 in)	Black Bullhead	PSD	76						37			49
		PSD-P	43						3			15
		Wr	93						86			87
	Black Crappie	PSD	89						80			100
		PSD-P	86						28			57
		Wr	109						107			110
	Bluegill	PSD	31						89			100
		PSD-P	19						16			0
		Wr	112						111			111
	Northern Pike	PSD	86						50			100
		PSD-P	43						17			50
		Wr	90						82			93
	Rock Bass	PSD	41						57			50
		PSD-P	6						1			25
		Wr	106						98			104
	Smallmouth Bass	PSD	22						53			38

			Year									
Gear	Species	Index	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
frame net (std 3/4 in)	Smallmouth Bass	PSD-P	19						33			19
		Wr	110						88			117
	Walleye	PSD	100						0			100
		PSD-P	17						0			53
		Wr	93						82			95
	White Sucker	PSD	89						94			100
		PSD-P	89						63			100
		Wr	101						91			
	Yellow Perch	PSD	64						33			22
		PSD-P	36						17			0
		Wr	88						90			88
std exp gill net	Black Bullhead	PSD	71									
		PSD-P	20									
		Wr	96									
	Black Crappie	PSD	52									
		PSD-P	52									
		Wr	117									
	Bluegill	PSD	100									
		PSD-P	100									
		Wr	118									
	Muskellunge	PSD	0									
		PSD-P	0									
		Wr	93									
	Northern Pike	PSD	50									
		PSD-P	0									
		Wr	83									
	Rock Bass	PSD	67									
		PSD-P	22									
		Wr	106									
	Smallmouth Bass	PSD	0									
		PSD-P	0									
		Wr	115									
	Walleye	PSD	72									
		PSD-P	12									
		Wr	91									
	White Sucker	PSD	89									
		PSD-P	78									

			Year									
Gear	Species	Index	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
std exp gill net	White Sucker	Wr	101									
	Yellow Perch	PSD	11									
		PSD-P	4									
		Wr	99									

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+
2023	28		234 (14)	271 (3)		317 (7)	323 (1)		334 (1)	334 (1)	345 (1)
2020	68	162 (12)	219 (30)	251 (14)	291 (1)			310 (11)			
2017	255	155 (68)	206 (123)		270 (64)						
2014	36	149 (4)		267 (3)	293 (27)	303 (1)			362 (1)		

Species: Bluegill

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2017	274	110 (232)	165 (42)								
2014	15	118 (11)		202 (4)							

Species: Walleye

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2023	18		402 (5)	434 (1)	505 (9)			578 (1)			636 (2)
2020	10	235 (8)		439 (1)				532 (1)			
2017	50	286 (12)	357 (3)	389 (4)	432 (9)	440 (5)	497 (8)	557 (1)	608 (3)	613 (4)	612 (1)
2014	43	312 (4)	366 (12)	430 (16)	453 (5)	503 (3)	540 (2)				671 (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+
2023	104	184 (102)		243 (1)	305 (1)						
2020	69	156 (63)	238 (6)								
2017	51	188 (23)			251 (27)	243 (1)					
2014	153	152 (137)	220 (7)	243 (6)	274 (3)						

Fish Condition

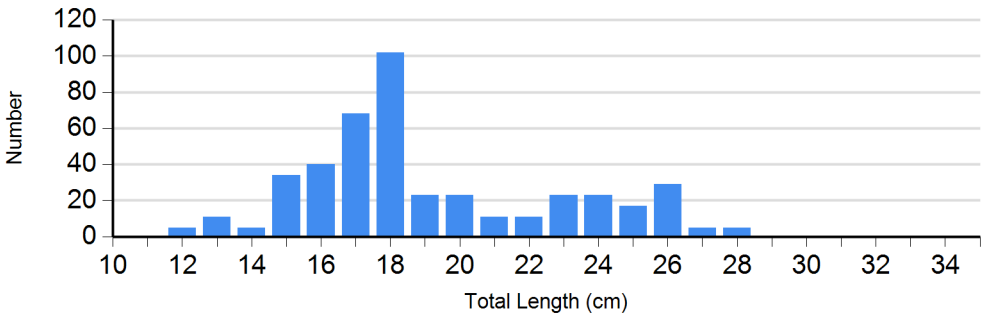
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		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	2020	312	90 (0.5)	102	95 (1.0)	0		0	
	2023	56	94 (1.1)	14	99 (2.7)	5	96 (3.7)	0	
Black Crappie Frame Net	2020	14	112 (2.1)	36	110 (1.2)	9	106 (3.8)	10	91 (1.5)
	2023	0		12	111 (2.0)	5	112 (2.1)	11	109 (2.5)
Bluegill Frame Net	2020	2	107 (1.1)	14	112 (2.3)	3	110 (0.5)	0	
	2023	0		12	111 (1.9)	0		0	
Northern Pike Gill Net	2020	4	90 (3.7)	2	80 (5.7)	1	80	0	
	2023	0		2	70 (22.0)	1	83	0	
Walleye Gill Net	2020	2	90 (6.9)	1	85	1	90	0	
	2023	1	96	10	92 (1.9)	6	95 (2.8)	1	109
White Sucker Gill Net	2020	3	89 (2.4)	9	96 (2.0)	12	103 (1.2)	28	106 (1.7)
	2023	3	94 (7.7)	0		4	102 (1.9)	34	107 (1.3)
Yellow Perch Gill Net	2020	63	101 (0.8)	4	96 (1.7)	2	94 (3.0)	0	
	2023	94	100 (0.7)	10	92 (2.1)	0		1	96

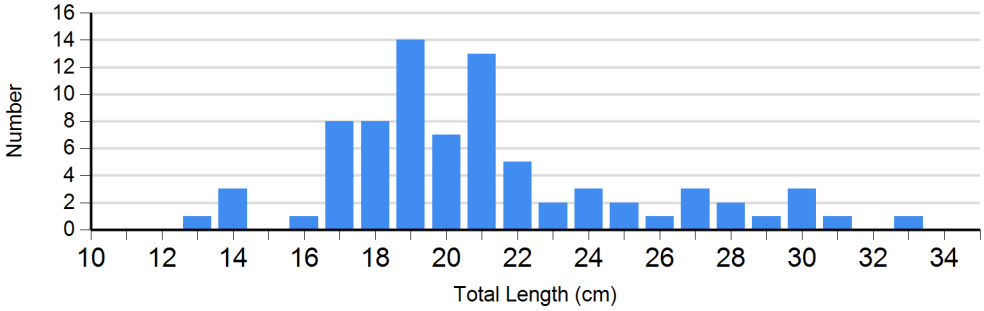
Length Frequency Distribution

Length frequency histogram of species sampled by year.

Species: Black Bullhead
Gear: AFS std gill net

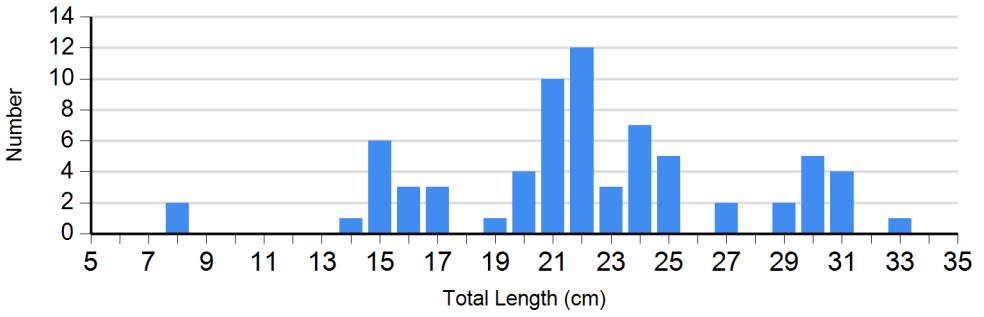


2020

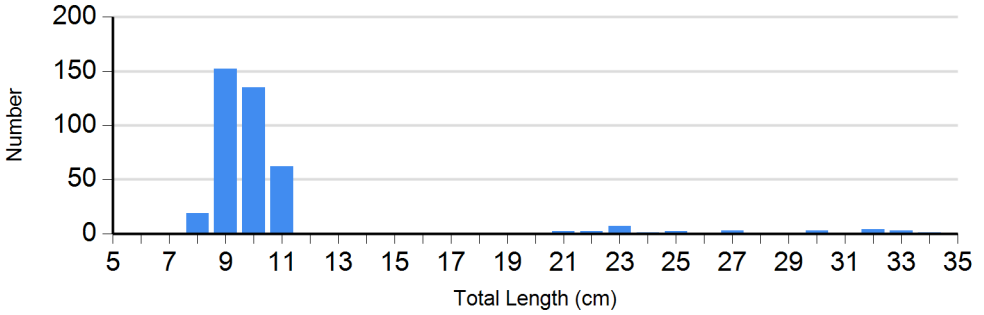


2023

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

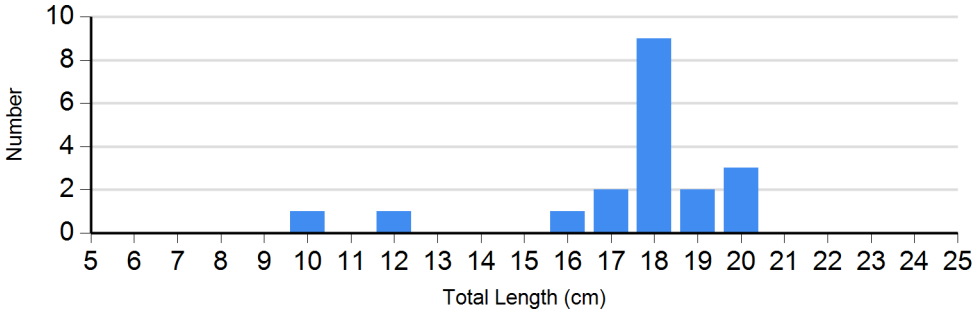


2020

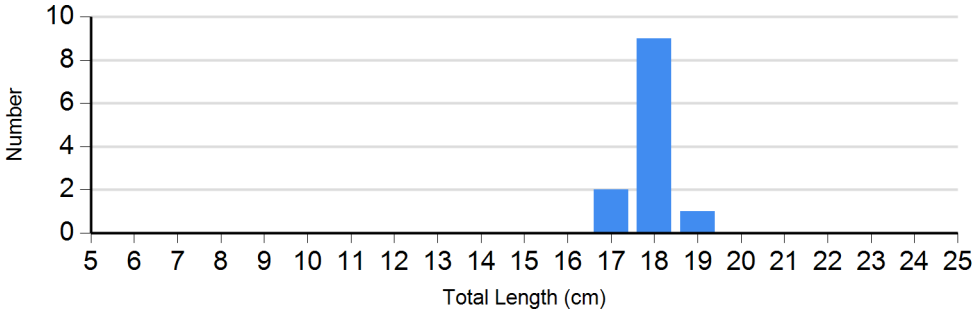


2023

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

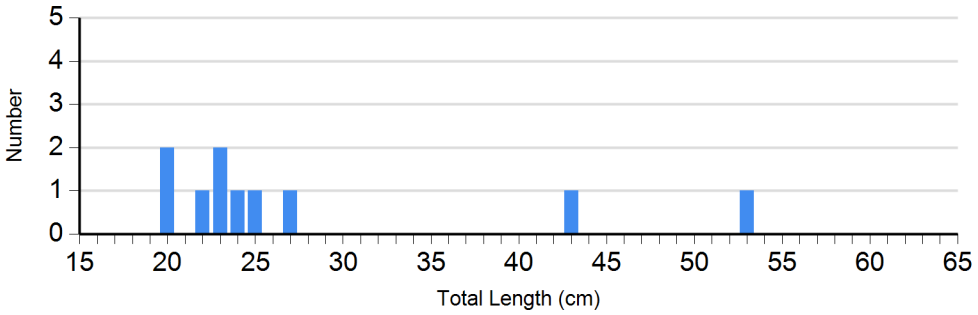


2020

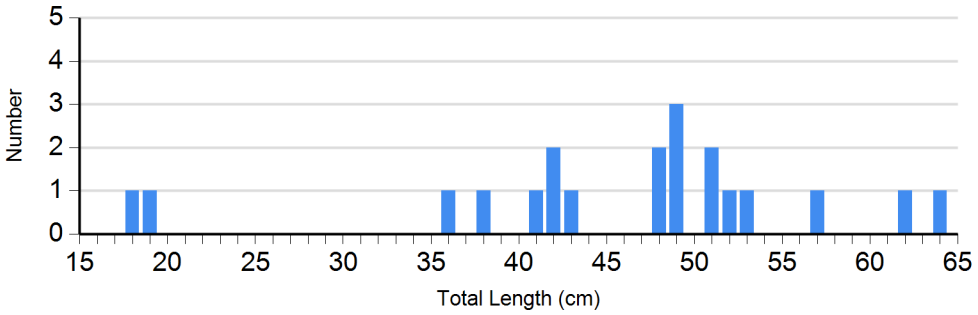


2023

Species: Walleye
Gear: AFS std gill net

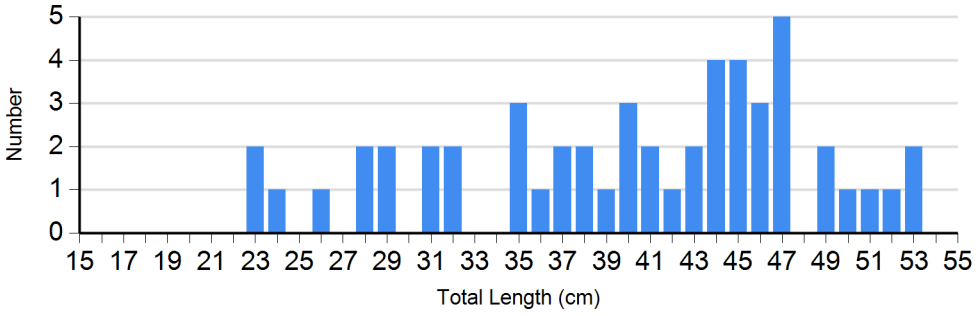


2020

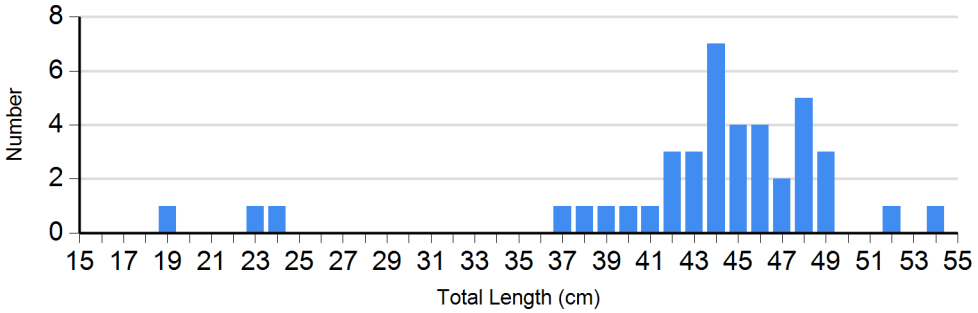


2023

Species: White Sucker
Gear: AFS std gill net

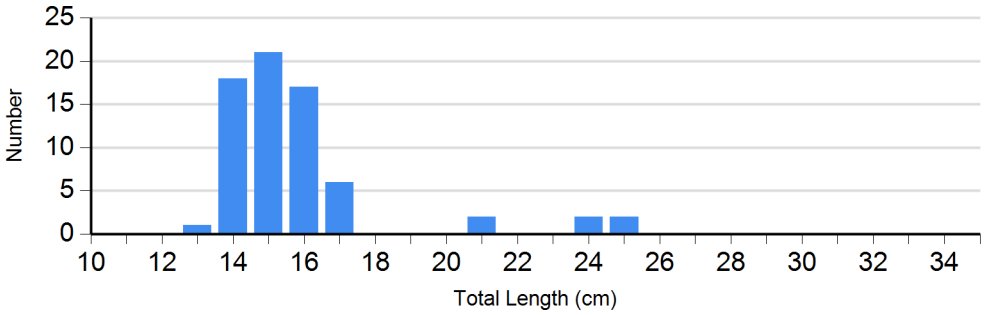


2020

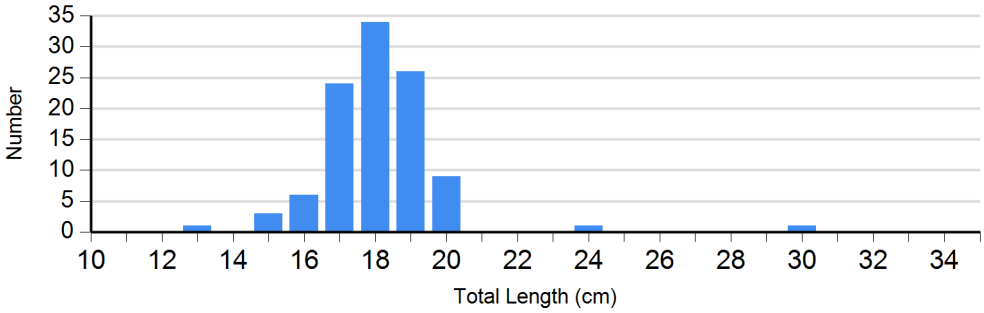


2023

Species: Yellow Perch
Gear: AFS std gill net



2020

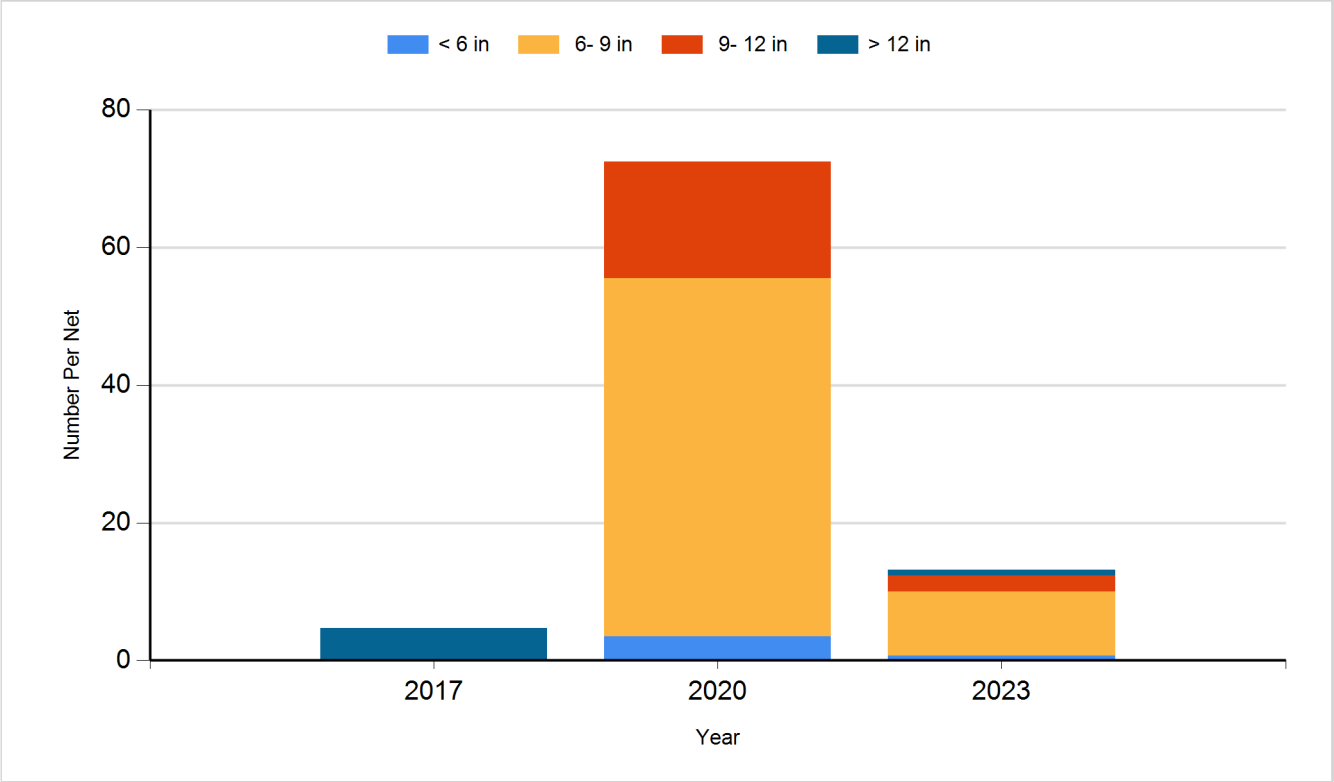


2023

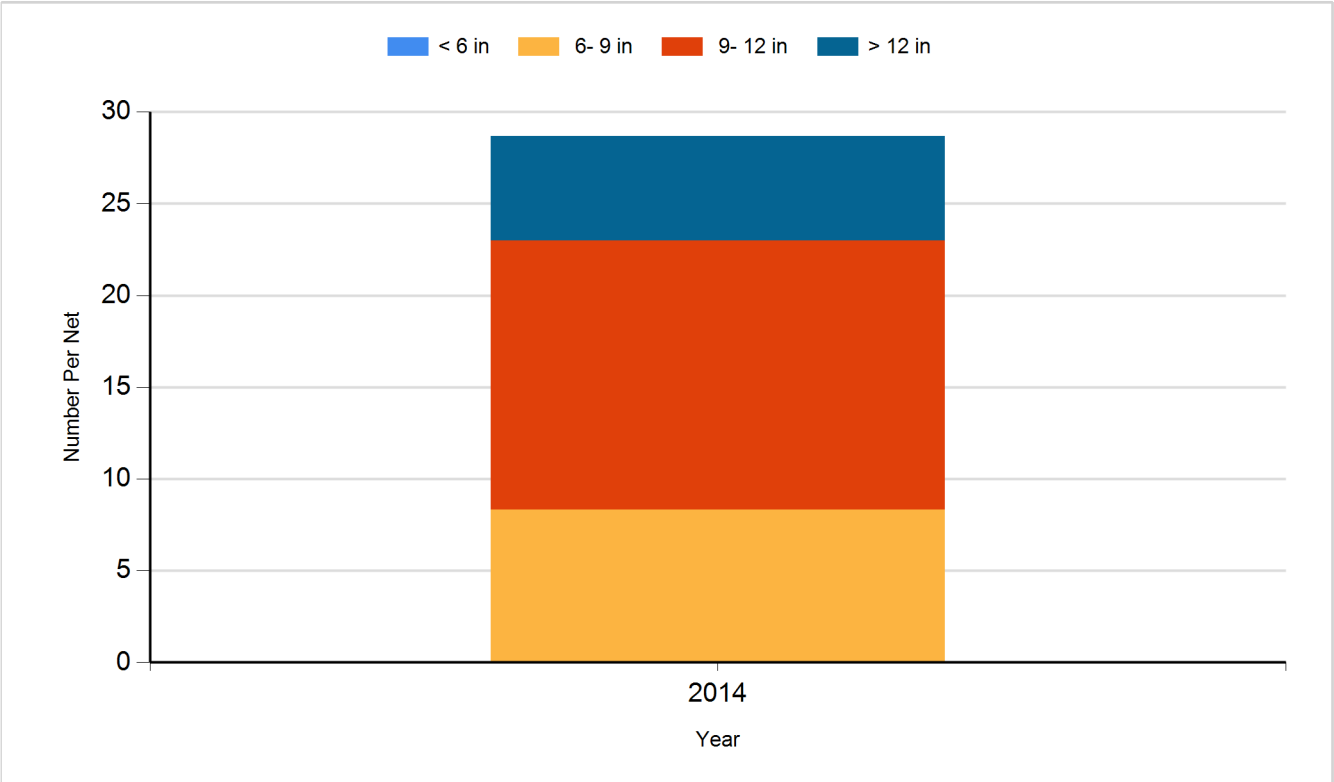
Historic Fish Sizes and Relative Abundance

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

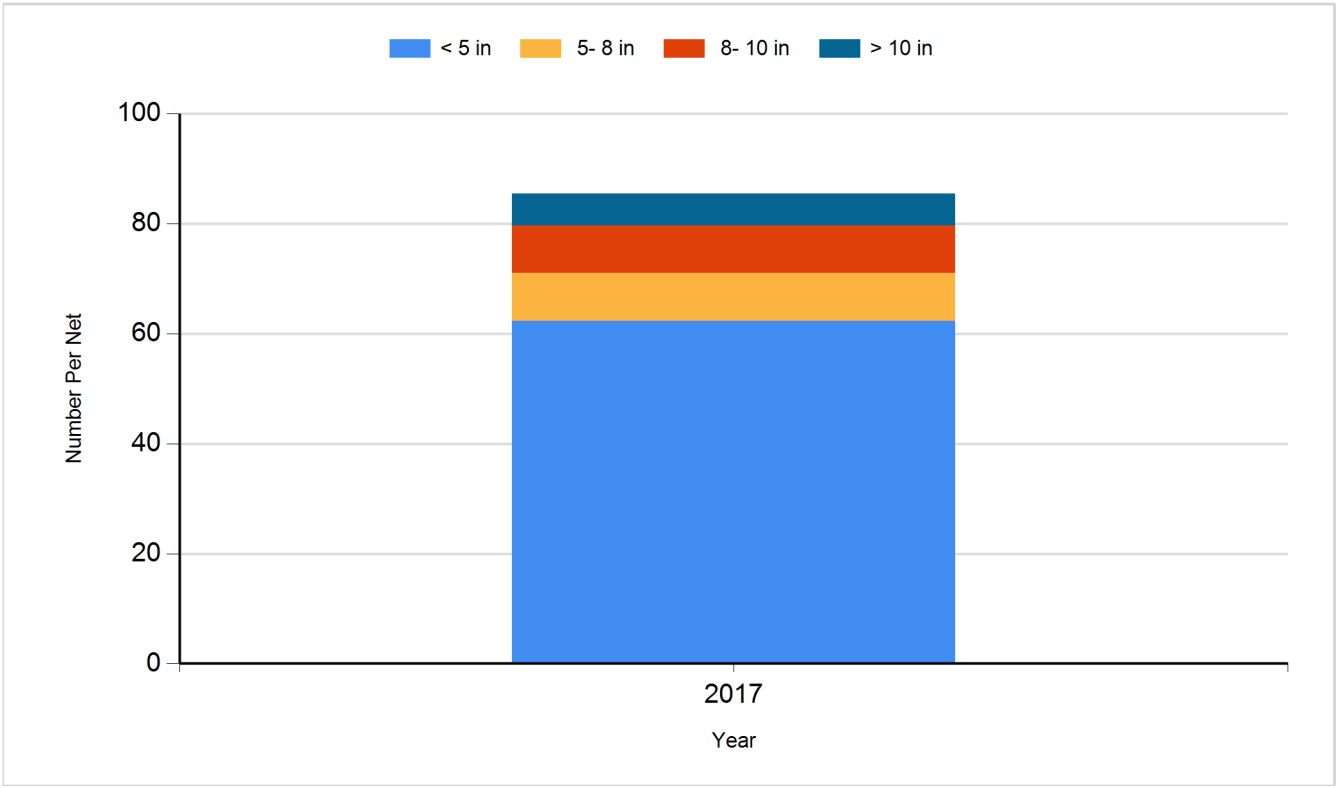
Species: Black Bullhead
Gear: AFS std gill net



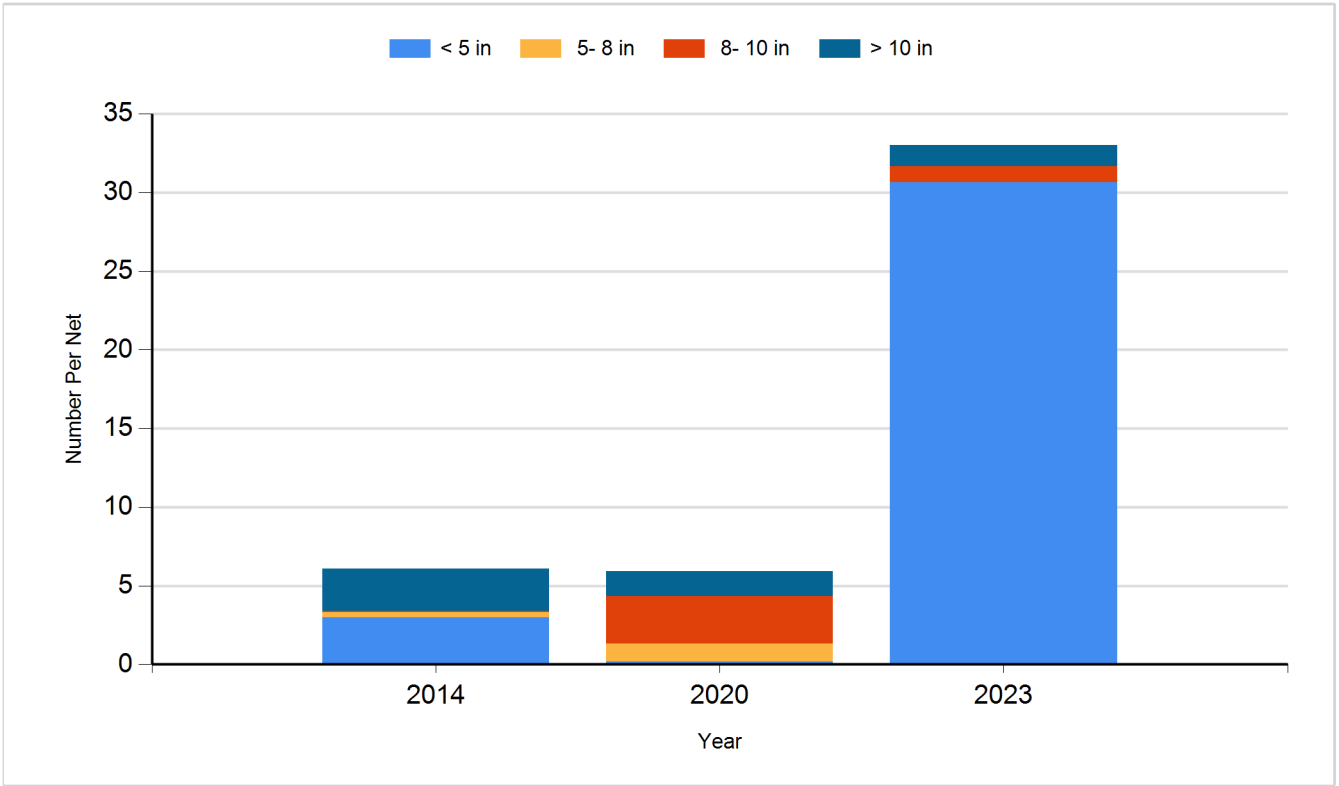
Species: Black Bullhead
Gear: std exp gill net



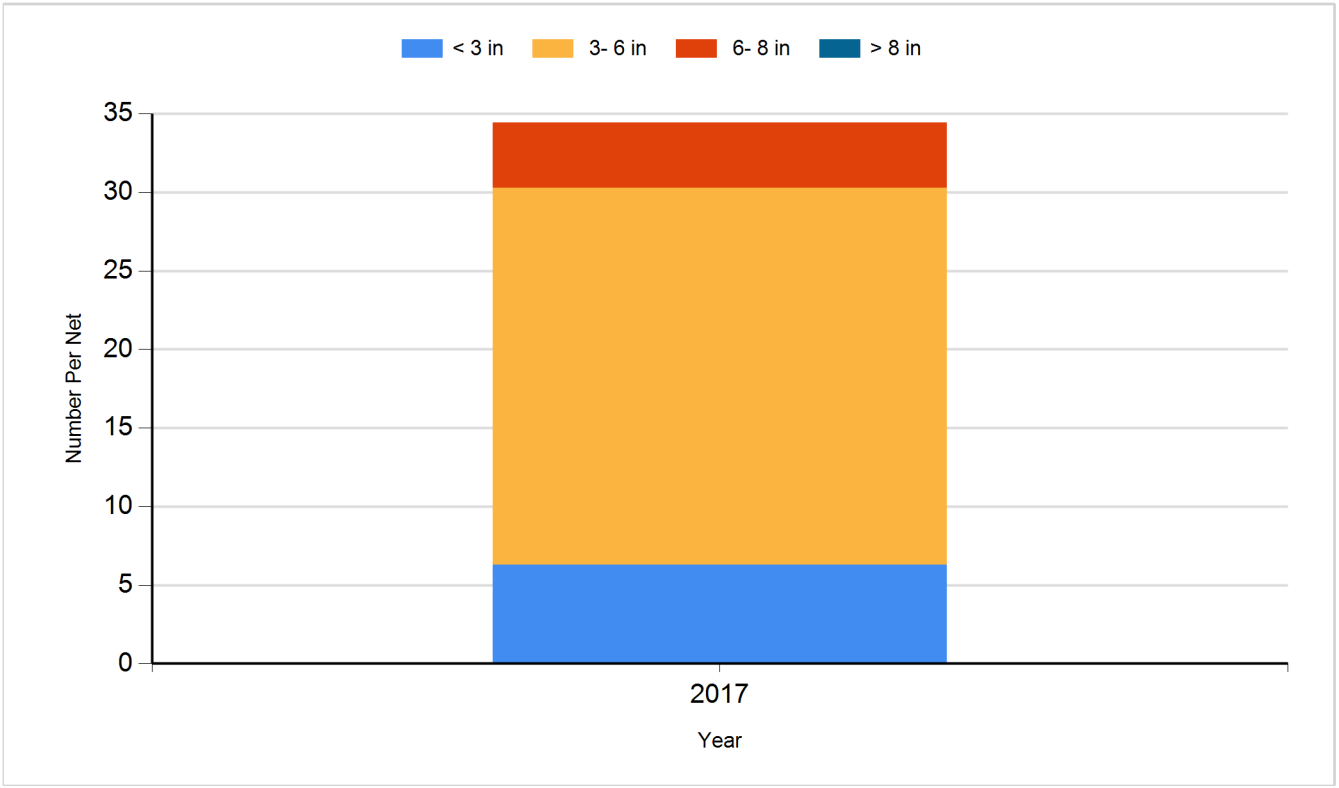
Species: Black Crappie
Gear: AFS std frame net



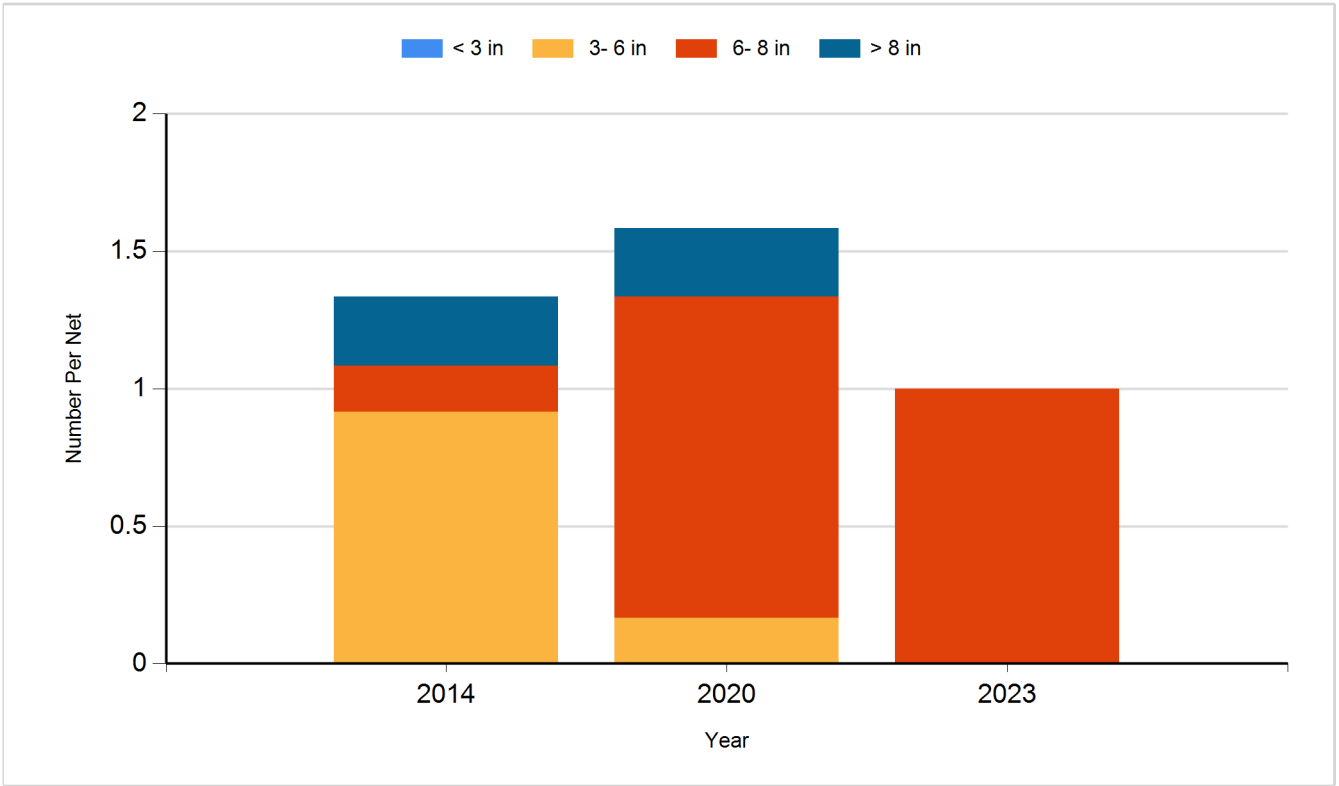
Species: Black Crappie
Gear: frame net (std 3/4 in)



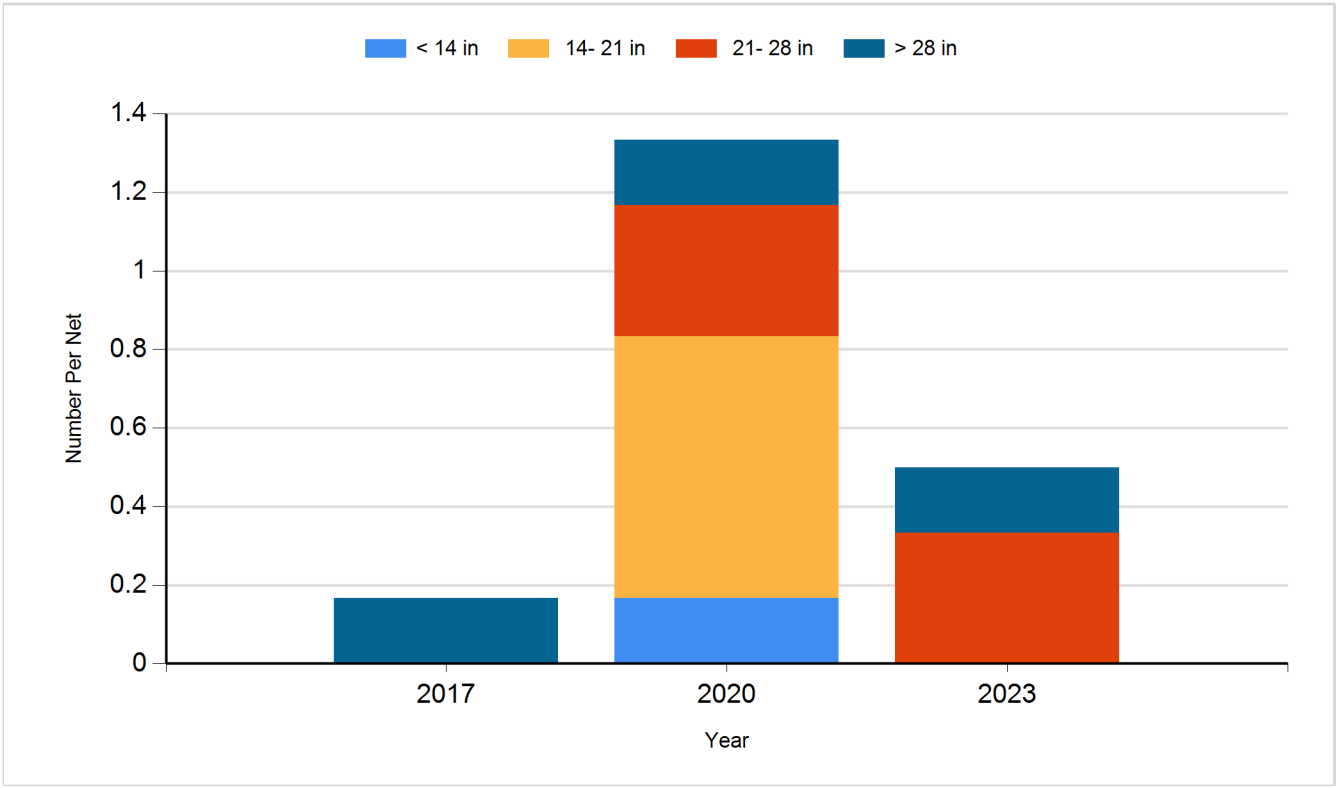
Species: Bluegill
Gear: AFS std frame net



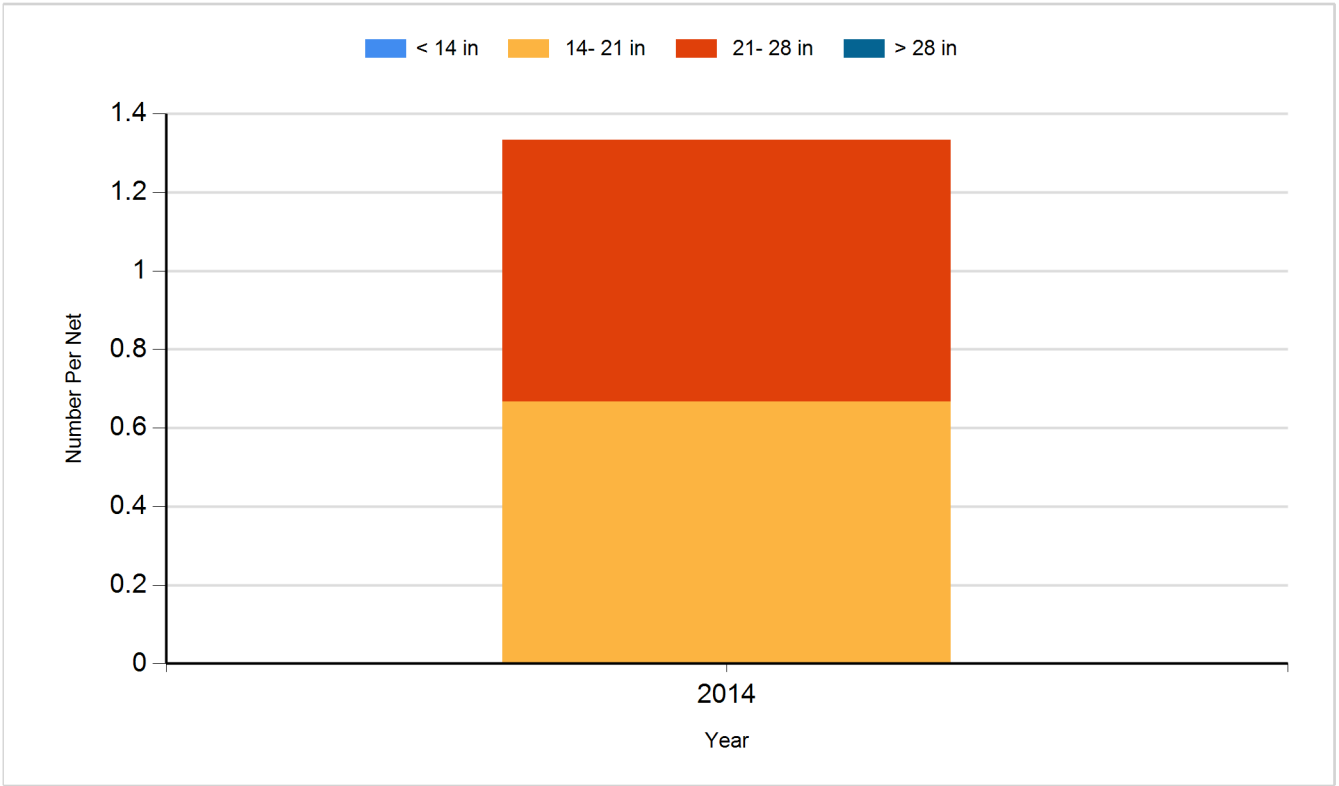
Species: Bluegill
Gear: frame net (std 3/4 in)



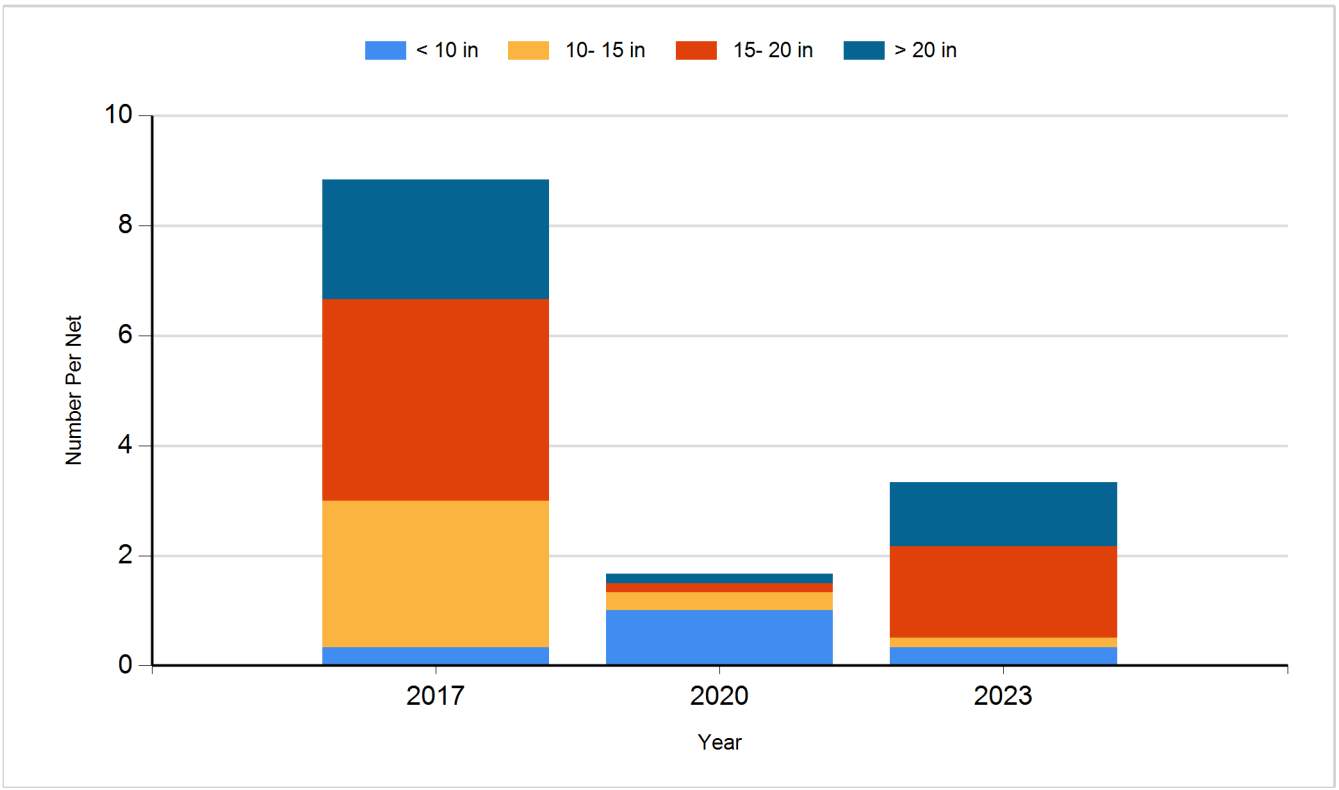
Species: Northern Pike
Gear: AFS std gill net



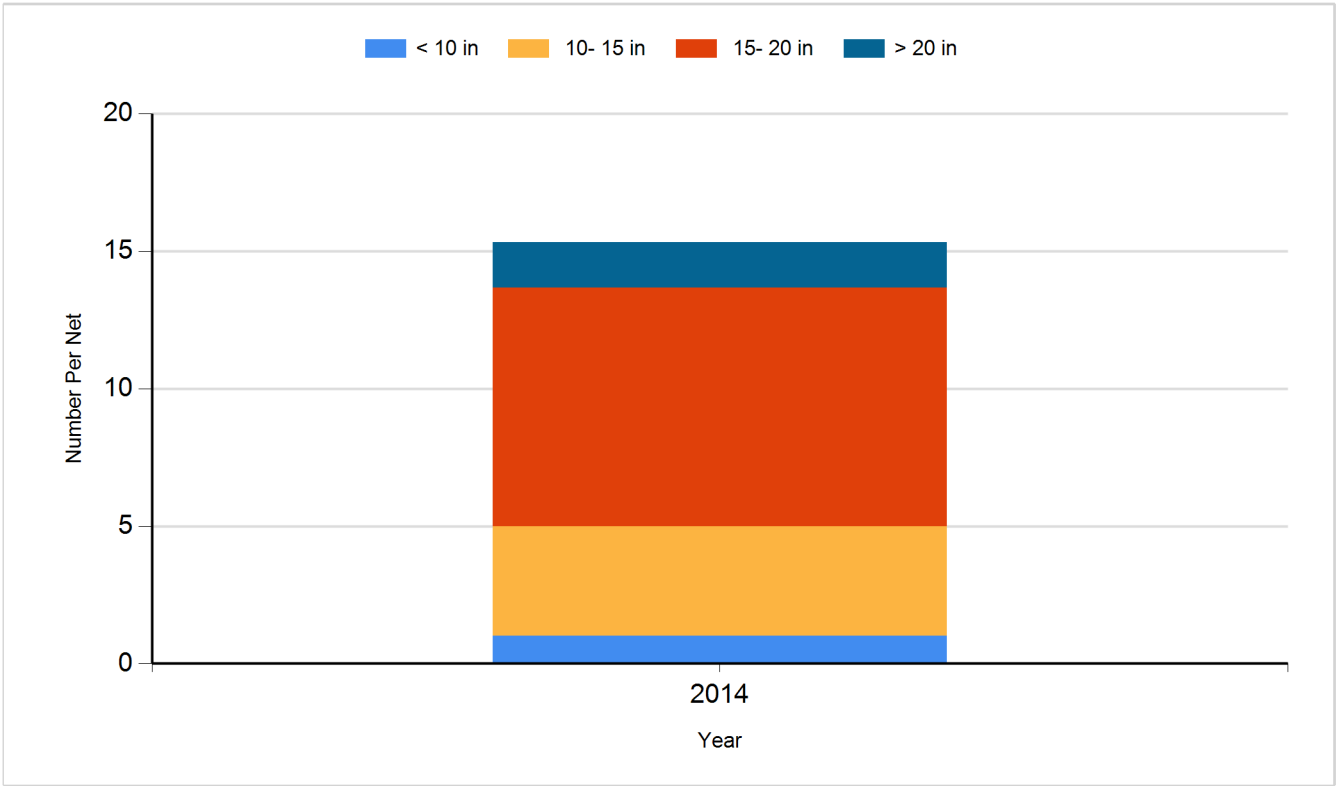
Species: Northern Pike
Gear: std exp gill net



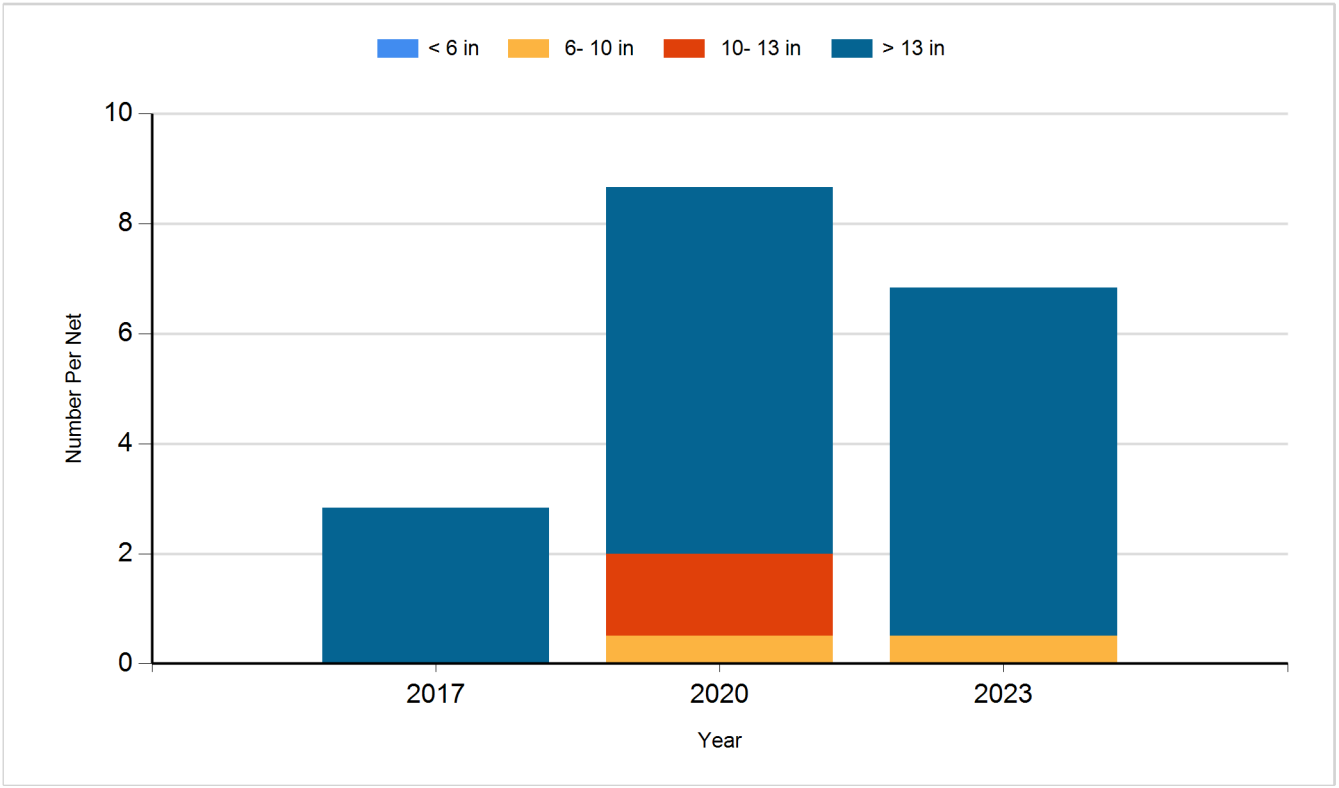
Species: Walleye
Gear: AFS std gill net



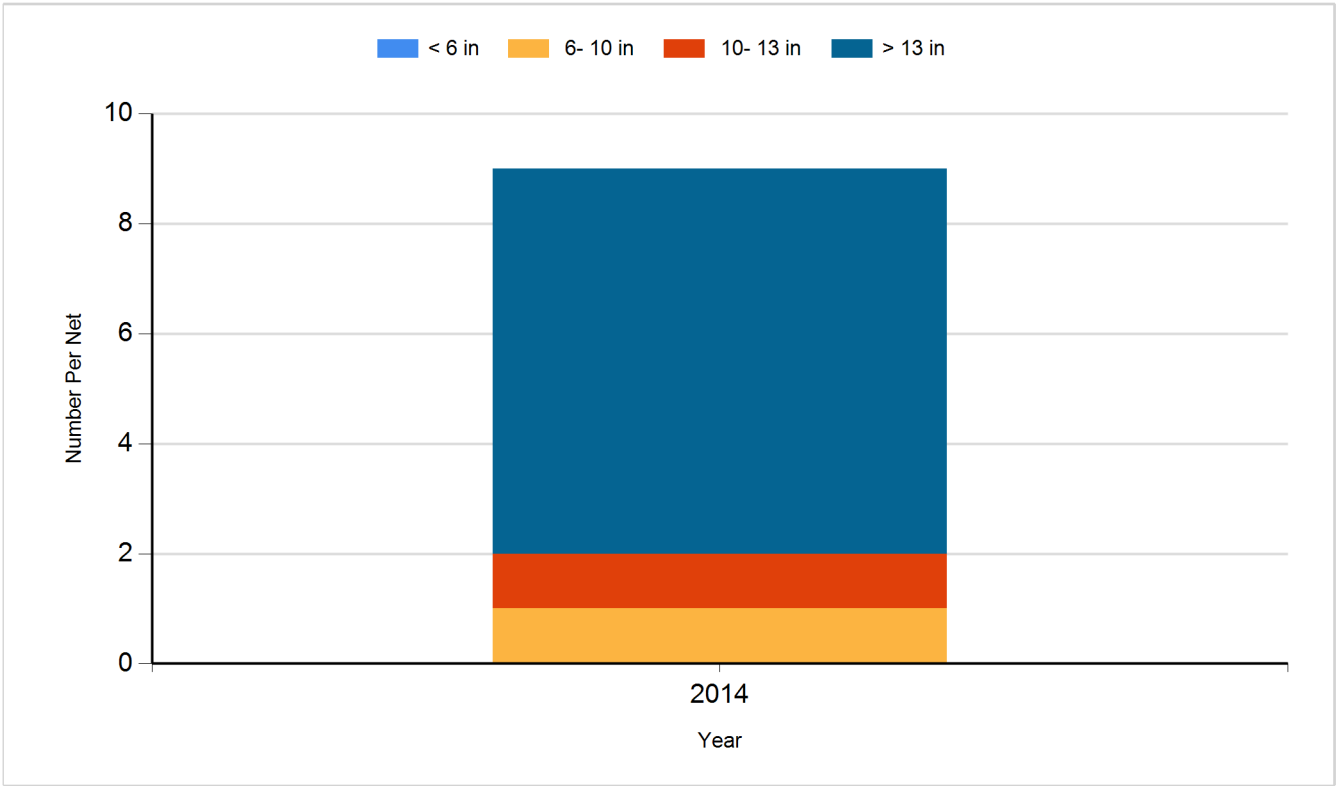
Species: Walleye
Gear: std exp gill net



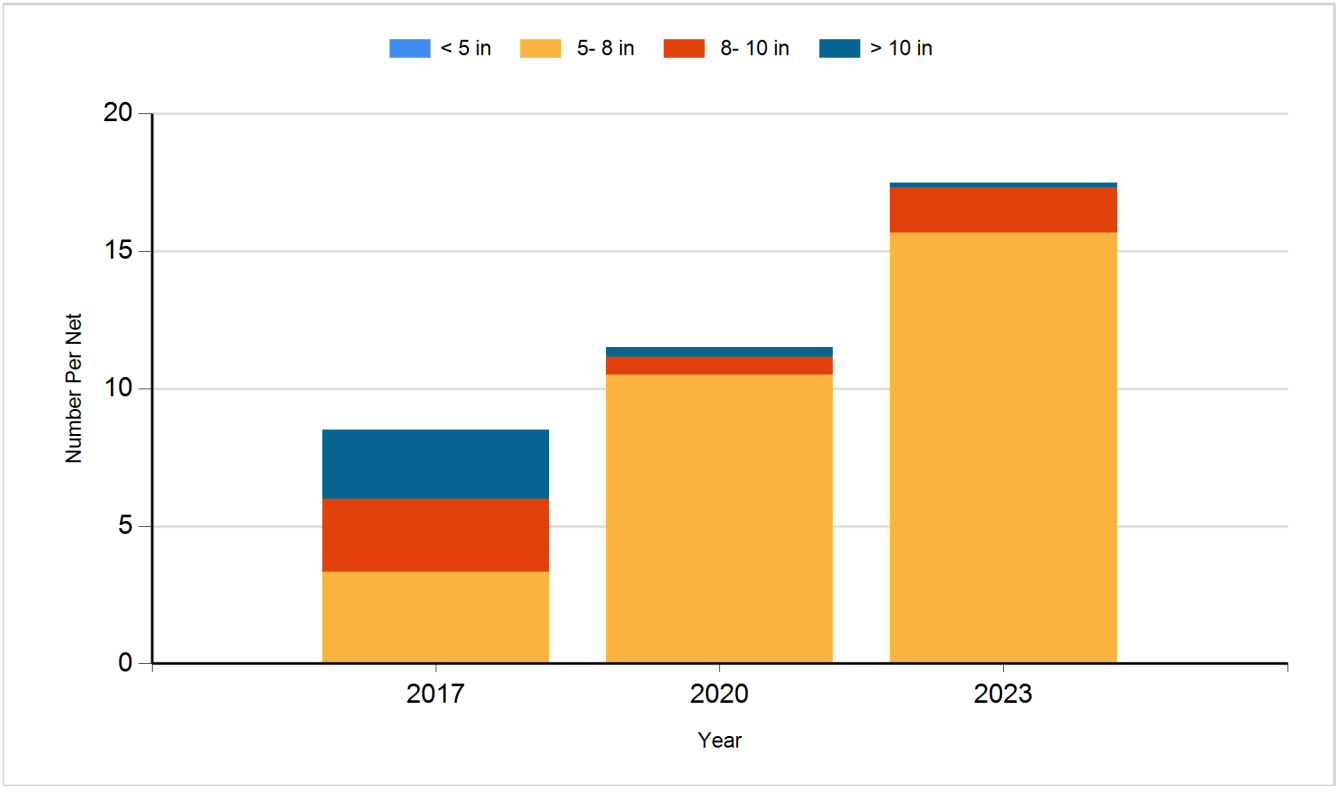
Species: White Sucker
Gear: AFS std gill net



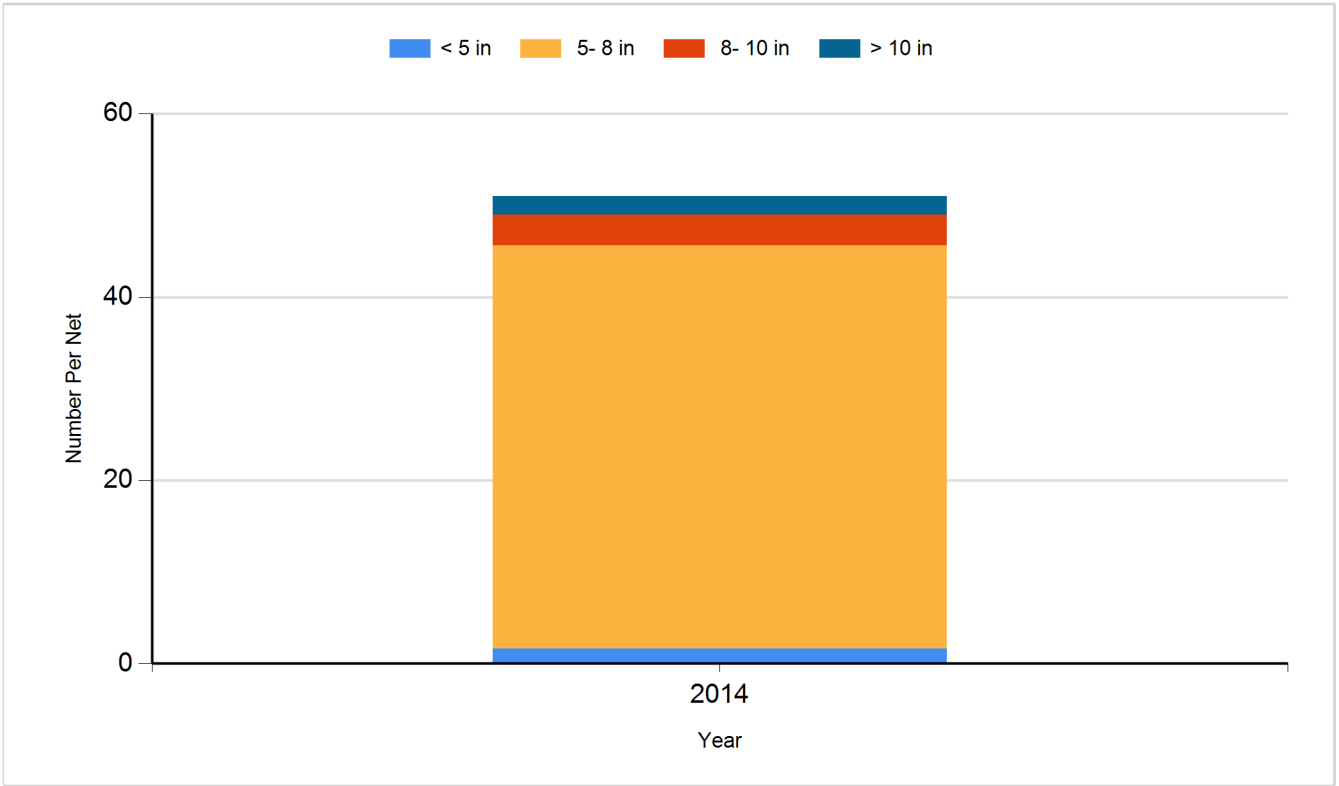
Species: White Sucker
Gear: std exp gill net



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
2012	Muskellunge	Large Fingerling	509
2012	Walleye	Small Fingerling	23,370
2014	Muskellunge	Large Fingerling	505
2014	Walleye	Fry	120,000
2016	Walleye	Fry	120,000
2018	Walleye	Fry	120,000
2021	Walleye	Juvenile	41,310
2022	Walleye	Juvenile	22,165
2023	Walleye	Fry	150,000