Reetz Lake Survey Summary

Reetz Lake, located 5.5 miles south of Webster, is managed under an agreement reached between the Reetz family and South Dakota Department of Game, Fish and Parks. The agreement allows for public fishing access from May 1st to September 30th with special regulations in place for black crappie (15-inch minimum length, daily limit of one fish), bluegill (10-inch minimum length, daily limit of one), yellow perch (14-inch minimum length, daily limit of one), and walleye (28-inch minimum length, daily limit of one). During the remainder of the year (October to April), public fishing access is restricted without permission and statewide regulations apply for all fish species.

- **Walleye.** Walleye numbers were lower than those observed in 2019. At 8.6 per net, relative abundance was considered moderate to high in 2023. Sampled walleyes ranged in length from 7.5 to 25.2 inches, of those that were at least 10.0 inches 52% were ≥15.0 inches and 23% were ≥20.0 inches. Nine year classes produced between 2011 and 2022 contributed to the catch. Individuals from the 2020 (age-3) and 2017 (age-6) cohorts were the most abundant accounting for 64% of fish in the sample. The oldest walleye sampled was from the 2011 (age-12) cohort. The 2020 (age-3) year class has experienced slower growth to age 3 than other cohorts sampled from 2019 – 2023. In 2023, age-3 walleyes had a mean length at capture of 12.3 inches compared to 16.7 inches in 2021 (one fish) and 16.1 inches in 2019. Slowed growth is not uncommon when strong walleye cohorts are present.

- **Yellow perch**. Yellow perch were not abundant (2.1/gill net) in 2023. Those sampled ranged in length from 5.5 to 10.6 inches. Four consecutive cohorts (2018 – 2021) contributed to the catch, each was represented by nine or fewer individuals.

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

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Reetz, Day County
MUD-Lake-317-801
2023

Lake Information

Name: Reetz

County: Day

Surface Area: 1,395 Acres

Maximum Depth: 25 Feet

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	May 25, 2023	4 net-nights
AFS std gill net	May 26, 2023	4 net-nights

Common Fish Species Present

Yellow Perch

Walleye

Smallmouth Bass

Black Crappie

Common Carp

Northern Pike

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 Crappie	1	0.1	0.2	0		0		111	
	Common Carp	181	22.6	3.1	86	4	1		95	1
	Northern Pike	1	0.1	0.2	100		100		87	
	Smallmouth Bass	2	0.3	0.4	100		0		103	2
	Walleye	73	8.6	2.6	52	9	23	7	88	1
	Yellow Perch	17	2.1	0.9	53	20	12		104	4

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	Black Crappie						0.0		1.9		0.1	0.67
	Bluegill						0.1		0.6		0.0	0.23
	Common Carp						0.0		30.8		22.6	17.80
	Northern Pike						0.0		0.0		0.1	0.03
	Smallmouth Bass						0.1		0.8		0.3	0.40
	Walleye						14.8		15.1		8.6	12.83
	White Sucker						0.1		0.0		0.0	0.03
	Yellow Perch						1.3		2.3		2.1	1.90
boat shocker (day)	Smallmouth Bass						43.5					43.50

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 gill net	Walleye	PSD						85		96		52
		PSD-P						48		61		23
		Wr						88		83		88
	Yellow Perch	PSD						60		89		53
		PSD-P						40		39		12
		Wr						100		93		104

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+
2023	73	201 (4)		313 (31)	402 (4)		492 (16)	507 (9)		454 (1)	554 (8)
2021	123	174 (2)	330 (5)	425 (1)	465 (18)	491 (21)	473 (2)	552 (19)	559 (7)	531 (2)	584 (48)
2019	119	230 (1)	330 (17)	408 (16)	468 (3)	485 (6)	482 (5)	494 (2)	522 (16)	540 (34)	555 (21)

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	17		173 (5)	199 (9)	224 (1)	269 (2)					
2021	18		205 (5)	248 (11)		331 (1)		331 (1)			
2019	10		191 (6)	266 (2)	273 (1)	301 (1)					

Fish Condition

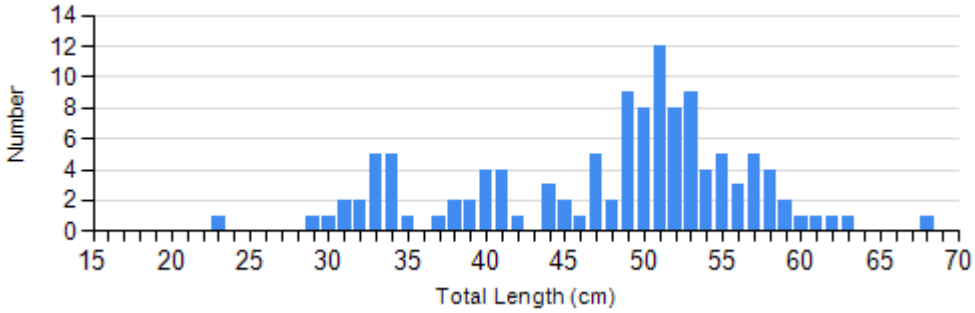
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Walleye Gill Net	2019	18	100 (1.5)	43	91 (1.0)	55	83 (0.8)	2	72 (0.6)
	2021	5	83 (3.6)	42	83 (1.0)	69	83 (0.6)	5	82 (3.2)
	2023	33	90 (0.9)	20	90 (1.7)	15	84 (2.3)	1	74
Yellow Perch Gill Net	2019	4	101 (5.7)	2	102 (8.0)	3	96 (1.9)	1	100
	2021	2	94 (1.9)	9	93 (1.9)	5	93 (2.5)	2	85 (0.3)
	2023	8	109 (3.9)	7	103 (4.2)	2	87 (1.7)	0	

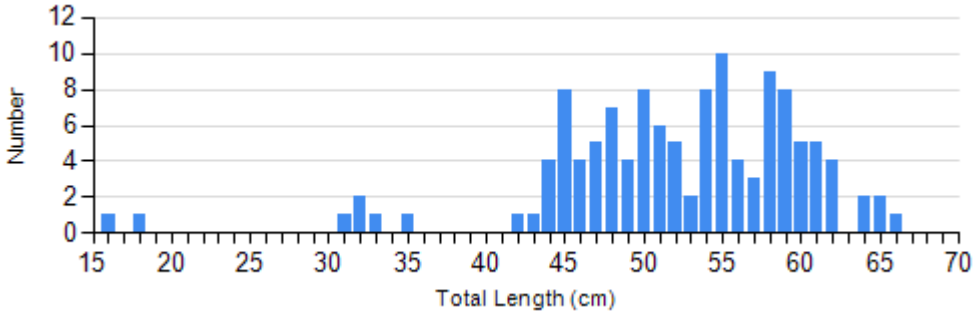
Length Frequency Distribution

Length frequency histogram of species sampled by year.

Species: Walleye
Gear: AFS std gill net



2019



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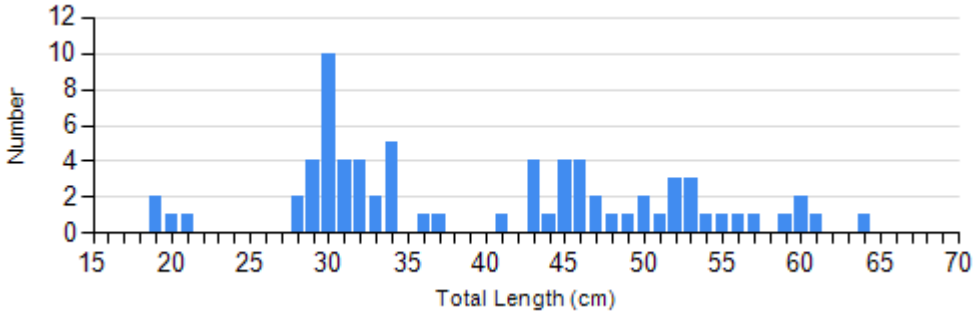
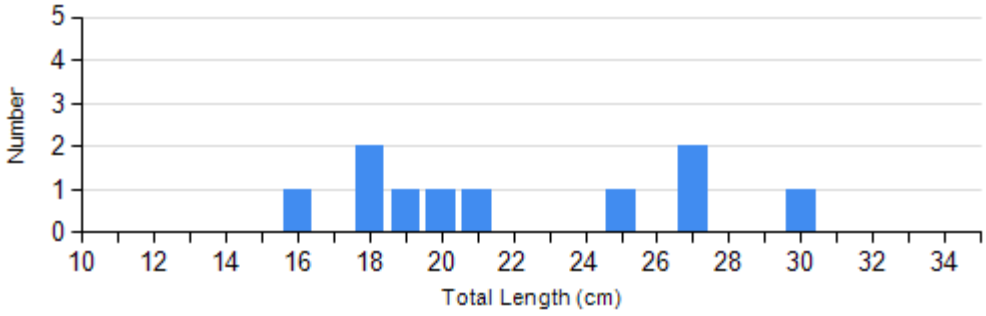
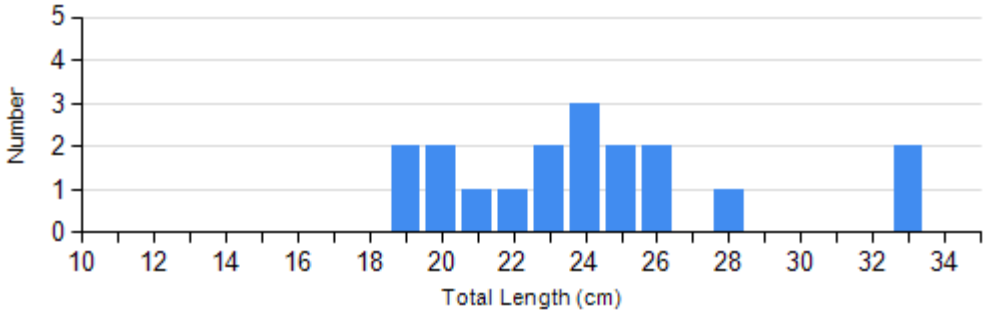


2023

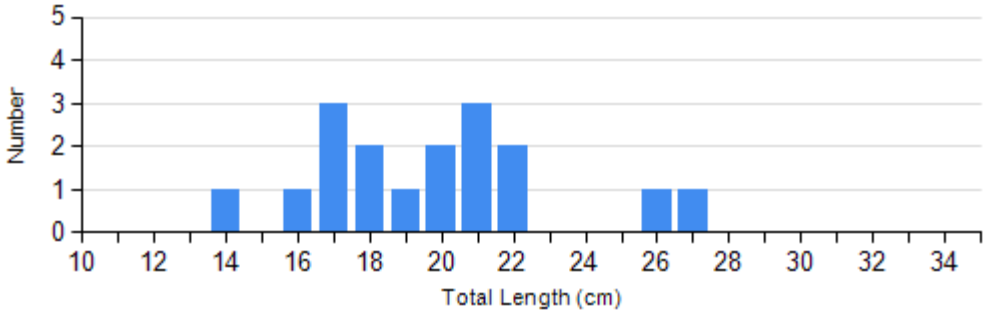
Species: Yellow Perch
Gear: AFS std gill net



2019



2021

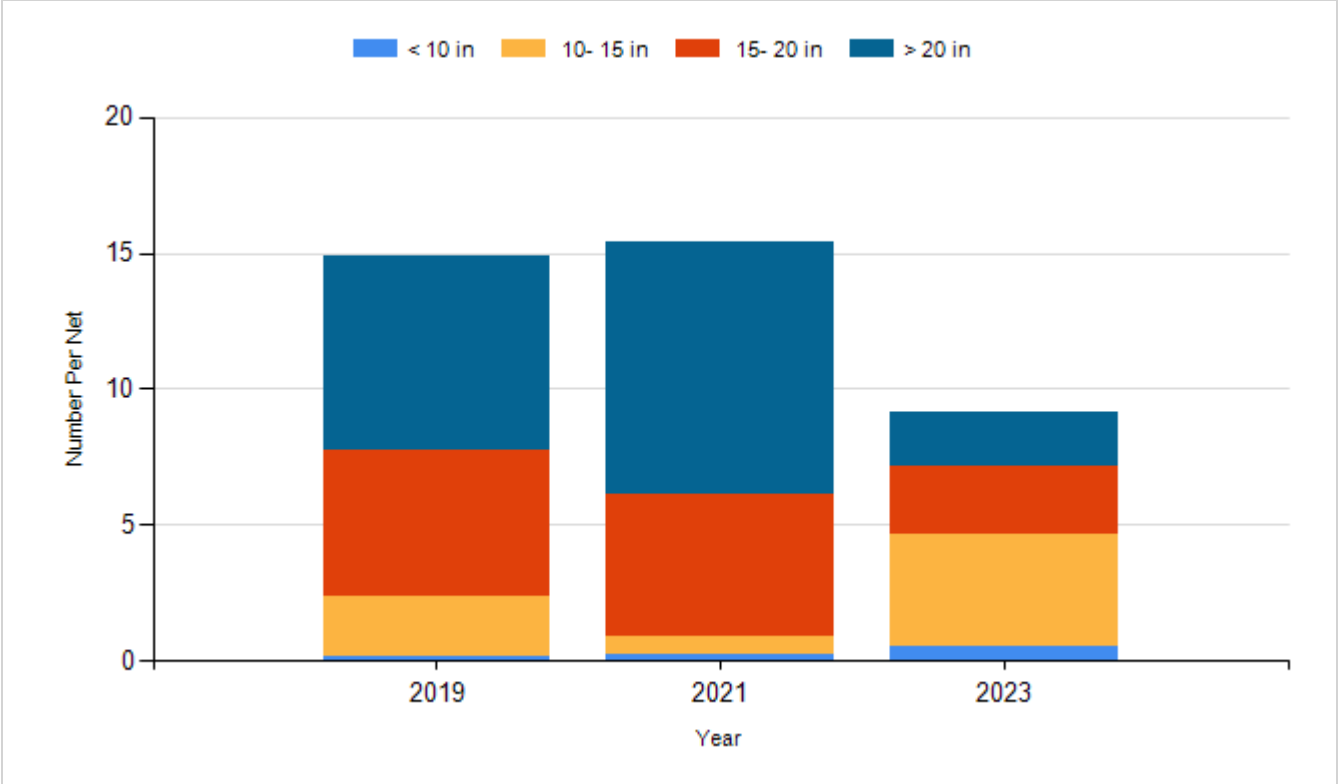


2023

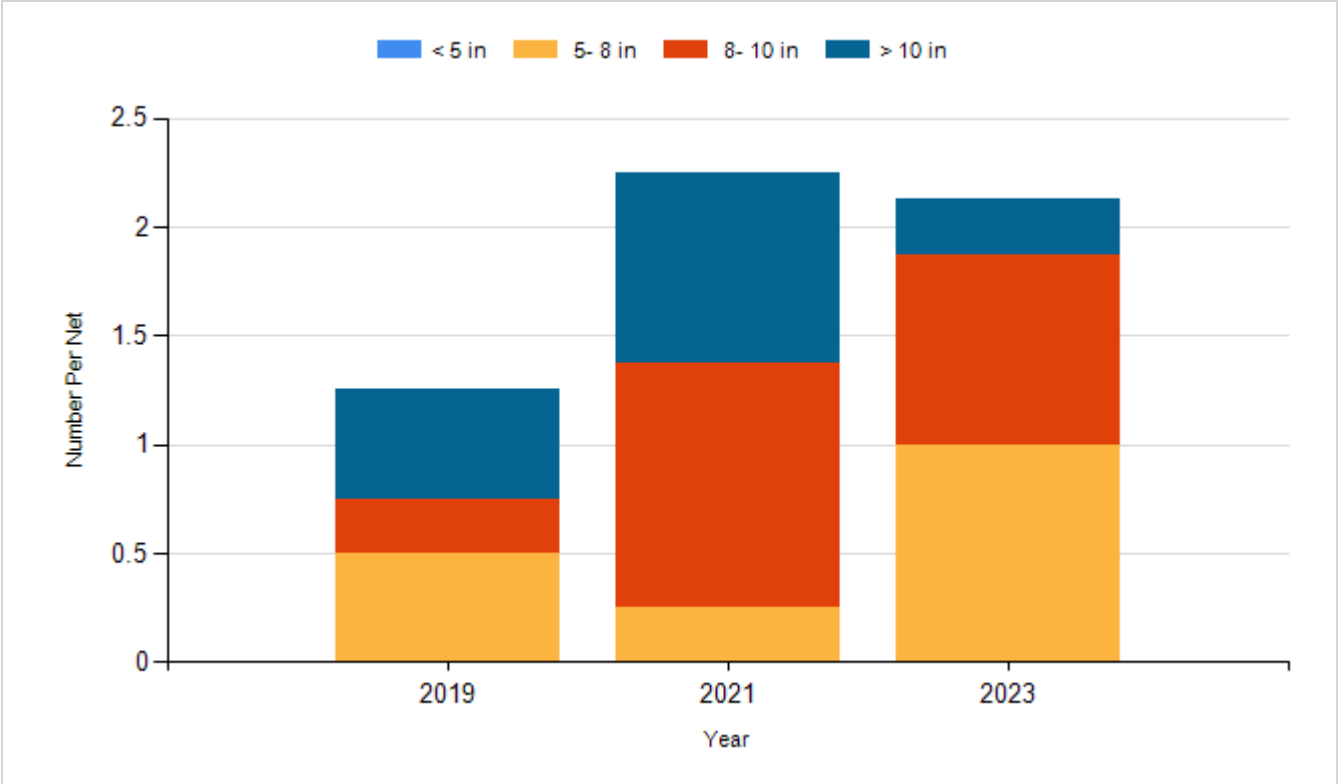
Historic Fish Sizes and Relative Abundance

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

Species: Walleye
Gear: AFS std gill net



Species: Yellow Perch
Gear: AFS std gill net



SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Reetz, Day County
MUD-Lake-317-801
2023

Lake Information

Name: Reetz

County: Day

Surface Area: 1,395 Acres

Maximum Depth: 25 Feet

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	May 25, 2023	4 net-nights
AFS std gill net	May 26, 2023	4 net-nights

Common Fish Species Present

Yellow Perch

Walleye

Smallmouth Bass

Black Crappie

Common Carp

Northern Pike

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).

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- **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 Crappie	1	0.1	0.2	0		0		111	
	Common Carp	181	22.6	3.1	86	4	1		95	1
	Northern Pike	1	0.1	0.2	100		100		87	
	Smallmouth Bass	2	0.3	0.4	100		0		103	2
	Walleye	73	8.6	2.6	52	9	23	7	88	1
	Yellow Perch	17	2.1	0.9	53	20	12		104	4

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	Black Crappie						0.0		1.9		0.1	0.67
	Bluegill						0.1		0.6		0.0	0.23
	Common Carp						0.0		30.8		22.6	17.80
	Northern Pike						0.0		0.0		0.1	0.03
	Smallmouth Bass						0.1		0.8		0.3	0.40
	Walleye						14.8		15.1		8.6	12.83
	White Sucker						0.1		0.0		0.0	0.03
	Yellow Perch						1.3		2.3		2.1	1.90
boat shocker (day)	Smallmouth Bass						43.5					43.50

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 gill net	Black Crappie	PSD								0		0
		PSD-P								0		0
		Wr								117		111
	Common Carp	PSD								39		86
		PSD-P								1		1
		Wr								109		95
	Northern Pike	PSD										100
		PSD-P										100
		Wr										87
	Smallmouth Bass	PSD						100		33		100
		PSD-P						100		17		0
		Wr						94		93		103
	Walleye	PSD						85		96		52
		PSD-P						48		61		23
		Wr						88		83		88
	Yellow Perch	PSD						60		89		53
		PSD-P						40		39		12
		Wr						100		93		104
boat shocker (day)	Smallmouth Bass	PSD						100				
		PSD-P						89				
		Wr						103				

Length at Capture

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

Species: Smallmouth Bass

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2019	5			326 (1)	346 (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	73	201 (4)		313 (31)	402 (4)		492 (16)	507 (9)		454 (1)	554 (8)
2021	123	174 (2)	330 (5)	425 (1)	465 (18)	491 (21)	473 (2)	552 (19)	559 (7)	531 (2)	584 (48)
2019	119	230 (1)	330 (17)	408 (16)	468 (3)	485 (6)	482 (5)	494 (2)	522 (16)	540 (34)	555 (21)

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	17		173 (5)	199 (9)	224 (1)	269 (2)					
2021	18		205 (5)	248 (11)		331 (1)		331 (1)			
2019	10		191 (6)	266 (2)	273 (1)	301 (1)					

Fish Condition

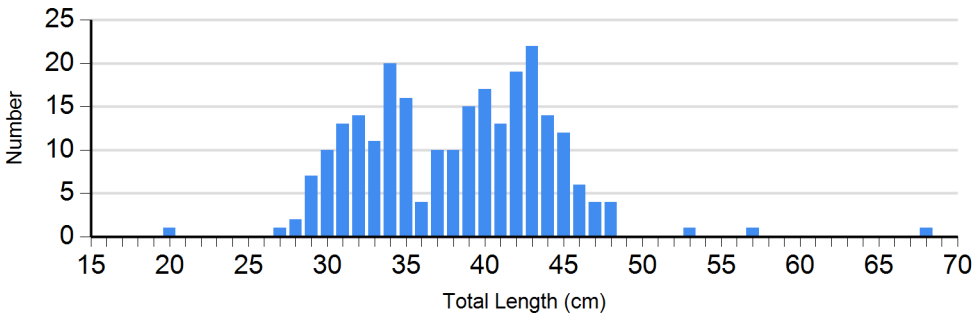
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Common Carp Gill Net	2021	149	109 (0.6)	94	114 (1.3)	2	102 (6.8)	1	89
	2023	26	95 (1.4)	154	95 (0.6)	1	96	0	
Northern Pike Gill Net	2023	0		0		1	87	0	
Smallmouth Bass Electro Fishing	2019	0		3	105 (3.4)	16	105 (2.4)	9	100 (3.0)
Walleye Gill Net	2019	18	100 (1.5)	43	91 (1.0)	55	83 (0.8)	2	72 (0.6)
	2021	5	83 (3.6)	42	83 (1.0)	69	83 (0.6)	5	82 (3.2)
	2023	33	90 (0.9)	20	90 (1.7)	15	84 (2.3)	1	74
Yellow Perch Gill Net	2019	4	101 (5.7)	2	102 (8.0)	3	96 (1.9)	1	100
	2021	2	94 (1.9)	9	93 (1.9)	5	93 (2.5)	2	85 (0.3)
	2023	8	109 (3.9)	7	103 (4.2)	2	87 (1.7)	0	

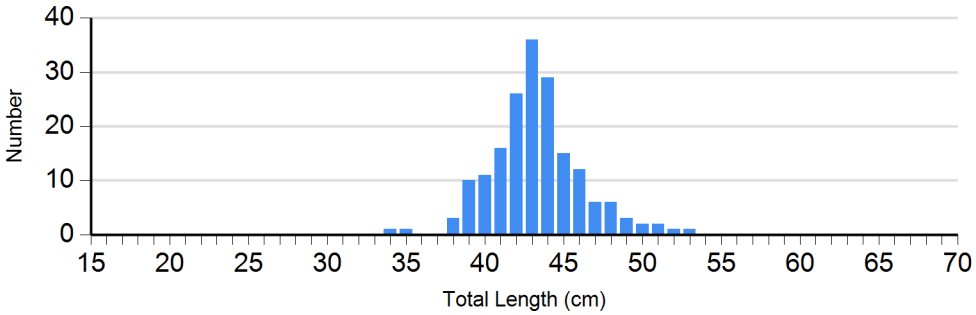
Length Frequency Distribution

Length frequency histogram of species sampled by year.

Species: Common Carp
Gear: AFS std gill net

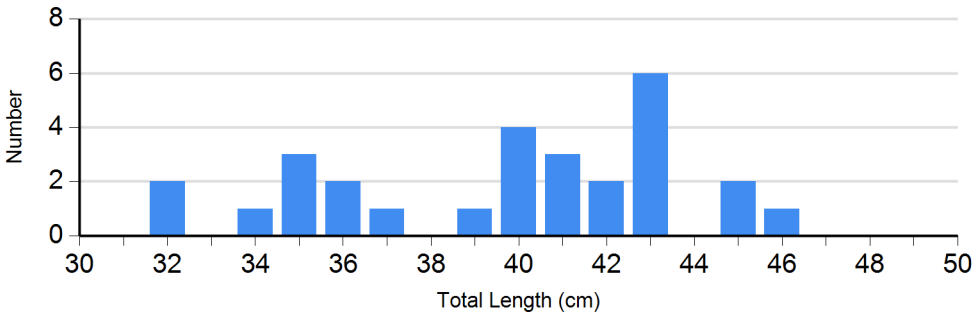


2021



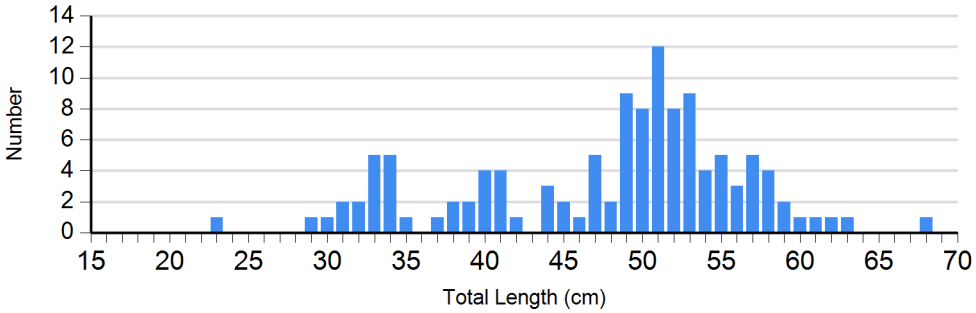
2023

Species: Smallmouth Bass
Gear: boat shocker (day)

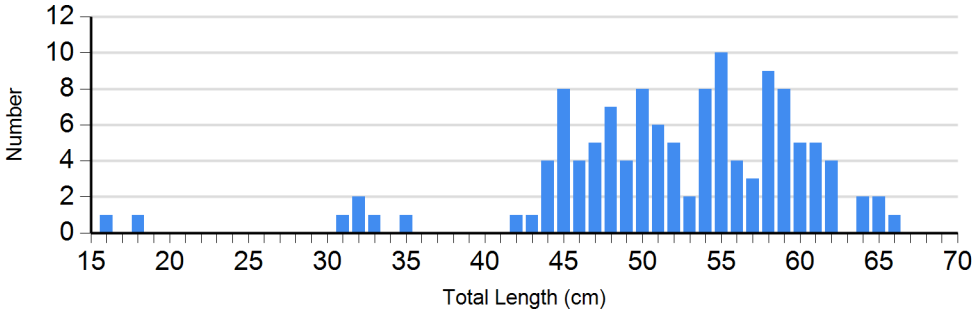


2019

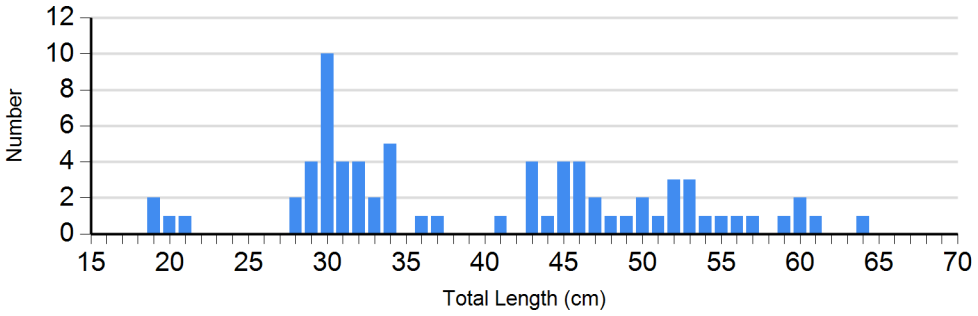
Species: Walleye
Gear: AFS std gill net



2019

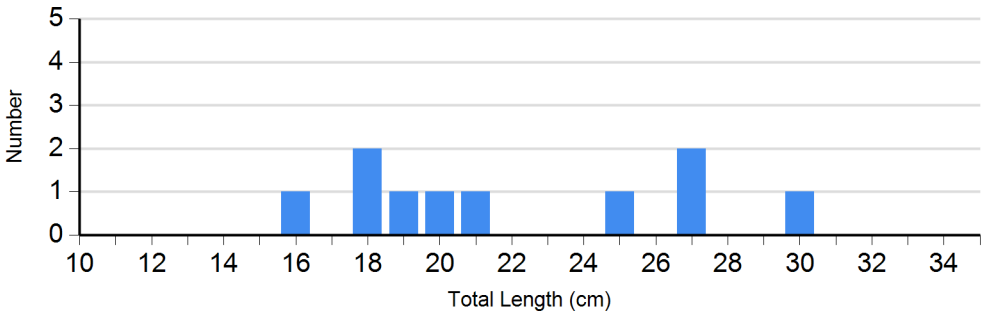


2021

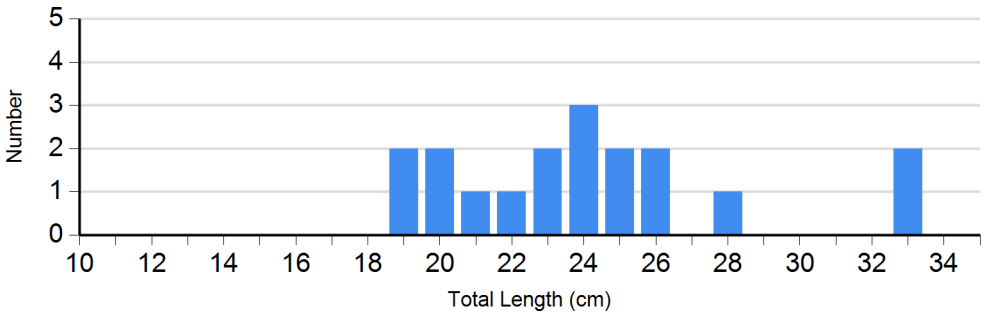


2023

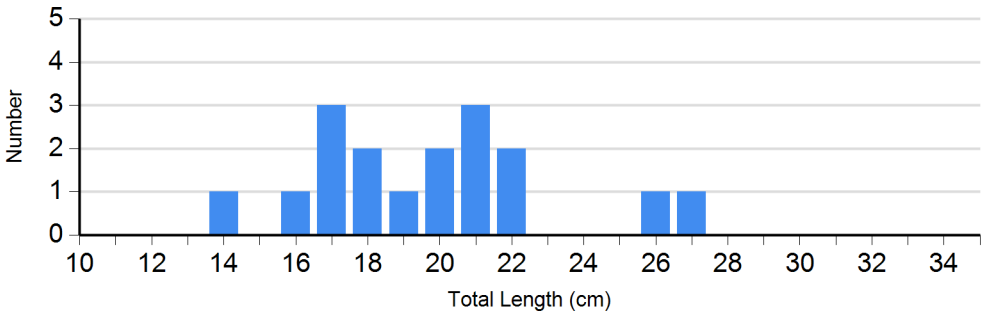
Species: Yellow Perch
Gear: AFS std gill net



2019



2021

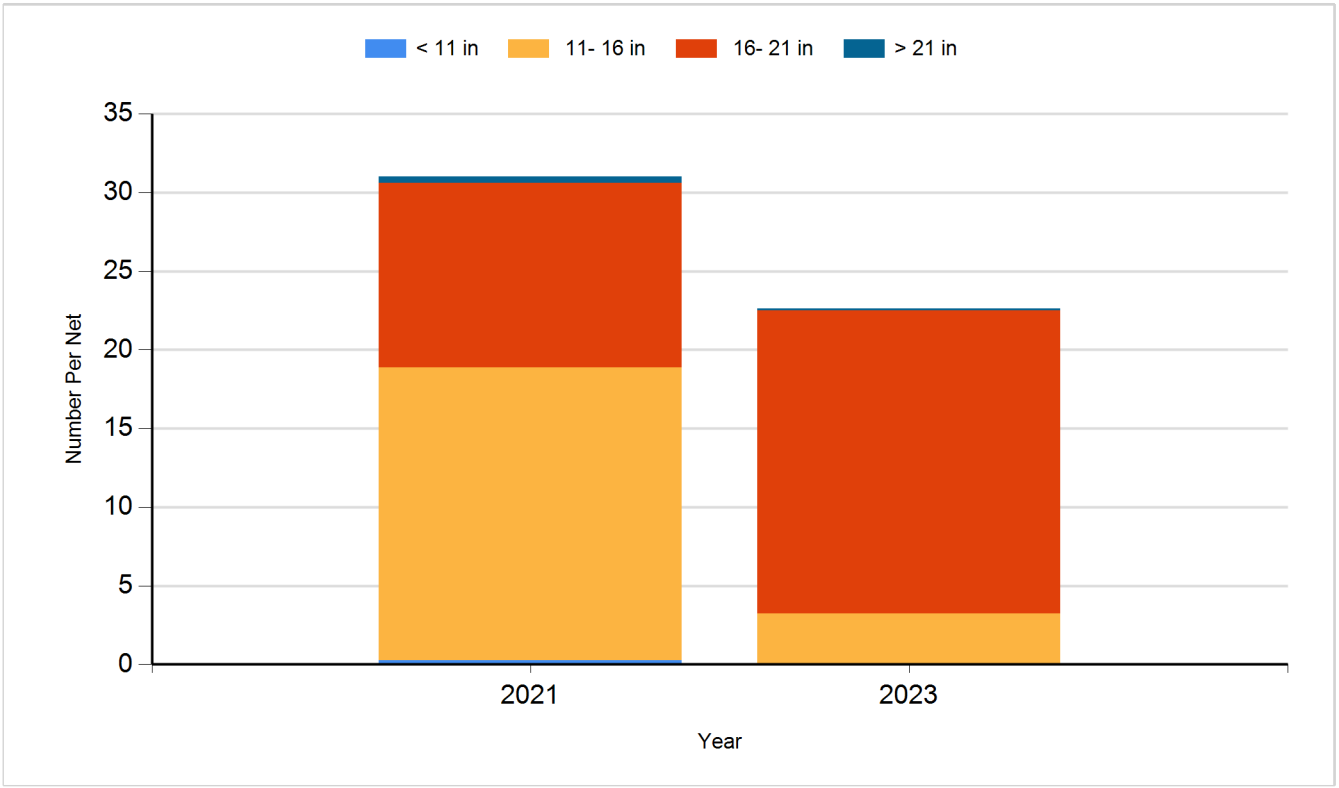


2023

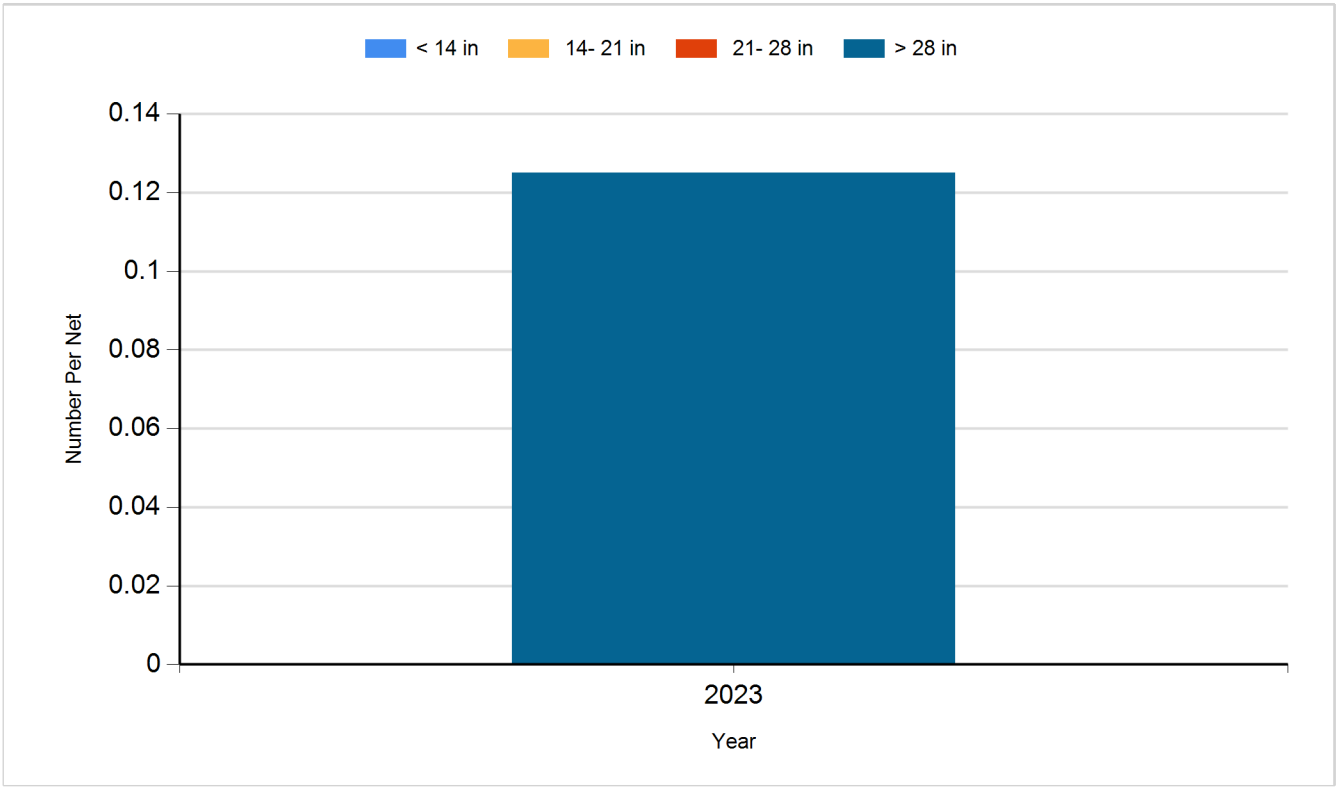
Historic Fish Sizes and Relative Abundance

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

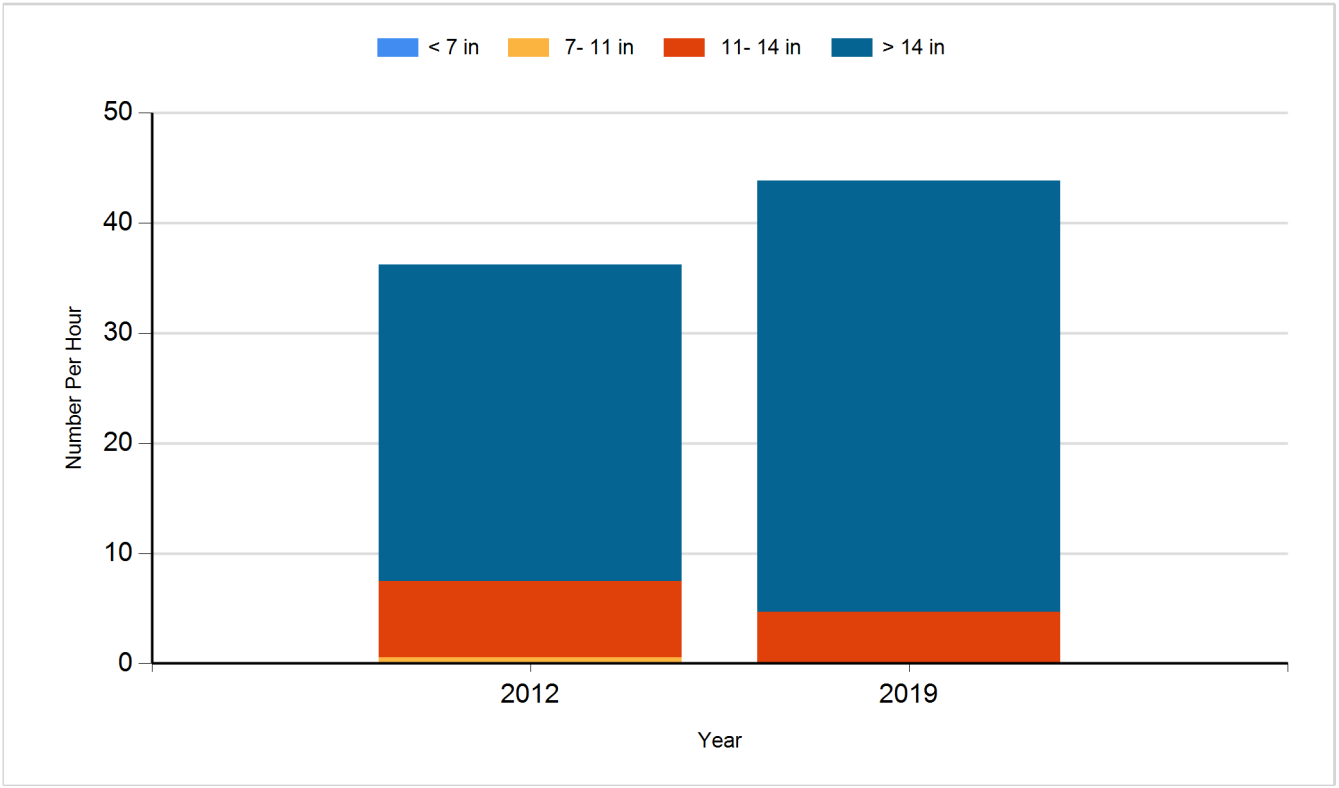
Species: Common Carp
Gear: AFS std gill net



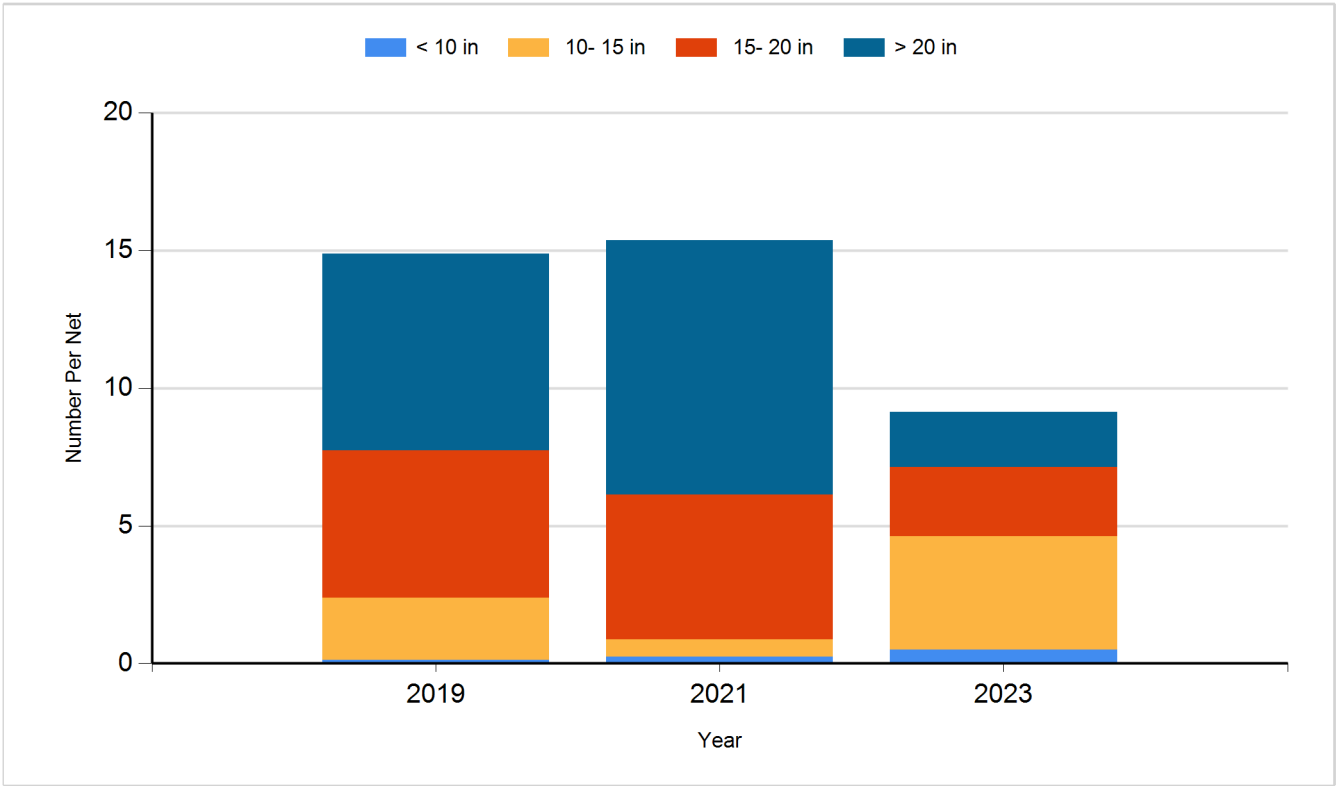
Species: Northern Pike
Gear: AFS std gill net



Species: Smallmouth Bass
Gear: boat shocker (day)



Species: Walleye
Gear: AFS std gill net



Species: Yellow Perch
Gear: AFS std gill net