SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Twin, Spink County
TUR-Lake-589-000
2023

Lake Information

Name: Twin

County: Spink

Surface Area: 1,327 Acres

OHWM Elevation: 1,299

Outlet Elevation: 1,300

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Aug 08, 2023	4 net-nights
AFS std gill net	Aug 09, 2023	4 net-nights
AFS std gill net	Aug 10, 2023	4 net-nights
frame net (std 3/4 in)	Aug 08, 2023	6 net-nights
frame net (std 3/4 in)	Aug 09, 2023	6 net-nights
frame net (std 3/4 in)	Aug 10, 2023	6 net-nights

Common Fish Species Present

Northern Pike

Black Crappie

Walleye

Common Carp

Black Bullhead

Green Sunfish

Yellow Perch

Freshwater Drum

O. Spotted X Gr. Sunfish Hybrid

Terminology

Catch per unit effort (**CPUE**) refers to the relative abundance of a species. It is defined as the number of fish captured per unit of effort (i.e., number of fish captured per net-night or number of fish captured per hour electrofishing). In this report CPUE is typically given for only stock-length fish (see length categories table for stock lengths).

A statewide effort to help make netting efforts comparable to all waters sampled across the state, occurred in 2017, with a switch to American Fisheries Society gill nets. Past gill netting efforts were completed with different style/types of nets and are not comparable side by side.

- **AFS std gill net** – 80 ft experimental gill net containing eight panels (10 ft each) of varying monofilament meshes of 0.75, 1.00, 1.25, 1.50, 1.75, 2.00, 2.25 and 2.50 inches.
- **std experimental gill net for non-Missouri River waters** - 150 ft experimental gill net containing six panels (25 ft each) of varying monofilament meshes of 0.5, 0.75, 1.00, 1.25, 1.50 and 2.00 inches.
- s**td experimental gill net for Missouri River reservoirs** – 300 ft experimental gill net containing six panels (50 ft each) of varying multifilament meshes of 0.5, 0.75, 1.00, 1.25, 1.50 and 2.00 inches.

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

Population size structure is quantified using the indices proportional size distribution of quality-length fish (**PSD**) and proportional size distribution of preferred-length fish (**PSD-P**). These indices indicate the proportion of stock-length fish that are equal to or greater than a given length. Minimum lengths for stock, quality and preferred length fish are given in the length categories table.

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

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

Relative weight (**Wr**) is used to quantify fish plumpness. Relative weight is the ratio of what a fish weighs (W) compared to a length-specific standard weight (Ws) multiplied by 100. Relative weight values of 95-105 are commonly cited as optimum values, but values in the 80s are common during summer sampling in South Dakota.

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

Confidence intervals (**CI**) are provided for many of the estimates calculated in this report. The confidence interval provides a range in which the true mean is expected to fall. For example, with an 80% CI we are 80% confident that the interval contains the true value.

Length categories include stock (**S**), quality (**Q**), preferred (**P**), memorable (**M**) and trophy (**T**). Length categories for most species have been defined based on a percentage of the world record length for that species. Some species mentioned in this report do not have defined length categories. Length categories for species used in this report are provided in the following table. Measurements are the minimum total length for each category and are reported in inches (in) and centimeters (cm).

	Stock		Quality		Preferred		Memorable		Trophy	
Species Name	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)
Black Bullhead	6	15	9	23	12	30	15	38	18	46
Black Crappie	5	13	8	20	10	25	12	30	15	38
Bluegill	3	8	6	15	8	20	10	25	12	30
Brown Trout	8	20	12	30	16	40	20	50	18	46
Channel Catfish	11	28	16	41	24	61	28	71	36	91
Freshwater Drum	8	20	12	30	15	38	20	51	25	63
Lake Trout	12	30	20	50	26	65	31	80	39	100
Largemouth Bass	8	20	12	30	15	38	20	51	25	63
Muskellunge	20	51	30	76	38	97	42	107	50	127
Northern Pike	14	35	21	53	28	71	34	86	44	112
Pumpkinseed	3	8	6	15	8	20	10	25	12	30
Rainbow Trout	10	25	16	40	20	50	26	65	31	80
Rudd	6	15	10	25	12	30	15	38	19	48
Sauger	8	20	12	30	15	38	20	51	25	63
Smallmouth Bass	7	18	11	28	14	35	17	43	20	51
Walleye	10	25	15	38	20	51	25	63	30	76
White Bass	6	15	9	23	12	30	15	38	18	46
White Crappie	5	13	8	20	10	25	12	30	15	38
Yellow Bullhead	4	10	7	18	9	23	11	28	14	36
Yellow Perch	5	13	8	20	10	25	12	30	15	38

Catch Summary of Stock Length Fish

Catch per unit effort (CPUE), proportional size distribution (PSD), proportional size distribution of preferred length fish (PSD-P), and relative weight (Wr) for species sampled in survey with 80% confidence interval (CI-80).

*** Methods/Species that ignore stock length**

			Abundance		Stock Density Indices				Condition	
Gear	Species	Sample Size (n)	CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
AFS std gill net	Black Bullhead	2	0.2	0.2	100		50		94	6
	Black Crappie	13	1.1	0.5	100		100		110	3
	Common Carp	261	2.4	0.8	97		86		97	2
	Freshwater Drum	25	0.1	0.1	100		100		101	
	Green Sunfish	1	0.1	0.1	0		0		109	
	O. Spotted X Gr. Sunfish Hybrid	1	0.0	0.0						
	Walleye	125	10.4	2.1	37	6	10	4	94	1
	Yellow Perch	4	0.3	0.3	75		75		103	4
frame net (std 3/4 in)	Black Bullhead	27	1.5	0.6	96		85		100	2
	Black Crappie	97	5.3	1.8	97		80	6	106	1
	Common Carp	496	5.4	4.1	100		100		87	4
	Freshwater Drum	669	0.0	0.0	0		0			
	Green Sunfish	7	0.4	0.3	0		0		117	12
	Northern Pike	1	0.1	0.1	100		100		80	
	O. Spotted X Gr. Sunfish Hybrid	16	0.0	0.0						
	Walleye	95	5.3	2.3	66	7	24	6	92	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 gill net	Black Bullhead						0.0				0.2	0.10
	Black Crappie						0.5				1.1	0.80
	Common Carp						1.8				2.4	2.10
	Freshwater Drum						0.3				0.1	0.20
	Green Sunfish						0.1				0.1	0.10
	O. Spotted X Gr. Sunfish Hybrid						0.0				0.0	0.00
	Walleye						10.5				10.4	10.45
	Yellow Perch						0.4				0.3	0.35
frame net (std 3/4 in)	Black Bullhead		0.1				0.0				1.5	0.53
	Black Crappie		29.1				4.9				5.3	13.10
	Bluegill		0.2				0.0				0.0	0.07
	Common Carp		0.7				1.8				5.4	2.63
	Freshwater Drum		0.0				0.0				0.0	0.00
	Green Sunfish		0.0				0.9				0.4	0.43
	Northern Pike		0.1				0.0				0.1	0.07
	O. Spotted X Gr. Sunfish Hybrid		0.0				0.0				0.0	0.00
	Orangespotted Sunfish		0.0				0.0				0.0	0.00
	Walleye		4.5				3.1				5.3	4.30
	Western Painted Turtle		0.0				0.0				0.0	0.00
	White Sucker		0.0				0.2				0.0	0.07
	Yellow Perch		0.2				0.0				0.0	0.07
std exp gill net	Black Bullhead		0.2									0.20
	Black Crappie		1.7									1.70
	Common Carp		2.0									2.00
	Freshwater Drum		0.2									0.20
	Northern Pike		0.3									0.30
	Walleye		45.2									45.20
	Yellow Perch		2.8									2.80

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 Bullhead	PSD										100
		PSD-P										50
		Wr										94
	Black Crappie	PSD						100				100
		PSD-P						100				100
		Wr						106				110
	Common Carp	PSD						100				97
		PSD-P						77				86
		Wr						89				97
	Green Sunfish	PSD						0				0
		PSD-P						0				0
		Wr						114				109
	Walleye	PSD						20				37
		PSD-P						3				10
		Wr						96				94
	Yellow Perch	PSD						80				75
		PSD-P						60				75
		Wr						102				103
frame net (std 3/4 in)	Black Bullhead	PSD		100								96
		PSD-P		100								85
		Wr		91								100
	Black Crappie	PSD		97				98				97
		PSD-P		92				98				80
		Wr		114				108				106
	Common Carp	PSD		100				100				100
		PSD-P		92				97				100
		Wr		92				86				87
	Green Sunfish	PSD						12				0
		PSD-P						0				0
		Wr						114				117
	Northern Pike	PSD		100				0				100
		PSD-P		100				0				100
		Wr		76								80

			Year									
Gear	Species	Index	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
frame net (std 3/4 in)	Walleye	PSD		52				21				66
		PSD-P		0				9				24
		Wr		93				95				92
	Yellow Perch	PSD		0								
		PSD-P		0								
		Wr		106								
std exp gill net	Black Bullhead	PSD		100								
		PSD-P		100								
		Wr		89								
	Black Crappie	PSD		100								
		PSD-P		100								
		Wr		113								
	Common Carp	PSD		100								
		PSD-P		92								
		Wr		94								
	Northern Pike	PSD		100								
		PSD-P		50								
		Wr		92								
	Walleye	PSD		28								
		PSD-P		0								
		Wr		94								
	Yellow Perch	PSD		24								
		PSD-P		6								
		Wr		106								

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	92	166 (2)	227 (2)	256 (67)	299 (5)				335 (3)		342 (13)
2019	89	187 (2)		279 (6)	304 (32)	304 (6)	325 (5)		330 (38)		
2015	1054	89 (531)	204 (21)	244 (32)	291 (221)	301 (251)					

Species: Walleye

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2023	125	278 (46)	369 (43)		484 (13)	482 (15)		535 (2)	537 (1)	619 (1)	586 (4)
2019	127	292 (102)		422 (17)		490 (4)		517 (3)		601 (1)	
2015	273	292 (121)		380 (147)		465 (5)					

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	4	171 (1)		276 (2)	302 (1)						
2019	5	192 (2)			286 (2)		285 (1)				
2015	17	193 (4)	198 (10)	187 (2)	261 (1)						

Fish Condition

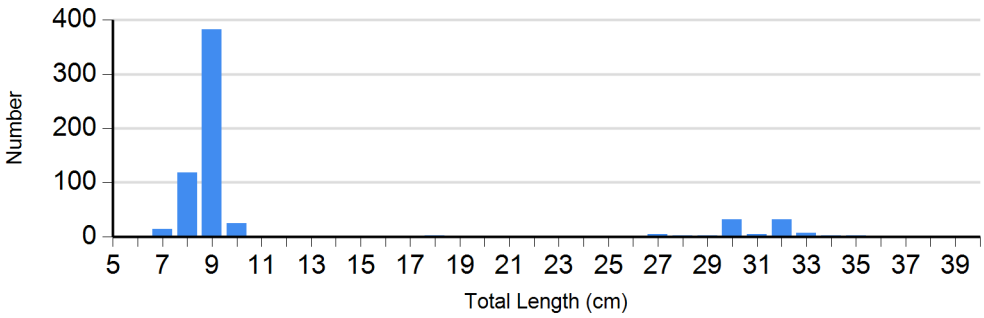
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Bullhead Gill Net	2023	0		1	90	1	99	0	
Black Crappie Frame Net	2019	2	125	0		8	104 (1.8)	79	107 (0.8)
	2023	3	100 (2.0)	16	107 (2.4)	55	109 (1.0)	22	99 (1.4)
Common Carp Gill Net	2019	0		5	93 (1.6)	12	90 (1.7)	5	85 (1.3)
	2023	1	96	3	96 (0.7)	13	99 (2.1)	12	97 (3.2)
Walleye Gill Net	2019	101	97 (0.5)	21	95 (1.5)	4	91 (3.5)	0	
	2023	79	93 (0.5)	33	96 (0.8)	12	91 (1.8)	1	92
Yellow Perch Gill Net	2019	1	113	1	105	2	96 (3.5)	1	98
	2023	1	101	0		2	102 (5.9)	1	108

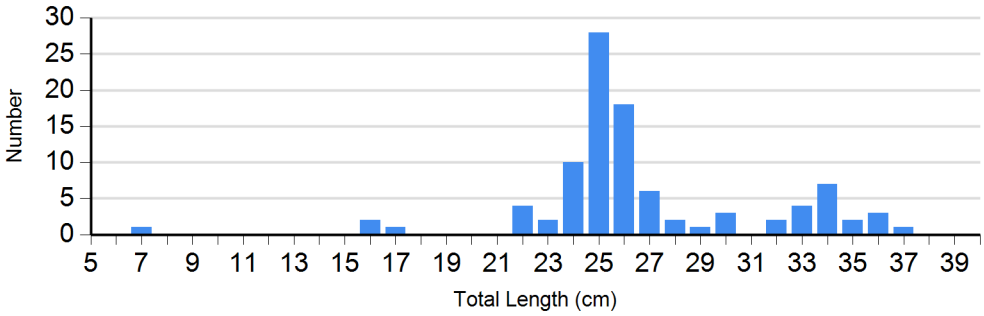
Length Frequency Distribution

Length frequency histogram of species sampled by year.

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

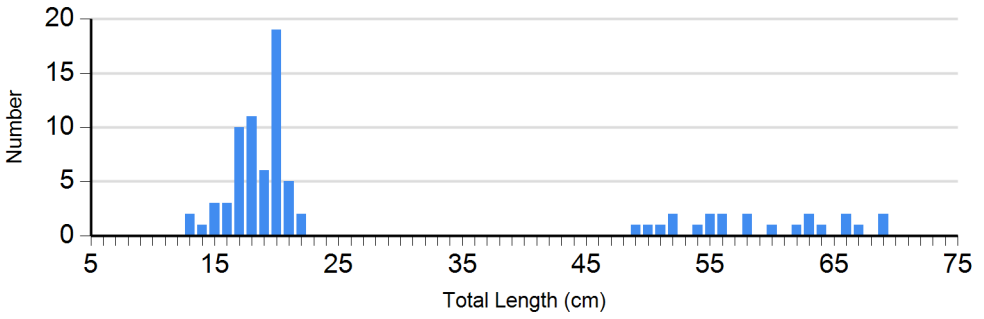


2019

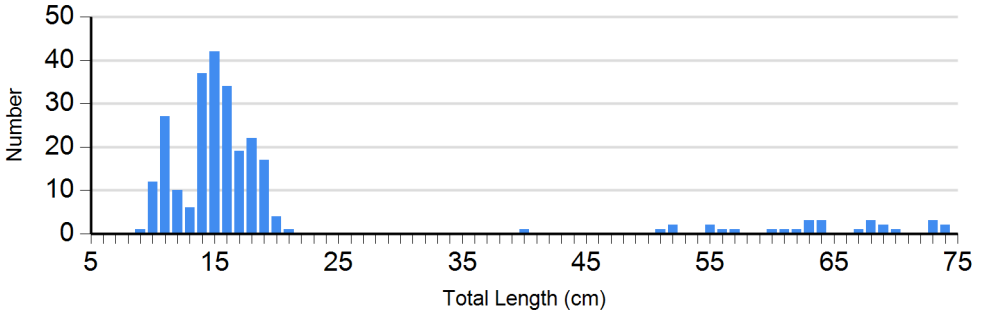


2023

Species: Common Carp
Gear: AFS std gill net

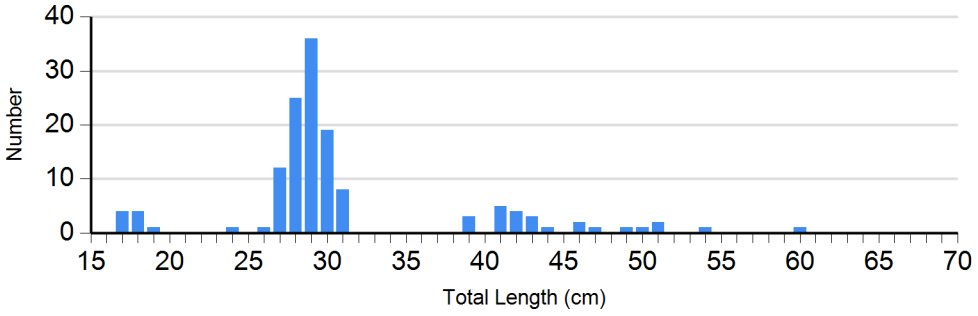


2019

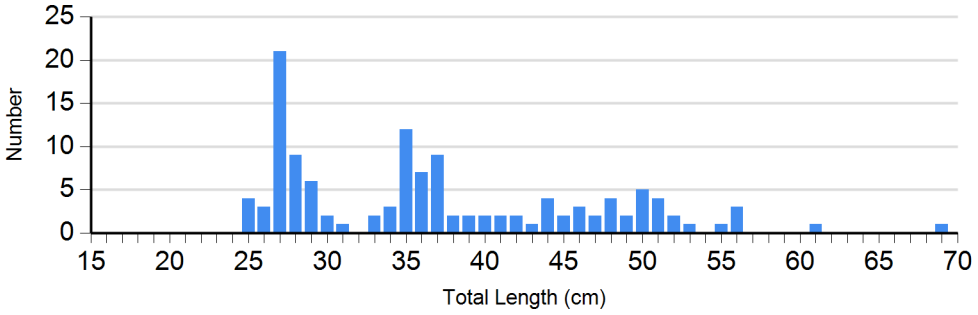


2023

Species: Walleye
Gear: AFS std gill net



2019

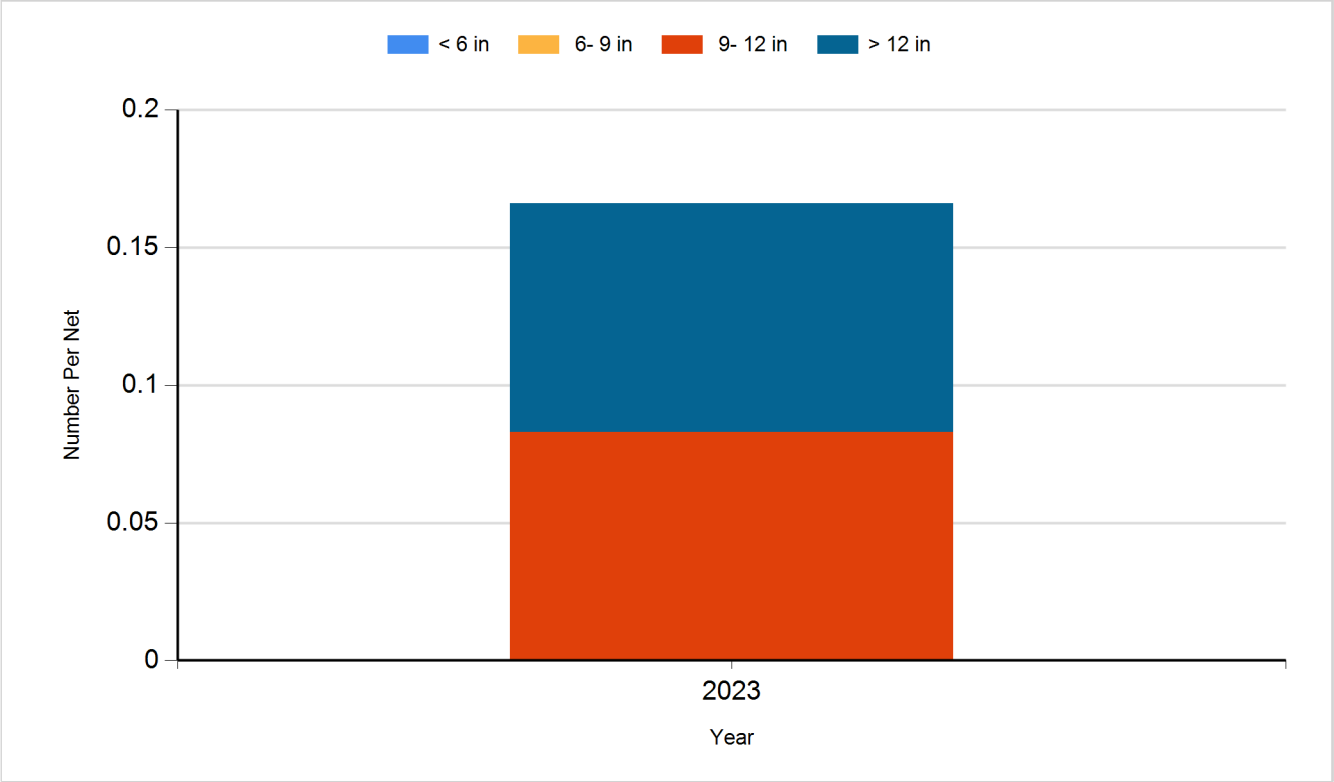


2023

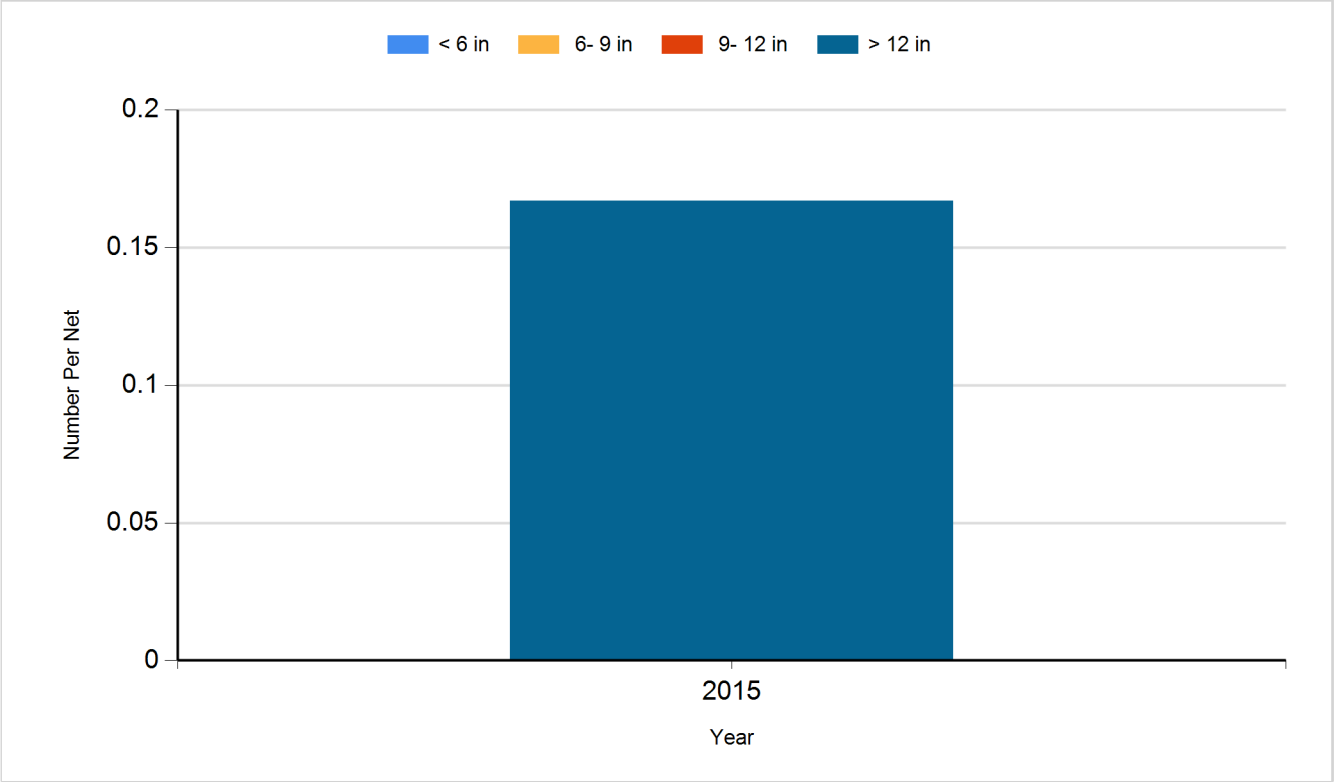
Historic Fish Sizes and Relative Abundance

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

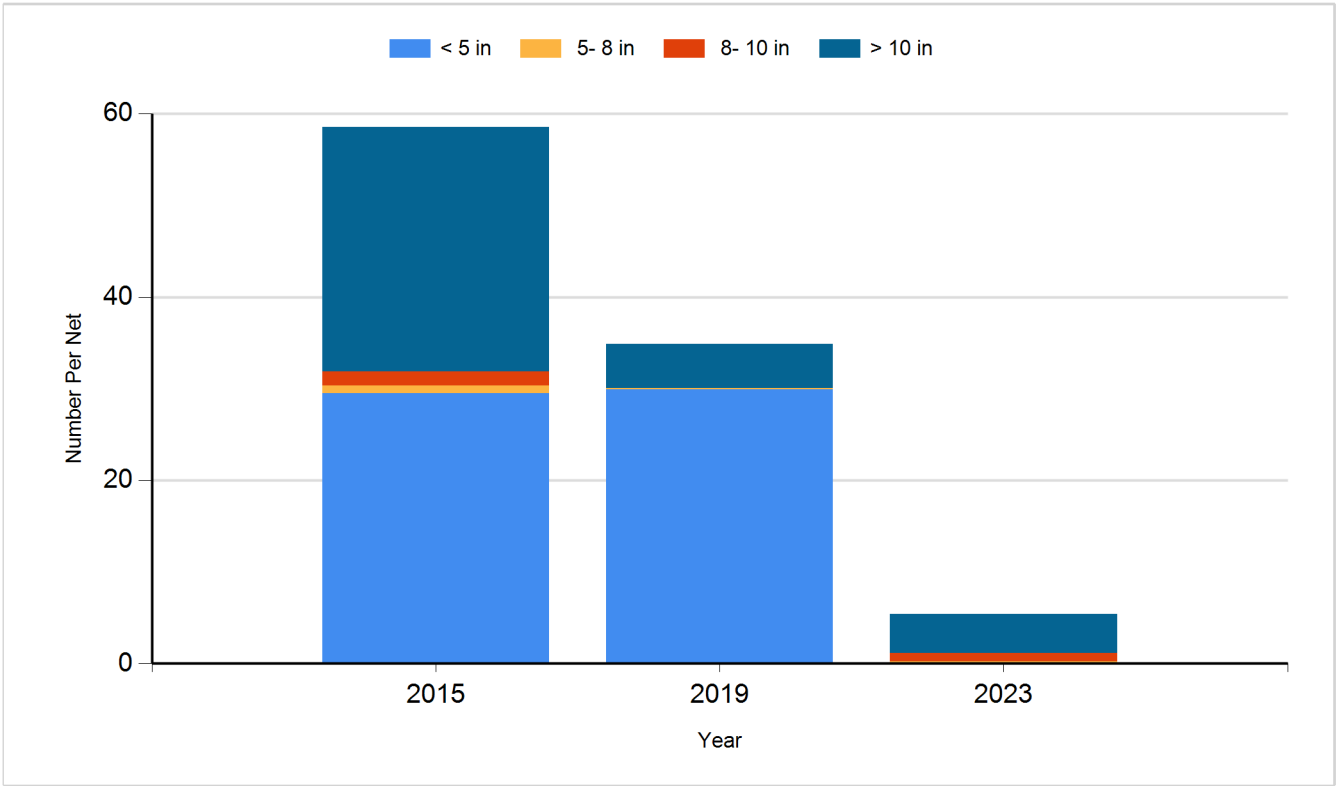
Species: Black Bullhead
Gear: AFS std gill net



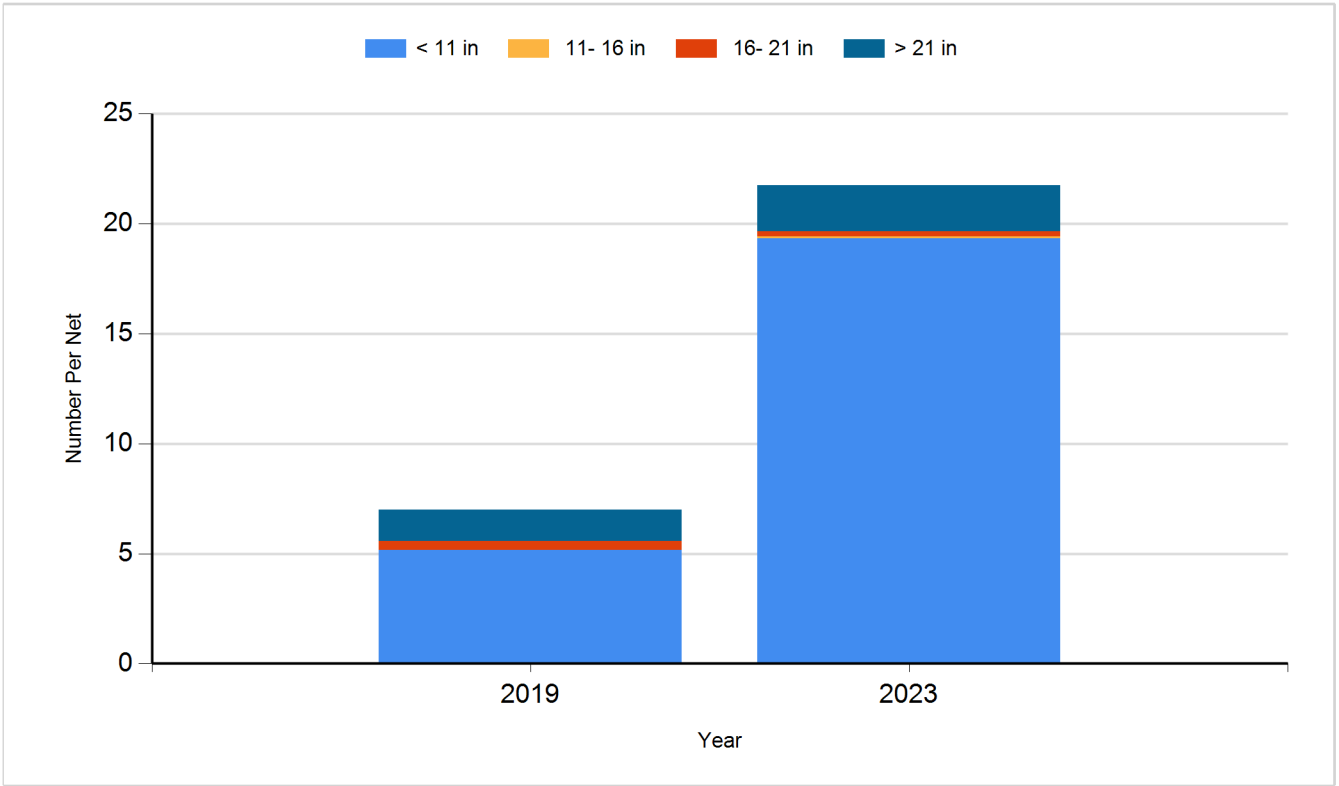
Species: Black Bullhead
Gear: std exp gill net



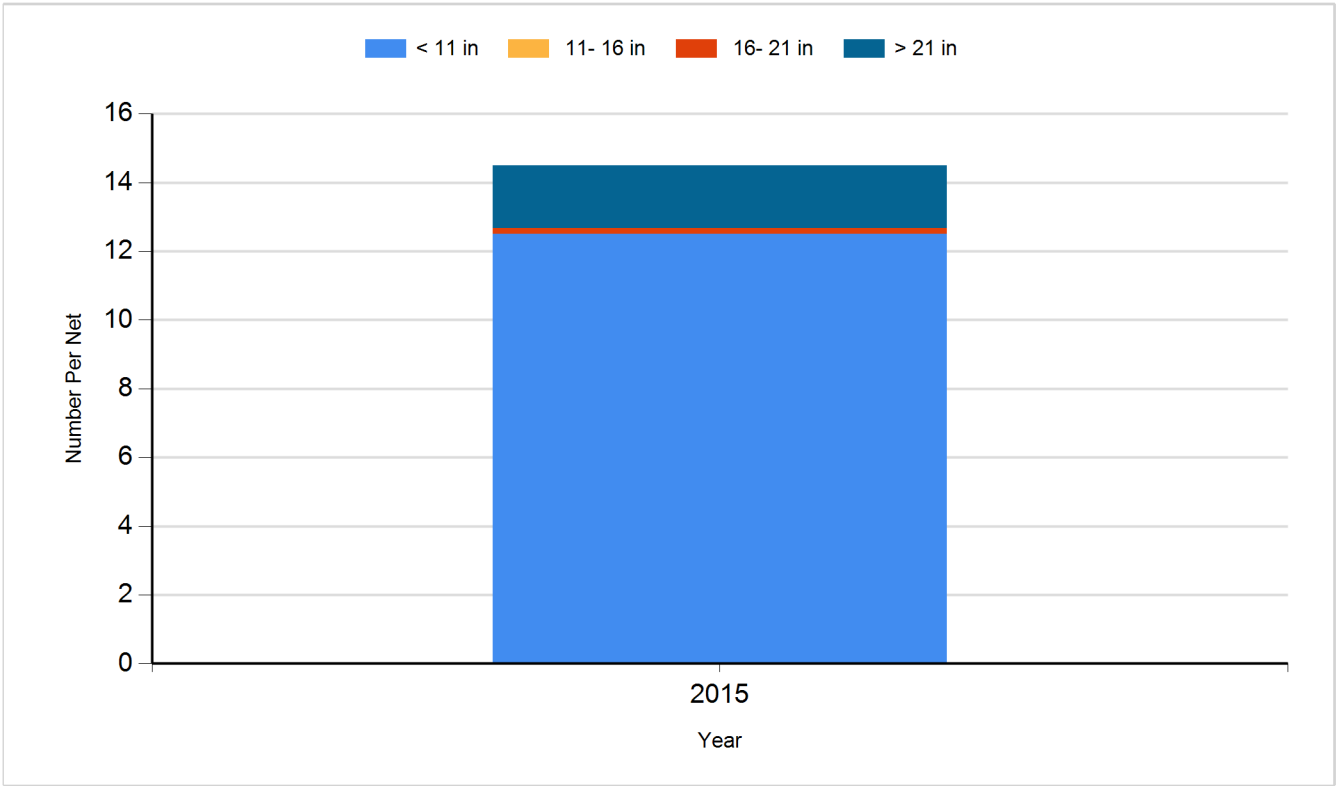
Species: Black Crappie
Gear: frame net (std 3/4 in)



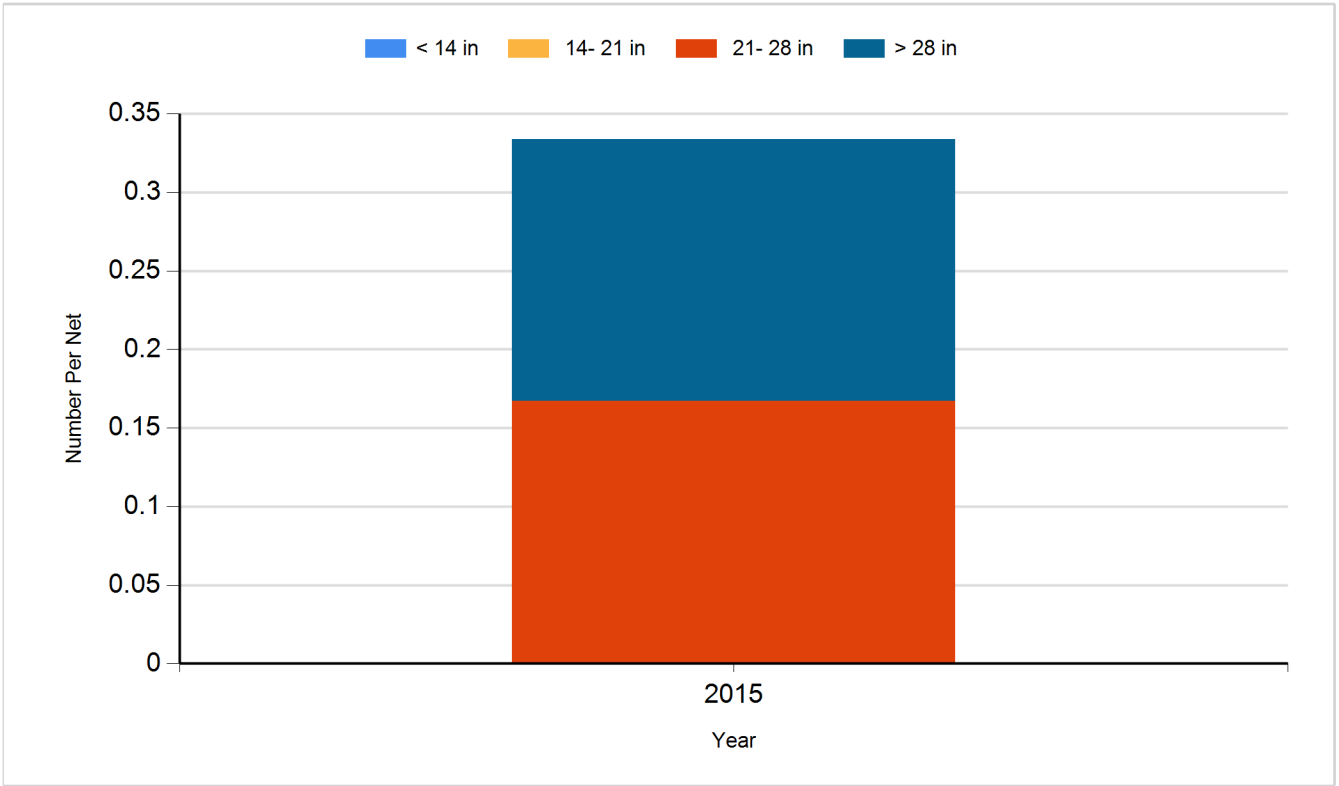
Species: Common Carp
Gear: AFS std gill net



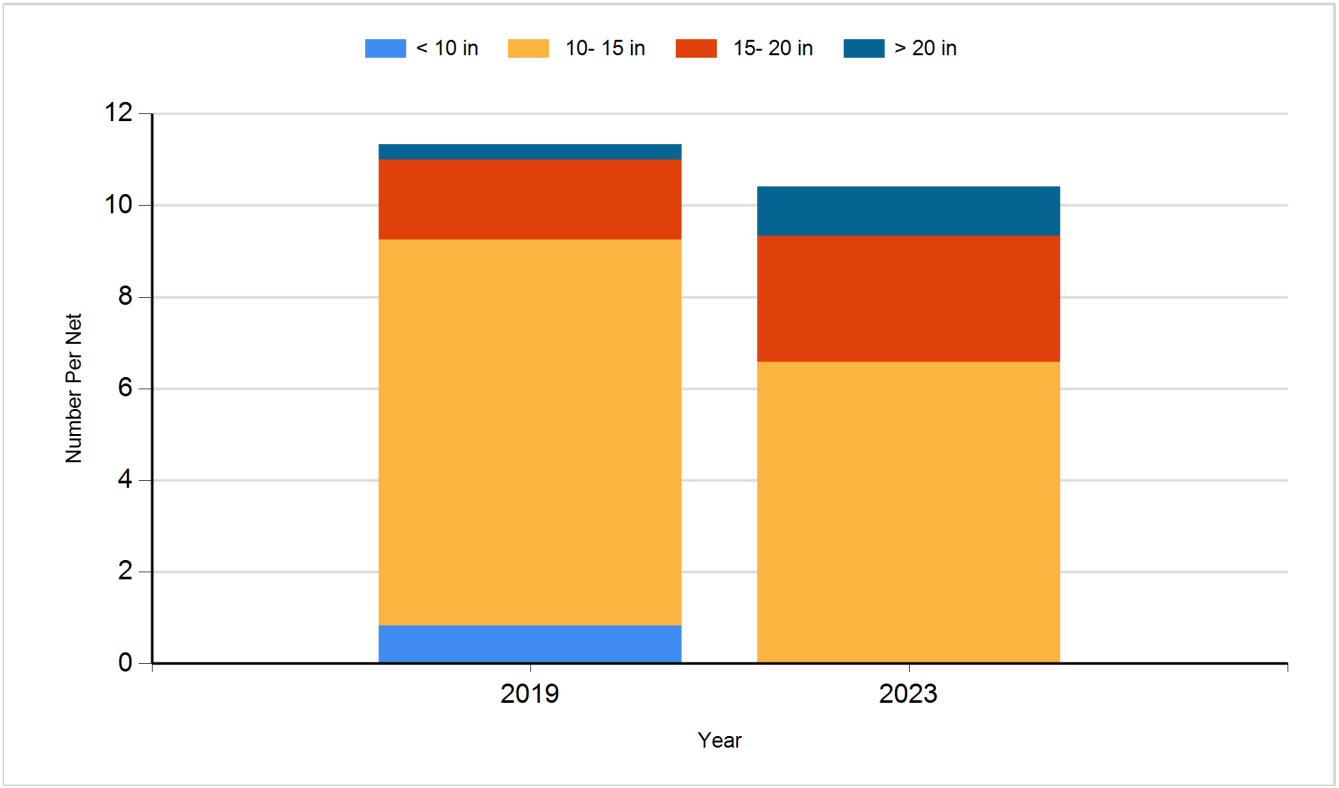
Species: Common Carp
Gear: std exp gill net



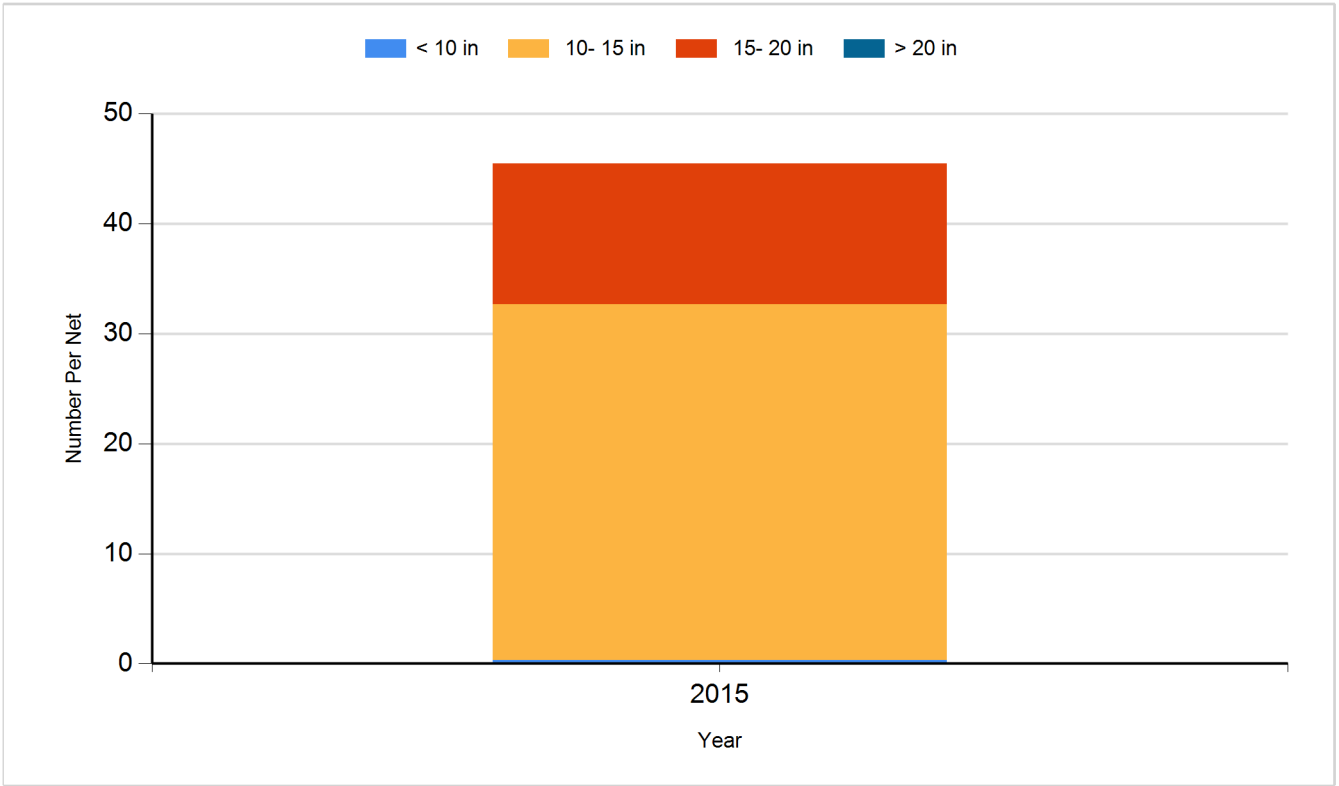
Species: Northern Pike
Gear: std exp gill net



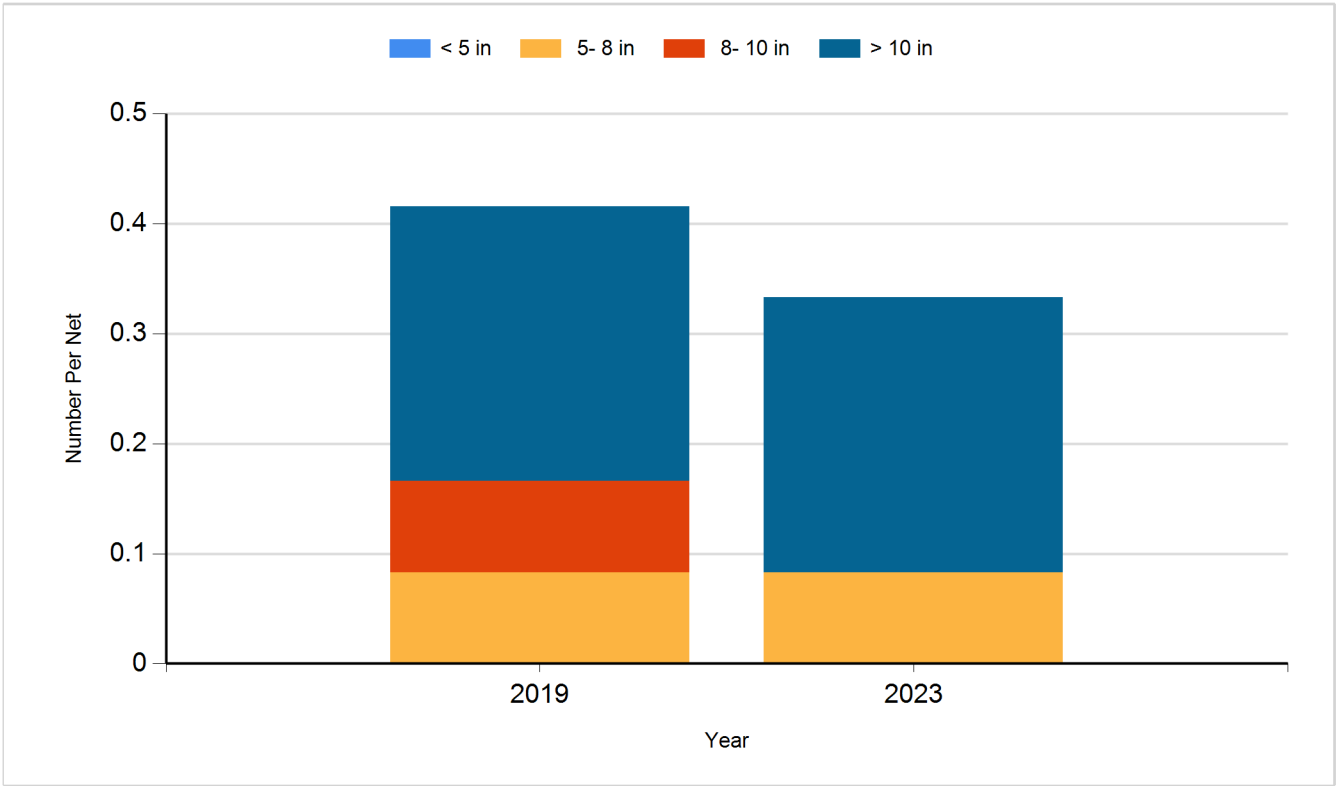
Species: Walleye
Gear: AFS std gill net



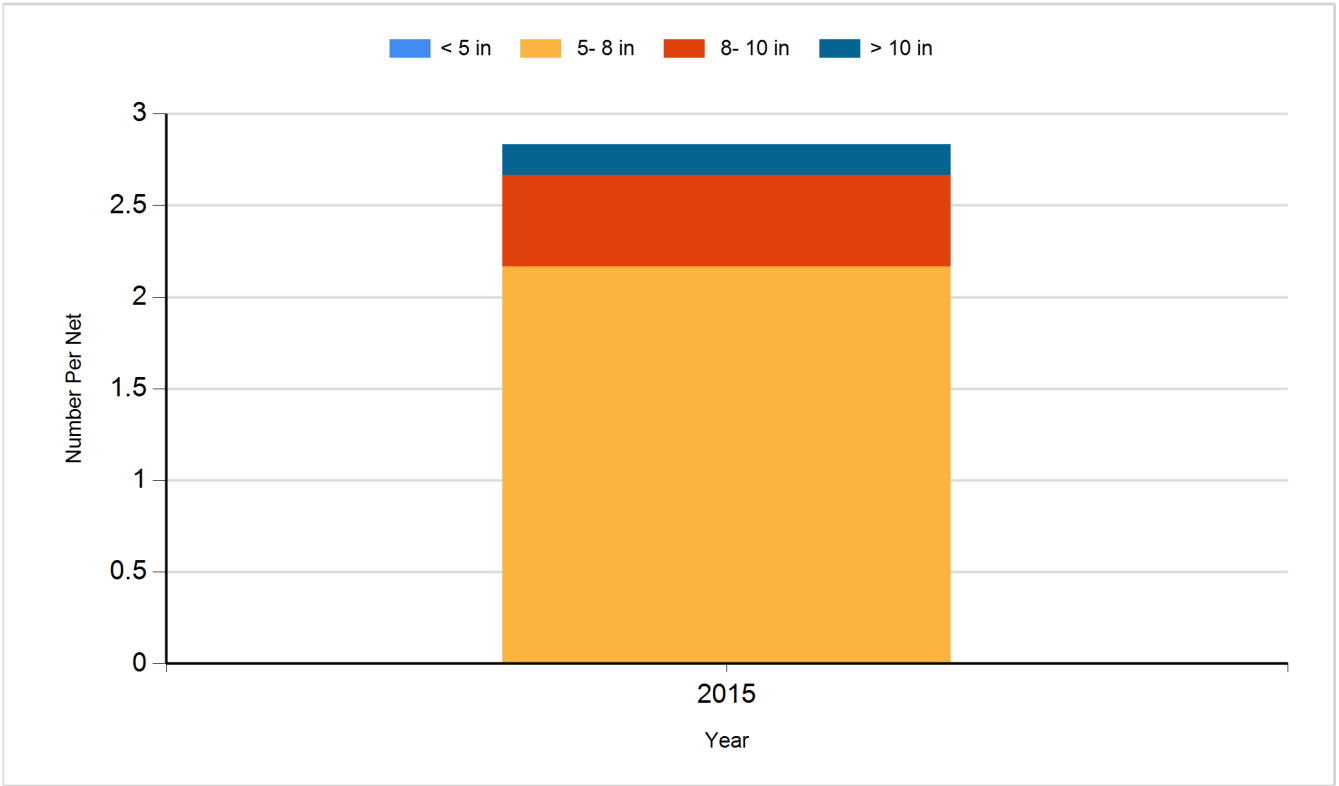
Species: Walleye
Gear: std exp gill net



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	Walleye	Fry	604,448
2014	Walleye	Fry	620,000
2015	Yellow Perch	Adult	4,950
2016	Walleye	Fry	620,000
2018	Walleye	Fry	620,000
2021	Walleye	Fry	625,000
2022	Walleye	Fry	200,000