

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.

- **Smallmouth bass.** Spring electrofishing for smallmouth bass was not completed in 2021.
- **Walleye.** Walleye numbers were similar to those observed in 2019. At 15.1 per net, relative abundance was considered high in 2021. Sampled walleyes ranged in length from 6.3 to 26.0 inches, of those that were at least 10.0 inches 96% were ≥ 15.0 inches and 61% were ≥ 20.0 inches. Fifteen year classes, of varying strength, produced between 2004 and 2020 were represented in the gill net catch. The oldest walleye sampled was from the 2004 (age-17) cohort. Currently, growth appears to be moderate to fast with mean length at capture values of 18.3 and 19.3 inches at ages 4 and 5.
- **Yellow perch.** Yellow perch were not abundant (2.3/gill net) in 2021. Those sampled ranged in length from 7.5 to 13.0 inches. Four cohorts (2014, 2016, 2018, and 2019) contributed to the catch, each was represented by 11 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

2021

Lake Information

Name: Reetz **Maximum Depth:** 25 Feet
County: Day
Surface Area: 1,395 Acres

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	May 27, 2021	4 net-nights
AFS std gill net	May 28, 2021	4 net-nights

Common Fish Species Present

Black Crappie

Yellow Perch

Walleye

Smallmouth Bass

Common Carp

Bluegill

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.

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

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.

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

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

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.

$$Wr = \left(\frac{W}{W_s} \right) \times 100$$

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).

Species Name	Stock		Quality		Preferred		Memorable		Trophy	
	(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).

Gear	Species	Sample Size (n)	Abundance		Stock Density Indices			Condition		
			CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
AFS std gill net	Black Crappie	15	1.9	0.9	0		0		117	3
	Bluegill	5	0.6	0.5	100		40		123	9
	Common Carp	242	30.0	4.6	16	3	1		109	1
	Smallmouth Bass	6	0.8	0.4	33		17		93	4
	Walleye	123	15.1	2.9	96		61	6	83	1
	Yellow Perch	18	2.3	1.3	89		39	19	93	2

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.

Gear	Species	CPUE										Avg
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
AFS std gill net	Black Crappie								0.0		1.9	0.95
	Bluegill								0.1		0.6	0.35
	Common Carp								0.0		30.0	15.00
	Smallmouth Bass								0.1		0.8	0.45
	Walleye								14.8		15.1	14.95
	White Sucker								0.1		0.0	0.05
	Yellow Perch								1.3		2.3	1.80
boat shocker (day)	Smallmouth Bass	37.9							43.5			40.70
frame net (std 3/4 in)	Black Crappie	1.8										1.80
std exp gill net	Black Crappie	2.5										2.50
	Smallmouth Bass	0.3										0.30
	Walleye	4.5										4.50
	Yellow Perch	72.5										72.50

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.

Gear	Species	Index	Year											
			2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
AFS std gill net	Walleye	PSD									85		96	
		PSD-P									48		61	
		Wr									88		83	
	Yellow Perch	PSD										60		89
		PSD-P										40		39
		Wr										100		93
std exp gill net	Walleye	PSD	83											
		PSD-P	44											
		Wr	90											
	Yellow Perch	PSD	59											
		PSD-P	12											
		Wr	98											

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+
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)
2012	20	198 (2)	342 (3)	441 (4)		433 (1)	513 (4)	559 (3)		534 (2)	712 (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+
2021	18		205 (5)	248 (11)		331 (1)		331 (1)			
2019	10		191 (6)	266 (2)	273 (1)	301 (1)					
2012	316	118 (41)	182 (137)	231 (126)	281 (7)	313 (5)					

Fish Condition

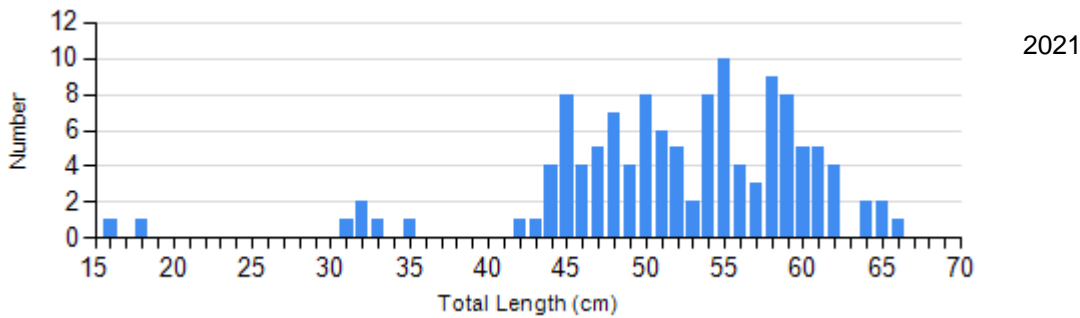
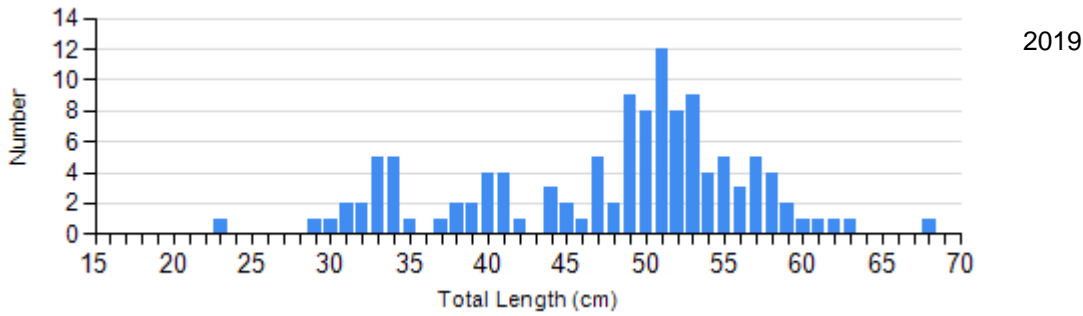
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		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)
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)

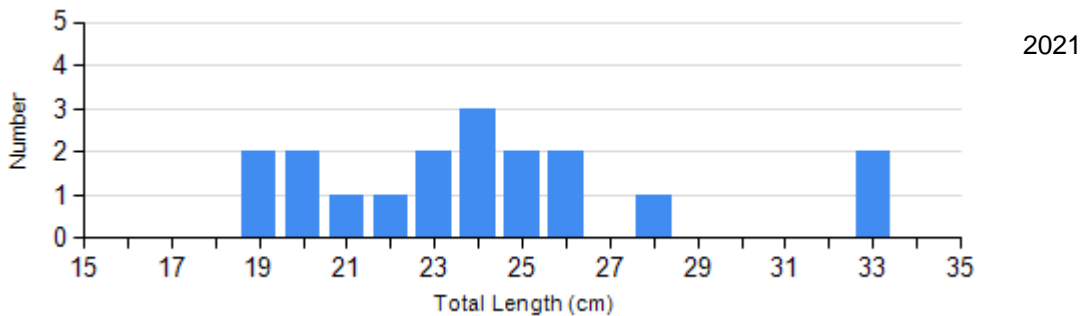
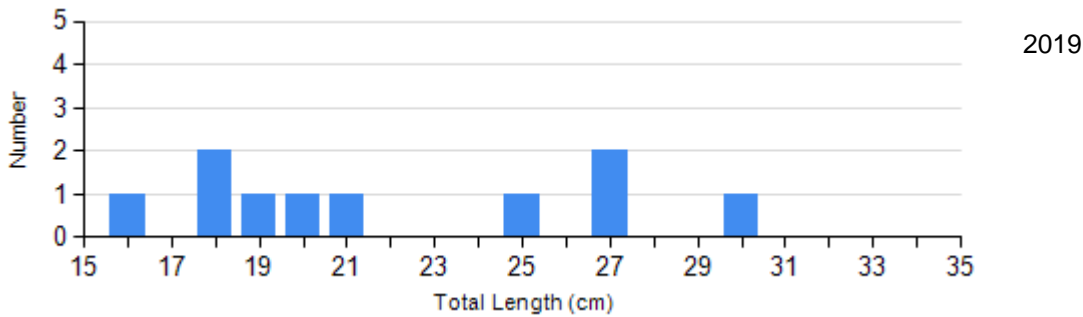
Length Frequency Distribution

Length frequency histogram of species sampled by year.

Species: Walleye
Gear: AFS std gill net



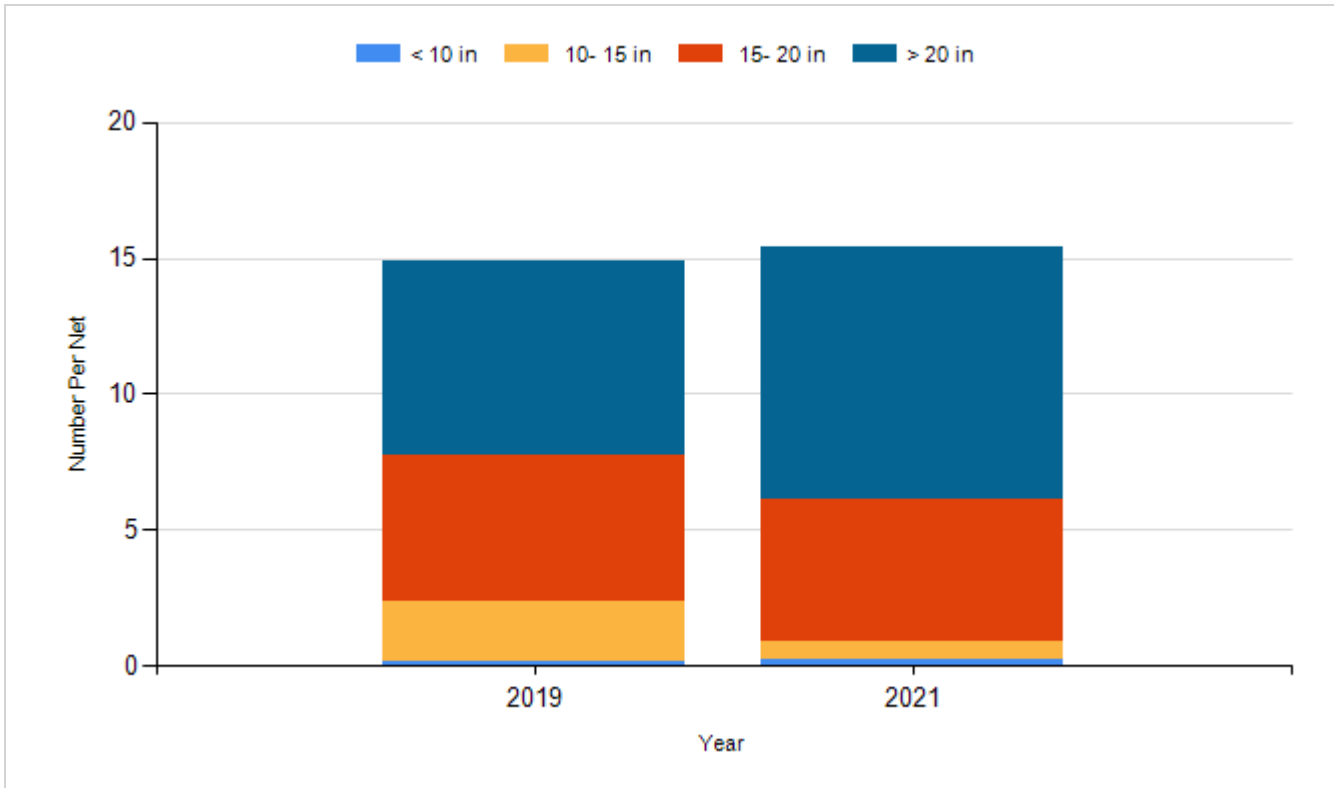
Species: Yellow Perch
Gear: AFS std gill net



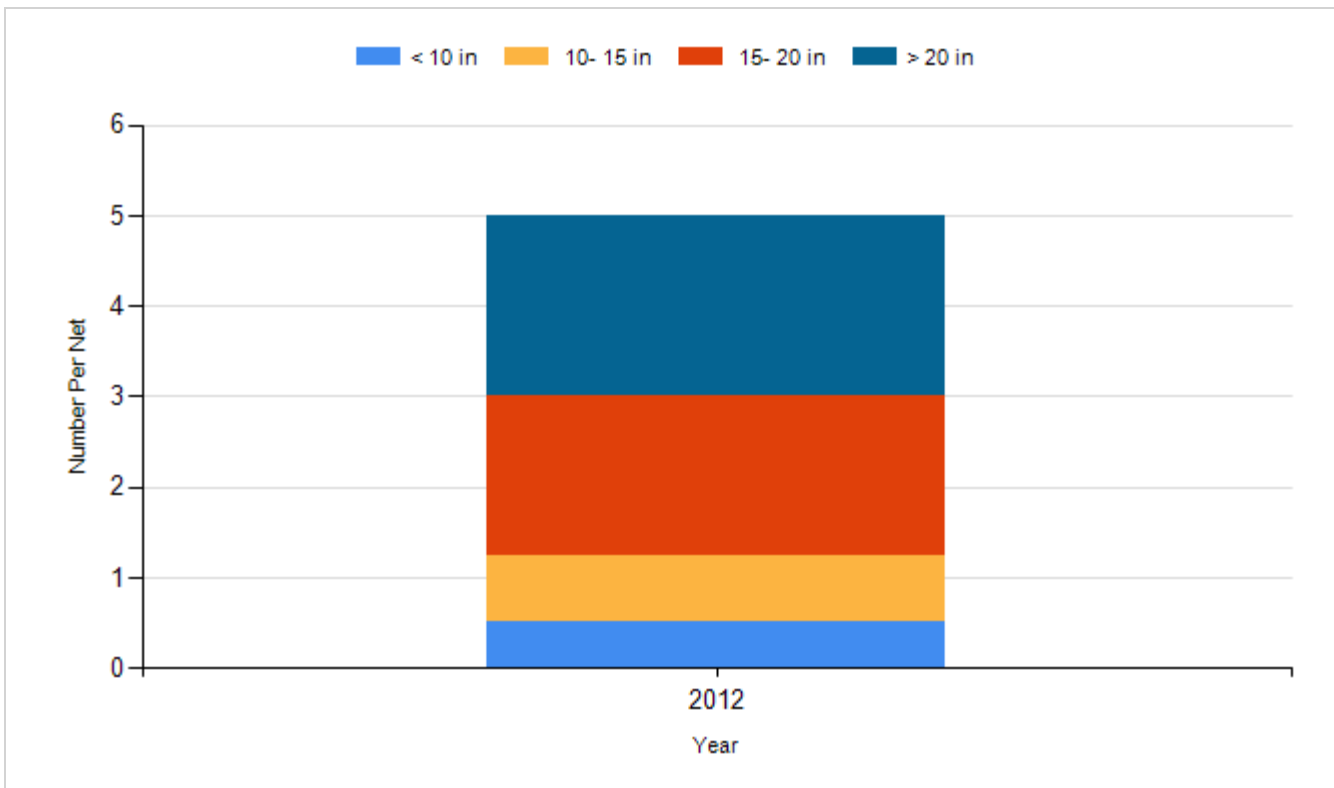
Historic Fish Sizes and Relative Abundance

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

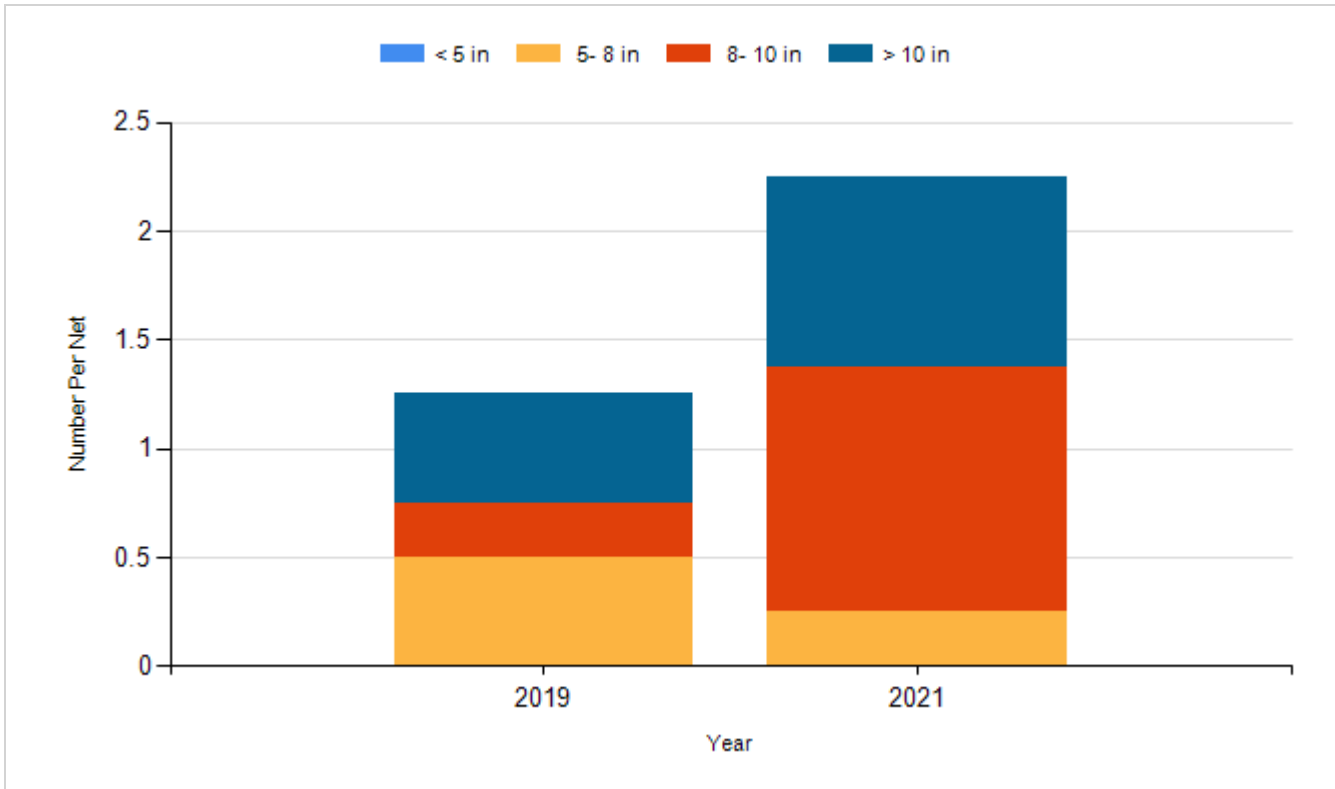
Species: Walleye
Gear: AFS std gill net



Species: Walleye
Gear: std exp gill net



Species: Yellow Perch
Gear: AFS std gill net



Species: Yellow Perch
Gear: std exp gill net

