Dry Lake Survey Summary

Dry Lake, located 0.5 miles south of Florence, is managed for walleye and yellow perch but other fish species (e.g., northern pike) also contribute to the fishery.

- **Northern pike.** Northern pike numbers were considerably lower in 2018 (0.3/gill net) than 2013 (7.5/gill net). In 2018, only four northern pike ranging in length from 26.4 to 42.5 inches were sampled.

- **Walleye.** Similar to northern pike, walleye numbers declined sharply in 2018 when compared to 2013. At 2.3/gill net, relative abundance was considered low to moderate. Sampled walleyes ranged from 7.1 to 24.8 inches and five cohorts, none of which were abundant, were represented.

- **Yellow Perch**. Although yellow perch were the most abundant fish species in the 2018 gill net catch, at 5.4/gill net their relative abundance was considered low. Sampled yellow perch ranged in length from 4.7 to 13.0 inches and seven consecutive year classes (2011 – 2017) were represented. Cohorts produced in 2013 (age-5) and 2014 (age-4), which comprised 53% of yellow perch in the sample, had mean length at capture values of 11.1 and 10.1 inches.

For more detailed results see the computer generated South Dakota Statewide Fisheries Survey for Dry Lake (below).

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Dry, Codington County
UBS-Lake-106-001
2018

Lake Information

Name: Dry

County: Codington

Surface Area: 1,361 Acres

Maximum Depth: 14 Feet

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jun 12, 2018	4 net-nights
AFS std gill net	Jun 13, 2018	8 net-nights

Common Fish Species Present

Walleye

Northern Pike

Yellow Perch

White Sucker

Common Carp

Bigmouth Buffalo

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)
Bigmouth Buffalo	11	28	18	46	24	61	30	76	37	94
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
Channel Catfish	11	28	16	41	24	61	28	71	36	91
Common Carp	11	28	16	41	21	53	26	66	33	84
Freshwater Drum	8	20	12	30	15	38	20	51	25	63
Gizzard Shad	7	18	11	28						
Green Sunfish	3	8	6	15	8	20	10	25	12	30
Lake Herring	5	13	8	20	11	28	14	35	17	43
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
Rock Bass	4	10	7	18	9	23	11	28	13	33
Rudd	6	15	10	25	12	30	15	38	19	48
Saugeye	9	23	14	35	18	46	22	56	27	69
Shorthead Redhorse	6	15	10	25	13	33	16	41	20	51
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
White Sucker	6	15	10	25	13	33	16	41	20	51
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).

		Abundance		Stock Density Indices				Condition	
Gear	Species	CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
AFS std gill net	Bigmouth Buffalo	0.2	0.2	100		0		87	0
	Common Carp	0.9	0.5	100		100		95	2
	Northern Pike	0.3	0.3	100		50		91	13
	Walleye	2.3	0.6	22	13	4		82	1
	White Sucker	1.1	0.5	100		100		108	4
	Yellow Perch	5.4	1.2	80	7	60	9	107	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.

		CPUE										
Gear	Species	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Avg
AFS std gill net	Bigmouth Buffalo										0.2	0.2
	Common Carp										0.9	0.9
	Northern Pike										0.3	0.3
	Walleye										2.3	2.3
	White Sucker										1.1	1.1
	Yellow Perch										5.4	5.4
std exp gill net	Black Bullhead					2.5						2.5
	Northern Pike					7.5						7.5
	Walleye					20.0						20.0
	White Sucker					0.8						0.8
	Yellow Perch					7.3						7.3

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	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
AFS std gill net	Northern Pike	PSD										100
		PSD-P										50
		Wr										91
	Walleye	PSD										22
		PSD-P										4
		Wr										82
	Yellow Perch	PSD										80
		PSD-P										60
		Wr										107
std exp gill net	Northern Pike	PSD					93					
		PSD-P					33					
		Wr					83					
	Walleye	PSD					38					
		PSD-P					0					
		Wr					85					
	Yellow Perch	PSD					69					
		PSD-P					10					
		Wr					93					

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+
2018	33	190 (6)	272 (8)	324 (6)	371 (11)			566 (2)			
2013	88	192 (8)	329 (50)	416 (30)							

Species: Yellow Perch

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2018	66	137 (12)	205 (6)	238 (2)	257 (19)	283 (16)	313 (4)	313 (7)			
2013	35	108 (6)	202 (25)	267 (4)							

Fish Condition

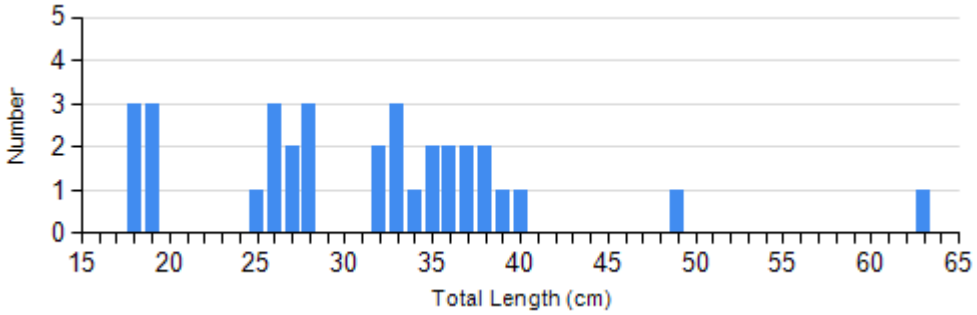
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Northern Pike Gill Net	2018	0		2	75 (3.6)	0		2	108 (3.1)
Walleye Gill Net	2018	21	83 (0.9)	5	75 (0.5)	0		1	80
Yellow Perch Gill Net	2018	13	110 (2.2)	13	111 (3.2)	26	107 (1.8)	13	97 (2.3)

Length Frequency Distribution

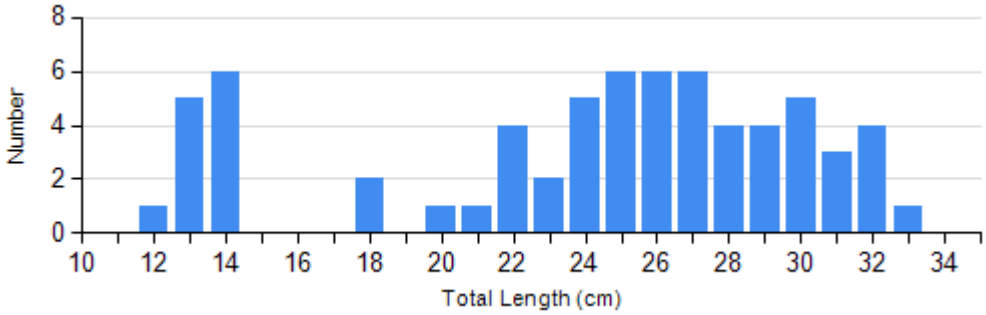
Length frequency histogram of species sampled by year.

Species: Walleye
Gear: AFS std gill net



2018

Species: Yellow Perch
Gear: AFS std gill net

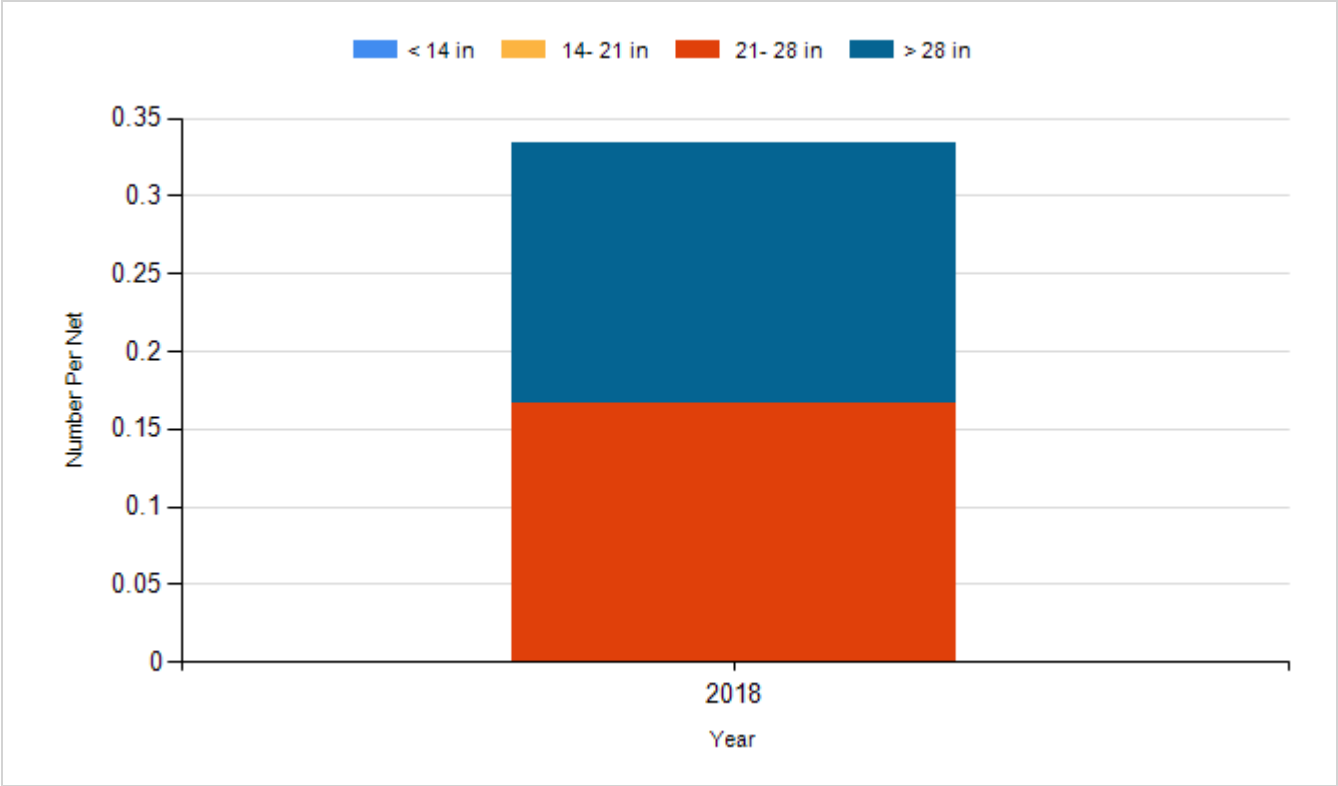


2018

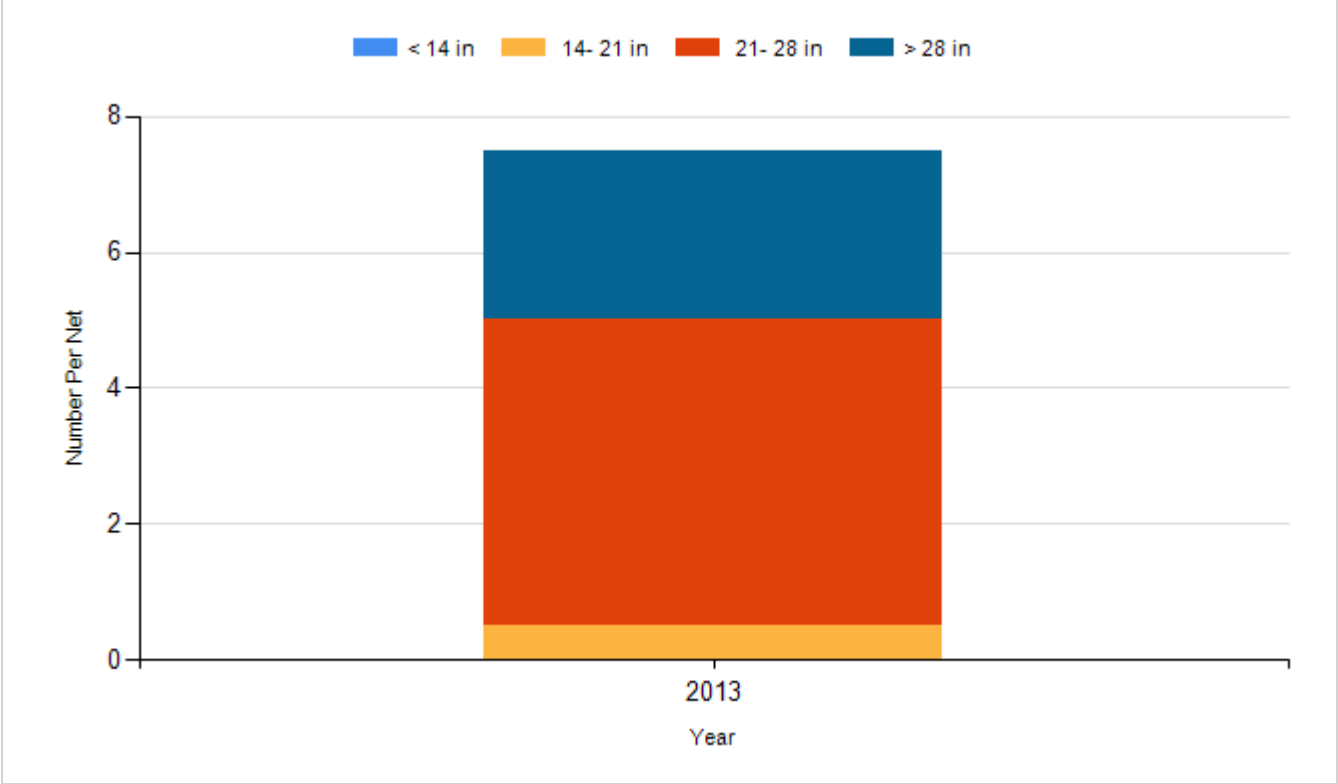
Historic Fish Sizes and Relative Abundance

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

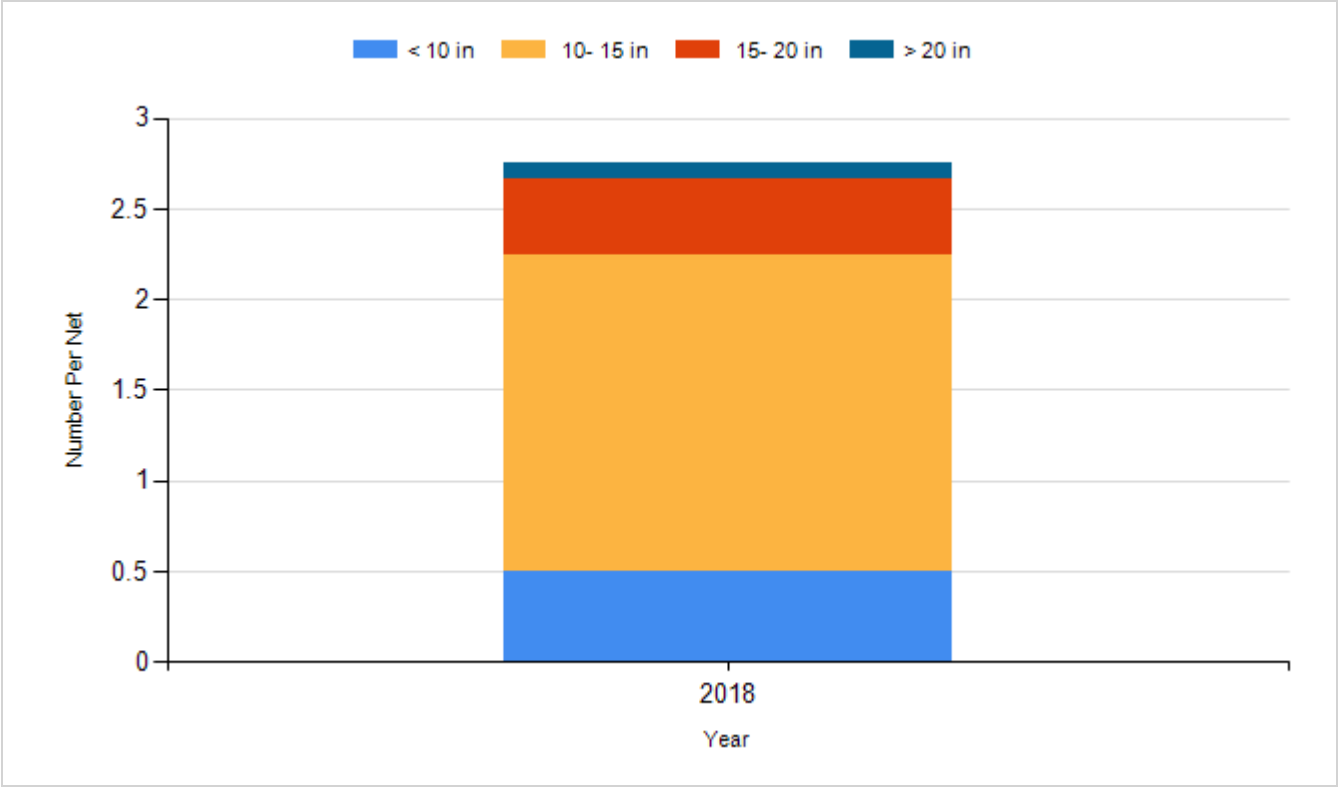
Species: Northern Pike
Gear: AFS std gill net



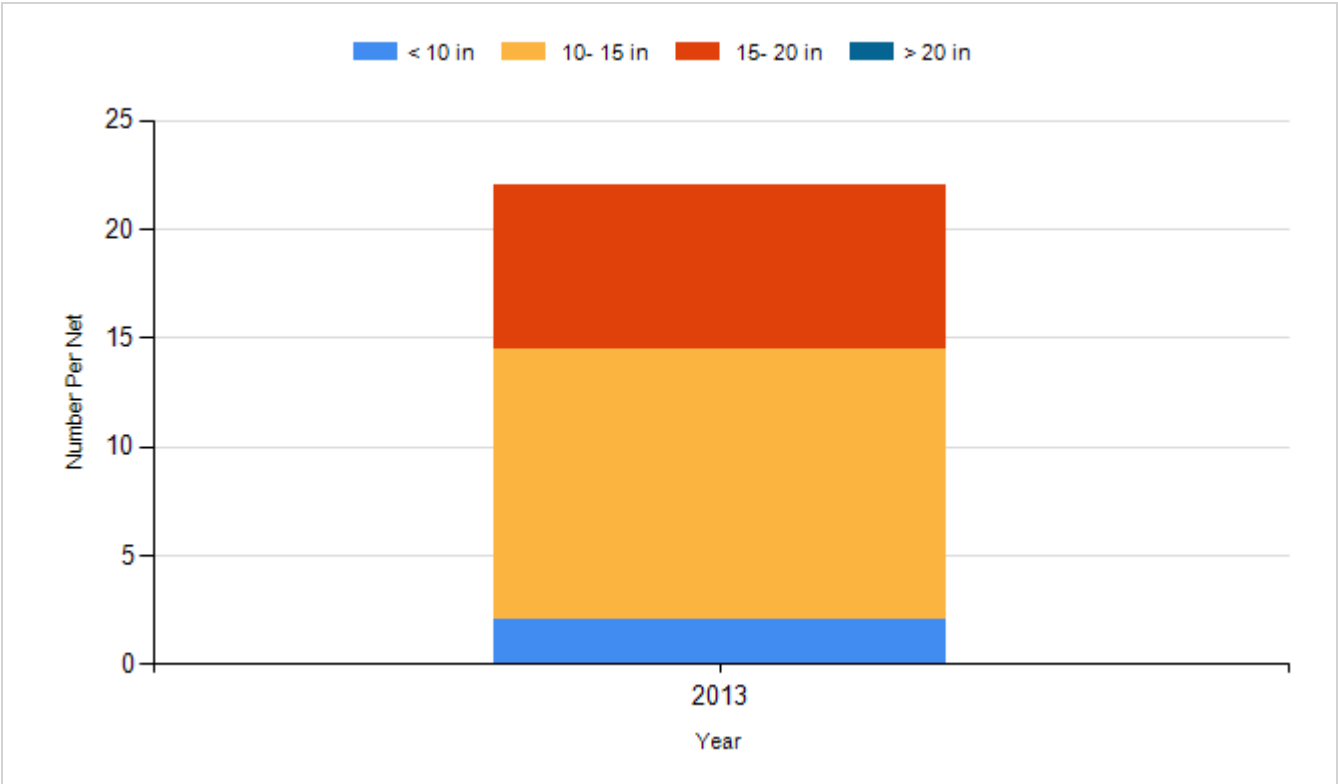
Species: Northern Pike
Gear: std exp gill net



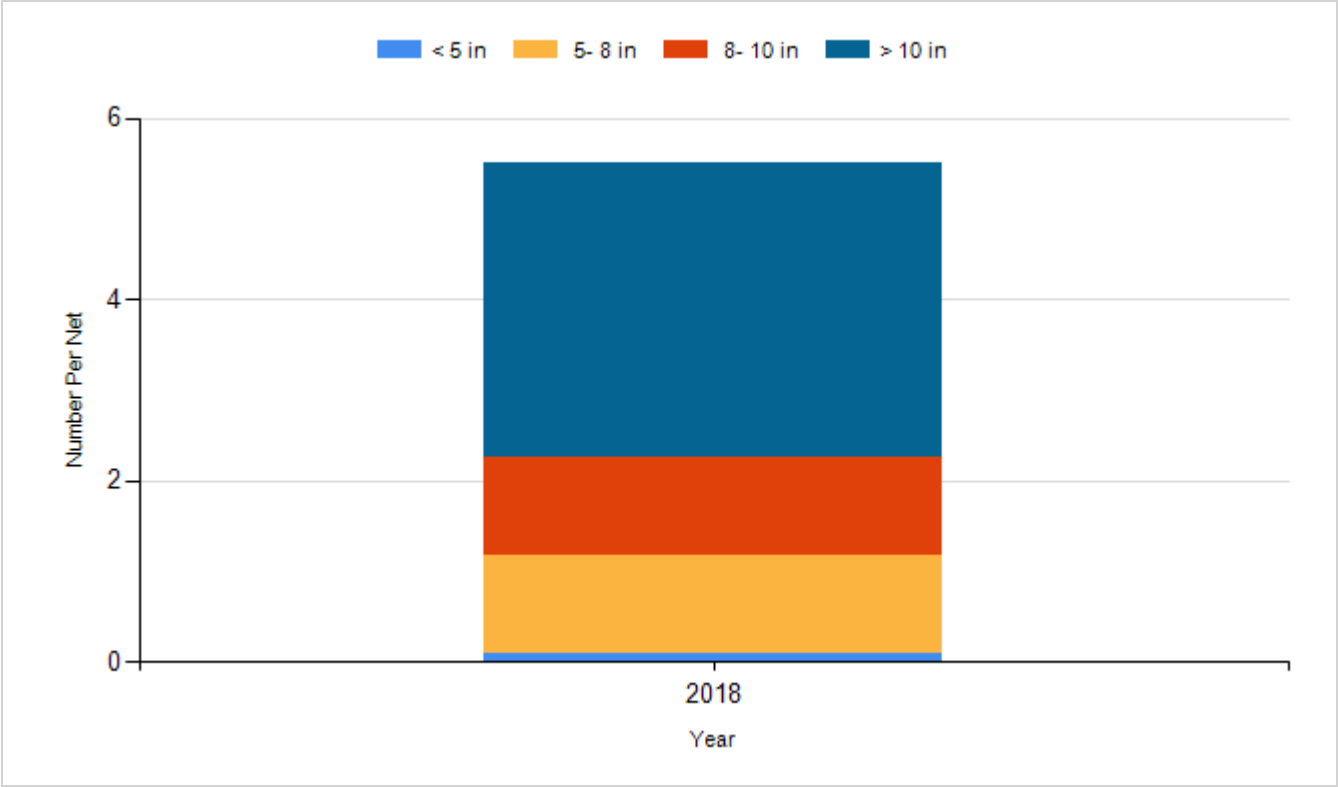
Species: Walleye
Gear: AFS std gill net



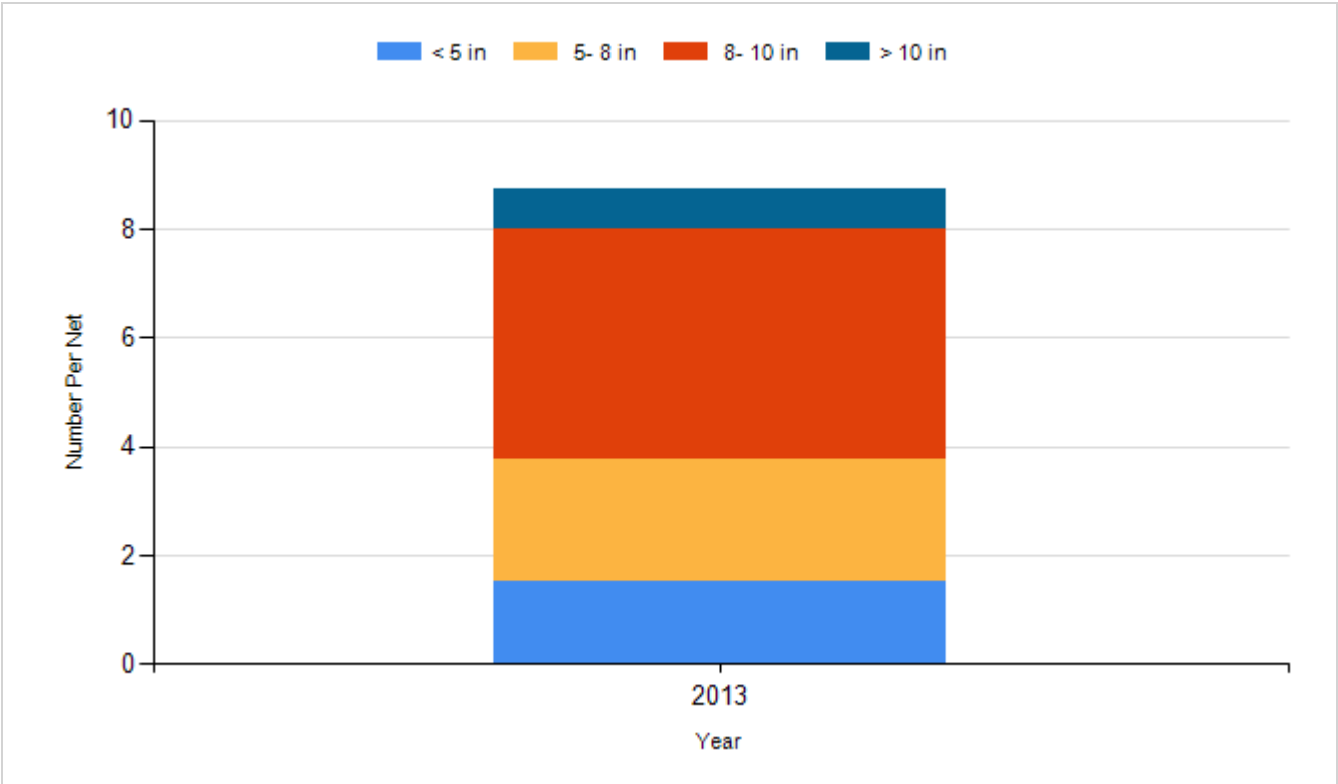
Species: Walleye
Gear: std exp gill net



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
2007	Walleye	Fry	2,000,000
2010	Walleye	Fry	2,000,000
2010	Yellow Perch	Small	3,375
2011	Yellow Perch	Adult	3,145
2012	Walleye	Fry	1,000,000
2014	Walleye	Fry	680,000
2016	Walleye	Small Fingerling	136,620
2017	Walleye	Small Fingerling	100,160