Note: Curlyleaf pondweed and zebra mussels are present in Pickerel Lake. Care should be taken by all user groups to prevent their spread. For more information regarding aquatic invasive species please visit https://sdleastwanted.sd.gov/

Pickerel Survey Summary

Pickerel Lake, located 6.0 miles northeast of Grenville, is managed as a multi-species fishery including panfish (i.e., black crappie, bluegill, and yellow perch), smallmouth bass and walleye; other fish species (e.g., northern pike, white bass, etc.) also contribute to the fishery.

- **Black crappie.** Black crappies were not abundant (0.4 per frame net) in 2021; nine individuals that ranged in length from 2.7 to 10.0 inches were sampled.

- **Bluegill.** Considerably fewer bluegills were sampled in 2021 than in 2020. At 3.0 per frame net, relative abundance was low. Sampled bluegills ranged in length from 3.1 to 8.7 inches, 74% were ≥6.0 inches and 20% were ≥8.0 inches.

- **Northern pike.** Northern pike numbers were similar to those observed in 2020. At 2.9 per gill net, relative abundance was considered moderate to high. Sampled northern pike ranged in length from 16.1 to 26.4 inches, 60% were ≥21 inches.

- **Smallmouth bass.** Spring electrofishing for smallmouth bass was not completed in 2021.

- **Walleye.** At 5.3 per gill net, relative abundance of walleyes was considered moderate in 2021. Gill net captured walleyes ranged in length from 10.2 to 26.0 inches, 36% were ≥15.0 inches and 11% were ≥20.0 inches. Individuals from eight year classes (2010, 2011, and 2014 – 2019) were present; those from the 2018 (age-3) cohort, which coincided with a fry stocking, were the most abundant accounting for more than half (58%) of fish in the sample. Since 2012, mean length at capture of age-3 fish has ranged from 12.2 to 14.9 inches, while age-4 fish had mean length at capture values from 14.4 to 17.4 inches. In 2021, the mean length at capture of age-3 and age-4 fish was 13.2 and 16.0 inches. During fall electrofishing (42/hr) a moderately strong 2021 year-class was found, which corresponded with a fry stocking.

- **Yellow perch**. The 2021 mean gill net CPUE of 4.6 was the lowest recorded from 2012 – 2021 and suggests low relative abundance. Sampled yellow perch ranged in length from 5.2 to 10.0 inches, 33% were ≥8.0 inches and 4% were ≥10.0 inches. Individuals from five consecutive year classes (2015 - 2019) were present, those from the 2017 (age-4) and 2018 (age-3) cohorts were the most numerous accounting for 73% of sampled yellow perch. Growth tends to be slow to moderate as mean length at capture values for age-3 yellow perch have ranged from 6.6 to 8.8 inches since 2012. In 2021, the mean length of age-3 fish was 6.6 inches.

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

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Pickerel, Day County
UBS-Lake-358-000
2021

Lake Information

Name:	Pickerel	**Maximum Depth:**	41 Feet
County:	Day	**Mean Depth:**	16 Feet
		OHWM Elevation:	1,846
Surface Area:	989 Acres	**Outlet Elevation:**	1,845

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jun 22, 2021	4 net-nights
AFS std gill net	Jun 23, 2021	4 net-nights
AFS std gill net	Jun 24, 2021	4 net-nights
fall night EF-WAE	Oct 06, 2021	3600 seconds
frame net (std 3/4 in)	Jun 22, 2021	6 net-nights
frame net (std 3/4 in)	Jun 23, 2021	6 net-nights
frame net (std 3/4 in)	Jun 24, 2021	6 net-nights

Common Fish Species Present

Northern Pike

Bluegill

Black Crappie

Yellow Perch

Walleye

Smallmouth Bass

Rock Bass

White Bass

White Sucker

Black Bullhead

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).

			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	10	0.8	0.4	100		70		102	5
	Black Crappie	55	4.6	2.8	96		29	9	112	1
	Bluegill	9	0.8	0.5	100		44		115	3
	Northern Pike	35	2.9	0.9	60	13	0		82	1
	Rock Bass	1	0.1	0.1	0		0		108	
	Smallmouth Bass	32	2.7	0.8	84	10	56	13	94	2
	Walleye	64	5.3	1.0	36	9	11	6	85	1
	White Bass	23	1.9	0.7	100		91		93	1
	White Sucker	18	1.5	0.6	100		100		106	3
	Yellow Perch	55	4.6	1.7	33	9	4		97	1
frame net (std 3/4 in)	Black Bullhead	4	0.2	0.1	100		50		98	2
	Black Crappie	9	0.4	0.3	63		25		107	4
	Bluegill	54	3.0	1.1	74	9	20	8	120	1
	Northern Pike	13	0.7	0.2	62		15		78	3
	Rock Bass	143	7.6	3.7	32	6	1		110	1
	Smallmouth Bass	64	2.9	0.8	42	10	23	9	91	1
	Walleye	5	0.3	0.2	20		0		82	5
	White Bass	1	0.1	0.1	100		100		87	
	White Sucker	2	0.1	0.1	100		100		108	3
	Yellow Perch	18	0.9	0.3	13		0		92	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.

*** SDGFP standard gill nets used 2012 – 2015; average calculated for data from 2016 – 2021**

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

		CPUE										
Gear	Species	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Avg
AFS std gill net*	Black Bullhead	1.0	1.0	0.2	3.2	0.1	1.3	0.0	0.2	0.2	0.8	0.43
	Black Crappie	4.5	2.0	7.2	2.5	0.2	0.2	0.9	0.6	0.9	4.6	1.23
	Bluegill	0.5	1.3	0.0	0.0	0.2	0.1	1.3	2.1	1.9	0.8	1.07
	Common Carp	0.0	0.2	0.2	0.3	0.1	0.2	0.4	0.2	0.3	0.0	0.20
	Northern Pike	3.3	4.7	3.0	3.3	0.5	1.3	1.5	2.5	3.0	2.9	1.95
	Rock Bass	0.2	0.0	0.0	0.0	0.0	0.1	0.5	0.2	1.1	0.1	0.33
	Smallmouth Bass	0.8	1.0	2.2	1.7	2.1	1.4	2.0	1.3	2.3	2.7	1.97
	Spottail Shiner**	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
	Walleye	8.0	17.3	12.3	18.5	2.3	2.5	4.3	5.2	6.2	5.3	4.30
	White Bass	3.2	1.8	3.0	4.0	2.9	1.9	1.5	1.8	5.4	1.9	2.57
	White Sucker	1.5	1.7	1.5	1.7	1.1	1.7	1.8	1.6	0.8	1.5	1.42
	Yellow Perch	27.5	56.0	23.2	27.8	8.9	5.0	21.8	16.1	21.8	4.6	13.03
boat shocker	Smallmouth Bass		207.0		110.0			6.0	59.0			95.50
fall night EF-WAE**	Walleye		139.0	10.0	44.4	0.0	28.0	76.0			42.0	37.63
frame net (std 3/4 in)	Black Bullhead	4.1	6.2	10.1	10.9		1.3		6.6	1.7	0.2	5.14
	Black Crappie	2.5	9.3	1.0	0.9		0.1		0.7	0.5	0.4	1.93
	Bluegill	5.4	12.8	0.6	0.4		11.6		24.5	20.3	3.0	9.83
	Common Carp	0.1	0.0	0.0	0.1		0.0		0.1	0.0	0.0	0.04
	Northern Pike	0.6	0.1	0.2	0.5		0.2		0.4	0.3	0.7	0.38
	Rock Bass	2.6	3.4	6.0	8.5		1.2		3.4	3.3	7.6	4.50
	Smallmouth Bass	5.1	3.2	2.3	2.3		0.9		2.6	2.7	2.9	2.75
	Walleye	1.8	0.4	0.6	0.3		0.2		0.2	0.2	0.3	0.50
	White Bass	1.9	0.1	0.1	0.2		0.2		0.6	0.3	0.1	0.44
	White Sucker	0.1	0.0	0.2	0.2		0.1		0.1	0.1	0.1	0.11
	Yellow Perch	1.4	0.2	0.2	0.1		0.3		0.6	2.9	0.9	0.83

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.

*** SDGFP standard gill nets used from 2012 – 2015; **AFS standard frame nets used in 2017.**

			Year									
Gear	Species	Index	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
AFS std gill net*	Northern Pike	PSD	50	54	56	40	67	67	83	87	58	60
		PSD-P	5	7	17	5	33	0	11	3	6	0
		Wr	82	78	80	80	78	89	86	85	89	82
	Walleye	PSD	25	16	16	52	57	60	71	74	53	36
		PSD-P	0	1	1	1	7	3	10	18	16	11
		Wr	83	83	86	87	83	88	85	88	90	85
	Yellow Perch	PSD	41	63	86	79	98	60	48	32	21	33
		PSD-P	4	7	12	40	52	33	11	4	1	4
		Wr	107	107	108	110	109	101	100	103	104	97
frame net (std 3/4 in)**	Black Crappie	PSD	56	100	100	94		100		42	89	63
		PSD-P	47	69	94	94		100		17	33	25
		Wr	111	96	100	95		86		106	105	107
	Bluegill	PSD	61	99	82	71		2		92	94	74
		PSD-P	6	39	73	43		0		15	44	20
		Wr	125	125	118	129		123		120	120	120

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	64		286 (3)	335 (37)	406 (9)	418 (1)	486 (6)	530 (2)			568 (6)
2020	77		275 (28)	371 (17)	418 (5)	480 (6)	481 (5)	536 (6)		511 (4)	578 (6)
2019	62		295 (14)	378 (2)	419 (21)	459 (4)	502 (9)		490 (3)	502 (5)	571 (4)
2018	52	180 (1)	311 (3)	367 (16)	443 (1)	460 (15)	474 (2)	457 (5)	463 (7)		677 (2)
2017	30		325 (10)	376 (3)	420 (9)		478 (3)	450 (4)	414 (1)		
2016	32	197 (4)	296 (1)	356 (10)	372 (1)	420 (9)	422 (6)				645 (1)
2015	114	186 (3)	298 (28)	373 (25)	388 (37)	410 (19)		604 (1)	427 (1)		
2014	75	184 (1)	307 (5)	351 (41)	367 (23)	463 (1)	416 (1)	406 (1)	443 (1)		556 (1)
2013	106	186 (1)	276 (19)	345 (68)	383 (6)	412 (4)	422 (3)	442 (4)			676 (1)
2012	53	207 (7)	277 (26)	312 (4)	376 (4)	405 (4)	417 (7)		483 (1)		508 (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	55		137 (4)	167 (28)	199 (12)	223 (9)	219 (3)				
2020	263		142 (107)	170 (87)	210 (52)	231 (17)					
2019	195		142 (62)	194 (100)	233 (30)	243 (2)		302 (1)			
2018	263		153 (122)	216 (108)	249 (10)	266 (8)	280 (2)	273 (10)	310 (3)	274 (1)	
2017	60		171 (25)	223 (11)	257 (12)	266 (2)	266 (4)	286 (3)	290 (3)		
2016	107		164 (1)	209 (10)	237 (18)	247 (26)	258 (26)	272 (24)	294 (1)		
2015	168	100 (1)	157 (16)	196 (24)	238 (50)	255 (46)	260 (23)	249 (4)			
2014	139		146 (6)	202 (27)	229 (67)	240 (38)	234 (3)				
2013	340	99 (1)	137 (27)	192 (127)	222 (150)	247 (31)		264 (4)	276 (2)		
2012	186	102 (22)	150 (44)	195 (79)	224 (25)	241 (3)	237 (8)	249 (2)	268 (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).

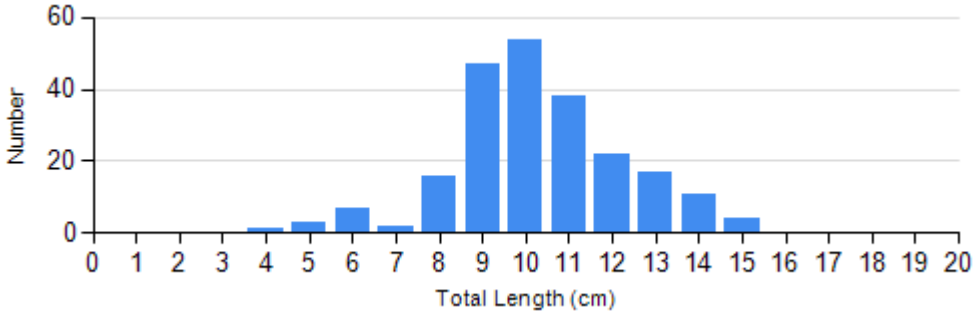
***Black Crappie omitted from table because of low sample size**

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Bluegill Frame Net	2017	205	123 (1.6)	4	120 (7.2)	0		0	
	2019	37	105 (1.8)	336	122 (0.7)	68	122 (1.3)	0	
	2020	22	113 (3.2)	182	121 (0.6)	161	120 (0.6)	0	
	2021	14	122 (3.0)	29	121 (1.0)	11	117 (1.8)	0	
Northern Pike Gill Net	2017	5	93 (7.4)	10	87 (1.8)	0		0	
	2018	3	88 (3.6)	13	85 (1.9)	2	91 (0.5)	0	
	2019	4	88 (1.7)	25	84 (1.0)	1	102	0	
	2020	15	92 (1.5)	19	87 (1.0)	1	94	1	85
	2021	14	84 (1.4)	21	81 (1.1)	0		0	
Walleye Gill Net	2017	12	88 (1.0)	17	87 (1.3)	1	93	0	
	2018	15	84 (1.5)	31	86 (1.1)	3	84 (2.5)	2	87 (2.8)
	2019	16	87 (1.2)	35	88 (1.0)	9	90 (1.2)	2	93 (4.7)
	2020	35	88 (0.8)	27	91 (0.8)	10	93 (2.0)	2	88 (3.9)
	2021	41	85 (0.6)	16	86 (1.3)	6	82 (2.2)	1	75
Yellow Perch Gill Net	2017	24	101 (1.3)	16	102 (2.7)	20	102 (2.0)	0	
	2018	136	100 (0.6)	97	100 (0.7)	26	98 (1.0)	3	94 (3.1)
	2019	132	106 (2.2)	54	98 (0.9)	6	91 (2.1)	1	95
	2020	206	105 (0.5)	54	100 (0.9)	2	92 (3.0)	0	
	2021	37	100 (1.2)	16	94 (2.0)	2	85 (5.4)	0	

Length Frequency Distribution

Length frequency histogram of species sampled by year.

Species: Bluegill
Gear: frame net (std 3/4 in); *AFS standard frame nets used in 2017.



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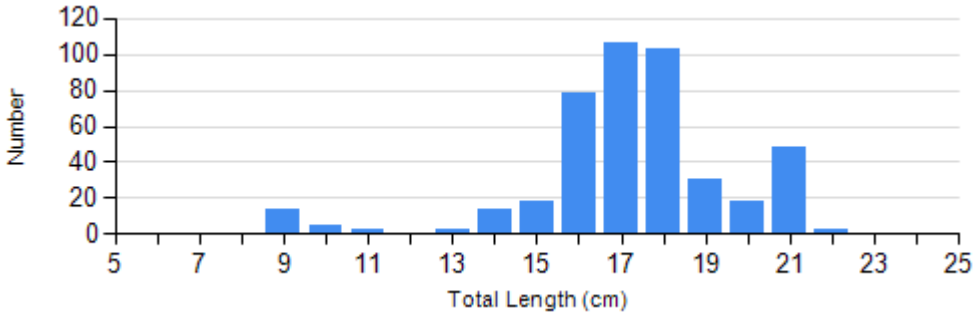

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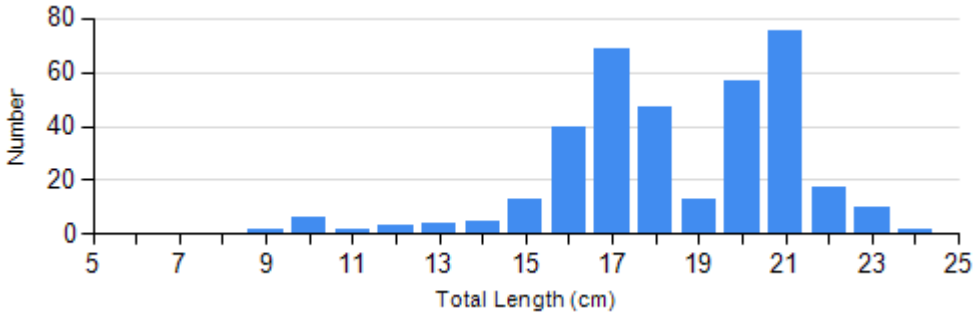

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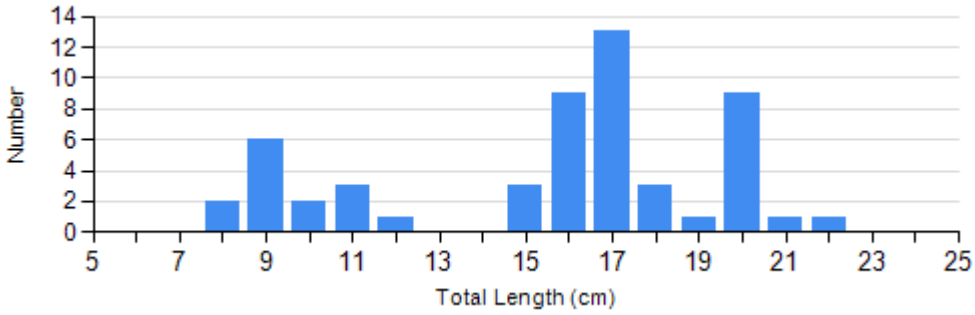
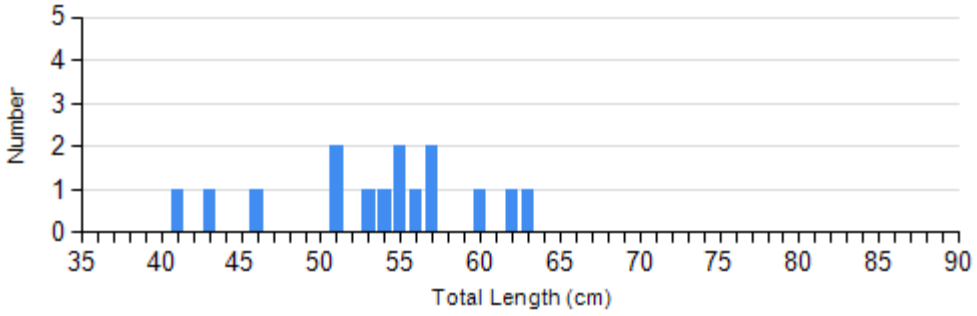


2021

Species: Northern Pike
Gear: AFS std gill net



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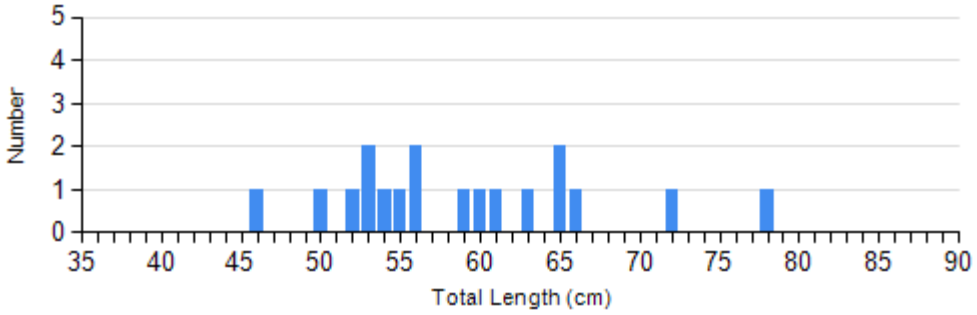

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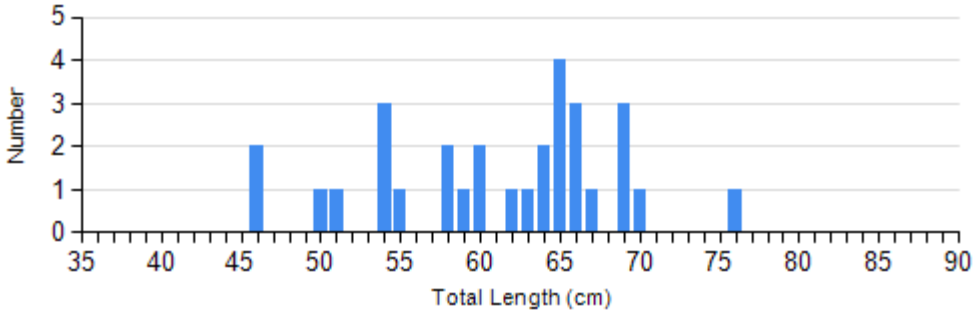

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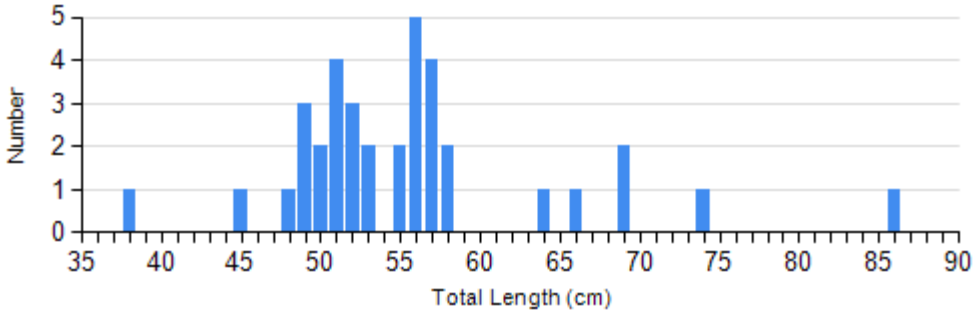

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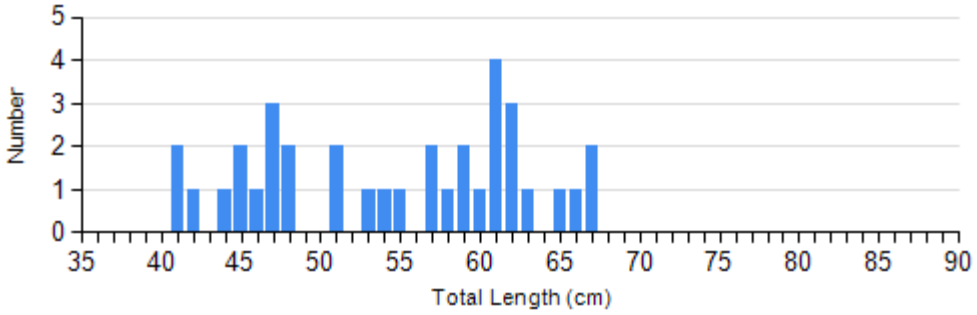
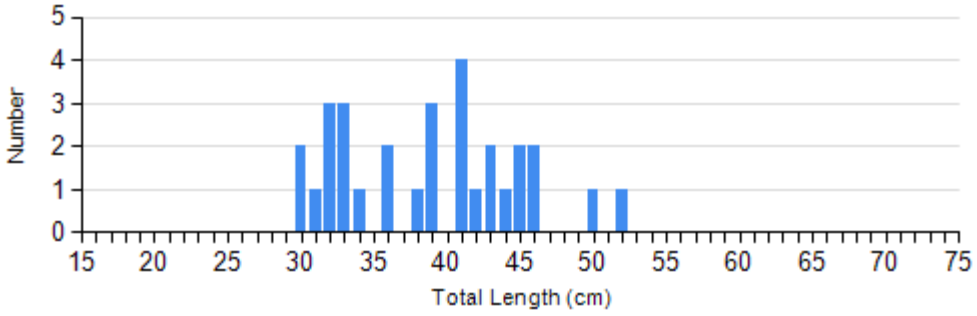


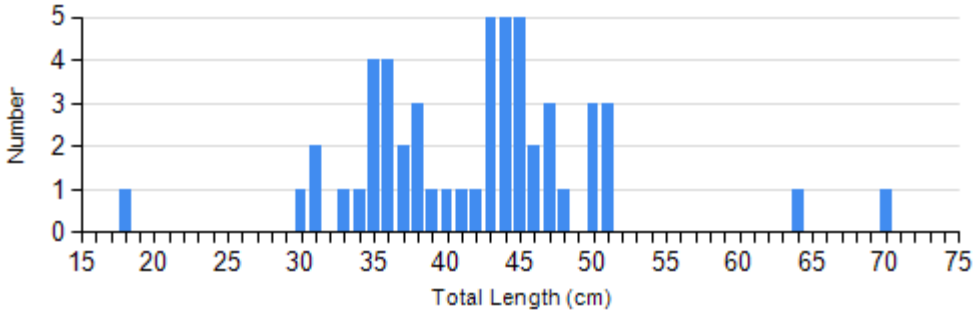
2021

Species: Walleye
Gear: AFS std gill net

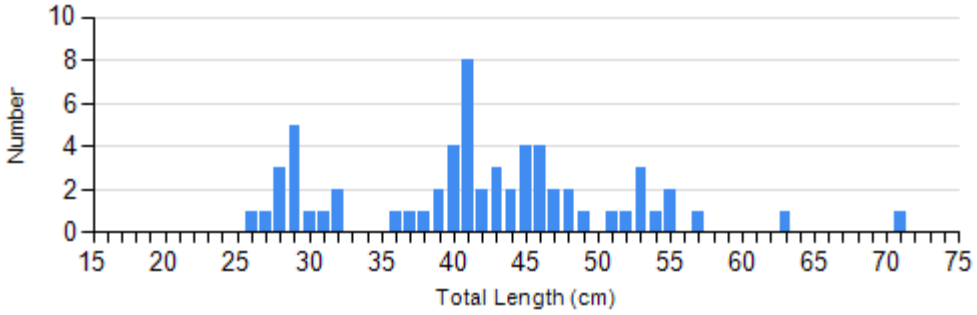
2017



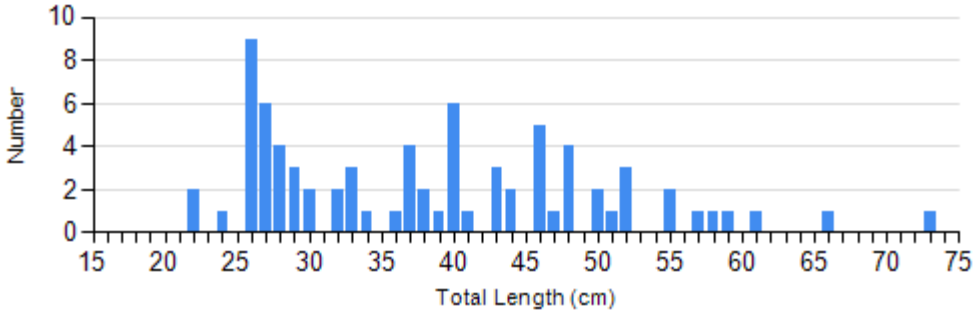
2018



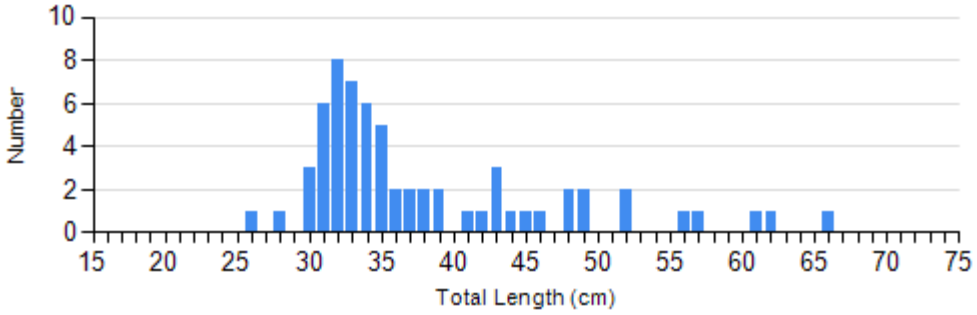
2019



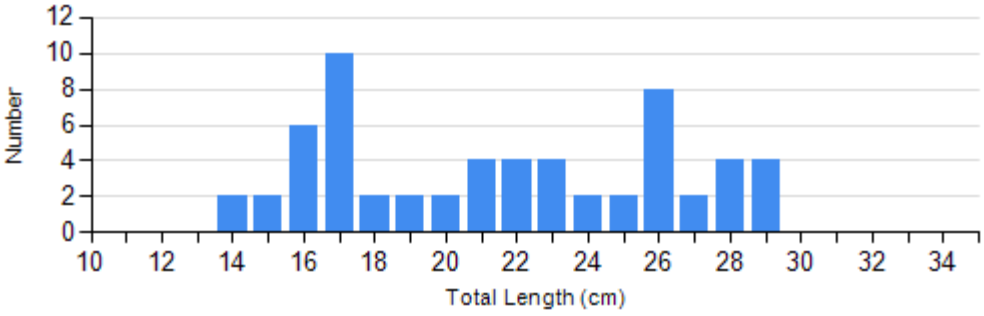
2020



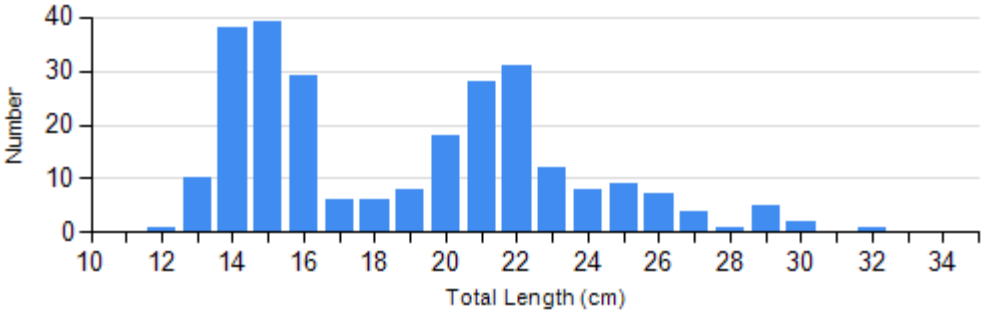
2021



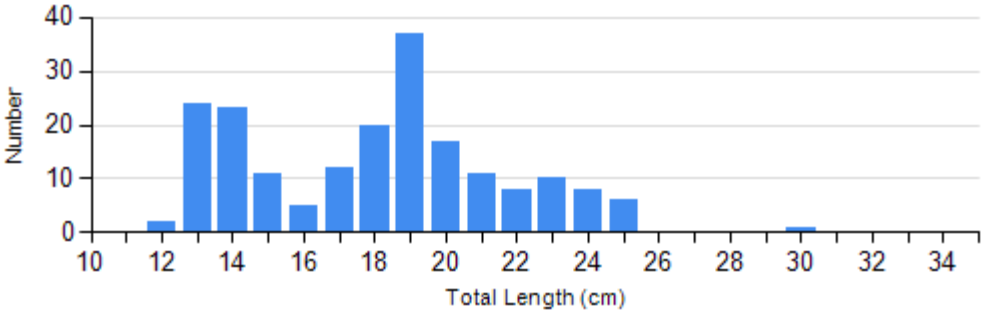
Species: Yellow Perch
Gear: AFS std gill net



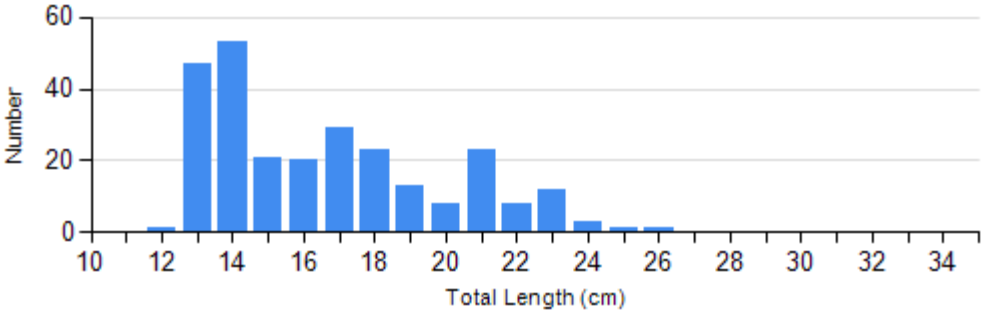
2017



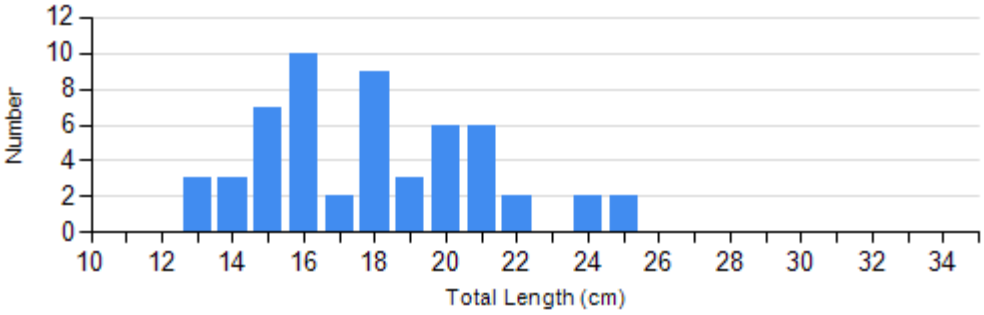
2018



2019



2020

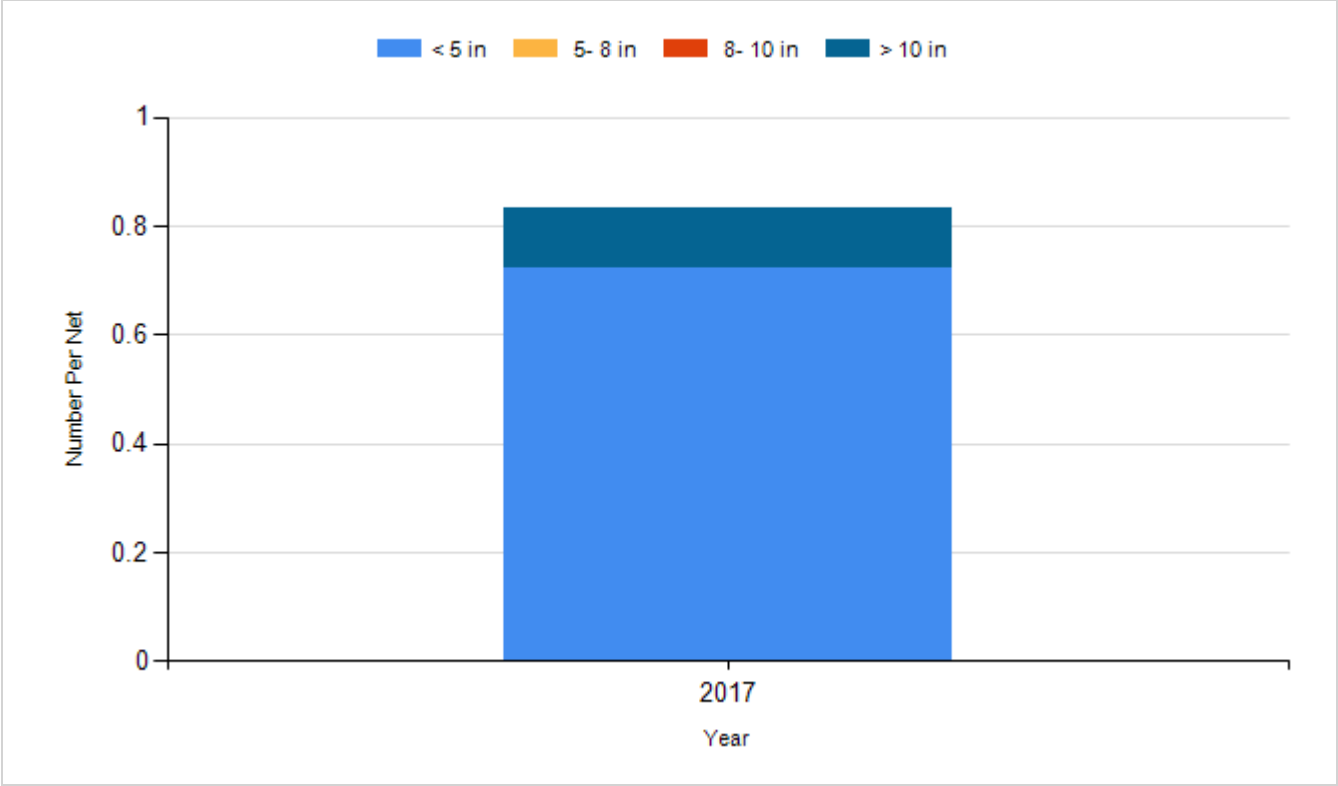


2021

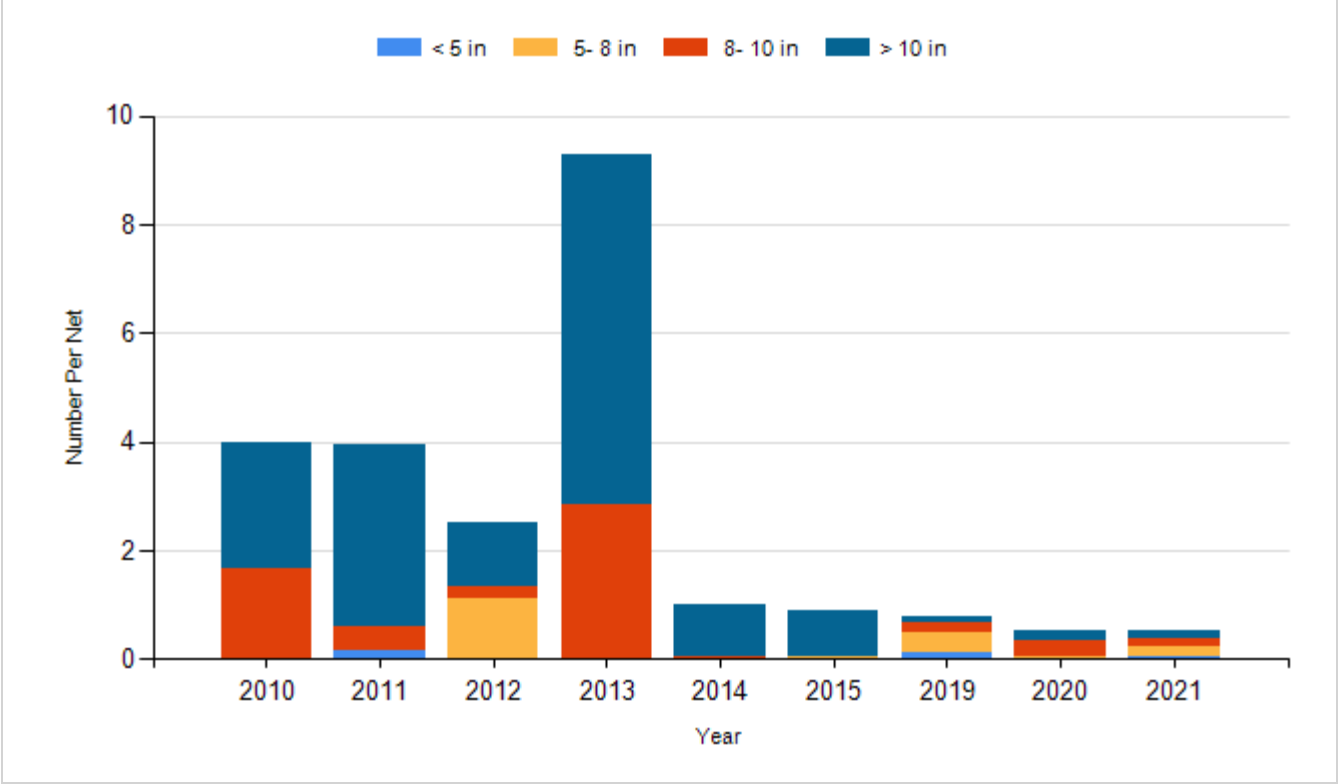
Historic Fish Sizes and Relative Abundance

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

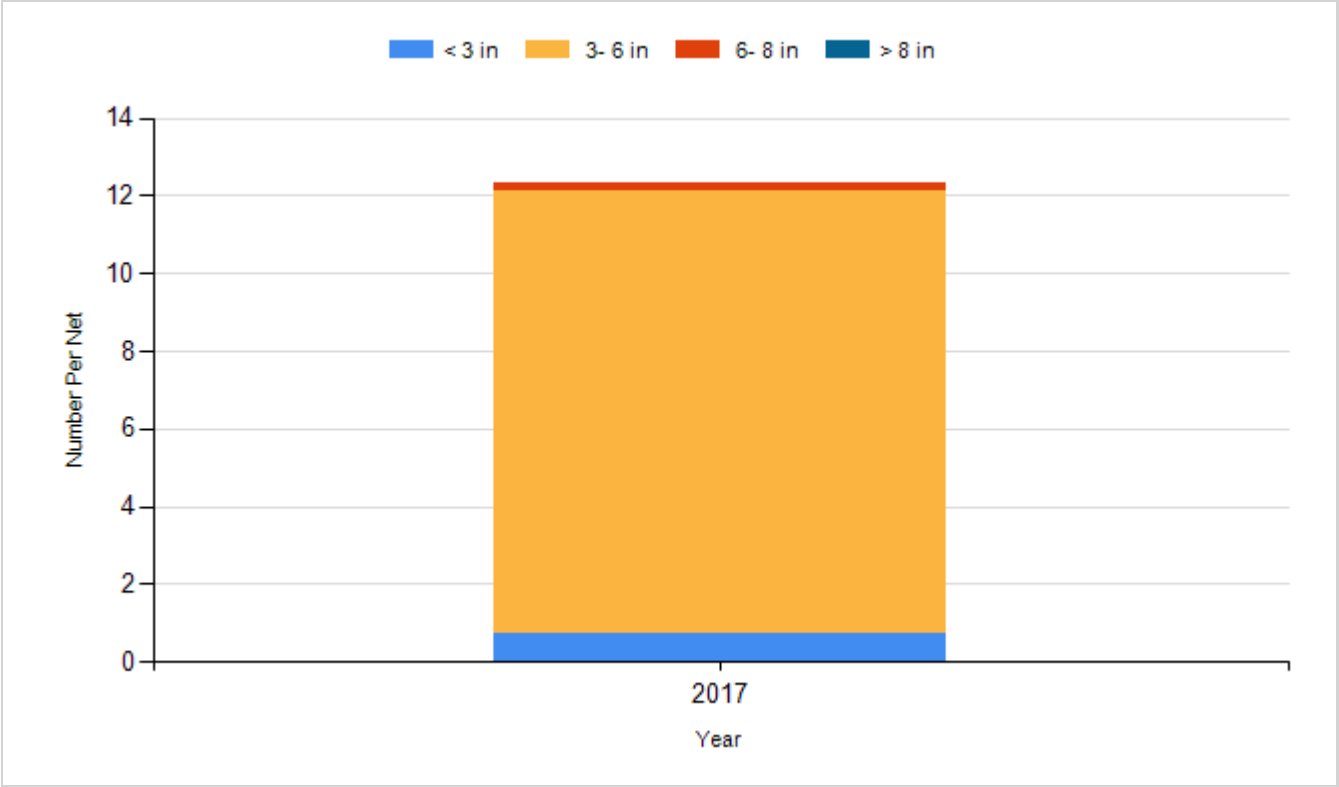
Species: Black Crappie
Gear: AFS std frame net



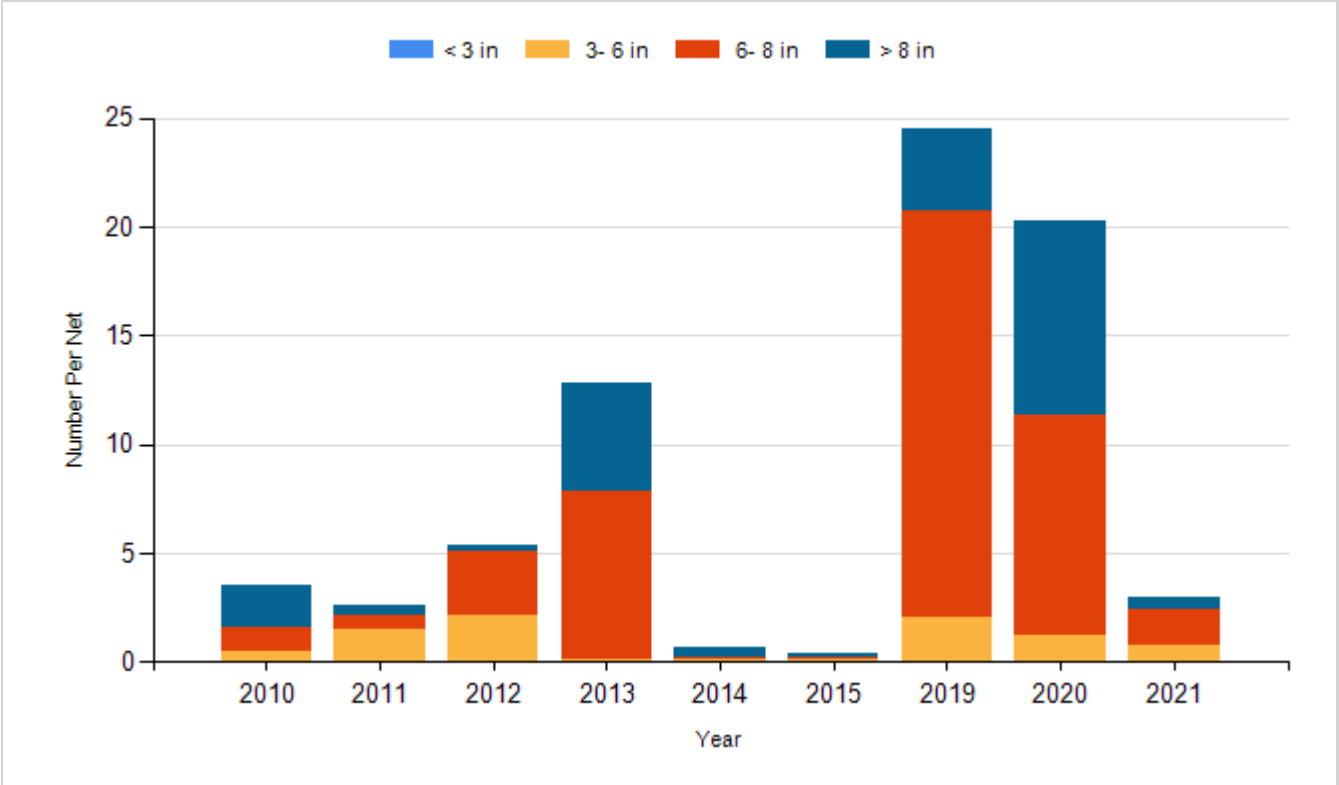
Species: Black Crappie
Gear: frame net (std 3/4 in)



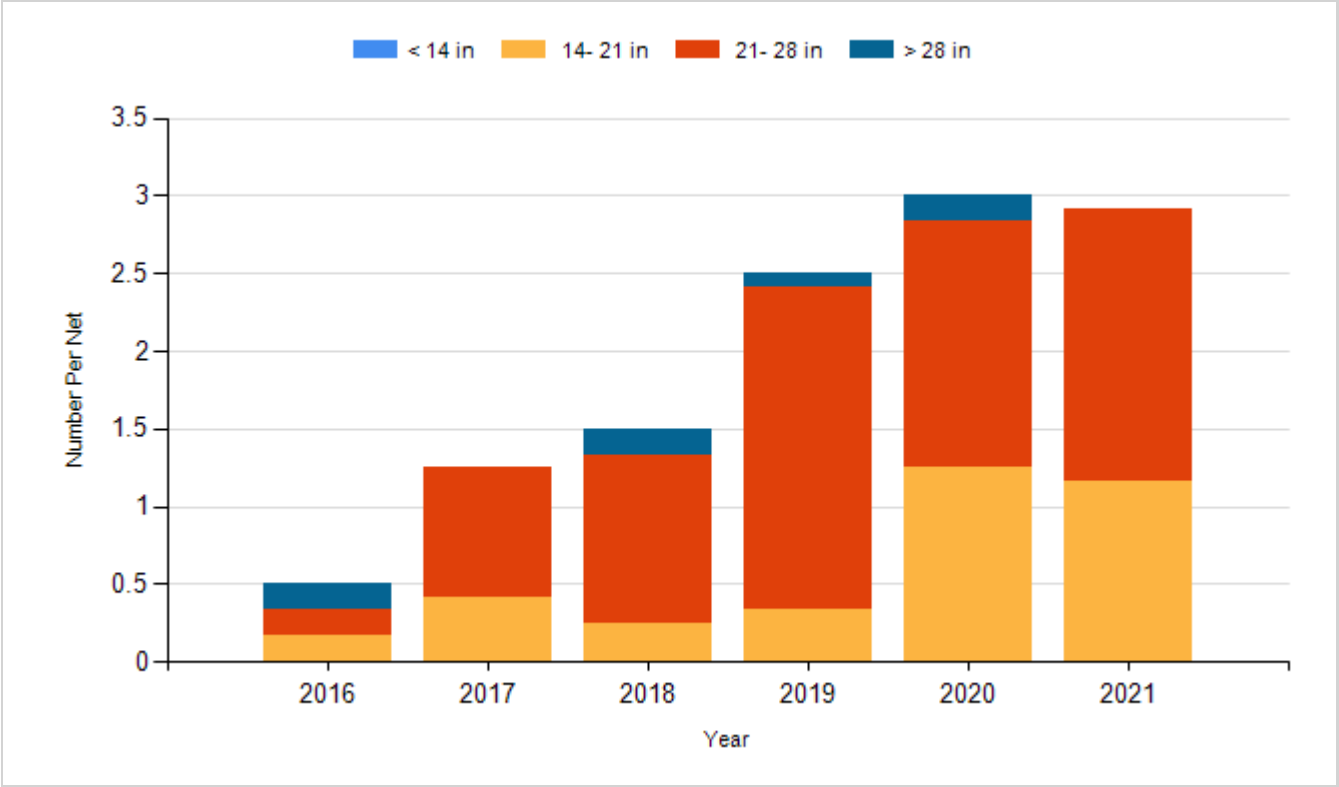
Species: Bluegill
Gear: AFS std frame net



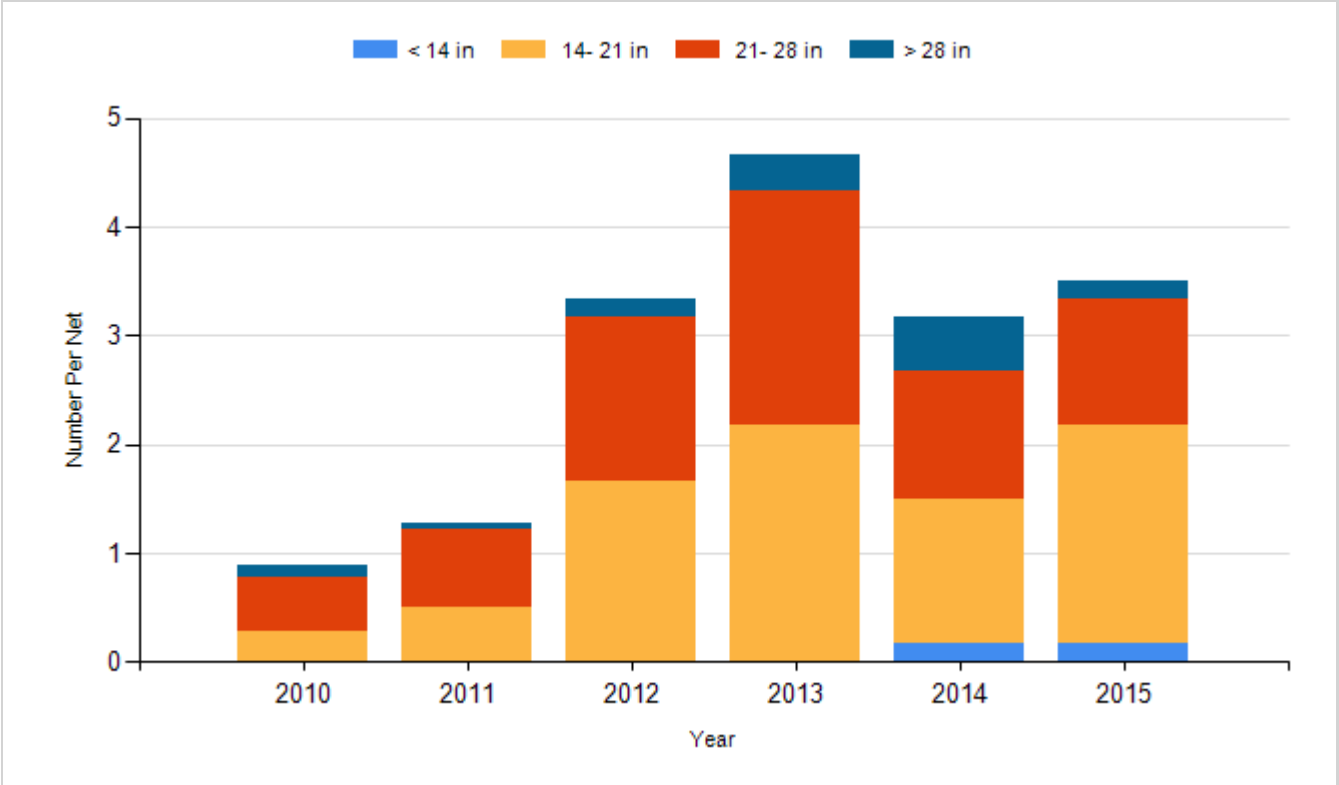
Species: Bluegill
Gear: frame net (std 3/4 in)



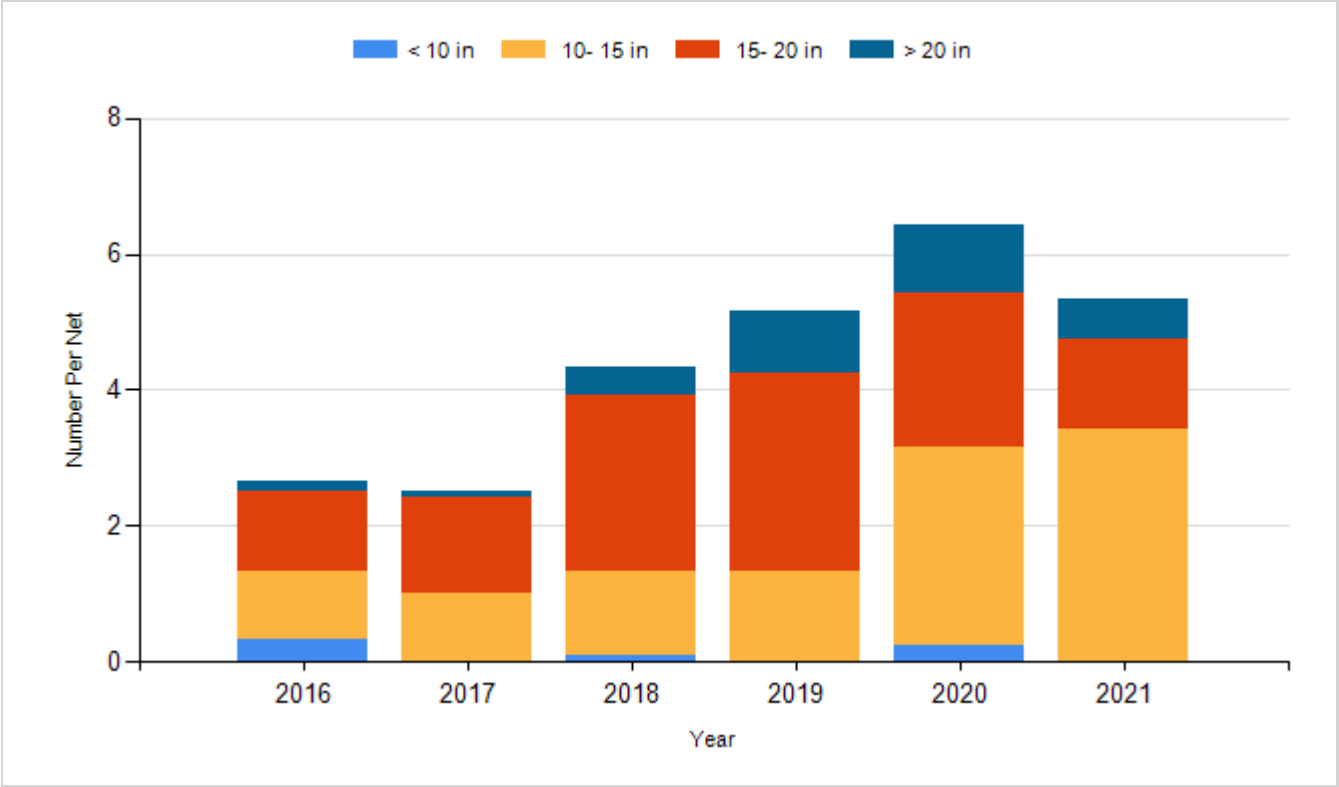
Species: Northern Pike
Gear: AFS std gill net



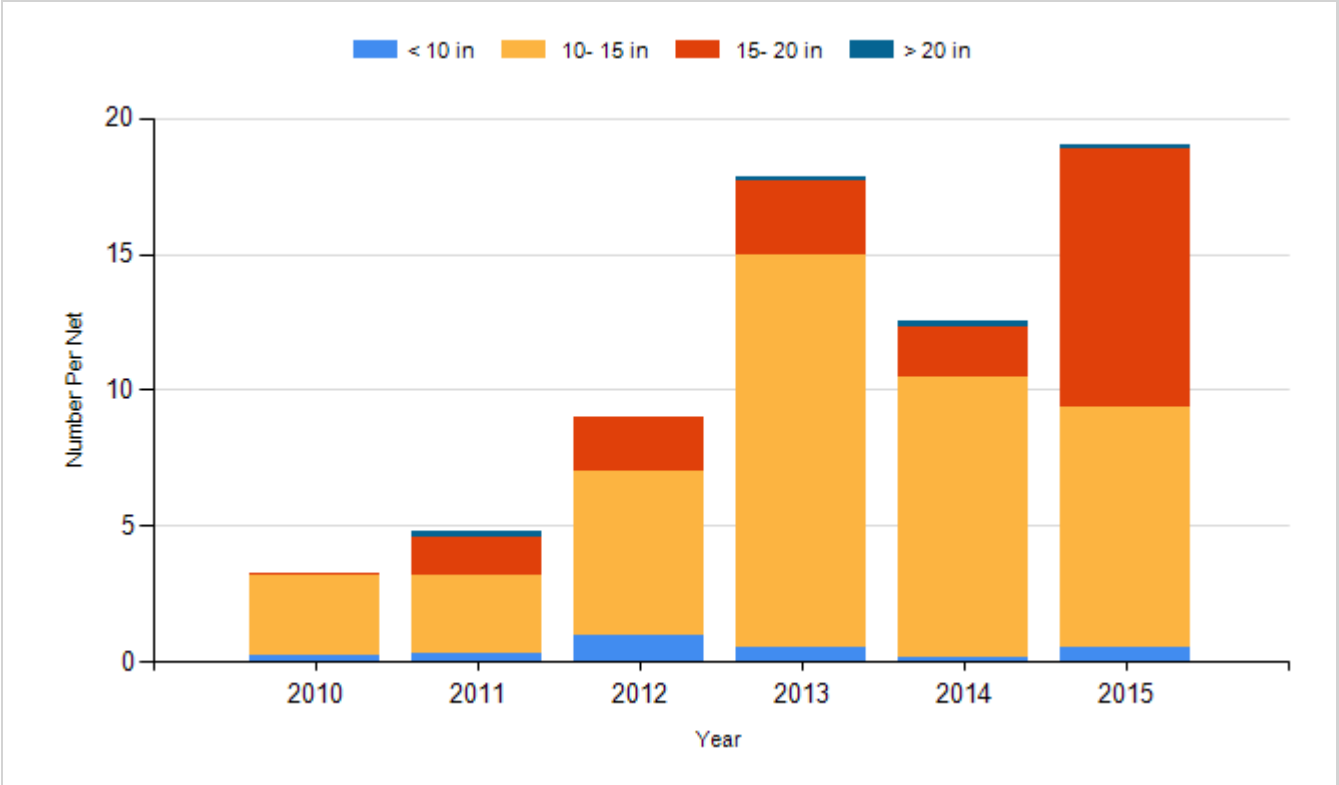
Species: Northern Pike
Gear: std exp gill net



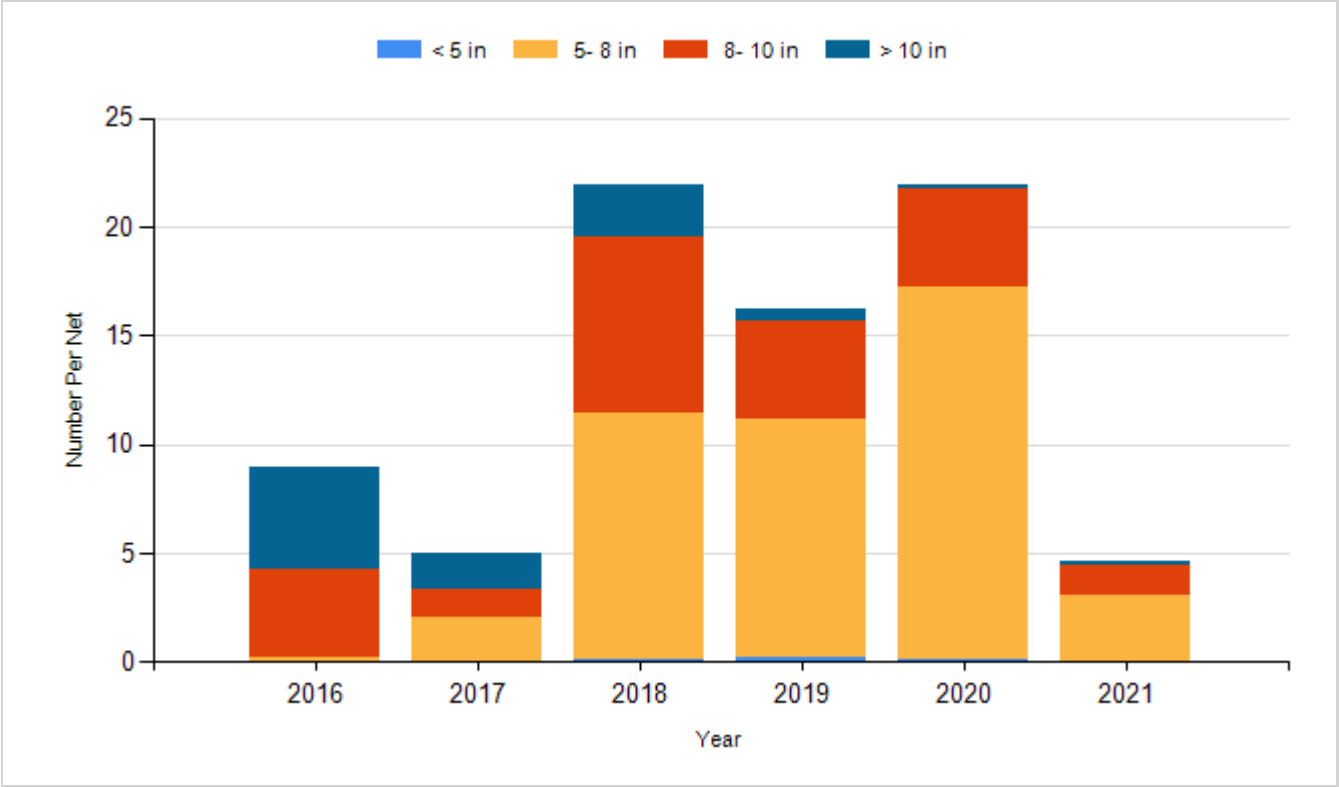
Species: Walleye
Gear: AFS std gill net



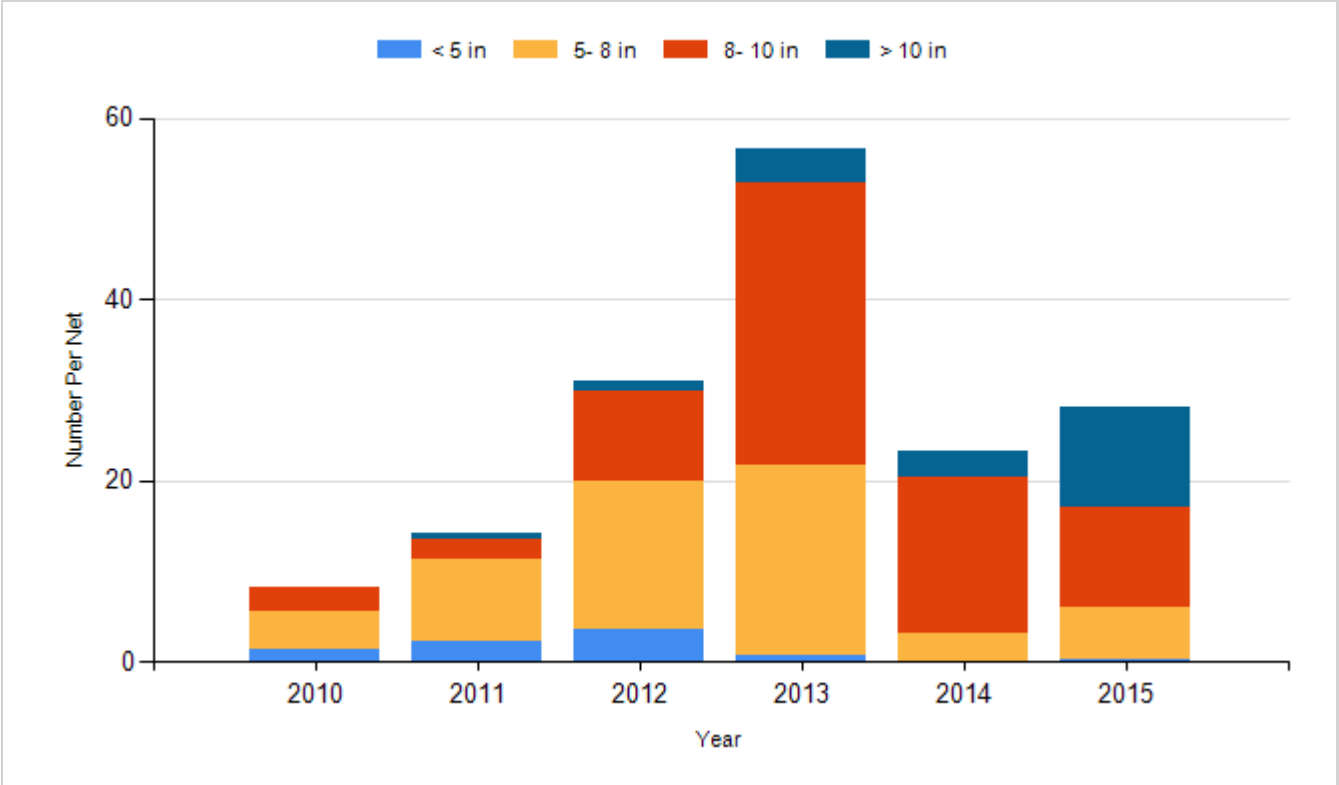
Species: Walleye
Gear: std exp gill net



Species: 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
2010	Walleye	Large Fingerling	17,442
2011	Walleye	Large Fingerling	18,585
2013	Walleye	Small Fingerling	93,410
2015	Walleye	Small Fingerling	91,850
2017	Walleye	Small Fingerling	71,130
2018	Walleye	Fry	470,000
2021	Walleye	Fry	500,000