Richmond Lake Survey Summary

Richmond Lake, located 5.0 miles north and 4.0 miles west of Aberdeen, is managed as a black crappie, bluegill, and walleye (includes saugeye) fishery; however, other fish species (e.g., channel catfish, northern pike, white bass, etc.) are present and contribute to the fishery.

- **Black crappie.** More black crappies were sampled in 2024 than in 2022. At 40.9/frame net, relative abundance was high in 2024. Sampled black crappies ranged in length from 3.5 to 11.8 inches, of those that were at least 5.0 inches, 86% were ≥ 8.0 inches and 32% were ≥ 10.0 inches. Six consecutive cohorts (2017 – 2022) contributed to the catch. The 2021 (age-3) cohort was the most represented single cohort accounting for 47% of black crappies in the sample, while individuals from the 2018 (age-6) year class made up an additional 24%. Since 2015, mean length at capture values for age-3 black crappies have ranged from 8.7 to 10.1 inches. In 2024, age-3 fish had a mean length at capture of 8.7 inches.

- **Bluegill.** The 2024 frame net CPUE of 30.4 was the second highest recorded since 2015 and suggested moderate relative abundance for Richmond Lake. Sampled bluegills ranged in length from 4.3 to 9.1 inches, 55% were ≥ 6.0 inches and 10% were ≥ 8.0 inches. Individuals from three year classes (2020 – 2022) contributed to the catch, those from the 2022 (age-2) cohort were the most abundant accounting for 75% of bluegills in the sample. Since 2015, mean length at captures for age-3 bluegills have ranged from 6.7 to 7.8 inches. In 2024, the mean length at capture of age- 3 fish was 6.7 inches.

- **Channel catfish.** The opportunity exists for anglers to catch channel catfish from Richmond Lake. In 2024, gill nets sampled 17 individuals from 12.2 to 28.7 inches, 94% were ≥ 16.0 inches and 47% were ≥ 24.0 inches.

- **Walleye (includes saugeye).** Walleye numbers were higher in 2024 than in 2022. At 3.4/gill net, relative abundance was considered moderate in 2024. Sampled walleyes ranged in length from 12.2 to 26.4 inches, 56% were ≥ 15.0 inches and 17% were ≥ 20.0 inches. Five cohorts (2017, 2018, 2019, 2021, and 2022) contributed to the gill net catch. Fish from the 2022 (age-2) year class, which had mean length at capture of 14.2 inches, were the most abundant accounting for 60% of sampled walleyes.

- **Yellow Perch**. Yellow perch were not abundant (2.2 per gill net) in 2024. Those sampled ranged in length from 5.5 to 10.6 inches, 27% were ≥ 8.0 inches and 8% were ≥ 10.0 inches. Four year classes (2018, 2020, 2021, and 2022) contributed to the catch. Fish from the 2022 (age-2) cohort were the most abundant accounting for 73% of yellow perch in the sample. The mean length at capture of age- 2 yellow perch was 6.7 inches.

For more detailed results see the computer generated South Dakota Statewide Fisheries Survey for Richmond (Brown; below).

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Richmond, Brown County
UJA-Lake-831-800
2024

Lake Information

Name: Richmond

County: Brown

Surface Area: 741 Acres

Maximum Depth: 23 Feet

Mean Depth: 8 Feet

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jun 04, 2024	4 net-nights
	Jun 05, 2024	4 net-nights
AFS std gill net	Jun 06, 2024	4 net-nights
fall night EF-WAE	Oct 02, 2024	2400 seconds
frame net (std 3/4 in)	Jun 04, 2024	6 net-nights
frame net (std 3/4 in)	Jun 05, 2024	6 net nights
frame net (std 3/4 in)	Jun 06, 2024	5 net-nights

Common Fish Species Present

Largemouth Bass

Walleye

Bluegill

Black Crappie

Black Bullhead

Yellow Perch

Common Carp

White Bass

Northern Pike

Channel Catfish

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	246	17.9	3.5	6	2	0		95	1
	Black Crappie	8	0.4	0.4	80		20		101	4
	Channel Catfish	17	1.4	0.5	94		47	20	107	7
	Common Carp	47	3.9	0.9	89	7	21	9	99	1
	Northern Pike	30	2.5	0.6	67	13	23	12	96	2
	Walleye	41	3.4	1.2	56	12	17	9	95	1
	White Bass	3	0.1	0.1	100		100		107	
	Yellow Perch	26	2.2	0.9	27	14	8		88	2
frame net (std 3/4 in)	Black Bullhead	3279	185.6	38.3	59	1	0			
	Black Crappie	705	40.9	24.9	86	2	32	2	99	1
	Bluegill	517	30.4	9.9	55	3	10	2	112	1
	Channel Catfish	34	2.0	1.1	85	10	21	11	108	3
	Common Carp	21	1.2	0.8	100		57	17		
	Green Sunfish	4	0.2	0.2	50		0		104	
	Northern Pike	6	0.4	0.2	67		33			
	Walleye	14	0.8	0.4	71		43	22	84	2
	White Bass	67	3.9	2.5	100		100		95	1
	White Sucker	1	0.1	0.1	100		100			
	Yellow Perch	111	6.5	2.8	15	5	8	4	81	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.

*** SDGFP standard gill nets used 2015; avg calculated on data from 2016 – 2024; ** Methods/Species that ignore stock length; ***AFS standard frame nets used in 2016 and 2017**

		CPUE										
Gear	Species	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Avg
AFS std gill net*	Black Bullhead	51.6	42.5	28.8	16.2	14.0	26.9		6.0		17.9	21.76
	Black Crappie	1.0	0.6	0.1	0.2	1.3	0.3		0.1		0.4	0.43
	Bluegill	0.0	0.1	0.3	0.6	0.2	0.1		0.0		0.0	0.19
	Channel Catfish	0.2	2.2	0.9	0.4	1.3	0.4		0.0		1.4	0.94
	Common Carp	1.4	2.3	1.1	4.1	4.0	6.2		0.8		3.9	3.20
	Northern Pike	0.4	0.1	0.2	0.1	0.4	0.0		0.9		2.5	0.60
	Walleye	7.2	2.4	0.2	1.1	4.3	1.0		1.3		3.4	1.96
	White Bass	0.2	2.8	1.0	0.3	0.4	0.0		0.2		0.1	0.69
	White Sucker	0.2	0.0	0.1	0.0	0.1	0.3		0.0		0.0	0.07
	Yellow Perch	8.8	1.8	8.3	5.0	15.8	18.9		1.0		2.2	7.57
fall night EF-WAE**	Walleye	0.0	10.5	36.0	109.0	112.5	3.0	70.8	209.1	1.5	0.0	55.24
frame net (std 3/4 in)***	Black Bullhead	65.2	85.5	196.0	36.4	68.9	4.1		32.7		185.6	84.30
	Black Crappie	9.4	9.8	2.2	6.1	31.7	7.6		17.1		40.9	15.60
	Bluegill	17.9	4.8	10.6	36.5	20.0	9.3		3.7		30.4	16.65
	Channel Catfish	0.7	0.5	0.7	0.1	1.3	0.7		0.1		2.0	0.76
	Common Carp	0.6	1.0	0.4	0.7	1.1	2.8		0.8		1.2	1.08
	Green Sunfish	0.1	0.0	0.0	0.7	0.1	0.0		0.4		0.2	0.19
	Northern Pike	0.7	0.3	0.4	0.4	0.3	0.2		0.1		0.4	0.35
	Walleye	3.3	2.4	1.4	0.4	1.5	0.7		1.3		0.8	1.48
	White Bass	3.7	6.4	6.7	0.3	4.2	3.1		1.9		3.9	3.78
	White Sucker	0.2	0.4	0.3	0.3	0.2	0.1		0.3		0.1	0.24
	Yellow Perch	0.9	0.3	0.0	9.5	47.3	21.7		1.2		6.5	10.93

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 2015; **AFS standard frame nets used in 2016 and 2017**

			Year									
Gear	Species	Index	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AFS std gill net*	Channel Catfish	PSD	100	92	100	100	100	100				94
		PSD-P	100	54	45	100	73	100				47
		Wr	97	109	110	102	98	93				107
	Walleye	PSD	17	52	0	15	29	42		93		56
		PSD-P	0	3	0	8	2	17		7		17
		Wr	93	87	83	95	86	82		99		95
	Yellow Perch	PSD	93	82	57	80	6	45		83		27
		PSD-P	30	50	21	10	1	0		0		8
		Wr	111	102	106	103	102	100		99		88
frame net (std 3/4 in)**	Black Crappie	PSD	96	84	82	32	14	58		93		86
		PSD-P	5	24	26	7	3	1		28		32
		Wr	100	107	102	123	110	104		99		99
	Bluegill	PSD	96	97	91	50	60	95		68		55
		PSD-P	65	38	15	7	2	4		38		10
		Wr	113	119	121	115	111	112		114		112

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+
2024	582		175 (86)	221 (274)	254 (73)	275 (5)	283 (138)	294 (6)			
2022	296	108 (4)	184 (24)	221 (30)	244 (217)	242 (15)			277 (6)		
2020	136	145 (1)	201 (133)	239 (1)					293 (1)		
2019	563	162 (493)	218 (51)	257 (8)	267 (12)						
2018	109	169 (74)	222 (11)	241 (18)	269 (2)	264 (1)		275 (3)			
2017	39		195 (10)	225 (11)	240 (2)		251 (11)	258 (6)			
2016	176	157 (17)	203 (46)	228 (8)	250 (7)	247 (76)	244 (20)			234 (3)	
2015	168	136 (4)	201 (6)	234 (19)	231 (114)	242 (26)					

Species: Bluegill

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2024	459		145 (345)	171 (66)	184 (48)						
2022	66		145 (38)		202 (12)	213 (15)	222 (1)				
2020	167		162 (58)	185 (107)	206 (2)						
2019	360	105 (59)	153 (264)	182 (32)	205 (5)						
2018	657	121 (291)	160 (290)	198 (43)	211 (25)	217 (4)		233 (4)			
2017	190	111 (15)	166 (91)	191 (64)	208 (10)	227 (2)	217 (2)	213 (6)			
2016	87		163 (24)	183 (36)	220 (4)	223 (18)	220 (4)	232 (2)			
2015	322	98 (8)	162 (56)	182 (14)	206 (160)	219 (24)	218 (20)	216 (41)			

Species: Walleye

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2024	40		361 (24)	478 (7)		505 (5)	539 (4)	523 (1)			
2022	15			389 (11)	477 (2)	519 (2)					
2020	21	231 (9)	297 (7)	488 (4)	552 (1)						
2019	52	294 (37)	419 (9)	462 (4)				482 (1)		574 (1)	
2018	13	305 (10)	376 (2)					571 (1)			
2017	3	217 (1)		282 (1)	378 (1)						
2016	31		272 (10)	348 (7)	411 (4)	435 (9)	531 (1)				
2015	51	234 (21)	300 (14)	335 (6)	348 (6)	410 (3)		489 (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+
2024	26		165 (19)	227 (1)	238 (5)		276 (1)				
2022	12		178 (2)	224 (1)	229 (9)						
2020	227	150 (4)	198 (220)	232 (2)	243 (1)						
2019	190	156 (179)	209 (3)	240 (8)							
2018	60	166 (3)	216 (40)	239 (9)		256 (5)		249 (2)		293 (1)	
2017	100	166 (42)	225 (29)	195 (1)	254 (15)		273 (11)	295 (1)	275 (1)		
2016	22	168 (3)	174 (1)	242 (6)	238 (2)	275 (7)	274 (3)				
2015	44		205 (8)	216 (6)	240 (27)	272 (1)	272 (2)				

Fish Condition

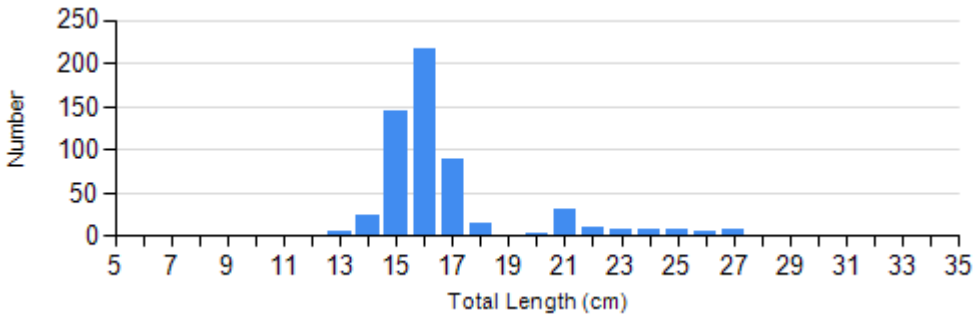
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Crappie Frame Net	2020	57	106 (2.5)	78	103 (0.6)	1	87	0	
	2022	23	115 (2.1)	197	98 (0.5)	84	97 (0.9)	3	
	2024	100	115 (1.5)	374	102 (0.6)	202	92 (0.6)	20	86 (1.9)
Bluegill Frame Net	2020	8	114 (2.5)	153	112 (1.0)	6	112 (5.0)	0	
	2022	21	115 (3.6)	20	113 (3.9)	25	115 (2.0)	0	
	2024	232	110 (1.8)	231	113 (1.3)	54	101	0	
Channel Catfish Gill Net	2020	0		0		2	98	3	88
	2024	1	90	8	123	7		1	
Walleye Gill Net	2020	7	78 (1.4)	3	86 (2.7)	2	87 (4.1)	0	
	2022	1	227	13	90 (1.0)	1	89	0	
	2024	18	91 (1.4)	16	99 (1.4)	6	100 (2.0)	1	
Yellow Perch Gill Net	2020	125	101 (0.6)	102	98 (0.8)	0		0	
	2022	2	104 (7.5)	10	98 (2.5)	0		0	
	2024	19	89 (1.7)	5	87 (4.3)	2	81 (2.9)	0	

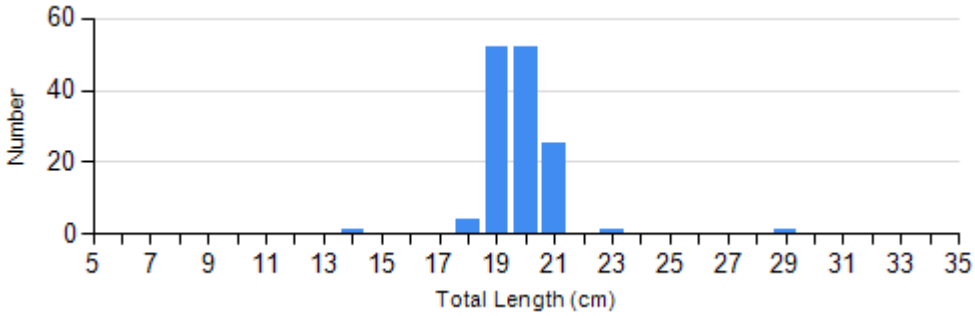
Length Frequency Distribution

Length frequency histogram of species sampled by year.

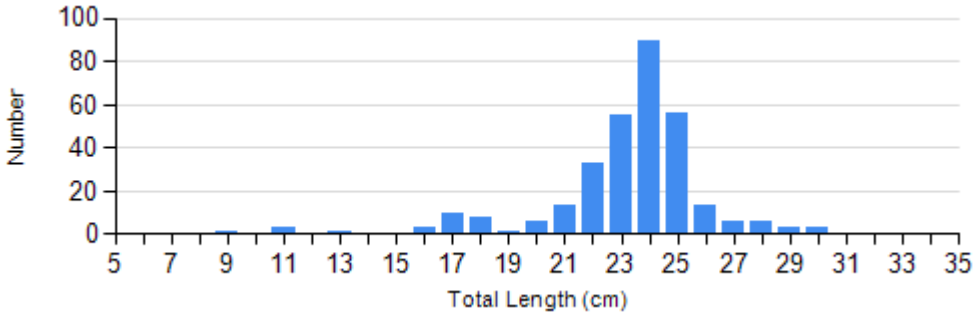
Species: Black Crappie
Gear: frame net (std 3/4 in)



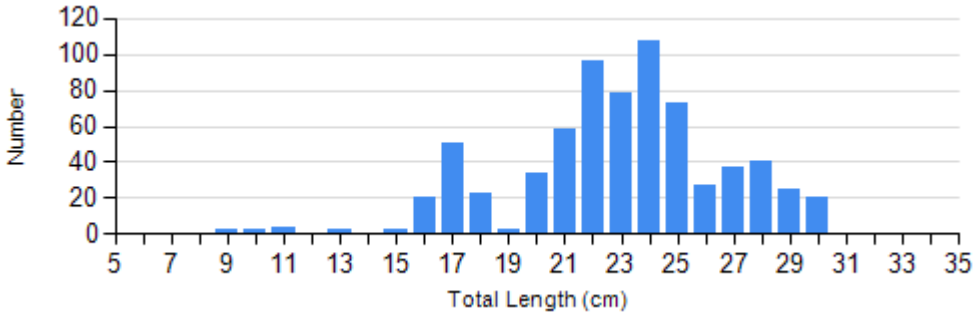
2019



2020

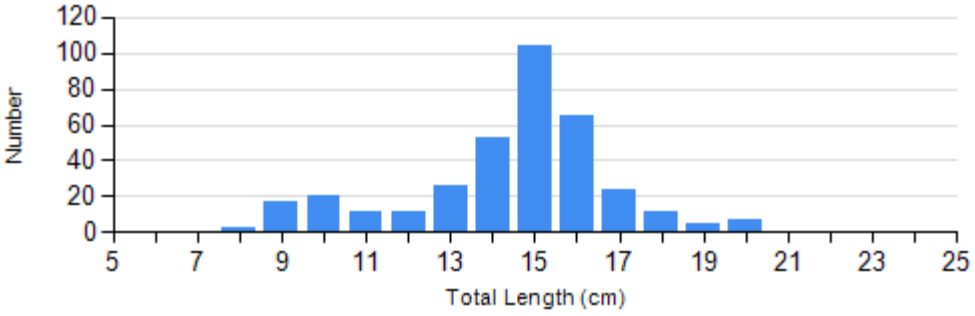


2022



2024

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



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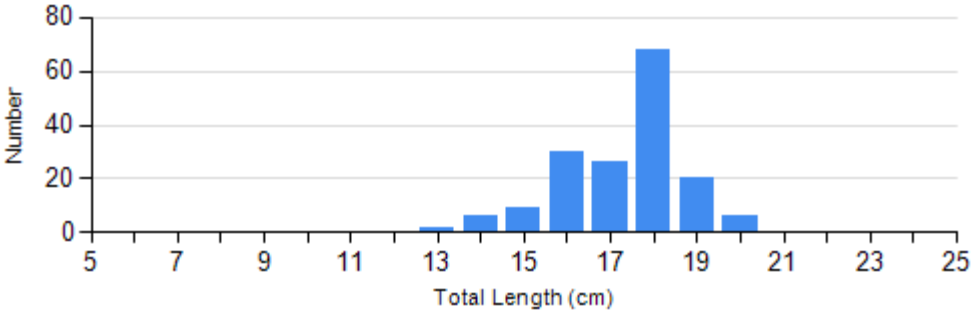
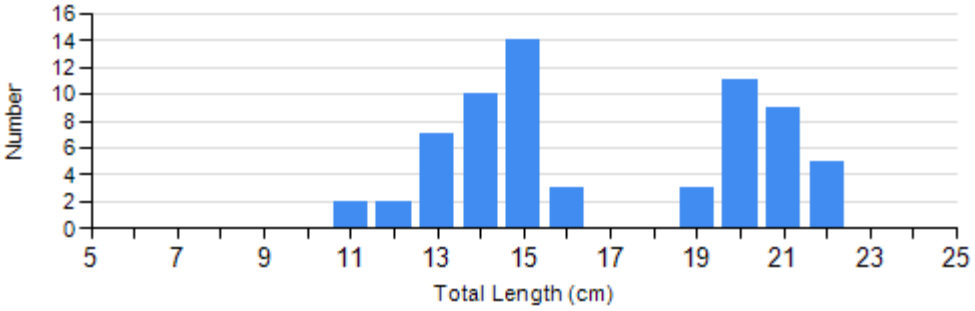
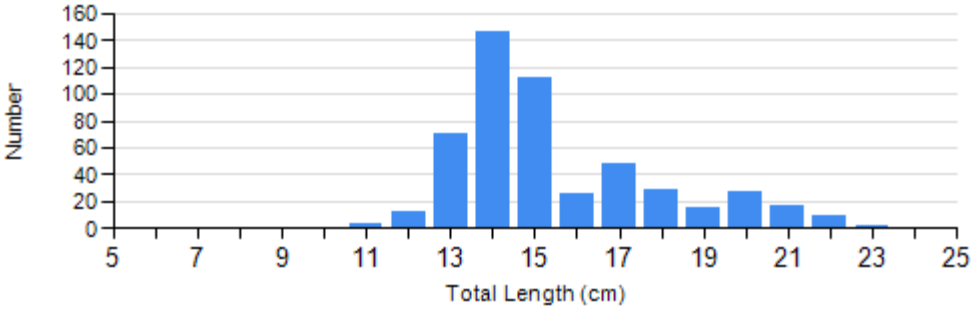


2020

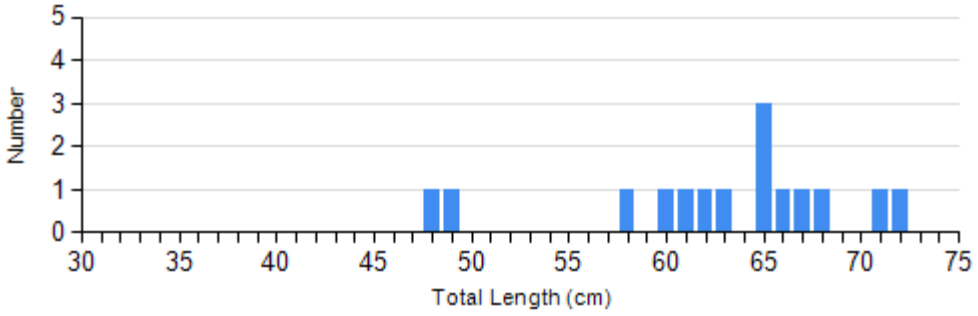


2022



2024

Species: Channel Catfish
Gear: AFS std gill net



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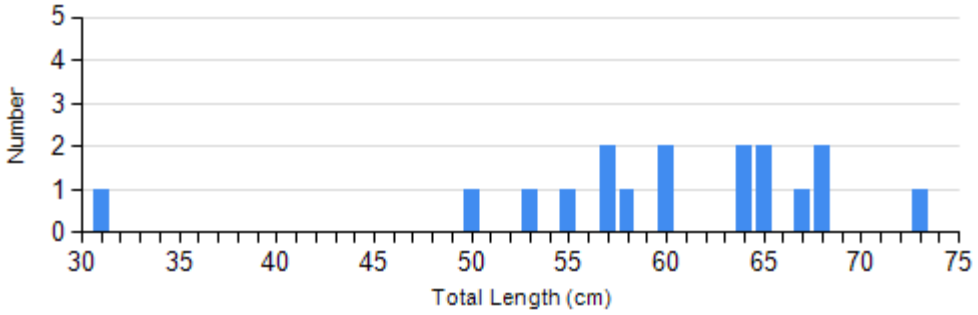
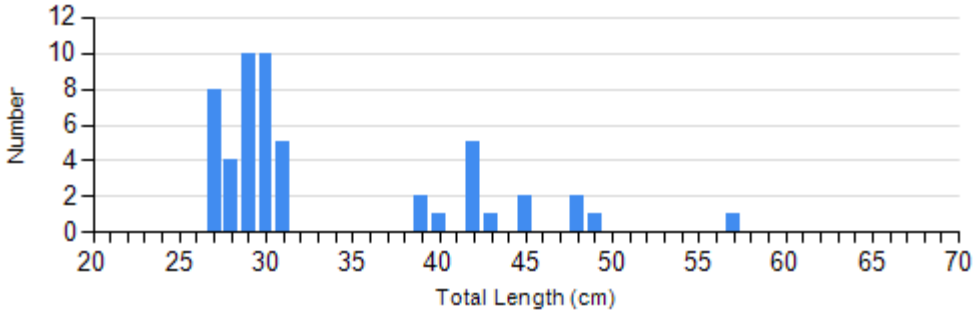


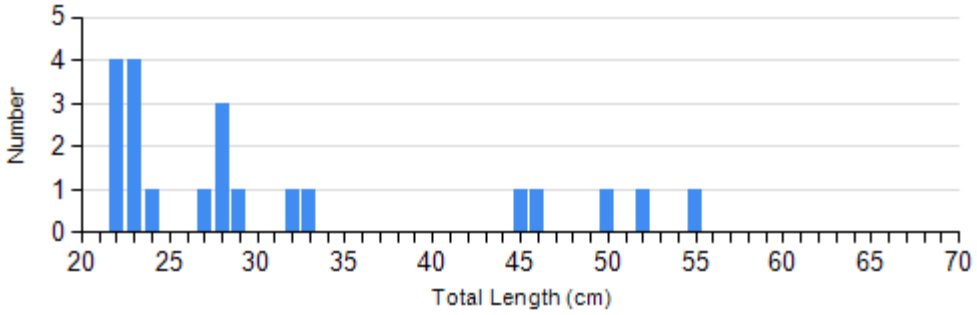
2024

Species: Walleye
Gear: AFS std gill net

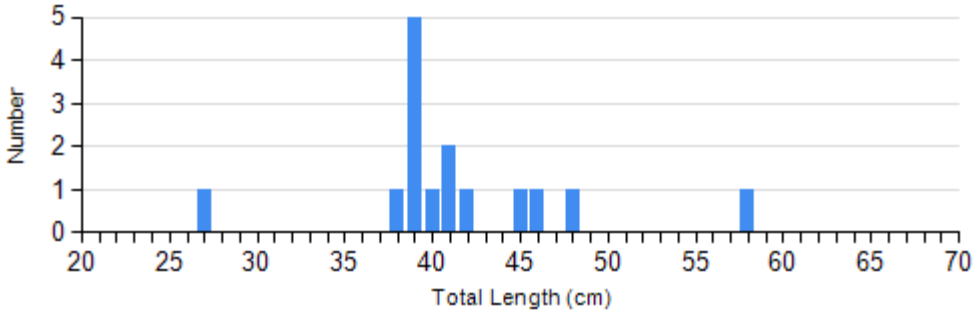
2019



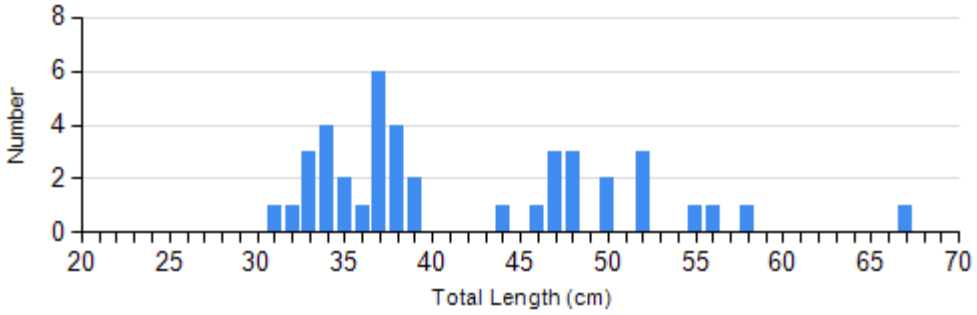
2020



2022

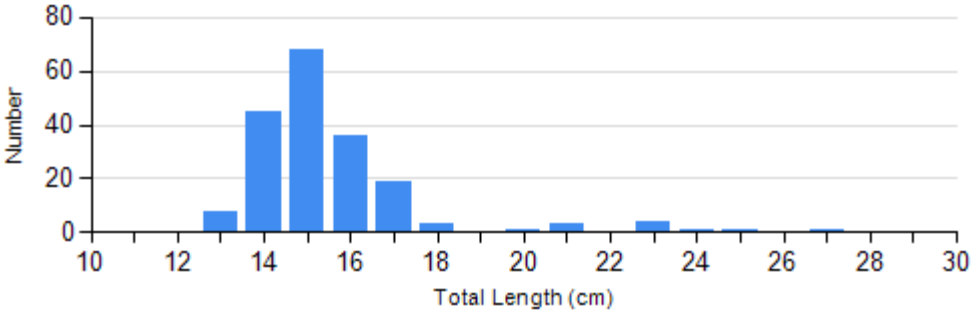


2024

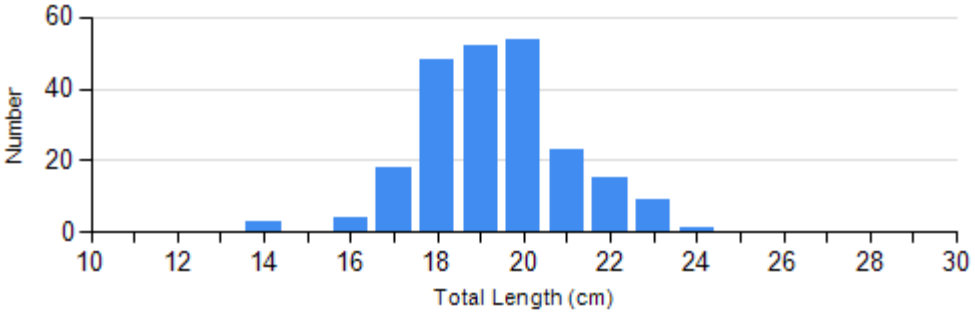


Species: Yellow Perch
Gear: AFS std gill net

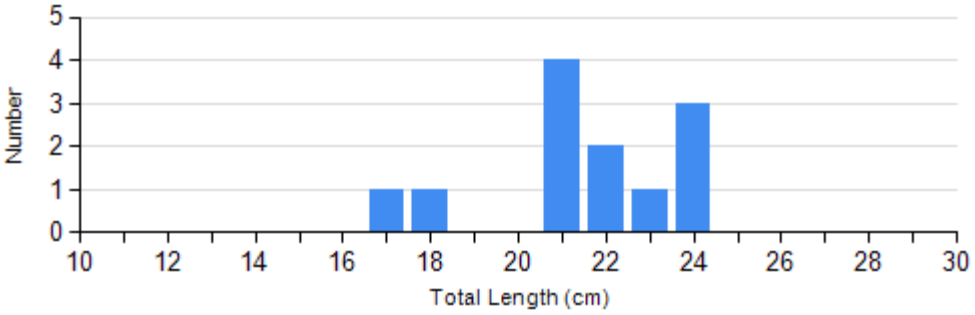
2019



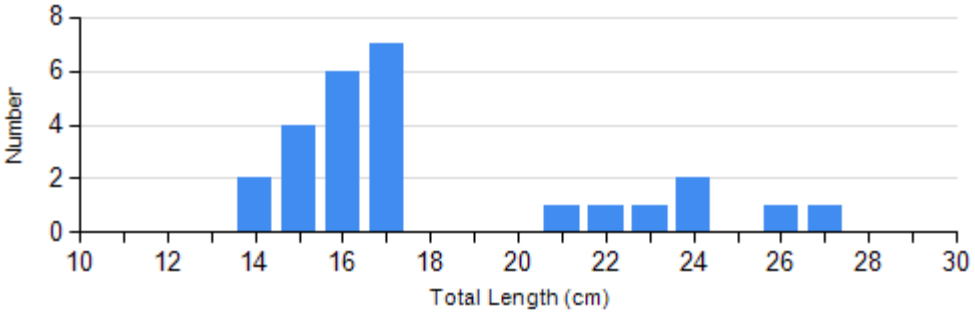
2020



2022



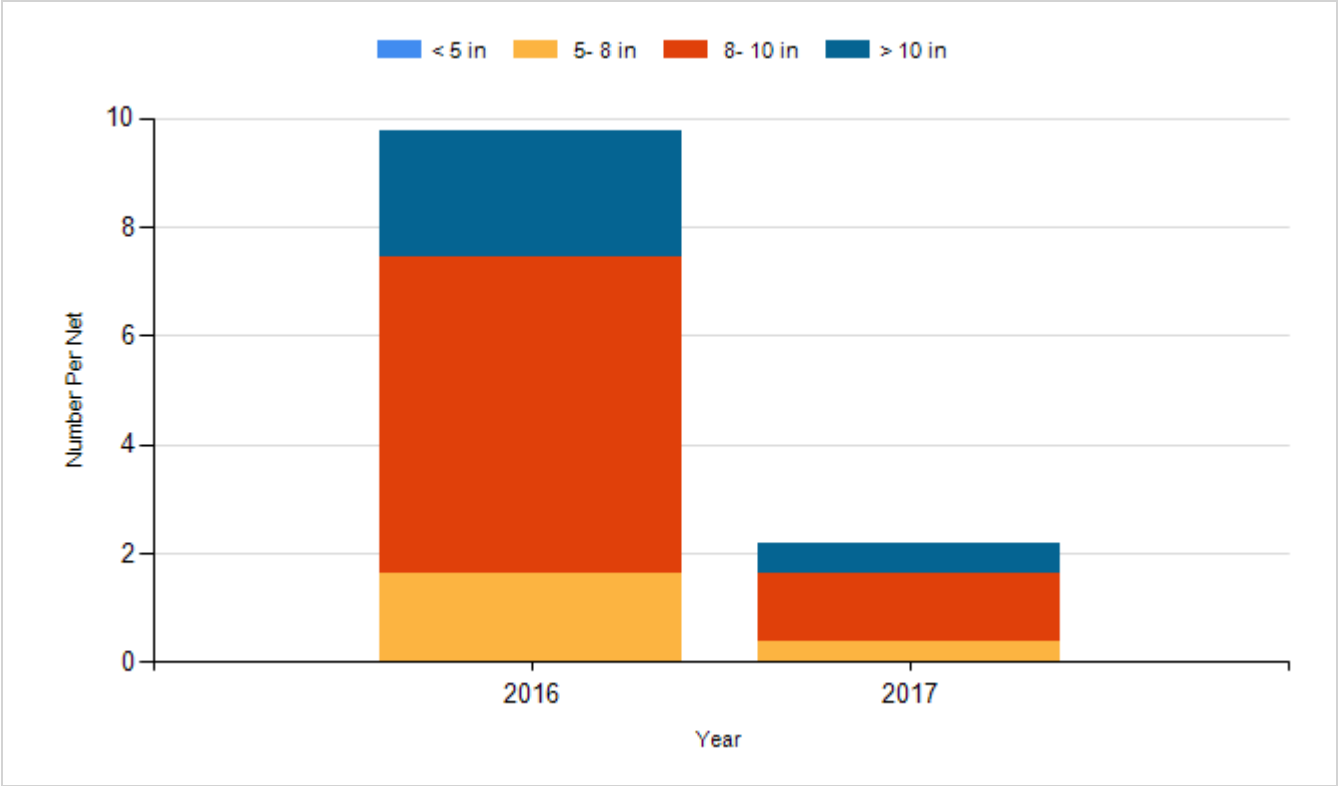
2024



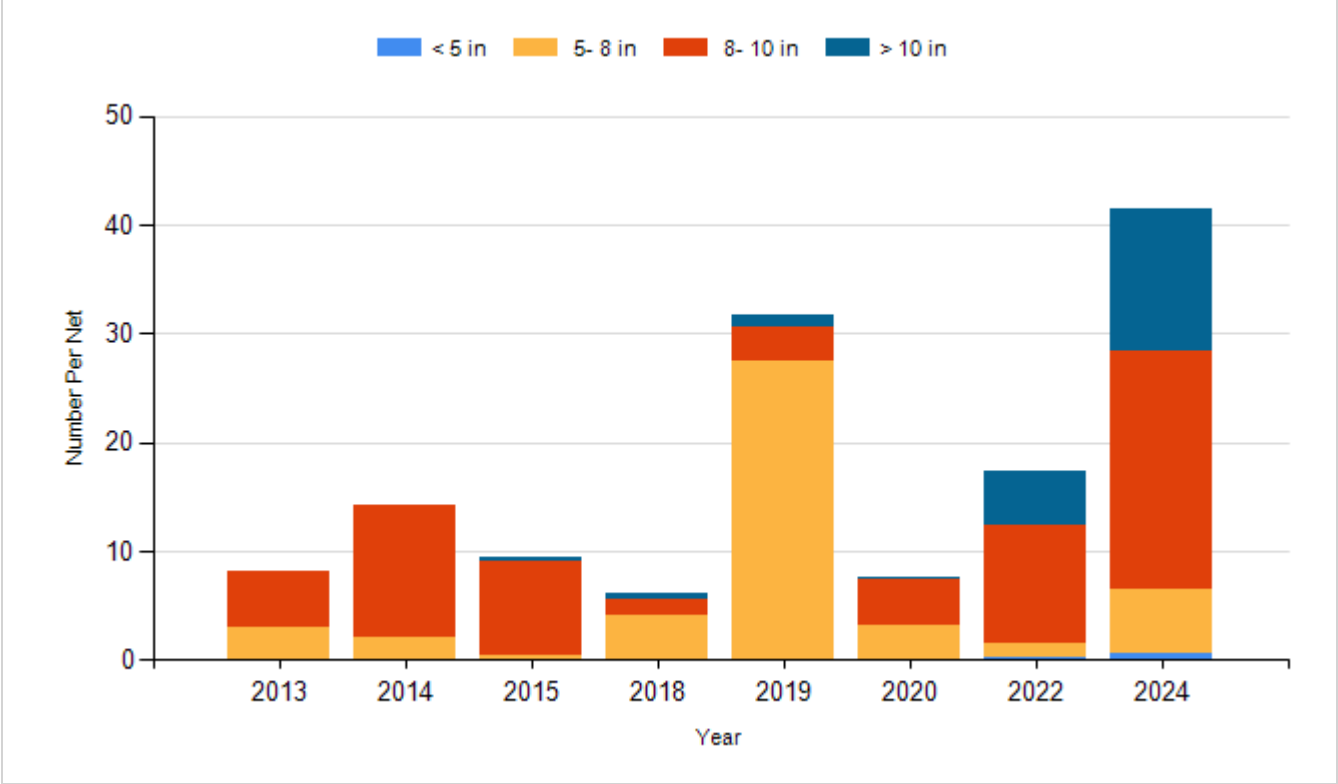
Historic Fish Sizes and Relative Abundance

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

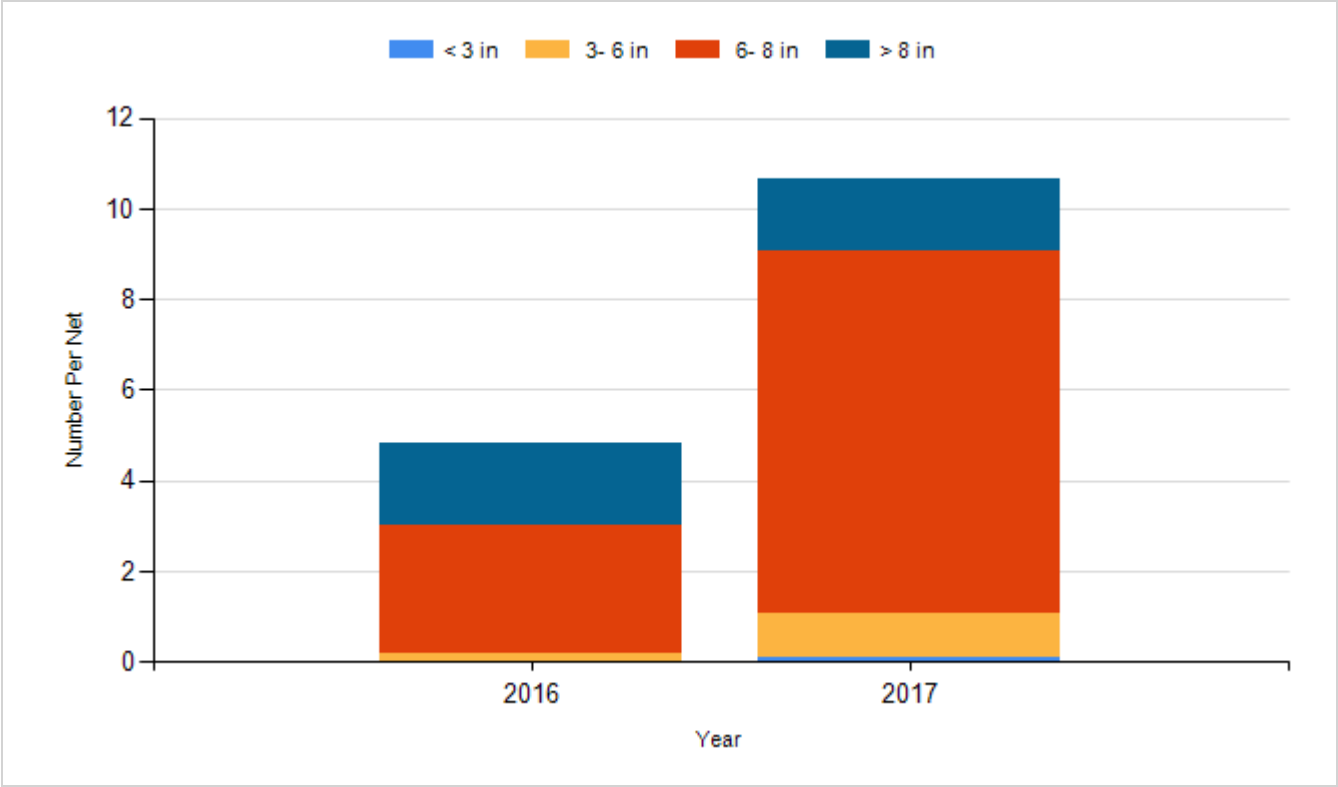
Species: Black Crappie
Gear: AFS std frame net



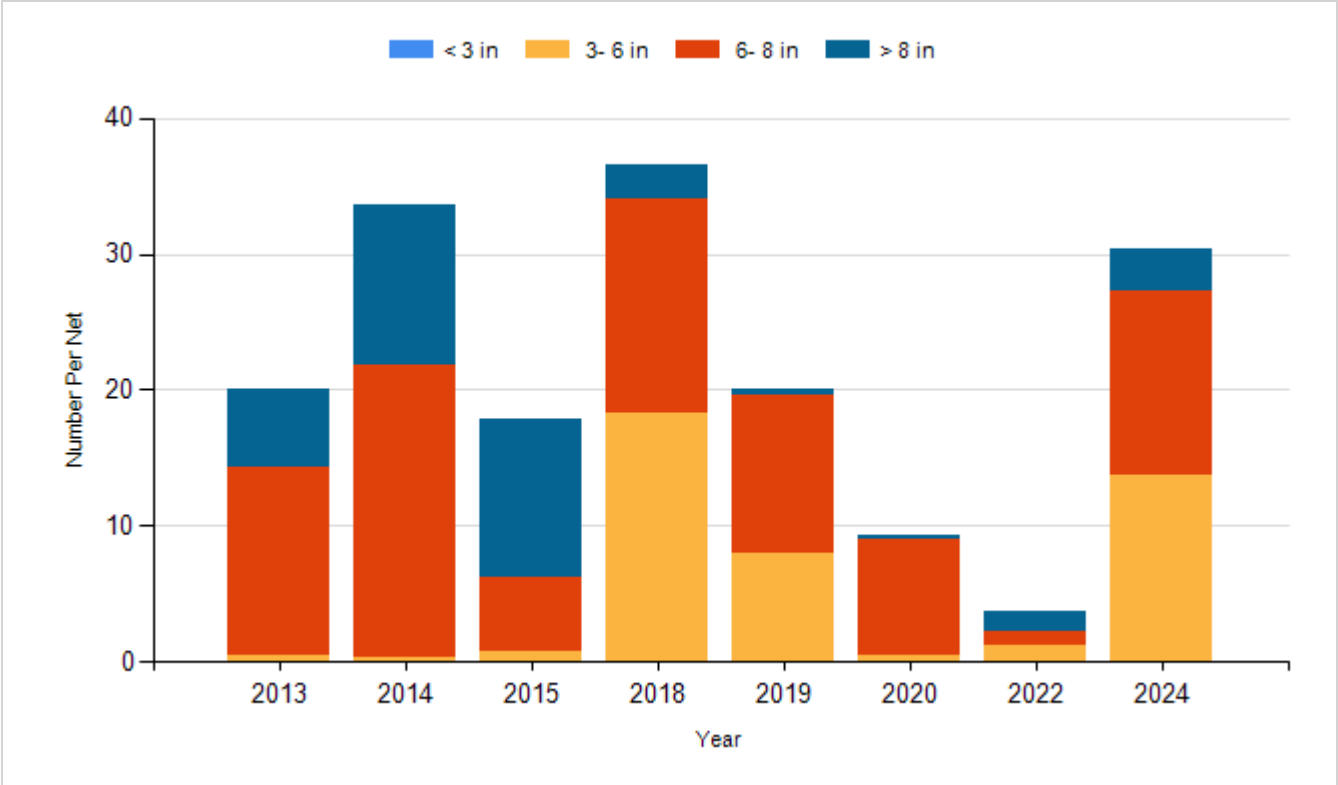
Species: Black Crappie
Gear: frame net (std 3/4 in)



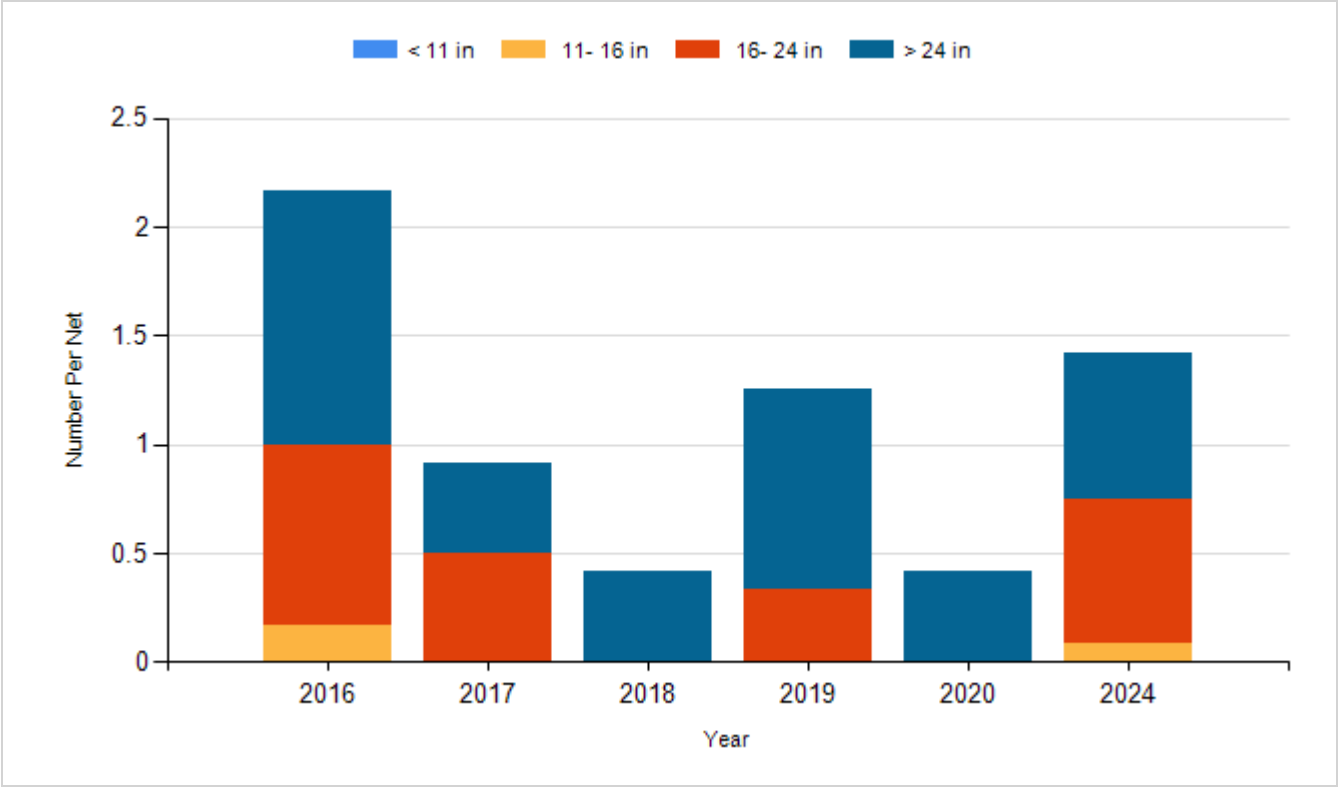
Species: Bluegill
Gear: AFS std frame net



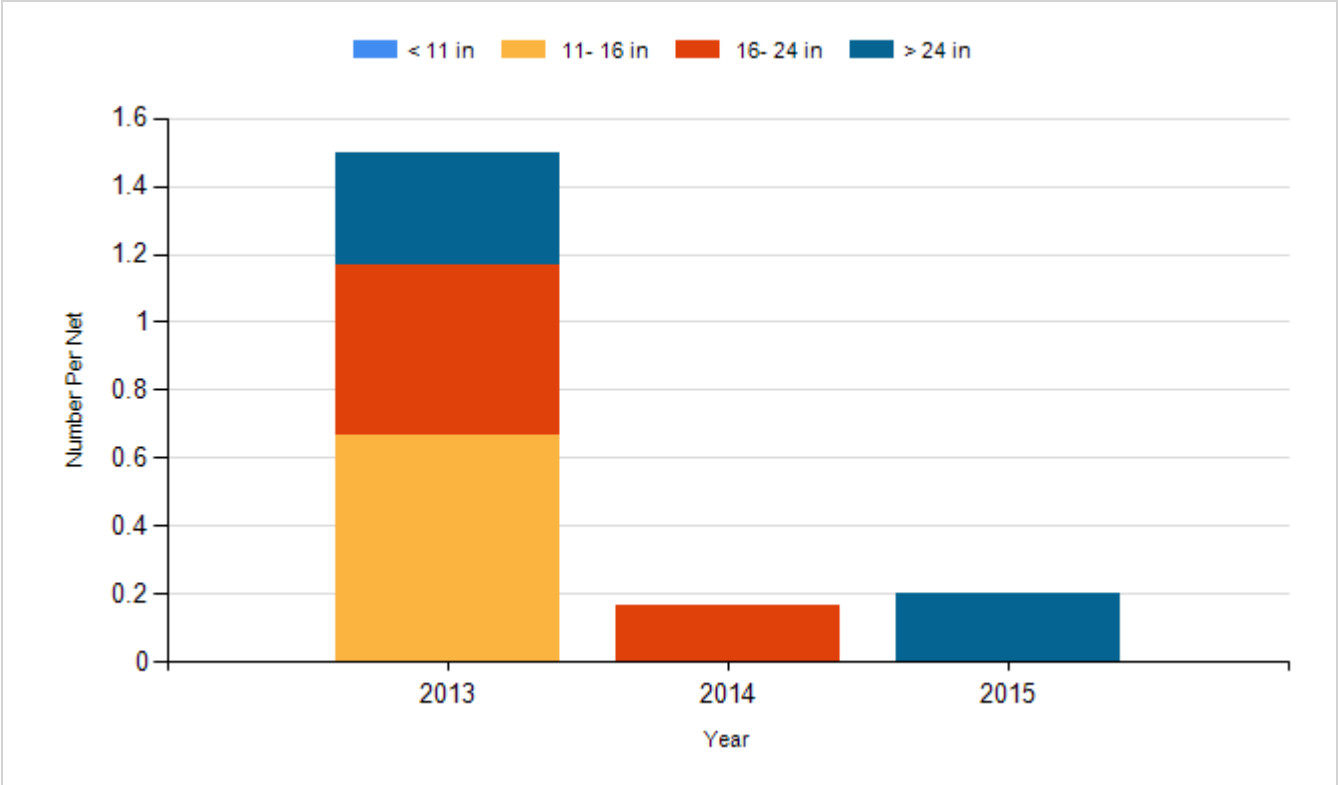
Species: Bluegill
Gear: frame net (std 3/4 in)



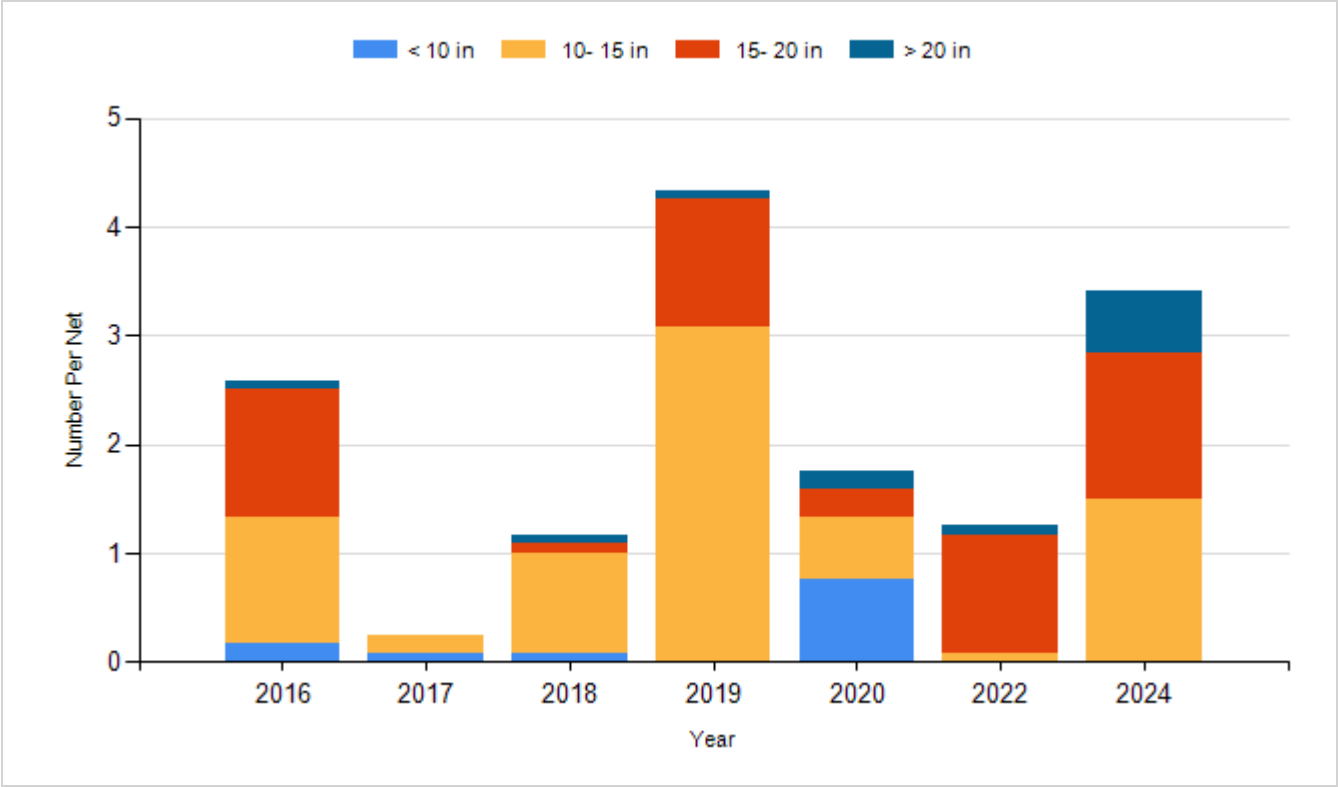
Species: Channel Catfish
Gear: AFS std gill net



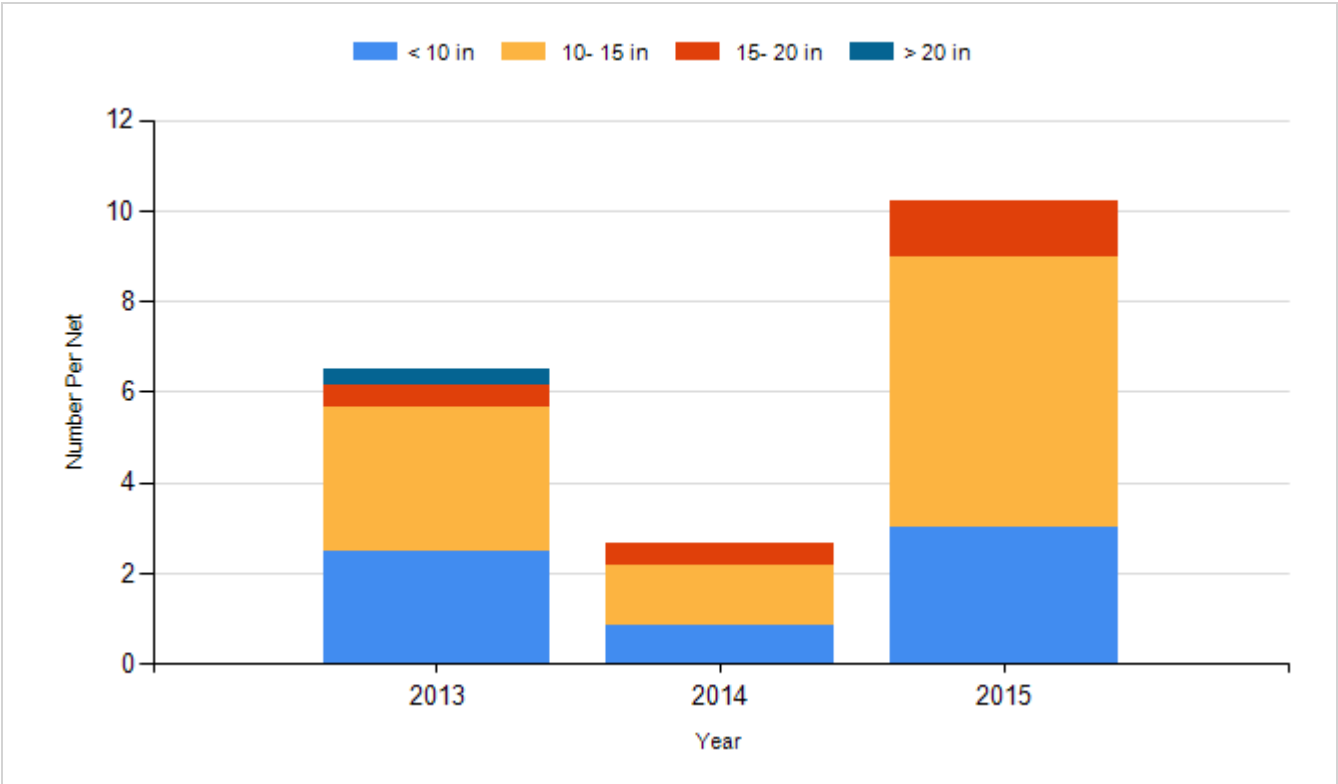
Species: Channel Catfish
Gear: std exp gill net



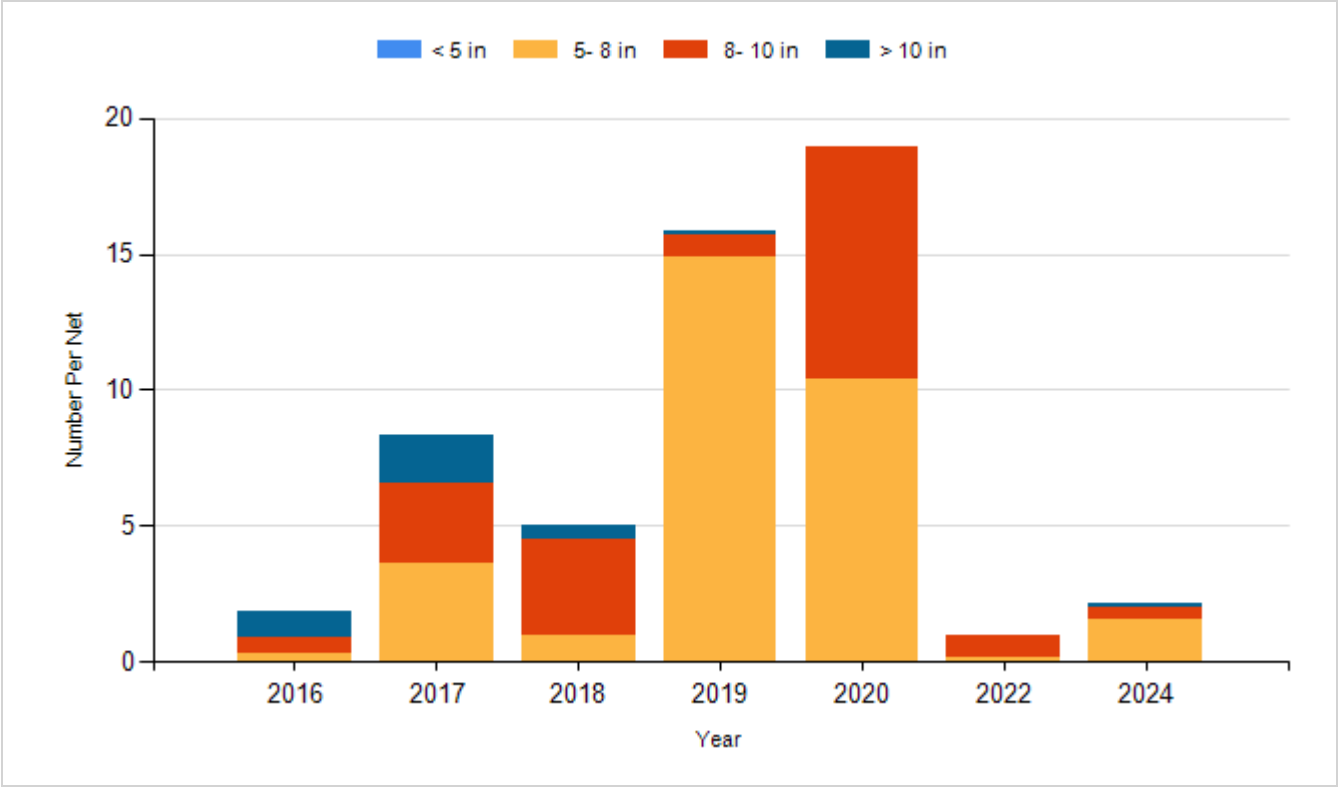
Species: Walleye
Gear: AFS std gill net



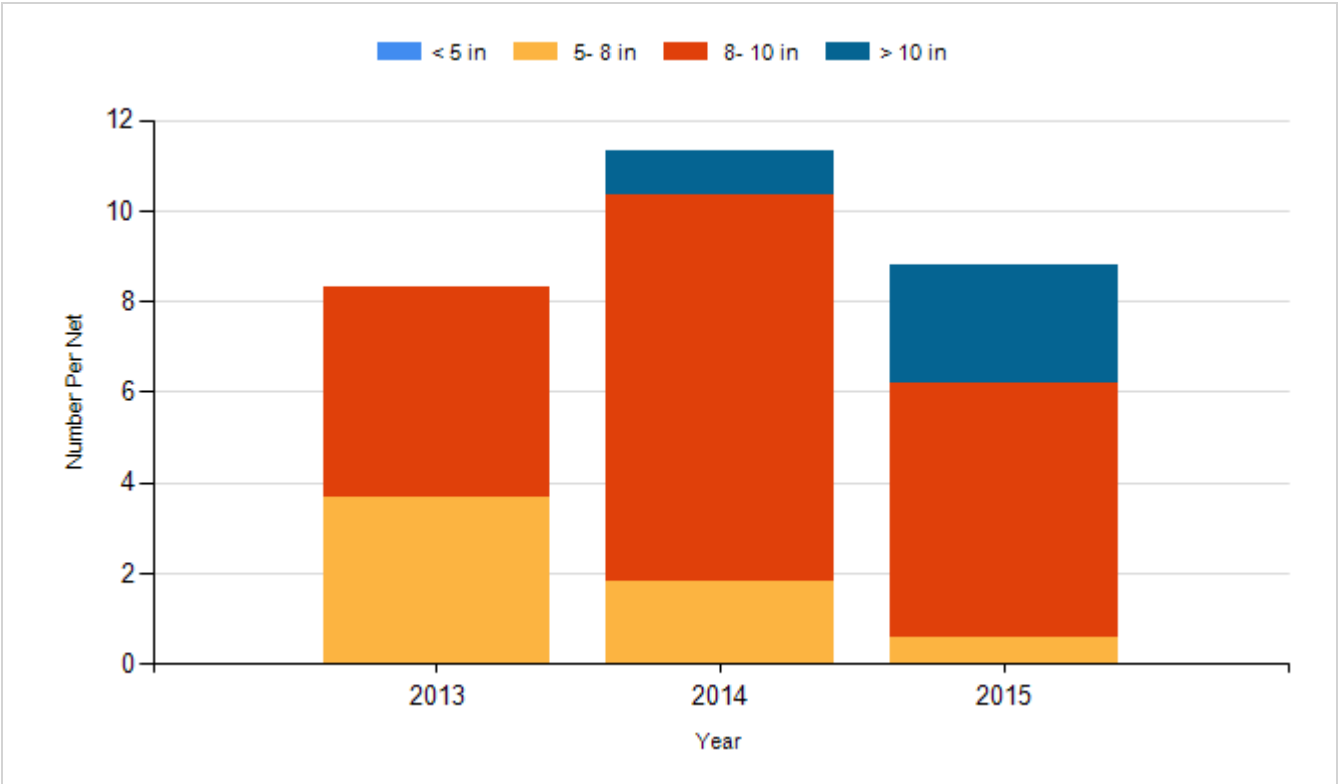
Species: Walleye
Gear: std exp gill net



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
2013	Walleye	Large Fingerling	27,344
2014	Walleye	Large Fingerling	18,420
2016	Saugeye	Large Fingerling	6,030
2017	Saugeye	Small Fingerling	60,320
2018	Saugeye	Small Fingerling	62,640
2019	Saugeye	Small Fingerling	62,350
2021	Saugeye	Juvenile	63,700
2022	Saugeye	Juvenile	63,080
2023	Saugeye	Juvenile	62,832
2024	Saugeye	Fry	425,000