

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Sheridan, Pennington County
MCS-Lake-11-000
2021

Lake Information

Name: Sheridan
County: Pennington
Surface Area: 370 Acres

Surveys and Investigations

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

Gear	Date	Effort
AFS std gill net	Jul 13, 2021	8 net-nights
boat shocker (night)	Sep 15, 2021	1800 seconds
frame net (std 3/4 in)	Jul 13, 2021	8 net-nights

Common Fish Species Present

Black Crappie

Largemouth Bass

Rainbow Trout

Yellow Perch

Bluegill

Rudd

Rock Bass

White Sucker

Northern Pike

Green Sunfish

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).

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

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 Bullhead	1	0.1	0.2	100		100		72	
	Black Crappie	2	0.3	0.2	100		0		101	7
	Bluegill	34	4.3	2.8	68	12	26	12	108	3
	Golden Shiner	1	0.0	0.0						
	Largemouth Bass	3	0.4	0.3	33		0		112	5
	Northern Pike	9	1.1	0.4	78		44		94	4
	Rainbow Trout	8	1.0	0.6	63		0		81	4
	Rock Bass	1	0.1	0.2	100		0		84	
	Rudd	36	4.5	4.8	97		69	12		
	Smallmouth Bass	2	0.3	0.4	50		0		101	11
	White Sucker	22	2.8	1.5	100		100		96	3
Yellow Perch	132	16.3	10.0	85	5	20	5	94	2	
boat shocker (night)	Largemouth Bass	7	10.0	13.6	100		40		107	5
frame net (std 3/4 in)	Black Bullhead	1	0.1	0.2	100		100		99	
	Black Crappie	10	1.3	0.6	90		0		94	3
	Bluegill	650	81.3	18.2	53	3	24	2	102	0
	Green Sunfish	5	0.6	0.4	40		0		104	9
	Northern Pike	8	0.6	0.4	20		0		91	3
	Rock Bass	30	3.8	3.1	27	13	7		84	2
	Rudd	151	18.9	14.4	96	2	44	6		
	White Sucker	4	0.5	0.5	100		100		91	5
Yellow Perch	83	10.4	4.6	65	8	10	5	85	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

Gear	Species	CPUE										Avg
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
AFS std gill net	Black Bullhead							0.4		0.0	0.1	0.17
	Black Crappie							0.1		0.3	0.3	0.23
	Bluegill							1.0		9.4	4.3	4.90
	Golden Shiner							0.0		0.0	0.0	0.00
	Largemouth Bass							0.3		0.5	0.4	0.40
	Northern Pike							2.1		1.3	1.1	1.50
	Rainbow Trout							2.5		3.8	1.0	2.43
	Rock Bass							0.5		0.0	0.1	0.20
	Rudd							0.5		0.0	4.5	1.67
	Smallmouth Bass							0.1		0.3	0.3	0.23
	White Sucker							1.4		1.9	2.8	2.03
Yellow Perch							18.0		12.3	16.3	15.53	
boat shocker (night)	Largemouth Bass	151.5	75.0	75.0	55.0	62.0		120.0	80.4	30.0	10.0	73.21
	Smallmouth Bass	0.0	0.0	5.0	3.0	3.0		7.2	0.0	0.0	0.0	2.02
	Walleye*	0.0	0.0	0.0	0.0	0.0		1.2	1.5	0.0	0.0	0.30
frame net (std 3/4 in)	Black Bullhead	0.8	2.9		6.1			2.3			0.1	2.44
	Black Crappie	1.0	0.8		9.8			2.0			1.3	2.98
	Bluegill	0.0	0.0		0.0			24.8			81.3	21.22
	Channel Catfish	0.0	0.0		0.0			0.0			0.0	0.00
	Golden Shiner	0.0	0.0		0.0			0.0			0.0	0.00
	Green Sunfish	0.3	0.5		0.6			0.3			0.6	0.46
	Largemouth Bass	0.0	0.0		0.0			0.7			0.0	0.14
	Northern Pike	0.5	0.1		0.3			0.6			0.6	0.42
	Rainbow Trout	0.1	0.1		1.8			0.1			0.0	0.42
	Rock Bass	12.8	7.9		7.8			11.9			3.8	8.84
	Rudd	1.9	1.0		3.3			30.8			18.9	11.18
	Smallmouth Bass	0.0	0.0		0.3			0.0			0.0	0.06
	White Sucker	0.6	0.0		0.1			0.9			0.5	0.42
Yellow Perch	5.1	2.5		14.6			13.7			10.4	9.26	
std exp gill net	Black Crappie	0.0	4.0	0.0	7.5	0.5						2.40
	Golden Shiner	0.0	0.0	0.0	0.0	0.0						0.00
	Largemouth Bass	0.0	0.5	0.0	0.0	0.0						0.10
	Northern Pike	1.0	3.0	0.5	1.5	1.5						1.50
	Rainbow Trout	1.5	6.0	2.5	6.0	1.0						3.40

CPUE

Gear	Species	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Avg
std exp gill net	Rock Bass	1.5	6.0	1.0	0.0	0.5						1.80
	Smallmouth Bass	0.5	1.5	0.0	0.0	1.5						0.70
	White Sucker	2.0	2.5	0.5	0.0	3.0						1.60
	Yellow Perch	104.5	81.0	40.0	40.0	56.0						64.30

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	Black Crappie	PSD								0	100	100
		PSD-P								0	0	0
		Wr								76	104	101
	Bluegill	PSD								0	87	68
		PSD-P								0	9	26
		Wr								95	105	108
	Largemouth Bass	PSD								0	75	33
		PSD-P								0	50	0
		Wr								94	99	112
	Northern Pike	PSD								82	90	78
		PSD-P								29	40	44
		Wr								101	100	94
	Rainbow Trout	PSD								55	17	63
		PSD-P								0	0	0
		Wr								85	86	81
	Rock Bass	PSD								0		100
		PSD-P								0		0
		Wr								81		84
	Rudd	PSD								100		97
		PSD-P								100		69
	White Sucker	PSD								100	100	100
PSD-P									100	100	100	
Wr									100	93	96	
Yellow Perch	PSD								70	62	85	
	PSD-P								31	10	20	
	Wr								93	102	94	
boat shocker (night)	Largemouth Bass	PSD	40	56	64	51	61		42	50	83	100
		PSD-P	6	5	17	16	23		8	15	27	40
		Wr	108	107	99	107	107		101	111	105	107
frame net (std 3/4 in)	Black Crappie	PSD	100	50		37			56			90
		PSD-P	0	17		4			11			0
		Wr	97	113		104			92			94

Gear	Species	Index	Year											
			2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
frame net (std 3/4 in)	Bluegill	PSD								93			53	
		PSD-P								8			24	
		Wr									126			102
	Green Sunfish	PSD	100	50		20					33			40
		PSD-P	0	25		0					0			0
		Wr	111	82		119					100			104
	Largemouth Bass	PSD	0	0		0					17			
		PSD-P	0	0		0					0			
		Wr									99			
	Northern Pike	PSD	0	0		50					20			20
		PSD-P	0	0		0					0			0
		Wr	86	96		106					93			91
	Rainbow Trout	PSD	100	0		29					100			
		PSD-P	0	0		0					0			
		Wr	91	120		81					91			
	Rock Bass	PSD	37	46		19					30			27
		PSD-P	19	0		0					1			7
		Wr	94	101		103					93			84
	Rudd	PSD	93	100		100					67			96
		PSD-P	73	100		69					54			44
	White Sucker	PSD	100			100					88			100
PSD-P		100			100					88			100	
Wr		92			95					87			91	
Yellow Perch	PSD	54	60		56					86			65	
	PSD-P	7	10		6					27			10	
	Wr	94	102		93					94			85	
std exp gill net	Black Crappie	PSD	0	25		47	100							
		PSD-P	0	0		0	0							
		Wr		104		87	99							
	Largemouth Bass	PSD		100										
		PSD-P		100										
		Wr		99										
	Northern Pike	PSD	100	100	100	33	67							
		PSD-P	50	17	0	0	33							
		Wr	96	106	111	90	104							
	Rainbow Trout	PSD	67	17	0	25	0							
		PSD-P	0	0	0	0	0							

Gear	Species	Index	Year									
			2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
std exp gill net	Rainbow Trout	Wr	81	84	90	80	84					
		PSD	0	8	0		0					
	Rock Bass	PSD-P	0	0	0		0					
		Wr	93	88	85		96					
		PSD	100	100	100		100					
		PSD-P	100	100	100		100					
	White Sucker	Wr	96	92	99		102					
		PSD	79	64	40	69	82					
		PSD-P	11	19	1	3	9					
	Yellow Perch	Wr	107	101	106	101	98					

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+
2015	79		119 (1)		191 (67)	207 (8)	249 (3)	300 (1)			

Species: Largemouth Bass

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2015	80	330 (1)	154 (1)	181 (22)	208 (25)	263 (8)	352 (15)	387 (7)		367 (1)	
2014	100		169 (8)	179 (24)	263 (26)	303 (9)	353 (20)	350 (17)	344 (2)	422 (1)	
2013	88		169 (8)	207 (20)	291 (5)	298 (21)	310 (21)	366 (5)	356 (7)		
2012	112		156 (9)	175 (4)	256 (29)	295 (28)	319 (30)	334 (14)		382 (2)	

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	144	148 (10)	151 (23)	191 (18)	253 (3)	225 (11)	250 (14)	252 (61)		281 (2)	245 (4)
2016	107	165 (1)	185 (3)	195 (19)	224 (32)	233 (32)	230 (7)	223 (2)	234 (3)	234 (6)	
2015	80	144 (2)	188 (9)	203 (43)	227 (22)	265 (2)	243 (2)				
2014	78		181 (9)	188 (47)	203 (1)	230 (6)		235 (13)			234 (2)
2013	157	153 (3)	152 (38)	195 (16)	221 (14)	233 (39)	246 (26)	255 (21)			273 (2)
2012	208		150 (5)	205 (60)	213 (76)	239 (32)	239 (35)	271 (2)			292 (1)

Fish Condition

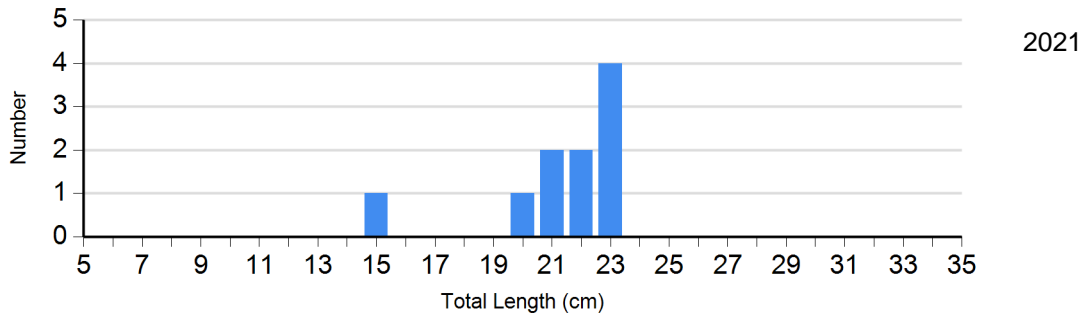
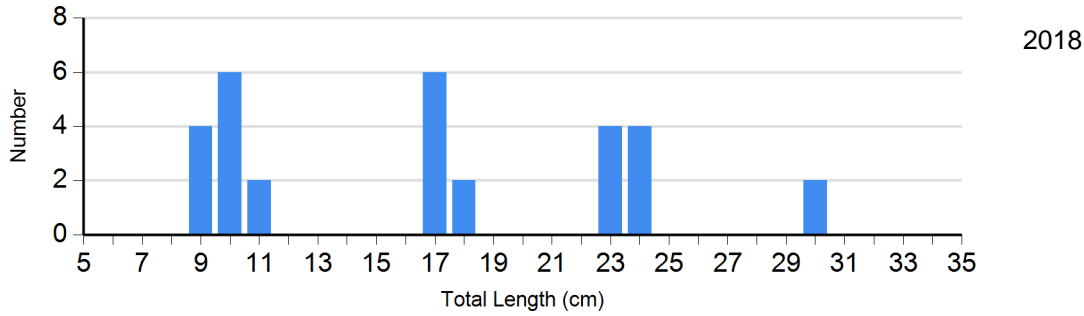
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Crappie Frame Net	2018	8	99 (1.8)	8	88 (1.7)	0		2	84
	2021	1	110	9	92 (2.1)	0		0	
Bluegill Frame Net	2018	16	118 (1.9)	189	128 (0.6)	18	122 (3.2)	0	
	2021	305	99 (0.5)	191	105 (0.5)	154	101 (0.7)	0	
Largemouth Bass Electro Fishing	2018	58	97 (1.6)	34	105 (1.8)	8	109 (3.6)	0	
	2019	24	111 (9.5)	17	108 (3.8)	7	114 (5.4)	0	
	2020	5	103 (5.3)	17	103 (2.3)	8	109 (3.0)	0	
	2021	0		3	104 (4.2)	2	110 (8.6)	0	
Northern Pike Gill Net	2018	3	87 (5.9)	9	96 (4.1)	4	129 (4.9)	1	
	2020	1	79	5	93 (4.8)	3	108 (10.6)	1	132
	2021	2	87 (0.3)	3	91 (2.9)	1	109	3	105
Rainbow Trout Gill Net	2018	9	91 (2.8)	11	80 (2.4)	0		0	
	2020	25	87 (3.3)	5	80 (3.1)	0		0	
	2021	3	90 (2.9)	5	75 (2.5)	0		0	
White Sucker Gill Net	2018	0		0		2	101 (7.3)	9	100 (2.9)
	2020	0		0		1	99	14	93 (2.5)
	2021	0		0		4	100 (2.5)	18	95 (2.3)
Yellow Perch Gill Net	2018	43	94 (1.4)	57	93 (0.9)	44	90 (1.1)	0	
	2020	37	117 (15.3)	51	94 (0.8)	10	88 (2.2)	0	
	2021	20	95 (2.4)	84	94 (0.8)	25	93 (5.1)	1	0

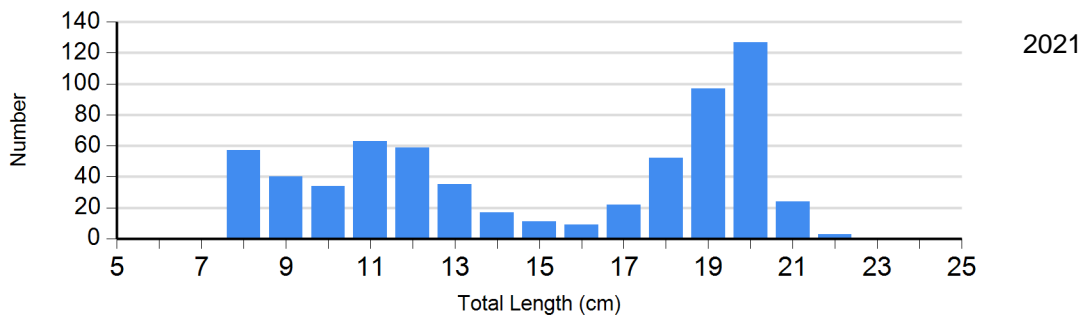
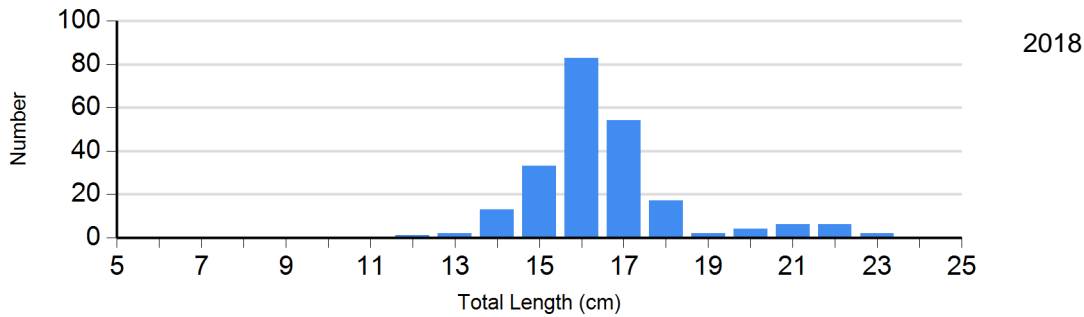
Length Frequency Distribution

Length frequency histogram of species sampled by year.

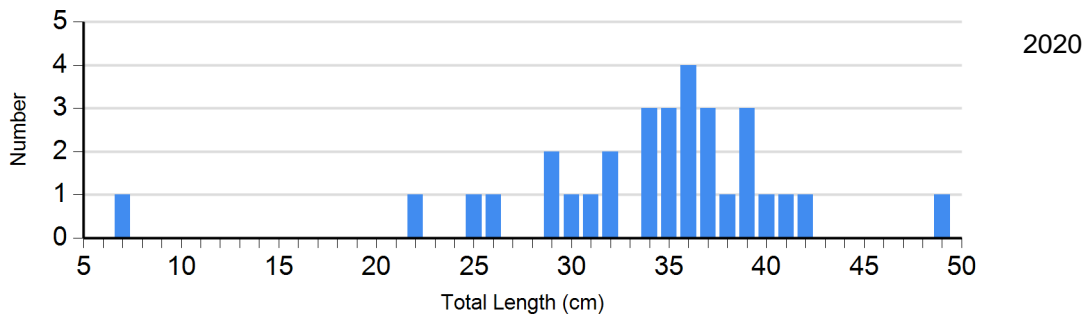
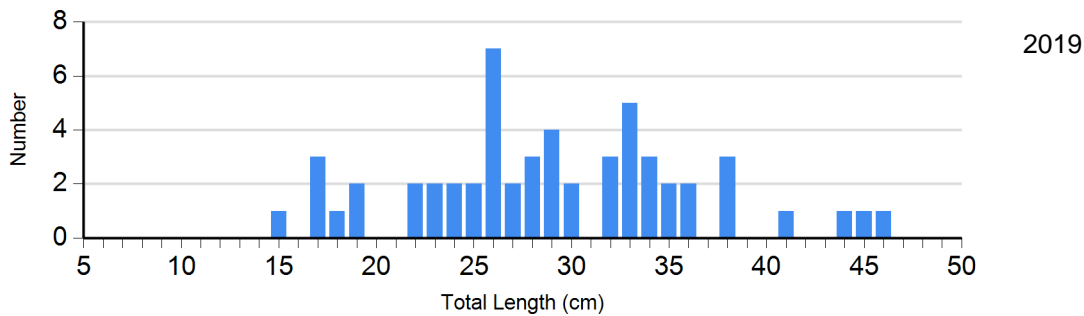
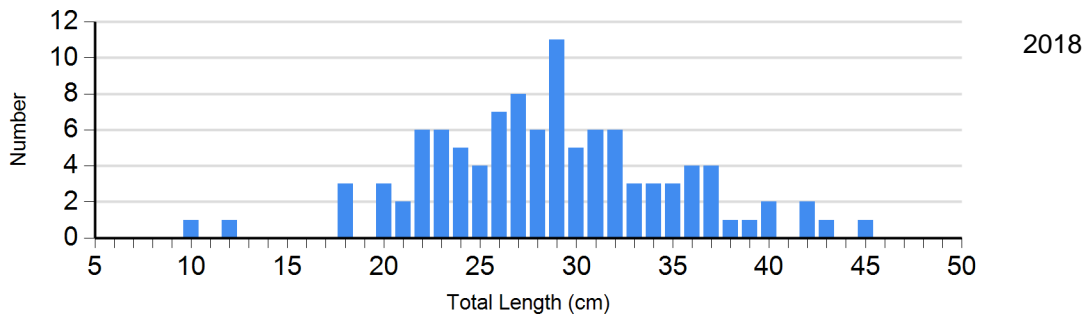
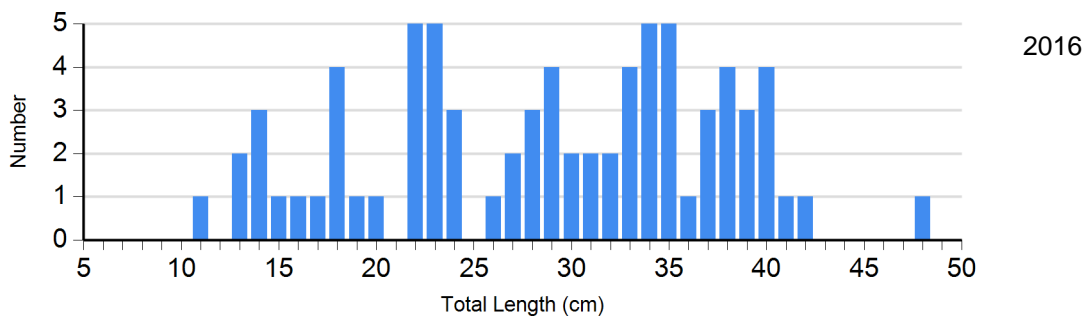
Species: Black Crappie
Gear: frame net (std 3/4 in)



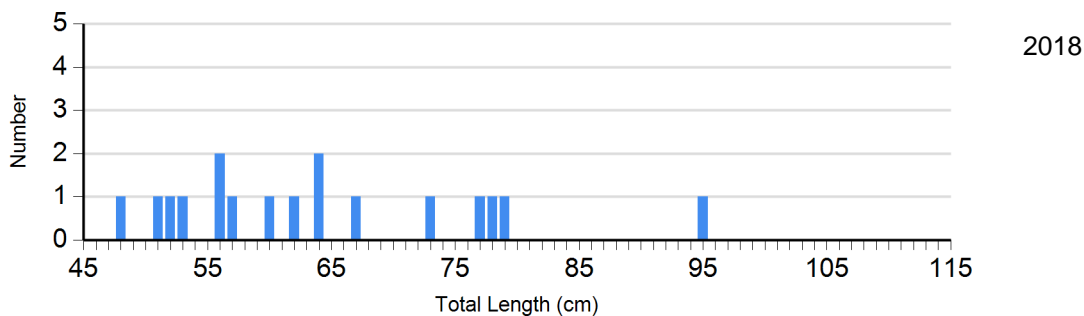
Species: Bluegill
Gear: frame net (std 3/4 in)

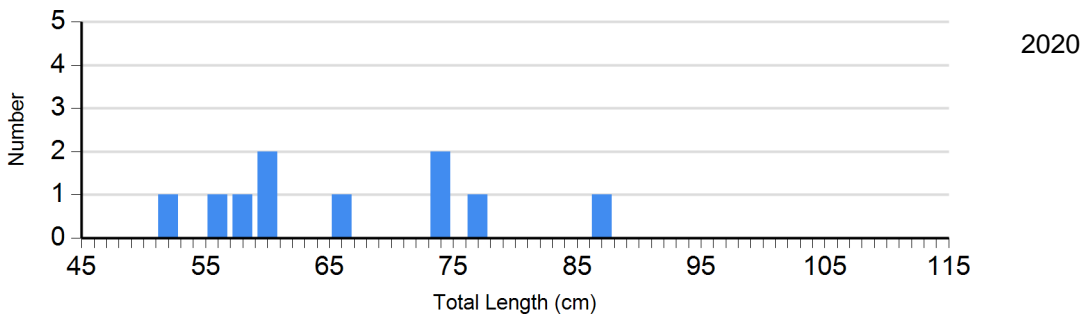


Species: Largemouth Bass
 Gear: boat shocker (night)

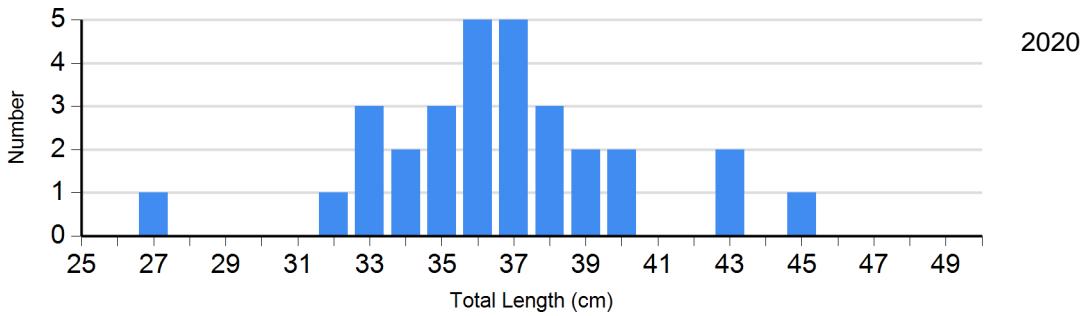
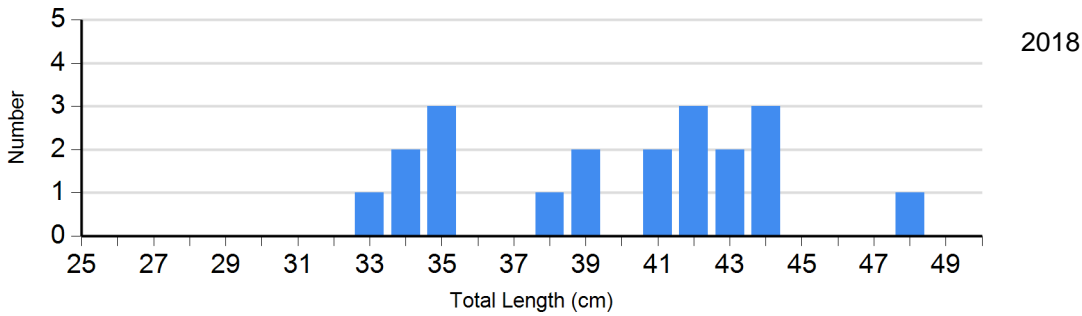


Species: Northern Pike
 Gear: AFS std gill net

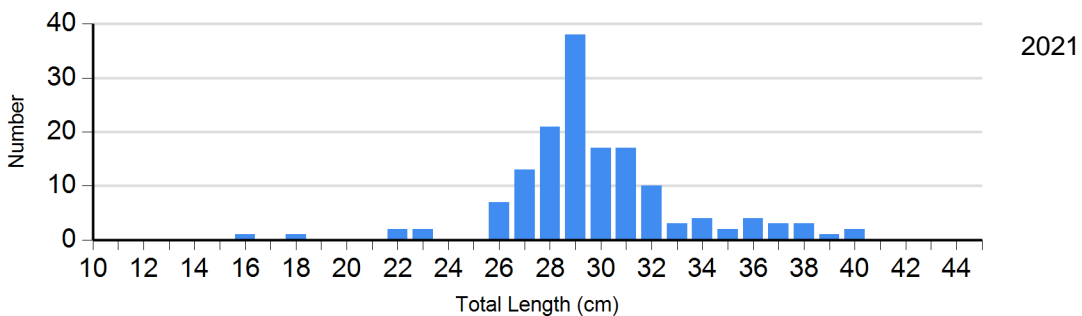
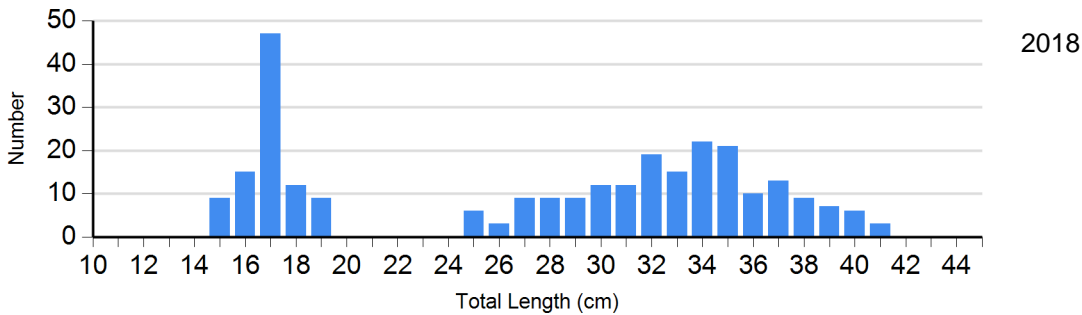




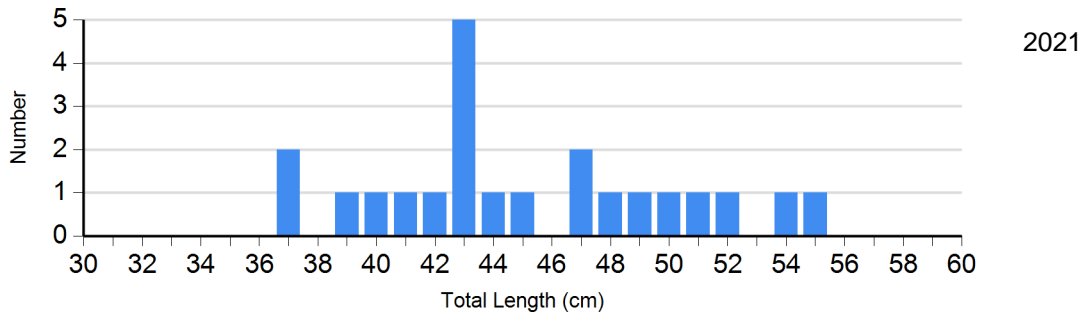
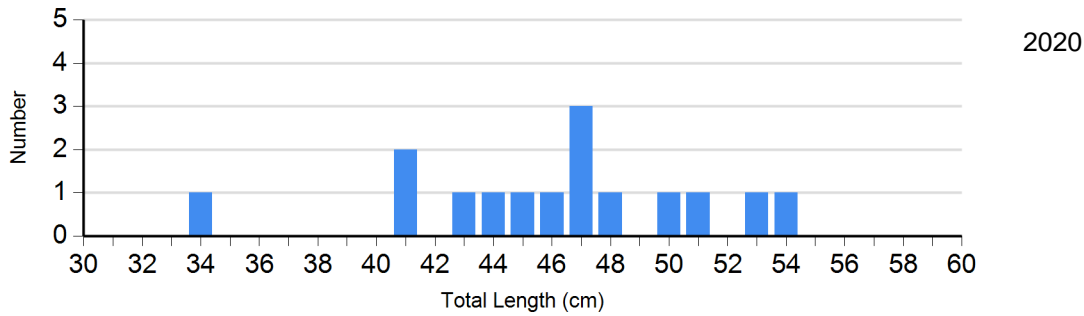
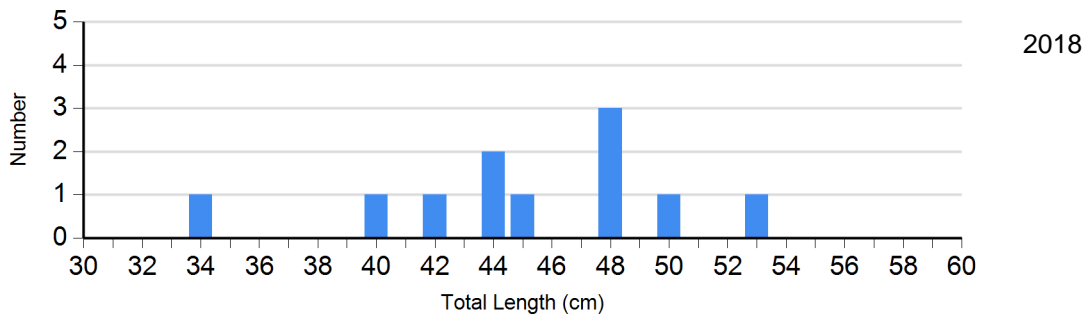
Species: Rainbow Trout
Gear: AFS std gill net



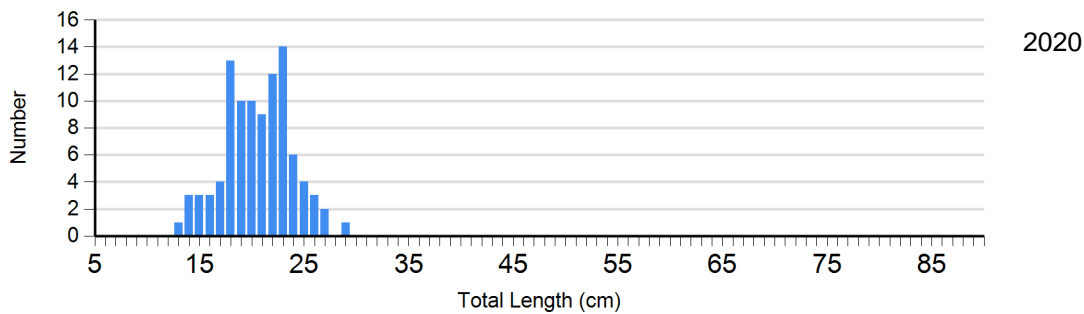
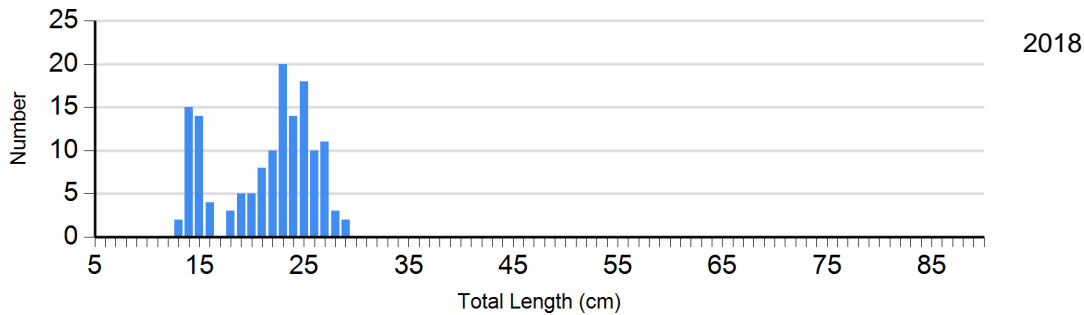
Species: Rudd
Gear: frame net (std 3/4 in)

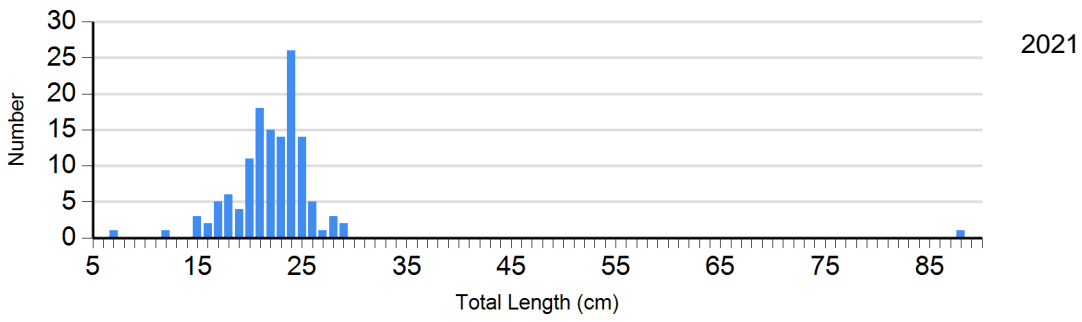


Species: White Sucker
 Gear: AFS std gill net

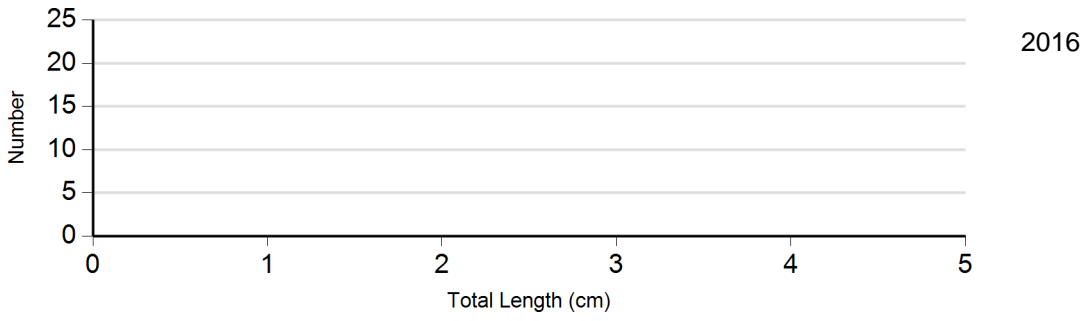


Species: Yellow Perch
 Gear: AFS std gill net





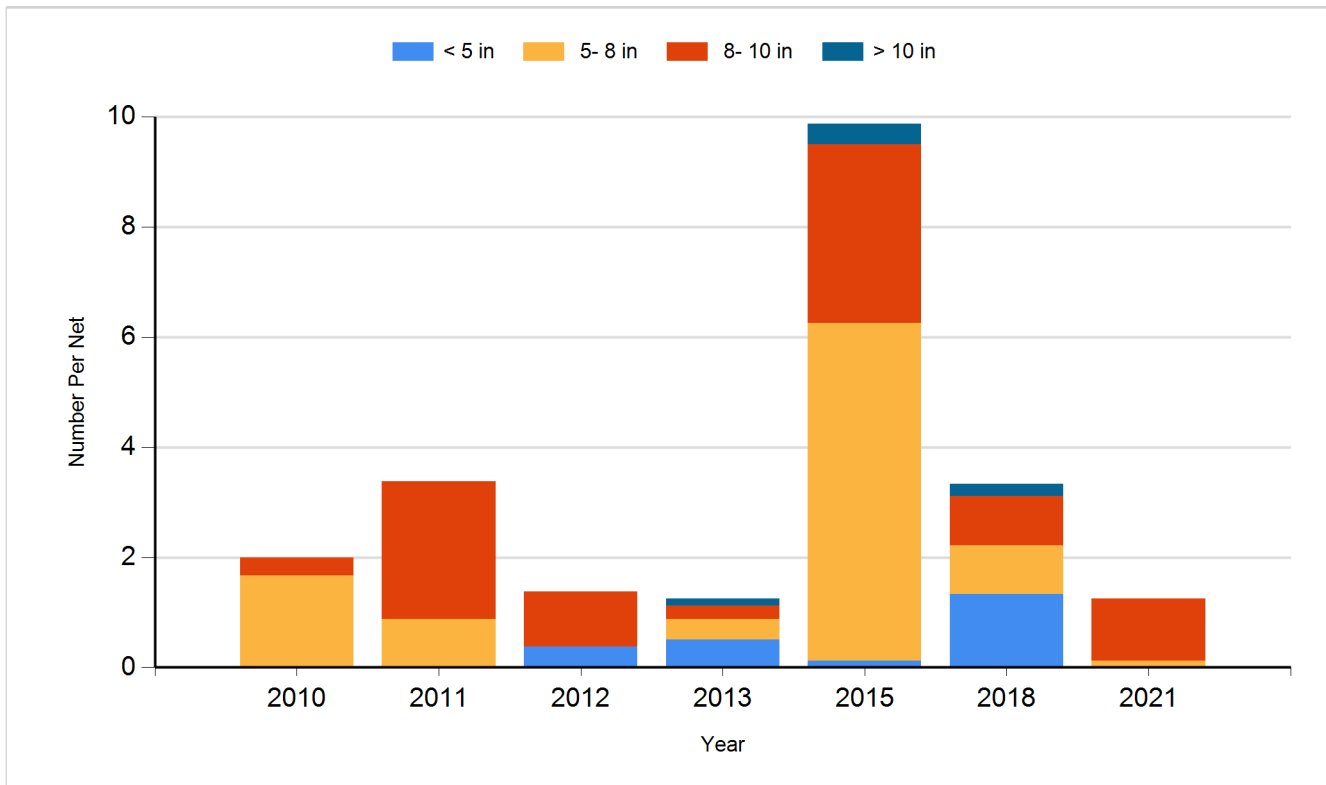
Species: Yellow Perch
 Gear: std exp gill net



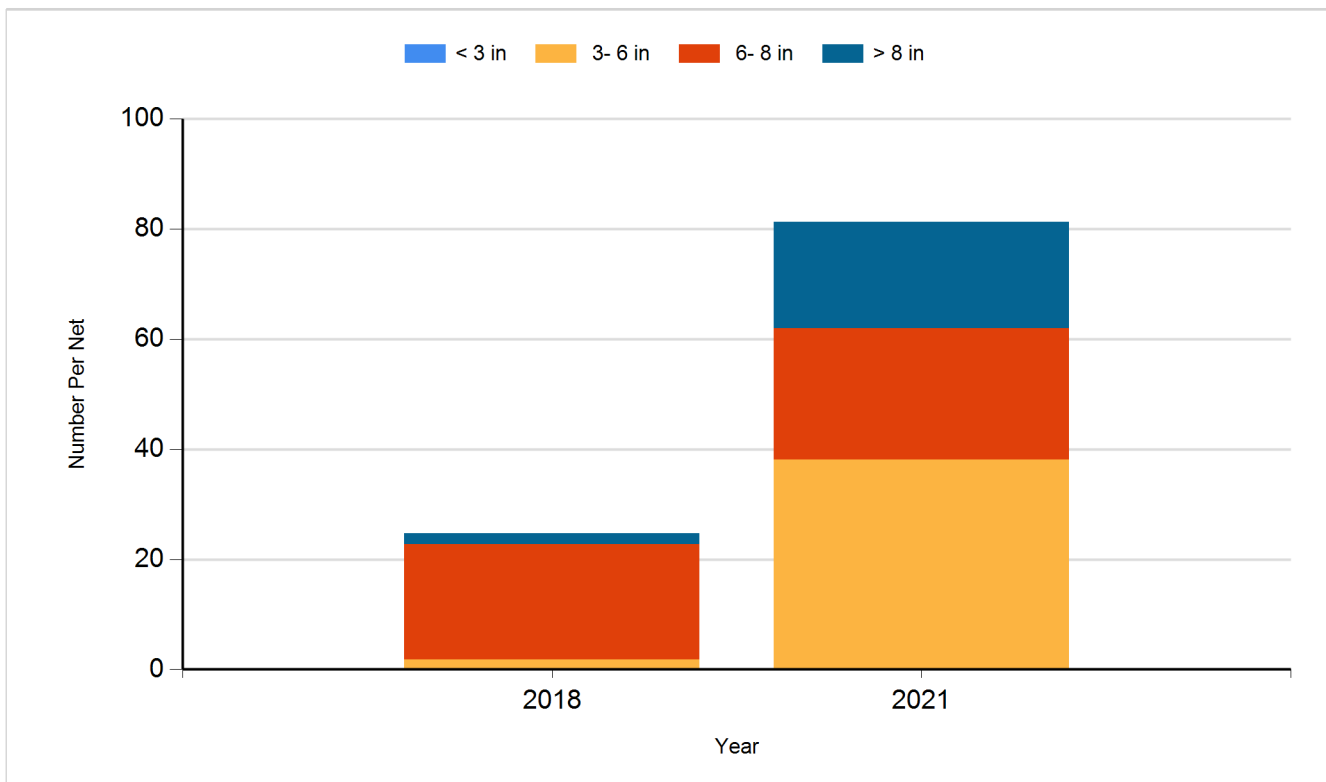
Historic Fish Sizes and Relative Abundance

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

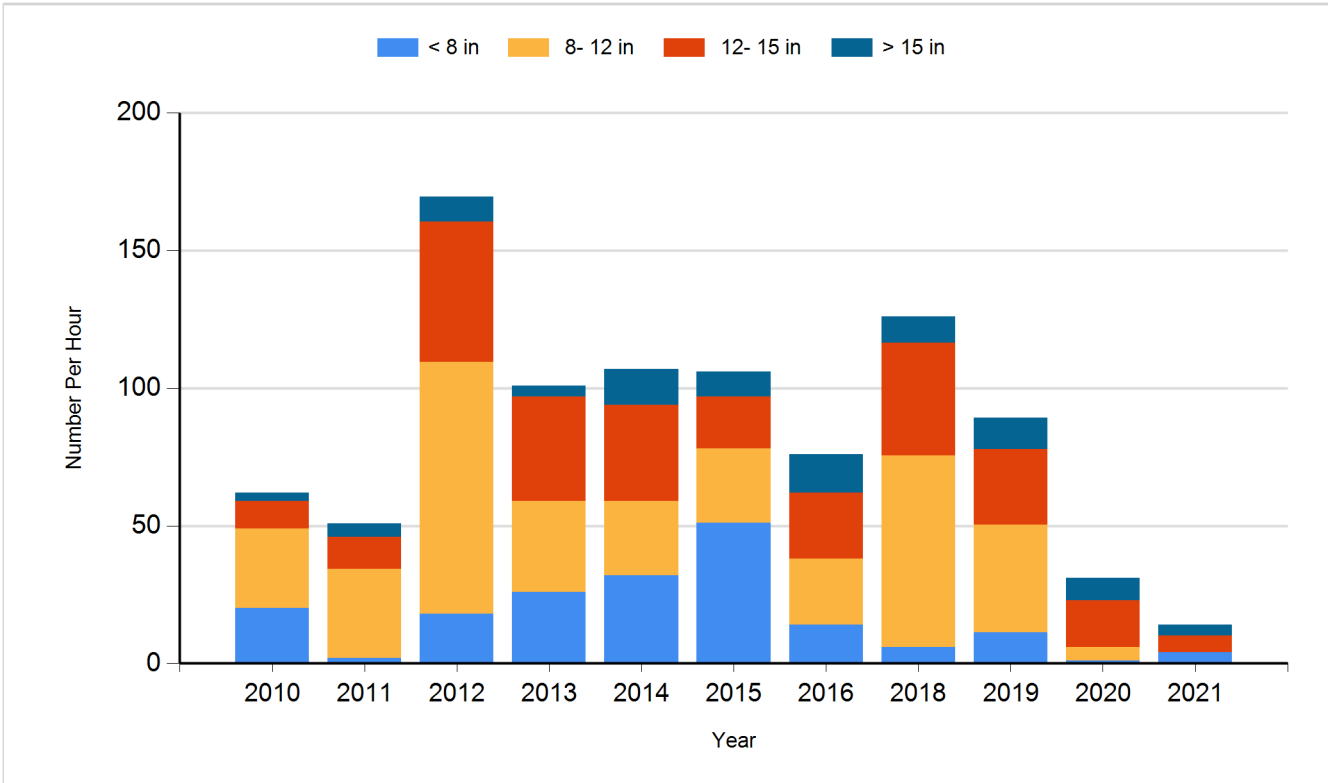
Species: Black Crappie
Gear: frame net (std 3/4 in)



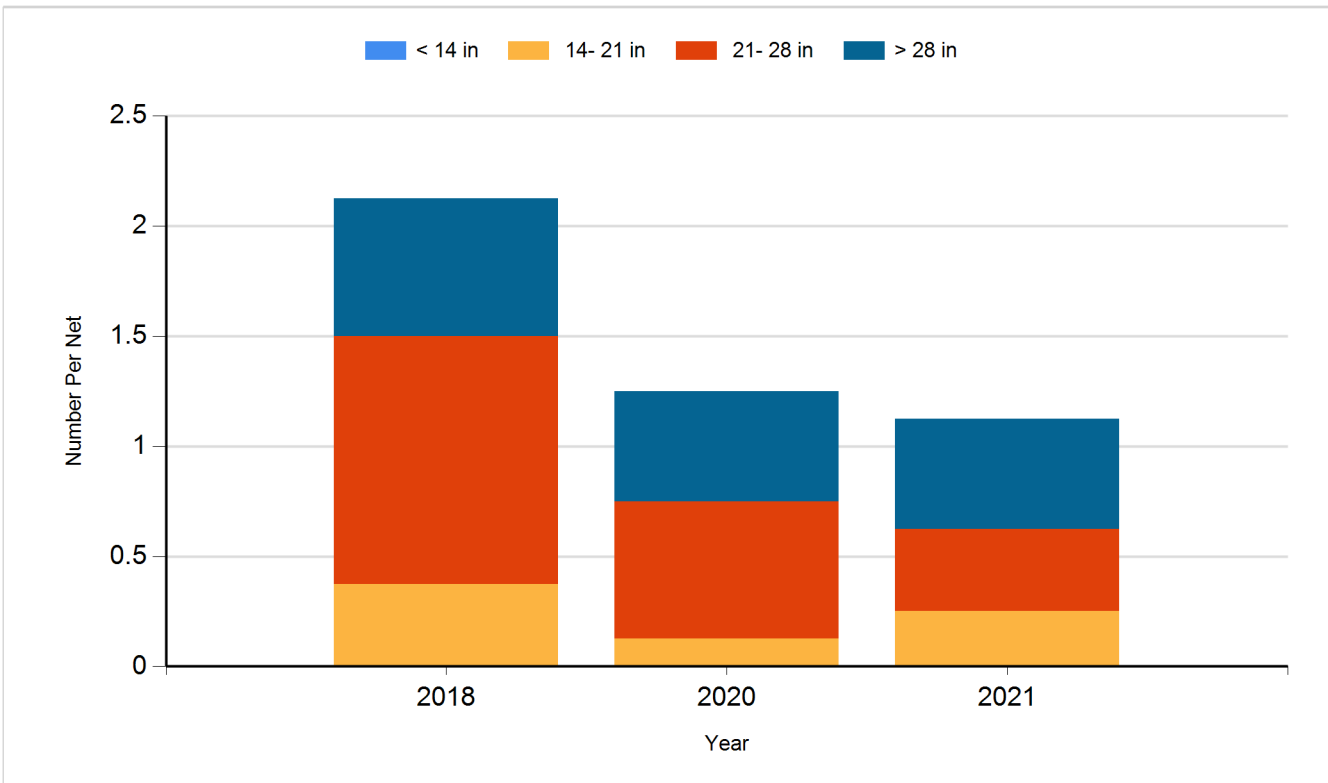
Species: Bluegill
Gear: frame net (std 3/4 in)



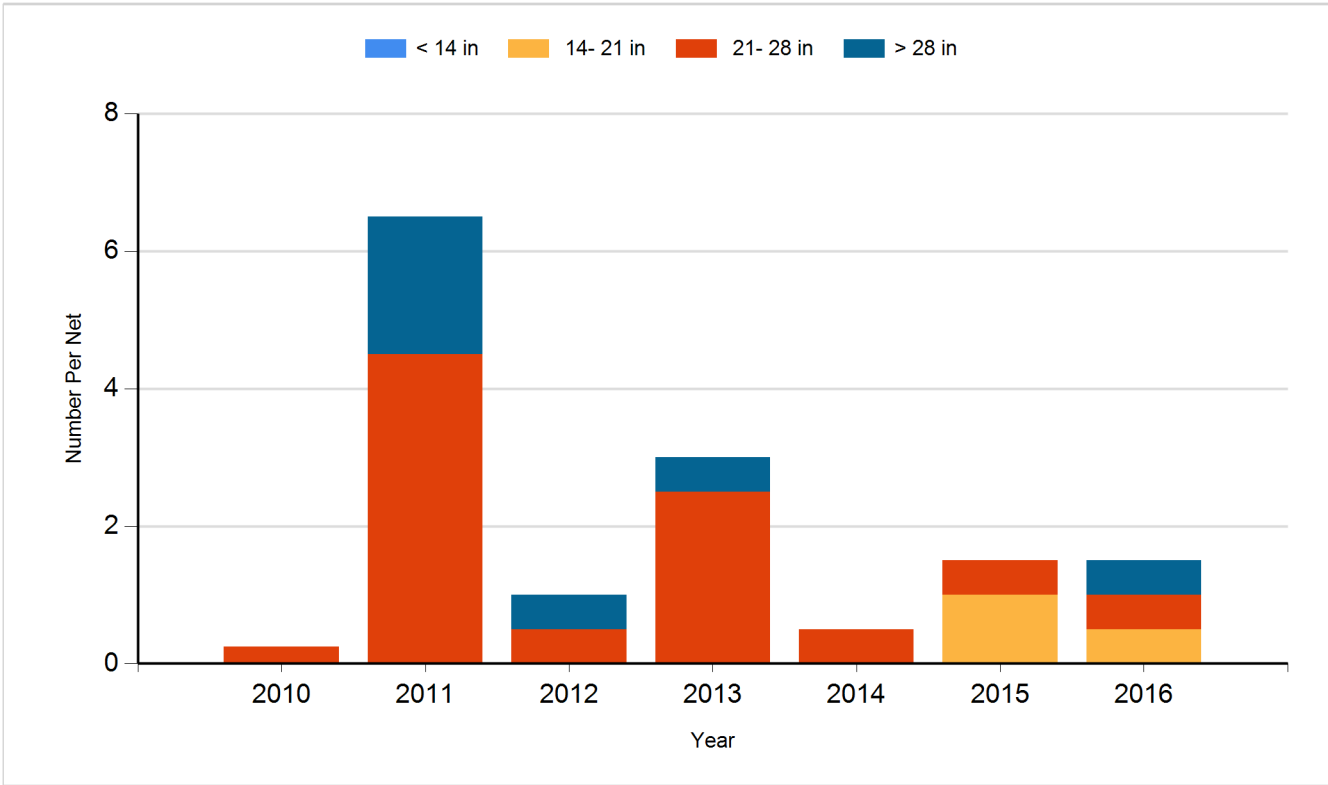
Species: Largemouth Bass
Gear: boat shocker (night)



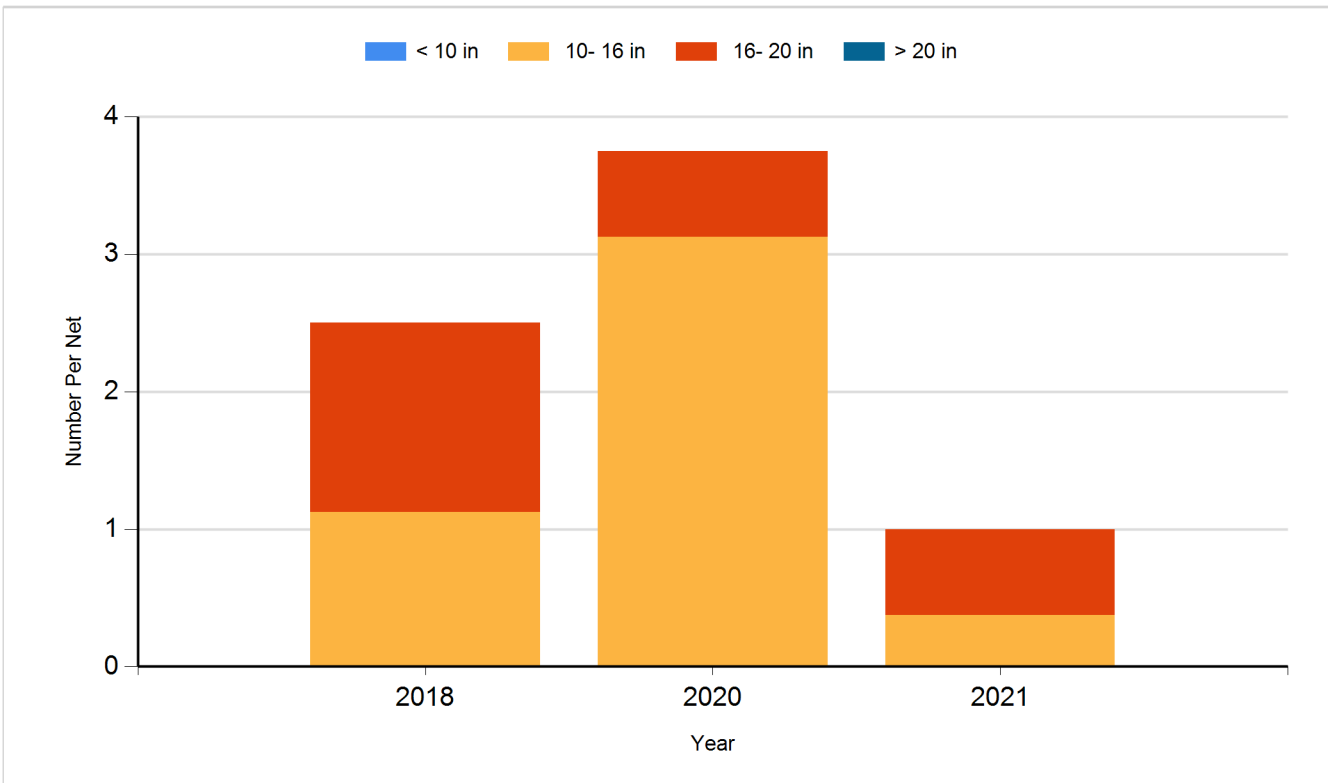
Species: Northern Pike
Gear: AFS std gill net



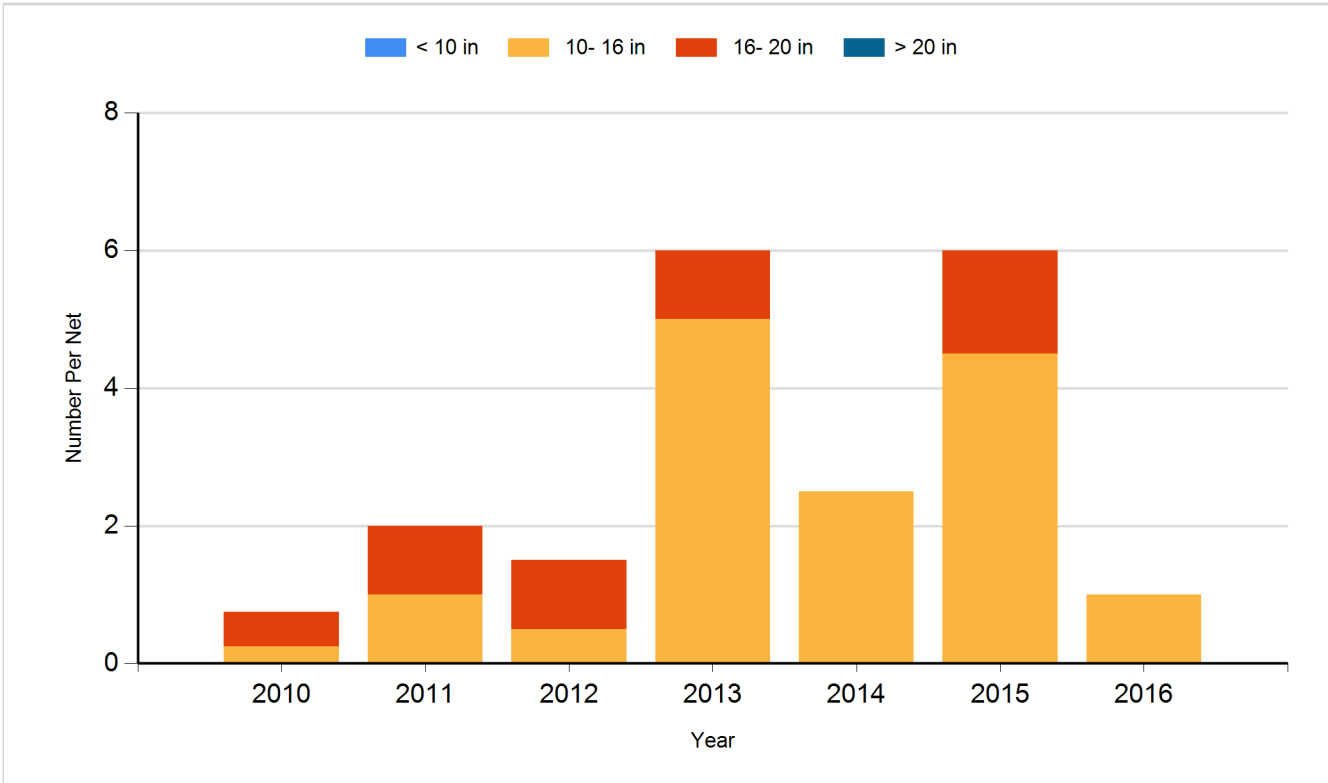
Species: Northern Pike
Gear: std exp gill net



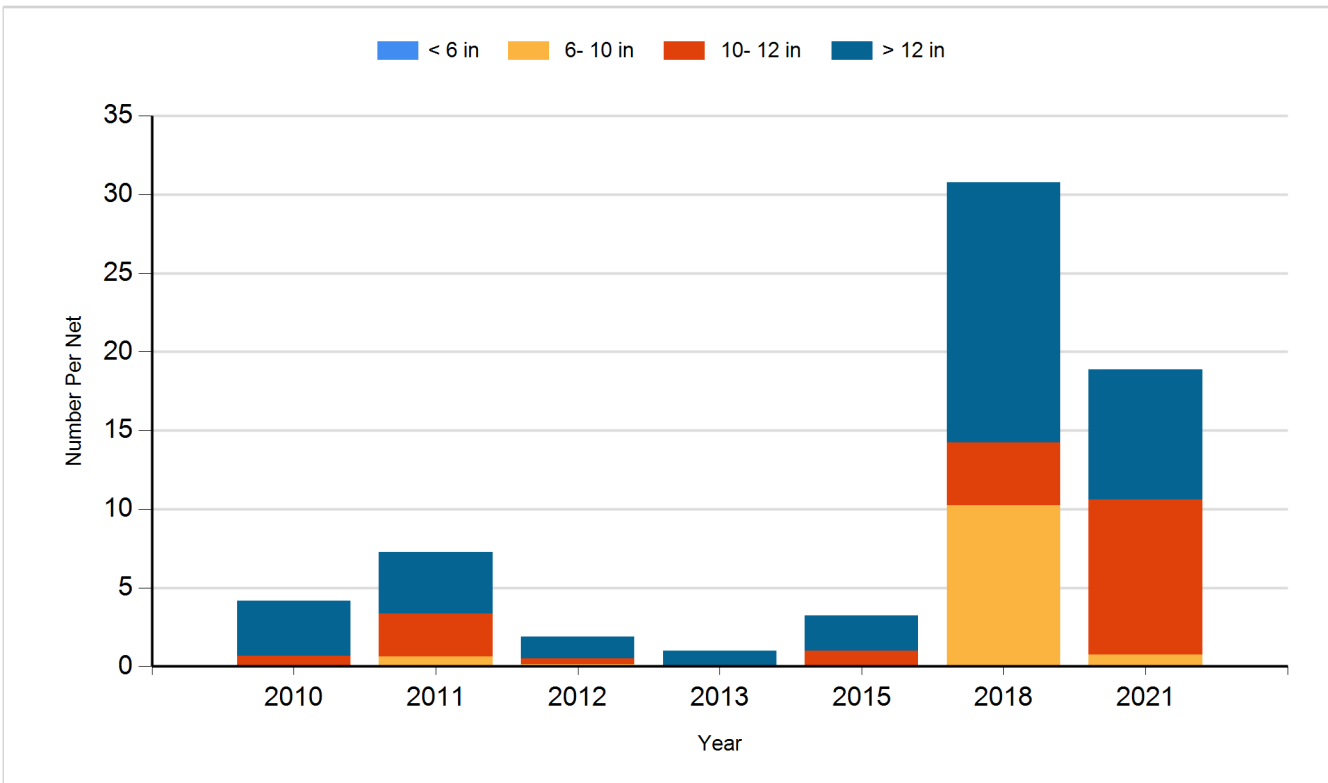
Species: Rainbow Trout
Gear: AFS std gill net



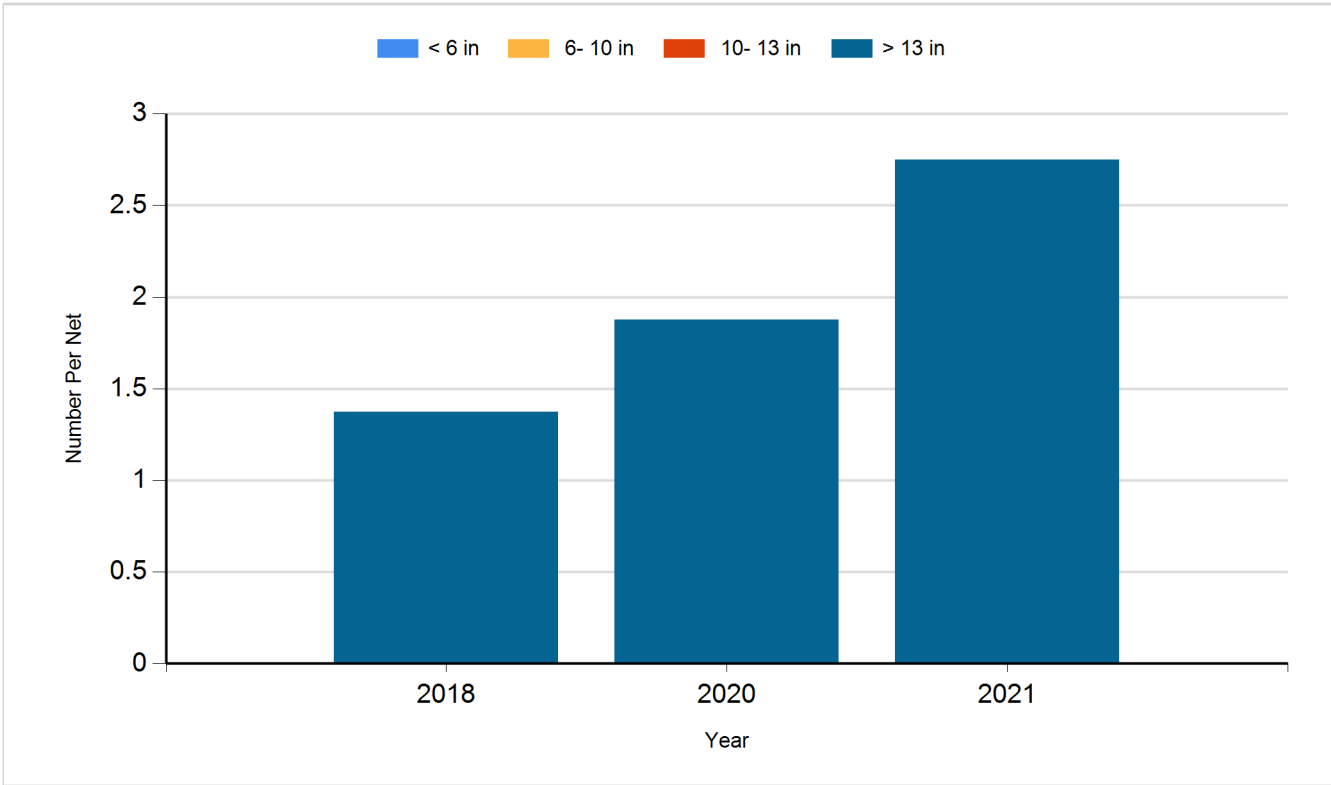
Species: Rainbow Trout
Gear: std exp gill net



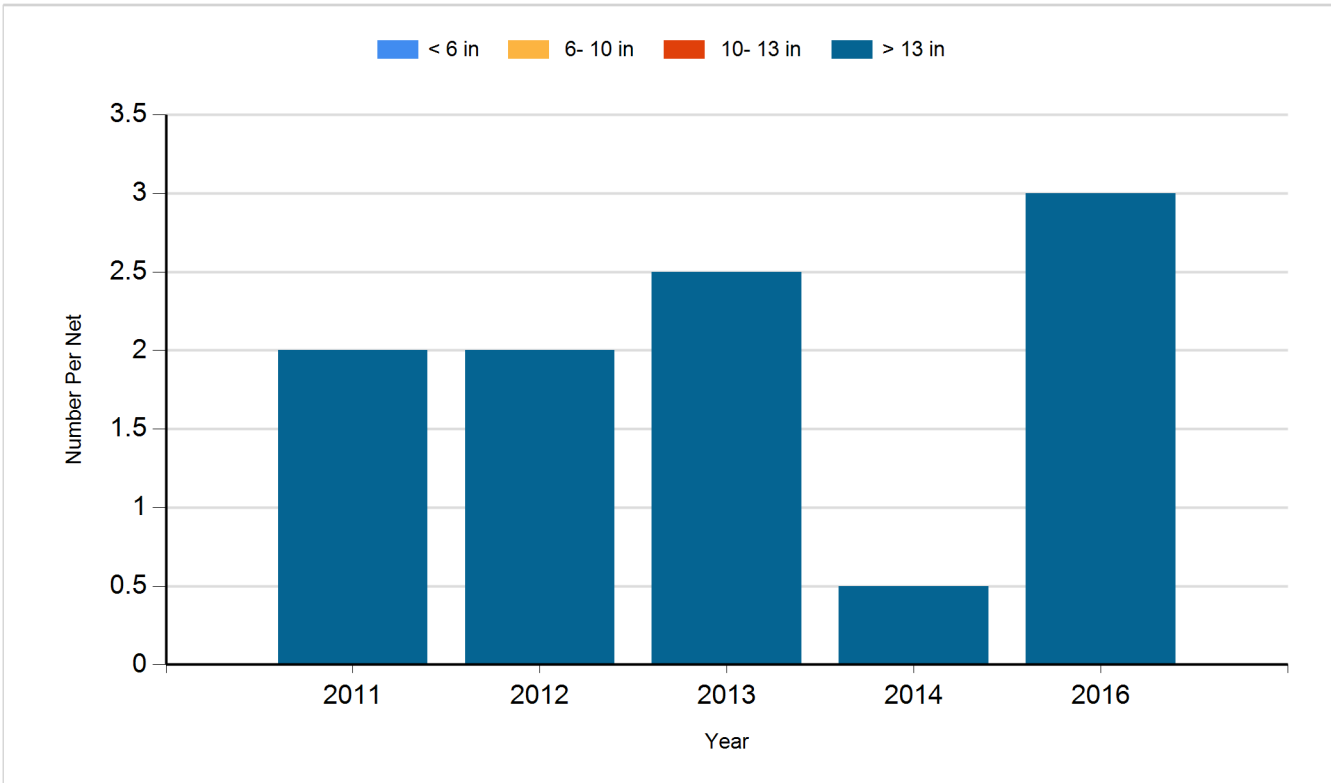
Species: Rudd
Gear: frame net (std 3/4 in)



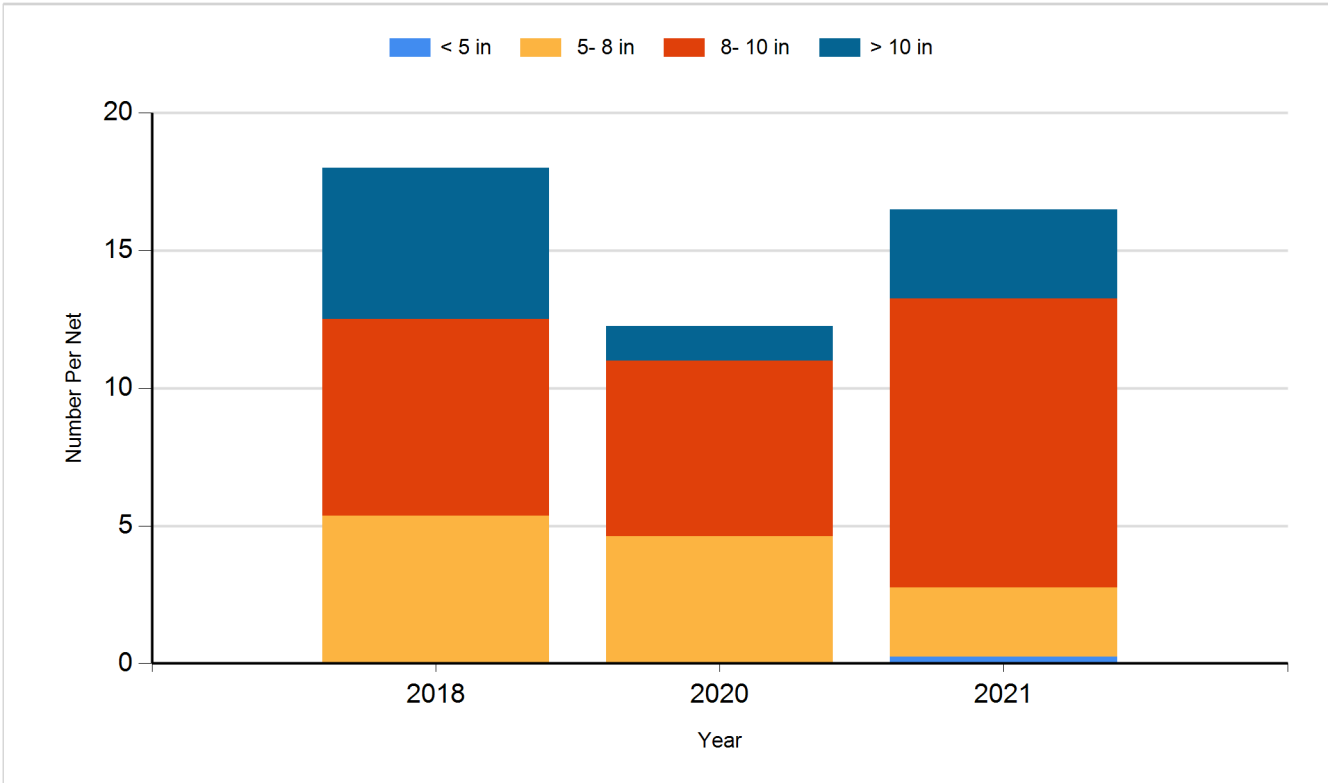
Species: White Sucker
Gear: AFS std gill net



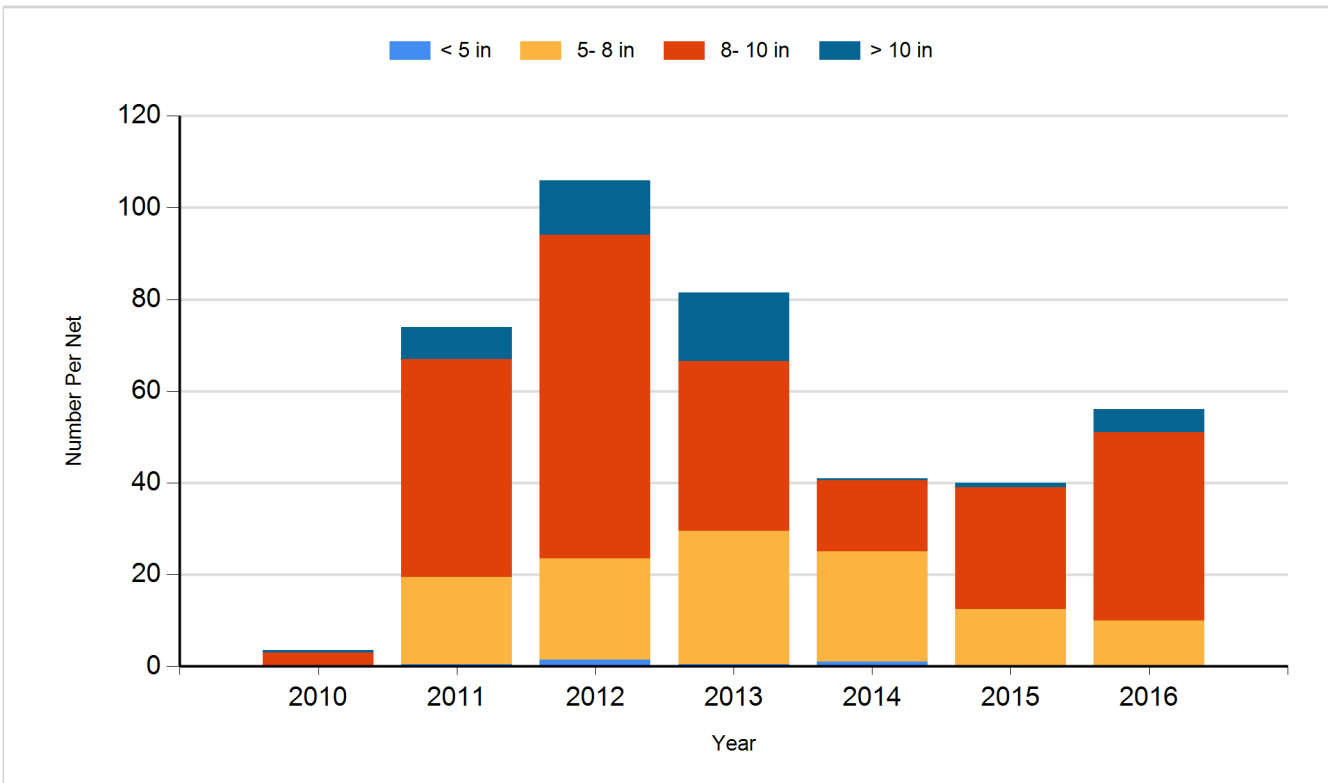
Species: White Sucker
Gear: std exp gill net



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	Brown Trout (Soda Lake)	Catchable 11"	900
2010	Rainbow Trout (Erwin x Arlee)	Catchable	9,000
2010	Rainbow Trout (McConaugRainbow Trout)	Catchable	9,630
2010	Smallmouth Bass	Fingerling	7,800
2011	Rainbow Trout (Erwin x Arlee)	Catchable	7,920
2011	Rainbow Trout (McConaugRainbow Trout)	Catchable	9,630
2011	Rainbow Trout (Shasta)	Fingerling	7,933
2011	Smallmouth Bass	Adult	200
2011	Smallmouth Bass	Fingerling	5,600
2012	Rainbow Trout (Erwin x Arlee)	Catchable	9,000
2012	Rainbow Trout (McConaugRainbow Trout)	Catchable	5,000
2012	Rainbow Trout (McConaugRainbow Trout)	Catchable 11"	5,000
2012	Smallmouth Bass	Adult	285
2013	Rainbow Trout (Erwin x Arlee)	Catchable	9,000
2013	Rainbow Trout (McConaugRainbow Trout)	Catchable 11"	10,000
2013	Smallmouth Bass	Fingerling	6,890
2014	Rainbow Trout (Erwin x Arlee)	Catchable	1,000
2014	Rainbow Trout (Shasta)	Catchable	8,079
2014	Rainbow Trout (Shasta)	Catchable 11"	10,000
2015	Rainbow Trout (Ennis)	Catchable 11"	3,139
2015	Rainbow Trout (Shasta)	Catchable 11"	15,861
2016	Rainbow Trout (Shasta)	Catchable 11"	19,421
2016	Smallmouth Bass	Adult	300
2017	Rainbow Trout (Erwin x Arlee)	Catchable 11"	10,190
2017	Rainbow Trout (Shasta)	Catchable 11"	10,188
2017	Smallmouth Bass	Adult	275
2017	Walleye	Large Fingerling	14,000
2018	Rainbow Trout (Erwin x Arlee)	Catchable	7,296
2018	Rainbow Trout (Erwin x Arlee)	Catchable 11"	2,276
2018	Rainbow Trout (Shasta)	Catchable	9,877
2018	Rainbow Trout (Shasta)	Catchable 11"	524
2018	Rainbow Trout (Shasta)	Juvenile	2,800
2018	Smallmouth Bass	Juvenile	250

2019	Rainbow Trout (Erwin x Arlee)	Catchable	1,420
2019	Rainbow Trout (Erwin x Arlee)	Catchable 11"	7,482
2019	Rainbow Trout (Shasta)	Catchable 11"	10,968
2019	Walleye	Large Fingerling	4,080
2019	Walleye	Small Fingerling	21,420
2020	Rainbow Trout (Arlee)	Catchable 11"	2,980
2020	Rainbow Trout (Gerrard)	Adult	3,066
2020	Rainbow Trout (Shasta)	Adult	5,695
2020	Rainbow Trout (Shasta)	Catchable 11"	6,450
2020	Rainbow Trout (Shasta)	Catchable 15"	666
2021	Rainbow Trout (Arlee)	Adult	10,191
2021	Rainbow Trout (Gerrard)	Adult	5,546
2021	Rainbow Trout (Trout Lodge)	Adult	6,384
2021	Walleye	Juvenile	6,975
2021	Walleye	Small Fingerling	15,000
