

**SOUTH DAKOTA STATEWIDE FISHERIES SURVEY**  
**Sheridan, Pennington County**  
**MCS-Lake-11-000**  
**2022**

**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 12, 2022	6 net-nights
boat shocker (day)	Sep 19, 2022	3600 seconds

## **Common Fish Species Present**

Largemouth Bass

Rainbow Trout

Black Crappie

Yellow Perch

White Sucker

Northern Pike

Bluegill

Smallmouth Bass

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## 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.

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

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	Bluegill	2	0.3	0.3	50		50		106	15
	Northern Pike	7	1.2	0.7	57		43		103	7
	Rainbow Trout	6	1.0	0.7	0		0		91	8
	Smallmouth Bass	1	0.2	0.2	100		100		104	
	White Sucker	22	3.7	1.9	100		100		100	2
	Yellow Perch	6	1.0	0.7	33		0		99	7
boat shocker (day)	Largemouth Bass	45	29.0	16.1	72	13	38	14	109	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.

\* Methods/Species that ignore stock length

Gear	Species	CPUE										Avg
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
AFS std gill net	Black Bullhead						0.4		0.0	0.1	0.0	0.13
	Black Crappie						0.1		0.3	0.3	0.0	0.18
	Bluegill						1.0		9.4	4.3	0.3	3.75
	Golden Shiner						0.0		0.0	0.0	0.0	0.00
	Largemouth Bass						0.3		0.5	0.4	0.0	0.30
	Northern Pike						2.1		1.3	1.1	1.2	1.43
	Rainbow Trout						2.5		3.8	1.0	1.0	2.08
	Rock Bass						0.5		0.0	0.1	0.0	0.15
	Rudd						0.5		0.0	4.5	0.0	1.25
	Smallmouth Bass						0.1		0.3	0.3	0.2	0.23
	White Sucker						1.4		1.9	2.8	3.7	2.45
Yellow Perch						18.0		12.3	16.3	1.0	11.90	
boat shocker (day)	Largemouth Bass										29.0	29.00
boat shocker (night)	Largemouth Bass	75.0	75.0	55.0	62.0		120.0	80.4	30.0	10.0		63.43
	Smallmouth Bass	0.0	5.0	3.0	3.0		7.2	0.0	0.0	0.0		2.28
	Walleye*	0.0	0.0	0.0	0.0		1.2	1.5	0.0	0.0		0.34
frame net (std 3/4 in)	Black Bullhead	2.9		6.1			2.3			0.1		2.85
	Black Crappie	0.8		9.8			2.0			1.3		3.48
	Bluegill	0.0		0.0			24.8			81.3		26.53
	Channel Catfish	0.0		0.0			0.0			0.0		0.00
	Golden Shiner	0.0		0.0			0.0			0.0		0.00
	Green Sunfish	0.5		0.6			0.3			0.6		0.50
	Largemouth Bass	0.0		0.0			0.7			0.0		0.18
	Northern Pike	0.1		0.3			0.6			0.6		0.40
	Rainbow Trout	0.1		1.8			0.1			0.0		0.50
	Rock Bass	7.9		7.8			11.9			3.8		7.85
	Rudd	1.0		3.3			30.8			18.9		13.50
	Smallmouth Bass	0.0		0.3			0.0			0.0		0.08
	White Sucker	0.0		0.1			0.9			0.5		0.38
	Yellow Perch	2.5		14.6			13.7			10.4		10.30
std exp gill net	Black Crappie	4.0	0.0	7.5	0.5							3.00
	Golden Shiner	0.0	0.0	0.0	0.0							0.00
	Largemouth Bass	0.5	0.0	0.0	0.0							0.13

## CPUE

Gear	Species	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Avg
std exp gill net	Northern Pike	3.0	0.5	1.5	1.5							1.63
	Rainbow Trout	6.0	2.5	6.0	1.0							3.88
	Rock Bass	6.0	1.0	0.0	0.5							1.88
	Smallmouth Bass	1.5	0.0	0.0	1.5							0.75
	White Sucker	2.5	0.5	0.0	3.0							1.50
	Yellow Perch	81.0	40.0	40.0	56.0							54.25

## 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										
			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
AFS std gill net	Black Crappie	PSD						0		100	100		
		PSD-P						0		0	0		
		Wr						76		104	101		
	Bluegill	PSD						0		87	68	50	
		PSD-P						0		9	26	50	
		Wr						95		105	108	106	
	Largemouth Bass	PSD						0		75	33		
		PSD-P						0		50	0		
		Wr						94		99	112		
	Northern Pike	PSD						82		90	78	57	
		PSD-P						29		40	44	43	
		Wr						101		100	94	103	
	Rainbow Trout	PSD						55		17	63	0	
		PSD-P						0		0	0	0	
		Wr						85		86	81	91	
	Smallmouth Bass	PSD						100		100	50	100	
		PSD-P						0		100	0	100	
		Wr						134		98	101	104	
	White Sucker	PSD						100		100	100	100	
		PSD-P						100		100	100	100	
		Wr						100		93	96	100	
Yellow Perch	PSD						70		62	85	33		
	PSD-P						31		10	20	0		
	Wr						93		102	94	99		
boat shocker (day)	Largemouth Bass	PSD										72	
		PSD-P										38	
		Wr										109	
boat shocker (night)	Largemouth Bass	PSD	56	64	51	61		42	50	83	100		
		PSD-P	5	17	16	23		8	15	27	40		
		Wr	107	99	107	107		101	111	105	107		
	Smallmouth Bass	PSD		60	0	33		33					
		PSD-P		20	0	33		0					



Gear	Species	Index	Year										
			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
boat shocker (night)	Smallmouth Bass	Wr		89	104	96			91				
frame net (std 3/4 in)	Black Crappie	PSD	50		37				56			90	
		PSD-P	17		4				11			0	
		Wr	113		104				92			94	
	Bluegill	PSD								93			53
		PSD-P								8			24
		Wr								126			102
	Largemouth Bass	PSD	0		0					17			
		PSD-P	0		0					0			
		Wr								99			
	Northern Pike	PSD	0		50					20			20
		PSD-P	0		0					0			0
		Wr	96		106					93			91
	Rainbow Trout	PSD	0		29					100			
		PSD-P	0		0					0			
		Wr	120		81					91			
	Smallmouth Bass	PSD			50								
		PSD-P			0								
		Wr			95								
White Sucker	PSD			100					88			100	
	PSD-P			100					88			100	
	Wr			95					87			91	
Yellow Perch	PSD	60		56					86			65	
	PSD-P	10		6					27			10	
	Wr	102		93					94			85	
std exp gill net	Black Crappie	PSD	25		47	100							
		PSD-P	0		0	0							
		Wr	104		87	99							
	Largemouth Bass	PSD	100										
		PSD-P	100										
		Wr	99										
	Northern Pike	PSD	100	100	33	67							
		PSD-P	17	0	0	33							
		Wr	106	111	90	104							
	Rainbow Trout	PSD	17	0	25	0							
		PSD-P	0	0	0	0							

Gear	Species	Index	Year									
			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
std exp gill net	Rainbow Trout	Wr	84	90	80	84						
		PSD	100			0						
	Smallmouth Bass	PSD-P	33			0						
		Wr	94			105						
		PSD	100	100		100						
		PSD-P	100	100		100						
	White Sucker	Wr	92	99		102						
		PSD	64	40	69	82						
		PSD-P	19	1	3	9						
	Yellow Perch	Wr	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)		

### Species: Smallmouth Bass

Mean Length (expanded sample number) at capture by age											
Year	N	1	2	3	4	5	6	7	8	9	10+
2015	2		177 (1)		260 (1)						
2014	8			186 (2)	245 (6)						

### 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)

## 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).

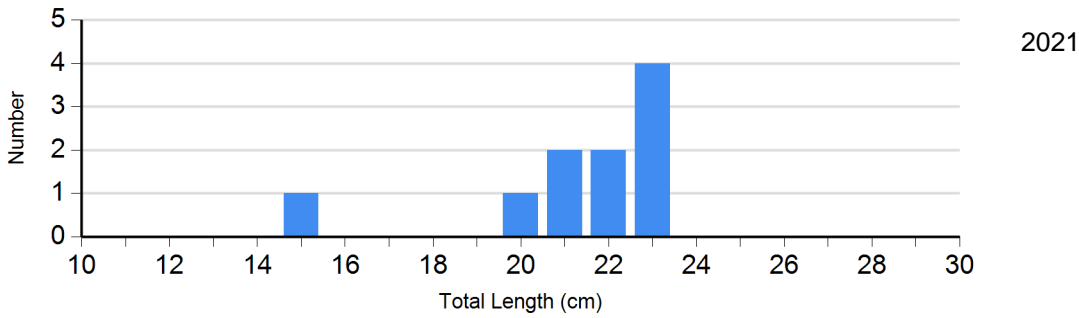
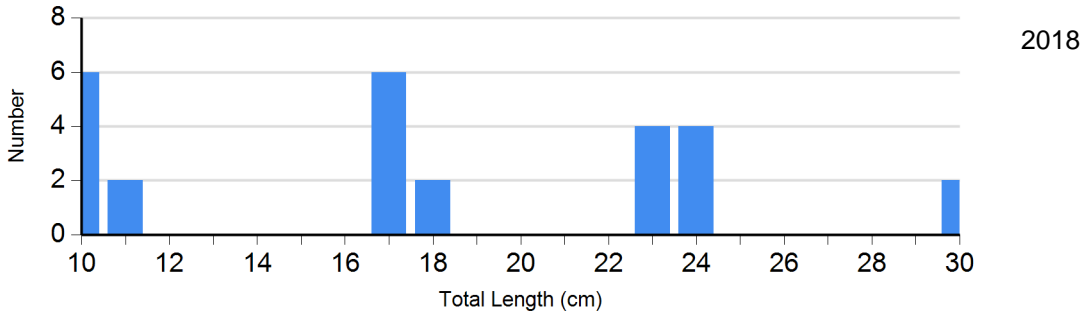
Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Crappie Frame Net	2018	8	99 (1.8)	8	88 (1.7)	0		2	84
	2021	1	110	9	92 (2.1)	0		0	
Bluegill Frame Net	2018	16	118 (1.9)	189	128 (0.6)	18	122 (3.2)	0	
	2021	305	99 (0.5)	191	105 (0.5)	154	101 (0.7)	0	
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	
	2022	8	108 (4.0)	10	107 (2.3)	11	111 (1.8)	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
	2022	3	90 (1.1)	1	97	2	119 (5.8)	1	113
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	
	2022	6	91 (6.1)	0		0		0	
Smallmouth Bass Electro Fishing	2018	4	89 (7.6)	2	95 (0.9)	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)
	2022	0		0		3	98 (3.5)	19	100 (1.6)

Species	Year	Length Groups							
		S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
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
	2022	4	97 (7.0)	2	102 (9.9)	0		0	

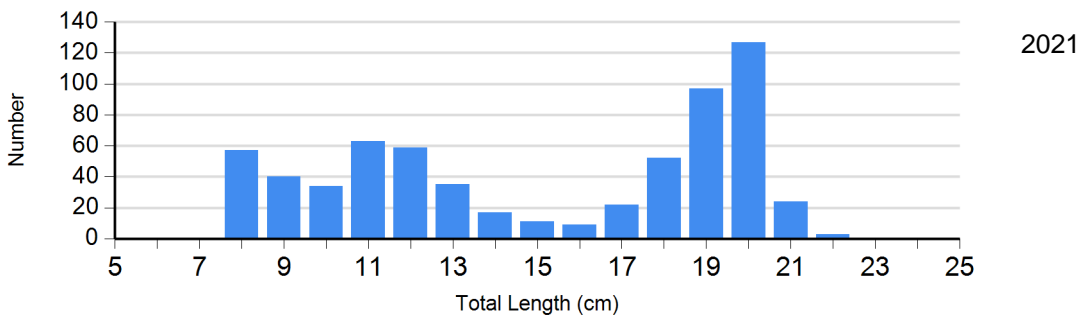
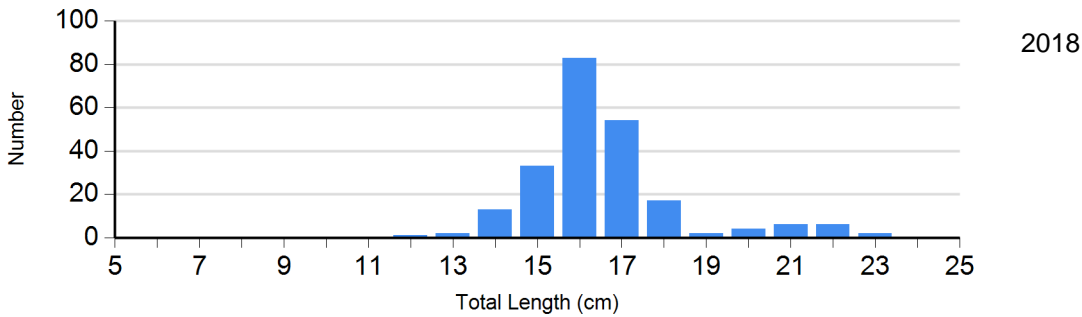
## Length Frequency Distribution

Length frequency histogram of species sampled by year.

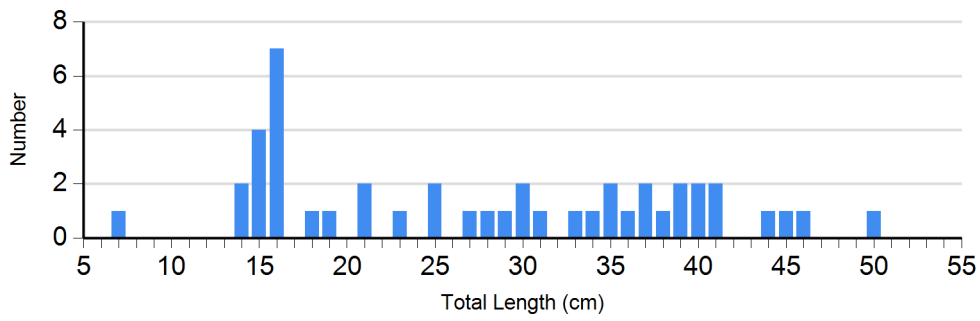
Species: Black Crappie  
Gear: frame net (std 3/4 in)



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

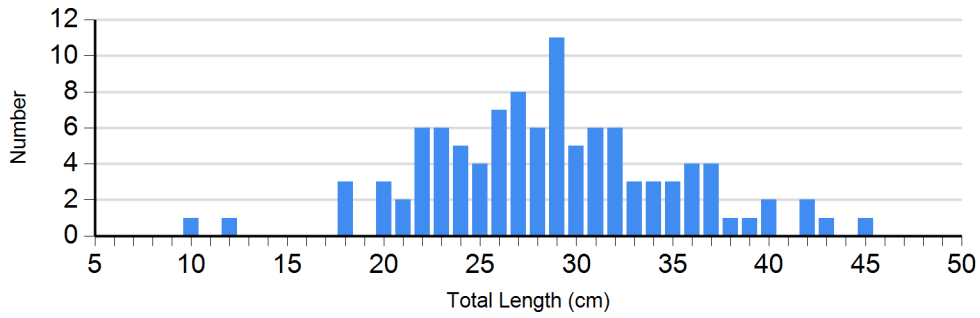


Species: Largemouth Bass  
Gear: boat shocker (day)

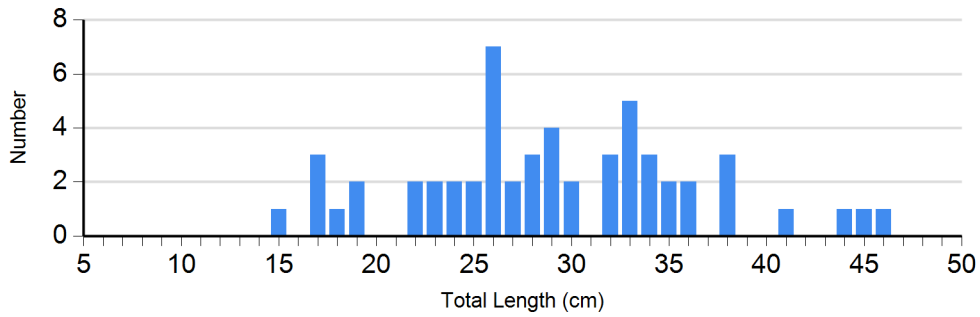


2022

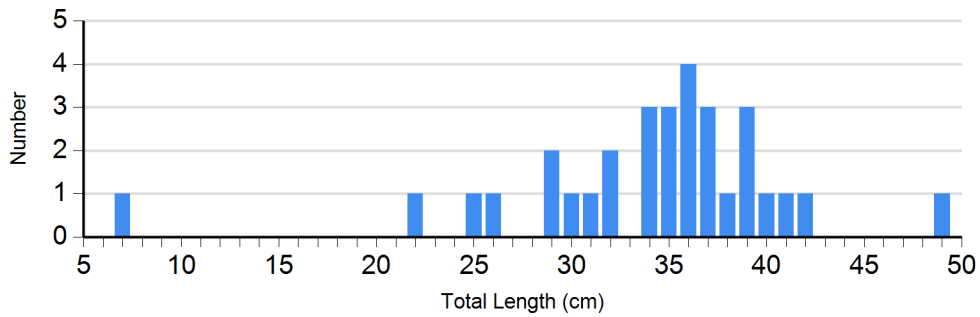
Species: Largemouth Bass  
Gear: boat shocker (night)



2018

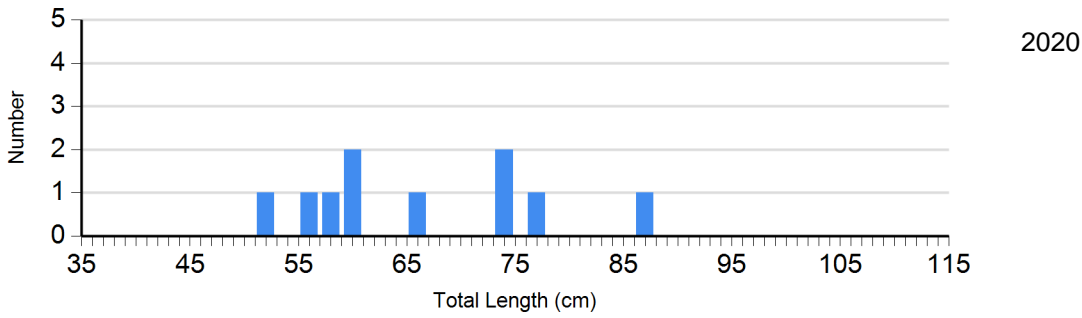
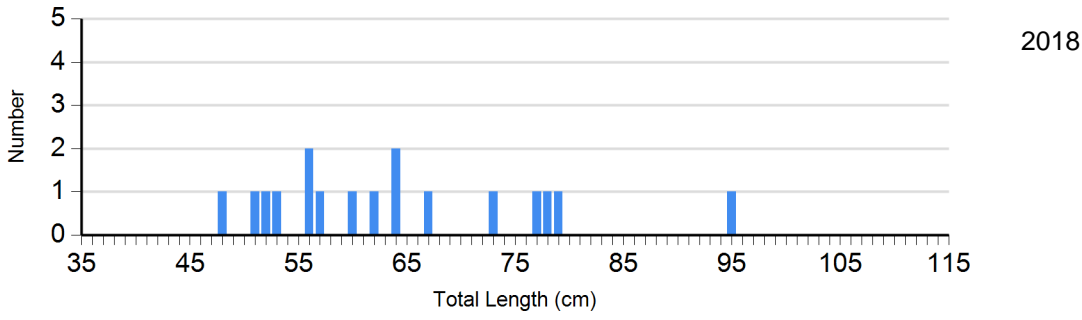


2019

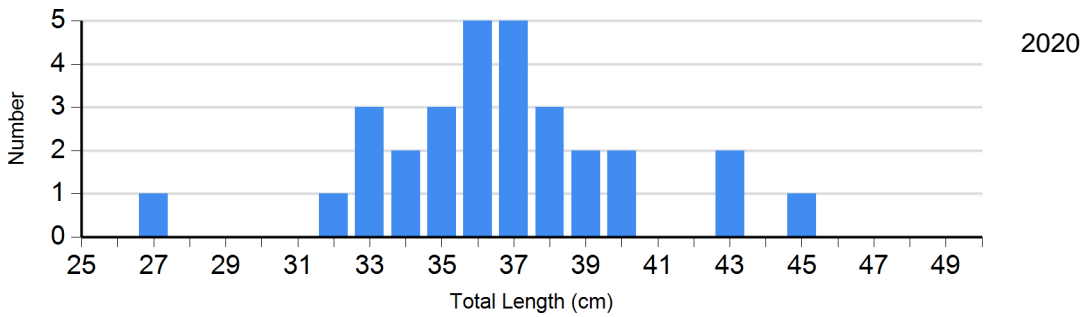
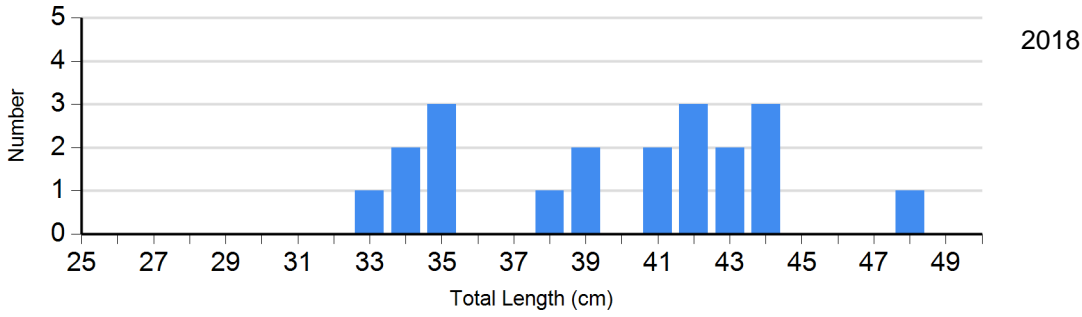


2020

Species: Northern Pike  
Gear: AFS std gill net

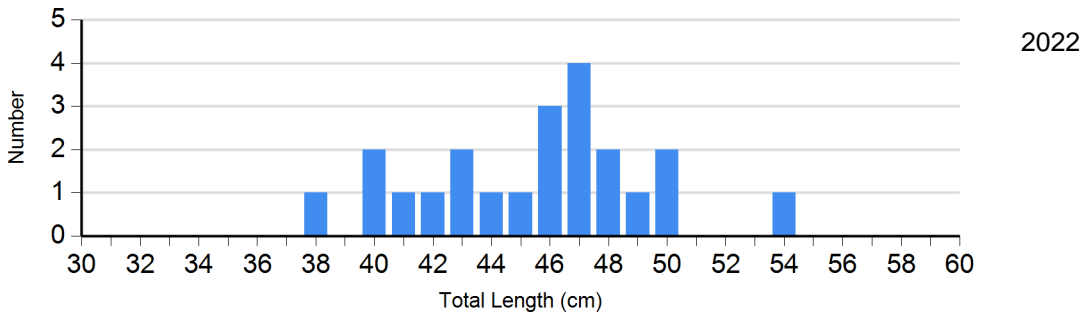
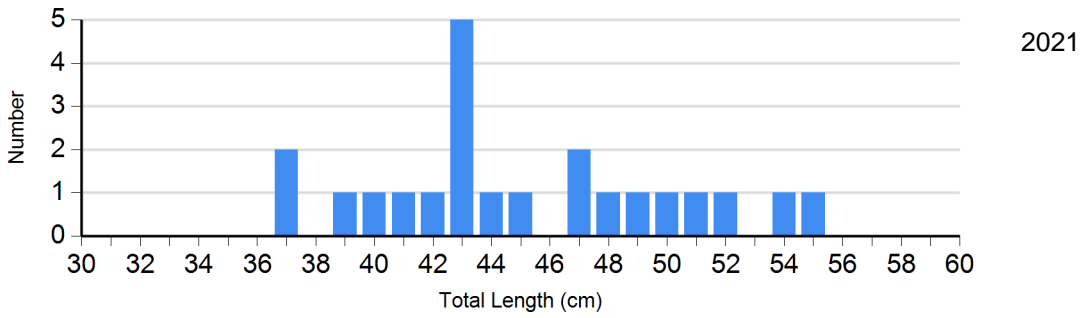
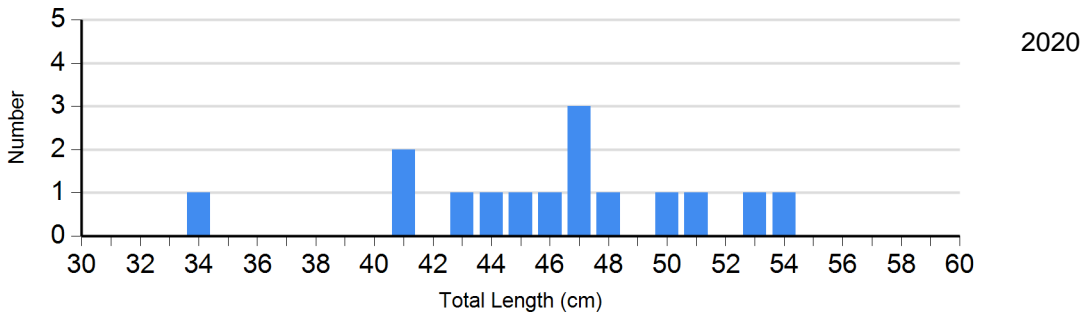
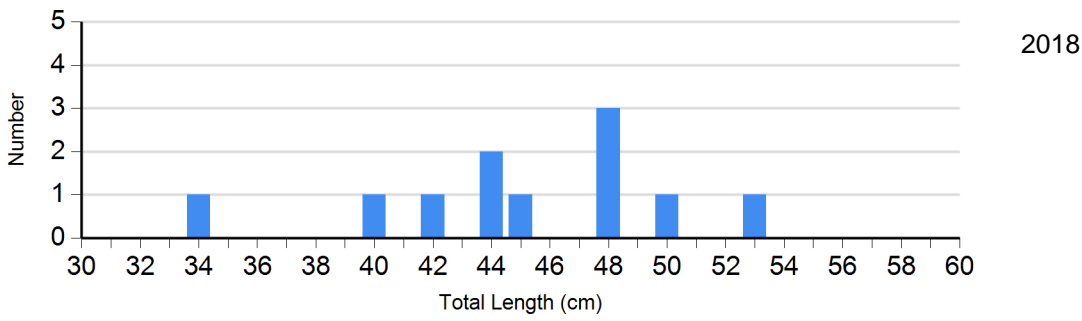


Species: Rainbow Trout  
Gear: AFS std gill net

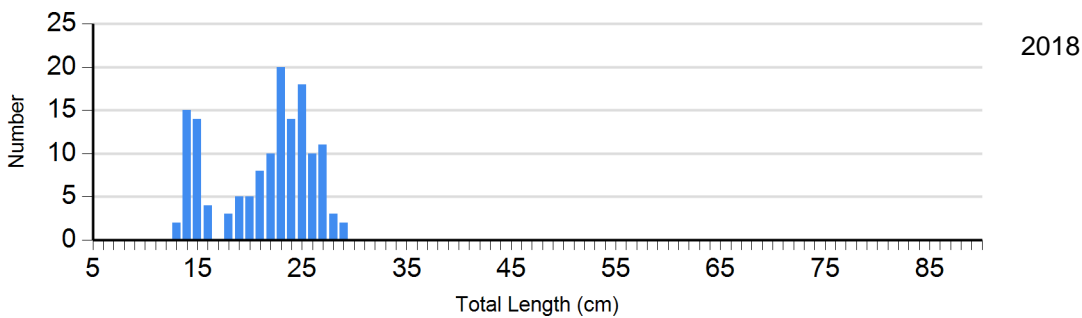


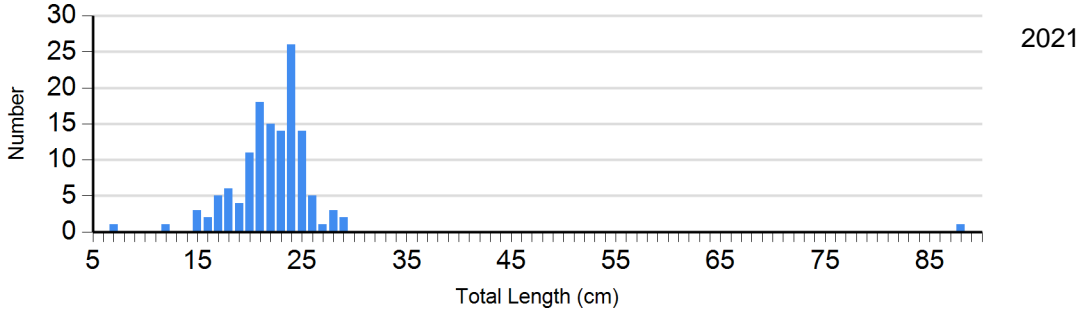
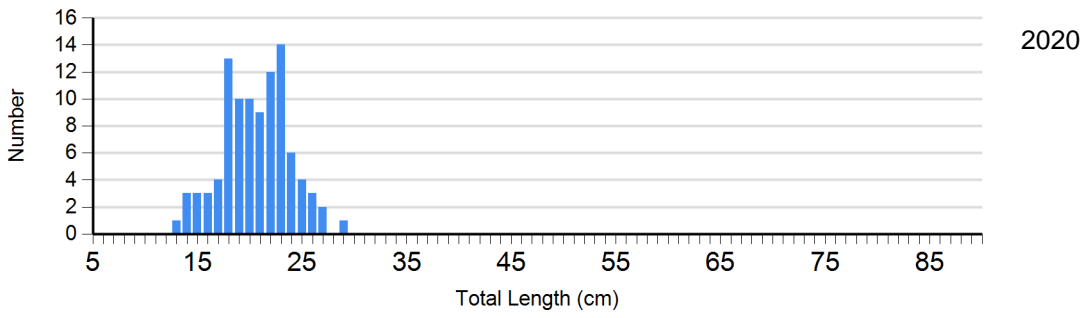


Species: White Sucker  
 Gear: AFS std gill net



Species: Yellow Perch  
 Gear: AFS std gill net

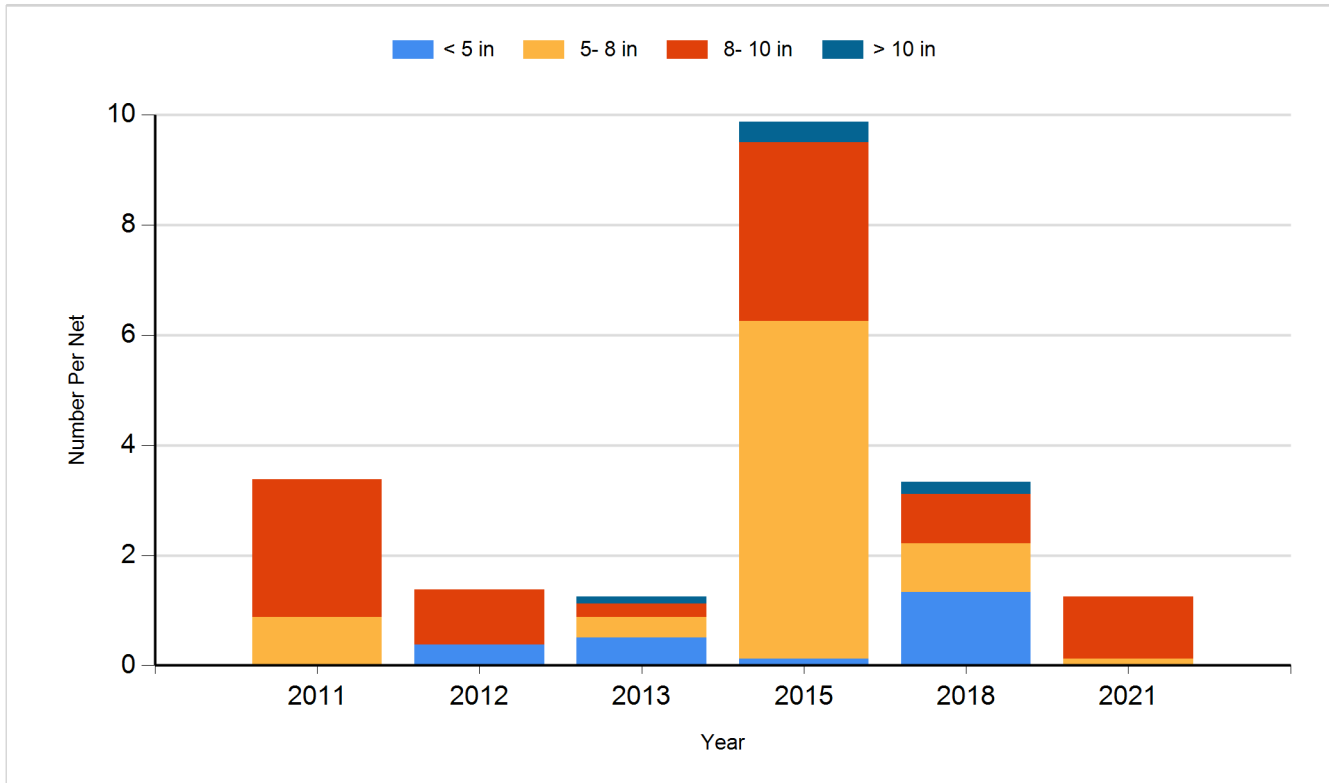




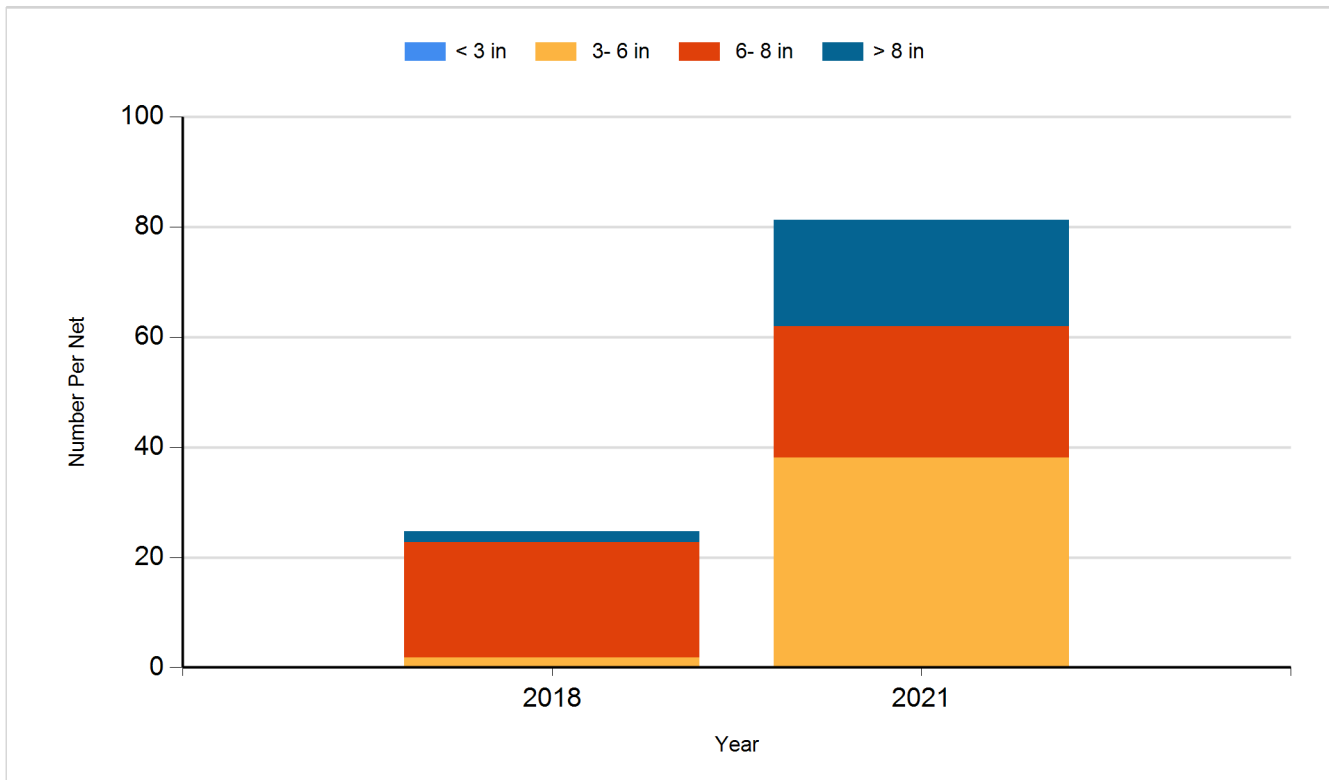
## Historic Fish Sizes and Relative Abundance

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

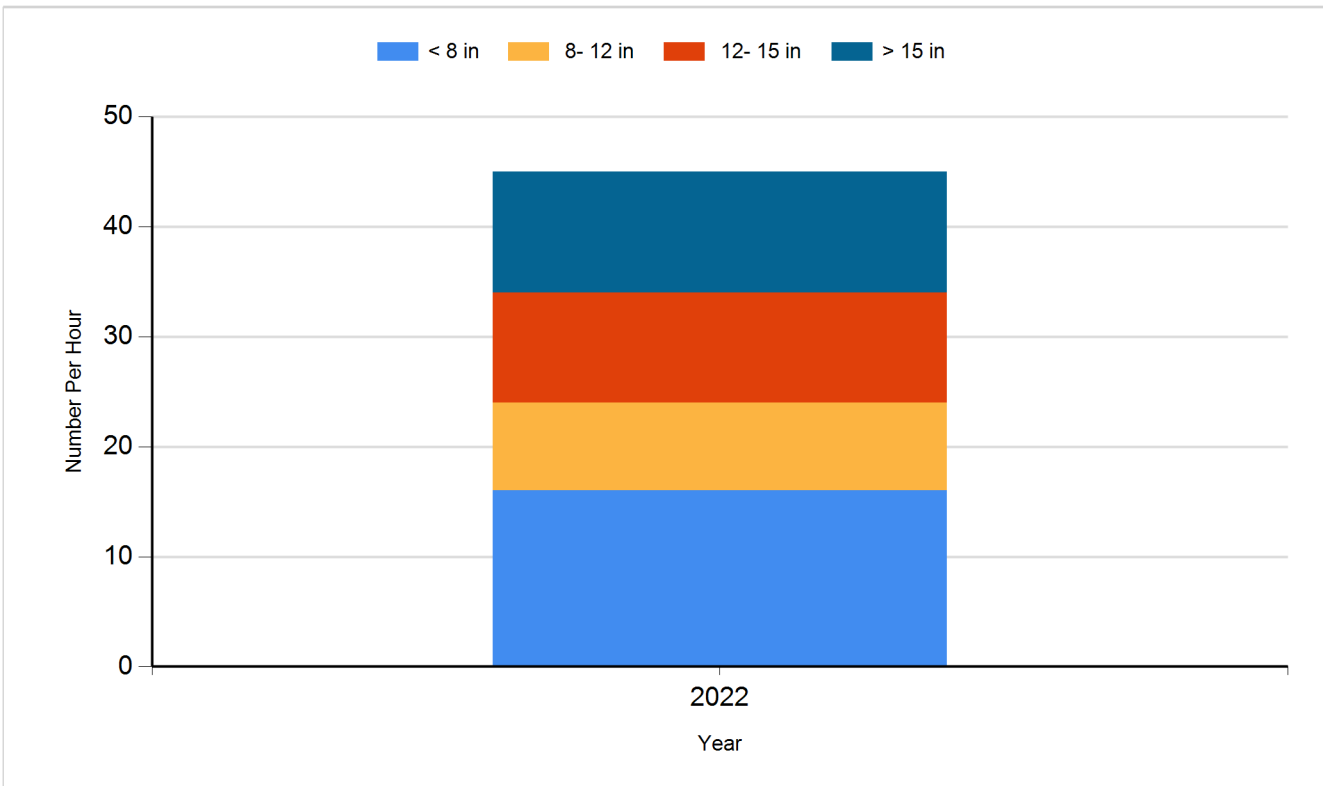
Species: Black Crappie  
Gear: frame net (std 3/4 in)



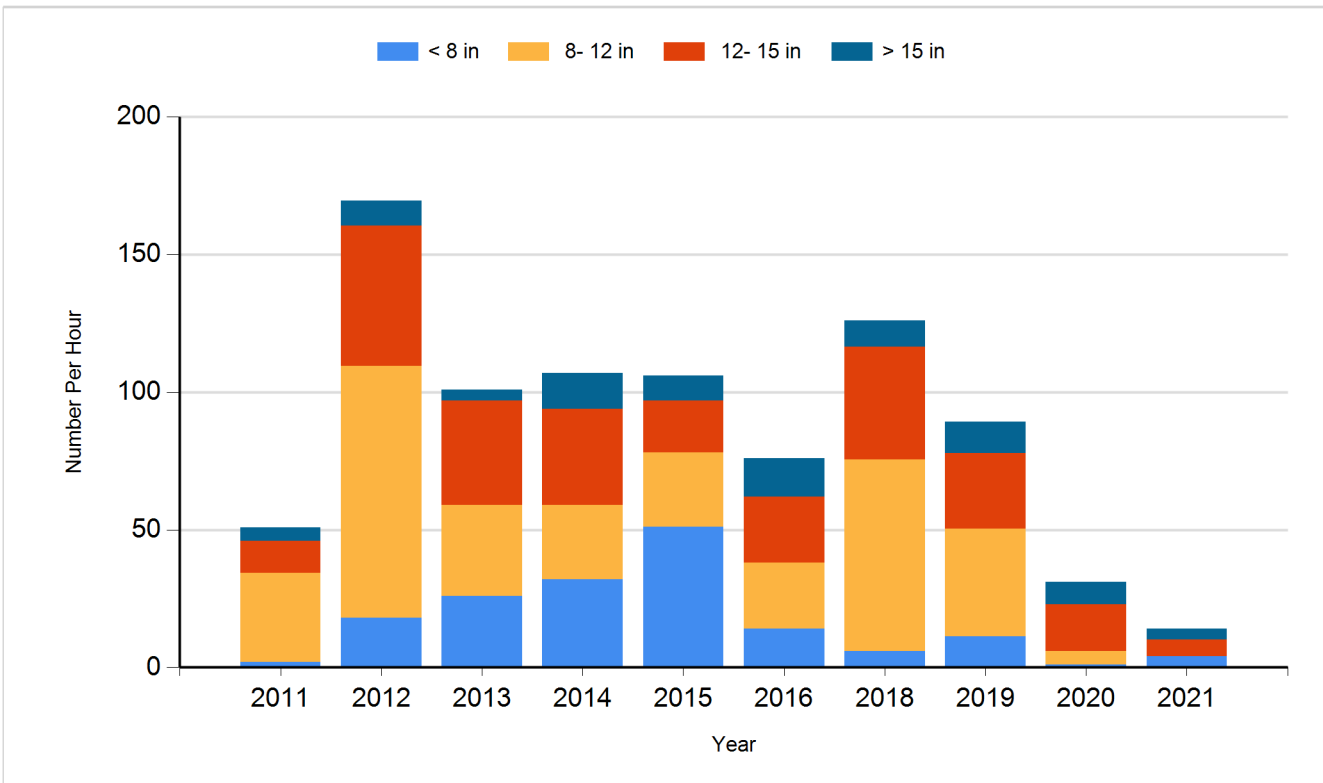
Species: Bluegill  
Gear: frame net (std 3/4 in)



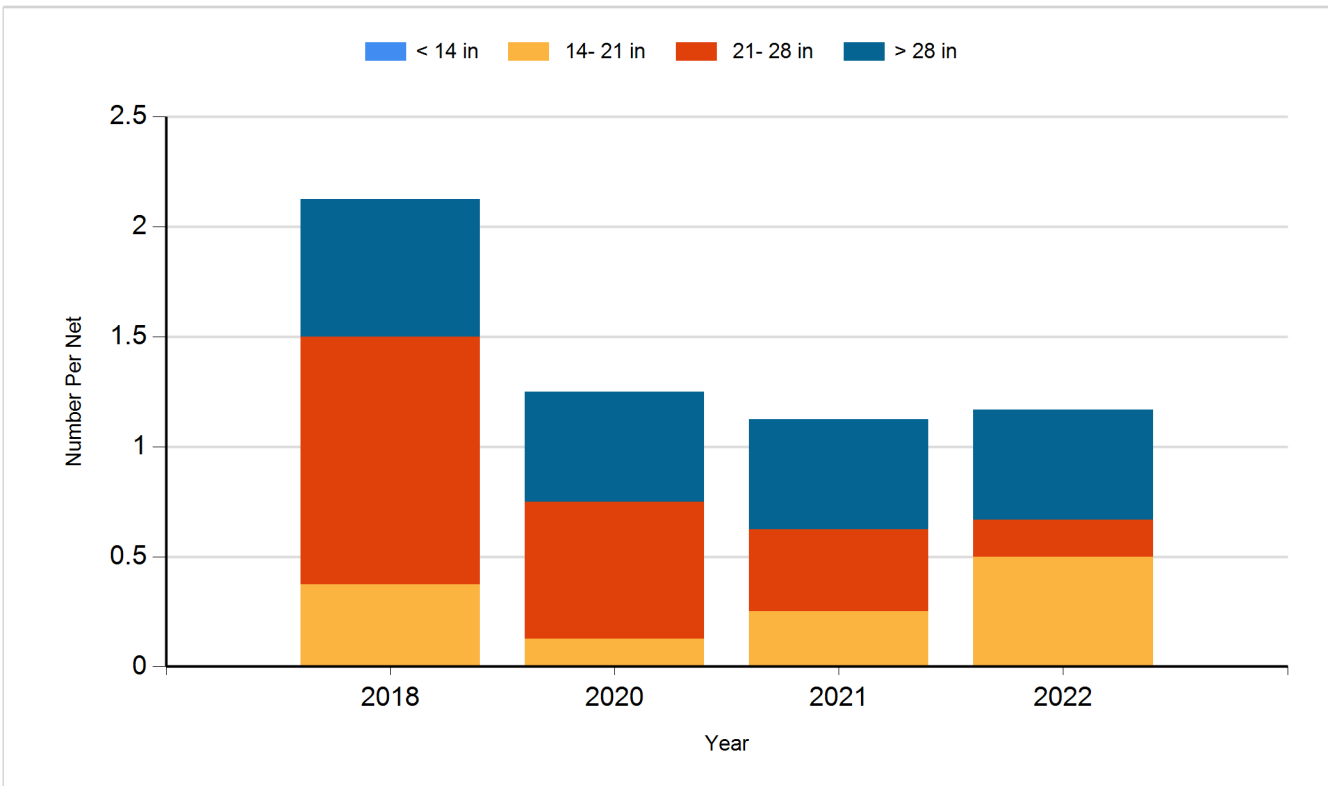
Species: Largemouth Bass  
Gear: boat shocker (day)



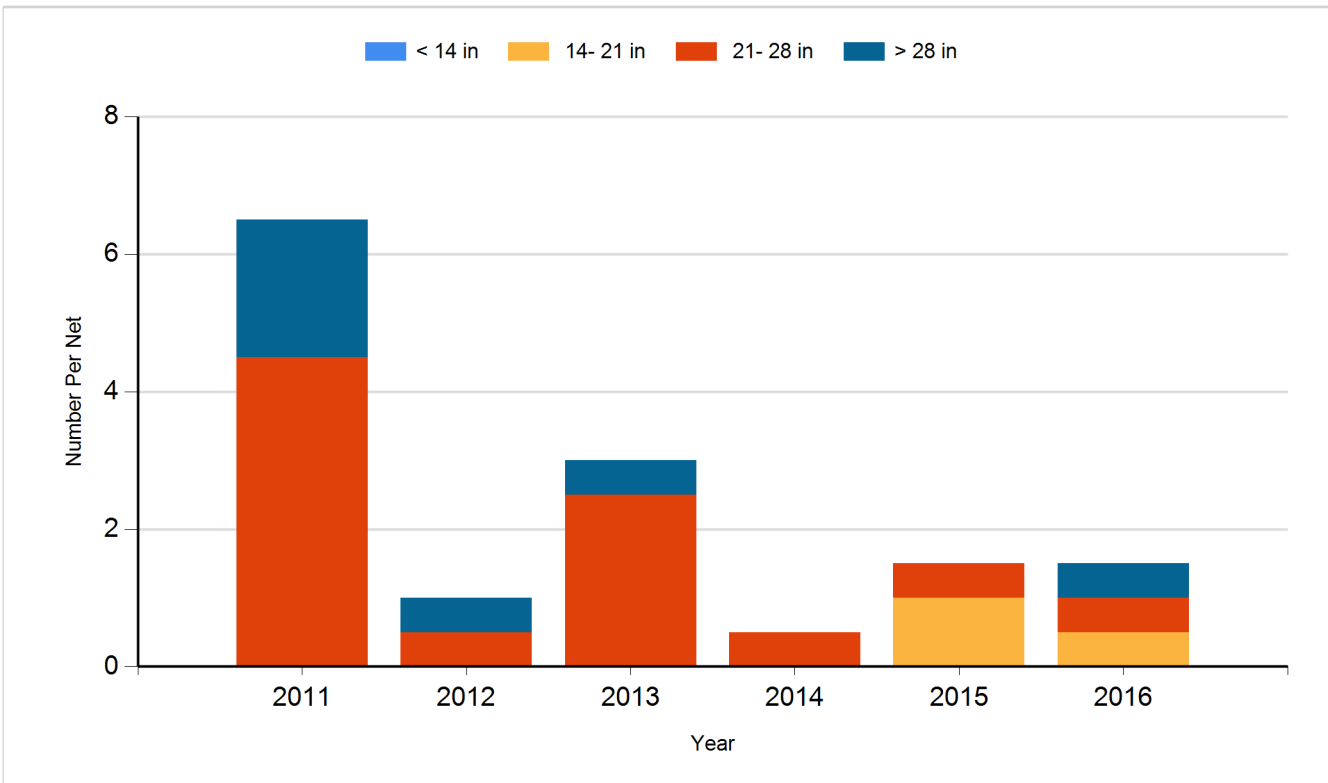
Species: Largemouth Bass  
Gear: boat shocker (night)



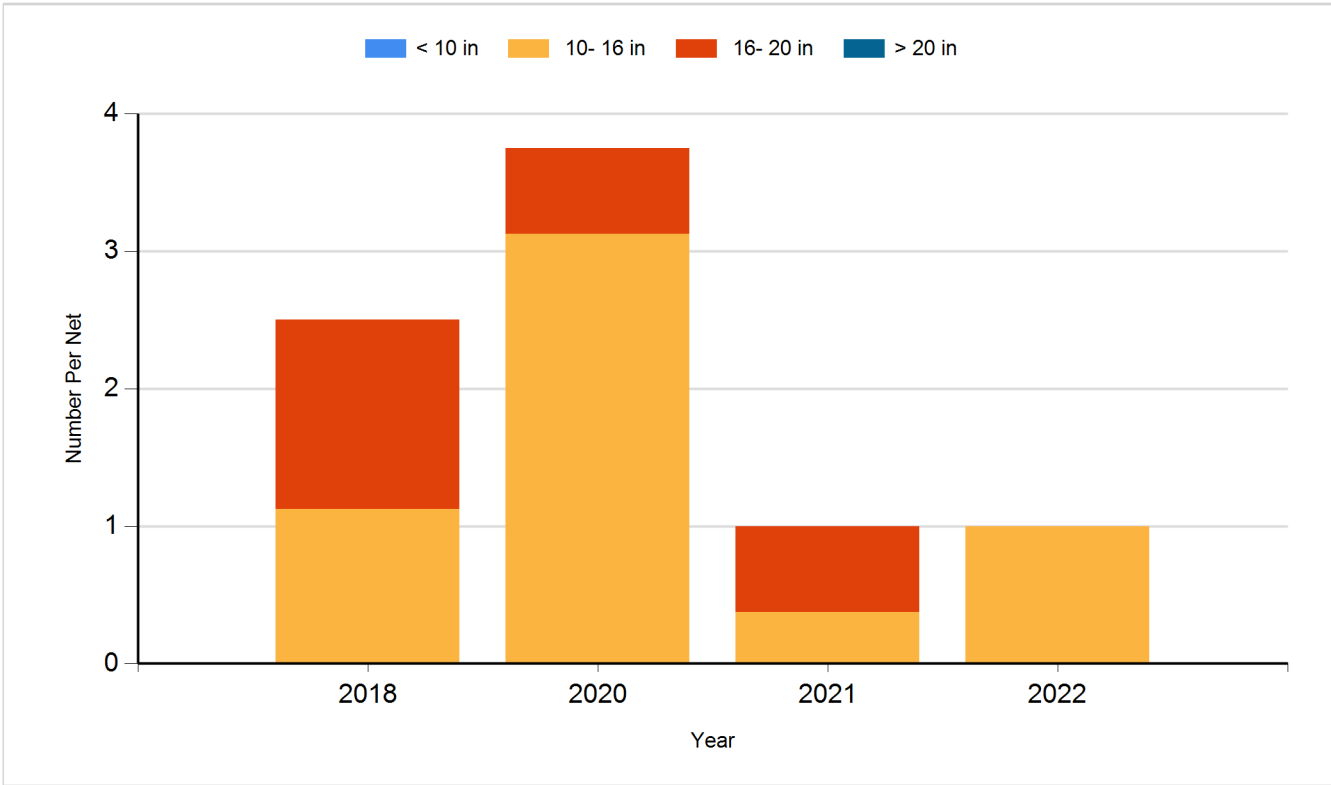
Species: Northern Pike  
Gear: AFS std gill net



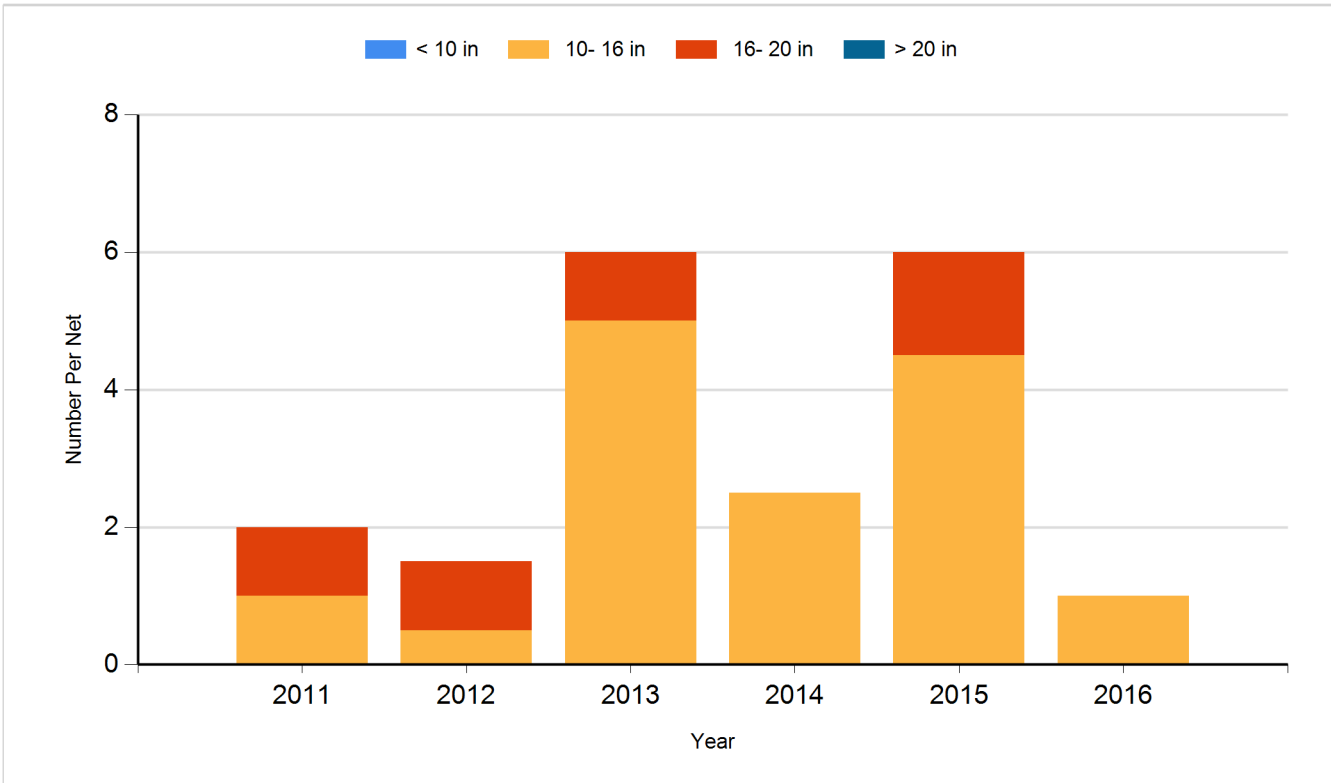
Species: Northern Pike  
Gear: std exp gill net



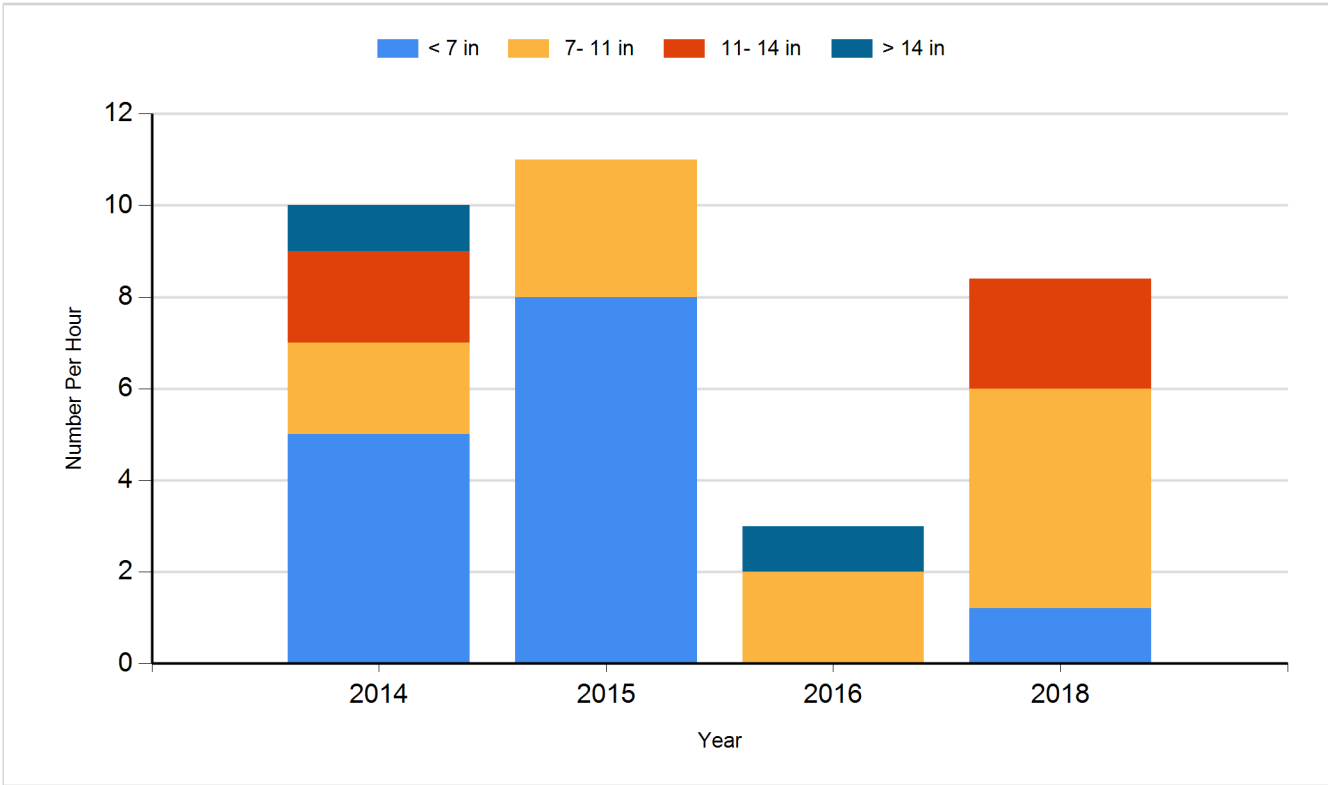
Species: Rainbow Trout  
Gear: AFS std gill net



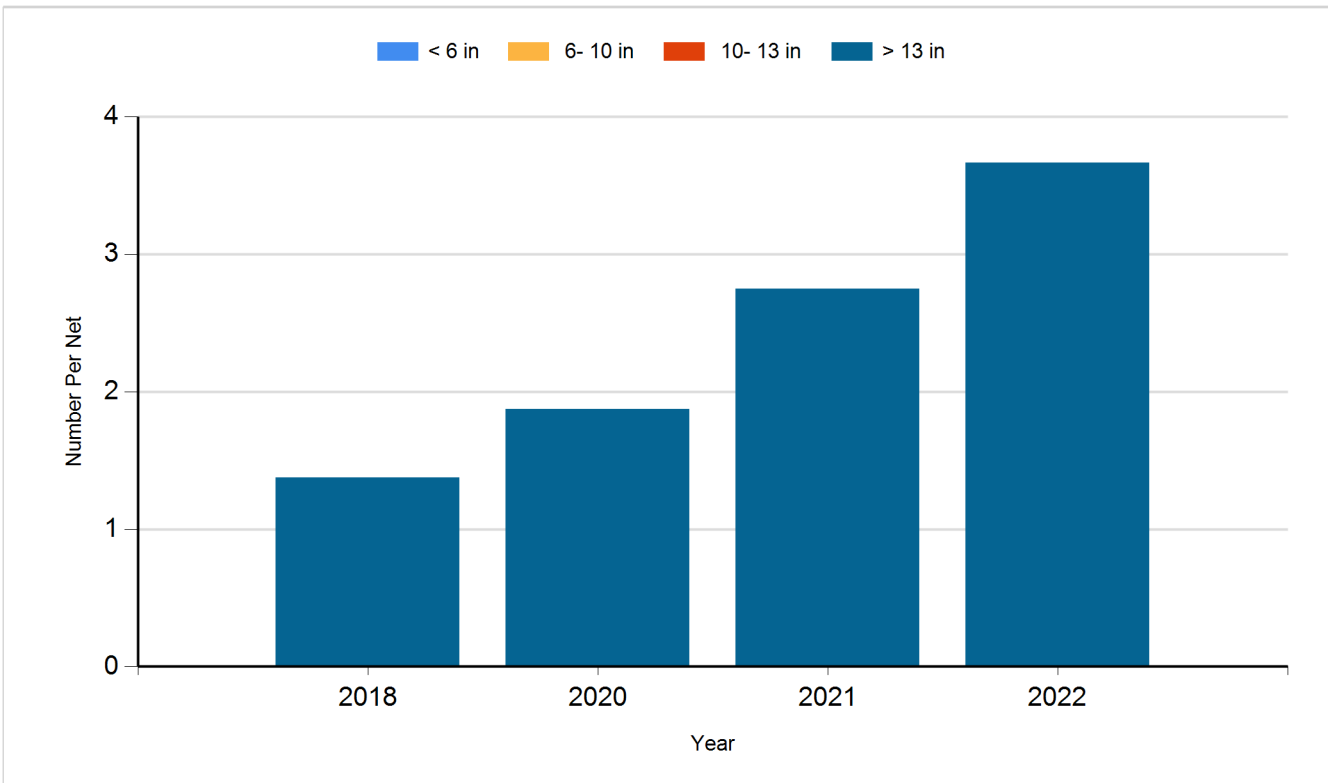
Species: Rainbow Trout  
Gear: std exp gill net



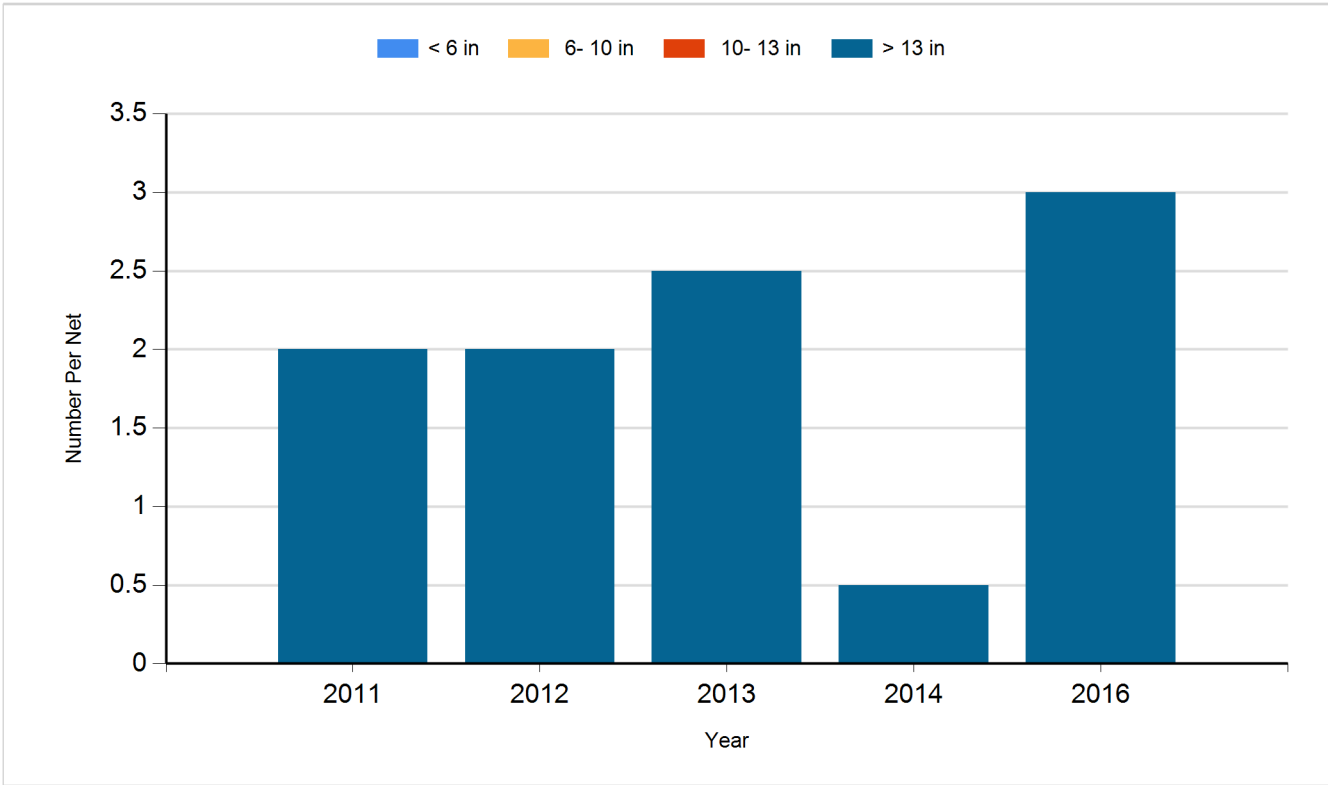
Species: Smallmouth Bass  
Gear: boat shocker (night)



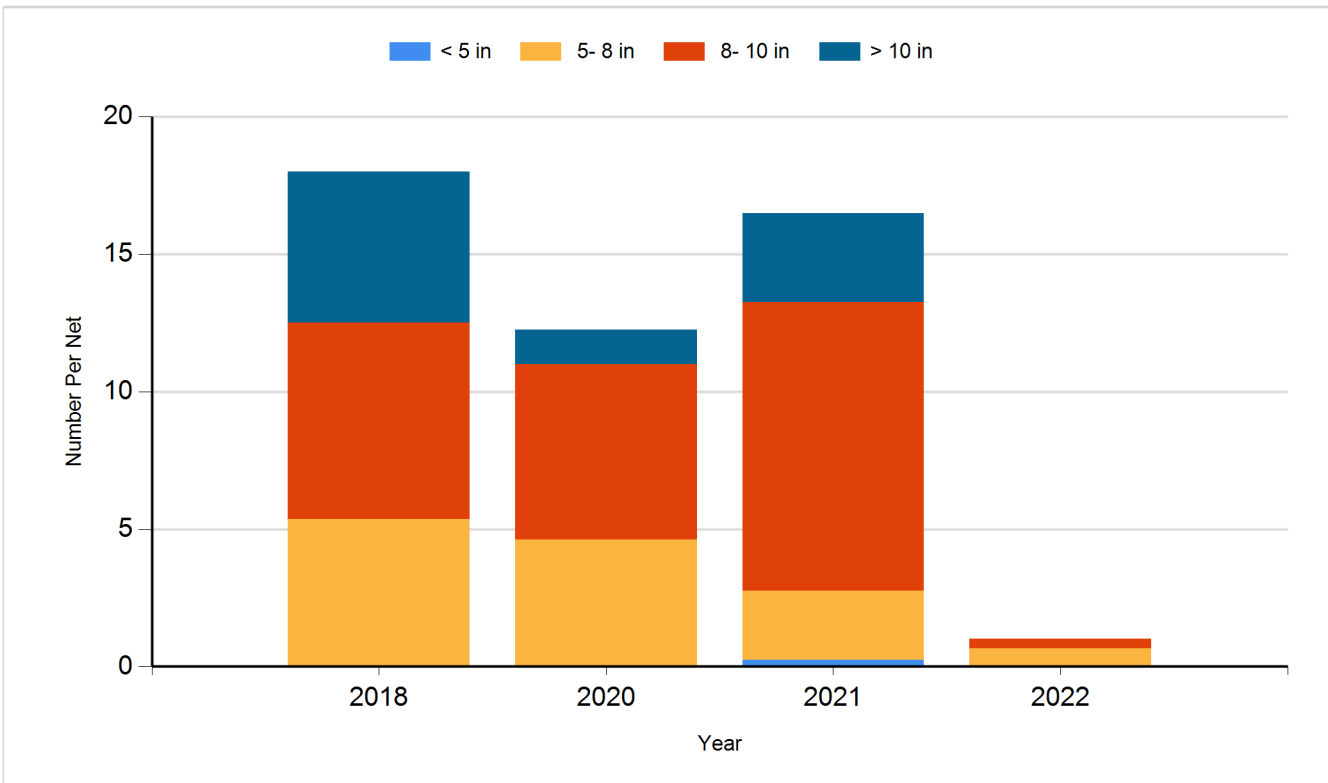
Species: White Sucker  
Gear: AFS std gill net



Species: White Sucker  
Gear: std exp gill net

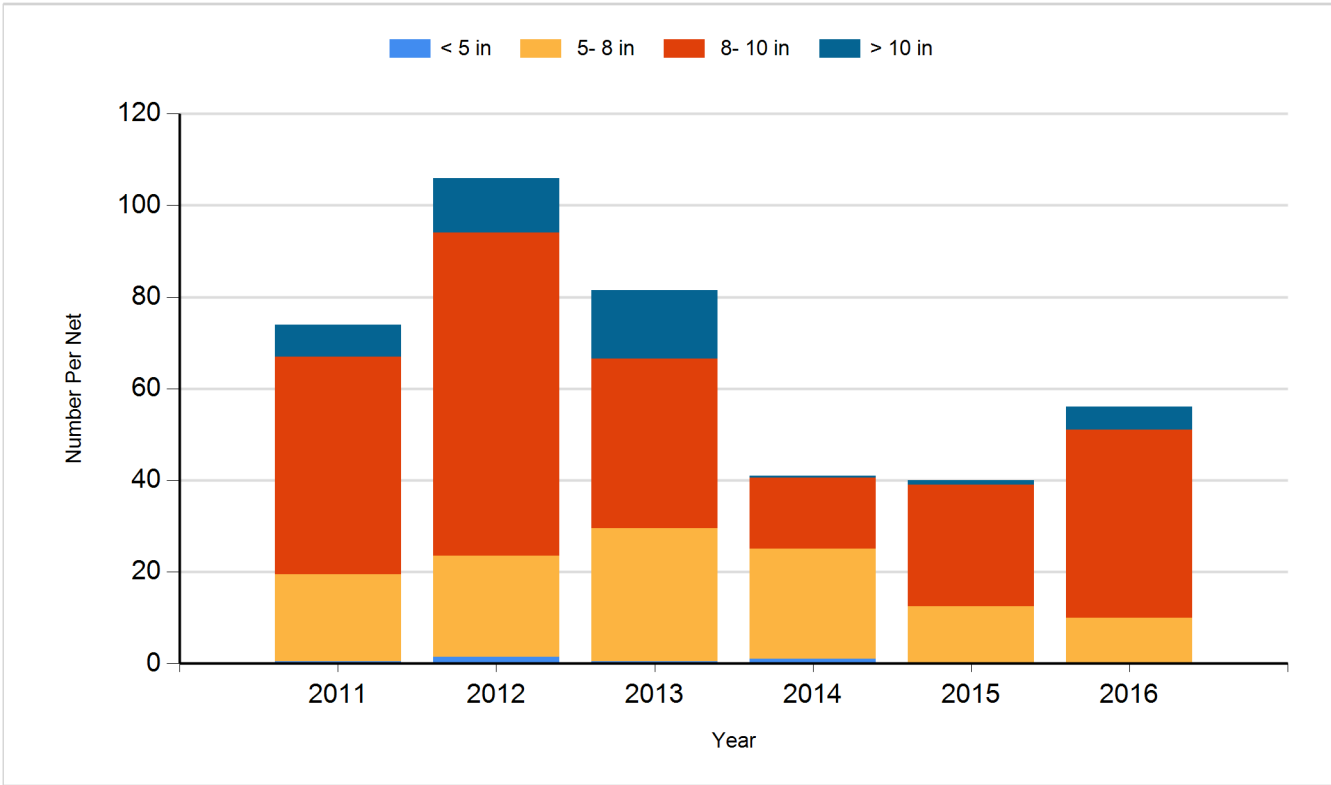


Species: Yellow Perch  
Gear: AFS std gill net





Species: Yellow Perch  
Gear: std exp gill net



## **Fish Stocking**

Number of fish stocked by year, species, and size.

Year	Species	Size	Number
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
2022	Rainbow Trout (Arlee)	Adult	2,054
2022	Rainbow Trout (Gerrard)	Adult	8,252
2022	Rainbow Trout (Shasta)	Adult	10,292
2022	Walleye	Fry	85,000
2022	Walleye	Juvenile	21,024

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