Lake Information

Name:	Lewis and Clark - Delta
County:	Bon Homme
Surface Area:	20,992 Acres

Surveys and Investigations

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

Gear	Date	Effort
boat shocker (day)	May 22, 2019	6905 seconds
small seine	Jul 22, 2019	34 hauls

Common Fish Species Present

Spotfin Shiner

River Carpsucker

Largemouth Bass

Brassy Minnow

Flathead Chub

Bluntnose Minnow

Smallmouth Buffalo

Gizzard Shad

Bigmouth Buffalo

Emerald Shiner

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.

$$PSD = \left(\frac{number\ of\ fish \geq quality\ length}{number\ of\ fish \geq stock\ length} \right) \times 100$$

$$PSD - P = \left(\frac{number\ of\ fish \geq preferred\ length}{number\ of\ fish \geq stock\ length} \right) \times 100$$

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 (in)	Stock (cm)	Quality (in)	Quality (cm)	Preferred (in)	Preferred (cm)	Memorable (in)	Memorable (cm)	Trophy (in)	Trophy (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
boat shocker (day)	Largemouth Bass	17	6.0	4.8	73		13		109	9
small seine*	Bigmouth Buffalo	4	0.6	0.2						
	Bluegill	2	0.3	0.0						
	Bluntnose Minnow	10	1.4	0.5						
	Brassy Minnow	25	3.6	0.2						
	Common Carp	1	0.1	0.0						
	Emerald Shiner	3	0.4	0.0						
	Fathead Minnow	1	0.1	0.0						
	Flathead Chub	22	3.1	0.6						
	Gizzard Shad	6	0.9	0.0						
	Johnny Darter	2	0.3	0.0						
	Largemouth Bass	7	1.0	0.0						
	Northern Pike	2	0.3	0.0						
	Red Shiner	2	0.3	0.0						
	River Carpsucker	135	19.3	1.9						
	Rock Bass	1	0.1	0.0						
	Smallmouth Bass	2	0.3	0.0						
	Smallmouth Buffalo	7	1.0	0.0						
	Spotfin Shiner	874	124.9	5.5						
	Walleye	2	0.1	0.1						

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.

		CPUE										
Gear	Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg
boat shocker (day)	Black Crappie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
	Bluegill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
	Green Sunfish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
	Largemouth Bass	21.3	14.7	6.0	1.4	11.2	6.4	9.2	2.2	11.6	6.0	9.00
	Smallmouth Bass	0.0	0.0	0.0	1.0	0.2	3.5	0.4	0.0	0.0	0.0	0.51
hoop net	Channel Catfish	0.3	1.4	2.1								1.27
	Flathead Catfish	0.0	0.0	0.0								0.00
	Shorthead Redhorse	0.0	0.0	0.0								0.00
	Smallmouth Buffalo	0.0	0.0	0.0								0.00
small seine	Bigmouth Buffalo		0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.6	0.10
	Bigmouth Shiner		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
	Black Crappie		0.1	0.0	0.8	1.5	0.0	0.4	0.0	0.2	0.0	0.33
	Bluegill		0.0	1.3	0.1	0.0	0.4	0.5	0.1	4.5	0.3	0.80
	Bluntnose Minnow		0.2	0.1	0.0	0.0	0.0	0.5	0.0	0.0	1.4	0.25
	Brassy Minnow		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.40
	Channel Catfish		0.0	0.4	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.07
	Common Carp		0.7	0.0	0.1	0.0	0.0	0.1	0.3	0.0	0.1	0.15
	Emerald Shiner		0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.11
	Fathead Minnow		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.02
	Flathead Chub		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.35
	Freshwater Drum		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
	Gizzard Shad		0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.5	0.9	0.24
	Goldeye		0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.01
	Grass Pickerel		0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.06
	Green Sunfish		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
	Johnny Darter		0.1	0.0	0.3	0.1	0.1	0.7	0.0	0.0	0.3	0.18
	Largemouth Bass		2.0	0.4	5.9	2.6	0.2	0.8	0.4	5.5	1.0	2.09
	Northern Pike		0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.10
	Orangespotted Sunfish		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
	Red Shiner		1.2	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.29
	River Carpsucker		0.1	20.7	18.6	2.0	2.5	15.3	5.6	22.0	19.3	11.79
	Rock Bass		0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.04
	Sand Shiner		0.0	0.3	0.5	1.5	0.0	0.0	0.0	0.0	0.0	0.26
	Sauger		0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.02

Gear	Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg
							CPUE					
small seine	Shorthead Redhorse		0.0	0.4	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.09
	Shortnose Gar		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.02
	Smallmouth Bass		0.1	0.4	0.0	0.1	0.2	0.3	0.3	0.0	0.3	0.19
	Smallmouth Buffalo		0.0	0.2	0.1	0.0	0.0	0.2	0.0	0.0	1.0	0.17
	Spotfin Shiner		0.0	0.1	3.5	4.6	5.8	10.0	3.7	9.2	124.9	17.97
	Spottail Shiner		0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.07
	Walleye		0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.03
	White Bass		0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.04
	White Crappie		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
	White Sucker		0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.01
	Yellow Perch		0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.08
trotline	Channel Catfish			0.2								0.20
	Flathead Catfish			0.1								0.10

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									
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
boat shocker (day)	Largemouth Bass	PSD	86	77	75	100	100	71	62	38	63	73
		PSD-P	57	64	38	50	62	57	52	0	37	13
		Wr	108	111	115	93	106	102	103	130	100	109

Back-Calculated Lengths

Mean species back-calculated total length (mm) at age, standard error (SE), and sample size (N).

Species: Largemouth Bass

Year Class	Age	N	Mean back-calculated length (SE) at age									
			1	2	3	4	5	6	7	8	9	10
2017	2	2	89 (27.9)	153 (22.9)								
2016	3	2	86 (2)	149 (4.8)	225 (11.4)							
2015	4	3	99 (2)	194 (25.8)	277 (10.4)	301 (12)						
2014	5	6	92 (5)	180 (10.6)	271 (13.4)	311 (11.8)	334 (10.4)					
2013	6	3	76 (4.8)	178 (10.3)	269 (7.7)	319 (9.8)	357 (4.1)	374 (4.7)				
2011	8	1	96	281	342	370	396	413	434	441		
Weighted Mean		17	90	181	270	315	347	384	434	441		

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2017	2	2										
2016	3	2										
2015	4	3										
2014	5	6										
2013	6	3										
2011	8	1										
Weighted Mean		17										

Length at Capture

Mean length at capture by age across years sampled, sample size (N).

Species: Largemouth Bass

|		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2019	17		156 (2)	232 (2)	307 (3)	337 (6)	377 (3)		445 (1)		
2018	92	113 (13)	172 (25)	255 (11)	296 (14)	344 (8)	419 (5)	444 (13)	449 (2)	570 (1)	
2016	73	96 (48)	192 (7)	229 (3)	290 (3)	389 (2)	418 (2)	401 (1)	425 (6)	423 (1)	
2015	57	110 (32)	178 (5)	235 (4)	251 (1)	305 (2)	384 (2)	420 (3)	419 (6)	464 (2)	
2014	42	86 (5)			361 (7)	384 (11)	396 (12)	431 (6)	421 (1)		
2012	7			295 (3)	370 (2)	410 (2)					
2011	20		203 (2)	259 (2)	332 (3)	388 (3)	426 (4)	420 (2)	459 (4)		
2010	52	98 (7)	195 (9)	277 (5)	350 (7)	379 (7)	414 (11)	425 (5)	403 (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).

| | | Length Groups | | | | | | | |
| | | S-Q | | Q-P | | P-M | | M | |
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Largemouth Bass Electro Fishing	2015	6	105 (2.7)	3	105 (3.0)	12	100 (2.3)	0	
	2016	8	108 (3.3)	2	103 (5.1)	11	100 (2.7)	0	
	2017	5	146 (24.9)	3	105 (3.1)	0		0	
	2018	22	99 (2.0)	15	103 (1.8)	21	99 (2.8)	1	59
	2019	4	133 (22.9)	9	102 (3.0)	2	94 (2.1)	0	

Length Frequency Distribution

Length frequency histogram of species sampled by year.

Species: Largemouth Bass
Gear: boat shocker (day)

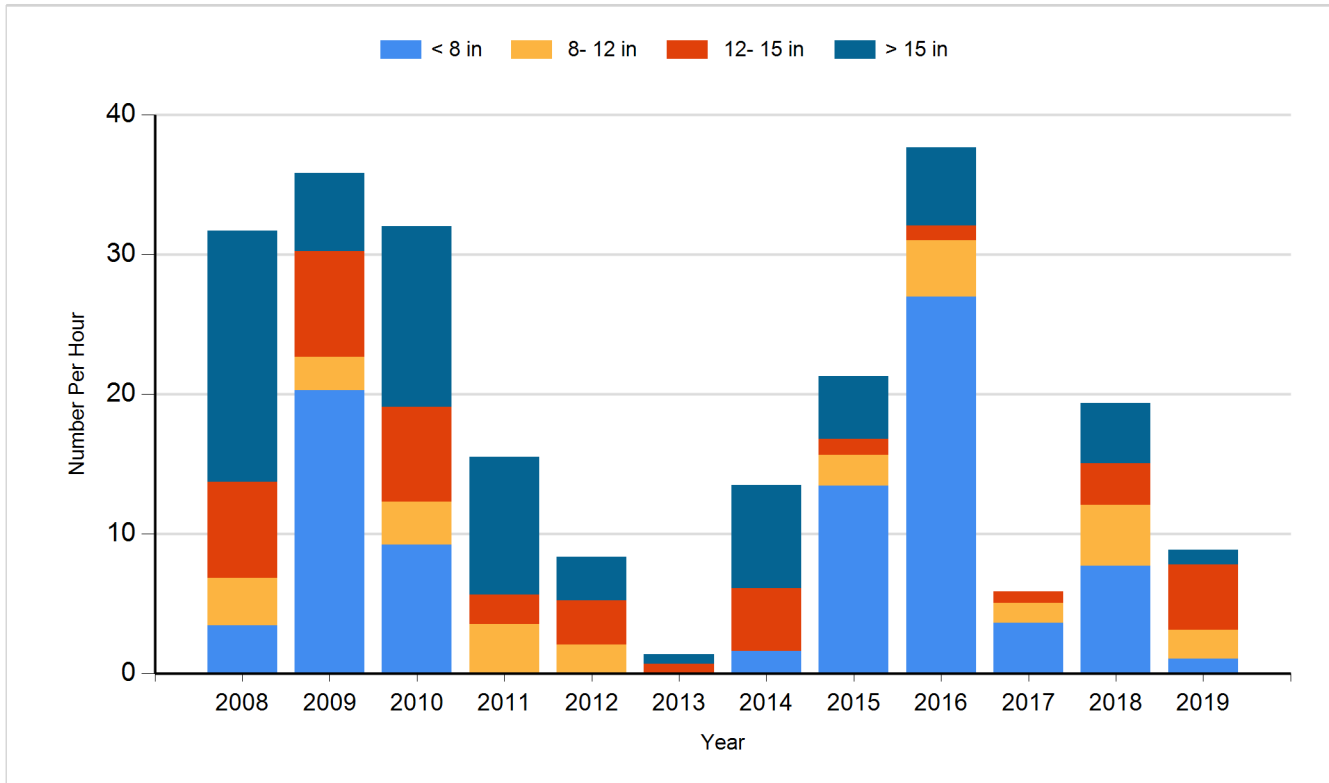2014

2015

2016

2017

2018

2019

Total Length (cm)
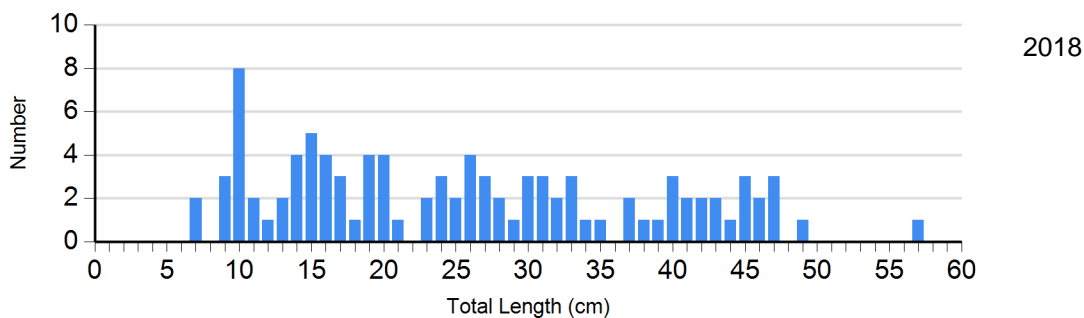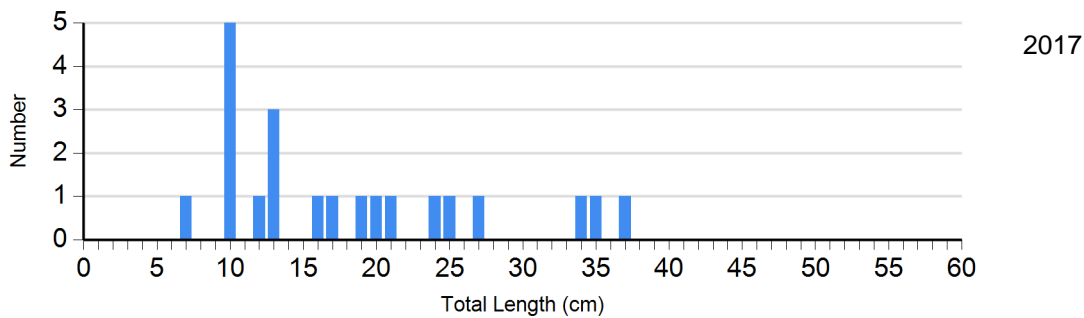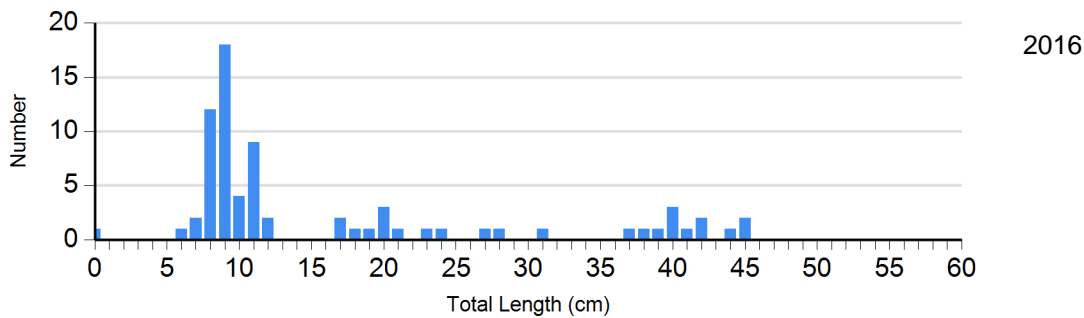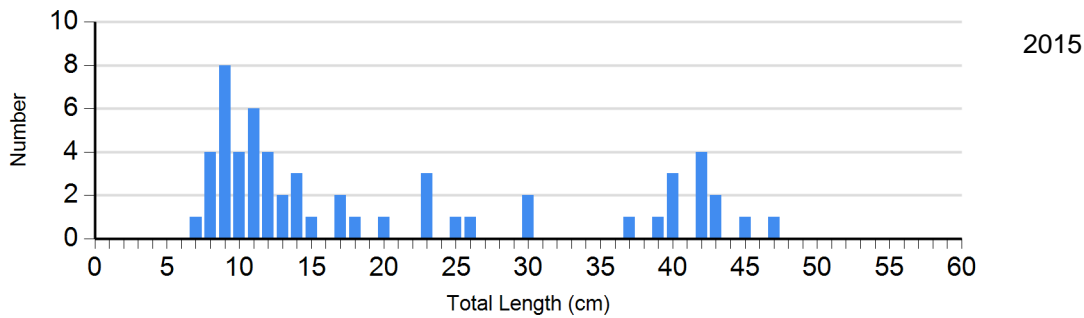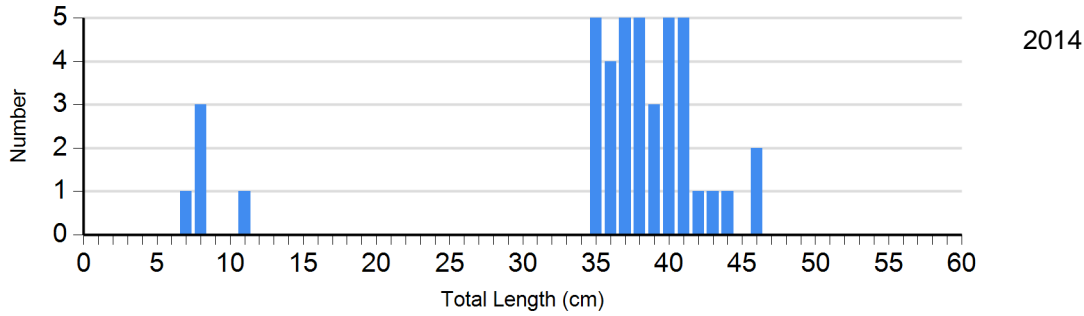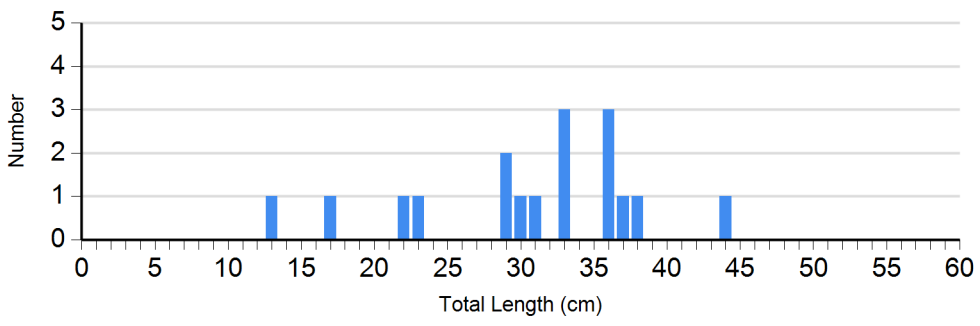
Historic Fish Sizes and Relative Abundance

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

Species: Largemouth Bass
Gear: boat shocker (day)

Fish Stocking

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

Year	Species	Size	Number
2014	Walleye	Fry	14,107,500
2016	Walleye	Fry	13,449,865
2016	Walleye	Small Fingerling	1,426,655
2018	Walleye	Fingerling	473,237