2024 Below Gavins Point Dam

The Missouri River below Gavins Point Dam is located near Yankton, SD. Gavins Point Dam is the last dam on the Missouri River therefore, everything below it is an open system. Many species are present below the tailwaters, but only Smallmouth Bass are surveyed. Access consists of two boat ramps, one on the north side and one on the south side. Shore fishing is allowed of the wall on the north side and along both sides of the river directly below the dam. There is a handicap accessible fishing pier on the south side of the river.

Smallmouth Bass: The catch rate of Smallmouth Bass in 2024 was 40 fish per hour of electrofishing. Of the Smallmouth Bass sampled, 58% were 7 inches or longer, with 30% being 11 inches or longer. Smallmouth Bass have a relative weight (Wr) of 97*.

* 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.

Created 1/5/2025 GK

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Lower Missouri, Yankton County
LCL-Lake-73-001
2024

Lake Information

Name: Lower Missouri

County: Yankton

Surface Area: 21,121 Acres

Surveys and Investigations

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

Gear	Date	Effort
boat shocker (day)	May 23, 2024	3600 seconds
fall night EF-WAE	Oct 23, 2024	1200 seconds

Common Fish Species Present

Walleye

Sauger

Smallmouth Bass

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
boat shocker (day)	Smallmouth Bass	69	40.0	16.1	58	12	30	11	97	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**

		CPUE										
Gear	Species	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Avg
boat shocker (day)	American Eel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
	Burbot	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.10
	Largemouth Bass	0.0	7.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.80
	Sauger*	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.16
	Smallmouth Bass	10.1	21.0	23.0	29.3	10.0	10.0	16.5	16.0	16.0	40.0	19.19
fall night EF-WAE*	Sauger				60.0			4.8		8.0	207.0	69.95
	Walleye				280.0			91.4		265.0	297.0	233.35

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.

			Year									
Gear	Species	Index	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
boat shocker (day)	Sauger	PSD				0						
		PSD-P				0						
	Smallmouth Bass	PSD	0	19	13	18	30	20	70	75	88	58
		PSD-P	0	5	4	8	10	0	40	38	44	30
		Wr	95	97	93	90	89	93	89	96	95	97

Back-Calculated Lengths

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

Species: Smallmouth Bass

Year Class	Age	N	Mean back-calculated length (SE) at age									
			1	2	3	4	5	6	7	8	9	10
2023	1	10	95 (2)									
2022	2	12	80 (2)	121 (2.7)								
2021	3	8	91 (3.4)	151 (7.4)	212 (5.9)							
2020	4	13	81 (3.1)	131 (3.4)	211 (7.2)	257 (7.1)						
2019	5	5	88 (7.7)	144 (14.8)	225 (13)	286 (16.3)	318 (17.1)					
2018	6	6	81 (2.3)	126 (8.5)	202 (10.3)	257 (10)	321 (10.4)	351 (7.7)				
2017	7	3	78 (3.1)	111 (8.9)	174 (6.9)	224 (15)	265 (18.9)	300 (20.8)	327 (15.5)			
2016	8	1	92	192	227	264	350	389	430	450		
Weighted Mean		58	85	133	209	259	311	340	353	450		

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2023	1	10										
2022	2	12										
2021	3	8										
2020	4	13										
2019	5	5										
2018	6	6										
2017	7	3										
2016	8	1										
Weighted Mean		58										

Length at Capture

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

Species: Smallmouth Bass

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2024	68	115 (11)	134 (18)	231 (9)	274 (13)	337 (6)	367 (6)	338 (3)	470 (1)		
2023	15		287 (1)	307 (6)	334 (5)		482 (2)	461 (1)			
2022	19	128 (3)	182 (1)	279 (7)	349 (5)	425 (3)					
2021	11		197 (2)	286 (2)	276 (1)	357 (6)					
2020	14	163 (3)	182 (3)	205 (3)	268 (5)						
2019	6			244 (4)	274 (2)						
2018	47		183 (17)	213 (19)	255 (6)	330 (2)	380 (1)		443 (2)		
2017	86	136 (63)	236 (19)	299 (3)		417 (1)					
2016	28	139 (7)	218 (14)	243 (4)	330 (2)	364 (1)					
2015	20	138 (9)	193 (8)	219 (2)	263 (1)						

Fish Condition

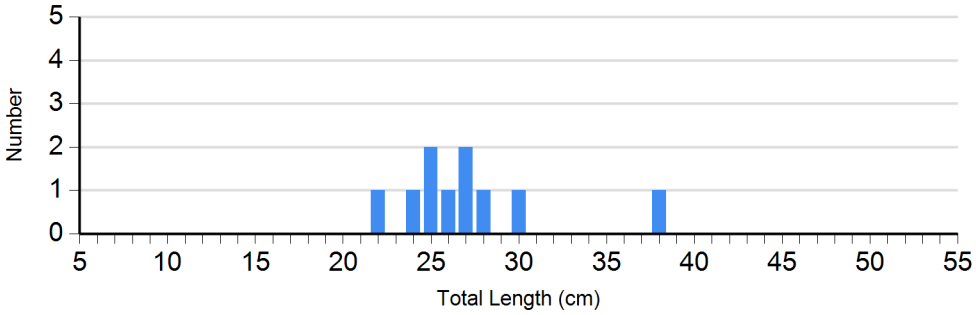
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Smallmouth Bass Electro Fishing	2020	8	93 (2.9)	2	94 (0.7)	0		0	
	2021	3	99 (4.0)	3	83 (1.5)	4	87 (1.9)	0	
	2022	4	102 (5.5)	6	96 (2.4)	5	96 (3.9)	1	80
	2023	2	104 (3.1)	7	94 (3.0)	3	95 (5.1)	4	90 (6.4)
	2024	17	99 (2.3)	11	97 (2.2)	11	93 (1.9)	1	95

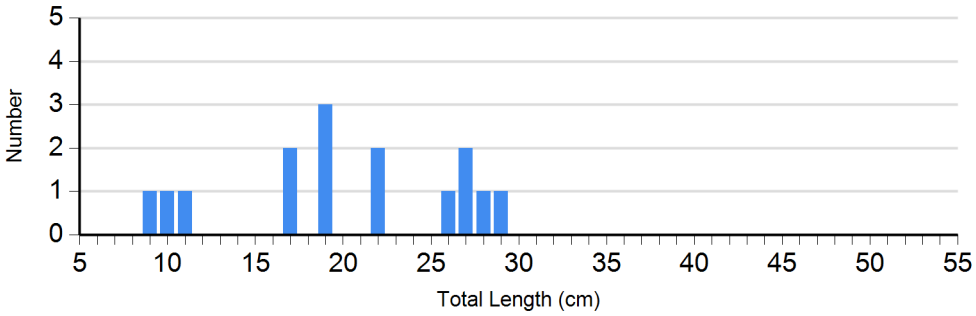
Length Frequency Distribution

Length frequency histogram of species sampled by year.

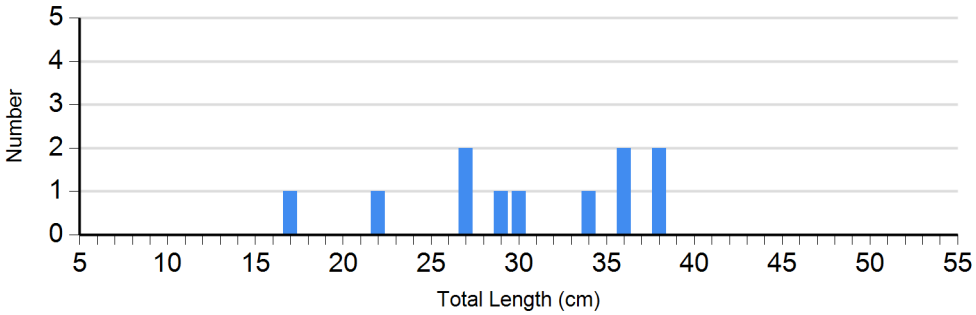
Species: Smallmouth Bass
Gear: boat shocker (day)



2019



2020



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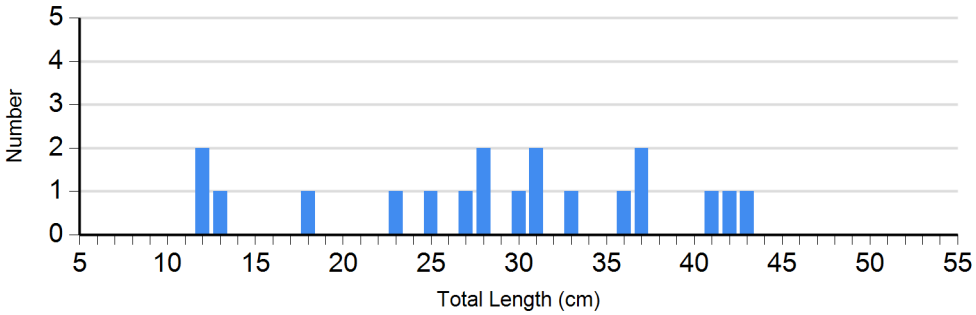

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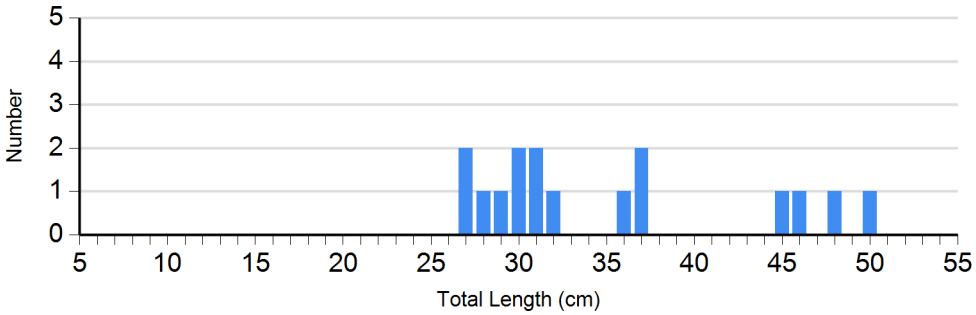
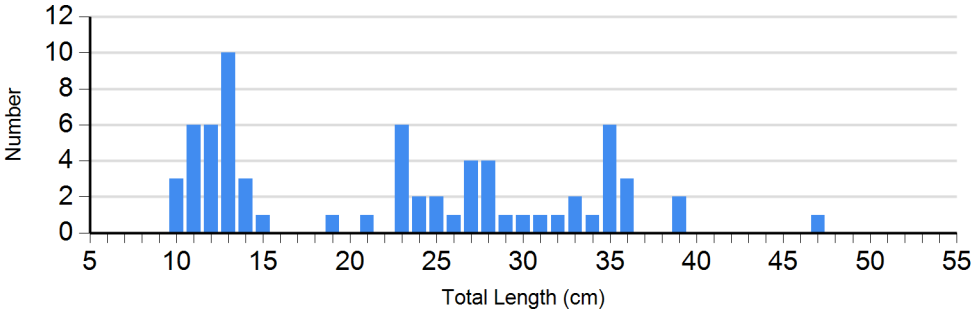


2023

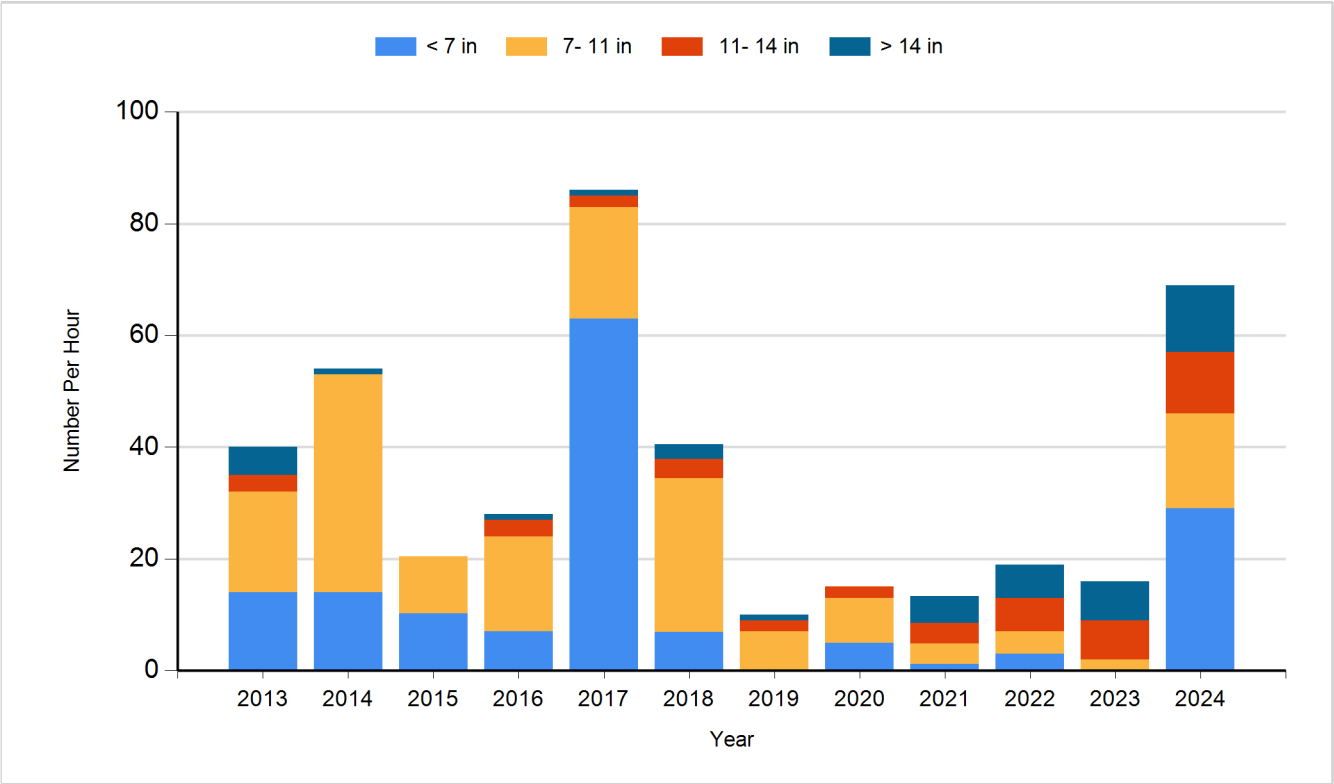


2024

Historic Fish Sizes and Relative Abundance

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

Species: Smallmouth Bass
Gear: boat shocker (day)



Fish Stocking

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

Year	Species	Size	Number
2014	Pallid Sturgeon	Juvenile	427