Sherriff Dam Survey Summary

Sherriff Dam is 21 acre impoundment located 16 miles south and 5 miles west of Fort Pierre, South Dakota and is surrounded by Fort Pierre National Grassland owned by U.S. Department of Agriculture. Maximum depth is approximately 12.7 feet with an average depth of 5.5 feet. Almost the entire shoreline is surrounded by dense cattails, making shoreline fishing difficult except from the dam grade. Access for a small carry-in boat is available and ice-fishing access is good. Submergent vegetation is abundant throughout the impoundment and can very dense in the southern end. During the summer of 2018, several "Mossback" artificial fish habitat were installed in Sherriff Dam. These structures will last many years to come.

Water quality for fish survival, at time of survey, was good within the impoundment. A thermocline had developed at a depth of 6 feet and very low dissolved oxygen was found below. This is very common during the summer months for these small impoundments. Water clarity was measured at 47 inches.

Sherriff Dam supports a fishery with Largemouth Bass, Bluegill, Yellow Perch, Black Crappie, Black Bullhead, and Golden Shiner. Bluegill abundance (85.5 fish/net) was the highest recorded, recently. They averaged 6 inches and ranged 4 to 7.5 inches. Growth rates of Bluegill were near the statewide average of 6.5 inches at age-4. Plumpness or condition of the Bluegill was good. Sherriff Dam is currently supporting a good Bluegill fishery with hopes for a good future.

Yellow Perch catches were up in Sherriff Dam as well at 11.3 fish/net. Yellow Perch ranged from 7.5 to 10 inches and the average was 8.5 inches. Growth rates were very near or just below the statewide average. Approximately 4 percent of Yellow Perch collected exceeded 10 inches.

Black Bullhead net catches have remained similar to the past at 4.9 fish/net. The size of Black Bullhead was 10 inches on average and ranged 6 to 13 inches. The Black Bullhead population remains a low in abundance but high in quality of size which can provide a fishery for anglers.

Black Crappie numbers have remained stable for Sherriff Dam. Majority of these fish are young (age-3) and average 8 inches. Size ranged 6 to 9 inches. Growth of Black Crappie is slower than the statewide average but condition of these fish was good.

A few Golden Shiners and Largemouth Bass were collected. To fully index the Largemouth Bass population, a boat electofishing survey must be completed but could not be accomplished due to difficult boat access.

Sherriff Dam provides a great place to go fishing for Largemouth Bass, Bluegill and Crappie. It may be difficult to fish from shore, but in a small boat or through the ice some good fishing can be accomplished.

For more information, please contact South Dakota Game, Fish and Parks Ft. Pierre office – (605) 223-7700.

Prepared 01-28-2019 by KDP

Lake Information

Name: Sheriff Dam

County: Jones

Surface Area: 25 Acres

Surveys and Investigations

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

Gear	Date	Effort
frame net (std 3/4 in)	Jun 26, 2018	4 net-nights
frame net (std 3/4 in)	Jun 27, 2018	4 net-nights

Common Fish Species Present

Largemouth Bass

Bluegill

Yellow Perch

Black Bullhead

Black Crappie

Golden 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)	(cm)	Quality (in)	(cm)	Preferred (in)	(cm)	Memorable (in)	(cm)	Trophy (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	6	15	9	23	12	30	15	38	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	CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
frame net (std 3/4 in)	Black Bullhead	4.9	2.2	90		5		97	2
	Black Crappie	4.3	1.9	56	13	0		90	2
	Bluegill	85.5	23.8	81	2	0		95	2
	Golden Shiner	0.0	0.0						
	Largemouth Bass	0.8	0.4	50		0		101	3
	Yellow Perch	11.3	3.6	88	5	4		86	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	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Avg
frame net (std 3/4 in)	Black Bullhead	1.0			7.3			3.9			4.9	4.3
	Black Crappie	2.5			16.0			1.5			4.3	6.1
	Bluegill	12.5			12.6			9.1			85.5	29.9
	Golden Shiner				0.0						0.0	0.0
	Largemouth Bass	0.4			1.4						0.8	0.9
	Yellow Perch	0.3			4.5			2.9			11.3	4.8

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	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
frame net (std 3/4 in)	Black Bullhead	PSD	100			98			90			90
		PSD-P	88			22			61			5
		Wr	108			110			100			97
	Black Crappie	PSD	15			42			42			56
		PSD-P	15			0			25			0
		Wr	96			89			116			90
	Bluegill	PSD	92			78			58			81
		PSD-P	20			1			45			0
		Wr	105			88			113			95
	Largemouth Bass	PSD	0			9						50
		PSD-P	0			0						0
		Wr	90			91						101
	Yellow Perch	PSD	50			47			17			88
		PSD-P	0			0			13			4
		Wr	86			99			90			86

Back-Calculated Lengths

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

Species: Black Crappie

Year Class	Age	N	Mean back-calculated length (SE) at age									
			1	2	3	4	5	6	7	8	9	10
2016	2	1	67	176								
2015	3	25	69 (1.9)	135 (2.9)	191 (3.6)							
2014	4	2	62 (7.8)	90 (1.3)	140 (.7)	174 (11.1)						
2013	5	1	48	72	94	127	157					
Weighted Mean		29	68	131	184	158	157					

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2016	2	1										
2015	3	25										
2014	4	2										
2013	5	1										
Weighted Mean		29										

Species: Bluegill

Year Class	Age	N	Mean back-calculated length (SE) at age									
			1	2	3	4	5	6	7	8	9	10
2016	2	14	50 (1.3)	101 (2.6)								
2015	3	12	53 (3.1)	105 (3.5)	143 (2.5)							
2014	4	13	40 (1.7)	87 (3.8)	134 (4.2)	161 (3.1)						
Weighted Mean		39	48	98	138	161						

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2016	2	14										
2015	3	12										
2014	4	13										
Weighted Mean		39										

Species: Yellow Perch

Year Class	Age	N	Mean back-calculated length (SE) at age									
			1	2	3	4	5	6	7	8	9	10
2016	2	15	96 (1.2)	166 (2)								
2015	3	7	91 (5.8)	135 (6.1)	197 (4.9)							
2014	4	8	74 (4.4)	113 (4.5)	164 (6.2)	203 (2.7)						
2013	5	1	76	106	150	195	231					
Weighted Mean		31	89	143	178	202	231					

Year Class	Age	N	11	12	13	14	15	16	17	18	19	20
2016	2	15										
2015	3	7										
2014	4	8										
2013	5	1										
Weighted Mean		31										

Length at Capture

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

Species: Black Crappie

Year	N	1	2	3	4	5	6	7	8	9	10+
				Mean Length (expanded sample number) at capture by age							
2018	34		201 (1)	205 (30)	186 (2)	163 (1)					
2015	13		140 (4)	152 (4)		254 (2)	253 (3)				
2012	128			173 (65)	194 (6)	206 (56)	196 (2)				
2009	20		154 (16)	181 (1)		274 (1)	293 (1)			353 (1)	

Species: Bluegill

| Year	N	1	2	3	4	5	6	7	8	9	10+
				Mean Length (expanded sample number) at capture by age							
2018	684		125 (107)	160 (258)	173 (319)						
2015	73	83 (1)	140 (39)	209 (2)				229 (23)	236 (5)	243 (1)	234 (2)
2012	101			148 (37)	174 (44)	185 (11)	191 (10)				
2009	100			166 (57)	162 (15)	190 (3)	202 (8)	206 (4)	211 (3)	218 (4)	232 (5)

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	S-Q		Q-P		P-M		M	
		N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Black Crappie Frame Net	2015	7	134 (12.8)	2	90 (0.5)	3	91 (3.9)	0	
	2018	15	96 (1.8)	19	84 (2.1)	0		0	
Bluegill Frame Net	2015	31	112 (1.6)	9	115 (4.2)	33	114 (1.5)	0	
	2018	127	105 (4.6)	557	93 (0.6)	0		0	

Length Frequency Distribution

Length frequency histogram of species sampled by year.

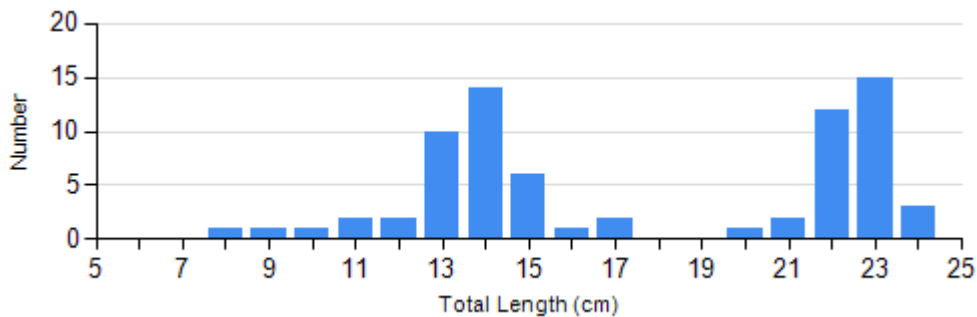Species: Black Crappie
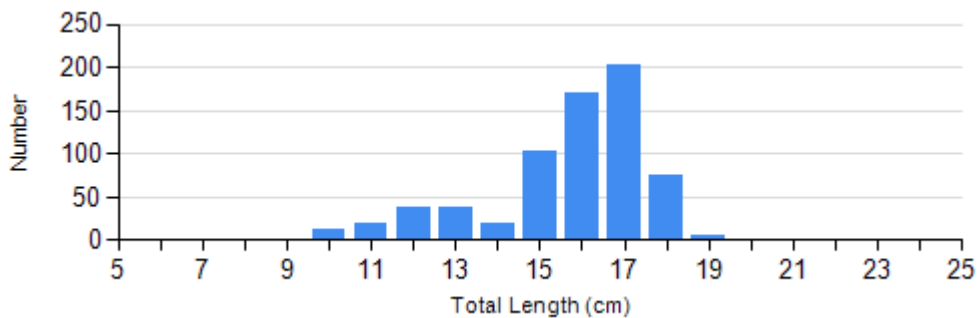Gear: frame net (std 3/4 in)
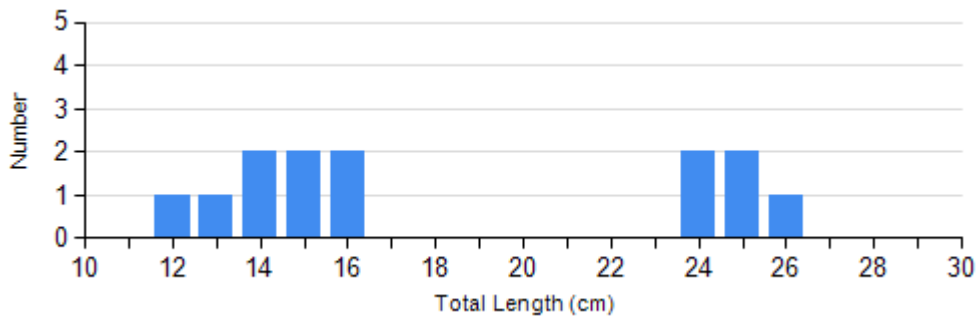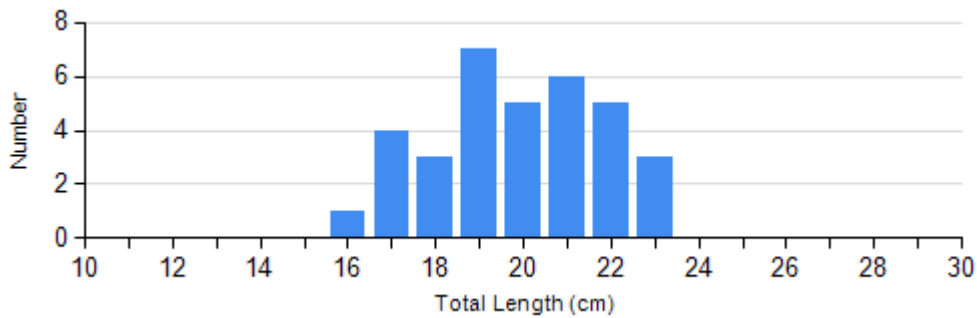
2015

2018

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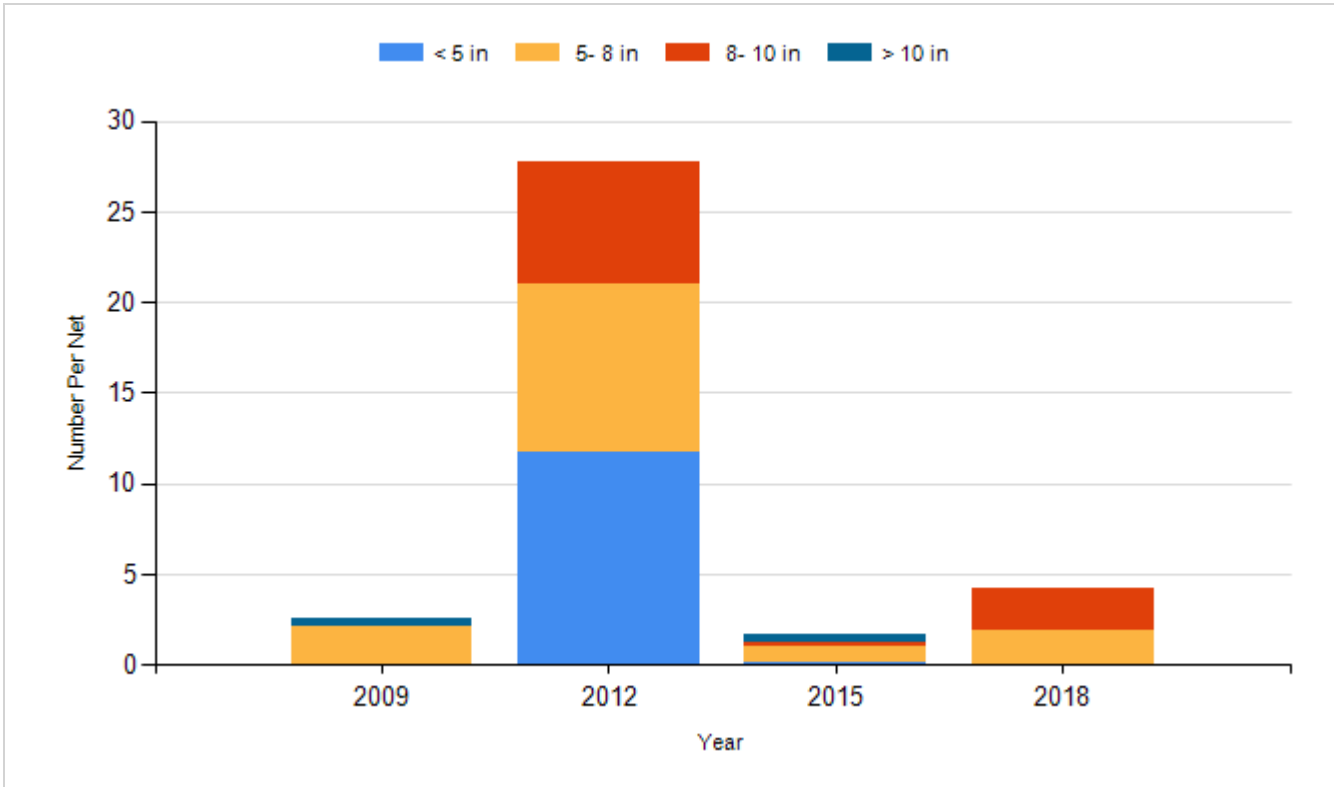Gear: frame net (std 3/4 in)

2015

2018

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)