Chappelle Lake Survey Summary

Chappelle Lake is a 33 acre prairie impoundment located 9 miles south of Holabird in Hyde County, South Dakota. The unmaintained dirt access trail may be difficult to travel at times. Access to the artificial impoundment is limited due to round-stem bulrush and cattails encircling the entire pond. There is no boat ramp or fish access improvements on the pond. Some shoreline access can be found along the dam grade.

At the time of survey dissolved oxygen was adequate for fish life and the pond was stratified at a depth of about 8 feet. Below 8 feet no fish life would be possible during the summer. Submergent vegetation was available around the pond but not excessive. Water clarity was about 24 inches. Chappelle Lake has a history of summer/winter fish kills due to poor water quality.

Sampling was conducted by boat electrofishing since the last completed survey on Chappelle Lake was in 1997. As in the past Black Bullhead was present but not overly abundant as in the past. Yellow Perch were present and low in abundance. There were different year-classes of Yellow Perch indicating a reproducing population. Fathead Minnow was extremely abundant throughout the impoundment.

In the fall of 2017 a stocking of 450 Yellow Perch was completed to help increase their abundance. Due to the potential of poor water quality, the best option of a fishery would be a Yellow Perch-Northern Pike fishery. They can withstand poor water quality and may survive the best for this fishery. Future plans include stocking Northern Pike and continue to monitor the population.

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

Prepared 01-10-2019 by KDP

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Chapelle, Hyde County
FTR-Lake-3578-001
2018

Lake Information

Name: Chapelle

County: Hyde

Legal Description: T11-R73-S22

Surface Area: 36 Acres

Maximum Depth: 16 Feet

Mean Depth: 6 Feet

Surveys and Investigations

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

Gear	Date	Effort
boat shocker (day)	Sep 05, 2018	3600 seconds

Common Fish Species Present

Yellow Perch

Northern Pike

Black Bullhead

White Sucker

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	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
boat shocker (day)	Black Bullhead	5.0	3.2	20		0		75	9
	White Sucker	1.0	1.4	100		100		92	
	Yellow Perch	5.0	4.3	60		20		80	4

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
boat shocker (day)	Black Bullhead										5.0	5.0
	White Sucker										1.0	1.0
	Yellow Perch										5.0	5.0

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	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
boat shocker (day)	Black Bullhead	PSD										20
		PSD-P										0
		Wr										75
	White Sucker	PSD										100
		PSD-P										100
		Wr										92
	Yellow Perch	PSD										60
		PSD-P										20
		Wr										80

Back-Calculated Lengths

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

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	1	107	152								
2015	3	2	89 (12.9)	144 (41.3)	192 (18.9)							
2014	4	1	105	163	232	251						
Weighted Mean		4	98	151	205	251						

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

Fish Stocking

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

Year	Species	Size	Number
2018	Yellow Perch	Adult	450