SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Mikkelson Pond, Hughes County
FTR-Lake-3483-000
2023

Lake Information

Name: Mikkelson Pond

County: Hughes

Surface Area: 1 Acres

Surveys and Investigations

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

Gear	Date	Effort
rod and reel	Jan 10, 2023	720 minutes
rod and reel	Jan 17, 2023	470 minutes

Common Fish Species Present

Sunfish Hybrid

Rainbow Trout

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
rod and reel	Rainbow Trout	12	0.5	1.2	0		0			
	Sunfish Hybrid	35	1.7	1.2	6		0			

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	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Avg
AFS std frame net	Black Bullhead				4.0							4.00
	Black Crappie				0.8							0.80
	Bluegill				11.0							11.00
	Rainbow Trout				3.6							3.60
	White Crappie				3.0							3.00
	Yellow Perch				0.1							0.10
frame net (std 3/4 in)	Black Bullhead	12.3							90.0			51.15
	Black Crappie	0.0							40.3			20.15
	Bluegill	2.8							0.1			1.45
	Channel Catfish	0.0							0.3			0.15
	Common Carp	0.1							0.0			0.05
	Rainbow Trout	0.0							0.1			0.05
	Yellow Perch	0.0							0.4			0.20
rod and reel	Rainbow Trout										0.5	0.50
	Sunfish Hybrid										1.7	1.70

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	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AFS std frame net	Rainbow Trout	PSD				0						
		PSD-P				0						
		Wr				65						
frame net (std 3/4 in)	Rainbow Trout	PSD								0		
		PSD-P								0		
rod and reel	Rainbow Trout	PSD										0
		PSD-P										0

Fish Stocking

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

Year	Species	Size	Number
2014	Bluegill	Adult	200
2014	Largemouth Bass	Fingerling	500
2015	Black Crappie	Adult	15
2015	Bluegill	Adult	7
2016	Black Crappie	Adult	47
2016	Largemouth Bass	Adult	87
2016	Rainbow Trout (Erwin x Arlee)	Catchable	1,200
2016	White Crappie	Adult	47
2017	Black Crappie	Catchable	190
2017	Bluegill	Adult	350
2017	Largemouth Bass	Adult	200
2017	Rainbow Trout (Erwin x Arlee)	Catchable	1,200
2018	Black Crappie	Adult	125
2018	Rainbow Trout (Erwin x Arlee)	Catchable 11"	1,200
2018	White Crappie	Adult	75
2018	Yellow Perch	Adult	250
2019	Bluegill	Adult	251
2019	Channel Catfish	Adult	30
2019	Largemouth Bass	Adult	75
2019	Rainbow Trout (Shasta)	Catchable 11"	1,200
2019	Yellow Perch	Adult	164
2020	Channel Catfish	Adult	60
2020	Rainbow Trout (Shasta)	Catchable 11"	1,200
2021	Bluegill	Adult	350
2021	Bluegill X Green Sunfish (Hybrid)	Adult	3,616
2021	Bluegill X Green Sunfish (Hybrid)	Large	1,000
2021	Bluegill X Green Sunfish (Hybrid)	Medium	1,000
2021	Rainbow Trout (Gerrard)	Adult	408
2021	Rainbow Trout (Trout Lodge)	Adult	527
2022	Bluegill	Adult	275
2022	Bluegill X Green Sunfish (Hybrid)	Adult	2,170
2022	Channel Catfish	Adult	128
2022	Channel Catfish	Catchable	9
2022	Rainbow Trout (Trout Lodge)	Adult	1,200
2023	Brown Trout	Adult	230
2023	Channel Catfish	Adult	37

2023	Largemouth Bass	Adult	50
2023	Rainbow Trout	Adult	704