

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
Sylvan, Custer County
MCS-Lake-4-000
2016

Lake Information

Name: Sylvan
County: Custer
Surface Area: 19 Acres

Surveys and Investigations

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

Gear	Date	Effort
backpack shocker	June 30, 2016	30 meters
frame net (1/4 inch)	June 30, 2016	1 net-nights
frame net (std 3/4 in)	June 30, 2016	2 net-nights
minnow trap	June 30, 2016	120
std exp gill net	June 30, 2016	2 net-nights

Common Fish Species Present

Rainbow Trout

Iowa Darter

Golden Shiner

Fathead Minnow

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).

$$CPUE = \frac{\text{number of fish}}{\text{effort}}$$

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.

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

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

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.

$$Wr = \left(\frac{W}{W_s} \right) \times 100$$

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		Quality		Preferred		Memorable		Trophy	
	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)
Bigmouth Buffalo	11	28	18	46	24	61	30	76	37	94
Black Bullhead	6	15	9	23	12	30	15	38	18	46
Black Crappie	5	13	8	20	10	25	12	30	15	38

Species Name	Stock		Quality		Preferred		Memorable		Trophy	
	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)
Blue Catfish	12	30	20	51	30	76	35	89	45	114
Bluegill	3	8	6	15	8	20	10	25	12	30
Bluegill X Gr. Sunfish Hybrid	3	8	6	15	8	20	10	25	12	30
Brown Bullhead	5	13	8	20	11	28	14	36	17	43
Burbot	8	20	15	38	21	53	26	67	32	82
Channel Catfish	11	28	16	41	24	61	28	71	36	91
Common Carp	11	28	16	41	21	53	26	66	33	84
Flathead Catfish	14	35	20	51	28	71	34	86	40	102
Freshwater Drum	8	20	12	30	15	38	20	51	25	63
Gizzard Shad	7	18	11	28						
Green Sunfish	3	8	6	15	8	20	10	25	12	30
Lake Herring	5	13	8	20	11	28	14	35	17	43
Largemouth Bass	8	20	12	30	15	38	20	51	25	63
Longnose Gar	16	41	27	69	36	91	45	114	55	140
Muskellunge	20	51	30	76	38	97	42	107	50	127
Northern Pike	14	35	21	53	28	71	34	86	44	112
Paddlefish	16	41	26	66	33	84	41	104	51	130
Pumpkinseed	3	8	6	15	8	20	10	25	12	30
Redear Sunfish	4	10	7	18	9	23	11	28	13	33
River Carpsucker	7	18	11	28	14	36	18	46	22	56
Rock Bass	4	10	7	18	9	23	11	28	13	33
Rudd	6	15	10	25	12	30	15	38	19	48
Sauger	8	20	12	30	15	38	20	51	25	63
Saugeye	9	23	14	35	18	46	22	56	27	69
Shorthead Redhorse	6	15	10	25	13	33	16	41	20	51
Smallmouth Bass	7	18	11	28	14	35	17	43	20	51
Smallmouth Buffalo	11	28	18	46	24	61	30	76	37	94
Spotted Bass	7	18	11	28	14	35	17	43	20	51
Striped Bass	12	30	20	51	30	76	35	89	45	114
Striped Bass Hybrid (wiper)	8	20	12	30	15	38	20	51	25	63
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
White Perch	5	13	8	20	10	25	12	30	15	38
White Sucker	6	15	10	25	13	33	16	41	20	51
Yellow Bass	4	10	7	18	9	23	11	28	13	33
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).

Gear	Species	Abundance		Stock Density Indices			Condition		
		CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
backpack shocker	Fathead Minnow	0.0							
	Iowa Darter	0.0							
frame net (1/4 inch)	Fathead Minnow	0.0							
frame net (std 3/4 in)	Golden Shiner	0.0	0.0						
	Rainbow Trout	0.0	0.0						
minnow trap	Fathead Minnow	0.0							
std exp gill net	Rainbow Trout	0.0							

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.

Gear	Species	CPUE										Avg
		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
backpack shocker	Fathead Minnow										0.0	0.0
	Iowa Darter										0.0	0.0
frame net (1/4 inch)	Fathead Minnow										0.0	0.0
frame net (std 3/4 in)	Golden Shiner			0.0							0.0	0.0
	Rainbow Trout			0.0							0.0	0.0
minnow trap	Fathead Minnow										0.0	0.0
std exp gill net	Rainbow Trout										0.0	0.0
std exp gill net (150 ft)	Rainbow Trout			0.0								0.0

Fish Stocking

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

Year	Species	Size	Number
2005	Rainbow Trout (Cleghorn)	Adult	225
2005	Rainbow Trout (Eagle Lake)	Adult	50
2005	Rainbow Trout (Eagle Lake)	Catchable	3,269
2005	Rainbow Trout (Ennis)	Adult	150
2005	Rainbow Trout (Ennis)	Catchable	1,520
2005	Rainbow Trout (McConaugRainbow Trout)	Catchable	198
2005	Rainbow Trout (Shasta)	Catchable	4,416
2006	Rainbow Trout (Erwin)	Adult	155
2006	Rainbow Trout (Erwin)	Catchable	1,520
2006	Rainbow Trout (McConaugRainbow Trout)	Catchable	1,520
2006	Rainbow Trout (Shasta)	Catchable	6,060
2007	Rainbow Trout (Erwin)	Catchable	2,436
2007	Rainbow Trout (Erwin)	Catchable 11"	300
2007	Rainbow Trout (Erwin)	Catchable 15"	78
2007	Rainbow Trout (Shasta)	Catchable 11"	2,432
2007	Rainbow Trout (Shasta)	Catchable 15"	26
2007	Rainbow Trout (Wigwam)	Catchable 11"	2,432
2008	Rainbow Trout (Erwin)	Catchable 15"	156
2008	Rainbow Trout (Shasta)	Catchable 11"	4,004
2008	Rainbow Trout (Shasta)	Catchable 15"	26
2008	Rainbow Trout (Utah)	Catchable	3,040
2009	Rainbow Trout (Erwin)	Catchable	1,520
2009	Rainbow Trout (Shasta)	Catchable 11"	6,580
2009	Rainbow Trout (Shasta)	Catchable 15"	100
2009	Rainbow Trout (Utah)	Catchable 15"	150
2010	Brown Trout (Soda Lake)	Catchable 11"	500
2010	Brown Trout (Utah)	Catchable	500
2010	Rainbow Trout (Erwin x Arlee)	Catchable	2,540
2010	Rainbow Trout (Erwin)	Catchable 15"	325
2010	Rainbow Trout (Shasta)	Catchable	5,580
2011	Rainbow Trout (Erwin x Arlee)	Catchable	2,517
2011	Rainbow Trout (Erwin x Arlee)	Catchable 15"	350
2011	Rainbow Trout (Shasta)	Catchable	6,520
2012	Rainbow Trout (Erwin x Arlee)	Catchable	3,040

2012	Rainbow Trout (Erwin x Arlee)	Catchable 15"	275
2012	Rainbow Trout (Shasta)	Catchable	5,140
2013	Rainbow Trout (Erwin x Arlee)	Catchable 15"	325
2013	Rainbow Trout (Shasta)	Catchable	9,120
2014	Rainbow Trout (Erwin x Arlee)	Catchable	1,520
2014	Rainbow Trout (Erwin x Arlee)	Catchable 15"	325
2014	Rainbow Trout (Shasta)	Catchable	7,600
2015	Rainbow Trout (Erwin x Arlee)	Catchable	3,040
2015	Rainbow Trout (Erwin x Arlee)	Catchable 15"	325
2015	Rainbow Trout (Shasta)	Catchable	5,978
2016	Rainbow Trout (Erwin x Arlee)	Catchable	3,040
2016	Rainbow Trout (Erwin x Arlee)	Catchable 15"	275
2016	Rainbow Trout (Shasta)	Catchable	6,080
