

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F21-R-48

Name: Coal Springs Lake

County: Perkins

Legal description: Sec 24, T 17N, R 16E

Location from nearest town: 3 mi. E, 6 mi. S, 3 mi. E, 1½ mi. S, and ½ mi. E of Meadow, SD

Dates of present survey: June 28-30, 2015

Date last surveyed: July 14-16, 2014

Management classification: Warmwater permanent

Primary Species: (game and forage)

Secondary and other species:

1. Northern pike
2. Yellow perch
3. Bluegill

1. Walleye
2. Black bullhead
3. Largemouth bass

PHYSICAL CHARACTERISTICS

Surface Area: 90.3 acres

Watershed: 6,400 acres

Maximum depth: 23 feet;

Mean depth: 12.1 feet

Lake elevation at survey (from known benchmark): full

Ownership of lake and adjacent lakeshore property:

A portion of Coal Springs Lake lies within the southeast quarter of Section 24, which is owned by Perkins County. The remainder of the lake is located on private property. There is a public easement of 12 feet above the water's edge around the lake.

Fishing Access

Fishing access is limited, as Coal Springs Lake is located in a pasture and is only accessible by driving across rough terrain. Shore fishing in the summer is also limited by heavy vegetation along the shoreline.

Observations of Water Quality and Aquatic Vegetation

Cattails occupy much of the shoreline. Submergent vegetation was extremely heavy in areas where light penetrates to the bottom.

Observations on condition of all structures, i.e. spillway, level regulators, boat ramps, etc.:

Coal Springs has no boat ramp. The dam and spillway were not inspected during the time of the survey.

BIOLOGICAL DATA

Sampling Effort and Catch

Sampling at Coal Springs Lake was completed using trap nets and experimental gill nets on June 28-30, 2015 to sample adult fish populations in the reservoir. The net sampling consisted of eight trap net nights and two experimental gill net nights (Figure 1). Catch data for both trap nets and gill nets is displayed in Tables 1 and 2. Discussion on selected fish species follows and completes this report.

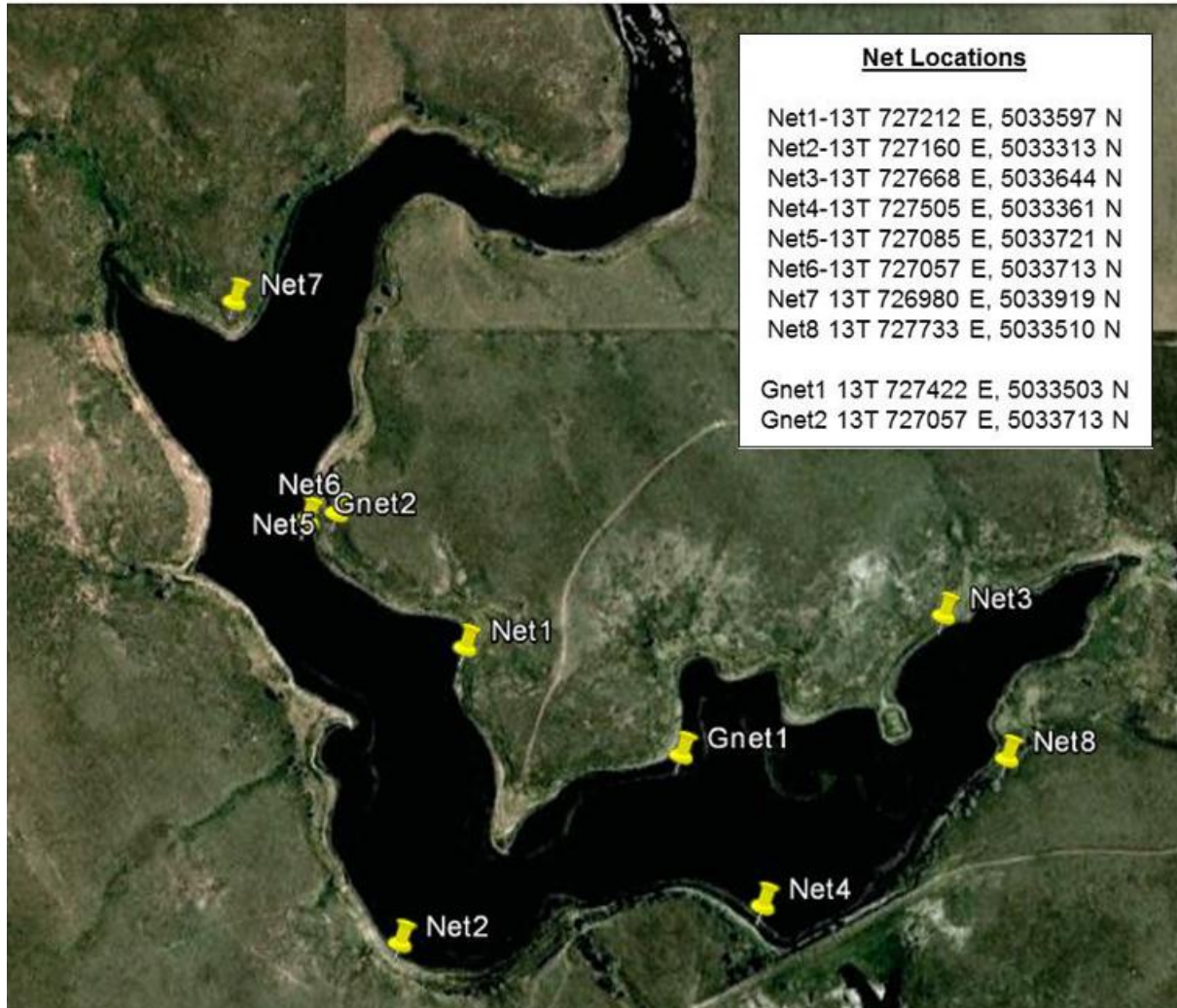


Figure 1. Map of Coal Springs Lake, Perkins County, with historic net locations and GPS coordinates used during fish surveys.

Table 1. Catch data from all species collected in eight trap nets in Coal Springs Lake, Perkins County, June 28-30, 2015. CPUE's with 80% confidence intervals in parentheses. PSD, PSD-P and Wr with 90% confidence intervals in parentheses.

Species	N	CPUE	CPUE-S	PSD	PSD-P	$Wr \geq S$
Black bullhead	1331	166.4 (83.2)	142.3 (71.0)	96 (1)	0	87.4 (2.0)
Bluegill	182	22.8 (25.3)	22.8 (25.3)	10 (4)	8 (4)	114.6 (6.2)
Northern pike	36	4.5 (2.2)	4.5 (2.2)	69 (14)	0	74.7 (3.0)
Yellow perch	3	0.4 (0.3)	0.4 (0.3)	--	--	87.1 (14.9)

Table 2. Catch data from all species collected in two gill nets in Coal Springs Lake, Perkins County, June 28-30, 2015. CPUE's with 80% confidence intervals in parentheses. PSD, PSD-P and Wr with 90% confidence intervals in parentheses.

Species	N	CPUE	CPUE-S	PSD	PSD-P	$Wr \geq S$
Black bullhead	72	36.0 (46.2)	31.0 (43.1)	100	0	92.4 (0.1)
Northern pike	13	6.5 (4.6)	6.5 (4.6)	79 (13)	8 (13)	77.4 (4.2)
Yellow perch	2	1.0 (0.0)	1.0 (0.0)	--	--	87.9 (--)

Black bullhead

Black bullhead density continues to increase with a CPUE of 166.4 (Table 1 and 3). Last year, CPUE for stock length and larger bullheads was 147.1. As density has increased, fish condition has decreased with a $Wr \geq S$ of 87.4 (Table 1 and 3). Size structure was high with a PSD of 96, similar to 100 in 2014. The length frequency histogram indicates two year classes (Figure 2).

Table 3. Composite listing of data for black bullhead collected by trap nets in Coal Springs Lake, Perkins County, 2010-2015. CPUE's with 80% confidence intervals in parentheses. PSD and Wr with 90% confidence intervals in parentheses.

Year	N	CPUE	CPUE-S	PSD	$Wr \geq S$
2010	1	0.3 (0.4)	0.3 (0.4)	--	106.3 (--)
2011	3	0.4 (0.5)	0.4 (0.5)	--	121.3 (15.8)
2013	161	40.3 (21.8)	40.3 (21.8)	68 (6)	105.1 (4.7)
2014	1177	147.1 (49.8)	37.6 (12.7)	100 (--)	89.1 (3.0)
2015	1331	166.4 (83.2)	142.3 (71.0)	96 (1)	87.4 (2.0)

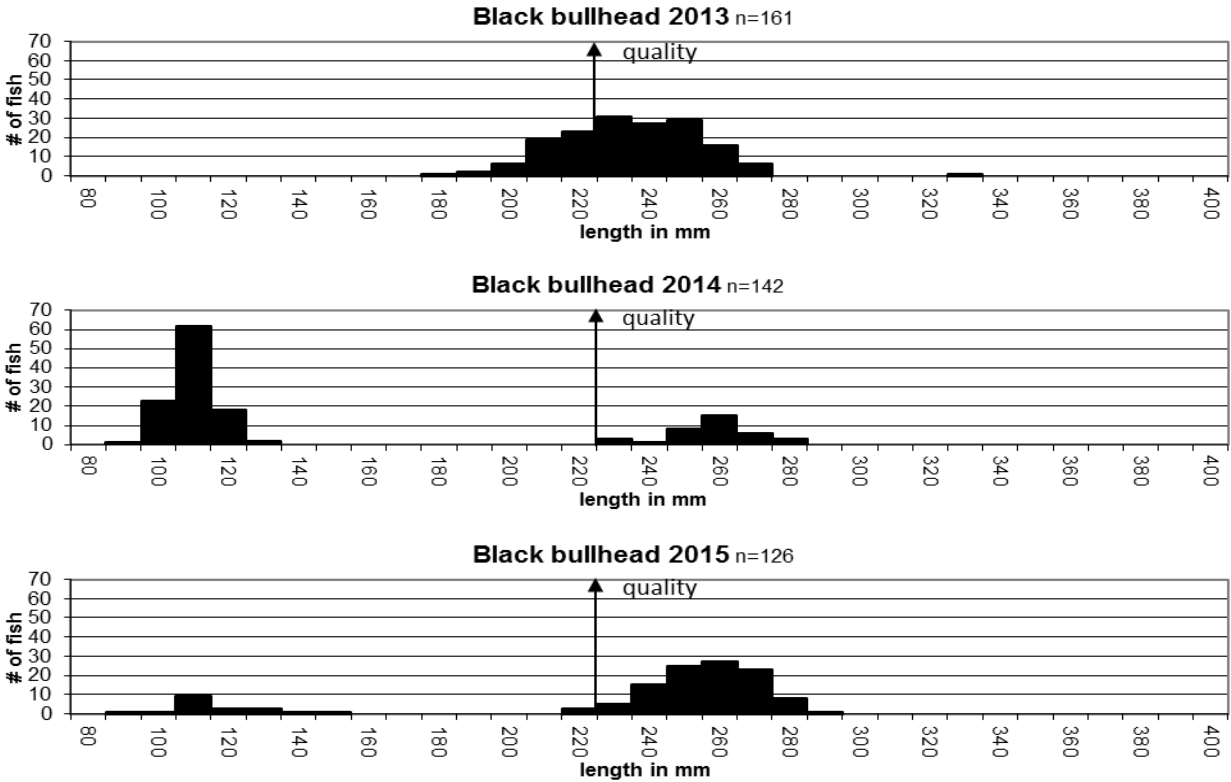


Figure 2. Length frequency histograms for black bullhead at Coal Springs Lake, Perkins County, 2013-2015.

Bluegill

Bluegill were introduced in 2011 and appear to be reproducing and recruiting as a trap net CPUE of 22.8 was recorded (Table 1 and 4). The length frequency histogram indicates multiple year classes present (Figure 3). Fish condition was excellent with a *Wr* for stock length and larger fish of 114.6.

Table 4. Composite listing of data for bluegill collected by trap nets in Coal Springs Lake, 2013-2015. CPUE's with 80% confidence intervals in parentheses. PSD and *Wr* with 90% confidence intervals in parentheses.

Year	N	CPUE	CPUE-S	PSD	<i>Wr</i> ≥S
2013	3	0.8 (0.8)	0.8 (0.8)	--	137.7 (--)
2014	16	2.1 (0.9)	2.0 (0.9)	81 (18)	126.0 (2.7)
2015	182	22.8 (25.3)	22.8 (25.3)	10 (4)	114.6 (6.2)

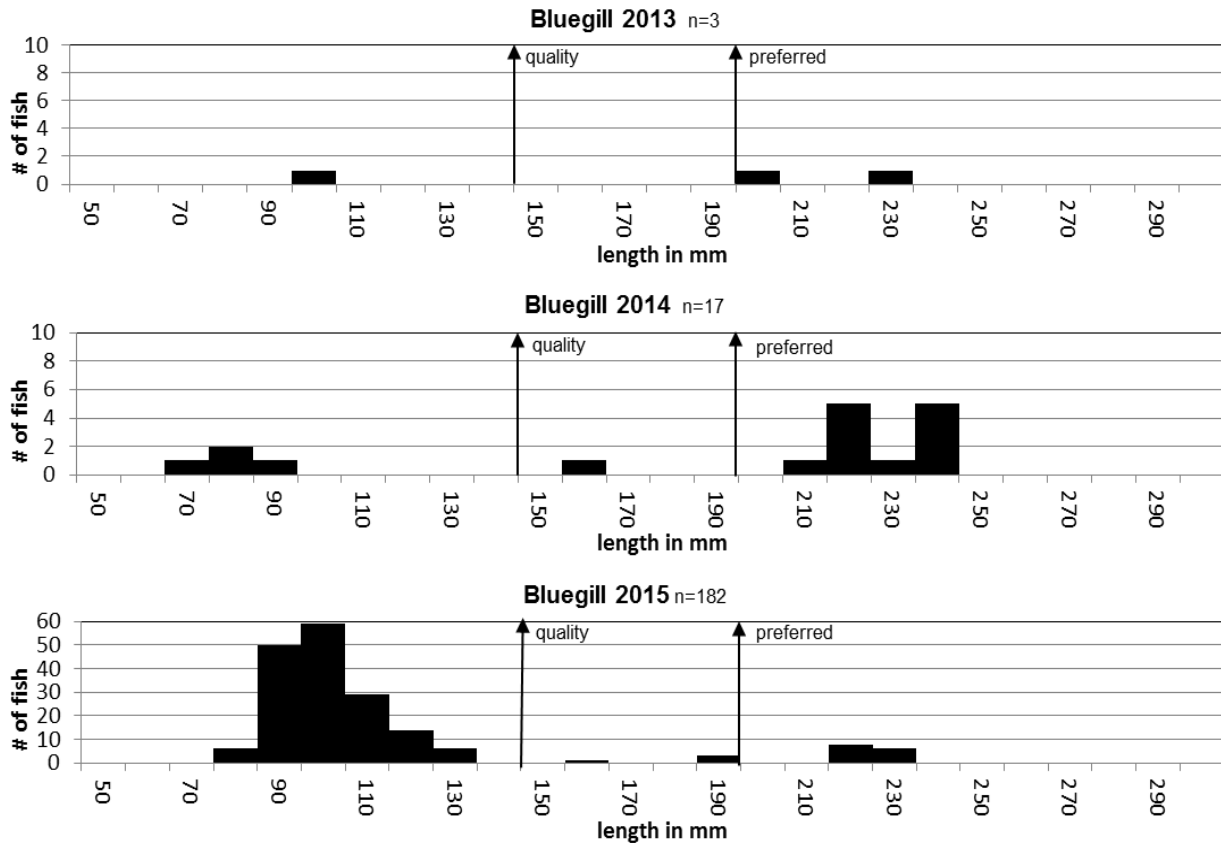


Figure 3. Length frequency histograms for bluegill at Coal Springs Lake, Perkins County, 2013-2014.

Northern pike

Coal Springs Lake experienced very low water levels during the last drought and no northern pike have been stocked recently. Therefore, all fish caught during sampling are assumed to be naturally produced from a few adults that survived the drought. In the 2015 survey, the 2009 year class seems to be dominating the population (Figure 4). Catch rates were high with a trap net CPUE of 4.5 and a gill net CPUE of 6.5 (Tables 1 and 2). Last year, CPUE was 8.0 and 3.5, respectively. Fish condition was low with a *Wr* for stock length and larger fish (from trap nets) of 74.7.

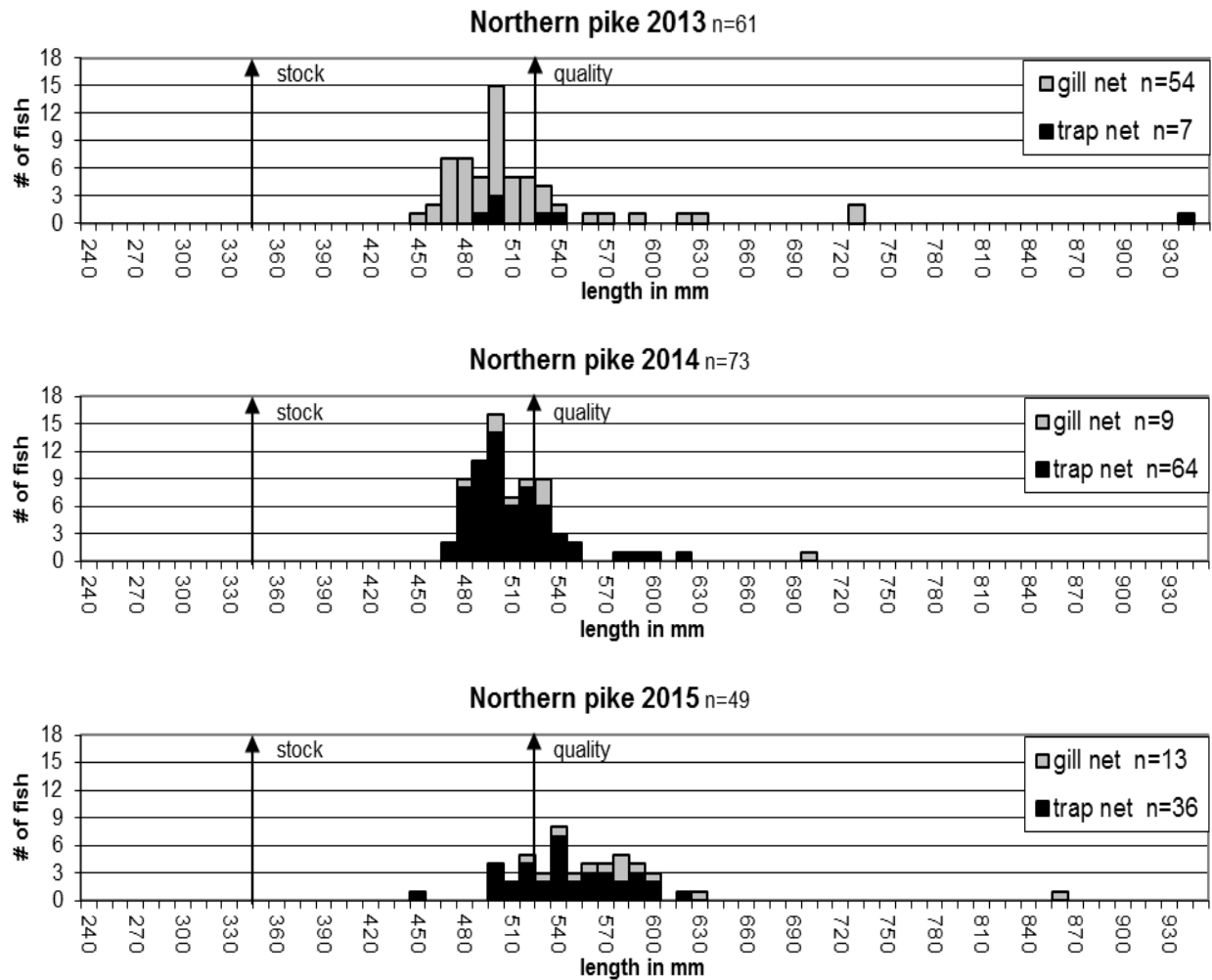


Figure 4. Length frequency histograms for northern pike from Coal Springs Lake, Perkins County 2013-2015.

RECOMMENDATIONS

1. Stock adult yellow perch, bluegill and largemouth bass when available to reestablish fishery.
2. Resurvey in 2016 to check for success of recent stockings.

LITERATURE CITED

Willis, David W. Daniel A. Isermann, Matthew J. Hubers, Bruce A. Johnson, William H. Miller, Todd R. St. Sauver, Jason S. Sorensen, and Eric G. Unkenholz. 2001. Growth of South Dakota Fishes: A Statewide Summary with Means by Region and Water Type. South Dakota Game, Fish and Parks Special Report. Pierre, SD

APPENDIX

Appendix A. Stocking record for Coal Springs Lake, Perkins County, 2002-2014.

Year	Number	Species	Size
2002	8,200	Largemouth bass	Fingerling
2004	430	Yellow perch	Adult
2009	350	Yellow perch	Adult
	650	Yellow perch	Adult
	40,100	Walleye	Fingerling
2010	8,200	Walleye	Fingerling
	5,000	Largemouth bass	Fingerling
2011	60	Golden shiner	Adult
	585	Yellow perch	Adult
	125	Bluegill	Adult
2012	470	Bluegill	Adult
	572	Yellow perch	Adult
	150	Largemouth bass	Adult
2014	1,592	Walleye	Large Fingerling
	20,000	Walleye	Fingerling