

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F21-R-46

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 19-21, 2013

Date last surveyed: June 13-15, 29-30, 2011

Management classification: Warmwater permanent

Primary Species: (game and forage)

1. Largemouth Bass
2. Walleye
3. _____

Secondary and other species:

1. Northern Pike
2. Yellow Perch
3. Black Bullheads

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): -4 feet

Ownership of lake and adjacent lakeshore property:

A portion of the 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 12-foot public easement along 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 summer is also limited by heavy vegetation along the shore.

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 an experimental gill net on June 19-20, 2013 to sample adult fish populations in the reservoir. Trap nets were modified fyke nets consisting of a 1.3 X 1.5 m frame, 19.1 mm (0.75 in) mesh and a 1.2 X 23 m (3.9 X 75.5 ft) lead. The gill nets were experimental-type measuring 45.7 m (150 ft) long and 1.8 m (6 ft) deep with six 7.6 m (25 ft) panels with bar mesh sizes: 12.7 mm (0.5 in), 19.1 mm (0.75 in), 25.4 mm (1.0 in), mm (1.25 in), 38.1 mm (1.5 in), and 50.8 mm (2.0 in). The net sampling consisted of four trap net nights and two gill net nights (Figure 1). Only trap net sites 1 – 4 were run during this survey. 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.

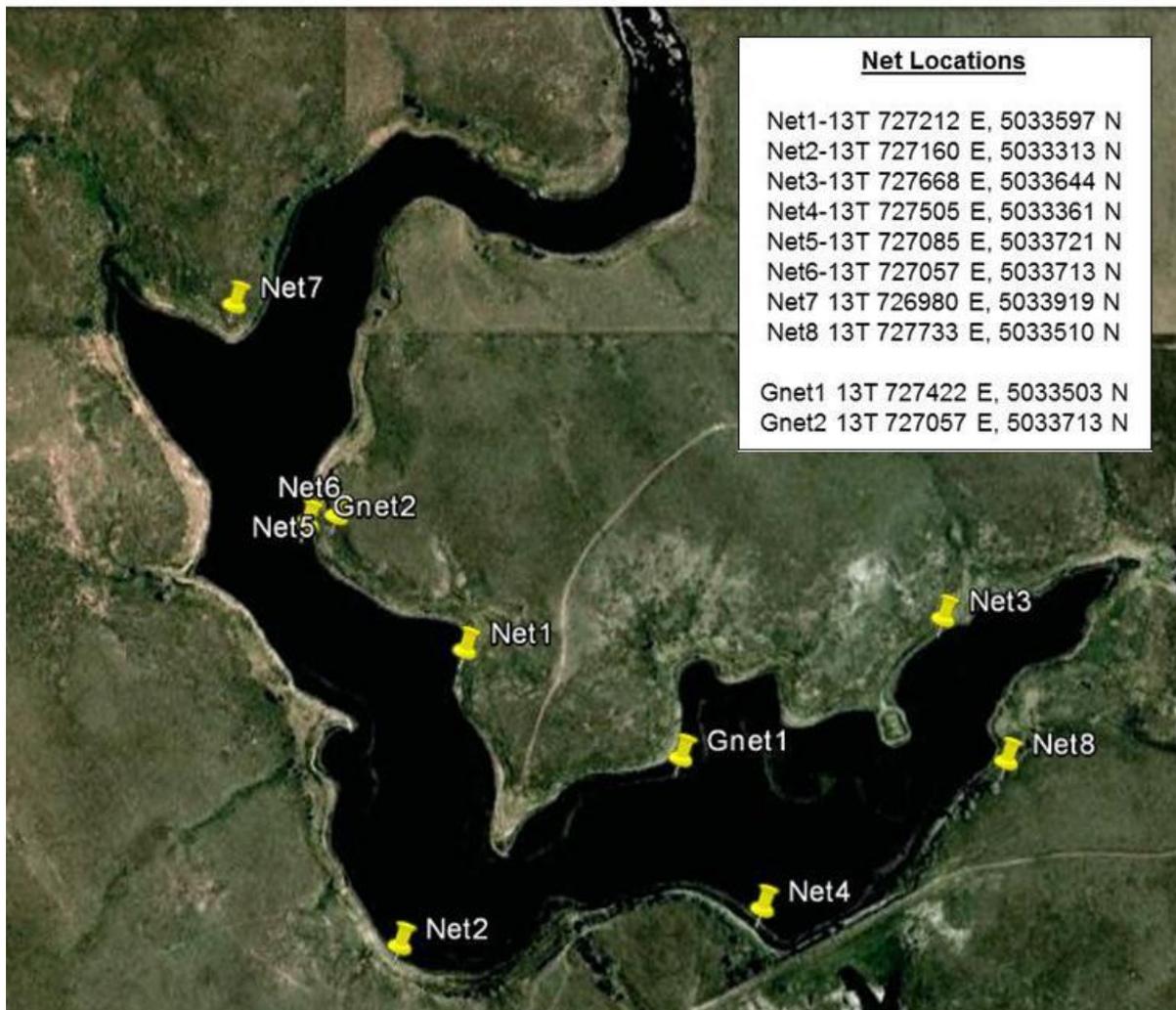


Figure 1. Map of Coal Springs Lake with net locations and GPS coordinates used during fish surveys. For trap nets, only sites 1 – 4 (Net1, Net2, Net3 and Net4) were used during the 2013 survey.

Table 1. Catch data from all species collected in four trap nets in Coal Springs Lake, Perkins County, June 19-21, 2013. 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	<i>Wr</i> ≥ S
Black Bullhead	161	40.3 (21.8)	40.3 (21.8)	68 (6)	1 (1)	105.1 (4.7)
Bluegill	3	0.8 (0.8)	0.8 (0.8)	--	--	137.7 (47.9)
Northern Pike	7	1.8 (0.8)	1.8 (0.8)	--	--	77.3 (1.5)
Yellow Perch	1	0.3 (0.4)	0.3 (0.4)	--	--	101.7

Table 2. Catch data from all species collected in two gill net in Coal Springs Lake, Perkins County, June 19-21, 2013. 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	<i>Wr</i> ≥ S
Black Bullhead	52	26.0 (15.4)	26.0 (15.4)	62 (12)	0	113.2 (2.7)
Northern Pike	54	27.0 (30.8)	27.0 (30.8)	20 (10)	4 (4)	80.7 (0.4)
Yellow Perch	4	2.0 (3.1)	2.0 (3.1)	--	--	113.0 (4.5)

Black Bullhead

In 2011, three bullheads were caught in the trap net sample. Those fish were extremely large (≥350 mm; Figure 2) and must have survived the recent winterkills. This survey 161 bullheads were sampled yielding a trap net CPUE of 40.3 (Table 1). Size structure was balanced with a PSD of 68 and a PSD-P of 1. Fish condition was high with a *Wr* of 105.1 in the trap nets and 113.2 in the gill net (Table 2). These fish appear to be growing fast, as they weren't even sampled in 2011, and now are eight to eleven inches in length.

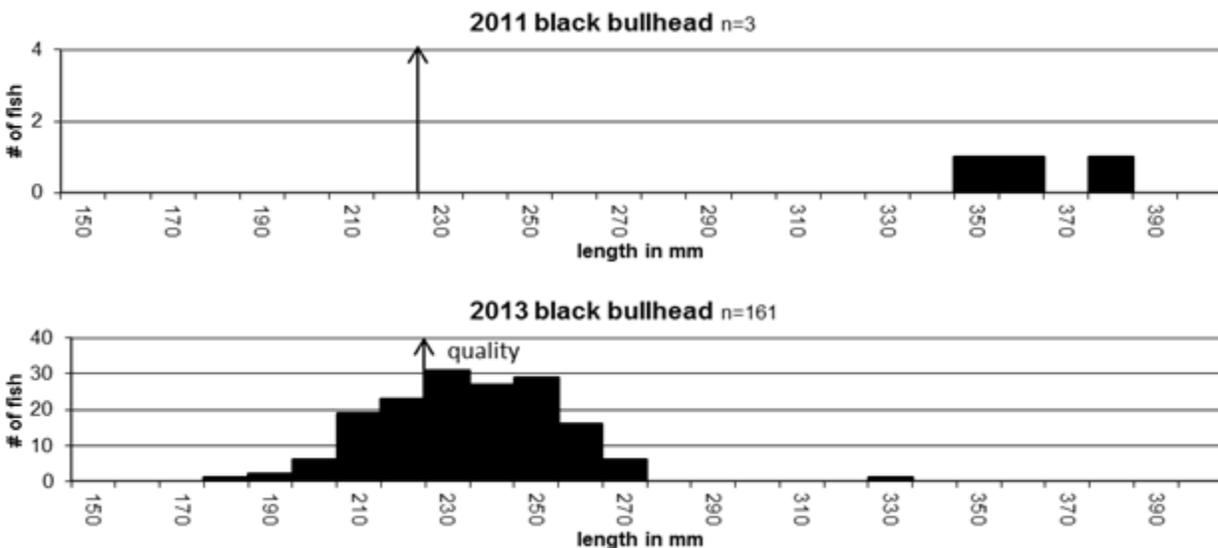


Figure 2. Length frequency histogram for Black Bullheads at Coal Springs Lake, 2011, 2013.

Northern Pike

The Northern Pike population was unexpected during the 2010 survey with a trap net CPUE of 8.0 and 5 caught in the gill net year. 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 a follow up survey during 2011 trap nets yielded a CPUE of 3.8 and gill nets a CPUE of 15.0. This year CPUE was 1.8 and 27, respectively (Tables 1 and 2). Stock indices were a PSD of 20 and PSD-P of 4. Fish condition at time of sampling was low with a *Wr* of 80.7. And it appears this year there is a large year class of four year old fish (Figure 3), hatched during the spring of 2009, which coincides with when the lake refilled after the drought.

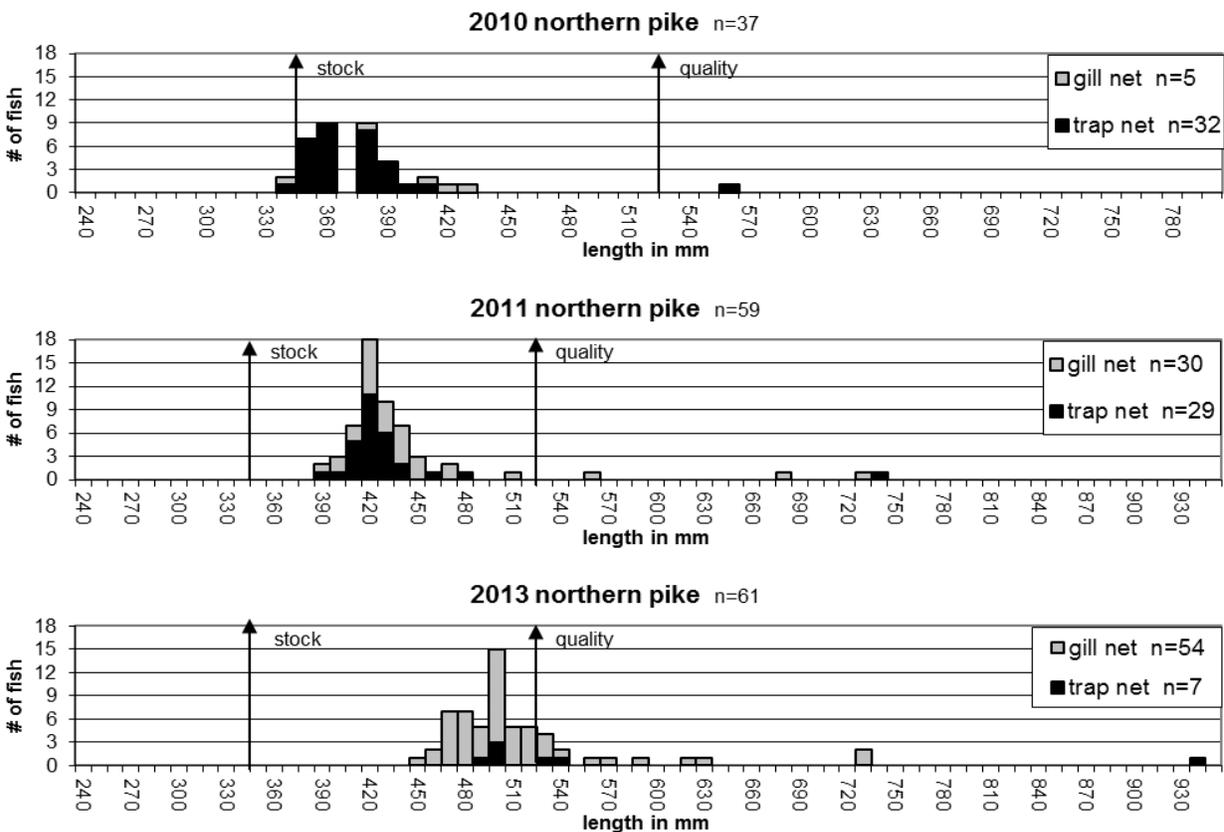


Figure 3. Length frequency histogram for Northern Pike from Coal Springs Lake, 2010-2011, 2013.

Yellow Perch

In 2009, when the lake refilled, 1,000 adult Yellow Perch were stocked. In the 2010 survey, two small Yellow Perch were caught in the four trap net sample, and in 2011 seven fish were sampled in trap nets and another seven in the gill nets (Figure 4). This year a single Yellow Perch was caught in the trap nets and four were captured in the gill nets (Tables 1 and 2). It is possible the Northern Pike population is keeping Yellow Perch density very low.

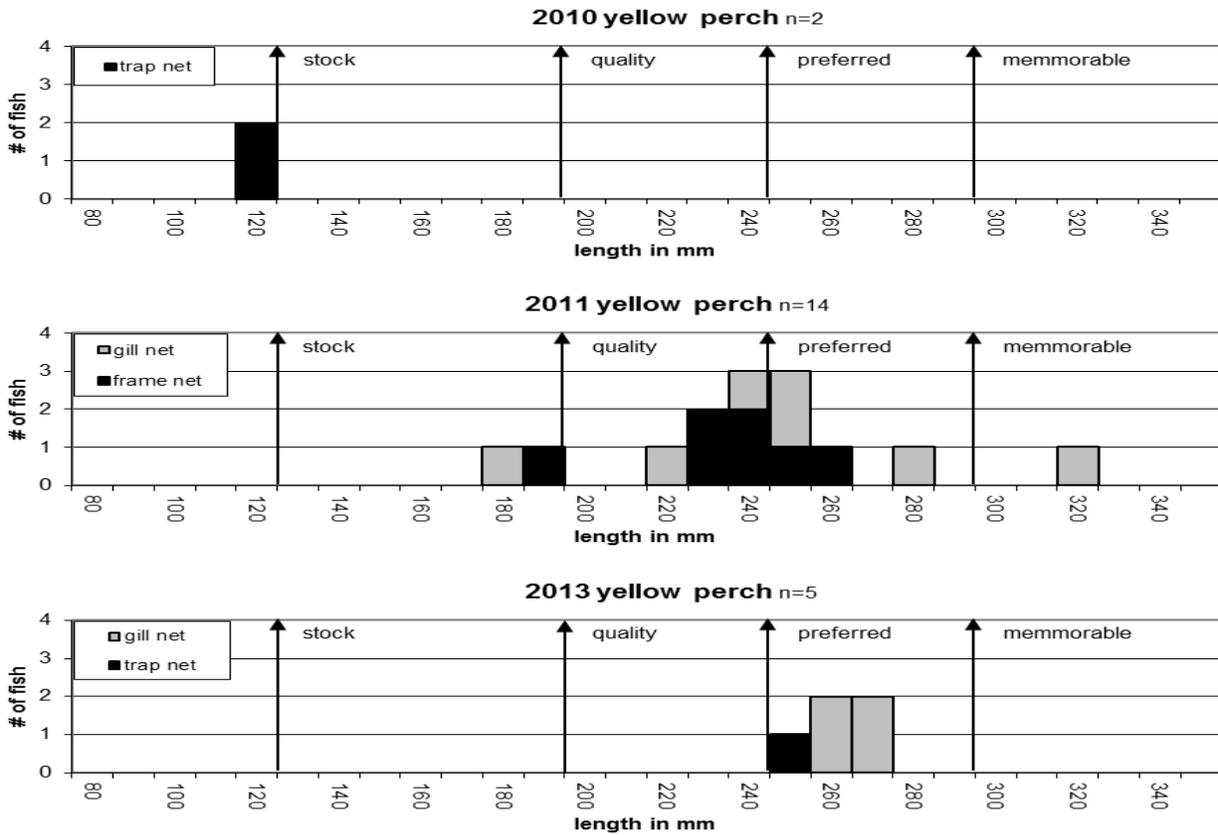


Figure 4. Length frequency histogram for Yellow Perch from Coal Springs Lake, 2010-2011, 2013.

RECOMMENDATIONS

1. Stock adult Yellow Perch, Bluegill and Largemouth Bass when available to reestablish fishery since winterkill.
2. Resurvey in 2014, including electrofishing to check for success of recent stockings.

APPENDIX

Appendix A. Stocking record for Coal Springs Lake, Perkins County, 2002-2013.

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