

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-43

Name: Rosehill **County:** Hand
Legal Description: T110-R66W-Sec. 21 **GPS:** 44°18'45.01"N 98°46'09.63"W
Location from nearest town: 12 miles south, 1 mile east of Vayland

Date of present survey: July 26-28, 2010 (netting)
Date of last survey: June 11-13, 2007 (netting); October 23, 2007 (electrofishing)
Most recent lake management plan: F-21-R-41 (January 1, 2009 to December 31, 2013)
Management classification: Warmwater Permanent

Primary Game Species	Secondary and Other Species
Largemouth Bass	Yellow Perch
Black Crappie	Northern Pike
	Black Bullhead

PHYSICAL DATA

Surface Area: 35 acres **Watershed:** 16,000 acres
Maximum Depth: 31 feet **Mean Depth:** 13 feet
Lake elevation at time of survey (field observations): Full
Contour map: Yes **Date:** 1985

Ownership of lake and adjacent lakeshore properties:

Rosehill Lake is a 35-acre impoundment 12 miles south and one mile east of Vayland in south central Hand County. The artificial impoundment was created with construction of an earthen dam on the upper end of Sand Creek by the Works Progress Administration (WPA) in 1938. To allow for the original construction of the dam and creation of the impoundment two easements for the lake and a twelve-foot strip of land above the high water contour were signed in 1937. The original dam washed out in 1955 and the State of South Dakota entered into several easements to reconstruct the dam and provide public access to the lake and a strip of land 100 feet wide above the high water contour. In addition to the easements for public use, the South Dakota Game, Fish and Parks Department owns 19 acres on the northeast side of the lake.

Watershed condition with percentages of land use types:

The watershed of Rosehill Lake covers approximately 16,000 acres or 25 square miles. The immediate shoreline, excluding the dam grade and access area is 100% native grasses which is utilized as pastureland. The remainder of the watershed is approximately 70% native grasses utilized as pasture and hayland, 25% cultivated agricultural land, and 5% roads, shelterbelts and farm yards.

Fishing access:

Good shore fishing exists around the access point on the north side of the lake. There is also other shore fishing around the lake, which is limited by steeply sloped hills. A new boat ramp exists for boat access to the lake.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

During the fall of 1999, the water level at Rosehill Dam was lowered so that a new water control structure could be built. At the same time a new concrete boat ramp was built. Rosehill Dam also has a good picnic area. There is a good gravel road from the east to the boat ramp. The access road from the west is a dirt trail that becomes impassable during wet conditions.

Field observations of aquatic vegetation condition:

Submergent vegetation usually surrounds the entire lake with very dense amounts in the upper end and consists of various pondweed species. There is little to no emergent vegetation on Rosehill Dam, only a few cattails in the upper 1/3 of the lake.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were evident during the survey. Water clarity is good with a secchi disc reading of 3 feet. Other water quality characteristics were measured in the field on July 26, 2010, using a HACH water quality kit and a Hanna multiparameter meter. Results are found in Table 1.

Presence of a thermocline and depth from surface: Yes

Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from Rosehill Dam, Hand County, July 26, 2010.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/L)	HRD (mg/L)	pH	Cond. (µS/cm)	TDS (ppm)	Sal.	ORP	Secchi (ft)
A	Surface	79.2	2.35	47.4	234	345	8.31	774	387	0.38	103.2	3
A	27.5	73.6	0.44	64.4	278	432	7.50	964	480	0.47	68.0	

BIOLOGICAL DATA

Methods:

Rosehill Dam was sampled on July 26-28, 2010, with ten overnight trap net sets. The trap nets have 3ft x 5ft frames, 60ft leads, and ¾ inch knotted mesh. No experimental gill nets were set during this survey. Electrofishing was scheduled to be done this fall, but one day after the summer survey was done a very large rain even breached the dam and the lake has been dry ever since. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Table 2. Total catch of ten, overnight ¾-inch frame nets at Rosehill Dam, Hand County, July 26-28, 2010.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	1,828	83.6	182.8	± 48.2	310.0	0	0	81
Black Crappie	346	15.8	34.6	± 18.4	23.1	16	0	110
Northern Pike	8	0.4	0.8	± 0.6	1.0	--	--	81
Yellow Perch	4	0.2	0.4	± 0.3	4.0	--	--	107

* Three year mean (2002, 2004, 2007); winterkill during the winter of 2000/2001

Fish Population Overview

The data for the summer survey for Rosehill Dam was worked up even though the dam totally breached one day after the survey. It was done to show what the fish populations looked like just before the washout. All data is a mute point anymore.

Black bullheads were the dominant species sampled this survey with a CPUE of 182.8, which is down for the second straight survey. The 2007 CPUE was 234.0 (Table 5) and the three year mean was 310.0 (Table 2). Condition was even on the low side with a mean Wr of 81. And size was small as can be seen in figure 3.

Black crappie had the second highest catch rate at 34.6 fish per net night, which is up considerably from the 6.3 from 2007 (Table 5) and slightly above the 23.1 three year mean (Table 2). Condition was good with a mean Wr of 110. Growth was also good with means right around statewide, regional and SLI means (Table 3). Size was also building and getting close to the size that would have been desired by anglers (Figure 2).

Northern pike and yellow perch were the only other species sampled this survey. Both were slightly below their three year means (Table 2). Densities were too low to make any other conclusions about their populations.

Largemouth bass, walleye and green sunfish were the species not sampled this survey that had been in past surveys (Table 5). The largemouth bass population was on the schedule to be fall survey by electrofishing, but since the dam washout, it was not possible. Figure 1 shows where the size of the fish as of the last survey in 2007 and was dominated by young fish that was going to hopefully build into a good fishery.

Plans are being investigated to repair the dam, but nothing is known at this time. Hopefully it will get fixed as Rosehill Dam was a good fishery for the area and seen a fair amount of activity. If the dam does get fix, fishery management activities will resume.

Figure 1. Length frequency histogram for largemouth bass sampled from Rosehill Dam, Hand County, 2007.

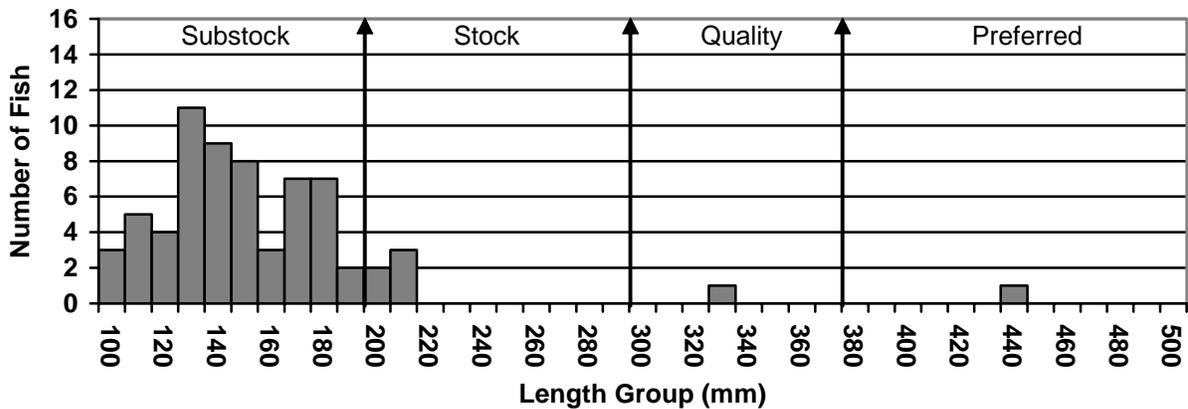


Table 3. Average back-calculated lengths (mm) for black crappie sampled from Rosehill Dam, Hand County, 2010.

Year Class	Age	N	Back-calculated Age		
			1	2	3
2009	1	1	84		
2008	2	8	80	129	
2007	3	95	106	150	181
All Classes		104	90	140	181
Statewide Mean			83	147	195
Region II Mean			75	132	177
SLI* Mean			78	134	180

* Small Lakes and Impoundments

Figure 2. Length frequency histogram for black crappie sampled from Rosehill Dam, Hand County, 2010.

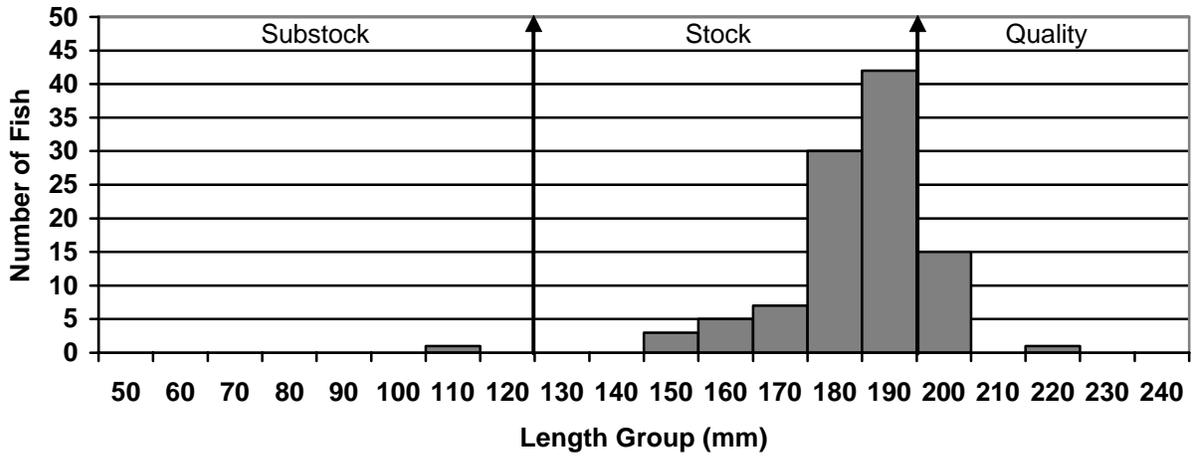


Figure 3. Length frequency histogram for black bullhead sampled from Rosehill Dam, Hand County, 2010.

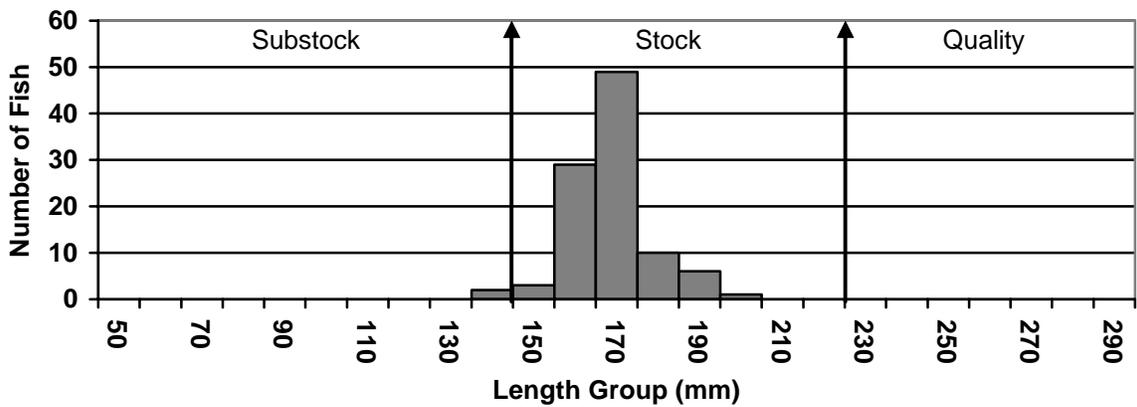


Table 4. Stocking records from the 2000/2001 winterkill to the present for Rosehill Dam, Hand County.

Year	Number	Species	Size
2001	197	Black Crappie	Adult
2001	3400	Largemouth Bass	Fingerling
2001	150	Largemouth Bass	Adult
2003	7,840	Largemouth Bass	Fingerling
2004	100	Largemouth Bass	Juvenile

RECOMMENDATIONS

1. Make all attempts to get the dam repaired.
2. Stock multiple fish species per management objectives once the dam is repaired.

Table 5. Gill net (GN), trap net (TN), and electrofishing (EF) CPUE for all fish species sampled in Rosehill Dam for all survey records in the file.

Species	1984	1989	1994	1999	2000	2002	2004	2007	2010
BLB (GN)	2.0	--	3.0	--	--	--	111.0	--	--
BLB (TN)	262.5	15.5	3.0	185.9	353.4	330.1	366.0	234.0	182.8
BLC (GN)	--	--	--	--	--	--	2.0	--	--
BLC (TN)	--	--	--	38.4	73.3	40.6	22.3	6.3	34.6
YEP (GN)	--	--	19.0	--	--	--	2.0	--	--
YEP (TN)	4.1	6.1	2.9	2.0	0.5	11.8	0.2	--	0.4
LMB (EF)	21.0	--	--	10.4	300.0	14.4	36.0	79.2	--
LMB (GN)	--	--	7.0	--	--	--	--	--	--
LMB (TN)	--	--	0.6	0.1	0.1	0.4	0.5	--	--
NOP (GN)	--	--	--	--	--	--	5.0	--	--
NOP (TN)	--	0.1	0.5	2.6	3.8	2.3	0.3	0.3	0.8
WAE (GN)	--	--	1.0	--	--	--	--	--	--
WAE (TN)	0.5	--	--	--	--	--	--	--	--
GSF (GN)	--	--	--	--	--	--	--	--	--
GSF (TN)	--	0.5	--	--	--	--	--	0.1	--

BLB – Black bullhead, BLC – Black crappie, YEP – Yellow perch, LMB – Largemouth bass, NOP – Northern pike, WAE – Walleye, GSF – Green sunfish