

## SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-47

**Name:** Woodruff **County(ies):** Hughes  
**Legal Description:** T112N-R74W-Sec. 18 **GPS:** 44°30'22.36"N 99°46'47.31"W  
**Location from nearest town:** 2 miles west and 1 mile south of Harrold

**Date of present survey:** June 16-18, 2014 (netting)  
**Date of last survey:** June 13-15, 2011 (netting)  
**Most recent lake management plan:** F-21-R-27 (January 1, 1994 to December 31, 1998)  
**Management classification:** Warmwater Semi-permanent

Primary Game Species	Secondary and Other Species
Largemouth Bass	Northern Pike
Bluegill	Black Bullhead
Yellow Perch	Common Carp
Black Crappie	Green Sunfish

### PHYSICAL DATA

**Surface Area:** 79 acres **Watershed:** 9,700 acres  
**Maximum Depth:** 12 feet **Mean Depth:** 6 feet  
**Lake elevation at time of survey (field observations):** Full  
**Contour map:** NA **Date:** NA

#### **Ownership of lake and adjacent lakeshore properties:**

Woodruff Lake is bordered on the west by a Game Production Area owned by the South Dakota Game, Fish and Parks. State land contains the dam grade, spillway and access area. The remainder of the lake is privately owned with an easement to the State of South Dakota.

#### **Watershed condition with percentages of land use types:**

Land use in the watershed of Woodruff Lake is 60% pasture land, 35% cropland and 5% wooded. The creek that flows into Woodruff is called Medicine Creek drainage.

#### **Fishing access:**

A boat ramp exists on the west side of the lake for boat access. There are also ample areas to shore fish around the lake.

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

Boat ramp is in good shape but needs to have some brush cleaned out around the area for easier access. Dam grade is in good condition. The spillway was new in 2010 as the dam was breached for several years.

**Field observations of aquatic vegetation condition:**

Not much submergent vegetation was present at the time of the survey, although a small amount of sago pondweed and floating leaf pondweed were starting. Emergent vegetation consists of cattails, sedges and rushes and is found all around the shoreline except the dam area.

**CHEMICAL DATA**

**Field observations of water quality and pollution problems:**

No pollution problems were present at the time of the survey. Water clarity was fine with a secchi disc reading of 2.5 feet. Other water quality characteristics were measure in the field on June 16, 2014, 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:** No

**Station for water chemistry located on attached map:** No

**Table 1.** Water chemistry results from Woodruff Dam, Hughes County, June 16, 2014.

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	66.1	5.15	43.8	299	684	8.25	1316	658	0.66	-168.3	2.5
A	10	66.0	4.70	24.4	586	538	8.25	1342	671	0.67	-160.6	

**BIOLOGICAL DATA**

**Methods:**

Woodruff Dam was sampled on June 16-8, 2014, 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 or electrofishing was done this survey period. 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 Woodruff Dam, Hughes County, June 16-18, 2014.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	1,801	93.5	180.1	± 61.7	476.6	1	0	87
Common Carp	67	3.5	6.7	± 1.6	29.3	2	0	89
Green Sunfish	49	2.5	4.9	± 4.7	150.2	27	0	116
White Sucker	8	0.4	0.8	± 0.4	0.2	--	--	83
Largemouth Bass	2	0.1	0.2	± 0.2	0.0	--	--	115

\* One year mean (2011)

### Fish Populations

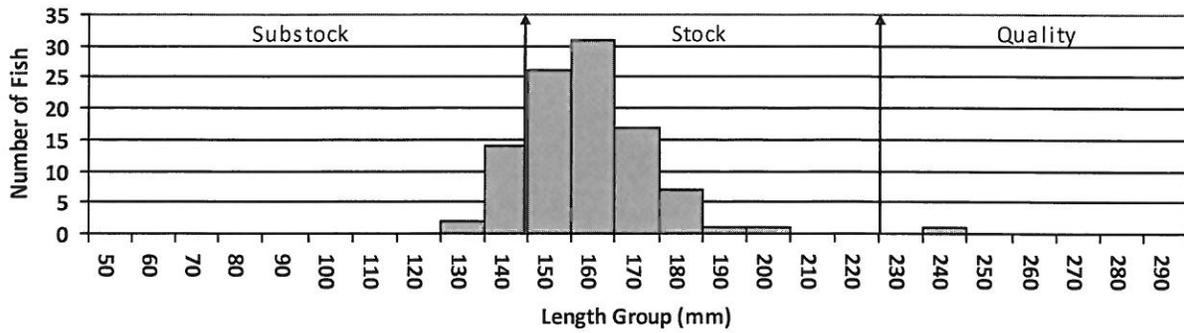
Woodruff Dam contains several fish species, but none are desirable to anglers. Black bullheads are the dominant species surveyed. The CPUE was 180.1 fish per net night, which is well below the 476.6 from the 2011 survey (Table 2). This population has actually gone backwards from the 2011 survey. The density has decreased, which normally means that things are getting better, but this survey has most of the fish on the small side. Figures 1 and 2 illustrate the length frequency histograms for the fish sampled from the past two surveys. 2011 had fish in the quality range, but only one or two in the 2014 survey. This can also be seen in that the PSD of 1 with an RSD-P of 0 this survey compared to the 22 and 0, respectively, from the 2011 survey. Condition is fair with a mean Wr of 87.

Common carp were the second most abundant species sampled this survey. The CPUE of 6.7 is well below the 29.3 from the 2011 survey (Table 2). Figures 3 and 4 illustrate the length frequency histograms for the fish sampled the past two surveys. Like the bullhead population, the size structure has decreased from the 2011 survey. Condition is fair with a mean Wr of 89.

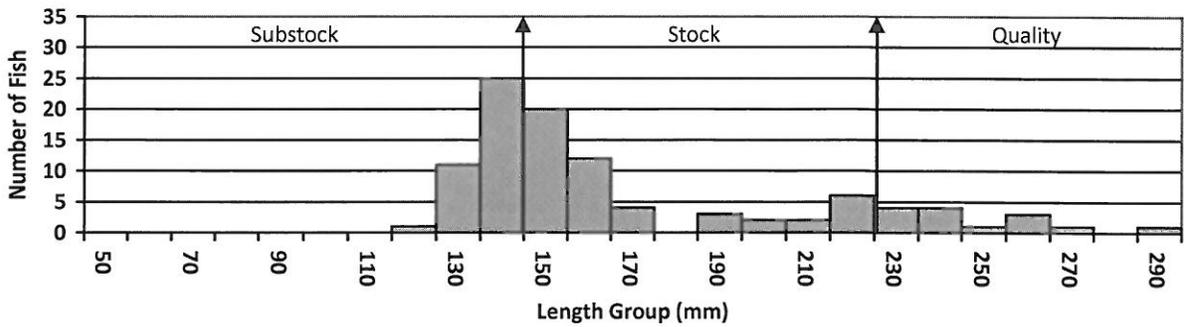
Green sunfish were also sampled this year. The CPUE of 4.9 is significantly below the 150.2 from the 2011 survey (Table 2). Figures 5 and 6 illustrate the size structure of the fish sampled from the last two surveys. Condition is good with a mean Wr of 116.

White sucker and largemouth bass were the only other species sampled this survey. White sucker were sampled in 2011, but largemouth bass were not. Neither species was sampled in enough numbers to really make any inferences about their populations. Black crappie, yellow perch, northern pike, channel catfish, and bluegill were the species not sampled this survey that have been in surveys past (Table 3), although that was expected as the lake had been pretty much dry for several years from a breached dam until it was fixed a couple years ago.

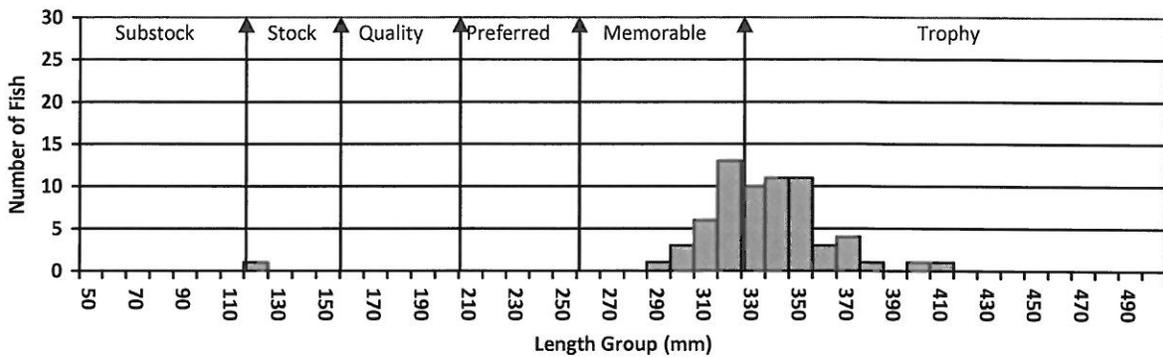
**Figure 1.** Length frequency histogram for black bullhead sampled from Woodruff Dam, Hughes County, 2014.



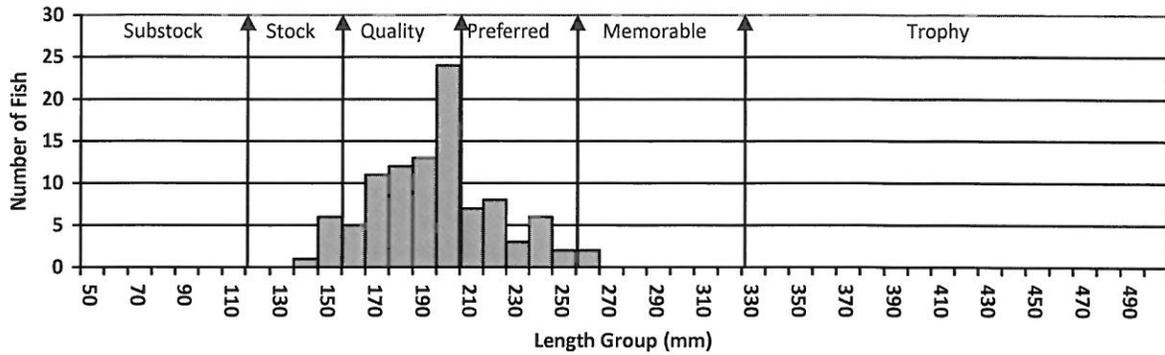
**Figure 2.** Length frequency histogram for black bullhead sampled from Woodruff Dam, Hughes County, 2011.



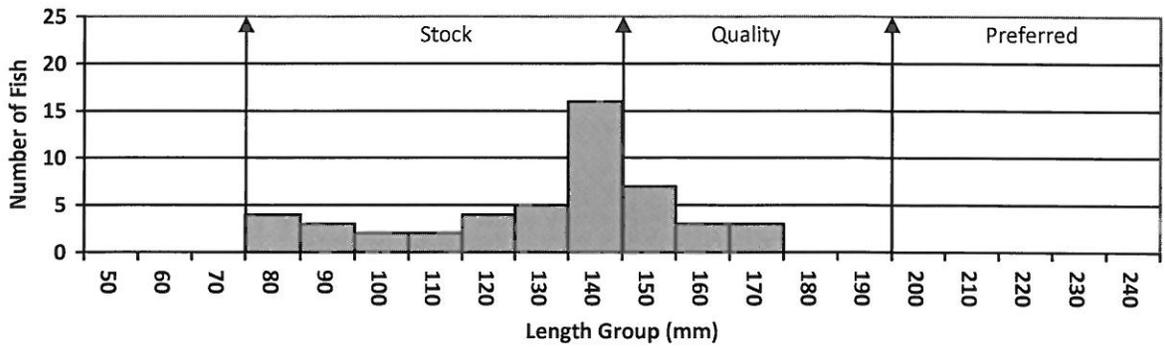
**Figure 3.** Length frequency histogram for common carp sampled from Woodruff Dam, Hughes County, 2014.



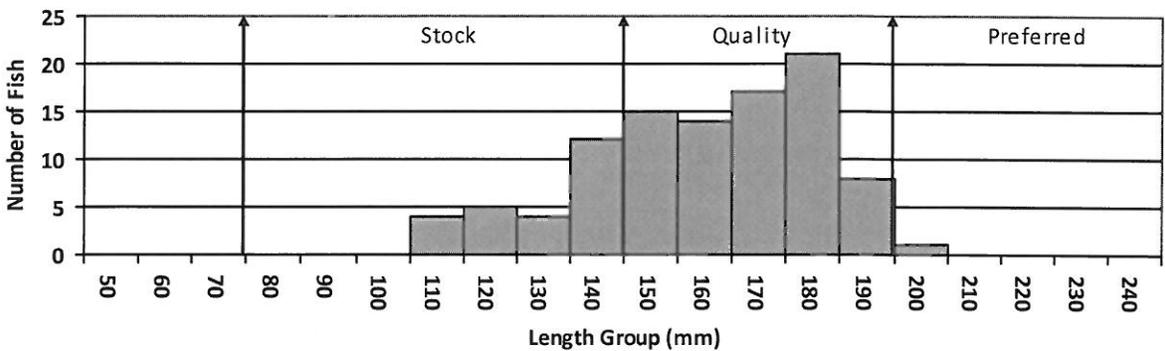
**Figure 4.** Length frequency histogram for common carp sampled from Woodruff Dam, Hughes County, 2011.



**Figure 5.** Length frequency histogram for green sunfish sampled from Woodruff Dam, Hughes County, 2014.



**Figure 6.** Length frequency histogram for green sunfish sampled from Woodruff Dam, Hughes County, 2011.



**Stockings:** The only stocking that has been done since the dam was repaired was a stocking of 100 juvenile largemouth bass in the summer of 2012.

### **RECOMMENDATIONS**

1. Resurvey in 2017 to continue to monitor the fish populations.
2. Develop a current management plan now that the dam has been repaired.

**Table 3.** Gill net (GN), trap net (TN), and electrofishing (EF) CPUE for all fish species sampled in Woodruff Dam since surveys started.

Species	1967	1970	1973	1975	1979	1982	1985	1987	1988	1991	1994	2011	2014
BLB (GN)	--	--	--	1.0	--	35.0	27.0	--	--	--	--	--	--
BLB (TN)	34.0	128.8	103.5	537.1	21.9	64.1	113.0	167.3	321.5	86.8	74.9	476.6	180.1
BLC (GN)	--	--	--	2.0	--	--	6.0	--	--	--	--	--	--
BLC (TN)	--	2.0	0.5	9.1	9.4	0.6	111.0	75.0	420.8	54.5	1.8	--	--
YEP (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
YEP (TN)	1.0	2.0	5.5	5.9	--	--	1.2	12.5	11.6	22.5	69.3	--	--
LMB (EF)	--	--	--	--	--	--	--	--	--	--	22.3	--	--
LMB (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
LMB (TN)	--	--	0.5	--	--	0.1	1.6	0.3	4.9	--	0.6	--	0.2
NOP (GN)	--	--	--	3.0	4.0	--	--	--	--	--	--	--	--
NOP (TN)	1.5	1.0	0.8	2.5	1.3	--	--	--	1.5	1.0	0.3	--	--
CCF (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
CCF (TN)	--	--	--	--	--	--	--	--	--	--	0.4	--	--
WHS (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
WHS (TN)	--	--	--	0.1	--	--	--	--	--	--	--	0.2	0.8
COC (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
COC (TN)	--	--	--	--	--	--	--	--	--	--	--	29.3	6.7
BLG (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
BLG (TN)	1.3	1.0	2.3	3.4	--	0.2	195.0	44.8	275.3	116.5	16.4	--	--
GSF (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
GSF (TN)	--	0.5	--	--	--	--	--	--	--	--	--	150.2	4.9

BLB – Black Bullhead, BLC – Black Crappie, YEP – Yellow Perch, LMB – Largemouth Bass, NOP – Northern Pike, CCF – Channel Catfish, WHS – White Sucker, COC – Common Carp, BLG – Bluegill, GSF – Green Sunfish