

# SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-42

**Name:** Hayes Lake **County(ies):** Stanley  
**Legal Description:** T5N-R26W-Sec. 29-30 **GPS:** 44°21'53.28"N 101°00'46.92"W  
**Location from nearest town:** ½ mile east of Hayes

**Date of present survey:** June 22-24, 2009 (netting)  
**Date of last survey:** June 5-7, 2006 (netting)  
**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	Black Crappie
Bluegill	Yellow Perch
	Black Bullhead
	Walleye
	Saugeye

## PHYSICAL DATA

**Surface Area:** 64 acres **Watershed:** 23,680 acres  
**Maximum Depth:** 15 feet **Mean Depth:** 6 feet  
**Lake elevation at time of survey (field observations):** Full  
**Contour map:** Yes **Date:** 1968

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

Hayes Lake is a 64-acre impoundment located in west central Stanley County. The construction of the rolled earth dam and concrete spillway was completed in 1937 by the Works Progress Administration (WPA). No easements for the lake or for public access could be found in the Register of Deeds office in Stanley County. In 1953, Stanley County, for the sum of one dollar, gave a quick claim deed to the State of South Dakota for approximately 80 acres. This deeded land is now a Game Production Area owned and managed by the South Dakota Department of Game, Fish and Parks and contains most of Hayes Lake.

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

The watershed of Hayes Lake is made up of 23,680 acres or approximately 37 square miles. The watershed is located primarily north of the lake. The immediate shoreline of Hayes Lake is native grasses within the Game Production Area. The remainder of the watershed is composed of 50% native grasses utilized as hay and pastureland, 45% cultivated agricultural land, and 5% farmyards, tree belts, and the town of Hayes.

**Fishing access:**

Hayes Lake has a good gravel road to a good boat ramp on the east side for boat access. There is also ample shoreline for shore fishing around most of the lake. Vegetation is the only problem for angling during open water periods.

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

The boat ramp is in good condition, but there is no dock. The spillway and dam are in good condition. There are also two outdoor bathrooms at the lake that are in good condition.

**Field observations of aquatic vegetation condition:**

Cattails surround about 70% of the shoreline with a few other species of emergents mixed in. Submergents are also found around most of the shoreline to a depth of about 6 feet during the summer months.

**CHEMICAL DATA**

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

No pollution problems were evident at the time of the survey. Water clarity was excellent with a secchi disc reading of 10 feet. Other water quality characteristics were measured in the field on June 22, 2009, using a HACH water quality kit, an Oyster meter and a YSI 55 meter. Results are found in Table 1.

**Presence of a thermocline and depth from surface:** No

**Station for water chemistry located on attached map:** Yes

**Table 1.** Water chemistry results from Hayes Lake, Stanley County, June 22, 2009.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc (ft)
A	Surface	75.2	8.70	46.4	231	272	7.43	10
A	16	68.0	5.58	48.4	213	256	7.18	

**BIOLOGICAL DATA**

**Methods:**

Hayes Lake was sampled on June 22-24, 2009, with ten overnight trap net sets. The trap nets have 3ft x 5ft frames, 60ft leads, and 3/4 inch knotted mesh. No experimental gill nets were used during this survey. No electrofishing was done on Hayes Lake this survey period due to lack of any game fish found during summer survey. 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 Hayes Lake, Stanley County, June 22-24, 2009.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	269	99.6	26.9	± 5.1	92.7	26	0	105
Green Sunfish	1	0.4	0.1	± 0.1	1.7	--	--	--

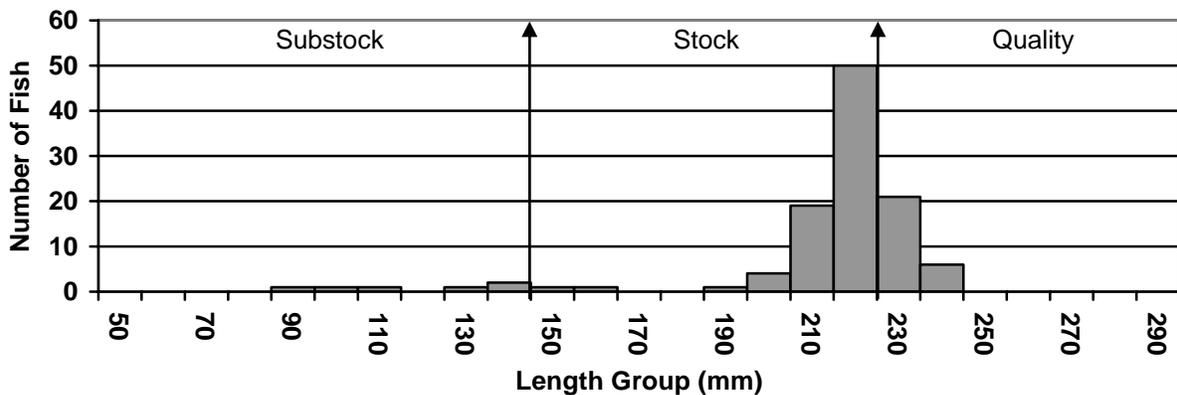
\* Twelve year mean (1968, 1971, 1975, 1978, 1985, 1988, 1991, 1994, 1997, 2000, 2003, 2006)

**Fish Populations:**

Hayes Lake suffered a major winterkill on its game fish populations. The kill was a total loss. The only species that survived were black bullheads. Figure 1 illustrates the size distribution of the black bullheads that were sampled during this survey period.

The only other fish sampled was one green sunfish. Stockings of both bluegill adults and largemouth bass juveniles and fingerlings were done this summer to start rebuilding the populations (Table 3). The bass are the most important to get established as fast as possible to control the bullhead population before they got out of control. Hayes Lake will be monitored more frequently than normal until the populations are well on there way to being established.

**Figure 1.** Length frequency histogram for black bullheads sampled from Hayes Lake, Stanley County 2009.



**Table 3.** Stocking records from 1997 to the present for Hayes Lake, Stanley County.

Year	Number	Species	Size
1997	1,600	Walleye	Fingerling
1997	1,600	Saugeye	Fingerling
1998	1,600	Walleye	Fingerling
1998	846	Saugeye	Fingerling
1999	1,600	Walleye	Fingerling
1999	560	Saugeye	Fingerling
2009	450	Bluegill	Adult
2009	54	Largemouth Bass	Juvenile
2009	6,510	Largemouth Bass	Fingerling

### RECOMMENDATIONS

1. Resurvey in 2011 to monitor the fish populations.
2. Continue to stock largemouth bass of all sizes to reestablish the main predator population.
3. Continue to stock bluegill as needed to rebuild the population.
4. Stock black crappie to reestablish the population.
5. Potentially stock any other species that may be wanted to continue to rebuild the fishery.

**Table 4.** Gill net (GN), trap net (TN) and electrofishing (EF) for all fish species sampled in Hayes Lake, Stanley County since surveys began.

Species	1968	1971	1975	1978	1985	1988	1991	1994	1997	2000	2003	2006	2009
BLB (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
BLB (TN)	2.4	6.5	24.6	13.9	112.4	606.3	57.9	12.1	30.6	41.8	9.4	194.9	26.9
BLC (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
BLC (TN)	--	--	--	--	--	--	--	--	1.5	8.3	18.2	38.5	--
YEP (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
YEP (TN)	--	--	--	--	--	1.4	0.4	7.8	9.1	0.8	0.3	3.6	--
LMB (EF)	--	--	--	--	37.5	14.6	12.0	6.3	43.4	117.0	64.0	--	--
LMB (GN)	--	--	1.0	--	--	--	--	--	--	--	--	--	--
LMB (TN)	0.6	--	1.0	0.1	0.5	2.9	0.8	--	0.3	0.4	--	0.3	--
NOP (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
NOP (TN)	0.3	1.3	1.5	0.6	0.8	0.4	1.8	0.4	1.5	2.8	0.5	2.9	--
CCF (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
CCF (TN)	--	--	--	--	0.1	--	--	--	--	--	--	--	--
WAE (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
WAE (TN)	--	--	--	--	--	--	--	--	--	--	0.7	0.5	--
BLG (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
BLG (TN)	--	--	--	--	6.6	32.1	28.1	33.3	45.1	49.8	11.5	52.5	--
GSF (GN)	--	--	2.0	--	--	--	--	--	--	--	--	--	--
GSF (TN)	5.4	1.5	0.4	--	12.8	--	--	--	--	--	--	--	0.1
SXW (EF)	--	--	--	--	--	--	--	--	--	3.0	--	--	--
SXW (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
SXW (TN)	--	--	--	--	--	--	--	--	--	1.0	--	--	--
HYB (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
HYB (TN)	--	--	--	--	--	--	--	--	1.4	1.8	--	--	--
GOS (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
GOS (TN)	--	--	--	--	--	--	--	--	--	--	--	0.4	--

BLB-Black Bullhead, BLC-Black Crappie, YEP-Yellow Perch, LMB-Largemouth Bass, NOP-Northern Pike, CCF-Channel Catfish, WAE-Walleye, BLG-Bluegill, GSF-Green Sunfish, SXW-Saugeye, HYB-Hybrid Sunfish, GOS-Golden Shiner