

# SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-42

**Name:** Peno **County(ies):** Hyde  
**Legal Description:** T110N-R71W-Sec. 9 & 16 **GPS:** 44°20'24.29"N 99°22'15.52"W  
**Location from nearest town:** 12 miles south, 3 miles east, 1 ½ miles south of Highmore

**Date of present survey:** July 6-9, 2009 (netting)  
**Date of last survey:** June 20-22, 2006 (netting)  
**Most recent lake management plan:** F-21-R-38 (January 1, 2006 – December 31, 2010)  
**Management classification:** Warmwater Permanent

Primary Game Species	Secondary and Other Species
Northern Pike	Walleye
Black Crappie	Black Bullhead
Bluegill	Yellow Perch
Largemouth Bass	White Sucker

## PHYSICAL DATA

**Surface Area:** 48 acres **Watershed:** 8,300 acres  
**Maximum Depth:** 15 feet **Mean Depth:** 6.8 feet  
**Lake elevation at time of survey (field observations):** Full  
**Contour map:** No **Date:** NA

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

Peno Lake is a 48-acre impoundment located southeast of Highmore. The artificial impoundment was created in 1934 by the Works Progress Administration (WPA) with the construction of an earthen dam on an unnamed tributary of Elm Creek. The lake is 100% privately owned. There are no records or references to the State of South Dakota or the Department of Game, Fish and Parks having access easements or water rights to Penno Lake in the regional lake file. Public access to the lake has been allowed by the adjoining landowner for many years, in turn the Wildlife Division of the South Dakota Department of Game, Fish and Parks completes fisheries management activities.

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

The watershed for Penno Lake is approximately 8,300 acres or 13 square miles that is made up of almost entirely privately owned agricultural land. Land use in the watershed is 85% native grasses utilized as pasture and hayland and 15% cultivated farmland. The immediate shoreline is composed of native grasses utilized as pasture.

**Fishing access:**

Fishing access at Peno Lake is predominantly shore fishing. There is no boat ramp or dock to put a boat in, but the shoreline does allow for the launching of a small duck type boat.

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

The dam grade is in good condition, due to just being reconstructed in the spring of 1999. There is no boat dock, ramp, or any other facilities located at Peno Lake. The access trail is marginal and may be impassible during wet periods.

**Field observations of aquatic vegetation condition:**

Submergent vegetation was found throughout the lake to a depth of around 11 feet. The submergent vegetation contains but is not limited to sago pondweed, common milfoil, floating leaf pondweed, and clasping leaf pondweed. Emergent vegetation was found along the entire west shoreline and in the upper end. Bulrushes and cattails comprised the majority of the emergents.

**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 13 feet. Other water quality characteristics were measured in the field on July 6, 2009, using a HACH water quality kit, an Oyster meter, and a YSI 55 meter. The 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 Peno Lake, Hyde County, July 6, 2009.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/l)	Hardness (mg/l)	pH	Secchi disc (ft)
A	Surface	78.1	8.13	30.2	156	344	8.03	13
A	13	73.4	5.00	43.4	154	340	7.93	

**BIOLOGICAL DATA**

**Methods:**

Peno Lake was sampled on July 6-8, 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 or electrofishing was performed during this years sampling 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 Peno Lake, Hyde County, July 6-8, 2009.

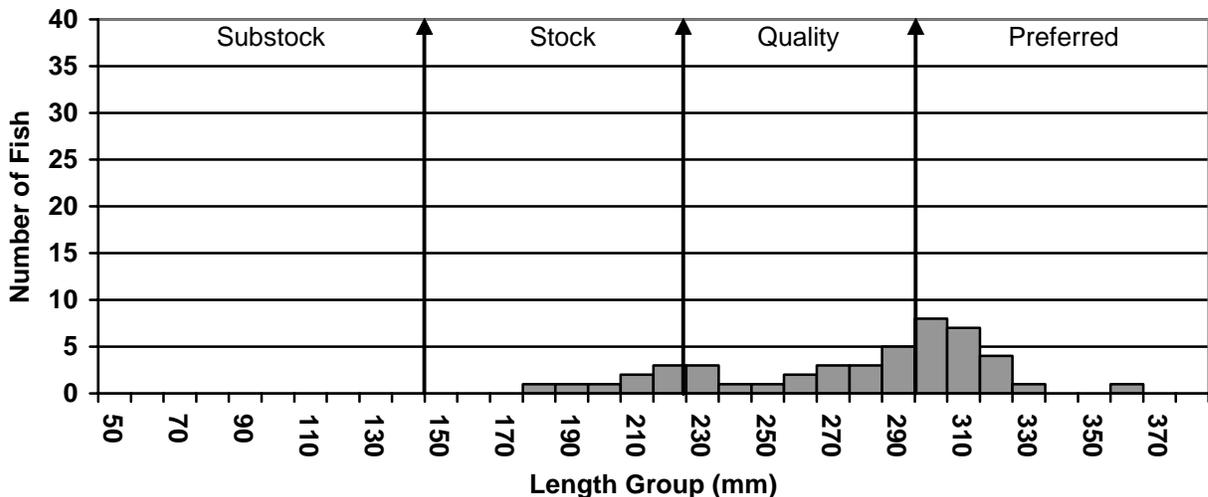
Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	47	55.3	4.7	± 1.7	247.2	83	38	95
Bluegill	29	34.1	2.9	± 2.0	1.3	71	21	130
Black Crappie	3	3.5	0.3	± 0.2	0.5	--	--	100
Walleye	3	3.5	0.3	± 0.2	0.7	--	--	78
Northern Pike	2	2.4	0.2	± 0.3	1.3	--	--	91
Largemouth Bass	1	1.2	0.1	± 0.1	0.1	--	--	104

\* Twelve year mean (1964, 1968, 1972, 1977, 1981, 1987, 1990, 1992, 1996, 1999, 2003, 2006)

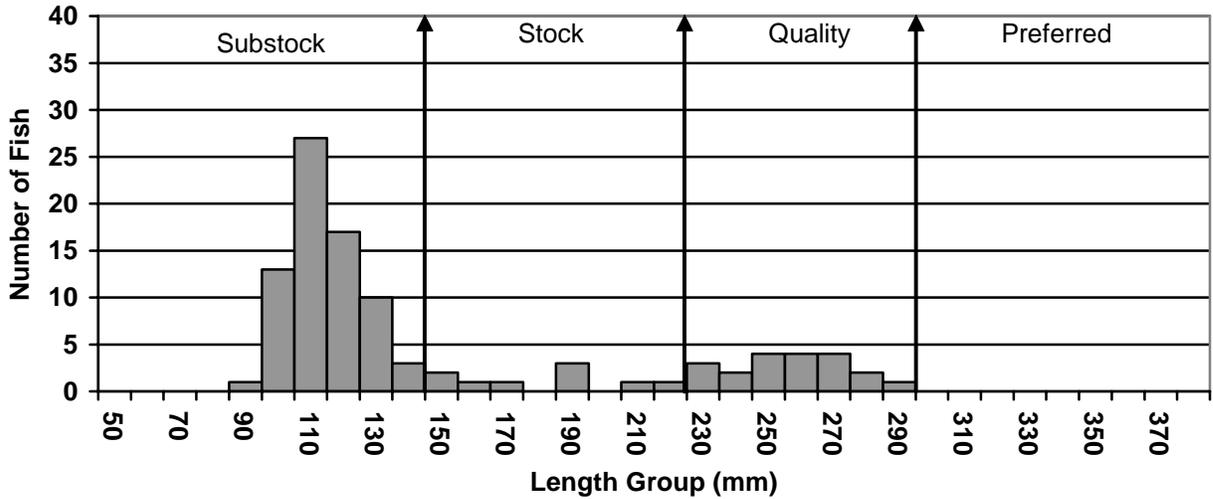
**Black Bullhead**

Black bullheads continue to remain the dominant species found in Peno Lake. The CPUE is 4.7, which is well below the 24.3 from 2006 and the 247.2 twelve year mean (Table 2). The encouraging side of this population is the increased size structure of this population (Figures 1-3). The PSD is 83 with an RSD-P of 38 compared to the PSD of 69 with an RSD-P of 0 from 2006. Condition is also good with a mean Wr of 95 (Table 2).

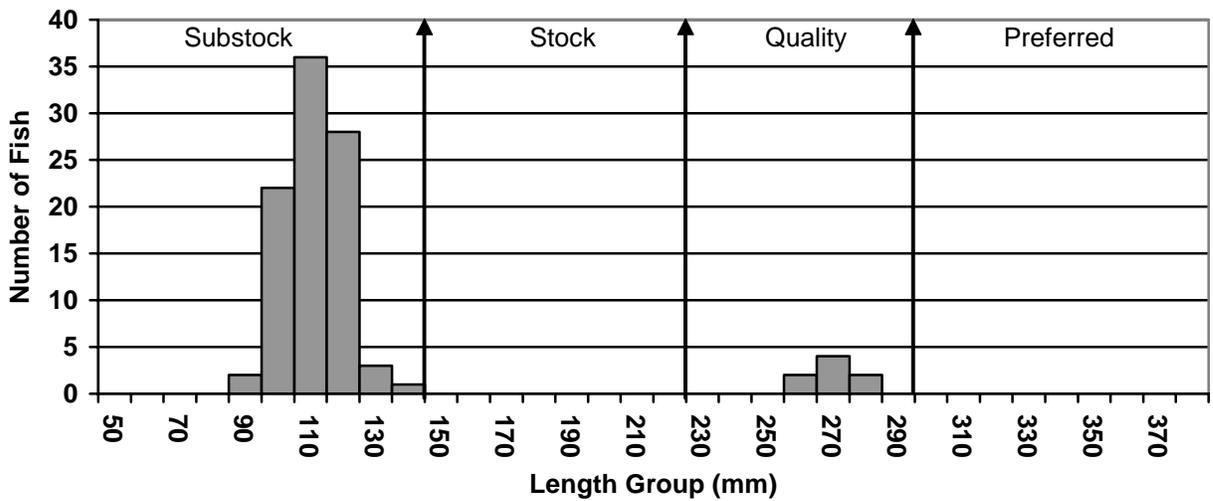
**Figure 1.** Length frequency histogram for black bullhead sampled from Peno Lake, Hyde County, 2009.



**Figure 2.** Length frequency histogram for black bullhead sampled from Peno Lake, Hyde County, 2006.



**Figure 3.** Length frequency histogram for black bullhead sampled from Peno Lake, Hyde County, 2003.



## **Bluegill**

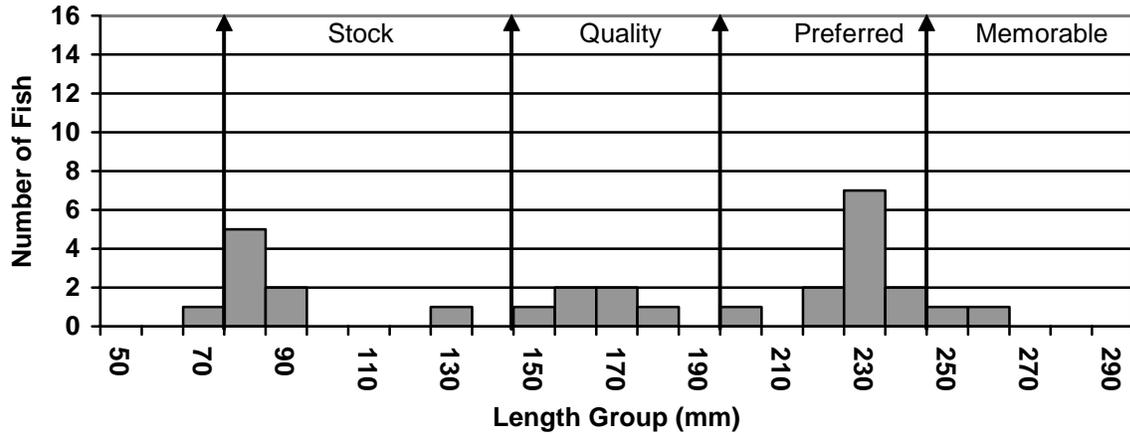
The bluegill population in Peno Lake has seen a slight decline from the 2006 survey. The CPUE is 2.9 compared to the 4.4 from 2006, but is up from the 1.3 twelve year mean (Table 2). Size structure has greatly improved from the 2006 survey as can be seen in Figures 4-6. The current PSD is 71 with an RSD-P of 21 compared to PSD of 36 with an RSD-P of 5 from 2006. There is even a number of fish now being sampled in the upper side of the preferred category as well as into the memorable category. Condition is actually too good with a mean Wr of 130, meaning there is plenty of room for more bluegill in Peno Lake. Growth is also good with means above statewide, regional and SLI means (Table 3).

**Table 3.** Average back-calculated lengths (mm) for each age class of yellow perch sampled from Peno Dam, Hyde County, 2009.

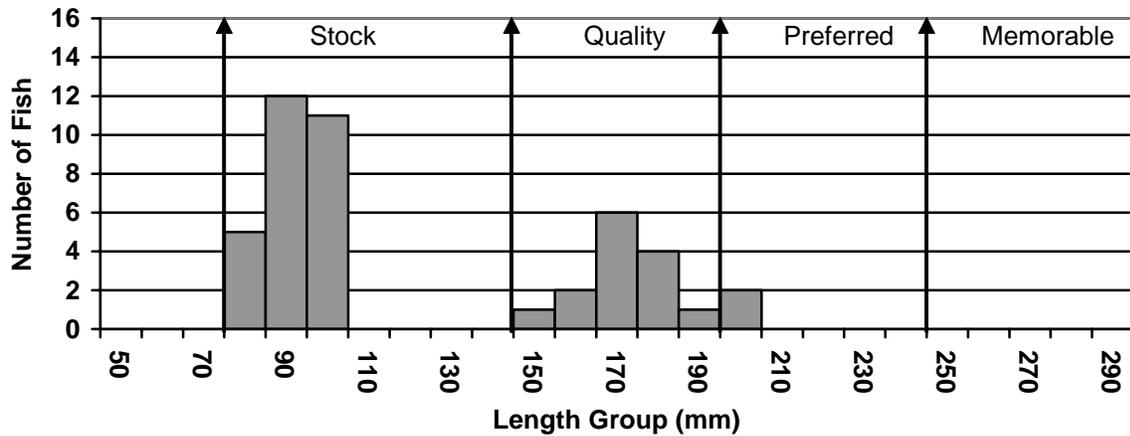
Year Class	Age	N	Back-calculated Age													
			1	2	3	4	5	6	7	8	9	10	11	12		
2008	1	6	51													
2007	2	6	45	111												
2006	3	2	56	128	163											
2004	5	4	60	134	179	192	214									
2003	6	5	64	142	180	202	216	229								
2002	7	1	66	152	199	208	223	231	237							
2001	8	2	64	138	174	183	196	208	217	226						
1998	11	1	73	151	183	197	208	216	226	236	241	246	249			
1997	12	1	50	109	166	175	189	199	215	224	228	241	249	260		
<b>All Classes</b>		<b>28</b>	<b>59</b>	<b>133</b>	<b>178</b>	<b>193</b>	<b>208</b>	<b>217</b>	<b>224</b>	<b>228</b>	<b>235</b>	<b>243</b>	<b>249</b>	<b>260</b>		
Statewide Mean			55	103	141	166	180									
Region II Mean			52	97	134	164	180									
SLI* Mean			53	101	138	163	180									

\*Small Lakes and Impoundments

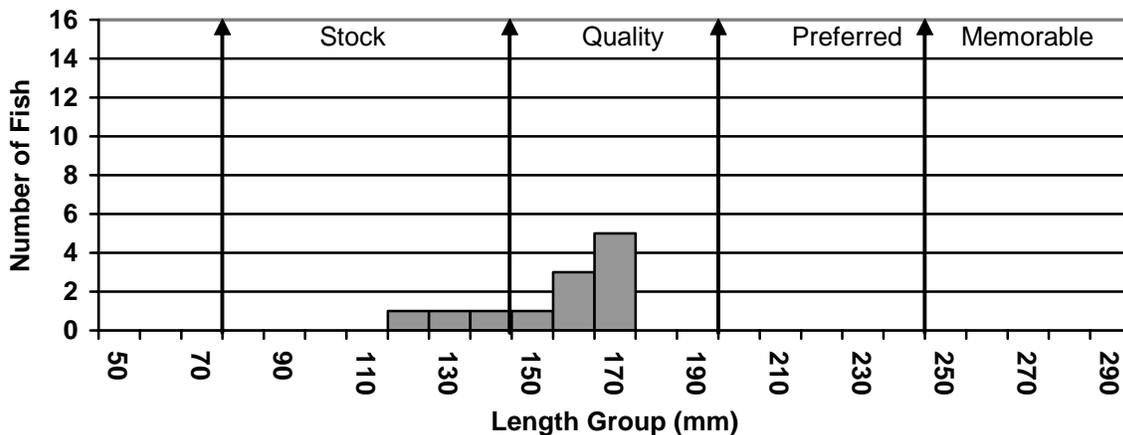
**Figure 4.** Length frequency histogram for bluegill sampled from Peno Lake, Hyde County, 2009.



**Figure 5.** Length frequency histogram for bluegill sampled from Peno Lake, Hyde County, 2006.



**Figure 6.** Length frequency histogram for bluegill sampled from Peno Lake, Hyde County, 2003.



**Other Species**

Black crappie, walleye, northern pike, and largemouth bass were the other species sampled this survey (Table 2). None of these species were sampled in large enough numbers to make any inferences about their populations. Yellow perch and white sucker were the species not sampled in this survey that have been in past surveys (Table 4).

**Stockings:** No stockings have taken place in Peno Lake in the past 10 years.

**RECOMMENDATIONS**

1. Resurvey in 2012 to monitor the fish populations in Peno Lake.

**Table 4.** Gill net (GN) and trap net (TN) CPUE for all fish species sampled in Peno Lake in the history of lake surveys.

Species	1964	1968	1972	1977	1981	1987	1990	1992	1996	1999	2003	2006	2009
BLB (GN)	--	363.0	--	--	27.0	--	--	--	--	--	--	--	--
BLB (TN)	182.5	229.0	23.0	97.6	525.0	285.8	289.9	156.7	45.4	807.4	300.3	24.3	4.7
BLC (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
BLC (TN)	--	--	--	--	--	--	--	0.3	0.3	3.0	0.7	1.6	0.3
YEP (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
YEP (TN)	--	--	--	--	--	--	--	--	0.3	--	--	--	--
LMB (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
LMB (TN)	--	0.1	--	--	--	0.4	0.5	--	0.4	0.1	--	0.2	0.1
NOP (GN)	--	--	--	--	4.0	--	--	--	--	--	--	--	--
NOP (TN)	--	--	0.5	1.9	1.9	1.1	0.8	0.1	4.3	2.5	1.3	1.0	0.2
WHS (GN)	--	2.0	--	--	7.0	--	--	--	--	--	--	--	--
WHS (TN)	87.5	17.0	6.8	8.8	13.6	1.0	0.4	--	0.3	0.1	--	--	--
WAE (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
WAE (TN)	--	--	--	--	--	4.4	1.5	0.7	1.1	0.5	--	--	0.3
BLG (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--
BLG (TN)	--	--	--	--	--	0.6	0.3	0.1	6.1	2.9	1.2	4.4	2.9

BLB-Black Bullhead, BLC-Black Crappie, YEP-Yellow Perch, LMB-Largemouth Bass, NOP-Northern Pike, WHS-White Sucker, WAE-Walleye, BLG-Bluegill