

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-45

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 16-18, 2012 (netting)
Date of last survey: July 6-8, 2009 (netting)
Most recent lake management plan: F-21-R-45 (January 1, 2013 – December 31, 2017)
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): 1 foot low
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 10 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 fair with a secchi disc reading of 2 feet. Other water quality characteristics were measured in the field on July 16, 2012, using a HACH water quality kit and a Hanna multiparameter 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 16, 2012.

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	78.5	4.00	59.8	313	937	8.90	1988	982	1.00	79.8	2
A	10	80.5	3.50	64.8	232	922	8.87	--	1003	1.02	78.4	

BIOLOGICAL DATA**Methods:**

Peno Lake was sampled on July 16-18, 2012, 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 performed during this years sampling period. Fish indices and statistics were computed 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 16-18, 2012.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Black Bullhead	7,751	99.6	775.1	± 318.2	228.6	12	5	80
Northern Pike	23	0.3	2.3	± 1.0	1.2	77	9	78
Black Crappie	2	0.05	0.2	± 0.2	0.5	--	--	110
White Sucker	1	0.05	0.1	± 0.1	10.4	--	--	92

* Thirteen year mean (1964, 1968, 1972, 1977, 1981, 1987, 1990, 1992, 1996, 1999, 2003, 2006, 2009)

Black Bullhead

Black bullheads continue to be the dominant species sampled in Peno Lake. The CPUE of 775.1 is well above the 4.7 from 2009 (Table3) as well as the 228.6 thirteen year mean (Table 2). Size structure has declined as can be seen in Figures 1 and 2 that show the lengths from the last two surveys. Figures 1 through 4 illustrate the length frequency histograms for the last four surveys. Looking back through past surveys, the bullheads in Peno seem to go through this cycle of high density with low size structure to a low density with a larger size structure. Condition is fine with a mean Wr of 80.

Figure 1. Length frequency histogram for black bullhead sampled from Peno Lake, Hyde County, 2012.

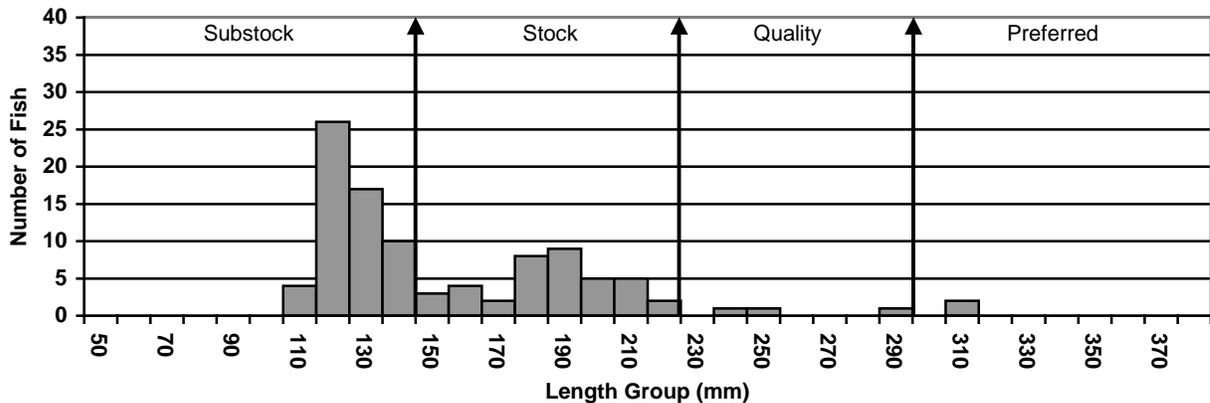


Figure 2. Length frequency histogram for black bullhead sampled from Peno Lake, Hyde County, 2009.

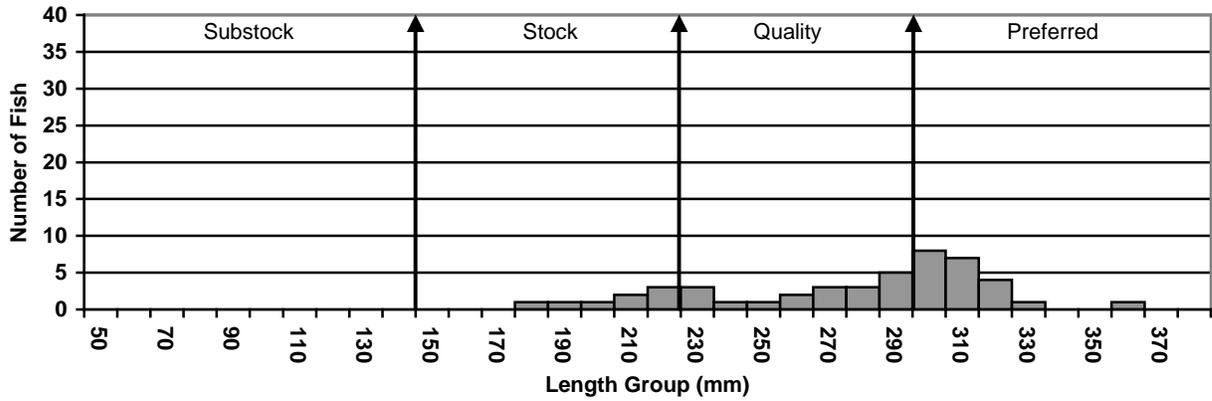


Figure 3. Length frequency histogram for black bullhead sampled from Peno Lake, Hyde County, 2006.

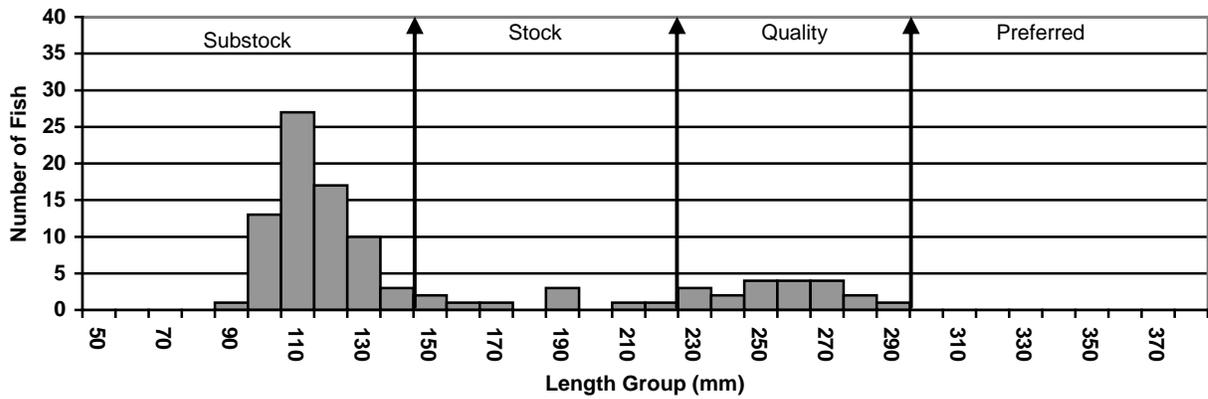
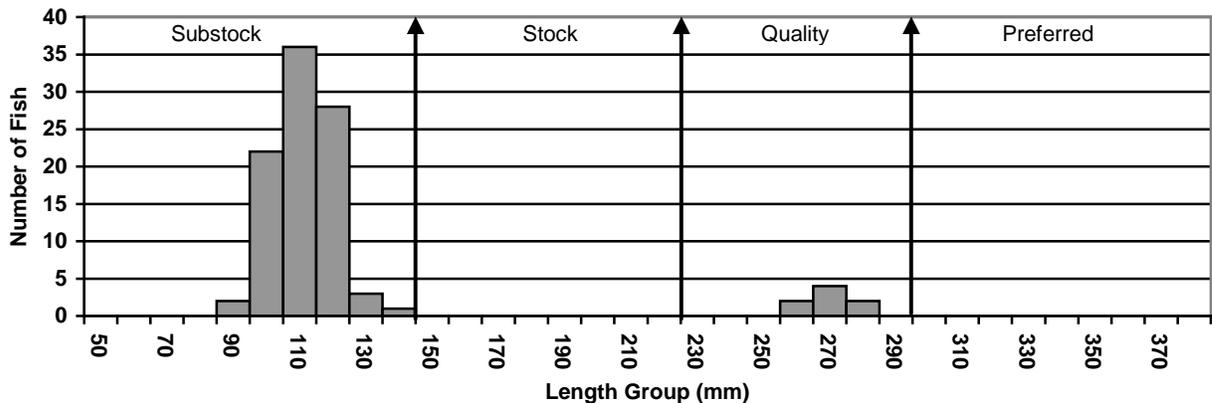


Figure 4. Length frequency histogram for black bullhead sampled from Peno Lake, Hyde County, 2003.

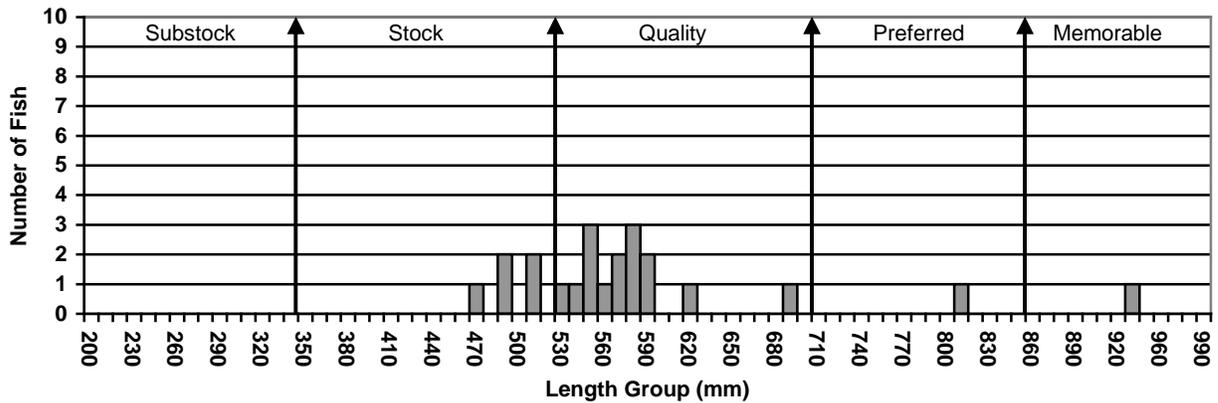


Other Species

Northern pike were the next highest density species sampled. The CPUE of 2.3 is above the 0.2 from 209 (Table 3) as well as the 1.2 thirteen year mean (Table 2). Figure 5 illustrates the length frequency histogram for the fish sampled this survey. Condition is on the low side with a mean Wr of 78, which is actually not uncommon for pike this time of year.

Black crappie and white sucker were the only other species sampled this survey (Table 2) and neither was sampled in large enough numbers to make any inferences. Yellow perch, largemouth bass, walleye and bluegill were the species not sampled this survey that had been in surveys past (Table 3).

Figure 5. Length frequency histogram for northern pike sampled from Peno Lake, Hyde County, 2012.



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

RECOMMENDATIONS

1. Resurvey in 2015 to monitor the fish populations in Peno Lake.

Table 3. 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	2012
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	775.1
BLC (GN)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
BLC (TN)	--	--	--	--	--	--	--	0.3	0.3	3.0	0.7	1.6	0.3	0.2
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	2.3
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	--	--	--	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