

Pierpont Dam

Site Description

Location

Water designation number (WDN)	22-0003-00
Legal description	T123N-R58W-Sec. 17
County (ies)	Day
Location from nearest town	2 miles south of Pierpont, SD

Survey Dates and Sampling Information

Survey dates	August 4-5, 2010 (FN, GN)
Frame net sets (n)	8
Gill net sets (n)	2

Morphometry (Figure 1)

Watershed area (acres)	5,885
Surface area (acres)	77
Maximum depth (ft)	16
Mean depth (ft)	8

Ownership and Public Access

Pierpont Dam is a South Dakota School and Public Lands impoundment and the fishery is managed by the SDGFP. Public access (including boat ramp) is located on the west shore within the city park (Figure 1; Figure 2). Property adjacent to Pierpont Dam is owned by the city of Pierpont and private parties.

Watershed and Land Use

Land-use within the Pierpont Dam watershed is primarily agricultural including livestock grazing and cropland. The city of Pierpont is located 2 miles north of the dam is within the watershed.

Water Level Observations

No water level observations were made in 2009.

Aquatic Nuisance Species Monitoring

Plant Survey

Both emergent vegetation and submerged vegetation were present in Pierpont Dam. Submerged aquatic plant species sampled during the 2009 survey include coontail, native milfoil, and sago pondweed. Chara (a macro algae) was also sampled. No aquatic nuisance plant species were encountered.

Macro-Invertebrate/Mussel Survey

No aquatic nuisance macro-invertebrate or mussel species were identified in 2009.

Fish Community Survey

No aquatic nuisance fish species were captured during the 2009 survey.

Fish Management Information

Primary species	northern pike, yellow perch
Other species	black bullhead, black crappie, green sunfish, largemouth bass
Lake-Specific regulations	NE Panfish Management Area: 10 daily; 50 possession
Management classification	warm-water permanent
Fish consumption advisories	none

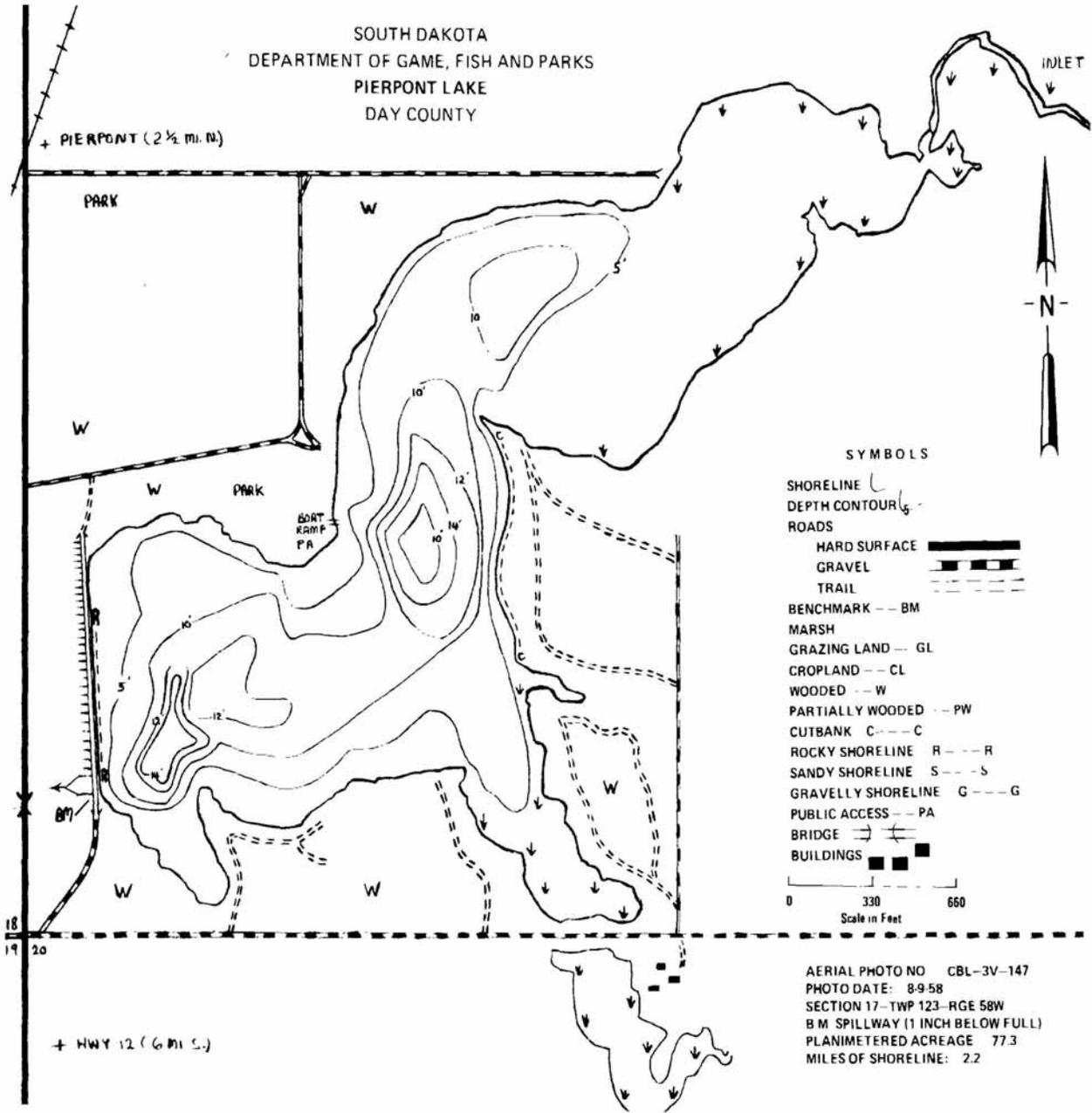


Figure 1. Depth contour map of Pierpont Dam.



Figure 2. Map depicting location of Pierpont Dam from Pierpont , SD (top). Also noted is the public access point and standardized net locations for Pierpont Dam. PIEFN= frame nets; PIEGN= gill nets

Management Objectives

- 1) Maintain a mean gill net CPUE of stock-length northern pike ≥ 3 , a PSD of 30-60, and a PSD-P of 5-10.
- 2) Maintain a mean gill net CPUE of stock-length yellow perch ≥ 30 , a PSD of 30-60, and a PSD-P of 5-10.
- 3) Maintain a mean frame net CPUE of stock-length bullhead ≤ 100 .

Results and Discussion

Pierpont Dam is an impoundment located on Mud Creek near the city of Pierpont in northwestern Day County, South Dakota (Figure 2). The dam was constructed in 1934 as a WPA project. Mud Creek flows into Pierpont Dam from the northeast and exits in the southwest corner (Figure 1).

Pierpont Dam is a shallow impoundment with heavy submerged vegetation growth making it susceptible to frequent winterkill events which often limits sport fish populations (e.g., largemouth bass and walleye) and results in a fish community primarily comprised of black bullhead, northern pike, and yellow perch (species believed to be more winterkill tolerant). However, occasional short-lived intervals of low-density high-quality largemouth bass populations have developed between winterkill events (Meester 1994). Currently, Pierpont Dam is managed as a northern pike and yellow perch fishery.

Primary Species

Northern Pike: Two gill net-nights captured 8 northern pike ranging in total length from 24 to 57 cm (9.4 to 22.4 in) resulting in a mean gill net CPUE of 3.5 (Table 1; Figure 3). The 2009 gill net CPUE was slightly above the minimum objective of (≥ 3 stock-length fish/net night) and indicated high relative abundance.

However, few inferences can be made concerning northern pike population dynamics due to limited effort and low sample size. Sampled northern pike were in good condition with W_r values ranging from 85 to 104. Mean W_r values were likely at a seasonal low as Neumann and Willis (1995) reported that W_r values were lowest during spring following the spawn and remained low throughout the summer in Lake Thompson, South Dakota.

Yellow Perch: Seven yellow perch ranging in total length from 21 to 26 cm (8.3 to 10.2 in) were captured in the 2009 gill net catch resulting in a mean gill net CPUE for stock-length perch of 3.2 (Table 1; Figure 4). The 2009 gill net CPUE was below the minimum objective of (≥ 30 stock-length fish/net night) and indicated low relative abundance.

Similar to northern pike, few inferences can be made concerning yellow perch population dynamics in Pierpont Dam due to limited effort and low sample size. Sampled yellow perch were in exceptional condition with all W_r values exceeding 100.

Other Species

Black Bullhead: Black bullheads were the most abundant species captured in both frame net and gill nets during the 2009 survey (Table 1). The mean frame net CPUE of stock-length black bullhead during 2009 was 20.6 (Table 1), and within the management objective (≤ 100 stock-length fish/net-night).

Walleye: The shallow nature and susceptibility of Pierpont Dam to winterkill exclude walleye from being a primary management species. However, occasionally excess walleye are available and stocked into Pierpont Dam to provide additional angling opportunities (Table 2). No walleye were captured during the 2009 survey.

Other: Black crappie and green sunfish were also captured in low numbers during the 2009 fish community survey (Table 1).

Management Recommendations

- 1) Conduct fish community surveys utilizing gill nets and frame nets on an every fourth year basis (next survey scheduled in summer 2012) to monitor fish relative abundance, fish population size structures, fish growth, and stocking success.
- 2) Continue to manage as a self-sustaining northern pike and yellow perch fishery.
- 3) Monitor winter and summerkill events. In cases of substantial winter/summerkill stock with largemouth bass, northern pike, and yellow perch to re-establish a fish community.

Table 1. Mean catch rate (CPUE; catch/net night) of stock-length fish, proportional size distribution of quality- (PSD) and preferred-length fish (PSD-P), and mean relative weight (Wr) of stock-length fish for various fish species captured in frame nets and experimental gill nets from Pierpont Dam, 2009. Confidence intervals include 80 percent (\pm CI-80) or 90 percent (\pm CI-90). BLB= black bullhead; BLC= black crappie; GSF= green sunfish; NOP= northern pike; YEP= yellow perch

Species	Abundance		Stock Density Indices				Condition	
	CPUE	CI-80	PSD	CI-90	PSD-P	CI-90	Wr	CI-90
<i>Frame nets</i>								
BLB	20.6	16.8	4	3	1	2	96	1
BLC	1.5	1.2	8	15	8	15	124	4
GSF	0.1	0.2	0	---	0	---	83	---
NOP	0.6	0.4	0	---	0	---	90	2
YEP	0.6	0.6	100	0	60	40	93	8
<i>Gill nets</i>								
BLB	10.5	4.6	0	---	0	---	107	2
NOP	3.5	4.6	57	39	0	---	92	3
YEP	3.2	1.1	100	0	57	39	106	4

Table 2. Stocking history including size and number for fishes stocked into Pierpont Dam, 1997-2009. LMB= largemouth bass; SXW= saugeye; WAE= walleye

Year	Species	Size	Number
1997	LMB	fingerling	15,400
1998	SXW	large fingerling	900
2005	WAE	large fingerling	795

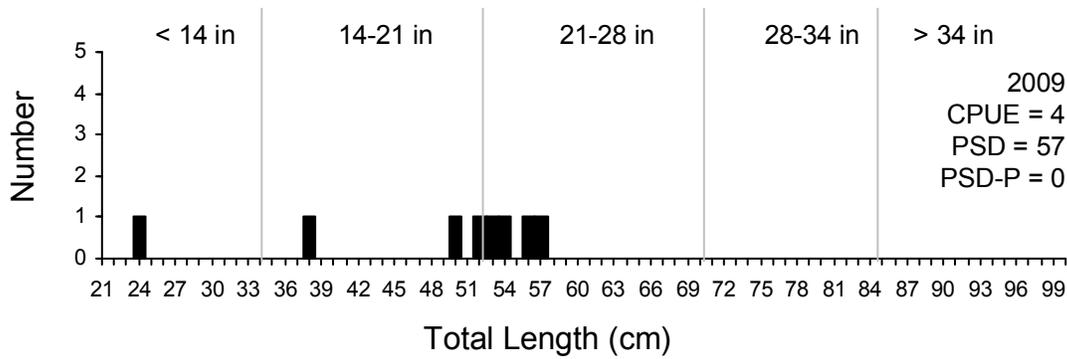


Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length fish (PSD-P) for northern pike captured using gill nets in Pierpont, 2009.

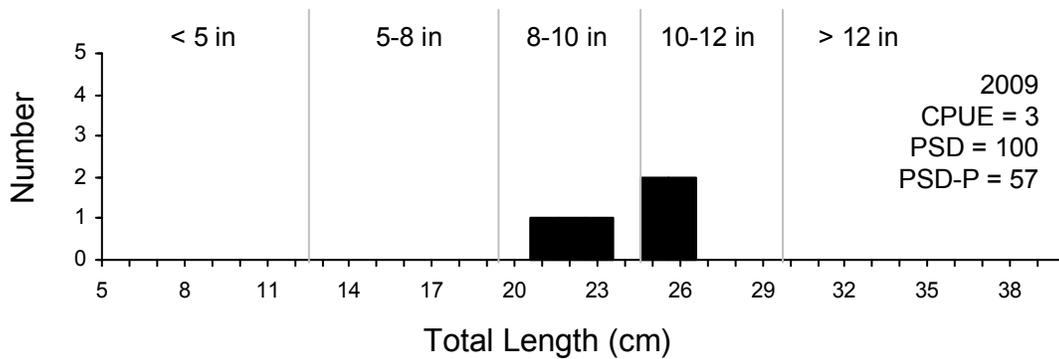


Figure 4. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length fish (PSD-P) for yellow perch captured using gill nets in Pierpont Dam, 2009.