

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	September 18-19, 2012 (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 individuals.

Watershed and Land Use

Land-use within the Pierpont Dam watershed is primarily agricultural including livestock grazing and cropland. In addition, the city of Pierpont lies within the watershed.

Water Level Observations

No water level observations were made in 2012.

Fish Management Information

Primary species	Northern Pike, Yellow Perch
Other species	Black Bullhead, Black Crappie, Green Sunfish, Largemouth Bass
Lake-specific regulations	none
Management classification	warm-water permanent
Fish consumption advisories	none



Figure 2. Map depicting geographic location of Pierpont Dam from Pierpont , South Dakota (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 Black 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 abundant submerged vegetation 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. 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 thirteen Northern Pike ranging in TL from 48 to 68 cm (18.9 to 26.8 in) resulting in a mean gill net CPUE of 6.5 (Table 1; Figure 3). The mean gill net CPUE increased from the 3.5 observed in 2009 likely indicating an increase in relative abundance (Table 2). The 2012 gill net CPUE was above the minimum objective of (≥ 3 stock-length fish/net night) and indicated high relative abundance.

Sampled Northern Pike were in good condition with a mean W_r of 83 (Table 1). 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: The mean gill net CPUE for yellow perch in 2012 was 19.0 and they ranged in TL from 10 to 23 cm (3.9 to 9.1 in.; Table 1; Figure 4). The mean gill net CPUE in 2012 was substantially higher than the 3.2 observed in 2009 indicating an increase in relative abundance (Table 2). However, the gill net CPUE was below the minimum objective of (≥ 30 stock-length fish/net night) and indicated moderate relative abundance.

No age or growth data was collected for Yellow Perch in Pierpont Dam. Sampled Yellow Perch were in good condition with mean W_r values ranging from 84 to 94 for all length categories.

Other Species

Black Bullhead: Black Bullheads were the most abundant species captured in both frame net and gill nets during the 2009 and 2012 surveys (Tables 1-2). The mean frame net CPUE of stock-length Black Bullhead during 2012 was 130.9 and is a substantial increase from the 20.6 observed in 2009 (Table 2). The 2012 mean frame net CPUE is above the management objective (≤ 100 stock-length fish/net-night) indicating high relative abundance.

Black Crappie: The mean frame net CPUE for Black Crappie in 2012 was 13.0 and is a substantial increase from the 1.5 observed in 2009 (Tables 1-2). Black Crappie ranged in TL from 13 to 24 cm (5.1 to 9.4 in.; Figure 6). The observed increase in relative abundance should provide an additional sport fishery in Pierpont Dam before the next winterkill event.

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 4). No Walleye were captured during the 2009 or 2012 surveys.

Other: Green Sunfish were captured in low numbers during the 2012 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 2016) 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 summer kill events. In cases of substantial winter/summer kill stock with 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, 2012. 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	130.9	40.1	1	1	0	---	82	1
BLC	13.0	6.8	55	8	0	---	104	<1
GSF	0.1	0.2	0	---	0	---	104	---
NOP	1.8	0.9	100	0	21	20	80	5
YEP	3.3	1.3	42	17	0	---	86	1
<i>Gill nets</i>								
BLB	123.0	135.4	5	2	0	---	86	<1
BLC	4.0	3.1	25	31	0	---	106	1
NOP	6.5	7.7	62	25	0	---	83	4
YEP	19.0	33.9	21	11	0	---	92	1

Table 2. Historic mean catch rate (CPUE; catch/net night) of stock-length fish for various fish species captured in frame nets and experimental gill nets from Pierpont Dam, 2009-2012. BLB= Black Bullhead; BLC= Black Crappie; GSF= Green Sunfish; NOP= Northern Pike; YEP= Yellow Perch

Species	CPUE			
	2009	2010	2011	2012
<i>Frame Nets</i>				
BLB	20.6	---	---	130.9
BLC	1.5	---	---	13.0
GSF	0.1	---	---	0.1
NOP	0.6	---	---	1.8
YEP	0.6	---	---	3.3
<i>Gill nets</i>				
BLB	10.5	---	---	123.0
BLC	0.0	---	---	4.0
NOP	3.5	---	---	6.5
YEP	3.2	---	---	19.0

Table 3. Mean catch rate (CPUE; catch/net night) of stock-length fish, proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish, and mean relative weight (Wr) for selected species captured in experimental gill nets from Pierpont Dam, 2009-2012. BLC= Black Crappie; NOP = Northern Pike; YEP = Yellow Perch

Species	2009	2010	2011	2012	Objective
<i>Frame nets</i>					
BLC					
CPUE	2	---	---	13	---
PSD	8	---	---	55	---
PSD-P	8	---	---	0	---
Wr	124	---	---	104	---
<i>Gill nets</i>					
NOP					
CPUE	4	---	---	7	≥ 3
PSD	57	---	---	62	30-60
PSD-P	0	---	---	0	5-10
Wr	92	---	---	83	---
YEP					
CPUE	3	---	---	19	≥ 30
PSD	100	---	---	21	30-60
PSD-P	57	---	---	0	5-10
Wr	106	---	---	92	---

Table 4. 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
2012	WAE	fry	77,000

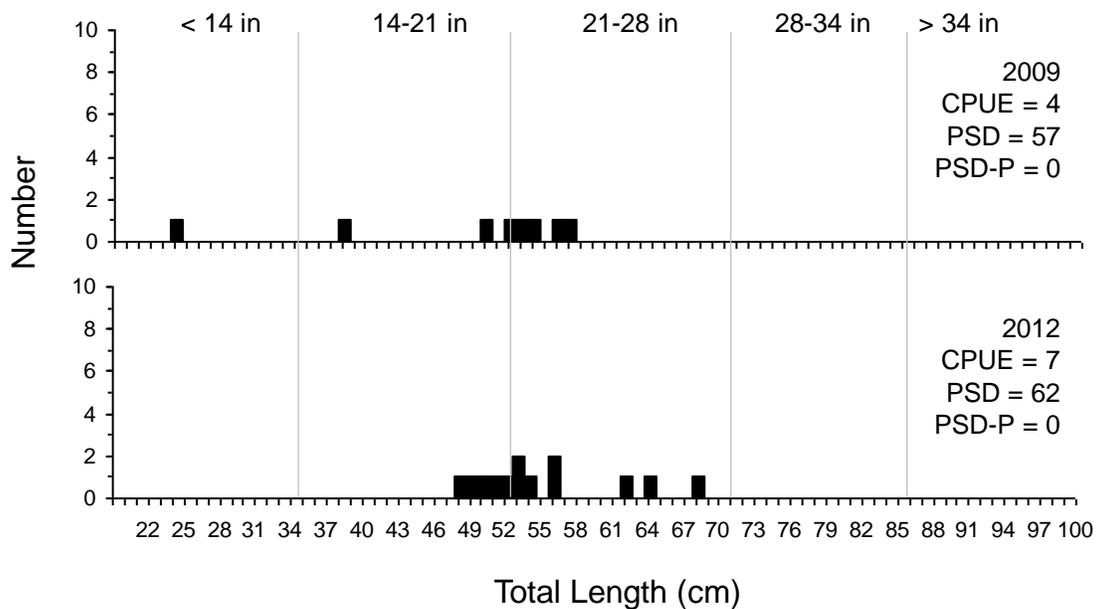


Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Northern Pike captured using gill nets in Pierpont Dam, 2009 and 2012.

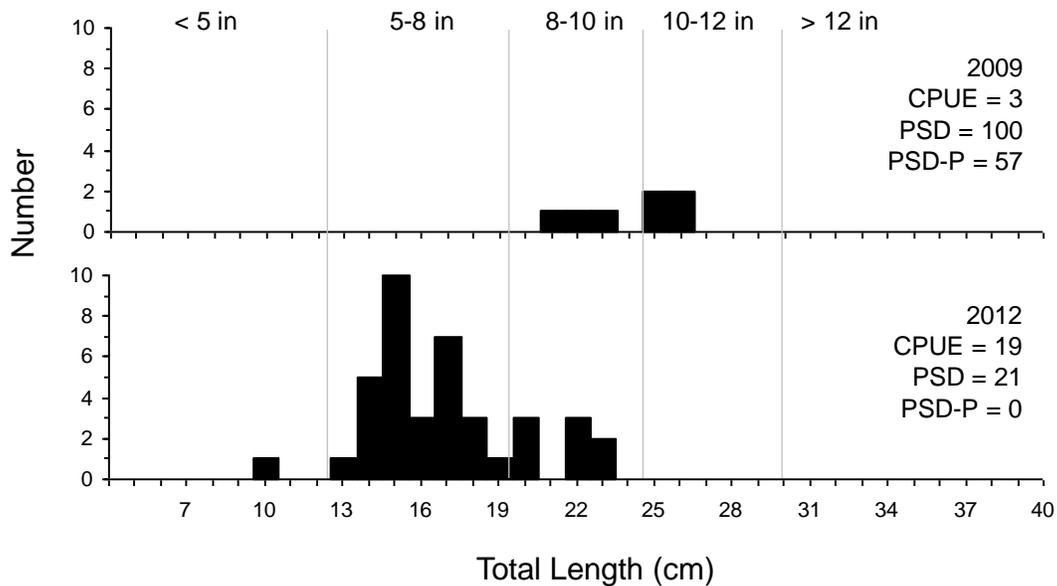


Figure 4. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Yellow Perch captured using gill nets in Pierpont Dam, 2009 and 2012.

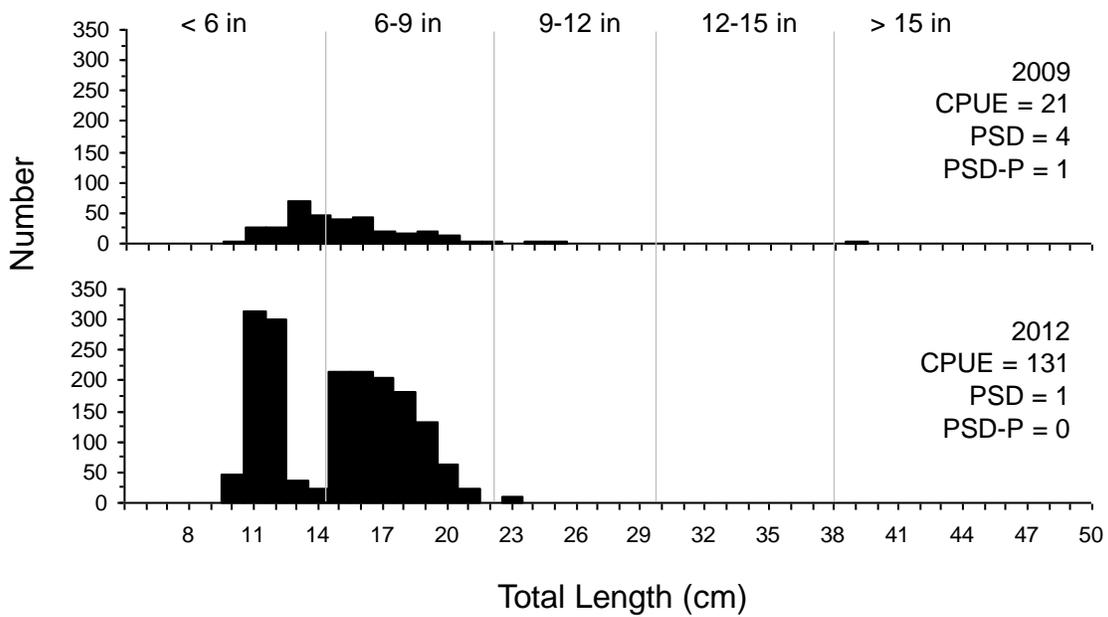


Figure 5. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Black Bullhead captured using frame nets in Pierpont Dam, 2009 and 2012.

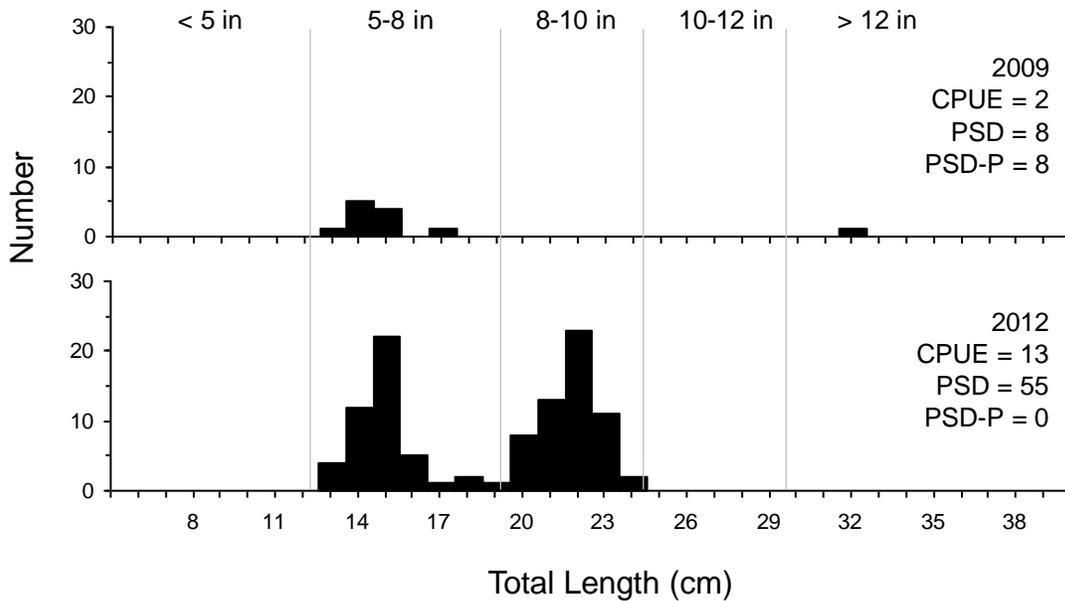


Figure 6. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Black Crappie captured using frame nets in Pierpont Dam, 2009 and 2012.