

Pickerel Lake

Site Description

Location

Water designation number (WDN)	22-0002-00
Legal description	T124N-R53W-Sec.15,22,23,26,27,34,35
County (ies)	Day
Location from nearest town	6 miles northeast of Grenville

Survey Dates and Sampling Information

Survey dates	May 23, 2011 (EF-SMB) June 21-23, 2011 (FN, GN)
Electrofishing-SMB (min)	60
Frame net sets (n)	18
Gill net sets (n)	6

Morphometry

Watershed area (acres)	17,165
Surface area (acres)	981
Maximum depth (ft)	41
Mean depth (ft)	16

Ownership and Public Access

Pickerel Lake is a meandered lake managed by the SDGFP. Four public access sites exist on Pickerel Lake; two are located within State Parks on the east and west shores; one at the "Old Pickerel Lake Hatchery Site" located south of the State Park East Unit; and a section line access point, which does not include a boat ramp, in the northwest corner of the lake (Figure 1-2). Ownership of the Pickerel Lake shoreline includes the State of South Dakota, the Bureau of Indian Affairs, and private ownership. The shoreline of Pickerel Lake is highly developed.

Watershed and Land Use

Land use within the Pickerel Lake watershed is primarily agricultural with a mix of pasture or grassland, cropland, and woodland.

Water Level Observations

The South Dakota Water Management Board established Ordinary High Water Mark (OHWM) is 1845.6 fmsl, and the outlet elevation of Pickerel Lake is 1844.9 fmsl. On May 17, 2011, Pickerel Lake was above the outlet elevation and OHWM with an elevation of 1845.8 fmsl. By October 5, 2011 the elevation of Pickerel Lake had declined to 1845.0 fmsl.

Aquatic Nuisance Species Monitoring

Plant Survey

Emergent vegetation is limited to the north bay of Pickerel Lake; while submersed vegetation exists in several shallow-protected areas of the lake. Aquatic plant species identified during the 2010 survey include cattail, common duckweed, coontail, elodea, northern milfoil, sago pondweed, and water crowfoot. Chara (a macro algae) was also sampled. No aquatic plant survey was conducted in 2011. To date, no aquatic nuisance plant species have been encountered.

Shoreline Survey

No shoreline survey was conducted in 2011.

Fish Community Survey

No aquatic nuisance fish species were captured during the 2011 survey, but common carp are well established in Pickerel Lake (Table 2).

Fish Management Information

Primary species	black crappie, bluegill, smallmouth bass, walleye, yellow perch
Other species	black bullhead, common carp, emerald shiner, largemouth bass, northern pike, rock bass, spottail shiner, white bass, white sucker
Lake-specific regulations	Smallmouth/Largemouth Bass: Only those <14", or 18" and longer may be taken. Of those no more than one may be 18" or longer. Walleye: minimum length 15".
Management classification	warm-water permanent
Fish Consumption Advisories	none

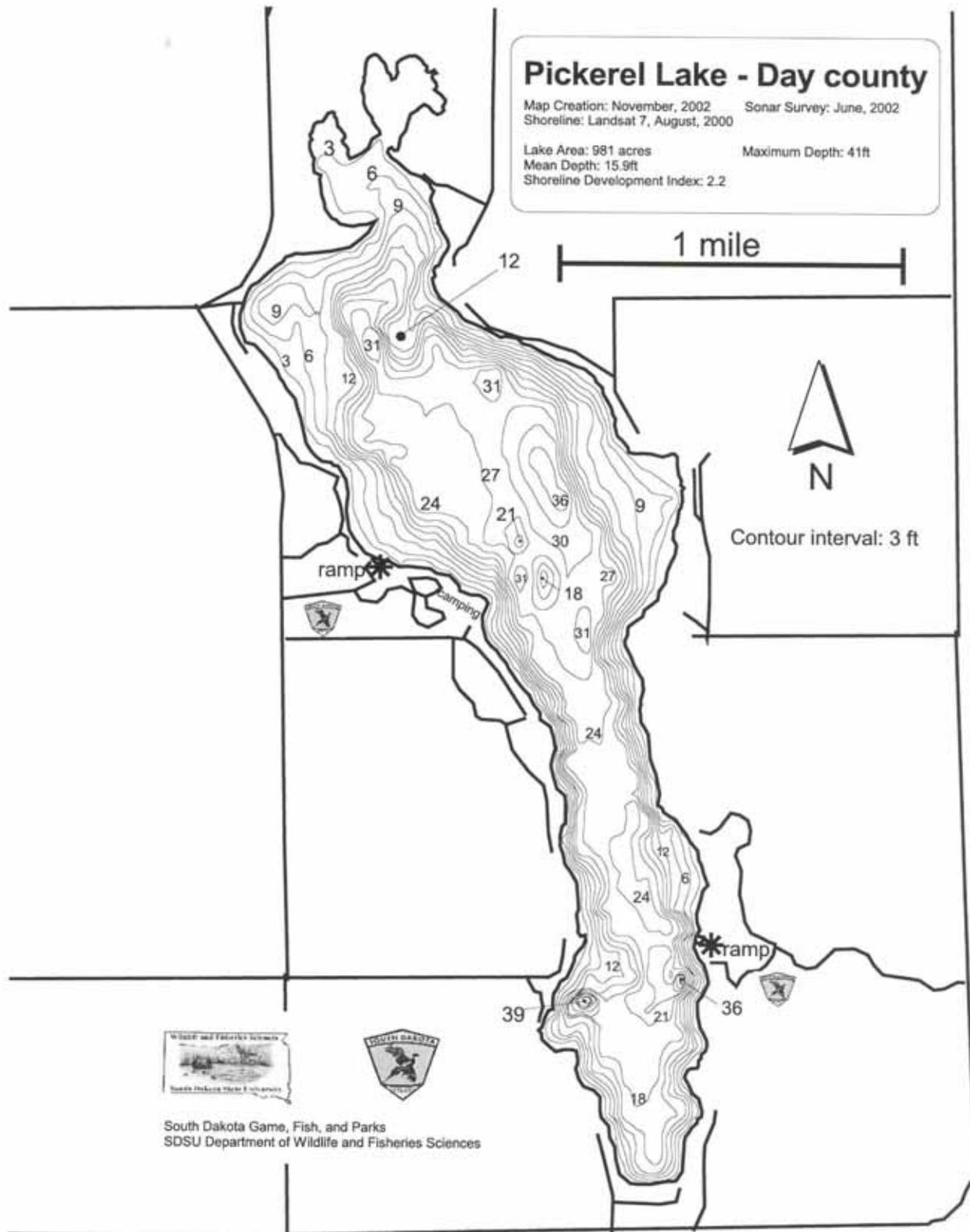


Figure 1. Contour map of Pickerel Lake, Day County, South Dakota.



Figure 2. Map depicting geographic location of several Day County, South Dakota Lakes including Pickeral Lake (top). Also noted are public access sites and standardized net locations for Pickeral Lake. PLFN= frame nets; PLGN=gill nets

Management Objectives

- 1) Maintain a mean frame net CPUE of stock-length black crappie ≥ 10 , a PSD of 30-60, and a PSD-P of 5-10.
- 2) Maintain a mean frame net CPUE of stock-length bluegill ≥ 25 , a PSD of 30-60, and a PSD-P of 5-10.
- 3) Maintain a moderate density smallmouth bass population with a PSD of 40-70, and a PSD-P of 10-40.
- 4) Maintain a mean gill net CPUE of stock-length walleye ≥ 10 , a PSD of 30-60, and a PSD-P of 5-10.
- 5) Maintain a mean gill net CPUE of stock-length yellow perch ≥ 30 , a PSD of 30-60, and a PSD-P of 5-10.
- 6) Maintain a mean frame net CPUE of stock-length bullhead ≤ 100 .

Results and Discussion

Pickerel Lake is the uppermost lake in a chain of lakes known as the Waubay Lakes Basin. Pickerel Lake is a very popular recreational destination, especially during the summer months. Pickerel Lake is highly developed with nearly the entire lake shoreline supporting residential housing and cabins. In addition, Pickerel Lake has two State Parks located on the east and west shores. Currently, Pickerel Lake is primarily managed as a panfish (i.e., black crappie, bluegill, and yellow perch), smallmouth bass and walleye fishery. However, other species such as northern pike, rock bass, and white bass also contribute to the Pickerel Lake fishery.

Primary Species

Black crappie: The mean frame net CPUE of stock-length black crappie was 3.8 (Table 1) and below the minimum objective (≥ 10 stock-length black crappie/net night; Table 3). Since 2003, the mean frame net CPUE of black crappie has ranged from a low of 1.4 (2005) to a high of 15.6 (2008; Table 2). Based on the 2011 frame net catch, relative abundance is considered moderate.

The decline in the relative abundance of black crappie from 2008-2011 can be attributed to mortality, either natural or by angling of the 2005 year class, coupled with limited recruitment of additional year classes (Table 2; Figure 3). Age estimates obtained from otoliths, indicated that black crappie from the 2005 year-class have dominated the population from 2007-2011 (Table 4; Figure 3).

Frame net captured black crappie ranged in total length from 8 to 29 cm (3.1 to 11.4 in), had a PSD of 100 and a PSD-P of 88 (Table 1; Table 3; Figure 3). The PSD and PSD-P were above the management objectives of 30-60 and 5-10, as the majority

of black crappie from the 2005 year class exceeded preferred-length (25 cm; 10 in; Table 3; Figure 3).

Black crappie from the 2005 year-class had a weighted mean length at capture of 153 mm (6.0 in) at age 2, 201 mm (7.9 in) at age 3, 231 mm (9.1 in) at age 4, 251 mm (9.9 in) at age 5, and 263 mm (10.4 in) at age 6 (Table 5). In 2011, black crappie from the 2005 year class had a mean W_r of 96.

Bluegill: The mean frame net CPUE of stock-length bluegill was 2.6 (Table 1) and below the minimum objective (≥ 25 stock-length bluegill/net night; Table 3). Since 2003, the mean frame net CPUE of bluegill has ranged from a low of 2.6 (2011) to a high of 29.2 (2008; Table 2). Based on the 2011 frame net CPUE, relative abundance is low.

Bluegill captured in frame nets ranged in total length from 8 to 24 cm (3.1 to 9.4 in), had a PSD of 43, and a PSD-P of 15 (Table 1; Table 3; Figure 4). The PSD was within the management objective of 30-60; while the PSD-P was above the management objective of 5-10 (Table 3).

No age or growth information was collected in 2011. Bluegill in the frame net catch exhibited a slight decreasing trend in condition as total length increased; however, mean W_r values remained above 110 or all length categories (i.e., stock to quality) sampled. Condition of bluegill may have been influenced by spawning activity during 2011, as sampling took place during late-June.

Smallmouth bass: Prior to 2009, fall night electrofishing was used to assess smallmouth bass populations in NE South Dakota. However, recent research has indicated that smallmouth bass population dynamics should be monitored utilizing standardized spring (May and June) night electrofishing over suitable habitat (i.e., rocky substrate) in northeastern South Dakota glacial lakes (Bacula 2009).

In 2011, the mean spring night electrofishing CPUE of stock-length smallmouth bass was 51.0 (Table 1), which represented a decrease from the 77.4 observed in 2009 (Table 2). Smallmouth bass captured in the 2011 spring electrofishing catch ranged in total length from 18 to 38 cm (7.1 to 15.0 in.), had a PSD of 27 and PSD-P of 4 (Table 1; Figure 4). The PSD and PSD-P values were below the management objective ranges of 40-70 and 10-40 and indicated a population comprised of smaller individuals (Table 3; Figure 5).

Scales were collected from a sub-sample of smallmouth bass captured during spring night electrofishing. Age structure information suggested consistent recruitment, as five consecutive year classes (2005-2009) were represented in the electrofishing catch (Table 6).

In 2011, age-3 and age-4 smallmouth bass captured during spring night had mean back-calculated lengths at age of 229 and 274 mm (9.0 and 10.8 in), respectively; which were below the region IV mean of mean values of 249 and 316 mm (9.8 and 12.4 in) reported in Willis et al. (2001). Smallmouth bass in the spring electrofishing catch had mean W_r values that ranged from 94 to 98, with the mean W_r of stock-length smallmouth bass being 97 (Table 1). No length related trends in W_r values were apparent.

Walleye: The mean gill net CPUE of stock-length walleye was 13.5 (Table 1) and above the minimum objective (≥ 10 stock-length walleye/net night; Table 3). Since 2003, walleye relative abundance, as index by mean gill net CPUE values has ranged from a low of 4.8 (2009) to high of 21.5 (2004; Table 2). Based on the 2011 gill net CPUE, relative abundance appears to be high.

Walleye captured in gill nets ranged in total length from 13 to 61 cm (5.1 to 24.0 in), had a PSD of 36 and a PSD-P of 4 (Table 1; Table 3; Figure 6). The PSD was within the management objective of 30-60; while the PSD-P was slightly below the management objective of 5-10 (Table 3). In 2011, approximately 34% of walleye in the gill net catch were above the 381-mm (15-inch) minimum length restriction (Figure 6).

Natural reproduction in Pickerel Lake has been consistently poor with fall night electrofishing catch rates of age-0 walleye ≤ 12.0 /hr from 1999-2009 and limited contribution of naturally-produced year classes to the gill net catch (e.g., 2005 and 2009; Table 7). As a result, the Pickerel Lake walleye population has relied on large fingerling stockings to establish year-classes (Table 7; Table 8; Lucchesi 1997). In 2011, otoliths were collected from a sub-sample of gill net captured walleye and indicated the presence of eight year-classes (2001, 2004-2010). Year classes produced in 2006 and 2008, which coincided with large fingerling stockings were the most represented and collectively comprised 72% of walleye in the gill net catch.

Walleye in Pickerel Lake exhibit growth rates that are similar to other permanent lakes in the region (e.g., Enemy Swim and Clear). Since 2005, the weighted mean total length at capture of age-3 walleye has ranged from 310 to 358 mm (12.2 to 14.1 in); while age-4 walleye had weighted mean total length at capture values that ranged from 322 to 388 mm (12.7 to 15.3 in; Table 9). In 2011, the weighted mean total length at capture of age-3 and age-4 walleyes was 377 and 385 mm (14.8 and 15.2 in), respectively (Table 9). Length-at-capture values are strongly influenced by size of large fingerlings stocked which can vary substantially. Gill net captured walleye had mean W_r values that ranged from 89 to 93 for all length categories (e.g., stock to quality) sampled. The mean W_r of stock-length walleye was 90 (Table 1) and no length-related trends in condition were apparent.

Yellow Perch: The mean gill net CPUE of stock-length yellow perch was 35.8 (Table 1), and above the minimum objective (≥ 30 stock-length yellow perch/net night). Since 2003, the gill net CPUE of stock-length yellow perch has ranged from a low of 7.5 (2009) to a high of 55.8 (2006; Table 2). Currently, yellow perch relative abundance is high.

Gill net captured yellow perch ranged in total length from 8 to 26 cm (3.1 to 10.2 in) had a PSD of 23 and a PSD-P of 5 (Figure 7). The PSD was below the management objective range of 30-60; while the PSD-P was within the management objective range of 5-10 (Table 3).

Otoliths have been collected from a sub-sample of gill net captured yellow perch from 2009-2011. Age structure information suggested that yellow perch in Pickerel Lake have exhibited consistent recruitment of varying magnitude in recent years (Table 10). In 2011, eight consecutive year classes were present in the gill net catch (Table 10). Year classes produced in 2008 and 2009 were the most represented and comprised 26% and 52% of yellow perch in the gill net catch (Table 10).

Yellow perch in Pickerel Lake tend to grow slower and be longer-lived than many populations in northeast South Dakota. The weighted mean total length at capture for age-3 male yellow perch was 181 mm (7.1 in; Table 11). No age-4 or age-5 male yellow perch were sampled. The weighted mean total length at capture for age-3, age-4, and age-5 female yellow perch was 195, 223, and 238 mm (7.7, 8.8, and 9.4 in), respectively (Table 11). Gill net captured yellow perch exhibited a slight decreasing trend in condition as total length increased; however, mean Wr values exceeded 100 for all length categories (e.g., stock to quality) sampled.

Other Species

Black bullhead: In 2011, the mean frame net CPUE of stock-length black bullhead was 2.8 (Table 1) and within the management objective range (≤ 100 stock-length black bullhead/net night). Mean frame net CPUE values of stock-length black bullhead have declined in each of the past three surveys (2009-2011; Table 2) and currently relative abundance appears to be low.

Black bullhead captured in frame nets ranged in total length from 16 to 36 cm (6.3 to 14.2 in) with the majority (73%) being \geq preferred length (30cm; 12in) which resulted in high PSD and PSD-P values of 76 and 73 (Table 1; Figure 8). Black bullhead in the frame net catch were in good condition with mean Wr values that ranged from 91 to 95 for all length categories (e.g., stock to quality) sampled. The mean Wr of stock-length black bullhead was 95 (Table 1) and no length-related trends in condition were apparent.

Northern Pike: Northern pike typically are not sampled effectively during standardized mid-summer fish community surveys. As a result, mean gill net CPUE values are often low. Northern pike relative abundance in Pickerel Lake has generally been considered moderate to high with mean gill net CPUE values that ranged from 0.5 to 6.0 from 2003-2011 (Table 2). In 2011, the mean gill net CPUE of stock-length northern pike was 3.8 (Table 1) and relative abundance appears to be high.

No age and growth information was collected in 2011. Northern pike sampled in gill nets ranged in total length from 39 to 86 cm (15.4 to 33.9 in), had a PSD of 61, and a PSD-P of 4 (Table 1; Figure 9). Northern pike condition was similar to that of northern pike captured from other permanent waters in the area (e.g., Enemy Swim) with mean Wr values that ranged from 85 to 88 for all length categories (e.g., stock to quality) sampled. Stock-length northern pike had a mean Wr of 86 (Table 1) and no length-related trends in condition were apparent.

Rock Bass: The mean frame net CPUE of stock-length rock bass was 1.2 (Table 1) and the lowest CPUE observed from 2003-2011 (Table 2). Rock bass captured in the frame net catch ranged in total length from 10 to 26 cm (3.9 to 10.2 in) with the majority being ≥ 20 cm (8 in; Figure 10). Few inferences can be made concerning the size structure, growth, and condition of rock bass due to low sample size.

Other: Spottail shiner, white bass and white sucker were other fish species captured in low numbers during the 2011 survey (Table 1).

Management Recommendations

- 1) Conduct fish population assessment surveys on an annual basis (next survey scheduled in summer 2012) to monitor fish relative abundance, fish population size structures, fish growth, and stocking success.
- 2) Conduct spring night electrofishing on a biennial basis (odd years) to monitor smallmouth bass population parameters.
- 3) Collect otoliths from black crappie, walleye, and yellow perch; scales from smallmouth bass to assess growth rates and age structure of each population.
- 4) Stock walleye at (\approx 25 large fingerlings/acre) to establish additional year classes if gill netting results warrant (i.e., low gill net CPUE of < 250 mm (10 inch) walleye).
- 5) Maintain length limit on largemouth and smallmouth bass to benefit population and comply with toolbox options (Blackwell and Lucchesi 2009). Largemouth and smallmouth bass must be less than 14" or longer than 18", but only one 18" or longer can be kept in the daily creel.
- 6) Maintain the 381-mm (15 in) minimum length limit on walleye to benefit the population and comply with tool box options (Lucchesi and Blackwell 2009).
- 7) Partner with willing landowners on shoreline restoration projects designed to restore native plant fauna along highly-developed shorelines providing improvements to water quality and littoral habitats within the lake.

Table 1. Mean catch rate (CPUE; frame/gill nets = catch/net night) of stock-length fish, proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish, and mean relative weight (Wr) of stock-length fish for various fish species captured in frame nets, experimental gill nets and electrofishing from Pickerel Lake, 2011. Confidence intervals include 80 percent (\pm CI-80) or 90 percent (\pm CI-90). BLB= black bullhead; BLC= black crappie; BLG= bluegill; NOP= northern pike; ROB= rock bass; SMB= smallmouth bass; SPS= spottail shiner; WAE= walleye; WHB= white bass; WHS= white sucker; 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	2.8	1.4	76	10	73	11	95	<1
BLC	3.8	1.2	100	0	88	7	95	<1
BLG	2.6	1.3	43	12	15	9	127	2
ROB	1.2	0.5	95	8	38	19	110	2
SMB	1.6	0.3	43	16	21	13	91	2
WAE	0.1	0.1	100	0	0	---	85	18
WHB	3.4	2.7	100	0	100	0	88	<1
YEP	0.5	0.3	22	27	22	27	107	10
<i>Gill nets</i>								
BLB	0.7	0.5	25	59	25	59	96	9
BLC	2.2	1.1	92	14	92	14	99	3
NOP	3.8	1.0	61	18	4	7	86	2
ROB	0.7	1.0	75	59	25	59	110	2
SMB	0.5	0.5	67	67	0	---	93	18
SPS ¹	0.5	0.7	---	---	---	---	---	---
WAE	13.5	3.8	36	9	4	4	90	1
WHS	2.0	1.2	100	0	92	15	106	3
YEP	35.8	11.5	23	5	5	2	113	<1
<i>Electrofishing</i>								
SMB ²	51.0	16.9	27	11	4	5	97	1

¹ All fish sizes.

² Spring Electrofishing-SMB

Table 2. Historic mean catch rate (CPUE; gill/frame nets = catch/net night, electrofishing = catch/hour) of stock-length fish for various fish species captured in gill nets, frame nets, and electrofishing in Pickerel Lake, 2003-2011. BLB= black bullhead; BLC= black crappie; BLG= bluegill; COC= common carp; NOP= northern pike; ROB= rock bass; SMB= smallmouth bass; SPS= spottail shiner; WAE= walleye; WHB= white bass; WHS= white sucker; YEP= yellow perch

Species	CPUE									
	2003	2004	2005	2006 ⁴	2007 ⁴	2008	2009	2010	2011	
<i>Frame nets</i>										
BLB	4.3	0.8	2.0	1.8	2.6	19.4	14.9	4.6	2.8	
BLC	6.3	3.8	1.4	8.1	12.6	15.6	11.6	4.0	3.8	
BLG	5.6	6.3	4.2	14.2	17.0	29.2	9.7	3.5	2.6	
COC	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0	
NOP	0.4	0.1	0.5	0.3	0.7	0.7	0.4	0.3	0.0	
ROB	4.7	3.8	7.6	4.7	4.4	8.4	3.7	4.3	1.2	
SMB	3.2	1.6	1.9	5.6	5.6	5.4	1.9	1.9	1.6	
WAE	0.5	0.2	0.2	0.7	0.6	0.3	0.6	0.8	0.1	
WHB	0.1	1.1	0.0	0.2	1.8	0.2	0.1	0.0	3.4	
WHS	1.2	0.9	0.3	0.2	0.9	0.3	0.0	0.3	0.0	
YEP	0.3	1.6	0.8	1.2	2.3	0.2	0.1	0.2	0.5	
<i>Gill nets</i>										
BLB	0.0	0.0	0.0	0.2	4.5	5.5	0.5	0.2	0.7	
BLC	12.3	13.2	3.2	1.8	16.7	26.8	3.8	8.3	2.2	
BLG	0.2	0.0	0.2	0.5	1.5	0.7	0.0	0.2	0.0	
COC	0.0	0.2	0.0	2.5	1.7	0.7	0.3	0.0	0.0	
NOP	4.8	1.5	0.5	1.8	6.0	5.7	3.3	2.7	3.8	
ROB	0.3	2.2	0.5	1.0	1.8	0.2	0.2	0.0	0.7	
SMB	3.2	0.5	3.3	2.0	1.2	0.3	1.3	0.3	0.5	
SPS ¹	0.3	2.2	0.0	0.0	0.0	1.5	0.5	0.7	0.5	
WAE	10.3	21.5	11.7	21.3	12.7	6.0	4.8	9.2	13.5	
WHB	2.0	1.8	0.8	0.7	1.8	0.8	1.2	0.5	0.0	
WHS	4.3	1.5	3.2	2.3	3.5	3.7	1.2	1.7	2.0	
YEP	50.3	28.5	33.5	55.8	43.7	30.0	7.5	21.0	35.8	
<i>Electrofishing</i>										
SMB	126.2 ²	205.6 ²	91.2 ²	240.0 ²	123.5 ²	96.3 ²	77.4 ³	---	51.0 ³	

¹ All fish sizes.

² Fall night electrofishing-SMB.

³ Spring night electrofishing-SMB.

⁴ Monofilament gill net mesh size change (0.75", 1.00", 1.25", 1.50", 2.00" and 2.50")

Table 3. Mean catch rate (CPUE; gill/frame nets = catch/net night, electrofishing = catch/hour) 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 gill nets, frame nets, and electrofishing in Pickerel Lake, 2003-2011. BLC= black crappie; BLG= bluegill; SMB= smallmouth bass; WAE= walleye; YEP= yellow perch

Species	2003	2004	2005	2006 ²	2007 ²	2008	2009	2010	2011	Objective
<i>Frame nets</i>										
BLC										
CPUE	6	4	1	8	13	16	12	4	4	≥ 10
PSD	97	96	100	99	20	61	97	100	100	30-60
PSD-P	78	62	60	99	18	7	4	58	88	5-10
Wr	103	101	104	94	117	109	103	99	95	---
BLG										
CPUE	6	6	4	14	17	29	10	4	3	≥ 25
PSD	48	98	74	38	58	90	98	87	43	30-60
PSD-P	18	10	57	15	3	6	44	56	15	5-10
Wr	125	129	126	115	116	121	115	112	127	---
<i>Gill nets</i>										
WAE										
CPUE	10	22	12	21	13	6	5	9	14	≥ 10
PSD	32	5	3	40	53	31	17	4	36	30-60
PSD-P	8	2	0	0	1	3	7	0	4	5-10
Wr	86	86	86	89	84	82	86	81	90	---
YEP										
CPUE	50	29	34	56	44	30	8	21	36	≥ 30
PSD	50	68	93	21	17	29	56	40	23	30-60
PSD-P	15	15	51	10	5	2	0	0	5	5-10
Wr	107	101	114	101	102	104	106	103	113	---
<i>Electrofishing</i>										
SMB ¹										
CPUE	---	---	---	---	---	---	77	---	51	---
PSD	---	---	---	---	---	---	44	---	27	40-70
PSD-P	---	---	---	---	---	---	25	---	4	10-20
Wr	---	---	---	---	---	---	89	---	97	---

¹ Spring night electrofishing-SMB.

² Monofilament gill net mesh size change (0.75", 1.00", 1.25", 1.50", 2.00" and 2.50")

Table 4. Year class distribution based on the expanded age/length summary for black crappie sampled in frame nets from Pickerel Lake, 2006-2011.

Survey Year	Year Class											
	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
2011		3				2	65				1	
2010	---					2	68				2	
2009 ¹	---	---				6	197				1	
2008 ¹	---	---	---				259	1			7	2
2007 ¹	---	---	---	---			286	3		1	9	

¹ Older black crappie were sampled, but are not reported in this table.

Table 5. Weighted mean total length (mm) at capture for black crappie age-1 through age-10 sampled in frame nets (expanded sample size) from Pickerel Lake, 2006-2011.

Year	Age									
	1	2	3	4	5	6	7	8	9	10
2011	88(3)	---	---	---	243(2)	263(65)	---	---	---	296(1)
2010	---	---	---	225(2)	251(68)	---	---	---	315(2)	---
2009 ¹	---	---	187(6)	231(197)	---	---	---	298(1)	---	---
2008	---	---	201(259)	236(1)	---	---	285(7)	291(2)	---	294(8)
2007	---	153(286)	213(3)	---	273(1)	286(9)	---	---	299(33)	---
2006	100(1)	139(3)	---	---	270(3)	---	---	291(13)	---	---

¹ Older black crappie were sampled, but are not reported in this table.

Table 6. Mean back-calculated length (mm) at age and standard error (SE) for smallmouth bass captured during spring night electrofishing in Pickerel Lake, 2011.

Year	Age	N	Age						
			1	2	3	4	5	6	
2009	2	5	91	188					
2008	3	30	86	156	248				
2007	4	5	91	166	231	284			
2006	5	9	73	143	217	270	328		
2005	6	2	96	178	219	267	299	353	
Mean		51	87	166	229	274	313	353	
SE			4	8	7	5	15	0	
<i>Mean Comparison ¹</i>									
			98	180	241	291	---	---	
			92	169	237	304	335	---	
			96	179	249	316	339	---	
			91	171	242	300	333	---	

¹ Willis et al. 2001.

Table 7. Year class distribution based on the expanded age/length summary for walleye sampled in gill nets and associated stocking history (Number stocked x 1,000) from Pickerel Lake, 2007-2011.

Survey Year	Year Class										
	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001
2011		5	3	25	10	36	2	1			3
2010	---			17	14	26		1	1		
2009 ¹	---	---			3	18	2	3	1	2	
2008 ¹	---	---	---		3	19	3	10	3	3	2
2007 ^{1,2}	---	---	---	---		6	2	31	15	8	16
# stocked											
fry											
sm. fingerling											
lg. fingerling	19	17		15	1	25		27	19	13	56

¹ Older walleye were sampled, but are not reported in this table.

² Monofilament gill net mesh size change (0.75", 1.00", 1.25", 1.50", 2.00" and 2.50")

Table 8. Stocking history including size and number for fishes stocked into Pickerel Lake, 2001-2011. LMB= largemouth bass; SMB= smallmouth bass; WAE= walleye

Year	Species	Size	Number
2001	WAE	large fingerling	56,250
2002	WAE	large fingerling	13,420
2003	WAE	large fingerling	18,582
2004	SMB	fingerling	700
	WAE	large fingerling	26,940
2006	LMB	fingerling	101,500
	WAE	large fingerling	25,146
2007	WAE	large fingerling	765
2008	WAE	large fingerling	15,135
2010	WAE	large fingerling	17,442
2011	WAE	large fingerling	18,585

Table 9. Weighted mean total length at capture (mm) for walleye age-1 through age-10 sampled in experimental gill nets (expanded sample size) from Pickerel Lake, 2005-2011. Note: sampling was conducted at approximately the same time during each year allowing comparisons among years to monitor growth trends.

Year	Age									
	1	2	3	4	5	6	7	8	9	10
2011	178(5)	277(3)	333(25)	377(10)	385(36)	363(2)	380(1)	---	---	546(3)
2010	---	258(17)	311(14)	322(26)	---	433(1)	398(1)	---	---	---
2009		258(3)	316(18)	358(2)	385(3)	563(1)	486(2)		486(1)	
2008 ¹	190(3)	262(19)	331(3)	375(10)	447(3)	393(3)	461(2)	---	---	---
2007	211(6)	295(2)	358(31)	388(15)	445(8)	433(16)	489(3)	---	---	---
2006	---	300(26)	333(34)	387(15)	398(49)	469(3)	---	---	495(1)	---
2005	---	255(12)	310(15)	349(47)	---	---	408(1)	---	---	---

¹ One age-14 walleye was sampled, but not reported in this table.

Table 10. Year class distribution based on the age/length summary for yellow perch sampled in gill nets from Pickerel Lake, 2009-2010.

Survey Year	Year Class								
	2011	2010	2009	2008	2007	2006	2005	2004	2003
2011		30	130	65	7	11	7	3	1
2010	---		22	68	11	24	20	4	
2009	---	---			2	9	15	18	1

Table 11. Weighted mean total length (mm) at capture by gender for yellow perch captured in experimental gill nets (expanded sample size) from Pickerel Lake, 2009-2011.

Year	Age							
	1	2	3	4	5	6	7	8
2011								
Male	94 (13)	142 (26)	181 (13)	---	---	215 (1)	---	---
Female	95 (17)	148 (108)	195 (48)	223 (7)	238 (11)	254 (6)	256 (3)	251 (1)
Combined	95 (30)	146 (130)	192 (65)	223 (7)	238 (11)	248 (7)	256 (3)	251 (1)
2010								
Male	98 (8)	144 (7)	185 (2)	---	200 (3)	---	---	---
Female	95 (12)	147 (61)	195 (9)	222 (24)	226 (17)	233 (4)	---	---
Combined	96 (22)	147 (68)	193 (11)	222 (24)	222 (20)	233 (4)	---	---
2009								
Male	---	---	162(2)	189(5)	247(1)	---	---	---
Female	---	150(2)	174(7)	200(10)	220(17)	---	---	---
Combined	---	150(2)	171(9)	196(15)	221(18)	220(1)	---	---

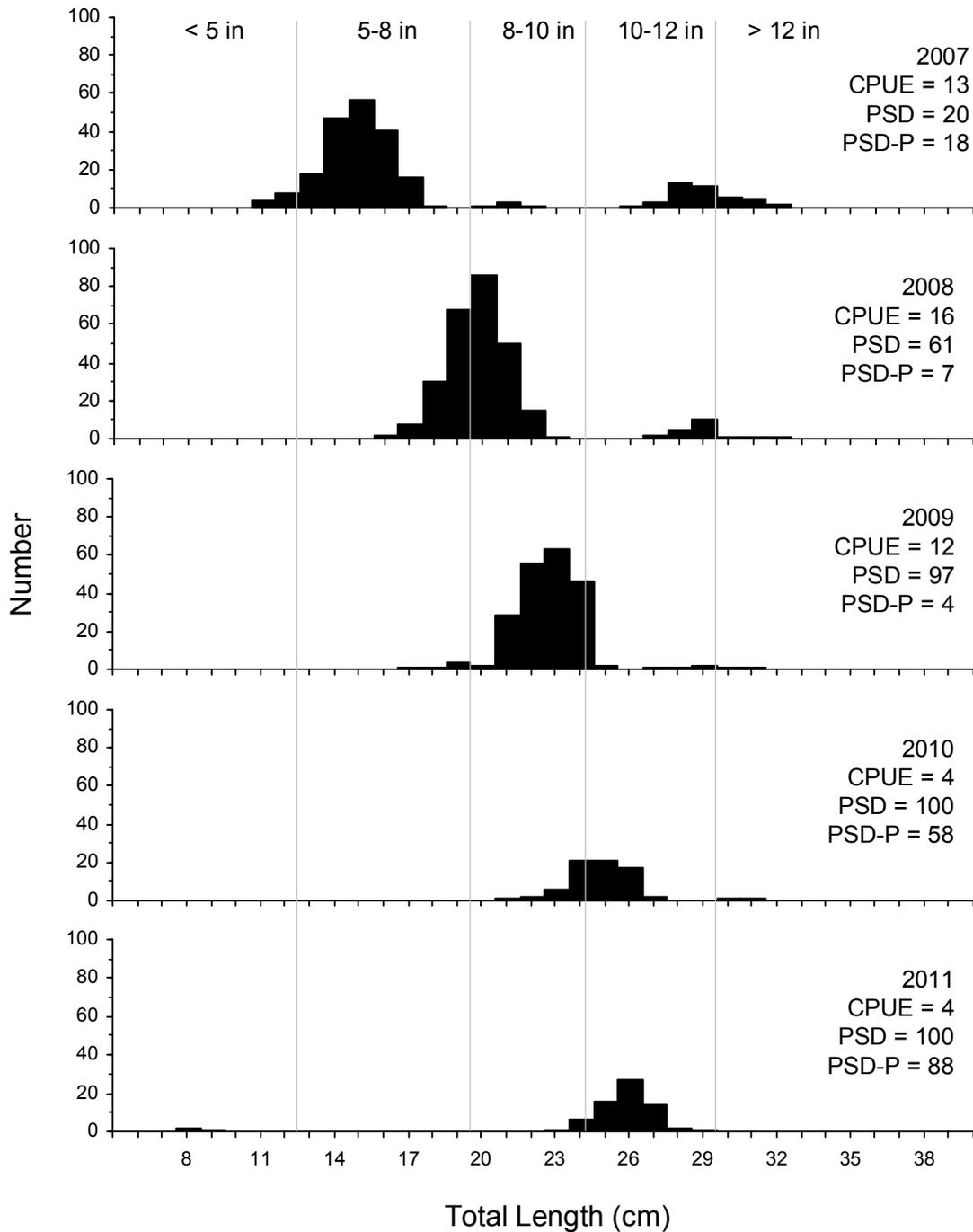


Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for black crappie captured using frame nets in Pickerel Lake, 2007-2011.

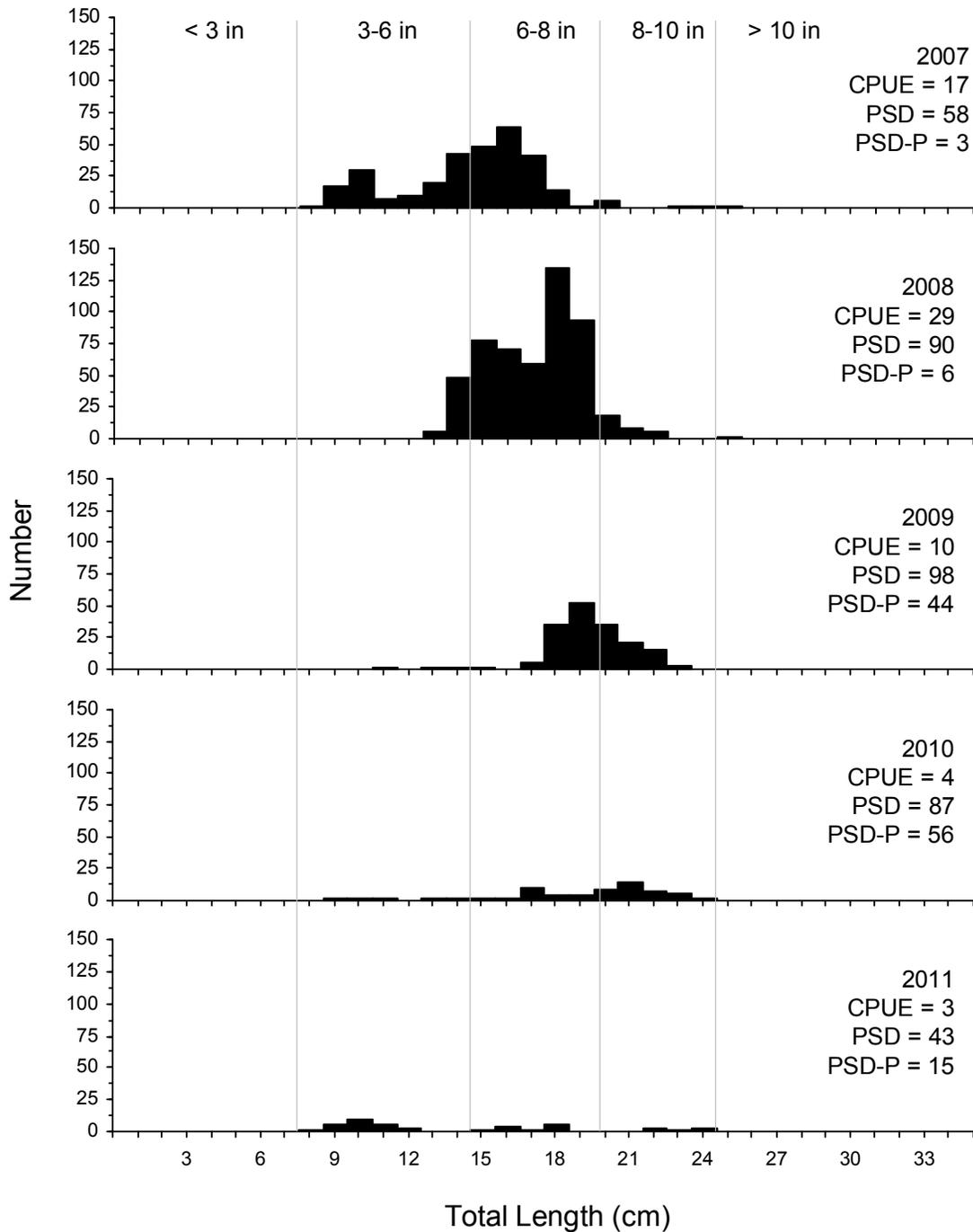


Figure 4. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for bluegill captured using frame nets in Pickerel Lake, 2007-2011.

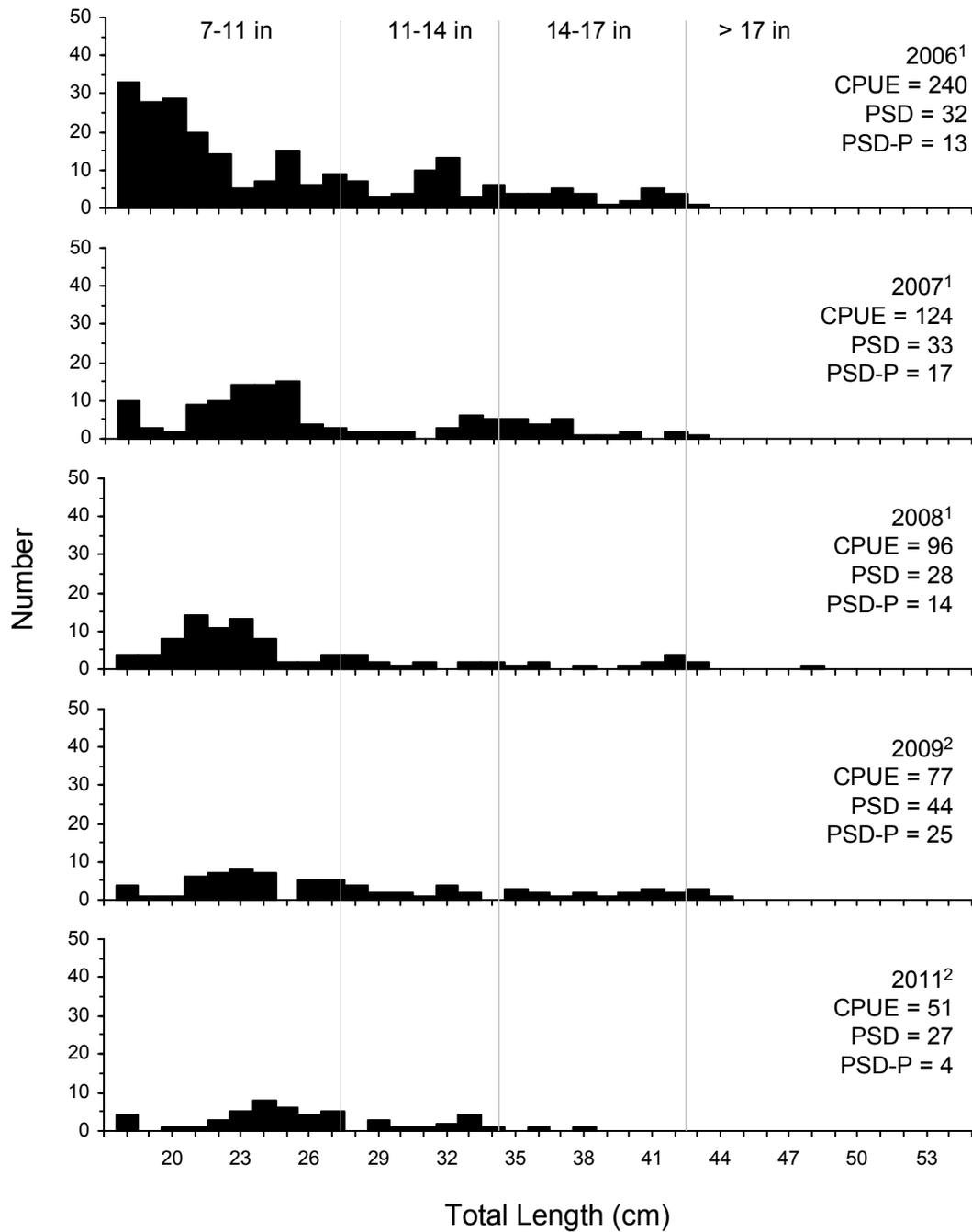


Figure 5. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for smallmouth bass captured using night electrofishing in Pickerel Lake, 2006-2011.

¹ Fall night electrofishing; ² Spring night electrofishing

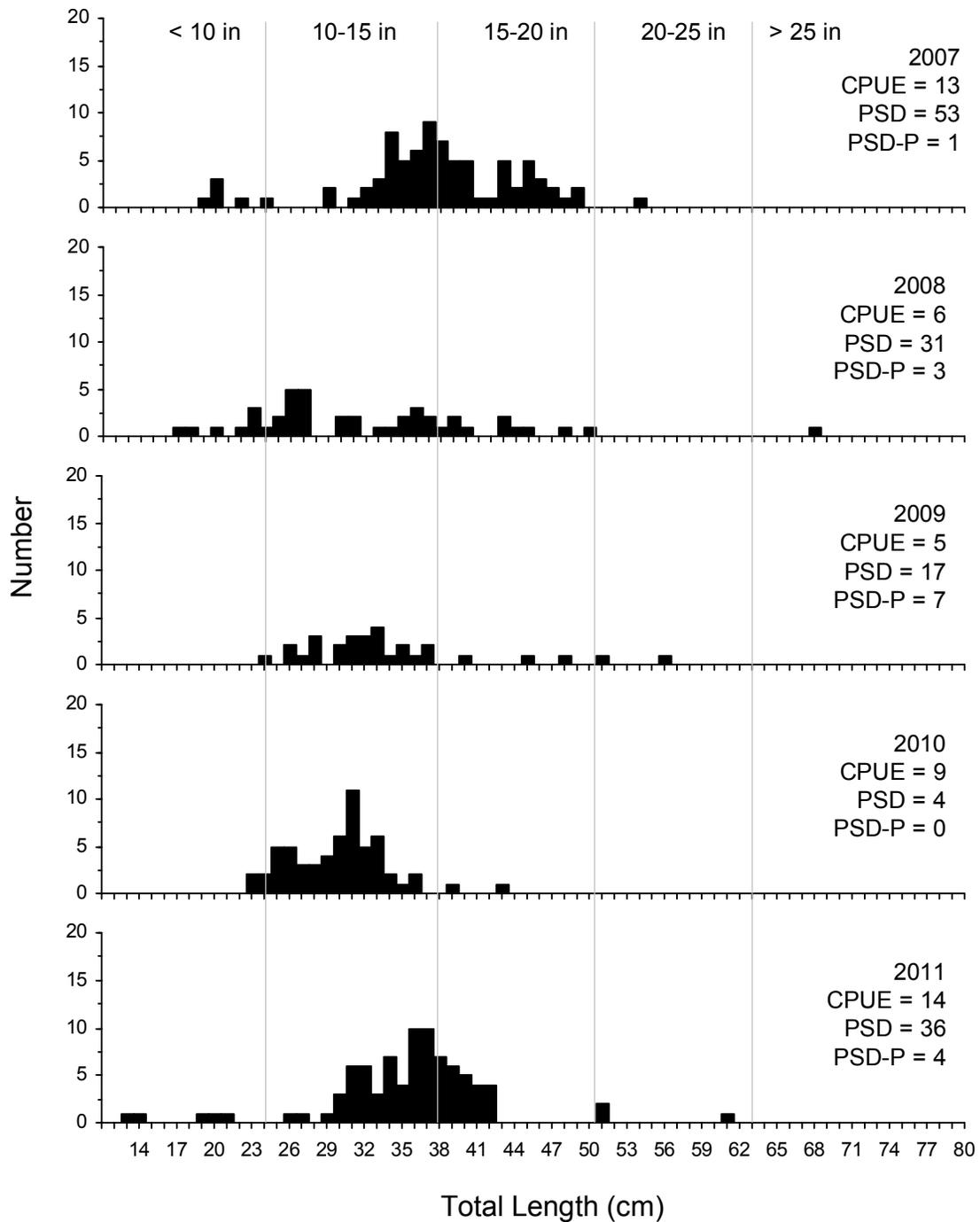


Figure 6. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for walleye captured using gill nets in Pickerel Lake, 2007-2011.

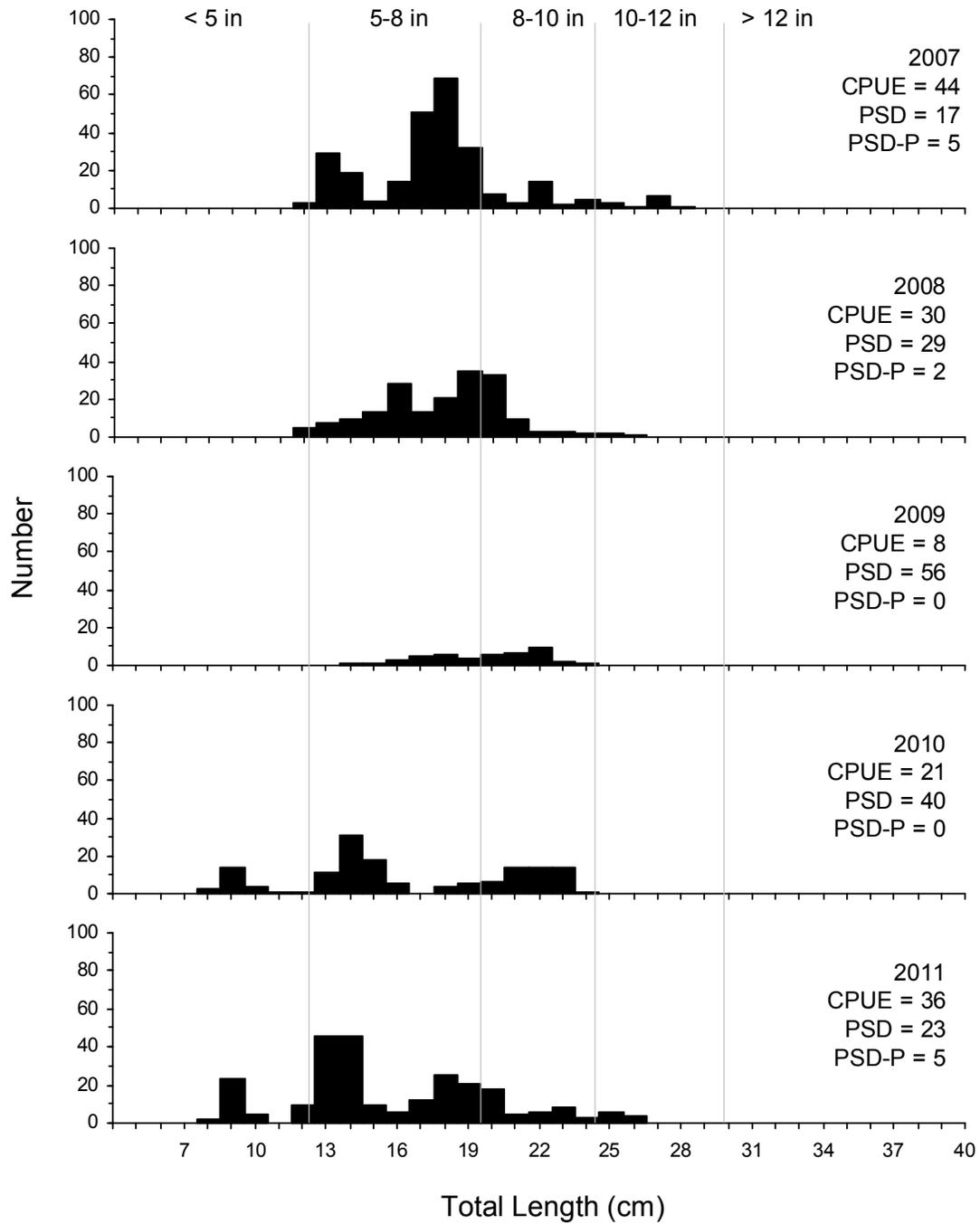


Figure 7. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for yellow perch captured using gill nets in Pickerel Lake, 2007-2011.

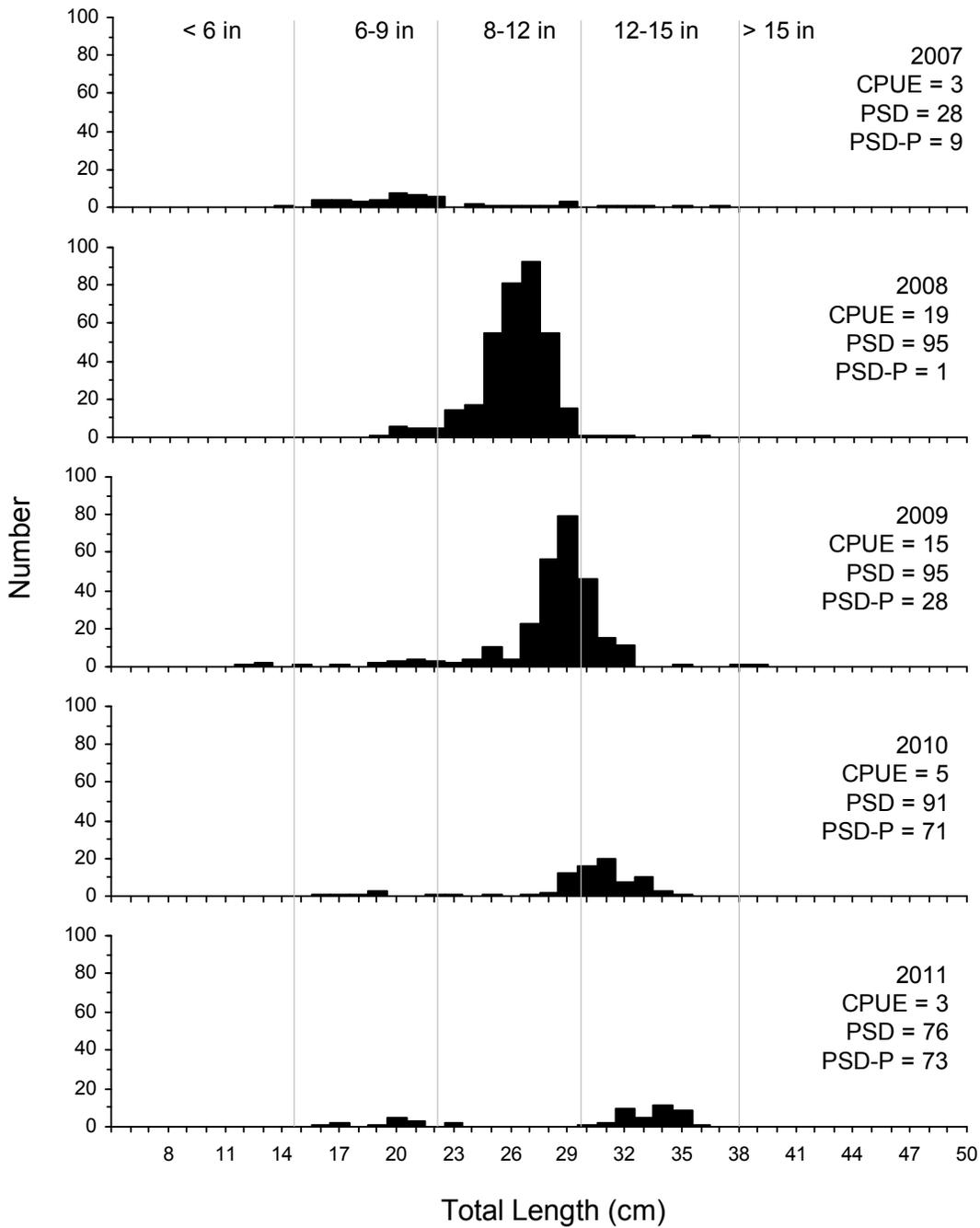


Figure 8. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for black bullhead captured using frame nets in Pickerel Lake, 2007-2011.

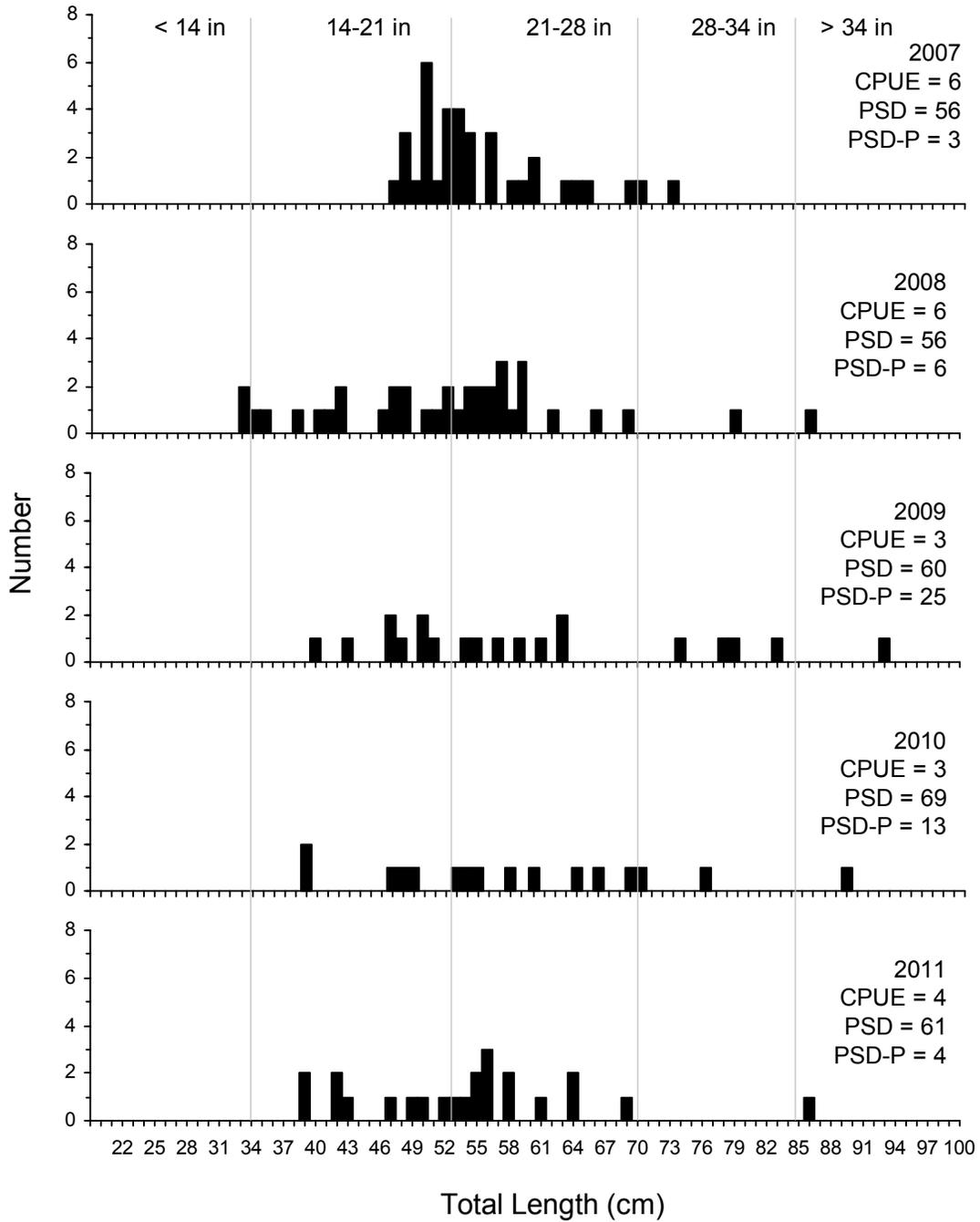


Figure 9. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for northern pike captured using gill nets in Pickerel Lake, 2007-2011.

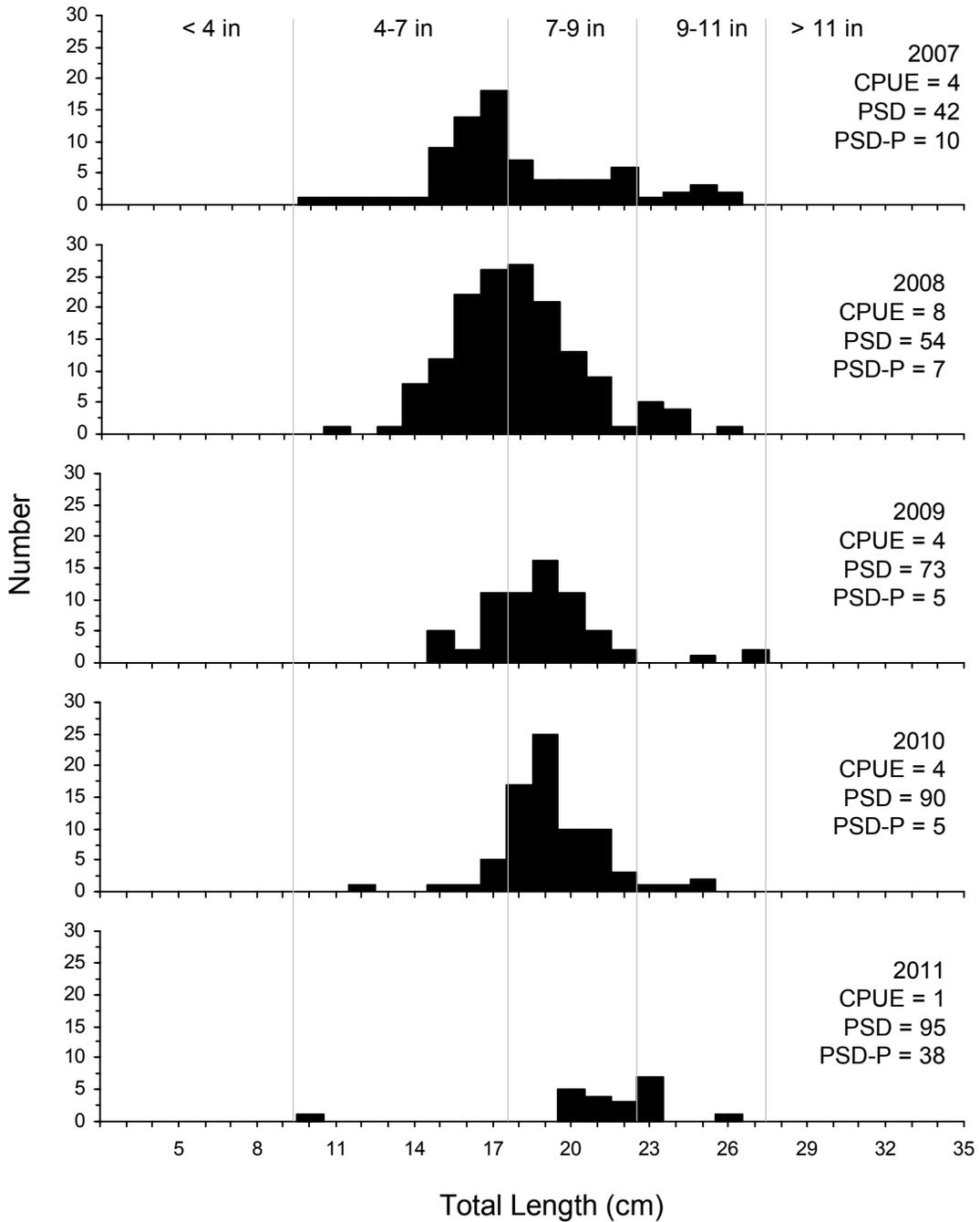


Figure 10. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for rock bass captured using frame nets in Pickerel Lake, 2007-2011.