

Clear Lake

Site Description

Location

Water designation number (WDN)	48-0032-00
Legal description	T126N-R53W-Sec.18,19 T126N-R54W-Sec. 12,13,14,24
County (ies)	Marshall
Location from nearest town	3.0 miles southeast of Lake City, SD

Survey Dates and Sampling Information

Survey dates	July 15-17, 2014 (FN, GN) October 1, 2014 (EF-WAE)
Frame net sets (n)	18
Gill net sets (n)	6
Electrofishing-WAE (min)	60

Morphometry (Figure 1)

Watershed area (acres)	21,826
Surface area (acres)	1,170
Maximum depth (ft)	20
Mean depth (ft)	12

Ownership and Public Access

Clear Lake is a meandered lake owned by the State of South Dakota and the fishery is managed by SDGFP. A single public access site maintained by SDGFP is located on the southeastern shore. The access site includes a double-lane concrete boat ramp, dock, picnic area, and primitive restroom (Figure 1; Figure 2). Lands adjacent to Clear Lake are under mixed ownership including private individuals, Bureau of Indian Affairs, and SDGFP.

Watershed and Land Use

The Clear Lake watershed is primarily agricultural with a mix of hay/pasture land, cropland, and scattered shelterbelts.

Water Level Observations

The South Dakota Water Management Board established OHWM is 1823.7 fmsl and the outlet elevation of Clear Lake is 1822.5 fmsl. On May 6, 2014 the elevation was 1822.9 fmsl; 0.6 ft higher than the fall 2013 elevation of 1822.3 fmsl. The water level had declined to an elevation of 1822.2 fmsl on October 29, 2014.

Fish Management Information

Primary species	largemouth bass, smallmouth bass, walleye, yellow perch
Other species	black bullhead, black crappie, bluegill, common carp, green sunfish, northern pike, white sucker
Lake-specific regulations	largemouth/smallmouth bass: only those less than 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

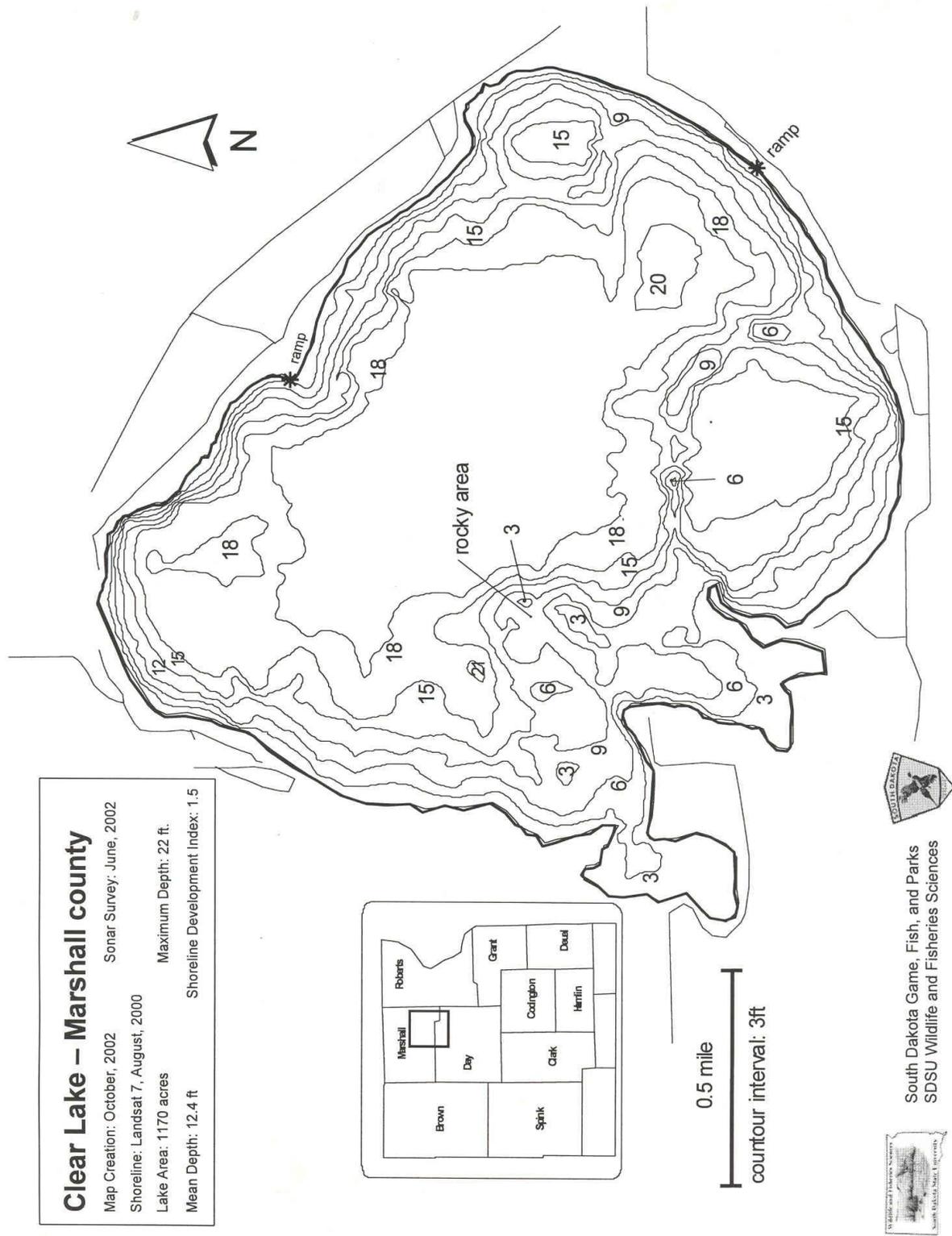


Figure 1. Map depicting depth contours and the access site for Clear Lake, Marshall County, South Dakota.

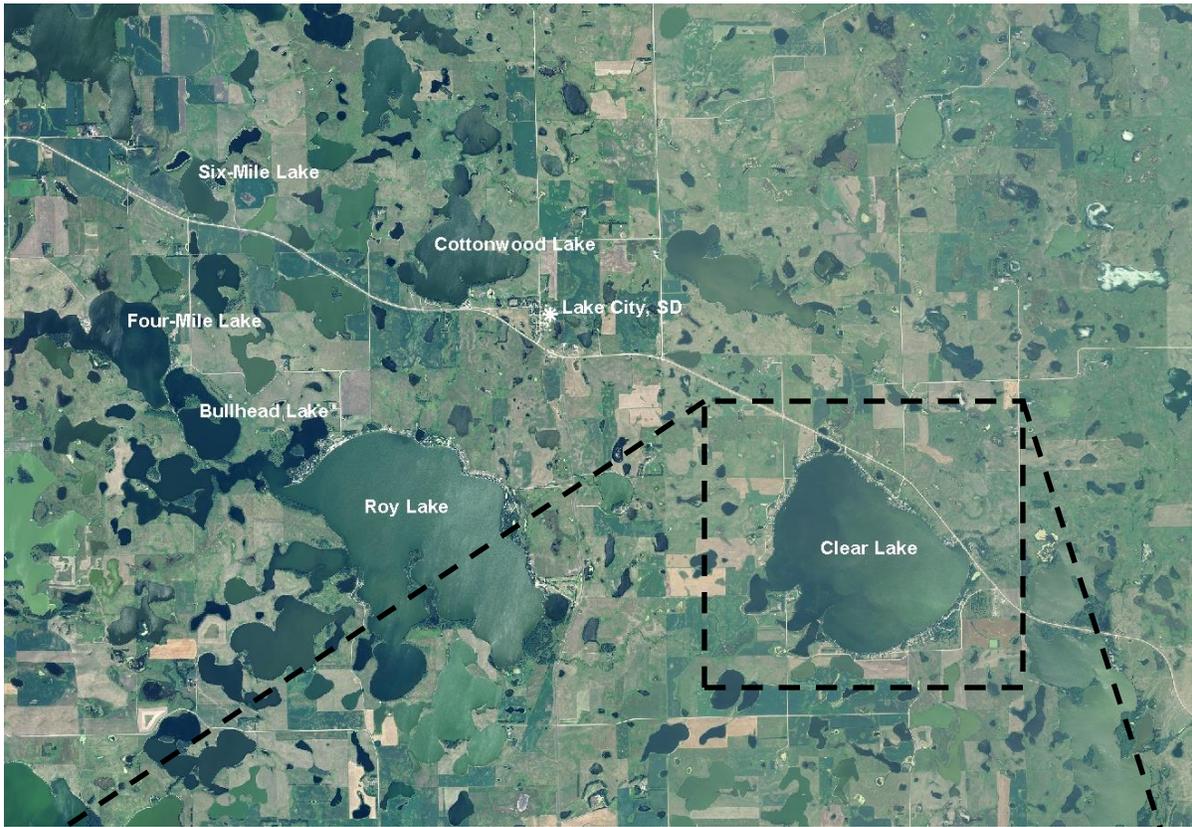


Figure 2. Map depicting geographic locations of Bullhead, Clear, Cottonwood, Four-Mile, Six-Mile, and Roy Lakes from Lake City, Marshall County, South Dakota (top). Also noted is the public access location and standardized net locations for Clear Lake (bottom). CLFN= frame net; CLGN= gill net

Management Objectives

- 1) Maintain a mean spring night electrofishing CPUE of stock-length largemouth bass \geq 30, a PSD of 40-70, and a PSD-P of 10-40.
- 2) Maintain a moderate density smallmouth bass population with a PSD of 40-70, and a PSD-P of 10-40.
- 3) Maintain a mean gill net CPUE of stock-length walleye \geq 10, a PSD of 30-60, and a PSD-P of 5-10.
- 4) Maintain a mean gill net CPUE of stock-length yellow perch \geq 30, a PSD of 30-60, and a PSD-P 5-10.
- 5) Maintain a mean frame net CPUE of stock-length black bullhead \leq 100.

Results and Discussion

Clear Lake is a natural lake situated on the Coteau des Prairie. Two major surface water inlets to Clear Lake are located at the north shore and flow directly from the Red Iron Lakes and Long Lake. Water exiting Clear Lake flows into Roy Lake, then through a chain of other Coteau Lakes before eventually emptying into the James River. Currently, Clear Lake is managed as a black bass (largemouth and smallmouth bass), walleye, and yellow perch fishery. Black bullhead, black crappie, bluegill, and northern pike also contribute to the fishery.

Primary Species

Largemouth Bass/Smallmouth Bass: Spring electrofishing used to monitor population parameters for both largemouth and smallmouth bass is conducted biennially during odd years (i.e., 2015, 2017, 2019....) at Clear Lake (Table 2; Table 3).

Walleye: The mean gill net CPUE of stock-length walleye was 9.2 (Table 1) and slightly below the minimum objective (\geq 10 stock-length walleye/net night; Table 3). Since 2005, the mean gill net CPUE has ranged from a low of 4.2 (2012) to a high of 10.7 (2013; Table 2). Based on the 2014 gill net CPUE, relative abundance is considered moderate.

Gill net captured walleye ranged in TL from 17 to 58 cm (6.7 to 22.8 in), had a PSD of 15 and a PSD-P of 2 (Table 1; Figure 3). Both the PSD and PSD-P were below management objective ranges of 30-60 and 5-10 (Table 3). Recruitment of the relatively-large 2011 year class into the stock-quality length category has resulted in the lower size structure (Table 4; Figure 3). In 2014, only 13% of walleye in the gill net catch were above the 381-mm (15-inch) minimum length restriction (Figure 3).

Since 2005, otoliths have been collected from a sub-sample of gill net captured walleye. Age structure information suggests that both natural recruitment and stocking contribute to the population (Table 4; Table 5). Five year classes (2005, 2009-2011, and 2013) were represented in the 2014 gill net catch; individuals from the strong 2011 cohort, which coincided with a fry stocking, comprised 85% of walleye sampled (Table 4). Walleye stocked in 2011 were marked with Oxytetracycline (OTC) so that the contribution of stocked fish could be evaluated; the estimated stocking contribution was 66% (Table 4; Table 6). In 2014, 542,000 OTC marked fry were stocked into Clear Lake; unfortunately, it appears that survival was low as only three age-0 individuals were captured during fall night electrofishing (Table 1); none exhibited OTC marks (Table 4). Thus, an additional 24,879 large fingerlings were stocked in late fall.

Walleye in Clear Lake tend to exhibit moderate growth and typically attain quality length and the minimum length limit (38 cm; 15 in) by age 4 (Table 5). Since 2005, the weighted mean length at capture for age-3 walleye has ranged from 317 to 428 mm (12.5 to 16.9 in); while the weighted mean length at capture for age-4 fish has ranged from 373 to 462 mm (14.7 to 18.2 in; Table 5). However due to low sample sizes, weighted mean TL at capture values may at times represent few walleye (Table 5). In 2014, weighted mean TL at capture values for age-3 and age-4 walleye were 394 and 461 mm (15.5 and 18.1 in; Table 5). Gill net captured walleye had mean Wr values that ranged from 77 to 103 for all 10-mm length groups represented. The mean Wr of stock-length walleye was 86 (Table 1) and no length-related trends in condition were apparent.

Yellow Perch: The mean gill net CPUE of stock-length yellow perch was 25.5 (Table 1) and below the minimum objective (≥ 30 stock-length yellow perch/net night). Since 2005, the mean gill net CPUE has ranged from 15.0 (2009) to 122.3 (2011; Table 2). Based on the 2014 gill net catch, relative abundance appears to be moderate.

Gill net captured yellow perch ranged in TL from 8 to 25 cm (3.1 to 9.8 in), had a PSD of 36 and a PSD-P of 2 (Table 1; Figure 4). The PSD was within the management objective range of 30-60; while, the PSD-P was below the management objective range of 5-10 (Table 3).

In recent years, yellow perch in Clear Lake have exhibited consistent recruitment (Table 7). In 2014, otoliths collected from a sub-sample of gill net captured yellow perch suggested the presence of seven consecutive year classes (2007-2013; Table 7). The 2012 cohort was the most abundant and comprised 43% of yellow perch in the gill net catch; the 2010 year class, which was the second most abundant, accounted for an additional 23%.

Since 2009, weighted mean TL at capture values for age-2 yellow perch have ranged from 123 to 146 mm (4.8 to 5.7 in); while the weighted mean TL at capture for age-3 fish has ranged from 158 to 178 mm (6.2 to 7.0 in; Table 8). In 2014, the weighted mean TL at capture for age-2 and age-3 individuals was 126 and 158 mm (5.0 and 6.2 in), respectively (Table 8). As with most populations, males tend to be smaller at a given age than females, particularly at older ages (Table 8). Gill net captured yellow perch had mean Wr values that ranged from 85 to 100 for all 10-mm length groups sampled; a slight decreasing trend in condition was observed as TL increased.

Other Species

Black Bullhead: The mean frame net CPUE of stock-length black bullhead was 26.4 (Table 1) and within the objective (≤ 100 stock-length black bullhead/net night; Table 3). Since 2005, the mean frame net CPUE has ranged from a low of 0.6 (2009, 2010) to a high of 29.7 (2013; Table 2). Currently, relative abundance is considered moderate to high.

Frame net captured black bullhead ranged in TL from 16 to 40 cm (6.3 to 15.7; Figure 5). The PSD was 55 and the PSD-P was 12 (Table 1). No age or growth information was collected. Mean Wr values ranged from 81 to 97 for all length categories (e.g., stock to quality) represented; the mean Wr of stock-length black bullhead was 95 (Table 1).

Black Crappie: The mean frame net CPUE of stock-length black crappie decreased from the 10.7 observed in 2013 to 2.4 in 2014 (Table 2) and indicated low relative abundance.

No black crappie age and growth information was collected. Based on the length frequency histogram, what appears to be a single year class has dominated the frame net catch in recent years (Figure 6). In 2014, the majority of black crappie sampled ranged in TL from 25 to 29 cm (9.8 to 11.4 in; Figure 6). The PSD and PSD-P were both 100 (Table 1). All stock-length black crappie sampled were in the preferred-memorable length category, which had a mean Wr of 100.

Bluegill: The mean frame net CPUE of stock-length bluegill was 22.9 (Table 1). Since 2005, the frame net mean CPUE has ranged from a low of 4.8 (2009) to a high of 39.0 (2013; Table 2). Based on the 2014 frame net CPUE, relative abundance is moderate.

Frame net captured bluegill ranged in TL from 8 to 25 cm (3.1 to 9.8 in), had a PSD of 48 and a PSD-P of 26 (Table 1; Figure 7). Otoliths collected from a sub-sample of frame net captured bluegill suggested the presence of seven consecutive year classes (2007-2013; Table 9). Cohorts produced in 2010, 2012, and 2013 were the most abundant and collectively comprised 72% of bluegill in the frame net catch (Table 9).

Bluegills in Clear Lake typically approach or attain quality length (15 cm; 6 in) at age-3 (Table 10). Since 2006, the weighted mean TL at capture of age-3 bluegill has ranged from 142 to 209 mm (5.6 to 8.2 in; Table 10). The condition of sampled bluegill was high, with Wr values > 100 for all length categories (e.g., stock to quality) sampled. The mean Wr of stock-length bluegill was 108 (Table 1). Seasonal influences (i.e., spawning behavior) may have influenced Wr values.

Northern Pike: Northern pike typically are not sampled effectively during mid-summer fish community surveys. As a result, mean gill net CPUE values are often low. In 2014 the mean gill net CPUE of stock-length northern pike was 6.0 (Table 1) and the highest recorded since 2005 (Table 2). Currently, relative abundance appears to be high.

Northern pike captured in the gill net catch ranged in TL from 35 to 84 cm (13.8 to 33.1 in), had a PSD of 50, and a PSD-P of 8 (Table 1). The condition of gill net captured northern pike was similar to that of northern pike captured from other northeast South Dakota glacial lakes (e.g., Cattail/Kettle and Roy Lakes) with mean W_r values that ranged from 73 to 97 for all 10-mm length groups sampled. Stock-length northern pike had a mean W_r of 87 (Table 1) and no length-related trends in condition were apparent.

Other: White sucker, smallmouth bass and a single bigmouth buffalo were also captured during the 2014 survey (Table 1).

Management Recommendations

- 1) Conduct fish community assessment surveys annually (next survey scheduled in summer 2015) 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 largemouth bass and smallmouth bass population parameters.
- 3) Conduct fall night electrofishing on an annual basis to monitor age-0 walleye relative abundance.
- 4) Collect otoliths from bluegill, walleye, and yellow perch; scales from largemouth and smallmouth bass to assess the age structure and growth rates of each population.
- 5) Stock walleye at (\approx 500 fry/acre) to establish additional year classes if fall night electrofishing CPUE of age-0 walleye and gill netting results warrant [i.e., low gill net CPUE of sub-stock (i.e., < 25 cm (10 in) walleye and/or fall night electrofishing CPUE of age-0 walleye < 75 fish/hour].
- 6) Maintain the 356-457 mm (14-18 in) protected slot length limit on largemouth and smallmouth bass. The regulation is designed to increase the average size of black bass while allowing harvest of small bass to avoid slowing of growth (Blackwell and Lucchesi 2009).
- 7) Maintain the 381-mm (15 in) minimum length limit on walleye. The regulation is designed to protect smaller fish from harvest and increase average fish size (Lucchesi and Blackwell 2009).
- 8) 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; gill/frame net = 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) of stock-length fish for various fish species captured using frame nets, experimental gill nets, and electrofishing in Clear Lake, 2014. Confidence intervals include 80 percent (\pm CI-80) or 90 percent (\pm CI-90). BIB= bigmouth buffalo; BLB= black bullhead; BLC= black crappie; BLG= bluegill; NOP= northern pike; SMB= smallmouth bass; WAE= walleye; 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	26.4	9.2	55	4	12	3	95	2
BLC	2.4	0.9	100	0	100	---	100	<1
BLG	22.9	6.5	48	4	26	4	108	1
NOP	1.1	0.3	50	20	50	20	87	2
SMB	1.1	0.5	37	20	26	18	101	3
WAE	0.5	0.3	22	28	0	---	91	2
YEP	1.8	0.7	41	15	0	---	92	6
<i>Gill nets</i>								
BIB	0.2	0.2	100	---	100	---	96	<1
BLB	21.7	11.5	58	7	4	3	100	1
BLC	11.7	3.8	97	3	96	4	101	<1
BLG	2.5	1.7	67	23	47	24	109	2
NOP	6.0	1.1	50	14	8	8	87	1
SMB	3.3	2.0	85	14	35	19	102	2
WAE	9.2	2.0	15	8	2	3	86	1
WHS	2.2	1.4	77	22	77	22	100	6
YEP	25.5	6.8	36	6	2	2	92	<1
<i>Electrofishing</i>								
WAE ¹	3.0	---	---	---	---	---	---	---

¹ Fall Electrofishing-WAE; catch rate (CPUE) represents age-0 walleye/hour

Table 2. Historic mean catch rate (CPUE; gill/frame net = catch/net night, electrofishing = catch/hour) of stock-length fish for various fish species captured using frame nets, experimental gill nets and electrofishing in Clear Lake, 2005-2014. BIB= bigmouth buffalo; BLB= black bullhead; BLC= black crappie; BLG= bluegill; COC= common carp; GSF= green sunfish; LMB= largemouth bass; NOP= northern pike; SMB= smallmouth bass; WAE= walleye; WHS= white sucker; YEP= yellow perch

Species	CPUE									
	2005	2006 ⁴	2007 ⁴	2008	2009	2010	2011	2012	2013	2014
<i>Frame nets</i>										
BLB	6.7	4.0	7.8	5.2	0.6	0.6	---	7.2	29.7	26.4
BLC	0.3	1.1	3.6	0.8	0.0	0.3	---	5.2	10.7	2.4
BLG	6.9	24.8	19.3	35.6	4.8	13.1	---	18.6	39.0	22.9
COC	0.6	0.1	0.1	0.0	0.0	0.0	---	0.1	0.0	0.0
GSF	0.0	0.1	0.0	0.1	0.0	0.0	---	0.0	0.0	0.0
LMB	0.0	0.0	0.0	0.0	0.0	0.0	---	0.0	0.1	0.0
NOP	0.7	0.7	0.7	0.7	0.4	0.2	---	1.8	0.6	1.1
SMB	1.0	1.9	1.4	2.0	0.8	5.1	---	3.4	2.4	1.1
WAE	0.1	0.7	0.3	0.5	0.2	0.2	---	0.2	0.4	0.5
WHS	0.1	0.1	0.1	0.1	0.5	0.2	---	0.1	0.1	0.0
YEP	2.4	14.6	18.7	1.4	2.5	16.5	---	10.4	3.9	1.8
<i>Gill nets</i>										
BIB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
BLB	9.2	2.2	6.5	4.8	0.2	0.0	0.2	7.5	20.3	21.7
BLC	0.0	0.0	0.0	0.0	0.0	0.0	1.0	14.0	6.2	11.7
BLG	0.8	2.2	0.8	1.3	0.0	0.7	0.0	1.0	0.3	2.5
COC	0.2	2.7	2.0	0.3	0.2	0.0	0.2	0.0	0.0	0.0
NOP	0.5	1.5	5.3	2.2	0.7	1.3	2.7	3.3	3.8	6.0
SMB	3.8	2.8	1.2	2.0	4.0	7.8	2.5	2.0	4.3	3.3
WAE	4.8	6.0	6.8	6.2	6.0	4.8	6.8	4.2	10.7	9.2
WHS	0.7	1.2	1.2	1.0	1.8	3.3	3.3	5.2	1.3	2.2
YEP	17.5	39.5	117.2	20.8	15.0	82.8	122.3	84.8	40.1	25.5
<i>Electrofishing</i>										
LMB ¹	---	---	---	37.6	58.5	---	54.0	---	92.0	---
SMB ²	---	---	---	---	89.5	---	83.0	---	30.0	---
WAE ³	117.4	0.0	109.6	0.9	361.8	2.0	340.8	13.5	51.0	3.0

¹Spring Electrofishing-LMB

²Spring Electrofishing-SMB

³Fall Electrofishing-WAE; catch rate (CPUE) represents age-0 walleye/hour

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

Table 3. Mean catch rate (CPUE; gill/frame net = catch/net night, electrofishing = catch/hour), proportional size distribution for quality- (PSD) and preferred-length (PSD-P) fish, and relative weight (Wr) for selected species captured using frame nets, experimental gill nets, electrofishing in Clear Lake, 2005-2014. BLB= black bullhead; LMB= largemouth bass; SMB= smallmouth bass; WAE= walleye; YEP= yellow perch

Species	2005	2006 ³	2007 ³	2008	2009	2010	2011	2012	2013	2014	Objective
<i>Frame nets</i>											
BLB											
CPUE	7	4	8	5	1	1	---	7	30	26	≤ 100
PSD	98	57	74	96	100	73	---	38	60	55	---
PSD-P	96	51	33	29	73	55	---	8	5	12	---
Wr	94	85	88	89	102	88	---	93	98	95	---
<i>Gill nets</i>											
WAE											
CPUE	5	6	7	6	6	5	7	4	11	9	≥ 10
PSD	59	61	41	24	53	72	32	32	22	15	30-60
PSD-P	21	33	15	8	11	14	10	16	3	2	5-10
Wr	88	89	90	89	93	91	88	90	89	86	---
YEP											
CPUE	18	40	117	21	15	83	122	85	40	26	≥ 30
PSD	9	30	15	10	0	0	0	14	32	36	30-60
PSD-P	4	1	1	1	0	0	0	0	0	2	5-10
Wr	96	99	100	98	99	103	98	98	94	92	---
<i>Electrofishing</i>											
LMB ¹											
CPUE	---	---	---	38	59	---	54	---	92	---	≥ 10
PSD	---	---	---	79	95	---	94	---	43	---	40-70
PSD-P	---	---	---	32	36	---	83	---	12	---	10-40
Wr	---	---	---	112	118	---	115	---	110	---	---
SMB ²											
CPUE	---	---	---	---	90	---	83	---	30	---	---
PSD	---	---	---	---	48	---	55	---	53	---	40-70
PSD-P	---	---	---	---	38	---	41	---	47	---	10-40
Wr	---	---	---	---	102	---	105	---	95	---	---

¹ Spring Electrofishing-LMB.

² Spring Electrofishing-SMB.

³ Monofilament gill net mesh size (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 walleye sampled in gill nets and associated stocking history (# stocked x 1,000) from Clear Lake, 2010-2014.

Survey Year	Year Class												
	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
2014		5		51	1	2				1			
2013	---			42	5	17		1					
2012 ¹	---	---		4	3	15		1		3	1		
2011	---	---	---		1	31	2	4		6	1		
2010 ¹	---	---	---	---		11	2	11		9			1
# stocked fry	542 ²	600	600	600 ³		600 ⁴				600		1200	
sm. fingerling													
lg. fingerling	25										62		

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

²Stocked walleye were OTC marked; 0 of 3 otoliths collected from fall electrofished age-0 walleye exhibited marks for an estimated stocking contribution of 0%.

³Stocked walleye were OTC marked; 33 of 50 otoliths collected from fall electrofished age-0 walleye exhibited marks for an estimated stocking contribution of 66%.

⁴Stocked walleye were OTC marked; 42 of 50 otoliths collected from fall electrofished age-0 walleye exhibited marks for an estimated stocking contribution of 84%.

Table 5. Weighted mean TL at capture (mm) for walleye age-1 through age-10 sampled in experimental gill nets (expanded sample size) from Clear Lake, 2005-2014. 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
2014	187(5)	---	345(51)	394(1)	461(2)	---	---	---	589(1)	---
2013 ¹	---	278(42)	359(5)	394(17)	---	481(1)	---	---	---	---
2012 ¹	194(4)	313(3)	348(15)	---	472(1)	---	561(3)	483(1)	---	---
2011	190(1)	272(31)	428(2)	462(4)	---	514(6)	481(1)	---	---	---
2010 ¹	195(11)	306(2)	383(11)	---	471(9)	---	---	500(1)	615(1)	---
2009 ¹	---	289(16)	---	409(15)	460(2)	---	---	555(1)	---	---
2008 ¹	168(1)	---	317(28)	443(2)	480(2)	---	490(2)	---	---	---
2007	---	257(29)	378(7)	438(4)	---	470(2)	---	---	590(3)	608(4)
2006	182(5)	277(10)	360(6)	373(1)	478(5)	458(2)	---	584(2)	574(5)	571(5)
2005 ¹	191(13)	279(9)	---	390(7)	413(6)	538(1)	527(3)	521(1)	458(1)	---

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

Table 6. Stocking history including size and number for fishes stocked into Clear Lake, 2001-2014. WAE= walleye

Year	Species	Size	Number
2001	WAE	fry	1,100,100
2003	WAE	fry	1,200,000
2004	WAE	large fingerling	62,349
2005	WAE	fry	600,000
2009	WAE	fry	600,000
2011	WAE	fry	600,000
2012	WAE	fry	600,000
2013	WAE	fry	600,000
2014	WAE	fry	542,000
	WAE	large fingerling	24,879

Table 7. Year class distribution based on the age/length summary for yellow perch sampled in gill nets from Clear Lake, 2010-2014.

Survey Year	Year Class							
	2014	2013	2012	2011	2010	2009	2008	2007
2014		13	101	14	53	27	18	7
2013	---		81	34	93	59	77	
2012	---	---		67	243	109	157	
2011	---	---	---		419	342	415	
2010	---	---	---	---		161	563	24

Table 8. Weighted mean TL (mm) at capture by gender for yellow perch captured in experimental gill nets (expanded sample size) from Clear Lake, 2009-2014.

Year	Age						
	1	2	3	4	5	6	7
2014							
Male	98(6)	117(41)	159(6)	177(13)	187(6)	208(2)	196(1)
Female	98(4)	134(52)	163(6)	198(49)	219(18)	239(13)	243(4)
Combined	98(13)	126(101)	158(14)	193(53)	207(27)	231(18)	223(7)
2013							
Male	98(33)	119(11)	159(3)	178(4)	204(12)	---	---
Female	99(44)	119(21)	174(55)	201(28)	221(59)	---	---
Combined	98(81)	123(34)	166(93)	187(59)	217(77)	---	---
2012							
Male	103(27)	144(74)	170(25)	181(46)	---	---	---
Female	102(22)	148(158)	184(95)	204(84)	---	---	---
Combined	102(67)	146(243)	178(109)	193(157)	---	---	---
2011							
Male	96(173)	138(89)	152(149)	---	---	---	---
Female	98(187)	142(258)	173(249)	---	---	---	---
Combined	97(419)	141(342)	164(415)	---	---	---	---
2010							
Male	99(53)	130(107)	---	---	---	---	---
Female	99(77)	142(406)	166(26)	---	---	---	---
Combined	99(161)	138(563)	167(24)	---	---	---	---
2009							
Male	97(268)	134(8)	---	---	---	---	---
Female	96(516)	139(82)	---	---	---	---	---
Combined	96(842)	139(90)	---	---	---	---	---

Table 9. Year class distribution based on the expanded age/length summary for bluegill sampled in frame nets from Clear Lake, 2009-2014.

Survey Year	Year Class									
	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
2014		84	80	44	134	59	10	1		
2013	---		1	435	267	5	10			
2012	---	---		12	282	39		1		
2010	---	---	---	---		2	211	15	10	1
2009	---	---	---	---	---		1	58	24	

Table 10. Weighted mean TL (mm) at capture for bluegill sampled in frame nets (expanded sample size) from Clear Lake, 2006-2014.

Year	Age							
	1	2	3	4	5	6	7	8
2014	90(84)	110(80)	142(44)	190(134)	196(59)	230(10)	255(1)	
2013	49(1)	120(435)	184(267)	213(5)	226(10)	---	---	---
2012	91(12)	156(282)	209(39)	---	244(1)	---	---	---
2010	78(2)	115(211)	164(15)	195(10)	224(1)	---	---	---
2009	71(1)	112(58)	159(24)	---	---	---	---	---
2008	95(82)	127(387)	161(110)	206(54)	234(7)	---	241(2)	---
2007	88(128)	143(144)	182(76)	209(16)	---	236(1)	---	---
2006	113(86)	140(318)	156(30)	---	---	---	---	259(2)

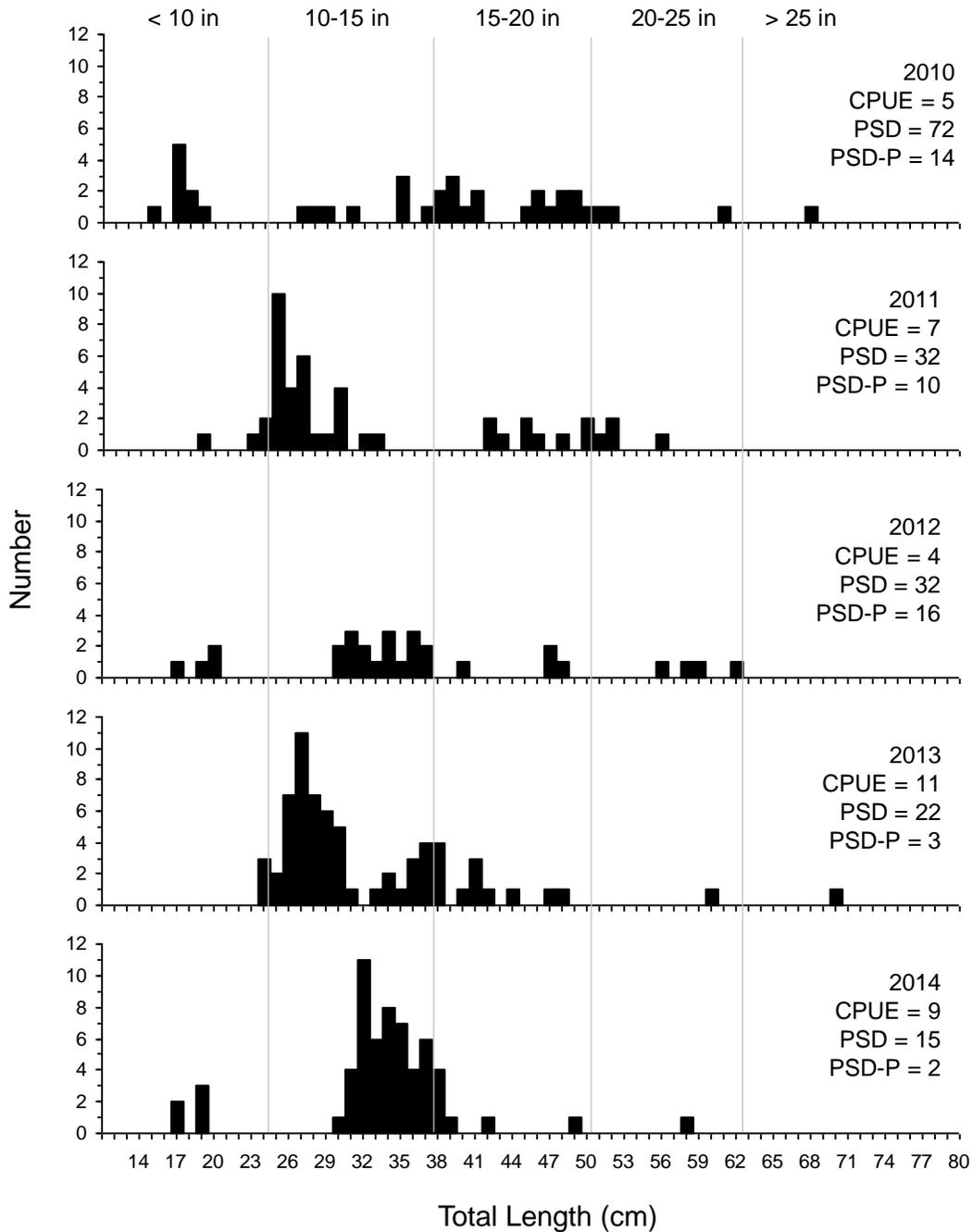


Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Walleye captured using experimental gill nets in Clear Lake, 2010-2014.

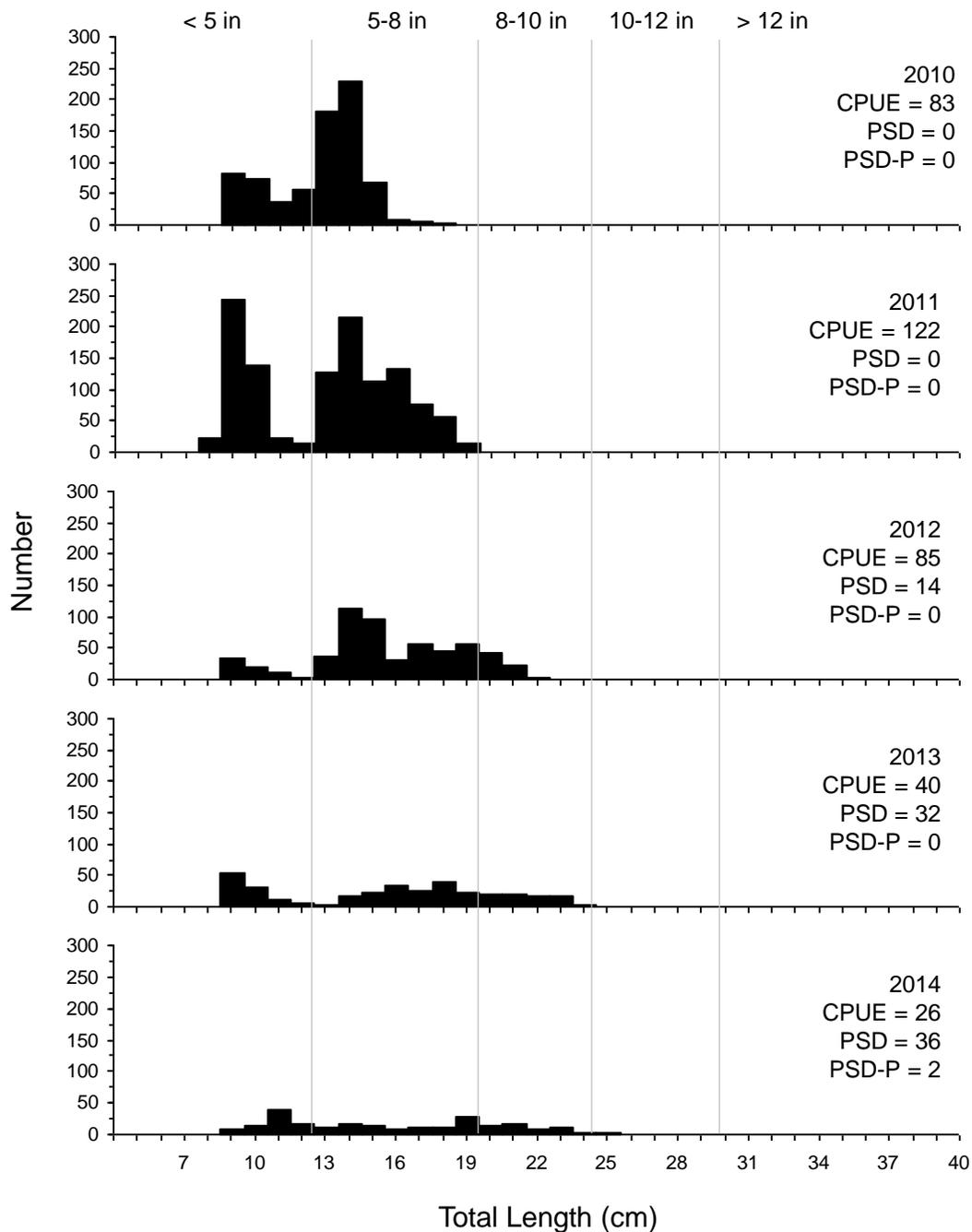


Figure 4. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for yellow perch captured using experimental gill nets in Clear Lake, 2010-2014.

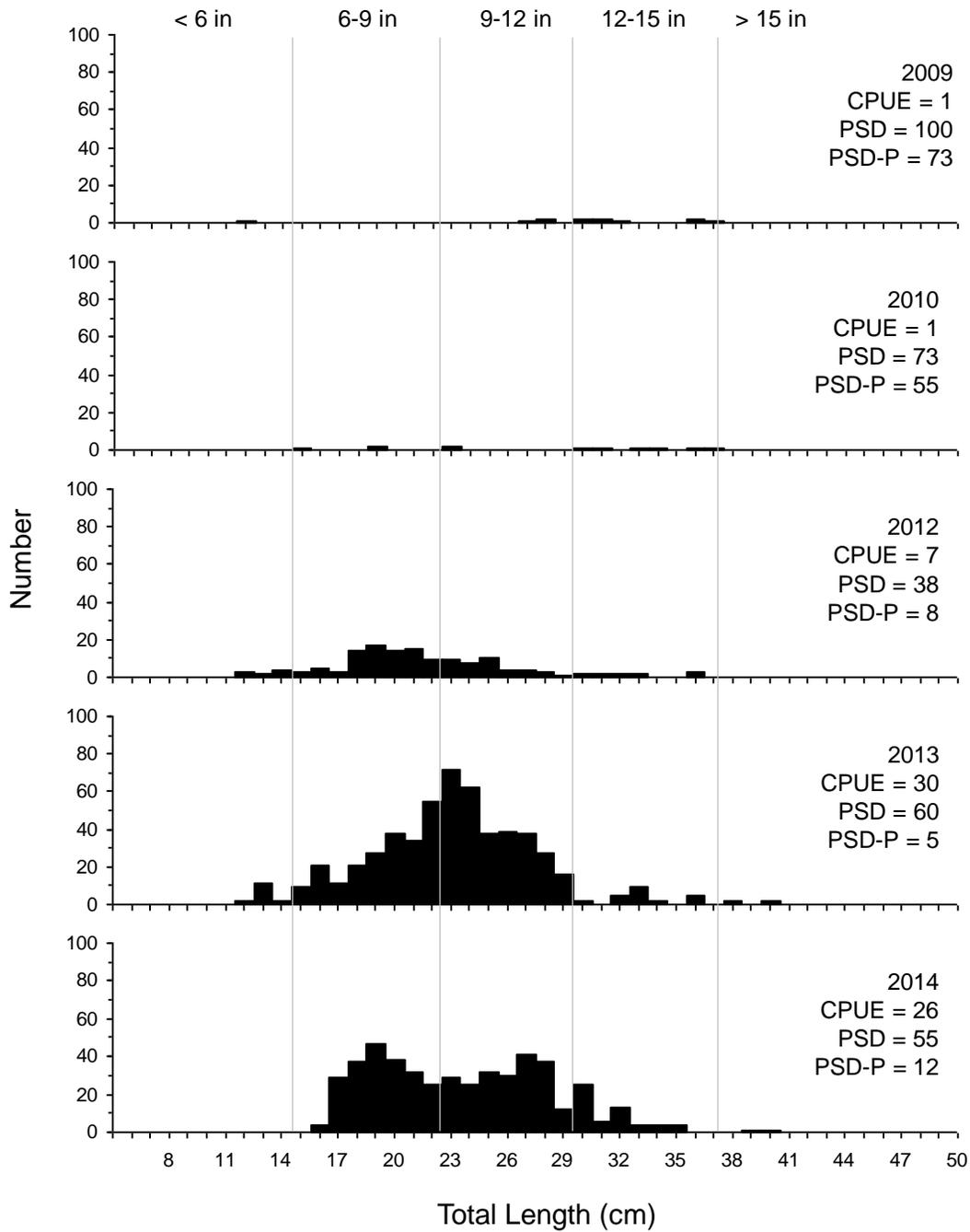


Figure 5. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for black bullhead captured using frame nets in Clear Lake, 2009-2014.

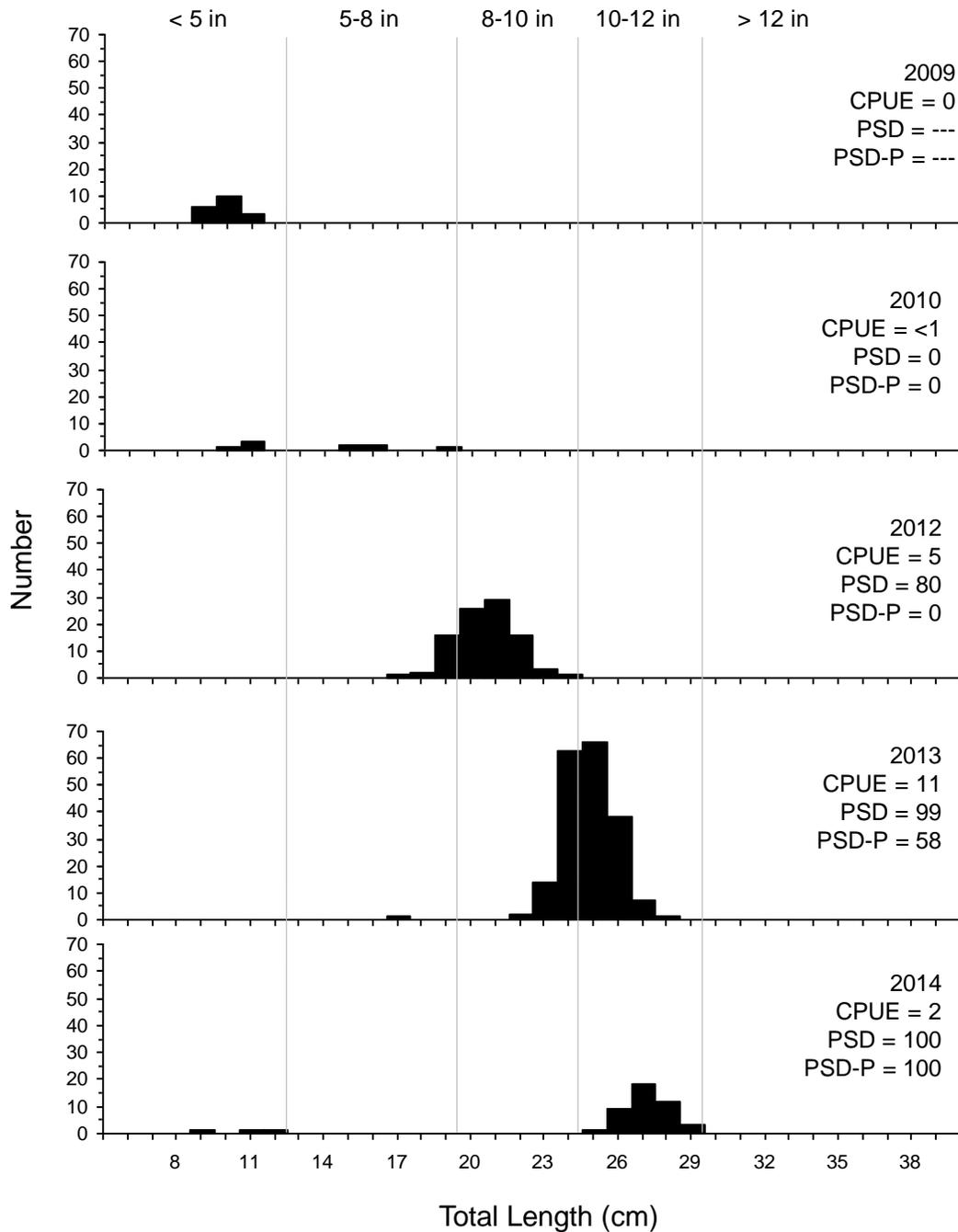


Figure 6. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for black crappie captured using frame nets in Clear Lake, 2009-2014.

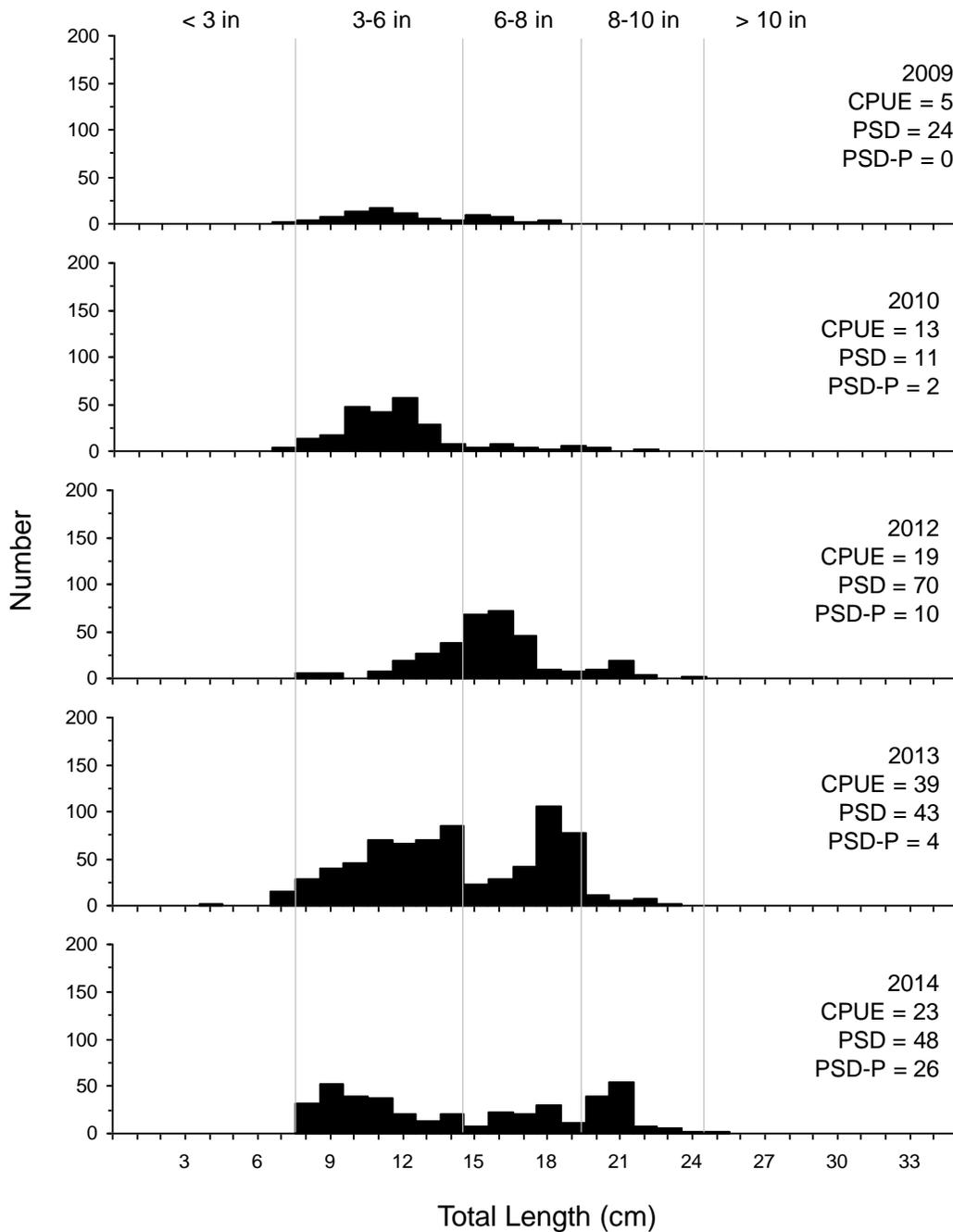


Figure 7. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for bluegill captured using frame nets in Clear Lake, 2009-2014.