

Waubay Lake Site Description

Location

Water designation number (WDN)	22-0031-00
Legal description	T122N-R54 W-Sec. 4-6; T122N-R55W-Sec. 1-5, 7-10, 15-19 T123N-R53W-Sec. 17,20; T123N-R54W-Sec. 7, 18-20, 29-32 T123N-R55W-Sec. 12-14, 23-28, 31-36
County (ies)	Day
Location from nearest town	South and East of Grenville, SD.

Survey Dates and Sampling Information

Survey dates	August 16-19, 2011 (FN, GN) August, 29, 2011 (EF-WAE)
Gill net sets (n)	8
Frame net sets (n)	31
Fall electrofishing-WAE (min)	60

Morphometry

Watershed area (acres)	186,967
Surface area (acres)	≈15,540
Maximum depth (ft)	≈31
Mean depth (ft)	13

Ownership and Public Access

Waubay Lake is a meandered lake owned by the State of South Dakota and the fishery is managed by the SDGFP. Eight public access sites are present on Waubay Lake (Figure 1). Two (Kanago and Grenville) are maintained by the SDGFP, and six (Buster's, West Bay Ranch, Breske's Bay, Vic's Landing, Wika's Access, and Buckshot) are privately maintained and require a fee or donation for access (Figure 1). Lands adjacent to Waubay Lake are under mixed ownership by the State of South Dakota, private parties, and the U.S. Fish and Wildlife Service (i.e., Waubay National Wildlife Refuge).

Watershed and Land Use

Land use within the Waubay Lakes watershed is primarily agricultural including cropland, pasture or grassland, and small wooded areas (e.g., shelterbelts).

Water Level Observations

The South Dakota Water Management Board established OHWM on Waubay Lake is 1787.0 and is below the current water elevation. The elevation of Waubay Lake on October 6, 2010 was 1803.0 fmsl and increased to 1804.6 fmsl by May 17, 2011 indicating a substantial "spring rise" (1.6 ft). On October 5, 2011 the elevation remained at 1804.6 fmsl.

Aquatic Nuisance Species Monitoring

Plant Survey

Small pockets of emergent and submersed vegetation are present in Waubay Lake; however the majority of the shoreline is windswept having little vegetation present. No aquatic plant species were identified during the 2011 survey.

Shoreline Survey

No aquatic nuisance species were identified in 2011.

Fish Community Survey

Common carp was the only aquatic nuisance fish species captured in 2011.

Fish Management Information

Primary species	smallmouth bass, walleye, yellow perch
Other species	black bullhead, black crappie, bluegill, common carp, lake herring, northern pike, rock bass, spottail shiner, white bass, white sucker
Lake-specific regulations	Smallmouth/Largemouth bass daily limit of 5. Only those <14", or 18" and longer may be taken. Of those no more than one may be 18" or longer.
Management classification	warm-water semi permanent
Fish Consumption Advisories	none

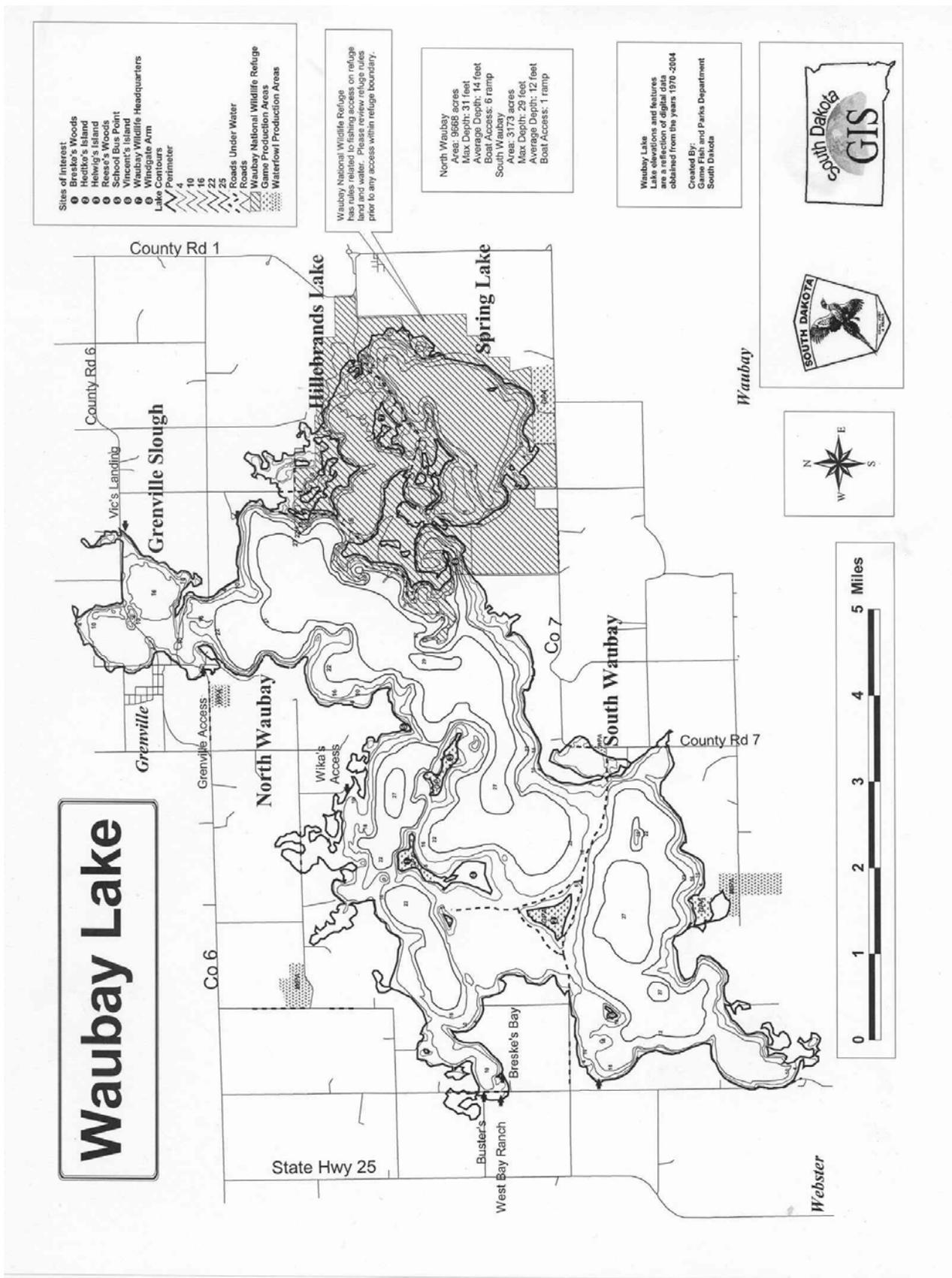


Figure 1. Waubay Lake contour map.

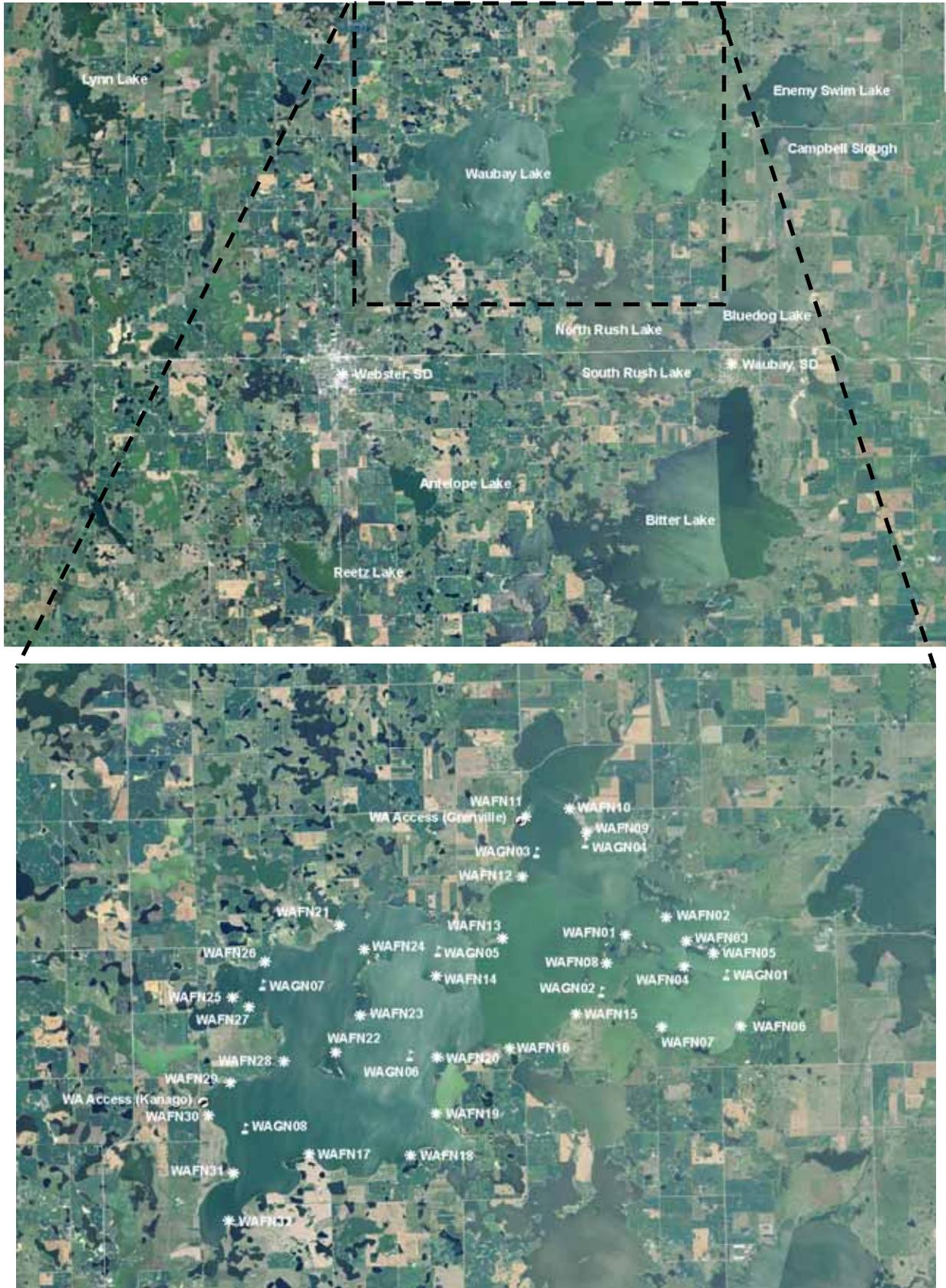


Figure 2. Map depicting geographic location of several Day County, South Dakota lakes including Waubay Lake (top). Also noted are state-owned public access locations and standardized net locations for Waubay Lake (bottom). WAFN= frame nets; WAGN= gill nets

Management Objectives

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

Results and Discussion

Waubay Lake is a meandered lake located in Day County, South Dakota, and is comprised of four previously distinct water bodies (North Waubay, South Waubay, Spring Lake, and Hillebrands). High water conditions since the mid-1990's have connected these four lakes and formed a single waterbody (Waubay Lake). Currently, the surface area of Waubay Lake exceeds 15,000 acres and has a maximum depth of >31 ft. A portion of Waubay Lake is located within the boundaries of the Waubay National Wildlife Refuge (Figure 1). Neither boating nor fishing is allowed within the refuge boundaries during open-water periods; however, fishing is allowed during the winter months.

Currently, Waubay Lake is primarily managed as a smallmouth bass, walleye, and yellow perch fishery; however, northern pike and white bass are important components of the fishery. Overall, as many as 13 fish species have been collected from Waubay Lake (Table 2).

Primary Species

Smallmouth bass: Recent research has recommended that smallmouth bass population dynamics 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). Spring night electrofishing to monitor smallmouth bass population parameters in Waubay Lake was not conducted in 2011, but is scheduled to be conducted biennially during odd years (e.g., 2013, 2015, 2017...).

Walleye: The mean gill net CPUE of stock-length walleye was 15.9 (Table 1) and above the minimum objective (≥ 10 stock-length walleye/net night; Table 3). Since 2003, the mean gill net CPUE has ranged from a low of 12.4 (2009) to a high of 34.4 (2007; Table 2). The 2011 gill net CPUE was similar to the 16.0 observed in 2010 (Table 2) and indicated high relative abundance.

Gill net captured walleye ranged in total length from 11 to 49 cm (4.3 to 19.3 in; Figure 3). The PSD was 42 and within the management objective of 30-60; while no preferred-length walleye were captured (Table 1; Table 3; Figure 3).

Since 2005, otoliths have been collected from a sub-sample of gill net captured walleye. In 2011, seven year classes (2003-2005 and 2008-2011) were present, with the 2005 and 2009 cohorts being the most represented (Table 4). Year classes produced in 2005 and 2009 coincided with fry stockings and collectively comprised 79% of walleye in the gill net catch (Table 4; Table 6). Although walleye natural reproduction and recruitment occur in Waubay Lake, the strongest year classes tend to coincide with fry stockings (Table 4). In 2011, approximately 8,000,000 walleye fry were stocked into Waubay Lake (Table 6). However, few age-0 walleye were captured in gill nets or during fall night electrofishing potentially indicating limited production of the 2011 year class (Table 1; Table 4).

Since 2006, the weighted mean total length at capture of age-5 walleye has ranged from 377 to 383 mm (14.8 to 15.1 in; Table 5). The 2005 year class had a weighted mean total length at capture of 280 mm (11.0 in) at age 2, 314 mm (12.4 in) at age 3, 349 mm (13.7 in) at age 4, and 380 mm (15.0 in) at age 5 (Table 5). Year classes produced in 2008 and 2009 have exhibited faster growth through age 2 than the 2005 year class, with weighted mean total length at capture values of 347 and 322 mm (13.7 and 12.7 in), respectively, at age 2 (Table 5). Increased growth of the 2008 and 2009 year classes can likely be attributed to abundant prey conditions provided by strong natural reproduction of white bass in 2010 (Kaufman et al. 2011).

Yellow Perch: The mean gill net CPUE of stock-length yellow perch was 27.6 (Table 1) and slightly below the minimum objective (≥ 30 stock-length perch/net night). Since 2003, the gill net CPUE of stock-length yellow perch has fluctuated from a low of 13.8 (2009) to a high of 58.3 (2004; Table 2). The 2011 gill net CPUE represented an increase from the 19.8 observed in 2010 and indicated moderate relative abundance.

Gill net captured yellow perch ranged in total length from 13 to 29 cm (5.1 to 11.4 in), had a PSD of 72 and a PSD-P of 22. The PSD and PSD-P values were above the management objective ranges of 30-60 and 5-10 indicating a population comprised of a high proportion of larger (i.e., >20 cm; 8 in) yellow perch (Table 3; Figure 4).

Since 2009, otoliths have been collected from a sub-sample of gill net captured yellow perch. In 2011, age structure information indicated that year classes produced in 2006-2010 comprised the entire sample (Table 7). The 2009 cohort was the most represented and comprised 60% of yellow perch in the gill net catch (Table 7).

The weighted mean total length at capture for age-1 and age-2 male yellow perch was 151 and 194 mm (5.9 and 7.6; Table 8). Few male yellow perch \geq age 3 were captured (Table 8). Female yellow perch had weighted mean total length at capture values of 153, 209, 241, and 271 mm (6.0, 8.2, 9.5, and 10.7 in) at ages 1, 2, 3, and 4 (Table 8). Stock-length yellow perch in the gill net catch had mean Wr values that exceeded 110 for all length categories (e.g., stock to quality) sampled and no length-related trends in condition were apparent. The mean Wr of stock-length yellow perch was 114 (Table 1).

Other Species

Black Bullhead: The mean frame net CPUE for black bullhead was 0.4 (Table 1) and within the management objective (≤ 100 stock-length black bullhead/net night; Table 3). Predator densities, coupled with the cyclic nature of black bullhead populations have likely aided in limiting black bullhead recruitment. Currently, the black bullhead population in Waubay Lake likely has minimal effect on the overall fishery.

Black crappie: Lack of recruitment since 1998 has resulted in low relative abundance of black crappie (Table 2). In 2011, the mean frame net CPUE of stock-length black crappie was 0.3 (Table 1). Until a substantial year-class of black crappies recruit to the population, their impact on the fishery will be minimal.

Lake Herring: Lake Herring were first captured from Waubay Lake during 2002, and have been sampled in low numbers annually from 2003-2011 (Table 2). In 2011, eight lake herring that ranged in total length from 32 to 35 cm (12.6 to 13.8 in) were captured in gill nets which resulted in a mean gill net CPUE of 1.0 (Table 1). The lake herring population in Waubay Lake likely originated from lake herring that were hatched at Blue Dog Lake State Fish Hatchery and entered Blue Dog Lake (Blackwell and Hubers 2003).

White bass: White bass were first sampled in Waubay Lake during 2001 and have become an important component of the fishery. White bass have not been well represented in the gill net catch, but have typically been one of the more abundant species captured in the frame net catch (Table 2). In 2011, white bass were the most abundant species in the frame net catch, with the mean frame net CPUE of stock-length white bass being 6.5 (Table 1).

Frame net captured white bass ranged in total length from 11 to 44 cm (4.3 to 17.3 in), had a PSD of 93 and a PSD-P of 55 (Table 1; Figure 5). Based on age estimates made using otoliths, eight year classes (1999, 2001, 2005, and 2007-2011) were present (Table 9). Year classes produced in 2005 and 2010 were the most represented and collectively comprised 80% of white bass in the frame net catch (Table 9).

White bass in Waubay Lake exhibit fast growth and exceed preferred-length (30 cm; 12 in) by age-3 (Table 10). Since 2009, the weighted mean total length at capture for age-3 white bass has ranged from 355 to 361 mm (14.0 to 14.2 in; Table 10). The 2010 year class had a weighted mean total length of capture of 240 mm (9.4 in) at age 1; Table 10). Mean W_r values for frame net captured white bass ranged from 96 to 99 for all length categories (e.g., stock to quality) sampled, with the mean W_r of stock-length white bass being 96 (Table 1). No length-related trends in white bass condition were apparent.

Other: Bluegill, common carp, northern pike, rock 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 fall night electrofishing on an annual basis to monitor age-0 walleye relative abundance.
- 3) Stock walleye (≈ 500 fry/acre; 50% OTC marked) to establish additional year-classes if gill netting and/or fall night electrofishing CPUE of age-0 walleye results warrant (i.e., low gill net CPUE of < 250 -mm (10-inch) walleye and/or fall night electrofishing CPUE of age-0 walleye < 75 fish/hour).
- 4) Collect otoliths from walleye and yellow perch, and scales from smallmouth bass to assess age structure and growth rates of each population.
- 5) Conduct spring night electrofishing on a biennial basis (odd years) to monitor the smallmouth bass population.
- 6) 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.

Table 1. 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) of stock-length fish for various fish species captured in experimental gill nets, frame nets, and electrofishing in Waubay Lake, 2011. Confidence intervals include 80 percent (\pm CI-80) or 90 percent (\pm CI-90). BLB= black bullhead; BLC= black crappie; BLG= bluegill; COC= common carp; LAH= lake herring; NOP= northern pike; ROB= rock bass; SMB= smallmouth bass; 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	0.4	0.2	91	17	45	29	84	14
BLC	0.3	0.1	22	28	11	21	107	8
BLG	0.7	0.4	50	19	9	11	119	5
COC	0.5	0.2	76	19	6	10	100	6
NOP	0.1	0.1	100	0	50	50	83	10
ROB	0.6	0.3	21	17	11	12	109	2
SMB	6.1	1.3	26	6	10	4	99	<1
WAE	3.1	0.9	51	9	9	5	81	<1
WHB	6.5	2.6	93	3	55	6	96	<1
WHS	0.1	0.1	100	0	100	0	96	9
YEP	<0.1	<0.1	100	---	0	---	111	---
<i>Gill nets</i>								
BLB	0.5	0.4	75	59	0	---	107	15
COC	0.1	0.2	100	---	100	---	88	---
LAH	1.0	0.7	100	0	100	0	117	4
ROB	0.5	0.4	50	50	0	---	102	3
SMB	0.1	0.2	0	---	0	---	94	---
WAE	15.9	4.0	42	7	0	---	83	1
WHB	2.9	2.7	83	14	22	15	98	1
YEP	27.6	11.1	72	5	22	5	114	<1
<i>Electrofishing</i>								
WAE ²	6.0	---	---	---	---	---	---	---

¹ All fish sizes

² Fall night electrofishing-WAE; catch rate (CPUE) represents age-0 walleye not stock length

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 experimental gill nets, frame nets, and electrofishing in Waubay Lake, 2003-2011. BLB= black bullhead; BLC= black crappie; BLG= bluegill; COC= common carp; LAH= lake herring; 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 ¹	2007 ¹	2008	2009	2010	2011	
<i>Frame nets</i>										
BLB	8.0	4.6	3.8	3.8	1.7	0.8	0.9	0.8	0.4	
BLC	0.9	1.3	0.4	0.2	0.2	0.3	0.1	0.2	0.3	
BLG	0.0	0.1	0.0	<0.1	0.2	0.1	0.1	0.6	0.7	
COC	1.5	1.3	1.5	0.7	1.1	0.4	0.3	0.5	0.5	
NOP	1.6	0.2	0.7	0.2	0.4	0.8	0.7	0.4	0.1	
ROB	<0.1	0.0	0.0	0.0	<0.1	0.3	0.7	0.9	0.6	
SMB	0.9	1.1	1.3	2.1	6.3	1.9	3.4	6.3	6.1	
WAE	17.3	7.8	7.2	9.7	8.3	6.1	5.4	5.5	3.1	
WHB	1.3	0.5	1.8	9.1	6.6	3.2	7.1	3.1	6.5	
WHS	0.2	0.1	0.2	0.7	0.4	0.1	0.2	0.1	0.1	
YEP	0.2	<0.1	0.1	<0.1	<0.1	0.0	0.3	0.2	<0.1	
<i>Gill nets</i>										
BLB	0.3	0.5	0.1	0.3	0.6	0.0	0.1	0.0	0.5	
COC	0.1	0.9	0.1	1.9	1.5	0.6	0.0	0.8	0.1	
LAH	0.1	0.5	1.1	2.3	1.9	0.6	1.5	4.3	1.0	
NOP	0.3	0.3	0.1	0.1	0.0	0.0	0.1	0.1	0.0	
ROB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	
SMB	0.0	0.0	0.0	0.0	0.4	0.9	0.1	0.1	0.1	
SPS ²	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	
WAE	30.5	15.5	18.1	13.5	34.3	28.8	12.4	16.0	15.9	
WHB	0.0	0.0	0.0	0.3	2.0	4.6	0.3	0.9	2.9	
WHS	0.1	0.0	0.4	0.0	0.3	0.1	0.0	0.4	0.0	
YEP	32.4	58.3	30.4	27.6	42.8	32.4	13.8	19.8	27.6	
<i>Electrofishing</i>										
SMB ³	---	---	---	---	---	---	40.4	---	---	
WAE ⁴	30.7	114.3	148.4	2.0	0.0	5.0	88.0	0.0	6.0	

¹ Monofilament gill net mesh size change (0.75", 1.00", 1.25", 1.50", 2.00" and 2.50")

² All fish sizes

³ Spring night electrofishing-SMB

⁴ Fall night electrofishing-WAE; catch rate (CPUE) represents age-0 walleye not stock length

Table 3. Mean catch rate (CPUE; gill/frame nets= catch/net night, electrofishing= catch/hour), proportional stock density of quality- (PSD) and preferred-length (PSD-P) fish, and relative weight (Wr) for selected species captured in experimental gill nets, frame nets, and electrofishing in Waubay Lake, 2003-2011. BLB= black bullhead; SMB= smallmouth bass; WAE= walleye; YEP= yellow perch

Species	2003	2004	2005	2006 ¹	2007 ¹	2008	2009	2010	2011	Objective
<i>Frame nets</i>										
BLB										
CPUE	8	5	4	4	2	1	1	1	<1	≤ 100
PSD	88	100	100	96	98	96	100	83	91	---
PSD-P	61	84	89	90	87	96	100	78	45	---
Wr	90	87	85	83	86	86	96	92	84	---
<i>Gill nets</i>										
WAE										
CPUE	31	16	18	14	34	29	12	16	16	≥ 10
PSD	23	29	26	29	7	12	16	25	42	30-60
PSD-P	3	6	3	1	0	1	3	0	0	5-10
Wr	80	78	86	81	88	85	90	88	83	---
YEP										
CPUE	32	58	30	28	43	32	14	20	28	≥ 30
PSD	96	97	88	86	79	61	75	59	72	30-60
PSD-P	45	47	46	43	32	33	20	22	22	5-10
Wr	107	112	113	116	121	114	116	114	114	---
<i>Electrofishing</i>										
SMB ²										
CPUE	---	---	---	---	---	---	40	---	---	---
PSD	---	---	---	---	---	---	57	---	---	40-70
PSD-P	---	---	---	---	---	---	27	---	---	10-20
Wr	---	---	---	---	---	---	102	---	---	---

¹ Monofilament gill net mesh size change (0.75", 1.00", 1.25", 1.50", 2.00" and 2.50").

² Spring night electrofishing-SMB

Table 4. Year class distribution based on the expanded age/length summary for walleye sampled in gill nets and associated stocking history (Number stocked x 10,000) from Waubay Lake, 2007-2011.

Survey Year	Year Class													
	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998
2011	1	5	50	17			54	3	1					
2010	---	1	47	24			55	3						
2009 ¹	---	---	4	6	6		77	6		2	2		3	
2008	---	---	---		2	1	188	10	13		5	3	11	
2007 ²	---	---	---	---		5	190	25	34			1	20	1
# stocked														
fry	800		400				600	870	900	850			1345	
sm. fingerling									49					
lg. fingerling														

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

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

Table 5. Weighted mean total length (mm) at capture for walleye age-0 through age-10 sampled in experimental gill nets (expanded sample size) from Waubay 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										
	0	1	2	3	4	5	6	7	8	9	10
2011	119(1)	248(5)	322(50)	366(17)	---	---	407(54)	392(3)	457(1)	---	---
2010	151(1)	270(47)	347(24)	---	---	380(55)	394(3)	---	---	---	---
2009 ¹	120(4)	239(6)	315(6)	---	349(77)	377(6)	---	368(2)	492(2)	---	422(3)
2008	---	214(2)	267(1)	314(188)	377(10)	383(13)	---	407(5)	405(3)	425(11)	---
2007	---	246(5)	280(190)	332(25)	354(34)	---	---	437(1)	412(20)	657(1)	---
2006 ¹	---	223(72)	289(26)	332(20)	---	381(4)	---	385(54)	---	---	---
2005	125(15)	229(14)	295(31)	321(4)	344(4)	349(1)	371(98)	---	---	626(3)	697(1)

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

Table 6. Stocking history including size and number for fishes stocked into Waubay Lake, 1998-2011. SMB= smallmouth bass; WAE= walleye

Year	Species	Size	Number
1999	SMB	fingerling	23,900
1999	WAE	fry	13,449,000
2000	SMB	fingerling	25,540
2001	SMB	fingerling	26,900
2002	WAE	fry	8,500,000
2003	WAE	fry	9,000,000
2003	WAE	small fingerling	496,655
2004	WAE	fry	8,700,000
2005	WAE	fry	6,000,000
2009	WAE	fry	4,000,000
2011	WAE	fry	8,000,000

Table 7. Year class distribution based on the age/length summary for yellow perch sampled in gill nets from Waubay Lake, 2009-2011.

Survey Year	Year Class												
	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999
2011		23	131	26	31	8							
2010			60	31	61	7		3					
2009 ¹		---		2	75	14	2	5	1		4	2	2

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

Table 8. Weighted mean total length (mm) at capture by gender for yellow perch age-1 through age-10 captured in experimental gill nets (expanded sample size) from Waubay Lake, 2009-2011.

Year	Age									
	1	2	3	4	5	6	7	8	9	10
2011										
Male	151(10)	194(34)	234(1)	249(2)	---	---	---	---	---	---
Female	153(13)	209(95)	241(28)	271(28)	281(8)	---	---	---	---	---
Combined	152(23)	206(131)	242(26)	269(31)	281(8)	---	---	---	---	---
2010										
Male	153(17)	191(4)	218(10)	---	---	---	---	---	---	---
Female	151(43)	220(28)	252(48)	251(7)	---	280(3)	---	---	---	---
Combined	151(60)	216(31)	245(61)	251(7)	---	280(3)	---	---	---	---
2009 ¹										
Male	136(1)	198(15)	233(2)	---	239(2)	---	---	268(1)	235(1)	---
Female	157(1)	206(61)	254(11)	261(2)	286(3)	255(1)	---	298(3)	298(1)	299(2)
Combined	147(2)	204(75)	249(14)	261(2)	267(5)	255(1)	---	291(4)	267(2)	299(2)

Table 9. Year class distribution based on the expanded age/length summary for white bass sampled in frame nets from Waubay Lake, 2009-2011.

Survey Year	Year Class												
	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999
2011	6	89	9	1	12		76				12		2
2010	---	738	4		21	4	50			6	7		3
2009	---	---		1	50	28	123			3	19	3	

Table 10. Weighted mean total length (mm) at capture for white bass age-0 through age-10 sampled in frame nets (expanded sample size) from Waubay Lake, 2009-2011.

Year	Age										
	0	1	2	3	4	5	6	7	8	9	10
2011 ¹	115(6)	240(89)	306(9)	355(1)	385(12)	---	406(76)	---	---	---	428(12)
2010 ¹	121(738)	230(4)	---	359(21)	361(4)	395(50)	---	---	428(6)	418(7)	
2009	---	203(1)	304(50)	361(28)	374(123)	---	---	424(3)	401(19)	425(3)	

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

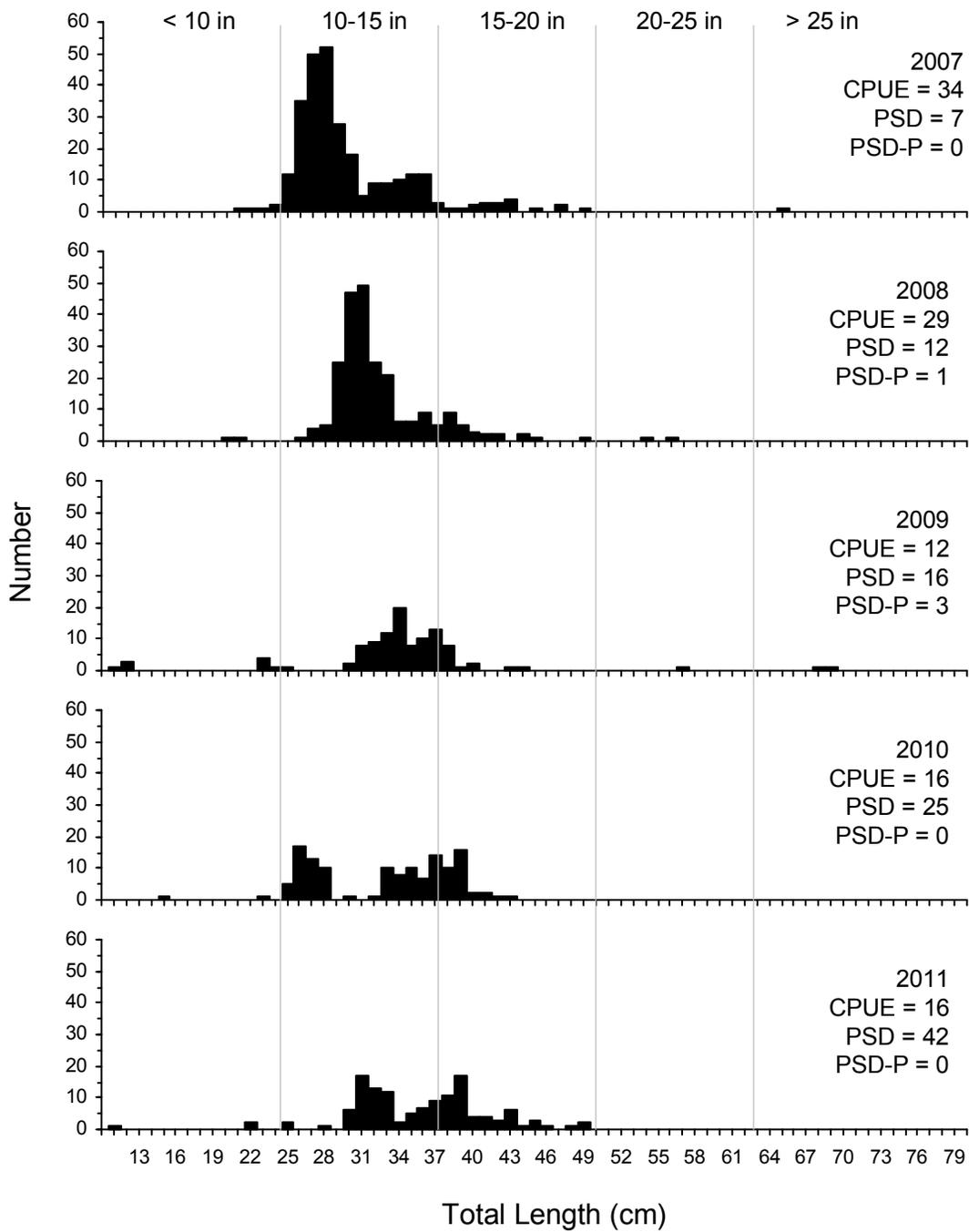


Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for walleye captured using experimental gill nets in Waubay Lake, 2007-2011.

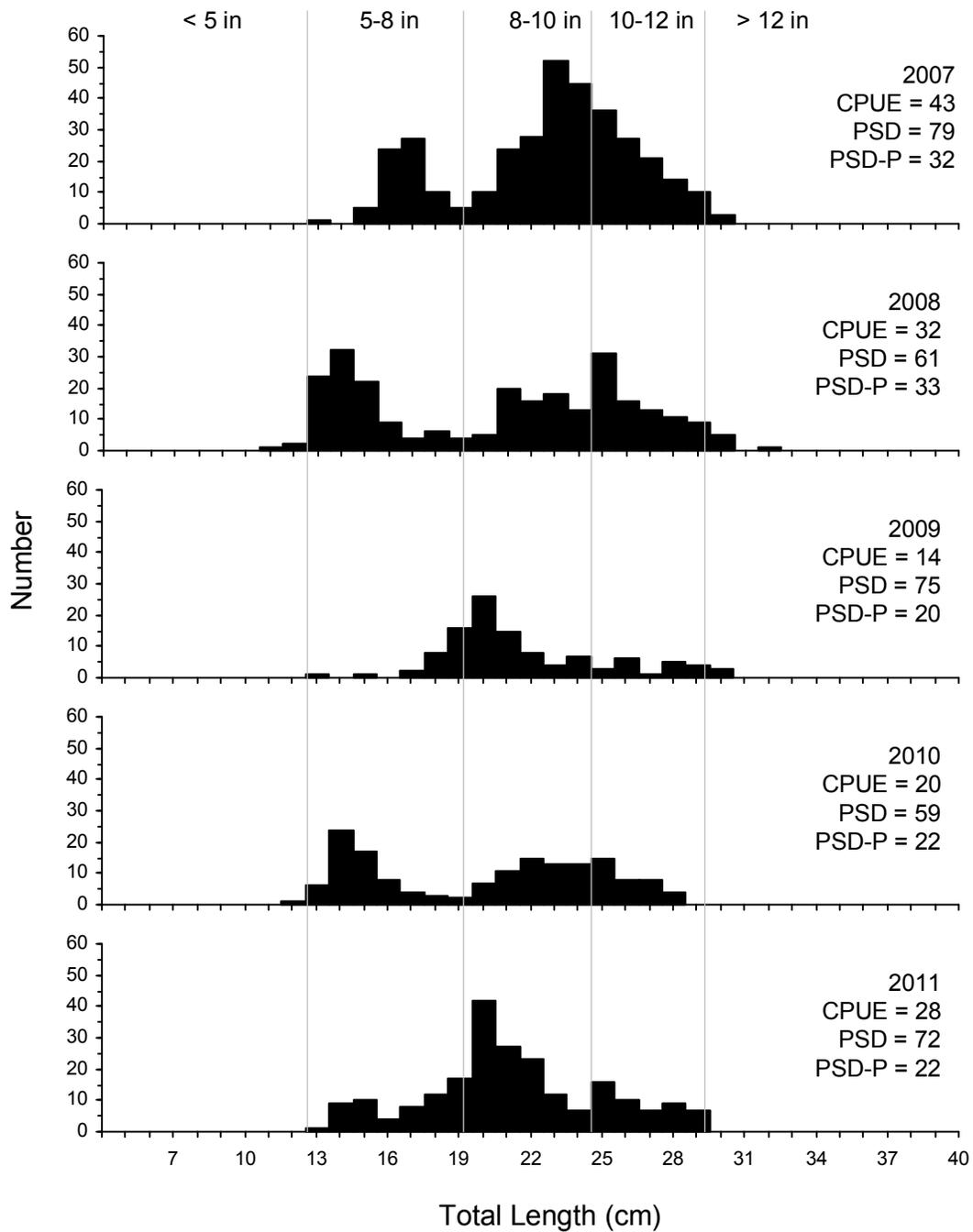


Figure 4. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for yellow perch captured using experimental gill nets in Waubay Lake, 2007-2011.

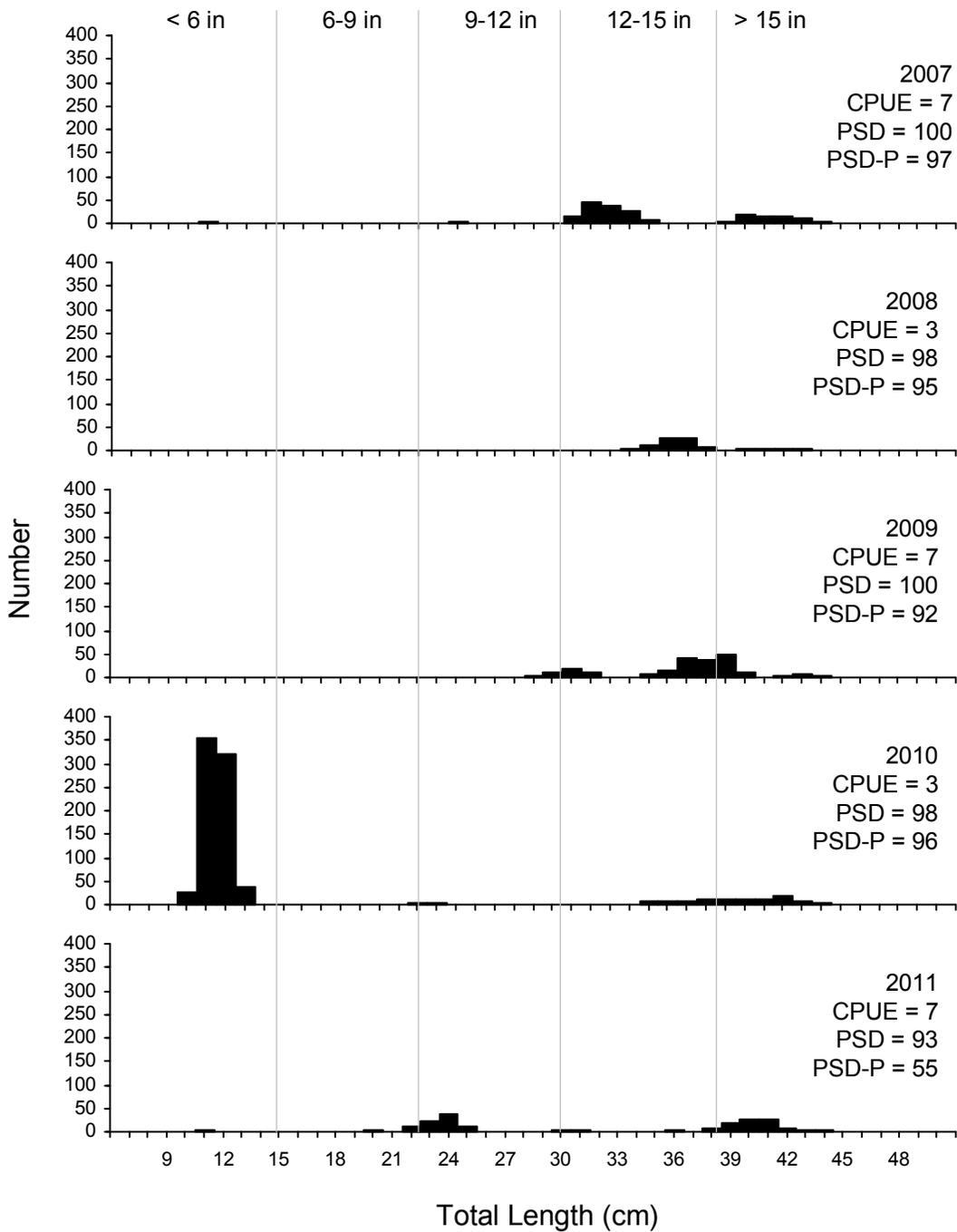


Figure 5. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for white bass captured using frame nets in Waubay Lake, 2007-2011.