

# Lake Kampeska

## Site Description

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### Location

Water designation number (WDN)	05-0002-00
Legal description	T117N-R53W-Sec.15-22, 27-30, 32
County (ies)	Codington
Location from nearest town	entirely within Watertown city limits

### Survey Dates and Sampling Information

Survey dates	July 12-14, 2011 (FN,GN) September 7, 2011 (EF-WAE)
Gill net sets (n)	6
Frame net sets (n)	20
Electrofishing-WAE (min)	50

### Morphometry

Watershed area (acres)	1,073,150
Surface area (acres)	5,250
Maximum depth (ft)	16
Mean depth (ft)	7

### Ownership and Public Access

Lake Kampeska is a meandered lake managed by the SDGFP. Many public access sites are present on Lake Kampeska (Figure 1) with four being maintained by the SDGFP. Lands adjacent to Lake Kampeska have mixed ownership including the State of South Dakota, Codington County, the city of Watertown, and private parties.

### Watershed and Land Use

The Lake Kampeska watershed is comprised of a mix of cropland, pasture or grassland (84%), housing (10%), woodland (5%), and municipal (1%).

### Water Level Observations

The South Dakota Water Management Board established Ordinary High Water Mark on Lake Kampeska is 1718.3 fmsl and the board set outlet elevation is 1717.8 fmsl. On June 1, 2011 the elevation was 1719.6 fmsl. By October 12, 2011 the elevation had declined to 1717.3 fmsl.

### Aquatic Nuisance Species Monitoring

#### Plant Survey

Both emergent and submersed vegetation are sparse in Lake Kampeska. Most submersed vegetation occurs in shallow protected bays off the main lake (e.g., Hidden Valley). In 2010, sago pondweed was the only submersed aquatic plant species identified. 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

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

### Fish Management Information

Primary species	smallmouth bass, walleye
Other species	bigmouth buffalo, black bullhead, black crappie, bluegill, channel catfish, common carp, green sunfish, largemouth bass, northern pike, orangespotted sunfish, pumpkinseed, rock bass, shorthead redhorse, spottail shiner, stonecat, white bass, white crappie, white sucker, yellow bullhead, yellow perch
Lake-specific regulations	none
Management classification	domestic water supply; warm-water permanent
Fish Consumption Advisories	none

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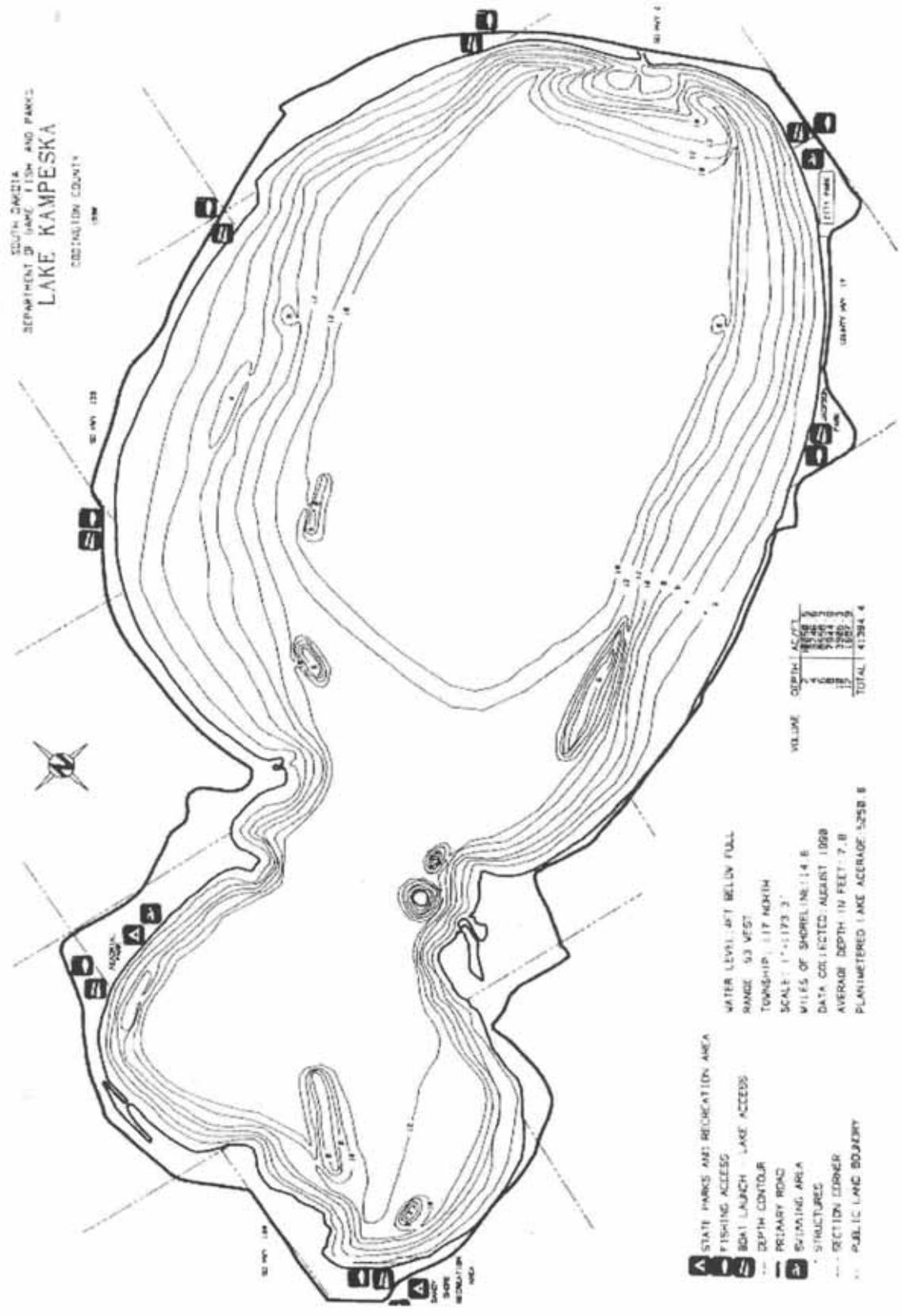


Figure 1. Lake Kampeska contour map.

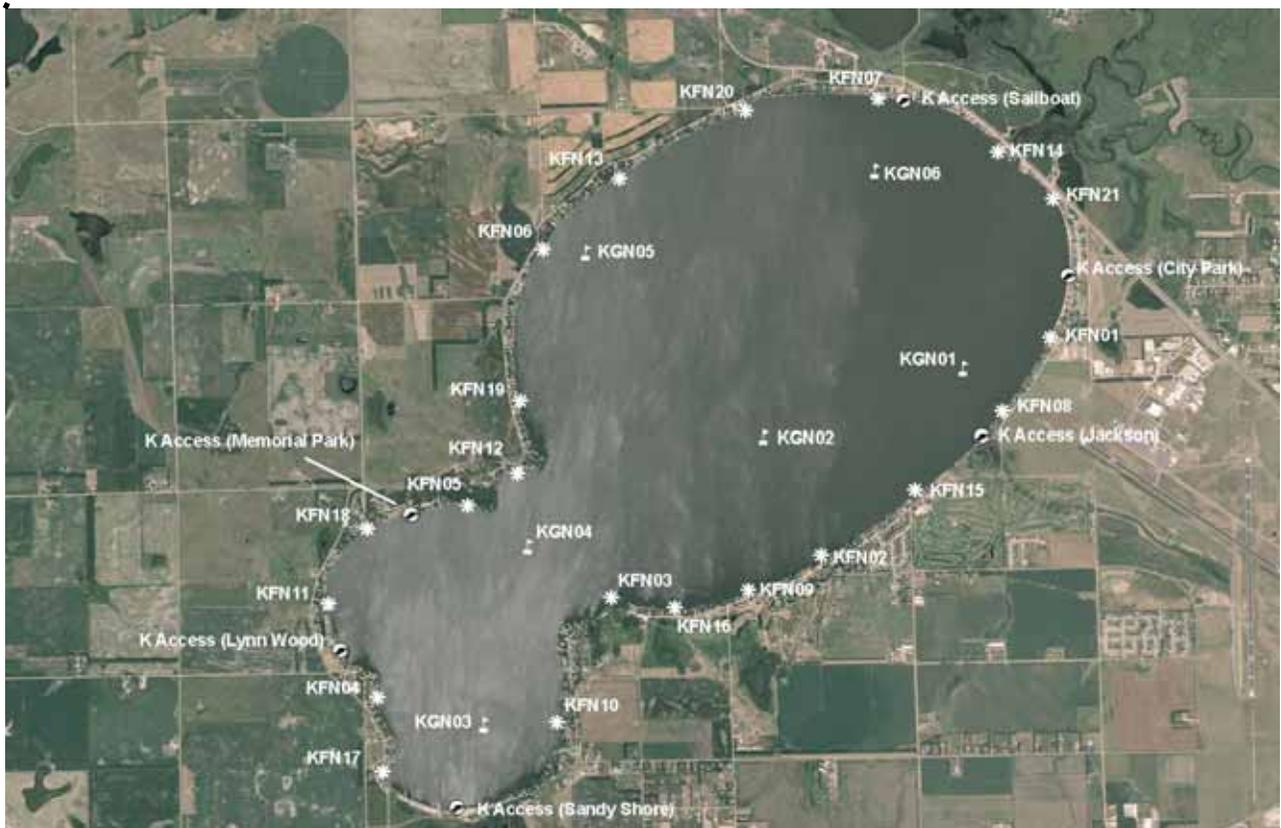
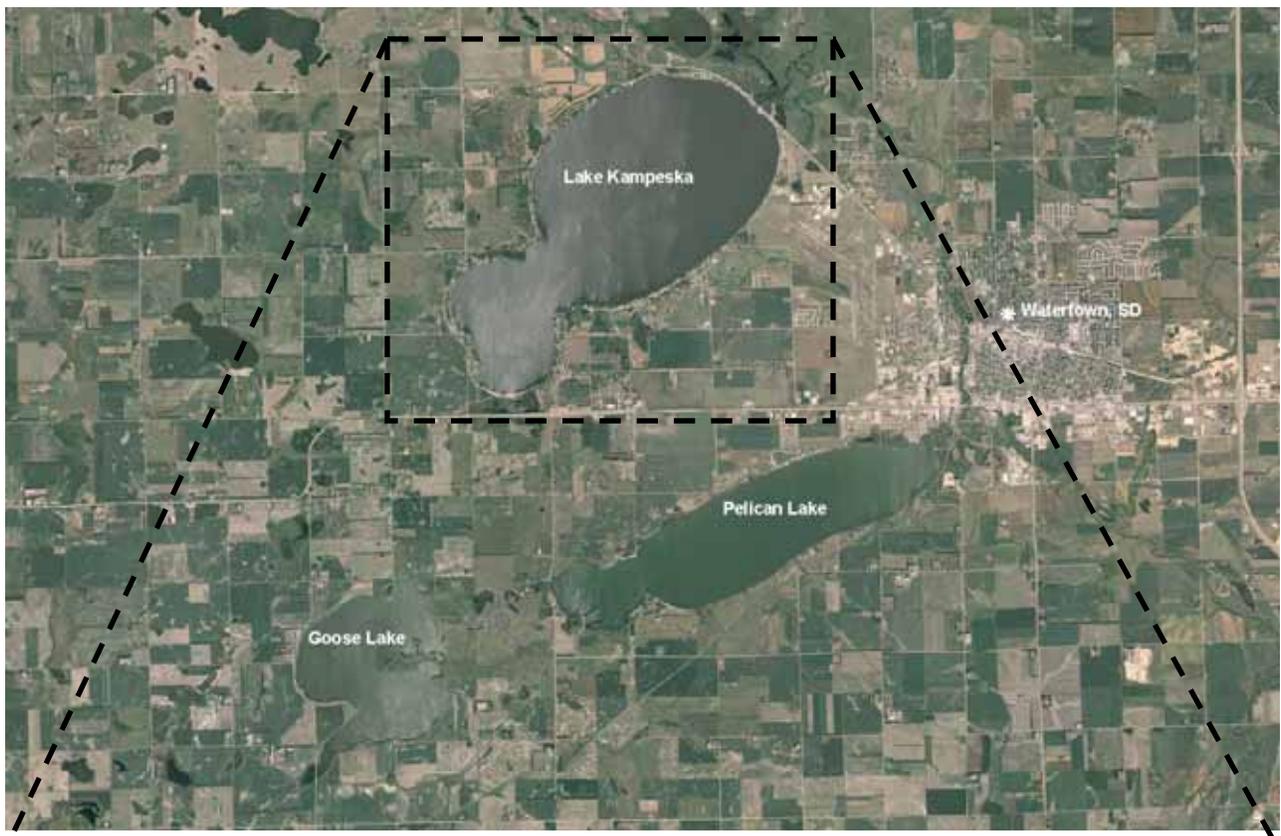


Figure 2. Map depicting location of Lake Kampeska, Goose, and Pelican Lakes from Watertown , SD (top). Also noted are public access points and standardized net locations for Lake Kampeska. KFN= frame nets, KGN= gill nets

## 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  $\geq 10$ , a PSD of 30-60, and a PSD-P of 5-10.

## Results and Discussion

Lake Kampeska is a permanent-natural lake covering approximately 5,250 surface acres, within the city limits of Watertown, SD. Lake Kampeska is connected to the Big Sioux River through a single inlet-outlet channel located on the northeast side. A weir structure installed on the inlet-outlet channel of Lake Kampeska is intended to slow the input of sediments to the lake basin. When the Big Sioux River is high, water enters Lake Kampeska. Conversely, when the water level in Lake Kampeska is higher than the Big Sioux River and above the weir structure water exits Lake Kampeska through the v-notch.

Lake Kampeska is a popular site for recreational activities including fishing, boating, swimming, waterskiing, camping, and picnicking. Public access to Lake Kampeska is exceptional with public access locations on the north, east, south (State Recreation Area), and west shores of the lake. Lake Kampeska is primarily managed as a smallmouth bass and walleye fishery; however, crappie (black and white), bluegill, channel catfish, northern pike, and white bass are important components of the fishery.

### *Primary Species*

Smallmouth bass: No data was collected for smallmouth bass in Lake Kampeska in 2011. Spring night electrofishing is the standard method and will be conducted during even years (i.e., 2012, 2014, 2016, etc).

Walleye: The 2011 mean gill net CPUE of stock-length walleye in Lake Kampeska was 24.3 (Table 1) and above the minimum objective ( $\geq 10$  stock-length walleye/net night; Table 3). Since 2003, the mean gill net CPUE has ranged from a low of 6.5 (2007) to a high of 24.5 (2004; Table 2). The 2011 gill net CPUE represents a slight increase from the 20.7 observed in 2010 (Table 2) and indicates high relative abundance.

Walleye captured in the 2011 gill net catch ranged in total length from 19 to 49 cm (7.5 to 19.3 in), had a PSD of 31 and a PSD-P of 0 (Figure 3). The PSD was within the objective range of 30-60 and PSD-P was below the objective range of 5-10 indicating a population comprised of smaller walleye (Table 3; Figure 3). Strong recruitment in recent years coupled with poor growth of the 2005 year class has resulted in the low size structure.

Otoliths were collected from a sub-sample of gill net captured walleye in 2011. Eight walleye year classes were present (2001, 2004-2010) with the 2005, 2008 and 2009 cohorts being the most represented (Table 5). Year classes produced in 2001, 2005, 2008 and 2009 coincide with fry stocking; while the 2004, 2006, 2007 and 2010 year class appears to be the result of natural reproduction (Table 5; Table 6). The contribution of stocked or naturally-produced walleye to the 2005, 2008 and 2009 year-classes is unknown, as stocked fry were unmarked making it impossible to differentiate stocked from naturally-produced walleye.

Walleye growth tends to be highly variable with walleye reaching quality-length (380 mm; 15 in) between age-3 and age-5 (Table 6). The large 2005 year class of walleye in Lake Kampeska has exhibited slow growth with weighted mean length at capture values of 248 mm (9.8 in) at age-2, 328 mm (12.9 in) at age-4, and 392 mm (15.4 in) at age-6 (Table 6). Walleye from the 2008 year class are exhibiting faster growth than the 2005 year class with the weighted mean length at capture of age-2 walleye being 281 mm (11.1 in) compared to 248 mm (9.8 in; Table 6). Condition of gill net captured walleye has remained relatively consistent from 2003-2011 with mean Wr values for stock-length walleye ranging from 80 to 86 (Table 3). In 2011, the mean Wr for stock-length walleye was 84 (Table 1).

### *Other Species*

**Bullheads:** The bullhead community in Lake Kampeska is comprised of both black bullhead and yellow bullhead. In 2011, the mean frame net CPUE of stock-length bullhead was 0.1 and 2.7 for black and yellow bullhead, respectively (Table 1). Since 2003, relative abundance has remained low for both species, as mean frame net CPUE values have not exceeded 7.0 stock-length fish/net night for either species (Table 2). Given the current low relative abundance, the impact of the bullhead population on the sport fishery is likely minimal.

**Bluegill:** The mean frame net CPUE of stock-length bluegill during 2011 was 1.5 (Table 1). Since 2003, bluegill relative abundance has remained low with mean frame net CPUE values ranging from 1.3 (2009) to 6.5 (2004; Table 2). Lack of suitable habitat (i.e., aquatic vegetation) and high predator densities likely limit bluegill abundance in Lake Kampeska.

Total length of bluegill captured in frame nets during 2011 ranged from 12 to 26 cm (4.7 to 10.2 inches; Figure 4). The PSD of bluegill captured in frame nets during 2011 was 93 and the PSD-P was 37 indicating a population skewed toward larger individuals (Figure 5).

No growth information was available for bluegill in Lake Kampeska. Frame net captured bluegills were in good condition, with mean Wr for stock-length bluegill being 118 (Table 1). Relative weight (Wr) values may have been influenced by bluegill spawning condition during the July survey.

Crappie: The crappie community in Lake Kampeska is comprised of both black and white crappie and both species contribute to the crappie fishery. The 2011 mean frame net CPUE for black crappie was 0.5 (Table 1). Since 2003, black crappie mean frame net CPUE values have fluctuated from a low of 0.4 (2009) to a high of 8.0 (2003; Table 2).

White crappies were captured in the 2011 frame net and gill net catch resulting in a mean CPUE of stock-length white crappie of 1.5 and 3.2, respectively (Table 1). White crappies appear to be sampled more effectively in gill nets than frame nets during our annual population assessments on Lake Kampeska. Since 2003, white crappie mean frame net CPUE values have remained low (i.e., < 2.0 white crappie/net night); while mean gill net CPUE values have fluctuated from a low of 0.2 (2009) to high of 8.2 (2006; Table 2).

Based on the 2011 survey, relative abundance of both species appears to be low. Therefore, few inferences can be made concerning size structure or condition for either species.

Channel catfish: Channel catfish are occasionally sampled during fish population assessments in Lake Kampeska. However, abundance appears low as mean gill net and frame net CPUE values have been below 1.0 channel catfish/net night from 2003-2011 (Table 2). In 2011, four channel catfish was captured in the frame nets and one was captured in the gill nets. Channel catfish captured in 2011 ranged in total length from 377 mm (14.8 in) to 604 mm (23.8 in). Low abundance likely precludes the channel catfish from being targeted by anglers; however, the opportunity exists for anglers to catch an occasional large channel catfish in Lake Kampeska.

Northern pike: The mean CPUE for stock-length northern pike captured in gill nets during the 2011 survey was 1.3 (Table 1). Northern pike typically are not sampled consistently using standard lake survey methods; however, abundance of northern pike in Lake Kampeska has been considered low with mean gill net CPUE values ranging from 0.2 (2005,2007,2010) to 1.3 (2011; Table 2). The lack of aquatic vegetation and back water areas in Lake Kampeska likely limits reproduction by northern pike resulting in their low abundance.

White bass: The mean CPUE of stock-length white bass during 2011 was 3.0 for frame nets and 4.5 for gill nets (Table 1). White bass have generally been considered to be present at a moderate density; however, recruitment of the 2005 cohort to the population has dramatically increased their abundance (Table 2; Table 8). Poor recruitment since 2005 likely coupled with natural and angling mortality has resulted in decreased frame net and gill net CPUE values since 2009 indicating decreasing relative abundance (Table 2).

White bass in the 2011 frame net catch ranged in total length from 13 to 38 cm (5.1 to 15.0 in), had a PSD of 98, and a PSD-P of 98 ( Figure 5). White bass from the 2005 year class have reached quality and preferred lengths resulting in the high size structure (Figure 5). Otoliths were collected from a sub-sample of frame net captured white bass and four year classes were present (2001, 2005, 2007, 2010; Table 7). However, the 2005 year class comprised approximately 90% of the sample (Table 7).

The weighted mean length at capture for age-6 white bass sampled in the 2011 frame net catch was 338 mm (13.3 in; Table 8). Mean  $W_r$  values for frame net captured white bass ranged from 84 to 86 for all length categories sampled with the mean  $W_r$  of stock-length white bass being 85 (Table 1).

White bass commercial harvest is allowed at Lake Kampeska by permitted commercial fisherman. The annual white bass quota is 20,000 lb; however, it is met infrequently. During the winter of 2010-2011, the commercial harvest of white bass from Lake Kampeska was 5,700 lb.

Yellow perch: The mean gill net CPUE of stock-length yellow perch in 2011 was 2.7 (Table 1). Since 2003, the gill net CPUE of stock-length yellow perch has fluctuated from a low of 0.3 (2008) to a high of 6.0 (2010; Table 2). Lake Kampeska has historically supported a low-density population of yellow perch. The windswept nature of the lake basin, lack of suitable spawning habitat and escape cover, and walleye predation likely combine to limit yellow perch recruitment and abundance.

Other: Lake Kampeska supports a highly diverse fish community, as a result of its connection to the Big Sioux River. Bigmouth buffalo, common carp, rock bass, shorthead redhorse and white sucker were other fish species captured during the 2011 survey (Table 1).

Bigmouth buffalo and common carp are commonly harvested through a permit by commercial fisherman during the ice-covered season. In the winter of 2010-2011, the commercial harvest of bigmouth buffalo and common carp from Lake Kampeska was 31,000 and 4,500 lb, respectively.

## **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) Conduct spring night electrofishing on a biennial basis (even years) to monitor smallmouth bass population parameters.
- 4) Collect otoliths from walleye and white bass; scales from smallmouth bass to assess age structure and growth rates of each population.
- 5) Stock walleye ( $\approx 500$  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).
- 6) Implement an angler use and harvest survey on Lake Kampeska.
- 7) Monitor commercial harvest of bigmouth buffalo, common carp, and white bass.
- 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 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 Lake Kampeska, 2011. 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; CCF= channel catfish; COC= common carp; NOP= northern pike; ROB= rock bass; SHR= shorthead redhorse; SMB= smallmouth bass; WAE= walleye; WHB= white bass; WHC= white crappie; WHS= white sucker; YEB= yellow bullhead; YEP= yellow perch

Gear/Species	Abundance		Stock Density Indices				Condition	
	CPUE	CI-80	PSD	CI-90	PSD-P	CI-90	Wr	CI-90
<i>Frame nets</i>								
BIB	0.3	0.2	83	34	17	34	92	11
BLB	0.1	0.1	50	50	50	50	99	---
BLC	0.5	0.2	100	0	67	31	97	5
BLG	1.5	1.0	93	8	37	15	118	2
CCF	0.2	0.1	75	59	0	---	116	12
COC	0.1	0.1	100	0	100	0	86	---
NOP	0.5	0.2	57	39	57	39	81	7
ROB	0.2	0.1	100	0	100	0	102	19
SHR	0.1	<0.1	100	---	100	---	93	---
SMB	1.6	0.4	26	0	6	0	89	1
WAE	0.5	0.2	11	21	0	---	98	19
WHB	3.0	0.9	98	3	98	3	85	<1
WHC	1.5	0.8	100	0	93	8	87	1
WHS	1.0	0.5	100	0	89	13	100	2
YEB	2.7	0.6	100	0	96	4	101	<1
YEP	0.1	0.1	50	50	0	---	94	15
<i>Gill nets</i>								
CCF	0.2	0.2	100	---	0	---	118	---
NOP	1.3	0.5	75	31	0	---	82	2
SHR	0.2	0.2	100	---	100	---	107	---
SMB	0.7	0.7	75	59	25	59	88	7
WAE	24.3	5.3	31	6	0	---	84	<1
WHB	4.5	2.3	100	0	100	0	89	<1
WHC	3.2	1.8	37	20	37	20	102	4
WHS	5.5	2.5	97	5	85	11	104	2
YEB	0.8	1.0	100	0	80	43	100	4
YEP	2.7	1.3	38	22	13	14	104	3
<i>Electrofishing</i>								
WAE <sup>1</sup>	342.0	---	---	---	---	---	---	---

<sup>1</sup> 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 Lake Kampeska, 2003-2011. BIB= bigmouth buffalo; BLB= black bullhead; BLC= black crappie; BLG= bluegill; CCF= channel catfish; COC= common carp; GSF= green sunfish; NOP= northern pike; OSF= orange-spotted sunfish; PUS= pumpkinseed; ROB= rock bass; SHR= shorthead redhorse; SMB= smallmouth bass; WAE= walleye; WHB= white bass; WHC= white crappie; WHS= white sucker; YEB= yellow bullhead; YEP= yellow perch

Gear/Species	CPUE									
	2003	2004	2005	2006 <sup>1</sup>	2007 <sup>1</sup>	2008	2009	2010	2011	
<i>Frame nets</i>										
BIB	1.5	0.9	0.7	1.7	1.3	1.6	0.2	1.7	0.3	
BLB	1.4	6.7	4.3	2.9	0.4	0.4	2.4	<0.1	0.1	
BLC	8.0	5.1	2.5	2.5	5.2	2.8	0.4	1.2	0.5	
BLG	5.7	6.5	2.4	3.6	4.2	4.0	1.3	3.2	1.5	
CCF	0.1	0.1	0.1	0.0	0.0	<0.1	0.0	0.0	0.2	
COC	0.2	0.1	0.3	0.2	0.4	0.3	0.2	<0.1	0.1	
GSF	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
NOP	0.7	0.3	0.4	0.2	0.6	0.3	0.5	1.0	0.5	
OSF <sup>2</sup>	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PUS	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
ROB	0.1	0.5	0.5	0.2	<0.1	<0.1	0.2	0.1	0.2	
SHR	0.6	0.2	0.0	0.0	0.2	0.0	0.0	<0.1	0.1	
SMB	2.2	3.2	1.8	5.6	7.1	2.7	0.6	2.6	1.6	
STC <sup>2</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	
WAE	0.8	1.6	2.3	0.8	1.6	2.2	1.1	3.4	0.5	
WHB	2.0	6.6	1.3	1.8	1.3	4.3	10.2	7.9	3.0	
WHC	0.7	0.8	0.3	0.9	0.7	0.2	0.1	0.2	1.5	
WHS	7.8	3.2	0.9	0.5	1.3	1.3	1.2	1.6	1.0	
YEB	0.4	2.8	3.4	0.9	1.3	1.4	0.2	5.2	2.7	
YEP	0.4	0.0	0.1	0.1	0.0	0.0	0.0	0.4	0.1	
<i>Gill nets</i>										
BIB	0.2	0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.0	
BLB	3.2	2.2	0.3	0.5	0.3	0.2	0.0	0.2	0.0	
BLG	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	
CCF	0.0	0.0	0.7	0.7	0.8	0.3	0.0	0.2	0.2	
COC	0.2	0.0	0.2	0.3	1.0	0.5	0.5	0.2	0.0	
NOP	1.2	0.8	0.2	0.5	0.2	0.5	1.0	0.2	1.3	
ROB	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	
SHR	0.2	0.0	0.2	0.0	0.0	0.0	0.3	0.3	0.2	
SMB	0.3	0.3	0.7	0.3	0.8	0.2	0.0	0.0	0.7	
WAE	18.2	24.5	21.8	11.7	6.5	14.3	17.0	20.7	24.3	
WHB	2.5	5.0	3.3	79.5	20.2	15.5	7.2	5.5	4.5	
WHC	2.0	5.5	4.7	8.2	2.5	0.5	0.2	1.0	3.2	
WHS	0.2	0.3	1.0	0.7	1.5	0.3	1.7	1.8	5.5	
YEB	0.0	0.0	0.2	0.8	0.2	0.2	0.0	0.7	0.8	
YEP	3.5	2.7	4.8	4.3	1.3	0.3	2.2	6.0	2.7	
<i>Electrofishing</i>										
SMB <sup>3</sup>	---	---	---	---	---	---	---	142.0	---	
WAE <sup>4</sup>	15.3	4.0	252.1	0.0	10.7	20.6	0.0	0.0	342.0	

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

<sup>2</sup> All fish sizes

<sup>3</sup> Spring night electrofishing-SMB

<sup>4</sup> 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) of stock-length fish, proportional size distribution 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 Lake Kampeska, 2003-2010. BLC= black crappie; BLG= bluegill; SMB= smallmouth bass; WAE= walleye; WHC= white crappie

Species	2003	2004	2005	2006 <sup>1</sup>	2007 <sup>1</sup>	2008	2009	2010	2011	Objective
<i>Frame nets</i>										
BLC										
CPUE	8	5	3	3	5	3	<1	1	1	---
PSD	44	80	100	79	70	100	100	84	100	---
PSD-P	11	11	69	43	23	36	100	44	67	---
Wr	97	106	102	108	108	100	93	100	97	---
BLG										
CPUE	6	7	2	4	4	4	1	3	2	---
PSD	84	95	75	57	91	90	83	93	93	---
PSD-P	8	2	25	20	26	58	67	66	37	---
Wr	106	105	115	116	118	117	118	118	118	---
<i>Gill nets</i>										
WAE										
CPUE	18	25	22	12	7	14	17	21	24	≥ 10
PSD	39	26	11	73	41	5	4	2	31	30-60
PSD-P	2	2	0	1	3	0	1	1	0	5-10
Wr	83	83	82	80	85	80	83	86	84	---
WHC										
CPUE	2	6	5	8	3	1	<1	1	3	---
PSD	67	73	89	37	100	100	100	100	37	---
PSD-P	0	6	43	20	27	0	100	100	37	---
Wr	100	100	103	113	109	98	94	97	102	---
<i>Electrofishing</i>										
SMB <sup>2</sup>										
CPUE	---	---	---	---	---	---	---	142	---	---
PSD	---	---	---	---	---	---	---	51	---	40-70
PSD-P	---	---	---	---	---	---	---	4	---	10-20
Wr	---	---	---	---	---	---	---	96	---	---

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

<sup>2</sup> 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 1,000) from Lake Kampeska, 2007-2011.

Survey Year	Year Class												
	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999
2011		11	28	50	13	1	43	1					1
2010 <sup>1</sup>	---		7	55	37	3	28						2
2009	---	---		35	34	1	64	1	1				2
2008	---	---	---		8	11	70						4
2007 <sup>1,2</sup>	---	---	---	---		1	75		6				6
# stocked													
fry			2,500	2,500			2,300					5,100	
sm. fingerling													
lg. fingerling													

<sup>1</sup> Older walleye were sampled, but are not reported in this table.

<sup>2</sup> Monofilament gill net mesh size change (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-1 through age-10 sampled in experimental gill nets (expanded sample size) from Lake Kampeska, 2007-2011. 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	250(11)	325(28)	359(50)	383(13)	425(1)	392(43)	432(1)	---	---	498(1)
2010 <sup>1</sup>	209(7)	281(55)	313(37)	319(3)	354(28)	---	---	---	345(2)	---
2009	195(35)	275(34)	304(1)	328(64)	404(1)	456(1)	---	519(2)	---	---
2008	192(8)	262(11)	286(70)	---	---	---	406(4)	412(1)	---	---
2007 <sup>1</sup>	208(1)	248(75)	---	415(6)	---	411(6)	---	473(3)	---	---
2006 <sup>1</sup>	203(74)	334(1)	384(19)	375(2)	397(41)	439(1)	453(2)	---	---	---
2005 <sup>1</sup>	---	280(22)	---	340(105)	---	421(4)	461(2)	---	---	---

<sup>1</sup> Older walleye were sampled, but are not reported in this table.

Table 6. Stocking history including size and number for fishes stocked into Lake Kampeska, 1999-2011.

Year	Species	Size	Number
2001	WAE	fry	5,100,000
2005	WAE	fry	2,300,000
2008	WAE	fry	2,500,000
2009	WAE	fry	2,500,000

Table 7. Year class distribution based on the expanded age/length summary for white bass sampled in frame nets from Lake Kampeska, 2009-2011.

Survey Year	Year Class											
	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
2011		3			2		56					1
2010	---		1	1	5		140		1	6	8	2
2009 <sup>1</sup>	---	---					172		1	12	3	

<sup>1</sup> Older white bass were sampled, but are not reported in this table.

Table 8. Weighted mean total length (mm) at capture for white bass sampled in frame nets (expanded sample size) from Lake Kampeska, 2009-2011.

Year	Age									
	1	2	3	4	5	6	7	8	9	10
2011	144(3)	---	---	325(2)	---	338(56)	---	---	---	382(1)
2010	183(1)	263(1)	307 (5)	---	329(140)		375(1)	355(6)	366(8)	363(2)
2009 <sup>1</sup>	---	---	---	316(172)	---	359(1)	356(12)	356(3)	---	381(1)

<sup>1</sup> Older white bass were sampled, but are not reported in this table.

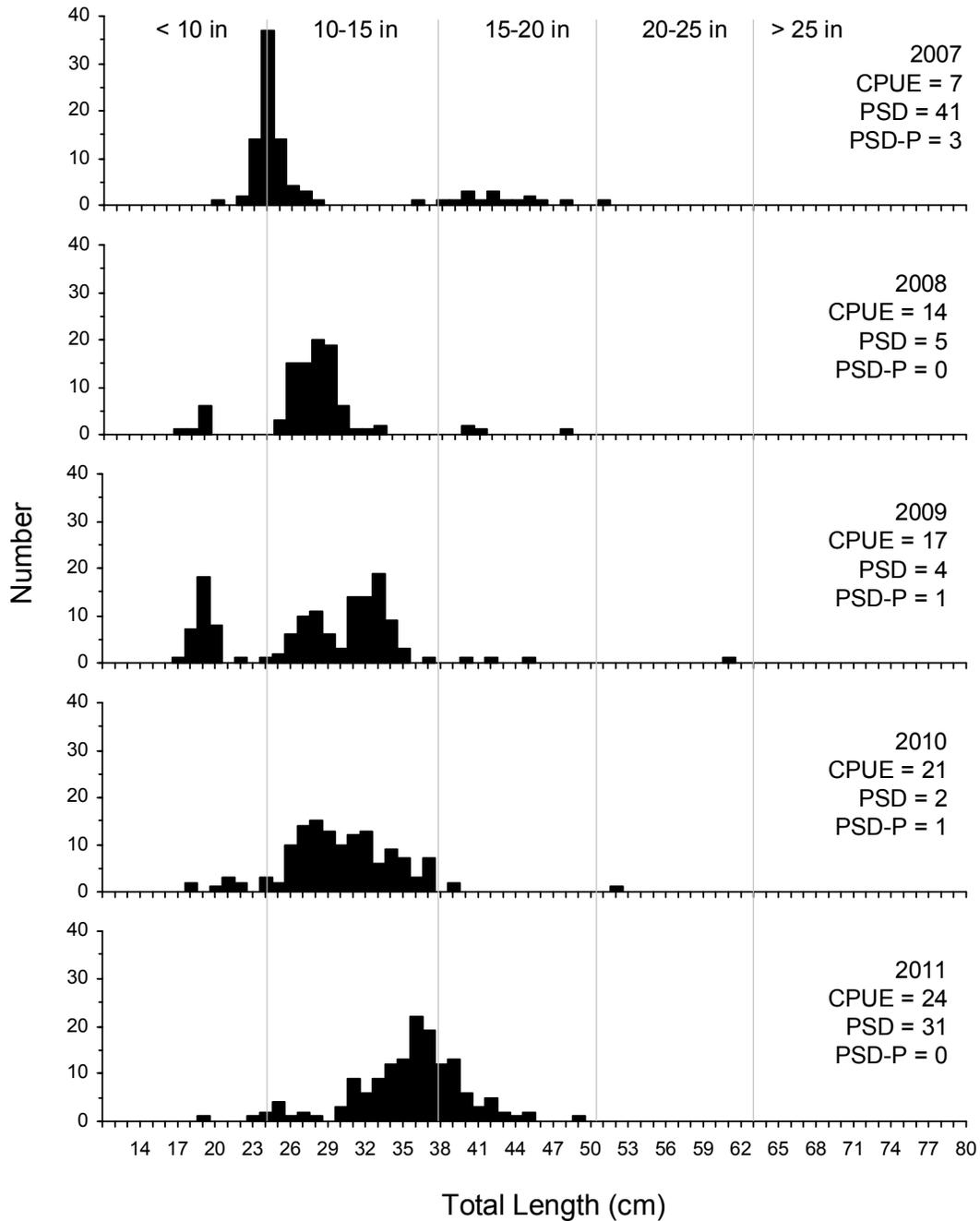


Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for walleye captured using experimental gill nets in Lake Kampeska, 2007-2011.

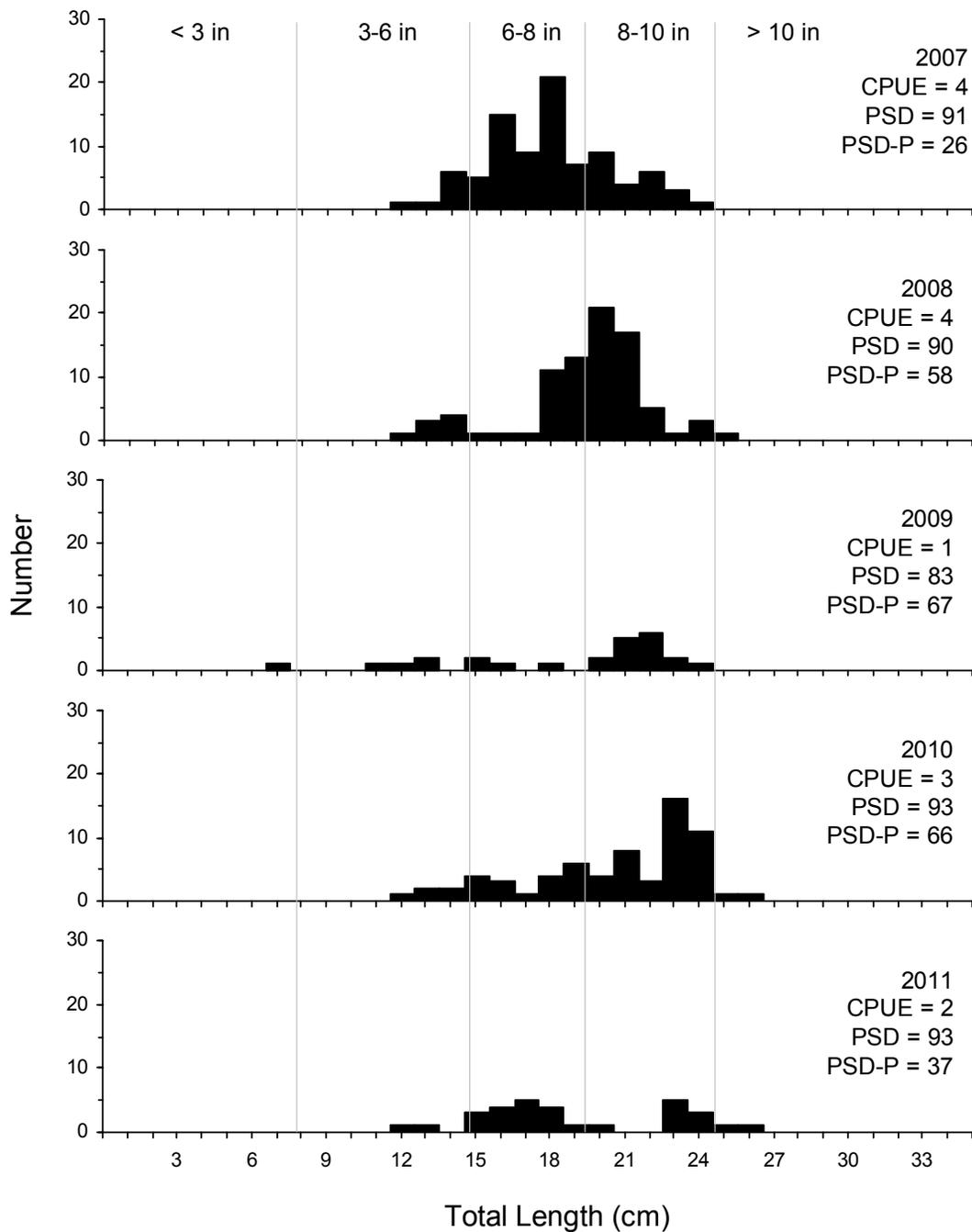


Figure 4. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for bluegill captured using frame nets in Lake Kampeska, 2007-2011.

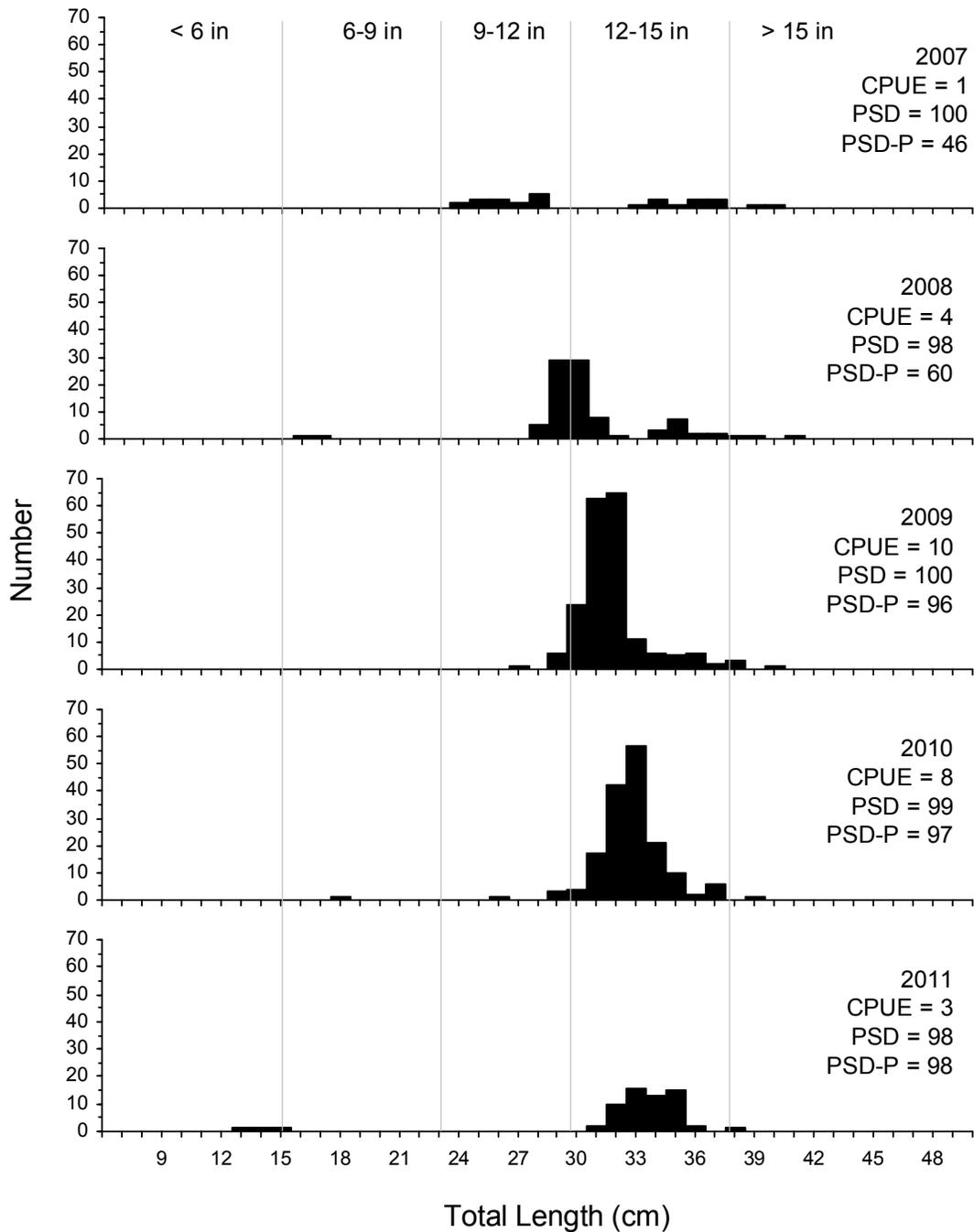


Figure 5. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for white bass captured using frame nets in Lake Kampeska, 2007-2011.