Lake Kampeska
Site Description

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	May 25, 2010 (EF-SMB) July 13-15, 2010 (FN,GN) August 26, 2010 (EF-WAE)
Electrofishing-SMB (min)	60
Gill net sets (n)	6
Frame net sets (n)	21
Electrofishing-WAE (min)	60

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 May 27, 2010, the elevation of Lake Kampeska was near the Ordinary High Water Mark at an elevation of 1718.2 fmsl. By October 6, 2010 the elevation had declined to 1717.4 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). Sago pondweed was the only submersed aquatic plant species identified during the 2010 survey. No aquatic nuisance plant species were encountered.

Macro-Invertebrate/Mussel Survey

No aquatic nuisance macro-invertebrate or mussel species were sampled in 2010.

Fish Community Survey

Common carp was the only aquatic nuisance fish species captured during the 2010 survey.

Fish Management Information

Primary species	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, smallmouth bass, spottail shiner, stonecat, white bass, white crappie, white sucker, yellow bullhead, yellow perch
Lake-specific regulations	NE Panfish Management Area: 10 daily; 50 possession
Management classification	Domestic Water Supply
Fish Consumption Advisories	none

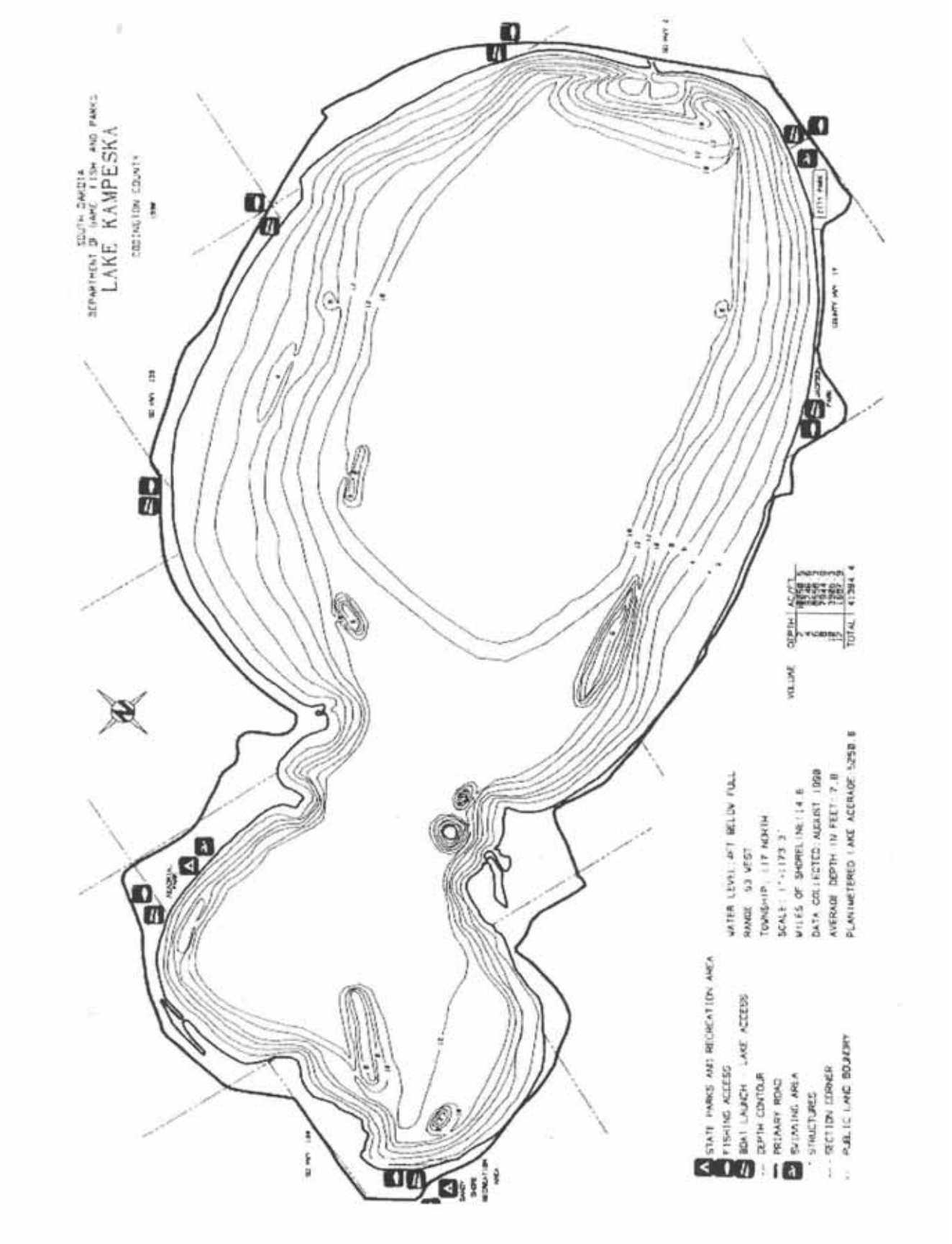

Figure 1. Lake Kampeska contour map.

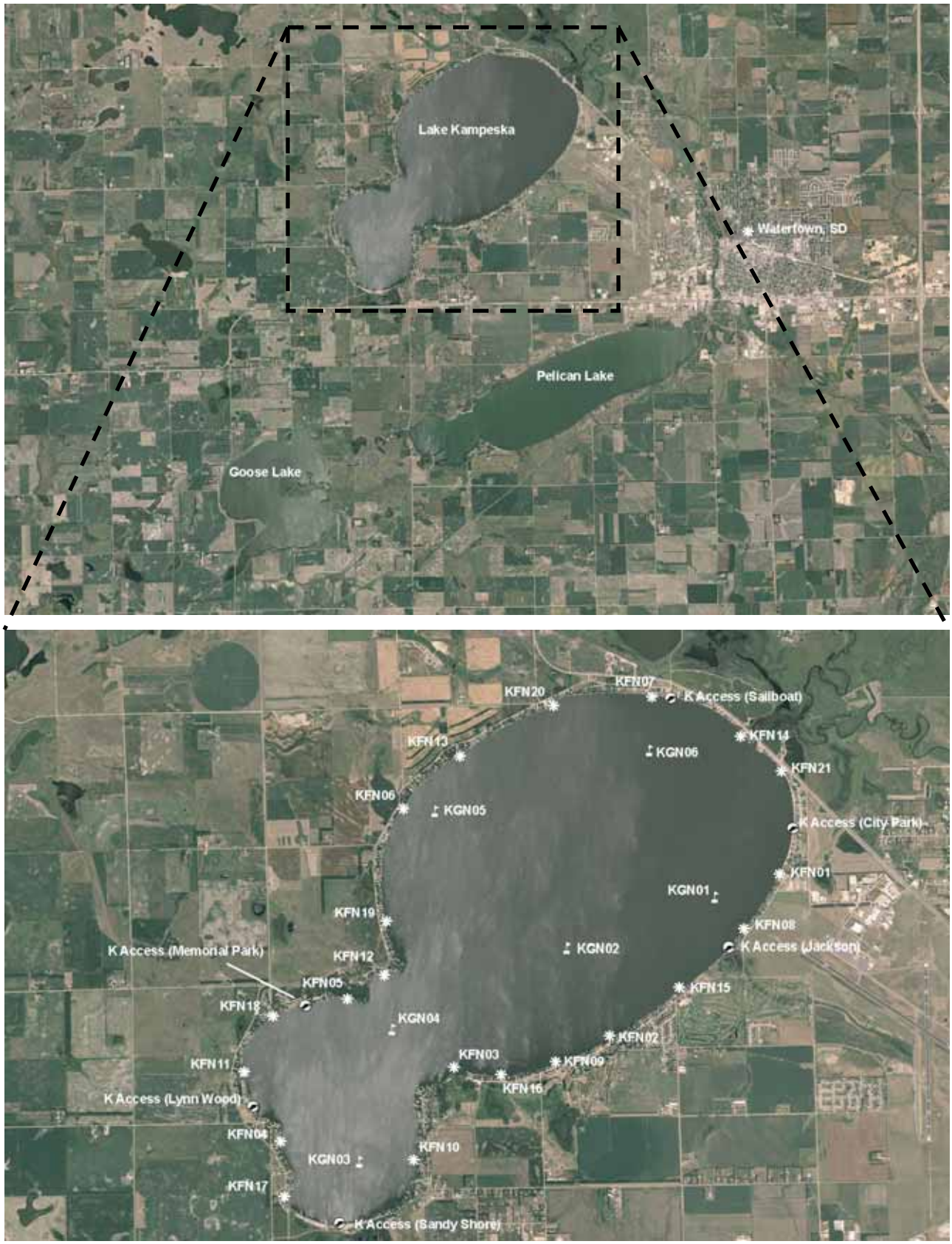

Figure 2. Map depicting location of Lake Kampeska, Goose, and Pelican Lakes from Watertown , SD (top). Also noted are public access points and standardized net locations for Lake Kampeska. KFN= frame nets, KGN= gill nets

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 ≥ 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. Recently, a weir structure was installed on the inlet-outlet channel of Lake Kampeska which 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: Historically smallmouth bass population assessments in Lake Kampeska were conducted using frame nets or fall night electrofishing. However, recent research in NE South Dakota found that spring night electrofishing over suitable habitat (i.e., rocky substrate) provides a better index to smallmouth bass populations in NE South Dakota glacial lakes (Bacula 2009). The 2010 smallmouth bass population assessment was the first to utilize spring night electrofishing.

The 2010 mean spring electrofishing CPUE was 142.0 (Table 1). Year-classes were represented for 2001 and 2003-2008 indicating consistent recruitment which results in high relative abundance.

Smallmouth bass captured in the 2010 spring electrofishing catch ranged in total length from 18 to 44 cm (7.1 to 17.3 inches), had a PSD of 51 and PSD-P of 4 (Figure 3). The PSD was within the objective range (40-70) while PSD-P was below the objective range (10-20) as the majority of smallmouth bass sampled were less than preferred-length (Table 3). Consistent recruitment and poor growth have resulted in a low size structure.

Growth information was collected from a sub-sample of smallmouth bass in 2010. All year classes exhibited slow growth compared to regional means. The mean back-calculated length at age for age-2 bass was 169 mm (6.7 inches) while the age-2 regional mean is 179 mm (7.0 inches; Table 4). The mean back-calculated length at age for age-4 bass was 273 mm (10.7 inches) while the age-4 regional mean is 316 mm (12.4 inches; Table 4). Mean Wr values of stock-quality and quality-preferred length smallmouth bass captured in the 2010 spring electrofishing catch were 101 and 92, respectively. Few preferred-length smallmouth bass were sampled (Figure 3). Lower Wr values for smallmouth bass in the quality-preferred length category may be a result of spawning condition (Bacula et. al (In Press).

Walleye: The 2010 mean gill net CPUE of stock-length walleye in Lake Kampeska was 20.7 (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 6.5 (2007) to a high of 24.5 (2004; Table 2). The 2010 gill net CPUE represented a slight increase from the 17.0 observed in 2009 (Table 2) and indicated high relative abundance.

Walleye captured in the 2010 gill net catch ranged in total length from 18 to 52 cm (7.1 to 20.5 in), had a PSD of 2 and a PSD-P of 1 (Figure 4). Both the PSD and PSD-P were below the objective ranges of 30-60 and 5-10, respectively indicating a population comprised of smaller walleye (Table 3; Figure 4). 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 2010. Seven walleye year classes were present (1995, 2001, 2005-2009) with the 2005, 2007, and 2008 cohorts being the most represented (Table 5). Year classes produced in 2005 and 2008 coincide with fry stocking; while the 2007 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 and 2008 year-classes is unknown, as stocked fry were unmarked making it impossible to differentiate stocked from naturally-produced walleye. Although not well represented in the 2010 gill net catch, 2.5 million Oxytetracycline (OTC) marked walleye fry were stocked into Lake Kampeska during 2009 (Table 7). In May 2010, 15 walleye from the 2009 year class were collected during spring electrofishing. Of the 15 collected 7 (47%) were OTC marked indicating that both natural reproduction and the walleye fry stocking contributed to the 2009 year class.

Walleye growth in Lake Kampeska 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, 286 mm (11.3 in) at age-3, 328 mm (12.9 in) at age-4, and 354 mm (13.9 in) at age-5 (Table 6). Walleye from the 2007 year class are exhibiting faster growth than the 2005 year class with the weighted mean length at capture of age-2 walleye being 275 mm (10.8 in) compared to 248 mm (9.8 in; Table 6). Condition of gill net captured walleye has remained relatively consistent from 2003-2010 with mean Wr values for stock-length walleye ranging from 80 to 86 (Table 3). In 2010, the mean Wr for stock-length walleye was 86 (Table 1).

Other Species

Bullheads: The bullhead community in Lake Kampeska is comprised of both black bullhead and yellow bullhead. In 2010, the mean frame net CPUE of stock-length bullhead was <0.1 and 5.2 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 2010 was 3.2 (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) and the 2003-2010 average was 3.9 (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 2010 ranged from 12 to 26 cm (4.7 to 10.2 inches; Figure 5). The PSD of bluegill captured in frame nets during 2010 was 93 and the PSD-P was 66 indicating a population skewed toward larger individuals (Figure 5).

No growth information was available for bluegill in Lake Kampeska. Bluegill in the 2010 frame net catch were in good condition with mean Wr values exceeding 108 for all length categories sampled. The mean Wr for stock-length bluegill was 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. In 2010, 25 black crappie ranging in total length from 15 to 32 cm (5.9 to 12.6 in) were captured in the frame net catch resulting in CPUE of 1.2 (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) with the 2003-2010 average being 3.5 (Table 2).

Eleven white crappies were captured in the 2010 frame net and gill net catch resulting in a mean CPUE of stock-length white crappie of 0.2 and 1.0, 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., < 1.0 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), with the 2003-2010 average being 3.1 (Table 2).

Based on the 2010 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 the 2003-2010 average CPUE is 0.0 and 0.3 for frame nets and gill nets, respectively (Table 2). In 2010, one channel catfish was captured. 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 CPUE for stock-length northern pike captured in gill nets during the 2010 survey was 0.2 (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 1.2 (2003) and the 2003-2010 average being 0.6 (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: In 2010, catch rates of white bass were higher in frame nets than gill nets. The mean CPUE of stock-length white bass during 2010 was 7.9 for frame nets and 5.5 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). As expected, mean gill net CPUE values have declined as white bass from the 2005 cohort have grown and their body shape has changed (i.e., deepened), resulting in decreased capture efficiency in our gill net mesh sizes; while the mean frame net CPUE increased in 2008 and 2009 (Table 2).

White bass in the 2010 frame net catch ranged in total length from 18 to 39 cm (7.1 to 15.4 in), had a PSD of 99, and a PSD-P of 97 (Figure 6). Otoliths were collected from a sub-sample of frame net captured white bass and age structure information indicated that the 2005 year class dominates the population (Table 8). White bass from the 2005 year class have reached quality and preferred lengths resulting in the high size structure (Figure 6). The weighted mean length at capture for age-5 white bass sampled in the 2010 frame net catch was 329 mm (13.0 in; Table 9). Mean Wr values for frame net captured white bass ranged from 89 to 95 for all length categories sampled with the mean Wr of stock-length white bass being 91 (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 2009-2010, the commercial harvest of white bass from Lake Kampeska was 14,400 lb.

Yellow perch: The mean gill net CPUE of stock-length yellow perch in 2010 was 6.0 (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) with the 2003-2010 average being 3.1 (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 2010 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 2009-2010, the commercial harvest of bigmouth buffalo and common carp from Lake Kampeska was 3,500 and 5,700 lb, respectively.

Management Recommendations

1) Conduct fish population assessment surveys on an annual basis (next survey scheduled in summer 2011) 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 (≈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, 2010. Confidence intervals include 80 percent (± CI-80) or 90 percent (± 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; STC= stonecat; WAE= walleye; WHB= white bass; WHC= white crappie; WHS= white sucker; YEB= yellow bullhead; YEP= yellow perch

	Abundance		Stock Density Indices				Condition	
Gear/Species	CPUE	CI-80	PSD	CI-90	PSD-P	CI-90	Wr	CI-90
Frame nets								
BIB	1.7	1.0	97	3	56	14	88	1
BLB	<0.1	0.1	100	---	100	---	104	---
BLC	1.2	0.3	84	13	44	17	100	5
BLG	3.2	1.1	93	5	66	9	118	1
COC	<0.1	0.1	100	---	100	---	91	---
NOP	1.0	0.4	100	0	55	18	85	3
ROB	0.1	0.2	100	0	67	33	111	---
SHR	<0.1	0.1	100	---	100	---	97	---
SMB	2.6	0.8	54	11	9	7	94	1
STC[1]	<0.1	0.1	---	---	---	---	---	---
WAE	3.4	1.0	11	7	4	4	81	1
WHB	7.9	2.0	99	1	97	2	91	<1
WHC	0.2	0.2	100	0	100	0	95	1
WHS	1.6	0.4	100	0	97	3	103	2
YEB	5.2	1.1	98	2	92	4	102	1
YEP	0.4	0.2	89	11	56	32	99	1
Gill nets								
BLB	0.2	0.2	100	---	0	---	100	---
CCF	0.2	0.2	100	---	100	---	105	---
COC	0.2	0.2	100	---	100	---	115	---
NOP	0.2	0.2	100	---	0	---	81	---
SHR	0.3	0.3	100	0	100	0	94	<1
WAE	20.7	6.5	2	3	1	1	86	<1
WHB	5.5	2.2	100	0	100	0	94	<1
WHC	1.0	0.5	100	0	100	0	97	2
WHS	1.8	1.2	100	0	91	9	110	3
YEB	0.7	0.7	100	0	50	50	117	1
YEP	6.0	1.0	75	12	14	10	107	1
Electrofishing								
SMB [2]	142.0	24.1	51	7	4	2	96	1
WAE [3]	0.0	---	---	---	---	---	---	---

[1] All fish sizes

[2] Spring night electrofishing-SMB

[3] 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, 2003-2010. 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

	CPUE								
Gear/Species	2003	2004	2005	2006[1]	2007[1]	2008	2009	2010	Average
Frame nets									
BIB	1.5	0.9	0.7	1.7	1.3	1.6	0.2	1.7	1.2
BLB	1.4	6.7	4.3	2.9	0.4	0.4	2.4	<0.1	2.3
BLC	8.0	5.1	2.5	2.5	5.2	2.8	0.4	1.2	3.5
BLG	5.7	6.5	2.4	3.6	4.2	4.0	1.3	3.2	3.9
CCF	0.1	0.1	0.1	0.0	0.0	<0.1	0.0	0.0	<0.1
COC	0.2	0.1	0.3	0.2	0.4	0.3	0.2	<0.1	0.2
GSF	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	<0.1
NOP	0.7	0.3	0.4	0.2	0.6	0.3	0.5	1.0	0.5
OSF[2]	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	<0.1
PUS	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	<0.1
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	3.2
STC[2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
WAE	0.8	1.6	2.3	0.8	1.6	2.2	1.1	3.4	1.7
WHB	2.0	6.6	1.3	1.8	1.3	4.3	10.2	7.9	4.4
WHC	0.7	0.8	0.3	0.9	0.7	0.2	0.1	0.2	0.5
WHS	7.8	3.2	0.9	0.5	1.3	1.3	1.2	1.6	2.2
YEB	0.4	2.8	3.4	0.9	1.3	1.4	0.2	5.2	2.0
YEP	0.4	0.0	0.1	0.1	0.0	0.0	0.0	0.4	0.1
Gill nets									
BIB	0.2	0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.1
BLB	3.2	2.2	0.3	0.5	0.3	0.2	0.0	0.2	0.9
BLG	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	<0.1
CCF	0.0	0.0	0.7	0.7	0.8	0.3	0.0	0.2	0.3
COC	0.2	0.0	0.2	0.3	1.0	0.5	0.5	0.2	0.4
NOP	1.2	0.8	0.2	0.5	0.2	0.5	1.0	0.2	0.6
ROB	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	<0.1
SHR	0.2	0.0	0.2	0.0	0.0	0.0	0.3	0.3	0.1
SMB	0.3	0.3	0.7	0.3	0.8	0.2	0.0	0.0	0.3
WAE	18.2	24.5	21.8	11.7	6.5	14.3	17.0	20.7	16.8
WHB	2.5	5.0	3.3	79.5	20.2	15.5	7.2	5.5	17.3
WHC	2.0	5.5	4.7	8.2	2.5	0.5	0.2	1.0	3.1
WHS	0.2	0.3	1.0	0.7	1.5	0.3	1.7	1.8	0.9
YEB	0.0	0.0	0.2	0.8	0.2	0.2	0.0	0.7	0.3
YEP	3.5	2.7	4.8	4.3	1.3	0.3	2.2	6.0	3.1
Electrofishing									
SMB[3]	---	---	---	---	---	---	---	142.0	142.0
WAE[4]	15.3	4.0	252.1	0.0	10.7	20.6	0.0	0.0	37.8

[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) 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[1]	2007[1]	2008	2009	2010	Average	Objective
Frame nets										
BLC										
CPUE	8	5	3	3	5	3	<1	1	4	---
PSD	44	80	100	79	70	100	100	84	82	---
PSD-P	11	11	69	43	23	36	100	44	42	---
Wr	97	106	102	108	108	100	93	100	102	---
BLG										
CPUE	6	7	2	4	4	4	1	3	4	---
PSD	84	95	75	57	91	90	83	93	84	---
PSD-P	8	2	25	20	26	58	67	66	34	---
Wr	106	105	115	116	118	117	118	118	114	---
Gill nets										
WAE										
CPUE	18	25	22	12	7	14	17	21	17	≥ 10
PSD	39	26	11	73	41	5	4	2	25	30-60
PSD-P	2	2	0	1	3	0	1	1	1	5-10
Wr	83	83	82	80	85	80	83	86	83	---
WHC										
CPUE	2	6	5	8	3	1	<1	1	3	---
PSD	67	73	89	37	100	100	100	100	83	---
PSD-P	0	6	43	20	27	0	100	100	37	---
Wr	100	100	103	113	109	98	94	97	102	---
Electrofishing										
SMB[2]										
CPUE	---	---	---	---	---	---	---	142	142	---
PSD	---	---	---	---	---	---	---	51	51	40-70
PSD-P	---	---	---	---	---	---	---	4	4	10-20
Wr	---	---	---	---	---	---	---	96	96	---

[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. Mean back-calculated length (mm) at age and standard error (SE) for smallmouth bass captured during spring night electrofishing in Lake Kampeska, 2010.

			Age								
Year	Age	N	1	2	3	4	5	6	7	8	9
2008	2	22	93	190							
2007	3	26	95	167	239						
2006	4	12	84	152	205	253					
2005	5	66	89	155	211	256	299				
2004	6	15	91	155	217	259	294	316			
2003	7	1	110	194	267	308	348	381	401		
2002	8	0									
2001	9	2	86	172	236	287	327	366	391	416	431
Mean	---		93	169	229	273	317	355	396	416	431
SE	---	---	3	6	9	11	13	20	5	0	0
Mean Comparison [1]											
Small lakes/impoundments			98	180	241	291	---	---	---	---	---
Large lakes/impoundments			92	169	237	304	335	---	---	---	---
Region IV			96	179	249	316	339	---	---	---	---
Statewide			91	171	242	300	333	---	---	---	---

[1] Willis et al. 2001.

Table 5. 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, 2006-2010.

	Year Class											
Survey Year	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999
2010[1]		7	55	37	3	28				2		
2009	---		35	34	1	64	1	1		2		
2008	---	---		8	11	70				4	1	
2007[1,2]	---	---	---		1	75		6		6		3
2006[1,2]	---	---	---	---		74	1	19	2	41	1	2
# stocked												
fry		2,500	2,500			2,300				5,100		
sm. fingerling												
lg. fingerling												

[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 6. 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, 2006-2010. Note: sampling was conducted at approximately the same time during each year allowing comparisons among years to monitor growth trends.

	Age									
Year	1	2	3	4	5	6	7	8	9	10
2010[1]	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[1]	208(1)	248(75)	---	415(6)	---	411(6)	---	473(3)	---	---
2006[1]	203(74)	334(1)	384(19)	375(2)	397(41)	439(1)	453(2)	---	---	---

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

Table 7. Stocking history including size and number for fishes stocked into Lake Kampeska, 1999-2010.

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 8. Year class distribution based on the expanded age/length summary for white bass sampled in frame nets from Lake Kampeska, 2009-2010.

	Year Class										
Survey Year	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
2010		1	1	5		140		1	6	8	2
2009[1]						172		1	12	3	

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

Table 9. Weighted mean total length (mm) at capture for white bass sampled in frame nets (expanded sample size) from Lake Kampeska, 2009-2010.

	Age									
Year	1	2	3	4	5	6	7	8	9	10
2010	183(1)	263(1)	307 (5)	---	329(140)		375(1)	355(6)	366(8)	363(2)
2009[1]	---	---	---	316(172)	---	359(1)	356(12)	356(3)	---	381(1)

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

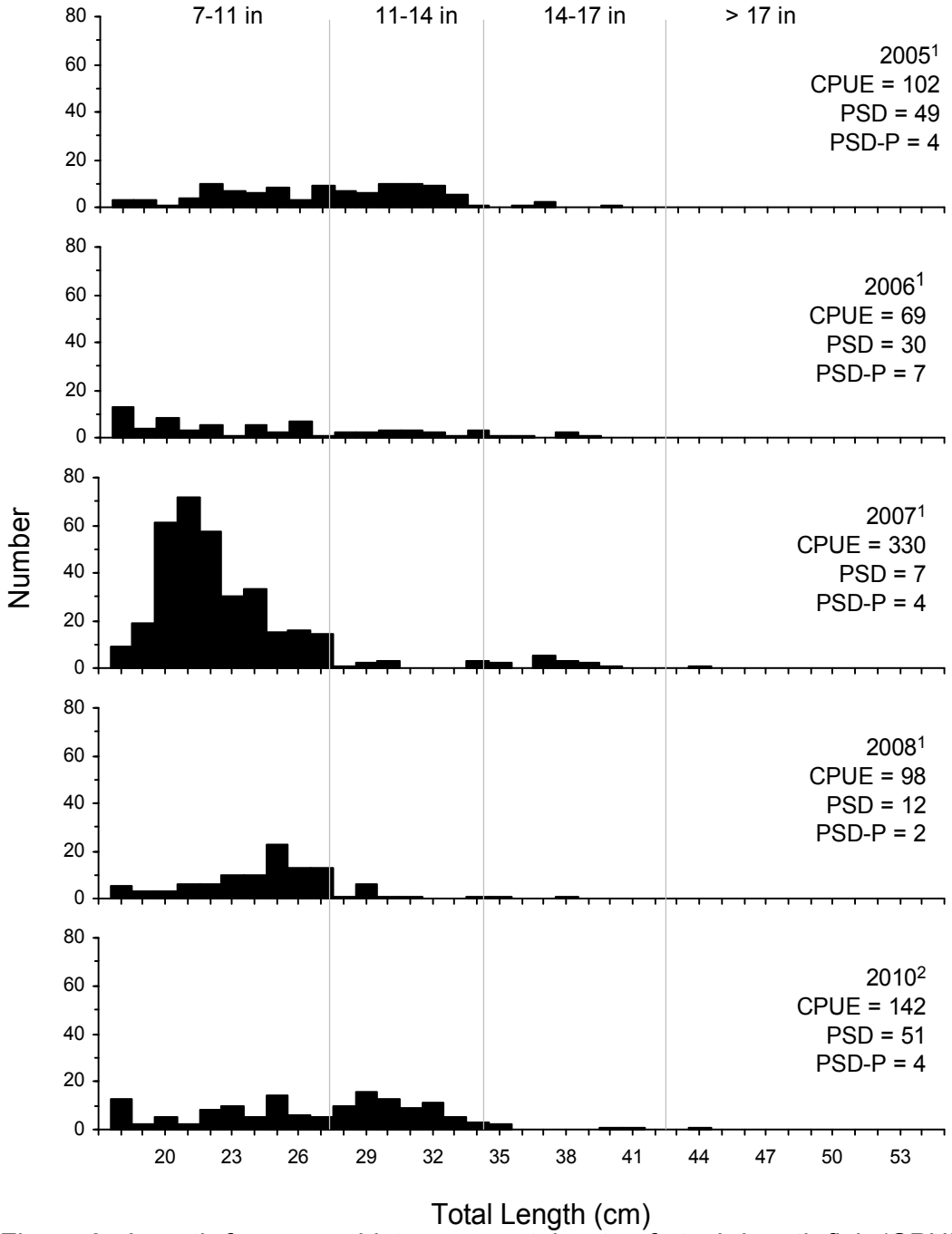

Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for smallmouth bass captured using night electrofishing in Lake Kampeska, 2005-2010.

1 Fall night electrofishing; 2 Spring night electrofishing

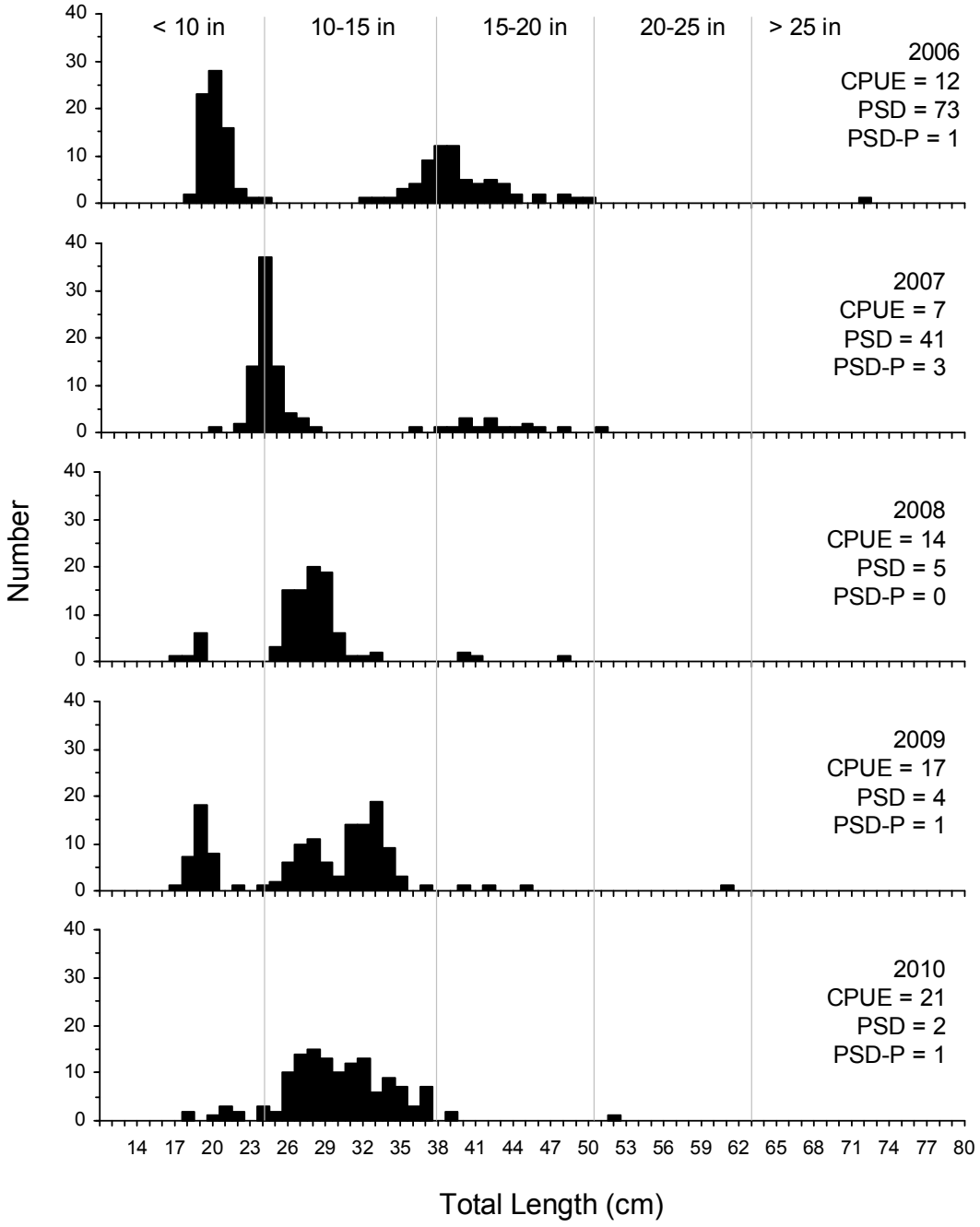

Figure 4. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for walleye captured using experimental gill nets in Lake Kampeska, 2006-2010.

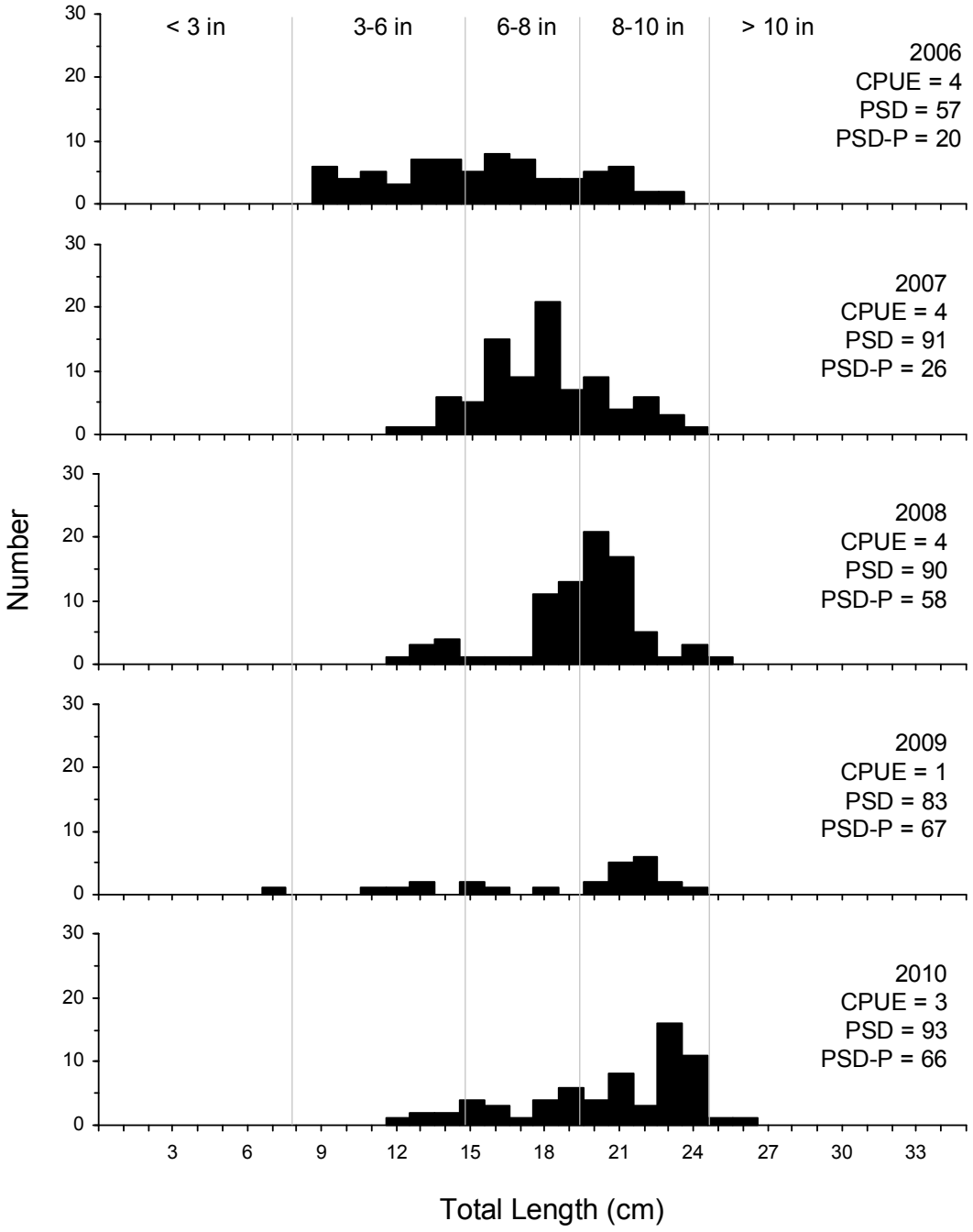

Figure 5. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for bluegill captured using frame nets in Lake Kampeska, 2006-2010.

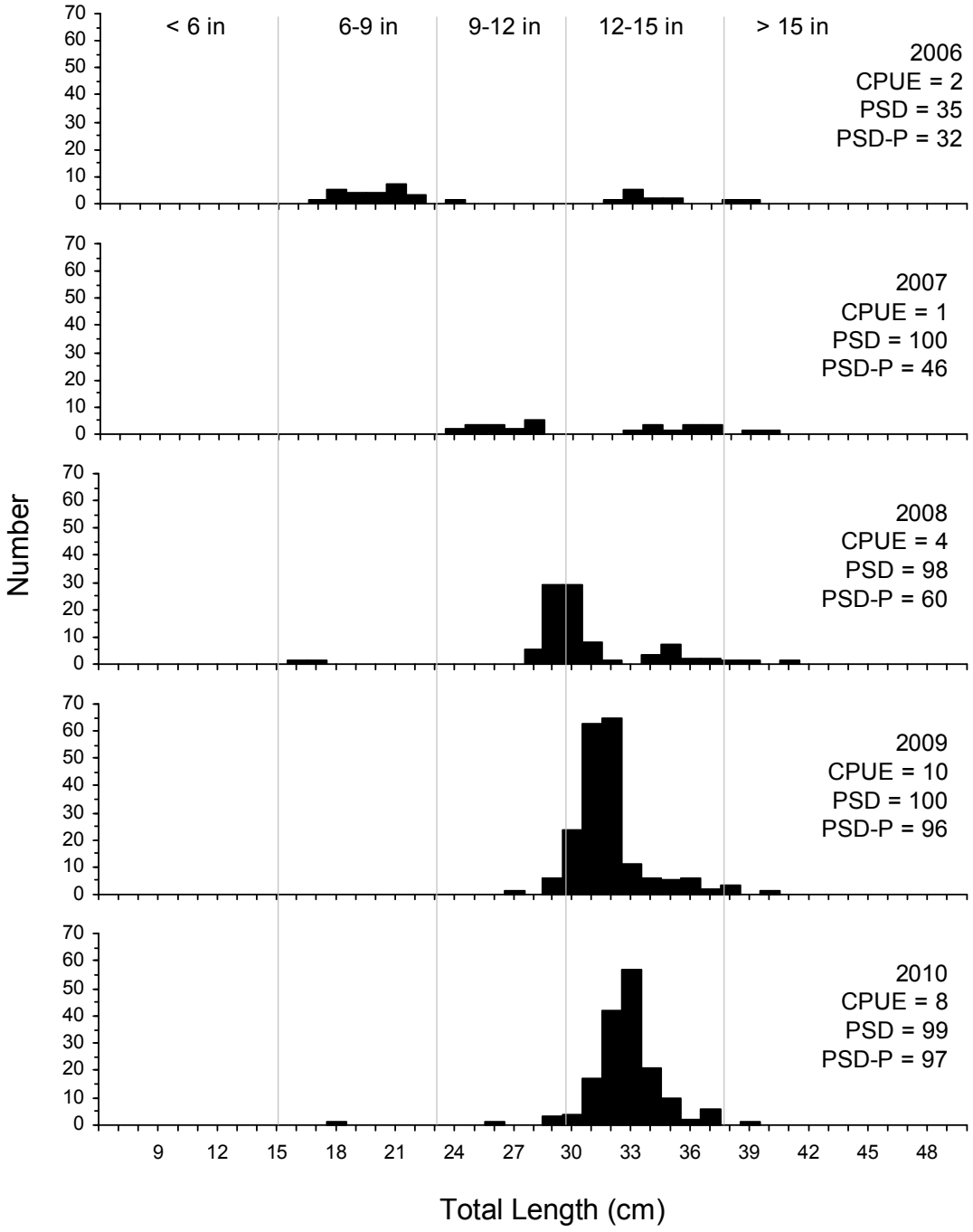

Figure 6. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for white bass captured using frame nets in Lake Kampeska, 2006-2010.