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 9, 2012 (EF-SMB) July 17-19, 2012 (FN,GN) September 17, 2012 (EF-WAE)
Electrofishing-SMB (min)	60
Gill net sets (n)	6
Frame net sets (n)	20
Electrofishing-WAE (min)	60

Morphometry (Figure 1)

Watershed area (acres)	20,433
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 individuals.

Watershed and Land Use

The 20,433 acre Lake Kampeska sub-watershed (HUC-12) is located within the larger Lake Kampeska (HUC-10) watershed. Land use within the watershed is comprised of a mix of cropland, pasture or grassland, scattered shelterbelts, housing, and municipal.

Water Level Observations

The South Dakota Water Management Board established OHWM on Lake Kampeska is 1718.3 fmsl and the board set outlet elevation is 1717.8 fmsl. On April 25, 2012 the elevation was 1716.7 fmsl. The water level had declined to an elevation to 1715.2 fmls on September 25, 2013.

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

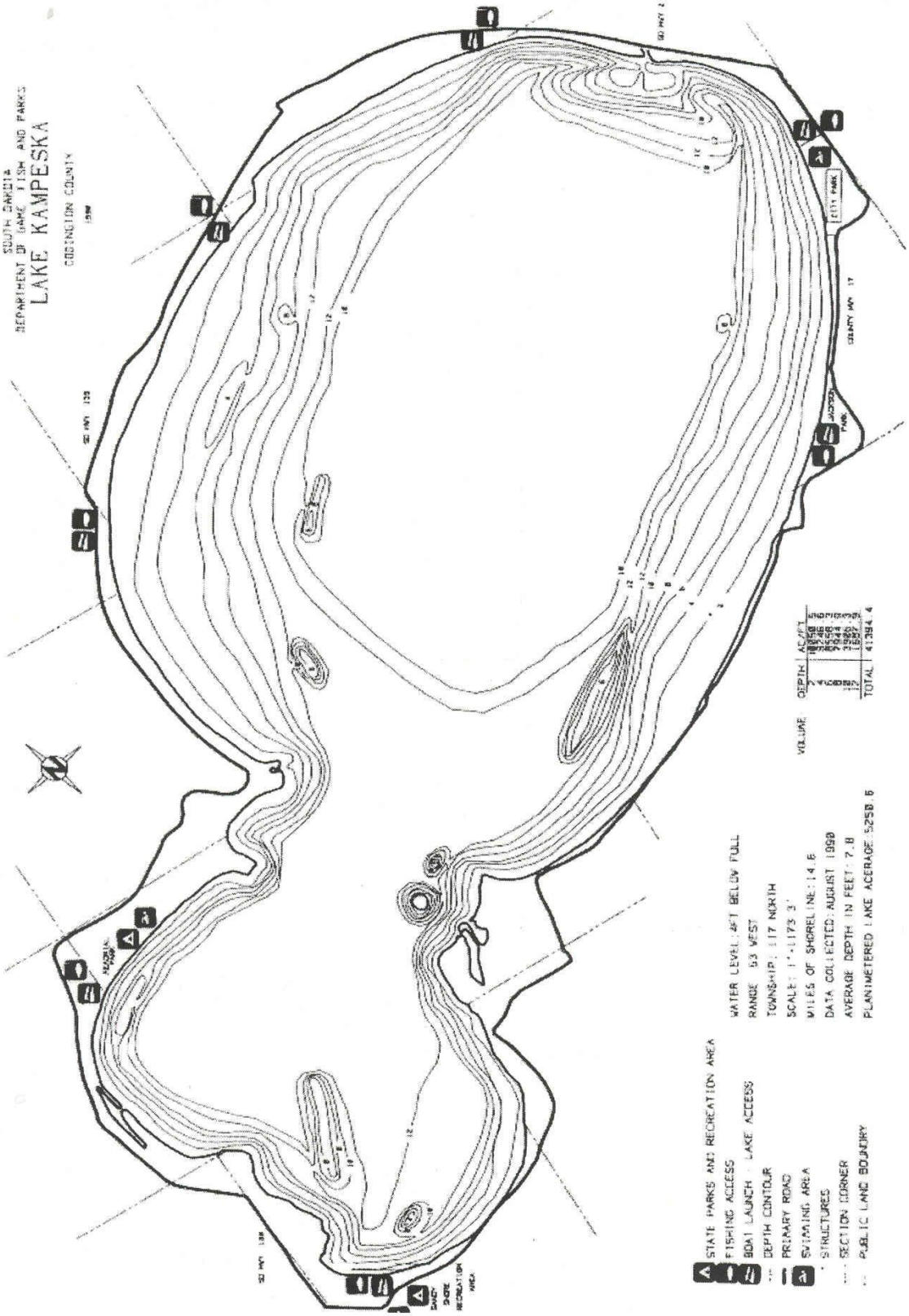

Figure 1. Lake Kampeska contour map.

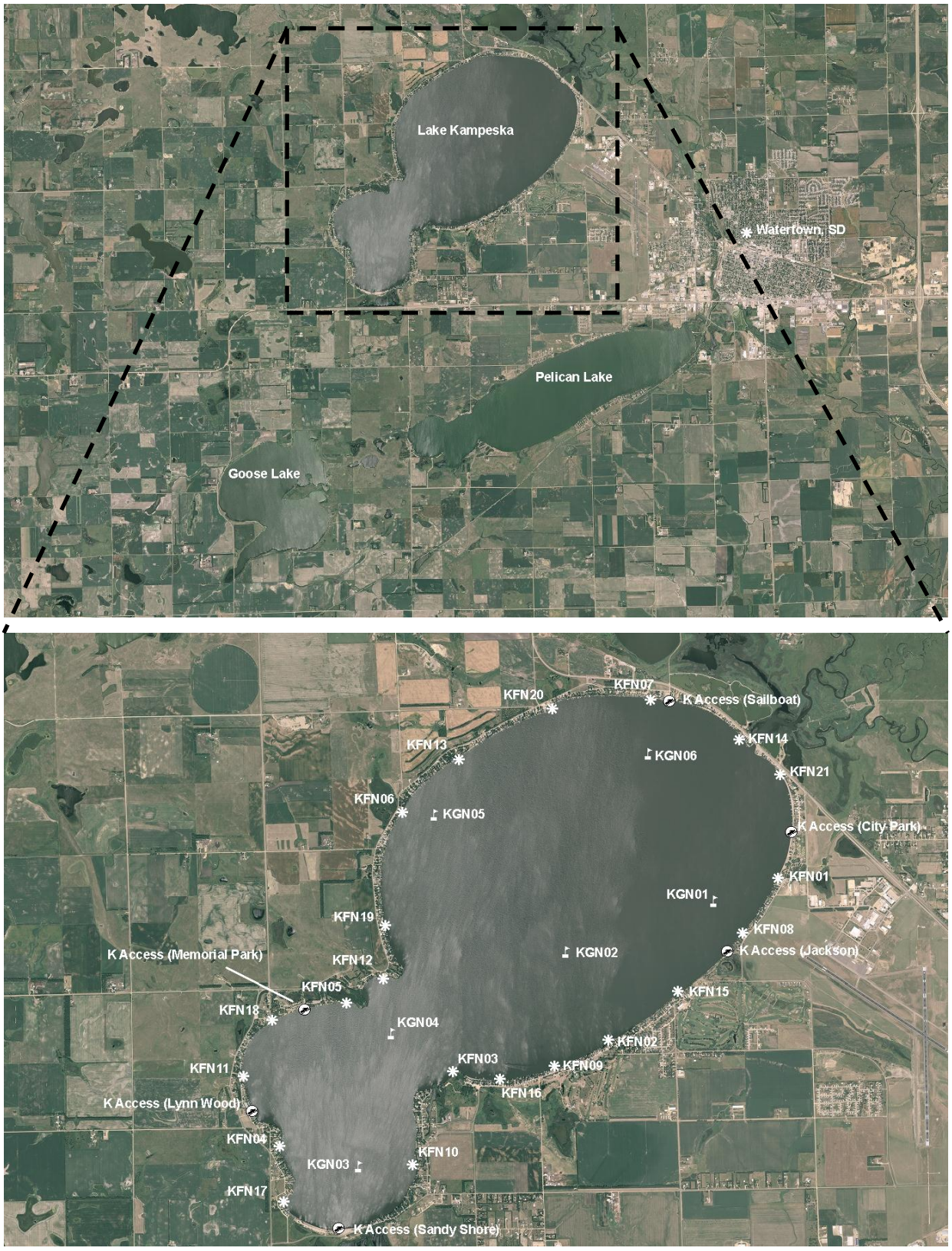

Figure 2. Map depicting geographic location of Lake Kampeska, Goose, and Pelican Lakes from Watertown, South Dakota (top). Also noted are public access points and standardized net locations for Lake Kampeska. KFN= frame nets, KGN= gill nets

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. 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: The 2012 mean spring electrofishing CPUE was 203.0 (Table 1). Relative abundance is considered high compared to other Smallmouth Bass populations in the region and is likely above the moderate density management objective. Eight consecutive year-classes (2003-2010) were represented indicating consistent recruitment (Table 4).

Smallmouth Bass captured in the 2012 spring electrofishing catch ranged in TL from 17 to 46 cm (6.7 to 18.1 in.), had a PSD of 60 and PSD-P of 15 (Figure 3). Both PSD and PSD-P were within the management objective ranges (40-70 and 10-40; Table 3) indicating a balanced population.

Scales were collected from a sub-sample of Smallmouth Bass in 2012. All year classes exhibited slow growth when compared to regional means. The mean back-calculated length of age-2 Smallmouth Bass was 163 mm (6.4 in) while the age-2 regional mean was 179 mm (7.0 in; Table 4). The mean back-calculated length at age for age-4 bass was 268 mm (10.6 in) compared to the region IV mean of 316 mm (12.4 in; Table 4). Condition was good with mean Wr values ranging from 86 to 105 for all

length categories sampled. The mean Wr for all stock-length Smallmouth Bass was 90 (Table 1). A slight decreasing trend in Wr was observed as TL increased.

Walleye: The 2012 mean gill net CPUE of stock-length Walleye in Lake Kampeska was 12.2 (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 2012 gill net CPUE represents a decrease from the 24.3 observed in 2011 (Table 2) and indicates high relative abundance.

Walleye captured in the 2012 gill net catch ranged in TL from 20 to 49 cm (7.9 to 19.3 in), had a PSD of 53 and a PSD-P of 0 (Figure 3). The PSD was within the objective range of 30-60; while the PSD-P was below the objective range of 5-10 indicating a population comprised of smaller Walleye (Table 3; Figure 3).

Otoliths were collected from a sub-sample of gill net captured Walleye in 2012. Eight Walleye year classes were present (2003, 2005-2011; Table 5). Year classes produced in 2005, 2008 and 2009 coincide with fry stocking; while the 2003, 2006, 2007 and 2010 year classes are 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. Walleye fry stocked in 2009 were marked with Oxytetracycline (OTC) so that the contribution of stocked fish could be evaluated. Unfortunately, no age-0 Walleye were captured during fall electrofishing in 2009 (Table 2). Fifteen age-1 (2009 year class) Walleye were captured during spring electrofishing targeting Smallmouth Bass during 2010. Of those, 7 of the 15 exhibited OTC marks for an estimated stocking contribution of 47% for the 2009 cohort (Table 5); however, sample size was low and results should be interpreted with caution.

Walleye growth tends to be highly variable with Walleye reaching quality length (38 cm; 15 in) between age 3 and age 5 (Table 6). Since 2005, the weighted mean TL at capture for age-3 Walleye has ranged from 286 to 384 mm (11.3 to 15.1 in; Table 7). Walleye from the 2008 year class have exhibited faster growth than the 2005 year class with a weighted mean TL at capture at age-3 of 386 mm (15.2 in) compared to 359 mm (14.1 in.; Table 6). Condition was good with mean Wr values that ranged from 79 to 81 for all length categories sampled. The mean Wr value for stock-length Walleye was 80 (Table 1) and no length-related trend in Wr was observed.

Other Species

Bullheads: The bullhead community in Lake Kampeska is comprised of both Black and Yellow bullhead. In 2012, the mean frame net CPUE of stock-length bullhead was 18.2 and 21.6 for Black and Yellow bullhead, respectively (Table 1). From 2003-2011, relative abundance remained low for both species, as mean frame net CPUE values did not exceed 7.0 stock-length fish/net night for either species (Table 2). The substantial increase in frame net CPUE for both species indicates an increase in relative abundance which is considered moderate.

Bluegill: The mean frame net CPUE of stock-length Bluegill during 2012 was 1.2 (Table 1). Since 2003, Bluegill relative abundance has remained low with mean frame net CPUE values ranging from 1.2 (2012) 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. Inferences cannot be made for Bluegill size structure and condition due to small sample size

Crappie: The crappie community in Lake Kampeska is comprised of both Black and White crappie and both species contribute to the crappie fishery. The 2012 mean frame net CPUE for Black Crappie was 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; Table 2).

White Crappies were captured in the 2012 frame net and gill net catch resulting in a mean CPUE of stock-length White Crappie of 0.3 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 2012 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 2003-2012 (Table 2). In 2012, two were captured in the frame nets and none were captured in the gill nets. Low abundance likely precludes the Channel Catfish from being targeted by anglers; however, the opportunity exists for anglers to catch an occasional Channel Catfish in Lake Kampeska.

Northern Pike: The mean CPUE for stock-length Northern Pike captured in gill nets during the 2012 survey was 2.5 (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 to moderate with mean gill net CPUE values ranging from 0.2 (2005,2007,2010) to 2.5 (2012; 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 2012 was 8.5 for frame nets and 4.8 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).

White Bass in the 2012 frame net catch ranged in TL from 23 to 39 cm (9.1 to 15.4 in.), had a PSD of 100, 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). Mean Wr values for frame net captured White Bass ranged from 74 to 91 for all length categories sampled with the mean Wr of stock-length White Bass being 76 (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 2011-2012, the commercial harvest of White Bass from Lake Kampeska was 5,200 lb.

Yellow Perch: The mean gill net CPUE of stock-length Yellow Perch in 2012 was 3.5 (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 2012 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 2011-2012, the commercial harvest of Bigmouth Buffalo and Common Carp from Lake Kampeska was 81,700 and 78,100 lb., respectively.

Management Recommendations

1) Conduct fish population assessment surveys on an annual basis (next survey scheduled in summer 2013) 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 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 sub-stock (< 25 cm;10 in) Walleye and/or fall night electrofishing CPUE of age-0 Walleye < 75 fish/hour).

6) Continue the angler use and harvest survey on Lake Kampeska throughout the 2013 summer.

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, 2012. 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; 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	0.2	0.2	100	0	100	0	101	---
BLB	18.2	4.9	78	4	1	1	90	1
BLC	1.2	0.4	79	15	50	18	100	5
BLG	1.2	0.6	88	12	33	17	113	2
CCF	0.1	0.1	50	50	0	---	87	---
NOP	1.3	0.3	40	17	0	---	65	2
ROB	0.1	0.1	100	0	50	50	---	---
SHR	0.1	0.1	100	0	100	0	107	---
SMB	4.0	1.2	34	9	13	6	89	1
WAE	0.5	0.2	20	24	0	---	76	3
WHB	8.5	2.4	100	0	98	2	76	1
WHC	0.3	0.2	100	0	17	34	90	2
WHS	0.8	0.3	100	0	100	0	92	3
YEB	21.6	3.8	99	1	76	3	91	1
YEP	2.9	2.9	93	6	53	11	---	---
Gill nets								
BLB	3.2	1.2	37	20	0	---	98	3
COC	0.2	0.2	0	---	0	---	113	---
NOP	2.5	1.1	27	21	0	---	71	3
SHR	0.2	0.2	100	---	100	---	92	---
SMB	0.2	0.2	0	---	0	---	90	---
WAE	12.2	3.4	53	10	0	---	80	1
WHB	4.8	2.0	97	6	76	14	84	2
WHC	3.2	1.0	42	20	21	17	101	3
WHS	3.8	1.4	100	0	91	10	101	3
YEB	6.7	1.5	100	0	65	13	98	1
YEP	3.5	2.3	81	15	19	15	94	2
Electrofishing								
SMB [1]	203.0	47.1	60	6	15	4	90	<1
WAE [2]	0.9	---	---	---	---	---	---	---

[1] Spring night electrofishing-SMB
[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 Lake Kampeska, 2003-2012. BIB= Bigmouth Buffalo; BLB= Black Bullhead; BLC= Black Crappie; BLG= Bluegill; CCF= Channel Catfish; COC= Common Carp; GSF= Green Sunfish; NOP= Northern Pike; OSF= Orangespotted Sunfish; PUS=Pumpkinseed; 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

	CPUE									
Gear/Species	2003	2004	2005	2006[1]	2007[1]	2008	2009	2010	2011	2012
Frame nets										
BIB	1.5	0.9	0.7	1.7	1.3	1.6	0.2	1.7	0.3	0.2
BLB	1.4	6.7	4.3	2.9	0.4	0.4	2.4	<0.1	0.1	18.2
BLC	8.0	5.1	2.5	2.5	5.2	2.8	0.4	1.2	0.5	1.2
BLG	5.7	6.5	2.4	3.6	4.2	4.0	1.3	3.2	1.5	1.2
CCF	0.1	0.1	0.1	0.0	0.0	<0.1	0.0	0.0	0.2	0.1
COC	0.2	0.1	0.3	0.2	0.4	0.3	0.2	<0.1	0.1	0.0
GSF	0.1	0.1	0.0	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	1.3
OSF[2]	0.0	0.1	0.0	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	0.0
ROB	0.1	0.5	0.5	0.2	<0.1	<0.1	0.2	0.1	0.2	0.1
SHR	0.6	0.2	0.0	0.0	0.2	0.0	0.0	<0.1	0.1	0.1
SMB	2.2	3.2	1.8	5.6	7.1	2.7	0.6	2.6	1.6	4.0
STC[2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0
WAE	0.8	1.6	2.3	0.8	1.6	2.2	1.1	3.4	0.5	0.5
WHB	2.0	6.6	1.3	1.8	1.3	4.3	10.2	7.9	3.0	8.5
WHC	0.7	0.8	0.3	0.9	0.7	0.2	0.1	0.2	1.5	0.3
WHS	7.8	3.2	0.9	0.5	1.3	1.3	1.2	1.6	1.0	0.8
YEB	0.4	2.8	3.4	0.9	1.3	1.4	0.2	5.2	2.7	21.6
YEP	0.4	0.0	0.1	0.1	0.0	0.0	0.0	0.4	0.1	2.9
Gill nets										
BIB	0.2	0.0	0.0	0.3	0.0	0.2	0.0	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	3.2
BLG	0.0	0.0	0.2	0.0	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	0.0
COC	0.2	0.0	0.2	0.3	1.0	0.5	0.5	0.2	0.0	0.2
NOP	1.2	0.8	0.2	0.5	0.2	0.5	1.0	0.2	1.3	2.5
ROB	0.0	0.0	0.2	0.0	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	0.2
SMB	0.3	0.3	0.7	0.3	0.8	0.2	0.0	0.0	0.7	0.2
WAE	18.2	24.5	21.8	11.7	6.5	14.3	17.0	20.7	24.3	12.2
WHB	2.5	5.0	3.3	79.5	20.2	15.5	7.2	5.5	4.5	4.8
WHC	2.0	5.5	4.7	8.2	2.5	0.5	0.2	1.0	3.2	3.2
WHS	0.2	0.3	1.0	0.7	1.5	0.3	1.7	1.8	5.5	3.8
YEB	0.0	0.0	0.2	0.8	0.2	0.2	0.0	0.7	0.8	6.7
YEP	3.5	2.7	4.8	4.3	1.3	0.3	2.2	6.0	2.7	3.5
Electrofishing										
SMB[3]	---	---	---	---	---	---	---	142.0	---	203.0
WAE[4]	15.3	4.0	252.1	0.0	10.7	20.6	0.0	0.0	342.0	0.9

[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, 2003-2012. BLB= Black Bullhead; BLC= Black Crappie; BLG= Bluegill; SMB= Smallmouth Bass; WAE= Walleye; WHB= White Bass; WHC= White Crappie; YEB= Yellow Bullhead

Species	2003	2004	2005	2006[1]	2007[1]	2008	2009	2010	2011	2012	Objective
Frame nets											
BLB											
CPUE	1	7	4	3	<1	<1	2	<1	<1	18	---
PSD	96	96	100	100	75	100	91	100	50	78	---
PSD-P	79	54	44	92	75	63	57	100	50	1	---
Wr	91	88	92	89	79	85	95	104	99	90	---
BLC											
CPUE	8	5	3	3	5	3	<1	1	1	1	---
PSD	44	80	100	79	70	100	100	84	100	79	---
PSD-P	11	11	69	43	23	36	100	44	67	50	---
Wr	97	106	102	108	108	100	93	100	97	100	---
BLG											
CPUE	6	7	2	4	4	4	1	3	2	1	---
PSD	84	95	75	57	91	90	83	93	93	88	---
PSD-P	8	2	25	20	26	58	67	66	37	33	---
Wr	106	105	115	116	118	117	118	118	118	113	---
WHB											
CPUE	2	7	1	2	1	4	10	8	3	9	---
PSD	84	92	100	35	100	98	100	99	98	100	---
PSD-P	64	64	57	32	46	60	96	97	98	98	---
Wr	80	77	91	94	93	87	88	91	85	76	---
YEB											
CPUE	<1	3	3	1	1	1	<1	5	3	22	---
PSD	100	100	100	94	100	100	100	98	100	99	---
PSD-P	50	100	100	94	93	100	100	92	96	76	---
Wr	105	97	93	101	94	94	100	102	101	91	---
Gill nets											
WAE											
CPUE	18	25	22	12	7	14	17	21	24	12	≥ 10
PSD	39	26	11	73	41	5	4	2	31	53	30-60
PSD-P	2	2	0	1	3	0	1	1	0	0	5-10
Wr	83	83	82	80	85	80	83	86	84	80	---
WHC											
CPUE	2	6	5	8	3	1	<1	1	3	3	---
PSD	67	73	89	37	100	100	100	100	37	42	---
PSD-P	0	6	43	20	27	0	100	100	37	21	---
Wr	100	100	103	113	109	98	94	97	102	101	---
Electrofishing											
SMB[2]											
CPUE	---	---	---	---	---	---	---	142	---	203	---
PSD	---	---	---	---	---	---	---	51	---	60	40-70
PSD-P	---	---	---	---	---	---	---	4	---	15	10-20
Wr	---	---	---	---	---	---	---	96	---	90	---

[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, 2012.

			Age								
Year	Age	N	1	2	3	4	5	6	7	8	9
2010	2	2	99	198							
2009	3	76	90	175	253						
2008	4	73	85	162	240	291					
2007	5	25	84	146	211	272	317				
2006	6	7	91	151	209	267	316	352			
2005	7	15	93	162	221	264	307	354	387		
2004	8	2	87	139	181	243	282	341	374	400	
2003	9	1	93	170	225	272	346	383	412	437	451
Mean	---	201	90	163	220	268	313	358	391	418	451
SE	---	---	2	7	9	6	10	9	11	18	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 (# stocked x 1,000) from Lake Kampeska, 2008-2012.

	Year Class											
Survey Year	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
2012[1]		2	11	12	25	12	2	8		1			
2011	---		11	28	50	13	1	43	1			1	
2010[1]	---	---		7	55	37	3	28				2	
2009	---	---	---		35	34	1	64	1	1		2	
2008	---	---	---	---		8	11	70				4	1
# stocked													
fry				2500[2]	2500			2300				5100	
sm. fingerling													
lg. fingerling													

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

[2] Stocked Walleye were OTC marked; 7 of 15 otoliths collected from spring electrofished age-1 walleye exhibited marks for an estimated stocking contribution of 47%

Table 6. Weighted mean TL (mm) at capture for Walleye age-1 through age-10 sampled in experimental gill nets (expanded sample size) from Lake Kampeska, 2005-2012. 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
2012[1]	205(2)	317(11)	368(12)	393(25)	388(12)	397(2)	406(8)	---	474(1)	---
2011	250(11)	325(28)	359(50)	383(13)	425(1)	392(43)	432(1)	---	---	498(1)
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)	---	---	---
2005[1]	---	280(22)	---	340(105)	---	421(4)	461(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, 2000-2012. WAE=Walleye

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

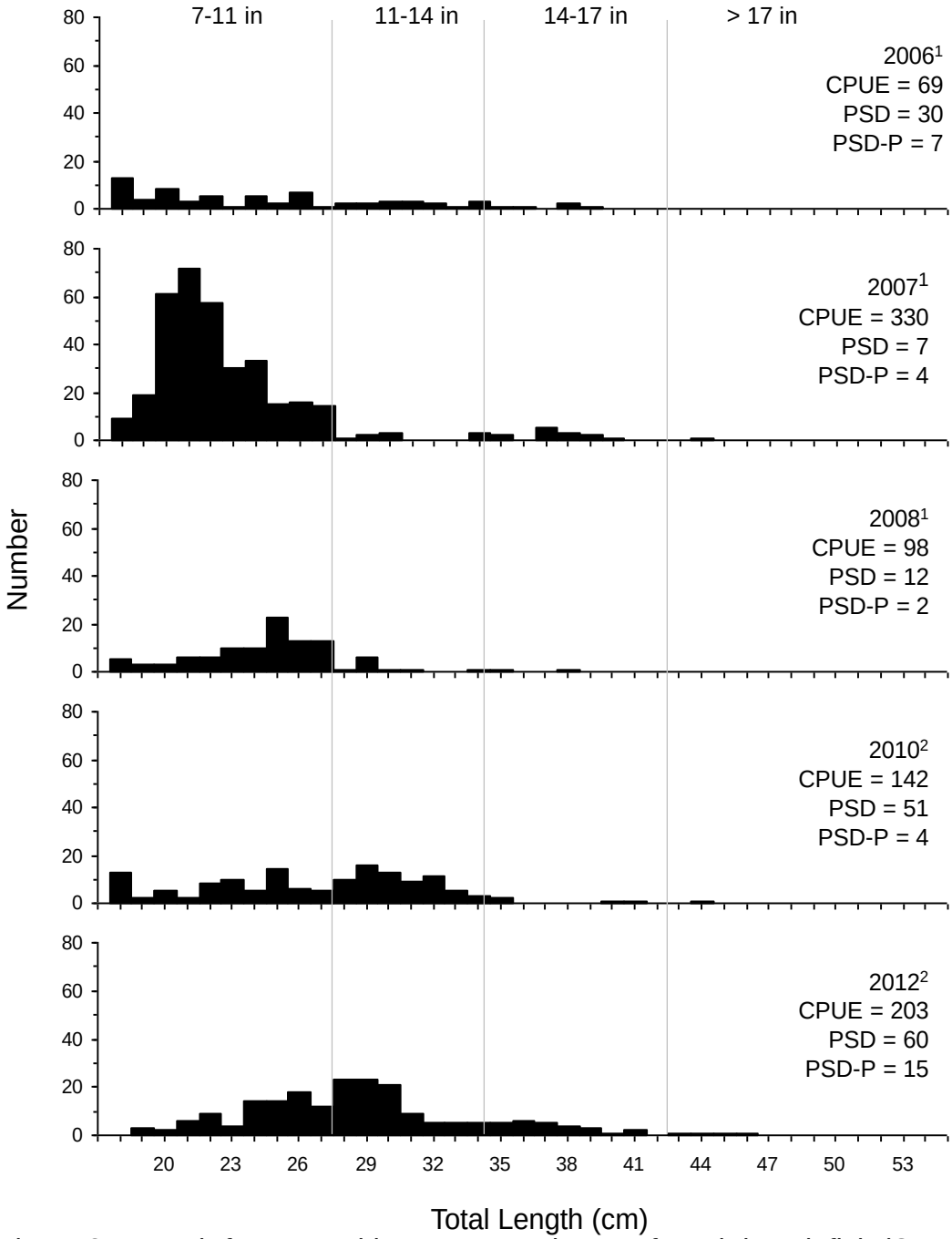

Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Smallmouth Bass captured using night electrofishing in Lake Kampeska, 2006-2012.

1 Fall night electrofishing; 2 Spring night electrofishing

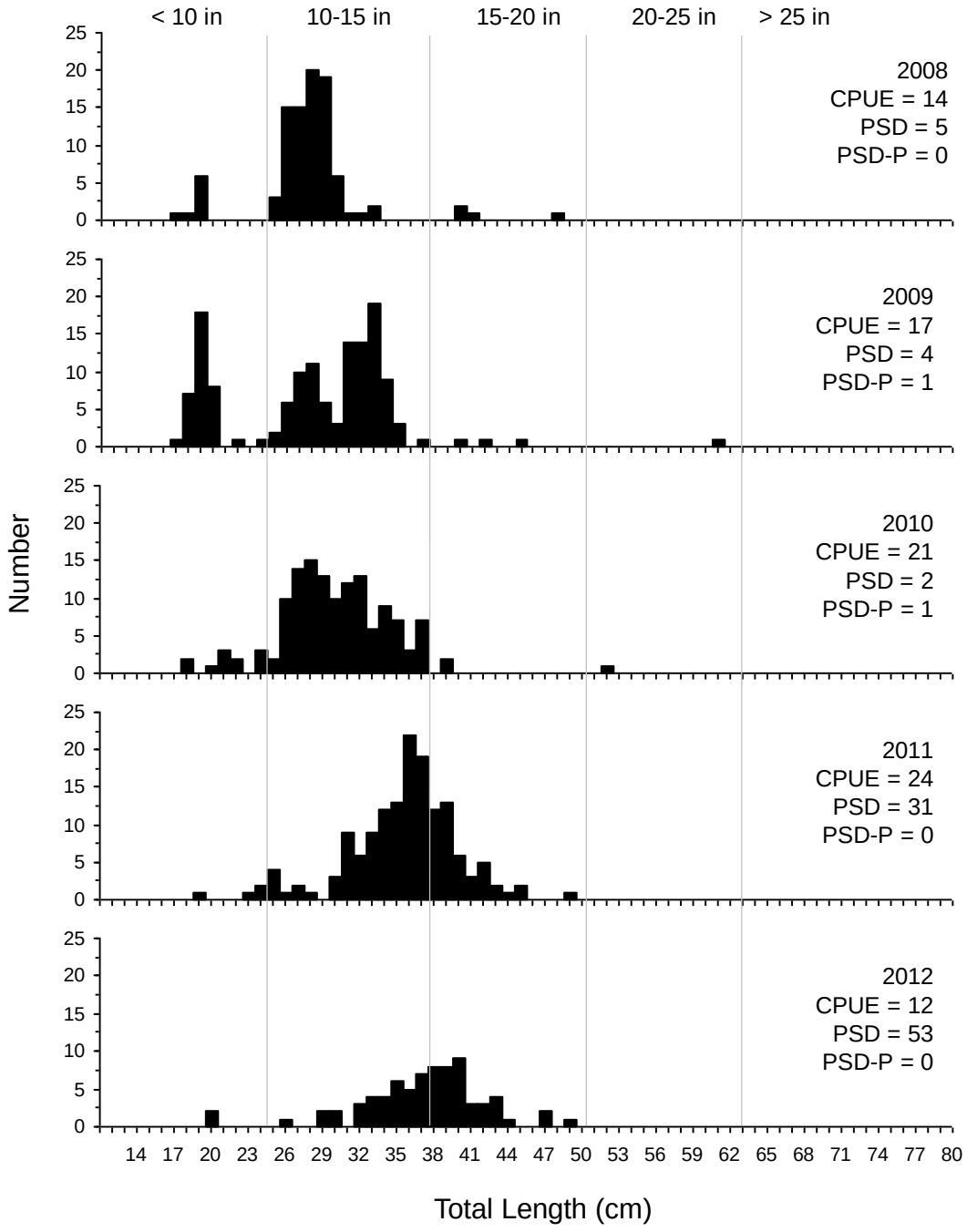

Figure 4. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Walleye captured using experimental gill nets in Lake Kampeska, 2008-2012.

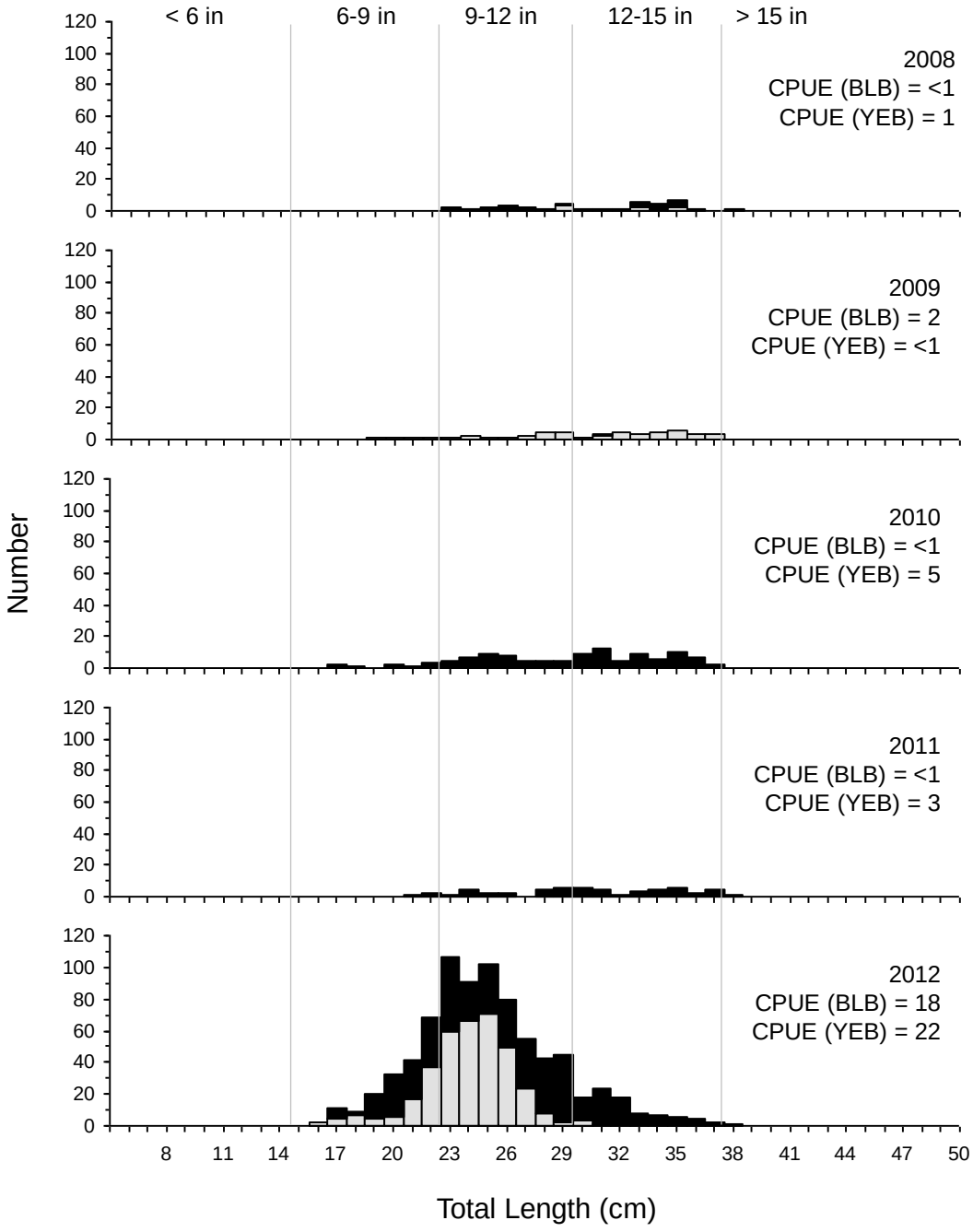

Figure 5. Length-frequency histogram and catch rate for stock-length Black (BLB; gray bars) and Yellow (YEB; black bars) Bullhead captured using frame nets in Lake Kampeska, 2008-2012.

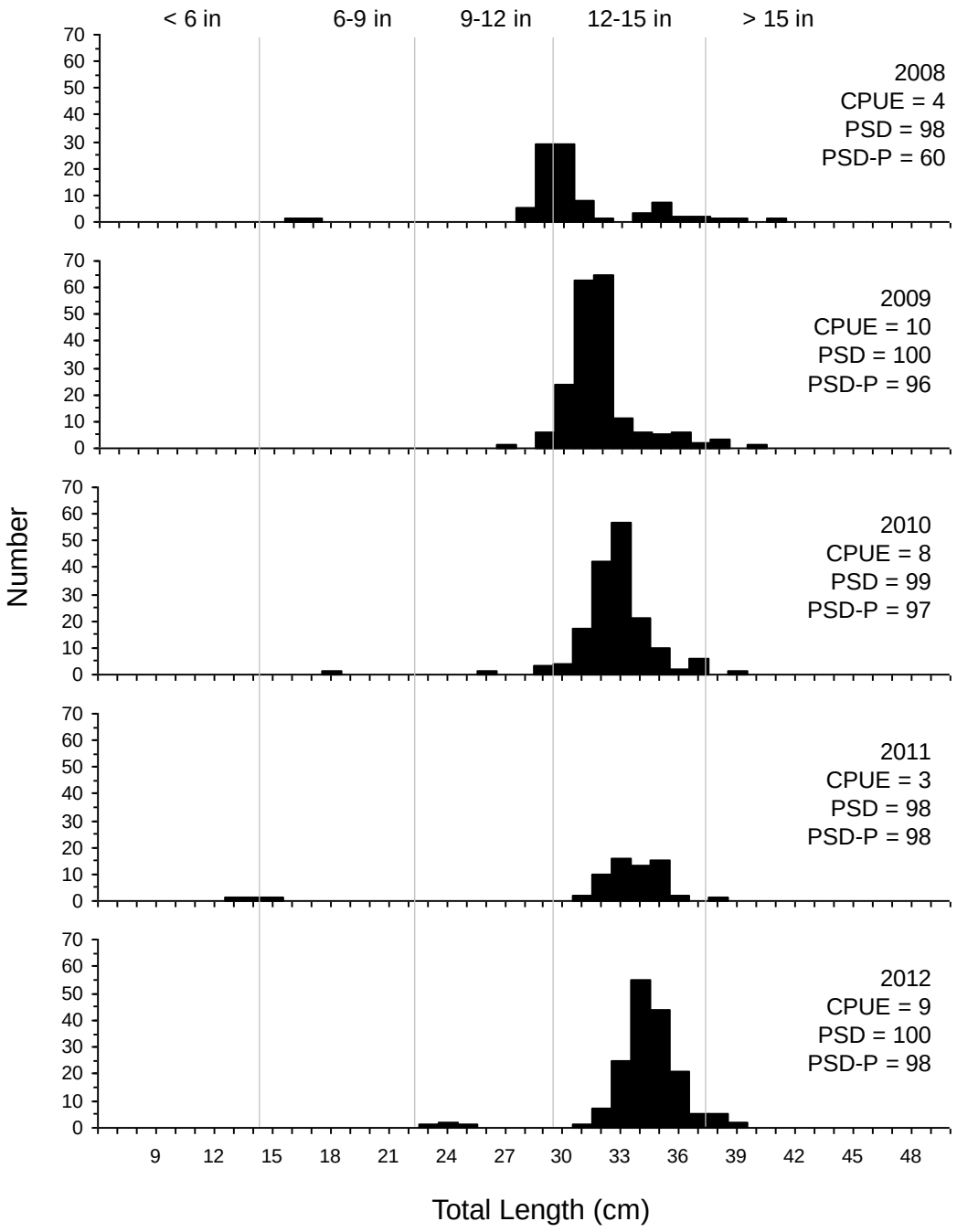

Figure 6. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for White Bass captured using frame nets in Lake Kampeska, 2008-2012.