# 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 | July 14-16, 2009 (FN,GN)<br>October 22, 2009 (EF-WAE) |
| Gill net sets (n) | 6 |
| Frame net sets (n) | 19 |
| Fall electrofishing (min) | 50 |

***Morphometry (Figure 1)***

| | |
|---|---|
| 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 1,718.3 fmsl and the board set outlet elevation is 1,717.8 fmsl. The elevation of Lake Kampeska increased approximately 1.3 ft between October 28, 2008 (1,716.7 fmsl) and May 12, 2009 (1,718.0 fmsl). By October 7, 2009 the elevation had declined to 1,716.5 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). Aquatic plant species identified during the 2009 survey include common duckweed, coontail, leafy pondweed, giant duckweed, star duckweed, water crowfoot, and water stargrass. No aquatic nuisance plant species were encountered.

*Macro-Invertebrate/Mussel Survey*

No aquatic nuisance macro-invertebrate or mussel species were sampled in 2009.

*Fish Community Survey*

Common carp was the only aquatic nuisance fish species captured during the 2009 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, white bass, white crappie, white sucker, yellow bullhead, yellow perch |
| Lake-specific regulations | NE Panfish Management Area: 10 daily; 50 possession<br>walleye/saugeye: minimum length 14” |
| Management classification | Domestic Water Supply |
| Fish Consumption Advisories | none |

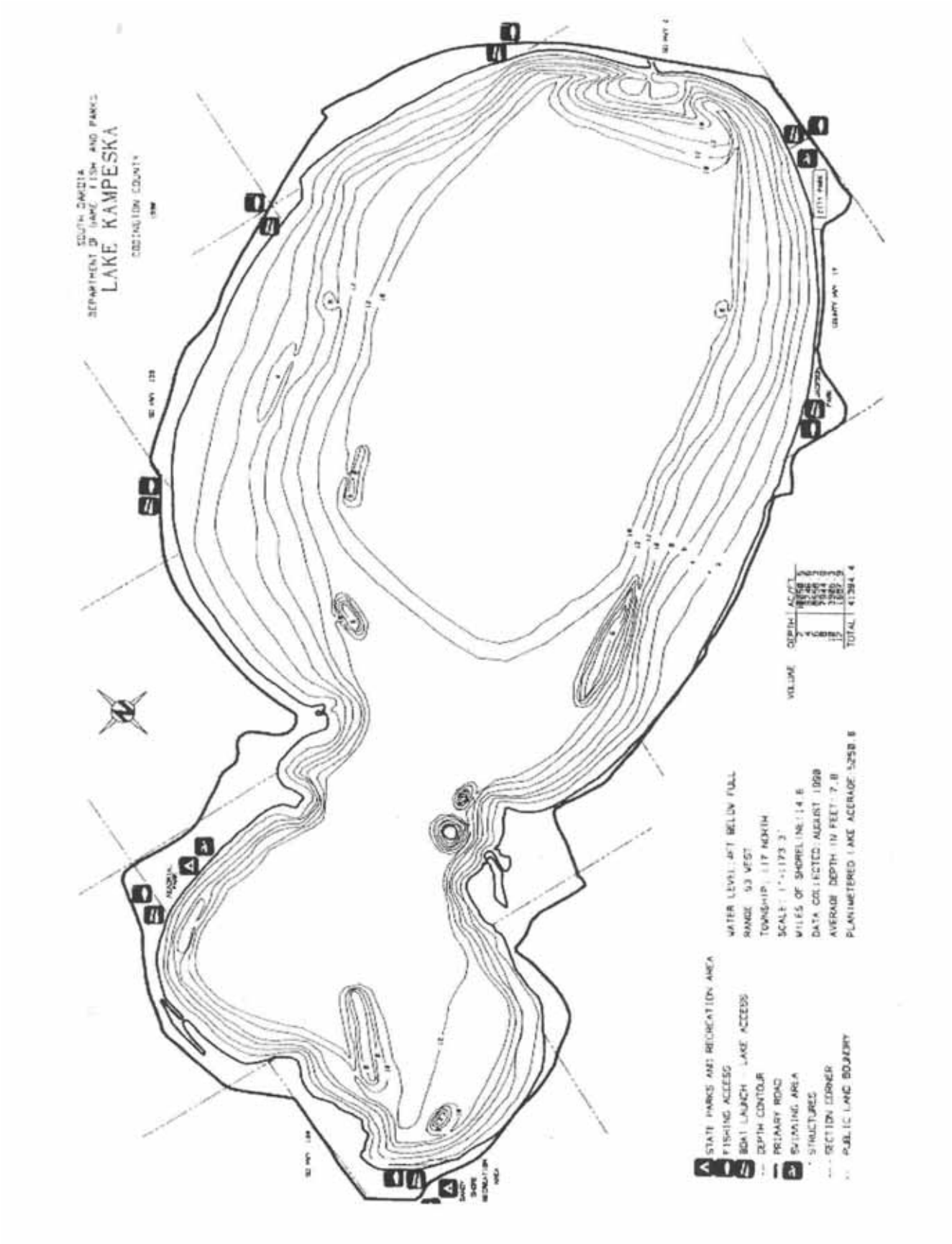


Figure 1. Lake Kampeska contour map.

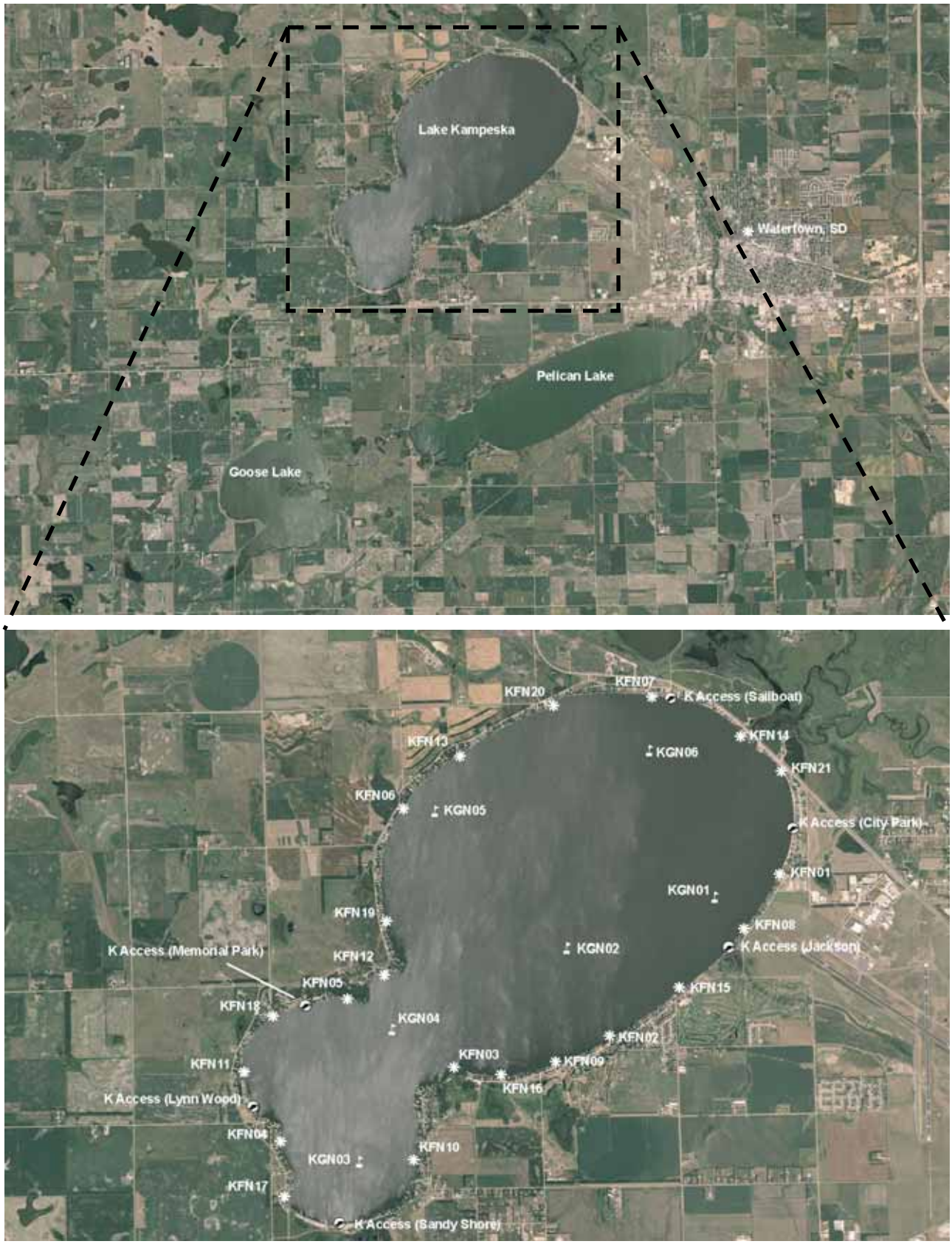


Figure 2. Map depicting location of Lake Kampeska, Goose, and Pelican Lakes from Watertown , SD (top). Also noted are public access points and standardized net locations for Lake Kampeska. KFN= frame nets, KGN= gill nets

## Management Objectives

1) Maintain a mean gill net CPUE of stock-length walleye ≥ 10, a PSD of 30-60, and a PSD-P of 5-10.

2) Maintain a mean frame net CPUE of stock-length bullhead ≤ 100.

## 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 and its shores are 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 walleye fishery; however, crappie (black and white), bluegill, channel catfish, northern pike, smallmouth bass and white bass are important components of the fishery. Overall, as many as 23 fish species contribute to the Lake Kampeska fishery.

*Primary Species*

Walleye: The 2009 mean gill net CPUE of stock-length walleye in Lake Kampeska was 17.0 (Table 1) and above the minimum objective (≥ 10 stock-length walleye/net night; Table 3). Since 2002, the mean gill net CPUE has ranged from a low of 6.5 (2007) to a high of 24.5 (2004; Table 2). The 2009 gill net CPUE represented a slight increase from the 14.3 observed in 2008 (Table 2) and indicated high relative abundance.

Walleye captured in the 2009 gill net catch ranged in total length from 15 to 59 cm (5.9 to 23.2 in), had a PSD of 4 and a PSD-P of 1 (Figure 3). 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 3). Strong recruitment in recent years coupled with poor growth of the 2005 year class has resulting in the low size structure. In 2009, approximately 6% of all walleye captured in gill nets were above the 356 mm (14 inch) minimum length restriction (Figure 3).

Otoliths were collected from a sub-sample of gill net captured walleye in 2009. Seven walleye year classes were present (2001, 2003-2008) with the 2005, 2007, and 2008 cohorts being the most represented (Table 4). 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 4; Table 5). 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 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, and 328 mm (12.9 in) at age-4 (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 2002-2009 with mean Wr values for stock-length walleye ranging from 80 to 86 (Table 3). In 2009, the mean Wr for stock-length walleye was 83 (Table 1).

*Other Species*

Bullheads: The bullhead community in Lake Kampeska is comprised of both black bullhead and yellow bullhead. In 2009, the mean frame net CPUE of stock-length bullhead was 2.4 and 0.2 for black and yellow bullhead, respectively (Table 1). Since 2002, relative abundance has remained low for both species in Lake Kampeska, 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 2009 was 1.3 (Table 1). Since 2002, bluegill relative abundance has remained low with mean frame net CPUE values ranging from 1.3 (2009) to 6.5 (2004) and the 2002-2009 average being 4.1 (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 2009 ranged from 7 to 24 cm (2.8 to 9.4 inches; Figure 4). The PSD of bluegill captured in frame nets during 2009 was 83 and the PSD-P was 67 indicating a population skewed toward larger individuals (Figure 4).

No growth information was available for bluegill in Lake Kampeska. Bluegill in the 2009 frame net catch were in good condition with mean Wr values exceeding 110 for all length categories sampled. The mean Wr for stock-length bluegill was 114 (Table 1). Relative weight (Wr) values may have been influenced by bluegill spawning behavior 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 2009, 7 black crappie ranging in total length from 25 to 32 cm (9.8 to 12.6 in) were captured in the frame net catch resulting in CPUE of 0.4 (Table 1). Since 2002, 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 2002-2009 average being 3.4 (Table 2).

A single white crappie was captured in the 2009 frame net and gill net catch resulting in a mean CPUE of stock-length white crappie of <0.1 and 0.2, 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 2002, 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 (2002) to high of 8.2 (2006), with the 2002-2009 average being 3.0 (Table 2).

Based on the 2009 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 2002-2009 average CPUE is 0.1 and 0.4 for frame nets and gill nets, respectively (Table 2). In 2009, no channel catfish were 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 2009 survey was 1.0 (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) to 1.2 (2003) and the 2002-2009 average being 0.7 (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 2009, catch rates of white bass were higher in frame nets than gill nets. The mean CPUE of stock-length white bass during 2009 was 10.2 for frame nets and 7.2 for gill nets (Table 1). White bass have generally been considered to be present at a moderate density; however, recruitment of the strong 2005 cohort to the population has dramatically increased their abundance (Table 2; Table 7). 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 2009 frame net catch ranged in total length from 25 to 33 cm (9.8 to 13.0 in), had a PSD of 100, and a PSD-P of 93 ( Figure 5). 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 7). White bass from the strong 2005 year class have reached quality and preferred lengths resulting in the high size structure (Figure 5). The weighted mean length at capture for age-4 white bass sampled in the 2009 frame net catch was 316 mm (12.4 in; Table 8). Mean Wr values for frame net captured white bass ranged from 82 to 93 for all length categories sampled with the mean Wr of stock-length white bass being 88 (Table 1).

Yellow Perch: The mean gill net CPUE of stock-length yellow perch in 2009 was 2.2 (Table 1). Since 2002, the gill net CPUE of stock-length yellow perch has fluctuated from a low of 0.3 (2008) to a high of 6.2 (2002) with the 2002-2009 average being 3.2 (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 (Ermer et al. 2005).

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, smallmouth bass, shorthead redhorse and white sucker were other fish species captured during the 2009 survey (Table 1).

## Management Recommendations

1) Conduct fish population assessment surveys on an annual basis (next survey scheduled in summer 2010) 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 walleye young-of-the-year abundance.

3) Conduct spring night electrofishing on a biennial basis ( 2010, 2012, etc) to monitor smallmouth bass population.

4) Stock Oxytetracycline (OTC) marked walleye fry at 500 fry/acre 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) Consider the possibility of implementing an angler use and harvest survey on Lake Kampeska. This would provide insight into the angler use and harvest that takes place on Lake Kampeska.

7) Collect otoliths from walleye and white bass; scales from smallmouth bass to assess age structure and growth rates of each population.

8) Evaluate black bass and walleye population dynamics and implement regulations to benefit the population and comply with tool box options.

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 night electrofishing in Lake Kampeska, 2009. 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; 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 | 82 | 8 |
| BLB | 2.4 | 0.9 | 91 | 7 | 57 | 12 | 95 | <1 |
| BLC | 0.4 | 0.3 | 100 | 0 | 100 | 0 | 93 | 4 |
| BLG | 1.3 | 0.5 | 83 | 14 | 67 | 17 | 114 | 1 |
| COC | 0.2 | 0.1 | 100 | 0 | 100 | 0 | 87 | 33 |
| NOP | 0.5 | 0.2 | 78 | 22 | 33 | 31 | 80 | 5 |
| ROB | 0.2 | 0.1 | 100 | 0 | 67 | 33 | 94 | 6 |
| SMB | 0.6 | 0.2 | 27 | 26 | 0 | --- | 88 | 2 |
| WAE | 1.1 | 0.5 | 14 | 14 | 0 | --- | 83 | <1 |
| WHB | 10.2 | 3.0 | 100 | 0 | 96 | 3 | 88 | <1 |
| WHC | 0.1 | 0.0 | 100 | --- | 100 | --- | 86 | --- |
| WHS | 1.2 | 0.4 | 95 | 5 | 91 | 9 | 97 | 5 |
| YEB | 0.2 | 0.1 | 100 | 0 | 100 | 0 | 100 | 27 |
| *Gill nets* | | | | | | | | |
| COC | 0.5 | 0.5 | 100 | 0 | 100 | 0 | 102 | 12 |
| NOP | 1.0 | 0.4 | 67 | 33 | 17 | 33 | 79 | 6 |
| SHR | 0.3 | 0.5 | 100 | 0 | 100 | 0 | 113 | 24 |
| WAE | 17.0 | 3.7 | 4 | 3 | 1 | 2 | 83 | <1 |
| WHB | 7.2 | 3.6 | 100 | 0 | 93 | 7 | 93 | 1 |
| WHC | 0.2 | 0.2 | 100 | --- | 100 | --- | 94 | --- |
| WHS | 1.7 | 0.9 | 100 | 0 | 60 | 30 | 111 | 5 |
| YEP | 2.2 | 0.5 | 31 | 24 | 8 | 13 | 112 | 2 |
| *Electrofishing* | | | | | | | | |
| WAE [1] (age-0) | 0.0[2] | --- | --- | --- | --- | --- | --- | --- |

[1] Fall night electrofishing-WAE; catch rate (CPUE) represents age-0 walleye not stock-length
[2] Sampling was conducted late-Fall; when water temperatures were below the optimum range.

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, 2002-2009. 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 | 2002 | 2003 | 2004 | 2005 | 2006[2] | 2007[2] | 2008 | 2009 | Average |
| *Frame nets* | | | | | | | | | |
| BIB | 1.4 | 1.5 | 0.9 | 0.7 | 1.7 | 1.3 | 1.6 | 0.2 | 1.2 |
| BLB | 0.3 | 1.4 | 6.7 | 4.3 | 2.9 | 0.4 | 0.4 | 2.4 | 2.4 |
| BLC | 1.0 | 8.0 | 5.1 | 2.5 | 2.5 | 5.2 | 2.8 | 0.4 | 3.4 |
| BLG | 4.9 | 5.7 | 6.5 | 2.4 | 3.6 | 4.2 | 4.0 | 1.3 | 4.1 |
| CCF | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | <0.1 | 0.0 | 0.1 |
| COC | 0.0 | 0.2 | 0.1 | 0.3 | 0.2 | 0.4 | 0.3 | 0.2 | 0.2 |
| GSF | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NOP | 1.1 | 0.7 | 0.3 | 0.4 | 0.2 | 0.6 | 0.3 | 0.5 | 0.5 |
| OSF [1] | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| PUS | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ROB | 0.7 | 0.1 | 0.5 | 0.5 | 0.2 | <0.1 | <0.1 | 0.2 | 0.3 |
| SHR | 0.6 | 0.6 | 0.2 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.2 |
| SMB | 1.9 | 2.2 | 3.2 | 1.8 | 5.6 | 7.1 | 2.7 | 0.6 | 3.1 |
| WAE | 3.0 | 0.8 | 1.6 | 2.3 | 0.8 | 1.6 | 2.2 | 1.1 | 1.7 |
| WHB | 1.6 | 2.0 | 6.6 | 1.3 | 1.8 | 1.3 | 4.3 | 10.2 | 3.6 |
| WHC | 0.6 | 0.7 | 0.8 | 0.3 | 0.9 | 0.7 | 0.2 | 0.1 | 0.5 |
| WHS | 1.3 | 7.8 | 3.2 | 0.9 | 0.5 | 1.3 | 1.3 | 1.2 | 2.2 |
| YEB | 0.3 | 0.4 | 2.8 | 3.4 | 0.9 | 1.3 | 1.4 | 0.2 | 1.3 |
| YEP | 1.0 | 0.4 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 |
| *Gill nets* | | | | | | | | | |
| BIB | 0.8 | 0.2 | 0.0 | 0.0 | 0.3 | 0.0 | 0.2 | 0.0 | 0.2 |
| BLB | 0.5 | 3.2 | 2.2 | 0.3 | 0.5 | 0.3 | 0.2 | 0.0 | 0.9 |
| BLC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| BLG | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CCF | 0.3 | 0.0 | 0.0 | 0.7 | 0.7 | 0.8 | 0.3 | 0.0 | 0.4 |
| COC | 1.0 | 0.2 | 0.0 | 0.2 | 0.3 | 1.0 | 0.5 | 0.5 | 0.5 |
| NOP | 0.8 | 1.2 | 0.8 | 0.2 | 0.5 | 0.2 | 0.5 | 1.0 | 0.7 |
| ROB | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SHR | 0.8 | 0.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 |
| SMB | 0.0 | 0.3 | 0.3 | 0.7 | 0.3 | 0.8 | 0.2 | 0.0 | 0.3 |
| WAE | 21.7 | 18.2 | 24.5 | 21.8 | 11.7 | 6.5 | 14.3 | 17.0 | 17.0 |
| WHB | 1.8 | 2.5 | 5.0 | 3.3 | 79.5 | 20.2 | 15.5 | 7.2 | 16.9 |
| WHC | 0.3 | 2.0 | 5.5 | 4.7 | 8.2 | 2.5 | 0.5 | 0.2 | 3.0 |
| WHS | 0.8 | 0.2 | 0.3 | 1.0 | 0.7 | 1.5 | 0.3 | 1.7 | 0.8 |
| YEB | 0.0 | 0.0 | 0.0 | 0.2 | 0.8 | 0.2 | 0.2 | 0.0 | 0.2 |
| YEP | 6.2 | 3.5 | 2.7 | 4.8 | 4.3 | 1.3 | 0.3 | 2.2 | 3.2 |
| *Electrofishing* | | | | | | | | | |
| WAE [3] (age-0) | 1.0 | 15.3 | 4.0 | 252.1 | 0.0 | 10.7 | 20.6 | 0.0[4] | 38.0 |

[1] All fish sizes.
[2] Monofilament gill net mesh size (.75", 1", 1.25", 1.5", 2" and 2.5").
[3] Fall night electrofishing-WAE; catch rate (CPUE) represents age-0 walleye not stock-length.
[4] Sampling was conducted in late-October; when water temperatures were below the optimum range.

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, 2002-2009. BLB= black bullhead; BLC= black crappie; BLG= bluegill; WAE= walleye;

| Species | 2002 | 2003 | 2004 | 2005 | 2006[1] | 2007[1] | 2008 | 2009 | Average | Objective |
|---|---|---|---|---|---|---|---|---|---|---|
| *Frame nets* | | | | | | | | | | |
| BLB | | | | | | | | | | |
| CPUE | < 1 | 1 | 7 | 4 | 3 | <1 | <1 | 2 | 2 | ≤ 100 |
| PSD | 67 | 96 | 96 | 100 | 100 | 75 | 100 | 91 | 91 | --- |
| PSD-P | 50 | 79 | 54 | 44 | 92 | 75 | 63 | 12 | 59 | --- |
| Wr | 91 | 91 | 88 | 92 | 89 | 79 | 85 | 95 | 89 | --- |
| BLC | | | | | | | | | | |
| CPUE | 1 | 8 | 5 | 3 | 3 | 5 | 3 | <1 | 4 | --- |
| PSD | 82 | 44 | 80 | 100 | 79 | 70 | 100 | 100 | 82 | --- |
| PSD-P | 73 | 11 | 11 | 69 | 43 | 23 | 36 | 100 | 46 | --- |
| Wr | 103 | 97 | 106 | 102 | 108 | 108 | 100 | 93 | 102 | --- |
| BLG | | | | | | | | | | |
| CPUE | 5 | 6 | 7 | 2 | 4 | 4 | 4 | 1 | 4 | --- |
| PSD | 40 | 84 | 95 | 75 | 57 | 91 | 90 | 83 | 77 | --- |
| PSD-P | 17 | 8 | 2 | 25 | 20 | 26 | 58 | 67 | 28 | --- |
| Wr | 115 | 106 | 105 | 115 | 116 | 118 | 117 | 118 | 114 | --- |
| *Gill nets* | | | | | | | | | | |
| WAE | | | | | | | | | | |
| CPUE | 22 | 18 | 25 | 22 | 12 | 7 | 14 | 17 | 17 | ≥ 10 |
| PSD | 51 | 39 | 26 | 11 | 73 | 41 | 5 | 4 | 31 | 30-60 |
| PSD-P | 0 | 2 | 2 | 0 | 1 | 3 | 0 | 1 | 1 | 5-10 |
| Wr | 86 | 83 | 83 | 82 | 80 | 85 | 80 | 83 | 83 | --- |

[1] Monofilament gill net mesh size change (.75", 1", 1.25", 1.5", 2" and 2.5").

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, 2005-2009.

| | Year Class | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Survey Year | 2009 | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 | 1998 |
| 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 | |
| 2005[1] | --- | --- | --- | --- | | | 22 | | 105 | | 4 | 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 (.75", 1", 1.25", 1.5", 2" and 2.5").

Table 5. Stocking history including size and number for fishes stocked into Lake Kampeska, 1998-2009.

| 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 6. Weighted mean total length at capture (mm) for walleye age-0 through age-10 sampled in experimental gill nets (expanded sample size) from Lake Kampeska, 2005-2009. 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 |
| 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. Year class distribution based on the expanded age/length summary for white bass sampled in frame nets from Lake Kampeska, 2009.

| | Year Class | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Survey Year | 2009 | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 |
| 2009[1] | | | | | 172 | | 1 | 12 | 3 | | 1 |

[1] 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.

| | Age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 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.

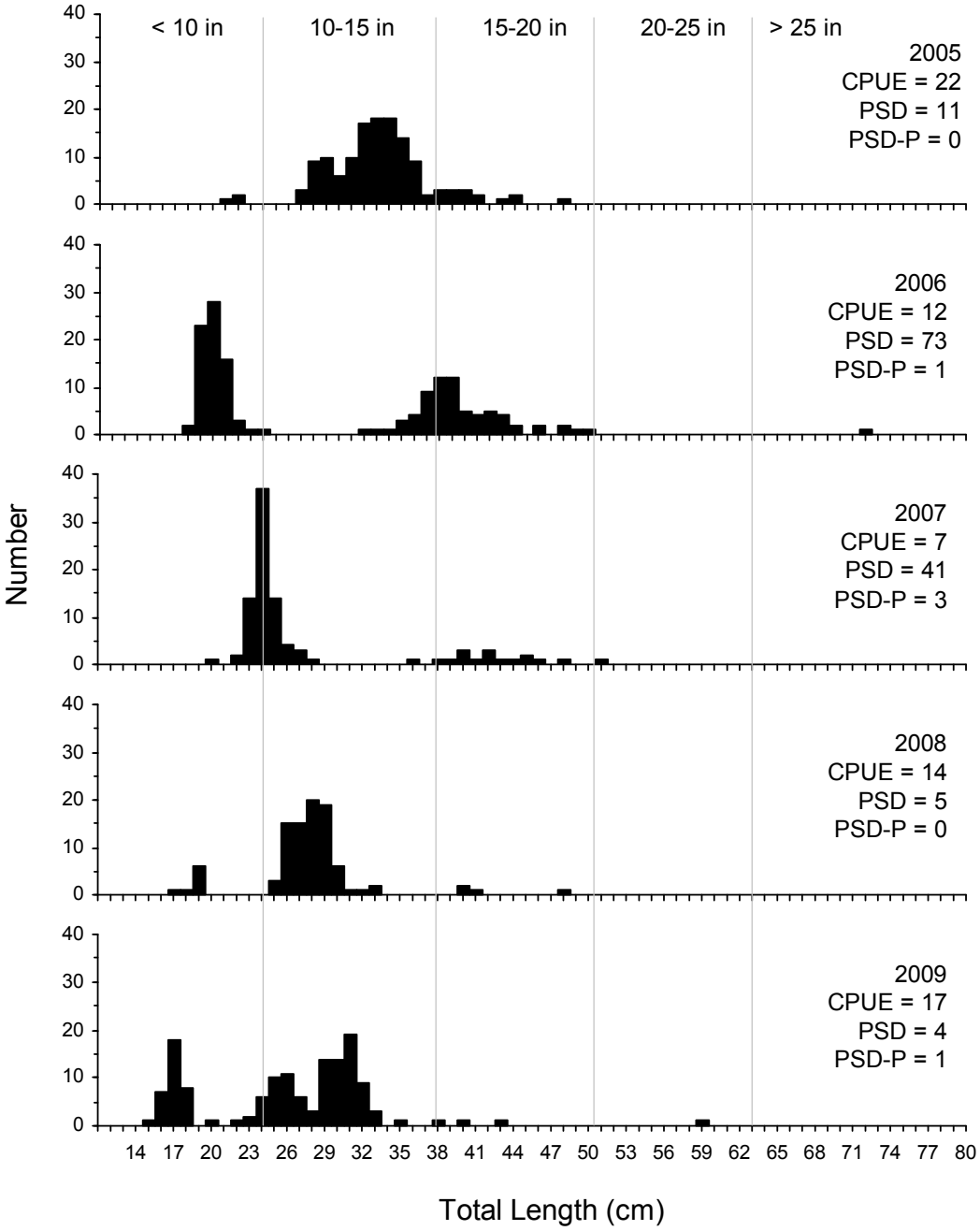


Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for walleye captured using experimental gill nets in Lake Kampeska, 2005-2009.

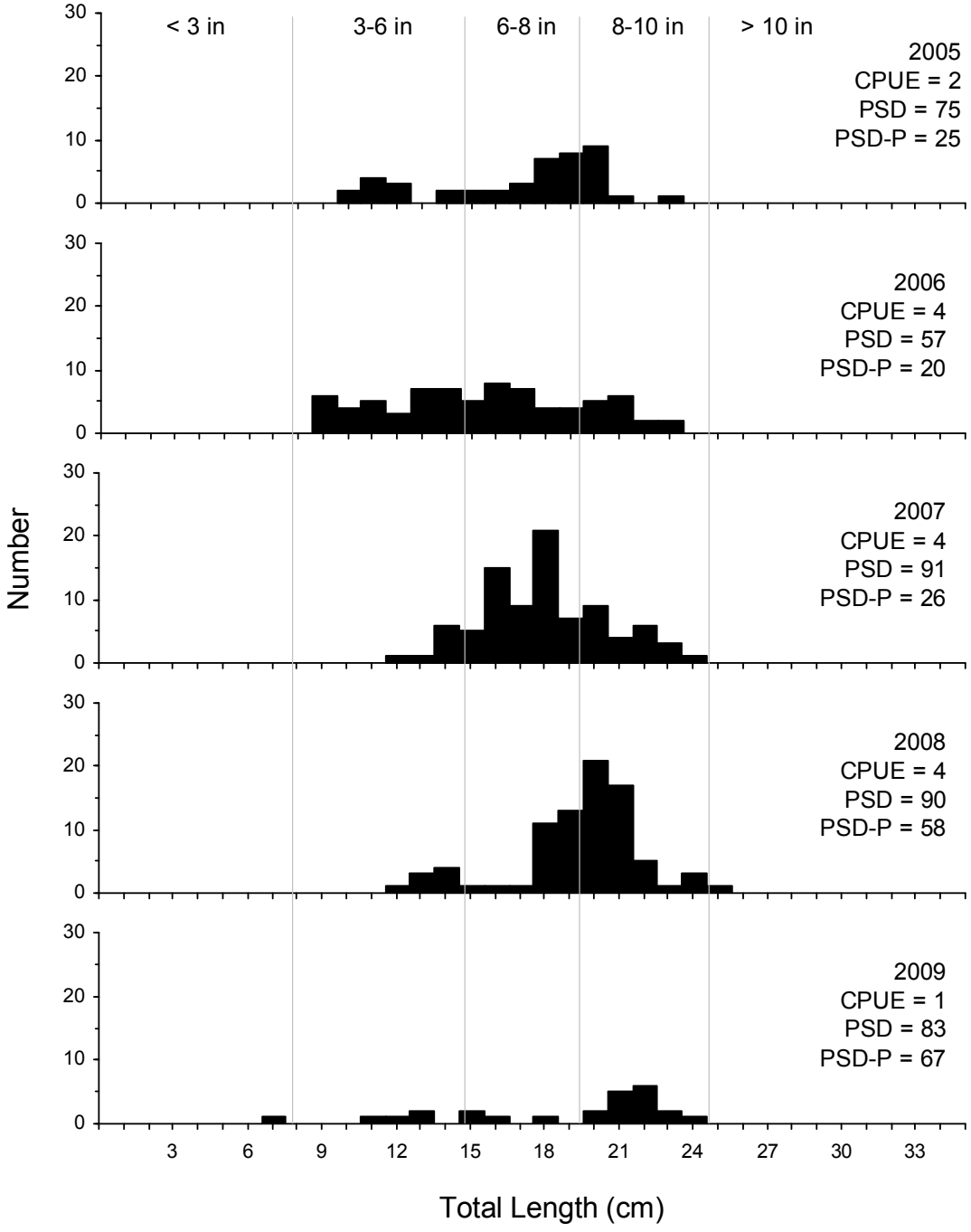


Figure 4. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for bluegill captured using frame nets in Lake Kampeska, 2005-2009.

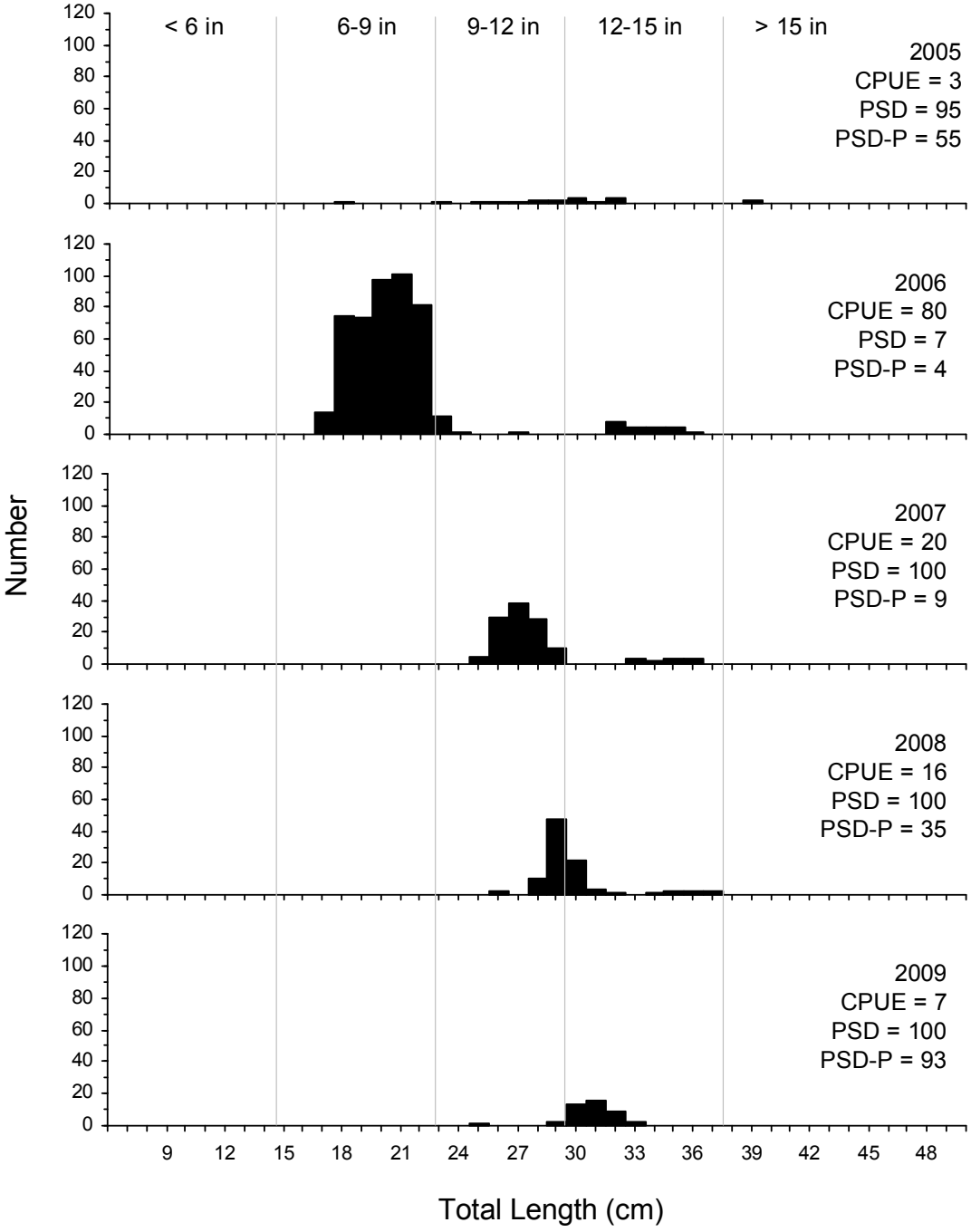


Figure 5. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for white bass captured using frame nets in Lake Kampeska, 2005-2009.