

# Mina Lake

## Site Description

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### Location

Water designation number (WDN)	26-0003-00
Legal description	T123N-R66W-Sec.12-14, 23-26
County (ies)	Brown; Edmunds
Location from nearest town	14 miles east of Ipswich, South Dakota

### Survey Dates and Sampling Information

Dates of current survey	July 29-31, 2008 (FN, GN) September 8, 2008 (EF-WAE)
Date of most recent survey	July 31-August 2, 2007 (FN, GN) September 28, 2007 (EF-WAE)
Gill net sets (n)	6
Frame net sets (n)	18
Fall electrofishing (min)	42

### Morphometry (Figure 1)

Watershed area (acres)	195,000
Surface area (acres)	806
Maximum depth (ft)	27
Mean depth (ft)	9

### Ownership and Public Access

Mina Lake is an artificial impoundment owned by the State of South Dakota and the fishery is managed by the SDGFP. SDGFP manages two access sites on Mina Lake, one within the state park and the other along the southeastern shore near the outlet structure (Figure 1; Figure 3). The Mina Lake shoreline has mixed ownership including the State of South Dakota and private parties.

### Watershed and Land Use

Land use within the Mina Lake watershed is primarily agricultural, with approximately 47% being cropland (cultivated and non-cultivated) and 40% being range/pastureland (Smith 2002). Housing and small shelterbelts/farmsteads comprise the remaining portions.

### Water Level Observations

Water levels on Mina Lake are not monitored by SDDENR; however, water levels appeared to be at or slightly below full pool in late-Fall 2008.

### Aquatic Vegetation and Exotics

Emergent vegetation is primarily limited to upper portions of the impoundment and covers approximately 10% of the shoreline (Stueven and Stewart 1996). Aquatic vegetation in the form of sago pondweed and common duckweed has been identified in Mina Lake (Stueven and Stewart 1996). Common carp and a single rudd have been the only exotic species reported in Mina Lake.

### Fish Management Information

Primary species	black crappie, bluegill, channel catfish, walleye,
Other species	black bullhead, common carp, fathead minnow, freshwater drum, golden shiner, green sunfish, largemouth bass, northern pike, orange spotted sunfish, rock bass, shortnose gar, smallmouth bass, sunfish hybrid, white bass, white sucker, yellow perch
Lake-Specific regulations	NE Panfish Management Area: 10 daily; 50 possession Largemouth bass: minimum length 15" Walleye/Saugeye: minimum length 14"
Management classification	warm-water permanent
Fish Consumption Advisories	none

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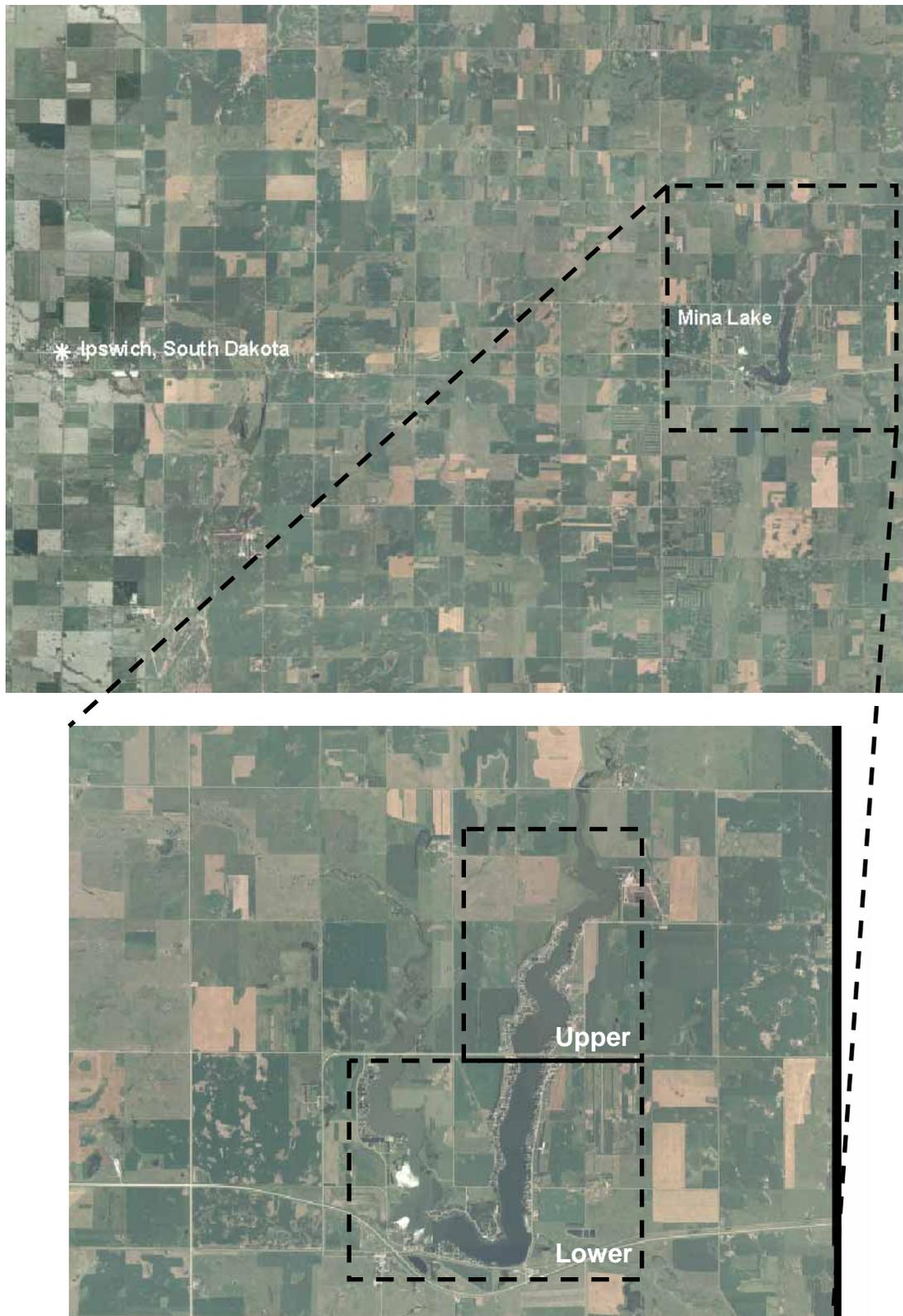


Figure 2. Map depicting location of Mina Lake from Ipswich, Edmunds County, South Dakota and upper and lower divisions.



Figure 3. Map depicting access points and standardized net locations for Mina Lake, Edmunds County, South Dakota. MFN= frame nets, MGN= gill nets

## Management Objectives

- 1) Maintain a mean frame net CPUE of stock-length black crappie  $\geq 10$ , a PSD of 30-60, and a PSD-P of 5-10.
- 2) Maintain a mean frame net CPUE of stock-length bluegill  $\geq 25$ , a PSD of 30-60, and a PSD-P of 5-10.
- 3) Supplement the channel catfish population to diversify sport fishing opportunity in Mina Lake.
- 4) Maintain a mean gill net CPUE of stock-length walleye  $\geq 10$ , a PSD of 30-60, and a PSD-P of 5-10.
- 5) Maintain a mean frame net CPUE of stock-length bullhead  $\leq 100$ .

## Results and Discussion

Mina Lake is an impoundment constructed in the 1930's on Snake Creek approximately 12 miles west of Aberdeen, South Dakota. Snake Creek is a natural stream which drains portions of McPherson, Edmunds, and Brown counties in South Dakota (Smith 2002). Mina Lake is primarily managed as a bluegill, black crappie, channel catfish and walleye fishery. Overall, as many as 16 species of fish contribute to the fishery in Mina Lake.

### *Primary Species*

Black crappie: The 2008 mean frame net CPUE of stock-length black crappie was 2.5 (Table 1), and below the minimum objective ( $\geq 10$  stock-length black crappie/net; Table 3). Length-frequency analysis of the 2006 and 2007 frame net catch indicated that a single year class dominated the population (Kaufman et al. 2008). In 2008, length-frequency analysis suggested that black crappie recruitment has been consistent in recent years as several year classes appeared to be present (Figure 4). Although consistent, black crappie recruitment appears to be of low magnitude in recent years resulting in the low relative abundance. Since 2001, the mean frame net CPUE has ranged from 0.9 (2005) to 130.5 (2001), with the 2001-2008 average being 31.1 (Table 2).

Black crappie captured in frame nets during 2008 ranged in total length from 15 to 28 cm (5.9 to 11.0 in), had a PSD of 58 and a PSD-P of 44 (Figure 2). The 2008 PSD was within the objective range of 30-60; while the PSD-P was above the objective range of 5-10.

No age or growth information was collected in 2008. Mean  $W_r$  values exceeded 100 for all length categories sampled, with the mean  $W_r$  of stock-length fish being 118 (Table 1). A slight decreasing trend in  $W_r$  values was apparent as black crappie total length increased in 2008.

Bluegill: The 2008 mean frame net CPUE of stock-length bluegill of 1.8 was below the minimum objective ( $\geq 25$  stock-length bluegill/net: Table 3) and the lowest reported from 2001-2008 (Table 2). Length-frequency analysis suggests limited recruitment in recent years as few bluegill less than 13 cm (5 in) were captured in surveys conducted during 2007 and 2008 (Figure 5). The majority of bluegill captured during the 2008 survey appeared to be from a single year-class that ranged in total length from 15 to 18 cm (5.9 to 7.5 in) resulting in a PSD of 94 and a PSD-P of 3 (Table 3; Figure 5).

No growth information was available for bluegill in Mina Lake; however, mean  $W_r$  values exceeded 120 for all length groups sampled. The mean  $W_r$  for stock-length bluegill was 124, and no length-related trends in  $W_r$  were apparent (Table 1).

Channel catfish: From 2001-2006 relative abundance of channel catfish was low with mean frame net CPUE values commonly less than one stock-length channel catfish/net (Table 2). In 2007, the mean frame net CPUE of stock-length ( $\geq 280$  mm) channel catfish increased to 4.8 (Table 1) and the mean frame net CPUE of sub-stock channel catfish was 16.3. The increase in channel catfish relative abundance can likely be attributed to the 2006 stocking of 42,350 fingerlings (Table 5).

In 2008, the mean frame net CPUE of stock-length channel catfish declined to 2.4 (Table 1), but remained above the 2001-2006 average of 0.4. Channel catfish captured the 2008 frame net catch ranged in total length from 22 to 36 cm (8.7 to 14.2 in; Figure 6). Channel catfish captured in the 2008 frame net catch were less than quality length resulting in PSD and PSD-P values of 0 (Table 1; Figure 6).

No growth information was available. The majority of channel catfish captured in the 2008 frame net catch were in the stock- to quality-length category which had a mean  $W_r$  of 88.

Walleye: The mean gill net CPUE of stock-length walleye during 2008 was 1.0 (Table 1) and below the minimum objective ( $\geq 10$  stock length walleye/net) for Mina Lake (Table 3). Since 2001, relative abundance of walleye has remained low with mean gill net CPUE values ranging from 0.3 to 1.3 (Table 2). The gill net CPUE of stock-length walleye during 2008 indicated low relative abundance ( $<4$  stock-length walleye/net).

Recruitment of both naturally-produced and stocked walleye has been extremely poor. Walleye of various sizes have been stocked annually since 2002 with limited success (Table 5). In 2004 and 2006, walleye fry were stocked in the spring, but no age-0 walleye were sampled during fall electrofishing; therefore large fingerlings were also stocked (Table 2; Table 5). In 2005, 33,310 large fingerling walleyes were stocked and many of these were large ( $\approx 0.25$  pound fish) when stocked. Walleye large fingerlings of this size are not commonly available for stocking and this unique opportunity should have provided a product with a high probability of survival. However, few walleye from this stocking have been present in the gill net catch (Table 6). In 2007 and 2008, small fingerling walleye were stocked in the spring; however, fall electrofishing resulted in no age-0 walleye being captured indicating poor survival (Table 2; Table 5). At this time, the cause of poor walleye survival in Mina Lake has been a topic of discussion by fisheries personnel and constituents. Unfortunately, the

underlying cause of the poor survival experienced in Mina Lake is uncertain; however, it should be noted that all efforts available have been utilized in attempts to produce a walleye year-class.

Few inferences can be made concerning the size structure, growth, and condition due to low sample size, as only six walleye were captured in gill nets during 2008.

### *Other Species*

Black bullhead: The 2008 mean frame net CPUE of stock-length black bullhead was 5.8, a decrease from the 16.2 observed in 2007 (Table 2). Since 2001, mean frame net CPUE values have ranged from a low of 5.8 (2008) to a high of 58.3 (2001) but remained within the objective range ( $\leq 100$  stock-length black bullhead/net; Table 3).

Black bullhead in the 2008 frame net catch ranged in total length from 11 to 31 cm (4.3 to 12.2 in), had a PSD of 45 and a PSD-P of 1. The majority of black bullhead in the 2008 frame net catch appeared to be from a single year class with most individuals ranging in total length from 20 to 25 cm (7.9 to 9.8 in; Figure 7).

No growth information was collected in 2008. Mean  $W_r$  values ranged from 83 to 95 with the mean  $W_r$  of stock-length black bullheads being 89 (Table 1). No length-related trends in  $W_r$  were apparent during 2008.

Largemouth bass: Largemouth bass are present at a low density in Mina Lake. McKibbin (2002) reported a spring night electrofishing CPUE of stock-length largemouth bass of 3.9 in 2001. Given the low abundance, annual spring night electrofishing has not been implemented on Mina Lake. Largemouth bass populations in eastern South Dakota glacial lakes and large impoundments generally are of low density, high size structure, high condition, and have fast growth due to inconsistent recruitment patterns (McKibbin 2002).

Occasionally, largemouth bass have been sampled during annual fall electrofishing used to assess young-of-the-year walleye production. In 2006, fall electrofishing resulted in 37 largemouth bass being sampled, with 34 being from the recently-produced 2005 year-class. These fish should be recruited and available for anglers to catch. However, no largemouth bass were captured during fall electrofishing in 2007 or 2008.

Freshwater Drum: Freshwater drum were the most abundant fish species sampled in gill nets during 2008 (Table 1). The mean gill net CPUE of freshwater drum from Mina Lake was 19.0, a decrease from the 30.2 in 2007 (Table 2).

Freshwater drum captured in the 2008 gill net catch ranged in total length from 13 to 39 cm (5.1 to 15.4 in), had a PSD of 18 and a PSD-P of 7 (Figure 9). The majority of freshwater drum in the 2008 gill net catch, were likely from the 2005 year-class and ranged in total length from 24 to 29 cm (9.4 to 11.4 in; Figure 9).

No growth information was collected in 2008. Mean  $W_r$  values exceeded 90 for all length groups sampled and no length-related trends in mean  $W_r$  values were apparent. The mean  $W_r$  for stock-length freshwater drum captured in gill nets was 98 (Table 1).

Northern Pike: Northern pike typically are not sampled effectively using standard lake survey methods and gill nets have not consistently sampled northern pike in Mina Lake. Therefore, relative abundance of northern pike in Mina Lake has generally been considered low with the mean gill net CPUE commonly less than 1.0 stock-length northern pike/net from 2001-2007 (Table 2). In 2007, sub-stock northern pike ranging in total length from 22 to 30 cm (8.7 to 11.8 in) were captured in both gill nets and frame nets indicating recent successful natural reproduction. In 2008, the mean gill net CPUE of stock-length northern pike increased to 3.5 as recently-produced northern pike attained stock-length.

Northern pike in the 2008 gill net catch from Mina Lake ranged in total length from 32 to 49 cm (12.6 to 19.3 in; Figure 8). No quality-length northern pike were captured in the 2008 gill net catch from Mina Lake resulting in a PSD and PSD-P of 0 (Table 1; Figure 8). No growth information was collected in 2008. Stock-length northern pike had a mean  $W_r$  of 93 (Table 1). No length-related trends were apparent as all stock-length northern pike sampled were in the stock- to quality-length category.

Yellow Perch: Mina Lake has a low to moderate density yellow perch population that is likely inhibited by habitat characteristics similar to other large impoundments in Region IV (i.e., Richmond Lake and Elm Lake). The 2008 mean gill net CPUE of stock-length yellow perch was 1.7 and the lowest reported from 2001-2008 (Table 1; Table 2). Since 2001, the mean gill net CPUE of stock-length yellow perch has fluctuated with year-class strength from a low of 1.7 (2008) to a high of 12.8 (2003) with the 2001-2008 average being 6.4 (Table 2).

During 2008, yellow perch captured in gill nets ranged in total length from 13 to 29 cm (5.1 to 11.4 in), had a PSD of 30, and a PSD-P of 30. No growth information was available in 2008. Mean  $W_r$  values of yellow perch in the 2008 gill net catch from Mina Lake ranged from 85 to 101 with the mean  $W_r$  of stock-length yellow perch being 96 (Table 1).

Other: Common carp, orangespotted sunfish, rock bass, and a single shortnose gar were captured during the 2008 survey (Table 1).

## **Management Recommendations**

- 1) Conduct fish community assessment surveys on an annual basis (next survey scheduled in summer 2009) to monitor fish relative abundance, fish population size structure, fish growth and stocking success.
- 2) Conduct fall night electrofishing on an annual basis to monitor walleye young-of-the-year abundance and to assess black bass (primarily largemouth) populations in Mina Lake.
- 3) Collect otoliths from black crappie and walleye; scales from largemouth and smallmouth bass to assess the age structure and growth rates of each population.
- 4) Stock walleye fry on an annual basis (1,000 fry/acre) in an effort to establish a walleye year-class. If the fall night electrofishing CPUE of young-of-the-year walleye exceeds 75 fish/hour than walleye should not be stocked the following spring.
- 5) Evaluate walleye and black bass (largemouth and smallmouth) population dynamics and implement regulations to benefit the population and comply with tool box options.
- 6) Stock channel catfish fingerlings ( $\approx 50$  fingerlings/acre) every third year (when available) to bolster the channel catfish fishery in Mina 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 gill nets, frame nets, and electrofishing in Mina Lake, 2008. Confidence intervals include 80 percent ( $\pm$  CI-80) or 90 percent ( $\pm$  CI-90). BLB= black bullhead; BLC= black crappie; BLG= bluegill; CCF= channel catfish; COC= common carp; FRD= freshwater drum; NOP= northern pike; OSF= orangespotted sunfish; ROB= rock bass; SHG= shortnose gar; WAE= walleye; WHB= white bass; WHS= white sucker; YEP= yellow perch

Species	Abundance		Stock Density Indices				Condition	
	CPUE	CI-80	PSD	CI-90	PSD-P	CI-90	Wr	CI-90
<i>Frame nets</i>								
BLB	5.8	2.0	45	8	1	2	89	3
BLC	2.5	0.9	58	12	44	13	118	2
BLG	1.8	0.9	94	6	3	5	124	3
CCF	2.4	0.7	0	---	0	---	88	1
COC	1.9	0.6	54	15	43	14	80	2
FRD	2.3	0.7	32	12	29	12	94	1
NOP	3.2	0.5	18	8	11	6	89	1
ROB	0.1	0.2	0	---	0	---	92	<1
SHG <sup>1</sup>	0.1	<0.1	---	---	---	---	---	---
WAE	0.3	0.2	100	0	40	52	105	8
WHB	0.1	<0.1	100	---	100	---	95	---
WHS	0.3	0.2	100	0	100	0	91	4
YEP	1.7	0.6	20	13	20	13	90	3
<i>Gill nets</i>								
BLB	8.2	2.3	12	8	0	---	93	1
CCF	1.7	1.4	0	---	0	---	95	4
COC	8.7	3.5	13	8	10	7	90	1
FRD	19	9.3	18	5	7	4	98	<1
NOP	3.5	2.4	0	---	0	---	93	1
OSF <sup>1</sup>	0.5	0.5	---	---	---	---	---	---
WAE	1.0	0.8	83	17	33	43	107	8
YEP	1.7	0.9	30	28	30	28	96	6
<i>Electrofishing</i>								
WAE (age-0) <sup>2</sup>	0.0	---	---	---	---	---	---	---

<sup>1</sup> All fish sizes.

<sup>2</sup> Fall night electrofishing-WAE.

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 gill nets, frame nets, and by electrofishing in Mina Lake, 2001-2008. BLB= black bullhead; BLC= black crappie; BLG= bluegill; CCF= channel catfish; COC= common carp; COS= common shiner; EMS= emerald shiner; RUD= Rudd; FRD= freshwater drum; GSF= green sunfish; GOS= golden shiner; LMB= largemouth bass; NOP= northern pike; OSF= orangespotted sunfish; HYB= hybrid sunfish; WAE= walleye; WHB= white bass; WHS= white sucker; YEP= yellow perch

Species	CPUE								Mean
	2001	2002	2003	2004	2005	2006 <sup>3</sup>	2007 <sup>3</sup>	2008	
<i>Frame nets</i>									
BLB	58.3	49.1	26.0	15.8	11.6	6.0	16.2	5.8	23.6
BLC	130.5	67.4	11.0	1.3	0.9	25.9	9.0	2.5	31.1
BLG	6.1	9.0	9.1	6.8	6.4	5.9	10.8	1.8	7.0
CCF	0.6	0.7	0.0	0.2	0.4	0.6	4.8	2.4	1.2
COC	1.8	1.3	0.1	1.0	2.4	1.7	6.0	1.9	2.0
RUD <sup>1</sup>	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FRD	1.2	0.4	0.4	0.7	1.2	2.3	3.7	2.3	1.5
GSF	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0
HYB <sup>1</sup>	0.0	0.0	0.0	0.0	0.0	2.0	0.3	0.0	0.3
LMB	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NOP	1.7	2.2	1.4	0.8	0.6	0.3	0.2	3.2	1.3
OSF <sup>1</sup>	0.0	0.0	0.0	0.0	0.0	0.4	11.9	0.0	1.5
ROB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
SHG <sup>1</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
WAE	0.2	0.7	0.3	0.1	0.3	0.5	0.2	0.3	0.3
WHB	1.4	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.3
WHS	0.0	0.7	0.2	0.2	0.1	0.7	1.2	0.3	0.4
YEP	0.6	0.4	0.6	3.1	1.4	2.3	1.1	1.7	1.4
<i>Gill nets</i>									
BLB	69.3	16.7	7.5	5.5	1.0	6.0	10.3	8.2	15.6
BLC	0.8	2.8	0.5	0.0	0.0	0.7	0.0	0.0	0.6
CCF	0.0	0.8	0.3	0.0	0.0	0.7	1.0	1.7	0.6
COC	3.5	2.0	2.5	2.3	0.8	5.2	15.5	8.7	5.1
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EMS <sup>1</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FRD	3.5	4.0	2.7	4.0	8.2	17.0	30.2	19.0	11.1
GOS <sup>1</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NOP	0.2	0.0	0.2	0.5	0.5	0.0	0.0	3.5	0.6
OSF <sup>1</sup>	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.5	0.1
WAE	0.7	1.0	1.3	1.3	0.3	0.5	0.3	1.0	0.8
WHB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WHS	0.2	0.3	0.2	0.0	0.2	0.0	0.0	0.0	0.1
YEP	5.5	3.5	12.8	5.3	9.3	9.2	4.2	1.7	6.4
<i>Electrofishing</i>									
WAE (age-0) <sup>2</sup>	141.6	53.9 <sup>4</sup>	0.0	0.0	0.0	0.0	0.0	0.0	24.4

<sup>1</sup> All fish sizes.

<sup>2</sup> Fall night electrofishing.

<sup>3</sup> Monofilament gill net mesh size change (.75", 1", 1.25", 1.5", 2" and 2.5")

<sup>4</sup> Fall night electrofishing conducted following large fingerling stockings.

Table 3. Mean catch rate (CPUE; gill/frame nets= catch/net night, electrofishing= catch/hour), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish, and mean relative weight (Wr) of stock-length fish for selected species captured in gill nets, frame nets, and by electrofishing in Mina Lake, 2001-2008. BLB= black bullhead; BLC= black crappie; BLG= bluegill; FRD= freshwater drum; WAE= walleye

Species	2001	2002	2003	2004	2005	2006 <sup>†</sup>	2007 <sup>†</sup>	2008	Average	Objective
<i>Frame nets</i>										
BLB										
CPUE	58	49	26	16	12	6	16	6	24	≤ 100
PSD	99	99	96	99	100	90	23	45	81	---
PSD-P	3	1	4	12	25	47	6	1	12	---
Wr	85	80	84	87	89	87	87	89	86	---
BLC										
CPUE	131	67	11	1	1	26	9	3	31	≥ 10
PSD	90	96	92	100	59	6	100	58	75	30-60
PSD-P	0	1	17	74	59	5	21	44	28	5-10
Wr	106	96	106	103	117	122	113	118	110	---
BLG										
CPUE	6	9	9	7	6	6	11	2	7	≥ 25
PSD	96	96	88	38	71	72	41	94	75	30-60
PSD-P	11	46	31	20	10	7	9	3	17	5-10
Wr	116	112	122	114	119	124	122	124	119	---
CCF										
CPUE	1	1	0	<1	<1	1	5	2	1	---
PSD	27	62	---	100	100	73	0	0	52	---
PSD-P	0	0	---	0	25	36	0	0	9	---
Wr	91	100	---	119	120	109	92	88	103	---
<i>Gill nets</i>										
FRD										
CPUE	4	4	3	4	8	17	30	19	11	---
PSD	33	96	88	100	100	46	12	18	62	---
PSD-P	24	17	19	8	4	27	5	7	14	---
Wr	99	92	89	92	96	101	97	98	96	---
WAE										
CPUE	1	1	1	1	<1	1	<1	1	1	≥ 10
PSD	75	67	63	100	100	67	100	83	82	30-60
PSD-P	50	33	25	13	50	67	50	33	40	5-10
Wr	77	84	89	96	105	105	100	107	95	---

<sup>†</sup> Monofilament gill net mesh size change (.75", 1", 1.25", 1.5", 2" and 2.5")

Table 4. Weighted mean length at capture (mm) for walleye captured in experimental gill net sets in Mina Lake, 2001-2008. Note: sampling was conducted at approximately the same time during each year allowing comparisons among years to monitor growth trends.

Year	N	Age									
		0	1	2	3	4	5	6	7	8	
2008 <sup>1</sup>	6	---	364	---	---	---	---	501	493	551	
2007 <sup>1</sup>	3	189	---	---	429	---	---	514	---	---	
2006 <sup>1</sup>	3	---	330	---	---	---	520	520	---	---	
2005 <sup>1</sup>	2	---	---	---	---	---	---	510	---	---	
2004	8	---	---	---	403	---	497	491	---	---	
2003	8	---	---	313	---	426	516	---	---	---	
2002	9	---	220	---	354	416	---	522	---	577	
2001	4	---	---	310	---	---	---	514	590	500	

<sup>1</sup>Age assignments made using otoliths; scales were used in previous years

Table 5. Stocking history including size and number for fishes stocked into Mina Lake, 1998-2008.

Year	Species	Size	Number
1998	SXW	fingerling	6,093
2000	CCF	fingerling	16,569
	CCF	adult	144
2002	WAE	fingerling	8,246
2003	WAE	large fingerling	42,812
2004	WAE	fry	1,500,000
	WAE	large fingerling	57,703
2005	WAE	large fingerling	33,310
2006	WAE	fry	800,000
	WAE	large fingerling	23,110
	CCF	fingerling	42,350
2007	WAE	small fingerling	80,780
2008	WAE	small fingerling	80,000

Table 6. Numbers of walleye sampled (n) using gill nets, by year class and associated stocking history (Number stocked x 1,000) for walleye captured in Mina Lake, 2003-2008.

Survey Year	Year Class										
	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998
2008 <sup>1</sup>			1				2	2	1		
2007 <sup>1,2</sup>	---	1			1						
2006 <sup>1,2</sup>	---	---		1				1	1		
2005 <sup>1</sup>	---	---	---	---	---					2	
2004	---	---	---	---	---			5		1	2
2003	---	---	---	---	---			3		2	2
Number stocked											
fry			800		1,500						
small fingerling	80	90									
large fingerling			23	33	58	43	8				6

<sup>1</sup>Age assignments made using otoliths; scales were used in previous years.

<sup>2</sup> Monofilament gill net mesh size change (.75", 1", 1.25", 1.5", 2" and 2.5")

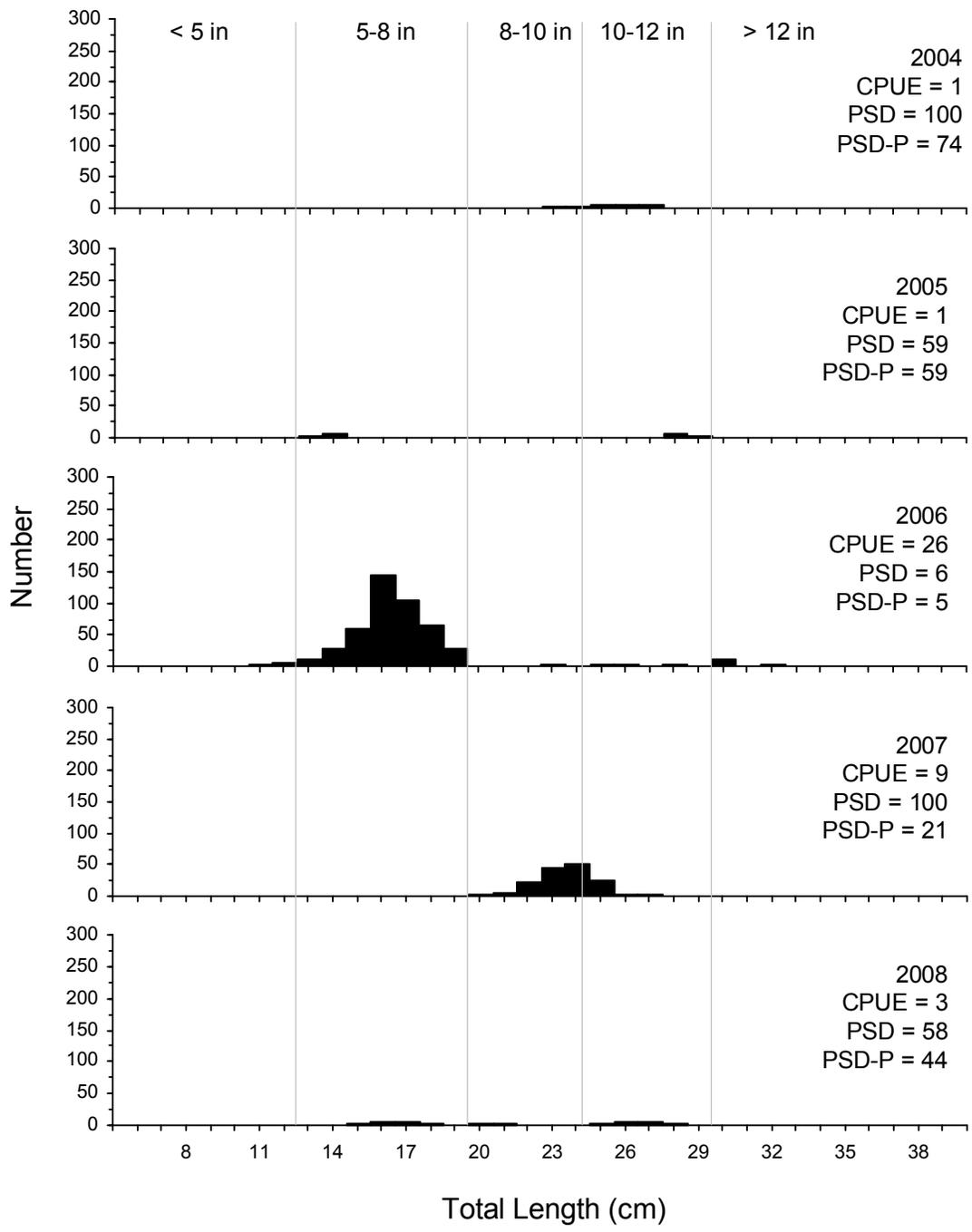


Figure 4. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for black crappie captured using frame nets in Mina Lake, 2004-2008.

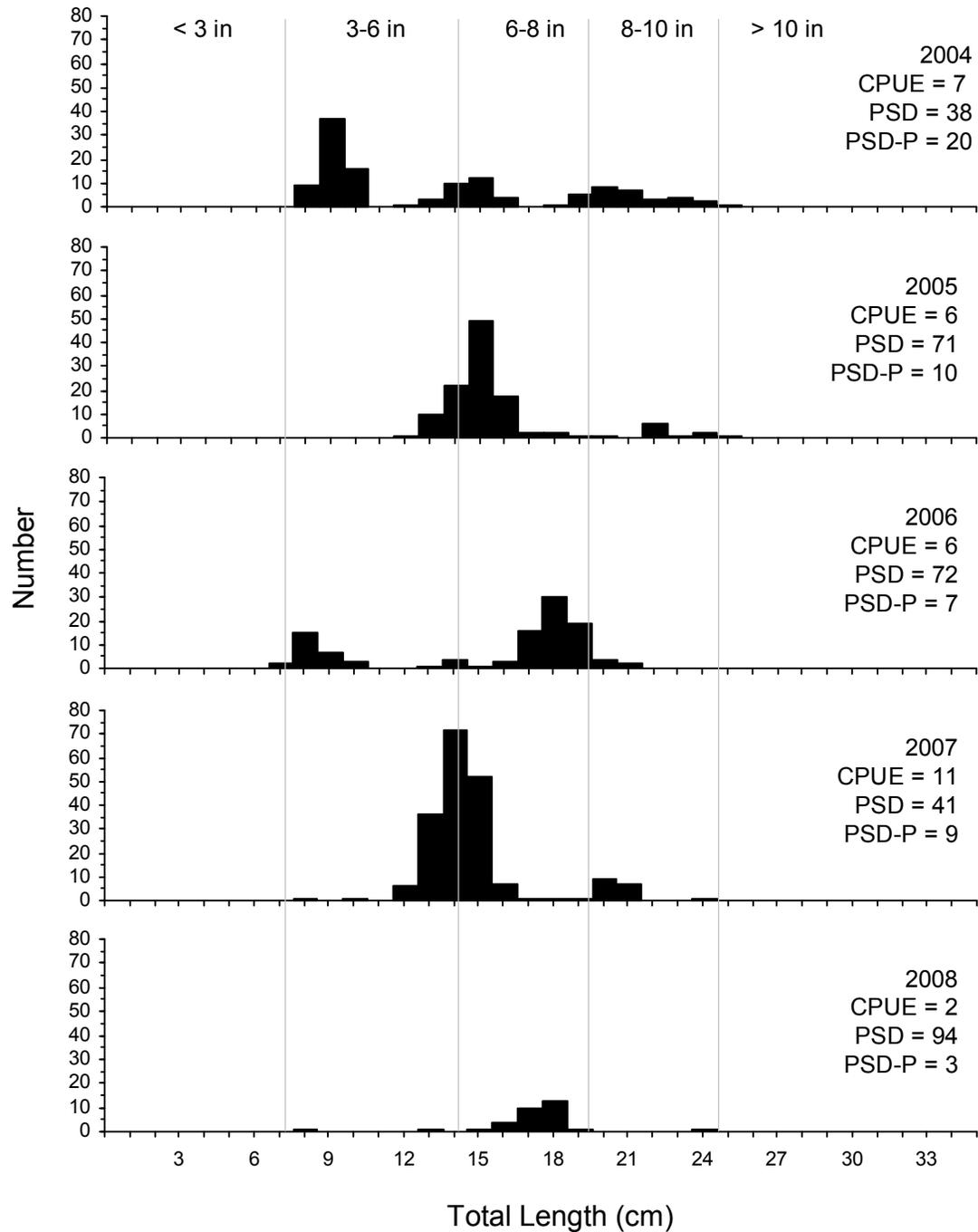


Figure 5. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for bluegill captured using frame nets in Mina Lake, 2004-2008.

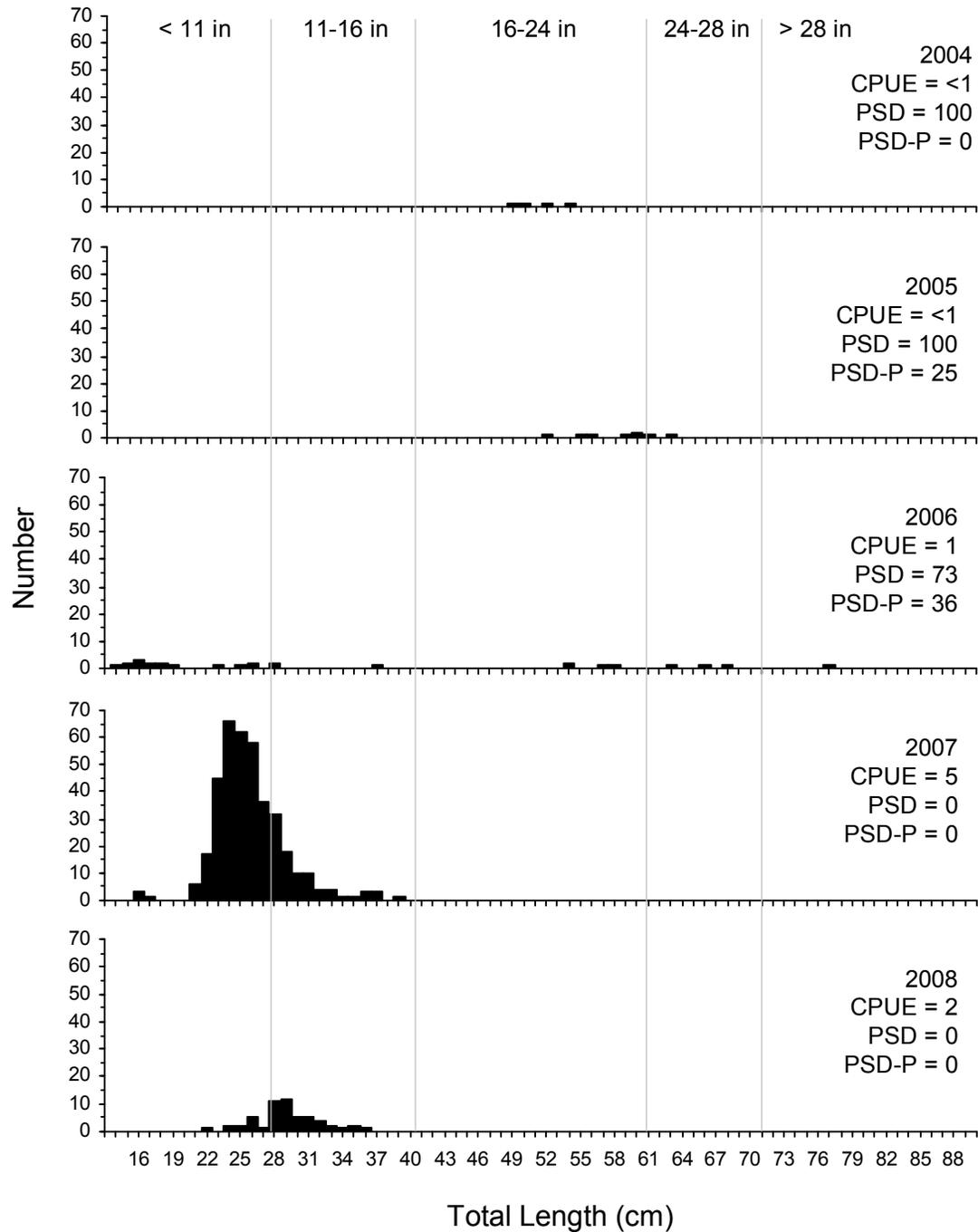


Figure 6. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for channel catfish captured using frame nets in Mina Lake, 2004-2008.

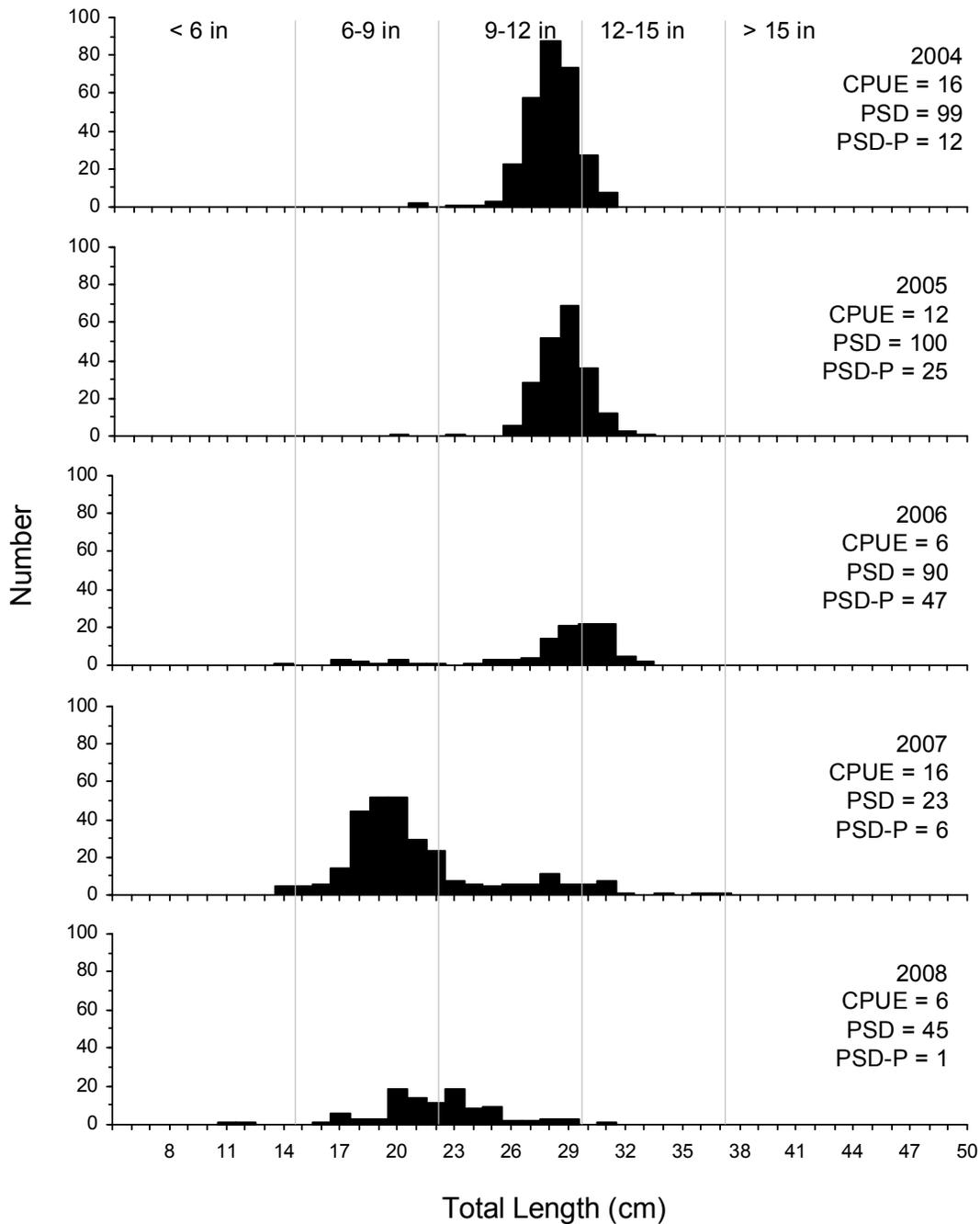


Figure 7. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for black bullhead captured using frame nets in Mina Lake, 2004-2008.

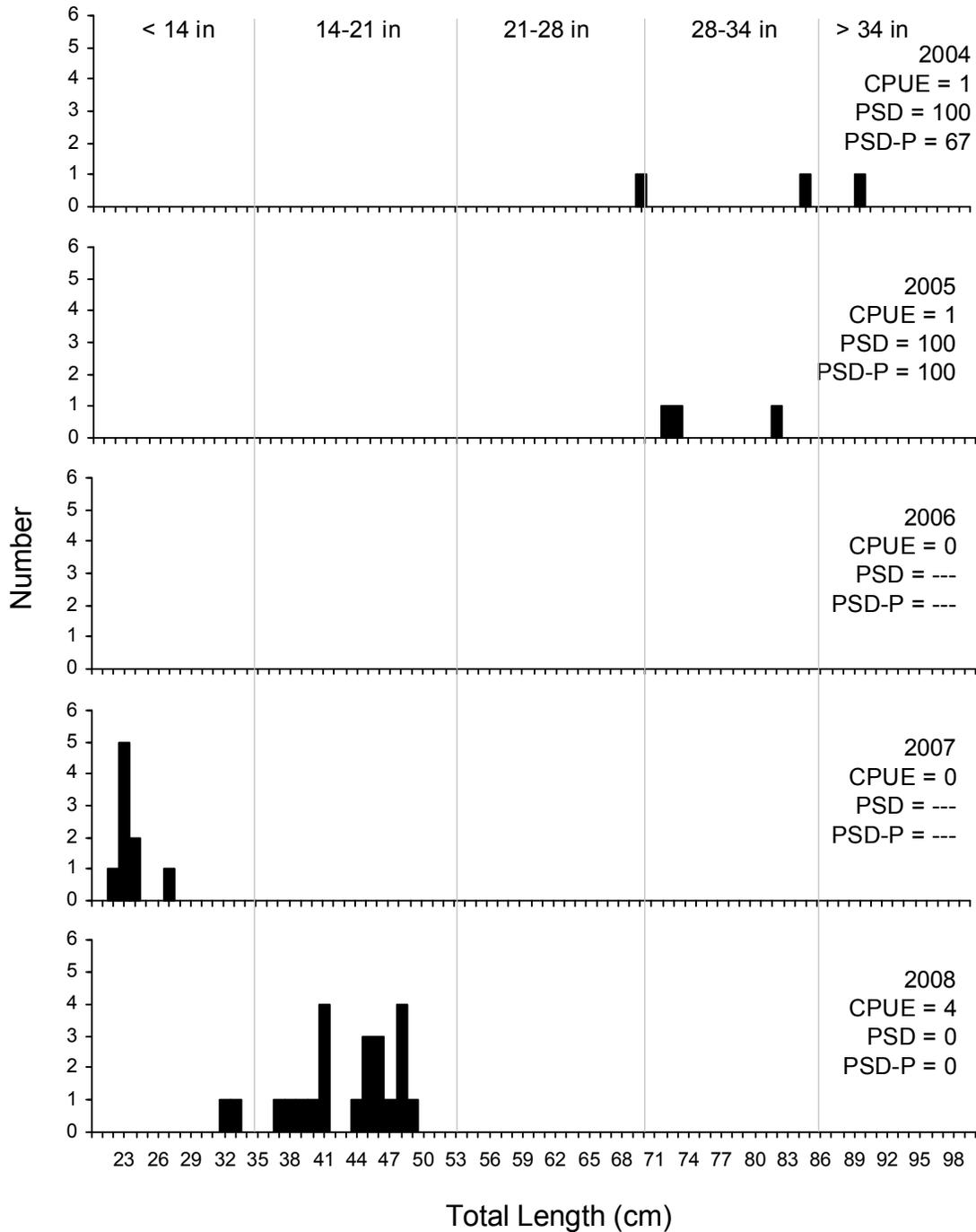


Figure 8. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for northern pike captured using gill nets in Mina Lake, 2004-2008.

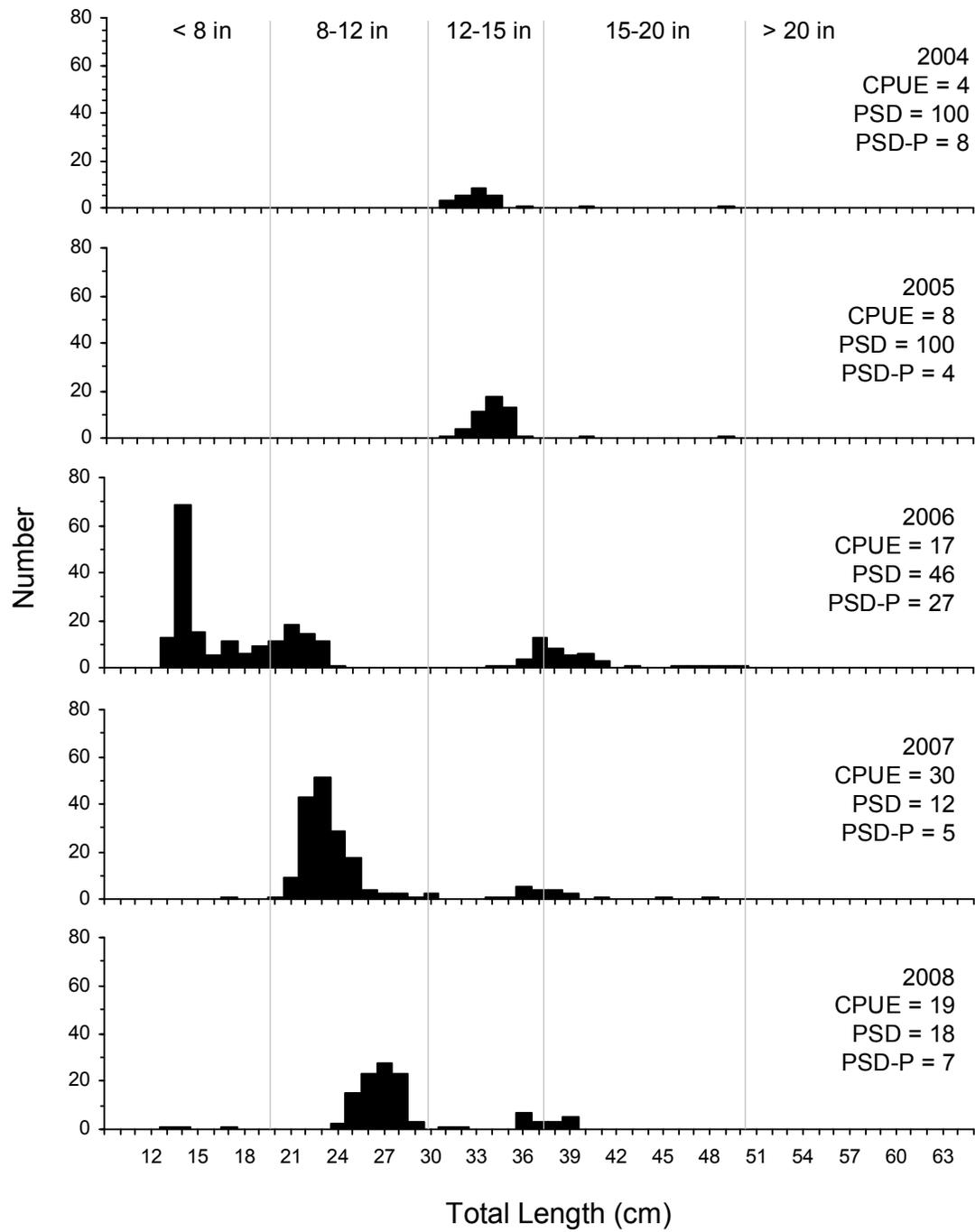


Figure 9. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for freshwater drum captured using gill nets in Mina Lake, 2004-2008.