

Lake Faulkton

Site Description

Location

Water designation number (WDN)	28-0005-00
Legal description	T118N-R69W-Sec.17
County (ies)	Faulk
Location from nearest town	two and one-half miles west, one-half mile south of Faulkton, SD

Survey Dates and Netting Information

Dates of current survey	June 6 – 8, 2005
Date of most recent survey	May 29, 1997
Gill net sets (n)	0
Frame net sets (n)	12
Spring electrofishing (min)	91
Fall electrofishing (min)	0

Morphometry (Figure 1)

Watershed area (acres)	46,533
Surface area (acres)	115
Maximum depth (ft)	20
Mean depth (ft)	7

Ownership and Public Access

Lake Faulkton is an artificial lake managed by the SDGFP. A public access site is present on Lake Faulkton (south shore) and is maintained by the SDGFP (Figure 1). The shoreline of Lake Faulkton is under private and state ownership.

Watershed and Land Use

The Lake Faulkton watershed is comprised of a mix of cropland and pasture. A golf course is present along the shore of Lake Faulkton and likely contributes to nutrient inputs.

Water Level Observations

Water levels remain at the historic average. The water level typically drops significantly between spring and fall in the lake. Lake Faulkton is classified as eutrophic.

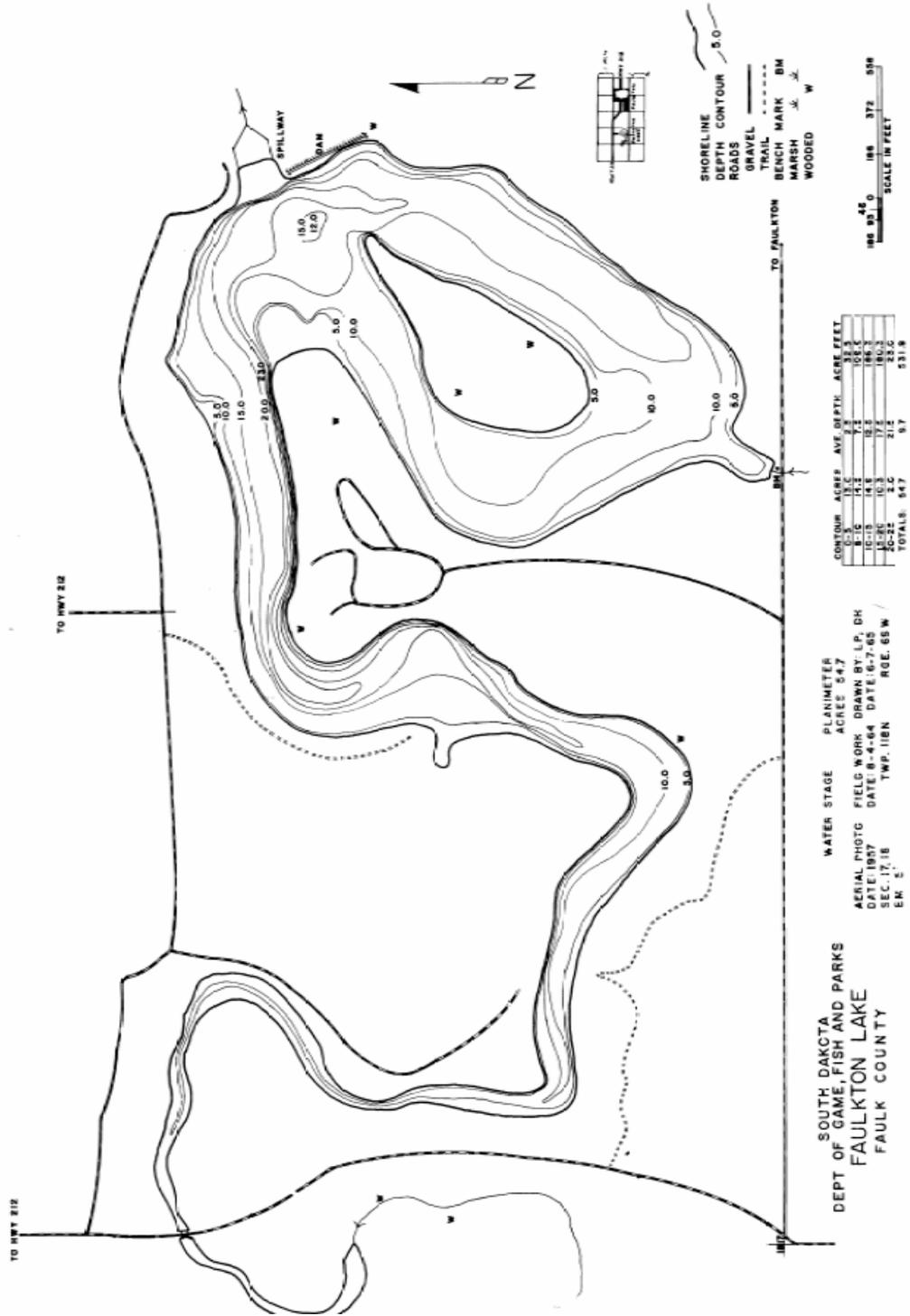
Aquatic Vegetation and Exotics

The emergent vegetation is very extensive and covers approximately 95 percent of the shoreline. Submergent vegetation is also very abundant in the shallower portions of the lake. The vegetation that is present causes problems with boating and shore fishing. Complaints from cabin owners are common. No un-naturalized exotic vegetation or wildlife was reported during this survey.

Fish Management Information

Primary species	black bullhead, bluegill, largemouth bass, smallmouth bass
Other species	black crappie, northern pike, walleye, yellow perch
Management classification	warm-water semi-permanent
Fish Consumption Advisories	none

Figure 1. Lake Faulkton contour map.



Management Objectives

- 1) Maintain a mean frame net CPUE of stock length bluegill ≥ 25 , a PSD of 20 – 60, an RSD-P of 5 – 10, and a mean $W_r > 80$.
- 2) Maintain a mean night electrofishing CPUE of stock length largemouth bass ≥ 10 , a PSD of 40 – 70, an RSD-P of 10 – 20, and a mean $W_r > 80$.
- 3) Maintain a mean night electrofishing CPUE of stock length smallmouth bass ≥ 10 , a PSD of 40 – 70, an RSD-P of 10 – 20, and a mean $W_r > 80$.
- 4) Maintain a mean frame net CPUE of stock length bullhead ≤ 100 and a mean $W_r > 80$.
- 5) Monitor water levels and winterkill events.

Results and Discussion

Lake Faulkton is an artificial lake located in central Faulk County just west of the city of Faulkton, after which the lake is named. Lake Faulkton was constructed on the South Fork of Snake Creek. Snake Creek is also known as the Nixon River, which flows easterly and enters the James River just north of Redfield, SD. Construction of the dam and spillway began in 1932 under The Works Progress Administration and was completed in 1935.

Lake Faulkton has been utilized as a recreation area since the late 1930's. During the 1940's through the 1960's Lake Faulkton had a reputation as being "the best bass and bluegill lake in the northern portion of South Dakota." Consequently, Lake Faulkton was considered the most important lake in Faulk County, which is limited in fisheries resources. Recently, angler success in Lake Faulkton has declined. Currently, Lake Faulkton is managed as a black bass (largemouth and smallmouth bass) and bluegill lake.

Primary Species

Black bullhead: The mean frame net CPUE of stock length black bullhead during 2005 was 614.1 (Table 1) and well above the objective range (≤ 100) for black bullhead in Lake Faulkton (Tables 1 – 3). The last fish population assessment conducted in Lake Faulkton during 1997 did not include frame netting so no historic comparison was possible (Table 2). However, at the time of this survey the black bullhead abundance in Lake Faulkton was considered very high density.

Black bullhead captured in frame nets during 2005 ranged in total length from 130 to 190 mm (Figure 2). The PSD and RSD-P of black bullhead captured

in frame nets during 2005 was 0 because no fish were captured that were quality length (230 mm) or longer (Table 1; Table 3; Figure 2). The low PSD of black bullhead in Lake Faulkton indicated that the population was comprised of entirely smaller, sub-quality length fish (≤ 230 mm). No growth information was available for black bullhead in Lake Faulkton; however, the condition of black bullhead in Lake Faulkton during 2005 was below the objective of 80 with a mean Wr of 75 (Table 1; Table 3). Small fish often do not weight accurately using field sampling techniques; however, conditions in Lake Faulkton are likely unfavorable for black bullhead with Wr values below 80.

Bluegill: The mean frame net CPUE of stock length (80 mm) bluegill in 2005 was 1.4 (Tables 1 – 3) and below the objective range (≥ 25 fish/net night) for bluegills in Lake Faulkton. Limited historical information was available to compare the 2005 abundance; however, the 2005 CPUE of stock length bluegill indicates a low density population. During 2005, bluegill ranged in total length from 90 to 140 mm (Figure 4), and the PSD and RSD-P were each zero because no bluegill of quality length (150 mm) or longer were captured (Table 1; Table 3). The current bluegill population is likely the result of the 2005 spring stocking. The condition of bluegill in Lake Faulkton was within the objective (≥ 80) with a mean Wr of 94.

Black bass: Although largemouth bass were stocked into Lake Faulkton annually from 1997 through 2000 (Table 4) no bass were captured during nighttime electrofishing in 2005. The majority of the shoreline of Lake Faulkton was sampled during the 2005 survey so if largemouth bass were present in the lake it is unlikely a zero catch would occur. Apparently, the stockings of largemouth bass in Lake Faulkton have been unsuccessful in producing a sustained largemouth bass population. However, the harvest of largemouth bass by anglers since 1997 is unknown; therefore, the absence of largemouth bass from Lake Faulkton may be due to removal by anglers or unsuccessful stockings.

Other Species

Black Crappie: The frame net CPUE of stock length black crappie in Lake Faulkton during 2005 was 1.3 (Table 1). Black crappie ranged in length from 70 to 180 mm and no fish were captured that were quality length (200 mm) or greater resulting in a PSD and RSD-P of zero. The condition of black crappie in Lake Faulkton was acceptable with a mean Wr of 95 (Table 1). Overall, a total of two year classes of black crappie were apparent in the length frequency with one year class near 70 mm and another near 170 mm TL (Figure 2).

Northern Pike: The frame net CPUE of stock length northern pike in Lake Faulkton during 2005 was 0.2 (Table 1). A total of two northern pike were collected that ranged in length from 580 to 770 mm. The PSD was 100 and the RSD-P was 50 for northern pike captured in frame nets (Table 1). No growth information was available; however, the condition of northern pike was below the

objective range (≥ 80) with a mean W_r of 73 for pike captured in frame nets (Table 1). Overall, the abundance of northern pike in Lake Faulkton is considered very low density and the condition of the fish indicates poor food availability.

Walleye: Walleye had not been stocked into Lake Faulkton since 1994. Apparently, no walleye were present in Lake Faulkton at the time of this survey as no walleye were observed during nighttime electrofishing or captured in any frame net (Tables 1 – 3). In fall 2005, extra large fingerling walleye were available and stocked into Lake Faulkton in an attempt to establish a population in the lake (Table 4). The success of the 2005 walleye stocking was unknown at the time of this survey.

Summary

Lake Faulkton is managed as a black bass and bluegill fishery. Hubers and Blackwell (1999) indicated that the panfish in Lake Faulkton were abundant but that a predator population was needed to improve panfish size structures. Furthermore, the abundance of bluegill in Lake Faulkton indicated “good catches” during 1997. Subsequently, based on the 2005 survey the fish assemblage in Lake Faulkton was again mostly comprised of black bullhead and bluegill. The abundance of black bullhead and bluegill in Lake Faulkton in 2005 was considered high density and very low density, respectively. In fact, the 2005 survey results indicated that the bluegill population is low density and comprised of mostly small sub-quality fish, most likely the fish stocked in spring 2005. In 1997 no largemouth bass were sampled, which was attributed to a winterkill event in 1996-1997. Subsequently, largemouth bass were stocked into Lake Faulkton in each year from 1997 through 2000. Still, largemouth bass were not collected during the 2005 survey possibly indicating absence from the lake and the inability to successfully produce a sustained population.

The mean frame net CPUE for black bullhead in Lake Faulkton during 2005 (614 fish/net night) was above the objective range (≤ 100 fish/frame net night) indicating a high density population. The large number of bullhead may provide an additional food source for the 2005 stocked black bass. Unfortunately, few objectives set for Lake Faulkton were met at the time of this survey. Bluegill, largemouth bass, smallmouth bass, and walleye were stocked during 2005 into Lake Faulkton in attempts to establish a black bass, walleye and bluegill fishery in the lake. Based on stocking records dating back to 1937 no smallmouth bass had ever been stocked into Lake Faulkton and walleye had not been stocked since 1994. The 2005 smallmouth bass stocking into Lake Faulkton is experimental to assess the species viability in the lake as an alternative to largemouth bass or walleye. The combination of largemouth bass, smallmouth bass, and walleye stocked in 2005 is not common; however, the presence of a predator in Lake Faulkton is necessary to improve size structures of panfish and avoid stunting. A population assessment will be conducted in

2008 to determine the viability of largemouth bass, smallmouth bass, and walleye in Lake Faulkton and the direction of future predator stockings.

Management Recommendations

- 1) Conduct fish population assessment surveys on an every-three-year basis (next survey scheduled in summer 2008) to monitor fish abundance, fish population size structures, fish growth, and stocking success.
- 2) Assess the largemouth bass and smallmouth bass population in 2008 to determine the success of either species stocked in 2005. If needed, stock largemouth bass and/or smallmouth bass on a biennial basis at 100 and 50 small fingerling/acre, respectively, to maintain consistent year classes. Stock bluegill, largemouth bass and/or smallmouth bass in cases of complete winterkill events to establish a fish population. Monitor water levels and winterkill events to assess stocking strategies.
- 3) Expand the 15-inch minimum length limit to all black bass (largemouth bass and smallmouth bass) as the regulation is currently enforced only for largemouth bass.

Table 1. Mean catch rate (CPUE; Catch/net night) of stock length fish, mean relative weight (Wr) of stock length fish, proportional stock density (PSD) and relative stock density of preferred length fish (RSD-P) of various fish species captured in frame net sets or night electrofishing in Lake Faulkton, 2005. Confidence intervals include 80 percent (\pm CI-80) or 90 percent (\pm CI-90).

Survey Year Species	Abundance		Stock Density Indices				Condition	
	CPUE	CI-80	PSD	CI-90	RSD-P	CI-90	Wr	CI-90
2005								
<i>Frame nets</i>								
BLB	614.1	254.0	0	---	0	---	75	2
BLC	1.3	0.6	0	---	0	---	95	2
BLG	1.4	1.1	0	---	0	---	94	2
NOP	0.2	0.2	100	0	50	50	73	---
WAE	0.0	---	---	---	---	---	---	---
<i>Electrofishing</i> ¹								
BLG	6.3	5.1	0	---	0	---	79	9.2
LMB	0.0	---	---	---	---	---	---	---
SMB	0.0	---	---	---	---	---	---	---
WAE	0.0	---	---	---	---	---	---	---

¹ spring night electrofishing.

Table 2. Historic mean catch rate (CPUE; Catch/net night) of stock length fish for various fish species captured in frame net sets or electrofishing in Lake Faulkton, 1999 - 2005.

Species	CPUE							Mean
	1999	2000	2001	2002	2003	2004	2005	
<i>Frame nets</i>								
BLB	---	---	---	---	---	---	614.1	614.1
BLC	---	---	---	---	---	---	1.3	1.3
BLG	---	---	---	---	---	---	1.4	1.4
NOP	---	---	---	---	---	---	0.2	0.2
WAE	---	---	---	---	---	---	0.0	0.0
<i>Electrofishing</i> ¹								
BLG	---	---	---	---	---	---	6.3	6.3
LMB	---	---	---	---	---	---	0.0	0.0
SMB	---	---	---	---	---	---	0.0	0.0
WAE	---	---	---	---	---	---	0.0	0.0

Table 3. Mean catch rate (CPUE; catch/net night), proportional stock density (PSD), relative stock density of preferred length fish (RSD-P), and relative weight (Wr) for primary management species captured in frame net sets or electrofishing in Lake Faulkton, 1999 - 2005.

Species	1999	2000	2001	2002	2003	2004	2005	Average	Objective
<i>Frame nets</i>									
BLB									
CPUE	---	---	---	---	---	---	614	614	≤ 100
PSD	---	---	---	---	---	---	0	0	---
RSD-P	---	---	---	---	---	---	0	0	---
Wr	---	---	---	---	---	---	75	75	≥ 80
BLG									
CPUE	---	---	---	---	---	---	1	1	≥ 25
PSD	---	---	---	---	---	---	0	0	20 – 60
RSD-P	---	---	---	---	---	---	0	0	5 – 10
Wr	---	---	---	---	---	---	94	94	≥ 80
<i>Electrofishing</i> ¹									
LMB									
CPUE	---	---	---	---	---	---	0	0	≥ 10
PSD	---	---	---	---	---	---	---	---	40 – 70
RSD-P	---	---	---	---	---	---	---	---	10 – 20
Wr	---	---	---	---	---	---	---	---	≥ 80
SMB									
CPUE	---	---	---	---	---	---	0	0	≥ 10
PSD	---	---	---	---	---	---	---	---	40 – 70
RSD-P	---	---	---	---	---	---	---	---	10 – 20
Wr	---	---	---	---	---	---	---	---	≥ 80

¹ Historic data from all surveys conducted since 1999.

Table 4. Stocking history (10-year) including size and number for fishes stocked into Lake Faulkton, 1996 - 2005.

Year	Species	Size	Number
1997	LMB	fingerling	18,880
1998	LMB	fingerling	16,042
1999	LMB	fingerling	12,100
2000	LMB	fingerling	11,020
2005	BLG	fingerling	1,075
	LMB	fingerling	5,400
	SMB	fingerling	2,420
	WAE	large fingerling	4,000

Figure 2. Length frequency, catch rate of stock length fish (CPUE), proportional stock density (PSD), and relative stock density of preferred length fish (RSD-P) for various fish species captured in frame net sets in Lake Faulkton, 2005.

