Cresbard Lake

Site Description

Location

Water designation number (WDN)	28-0002-00
Legal description	T120N-R68W-Sec.27
County (ies)	Faulk
Location from nearest town	two miles west of Cresbard, SD

Survey Dates and Netting Information

Dates of current survey	June 7 – 8, 2005
Date of most recent survey	May 28, 1997
Gill net sets (n)	0
Frame net sets (n)	6
Spring electrofishing (min)	50
Fall electrofishing (min)	0

Morphometry (Figure 1)

Watershed area (acres)	86,960
Surface area (acres)	53
Maximum depth (ft)	15
Mean depth (ft)	7

Ownership and Public Access

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

Watershed and Land Use

The Cresbard Lake watershed is comprised of a roughly 50:50 mix of cropland and pasture.

Water Level Observations

Water levels remain at the historic average. Cresbard Lake is classified as eutrophic.

Aquatic Vegetation and Exotics

The entire shoreline is covered with cattails and bulrushes. The shallower reaches in the western portion of the lake are solid stands of emergent vegetation. Submergent vegetation is extensive and does hamper boating activities. 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. Cresbard Lake location 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 Wr > 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 Wr > 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 Wr > 80.

4) Maintain a mean frame net CPUE of stock length bullhead ≤ 100 and a mean Wr > 80.

5) Monitor water levels and winterkill events.

Results and Discussion

Cresbard Lake is an artificial lake located in north central Faulk County just west of the city of Cresbard, after which the lake is named. Cresbard Lake was constructed on the North Fork of Snake Creek. Snake Creek flows into the Nixon River, which flows easterly and enters the James River just north of Redfield, SD. Construction of the dam and spillway began in 1933 under The Works Progress Administration and was completed in 1936.

Cresbard Lake has been utilized as a recreation area since the late 1930's. During the 1940's through the 1960's Cresbard Lake had a reputation as being one of the best bass lakes in the area. Consequently, Cresbard Lake was considered the second most important lake in Faulk County, which is limited in fisheries resources. Recently, angler success in Cresbard Lake has declined and numerous requests from angler groups and the local public have sought to stock Cresbard Lake. Currently, Cresbard Lake 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 2.2 (Table 1) and within the objective (≤ 100) for black bullhead in Cresbard Lake (Table 3). The last fish population assessment conducted in Cresbard Lake 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 Cresbard Lake was considered low density.

Black bullhead captured in frame nets during 2005 yielded a bi-modal distribution and ranged in total length from 110 to 320 mm (Figure 2). The PSD

of black bullhead captured in frame nets during 2005 was 38 and the RSD-P was 23 (Table 1; Table 3). The low PSD of black bullhead in Cresbard Lake indicated that the population was comprised of mostly smaller, sub-quality length fish (≤ 230 mm). No growth information was available for black bullhead in Cresbard Lake; however, the condition of black bullhead in Cresbard Lake during 2005 was above the objective of 80 with a mean Wr of 100 (Table 1; Table 3).

Bluegill: The mean frame net CPUE of stock length (80 mm) bluegill in 2005 was 7.2 (Tables 1 – 3) and below the objective range (≥ 25 fish/net night). 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 80 to 150 mm (Figure 4), had a PSD of 2, and no preferred length (200 mm) or longer fish were captured (Table 1; Table 3). The current population is most likely the result of the spring 2005 stocking. The condition of bluegill in Cresbard Lake was within the objective (≥ 80) with a mean Wr of 98.

Black bass: Although largemouth bass were stocked into Cresbard Lake annually from 1997 through 1999 (Table 4) no bass were captured during nighttime electrofishing in 2005. The entire shoreline of Cresbard Lake was sampled during the 2005 survey so if largemouth bass were present in the lake it would be unlikely a zero catch would occur. Apparently, the stockings of largemouth bass in Cresbard Lake 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 Cresbard Lake may be due to removal by anglers or unsuccessful stockings.

Other Species

Northern Pike: The frame net CPUE of stock length northern pike in Cresbard Lake during 2005 was 0.3 (Table 1). A total of two northern pike were collected that ranged in length from 560 to 710 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 acceptable with a mean Wr of 86 for pike captured in frame nets (Table 1). Overall, the abundance of northern pike in Cresbard Lake is considered very low density.

Summary

Cresbard Lake is managed as a black bass and bluegill fishery. Based on the 2005 survey the fish assemblage in Cresbard Lake was mostly comprised of black bullhead and bluegill. The abundance of both black bullhead and bluegill in Cresbard Lake during the 2005 survey was considered very low density. Cresbard Lake was surveyed in 1995, 1996 and 1997; however, during these

surveys only electrofishing was conducted so long term population trends were difficult to assess for black bullhead and bluegill. No largemouth bass were sampled in 1997, which was attributed to a winterkill event in 1996-1997. Subsequently, largemouth bass were stocked into Cresbard Lake in each year from 1997 through 1999. Still, largemouth bass were not collected during the 2005 survey possibly indicating absence from the lake.

The mean frame net CPUE for black bullhead in Cresbard Lake during 2005 (2.2 fish/net night) was within the objective range (≤ 100 fish/frame net night) indicating a low density population. Other objectives set for Cresbard Lake were not met at the time of this survey. Bluegill, largemouth bass, and smallmouth bass were stocked during 2005 into Cresbard Lake in attempts to establish a black bass and bluegill fishery in the lake. Based on stocking records dating back to 1937 no smallmouth bass had ever been stocked into Cresbard Lake. The 2005 smallmouth bass stocking into Cresbard Lake is experimental to assess the species viability in the lake as an alternative to largemouth bass. A population assessment will be conducted in 2008 to determine the viability of smallmouth bass in Cresbard Lake and the direction of future black bass 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 experimental gill net sets, frame net sets, or night electrofishing in Cresbard Lake, 2005. Confidence intervals include 80 percent (± CI-80) or 90 percent (± CI-90).

Survey Year	Abundance		Stock Density Indices				Condition	
Species	CPUE	CI-80	PSD	CI-90	RSD-P	CI-90	Wr	CI-90
2005								
Frame nets								
BLB	2.2	2.0	38	25	23	22	100	4
BLG	7.2	4.7	2	4	0	---	98	2
NOP	0.3	0.5	100	0	50	50	86	5
Electrofishing [1]								
BLG	7.0	5.1	0	---	0	---	93	8
LMB	0.0	---	---	---	---	---	---	---
SMB	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 experimental gill net sets, frame net sets, or electrofishing in Cresbard Lake, 1999 - 2005.

	CPUE							
Species	1999	2000	2001	2002	2003	2004	2005	Mean
Frame nets								
BLB	---	---	---	---	---	---	2.2	2.2
BLG	---	---	---	---	---	---	7.2	7.2
NOP	---	---	---	---	---	---	0.3	0.3
Electrofishing [1]	---	---	---	---	---	---		
BLG	---	---	---	---	---	---	7.0	7.0
LMB	---	---	---	---	---	---	0.0	0.0
SMB	---	---	---	---	---	---	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 experimental gill net sets, frame net sets, or electrofishing in Cresbard Lake, 1999 - 2005.

Species	1999	2000	2001	2002	2003	2004	2005	Average	Objective
Frame nets									
BLB									
CPUE	---	---	---	---	---	---	2	2	≤ 100
PSD	---	---	---	---	---	---	38	38	---
RSD-P	---	---	---	---	---	---	23	23	---
Wr	---	---	---	---	---	---	100	100	≥ 80
BLG									
CPUE	---	---	---	---	---	---	7	7	≥ 25
PSD	---	---	---	---	---	---	2	2	20 – 60
RSD-P	---	---	---	---	---	---	0	0	5 – 10
Wr	---	---	---	---	---	---	98	98	≥ 80
Electrofishing [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 Cresbard Lake, 1996 - 2005.

Year	Species	Size	Number
1997	LMB	fingerling	5,500
1998	LMB	fingerling	5,500
1999	LMB	fingerling	5,500
2005	BLG	fingerling	1,075
	LMB	fingerling	5,400
	SMB	fingerling	2,550

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 from Cresbard Lake, 2005.