

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F21-R-45

Name: Kroetch Dam

County: Haakon

Legal description: Sec. 22, Twn. 4 N, R 20 E

Location from nearest town: 18 miles north, 1 mile west of Philip, SD

Dates of present survey: July 22-24, 2012

Date last surveyed: June 26-28, 2000

Management classification: Warmwater semi-permanent

Primary Species: (game and forage)

1. Yellow Perch

2. Largemouth Bass

3. Bluegill

4. Black Bullhead

5. Black Crappie

Secondary and other species:

1. _____

2. _____

3. _____

4. _____

5. _____

PHYSICAL CHARACTERISTICS

Surface Area: 17 acres

Watershed: 740 acres

Maximum depth: 21.5 feet

Mean depth: 12.8 feet

Lake elevation at survey (from known benchmark): 3 feet below full-pool

Ownership of lake and adjacent lakeshore property:

Kroetch Dam is privately owned. A public easement allows access to 12 feet above the high water line.

Fishing Access:

Shoreline fishing access is possible on some areas of the shoreline and on the dam. In the summer months there is dense submergent vegetation along the shoreline making access difficult. No formal boat ramp exists, but a canoe or light boat could be launched.

Observations of water quality and aquatic vegetative condition:

Emergent vegetation exists along portions of the shoreline. Submerged vegetation was found in the shallow water around most of the pond. Sediment and nutrient loading may be problems within the system. The lake is primarily used as a livestock water source and cattle are not restricted from the lake.

Observations on conditions of structures (i.e. spillway, boat ramps/docks, roads, etc.):

There were no obvious issues with the dam identified by South Dakota game, Fish, and Parks (SDGF&P) personnel at the time of the survey.

MANAGEMENT OBJECTIVES

- Objective 1.** Maintain a density of Largemouth Bass with PSD range between 20 and 40.
- Objective 2.** Maintain a mean trap net CPUE-S for Black Bullheads <100 and a PSD between 30 and 60.
- Objective 3.** Maintain densities of Yellow Perch, Bluegill and Black Crappie at PSD's of 30 or greater.

BIOLOGICAL DATA

Sampling Effort and Catch

A fish population survey was conducted at Kroetch Dam on July 22-24, 2012. Four modified fyke (frame) nets consisting of a 1.3 X 1.5 m frame, 19.1 mm (0.75 in) mesh and a 1.2 X 23 m (3.9 X 75.5 ft) lead (Figure 1) and one experimental gill net (45.7 m [150 ft] long and 1.8 m [6 ft] deep with six 7.6 m [25 ft] panels of bar mesh sizes: 12.7 mm [0.5 in], 19.1 mm [0.75 in], mm [1.25 in], 38.1 mm [1.5 in], and 50.8 mm [2.0 in]) were used. Kroetch Dam does not have a boat ramp and does not have a suitable place to launch an electrofishing boat. Therefore, largemouth bass were surveyed by angling (two angler hours). A total of five fish species were found during the fisheries survey (Table 1). Kroetch Dam has not been stocked since 2002 and has maintained fish populations through recent drought periods due to its depth.

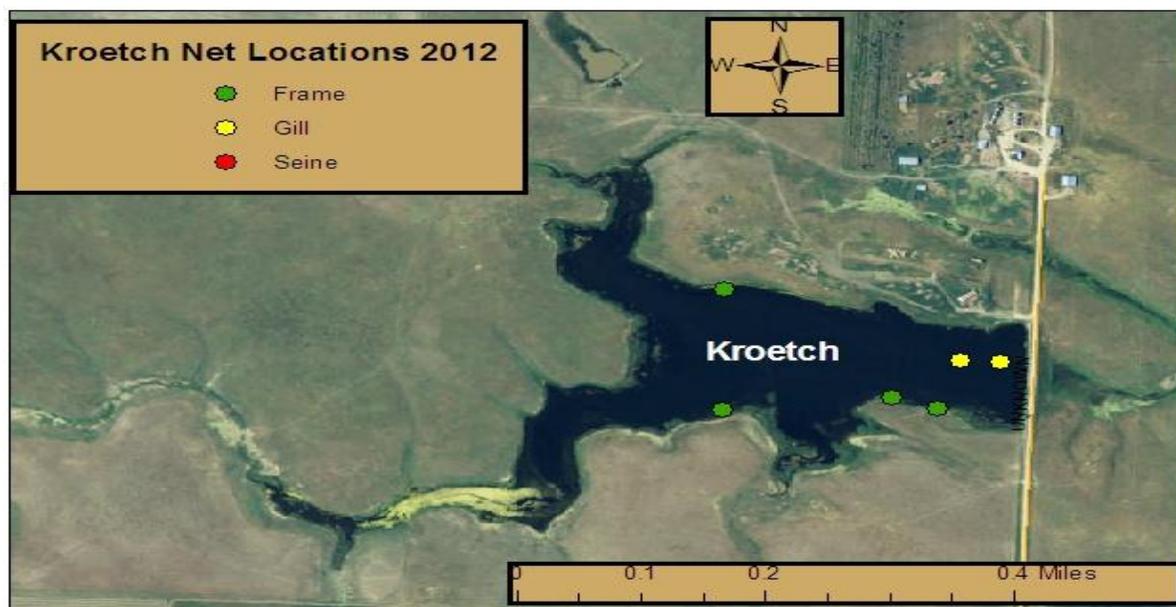


Figure 1. Locations of modified fyke (frame) and experimental gill nets during the fisheries survey of Kroetch Dam, Haakon County, South Dakota, July 22-24, 2012.

Table 1. Gear type, species, number collected (N), catch per unit effort (CPUE and CPUE-S), proportional stock density (PSD) and relative weight for fish stock length or greater ($Wr>S$), for all fish collected experimental gill (gill) and modified fyke (frame) nets in Kroetch Dam, Haakon County, South Dakota, July 22-24, 2012. CPUE values with 80% confidence intervals in parentheses. PSD and $Wr>S$ values with 95% confidence intervals in parentheses.

Gear	Species	N	CPUE	CPUE-S	PSD	$Wr>S$
Trap Net	Yellow perch	632	158 (110.1)	158 (110.1)	13 (3)	90.4 (1.5)
Trap Net	Black bullhead	389	97.3 (32.6)	97.3 (32.6)	0	92.9 (1.3)
Trap Net	Black crappie	49	12.3 (10.3)	12.3 (10.3)	4 (6)	107.2 (1)
Trap Net	Bluegill	22	5.5 (3)	5.5 (3)	100	107.4 (2.9)
Gill Net	Black bullhead	15	15 (--)	15 (--)	0	89.8 (1.2)
Gill Net	Black crappie	1	1 (--)	1 (--)	0	102.9 (--)

Black Bullheads

A total of 389 Black Bullheads were collected from 4 frame nets for a catch per unit effort (CPUE) of 97.3 fish per net (Table 1). Fish ranged from 157 to 194 mm (6.2-7.6 in) in length. Sizes of Black Bullheads are well short of the objectives for Kroetch Dam, with all Black Bullheads surveyed less than quality length (230 mm; 9 in) (Figure 2). Gill net CPUE was 15 for black bullheads (Table 1). Relative weight of stock length and greater fish ($Wr>S$) was 92.9 and 89.8 for bullheads, greater than or equal to stock length, in the trap and gill nets, respectively (Table 1).

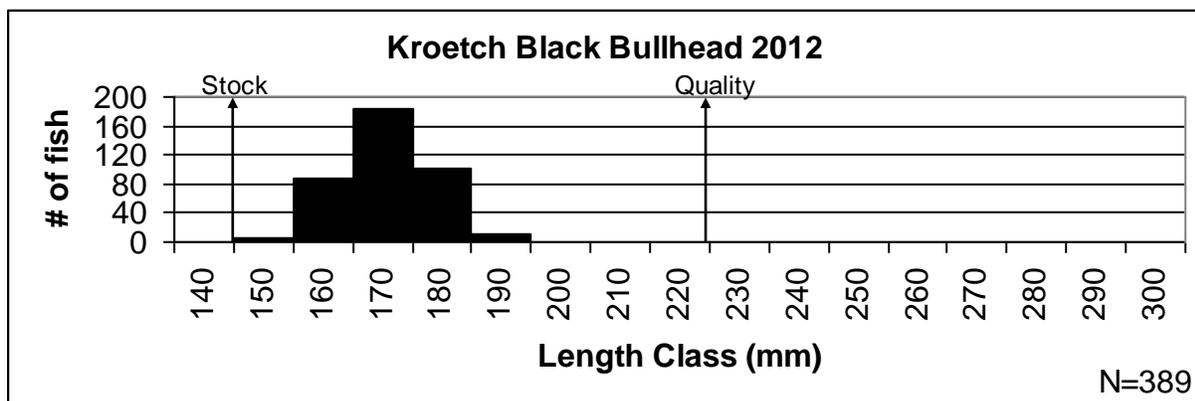


Figure 2. Length frequency histogram of Black Bullheads sampled during the modified fyke net survey of Kroetch Dam, Hakkon County, South Dakota, July 22-24, 2012.

Black Crappies

While Black Crappie CPUE was only 12.3, condition was good with a mean $Wr>S$ of 107.2 (Table 1). Mean total length for Black Crappie was 185.2 mm (range 172-203 mm), a proportional stock density (PSD) of 4 as a large portion of the Black Crappies sampled in frame nets were under quality length (Figure 3).

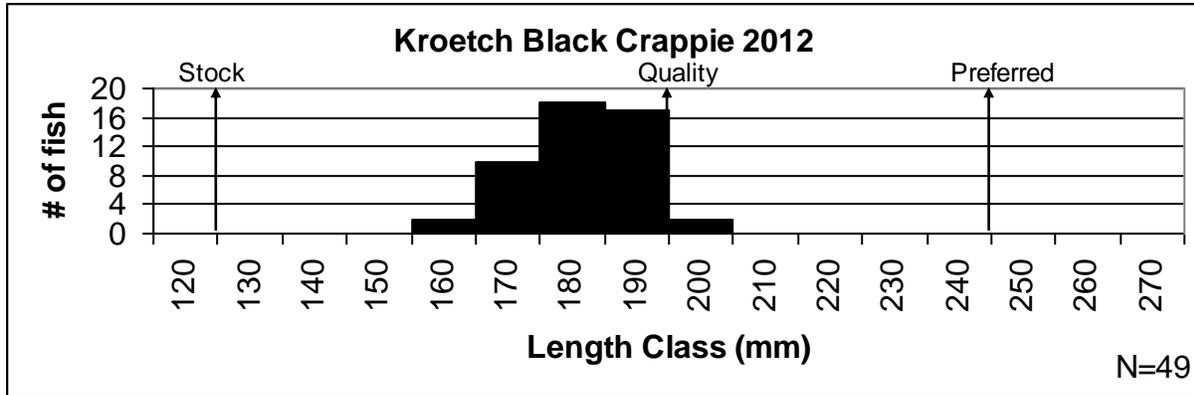


Figure 3. Length frequency histogram of Black Crappie sampled during the modified fyke net survey of Kroetch Dam, Hakkon County, South Dakota, July 22-24, 2012.

Bluegill

Bluegills were present in low numbers in Kroetch Dam (CPUE=5.5); compared to other panfish species present (Table 1). However, the size class of the Bluegill is larger than the other panfish species present as all the Bluegill collected were in the quality to preferred length classes (PSD=100) (Figure 4). Additionally, condition was good with a mean $Wr>S$ of 107.4 (Table1).

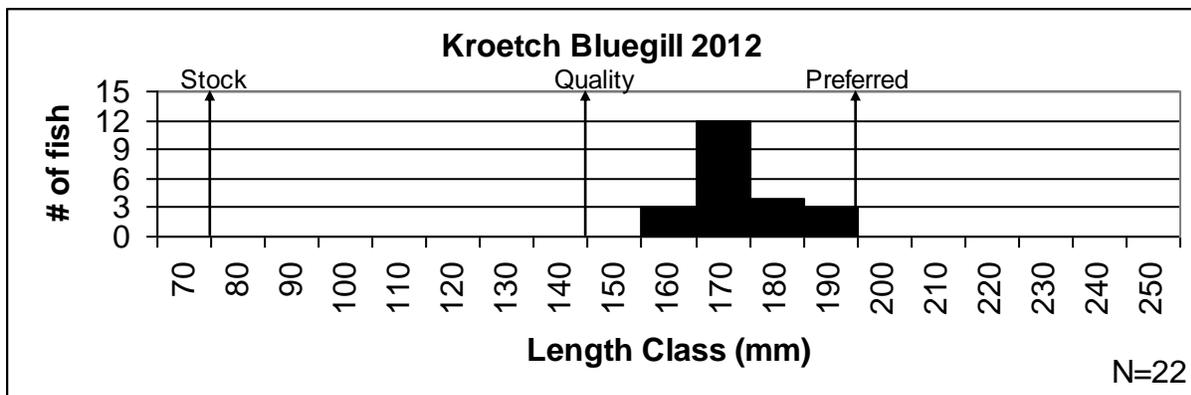


Figure 4. Length frequency histogram of Bluegill sampled during the modified fyke net survey of Kroetch Dam, Hakkon County, South Dakota, 2012.

Yellow Perch

Yellow Perch were the most abundant fish species present in the frame net survey in Kroetch Dam (Table 1). However, a PSD of 13 indicated that most of the Yellow Perch sampled in the frame net survey were below quality length (Figure 5). Yellow Perch condition was good with a mean $Wr>S$ of 90.4.

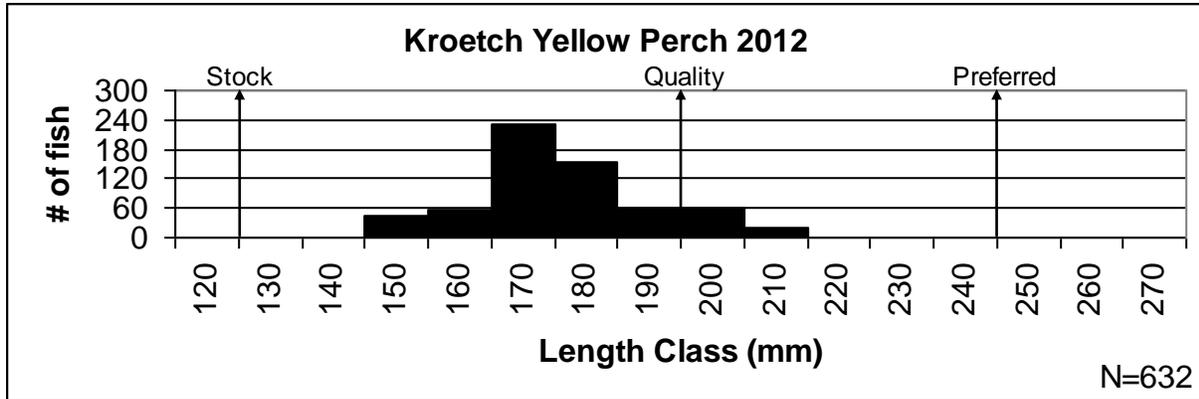


Figure 5. Length frequency histogram of Yellow Perch sampled during the modified fyke net survey of Kroetch Dam, Hakkon County, South Dakota, July 22-24, 2012.

Largemouth Bass

During the angling survey of Kroetch Dam, a total of seven Largemouth Bass were caught during two angling hours for a CPUE of 3.5. The ages of the Largemouth Bass collected were: age-2 (n=2) and age-3 (n=4). One Largemouth Bass that was likely too old (457 mm [18 in], 1,785 g [3.9 lbs]) to age proficiently using scales and was excluded from age analysis. The age-2 fish were 178 and 200 mm (7 and 8 in), and the mean total length of the age-3 Largemouth Bass was 253 mm (10 in). The *Wr>S* for Largemouth Bass collected through angling was 104.1.

RECOMMENDATIONS

1. Continue conducting a standard lake survey once every 5 years or as needed to evaluate the fishery.
2. Stock 100 adult Largemouth Bass to increase bass density and predation on panfish and Black Bullhead populations.

APPENDIX

Appendix A. Stocking records, including year, species, size and number of fish stocked (# of fish) for Kroetch Dam, Haakon County, South Dakota, 1994-2012.

Year	Species	Size	# of Fish
1994	Bluegill	Adult	200
	Golden Shiner	Adult	1,000
	Largemouth Bass	Fingerling	2,150
	Yellow Perch	Adult	50
1995	Largemouth Bass	Fingerling	2,000
1996	Largemouth Bass	Fingerling	2,000
1998	Largemouth Bass	Adult	50
2000	Black Crappie	Adult	300
	Largemouth Bass	Fingerling	1,700
2001	Largemouth Bass	Fingerling	1,700
2002	Largemouth Bass	Fingerling	1,700