

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F21-R-46

Name: Newell City Pond

County: Butte

Legal description: Sec. 25, T 9N, R 5E

Location from nearest town: 1.5 mi. W of Newell, SD

Dates of present survey: May 28-29 & October 02, 2013

Date last surveyed: September 28, 2009

Management classification: Warmwater semi-permanent

Primary Species: (game and forage)

1. Largemouth Bass
2. Bluegill
3. Northern Pike
4. Yellow Perch
5. Black Crappie

Secondary and other species:

1. Walleye
2. White Sucker
3. Common Carp
4. Shorthead Redhorse
5. _____

PHYSICAL CHARACTERISTICS

Surface Area: 20 acres

Maximum depth: 27 feet

Lake elevation at survey (from known benchmark): full

Watershed: 17,000 acres

Mean depth: 12 feet

Ownership of lake and adjacent lakeshore property:

The property around Newell City Pond is 75% owned by the city of Newell with the remaining 25% under private ownership. Adjacent to the lake is the municipal golf course. Newell City Pond is a reserve water supply for this area.

Fishing Access:

The road leading into Newell City Pond is lightly graveled making travel to the pond difficult after a substantial precipitation event. Newell City Pond does not have a concrete boat ramp. There are two areas on the north and northeast side of the lake where the cattails are cleared and serve as places to launch boats. There is very limited shoreline fishing access as most of the pond shoreline contains tall emergent vegetation.

Observations of Water Quality and Aquatic Vegetation:

Most of the shoreline contains emergent aquatic vegetation (mostly cattails). During the later summer months the ponds has submergent vegetation around much of the shoreline as well. No obvious water quality issues were noticed at the time of the survey.

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

No obvious issues with the dam or spillway were recognized at the time of the survey. The roads and ramp to Newell City Pond are low maintenance.

MANAGEMENT OBJECTIVES

Objective 1. Maintain balanced Largemouth Bass/panfish populations.

Objective 2. Investigate availability of Rainbow Trout from state hatcheries for late Fall stockings to provide a winter fishery.

BIOLOGICAL DATA

Sampling Effort and Catch

A fishery survey was conducted on Newell City Pond in May and October of 2013. On May 29, 2013 a trap net survey consisting of four trap net nights was used to sample the fish populations (Figure 1). Trap nets were modified fyke 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. A total of five fish species were collected during the survey: Black Crappie, Bluegill, Northern Pike, Yellow Perch, and Largemouth Bass (Table 1). Only Largemouth Bass and Rainbow Trout have been stocked by South Dakota Game, Fish, and Parks personnel.

A gill net survey was also completed on May 29, 2013 (Figure 1). The gill net was an experimental-type measuring 45.7 m (150 ft) long and 1.8 m (6 ft) deep with six 7.6 m (25 ft) panels with bar mesh sizes: 12.7 mm (0.5 in), 19.1 mm (0.75 in), 25.4 mm (1.0 in), 31.8 mm (1.25 in), 38.1 mm (1.5 in) and 50.8 mm (2.0 in). One gill net was fished overnight to sample the fishery. A total of three species were collected that consisted of Black Crappie, Northern Pike and Yellow Perch (Table 2).

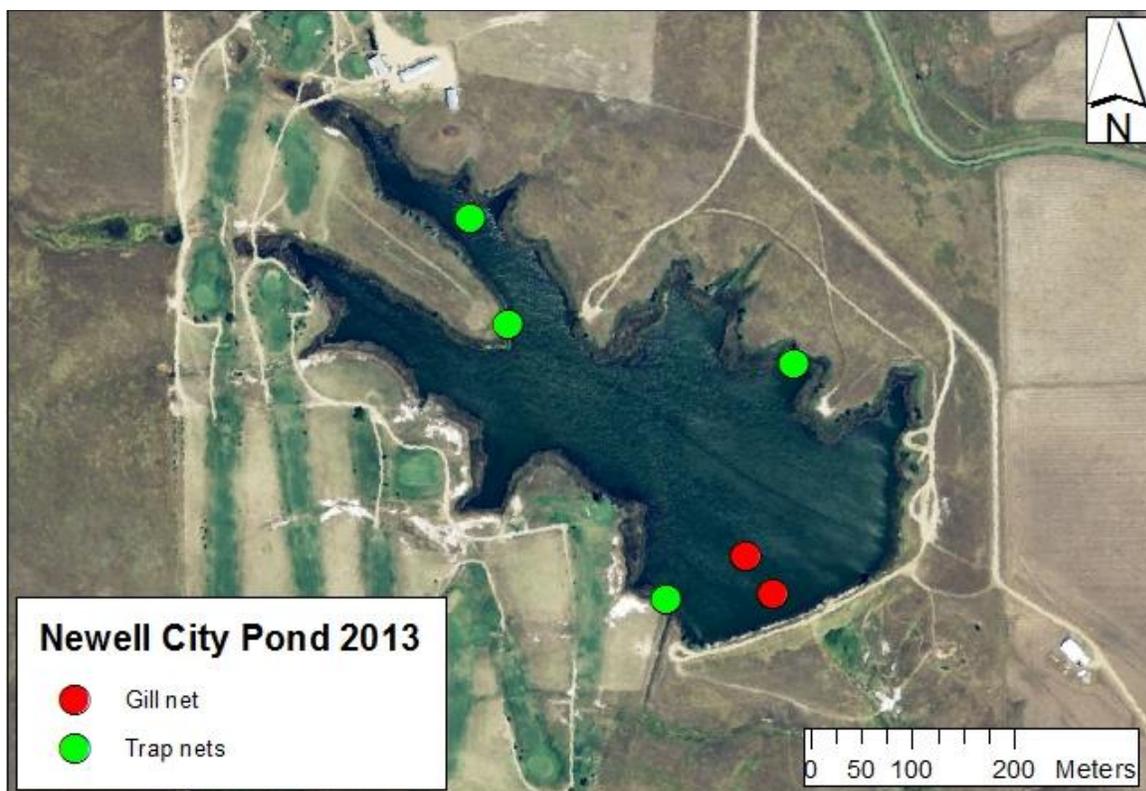


Figure 1. Map of net locations on Newell City Pond in 2013.

Table 1. Catch data from all species collected in four trap nets in Newell City Pond, Butte County, May 28-29, 2013. CPUE's with 80% confidence intervals in parentheses. PSD, PSD-P and Wr with 90% confidence intervals in parentheses.

Species	N	CPUE	CPUE-S	PSD	PSD-P	$Wr \geq S$
Black Crappie	459	114.8 (68)	65 (38.5)	1 (1)	0	89.6 (2.9)
Bluegill	141	35.3 (35.5)	35.3 (35.5)	26 (8)	0	87.7 (4.4)
Northern Pike	1	0.3 (0.7)	0.3 (0.7)	100	0	88.4 (--)
Yellow Perch	74	18.5 (12.6)	16.5 (11.3)	0	0	82.8 (0.9)
Largemouth Bass	1	0.3 (0.7)	0.3 (0.7)	0	0	82.2 (--)

Table 2. Catch data from all species collected in one gill net in Newell City Pond, Butte County, May 28-29, 2013. Catch per gill net (CPUE) confidence intervals not calculated with only a single net used. PSD, PSD-P and Wr with 90% confidence intervals in parentheses.

Species	N	CPUE	CPUE-S	PSD	PSD-P	$Wr \geq S$
Black Crappie	6	6 (--)	1 (--)	0	0	83.7 (--)
Northern Pike	4	4 (--)	4 (--)	100	0	82.1 (7.2)
Yellow Perch	3	3 (--)	1 (--)	0	0	89.9 (--)

Black Crappie

During the trap net survey 459 Black Crappie were collected in the trap nets and six were collected in the gill net (Tables 1 and 2). Catch per unit effort (CPUE) was 114.8 for Black Crappie collected in the trap nets (Table 1). The Black Crappie population is dominated by a large year class that is less than 6 inches in length (Figure 2). The proportional stock density (PSD) for Black Crappies in Newell City Pond is 1 and the PSD-P is 0 (Table 1). A netting survey was last completed on Newell City Pond in 2006. During that survey the size structure of Black Crappies was similar with a PSD of 2 and a PSD-P of 0. The mean relative weight of stock length or greater ($Wr_{\geq S}$) Black Crappie collected from the trap nets was 89.6 (Table 1).

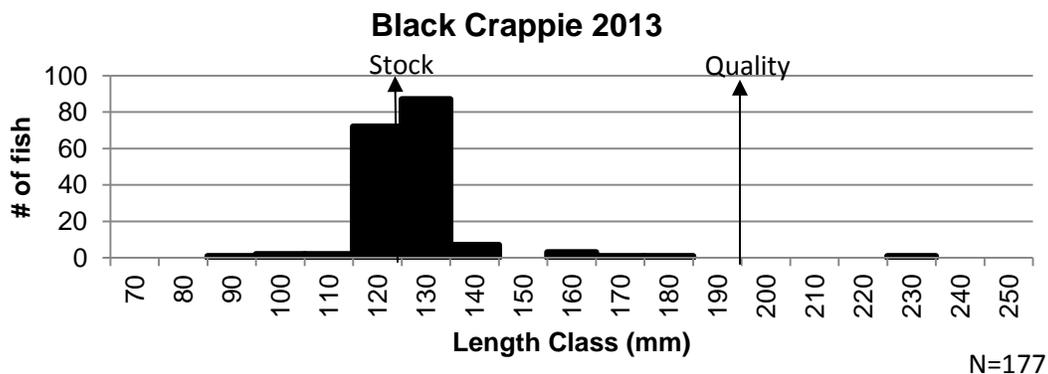


Figure 2. Length frequency histogram of Black Crappie collected during trap net survey of Newell City Pond in 2013.

Bluegill

During the trap net survey 141 Bluegill were collected. All of the Bluegills collected were over stock length (Figure 3) with a CPUE of 35.3. There appears to be at least two year classes of Bluegill in Newell City Pond with most of the fish being between stock length of 80 mm (3 in) and quality length of 150 mm (6 in) (Figure 3). There were some Bluegills exceeding quality length and the population had a PSD of 26 (Figure 3; Table 1). There were no Bluegills over preferred length (200 mm; 8 in) during the 2013 survey (Figure 3). The mean $Wr_{\geq S}$ for Bluegills collected from the trap nets was 87.7.

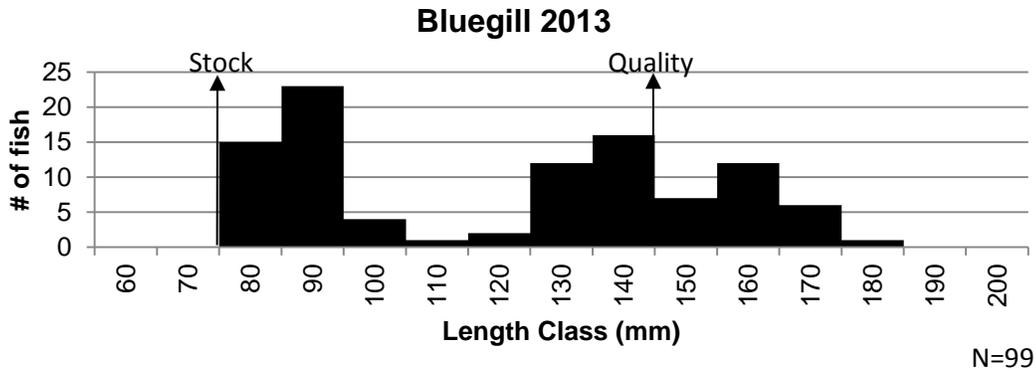


Figure 3. Length frequency histogram of Bluegill collected during trap net survey of Newell City Pond in 2013.

Yellow Perch

During the 2013 survey of Newell City Pond 74 Yellow Perch were collected in the trap nets, and six were collected in the gill net. Most of the Yellow Perch collected were between stock (130 mm; 5 in) and quality (200 mm; 8 in) length (Figure 4). There were no Yellow Perch exceeding quality length in the sample (PSD of 0) in both the trap and gill nets (Table 1). The mean $Wr_{\geq S}$ for Yellow Perch collected in the trap and gill nets was 82.8 and 89.9, respectively (Table 1).

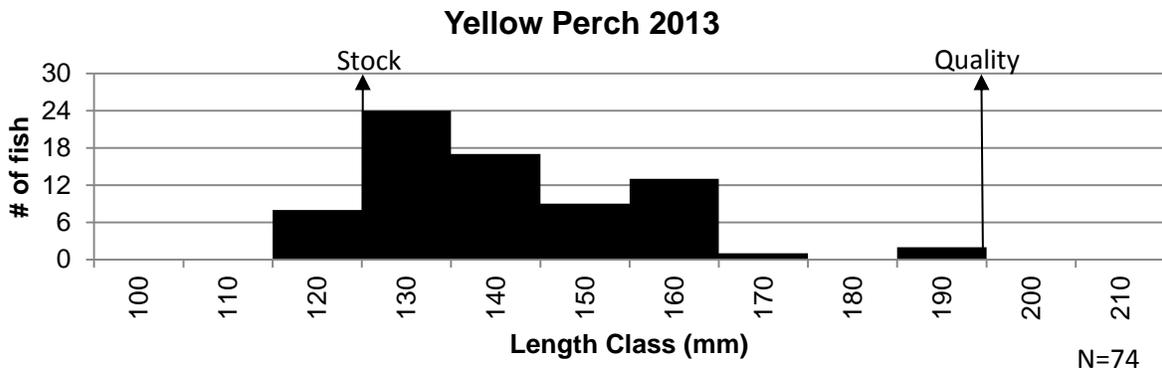


Figure 4. Length frequency histogram of Yellow Perch collected during trap net survey of Newell City Pond in 2013.

Northern Pike

A total of one and four Northern Pike were collected in the trap and gill nets, respectively (Tables 1 and 2). The Northern Pike collected in the trap net was 614 mm (24.2 in) in length. The four Northern Pike collected in the gill net were all near of over quality length (530 mm: 21 in) ranging from 530 mm to 690 mm (20.9 to 27.1 in) (Table 2). The mean $Wr_{\geq S}$ for Northern Pike in the trap and gill net was 88.4 and 82.1, respectively.

Electrofishing Survey

An electrofishing survey was conducted in October of 2013 to evaluate the Largemouth Bass population. The survey consisted of four passes totaling 2,404 seconds (Table 3). During the survey a total of 18 Largemouth Bass were collected. Electrofishing surveys have been conducted four times in the last 10 years (Table 2). In 2012, 100 adult Largemouth Bass were transferred from a pond in the Grand River National Grasslands to Newell City Pond.

Table 3. Catch data from Largemouth Bass collected during a night electrofishing survey in Newell City Pond, Butte County, October 2, 2013. CPUE's with 80% confidence intervals in parentheses. PSD, PSD-P and Wr with 90% confidence intervals in parentheses.

Year	N	Total Effort (sec)	CPUE	CPUE-S	PSD	PSD-P	$Wr_{\geq S}$
2003	29	3,600	29.0 (9.0)	6.0 (5.6)	17 (33)	0	107.1 (7.1)
2007	16	2,501	22.1 (16.6)	16.9 (11.2)	75 (23)	25 (23)	103.7 (6.9)
2009	11	3,154	12.5 (5.1)	10.6 (5.5)	44 (33)	33 (31)	107.2 (5.1)
2013	18	2,404	27 (11.6)	15 (4.9)	30 (28)	20 (24)	103.6 (5.5)

Largemouth Bass

Largemouth Bass catch per hour (CPUE) was the highest in 2003 at 29 and the lowest in 2009 at 12.5 (Table 2). However, the CPUE of stock length or greater Largemouth Bass was highest in 2007 at 16.9 and lowest in 2003 at 6.0 (Table 2).

The size structure of the population showed the highest portion of quality length fish in 2007 with a PSD of 75 and lowest in 2003 at 17. There were no preferred length fish sampled in 2003, and in 2007, 2009, and 2013 the PSD-P was 25, 33, and 20, respectively (Table 2). Condition has remained excellent through the past 10 years with the lowest $Wr_{\geq S}$ for Largemouth Bass in 2013 at 103.6 and the highest in 2009 at 107.2 (Table 2).

In 2013, there was a large range of sizes of Largemouth Bass collected with fish ranging from less than 80 mm (3 in) to longer than 380 mm (15 in) (Figure 5). There was also age-0 Largemouth Bass collected indicating there is some reproduction occurring. In 2012, 100 adult Largemouth Bass were transferred from a pond on the Grand River National Grasslands in an effort to increase the density.

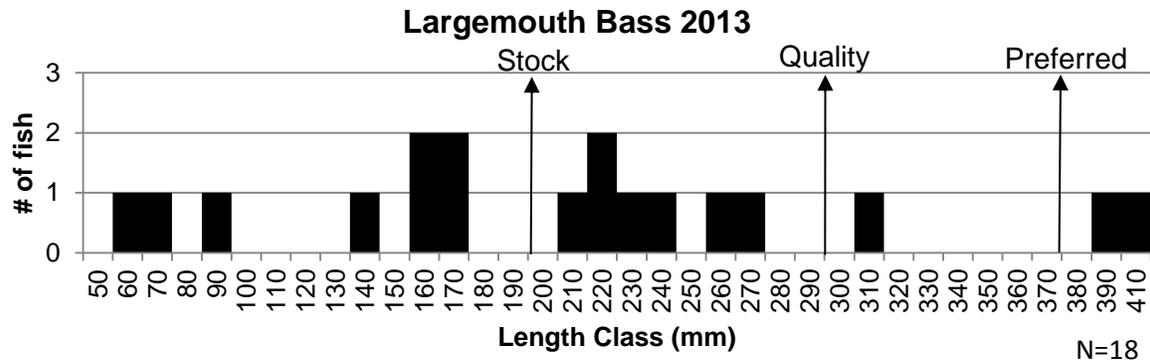


Figure 5. Length frequency histogram for Largemouth Bass collected during night electrofishing of Newell City Pond in 2013.

MANAGEMENT RECOMMENDATIONS

1. Continue stocking adult Largemouth Bass to increase bass density and increase predatory pressure on the Black Crappie population, and possibly promote growth in all the panfish species.
2. Stock rainbow trout to supplement the winter fishery.
3. Increase access through addition of a fishing pier, and possibly road and boat ramp improvements.

APPENDIX

Appendix A. Stocking record for Newell City Pond for 1997-2012.

Year	Species	Size	# Stocked
1997	Largemouth Bass	Fingerling	2,000
2006	Largemouth Bass	Adult	200
2009	Largemouth Bass	Juvenile	300
2012	Largemouth Bass	Adult	100