

## SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F21-R-47

**Name:** Newell Lake

**County:** Butte

**Legal description:** Sec 9, T 10N, R 6E

**Location from nearest town:** 8 miles north and 2 miles east of Newell, SD

**Dates of present survey:** September 17, 2014

**Date last surveyed:** July 22-24, 2013

**Management classification:** Warm-water permanent

Primary Species: (game and forage)

1. Largemouth bass
2. Bluegill
3. Northern pike
4. Yellow perch
5. Walleye

Secondary and other species:

1. Smallmouth bass
2. European rudd
3. White sucker
4. Black bullhead
5. \_\_\_\_\_

### PHYSICAL CHARACTERISTICS

**Surface Area:** 183 acres

**Watershed:** 7,680 acres

**Maximum depth:** 32 feet

**Mean depth:** 13.6 feet

**Lake elevation at survey (from known benchmark):** -4 feet

#### Ownership of lake and adjacent lakeshore property:

The Department of Game, Fish and Parks owns Newell Lake and the surrounding property. The shoreline is managed as a recreation area and Game Production Area.

#### Fishing Access

Anglers must drive two miles along a maintained gravel road to access Newell Lake. Gravel roads and trails also allow access to the south and northwest shorelines. Shore fishing is generally good with open shorelines. A boat ramp and dock are located on the southeast side of the lake.

#### Observations of Water Quality and Aquatic Vegetation

The area has been negatively affected by the recent drought and heavy cattle grazing within the watershed. Summer months are often characterized as having large amounts of vegetation in the shallow bays and inlets. Emergent vegetation primarily consists of bulrush and cattail.

#### Observations on condition of all structures (i.e. spillway, level regulators, boat ramps, etc)

In 1998, following the lake survey, major damage occurred to the tubes that required rebuilding the spillway. Work on the spillway was completed in 1999. The spillway, dam and boat ramp are in good condition. At the time of the survey, low water made the boat ramp barely useable.

## MANAGEMENT OBJECTIVES

**Objective 1.** Maintain a walleye fishery with a minimum gill-net CPUE for stock length and longer fish equal to or greater than 10/net and a PSD range of 30-60.

**Objective 2.** Maintain a largemouth bass fishery with a minimum night-time electrofishing CPUE for stock length and longer fish of 20/hr, PSD greater than 50, and PSD-P greater than 30.

## BIOLOGICAL DATA

### Sampling Effort and Catch

Night electrofishing was used on September 17, 2014 to sample the largemouth bass, smallmouth bass and walleye population. Five 10-minute sites were accomplished during the survey and catch data is summarized in Table 1. Water temperature at sampling time was 59° Fahrenheit.

Table 1. Catch data from night electrofishing at Newell Lake, Butte County, South Dakota, September 17, 2014. CPUE's with 80% confidence intervals in parentheses. *Wr* with 90% confidence intervals in parentheses.

Species	N	CPUE	CPUE-S	PSD	PSD-P	<i>Wr</i> ≥ S
Largemouth bass	19	21.8 (8.6)	20.8 (8.5)	83 (16)	78 (18)	110.6 (1.9)
Smallmouth bass	2	2.0 (3.1)	1.0 (1.5)	--	--	118.9 (--)
Walleye	106	123.8 (47.8)	63.2 (15.3)	67 (10)	7 (6)	83.1 (1.0)

### Largemouth bass

The last time the largemouth bass were sampled was September 26, 2012, when a CPUE of 44.4 was recorded (Table 2). This year CPUE has dropped to 21.8 (Tables 1 and 2), which is just within the management objective for largemouth bass. The largemouth bass population is exceeding management objectives for size structure with a PSD of 83 and a PSD-P of 78. Fish condition remains high with a *Wr* of 110.6. The length frequency histograms show very little recruitment in recent years (Figure 1) and stockings appear to be important to keeping this fishery at abundance objective values.

Table 2. Catch data for largemouth bass from night electrofishing at Newell Lake, Butte County, South Dakota, 2007-2014. CPUE's with 80% confidence intervals in parentheses. *Wr* with 90% confidence intervals in parentheses.

Year	N	Pedal Time (seconds)	CPUE	CPUE-S	PSD	PSD-P	<i>Wr</i> ≥ S
2007	69	3,650	67.9 (15.8)	55.2 (15.1)	73 (10)	23 (10)	117.2 (1.3)
2010	6	4,098	4.7 (2.7)	4.7 (2.7)	--	--	114.8 (5.2)
2011	15	3,600	15.0 (9.1)	15.0 (9.1)	100	100	103.0 (2.6)
2012	37	3,000	44.4 (14.7)	30.0 (7.7)	32 (16)	32 (16)	111.3 (3.1)
2014	19	3,000	21.8 (8.6)	20.8 (8.5)	83 (16)	78 (18)	110.6 (1.9)

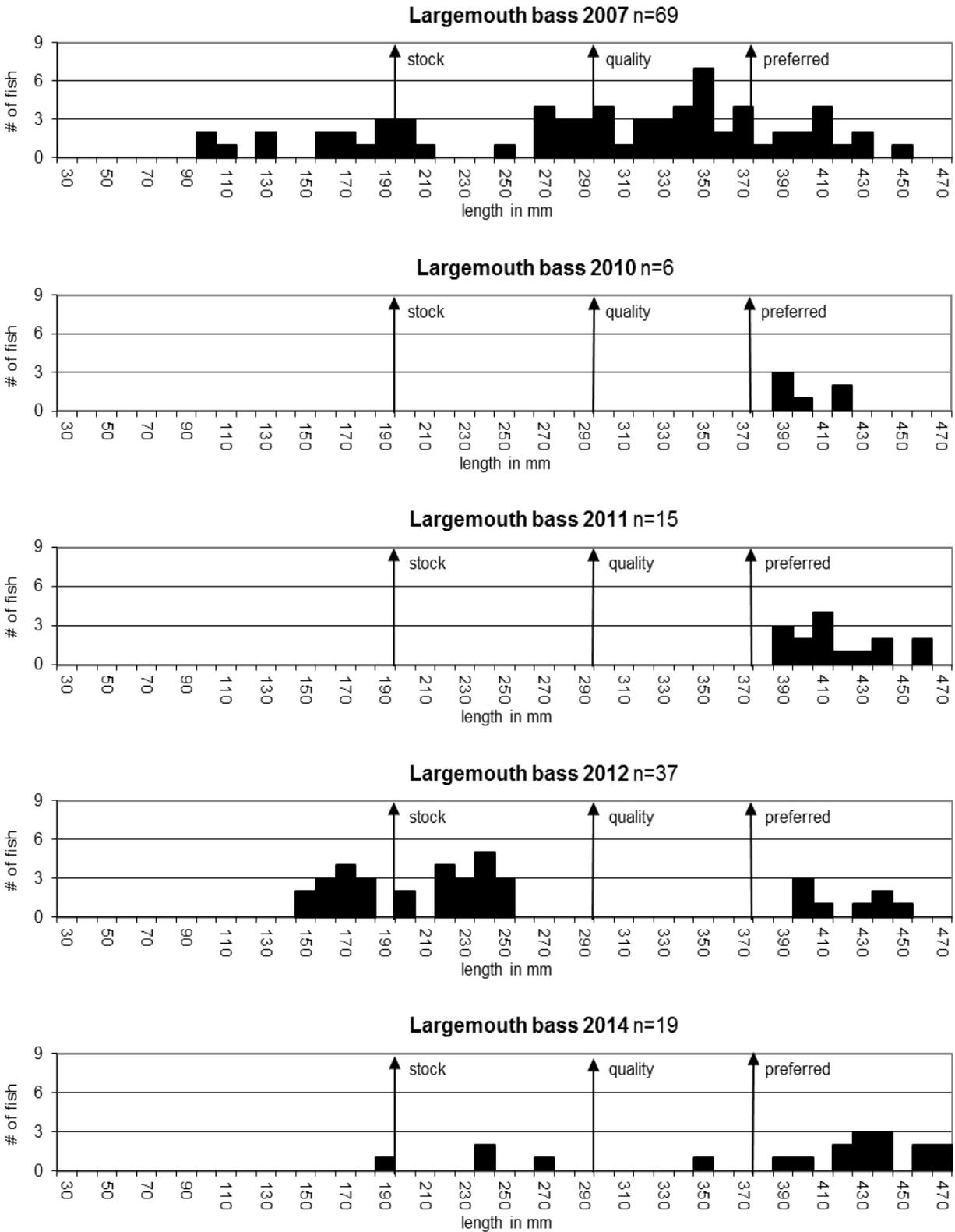


Figure 1. Length frequency histograms for largemouth bass from electrofishing at Newell Lake, Butte County, 2007, 2010-2012, 2014.

## Walleye

Walleye numbers were at their highest in recent years of electrofishing with a CPUE of 123.8 for all walleye and CPUE of 63.2 for walleye over 10 inches (Tables 1 and 3). Size structure is meeting the management objective with a PSD of 67 this year. Fish condition was fairly low with a *Wr* of 83.1. It appears natural reproduction is occurring as the length frequency shows many small fish and no stockings since 2009 (Figure 2).

Table 3. Catch data for walleye from night electrofishing at Newell Lake, Butte County, South Dakota, 2004-2014. CPUE's with 80% confidence intervals in parentheses. *Wr* with 90% confidence intervals in parentheses.

Year	N	CPUE	CPUE-S	PSD	PSD-P	<i>Wr</i> >S
2004	11	11.0 (5.3)	10.0 (5.9)	80 (24)	0	84.7 (2.2)
2005	16	16.4 (7.5)	14.7 (8.1)	19 (17)	6 (11)	78.9 (1.6)
2006	29	26.8 (5.7)	24.8 (5.5)	33 (16)	4 (6)	87.9 (0.9)
2007	69	67.1 (22.1)	23.9 (17.0)	32 (16)	4 (7)	96.1 (1.6)
2010	102	77.5 (35.7)	18.1 (10.4)	25 (15)	4 (7)	85.2 (1.2)
2011	68	68.0 (17.7)	46.0 (15.3)	15 (9)	0	87.5 (1.0)
2012	39	46.8 (20.9)	31.2 (18.9)	23 (14)	0	86.9 (1.7)
2014	106	123.8 (47.8)	63.2 (15.3)	67 (10)	7 (6)	83.1 (1.0)

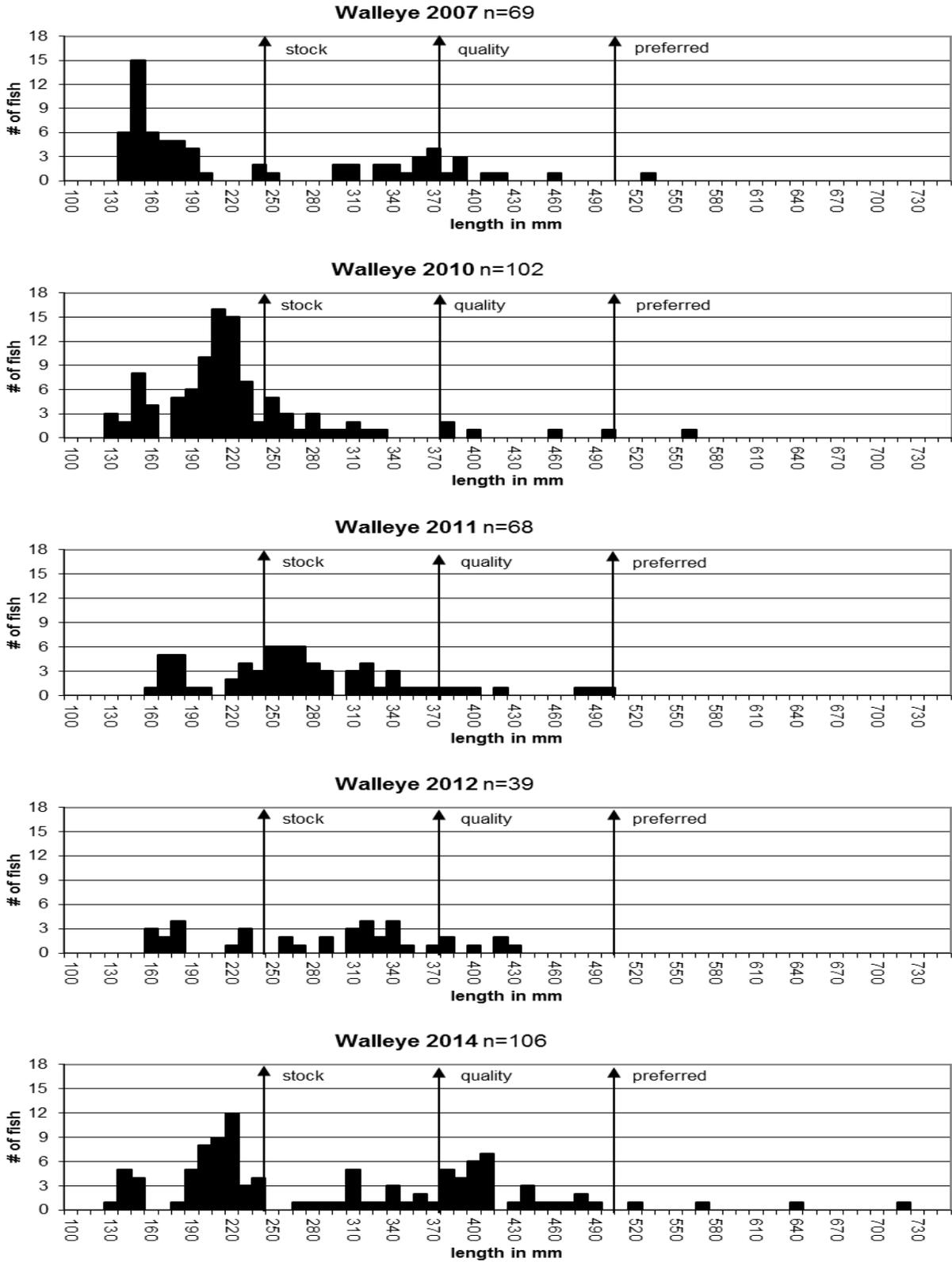


Figure 2. Length frequency histograms of walleye collected from electrofishing at Newell Lake, Butte County, South Dakota, 2007, 2010-2012, 2014.

## RECOMMENDATIONS

1. Conduct standard fish netting surveys every 1 to 3 years to monitor fish populations.
2. Sample largemouth bass, smallmouth bass and walleye annually with nighttime boat electrofishing to identify population changes and effectiveness of special regulations.
3. Stock adult or fingerling largemouth bass when available to supplement the population and keep within management objectives.

## APPENDIX

Appendix A. Stocking history, including year, number stocked, species and size of fish stocked into Newell Lake, Butte County, South Dakota, 2004-2014.

Year	Number	Species	Size
2004	308	Walleye	Large fingerling
2005	2,230	Walleye	Large fingerling
2006	180	Largemouth bass	Adult
	187	Walleye	Large fingerling
2007	50,000	Walleye	Small fingerlings
2008	53,975	Walleye	Small fingerlings
2009	54,100	Walleye	Small fingerlings
2012	5,130	Smallmouth bass	Small fingerlings
	9,120	Largemouth bass	Small fingerlings
	540	Largemouth bass	Adult
2013	11,970	Largemouth bass	Small fingerlings
2014	750	Largemouth bass	Juvenile