

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F21-R-47

Name: Tisdale Dam

County: Meade

Legal description: Sec. 28, T3N, R12E

Location from nearest town: 10 mi E, 6 mi N, 1.5 mi W, and 1 mi NW of New Underwood

Dates of present survey: June 4, 2014

Date last surveyed: June 6, 2012

Management classification: Warmwater semi-permanent

Primary Species: (game and forage)

1. Largemouth bass
2. Bluegill
3. _____

Secondary and other species:

1. Yellow perch
2. Northern pike
3. Black bullhead

PHYSICAL CHARACTERISTICS

Surface Area: 20 acres

Maximum depth: 15 feet

Lake elevation at survey (from known benchmark): Full

Watershed: 6,175 acres

Mean depth: 10 feet

Ownership of lake and adjacent lakeshore property:

Tisdale Dam is owned by the State of South Dakota and is managed by the South Dakota Department of Game, Fish and Parks (SDGF&P) as a Game Production Area. Entry to the lake is limited and requires driving across privately owned rangeland.

Fishing Access:

There is no developed path around the lake, but shoreline access is good in spring and early summer with little emergent vegetation restricting shore fishing. Fishing is more limited in mid to late summer and in fall due to large amounts of submergent vegetation which makes casting lures difficult. It is possible to launch a small boat or wade into the pond for better fishing access.

Observations of Water Quality and Aquatic Vegetation:

Summer months are often characterized as having large amounts of submergent vegetation. Cattle grazing and trampling of the southeast shoreline is the only pollution problem known at the pond.

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

The dam and dam grade are deteriorating and in need of repair. There was a boat ramp available in the past, but it has since become buried and vegetation has grown over it. It appears that small boats are still being launched at that point.

MANAGEMENT OBJECTIVES

- Objective 1.** To work towards developing a balanced largemouth bass/bluegill fishery. Maintain a bluegill PSD of over 20.
- Objective 2.** Stock channel catfish and northern pike to add angler opportunity and add to predation on panfish populations.
- Objective 3.** Keep the local Wildlife Conservation Officer and the public informed of fisheries management activities and solicit their input when planning future changes to the fishery on a yearly basis.

BIOLOGICAL DATA

Sampling Effort and Catch

A fisheries survey was conducted on Tisdale Dam on June 4, 2014. A total of four trap nets, one experimental gill net, and eight angler hours were used to sample the fishery (Figure 1). Trap nets were modified fyke nets consisting of a 1.3 X 1.5 m (4.2 ft X 4.9 ft) frame, 19.1 mm (0.75 in) mesh and a 1.2 X 23 m (3.9 X 75.5 ft) lead. The gill nets were 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). Angling was utilized to sample largemouth bass in Tisdale Dam.

Tisdale Dam went dry during the drought of the mid-2000s. The pond was stocked with bluegill and largemouth bass after it refilled in 2008. Tisdale Dam has since been stocked with more largemouth bass, northern pike, yellow perch and channel catfish. A total of five fish species were collected during the survey (Tables 1 & 2).

Table 1. Catch data from species collected in four trap nets in Tisdale Dam, Meade County, June 4, 2014. CPUE's with 80% confidence intervals in parentheses. PSD, PSD-P and *Wr* with 95% confidence intervals in parentheses.

Species	N	CPUE	CPUE-S	PSD	PSD-P	<i>Wr</i> ≥ S
Bluegill	278	69.5 (16.9)	69.5 (16.9)	42 (6)	2 (1)	104.8 (2)
Northern pike	4	1 (1.2)	1 (1.2)	100	50 (50)	86.4 (11.2)
Largemouth bass	5	1.3 (2)	1.3 (2)	0	0	85.7 (6.2)
Black bullhead	1	0.3 (0.4)	0.3 (0.4)	100	100	96.1 (--)

Table 2. Catch data from all species collected in one gill net in Tisdale Dam, Meade County, June 4, 2014. PSD, PSD-P and *Wr* with 95% confidence intervals in parentheses.

Species	N	CPUE	CPUE-S	PSD	PSD-P	<i>Wr</i> ≥ S
Bluegill	1	1	1	100	0	95.7 (--)
Northern pike	2	2	2	100	50 (50)	83.2 (132.9)
Yellow perch	4	4	4	75 (25)	0	77.5 (1.9)

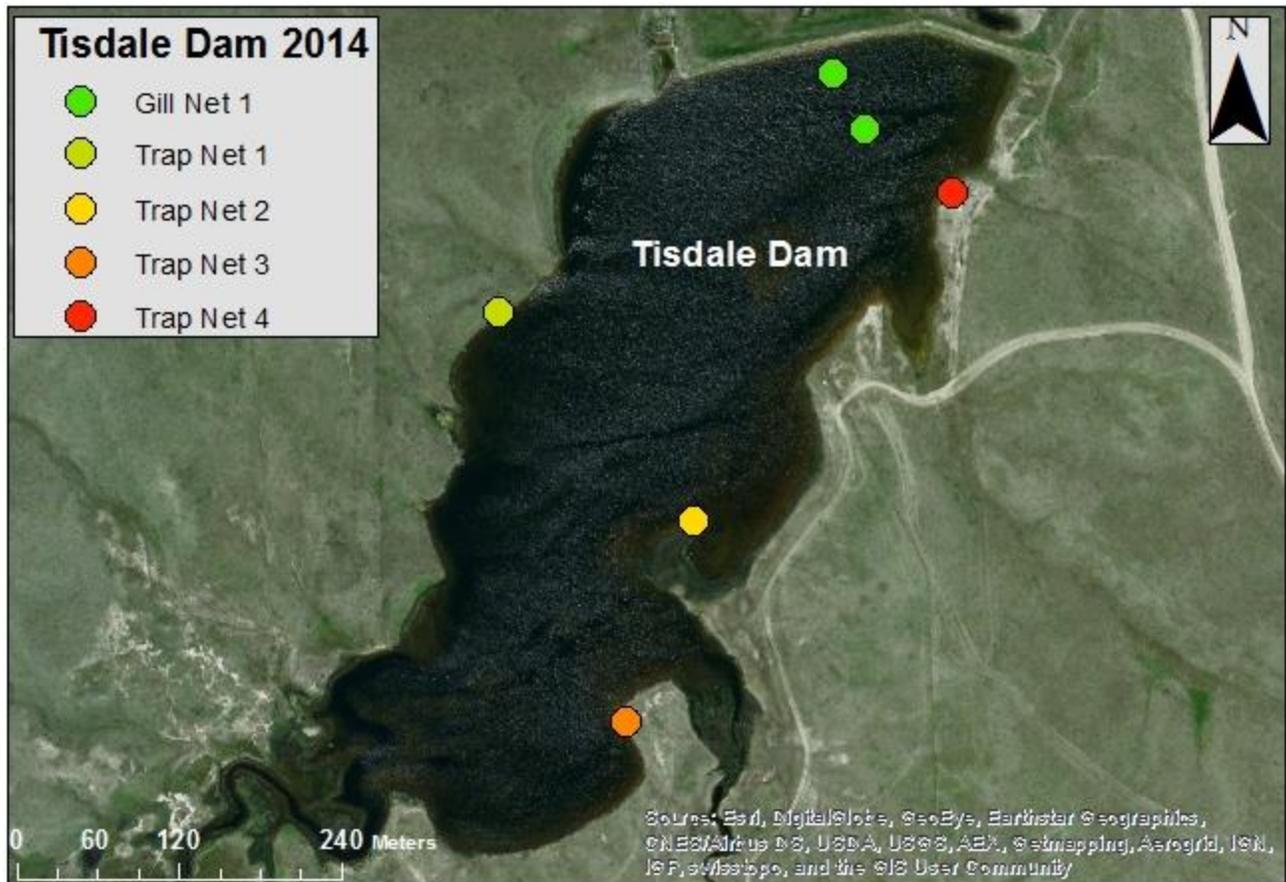


Figure 1. Tisdale Dam fisheries survey net locations 2014.

Bluegill

Bluegill were the most abundant fish species collected during the survey with 278 caught in the trap nets and one captured in the gill net (Tables 1 and 2). The CPUE-S for bluegill decreased slightly from the 2012 to 2014 surveys (Table 3). The PSD has remained similar to 2012 and continues to meet management objectives (>20). The bluegill PSD-P decreased from 14 in 2012 to two in 2014. In 2012, there appeared to be at least two year classes with a majority of one year class being over preferred length (eight inches) (Figure 2). In 2014, most fish were around quality length. Condition of adult ($Wr \geq S$) bluegill continues to be excellent at 109 in 2012 and 105 in 2014 (Table 3).

Table 3. Catch data from bluegill collected in four trap nets in Tisdale Dam, Meade County, 2012 and 2014. CPUE's with 80% confidence intervals in parentheses. PSD, PSD-P and Wr with 95% confidence intervals in parentheses.

Year	N	CPUE	CPUE-S	PSD	PSD-P	$Wr \geq S$
2012	348	87 (72.1)	87 (72.1)	38 (5)	14 (3)	108.9 (1.5)
2014	278	69.5 (16.9)	69.5 (16.9)	42 (6)	2 (1)	104.8 (2)

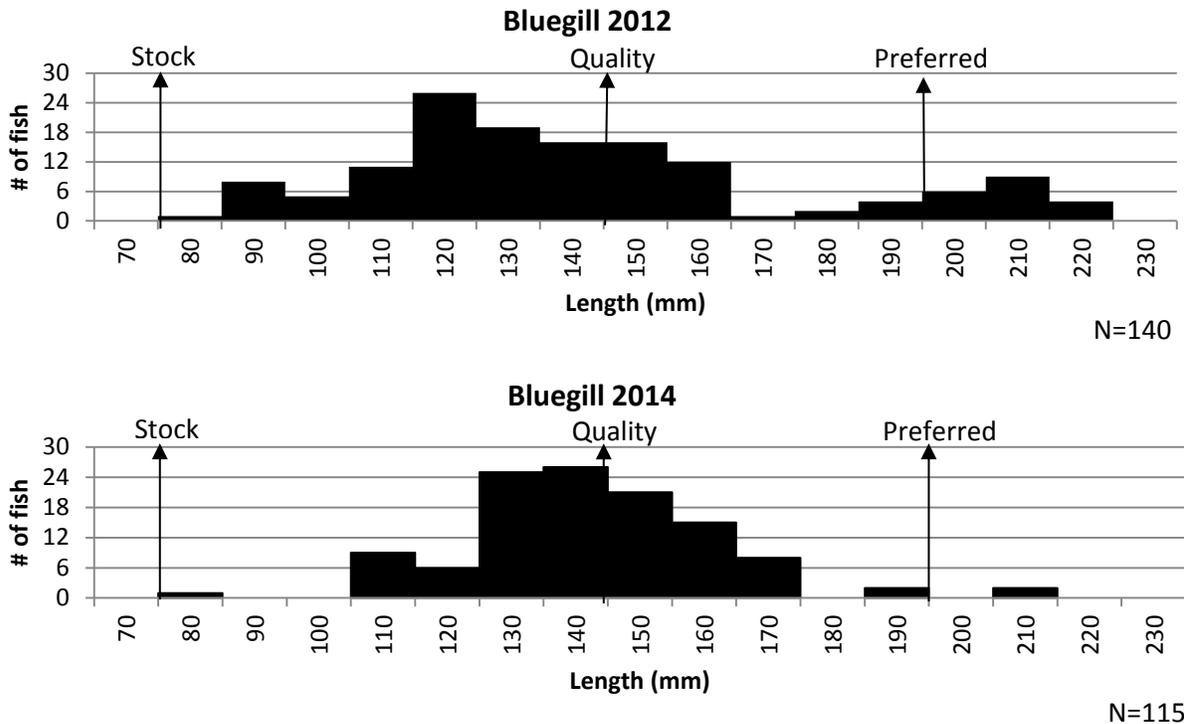


Figure 2. Length frequency histogram of bluegills surveyed from the trap net survey in 2012 and 2014.

Largemouth Bass

Largemouth bass (LMB) were surveyed by angling in 2012 and 2014. During the 2012 survey 11 largemouth bass were collected in one and a half angler hours (7.3 LMB/angler hour). In 2014, 19 bass were collected during eight angler hours (2.3 LMB/angler hour). It appears that the fish have grown as several were collected over quality length (12 inches) in 2014, and none were caught over quality length in 2012 (Figure 3). Tisdale Dam largemouth bass growth is similar to the statewide average until age-2 (Table 4). After age-2, growth is slightly slower than the statewide average. The mean $W_{\geq S}$ for largemouth bass collected by angling was good at 96.1.

Table 4. Tisdale Dam largemouth bass age in 2014 from an angling survey, sample size (N), mean back-calculated total length at age, mean SD length at age, and population standard errors (SE) (Willis et al. 2001).

Year Class	Age	N	Age				
			1	2	3	4	5
2011	3	5	113	182	214		
2010	4	8	98	164	200	230	
2009	5	6	88	205	262	298	327
2014 Mean (SE)			100 (7)	184 (12)	225 (19)	264 (34)	327 (0)
SD Mean (SE)			96 (3)	182 (6)	250 (7)	305 (8)	342 (8)

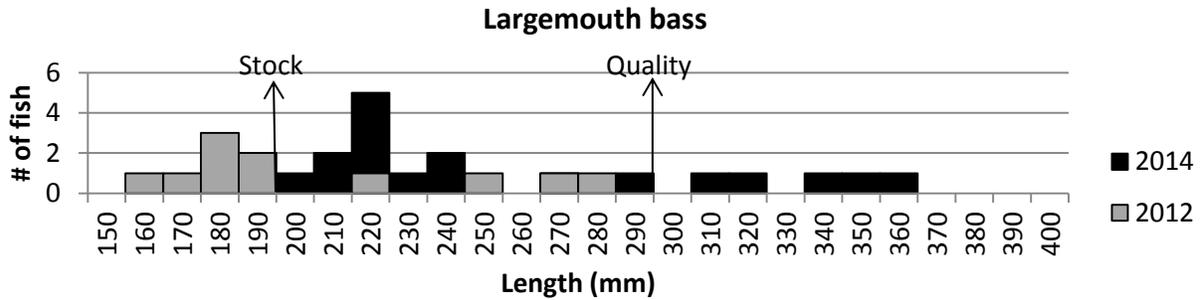


Figure 3. Length frequency histogram of largemouth bass surveyed by angling in 2012 and 2014.

Other species

Other species collected during the survey include northern pike (N=6), yellow perch (N=4), and black bullhead (N=1) (Tables 1 and 2). The northern pike ranged from 575 to 760 mm (23 to 30 inches) in length. All four yellow perch collected were over stock length (130 mm; 5 inches) with three of the four also being over quality length (200 mm; 8 inches). The single black bullhead collected was over preferred length (300 mm; 12 inches). There were no black bullheads collected during the 2012 survey and it was presumed that they all died during the last drought before refilling in 2008. There was apparently some survival or they were brought in or washed in from somewhere else.

LITERATURE CITED

Willis, D.W., D.A. Isermann, M.J. Hubers, B.A. Johnson, W.H. Miller, T.R. St. Sauver, J.S. Sorenson, E.G. Unkenholz, and G.A. Wickstrom. 2001. Growth of South Dakota Fishes: A Statewide Summary with means by region and Water Type. Special Report. South Dakota Department of Game, Fish and Parks. Pierre, South Dakota.

RECOMMENDATIONS

1. Continue to monitor the largemouth bass and northern pike population.
2. Continue stocking efforts as needed to restore the fishery after periods of drought or winter die-offs.
3. Survey panfish populations every five years or as needed to evaluate the fishery.

APPENDIX

Appendix A. Stocking record for Tisdale, Meade County 2008-2014.

Year	# of Fish	Species	Size
2008	2,000	Largemouth bass	Fingerling
2008	10,000	Bluegill	Fingerling
2008	3,000	Fathead minnows	Large
2009	3,000	Largemouth bass	Catchable
2011	20,000	Northern pike	Fry
2012	423	Yellow perch	Adult
2012	100	Golden shiner	Adult
2014	155	Channel catfish	Adult
