SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F21-R-48

Name: Owens Lake **County**: Perkins

Legal description: Sec 4, T 17N, R 14E
Location from nearest town: 3 miles east, 4 miles south of Bison, SD
Dates of present survey: June 8-10, 2015
Date last surveyed: June 23-25, 2014
Management classification: Warmwater semi-permanent

Primary Species: (game and forage)	Secondary and other species:
1. Black bullhead	1. Largemouth bass
2. Northern pike	2. Yellow perch
3.	3. Bluegill

PHYSICAL CHARACTERISTICS

Surface Area: 96 acres **Watershed**: 57,000 acres
Maximum depth: 15 feet **Mean depth**: 6.3 feet
Lake elevation at survey (from known benchmark): full pool

Ownership of lake and adjacent lakeshore property:

Most of the land around Owens Lake is owned by the Department of Game, Fish and Parks and is managed as a Game Production Area.

Fishing Access:

Owens Lake has boat access with a rough, plank boat ramp on the south side. Shore access is limited by heavy vegetation around the shoreline and heavy submergent vegetation around the entire lake.

Observations of Water Quality and Aquatic Vegetation:

During the survey, the lake water was very clear and emergent vegetation was prevalent in depths under seven feet deep. Approximately 70 percent of the shoreline is covered by cattails or reeds. No pollution problems were noticed during this survey.

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

The dam spillway appeared in good condition. The boat ramp is a rough concrete plank ramp that is being undercut by wave action in spots and is in need of replacement.

MANAGEMENT OBJECTIVES

Objective 1. Maintain moderate densities of yellow perch and bluegill and PSD's $\geq$ 30.

Objective 2. Maintain a mean trap net CPUE of stock-length black bullhead <100 and PSD >30.

Objective 3. Increase largemouth bass and northern pike numbers to moderate to high densities to keep black bullhead and other panfish densities and size structure within management objective ranges.

BIOLOGICAL DATA

Sampling Effort and Catch

Trap nets and experimental gill nets were used on June 8-10, 2015 to sample adult fish populations in the reservoir (Figure 1). The net sampling consisted of eight trap net nights and two gill net night and catch data is displayed in Tables 1 and 2. Discussion on selected fish species follows and completes this report.

Table 1. Catch data from all fish species collected in eight trap nets in Owens Lake, Perkins County, June 8-10, 2015. CPUE values with 80% confidence intervals in parentheses. PSD, PSD-P and *Wr*≥S values with 90% confidence intervals in parentheses

Species	N	CPUE	CPUE-S	PSD	PSD-P	*Wr*≥S
Black bullhead	716	89.5 (28.7)	67.3 (20.8)	17 (3)	1 (1)	103.4 (3.1)
Black crappie	1	0.1 (0.2)	0.1 (0.2)	--	--	120.8 (--)
Bluegill	164	20.5 (13.2)	20.5 (13.2)	52 (7)	9 (4)	130.3 (3.3)
Green sunfish	1	0.1 (0.2)	0.1 (0.2)	--	--	--
Northern pike	12	1.5 (0.5)	1.4 (0.4)	55 (29)	--	94.6 (3.3)
Yellow perch	1	0.1 (0.2)	0.1 (0.2)	--	--	--

Table 2. Catch data from all species collected in two experimental gill nets in Owens Lake, Perkins County, June 8-10, 2015. CPUE's with 80% confidence intervals in parentheses. PSD, PSD-P and *Wr*≥S with 90% confidence intervals in parentheses

Species	N	CPUE	CPUE-S	PSD	PSD-P	*Wr*≥S
Black bullhead	5	2.5 (7.7)	2.5 (7.7)	--	--	113.5 (3.5)
Northern pike	21	10.5 (16.9)	7.5 (10.8)	73 (21)	20 (19)	96.4 (3.9)

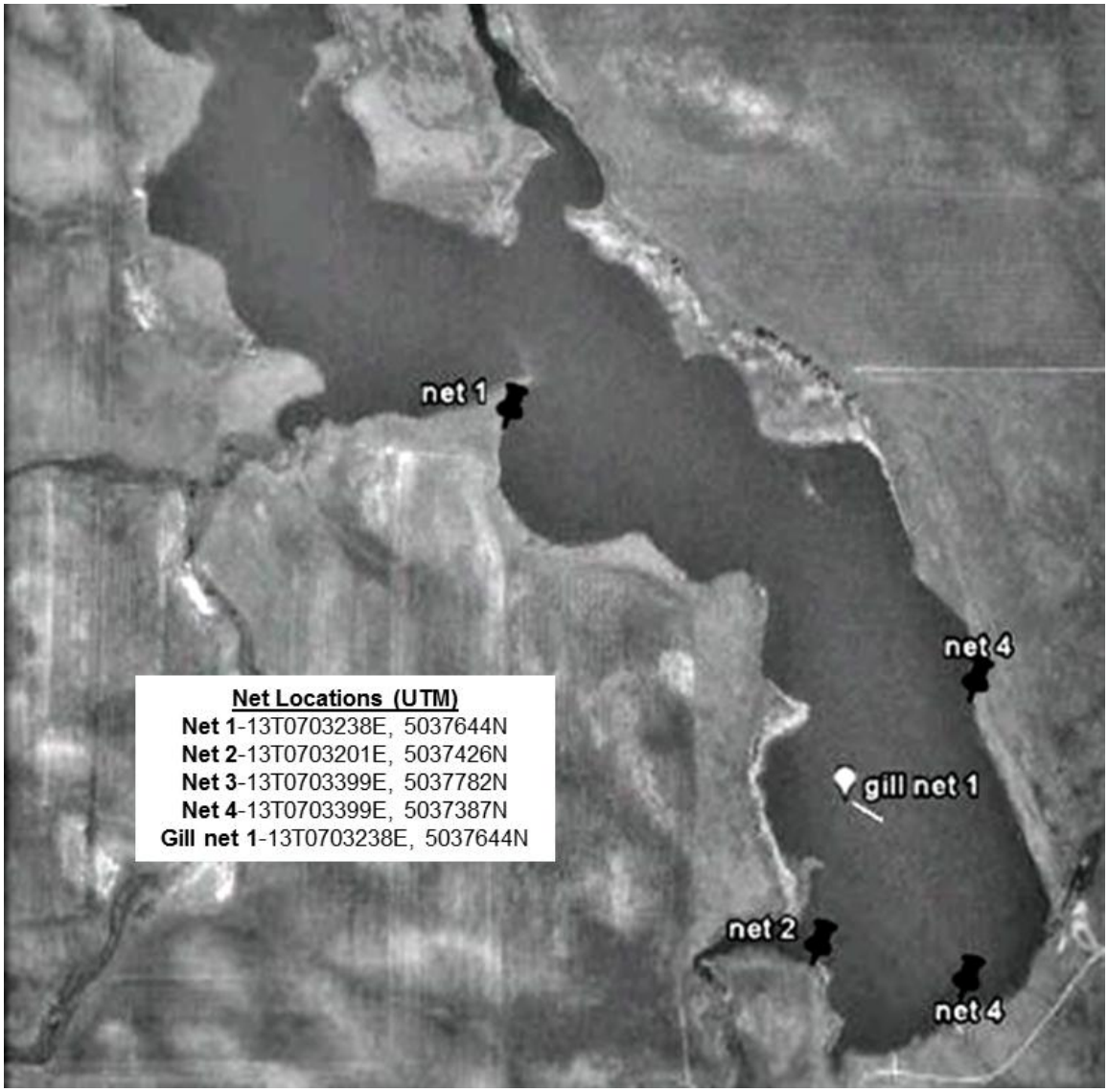

Figure 1. Locations, with GPS coordinates, of the experimental gill net (gill net) and trap nets (net) during the fish survey of Owens Lake, Perkins County, 2015.

Black bullhead

In 2015, black bullhead was the most abundant species sampled in trap nets and produced a CPUE of 89.5 (Table 1). Stock indices are below the objective value with a PSD of 17 and a PSD-P of 1 from the trap net sample (Table 2). Black bullhead condition was excellent with average relative weight for stock length and larger fish (*Wr*≥S) of 103.4. Length frequency histograms show a population dominated by young year classes with a few large individuals in the sample (Figure 2).

Table 3. Composite listing of data for black bullhead collected by trap nets in Owens Lake, Perkins County 2012-2015. CPUE's with 80% confidence intervals in parentheses. PSD, PSD-P and *Wr* with 90% confidence intervals in parentheses

Year	N	CPUE	CPUE-S	PSD	PSD-P	*Wr*≥S
2012	267	66.8 (25.3)	65.3 (24.9)	37 (5)	2 (2)	108.8 (4.2)
2013	14	3.5 (3.0)	3.5 (3.0)	100 (--)	29 (23)	114.0 (4.1)
2014	62	7.8 (3.1)	7.8 (3.1)	27 (10)	6 (6)	93.1 (1.2)
2015	716	89.5 (28.7)	67.3 (20.8)	17 (3)	1 (1)	103.4 (3.1)

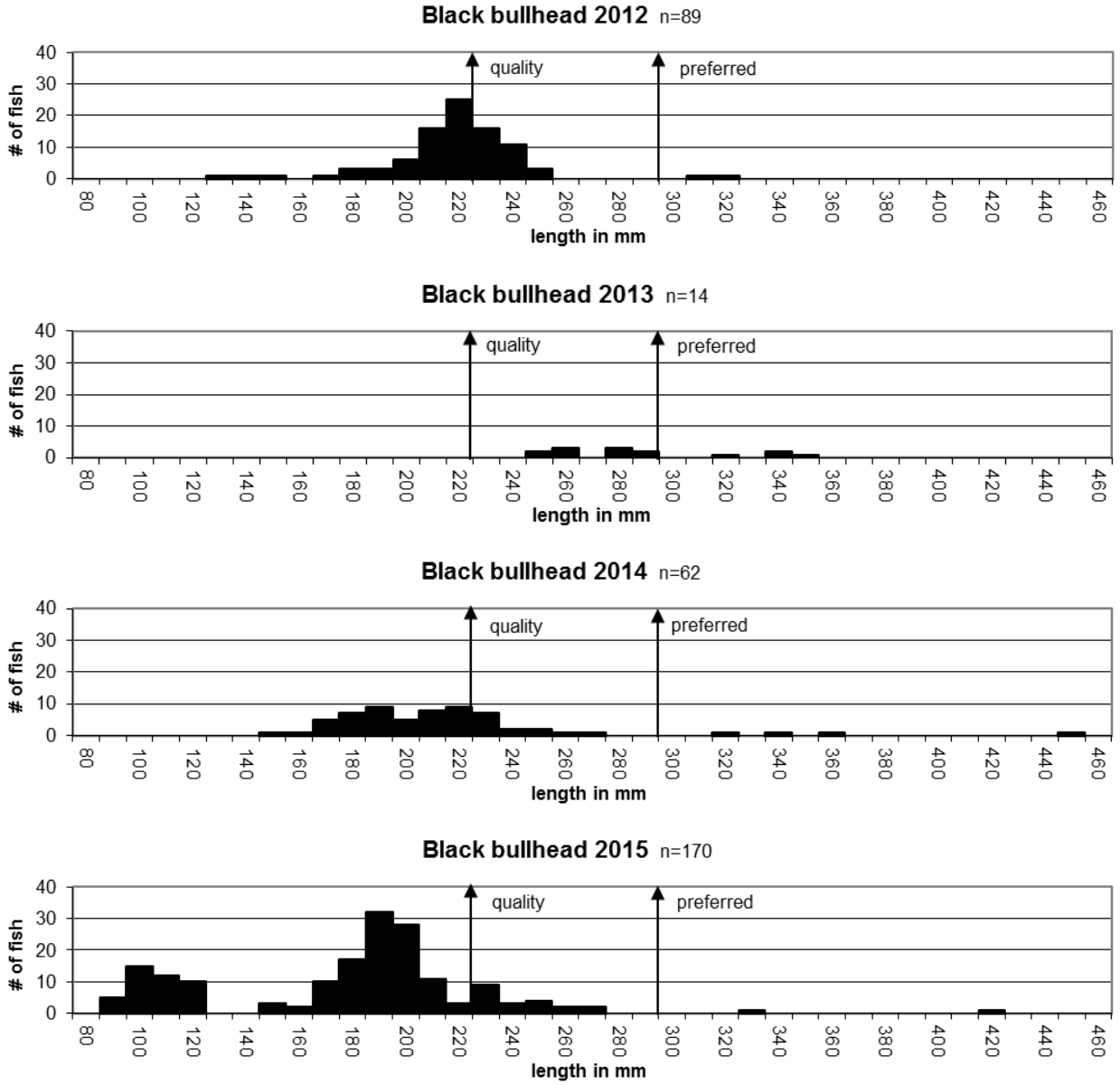

Figure 2. Length frequency histograms of black bullhead from trap nets at Owens Lake, Perkins County, 2012-2015.

Bluegill

Bluegill were introduced in 2012, when 835 adults were stocked. In 2014, the trap net sample yielded a CPUE of 1.8 (Table 4). Fish condition was impressive with a *Wr* ≥S of 136.2. This year, CPUE was 20.5 with a similar PSD of 52 and a PSD-P of 9. Fish condition was still high with a *Wr* of 130.3 (Table 1). The length frequency histogram indicates recruitment is occurring with several year classes present (Figure 3).

Table 4. Composite listing of data for bluegill collected by trap nets in Owens Lake, Perkins County, 2014-2015. CPUE's with 80% confidence intervals in parentheses. PSD, PSD-P and *Wr* with 90% confidence intervals in parentheses

Year	N	CPUE	CPUE-S	PSD	PSD-P	*Wr*≥S
2014	8	1.8 (1.0)	1.6 (0.9)	46 (26)	8 (13)	136.2 (0.7)
2015	164	20.5 (13.2)	20.5 (13.2)	52 (7)	9 (4)	130.3 (3.3)

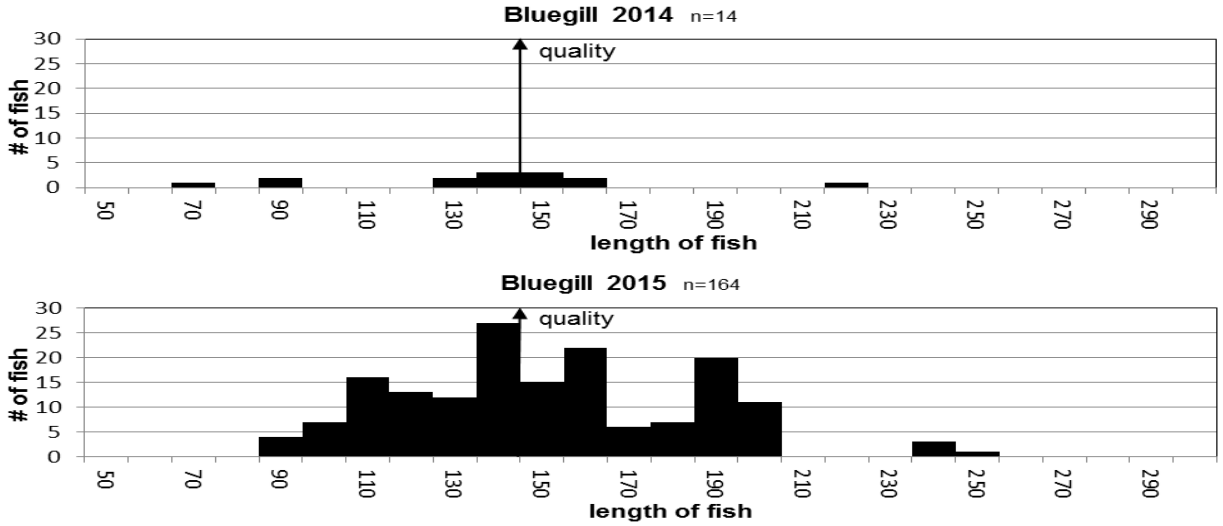

Figure 3. Length frequency histograms of bluegill from trap nets at Owens Lake, Perkins County, 2014-2015.

Northern pike

Northern pike trap net CPUE was 1.5 and a gill net CPUE was 10.5 (Tables 1 and 2). Size structure was high with a PSD of 73 in the gill net and 55 in the trap nets, indicating a balanced population. Fish condition was above average with a mean *Wr*≥S of 96.4 from the gill net sample. The length frequency histogram shows that recruitment appears to be occurring (Figure 4). In 2014, CPUE was 4.5 in trap nets and 7.5 in the gill nets. As fish condition was much lower at 86.3 in 2014, the increasing bluegill and black bullhead densities may be providing additional forage and improving northern pike condition.

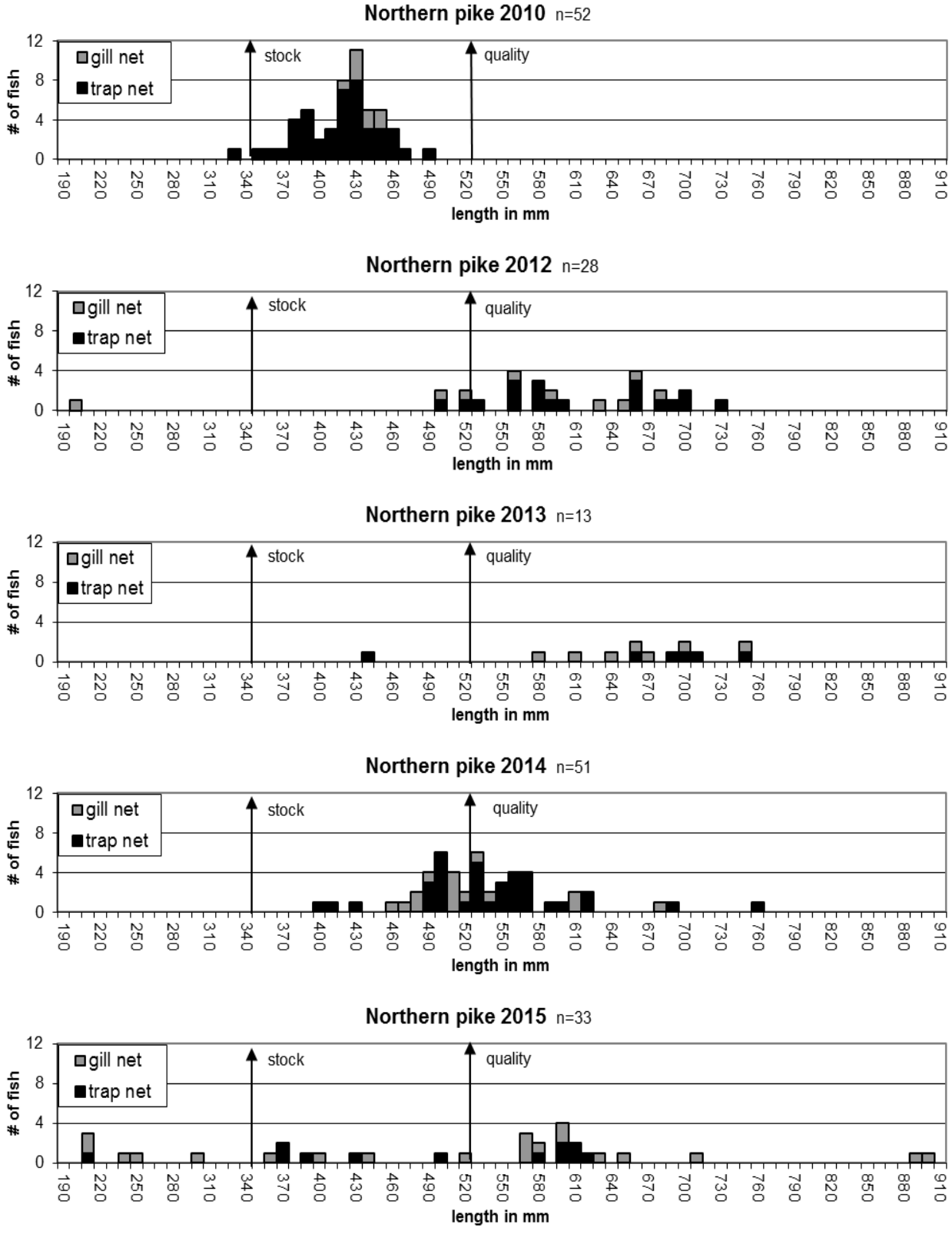

Figure 4. Length frequency histograms of northern pike sampled in gill nets and trap nets from Owens Lake, Perkins County, 2010, 2012-2015.

RECOMMENDATIONS

1. Resurvey in 2016 to check fish populations and determine if bluegill and largemouth bass introductions were successful.

APPENDIX

Appendix A. Stocking history, including year, number stocked, species and size of fish stocked into Owens Lake, Perkins County, South Dakota, 1995-2015.

Year	Number	Species	Size
1995	197	Northern pike	Adult
1996	16,230	Northern pike	Adult
1997	32,000	Northern pike	Fingerling
2005	368	Yellow perch	Adult
2009	250	Yellow perch	Adult
2010	97,600	Northern pike	Fry
	5,560	Largemouth bass	Fingerling
2012	572	Yellow perch	Adult
	835	Bluegill	Adult
	320	Largemouth bass	Adult
2014	250	Largemouth bass	Juvenile
	800	Yellow perch	Adult