

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F21-R-46

Name: Little White River Project

County: Bennett

Legal description: Sec 14 and 23, T 37N, R 36W

Location from nearest town: 2.5 mi W of Tuthill, SD

Dates of present survey: July 8-9, 2013

Date last surveyed: July 5-7, 2011

Management classification: Warmwater permanent

Primary Species: (game and forage)

1. Black Bullhead
2. Black Crappie
3. Northern Pike
4. Walleye
5. Yellow Perch
6. _____

Secondary and other species:

1. Channel Catfish
2. Common Carp
3. White Sucker
4. Northern Redhorse
5. Madtom
6. Largemouth Bass

PHYSICAL CHARACTERISTICS

Surface Area: 111 acres

Watershed: 130,000 acres

Maximum depth: 9 feet

Mean depth: 4 feet

Lake elevation at survey (from known benchmark): -2 feet

Ownership of lake and adjacent lakeshore property:

The land surrounding the Little White River Project is owned by the South Dakota Department of Game, Fish and Parks and the US Fish and Wildlife Service. The area is managed as a Game Production Area and a recreation area.

Fishing Access

Fishing access at Little White River Project is fairly good for shore and boat anglers alike. Two boat ramps are available though neither drop-off quickly. Cattails cover a substantial portion of the shoreline limiting fishing access for shore anglers but good areas still exist for shore angling. Shore angler's best bet is probably along the dam grade which contains some of the deepest water in this shallow lake. Turbid water keeps submergent vegetation low.

Observations of Water Quality and Aquatic Vegetative:

Sedimentation and consequently, high turbidity occurs due to agricultural run off. No other pollution problems were identified by departmental personnel during the 2013 survey. Cattails surround much of the lake especially on the east and west shoreline. Turbid water keeps submergent vegetation to a minimum.

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

A new dam, road and boat ramp were built in 2007, so everything is in excellent condition. Wind and wave action do cover the boat ramp with sand and silt, reducing the grade and depth of the ramp and increasing difficulty launching a boat.

BIOLOGICAL DATA

Sampling Effort and Catch

Age-0 Fish Survey

Daytime boat electrofishing was used on July 26, 2013 to index Gizzard Shad reproduction. Electrofishing was done using a boat mounted Smith-Root unit with pulsed-DC. Sampling consisted of five stations totaling 0.42 hours of electrofishing. No other age-0 fish were collected during this survey.

Protocol for sampling age-0 Gizzard Shad is: stations are 10 minutes long unless age-0 Gizzard Shad are collected within the first five minutes, then sampling is discontinued after five minutes of collection effort has been completed. All five sites produced age-0 Gizzard Shad within the first five minutes and total sampling effort was 1,500 sec (0.42 hr). Collection at all five sites indicates good reproduction occurred and age-0 shad are located throughout the reservoir. Electrofishing sampling will be completed annually for the next few years to determine if stocking Gizzard Shad continues to produce a forage source.

Table 1. Site number, number collected per site (No./Site), pedal time, and estimated number per hour of Gizzard Shad sampled using daytime electrofishing from Little White River Project, July 26, 2013.

Site	No./Site	Time (sec)	No./hr
1	6	300	72
2	62	300	744
3	4	300	48
4	58	300	696
5	252	300	3,024
Total	382	0.42hr	916.8

Adult Fish survey

Trap nets and experimental gill nets were used on July 8-9, 2013 to sample adult fish populations in the reservoir (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. 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), mm (1.25 in), 38.1 mm (1.5 in), and 50.8 mm (2.0 in). The net sampling consisted of seven trap net nights and two gill net nights and catch data is displayed in Tables 2 and 3. Discussion on selected fish species follows and completes this report.

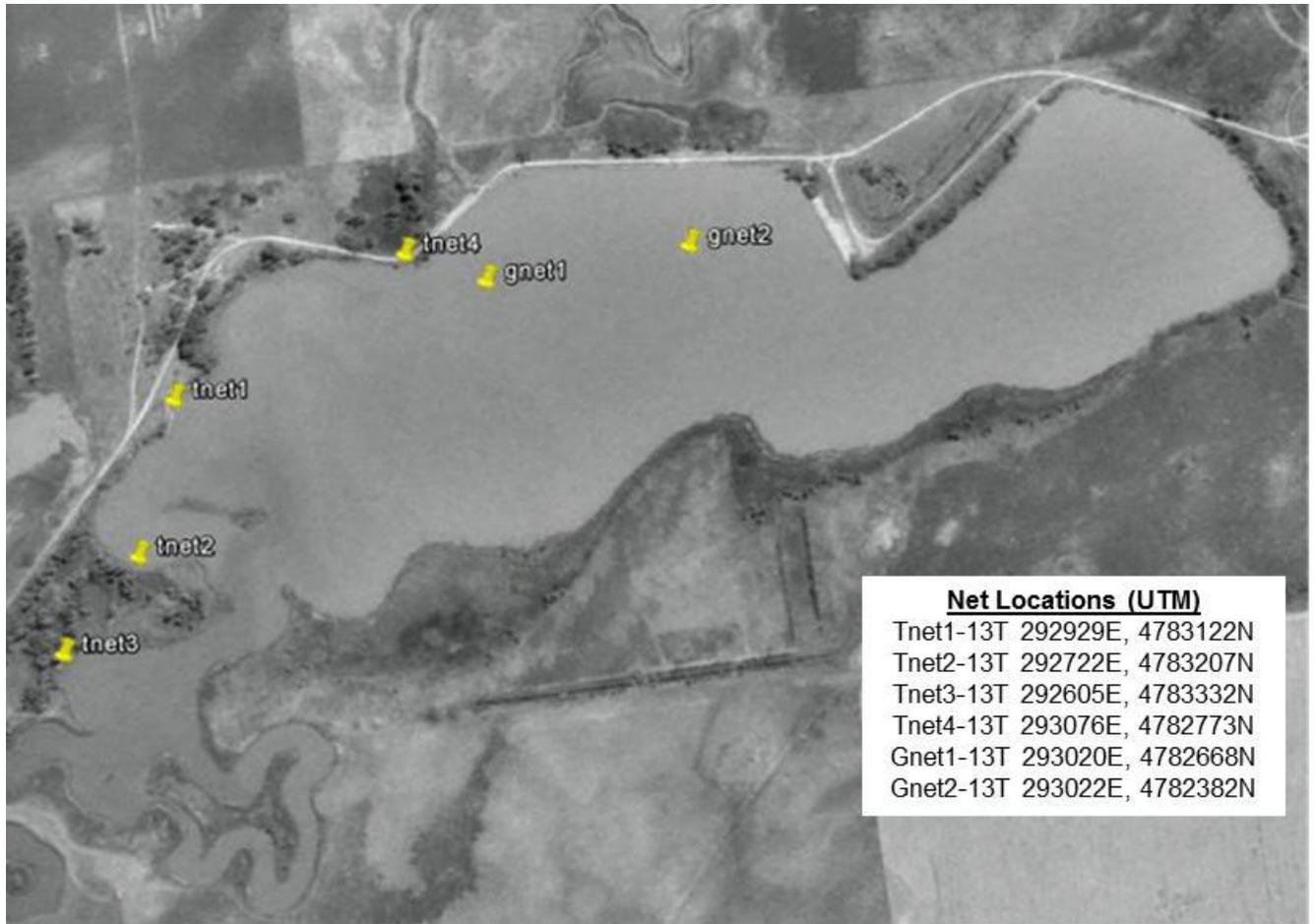


Figure 1. Map of Little White River Project with net locations with GPS coordinates from the 2013 lake survey.

Table 2. Catch data from all species collected in seven trap nets in Little White River Project on July 8-9, 2013. CPUE's with 80% confidence intervals in parentheses. PSD, PSD-P and W_r with 90% confidence intervals in parentheses

Species	N	CPUE	CPUE-S	PSD	PSD-P	$W_r > S$
Black Bullhead	106	15.1 (7.7)	9.1 (3.5)	2 (2)	0	83.5 (1.9)
Black Crappie	121	17.3 (5.0)	14.9 (4.9)	53 (8)	4 (3)	104.8 (1.3)
Channel Catfish	3	0.4 (0.3)	0.1 (0.2)	--	--	91.8 (--)
Common Carp	1	0.1 (0.2)	0.1 (0.2)	--	--	87.3 (--)
Gizzard Shad	1	0.1 (0.2)	0.1 (0.2)	--	--	113.1 (--)
Golden Shiner	1	0.1 (0.2)	--	--	--	--
Northern Pike	20	2.9 (1.1)	2.9 (1.1)	85 (14)	50 (20)	90.5 (2.8)
Shorthead Redhorse	1	0.1 (0.2)	0.1 (0.2)	--	--	--
Walleye	2	0.3 (0.3)	0.1 (0.2)	--	--	86.9 (--)
Yellow Perch	2	0.3 (0.4)	0.3 (0.4)	--	--	--

Table 3. Catch data from all species collected in two gill nets in Little White River Project on July 8-9, 2013. 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	30	15.0 (12.3)	13.0 (9.2)	4 (6)	0	89.2 (1.8)
Black Crappie	2	1.0 (0.0)	1.0 (0.0)	--	--	111.4 (21.2)
Channel Catfish	4	2.0 (3.1)	2.0 (3.1)	--	--	102.6 (6.1)
Common Carp	2	1.0 (3.1)	1.0 (3.1)	--	--	86.8 (17.6)
Northern Pike	1	0.5 (1.5)	0.5 (1.5)	--	--	87.5 (--)
Shorthead Redhorse	1	0.5 (1.5)	0.5 (1.5)	--	--	89.1 (--)
Walleye	4	2.0 (3.1)	2.0 (3.1)	--	--	91.1 (14.0)
Yellow Perch	3	1.5 (4.6)	1.5 (4.6)	--	--	100.4 (24.5)

Black Bullhead

Little White River Project continues to have a moderate density Black Bullhead population. Trap net CPUE did drop some, from 30.8 in 2011 to 15.1 this year (Table 2). Size structure shows a population still dominated by very small fish with a PSD of 4, compared to 2 during the last survey. Length frequency shows a size structure very similar to 2011 (Figure 2).

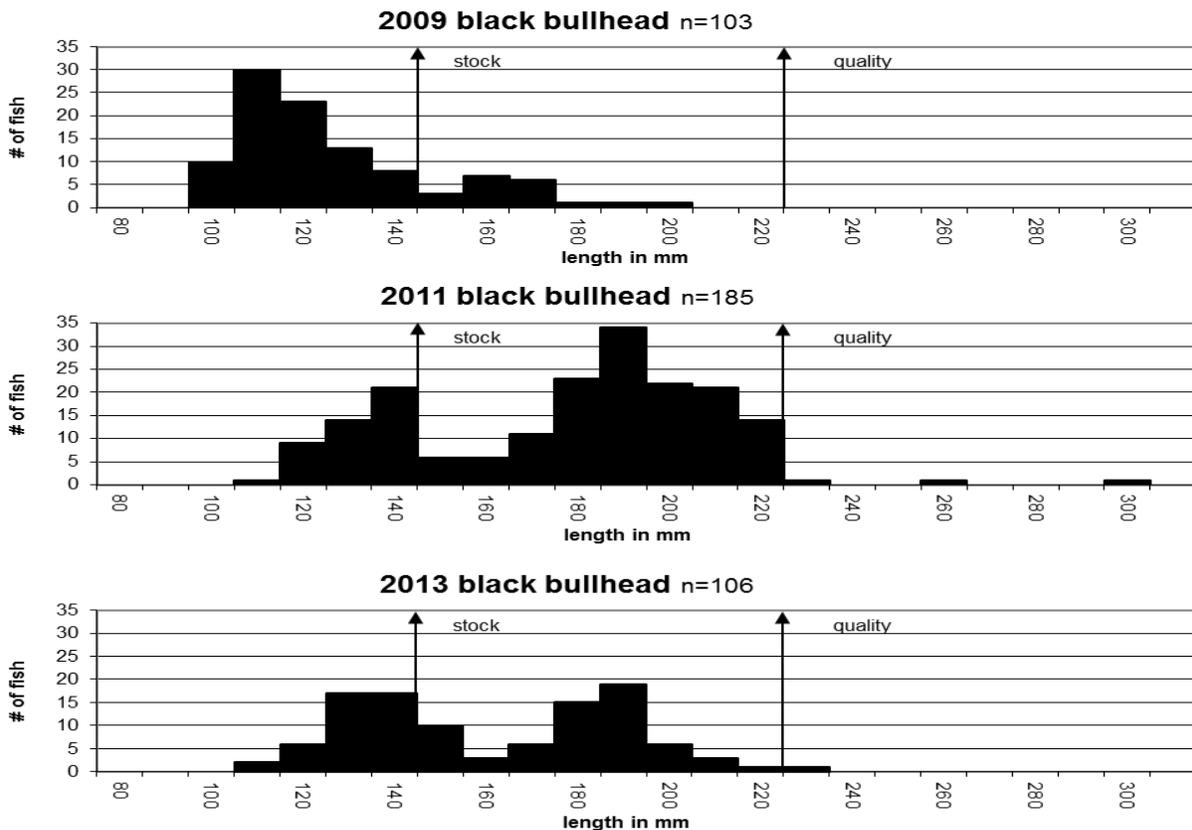


Figure 2. Length frequencies of Black Bullhead from trap nets at Little White River Project, 2009, 2011, 2013.

Black Crappie

In the spring of 2008, 385 adult prespawn Black Crappie were stocked to re-establish the species after the lake refilled. CPUE during the 2009 trap net survey was 2.8. The 2011 density had increased to a CPUE of 12.0 and this year continued to increase with a CPUE of 17.3, indicating good recruitment (Table 2). Size structure indicates a balanced population with a PSD of 53 and a PSD-P of 4. The length frequency also resembles a balanced population with good recruitment (Figure 3).

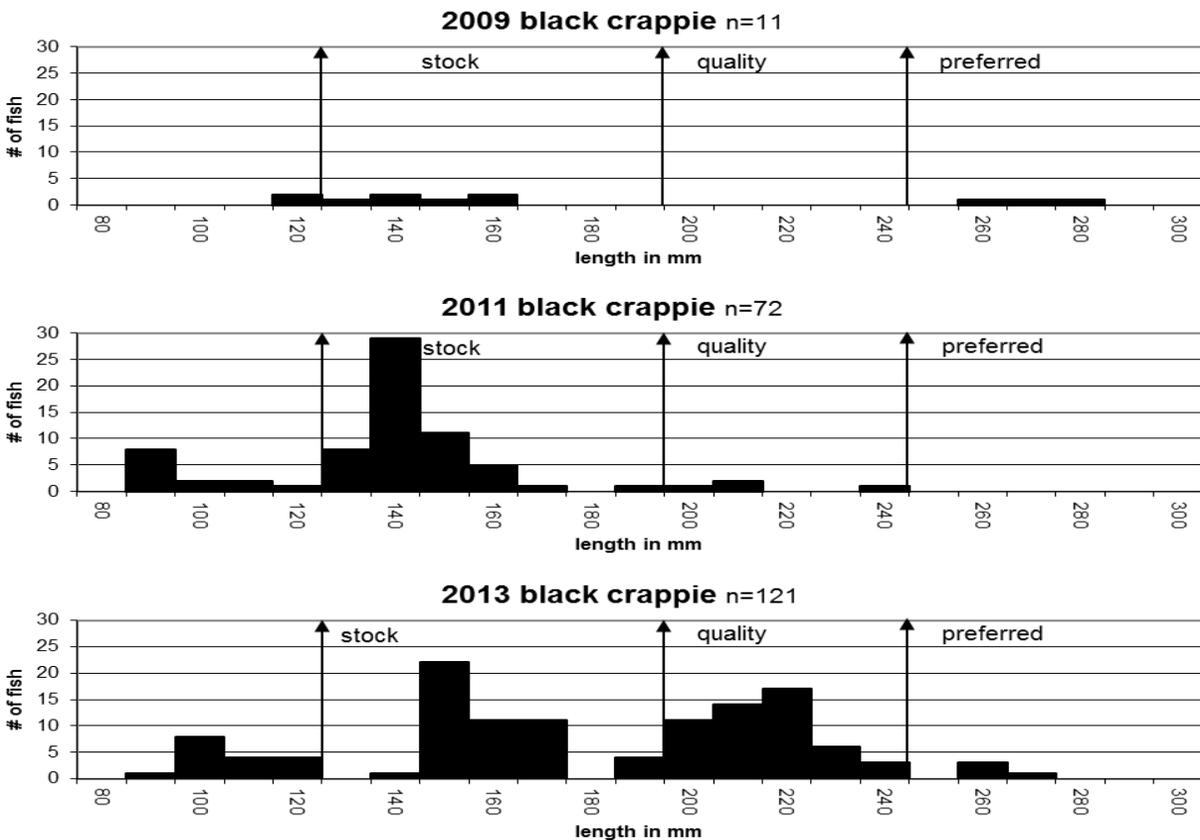


Figure 3. Length frequencies of Black Crappie from trap nets at Little White River Project 2009, 2011, 2013.

Northern Pike

Northern Pike density remains similar to the 2011 survey when trap net CPUE was 1.3. This survey trap net CPUE was 2.9 (Table 2). Stock density was high with a PSD of 85 and a PSD-P of 50. Six of the 20 fish sampled were over the memorable length of 860 mm (34 inches) (Figure 4).

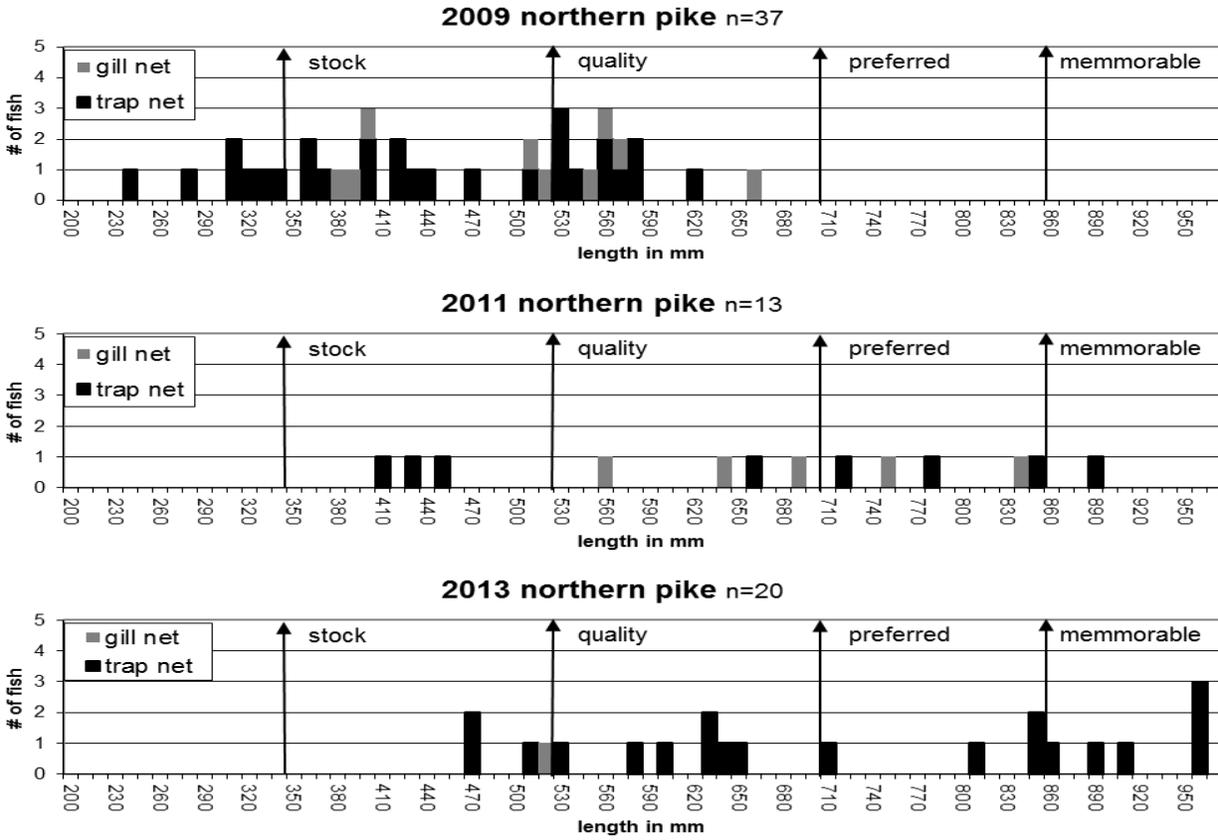


Figure 4. Length frequencies of Northern Pike from trap nets and gill nets at Little White River Project, July 13-14, 2009.

Walleye

Twenty thousand eight hundred small Walleye fingerlings were stocked in the spring of 2008. In 2009, these fish showed up in gill nets and CPUE was 3.0, but none were caught in trap nets. The 2011 survey also had a gill net CPUE of 3.0. This year the gill net CPUE was down to 2.0 (Table 3). The length frequency graph shows fish from possibly three different year classes (Figure 5).

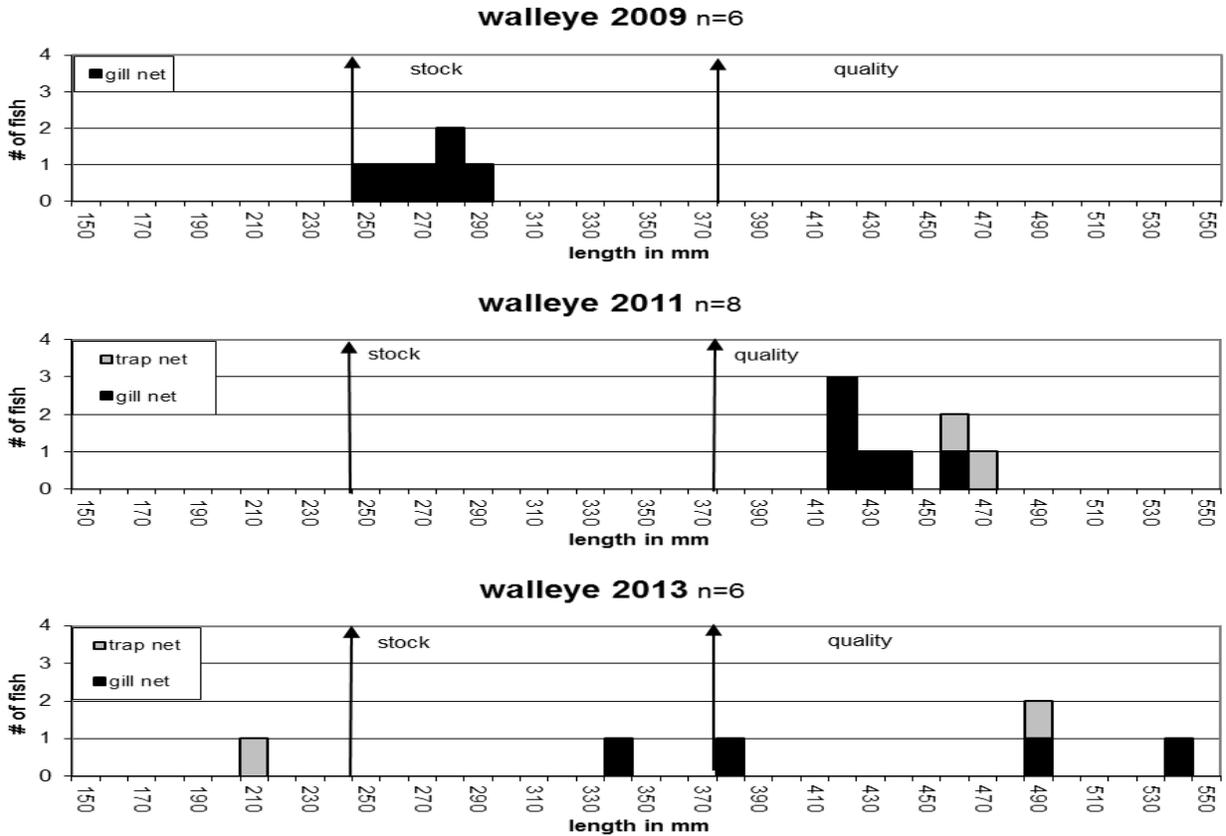


Figure 5. Length frequency histogram for Walleye from gill nets at Little White River Project, in 2009 and gill nets and trap nets in 2011 and 2013.

RECOMMENDATIONS

1. Double the stocking rate of small Walleye fingerlings in LWRP.
2. Keep stocking adult Gizzard Shad as a forage species for Walleye and other game fish in Little White River Project.

APPENDIX

Appendix A. Stocking record for Little White River Project, Bennett County, 1998-2013.

Year	Number	Species	Size
1998	20,000	Saugeye	Fingerling
2001	25,000	Saugeye	Fingerling
2002	22,989	Walleye	Fingerling
2003	20,540	Walleye	Fingerling
2004	334	Northern Pike	Adult
2008	800	Channel Catfish	Adult
	1,710	Yellow Perch	Adult
	385	Black Crappie	Adult
	420,000	Northern Pike	Fry
	20,800	Walleye	Fingerling
	3,000	Largemouth Bass	Fingerling
2009	20,000	Largemouth Bass	Fingerling
2012	25	Gizzard Shad	Adult
	20,304	Walleye	Fingerling
	4,500	Largemouth Bass	Fingerling
2013	32	Gizzard Shad	Adult