

# Complete Report

## Results of Lake Assessment in the Lansing Lake Unit, Navigation Pool 9 of the upper Mississippi River, Fall 2009.

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### Purpose

The purpose of this work is to monitor the fall population length frequency and catch per unit effort of sunfishes, yellow perch and crappies in parts of Navigation Pool 9 of the upper Mississippi River. A secondary purpose is to estimate length and size distributions of other game fishes caught incidentally.

### Methods

The Lansing (LS) Lake Unit is located in Navigation Pool 9 of the upper Mississippi River (Figure 1). The lake unit has a total water surface area of 4424 acres.

Standard Upper Mississippi River Conservation Committee (UMRCC) fyke nets were set by fisheries personnel. These fyke nets had a 50ft floating lead line, 3ft high and 6ft wide frame, and had a 0.75 inch bar mesh. Nets were set at locations thought likely to catch centrarchids and other fishes typical of backwaters from September 15 through September 18, 2009 (Figure 2). A total of 12 locations were chosen, with 1 fyke net at each. These nets fished a total of 33.37 net-days and were emptied every day during which all fish were removed.

In addition to fyke netting, an 18 foot-long welded aluminum flat-bottomed maxi-boom electro shocking boat equipped with a Wisconsin Box was used on approximately 10 minute day-time runs. Two booms extended 8 feet from the bow and the box controls were adjusted to produce 16 amps. A total of 33 runs were done during 5.511 hours of sampling (Figure 3 and Table 1) during four days from October 7 through October 9, 2009. For both gears, all fish were counted, identified to species, measured by total length and returned to the river.

We calculated Proportional Size Structures for selected quality (PSS<sub>Q</sub>) and preferred (PSS<sub>P</sub>) game fishes as well as catch per effort for these size categories. Because our fyke nets had bar mesh greater than 0.5 inches, we calculated PSS<sub>Q</sub> and PSS<sub>P</sub> for bluegill and pumpkinseed using a four-inch stock size rather a three-inch stock size and then converted these two metrics to three-inch PSS using the following formulas (Wisconsin Department of Natural Resources, 2010):

$$PSS_{Q3} = -4.10 + 0.97 (PSS_{Q4})$$

$$PSS_{P3} = -0.41 + 0.76 (PSS_{P4}).$$

Statistical tests were done using SAS® (2002-2003) software for Windows version 9.13 and were done at the alpha=0.05 level.

### Findings

The mean daily ambient water temperatures during 2009 sampling was 17.8°C and generally declined over the six days of sampling (Table 2). During sampling, the water surface elevation measured at the Lansing gage changed as much as 0.36 feet. The mean daily flow in cubic feet per second taken from Lock and Dam 9 was 17275 and fluctuated as much as 12900 cubic feet per second. Flows and elevations were higher during electro shocking than fyke netting.

### **Fyke Netting Catch Per Effort**

A total of 21 fish species were recorded from 511 fish captured in fyke nets (Table 3). The most common was bluegill followed by black crappie, northern pike and freshwater drum. Mean catch per net-day for these four fishes was 8.14, 2.59, 0.65 and 0.64, respectively. The mean catch per net-day for all species combined was 15.36 (standard deviation = 14.74, n=33).

### **Electro Shocking Catch Per Effort**

A total of 28 fishes were recorded from 1108 fish captured during electro shocking (Table 4). The most common was largemouth bass followed by bluegill, yellow perch, and bowfin. Mean catch per hour for these four fishes was 80.75, 37.56, 19.42, and 10.52, respectively. The mean catch per hour for all species combined was 201.05 (standard deviation = 132.92, n=33).

### **Length Distribution from Fyke Netting**

The frequency distribution of total length in inches for black crappie and bluegill from fyke nets are given in Figures 4 and 5. The mean lengths of measured fishes are given in Table 5. A total of 56.47 percent of the black crappies were greater than 9 inches. For bluegill, a total of 3.70 percent was greater than 7 inches.

We also calculated Proportional Size Structures (PSS) for fish (Guy, et al., 2006) using values from (Gabelhouse, 1984) (Table 6). The PSS<sub>Q</sub> and PSS<sub>P</sub> by species are presented in Table 7. The “acceptable” value of PSS<sub>Q</sub> for bluegill is 40 to 60 and is 40 for crappies (Wisconsin Department of Natural Resources, 2010). Black crappie PSS<sub>Q</sub> from the fall 2009 LS fyke netting data was 70.3, well above the state level for “acceptable”. For bluegill the PSS<sub>Q</sub> was 26.3, below the “acceptable” level. The “acceptable” value of PSS<sub>P</sub> for bluegill and crappies is 5. Black crappies greatly exceeded this (45.5), but bluegills (1.9) did not. This suggests that black crappie population size structure during fall 2009 sampling at LA is beyond “acceptable”, but standards for bluegill were not.

### **Length Distribution from Electro Shocking**

The frequency distribution for total length in inches for bluegill, bowfin, common shiner, emerald shiner, largemouth bass, northern pike, shorthead redhorse, spottail shiner and yellow perch are given in Figures 6 to 14. The mean lengths of fishes measured are given in Table 8. A total of 4.35 percent of the bluegills were greater than 7 inches. A total of 9.21 percent of the largemouth bass were larger than 14 inches. A total of 32.56 percent of northern pike were greater than 21 inches, while 10.28 percent of yellow perch were larger than 8 inches.

The PSS<sub>Q</sub> and PSS<sub>P</sub> for electro shocked species are presented in Table 9. PSS<sub>Q</sub> for bluegill (24.0) was below “acceptable” (40-60) and was 83.9 for largemouth bass. Bluegills (0.8) were below the “acceptable” standard for preferred fish (5.0). This suggests that electro shocked bluegills did not meet “acceptable” state standards for quality and preferred fish.

### **Comparisons with Other Lake Units and Time Periods, Fyke Netting**

Fyke netting data from the LS Lake Unit was compared to 15 other upper Mississippi River lake units sampled in the fall of 2007-2009 (Figure 1). Catch per net-day for all fish combined was greatest in Harpers (77.38) (Table 10) and LS (15.36) was different from Harpers, Goose Island/Stoddard, Cold Springs, Blackhawk, Ronkoski Slough, Sny McGil and Upper Pool 5 (about 51.0), but was the same as the remaining nine. Similarly, we tested mean catch per day for all fish combined among all four 2009 lake units and found no difference.

Catch per net-day for selected target species combined is presented in Table 11. Target species included black crappie, bluegill, largemouth bass, northern pike, smallmouth bass, pumpkinseed, white crappie, rock bass and yellow perch. For these species combined, LS (12.52 fish per day) differed only from Goose Island/Stoddard, Harpers and Cold Springs, Blackhawk, Ronkoski Slough (about 36.4) and was the same as the 12 remaining lake units (about 21.4). Similarly, we tested mean catch per day for target fish combined among

all four 2009 lake units and found LS was different from Bertom/McCartney (5.72 fish per day) and was not different from Lawrence/Target and Upper Pool 6 (Table 12).

We compared mean total length of selected individual species caught with fyke nets among three other lake units sampled in 2009 (Table 13). LS black crappie (9.03 inches) were about the same size as Upper Pool 6, but larger than those from Bertom/McCartney Area and Lawrence/Target (about 7.2 inches). LS bluegills (4.62 inches) were smaller than those from Upper Pool 6 but were the same as the remaining two lake units. Mean length of LS yellow perch (8.41 inches) were at least one inch larger than Upper Pool 6 and Lawrence/Target.

### **Comparisons with Other Lake Units, Electro Shocking**

Electro shocking data from the LS Lake Unit was compared to 15 other upper Mississippi River lake units sampled in the fall of 2007-2009. Catch per hour for all target fish combined was the same in LS (149.88) as all other lake units (Table 14).

We compared mean total length of individual species caught with electro shocking among 2009 lake units (Table 15). Mean total length of LS black crappie (6.57 inches) differed only from Bertom/McCartney Area (8.94 inches). Mean total length of LS bluegills (4.34 inches) was smaller than all three other lake units (about 4.9 inches). Largemouth bass from LS (7.15 inches) were smaller than Bertom/McCartney Area (9.04) and Upper Pool 6 (9.15) lake units and the same as Lawrence/Target. Northern pike (15.89 inches) were the same as all other lake units. LS yellow perch (5.00) were smaller than those from Upper Pool 6 (5.77 inches) and larger than those from the Bertom/McCartney area (4.25 inches).

### **Conclusions**

The LS Lake Unit appears generally similar in catch rates to the other three Mississippi River lake units surveyed during the fall of 2009. Fyke net target species and all species combined catch rates were average compared to other lake units sampled since 2007. Similarly, the electro shocking catch rate of target species combined from the LS Lake Unit was similar to other lake units.

Fyke netted and electro shocked LS Lake Unit black crappies were generally larger than ones from the other 2009 lake units. Crappies also exceeded recommended Proportional Size Structures. On the other hand, electro shocked bluegills were smaller and netted bluegills were about the same as other lake units sampled in 2009. Also, all bluegill Proportional Size Structures were below the recommended standards.

In Navigation Pool 9 of the Mississippi River bordering Iowa, Wisconsin and Iowa fishing regulations limit harvest to 25 of each of yellow perch, rock bass and crappie. Bluegill and pumpkinseed are limited to 25 in total. White bass and yellow bass are also restricted to 25 in total. All these fishes have continuous open seasons.

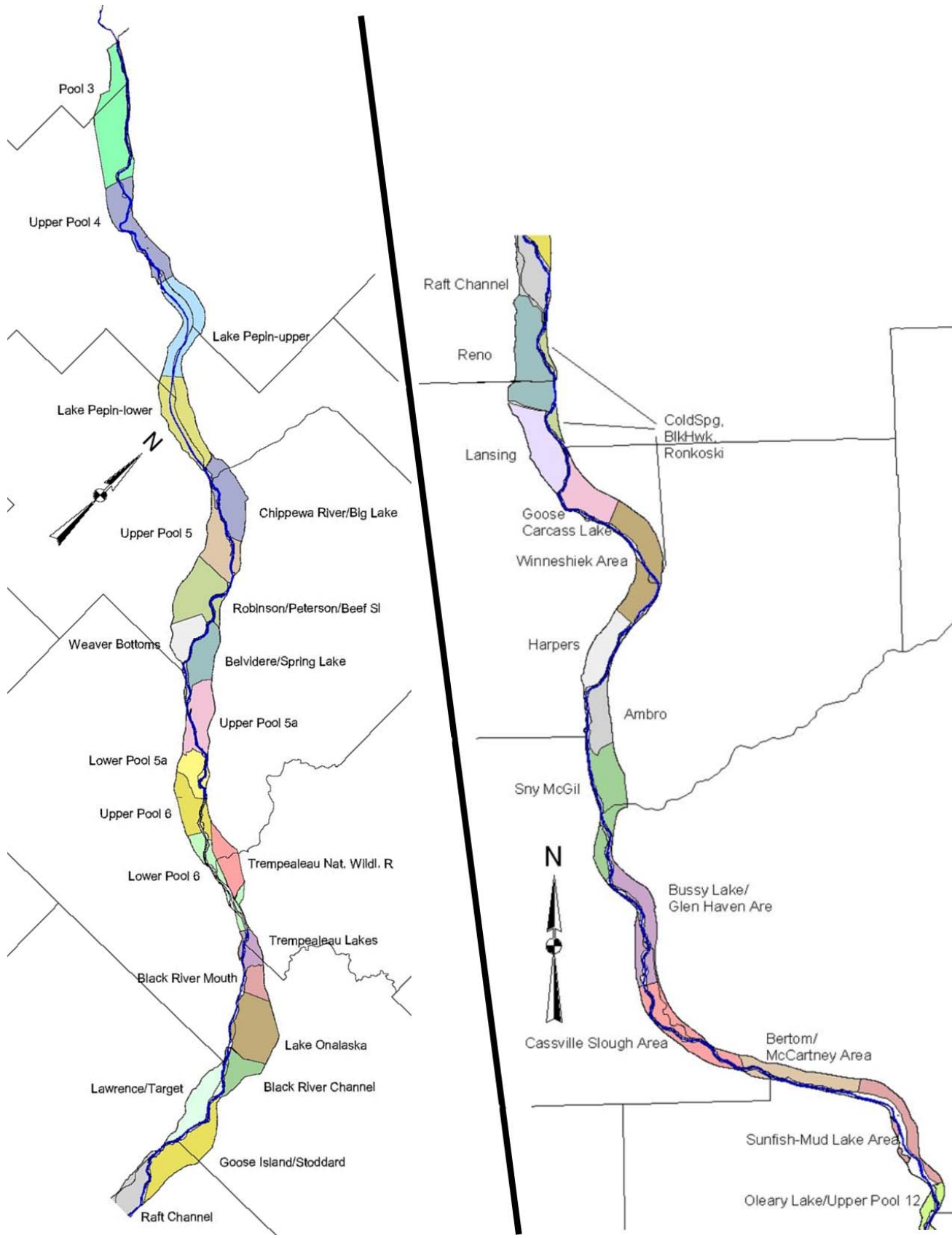
### **Recommendations**

1. Continue to monitoring backwater fishes in Pool 9 and other pools.
2. Using additional data explore any longitudinal trends in mean total length or catch per effort along the Mississippi River bordering Wisconsin.

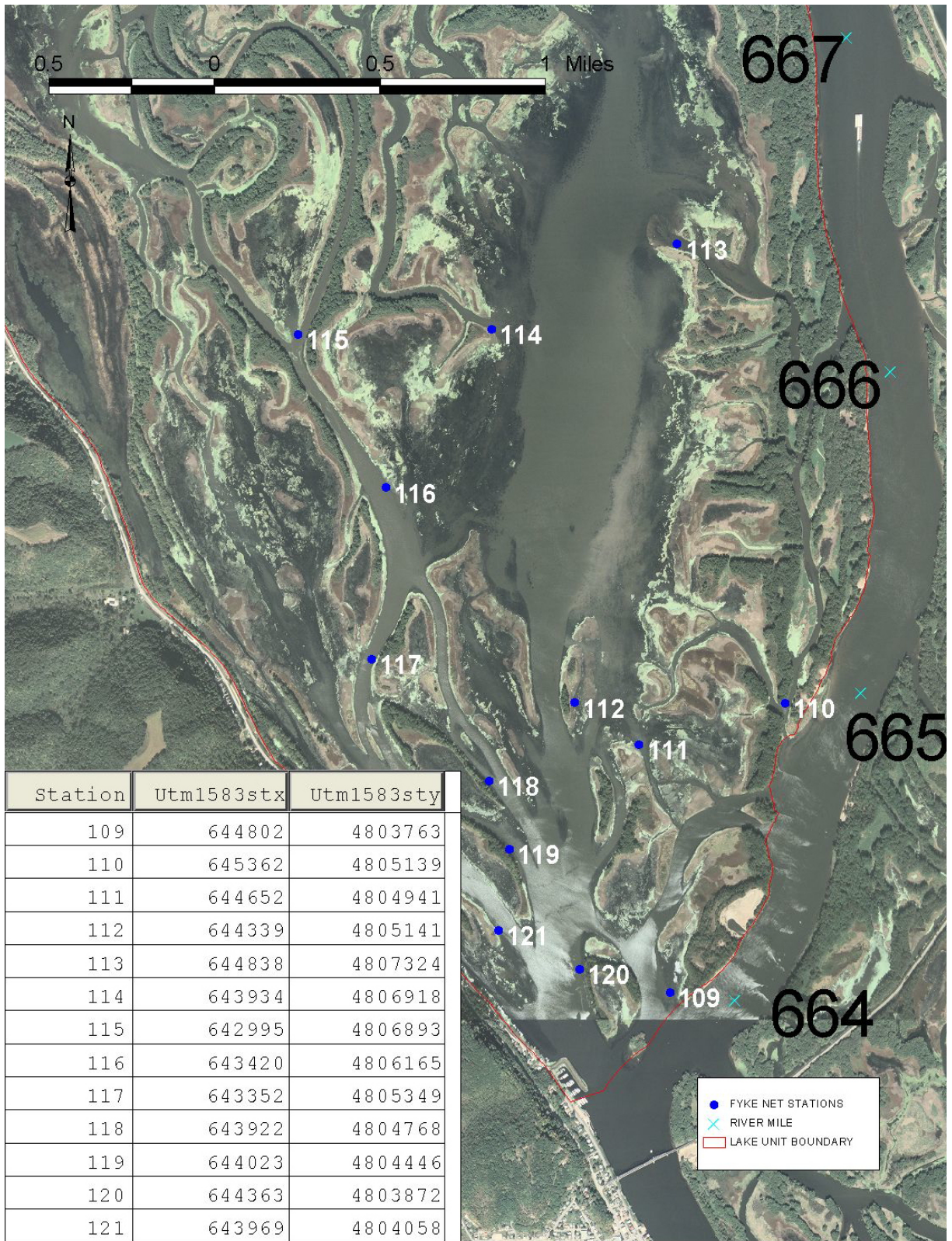
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- Guy, Christopher S., Robert M. Neumann and David W. Willis. 2006. New Terminology for Proportional Stock Density (PSD) and Relative Stock Density (RSD): Proportional Size Structure (PSS). *Opinion: Fisheries Forum. Fisheries* 31(2): 86-87.
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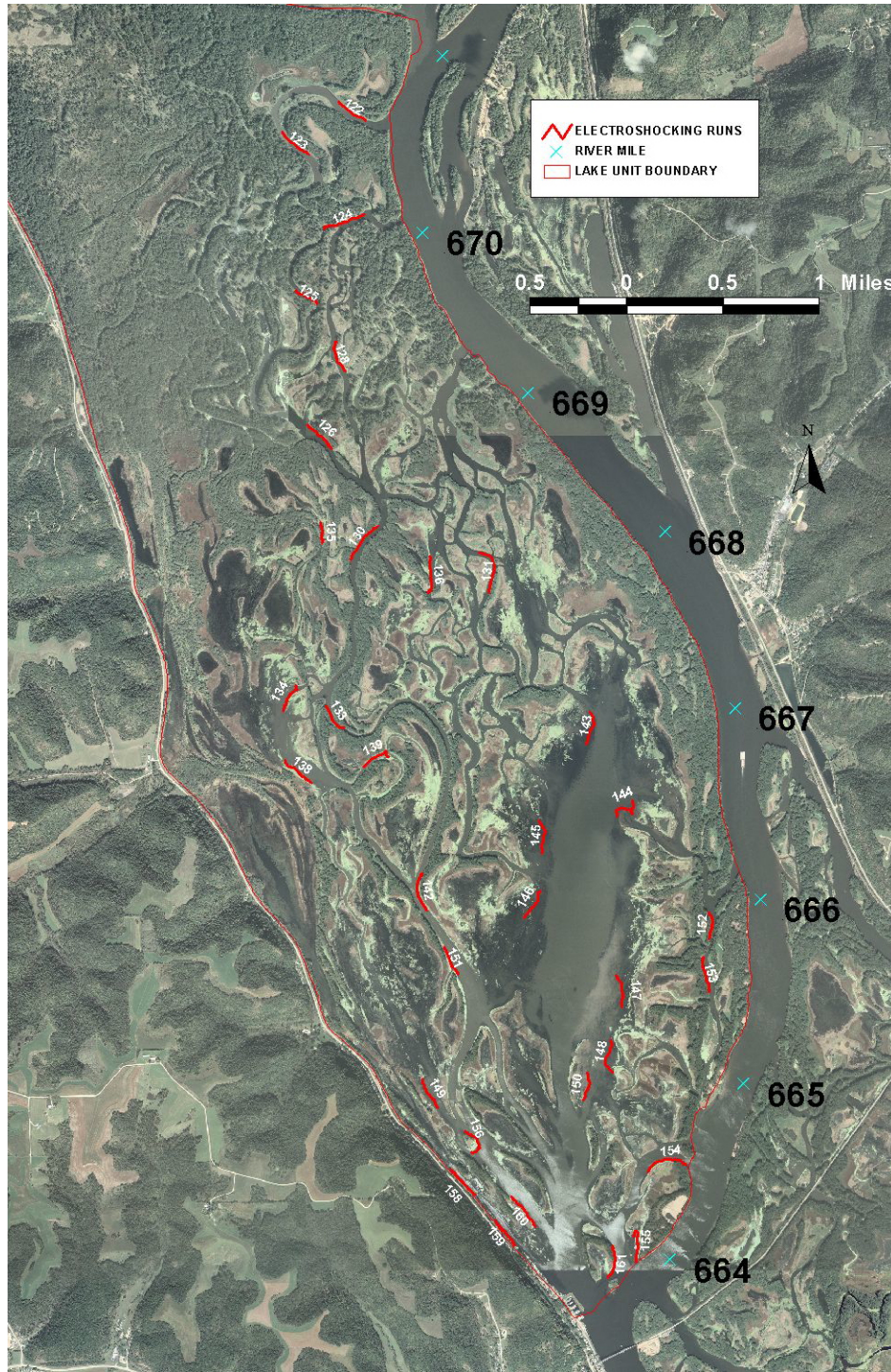
**FIGURE 1. LOCATION OF 34 WDNR LAKE UNITS, UPPER MISSISSIPPI RIVER.**  
 (based on 1989 Long Term Resource Monitoring Program Land/Water and Aquatic Area Coverage)



**FIGURE 2. FALL 2009 FYKE NET LOCATIONS, LANSING LAKE UNIT. (2009 NAIP PHOTO).**



**FIGURE 3. FALL 2009 ELECTROSHOCKING RUNS, LANSING LAKE UNIT. (2009 NAIP Photo).**



**TABLE 1. ELECTRO SHOCKING STATION LOCATIONS AND LENGTH (M), FALL 2009  
LANSING LAKE UNIT.**

<b>Station</b>	<b>LENGTH</b>	<b>Utm15stx</b>	<b>Utm15sty</b>	<b>Utm15edx</b>	<b>Utm15edy</b>
122	287	642580	4813187	642355	4813351
123	296	641887	4813097	642108	4812911
124	373	642568	4812408	642234	4812290
125	269	641998	4811785	642179	4811667
126	300	642096	4810663	642296	4810466
128	306	642335	4811359	642407	4811112
130	393	642680	4809824	642458	4809542
131	419	643523	4809599	643607	4809272
133	273	642253	4808329	642399	4808139
134	270	641994	4808492	641894	4808285
135	208	642204	4809854	642215	4809683
136	318	643118	4809568	643104	4809267
138	318	641909	4807876	642132	4807686
139	300	642566	4807822	642773	4807903
142	353	643053	4806939	643095	4806628
143	297	644450	4808277	644420	4808012
144	338	644807	4807545	644673	4807408
145	300	644022	4807375	644050	4807101
146	277	644035	4806787	643902	4806573
147	283	644668	4806087	644716	4805823
148	316	644624	4805552	644635	4805281
149	279	643052	4805224	643180	4804992
150	243	644424	4805275	644398	4805052
151	289	643233	4806324	643349	4806097
152	275	645440	4806611	645442	4806391
153	311	645395	4806241	645448	4805951
154	392	645252	4804511	644929	4804454
155	332	644833	4803707	644812	4803918
156	280	643413	4804792	643463	4804616
158	299	643292	4804467	643497	4804264
159	269	643658	4804050	643823	4803846
160	331	643797	4804250	643991	4803999
161	288	644639	4803837	644596	4803574



**TABLE 2. MEAN TEMPERATURE, WATER SURFACE ELEVATION AND FLOW DURING FALL 2009 LANSING LAKE UNIT SAMPLING.**

<b>DATE</b>	<b>MEAN DAILY TEMPERA- TURE °C</b>	<b>WATER SURFACE ELEVATION (ft), DAM 7 POOL</b>	<b>FLOW (cfs) DAM 7</b>
09/16/2009	23.2	620.15	11200
09/17/2009	23.1	620.14	11200
09/18/2009	22.6	620.13	11200
10/07/2009	13.0	620.49	23600
10/08/2009	12.0	620.43	24100
10/09/2009	11.4	620.37	24100
<b>MEAN (by date, station)</b>	17.8	620.28	17275

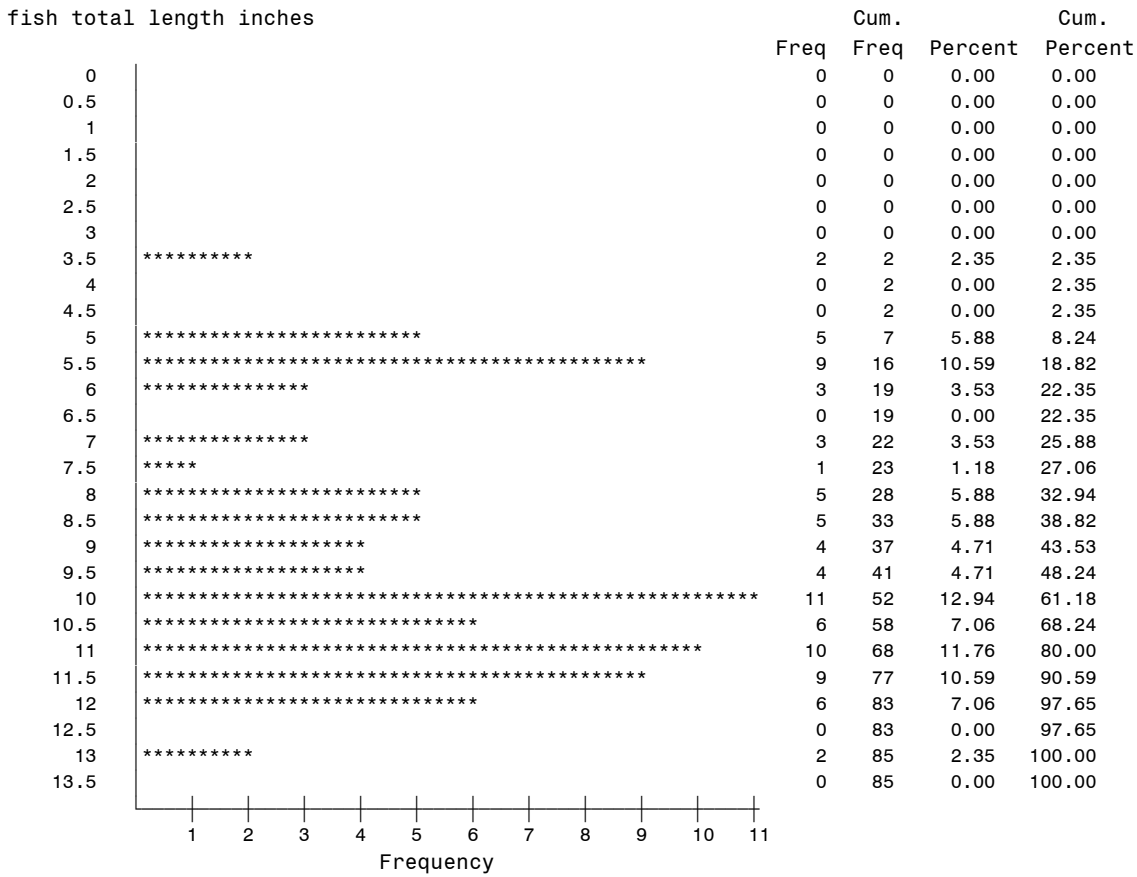
**TABLE 3. RELATIVE ABUNDANCE, MEAN CATCH PER NET-DAY, FYKE NETS, FALL 2009, LANSING LAKE UNIT.**

	<b>SPECIES</b>	<b>FREQUENCY</b>	<b>PERCENT</b>	<b>MEAN</b>	<b>STANDARD DEV.</b>	<b>MIN.</b>	<b>MAX.</b>	<b>NET-DAYS</b>
<b>1</b>	black crappie	85	16.63	2.59	3.57	0.00	17.58	33.367
<b>2</b>	bluegill	270	52.84	8.14	12.51	0.00	57.59	33.367
<b>3</b>	bowfin	6	1.17	0.18	0.49	0.00	2.20	33.367
<b>4</b>	common carp	11	2.15	0.33	0.75	0.00	3.12	33.367
<b>5</b>	freshwater drum	22	4.31	0.64	1.49	0.00	7.09	33.367
<b>6</b>	gizzard shad	3	0.59	0.09	0.41	0.00	2.21	33.367
<b>7</b>	golden shiner	15	2.94	0.45	0.98	0.00	4.22	33.367
<b>8</b>	largemouth bass	2	0.39	0.05	0.22	0.00	0.94	33.367
<b>9</b>	longnose gar	5	0.98	0.15	0.46	0.00	2.21	33.367
<b>10</b>	northern pike	22	4.31	0.65	0.96	0.00	3.74	33.367
<b>11</b>	pumpkinseed	16	3.13	0.47	1.19	0.00	5.17	33.367
<b>12</b>	rock bass	2	0.39	0.06	0.25	0.00	1.10	33.367
<b>13</b>	sauger	4	0.78	0.13	0.59	0.00	3.30	33.367
<b>14</b>	shorthead redhorse	7	1.37	0.20	0.57	0.00	2.79	33.367
<b>15</b>	shortnose gar	12	2.35	0.37	1.17	0.00	5.50	33.367
<b>16</b>	silver redhorse	1	0.2	0.03	0.16	0.00	0.94	33.367
<b>17</b>	spotted sucker	3	0.59	0.09	0.37	0.00	1.96	33.367
<b>18</b>	walleye	3	0.59	0.09	0.29	0.00	1.10	33.367
<b>19</b>	warmouth	2	0.39	0.06	0.24	0.00	1.05	33.367
<b>20</b>	white bass	1	0.2	0.03	0.16	0.00	0.94	33.367
<b>21</b>	yellow perch	19	3.72	0.56	0.97	0.00	3.31	33.367
	<b>ALL SPECIES</b>	511	100.02	15.36	14.74	1.04	64.92	33.367

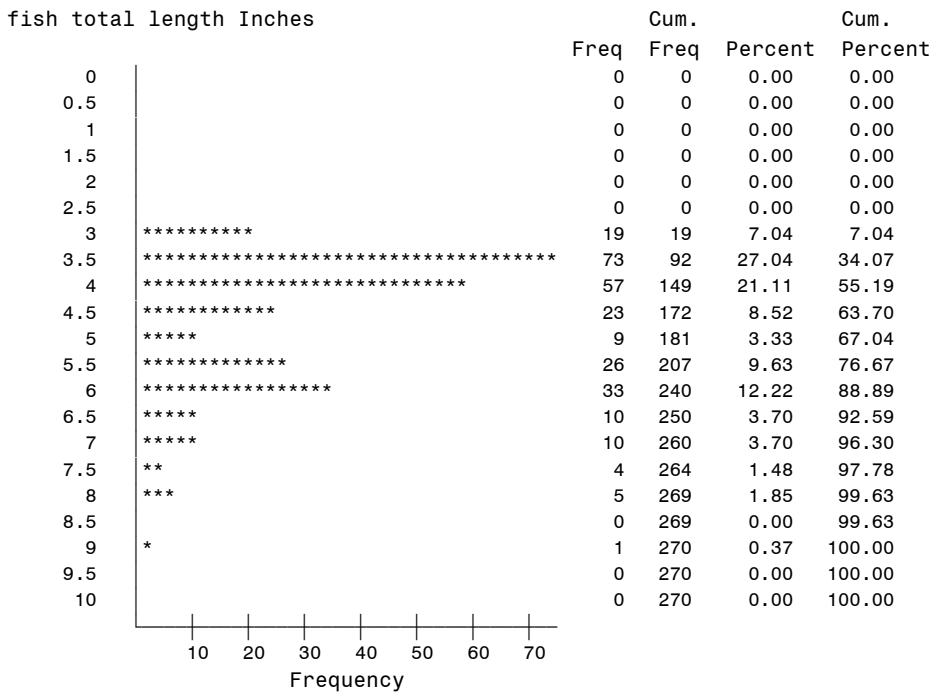
**TABLE 4. RELATIVE ABUNDANCE, MEAN CATCH PER HOUR, ELECTRO SHOCKING, FALL 2009, LS LAKE UNIT.**

	SPECIES	FREQ.	PERCENT	MEAN PER HR	STANDARD DEV.	MIN.	MAX.	NO. OF RUNS	TOTAL HRS
1	black crappie	10	0.9	1.82	3.51	0.00	11.98	33	5.511
2	bluegill	207	18.68	37.56	46.97	0.00	173.65	33	5.511
3	bowfin	58	5.23	10.52	21.59	0.00	107.78	33	5.511
4	brook silverside	1	0.09	0.18	1.04	0.00	5.99	33	5.511
5	brown bullhead	1	0.09	0.18	1.04	0.00	5.99	33	5.511
6	channel catfish	5	0.45	0.91	2.18	0.00	5.99	33	5.511
7	common carp	23	2.08	4.17	20.88	0.00	119.76	33	5.511
8	common shiner	21	1.9	3.81	11.87	0.00	59.88	33	5.511
9	emerald shiner	23	2.08	4.17	8.40	0.00	35.93	33	5.511
10	freshwater drum	12	1.08	2.18	5.95	0.00	23.95	33	5.511
11	gizzard shad	14	1.26	2.54	11.60	0.00	65.87	33	5.511
12	golden redhorse	6	0.54	1.09	3.16	0.00	11.98	33	5.511
13	golden shiner	1	0.09	0.18	1.04	0.00	5.99	33	5.511
14	largemouth bass	445	40.16	80.75	85.08	5.99	407.19	33	5.511
15	logperch	6	0.54	1.09	4.35	0.00	23.95	33	5.511
16	northern pike	43	3.88	7.80	7.41	0.00	23.95	33	5.511
17	quillback	1	0.09	0.18	1.04	0.00	5.99	33	5.511
18	rock bass	4	0.36	0.73	1.99	0.00	5.99	33	5.511
19	sauger	13	1.17	2.36	3.94	0.00	11.98	33	5.511
20	shiners m20-29 m31-33 m35-40	3	0.27	0.54	3.13	0.00	17.96	33	5.511
21	shorthead redhorse	57	5.14	10.34	20.32	0.00	89.82	33	5.511
22	silver redhorse	4	0.36	0.73	2.49	0.00	11.98	33	5.511
23	smallmouth bass	10	0.9	1.82	4.36	0.00	17.96	33	5.511
24	spottail shiner	22	1.99	3.99	9.89	0.00	41.92	33	5.511
25	spotted sucker	8	0.72	1.45	3.68	0.00	17.96	33	5.511
26	walleye	2	0.18	0.36	1.45	0.00	5.99	33	5.511
27	warmouth	1	0.09	0.18	1.04	0.00	5.99	33	5.511
28	yellow perch	107	9.66	19.42	23.19	0.00	119.76	33	5.511
	<b>ALL SPECIES</b>	<b>1108</b>	<b>99.98</b>	<b>201.05</b>	<b>132.92</b>	<b>47.90</b>	<b>640.72</b>	<b>33</b>	<b>5.511</b>

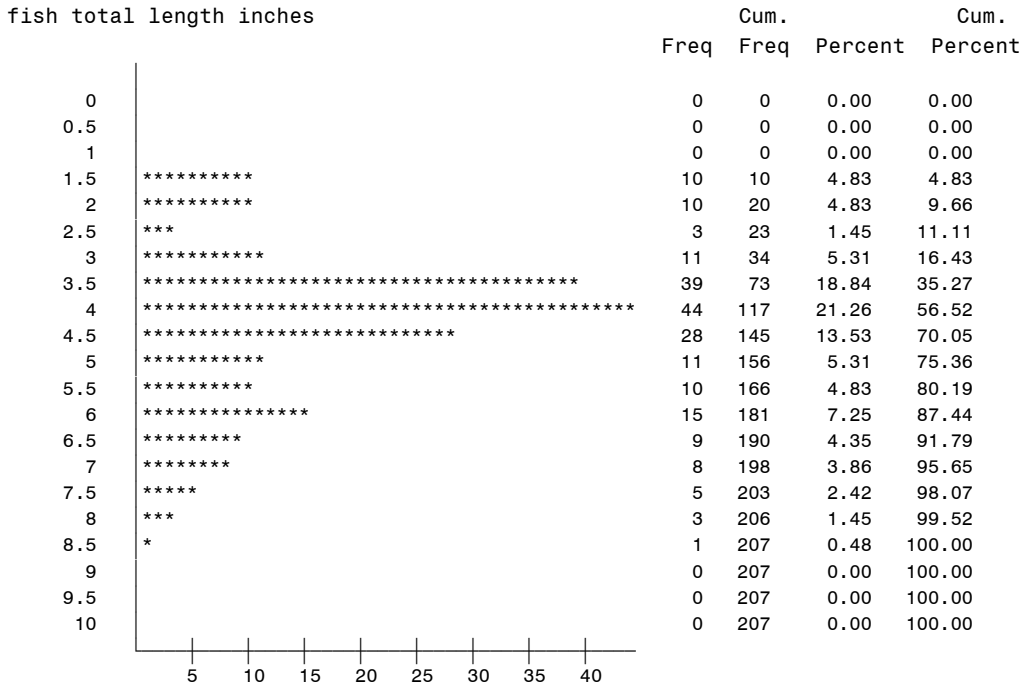
**FIGURE 4. FALL 2009 BLACK CRAPPIE LENGTH DISTRIBUTION (INCHES), LANSING LAKE UNIT FYKE NETTING.**



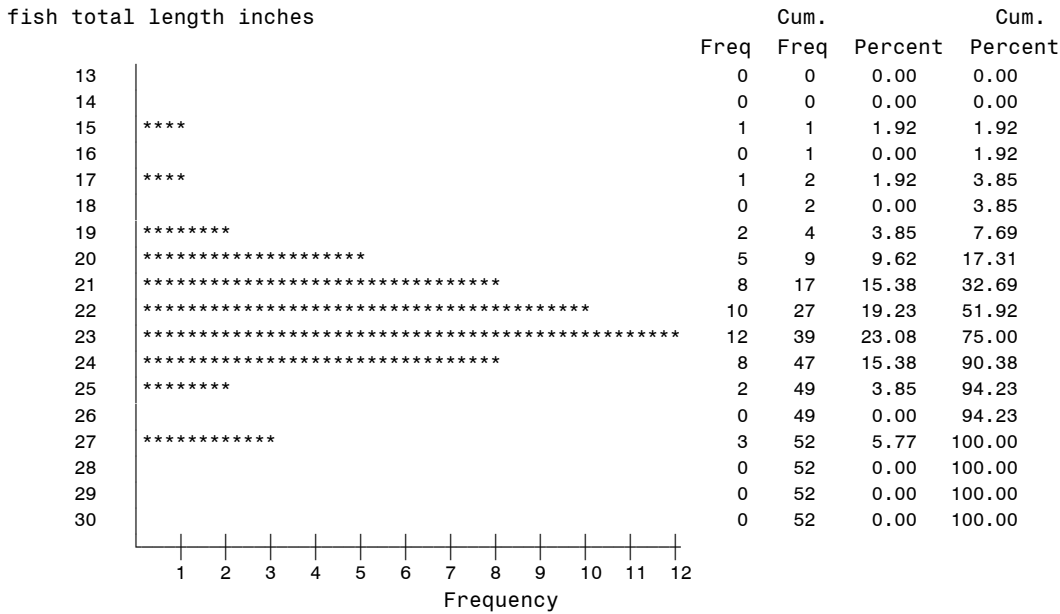
**FIGURE 5. FALL 2009 BLUEGILL LENGTH DISTRIBUTION (INCHES), LANSING LAKE UNIT FYKE NETTING.**



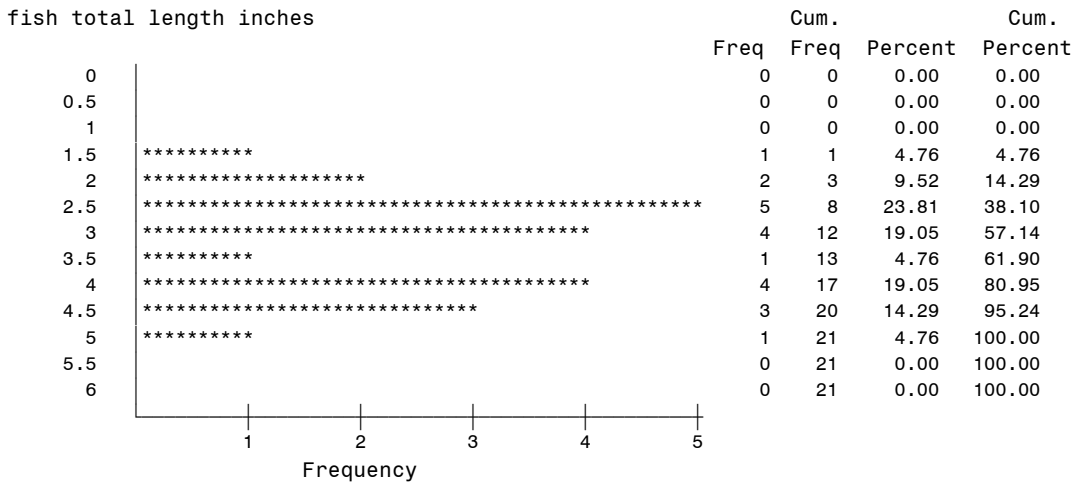
**FIGURE 6. FALL 2009 BLUEGILL LENGTH DISTRIBUTION (INCHES), LANSING LAKE UNIT ELECTRO SHOCKING.**



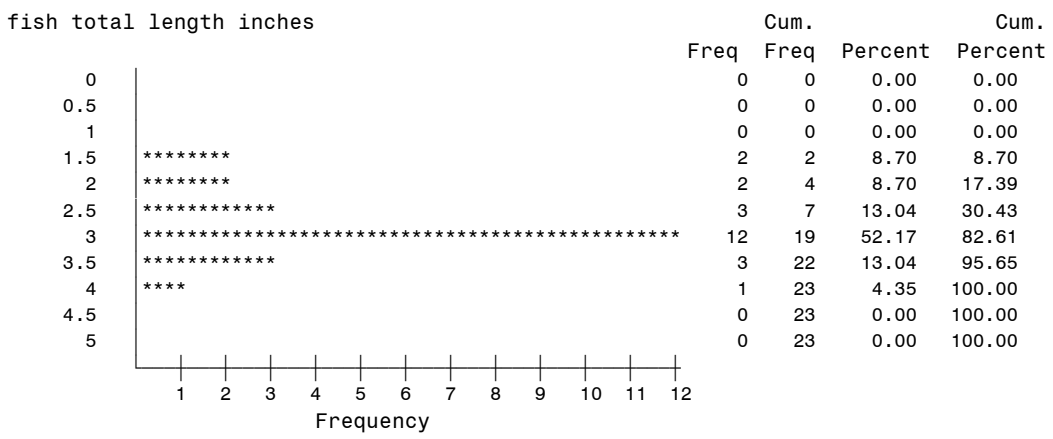
**FIGURE 7. FALL 2009 BOWFIN LENGTH DISTRIBUTION (INCHES), LANSING LAKE UNIT ELECTRO SHOCKING.**



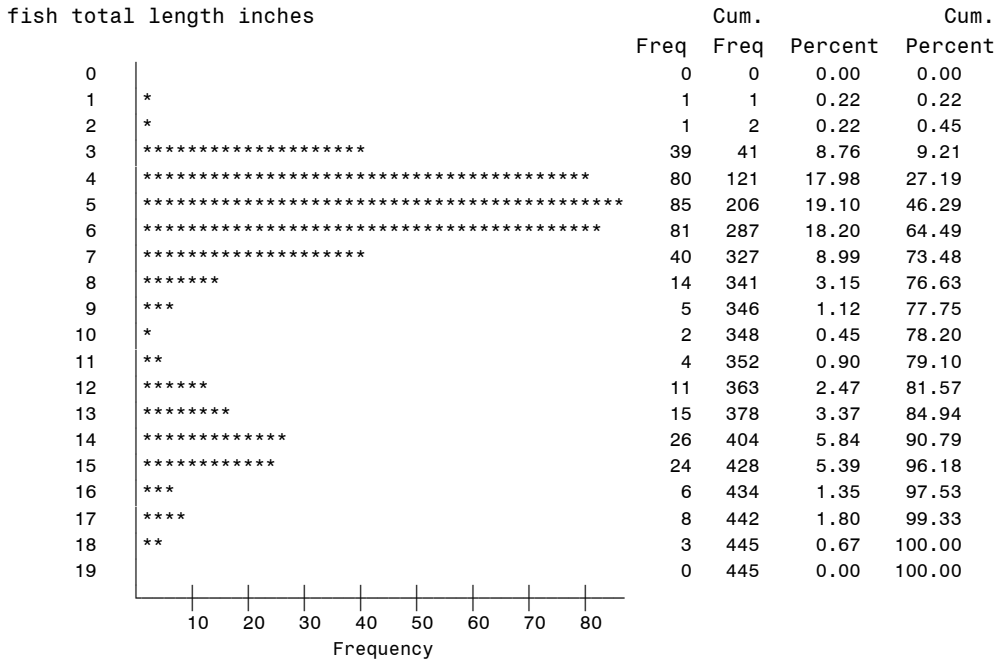
**FIGURE 8. FALL 2009 COMMON SHINER LENGTH DISTRIBUTION (INCHES), LANSING LAKE UNIT ELECTRO SHOCKING.**



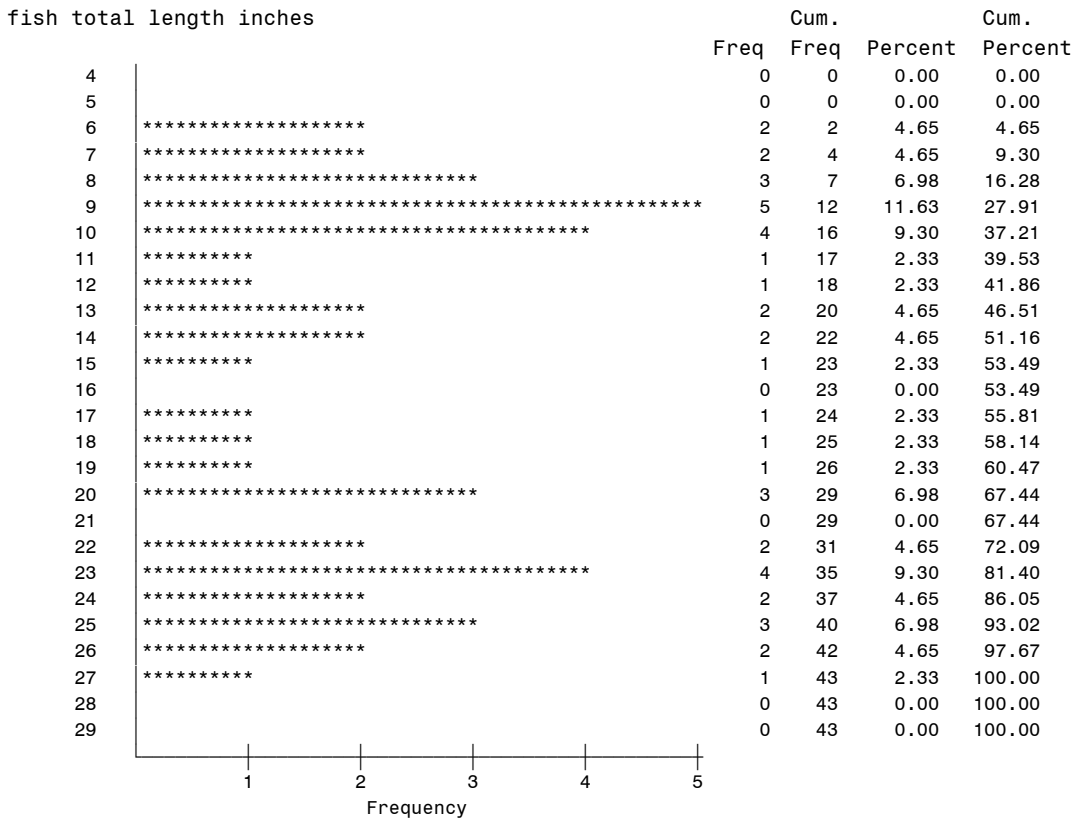
**FIGURE 9. FALL 2009 EMERALD SHINER LENGTH DISTRIBUTION (INCHES), LANSING LAKE UNIT ELECTRO SHOCKING.**



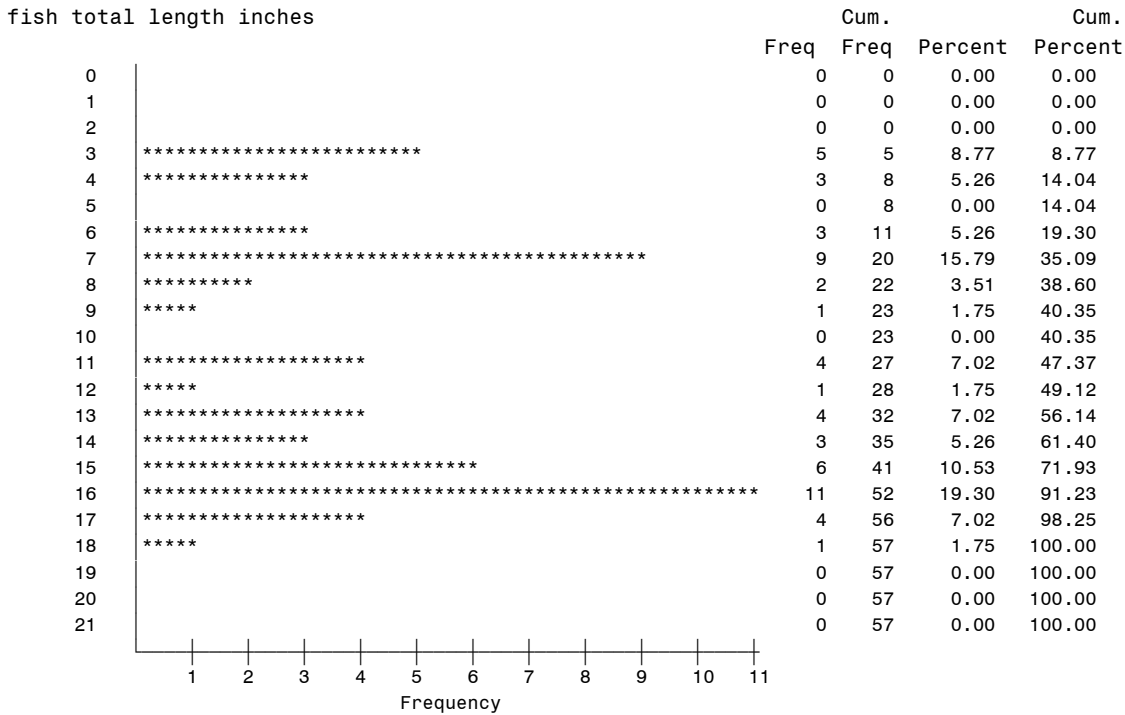
**FIGURE 10. FALL 2009 LARGEMOUTH BASS LENGTH DISTRIBUTION (INCHES), LANSING LAKE UNIT ELECTRO SHOCKING.**



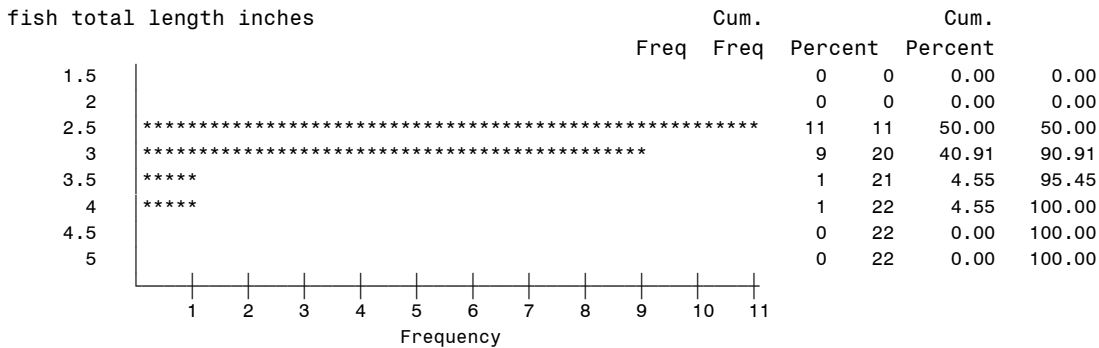
**FIGURE 11. FALL 2009 NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), LANSING LAKE UNIT ELECTRO SHOCKING.**



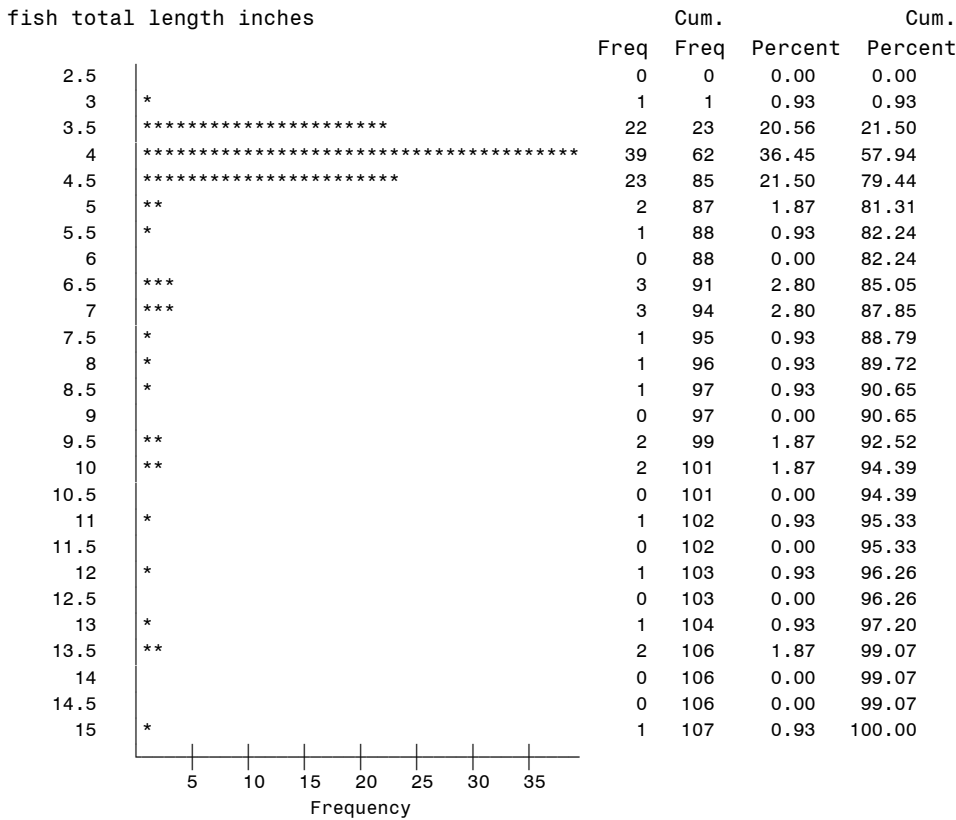
**FIGURE 12. FALL 2009 SHORthead REDHORSES LENGTH DISTRIBUTION (INCHES), LANSING LAKE UNIT ELECTRO SHOCKING.**



**FIGURE 13. FALL 2009 SPOTTAIL SHINER LENGTH DISTRIBUTION (INCHES), LANSING LAKE UNIT ELECTRO SHOCKING.**



**FIGURE 14. FALL 2009 YELLOW PERCH LENGTH DISTRIBUTION (INCHES), LANSING LAKE UNIT ELECTRO SHOCKING.**



**TABLE 5. MEAN LENGTH IN INCHES FOR MEASURED SPECIES, FALL 2009, LANSING LAKE UNIT, FYKE NETTING.**

SPECIES	MEAN LENGTH	STANDARD DEV.	MIN.	MAX.	N
black crappie	9.03	2.47	3.27	13.11	85
bluegill	4.62	1.28	2.84	8.86	270
freshwater drum	14.57	2.07	11.42	20.67	22
golden shiner	6.13	0.62	5	7.21	15
northern pike	21.66	7.02	8.66	34.45	22
pumpkinseed	5.44	1.17	3.62	7.09	16
yellow perch	8.41	2.73	4.06	12.4	19

**TABLE 6. LIST OF STOCK SIZE, QUALITY SIZE (PSS<sub>Q</sub>) AND PREFERRED SIZE (PSS<sub>P</sub>) IN INCHES FOR SELECTED FISH SPECIES.**

FISH SPECIES	PSS SOURCE	STOCK	QUALITY	PREFERRED
black crappie	Gabelhouse (1984)	5.0	8.0	10.0
bluegill	Gabelhouse (1984)	3.0	6.0	8.0
largemouth bass	Gabelhouse (1984)	8.0	12.0	15.0
northern pike	Gabelhouse (1984)	14.0	21.0	28.0
pumpkinseed	Gabelhouse (1984)	3.0	6.0	8.0
sauger	Gabelhouse (1984)	8.0	12.0	15.0
smallmouth bass	Gabelhouse (1984)	7.0	11.0	14.0
walleye	Gabelhouse (1984)	10.0	15.0	20.0
warmouth	Gabelhouse (1984)	3.0	6.0	8.0
white crappie	Gabelhouse (1984)	5.0	8.0	10.0
yellow perch	Gabelhouse (1984)	5.0	8.0	10.0



**TABLE 7. COMPARISON OF MEAN CATCH PER DAY AND PSS FOR SELECTED SPECIES OF SELECTED SIZES IN LANSING LAKE UNIT, FYKE NETTING, FALL 2009.**

SPECIES	MEAN CPD	STD. DEV. CPD	# OF STOCK	N	MEAN PSS <sub>0</sub>	MEAN PSS <sub>P</sub>	STD PSS <sub>0</sub>	STD PSS <sub>P</sub>
BLACK CRAPPIE			82	11	70.3	45.5	34.8	36.8
QUALITY (≥ 8 INCHES)	1.77	2.60	82	34				
PREFERRED (≥ 10 INCHES)	1.17	1.90	82	34				
BLUEGILL			150	10	26.3	1.9	31.5	5.9
QUALITY (≥ 6 INCHES)	1.21	1.75	150	34				
PREFERRED (≥ 8 INCHES)	0.60	0.32	150	34				

**TABLE 8. MEAN LENGTH IN INCHES FOR MEASURED SPECIES, FALL 2009, LANSING LAKE UNIT, ELECTRO SHOCKING.**

SPECIES	MEAN LENGTH	STANDARD DEV.	MIN.	MAX.	N
bluegill	4.34	1.49	1.46	8.27	207
bowfin	22.24	2.27	14.76	27.21	52
common shiner	3.23	0.94	1.42	4.80	21
emerald shiner	2.81	0.61	1.46	4.09	23
largemouth bass	7.15	4.00	0.87	17.99	445
northern pike	15.89	6.95	6.30	26.89	43
shorthead redhorse	11.17	4.74	3.15	18.11	57
spottail shiner	2.82	0.39	2.36	4.09	22
yellow perch	5.00	2.45	3.03	14.96	107

**TABLE 9. COMPARISON OF MEAN CATCH PER HOUR AND PSS FOR SELECTED SPECIES OF SELECTED SIZES IN LANSING LAKE UNIT. ELECTRO SHOCKING, FALL 2009.**

SPECIES	MEAN CPH	STD. DEV. CPH	# OF STOCK	N	MEAN PSS <sub>Q</sub>	MEAN PSS <sub>P</sub>	STD PSS <sub>Q</sub>	STD PSS <sub>P</sub>
BLUEGILL			180	26	24.0	0.8	34.6	3.3
QUALITY (≥ 6 INCHES)	6.17	10.42		33				
PREFERRED (≥ 8 INCHES)	0.36	1.45		33				
LARGEMOUTH BASS			108	22	83.9	19.1	26.7	22.4
QUALITY (≥ 12 INCHES)	16.33	21.13		33				
PREFERRED (≥ 15 INCHES)	4.35	7.53		33				
NORTHERN PIKE								
QUALITY (≥ 21 INCHES)	2.54	3.68		33				
PREFERRED (≥ 28 INCHES)	0.00	0.00		33				
YELLOW PERCH								
QUALITY (≥ 8 INCHES)	2.00	3.56		33				
PREFERRED (≥ 10 INCHES)	1.45	3.01		33				

**TABLE 10. COMPARISON OF MEAN CATCH PER FYKE NET-DAY FOR ALL SPECIES COMBINED AMONG SIXTEEN LAKE UNITS, FALL 2007-2009.**

MEAN	STD. DEV.	N	LAKE UNIT	DIFFERENT (means with the same letter are not Sign. Different)						
77.38	101.02	32	2007 HARPERS							A
51.24	30.76	32	2007 GOOSE ISLAND/STODDARD							A
48.39	29.01	30	2007 COLD SPRG/BLKHWK/RONKOSKI		B					A
43.98	29.99	24	2007 AMBRO		B				A	C
50.82	40.96	30	2008 SNY MCGIL		B	D			A	C
34.06	21.40	32	2007 UPPER POOL 5	E	B	D			A	C
33.90	38.44	32	2007 UPPER POOL 5A	E	B	D			A	C F
36.08	34.22	33	2008 TREMPLEALEAU LAKES	E	B	D			A	C F
27.29	22.66	35	2008 LAKE ONALASKA	E	B	D			A	C F
26.43	26.07	32	2008 GOOSE CARCASS LAKE	E	B	D			G	C F
25.84	30.34	35	2009 LAWRENCE/TARGET	E		D			G	C F
25.47	27.01	16	2008 BELVIDERE/SPRING LAKE	E		D			G	F
17.39	23.28	23	2009 BERTOM/MCCARTNEY AREA	E					G	F
15.36	14.74	34	2009 LANSING						G	F
21.68	29.97	32	2008 ROBINSON/PETERSON/BEEF SL.						G	F
10.46	8.32	32	2009 UPPER POOL 6						G	

**TABLE 11. COMPARISON OF MEAN CATCH PER FYKE NET-DAY FOR ALL TARGET SPECIES COMBINED AMONG SIXTEEN LAKE UNITS, FALL 2007-2009.**

MEAN	STD. DEV.	N	LAKE UNIT	DIFFERENT (means with the same letter are not Sign. Different)						
41.41	28.39	32	2007 GOOSE ISLAND/STODDARD							A
37.59	30.17	32	2007 HARPERS		B					A
30.26	20.63	30	2007 COLD SPRG/BLKHWK/RONKOSKI		B					A
25.95	16.13	32	2007 UPPER POOL 5		B				A	C
31.85	30.67	33	2008 TREMPLEALEAU LAKES		B				A	C
25.03	22.18	35	2008 LAKE ONALASKA		B				A	C
24.93	23.11	24	2007 AMBRO		B				A	C
30.58	37.27	30	2008 SNY MCGIL		B				A	C
26.85	38.73	32	2007 UPPER POOL 5A		B				A	C
23.15	27.08	16	2008 BELVIDERE/SPRING LAKE		B	D			A	C
22.24	28.21	35	2009 LAWRENCE/TARGET	E	B	D			A	C
20.78	24.12	32	2008 GOOSE CARCASS LAKE	E	B	D				C
12.52	13.56	34	2009 LANSING	E		D			F	C
7.53	6.79	32	2009 UPPER POOL 6	E		D			F	
11.98	25.89	32	2008 ROBINSON/PETERSON/BEEF SL.	E					F	
5.72	5.64	23	2009 BERTOM/MCCARTNEY AREA						F	

**TABLE 12. COMPARISON OF MEAN CATCH PER FYKE NET-DAY FOR ALL TARGET SPECIES COMBINED AMONG FOUR LAKE UNITS, FALL 2009.**

MEAN	STD. DEV.	N	LAKE UNIT	DIFFERENT (means with the same letter are not Sign. Different)
22.24	28.21	35	2009 LAWRENCE/TARGET	A
12.52	13.56	34	2009 LANSING	A B
7.53	6.79	32	2009 UPPER POOL 6	B C
5.72	5.64	23	2009 BERTOM/MCCARTNEY AREA	C

**TABLE 13. COMPARISON OF MEAN TOTAL LENGTH FOR SELECTED INDIVIDUAL SPECIES, AMONG FOUR LAKE UNITS, FYKE NETS, FALL 2009.**

SPECIES	MEAN	STD. DEV.	N	LAKE UNIT	DIFFERENT (means with the same letter are not Sign. Different)
<b>BLACK CRAPPIE</b>					
	9.04	1.97	69	UPPER POOL 6	A
	9.03	2.47	85	LANSING	A
	7.45	2.14	37	BERTOM/MCCARTNEY AREA	B
	7.06	1.47	61	LAWRENCE/TARGET	B
<b>BLUEGILL</b>					
	5.62	1.68	76	UPPER POOL 6	A
	4.71	1.06	73	BERTOM/MCCARTNEY AREA	B
	4.62	1.28	270	LANSING	B
	4.57	1.02	429	LAWRENCE/TARGET	B
<b>YELLOW PERCH</b>					
	8.41	2.71	19	LANSING	A
	7.32	1.79	70	UPPER POOL 6	B
	6.31	2.69	132	LAWRENCE/TARGET	C

**TABLE 14. COMPARISON OF MEAN CATCH PER HOUR FROM ELECTRO SHOCKING FOR ALL TARGET SPECIES COMBINED AMONG SIXTEEN LAKE UNITS, FALL 2007-2009.**

MEAN	STD. DEV.	N	LAKE UNIT	DIFFERENT (means with the same letter are not Sign. Different)	
219.87	131.32	32	2008 TREMPEALEAU LAKES		A
296.67	303.22	25	2007 COLD SPRG/BLKHWK/RONKOSKI	B	A
251.81	189.69	38	2009 LAWRENCE/TARGET		A
208.83	152.54	52	2007 GOOSE ISLAND/STODDARD	B	A
187.17	145.07	31	2007 AMBRO	B	A
197.61	127.12	25	2007 UPPER POOL 5A	B	A
168.66	142.26	30	2008 GOOSE CARCASS LAKE	B	A
171.74	133.38	47	2008 LAKE ONALASKA	B	A
143.27	80.23	27	2007 UPPER POOL 5	B	A
144.51	101.82	30	2009 UPPER POOL 6	B	A
149.88	126.11	33	2009 LANSING	B	A
151.15	205.44	33	2008 ROBINSON/PETERSON/BEEF SLOUGH	B	A
135.13	120.06	30	2007 HARPERS	B	A
116.24	91.03	30	2008 SNY MCGIL	B	A
109.18	108.36	30	2008 BELVIDERE/SPRING LAKE	B	A
152.97	189.77	27	2009 BERTOM/MCCARTNEY AREA	B	

**TABLE 15. COMPARISON OF MEAN TOTAL LENGTH FOR SELECTED INDIVIDUAL SPECIES, AMONG FOUR LAKE UNITS, ELECTRO SHOCKING, FALL 2009.**

SPECIES	MEAN	STD. DEV.	N	LAKE UNIT	DIFFERENT (means with the same letter are not Sign. Different)	
<b>BLACK CRAPPIE</b>						
	8.94	2.87	72	BERTOM/MCCARTNEY AREA	A	
	6.57	2.91	10	LANSING	B	
	6.37	2.84	15	UPPER POOL 6	B	
	5.10	2.82	54	LAWRENCE/TARGET	B	
<b>BLUEGILL</b>						
	5.16	1.71	222	UPPER POOL 6	A	
	4.82	1.14	278	BERTOM/MCCARTNEY AREA	B	
	4.70	1.58	338	LAWRENCE/TARGET	B	
	4.34	1.49	207	LANSING	C	
<b>BOWFIN</b>						
	24.00	2.37	36	LAWRENCE/TARGET	A	
	22.24	2.27	52	LANSING	B	
<b>LARGEMOUTH BASS</b>						
	9.15	4.97	314	UPPER POOL 6	A	
	9.04	3.86	260	BERTOM/MCCARTNEY AREA	A	
	7.15	4.00	445	LANSING	B	
	6.73	3.95	645	LAWRENCE/TARGET	B	
<b>NORTHERN PIKE</b>						
	18.97	7.92	4	BERTOM/MCCARTNEY AREA	A	
	15.89	6.95	43	LANSING	A	
	14.60	8.44	72	UPPER POOL 6	A	
	14.00	10.40	21	LAWRENCE/TARGET	A	
<b>YELLOW PERCH</b>						
	5.77	1.61	97	UPPER POOL 6		A
	5.00	2.45	107	LANSING		B
	4.65	1.24	518	LAWRENCE/TARGET	C	B
	4.25	1.17	91	BERTOM/MCCARTNEY AREA	C	