Summary Report

Results of Fyke Netting for Northern Pike in Navigation Pool 7 of the upper Mississippi River, Spring 2009.

David Heath and Kenneth Von Ruden
Wisconsin Department of Natural Resources
Mississippi River Fisheries Team
La Crosse, WI.
6 April 2009

Purpose

The purpose of this work is to continue to monitor the spring population length frequency and catch per unit effort of northern pike in Navigation Pool 7 of the upper Mississippi River.

Methods

Standard Upper Mississippi River Conservation Committee (UMRCC) fyke nets were set by WDNR 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 northern pike on spawning runs from March 30, 2009 to April 3, 2009 (Figure 1). A total of 11 locations where chosen, with 1 fyke net at each, in northern Lake Onalaska, La Crosse County, Wisconsin. Nets were set approximately one week after winter ice melted.

Up to eleven nets fished for a total of 39.83 net-days and were emptied every day during which all northern pike (*Esox lucius*) and yellow perch (*Perca flavescens*) were counted, measured in total length, sexed and their reproductive status was determined. Sex and reproductive status were determined primarily by the type and ease of which gametes were pushed through the urogenital pore. Fish were either classified as male or female based on the expression of sperm or eggs after manual massage of the abdomen. Based on the ease of and amount of gamete release, both males and females were classified as either green, immature, partially spent, ripe, or spent. For those northern pike that did not express gametes, sex was determined by visual examination of the urogenital region (Casselman, 1974).

The 2009 data was compared to data similarly collected during 1976 in upper Pool 8 by the Wisconsin DNR (Unpublished) and 2008 data collected in the middle of Pool 8 (Heath, Bailey and Von Ruden, 2009).

Findings

A total of 230 northern pike and 28 yellow perch were recorded. Of the 230 northern pike that had sex recorded, 120 (52.2%) were females, 109 (47.4%) were males and 1 (0.4%) was unknown (Table 1). The sex ratio was 1 female to 0.91 males. This compares to 1 female to 2.0- 2.3 males in other studies (Becker, 1983), 1 to 3.24 in the 1976 study and 1 female to 1.15 males in the 2008 study.

TABLE 1. SEX AND REPRODUCTIVE CONDITION OF SPRING 2009 NORTHERN PIKE.

	REPRODUCTIVE CONDITION				
	Green	Immature	Partially Spent	Ripe	Spent
SEX					
Female	10	3	5	83	19
Male		3	14	66	26
Unknown		1			

Of the 28 yellow perch that had sex recorded, 11 (39.3%) were females, 16 (57.1%) were males and 1 (3.6%) was unknown (Table 2). The sex ratio was 1 female to 1.45 males.

TABLE 2. SEX AND REPRODUCTIVE CONDITION OF SPRING 2009 YELLOW PERCH.

	REPRODUCTIVE CONDITION				
	Green	Immature	Partially Spent	Ripe	Spent
SEX					
Female	7	1			3
Male				16	
Unknown		1			

The mean daily ambient water temperatures during 2009 sampling was 4.7°C and generally did not change over the four days of sampling (Table 3). During sampling the water surface elevation for Pool 7 just upstream of Dam 7 changed little (Table 3).

TABLE 3. PERCENT RIPE AND SPENT 2009 FEMALE NORTHERN PIKE BY DATE, TEMPERATURE AND WATER SURFACE ELEVATION.

DATE	ºC	Water Surface Elevation (ft), Dam 7 Pool	% RIPE	% SPENT	Number of Northern Pike
03/31/2009	5.5	639.15	80.5	9.8	41
04/01/2009	4.6	639.07	68.4	15.8	38
04/02/2009	4.1	639.08	33.3	26.7	15
04/03/2009	5.2	639.12	73.1	19.2	26

Mean total length for all 2009 males was 22.58 inches (n=109, minimum= 6.69, maximum=31.30, standard deviation=4.491) (Figure 2). A total of 72.48 percent were greater than 21 inches. During 1976, the mean total length for all males was 22.94 inches (n=849, minimum=10.5, maximum=32.9, standard deviation = 3.254) (Figure 6). A total of 72.56 percent were greater than 21 inches. During 2008, the mean total length for all males was 20.57 inches (n=152, minimum= 8.47, maximum=26.77, standard deviation=3.460) (Figure 4). A total of 43.42 percent were greater than 21 inches. The mean total length for males was significantly different between 1976 and 2008 but not between 2009 and 1976 (Table 4).

TABLE 4. MEAN LENGTH OF MALE NORTHERN PIKE, 2009, 2008 AND 1976.

Year & Location	Mean Length (inches)	Standard Deviation	Minimum	Maximum	n	Percent > 21 inches	Different (means with the same letter are not Sign. Different)
2009, Pool 7	22.58	4.491	6.69	31.30	109	72.48	A
2008, Pool 8	20.57	3.460	3.46	26.77	152	43.42	B
1976, Pool 8	22.94	3.254	10.50	32.9	849	72.56	A

There was no significant change in total length of males through the 2009 sampling period (n=109, r^2=0.0181, P=0.1635) suggesting that the size of males during sampling did not change as others have observed (Priegel and Krohn, 1975) although we did not sample during the entire spawning period.

In the present investigation, the smallest male found gravid was 6.7 inches in total length. Over 98 percent of all males 10 inches and greater (N=105) were gravid. This compares to size at maturity of 16-18 inches reported by Becker (1983) for lakes and 11 inches for the Mississippi River, Pool 8.

In 2009, the mean total length for all females was 27.80 inches (n=120, minimum= 10.59, maximum=42.01, standard deviation= 4.918) (Figure 3) (Table 5). A total of 75.83 percent were greater than 25 inches. During 2008 in Pool 8, the mean total length for all females was 25.59 inches (n=131, minimum= 12.21, maximum=39.37, standard deviation= 5.325) (Figure 5). A total of 46.56 percent were greater than 25 inches. During 1976, the mean total length for all females was 26.36 inches (n=262, minimum=16.50, maximum=36.50, standard deviation=4.413) (Figure 7). A total of 58.40 percent were greater than 25 inches.

The mean total length for females was not significantly different between 1976 and 2008 (P=0.1286) (Table 5). The mean total length for females was significantly different between 2009 and 2008 (P=0.0008) and between 2009 and 1976 (P=0.0045). This compares to no trend in female size during the spawning season from 1989 through 2007 in Navigation Pool 9 of the upper Mississippi River (WDNR, 2008).

TABLE 5. MEAN LENGTH OF FEMALE NORTHERN PIKE, 2009, 2008 AND 1976.

Year & Location	Mean Length (inches)	Standard Deviation	Minimum	Maximum	n	Percent > 25 inches	Different (means with the same letter are not Sign. Different)
2009, Pool 7	27.80	4.918	10.59	42.01	120	75.83	A
2008, Pool 8	25.59	5.325	12.21	39.37	131	46.56	B
1976, Pool 8	26.36	4.413	16.50	36.50	262	58.40	B

There was no significant change in total length of females through the 2009 sampling period (n=120, r^2=0.0035, P=0.5220) suggesting that the size of females during sampling did not change as others have observed (Priegel and Krohn, 1975) although we did not sample during the entire spawning period.

Proportional Stock Density for northern pike in Pool 8 as summarized by the Graphical Fish Data Browser (http://www.umesc.usgs.gov/data_library/fisheries/graphical/fish_front.html) of the Long Term Resource Monitoring Program suggests a downward trend from 1993 to 2004 (Figure 8). However, the slope of a linear regression was not significantly different from zero (P=0.0528) suggesting no real trend. This data contained both male and females since fish were not sexed. If a trend in males was present for these years in this data, any significant trend may have been obscured by the inclusion of females.

In 2009, most females were recorded as ripe (69.2%), followed by spent (15.8%), green (8.3%), partially spent (4.2%) and immature (2.5%). Reproductive condition changed through time. A total of 74.7% of females were ripe 12.7% were spent during the first two days of sampling while 58.5% were ripe and 22% were spent during the last 2 days. There was no trend in ambient water temperatures (mean = 4.7°C) and water surface elevation during sampling (Table 3). Spawning runs have been recorded to occur at temperatures between 1.1 and 4.4ºC (Becker, 1983).

In the present investigation, the smallest female found gravid was 17.3 inches in total length. All females 17 inches and greater were gravid and all females less than 14 inches were not gravid. This compares to size at maturity of 20-22 inches reported by Becker (1983) for lakes and 20-36 inches for the Mississippi River, Pool 8. During 2008, the smallest female found gravid was 14.9 inches in total length.

Mean catch per net-day for 2009 northern pike was 5.82 (n=40, minimum=0, maximum=51.34, standard deviation =9.46). This was not significantly different from the 2008 Pool 8 catch per net-day (P=0.1562) which was 8.73 (n=34, minimum=0, maximum=28.84, standard deviation=7.69) (Table 6). Mean catch per net-day from 2009 was not significantly different from the 1976 mean catch per net-day (P=0.3312) which was 7.40 (n=199, minimum=0, maximum=47.00, standard deviation= 9.10) (Table 6). During hatchery netting near Guttenberg, Iowa from 1995 to 2000, the catch rate was 2.2 fish per net set, substantially lower than the 2009, 2008 and 1976 investigations (Pitlo and Rasmussen, 2004).

TABLE 6. NORTHERN PIKE MEAN CATCH PER NET-DAY, SPRING 2009, 2008 AND 1976.

Year & Location	Mean	Standard Dev.	Min.	Max.	Net-Days	Different (means with the same letter are not Sign. Different)
2009, Pool 7	5.823	9.459	0	51.34	39.83	A
2008, Pool 8	8.730	7.690	0	23.84	33.24	A
1976, Pool 8	7.396	9.096	0	47.00	199.00	A

Mean catch per net-day for 2009 yellow perch was 0.70 (n=40, minimum=0, maximum=4.70, standard deviation =1.35). This was not significantly different from 2008 in Pool 8 which had a mean of 1.12 (P=0.3606) (n=34, minimum=0, maximum=11.91, standard deviation =2.43) (Table 7). The 2009 mean was not significantly different from the 1976 Pool 8 mean of 0.291 (n=199, minimum=0, maximum=6.00, standard deviation= 0.760).

TABLE 7. YELLOW PERCH MEAN CATCH PER NET-DAY SPRING 2009, 2008 AND 1976.

Year & Location	Mean	Standard Dev	Min.	Max.	Net-Days	Different (means with the same letter are not Sign. Different)
2009, Pool 7	0.704	1.348	0	4.704	39.83	A B
2008, Pool 8	1.116	2.429	0	11.905	33.24	A
1976, Pool 8	0.291	0.761	0	6.0	199.00	B

Conclusions

Northern pike continue to comprise an important part of the sport fish community in Navigation Pool 7 of the upper Mississippi River. Catch rates in 2009 were the same as 2008 and 1976 rates in Pool 8.

In 2009, mean total length of Pool 7 females was larger than two previous studies in Pool 8. In the 2008 Pool 8 study, we observed a 2.37 inch decrease in the mean size of males compared to a similar study in 1976 (Heath, Bailey and Von Ruden, 2009). A similar decrease was observed in Pool 9 (WDNR, 2008). However, in this 2009 Pool 7 investigation, no difference was found in male mean total length compared with Pool 8 data from 1976. We were unable to locate any historic northern pike data from Pool 7, which may be a more valid comparison.

Length frequency distributions for both males and females were compared to 2008 and 1976 Pool 8 data. During 1976, the proportion of males over 21 inches (72.56 percent) and females over 25 inches (58.40 percent) was similar to 2009 (72.58 percent and 75.83 percent, respectively) but was greater than observed in 2008 (43.42 percent and 46.56 percent, respectively). An absence of discernable patterns in these data may be due to variations in year-class strengths or pools sampled.

Northern pike minimum size at sexual maturity in the 2009 investigation was less than found in other studies. Validation and causes for this observation have yet to be done.

In the Mississippi River bordering Minnesota, the bag and size limits are more liberal than the general inland regulations. The river is open all year, with no size limit and a bag limit of five fish. Inland, the general season extends from May 6 through March 4. In the northern zone the bag limit is five fish; there is no minimum size limit. In the southern zone the bag limit is two fish, with a 26 inch minimum size limit.

Recommendations

1. Continue to monitoring northern pike populations in Pool 7 to verify or invalidate these findings.

2. Continue to monitoring northern pike catch by the Genoa National Fish Hatchery in Pool 9 to determine long-term trends in the upper Mississippi River outside of Pool 7.

References Used

Becker, George C. 1983. Fishes of Wisconsin. University of Wisconsin Press. Madison, Wisconsin. 1052 pp.

Casselman, J. M., 1974. External sex determination of northern pike, Esox lucius Linnaeus. Transactions of the American Fisheries Society 103: 343–347.

Heath, David, Sean Bailey and Kenneth Von Ruden. 2009. Summary Report Results of Fyke Netting for Northern Pike in Navigation Pool 8 of the upper Mississippi River, Spring 2008. Wisconsin DNR, La Crosse, WI., 11 pp, Appendix 1.

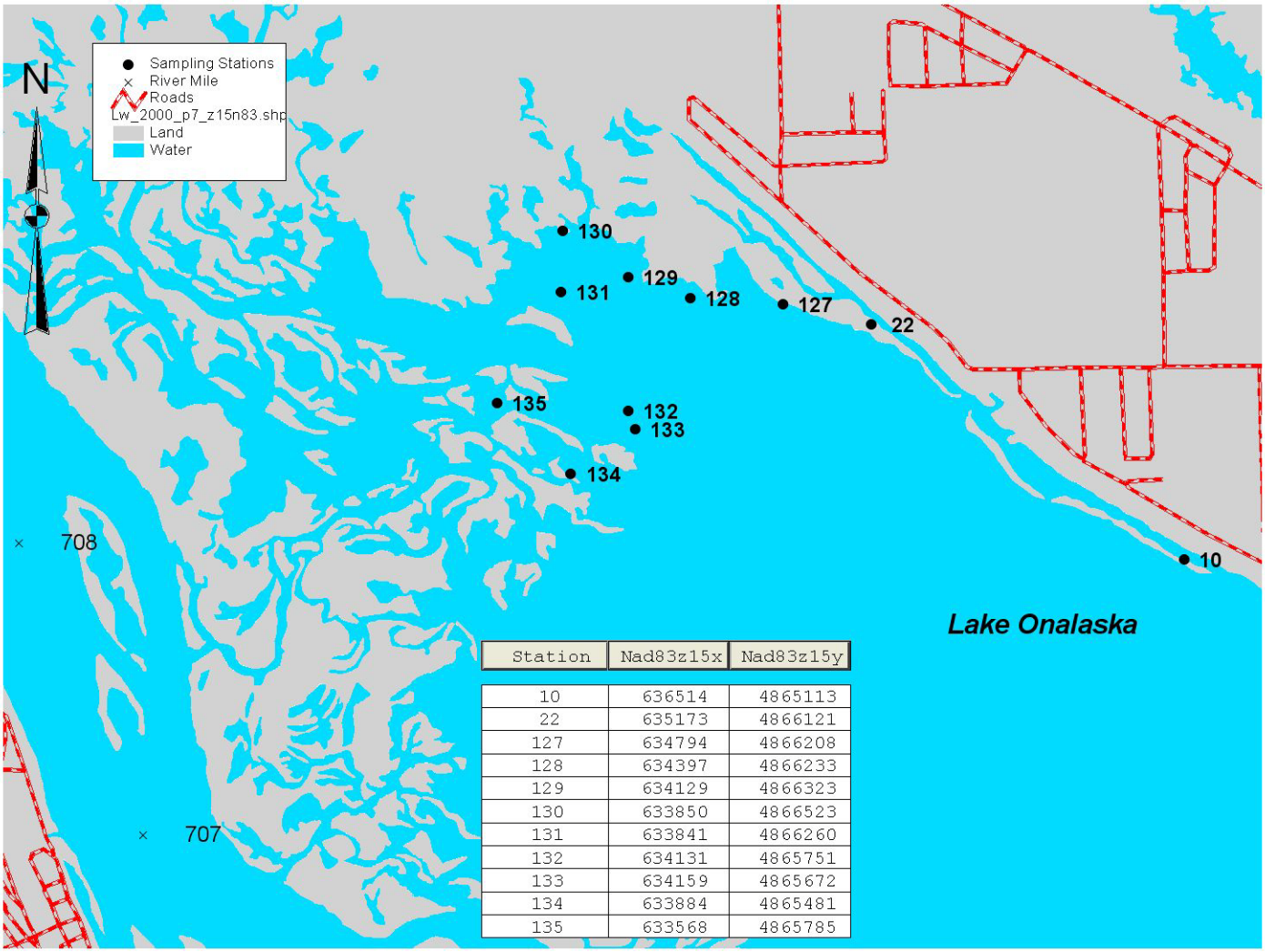
Pitlo, John and Jerry Rasmussen. 2004. UMRCC Fisheries Compendium. 3rd Edition. Upper Mississippi River Conservation Committee, Rock Island, IL. 265 pp.

Priegel, Gordon, R., Krohn, David C. 1975. Characteristics of a northern pike spawning population. Tech. Bulletin 86 Wisc. Dept. Nat. Res., Madison, WI.

Wisconsin Department of Natural Resources. 1976. Unpublished Northern Pike Data Collected in upper Pool 8 of the Mississippi River. WDNR, La Crosse, Wisconsin.

Wisconsin Department of Natural Resources. 2008. A Summary of Northern Pike Data Collected in Pool 9 of the Mississippi River 1989-2007. WDNR, La Crosse, Wisconsin, 6 pp plus Figs and Tables.

FIGURE 1. LOCATION OF ELEVEN FYKE NET SETS, MISSISSIPPI RIVER, NAVIGATION POOL 7, SPRING 2009.
(2000 Long Term Resource Monitoring Program Land/Water Coverage, 2000).



Station	Nad83z15x	Nad83z15y
10	636514	4865113
22	635173	4866121
127	634794	4866208
128	634397	4866233
129	634129	4866323
130	633850	4866523
131	633841	4866260
132	634131	4865751
133	634159	4865672
134	633884	4865481
135	633568	4865785

FIGURE 2. SPRING 2009 NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), POOL 7 MALES.

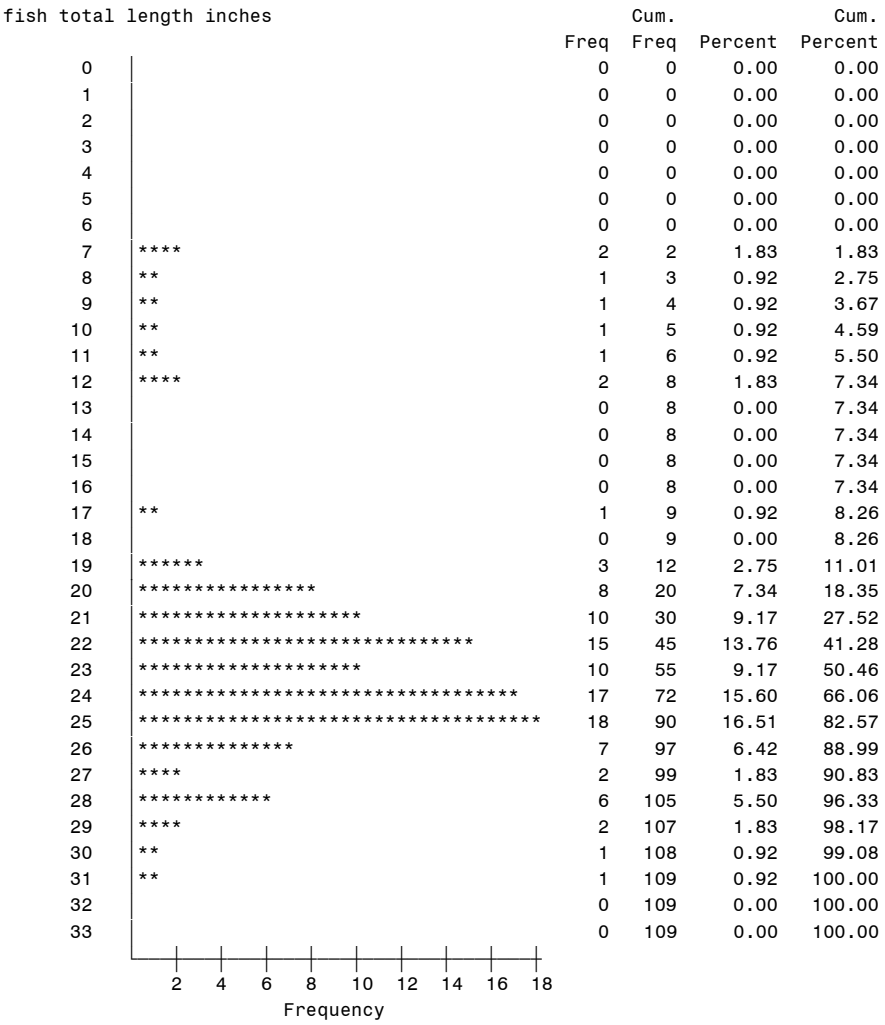
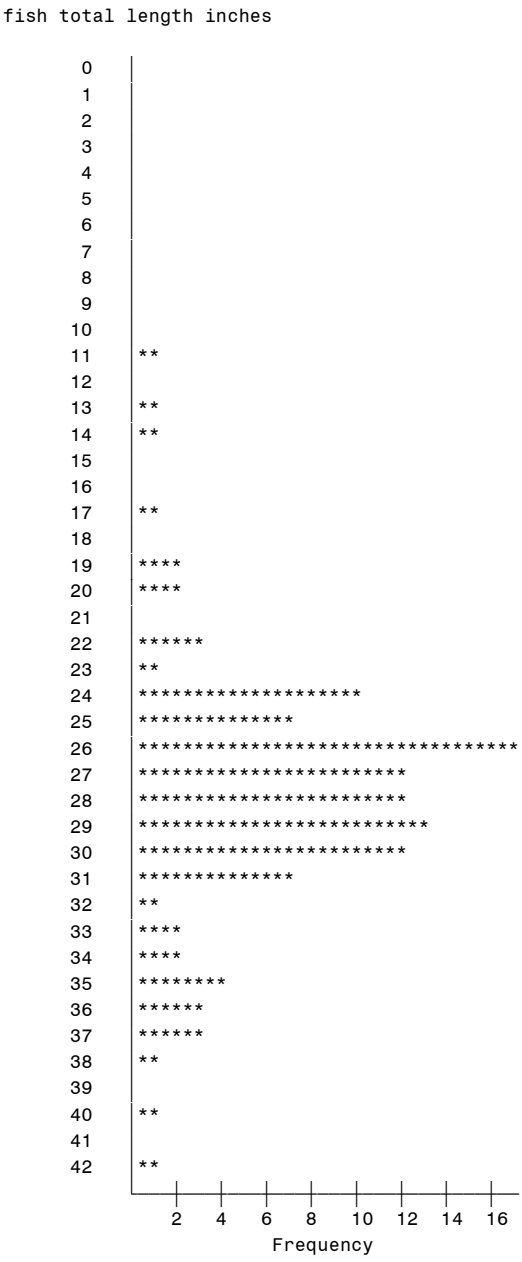
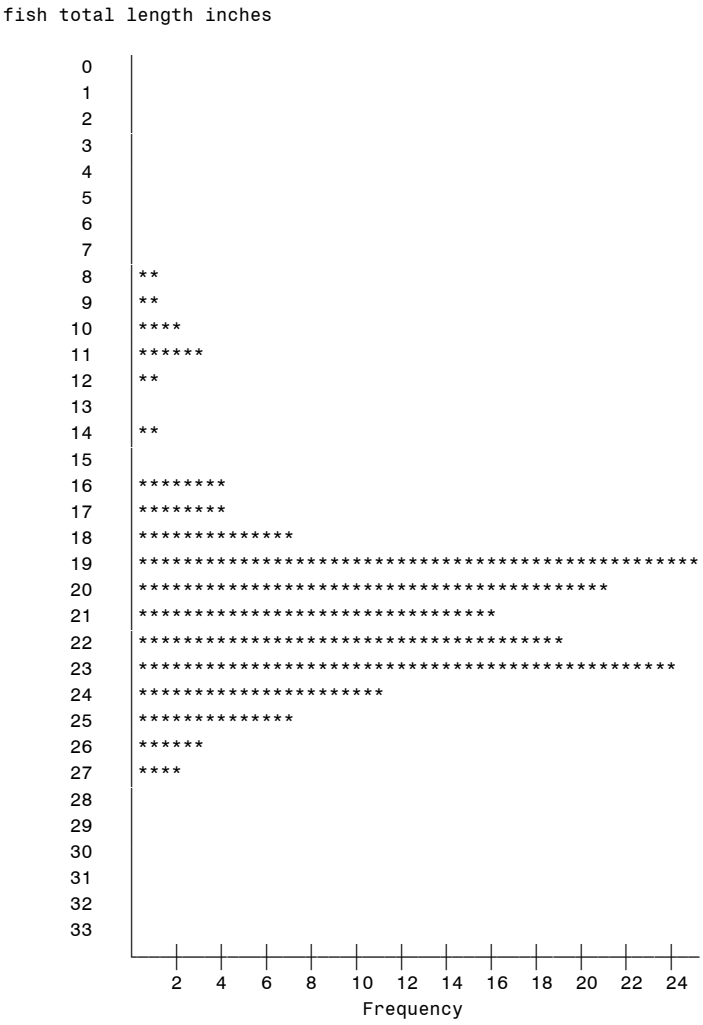


FIGURE 3. SPRING 2009 NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), POOL 7 FEMALES.



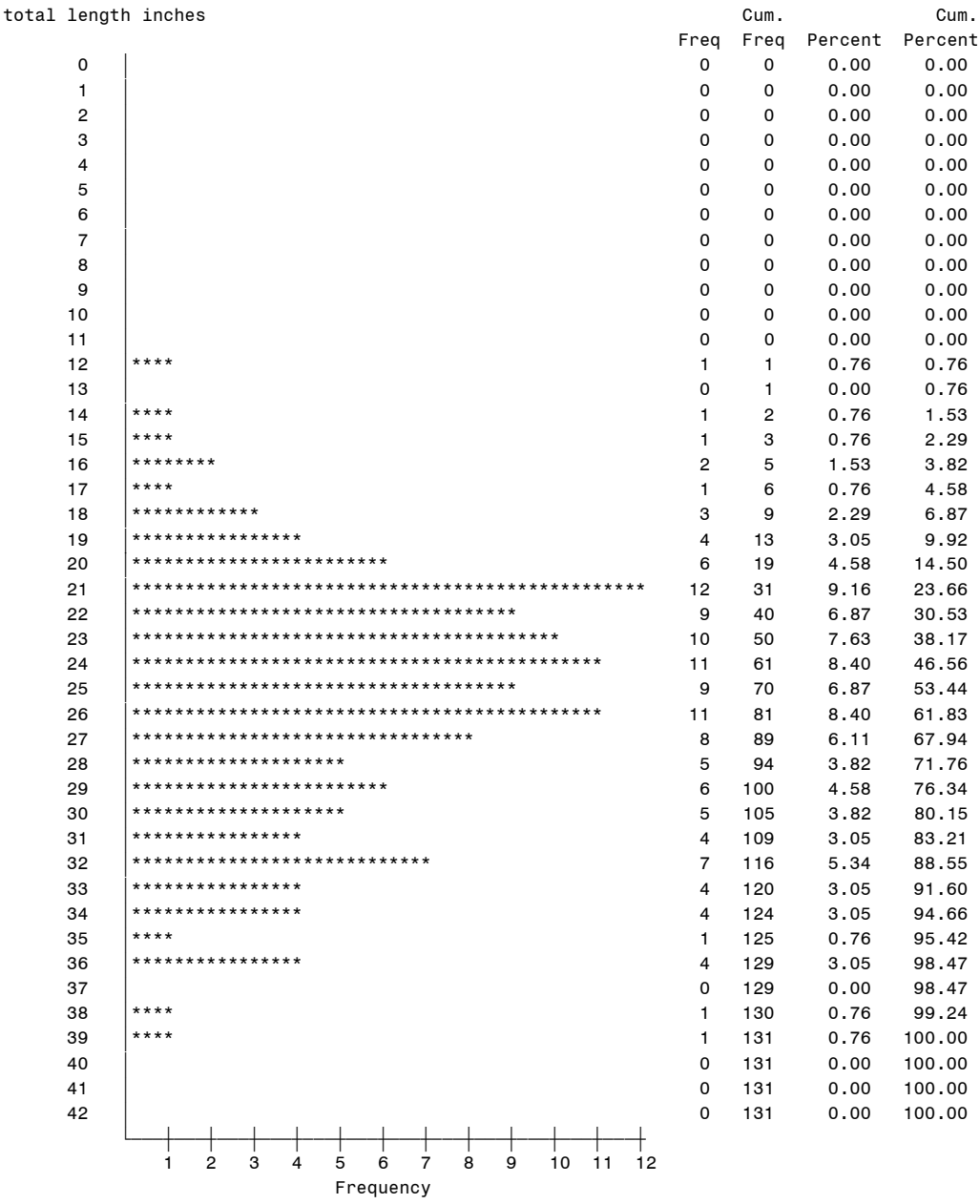
	Freq	Cum. Freq	Percent	Cum. Percent
0	0	0	0.00	0.00
1	0	0	0.00	0.00
2	0	0	0.00	0.00
3	0	0	0.00	0.00
4	0	0	0.00	0.00
5	0	0	0.00	0.00
6	0	0	0.00	0.00
7	0	0	0.00	0.00
8	0	0	0.00	0.00
9	0	0	0.00	0.00
10	0	0	0.00	0.00
11	1	1	0.83	0.83
12	0	1	0.00	0.83
13	1	2	0.83	1.67
14	1	3	0.83	2.50
15	0	3	0.00	2.50
16	0	3	0.00	2.50
17	1	4	0.83	3.33
18	0	4	0.00	3.33
19	2	6	1.67	5.00
20	2	8	1.67	6.67
21	0	8	0.00	6.67
22	3	11	2.50	9.17
23	1	12	0.83	10.00
24	10	22	8.33	18.33
25	7	29	5.83	24.17
26	17	46	14.17	38.33
27	12	58	10.00	48.33
28	12	70	10.00	58.33
29	13	83	10.83	69.17
30	12	95	10.00	79.17
31	7	102	5.83	85.00
32	1	103	0.83	85.83
33	2	105	1.67	87.50
34	2	107	1.67	89.17
35	4	111	3.33	92.50
36	3	114	2.50	95.00
37	3	117	2.50	97.50
38	1	118	0.83	98.33
39	0	118	0.00	98.33
40	1	119	0.83	99.17
41	0	119	0.00	99.17
42	1	120	0.83	100.00

FIGURE 4. SPRING 2008 NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), POOL 8 MALES.



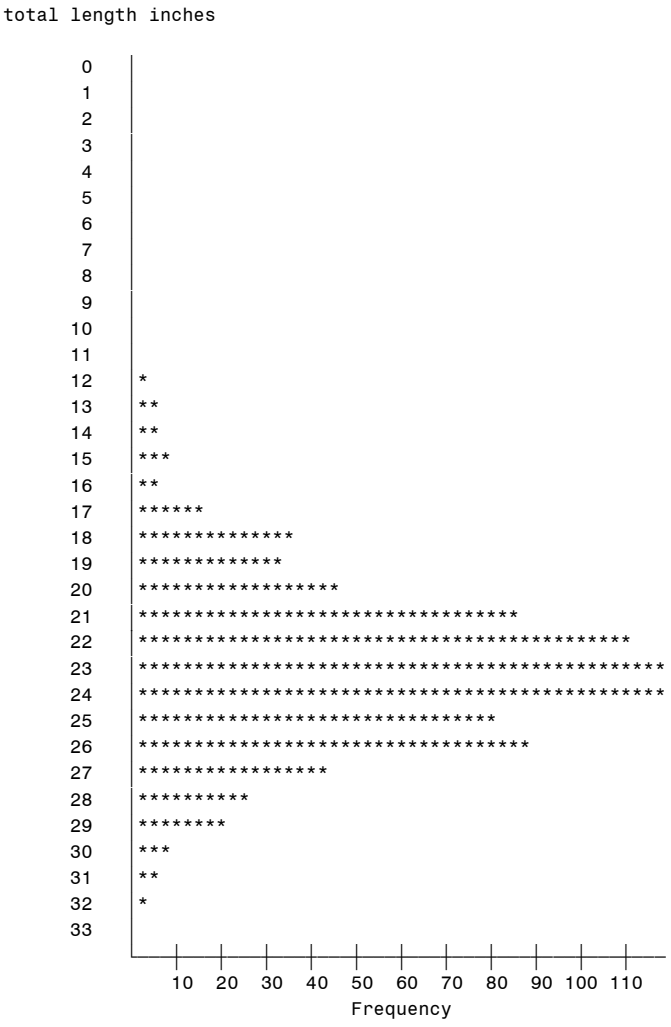
	Freq	Cum. Freq	Percent	Cum. Percent
0	0	0	0.00	0.00
1	0	0	0.00	0.00
2	0	0	0.00	0.00
3	0	0	0.00	0.00
4	0	0	0.00	0.00
5	0	0	0.00	0.00
6	0	0	0.00	0.00
7	0	0	0.00	0.00
8	1	1	0.66	0.66
9	1	2	0.66	1.32
10	2	4	1.32	2.63
11	3	7	1.97	4.61
12	1	8	0.66	5.26
13	0	8	0.00	5.26
14	1	9	0.66	5.92
15	0	9	0.00	5.92
16	4	13	2.63	8.55
17	4	17	2.63	11.18
18	7	24	4.61	15.79
19	25	49	16.45	32.24
20	21	70	13.82	46.05
21	16	86	10.53	56.58
22	19	105	12.50	69.08
23	24	129	15.79	84.87
24	11	140	7.24	92.11
25	7	147	4.61	96.71
26	3	150	1.97	98.68
27	2	152	1.32	100.00
28	0	152	0.00	100.00
29	0	152	0.00	100.00
30	0	152	0.00	100.00
31	0	152	0.00	100.00
32	0	152	0.00	100.00
33	0	152	0.00	100.00

FIGURE 5. SPRING 2008 NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), POOL 8 FEMALES.



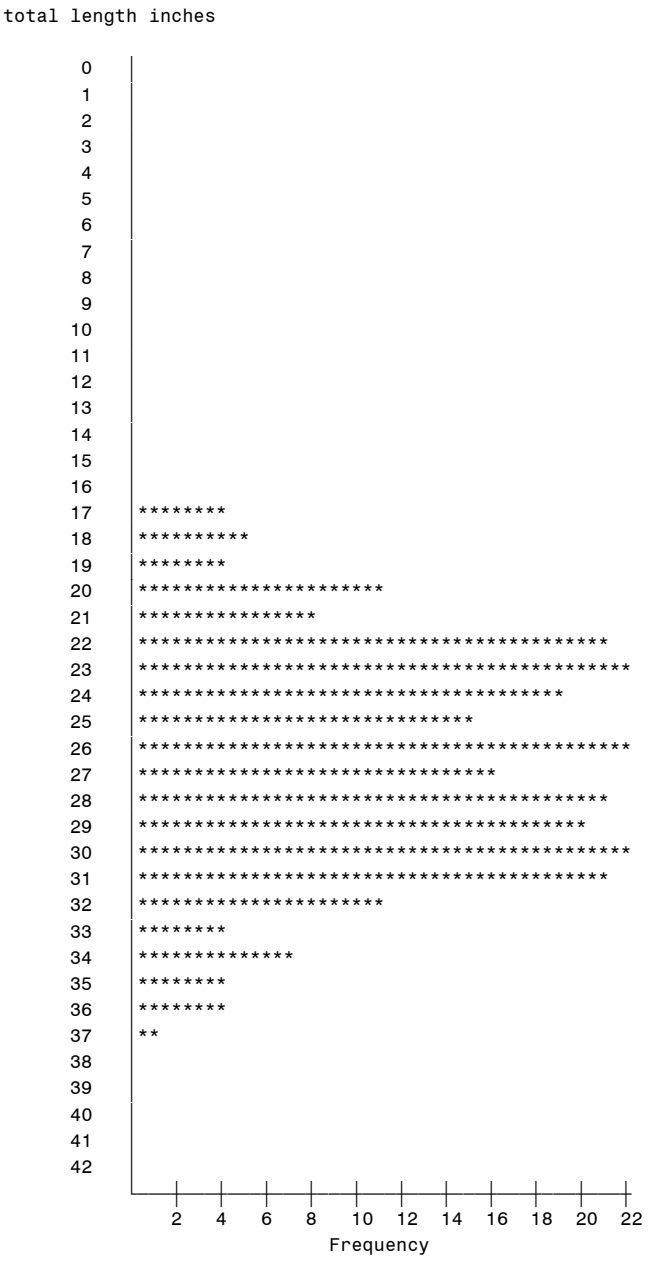
total length inches	Freq	Cum. Freq	Percent	Cum. Percent
0	0	0	0.00	0.00
1	0	0	0.00	0.00
2	0	0	0.00	0.00
3	0	0	0.00	0.00
4	0	0	0.00	0.00
5	0	0	0.00	0.00
6	0	0	0.00	0.00
7	0	0	0.00	0.00
8	0	0	0.00	0.00
9	0	0	0.00	0.00
10	0	0	0.00	0.00
11	0	0	0.00	0.00
12	1	1	0.76	0.76
13	0	1	0.00	0.76
14	1	2	0.76	1.53
15	1	3	0.76	2.29
16	2	5	1.53	3.82
17	1	6	0.76	4.58
18	3	9	2.29	6.87
19	4	13	3.05	9.92
20	6	19	4.58	14.50
21	12	31	9.16	23.66
22	9	40	6.87	30.53
23	10	50	7.63	38.17
24	11	61	8.40	46.56
25	9	70	6.87	53.44
26	11	81	8.40	61.83
27	8	89	6.11	67.94
28	5	94	3.82	71.76
29	6	100	4.58	76.34
30	5	105	3.82	80.15
31	4	109	3.05	83.21
32	7	116	5.34	88.55
33	4	120	3.05	91.60
34	4	124	3.05	94.66
35	1	125	0.76	95.42
36	4	129	3.05	98.47
37	0	129	0.00	98.47
38	1	130	0.76	99.24
39	1	131	0.76	100.00
40	0	131	0.00	100.00
41	0	131	0.00	100.00
42	0	131	0.00	100.00

FIGURE 6. SPRING 1976 NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), POOL 8 MALES.



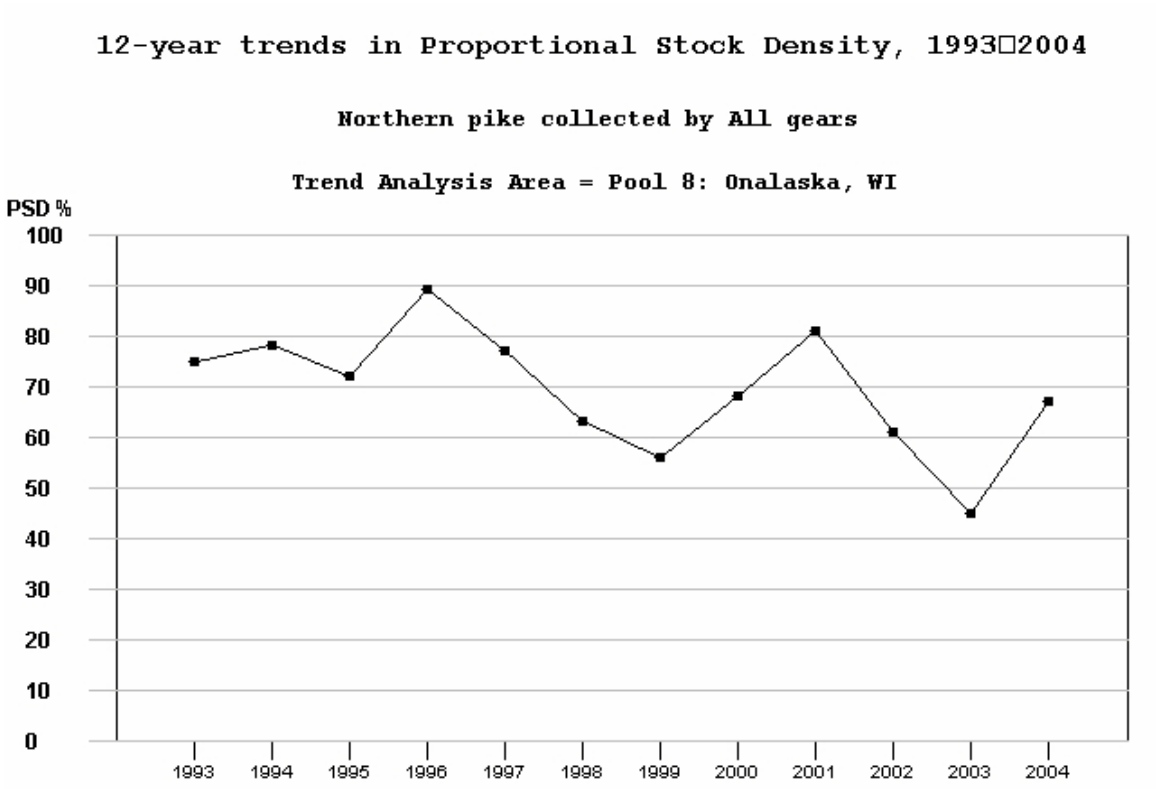
total length inches	Freq	Cum. Freq	Percent	Cum. Percent
0	0	0	0.00	0.00
1	0	0	0.00	0.00
2	0	0	0.00	0.00
3	0	0	0.00	0.00
4	0	0	0.00	0.00
5	0	0	0.00	0.00
6	0	0	0.00	0.00
7	0	0	0.00	0.00
8	0	0	0.00	0.00
9	0	0	0.00	0.00
10	0	0	0.00	0.00
11	1	1	0.12	0.12
12	3	4	0.35	0.47
13	4	8	0.47	0.94
14	5	13	0.59	1.53
15	7	20	0.82	2.36
16	4	24	0.47	2.83
17	14	38	1.65	4.48
18	35	73	4.12	8.60
19	32	105	3.77	12.37
20	44	149	5.18	17.55
21	84	233	9.89	27.44
22	111	344	13.07	40.52
23	118	462	13.90	54.42
24	117	579	13.78	68.20
25	79	658	9.31	77.50
26	88	746	10.37	87.87
27	42	788	4.95	92.82
28	26	814	3.06	95.88
29	19	833	2.24	98.12
30	8	841	0.94	99.06
31	4	845	0.47	99.53
32	3	848	0.35	99.88
33	1	849	0.12	100.00

FIGURE 7. SPRING 1976 NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), POOL 8 FEMALES.



total length inches	Freq	Cum. Freq	Percent	Cum. Percent
0	0	0	0.00	0.00
1	0	0	0.00	0.00
2	0	0	0.00	0.00
3	0	0	0.00	0.00
4	0	0	0.00	0.00
5	0	0	0.00	0.00
6	0	0	0.00	0.00
7	0	0	0.00	0.00
8	0	0	0.00	0.00
9	0	0	0.00	0.00
10	0	0	0.00	0.00
11	0	0	0.00	0.00
12	0	0	0.00	0.00
13	0	0	0.00	0.00
14	0	0	0.00	0.00
15	0	0	0.00	0.00
16	0	0	0.00	0.00
17	4	4	1.53	1.53
18	5	9	1.91	3.44
19	4	13	1.53	4.96
20	11	24	4.20	9.16
21	8	32	3.05	12.21
22	21	53	8.02	20.23
23	22	75	8.40	28.63
24	19	94	7.25	35.88
25	15	109	5.73	41.60
26	22	131	8.40	50.00
27	16	147	6.11	56.11
28	21	168	8.02	64.12
29	20	188	7.63	71.76
30	22	210	8.40	80.15
31	21	231	8.02	88.17
32	11	242	4.20	92.37
33	4	246	1.53	93.89
34	7	253	2.67	96.56
35	4	257	1.53	98.09
36	4	261	1.53	99.62
37	1	262	0.38	100.00
38	0	262	0.00	100.00
39	0	262	0.00	100.00
40	0	262	0.00	100.00
41	0	262	0.00	100.00
42	0	262	0.00	100.00

FIGURE 8. POOL 8, 1993-2004 NORTHERN PIKE PROPORTIONAL STOCK DENSITY FROM LONG TERM RESOURCE MONITORING DATA.



APPENDIX 1. 2009 DATA.

DATE	STATION	HRS	TEMP_C	AVDEPTHM	SEX	GRAVID	REPR_CON	LENGTHIN	SP_CODE
3/30/2009	10	.	4.6	0.4				.	
3/30/2009	22	.	6.8	0.7				.	
3/30/2009	127	.	5.2	0.6				.	
3/30/2009	128	.	5	0.4				.	
3/30/2009	129	.	4.9	0.4				.	
3/30/2009	130	.	5.8	0.4				.	
3/30/2009	131	.	5.6	0.4				.	
3/30/2009	132	.	6	0.4				.	
3/31/2009	10	26.717	5.8	0.4				.	Z98
3/31/2009	22	28.083	7.6	0.7				.	Z98
3/31/2009	127	25.367	5.2	0.6	F	N	I	13.8	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	19.5	L02
3/31/2009	127	25.367	5.2	0.6	M	Y	R	20.2	L02
3/31/2009	127	25.367	5.2	0.6	M	Y	R	22.4	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	23.6	L02
3/31/2009	127	25.367	5.2	0.6	M	Y	R	23.7	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	24.0	L02
3/31/2009	127	25.367	5.2	0.6	M	Y	R	24.0	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	24.4	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	24.7	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	25.4	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	25.7	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	26.0	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	26.4	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	26.4	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	26.6	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	26.8	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	27.0	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	27.2	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	27.6	L02
3/31/2009	127	25.367	5.2	0.6	M	Y	R	27.6	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	28.0	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	28.2	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	28.2	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	29.1	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	PS	29.3	L02
3/31/2009	127	25.367	5.2	0.6	M	Y	R	30.3	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	31.1	L02
3/31/2009	127	25.367	5.2	0.6	F	Y	R	32.1	L02
3/31/2009	127	25.367	5.2	0.6	M	Y	R	6.7	X15

3/31/2009	127	25.367	5.2	0.6	M	Y	R	6.7	X15
3/31/2009	127	25.367	5.2	0.6	F	Y	G	8.2	X15
3/31/2009	127	25.367	5.2	0.6	M	Y	R	9.1	X15
3/31/2009	128	25.667	5.1	0.4	M	Y	R	22.2	L02
3/31/2009	128	25.667	5.1	0.4	M	Y	R	23.6	L02
3/31/2009	128	25.667	5.1	0.4	M	Y	R	25.6	L02
3/31/2009	128	25.667	5.1	0.4	F	Y	R	26.4	L02
3/31/2009	128	25.667	5.1	0.4	F	Y	R	29.8	L02
3/31/2009	128	25.667	5.1	0.4	M	Y	R	6.5	X15
3/31/2009	128	25.667	5.1	0.4	M	Y	R	9.1	X15
3/31/2009	129	26.017	5	0.4	M	Y	R	6.7	L02
3/31/2009	129	26.017	5	0.4	M	Y	R	11.8	L02
3/31/2009	129	26.017	5	0.4	F	Y	R	18.8	L02
3/31/2009	129	26.017	5	0.4	M	Y	R	18.9	L02
3/31/2009	129	26.017	5	0.4	M	Y	R	20.2	L02
3/31/2009	129	26.017	5	0.4	M	Y	R	21.5	L02
3/31/2009	129	26.017	5	0.4	M	Y	R	21.7	L02
3/31/2009	129	26.017	5	0.4	M	Y	S	23.6	L02
3/31/2009	129	26.017	5	0.4	F	Y	R	24.1	L02
3/31/2009	129	26.017	5	0.4	M	Y	R	24.2	L02
3/31/2009	129	26.017	5	0.4	M	Y	R	24.8	L02
3/31/2009	129	26.017	5	0.4	F	Y	R	25.1	L02
3/31/2009	129	26.017	5	0.4	F	Y	S	25.2	L02
3/31/2009	129	26.017	5	0.4	M	Y	R	25.5	L02
3/31/2009	129	26.017	5	0.4	M	Y	R	26.4	L02
3/31/2009	129	26.017	5	0.4	F	Y	R	26.4	L02
3/31/2009	129	26.017	5	0.4	F	Y	R	28.0	L02
3/31/2009	129	26.017	5	0.4	F	Y	S	28.9	L02
3/31/2009	129	26.017	5	0.4	F	Y	R	30.0	L02
3/31/2009	129	26.017	5	0.4	F	Y	S	36.4	L02
3/31/2009	129	26.017	5	0.4	M	Y	R	6.7	X15
3/31/2009	129	26.017	5	0.4	M	Y	R	7.2	X15
3/31/2009	130	26.017	5.4	0.4	M	Y	S	21.3	L02
3/31/2009	130	26.017	5.4	0.4	M	Y	R	22.6	L02
3/31/2009	130	26.017	5.4	0.4	M	Y	PS	23.9	L02
3/31/2009	130	26.017	5.4	0.4	F	Y	R	26.0	L02
3/31/2009	130	26.017	5.4	0.4	F	Y	R	34.3	L02
3/31/2009	130	26.017	5.4	0.4	F	Y	R	39.8	L02
3/31/2009	130	26.017	5.4	0.4	F	Y	R	42.0	L02
3/31/2009	131	26.367	5.1	0.4	F	Y	S	28.3	L02
3/31/2009	132	23.283	4.8	0.4	M	Y	R	21.2	L02
3/31/2009	132	23.283	4.8	0.4	M	Y	R	21.9	L02
3/31/2009	132	23.283	4.8	0.4	M	Y	R	22.8	L02
3/31/2009	132	23.283	4.8	0.4	F	Y	G	25.0	L02

3/31/2009	132	23.283	4.8	0.4	F	Y	G	25.6	L02
3/31/2009	133	.	4.8	0.4				.	
3/31/2009	134	.	4.7	0.4				.	
3/31/2009	135	.	4.7	0.5				.	
4/1/2009	10	25.15	4.8	0.4	F	N	I	12.6	L02
4/1/2009	10	25.15	4.8	0.4	M	Y	R	5.9	X15
4/1/2009	10	25.15	4.8	0.4	M	Y	R	7.3	X15
4/1/2009	22	23.15	6.9	0.7				.	Z98
4/1/2009	127	21.55	4.9	0.6	F	Y	R	17.3	L02
4/1/2009	127	21.55	4.9	0.6	M	Y	R	17.4	L02
4/1/2009	127	21.55	4.9	0.6	F	Y	R	20.2	L02
4/1/2009	127	21.55	4.9	0.6	M	Y	R	22.0	L02
4/1/2009	127	21.55	4.9	0.6	M	Y	R	22.2	L02
4/1/2009	127	21.55	4.9	0.6	M	Y	R	23.6	L02
4/1/2009	127	21.55	4.9	0.6	M	Y	R	23.8	L02
4/1/2009	127	21.55	4.9	0.6	M	Y	R	26.4	L02
4/1/2009	127	21.55	4.9	0.6	F	Y	R	27.0	L02
4/1/2009	127	21.55	4.9	0.6	F	Y	R	28.8	L02
4/1/2009	127	21.55	4.9	0.6	F	Y	G	7.4	X15
4/1/2009	127	21.55	4.9	0.6	F	Y	G	8.5	X15
4/1/2009	127	21.55	4.9	0.6	F	Y	G	12.1	X15
4/1/2009	128	21.633	4.3	0.4	F	Y	R	22.2	L02
4/1/2009	128	21.633	4.3	0.4	F	Y	R	25.6	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	20.7	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	20.9	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	21.4	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	G	21.7	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	21.9	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	22.6	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	23.4	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	23.4	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	23.6	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	S	23.9	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	PS	24.4	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	24.4	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	24.8	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	S	24.8	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	25.2	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	S	25.2	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	25.2	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	S	25.4	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	G	25.5	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	S	26.0	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	S	26.2	L02

4/1/2009	129	21.5	3.9	0.4	F	Y	R	26.4	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	G	26.9	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	27.3	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	R	27.6	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	27.6	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	PS	27.6	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	27.7	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	S	27.7	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	PS	28.0	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	R	28.7	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	R	28.9	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	S	29.3	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	S	29.5	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	S	29.9	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	R	30.7	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	R	30.7	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	S	31.1	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	S	31.3	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	G	31.5	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	S	33.1	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	R	33.5	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	S	34.6	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	R	34.7	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	R	35.0	L02
4/1/2009	129	21.5	3.9	0.4	F	Y	R	37.6	L02
4/1/2009	129	21.5	3.9	0.4	M	Y	R	6.8	X15
4/1/2009	130	22	3.9	0.4	M	Y	R	20.1	L02
4/1/2009	130	22	3.9	0.4	M	Y	R	20.5	L02
4/1/2009	130	22	3.9	0.4	M	Y	PS	20.7	L02
4/1/2009	130	22	3.9	0.4	M	Y	R	21.3	L02
4/1/2009	130	22	3.9	0.4	M	Y	R	22.4	L02
4/1/2009	130	22	3.9	0.4	F	Y	R	23.8	L02
4/1/2009	130	22	3.9	0.4	M	Y	R	24.8	L02
4/1/2009	130	22	3.9	0.4	F	Y	R	26.4	L02
4/1/2009	130	22	3.9	0.4	F	Y	R	26.4	L02
4/1/2009	130	22	3.9	0.4	F	Y	R	29.3	L02
4/1/2009	130	22	3.9	0.4	F	Y	R	29.9	L02
4/1/2009	130	22	3.9	0.4	F	Y	R	35.8	L02
4/1/2009	130	22	3.9	0.4	F	Y	R	36.8	L02
4/1/2009	131	22	4.5	0.4	M	Y	R	19.7	L02
4/1/2009	131	22	4.5	0.4	M	Y	R	21.1	L02
4/1/2009	131	22	4.5	0.4	M	Y	R	24.7	L02
4/1/2009	131	22	4.5	0.4	F	Y	S	35.8	L02
4/1/2009	132	24.883	4.5	0.4	M	Y	R	20.1	L02

4/1/2009	132	24.883	4.5	0.4	M	Y	R	20.3	L02
4/1/2009	132	24.883	4.5	0.4	M	Y	R	21.9	L02
4/1/2009	132	24.883	4.5	0.4	F	Y	R	27.7	L02
4/1/2009	133	26.417	4.2	0.4				.	Z98
4/1/2009	134	25.633	4.6	0.4	F	Y	R	26.0	L02
4/1/2009	134	25.633	4.6	0.4	M	Y	S	28.0	L02
4/1/2009	135	25.683	4.4	0.5	M	Y	R	26.0	L02
4/1/2009	135	25.683	4.4	0.5	F	Y	R	34.4	L02
4/2/2009	10	22.917	4.7	0.4	M	N	I	8.5	L02
4/2/2009	10	22.917	4.7	0.4	U	N	I	9.1	L02
4/2/2009	10	22.917	4.7	0.4	U	N	I	5.9	X15
4/2/2009	22	22.767	6.7	0.7				.	Z98
4/2/2009	127	23.667	3	0.6	M	N	I	11.0	L02
4/2/2009	127	23.667	3	0.6	M	N	I	11.6	L02
4/2/2009	127	23.667	3	0.6	M	Y	S	22.6	L02
4/2/2009	127	23.667	3	0.6	F	Y	R	28.5	L02
4/2/2009	127	23.667	3	0.6	F	Y	R	29.1	L02
4/2/2009	128	23.333	3.5	0.4	M	Y	PS	23.2	L02
4/2/2009	128	23.333	3.5	0.4	M	Y	R	23.7	L02
4/2/2009	128	23.333	3.5	0.4	M	Y	S	25.4	L02
4/2/2009	128	23.333	3.5	0.4	M	Y	PS	26.9	L02
4/2/2009	128	23.333	3.5	0.4	F	Y	S	30.8	L02
4/2/2009	129	23.25	3.4	0.4	M	Y	PS	21.7	L02
4/2/2009	129	23.25	3.4	0.4	M	Y	PS	22.2	L02
4/2/2009	129	23.25	3.4	0.4	M	Y	R	22.2	L02
4/2/2009	129	23.25	3.4	0.4	M	Y	PS	23.4	L02
4/2/2009	129	23.25	3.4	0.4	M	Y	PS	23.7	L02
4/2/2009	129	23.25	3.4	0.4	M	Y	PS	25.0	L02
4/2/2009	129	23.25	3.4	0.4	M	Y	PS	25.0	L02
4/2/2009	129	23.25	3.4	0.4	F	Y	S	27.6	L02
4/2/2009	129	23.25	3.4	0.4	F	Y	G	28.0	L02
4/2/2009	129	23.25	3.4	0.4	F	Y	PS	28.9	L02
4/2/2009	129	23.25	3.4	0.4	F	Y	R	29.5	L02
4/2/2009	129	23.25	3.4	0.4	F	Y	S	29.7	L02
4/2/2009	129	23.25	3.4	0.4	F	Y	R	30.1	L02
4/2/2009	129	23.25	3.4	0.4	F	Y	G	34.6	L02
4/2/2009	129	23.25	3.4	0.4	M	Y	R	5.9	X15
4/2/2009	129	23.25	3.4	0.4	M	Y	R	6.1	X15
4/2/2009	129	23.25	3.4	0.4	F	Y	G	10.5	X15
4/2/2009	130	22.9	3.6	0.4	M	Y	S	18.9	L02
4/2/2009	130	22.9	3.6	0.4	M	Y	S	25.2	L02
4/2/2009	131	22.633	3.8	0.4	F	Y	PS	36.8	L02
4/2/2009	132	23.55	4.4	0.4	M	Y	PS	18.9	L02
4/2/2009	132	23.55	4.4	0.4	M	Y	R	21.3	L02

4/2/2009	132	23.55	4.4	0.4	M	Y	R	21.7	L02
4/2/2009	132	23.55	4.4	0.4	F	Y	R	29.1	L02
4/2/2009	133	22.533	4	0.4	F	Y	S	23.7	L02
4/2/2009	134	22.917	4.1	0.4				.	Z98
4/2/2009	135	22.333	4.3	0.5	F	Y	G	27.2	L02
4/2/2009	135	22.333	4.3	0.5	F	Y	G	29.5	L02
4/3/2009	10	23.733	6.7	0.4	M	Y	R	7.4	L02
4/3/2009	10	23.733	6.7	0.4	M	Y	R	9.3	L02
4/3/2009	10	23.733	6.7	0.4	M	Y	R	5.6	X15
4/3/2009	22	21.667	6.3	0.7	F	Y	S	6.3	X15
4/3/2009	22	21.667	6.3	0.7	F	N	I	6.7	X15
4/3/2009	22	21.667	6.3	0.7	F	Y	S	7.4	X15
4/3/2009	22	21.667	6.3	0.7	F	Y	G	8.3	X15
4/3/2009	127	26.75	6.9	0.6	M	Y	R	10.3	L02
4/3/2009	127	26.75	6.9	0.6	F	N	I	10.6	L02
4/3/2009	127	26.75	6.9	0.6	F	Y	R	22.2	L02
4/3/2009	127	26.75	6.9	0.6	F	Y	R	24.2	L02
4/3/2009	127	26.75	6.9	0.6	F	Y	R	24.4	L02
4/3/2009	127	26.75	6.9	0.6	M	Y	R	25.0	L02
4/3/2009	127	26.75	6.9	0.6	F	Y	R	26.0	L02
4/3/2009	127	26.75	6.9	0.6	F	Y	R	26.0	L02
4/3/2009	127	26.75	6.9	0.6	F	Y	R	26.8	L02
4/3/2009	127	26.75	6.9	0.6	F	Y	R	27.2	L02
4/3/2009	127	26.75	6.9	0.6	F	Y	PS	27.2	L02
4/3/2009	127	26.75	6.9	0.6	F	Y	R	28.2	L02
4/3/2009	127	26.75	6.9	0.6	F	Y	R	30.6	L02
4/3/2009	128	26.167	5.2	0.4	M	Y	S	21.1	L02
4/3/2009	128	26.167	5.2	0.4	F	Y	R	22.8	L02
4/3/2009	128	26.167	5.2	0.4	M	Y	S	22.8	L02
4/3/2009	128	26.167	5.2	0.4	M	Y	S	23.8	L02
4/3/2009	128	26.167	5.2	0.4	F	Y	R	25.6	L02
4/3/2009	128	26.167	5.2	0.4	F	Y	R	27.2	L02
4/3/2009	128	26.167	5.2	0.4	M	Y	S	29.1	L02
4/3/2009	128	26.167	5.2	0.4	F	Y	R	29.3	L02
4/3/2009	128	26.167	5.2	0.4	F	Y	R	30.1	L02
4/3/2009	129	25.5	4.9	0.4	M	Y	R	20.0	L02
4/3/2009	129	25.5	4.9	0.4	M	Y	S	23.4	L02
4/3/2009	129	25.5	4.9	0.4	M	Y	S	23.6	L02
4/3/2009	129	25.5	4.9	0.4	M	Y	R	24.1	L02
4/3/2009	129	25.5	4.9	0.4	F	Y	S	24.1	L02
4/3/2009	129	25.5	4.9	0.4	F	Y	S	24.4	L02
4/3/2009	129	25.5	4.9	0.4	M	Y	S	24.9	L02
4/3/2009	129	25.5	4.9	0.4	M	Y	PS	25.2	L02
4/3/2009	129	25.5	4.9	0.4	M	Y	S	25.2	L02

4/3/2009	129	25.5	4.9	0.4	F	Y	R	28.7	L02
4/3/2009	129	25.5	4.9	0.4	F	Y	R	30.3	L02
4/3/2009	129	25.5	4.9	0.4	F	Y	S	37.2	L02
4/3/2009	129	25.5	4.9	0.4	M	Y	R	5.5	X15
4/3/2009	129	25.5	4.9	0.4	M	Y	R	7.2	X15
4/3/2009	129	25.5	4.9	0.4	M	Y	R	8.0	X15
4/3/2009	129	25.5	4.9	0.4	F	Y	G	8.2	X15
4/3/2009	129	25.5	4.9	0.4	F	Y	S	9.5	X15
4/3/2009	130	24.933	5.5	0.4	F	Y	S	30.3	L02
4/3/2009	131	24.533	4.8	0.4				.	Z98
4/3/2009	132	21.667	4.5	0.4	F	Y	R	20.1	L02
4/3/2009	132	21.667	4.5	0.4	M	Y	S	21.9	L02
4/3/2009	132	21.667	4.5	0.4	F	Y	R	24.8	L02
4/3/2009	132	21.667	4.5	0.4	F	Y	R	25.1	L02
4/3/2009	133	21.9	4.3	0.4				.	Z98
4/3/2009	134	21.583	3.9	0.4	M	Y	S	25.0	L02
4/3/2009	134	21.583	3.9	0.4	F	Y	S	27.2	L02
4/3/2009	135	22.083	4.3	0.5				.	Z98