

Chapter 15. Depth, Temperature, Oxygen Profile (Primary responsibility - Timothy Spier)

Introduction:

Much effort was directed toward measuring temperature within Newton Lake, Coffeen Lake, and Lake of Egypt in order to reflect the importance of thermal loading to this study. Temperature and oxygen profiles were measured bimonthly in each segment of each lake. Temperature and oxygen profiles were also obtained during fish tracking and at various other times throughout the study. Continuous temperature data was recorded from temperature loggers stationed at various depths throughout Newton Lake, Coffeen Lake, and Lake of Egypt.

Materials and Methods:

Temperature and oxygen were measured bimonthly in each lake by lowering the probe from a YSI Model 50B temperature – oxygen meter. Measurements were taken at 0.5 m intervals from the surface to the bottom at the midpoint of each segment of each lake; therefore, the final reading taken each sample date is within 0.5 – m of the bottom of the lake. The YSI meters were calibrated approximately every 4 weeks using a standard thermometer. Oxygen membranes were changed frequently. Oxygen meters were calibrated each time they were used following the method outlined by the manufacturer.

Temperature loggers were stationed at the surface, 1.5 m (4.9 ft.), 3.0 m (9.8 ft.), and 4.5 m (14.8 ft.) in Segments 1 – 3 of Newton Lake. Loggers were placed at 0, 1.5, and 3.0 m in Segment 4; on August 8, 1999 the surface logger in Segment 4 was moved

down to 4.5 m. Loggers were also stationed at the surface near the intake and at the surface in the discharge of the Newton Lake Generating Station; data from the latter was used to evaluate adherence to the thermal variance (Figure 15.1).

Temperature loggers were stationed at the surface, 1.5 m, 3.0 m, and 4.5 m in the discharge, near the dam, and near the intake of Coffeen Lake (Figure 15.2). Temperature loggers were stationed at the surface, 1.5 m, 3.0 m, and 4.5 m in Segments 1 and 2 of Lake of Egypt (Figure 15.3). Note that data from all surface loggers of Newton Lake, except the surface logger in Segment 4, and all surface loggers in Coffeen Lake were operated by Ameren CIPS. Data from the Ameren CIPS surface loggers in Newton Lake begin in early June 1997, while data from surface loggers for all segments of Coffeen Lake begin in September of 1996. Loggers for the deeper water in Newton Lake and Coffeen Lake, as well as all loggers for Lake of Egypt, were purchased and installed in September 1997.

Temperature loggers were programmed to measure temperature every 2 minutes, and the mean of these measurements was recorded every 1 or 2 hours to determine the hourly temperature. Mean daily temperature and maximum daily temperature was determined from the hourly readings. Monthly mean temperature was determined by averaging the mean daily temperatures each month.

Preliminary analysis of temperature logger data suggested that some loggers gave erratic data at various times throughout the study. This erratic data often manifested itself as temperature readings for loggers near the surface that were much lower than temperature readings from loggers that were deeper in the water column. Readings from

each logger were compared to readings from all deeper loggers, and any upper reading which was more than 5 degrees F cooler than a deeper reading was scrutinized. Comparison of the scrutinized readings to other data, such as temperature profile data or other logger data, indicated which logger was malfunctioning. Data from the malfunctioning logger were then discarded.

Regular biweekly temperature and oxygen profiles were used to estimate the amount of habitat available to the fish during the summer months (June, July, and August) of 1998 and 1999. Combinations of temperature (range 87 to 97 degrees F) and oxygen (range from 1 to 4 ppm) were used to determine percent of habitat available. For any combination of temperature and oxygen, each 0.5 – m stratum was examined to determine if that stratum had water warmer than the given temperature or oxygen levels lower than the given oxygen. If either of these criteria were met, the stratum was considered unavailable as habitat for fish. Summing all unavailable strata for a given sampling date in a given segment and then dividing by the depth of the segment gave an estimate of the percent of habitat that was unavailable to the fish. Subtraction from 100% gave the percent habitat which was available. For example, if the water were 10 – m deep in a particular segment on a sampling date, and for a given set of temperature and oxygen criteria only 2.5 m was available as fish habitat, then the percent habitat available would have been 25%. Thus, on June 5, 1998 in Newton Lake Segment 1, 69% of the habitat had oxygen levels greater than 4 ppm and temperatures less than 87 F, and 94% of the habitat had oxygen levels greater than 1 ppm and temperatures less than 97 F (Table 15A.5).

Percent habitat available for Newton Lake on July 29 and 30, 1999 (Tables 15A.18 and 15A.19), and Coffeen Lake on July 31 and August 1, 1999 (Tables 15A.49 and 15A.50) were calculated from temperature and oxygen profiles obtained during fish health sampling (Chapter 9) performed during the fish kill.

Interspersed throughout the Coffeen Lake summer available habitat tables are similar tables calculated from data recorded by Ameren CIPS. These tables were created using temperature / dissolved oxygen profiles taken at locations F1, F2, and G and thus represent estimated percent available habitat in areas of Coffeen Lake which are outside of the cooling loop.

Habitat calculations were also determined for the winter months (December, January, and February) of each year. Estimated habitat values for the winter months provided insight concerning the creation of available habitat due to thermal loading during the coldest months, in contrast to the summer estimated habitat values which were concerned with the loss of habitat during the warmest months. For winter estimated habitat calculations, a stratum of the lake was considered to provide available habitat if it contained temperatures that were greater than the evaluation temperature and oxygen levels that were higher than the evaluation oxygen level. Because oxygen is rarely limiting during cooler months, habitat was only estimated at 1 level of oxygen (4 ppm), while available habitat was estimated at 1 degree increments over the range 50 – 60 ° F.

Since all segments were nearly equal in size in Newton Lake, a mean value of percent available habitat was calculated for this lake. Irregularity of segment sizes for Coffeen Lake and Lake of Egypt precluded calculation of mean percent available habitat.

The above method is calculated in two dimensions and provides an estimate of percent available habitat. Future work will involve using a contour map of each lake to determine percent available habitat on a volume basis. Also, the current method was based upon assumptions of rectangular basin shape and might be inaccurate due to changes in lake morphology. However, preliminary investigations suggested that even extreme changes in basin shape has little effect on the value calculated for percent available habitat.

Results and Discussion:

Temperature – Oxygen Profiles

Temperature and dissolved oxygen profiles are summarized in Appendix 15A, Figures 15A.1 – 15A.185. Time of measurement (when available) is also indicated on each graph. Figures 15A.1 – 15A.185 contain not only the regular biweekly temperature profiles but also profiles obtained from fish tracking (Chapter 14), profiles obtained by Ameren CIPS (Chapter 17), and profiles obtained during fish health sampling (Chapter 9). Reported profiles from fish tracking are for June – September of 1998 and 1999 in warm segments only (Segments 1 and 2 from Newton Lake, Segment 1 from Coffeen Lake, and Segment 1 from Lake of Egypt). Note that each profile obtained during fish tracking represents the location of at least one tracked fish. Also note that tracking profiles were taken at various points within the given segment, not at the midpoint of each segment as with the biweekly samples. Profiles obtained from Ameren CIPS were recorded during normal water quality sampling. Sites for these profiles are given in Figures 15.4 and 15.5. Profiles obtained during fish health sampling are given for July 30 – August 1. These dates coincided with the final days of the 1999 fish kill. Fish tracking,

Ameren CIPS, and fish health – obtained profiles are interspersed throughout the regular biweekly profiles in Figures 15A.1 – 15A.185 to allow for comparison of proximate dates; origin of profile data is clearly indicated in the caption for each individual figure.

Temperature Loggers

Temperature logger data is summarized in Figures 15A.186 – 15A.218. Although mean daily temperature was recorded at several depths for each segment of each lake, to simplify interpretation only mean temperature for the surface and the deepest temperature logger is given. Tables 15A.1 – 15A.4 give data which were used to evaluate thermal variance compliance for both Newton Lake and Coffeen Lake. In Newton Lake, discharge temperatures never exceeded 111° F during 1998, while in 1999 discharge temperatures exceeded 111° F a total of 100 hours (maximum allowable number of hours exceeding 111° F = 110) (Table 15A.1). In Coffeen Lake, discharge temperatures never exceeded 112° F during 1998, while in 1999 discharge temperatures exceeded 112° F a total of 83 hours (maximum allowable number of hours exceeding 112° F = 132) (Table 15A.2). Mean monthly temperatures are given for Newton Lake (Table 15A.3) and Coffeen Lake (Table 15A.4).

Percent Habitat Available

High temperature and low oxygen, either individually or in combination, can adversely impact the fish community of a lake. Largemouth bass show reduced growth at oxygen levels below 4 mg L⁻¹ (Stewart et al. 1967), and levels below 1 mg L⁻¹ are considered lethal (Moss and Scott 1961). Suitable largemouth habitat decreases as midsummer oxygen levels fall below 5 mg L⁻¹ and average growing season temperatures

increase above 30° C (86° F) (Stuber et al. 1982b). Bluegill avoid oxygen levels from 1.5 to 3.0 mg L⁻¹ (Whitmore et al. 1960), and optimal oxygen levels are 5.0 mg L⁻¹ and above (Petit 1973). No growth of adult bluegill occurs above 30° C (86° F) (Anderson 1959), and the upper incipient lethal temperature for bluegill is 35° C (95° F) (Reynolds and Casterlin 1976, Stuber et al. 1982a).

Percent habitat available during the summer months (June, July, and August) of 1998 and 1999 is given for all 3 lakes in Tables 15A.5 – 15A.72. Low values for Lake of Egypt on July 30, 1998 (Table 15A.62) were likely due to a malfunctioning oxygen probe.

Percent habitat available for the winter months (December, January, and February) of 1997, 1998, and 1999 is given for all 3 lakes in Tables 15A.73 – 15A.107.

Literature Cited

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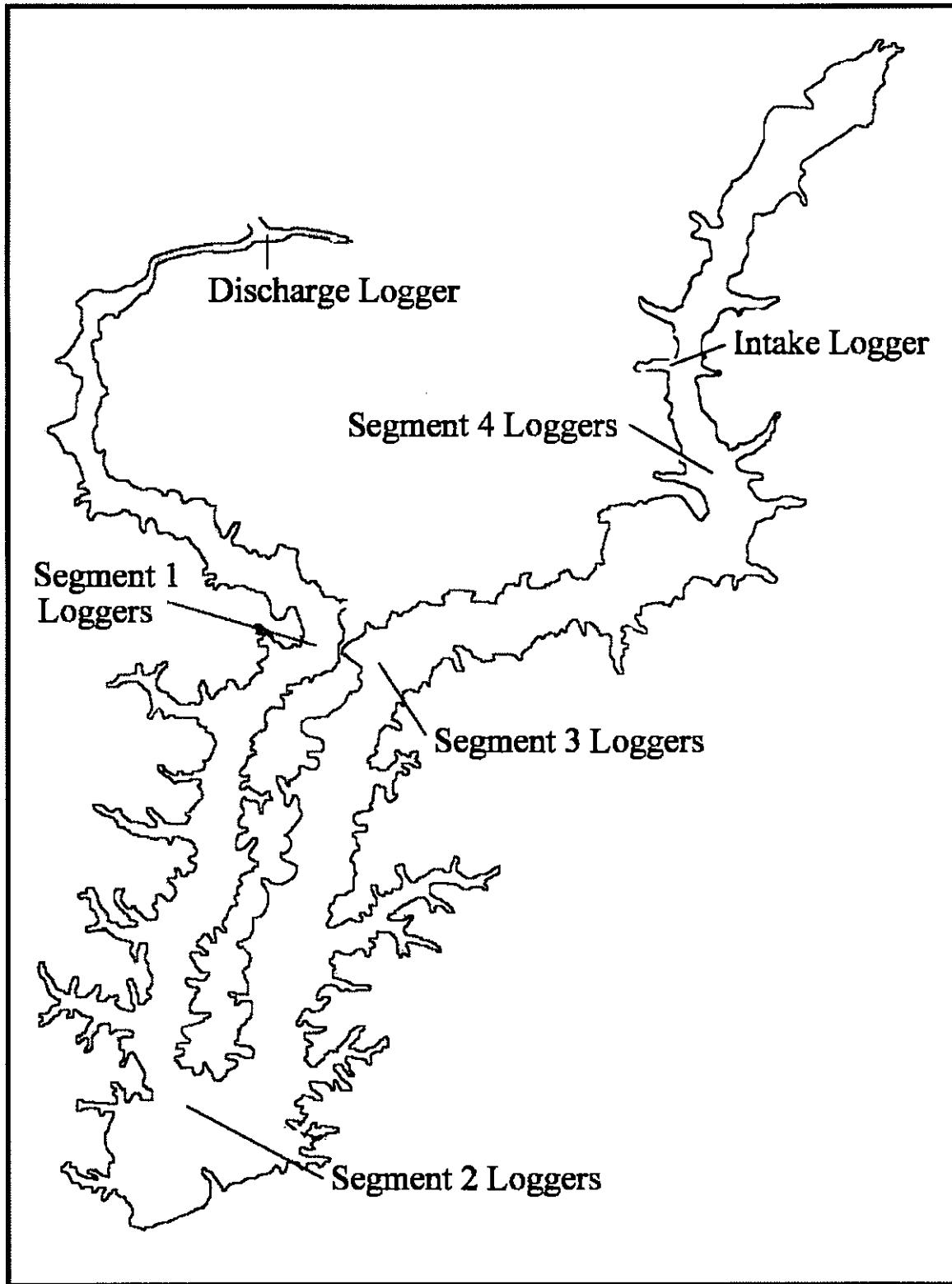


Figure 15.1. Location of temperature loggers in Newton Lake.

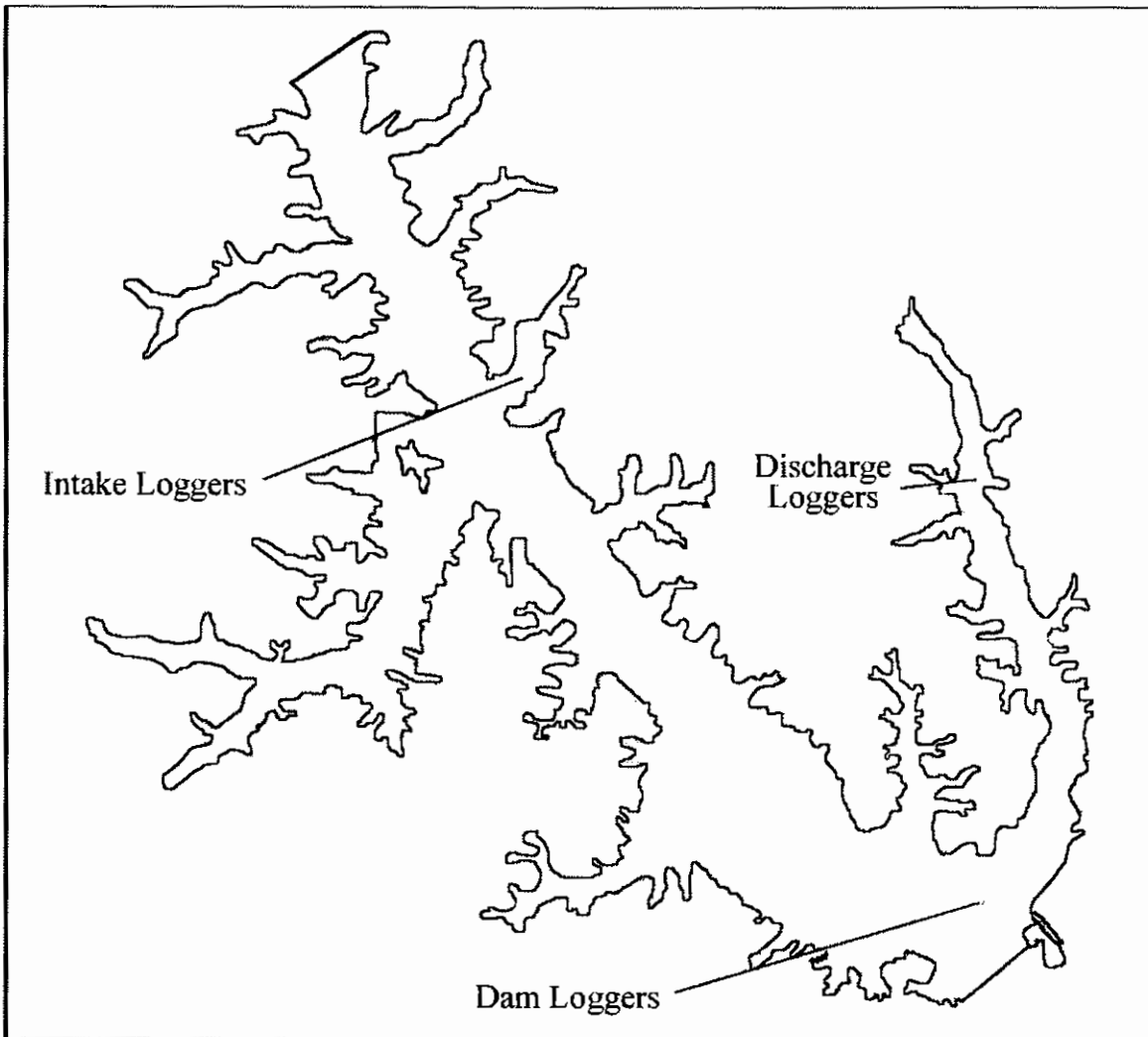


Figure 15.2. Location of temperature loggers in Coffeen Lake.

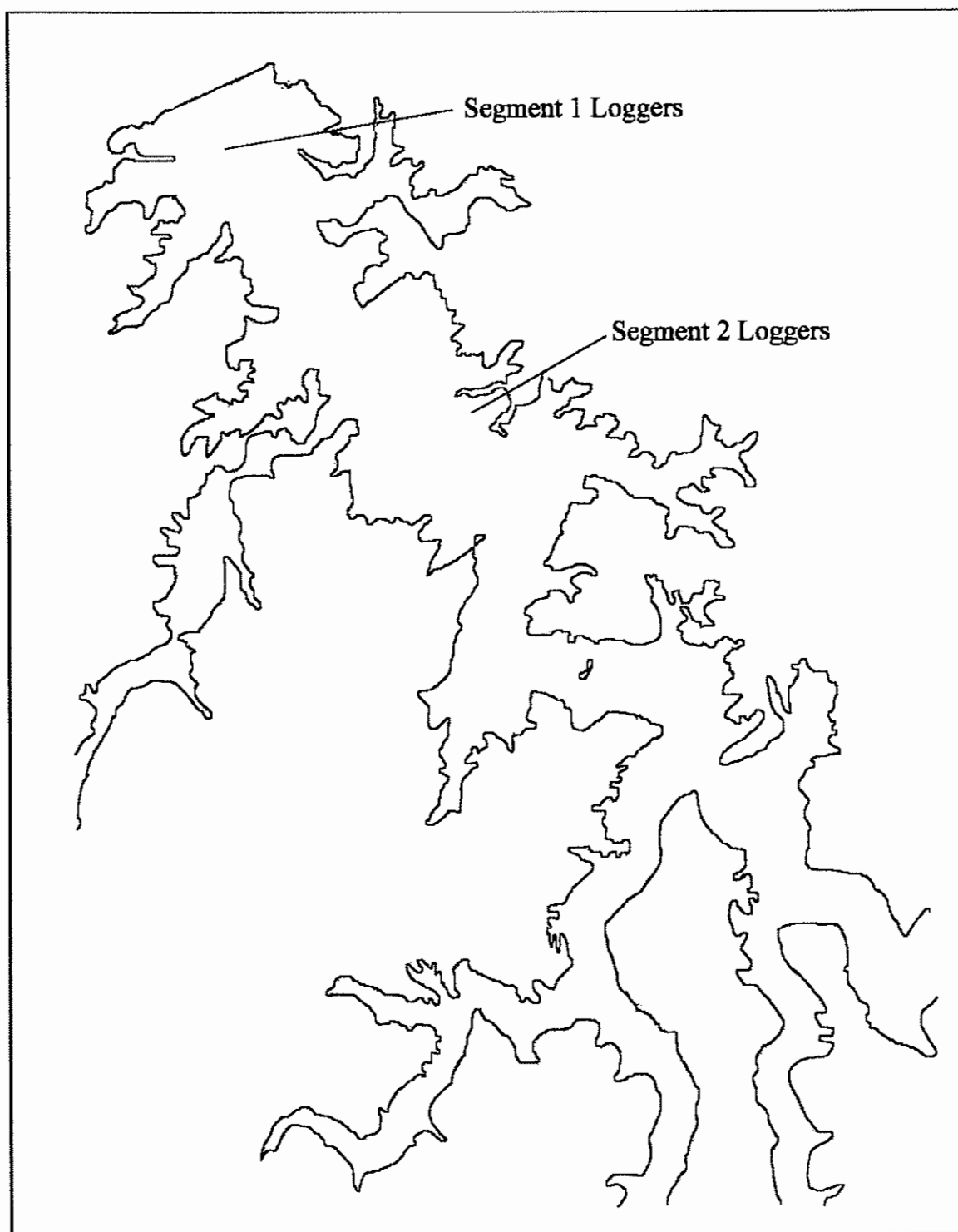


Figure 15.3. Location of temperature loggers in Lake of Egypt.

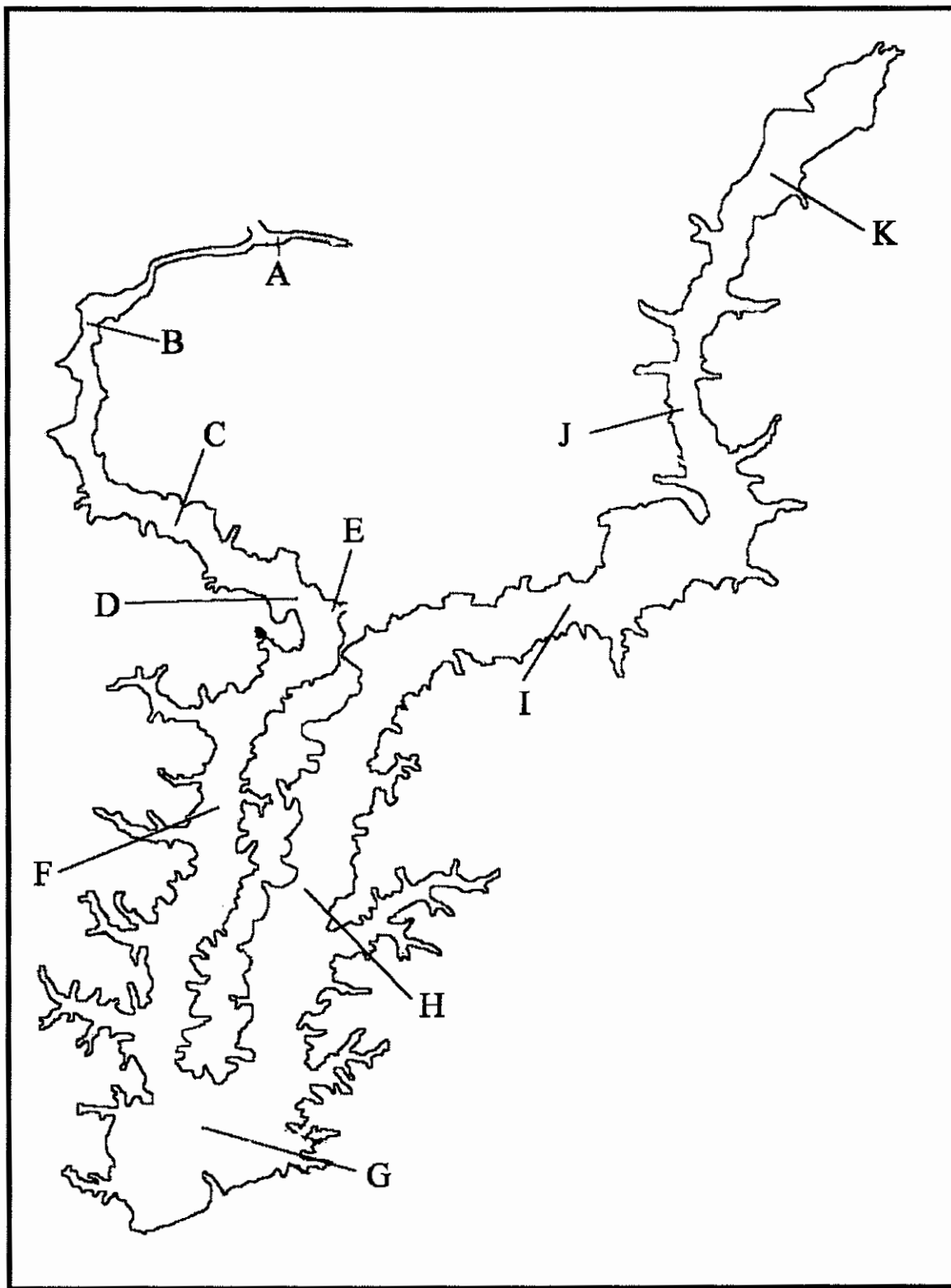


Figure 15.4. Location of Ameren CIPS water quality sampling sites, Newton Lake.

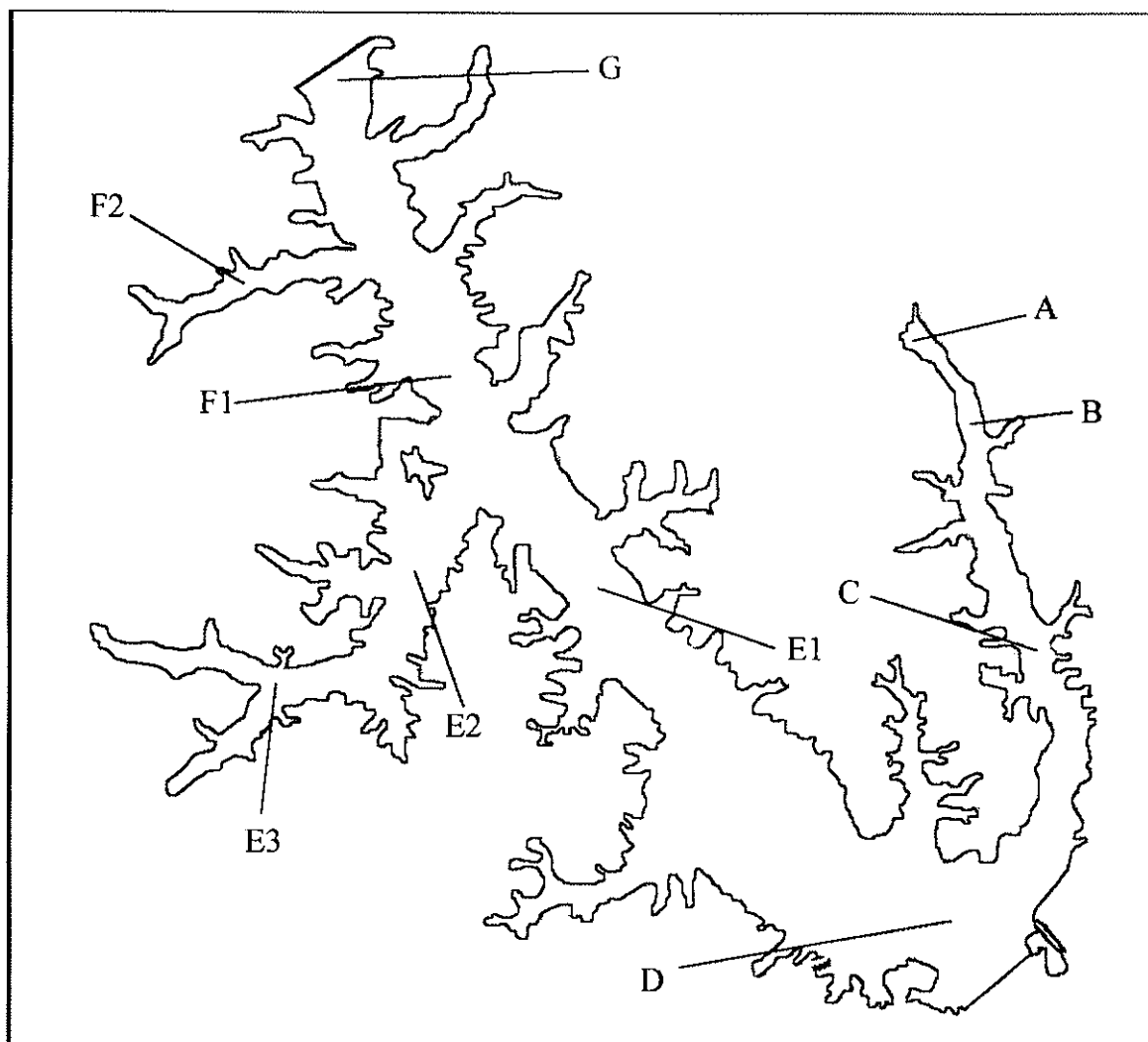


Figure 15.5. Location of Ameren CIPS water quality sampling sites, Coffeen Lake. Sites H and I (not shown) lie north of the railroad bridge.

Chapter 15 Appendix: Supplemental data tables and figures.

Table 15A.1. Hourly readings which exceeded 111° F, Newton Lake discharge, 1998 – 1999. Within a year, total hours above 111° F were not to exceed 110 (3% of total number of hours during the period June – October, 3672 hours).

Date	Time	Surface Temp.	Date	Time	Surface Temp.	Date	Time	Surface Temp.
07/22/1999	13:34:28	111.22	07/24/1999	20:34:28	111.47	07/28/1999	0:34:28	111.36
07/22/1999	14:34:28	111.39	07/24/1999	21:34:28	111.18	07/29/1999	12:34:28	111.33
07/22/1999	15:34:28	111.48	07/24/1999	22:34:28	111.01	07/29/1999	13:34:28	111.79
07/22/1999	16:34:28	111.65	07/25/1999	13:34:28	111.53	07/29/1999	14:34:28	111.99
07/22/1999	17:34:28	111.84	07/25/1999	14:34:28	111.5	07/29/1999	15:34:28	111.87
07/22/1999	18:34:28	112.03	07/25/1999	15:34:28	111.71	07/29/1999	16:34:28	111.99
07/22/1999	19:34:28	112.09	07/25/1999	16:34:28	111.77	07/29/1999	17:34:28	112.31
07/22/1999	20:34:29	112.06	07/25/1999	17:34:28	112.03	07/29/1999	18:34:28	111.43
07/22/1999	21:34:28	111.93	07/25/1999	18:34:28	112.13	07/29/1999	19:34:28	112.61
07/22/1999	22:34:28	111.85	07/25/1999	19:34:28	112.06	07/29/1999	20:34:28	112.85
07/22/1999	23:34:28	111.74	07/25/1999	20:34:28	112.11	07/29/1999	21:34:28	113
07/23/1999	0:34:28	111.48	07/25/1999	21:34:28	112.44	07/29/1999	22:34:28	112.39
07/23/1999	10:34:28	111.59	07/25/1999	22:34:28	112.53	07/29/1999	23:34:28	112.85
07/23/1999	11:34:29	112.01	07/25/1999	23:34:28	112.32	07/30/1999	0:34:28	112.79
07/23/1999	12:34:28	112.32	07/26/1999	11:34:28	111.15	07/30/1999	11:34:28	111.81
07/23/1999	13:34:28	112.53	07/26/1999	12:18:32	111.28	07/30/1999	12:34:28	111.85
07/23/1999	14:34:28	111.93	07/26/1999	16:34:28	111.35	07/30/1999	14:34:28	112.99
07/23/1999	15:34:28	112.06	07/26/1999	17:34:28	112.57	07/30/1999	15:34:28	113.31
07/23/1999	16:34:28	112.05	07/26/1999	18:34:28	112.46	07/30/1999	16:34:28	113.27
07/23/1999	17:34:28	111.98	07/26/1999	19:34:28	112.47	07/30/1999	17:34:28	113.35
07/23/1999	18:34:28	111.84	07/26/1999	20:34:28	112.34	07/30/1999	18:34:28	113.37
07/23/1999	19:34:28	111.77	07/26/1999	21:34:28	112.31	07/30/1999	19:34:28	113.51
07/23/1999	20:34:28	111.73	07/26/1999	22:34:28	112.33	07/30/1999	20:34:28	113.56
07/23/1999	21:34:28	111.79	07/26/1999	23:34:29	112.29	07/30/1999	21:34:28	113.63
07/23/1999	22:34:28	111.75	07/27/1999	0:34:28	112.23	07/30/1999	22:34:28	113.66
07/23/1999	23:34:28	111.49	07/27/1999	14:34:28	111.37	07/30/1999	23:34:28	113.64
07/24/1999	11:34:28	111.54	07/27/1999	15:34:28	111.54	07/31/1999	0:34:28	113.48
07/24/1999	12:34:28	111.96	07/27/1999	16:34:28	111.71	07/31/1999	1:34:28	111.98
07/24/1999	13:34:28	112.18	07/27/1999	17:34:28	111.82	07/31/1999	2:34:28	112.8
07/24/1999	14:34:28	112.27	07/27/1999	18:34:28	111.78	07/31/1999	3:34:28	112.67
07/24/1999	15:34:28	112.09	07/27/1999	19:34:28	111.57			
07/24/1999	16:34:28	112.05	07/27/1999	20:34:29	111.59			
07/24/1999	17:34:28	111.77	07/27/1999	21:34:28	111.7			
07/24/1999	18:34:28	111.7	07/27/1999	22:34:28	111.71			
07/24/1999	19:34:28	111.75	07/27/1999	23:34:28	111.6			
						TOTAL HOURS	100	

Table 15A.2. Hourly readings which exceeded 112° F, Coffeen Lake discharge, 1998 – 1999. Within a year, total hours above 112° F were not to exceed 132 (3% of total number of hours during the period May – October, 4416 hours).

Date	Time	Surface Temp.	Date	Time	Surface Temp.
07/23/1999	16:00:00	112	07/29/1999	13:00:00	112.89
07/23/1999	17:00:00	112.5	07/29/1999	14:00:00	114.24
07/23/1999	18:00:00	112.21	07/29/1999	15:00:00	114.02
07/23/1999	19:00:00	112.59	07/29/1999	16:00:00	114.14
07/23/1999	20:00:00	112.16	07/29/1999	17:00:00	114.56
07/25/1999	14:00:00	112.09	07/29/1999	18:00:00	114.67
07/25/1999	15:00:00	112.72	07/29/1999	19:00:00	114.19
07/25/1999	16:00:00	112.72	07/29/1999	20:00:00	114.21
07/25/1999	17:00:00	112.43	07/29/1999	21:00:00	113.6
07/25/1999	18:00:00	113.34	07/29/1999	22:00:00	114
07/25/1999	19:00:00	112.95	07/29/1999	23:00:00	113.89
07/25/1999	20:00:00	112.2	07/30/1999	1:00:00	113.24
07/25/1999	23:00:00	112.8	07/30/1999	2:00:00	113.9
07/26/1999	12:00:00	113.01	07/30/1999	3:00:00	113.11
07/26/1999	13:00:00	113.48	07/30/1999	4:00:00	112.34
07/26/1999	14:00:00	113.75	07/30/1999	12:00:00	112.74
07/26/1999	15:00:00	113.87	07/30/1999	13:00:00	114.2
07/26/1999	16:00:00	112.19	07/30/1999	14:00:00	114.3
07/26/1999	18:00:00	112.36	07/30/1999	15:00:00	114.65
07/26/1999	19:00:00	113.4	07/30/1999	16:00:00	114.88
07/26/1999	20:00:00	114.35	07/30/1999	17:00:00	115.05
07/26/1999	21:00:00	112.96	07/30/1999	18:00:00	115.39
07/26/1999	22:00:00	114.17	07/30/1999	19:00:00	114.06
07/26/1999	23:00:00	113.93	07/30/1999	20:00:00	113.44
07/27/1999	0:00:00	112.9	07/30/1999	21:00:00	113.52
07/27/1999	14:00:00	113.62	07/30/1999	22:00:00	112.95
07/27/1999	15:00:00	113.22	07/30/1999	23:00:00	113.64
07/27/1999	16:00:00	113.81	07/31/1999	1:00:00	112.54
07/27/1999	17:00:00	113.31	07/31/1999	2:00:00	112.31
07/27/1999	18:00:00	113.68	07/31/1999	14:00:00	113.02
07/27/1999	19:00:00	113.43	07/31/1999	15:00:00	112.88
07/27/1999	20:00:00	113.81	07/31/1999	18:00:00	113.29
07/27/1999	21:00:00	114	07/31/1999	19:00:00	113.83
07/27/1999	22:00:00	113.29	07/31/1999	20:00:00	114.09
07/27/1999	23:00:00	112.91	07/31/1999	21:00:00	114.2
07/28/1999	15:00:00	112.41	07/31/1999	22:00:00	113.68
07/28/1999	16:00:00	112.95	07/31/1999	23:00:00	112.83
07/28/1999	17:00:00	113.17	09/07/1999	14:00:00	120.27
07/28/1999	18:00:00	113.86	09/07/1999	15:00:00	120.08
07/28/1999	19:00:00	113.91	09/07/1999	16:00:00	122.49
07/28/1999	20:00:00	113.58			
07/28/1999	21:00:00	113.37	TOTAL HOURS	83	
07/28/1999	22:00:00	112.17			

Table 15A.3. Mean monthly surface temperature, Newton Lake discharge.

Year	Month	n	Surface Temperature Monthly Average
1997	June	27	95.9
1997	July	31	101.7
1997	August	31	96.2
1997	September	30	94.9
1997	October	31	86.3
1997	November	21	69.5
1997	December	31	71.3
1998	January	31	62.6
1998	February	28	63.8
1998	March	31	67.0
1998	April	30	79.7
1998	May	31	89.8
1998	June	30	96.3
1998	July	31	101.7
1998	August	31	102.3
1998	September	30	94.6
1998	October	31	87.5
1998	November	30	72.4
1998	December	31	69.8
1999	January	31	54.0
1999	February	28	67.0
1999	March	31	72.3
1999	April	30	77.3
1999	May	31	88.4
1999	June	30	97.0
1999	July	31	104.1
1999	August	31	99.7
1999	September	30	93.1
1999	October	31	85.4
1999	November	16	80.9

Table 15A.4. Mean monthly surface temperature, Coffeen Lake discharge.

Year	Month	n	Surface Temperature
			Monthly Average
1996	September	6	92.4
1996	October	19	83.2
1996	November	30	80.5
1996	December	31	76.6
1997	January	31	71.6
1997	February	28	69.6
1997	March	26	76.1
1997	April	15	70.2
1997	May	31	77.7
1997	June	30	87.9
1997	July	31	100.8
1997	August	31	98.7
1997	September	30	88.7
1997	October	31	81.6
1997	November	30	76.0
1997	December	31	73.3
1998	January	23	68.2
1998	February	0	
1998	March	0	
1998	April	15	82.8
1998	May	31	90.8
1998	June	30	94.9
1998	July	31	102.4
1998	August	31	100.1
1998	September	28	96.1
1998	October	31	79.9
1998	November	30	68.1
1998	December	25	66.4
1999	January	26	67.8
1999	February	24	64.9
1999	March	31	73.1
1999	April	18	85.5
1999	May	31	86.4
1999	June	30	90.5
1999	July	31	103.9
1999	August	31	101.5
1999	September	30	94.8
1999	October	31	83.6
1999	November	30	75.3
1999	December	12	70.8

Table 15A.5. Estimated percent habitat available in Newton Lake, June 5, 1998 (Segment 1 = 11:30 AM, Segment 2 = 1:10 PM, Segment 3 = 10:40 AM, Segment 4 = 10:20 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	69	62	72	94	74
4	88	69	62	72	94	74
4	89	69	62	72	94	74
4	90	69	62	72	94	74
4	91	69	62	72	94	74
4	92	69	62	72	94	74
4	93	69	62	72	94	74
4	94	69	62	72	94	74
4	95	69	62	72	94	74
4	96	69	62	72	94	74
4	97	69	62	72	94	74
3	87	69	62	72	94	74
3	88	69	62	72	94	74
3	89	69	62	72	94	74
3	90	69	62	72	94	74
3	91	69	62	72	94	74
3	92	69	62	72	94	74
3	93	69	62	72	94	74
3	94	69	62	72	94	74
3	95	69	62	72	94	74
3	96	69	62	72	94	74
3	97	69	62	72	94	74
2	87	69	62	72	100	76
2	88	69	62	72	100	76
2	89	69	62	72	100	76
2	90	69	62	72	100	76
2	91	69	62	72	100	76
2	92	69	62	72	100	76
2	93	69	62	72	100	76
2	94	69	62	72	100	76
2	95	69	62	72	100	76
2	96	69	62	72	100	76
2	97	69	62	72	100	76
1	87	94	68	72	100	84
1	88	94	68	72	100	84
1	89	94	68	72	100	84
1	90	94	68	72	100	84
1	91	94	68	72	100	84
1	92	94	68	72	100	84
1	93	94	68	72	100	84
1	94	94	68	72	100	84
1	95	94	68	72	100	84
1	96	94	68	72	100	84
1	97	94	68	72	100	84

Table 15A.6. Estimated percent habitat available in Newton Lake, June 10, 1998 (Segment 1 = 4:53 PM, Segment 2 = 4:35 PM, Segment 3 = 4:11 PM, Segment 4 = 3:53 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	22	60	79	100	65
4	88	22	60	79	100	65
4	89	22	60	79	100	65
4	90	22	67	79	100	67
4	91	22	73	79	100	69
4	92	33	77	79	100	72
4	93	33	77	79	100	72
4	94	44	77	79	100	75
4	95	44	77	79	100	75
4	96	56	77	79	100	78
4	97	61	77	79	100	79
3	87	56	60	79	100	74
3	88	56	60	79	100	74
3	89	56	60	79	100	74
3	90	56	67	79	100	76
3	91	56	73	79	100	77
3	92	67	77	79	100	81
3	93	67	77	79	100	81
3	94	78	77	79	100	84
3	95	78	77	79	100	84
3	96	89	77	79	100	86
3	97	94	77	79	100	88
2	87	61	60	85	100	77
2	88	61	60	85	100	77
2	89	61	60	85	100	77
2	90	61	67	85	100	78
2	91	61	73	85	100	80
2	92	72	77	85	100	84
2	93	72	77	85	100	84
2	94	83	77	85	100	86
2	95	83	77	85	100	86
2	96	94	77	85	100	89
2	97	100	77	85	100	91
1	87	61	83	94	100	85
1	88	61	83	94	100	85
1	89	61	83	94	100	85
1	90	61	90	94	100	86
1	91	61	97	94	100	88
1	92	72	100	94	100	92
1	93	72	100	94	100	92
1	94	83	100	94	100	94
1	95	83	100	94	100	94
1	96	94	100	94	100	97
1	97	100	100	94	100	99

Table 15A.7. Estimated percent habitat available in Newton Lake, June 26, 1998 (Segment 1 = 2:51 PM, Segment 2 = 2:20 PM, Segment 3 = 2:00 PM, Segment 4 = 1:40 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	0	0	0	0
4	88	0	0	0	0	0
4	89	0	0	0	55	14
4	90	0	0	6	64	18
4	91	0	0	12	77	22
4	92	0	0	24	77	25
4	93	0	0	24	77	25
4	94	0	0	38	77	29
4	95	0	0	38	77	29
4	96	0	0	38	77	29
4	97	0	0	38	77	29
3	87	0	0	0	0	0
3	88	0	0	0	0	0
3	89	0	0	0	55	14
3	90	0	0	6	64	18
3	91	0	0	18	86	26
3	92	0	0	29	86	29
3	93	0	0	29	86	29
3	94	0	0	44	86	33
3	95	0	0	44	86	33
3	96	0	0	44	86	33
3	97	0	0	44	86	33
2	87	0	6	0	0	2
2	88	0	6	0	0	2
2	89	0	6	0	55	15
2	90	0	13	6	64	21
2	91	0	13	18	95	32
2	92	0	13	29	95	34
2	93	0	13	29	95	34
2	94	0	13	44	95	38
2	95	0	13	44	95	38
2	96	0	13	44	95	38
2	97	0	13	44	95	38
1	87	0	19	0	0	5
1	88	0	19	0	0	5
1	89	0	19	0	55	19
1	90	0	25	6	64	24
1	91	0	25	18	95	35
1	92	0	25	29	95	37
1	93	0	25	29	95	37
1	94	0	25	44	95	41
1	95	0	25	44	95	41
1	96	0	25	44	95	41
1	97	0	25	44	95	41

Table 15A.8. Estimated percent habitat available in Newton Lake, July 11, 1998 (Segment 1 = 8:44 AM, Segment 2 = 9:04 AM, Segment 3 = 9:31 AM, Segment 4 = 10:00 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	0	0	0	0
4	88	0	0	0	65	16
4	89	0	0	6	65	18
4	90	0	0	24	65	22
4	91	0	0	50	65	29
4	92	0	0	50	65	29
4	93	0	0	50	65	29
4	94	0	0	50	65	29
4	95	0	0	50	65	29
4	96	0	0	50	65	29
4	97	0	42	50	65	39
3	87	0	0	0	0	0
3	88	0	0	0	65	16
3	89	0	0	6	65	18
3	90	0	0	24	65	22
3	91	0	0	50	65	29
3	92	0	0	50	65	29
3	93	0	0	50	65	29
3	94	0	0	50	65	29
3	95	0	0	50	65	29
3	96	0	0	50	65	29
3	97	0	42	50	65	39
2	87	0	0	0	0	0
2	88	0	0	0	65	16
2	89	0	0	6	65	18
2	90	0	0	24	65	22
2	91	0	8	50	65	31
2	92	0	8	50	65	31
2	93	0	8	50	65	31
2	94	13	8	50	65	34
2	95	13	8	50	65	34
2	96	13	8	50	65	34
2	97	13	50	50	65	45
1	87	0	0	6	10	4
1	88	0	15	6	75	24
1	89	0	15	12	75	26
1	90	0	15	29	75	30
1	91	13	23	56	75	42
1	92	13	23	56	75	42
1	93	13	23	56	75	42
1	94	25	23	56	75	45
1	95	25	23	56	75	45
1	96	25	23	56	75	45
1	97	25	65	56	75	55

Table 15A.9 Estimated percent habitat available in Newton Lake, July 18, 1998 (Segment 1 = 7:07 PM, Segment 2 = 6:41 PM, Segment 3 = 6:15 PM, Segment 4 = 5:54 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	0	6	0	2
4	88	0	0	18	10	7
4	89	0	0	18	30	12
4	90	0	0	24	40	16
4	91	0	0	29	80	27
4	92	0	0	41	95	34
4	93	0	6	47	95	37
4	94	0	6	56	95	39
4	95	0	18	56	95	42
4	96	0	24	56	95	44
4	97	0	24	56	95	44
3	87	0	0	6	0	2
3	88	0	0	18	10	7
3	89	0	0	18	30	12
3	90	0	0	24	40	16
3	91	0	0	29	80	27
3	92	0	6	41	95	36
3	93	0	12	47	95	39
3	94	0	12	56	95	41
3	95	11	24	56	95	47
3	96	11	29	56	95	48
3	97	11	29	56	95	48
2	87	0	0	6	0	2
2	88	0	0	18	10	7
2	89	0	0	18	30	12
2	90	0	0	24	40	16
2	91	0	0	29	80	27
2	92	0	6	41	95	36
2	93	0	12	47	95	39
2	94	0	12	56	95	41
2	95	11	24	56	95	47
2	96	11	29	56	95	48
2	97	11	29	56	95	48
1	87	0	12	12	0	6
1	88	0	18	24	10	13
1	89	0	18	24	30	18
1	90	0	18	29	40	22
1	91	0	18	35	80	33
1	92	0	24	47	95	42
1	93	0	29	53	95	44
1	94	0	29	62	95	47
1	95	11	41	62	95	52
1	96	11	47	62	95	54
1	97	11	47	62	95	54

Table 15A.10. Estimated percent habitat available in Newton Lake, July 30, 1998 (Time unknown). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	0	11	77	22
4	88	0	0	53	77	33
4	89	0	0	53	77	33
4	90	0	0	53	77	33
4	91	0	0	53	77	33
4	92	0	0	53	77	33
4	93	0	0	53	77	33
4	94	0	38	53	77	42
4	95	0	38	53	77	42
4	96	6	38	53	77	44
4	97	19	38	53	77	47
3	87	0	0	17	77	24
3	88	0	6	58	77	35
3	89	0	6	58	77	35
3	90	0	6	58	77	35
3	91	0	6	58	77	35
3	92	0	6	58	77	35
3	93	0	6	58	77	35
3	94	0	44	58	77	45
3	95	0	44	58	77	45
3	96	19	44	58	77	50
3	97	56	44	58	77	59
2	87	0	12	17	77	27
2	88	0	18	58	77	38
2	89	0	18	58	77	38
2	90	0	18	58	77	38
2	91	0	18	58	77	38
2	92	0	18	58	77	38
2	93	0	18	58	77	38
2	94	0	56	58	77	48
2	95	0	56	58	77	48
2	96	19	56	58	77	53
2	97	56	56	58	77	62
1	87	0	18	17	95	33
1	88	0	24	58	95	44
1	89	0	24	58	95	44
1	90	0	24	58	95	44
1	91	0	24	58	95	44
1	92	13	24	58	95	48
1	93	13	24	58	95	48
1	94	13	62	58	95	57
1	95	13	62	58	95	57
1	96	31	62	58	95	62
1	97	69	62	58	95	71

Table 15A.11. Estimated percent habitat available in Newton Lake, August 4, 1998 (Time unknown). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	0	15	30	11
4	88	0	0	30	70	25
4	89	0	0	53	95	37
4	90	0	0	53	95	37
4	91	0	0	53	95	37
4	92	0	10	53	95	40
4	93	0	15	53	95	41
4	94	0	20	53	95	42
4	95	0	28	53	95	44
4	96	0	28	53	95	44
4	97	11	28	53	95	47
3	87	0	0	15	30	11
3	88	0	0	30	70	25
3	89	0	0	53	95	37
3	90	0	0	53	95	37
3	91	0	0	53	95	37
3	92	0	10	53	95	40
3	93	0	15	53	95	41
3	94	0	20	53	95	42
3	95	0	28	53	95	44
3	96	0	28	53	95	44
3	97	11	28	53	95	47
2	87	0	0	15	35	13
2	88	0	0	30	75	26
2	89	0	0	53	100	38
2	90	0	0	53	100	38
2	91	0	0	53	100	38
2	92	0	10	53	100	41
2	93	0	15	53	100	42
2	94	0	20	53	100	43
2	95	0	28	53	100	45
2	96	0	28	53	100	45
2	97	11	28	53	100	48
1	87	0	25	20	35	20
1	88	0	25	35	75	34
1	89	0	25	58	100	46
1	90	0	25	58	100	46
1	91	0	25	58	100	46
1	92	11	35	58	100	51
1	93	11	40	58	100	52
1	94	11	45	58	100	54
1	95	11	53	58	100	56
1	96	11	53	58	100	56
1	97	22	53	58	100	58

Table 15A.12. Estimated percent habitat available in Newton Lake, August 24, 1998 (Segment 1 = 5:26 PM, Segment 2 = 5:03 PM, Segment 3 = 4:36 PM, Segment 4 = 4:14 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	0	0	0	0
4	88	0	0	0	0	0
4	89	0	0	6	0	2
4	90	0	0	11	100	28
4	91	0	0	17	100	29
4	92	0	0	53	100	38
4	93	0	0	53	100	38
4	94	0	0	53	100	38
4	95	0	0	53	100	38
4	96	0	13	53	100	42
4	97	7	20	53	100	45
3	87	0	0	0	0	0
3	88	0	0	6	0	2
3	89	0	0	11	0	3
3	90	0	0	17	100	29
3	91	0	0	22	100	31
3	92	0	0	58	100	40
3	93	0	0	58	100	40
3	94	0	0	58	100	40
3	95	0	0	58	100	40
3	96	0	13	58	100	43
3	97	7	20	58	100	46
2	87	0	0	0	0	0
2	88	0	0	6	0	2
2	89	0	0	11	0	3
2	90	0	0	17	100	29
2	91	0	0	22	100	31
2	92	0	0	58	100	40
2	93	0	0	58	100	40
2	94	0	0	58	100	40
2	95	0	0	58	100	40
2	96	0	13	58	100	43
2	97	7	20	58	100	46
1	87	0	0	0	0	0
1	88	0	7	6	0	3
1	89	0	7	11	0	5
1	90	0	7	17	100	31
1	91	0	13	22	100	34
1	92	0	13	58	100	43
1	93	0	13	58	100	43
1	94	0	13	58	100	43
1	95	0	13	58	100	43
1	96	0	27	58	100	46
1	97	7	33	58	100	50

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Table 15A.13. Estimated percent habitat available in Newton Lake, June 2, 1999 (Segment 1 = 4:54 PM, Segment 2 = 4:15 PM, Segment 3 = 3:47 PM, Segment 4 = 3:25 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	17	62	100	45
4	88	22	22	62	100	52
4	89	44	22	62	100	57
4	90	72	42	62	100	69
4	91	72	42	62	100	69
4	92	72	42	62	100	69
4	93	72	42	62	100	69
4	94	72	42	62	100	69
4	95	72	42	62	100	69
4	96	72	42	62	100	69
4	97	72	42	62	100	69
3	87	0	17	62	100	45
3	88	22	22	62	100	52
3	89	44	22	62	100	57
3	90	72	42	62	100	69
3	91	72	42	62	100	69
3	92	72	42	62	100	69
3	93	72	42	62	100	69
3	94	72	42	62	100	69
3	95	72	42	62	100	69
3	96	72	42	62	100	69
3	97	72	42	62	100	69
2	87	0	28	68	100	49
2	88	22	33	68	100	56
2	89	44	33	68	100	61
2	90	72	53	68	100	73
2	91	72	53	68	100	73
2	92	72	53	68	100	73
2	93	72	53	68	100	73
2	94	72	53	68	100	73
2	95	72	53	68	100	73
2	96	72	53	68	100	73
2	97	72	53	68	100	73
1	87	0	33	68	100	50
1	88	22	39	68	100	57
1	89	44	39	68	100	63
1	90	72	58	68	100	75
1	91	72	58	68	100	75
1	92	72	58	68	100	75
1	93	72	58	68	100	75
1	94	72	58	68	100	75
1	95	72	58	68	100	75
1	96	72	58	68	100	75
1	97	72	58	68	100	75

Table 15A.14. Estimated percent habitat available in Newton Lake, June 18, 1999 (Segment 1 = 5:25 PM, Segment 2 = 5:42 PM, Segment 3 = 5:00 PM, Segment 4 = 4:41 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	33	68	86	47
4	88	11	33	68	86	50
4	89	22	50	68	86	57
4	90	22	50	68	86	57
4	91	33	50	68	86	59
4	92	33	50	68	86	59
4	93	44	50	68	86	62
4	94	72	50	68	86	69
4	95	72	50	68	86	69
4	96	72	50	68	86	69
4	97	72	50	68	86	69
3	87	11	47	74	86	55
3	88	22	47	74	86	57
3	89	33	63	74	86	64
3	90	33	63	74	86	64
3	91	44	63	74	86	67
3	92	44	63	74	86	67
3	93	56	63	74	86	70
3	94	83	63	74	86	77
3	95	83	63	74	86	77
3	96	83	63	74	86	77
3	97	83	63	74	86	77
2	87	11	53	74	95	58
2	88	22	53	74	95	61
2	89	33	70	74	95	68
2	90	33	70	74	95	68
2	91	44	70	74	95	71
2	92	44	70	74	95	71
2	93	56	70	74	95	74
2	94	83	70	74	95	81
2	95	83	70	74	95	81
2	96	83	70	74	95	81
2	97	83	70	74	95	81
1	87	11	60	74	95	60
1	88	22	60	74	95	63
1	89	33	77	74	95	70
1	90	33	77	74	95	70
1	91	44	77	74	95	73
1	92	44	77	74	95	73
1	93	56	77	74	95	76
1	94	83	77	74	95	82
1	95	83	77	74	95	82
1	96	83	77	74	95	82
1	97	83	77	74	95	82

Table 15A.15. Estimated percent habitat available in Newton Lake, July 2, 1999 (Segment 1 = 4:35 PM, Segment 2 = 4:00 PM, Segment 3 = 3:21 PM, Segment 4 = 2:45 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	0	39	95	34
4	88	0	0	44	95	35
4	89	11	0	50	95	39
4	90	11	0	53	95	40
4	91	33	6	53	95	47
4	92	33	12	53	95	48
4	93	44	18	53	95	53
4	94	56	26	53	95	58
4	95	56	26	53	95	58
4	96	78	26	53	95	63
4	97	83	26	53	95	64
3	87	0	18	39	100	39
3	88	0	18	44	100	41
3	89	11	18	50	100	45
3	90	11	18	53	100	46
3	91	33	24	53	100	53
3	92	33	29	53	100	54
3	93	44	35	53	100	58
3	94	56	44	53	100	63
3	95	56	44	53	100	63
3	96	78	44	53	100	69
3	97	83	44	53	100	70
2	87	11	24	44	100	45
2	88	11	24	50	100	46
2	89	22	24	56	100	51
2	90	22	24	58	100	51
2	91	44	29	58	100	58
2	92	44	35	58	100	59
2	93	56	41	58	100	64
2	94	67	50	58	100	69
2	95	67	50	58	100	69
2	96	89	50	58	100	74
2	97	94	50	58	100	76
1	87	11	29	44	100	46
1	88	11	29	50	100	48
1	89	22	29	56	100	52
1	90	22	29	58	100	52
1	91	44	35	58	100	59
1	92	44	41	58	100	61
1	93	56	47	58	100	65
1	94	67	56	58	100	70
1	95	67	56	58	100	70
1	96	89	56	58	100	76
1	97	94	56	58	100	77

Table 15A.16. Estimated percent habitat available in Newton Lake, July 13, 1999 (Segment 1 = 10:00 AM, Segment 2 = 11:15 AM, Segment 3 = 12:20 PM, Segment 4 = 1:25 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	18	47	95	40
4	88	0	41	59	100	50
4	89	22	47	62	100	58
4	90	22	56	62	100	60
4	91	22	56	62	100	60
4	92	61	56	62	100	70
4	93	61	56	62	100	70
4	94	61	56	62	100	70
4	95	61	56	62	100	70
4	96	61	56	62	100	70
4	97	61	56	62	100	70
3	87	0	18	53	95	42
3	88	0	41	65	100	52
3	89	22	47	68	100	59
3	90	22	56	68	100	62
3	91	22	56	68	100	62
3	92	61	56	68	100	71
3	93	61	56	68	100	71
3	94	61	56	68	100	71
3	95	61	56	68	100	71
3	96	61	56	68	100	71
3	97	61	56	68	100	71
2	87	0	18	53	95	42
2	88	22	41	65	100	57
2	89	44	47	68	100	65
2	90	44	56	68	100	67
2	91	44	56	68	100	67
2	92	83	56	68	100	77
2	93	83	56	68	100	77
2	94	83	56	68	100	77
2	95	83	56	68	100	77
2	96	83	56	68	100	77
2	97	83	56	68	100	77
1	87	11	24	53	95	46
1	88	33	47	65	100	61
1	89	56	53	68	100	69
1	90	56	62	68	100	72
1	91	56	62	68	100	72
1	92	94	62	68	100	81
1	93	94	62	68	100	81
1	94	94	62	68	100	81
1	95	94	62	68	100	81
1	96	94	62	68	100	81
1	97	94	62	68	100	81

Table 15A.17. Estimated percent habitat available in Newton Lake, July 24, 1999 (Segment 1 = 9:20 AM, Segment 2 = 10:33AM, Segment 3 = 12:12 PM, Segment 4 = 1:36 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	0	0	0	0
4	88	0	0	0	0	0
4	89	0	0	0	0	0
4	90	0	0	0	0	0
4	91	0	0	0	0	0
4	92	0	0	0	10	3
4	93	0	0	6	20	7
4	94	0	0	18	50	17
4	95	0	0	24	80	26
4	96	0	0	38	85	31
4	97	0	0	38	85	31
3	87	0	0	0	0	0
3	88	0	0	0	0	0
3	89	0	0	0	0	0
3	90	0	0	0	0	0
3	91	0	0	0	0	0
3	92	0	0	0	10	3
3	93	0	0	6	20	7
3	94	0	0	18	50	17
3	95	0	0	24	80	26
3	96	0	6	38	85	32
3	97	0	6	38	85	32
2	87	0	0	0	0	0
2	88	0	0	0	0	0
2	89	0	0	0	0	0
2	90	0	0	0	0	0
2	91	0	0	0	0	0
2	92	0	0	0	10	3
2	93	0	6	6	20	8
2	94	0	6	18	50	19
2	95	0	6	24	80	28
2	96	0	13	38	85	34
2	97	0	13	38	85	34
1	87	0	0	0	0	0
1	88	0	0	0	0	0
1	89	0	0	0	0	0
1	90	0	0	0	0	0
1	91	13	0	6	0	5
1	92	13	0	6	10	7
1	93	13	6	12	20	13
1	94	25	6	24	50	26
1	95	25	6	29	80	35
1	96	25	13	44	85	42
1	97	25	13	44	85	42

Table 15A.18. Estimated percent habitat available in Newton Lake, July 29, 1999 (all segments = between 1:00 PM and 5:00 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	Segment 3	% Habitat Available Segment 3-4 border	Segment 4
4	87	0	0	0
4	88	0	0	0
4	89	0	0	0
4	90	0	0	0
4	91	0	0	0
4	92	14	17	0
4	93	29	17	50
4	94	43	33	50
4	95	43	33	50
4	96	43	33	75
4	97	57	33	75
3	87	0	0	0
3	88	0	0	0
3	89	0	0	0
3	90	0	0	0
3	91	0	0	0
3	92	14	17	0
3	93	29	17	50
3	94	43	33	50
3	95	43	33	50
3	96	43	33	75
3	97	57	33	75
2	87	0	0	0
2	88	0	0	0
2	89	0	0	0
2	90	0	0	0
2	91	0	0	0
2	92	14	17	0
2	93	29	17	50
2	94	43	33	50
2	95	43	33	50
2	96	43	33	75
2	97	57	33	75
1	87	14	17	0
1	88	14	17	0
1	89	14	17	0
1	90	14	17	0
1	91	14	17	0
1	92	29	33	13
1	93	43	33	63
1	94	57	50	63
1	95	57	50	63
1	96	57	50	88
1	97	71	50	88

Table 15A.19. Estimated percent habitat available in Newton Lake, July 30, 1999 (Segment 4a = 4:30 PM, Segment 4b = 6:30 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 4a	Segment 4b
4	87	0	0
4	88	0	0
4	89	0	0
4	90	0	0
4	91	0	0
4	92	13	0
4	93	13	0
4	94	13	20
4	95	13	40
4	96	38	40
4	97	38	40
3	87	0	0
3	88	0	0
3	89	0	0
3	90	0	0
3	91	0	0
3	92	13	0
3	93	13	0
3	94	13	20
3	95	13	40
3	96	38	40
3	97	38	40
2	87	0	0
2	88	0	0
2	89	0	0
2	90	0	0
2	91	0	0
2	92	13	0
2	93	13	0
2	94	13	20
2	95	13	40
2	96	38	40
2	97	38	40
1	87	0	10
1	88	0	10
1	89	0	10
1	90	0	10
1	91	0	10
1	92	13	10
1	93	13	10
1	94	13	30
1	95	13	50
1	96	38	50
1	97	38	50

Table 15A.20. Estimated percent habitat available in Newton Lake, August 5, 1999
 (Segment 1 = 3:50 PM, Segment 2 = 4:05 PM, Segment 3 = 4:20 PM, Segment 4 = 4:40 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	0	0	5	1
4	88	0	0	0	25	6
4	89	0	0	11	55	17
4	90	0	0	11	65	19
4	91	0	6	33	100	35
4	92	0	6	58	100	41
4	93	0	13	58	100	43
4	94	0	13	58	100	43
4	95	0	13	58	100	43
4	96	0	13	58	100	43
4	97	0	25	58	100	46
3	87	0	0	0	5	1
3	88	0	0	0	25	6
3	89	0	6	11	55	18
3	90	0	6	11	65	21
3	91	0	13	33	100	37
3	92	0	13	58	100	43
3	93	0	19	58	100	44
3	94	0	19	58	100	44
3	95	0	19	58	100	44
3	96	13	19	58	100	48
3	97	13	31	58	100	51
2	87	0	0	0	5	1
2	88	0	0	0	25	6
2	89	0	13	11	55	20
2	90	0	13	11	65	22
2	91	0	19	33	100	38
2	92	0	19	58	100	44
2	93	0	25	58	100	46
2	94	0	25	58	100	46
2	95	0	25	58	100	46
2	96	13	25	58	100	49
2	97	13	38	58	100	52
1	87	0	0	6	5	3
1	88	0	6	6	25	9
1	89	0	19	17	55	23
1	90	0	19	17	65	25
1	91	13	25	39	100	44
1	92	13	25	64	100	51
1	93	13	31	64	100	52
1	94	13	31	64	100	52
1	95	13	31	64	100	52
1	96	25	31	64	100	55
1	97	25	44	64	100	58

Table 15A.21. Estimated percent habitat available in Newton Lake, August 18, 1999 (Segment 1 = 3:40 PM, Segment 2 = 3:50 PM, Segment 3 = 4:05 PM, Segment 4 = 4:25 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	0	24	95	30
4	88	0	6	24	95	31
4	89	0	6	35	95	34
4	90	0	6	56	95	39
4	91	0	12	56	95	41
4	92	0	12	56	95	41
4	93	0	12	56	95	41
4	94	0	12	56	95	41
4	95	13	18	56	95	46
4	96	13	38	56	95	51
4	97	25	38	56	95	54
3	87	0	0	29	95	31
3	88	0	6	29	95	33
3	89	0	6	41	95	36
3	90	0	6	62	95	41
3	91	0	12	62	95	42
3	92	0	12	62	95	42
3	93	0	12	62	95	42
3	94	0	12	62	95	42
3	95	13	18	62	95	47
3	96	13	38	62	95	52
3	97	25	38	62	95	55
2	87	0	12	35	95	36
2	88	0	18	35	95	37
2	89	0	18	47	95	40
2	90	0	18	68	95	45
2	91	0	24	68	95	47
2	92	0	24	68	95	47
2	93	0	24	68	95	47
2	94	0	24	68	95	47
2	95	13	29	68	95	51
2	96	13	50	68	95	57
2	97	25	50	68	95	60
1	87	0	18	41	100	40
1	88	0	24	41	100	41
1	89	0	24	53	100	44
1	90	0	24	74	100	50
1	91	0	29	74	100	51
1	92	0	29	74	100	51
1	93	0	29	74	100	51
1	94	0	29	74	100	51
1	95	13	35	74	100	56
1	96	13	56	74	100	61
1	97	25	56	74	100	64

Table 15A.22. Estimated percent habitat available in Newton Lake, August 31, 1999 (Segment 1 = 5:10 PM, Segment 2 = 4:51 PM, Segment 3 = 4:33 PM, Segment 4 = 4:08 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	87	0	19	66	100	46
4	88	0	25	66	100	48
4	89	0	25	66	100	48
4	90	0	38	66	100	51
4	91	0	59	66	100	56
4	92	25	59	66	100	63
4	93	25	59	66	100	63
4	94	38	59	66	100	66
4	95	50	59	66	100	69
4	96	50	59	66	100	69
4	97	63	59	66	100	72
3	87	0	31	66	100	49
3	88	13	38	66	100	54
3	89	13	38	66	100	54
3	90	13	50	66	100	57
3	91	13	72	66	100	63
3	92	38	72	66	100	69
3	93	38	72	66	100	69
3	94	50	72	66	100	72
3	95	63	72	66	100	75
3	96	63	72	66	100	75
3	97	75	72	66	100	78
2	87	0	38	66	100	51
2	88	13	44	66	100	56
2	89	13	44	66	100	56
2	90	13	56	66	100	59
2	91	13	78	66	100	64
2	92	38	78	66	100	71
2	93	38	78	66	100	71
2	94	50	78	66	100	74
2	95	63	78	66	100	77
2	96	63	78	66	100	77
2	97	75	78	66	100	80
1	87	6	38	78	100	56
1	88	19	44	78	100	60
1	89	19	44	78	100	60
1	90	19	56	78	100	63
1	91	19	78	78	100	69
1	92	44	78	78	100	75
1	93	44	78	78	100	75
1	94	56	78	78	100	78
1	95	69	78	78	100	81
1	96	69	78	78	100	81
1	97	81	78	78	100	84

Table 15A.23. Estimated percent habitat available in Coffeen Lake, June 5, 1998 (Segment 1 = 3:54 PM, Segment 2 = 3:20 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	58	100
4	88	58	100
4	89	58	100
4	90	58	100
4	91	58	100
4	92	58	100
4	93	58	100
4	94	58	100
4	95	58	100
4	96	58	100
4	97	58	100
3	87	85	100
3	88	85	100
3	89	85	100
3	90	85	100
3	91	85	100
3	92	85	100
3	93	85	100
3	94	85	100
3	95	85	100
3	96	85	100
3	97	85	100
2	87	100	100
2	88	100	100
2	89	100	100
2	90	100	100
2	91	100	100
2	92	100	100
2	93	100	100
2	94	100	100
2	95	100	100
2	96	100	100
2	97	100	100
1	87	100	100
1	88	100	100
1	89	100	100
1	90	100	100
1	91	100	100
1	92	100	100
1	93	100	100
1	94	100	100
1	95	100	100
1	96	100	100
1	97	100	100

Table 15A.24. Estimated percent habitat available outside of Coffeen Lake cooling loop, June 9, 1998 (time unknown). Data was obtained by AmerenCIPS. Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available		
		Location F1	Location F2	Location G
4	87		100	100
4	88		100	100
4	89		100	100
4	90		100	100
4	91		100	100
4	92		100	100
4	93		100	100
4	94		100	100
4	95		100	100
4	96		100	100
4	97		100	100
3	87		100	100
3	88		100	100
3	89		100	100
3	90		100	100
3	91		100	100
3	92		100	100
3	93		100	100
3	94		100	100
3	95		100	100
3	96		100	100
3	97		100	100
2	87		100	100
2	88		100	100
2	89		100	100
2	90		100	100
2	91		100	100
2	92		100	100
2	93		100	100
2	94		100	100
2	95		100	100
2	96		100	100
2	97		100	100
1	87		100	100
1	88		100	100
1	89		100	100
1	90		100	100
1	91		100	100
1	92		100	100
1	93		100	100
1	94		100	100
1	95		100	100
1	96		100	100
1	97		100	100

Table 15A.25. Estimated percent habitat available in Coffeen Lake, June 16, 1998 (Segment 1 = 3:23 PM, Segment 2 = 3:50 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	21	31
4	88	21	31
4	89	32	31
4	90	37	31
4	91	37	31
4	92	42	31
4	93	55	31
4	94	55	31
4	95	55	31
4	96	55	31
4	97	55	31
3	87	37	48
3	88	37	48
3	89	47	48
3	90	53	48
3	91	53	48
3	92	58	48
3	93	71	48
3	94	71	48
3	95	71	48
3	96	71	48
3	97	71	48
2	87	47	77
2	88	47	77
2	89	58	77
2	90	63	77
2	91	63	77
2	92	68	77
2	93	82	77
2	94	82	77
2	95	82	77
2	96	82	77
2	97	82	77
1	87	66	94
1	88	66	94
1	89	76	94
1	90	82	94
1	91	82	94
1	92	87	94
1	93	100	94
1	94	100	94
1	95	100	94
1	96	100	94
1	97	100	94

Table 15A.26. Estimated percent habitat available outside of Coffeen Lake cooling loop, June 23, 1998 (time unknown). Data was obtained by AmerenCIPS. Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available		
		Location F1	Location F2	Location G
4	87	18	6	31
4	88	35	61	69
4	89	41	83	77
4	90	47	94	96
4	91	59	100	96
4	92	68	100	96
4	93	68	100	96
4	94	68	100	96
4	95	68	100	96
4	96	68	100	96
4	97	68	100	96
3	87	29	6	35
3	88	47	61	73
3	89	53	83	81
3	90	59	94	100
3	91	71	100	100
3	92	79	100	100
3	93	79	100	100
3	94	79	100	100
3	95	79	100	100
3	96	79	100	100
3	97	79	100	100
2	87	41	6	35
2	88	59	61	73
2	89	65	83	81
2	90	71	94	100
2	91	82	100	100
2	92	91	100	100
2	93	91	100	100
2	94	91	100	100
2	95	91	100	100
2	96	91	100	100
2	97	91	100	100
1	87	50	6	35
1	88	68	61	73
1	89	74	83	81
1	90	79	94	100
1	91	91	100	100
1	92	100	100	100
1	93	100	100	100
1	94	100	100	100
1	95	100	100	100
1	96	100	100	100
1	97	100	100	100

Table 15A.27. Estimated percent habitat available in Coffeen Lake, June 26, 1998 (Segment 1 = 5:03 PM, Segment 2 = 5:29 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	17	8
4	88	17	12
4	89	22	20
4	90	28	20
4	91	33	24
4	92	33	28
4	93	33	36
4	94	39	40
4	95	39	44
4	96	39	44
4	97	39	54
3	87	22	20
3	88	22	24
3	89	28	32
3	90	33	32
3	91	39	36
3	92	39	40
3	93	39	48
3	94	44	52
3	95	44	56
3	96	44	56
3	97	44	66
2	87	33	28
2	88	33	32
2	89	39	40
2	90	44	40
2	91	50	44
2	92	50	48
2	93	50	56
2	94	56	60
2	95	56	64
2	96	56	64
2	97	56	74
1	87	39	32
1	88	39	36
1	89	44	44
1	90	50	44
1	91	56	48
1	92	56	52
1	93	56	60
1	94	61	64
1	95	61	68
1	96	61	68
1	97	61	78

Table 15A.28. Estimated percent habitat available in Coffeen Lake, July 3, 1998 (Segment 1 = 3:02 PM, Segment 2 = 3:32 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	0
4	88	0	0
4	89	0	0
4	90	0	0
4	91	0	0
4	92	0	0
4	93	0	4
4	94	0	4
4	95	0	13
4	96	0	28
4	97	0	28
3	87	0	0
3	88	0	0
3	89	0	0
3	90	0	4
3	91	5	9
3	92	11	9
3	93	11	17
3	94	11	22
3	95	11	30
3	96	21	46
3	97	26	46
2	87	0	0
2	88	0	0
2	89	0	13
2	90	11	17
2	91	21	22
2	92	26	22
2	93	26	30
2	94	26	35
2	95	26	43
2	96	37	59
2	97	42	59
1	87	5	9
1	88	5	9
1	89	11	22
1	90	21	26
1	91	32	30
1	92	37	30
1	93	37	39
1	94	37	43
1	95	37	52
1	96	47	67
1	97	53	67

Table 15A.29. Estimated percent habitat available outside of Coffeen Lake cooling loop, July 7, 1998 (time unknown). Data was obtained by AmerenCIPS. Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available		
		Location F1	Location F2	Location G
4	87	0	0	0
4	88	0	0	0
4	89	0	0	14
4	90	11	6	21
4	91	47	100	96
4	92	58	100	96
4	93	76	100	96
4	94	76	100	96
4	95	76	100	96
4	96	76	100	96
4	97	76	100	96
3	87	0	0	4
3	88	5	0	4
3	89	5	0	18
3	90	16	6	25
3	91	53	100	100
3	92	63	100	100
3	93	82	100	100
3	94	82	100	100
3	95	82	100	100
3	96	82	100	100
3	97	82	100	100
2	87	5	0	4
2	88	16	0	4
2	89	16	0	18
2	90	26	6	25
2	91	63	100	100
2	92	74	100	100
2	93	92	100	100
2	94	92	100	100
2	95	92	100	100
2	96	92	100	100
2	97	92	100	100
1	87	5	0	4
1	88	16	0	4
1	89	16	0	18
1	90	26	6	25
1	91	63	100	100
1	92	74	100	100
1	93	92	100	100
1	94	92	100	100
1	95	92	100	100
1	96	92	100	100
1	97	92	100	100

Table 15A.30. Estimated percent habitat available in Coffeen Lake, July 10, 1998 (Segment 1 = 2:01 PM, Segment 2 = 2:26 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	0
4	88	0	0
4	89	0	0
4	90	0	5
4	91	0	9
4	92	0	18
4	93	0	23
4	94	0	27
4	95	0	27
4	96	0	27
4	97	0	43
3	87	0	0
3	88	0	0
3	89	0	5
3	90	0	18
3	91	5	23
3	92	5	32
3	93	10	36
3	94	10	41
3	95	10	41
3	96	10	41
3	97	10	57
2	87	0	0
2	88	0	0
2	89	5	5
2	90	14	18
2	91	19	23
2	92	19	32
2	93	24	36
2	94	24	41
2	95	24	41
2	96	24	41
2	97	24	57
1	87	0	5
1	88	0	9
1	89	14	18
1	90	24	32
1	91	29	36
1	92	29	45
1	93	33	50
1	94	33	55
1	95	33	55
1	96	33	55
1	97	33	70

Table 15A.31. Estimated percent habitat available in Coffeen Lake, July 14, 1998 (Segment 1 = 1:27 PM, Segment 2 = 2:02 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	0
4	88	0	0
4	89	0	0
4	90	0	0
4	91	5	4
4	92	10	54
4	93	10	54
4	94	10	54
4	95	14	54
4	96	24	54
4	97	24	54
3	87	0	0
3	88	0	0
3	89	0	0
3	90	5	0
3	91	10	4
3	92	14	54
3	93	14	54
3	94	14	54
3	95	19	54
3	96	29	54
3	97	29	54
2	87	0	0
2	88	0	8
2	89	0	12
2	90	5	12
2	91	10	16
2	92	14	66
2	93	14	66
2	94	14	66
2	95	19	66
2	96	29	66
2	97	29	66
1	87	0	4
1	88	0	12
1	89	5	16
1	90	10	16
1	91	14	20
1	92	19	70
1	93	19	70
1	94	19	70
1	95	24	70
1	96	33	70
1	97	33	70

Table 15A.32. Estimated percent habitat available outside of Coffeen Lake cooling loop, July 21, 1998 (time unknown). Data was obtained by AmerenCIPS. Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available		
		Location F1	Location F2	Location G
4	87	0	0	0
4	88	0	0	0
4	89	0	0	0
4	90	0	0	0
4	91	0	0	0
4	92	6	0	0
4	93	6	0	0
4	94	6	6	0
4	95	12	28	75
4	96	56	100	75
4	97	56	100	75
3	87	0	0	0
3	88	0	0	4
3	89	0	0	11
3	90	6	0	25
3	91	6	0	25
3	92	12	0	25
3	93	12	0	25
3	94	12	6	25
3	95	18	28	100
3	96	62	100	100
3	97	62	100	100
2	87	0	0	0
2	88	12	0	4
2	89	24	0	11
2	90	35	0	25
2	91	35	0	25
2	92	41	0	25
2	93	41	0	25
2	94	41	6	25
2	95	47	28	100
2	96	91	100	100
2	97	91	100	100
1	87	0	0	0
1	88	12	0	4
1	89	24	0	11
1	90	35	0	25
1	91	35	0	25
1	92	41	0	25
1	93	41	0	25
1	94	41	6	25
1	95	47	28	100
1	96	91	100	100
1	97	91	100	100

Table 15A.33. Estimated percent habitat available in Coffeen Lake, July 24, 1998 (Segment 1 = 11:04 AM, Segment 2 = 11:29 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	0
4	88	0	0
4	89	0	0
4	90	0	0
4	91	0	0
4	92	0	9
4	93	0	22
4	94	11	39
4	95	17	54
4	96	17	54
4	97	22	54
3	87	0	0
3	88	0	0
3	89	0	0
3	90	0	0
3	91	0	4
3	92	0	13
3	93	6	26
3	94	17	43
3	95	22	59
3	96	22	59
3	97	28	59
2	87	0	0
2	88	0	0
2	89	0	0
2	90	0	4
2	91	0	9
2	92	6	17
2	93	11	30
2	94	22	48
2	95	28	63
2	96	28	63
2	97	33	63
1	87	0	9
1	88	0	9
1	89	0	9
1	90	0	17
1	91	6	22
1	92	11	30
1	93	17	43
1	94	28	61
1	95	33	76
1	96	33	76
1	97	39	76

Table 15A.34. Estimated percent habitat available in Coffeen Lake, July 31, 1998 (Segment 1 = 3:45 PM, Segment 2 = 1:22 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	5
4	88	0	9
4	89	0	23
4	90	0	45
4	91	0	55
4	92	5	59
4	93	5	68
4	94	5	75
4	95	5	75
4	96	10	75
4	97	10	75
3	87	0	5
3	88	0	9
3	89	0	23
3	90	0	45
3	91	5	55
3	92	10	59
3	93	10	68
3	94	10	75
3	95	10	75
3	96	15	75
3	97	15	75
2	87	0	9
2	88	0	14
2	89	0	27
2	90	15	50
2	91	20	59
2	92	25	64
2	93	25	73
2	94	25	80
2	95	25	80
2	96	30	80
2	97	30	80
1	87	0	14
1	88	0	18
1	89	5	32
1	90	25	55
1	91	30	64
1	92	35	68
1	93	35	77
1	94	35	84
1	95	35	84
1	96	40	84
1	97	40	84

Table 15A.35. Estimated percent habitat available outside of Coffeen Lake cooling loop, August 4, 1998 (time unknown). Data was obtained by AmerenCips. Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available		
		Location F1	Location F2	Location G
4	87	0	0	0
4	88	6	0	4
4	89	17	15	4
4	90	33	75	77
4	91	44	100	100
4	92	81	100	100
4	93	81	100	100
4	94	81	100	100
4	95	81	100	100
4	96	81	100	100
4	97	81	100	100
3	87	6	0	0
3	88	11	0	4
3	89	22	15	4
3	90	39	75	77
3	91	50	100	100
3	92	86	100	100
3	93	86	100	100
3	94	86	100	100
3	95	86	100	100
3	96	86	100	100
3	97	86	100	100
2	87	17	0	0
2	88	22	0	4
2	89	33	15	4
2	90	50	75	77
2	91	61	100	100
2	92	97	100	100
2	93	97	100	100
2	94	97	100	100
2	95	97	100	100
2	96	97	100	100
2	97	97	100	100
1	87	17	0	0
1	88	22	0	4
1	89	33	15	4
1	90	50	75	77
1	91	61	100	100
1	92	97	100	100
1	93	97	100	100
1	94	97	100	100
1	95	97	100	100
1	96	97	100	100
1	97	97	100	100

Table 15A.36. Estimated percent habitat available in Coffeen Lake, August 8, 1998 (Segment 1 = 4:06 PM, Segment 2 = 4:29 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	0
4	88	0	4
4	89	0	13
4	90	5	26
4	91	10	54
4	92	10	54
4	93	20	54
4	94	25	54
4	95	30	54
4	96	43	54
4	97	43	54
3	87	0	0
3	88	0	9
3	89	0	17
3	90	10	30
3	91	15	59
3	92	15	59
3	93	25	59
3	94	30	59
3	95	35	59
3	96	48	59
3	97	48	59
2	87	0	9
2	88	0	22
2	89	5	30
2	90	15	43
2	91	20	72
2	92	20	72
2	93	30	72
2	94	35	72
2	95	40	72
2	96	53	72
2	97	53	72
1	87	0	13
1	88	0	26
1	89	10	35
1	90	20	48
1	91	25	76
1	92	25	76
1	93	35	76
1	94	40	76
1	95	45	76
1	96	58	76
1	97	58	76

Table 15A.37. Estimated percent habitat available in Coffeen Lake, August 13, 1998 (Segment 1 = 7:48 AM, Segment 2 = 8:12 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	4
4	88	0	22
4	89	0	59
4	90	0	59
4	91	0	59
4	92	0	59
4	93	6	59
4	94	21	59
4	95	21	59
4	96	21	59
4	97	21	59
3	87	0	9
3	88	0	26
3	89	6	63
3	90	12	63
3	91	12	63
3	92	12	63
3	93	18	63
3	94	32	63
3	95	32	63
3	96	32	63
3	97	32	63
2	87	0	13
2	88	12	30
2	89	24	67
2	90	29	67
2	91	29	67
2	92	29	67
2	93	35	67
2	94	50	67
2	95	50	67
2	96	50	67
2	97	50	67
1	87	0	13
1	88	24	30
1	89	35	67
1	90	41	67
1	91	41	67
1	92	41	67
1	93	47	67
1	94	62	67
1	95	62	67
1	96	62	67
1	97	62	67

Table 15A.38. Estimated percent habitat available outside of Coffeen Lake cooling loop, August 18, 1998 (time unknown). Data was obtained by AmerenCips. Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available		
		Location F1	Location F2	Location G
4	87	0	0	18
4	88	17	11	32
4	89	17	94	46
4	90	64	94	100
4	91	64	94	100
4	92	64	94	100
4	93	64	94	100
4	94	64	94	100
4	95	64	94	100
4	96	64	94	100
4	97	64	94	100
3	87	0	6	18
3	88	17	17	32
3	89	17	100	46
3	90	64	100	100
3	91	64	100	100
3	92	64	100	100
3	93	64	100	100
3	94	64	100	100
3	95	64	100	100
3	96	64	100	100
3	97	64	100	100
2	87	0	6	18
2	88	22	17	32
2	89	22	100	46
2	90	69	100	100
2	91	69	100	100
2	92	69	100	100
2	93	69	100	100
2	94	69	100	100
2	95	69	100	100
2	96	69	100	100
2	97	69	100	100
1	87	17	6	18
1	88	39	17	32
1	89	39	100	46
1	90	86	100	100
1	91	86	100	100
1	92	86	100	100
1	93	86	100	100
1	94	86	100	100
1	95	86	100	100
1	96	86	100	100
1	97	86	100	100

Table 15A.39. Estimated percent habitat available in Coffeen Lake, August 20, 1998 (Segment 1 = 10:47 AM, Segment 2 = 11:14 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	0
4	88	5	8
4	89	18	12
4	90	18	12
4	91	23	20
4	92	23	46
4	93	23	46
4	94	23	46
4	95	32	46
4	96	32	46
4	97	48	46
3	87	0	4
3	88	9	12
3	89	23	16
3	90	23	16
3	91	27	24
3	92	27	50
3	93	27	50
3	94	27	50
3	95	36	50
3	96	36	50
3	97	52	50
2	87	5	8
2	88	14	16
2	89	27	20
2	90	27	20
2	91	32	28
2	92	32	54
2	93	32	54
2	94	32	54
2	95	41	54
2	96	41	54
2	97	57	54
1	87	9	16
1	88	18	24
1	89	32	28
1	90	32	28
1	91	36	36
1	92	36	62
1	93	36	62
1	94	36	62
1	95	45	62
1	96	45	62
1	97	61	62

Table 15A.40. Estimated percent habitat available in Coffeen Lake, August 28, 1998 (Segment 1 = 1:23 PM, Segment 2 = 1:42 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	0
4	88	0	0
4	89	0	0
4	90	0	0
4	91	0	0
4	92	0	0
4	93	0	4
4	94	0	15
4	95	0	24
4	96	0	24
4	97	0	24
3	87	0	0
3	88	0	0
3	89	0	0
3	90	0	9
3	91	11	17
3	92	17	26
3	93	17	30
3	94	17	41
3	95	22	50
3	96	22	50
3	97	22	50
2	87	0	0
2	88	0	0
2	89	0	4
2	90	17	17
2	91	33	26
2	92	39	35
2	93	39	39
2	94	39	50
2	95	44	59
2	96	44	59
2	97	44	59
1	87	0	0
1	88	0	4
1	89	0	13
1	90	22	26
1	91	39	35
1	92	44	43
1	93	44	48
1	94	44	59
1	95	50	67
1	96	50	67
1	97	50	67

Table 15A.41. Estimated percent habitat available in Coffeen Lake, June 2, 1999 (Segment 1 = 3:05 PM, Segment 2 = 3:35 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	71	60
4	88	71	60
4	89	71	60
4	90	71	60
4	91	71	60
4	92	71	60
4	93	71	60
4	94	71	60
4	95	71	60
4	96	71	60
4	97	71	60
3	87	82	69
3	88	82	69
3	89	82	69
3	90	82	69
3	91	82	69
3	92	82	69
3	93	82	69
3	94	82	69
3	95	82	69
3	96	82	69
3	97	82	69
2	87	87	81
2	88	87	81
2	89	87	81
2	90	87	81
2	91	87	81
2	92	87	81
2	93	87	81
2	94	87	81
2	95	87	81
2	96	87	81
2	97	87	81
1	87	100	90
1	88	100	90
1	89	100	90
1	90	100	90
1	91	100	90
1	92	100	90
1	93	100	90
1	94	100	90
1	95	100	90
1	96	100	90
1	97	100	90

Table 15A.42. Estimated percent habitat available outside of Coffeen Lake cooling loop, June 9, 1999 (time unknown). Data was obtained by AmerenCips. Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available		
		Location F1	Location F2	Location G
4	87	28	5	39
4	88	56	55	68
4	89	75	95	89
4	90	75	100	100
4	91	75	100	100
4	92	75	100	100
4	93	75	100	100
4	94	75	100	100
4	95	75	100	100
4	96	75	100	100
4	97	75	100	100
3	87	39	5	39
3	88	67	55	68
3	89	86	95	89
3	90	86	100	100
3	91	86	100	100
3	92	86	100	100
3	93	86	100	100
3	94	86	100	100
3	95	86	100	100
3	96	86	100	100
3	97	86	100	100
2	87	50	5	39
2	88	78	55	68
2	89	97	95	89
2	90	97	100	100
2	91	97	100	100
2	92	97	100	100
2	93	97	100	100
2	94	97	100	100
2	95	97	100	100
2	96	97	100	100
2	97	97	100	100
1	87	53	5	39
1	88	81	55	68
1	89	100	95	89
1	90	100	100	100
1	91	100	100	100
1	92	100	100	100
1	93	100	100	100
1	94	100	100	100
1	95	100	100	100
1	96	100	100	100
1	97	100	100	100

Table 15A.43. Estimated percent habitat available in Coffeen Lake, June 16, 1999 (Segment 1 = 9:31 AM, Segment 2 = 9:58 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	37	66
4	88	47	66
4	89	53	66
4	90	71	66
4	91	71	66
4	92	71	66
4	93	71	66
4	94	71	66
4	95	71	66
4	96	71	66
4	97	71	66
3	87	42	75
3	88	53	75
3	89	58	75
3	90	76	75
3	91	76	75
3	92	76	75
3	93	76	75
3	94	76	75
3	95	76	75
3	96	76	75
3	97	76	75
2	87	47	75
2	88	58	75
2	89	63	75
2	90	82	75
2	91	82	75
2	92	82	75
2	93	82	75
2	94	82	75
2	95	82	75
2	96	82	75
2	97	82	75
1	87	53	84
1	88	63	84
1	89	68	84
1	90	87	84
1	91	87	84
1	92	87	84
1	93	87	84
1	94	87	84
1	95	87	84
1	96	87	84
1	97	87	84

Table 15A.44. Estimated percent habitat available outside of Coffeen Lake cooling loop, June 23, 1999 (time unknown). Data was obtained by AmerenCips. Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available		
		Location F1	Location F2	Location G
4	87	93	100	100
4	88	93	100	100
4	89	93	100	100
4	90	93	100	100
4	91	93	100	100
4	92	93	100	100
4	93	93	100	100
4	94	93	100	100
4	95	93	100	100
4	96	93	100	100
4	97	93	100	100
3	87	100	100	100
3	88	100	100	100
3	89	100	100	100
3	90	100	100	100
3	91	100	100	100
3	92	100	100	100
3	93	100	100	100
3	94	100	100	100
3	95	100	100	100
3	96	100	100	100
3	97	100	100	100
2	87	100	100	100
2	88	100	100	100
2	89	100	100	100
2	90	100	100	100
2	91	100	100	100
2	92	100	100	100
2	93	100	100	100
2	94	100	100	100
2	95	100	100	100
2	96	100	100	100
2	97	100	100	100
1	87	100	100	100
1	88	100	100	100
1	89	100	100	100
1	90	100	100	100
1	91	100	100	100
1	92	100	100	100
1	93	100	100	100
1	94	100	100	100
1	95	100	100	100
1	96	100	100	100
1	97	100	100	100

Table 15A.45. Estimated percent habitat available outside of Coffeen Lake cooling loop, July 7, 1999 (time unknown). Data was obtained by AmerenCips. Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available		
		Location F1	Location F2	Location G
4	87	0	0	0
4	88	5	0	0
4	89	11	0	7
4	90	16	28	50
4	91	26	72	79
4	92	37	100	89
4	93	47	100	89
4	94	66	100	89
4	95	66	100	89
4	96	66	100	89
4	97	66	100	89
3	87	0	0	0
3	88	5	0	7
3	89	11	0	14
3	90	16	28	57
3	91	26	72	86
3	92	37	100	96
3	93	47	100	96
3	94	66	100	96
3	95	66	100	96
3	96	66	100	96
3	97	66	100	96
2	87	11	0	4
2	88	16	0	11
2	89	21	0	18
2	90	26	28	61
2	91	37	72	89
2	92	47	100	100
2	93	58	100	100
2	94	76	100	100
2	95	76	100	100
2	96	76	100	100
2	97	76	100	100
1	87	21	0	4
1	88	26	0	11
1	89	32	0	18
1	90	37	28	61
1	91	47	72	89
1	92	58	100	100
1	93	68	100	100
1	94	87	100	100
1	95	87	100	100
1	96	87	100	100
1	97	87	100	100

Table 15A.46. Estimated percent habitat available in Coffeen Lake, July 8, 1999 (Segment 1 = 1:15 PM, Segment 2 = 2:10 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	5	5
4	88	11	9
4	89	16	9
4	90	26	18
4	91	32	23
4	92	32	32
4	93	32	32
4	94	32	36
4	95	37	50
4	96	37	57
4	97	42	57
3	87	5	14
3	88	11	18
3	89	16	18
3	90	26	27
3	91	32	32
3	92	32	41
3	93	32	41
3	94	32	45
3	95	37	59
3	96	37	66
3	97	42	66
2	87	21	23
2	88	26	27
2	89	32	27
2	90	42	36
2	91	47	41
2	92	47	50
2	93	47	50
2	94	47	55
2	95	53	68
2	96	53	75
2	97	58	75
1	87	26	27
1	88	32	32
1	89	37	32
1	90	47	41
1	91	53	45
1	92	53	55
1	93	53	55
1	94	53	59
1	95	58	73
1	96	58	80
1	97	63	80

Table 15A.47. Estimated percent habitat available outside of Coffeen Lake cooling loop, July 21, 1999 (time unknown). Data was obtained by AmerenCips. Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available		
		Location F1	Location F2	Location G
4	87	0	0	
4	88	0	0	
4	89	0	0	
4	90	0	0	
4	91	0	0	
4	92	0	0	
4	93	0	0	
4	94	6	0	
4	95	6	0	
4	96	36	100	
4	97	53	100	
3	87	0	0	
3	88	0	0	
3	89	0	0	
3	90	0	0	
3	91	0	0	
3	92	6	0	
3	93	11	0	
3	94	17	0	
3	95	17	0	
3	96	47	100	
3	97	64	100	
2	87	0	0	
2	88	0	0	
2	89	0	0	
2	90	11	0	
2	91	17	0	
2	92	22	0	
2	93	28	0	
2	94	33	0	
2	95	33	0	
2	96	64	100	
2	97	81	100	
1	87	0	0	
1	88	0	0	
1	89	6	0	
1	90	17	0	
1	91	22	0	
1	92	28	0	
1	93	33	0	
1	94	39	0	
1	95	39	0	
1	96	69	100	
1	97	86	100	

Table 15A.48. Estimated percent habitat available in Coffeen Lake, July 23, 1999 (Segment 1 = 3:10 PM, Segment 2 = 2:50 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	0
4	88	0	0
4	89	0	0
4	90	0	0
4	91	0	0
4	92	0	0
4	93	5	0
4	94	10	5
4	95	14	10
4	96	19	20
4	97	24	25
3	87	0	0
3	88	0	0
3	89	0	0
3	90	0	0
3	91	0	5
3	92	5	5
3	93	10	10
3	94	14	15
3	95	19	20
3	96	24	30
3	97	29	35
2	87	0	0
2	88	0	0
2	89	0	0
2	90	0	10
2	91	5	15
2	92	10	15
2	93	14	20
2	94	19	25
2	95	24	30
2	96	29	40
2	97	33	45
1	87	0	0
1	88	0	5
1	89	5	5
1	90	10	15
1	91	14	20
1	92	19	20
1	93	24	25
1	94	29	30
1	95	33	35
1	96	38	45
1	97	43	50

Table 15A.49. Estimated percent habitat available in Coffeen Lake, July 31, 1999, at the discharge (upstream from segment 1 midpoint) and dam (border of segments 1 and 2) temperature monitor buoys (Discharge = 4:00 AM, Dam = ca. 4:00 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		discharge	dam
4	87	0	0
4	88	0	0
4	89	0	0
4	90	0	0
4	91	0	0
4	92	0	0
4	93	0	0
4	94	0	0
4	95	0	0
4	96	0	0
4	97	0	17
3	87	0	0
3	88	0	0
3	89	0	0
3	90	0	0
3	91	0	0
3	92	0	0
3	93	0	0
3	94	0	0
3	95	0	0
3	96	17	17
3	97	17	33
2	87	0	0
2	88	0	0
2	89	0	0
2	90	0	0
2	91	0	0
2	92	0	0
2	93	0	0
2	94	0	8
2	95	0	8
2	96	25	25
2	97	25	42
1	87	0	0
1	88	0	0
1	89	0	0
1	90	0	0
1	91	0	0
1	92	0	0
1	93	0	0
1	94	0	8
1	95	0	8
1	96	25	25
1	97	25	42

Table 15A.50. Estimated percent habitat available in Coffeen Lake, August 1, 1999, at the discharge (upstream from segment 1 midpoint) and dam (border of segments 1 and 2) temperature monitor buoys (Discharge = 1:45 AM, Dam = ca. 2:00 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	0
4	88	0	0
4	89	0	0
4	90	0	0
4	91	0	0
4	92	0	0
4	93	0	0
4	94	0	0
4	95	0	0
4	96	0	14
4	97	0	29
3	87	0	0
3	88	0	0
3	89	0	0
3	90	0	0
3	91	0	0
3	92	0	0
3	93	0	0
3	94	0	0
3	95	0	0
3	96	0	21
3	97	10	36
2	87	0	0
2	88	0	0
2	89	0	0
2	90	0	0
2	91	0	0
2	92	0	0
2	93	0	0
2	94	0	0
2	95	0	14
2	96	0	36
2	97	10	50
1	87	0	0
1	88	0	0
1	89	0	0
1	90	0	0
1	91	0	0
1	92	0	0
1	93	0	0
1	94	0	0
1	95	0	14
1	96	0	36
1	97	10	50

Table 15A.51. Estimated percent habitat available in Coffeen Lake, August 6, 1999 (Segment 1 = 11:50 AM, Segment 2 = 12:10 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	0
4	88	0	0
4	89	0	0
4	90	0	0
4	91	0	0
4	92	0	9
4	93	0	36
4	94	0	45
4	95	0	45
4	96	0	45
4	97	0	66
3	87	0	0
3	88	0	0
3	89	0	0
3	90	0	0
3	91	0	5
3	92	0	14
3	93	0	41
3	94	0	50
3	95	0	50
3	96	0	50
3	97	6	70
2	87	0	0
2	88	0	0
2	89	0	0
2	90	0	0
2	91	0	9
2	92	0	18
2	93	0	45
2	94	0	55
2	95	0	55
2	96	0	55
2	97	6	75
1	87	0	0
1	88	0	0
1	89	0	5
1	90	0	5
1	91	0	14
1	92	0	23
1	93	6	50
1	94	11	59
1	95	17	59
1	96	17	59
1	97	22	80

Table 15A.52. Estimated percent habitat available outside of Coffeen Lake cooling loop, August 11, 1999 (time unknown). Data was obtained by AmerenCips. Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available		
		Location F1	Location F2	Location G
4	87	0	0	0
4	88	0	0	0
4	89	12	31	58
4	90	59	81	81
4	91	71	100	100
4	92	97	100	100
4	93	97	100	100
4	94	97	100	100
4	95	97	100	100
4	96	97	100	100
4	97	97	100	100
3	87	0	0	0
3	88	0	0	0
3	89	15	31	58
3	90	62	81	81
3	91	74	100	100
3	92	100	100	100
3	93	100	100	100
3	94	100	100	100
3	95	100	100	100
3	96	100	100	100
3	97	100	100	100
2	87	0	0	0
2	88	0	0	0
2	89	15	31	58
2	90	62	81	81
2	91	74	100	100
2	92	100	100	100
2	93	100	100	100
2	94	100	100	100
2	95	100	100	100
2	96	100	100	100
2	97	100	100	100
1	87	0	0	0
1	88	0	0	0
1	89	15	31	58
1	90	62	81	81
1	91	74	100	100
1	92	100	100	100
1	93	100	100	100
1	94	100	100	100
1	95	100	100	100
1	96	100	100	100
1	97	100	100	100

Table 15A.53. Estimated percent habitat available in Coffeen Lake, August 19, 1999 (Segment 1 = 2:00 PM, Segment 2 = 1:00 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	0
4	88	6	18
4	89	11	27
4	90	11	39
4	91	17	52
4	92	17	52
4	93	17	52
4	94	22	52
4	95	22	52
4	96	28	52
4	97	33	52
3	87	0	0
3	88	11	27
3	89	17	36
3	90	17	48
3	91	22	61
3	92	22	61
3	93	22	61
3	94	28	61
3	95	28	61
3	96	33	61
3	97	39	61
2	87	0	5
2	88	33	32
2	89	39	41
2	90	39	52
2	91	44	66
2	92	44	66
2	93	44	66
2	94	50	66
2	95	50	66
2	96	56	66
2	97	61	66
1	87	6	14
1	88	39	41
1	89	44	50
1	90	44	61
1	91	50	75
1	92	50	75
1	93	50	75
1	94	56	75
1	95	56	75
1	96	61	75
1	97	67	75

Table 15A.54. Estimated percent habitat available outside of Coffeen Lake cooling loop, August 25, 1999 (time unknown). Data was obtained by AmerenCips. Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available		
		Location F1	Location F2	Location G
4	87	10	100	100
4	88	100	100	100
4	89	100	100	100
4	90	100	100	100
4	91	100	100	100
4	92	100	100	100
4	93	100	100	100
4	94	100	100	100
4	95	100	100	100
4	96	100	100	100
4	97	100	100	100
3	87	10	100	100
3	88	100	100	100
3	89	100	100	100
3	90	100	100	100
3	91	100	100	100
3	92	100	100	100
3	93	100	100	100
3	94	100	100	100
3	95	100	100	100
3	96	100	100	100
3	97	100	100	100
2	87	10	100	100
2	88	100	100	100
2	89	100	100	100
2	90	100	100	100
2	91	100	100	100
2	92	100	100	100
2	93	100	100	100
2	94	100	100	100
2	95	100	100	100
2	96	100	100	100
2	97	100	100	100
1	87	10	100	100
1	88	100	100	100
1	89	100	100	100
1	90	100	100	100
1	91	100	100	100
1	92	100	100	100
1	93	100	100	100
1	94	100	100	100
1	95	100	100	100
1	96	100	100	100
1	97	100	100	100

Table 15A.55. Estimated percent habitat available in Lake of Egypt, June 4, 1998 (Segment 1 = 2:28 PM, Segment 2 = 10:30 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	50	47
4	88	50	47
4	89	50	47
4	90	50	47
4	91	50	47
4	92	50	47
4	93	50	47
4	94	50	47
4	95	50	47
4	96	50	47
4	97	50	47
3	87	61	94
3	88	61	94
3	89	61	94
3	90	61	94
3	91	61	94
3	92	61	94
3	93	61	94
3	94	61	94
3	95	61	94
3	96	61	94
3	97	61	94
2	87	70	100
2	88	70	100
2	89	70	100
2	90	70	100
2	91	70	100
2	92	70	100
2	93	70	100
2	94	70	100
2	95	70	100
2	96	70	100
2	97	70	100
1	87	74	100
1	88	74	100
1	89	74	100
1	90	74	100
1	91	74	100
1	92	74	100
1	93	74	100
1	94	74	100
1	95	74	100
1	96	74	100
1	97	74	100

Table 15A.56. Estimated percent habitat available in Lake of Egypt, June 12, 1998 (Segment 1 = 10:23 AM, Segment 2 = 8:00 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	92	88
4	88	92	88
4	89	92	88
4	90	92	88
4	91	92	88
4	92	92	88
4	93	92	88
4	94	92	88
4	95	92	88
4	96	92	88
4	97	92	88
3	87	92	96
3	88	92	96
3	89	92	96
3	90	92	96
3	91	92	96
3	92	92	96
3	93	92	96
3	94	92	96
3	95	92	96
3	96	92	96
3	97	92	96
2	87	92	96
2	88	92	96
2	89	92	96
2	90	92	96
2	91	92	96
2	92	92	96
2	93	92	96
2	94	92	96
2	95	92	96
2	96	92	96
2	97	92	96
1	87	92	100
1	88	92	100
1	89	92	100
1	90	92	100
1	91	92	100
1	92	92	100
1	93	92	100
1	94	92	100
1	95	92	100
1	96	92	100
1	97	92	100

Table 15A.57. Estimated percent habitat available in Lake of Egypt, June 25, 1998 (Segment 1 = 10:40 AM, Segment 2 = 9:20 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	4	53
4	88	4	53
4	89	4	53
4	90	13	53
4	91	13	53
4	92	13	53
4	93	13	53
4	94	13	53
4	95	13	53
4	96	13	53
4	97	13	53
3	87	13	58
3	88	13	58
3	89	13	58
3	90	29	58
3	91	40	58
3	92	40	58
3	93	40	58
3	94	40	58
3	95	40	58
3	96	40	58
3	97	40	58
2	87	17	64
2	88	17	64
2	89	17	64
2	90	33	64
2	91	44	64
2	92	44	64
2	93	44	64
2	94	44	64
2	95	44	64
2	96	44	64
2	97	44	64
1	87	29	64
1	88	29	64
1	89	29	64
1	90	46	64
1	91	56	64
1	92	56	64
1	93	56	64
1	94	56	64
1	95	56	64
1	96	56	64
1	97	56	64

Table 15A.58. Estimated percent habitat available in Lake of Egypt, July 2, 1998 (Segment 1 = 2:42 PM, Segment 2 = 10:12 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	47
4	88	8	47
4	89	8	47
4	90	8	47
4	91	8	47
4	92	8	47
4	93	8	47
4	94	8	47
4	95	8	47
4	96	8	47
4	97	8	47
3	87	17	53
3	88	25	53
3	89	29	53
3	90	29	53
3	91	29	53
3	92	29	53
3	93	29	53
3	94	29	53
3	95	29	53
3	96	29	53
3	97	29	53
2	87	21	53
2	88	29	53
2	89	33	53
2	90	33	53
2	91	38	53
2	92	40	53
2	93	40	53
2	94	40	53
2	95	40	53
2	96	40	53
2	97	40	53
1	87	25	58
1	88	33	58
1	89	38	58
1	90	38	58
1	91	42	58
1	92	44	58
1	93	44	58
1	94	44	58
1	95	44	58
1	96	44	58
1	97	44	58

Table 15A.59. Estimated percent habitat available in Lake of Egypt, July 9, 1998 (Segment 1 = 8:06 AM, Segment 2 = 2:21 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	4	0
4	88	22	17
4	89	30	22
4	90	30	22
4	91	35	39
4	92	35	47
4	93	35	47
4	94	35	47
4	95	35	47
4	96	35	47
4	97	35	47
3	87	9	0
3	88	26	17
3	89	35	22
3	90	35	22
3	91	39	39
3	92	39	47
3	93	39	47
3	94	39	47
3	95	39	47
3	96	39	47
3	97	39	47
2	87	24	11
2	88	41	28
2	89	50	33
2	90	50	33
2	91	54	50
2	92	54	58
2	93	61	58
2	94	61	58
2	95	61	58
2	96	61	58
2	97	61	58
1	87	24	25
1	88	41	42
1	89	50	47
1	90	50	47
1	91	54	64
1	92	54	72
1	93	61	72
1	94	61	72
1	95	61	72
1	96	61	72
1	97	61	72

Table 15A.60. Estimated percent habitat available in Lake of Egypt, July 16, 1998 (Segment 1 = 8:16 AM, Segment 2 = 11:18 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	57	75
4	88	57	75
4	89	63	75
4	90	63	75
4	91	63	75
4	92	63	75
4	93	63	75
4	94	63	75
4	95	63	75
4	96	63	75
4	97	63	75
3	87	57	75
3	88	57	75
3	89	63	75
3	90	63	75
3	91	63	75
3	92	63	75
3	93	63	75
3	94	63	75
3	95	63	75
3	96	63	75
3	97	63	75
2	87	57	75
2	88	57	75
2	89	63	75
2	90	63	75
2	91	63	75
2	92	63	75
2	93	63	75
2	94	63	75
2	95	63	75
2	96	63	75
2	97	63	75
1	87	57	81
1	88	57	81
1	89	63	81
1	90	63	81
1	91	63	81
1	92	63	81
1	93	63	81
1	94	63	81
1	95	63	81
1	96	63	81
1	97	63	81

Table 15A.61. Estimated percent habitat available in Lake of Egypt, July 23, 1998 (Segment 1 = 8:20 AM, Segment 2 = 12:45 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	6
4	88	0	6
4	89	5	35
4	90	14	50
4	91	18	50
4	92	23	50
4	93	27	50
4	94	27	50
4	95	32	50
4	96	36	50
4	97	36	50
3	87	5	18
3	88	5	18
3	89	9	47
3	90	18	62
3	91	23	62
3	92	27	62
3	93	32	62
3	94	32	62
3	95	36	62
3	96	43	62
3	97	43	62
2	87	18	18
2	88	18	18
2	89	23	47
2	90	32	62
2	91	36	62
2	92	41	62
2	93	45	62
2	94	45	62
2	95	50	62
2	96	57	62
2	97	57	62
1	87	18	24
1	88	18	24
1	89	23	53
1	90	32	68
1	91	36	68
1	92	41	68
1	93	45	68
1	94	45	68
1	95	50	68
1	96	57	68
1	97	57	68

Table 15A.62. Estimated percent habitat available in Lake of Egypt, July 30, 1998 (Segment 1 = 11:57 AM, Segment 2 = 9:07 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	2
4	88	0	2
4	89	0	2
4	90	0	2
4	91	0	2
4	92	0	2
4	93	0	2
4	94	0	2
4	95	0	2
4	96	0	2
4	97	0	2
3	87	0	2
3	88	0	2
3	89	0	2
3	90	0	2
3	91	0	2
3	92	0	2
3	93	0	2
3	94	0	2
3	95	0	2
3	96	0	2
3	97	0	2
2	87	0	52
2	88	0	52
2	89	0	52
2	90	0	52
2	91	0	52
2	92	0	52
2	93	0	52
2	94	0	52
2	95	0	52
2	96	0	52
2	97	0	52
1	87	35	57
1	88	35	57
1	89	35	57
1	90	39	57
1	91	39	57
1	92	39	57
1	93	43	57
1	94	46	57
1	95	46	57
1	96	46	57
1	97	46	57

Table 15A.63. Estimated percent habitat available in Lake of Egypt, August 4, 1998 (Segment 1 = 8:20 AM, Segment 2 = 11:28 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	17	68
4	88	26	68
4	89	26	68
4	90	26	68
4	91	30	68
4	92	37	68
4	93	37	68
4	94	37	68
4	95	37	68
4	96	37	68
4	97	37	68
3	87	22	74
3	88	30	74
3	89	30	74
3	90	30	74
3	91	35	74
3	92	41	74
3	93	41	74
3	94	41	74
3	95	41	74
3	96	41	74
3	97	41	74
2	87	30	74
2	88	39	74
2	89	39	74
2	90	39	74
2	91	43	74
2	92	50	74
2	93	50	74
2	94	50	74
2	95	50	74
2	96	50	74
2	97	50	74
1	87	43	79
1	88	52	79
1	89	52	79
1	90	52	79
1	91	57	79
1	92	63	79
1	93	63	79
1	94	63	79
1	95	63	79
1	96	63	79
1	97	63	79

Table 15A.64. Estimated percent habitat available in Lake of Egypt, August 11, 1998 (Segment 1 = 10:03 AM, Segment 2 = 9:27 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	26	61
4	88	26	64
4	89	26	64
4	90	30	64
4	91	30	64
4	92	30	64
4	93	35	64
4	94	35	64
4	95	35	64
4	96	35	64
4	97	35	64
3	87	39	67
3	88	39	69
3	89	39	69
3	90	43	69
3	91	43	69
3	92	43	69
3	93	48	69
3	94	50	69
3	95	50	69
3	96	50	69
3	97	50	69
2	87	39	83
2	88	39	86
2	89	39	86
2	90	43	86
2	91	43	86
2	92	43	86
2	93	48	86
2	94	50	86
2	95	50	86
2	96	50	86
2	97	50	86
1	87	48	83
1	88	48	86
1	89	48	86
1	90	52	86
1	91	52	86
1	92	52	86
1	93	57	86
1	94	59	86
1	95	59	86
1	96	59	86
1	97	59	86

Table 15A.65. Estimated percent habitat available in Lake of Egypt, August 17, 1998 (Segment 1 = 9:24 AM, Segment 2 = 8:57 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	26	64
4	88	26	64
4	89	30	64
4	90	35	64
4	91	35	64
4	92	41	64
4	93	41	64
4	94	41	64
4	95	41	64
4	96	41	64
4	97	41	64
3	87	30	64
3	88	30	64
3	89	35	64
3	90	39	64
3	91	39	64
3	92	46	64
3	93	46	64
3	94	46	64
3	95	46	64
3	96	46	64
3	97	46	64
2	87	35	69
2	88	35	69
2	89	39	69
2	90	43	69
2	91	43	69
2	92	50	69
2	93	50	69
2	94	50	69
2	95	50	69
2	96	50	69
2	97	50	69
1	87	43	69
1	88	43	69
1	89	48	69
1	90	52	69
1	91	52	69
1	92	59	69
1	93	59	69
1	94	59	69
1	95	59	69
1	96	59	69
1	97	59	69

Table 15A.66. Estimated percent habitat available in Lake of Egypt, August 25, 1998 (Segment 1 = 3:36 PM, Segment 2 = 3:00 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	0
4	88	0	0
4	89	0	9
4	90	0	9
4	91	0	9
4	92	0	9
4	93	0	9
4	94	0	9
4	95	0	9
4	96	0	9
4	97	0	9
3	87	0	6
3	88	0	6
3	89	0	15
3	90	0	15
3	91	4	15
3	92	4	15
3	93	4	15
3	94	4	15
3	95	11	15
3	96	11	15
3	97	11	15
2	87	4	41
2	88	9	47
2	89	13	56
2	90	17	56
2	91	22	56
2	92	22	56
2	93	22	56
2	94	22	56
2	95	33	56
2	96	33	56
2	97	33	56
1	87	22	53
1	88	26	59
1	89	30	68
1	90	35	68
1	91	39	68
1	92	39	68
1	93	39	68
1	94	39	68
1	95	50	68
1	96	50	68
1	97	50	68

Table 15A.67. Estimated percent habitat available in Lake of Egypt, June 1, 1999 (Segment 1 = 2:05 PM, Segment 2 = 1:20 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	52	62
4	88	52	62
4	89	52	62
4	90	52	62
4	91	52	62
4	92	52	62
4	93	52	62
4	94	52	62
4	95	52	62
4	96	52	62
4	97	52	62
3	87	56	68
3	88	56	68
3	89	56	68
3	90	56	68
3	91	56	68
3	92	56	68
3	93	56	68
3	94	56	68
3	95	56	68
3	96	56	68
3	97	56	68
2	87	60	68
2	88	60	68
2	89	60	68
2	90	60	68
2	91	60	68
2	92	60	68
2	93	60	68
2	94	60	68
2	95	60	68
2	96	60	68
2	97	60	68
1	87	65	79
1	88	65	79
1	89	65	79
1	90	65	79
1	91	65	79
1	92	65	79
1	93	65	79
1	94	65	79
1	95	65	79
1	96	65	79
1	97	65	79

Table 15A.68. Estimated percent habitat available in Lake of Egypt, June 18, 1999 (Segment 1 = 12:30 PM, Segment 2 = 12:00 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	48	74
4	88	48	74
4	89	48	74
4	90	48	74
4	91	48	74
4	92	48	74
4	93	48	74
4	94	48	74
4	95	48	74
4	96	48	74
4	97	48	74
3	87	48	74
3	88	48	74
3	89	48	74
3	90	48	74
3	91	48	74
3	92	48	74
3	93	48	74
3	94	48	74
3	95	48	74
3	96	48	74
3	97	48	74
2	87	52	74
2	88	52	74
2	89	52	74
2	90	52	74
2	91	52	74
2	92	52	74
2	93	52	74
2	94	52	74
2	95	52	74
2	96	52	74
2	97	52	74
1	87	52	74
1	88	52	74
1	89	52	74
1	90	52	74
1	91	52	74
1	92	52	74
1	93	52	74
1	94	52	74
1	95	52	74
1	96	52	74
1	97	52	74

Table 15A.69. Estimated percent habitat available in Lake of Egypt, July 9, 1999 (Segment 1 = 2:00 PM, Segment 2 = 1:30 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	22
4	88	12	22
4	89	12	44
4	90	15	58
4	91	15	58
4	92	23	58
4	93	33	58
4	94	33	58
4	95	33	58
4	96	33	58
4	97	33	58
3	87	12	22
3	88	23	22
3	89	23	44
3	90	27	58
3	91	27	58
3	92	35	58
3	93	44	58
3	94	44	58
3	95	44	58
3	96	44	58
3	97	44	58
2	87	15	28
2	88	27	28
2	89	27	50
2	90	31	64
2	91	31	64
2	92	38	64
2	93	48	64
2	94	48	64
2	95	48	64
2	96	48	64
2	97	48	64
1	87	19	28
1	88	31	28
1	89	31	50
1	90	35	64
1	91	35	64
1	92	42	64
1	93	52	64
1	94	52	64
1	95	52	64
1	96	52	64
1	97	52	64

Table 15A.70. Estimated percent habitat available in Lake of Egypt, July 22, 1999 (Segment 1 = 5:26 PM, Segment 2 = 4:20 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	5	29
4	88	14	43
4	89	18	43
4	90	18	50
4	91	23	61
4	92	23	61
4	93	23	61
4	94	23	61
4	95	23	61
4	96	23	61
4	97	23	61
3	87	14	36
3	88	23	50
3	89	27	50
3	90	27	57
3	91	32	68
3	92	32	68
3	93	32	68
3	94	36	68
3	95	36	68
3	96	36	68
3	97	36	68
2	87	18	36
2	88	27	50
2	89	32	50
2	90	32	57
2	91	36	68
2	92	36	68
2	93	36	68
2	94	41	68
2	95	45	68
2	96	45	68
2	97	45	68
1	87	23	50
1	88	32	64
1	89	36	64
1	90	36	71
1	91	41	82
1	92	41	82
1	93	41	82
1	94	45	82
1	95	50	82
1	96	52	82
1	97	52	82

Table 15A.71. Estimated percent habitat available in Lake of Egypt, August 3, 1999 (Segment 1 = 12:51 PM, Segment 2 = 10:58 AM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	0	6
4	88	0	64
4	89	0	64
4	90	4	64
4	91	9	64
4	92	9	64
4	93	15	64
4	94	15	64
4	95	15	64
4	96	15	64
4	97	15	64
3	87	0	6
3	88	0	64
3	89	17	64
3	90	22	64
3	91	26	64
3	92	26	64
3	93	33	64
3	94	33	64
3	95	33	64
3	96	33	64
3	97	33	64
2	87	0	6
2	88	4	64
2	89	22	64
2	90	26	64
2	91	30	64
2	92	30	64
2	93	37	64
2	94	37	64
2	95	37	64
2	96	37	64
2	97	37	64
1	87	4	6
1	88	13	64
1	89	30	64
1	90	35	64
1	91	39	64
1	92	39	64
1	93	46	64
1	94	46	64
1	95	46	64
1	96	46	64
1	97	46	64

Table 15A.72. Estimated percent habitat available in Lake of Egypt, August 16, 1999 (Segment 1 = 2:40 PM, Segment 2 = 3:10 PM). Habitat was considered available if it contained no less than the minimum oxygen or no more than the maximum temperature indicated.

Minimum Oxygen (ppm)	Maximum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	87	14	82
4	88	14	85
4	89	18	85
4	90	18	85
4	91	18	85
4	92	23	85
4	93	23	85
4	94	23	85
4	95	25	85
4	96	25	85
4	97	25	85
3	87	45	88
3	88	45	91
3	89	50	91
3	90	50	91
3	91	50	91
3	92	55	91
3	93	55	91
3	94	55	91
3	95	57	91
3	96	57	91
3	97	57	91
2	87	45	88
2	88	45	91
2	89	50	91
2	90	50	91
2	91	50	91
2	92	55	91
2	93	55	91
2	94	55	91
2	95	57	91
2	96	57	91
2	97	57	91
1	87	59	94
1	88	59	97
1	89	64	97
1	90	64	97
1	91	64	97
1	92	68	97
1	93	68	97
1	94	68	97
1	95	70	97
1	96	70	97
1	97	70	97

Table 15A.73. Estimated percent habitat available in Newton Lake, December 17, 1997 (Times unknown). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	100	100	100	64	91
4	51	100	100	96	0	74
4	52	100	75	96	0	68
4	53	100	54	89	0	61
4	54	100	46	68	0	54
4	55	100	39	0	0	35
4	56	100	39	0	0	35
4	57	100	39	0	0	35
4	58	100	39	0	0	35
4	59	100	32	0	0	33
4	60	100	32	0	0	33

Table 15A.74. Estimated percent habitat available in Newton Lake, December 26, 1997 (Times unknown). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	100	100	100	0	75
4	51	100	100	100	0	75
4	52	100	100	79	0	70
4	53	100	100	56	0	64
4	54	100	63	0	0	41
4	55	100	43	0	0	36
4	56	100	43	0	0	36
4	57	100	37	0	0	34
4	58	100	30	0	0	33
4	59	100	0	0	0	25
4	60	100	0	0	0	25

Table 15A.75. Estimated percent habitat available in Newton Lake, January 15, 1998 (Segment 1 = 2:35 PM, Segment 2 = 1:55 PM, Segment 3 = 1:07 PM, Segment 4 = 12:45 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	0	0	0	0	0
4	51	0	0	0	0	0
4	52	0	0	0	0	0
4	53	0	0	0	0	0
4	54	0	0	0	0	0
4	55	0	0	0	0	0
4	56	0	0	0	0	0
4	57	0	0	0	0	0
4	58	0	0	0	0	0
4	59	0	0	0	0	0
4	60	0	0	0	0	0

Table 15A.76. Estimated percent habitat available in Newton Lake, January 31, 1998 (Times unknown). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	100	63	43	0	52
4	51	100	50	0	0	38
4	52	100	43	0	0	36
4	53	100	17	0	0	29
4	54	93	0	0	0	23
4	55	0	0	0	0	0
4	56	0	0	0	0	0
4	57	0	0	0	0	0
4	58	0	0	0	0	0
4	59	0	0	0	0	0
4	60	0	0	0	0	0

Table 15A.77. Estimated percent habitat available in Newton Lake, February 12, 1998 (Segment 1 = 2:50 PM, Segment 2 = 12:26 PM, Segment 3 = 10:50 AM, Segment 4 = 10:30 AM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	92	62	0	0	38
4	51	92	50	0	0	35
4	52	92	44	0	0	34
4	53	92	44	0	0	34
4	54	75	38	0	0	28
4	55	75	38	0	0	28
4	56	75	38	0	0	28
4	57	75	32	0	0	27
4	58	75	26	0	0	25
4	59	58	26	0	0	21
4	60	58	26	0	0	21

Table 15A.78. Estimated percent habitat available in Newton Lake, February 26, 1998 (Segment 1 = 2:21 PM, Segment 2 = 3:55 PM, Segment 3 = 3:25 PM, Segment 4 = 2:50 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	100	100	100	100	100
4	51	100	100	100	100	100
4	52	100	97	84	100	95
4	53	100	84	84	100	92
4	54	100	84	84	0	67
4	55	100	84	47	0	58
4	56	100	84	0	0	46
4	57	100	84	0	0	46
4	58	100	78	0	0	45
4	59	100	47	0	0	37
4	60	100	28	0	0	32

Table 15A.79. Estimated percent habitat available in Newton Lake, December 9, 1998 (Segment 1 = 10:48 AM, Segment 2 = 11:04 AM, Segment 3 = 11:54 AM, Segment 4 = 12:23 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	100	100	100	100	100
4	51	100	100	100	100	100
4	52	100	100	100	100	100
4	53	100	100	100	100	100
4	54	100	100	100	100	100
4	55	100	100	100	100	100
4	56	100	100	100	100	100
4	57	100	100	100	0	75
4	58	100	100	100	0	75
4	59	100	100	75	0	69
4	60	100	50	0	0	38

Table 15A.80. Estimated percent habitat available in Newton Lake, December 29, 1998 (Segment 1 = 11:32 AM, Segment 2 = 11:50 AM, Segment 3 = 12:11 PM, Segment 4 = 12:35 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	100	100	0	0	50
4	51	100	0	0	0	25
4	52	100	0	0	0	25
4	53	100	0	0	0	25
4	54	93	0	0	0	23
4	55	93	0	0	0	23
4	56	93	0	0	0	23
4	57	93	0	0	0	23
4	58	64	0	0	0	16
4	59	0	0	0	0	0
4	60	0	0	0	0	0

Table 15A.81. Estimated percent habitat available in Newton Lake, January 11, 1999 (Segment 1 = 3:25 AM, Segment 2 = 3:55 AM, Segment 3 = 5:01 AM, Segment 4 = 5:30 AM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	93	0	0	0	23
4	51	93	0	0	0	23
4	52	93	0	0	0	23
4	53	71	0	0	0	18
4	54	0	0	0	0	0
4	55	0	0	0	0	0
4	56	0	0	0	0	0
4	57	0	0	0	0	0
4	58	0	0	0	0	0
4	59	0	0	0	0	0
4	60	0	0	0	0	0

Table 15A.82. Estimated percent habitat available in Newton Lake, January 22, 1999 (Segment 1 = 1:27 PM, Segment 2 = 1:55 PM, Segment 3 = 12:12 PM, Segment 4 = 12:45 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	0	0	0	0	0
4	51	0	0	0	0	0
4	52	0	0	0	0	0
4	53	0	0	0	0	0
4	54	0	0	0	0	0
4	55	0	0	0	0	0
4	56	0	0	0	0	0
4	57	0	0	0	0	0
4	58	0	0	0	0	0
4	59	0	0	0	0	0
4	60	0	0	0	0	0

Table 15A.83. Estimated percent habitat available in Newton Lake, February 10, 1999 (Segment 1 = 6:10 PM, Segment 2 = 5:45 PM, Segment 3 = 5:18 PM, Segment 4 = 4:59 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	100	79	69	0	62
4	51	94	74	58	0	57
4	52	94	62	31	0	47
4	53	83	56	0	0	35
4	54	83	50	0	0	33
4	55	83	26	0	0	27
4	56	83	0	0	0	21
4	57	83	0	0	0	21
4	58	83	0	0	0	21
4	59	83	0	0	0	21
4	60	72	0	0	0	18

Table 15A.84. Estimated percent habitat available in Newton Lake, February 24, 1999 (Segment 1 = 2:10 PM, Segment 2 = 1:51 PM, Segment 3 = 1:32 PM, Segment 4 = 1:15 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	100	100	0	0	50
4	51	100	59	0	0	40
4	52	100	47	0	0	37
4	53	100	41	0	0	35
4	54	72	34	0	0	27
4	55	61	34	0	0	24
4	56	50	28	0	0	20
4	57	50	28	0	0	20
4	58	50	22	0	0	18
4	59	50	22	0	0	18
4	60	50	0	0	0	13

Table 15A.85. Estimated percent habitat available in Newton Lake, December 15, 1999 (Segment 1 = 12:22 PM, Segment 2 = 12:50 PM, Segment 3 = 1:40 PM, Segment 4 = 2:00 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	100	100	100	100	100
4	51	100	100	100	100	100
4	52	100	100	100	0	75
4	53	100	100	100	0	75
4	54	100	100	100	0	75
4	55	100	100	100	0	75
4	56	100	100	0	0	50
4	57	100	100	0	0	50
4	58	100	100	0	0	50
4	59	100	100	0	0	50
4	60	100	0	0	0	25

Table 15A.86. Estimated percent habitat available in Newton Lake, December 27, 1999 (Segment 1 = 10:24 AM, Segment 2 = 10:38 AM, Segment 3 = 10:58 AM, Segment 4 = 11:18 AM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available				mean
		Segment 1	Segment 2	Segment 3	Segment 4	
4	50	100	100	0	0	50
4	51	100	65	0	0	41
4	52	100	50	0	0	38
4	53	100	0	0	0	25
4	54	100	0	0	0	25
4	55	100	0	0	0	25
4	56	100	0	0	0	25
4	57	92	0	0	0	23
4	58	0	0	0	0	0
4	59	0	0	0	0	0
4	60	0	0	0	0	0

Table 15A.87. Estimated percent habitat available in Coffeen Lake, December 3, 1997 (times unknown). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	100	100
4	51	100	100
4	52	100	100
4	53	100	100
4	54	100	100
4	55	100	100
4	56	84	100
4	57	66	95
4	58	47	50
4	59	47	41
4	60	13	41

Table 15A.88. Estimated percent habitat available in Coffeen Lake, January 7, 1998 (times unknown). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	100	100
4	51	100	100
4	52	100	83
4	53	100	73
4	54	100	58
4	55	100	38
4	56	100	33
4	57	100	33
4	58	100	33
4	59	100	33
4	60	60	28

Table 15A.89. Estimated percent habitat available in Coffeen Lake, February 6, 1998 (Segment 1 = 3:46 PM, Segment 2 = 4:26 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	100	68
4	51	100	63
4	52	50	43
4	53	30	0
4	54	30	0
4	55	23	0
4	56	23	0
4	57	23	0
4	58	23	0
4	59	23	0
4	60	23	0

Table 15A.90. Estimated percent habitat available in Coffeen Lake, December 1, 1998 (Segment 1 = 3:10 PM, Segment 2 = 3:40 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	100	100
4	51	100	100
4	52	100	100
4	53	100	100
4	54	100	100
4	55	97	80
4	56	58	25
4	57	42	25
4	58	31	20
4	59	31	20
4	60	25	20

Table 15A.91. Estimated percent habitat available in Coffeen Lake, December 17, 1998 (Segment 1 = 12:27 PM, Segment 2 = 11:47 AM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	100	100
4	51	100	100
4	52	100	100
4	53	100	100
4	54	100	80
4	55	100	0
4	56	44	0
4	57	32	0
4	58	32	0
4	59	26	0
4	60	26	0

Table 15A.92. Estimated percent habitat available in Coffeen Lake, January 7, 1999 (Segment 1 = 2:30 PM, Segment 2 = 3:30 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	26	24
4	51	26	0
4	52	26	0
4	53	26	0
4	54	26	0
4	55	26	0
4	56	26	0
4	57	26	0
4	58	21	0
4	59	21	0
4	60	21	0

Table 15A.93. Estimated percent habitat available in Coffeen Lake, January 21, 1999 (Segment 1 = 1:55 PM, Segment 2 = 2:32 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	25	23
4	51	25	23
4	52	19	15
4	53	19	15
4	54	19	15
4	55	19	15
4	56	19	10
4	57	19	0
4	58	19	0
4	59	14	0
4	60	14	0

Table 15A.94. Estimated percent habitat available in Coffeen Lake, February 3, 1999 (Segment 1 = 1:10 PM, Segment 2 = 12:25 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	100	90
4	51	88	90
4	52	68	0
4	53	53	0
4	54	53	0
4	55	53	0
4	56	53	0
4	57	48	0
4	58	43	0
4	59	33	0
4	60	23	0

Table 15A.95. Estimated percent habitat available in Coffeen Lake, February 18, 1999 (Segment 1 = 2:30 PM, Segment 2 = 2:50 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	45	28
4	51	21	24
4	52	21	24
4	53	17	24
4	54	17	24
4	55	17	20
4	56	17	15
4	57	17	0
4	58	17	0
4	59	17	0
4	60	17	0

Table 15A.96. Estimated percent habitat available in Coffeen Lake, December 1, 1999 (Segment 1 = 11:54 AM, Segment 2 = 1:00 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	100	100
4	51	100	100
4	52	100	100
4	53	100	100
4	54	100	98
4	55	100	57
4	56	80	0
4	57	25	0
4	58	0	0
4	59	0	0
4	60	0	0

Table 15A.97. Estimated percent habitat available in Coffeen Lake, December 14, 1999 (Segment 1 = 12:30 PM, Segment 2 = 11:40 AM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	100	100
4	51	100	100
4	52	100	100
4	53	100	0
4	54	95	0
4	55	86	0
4	56	77	0
4	57	68	0
4	58	59	0
4	59	59	0
4	60	59	0

Table 15A.98. Estimated percent habitat available in Coffeen Lake, December 29, 1999 (Segment 1 = 12:09 PM, Segment 2 = 12:48 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	50	21
4	51	45	17
4	52	45	0
4	53	45	0
4	54	40	0
4	55	40	0
4	56	31	0
4	57	21	0
4	58	2	0
4	59	0	0
4	60	0	0

Table 15A.99. Estimated percent habitat available in Lake of Egypt, December 3, 1997 (times unknown). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	100	41
4	51	93	0
4	52	48	0
4	53	38	0
4	54	38	0
4	55	28	0
4	56	13	0
4	57	8	0
4	58	8	0
4	59	8	0
4	60	8	0

Table 15A.100. Estimated percent habitat available in Lake of Egypt, January 5, 1998 (times unknown). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	0	0
4	51	0	0
4	52	0	0
4	53	0	0
4	54	0	0
4	55	0	0
4	56	0	0
4	57	0	0
4	58	0	0
4	59	0	0
4	60	0	0

Table 15A.101. Estimated percent habitat available in Lake of Egypt, February 19, 1998 (Segment 1 = 4:13 PM, Segment 2 = 3:36 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	19	0
4	51	10	0
4	52	10	0
4	53	6	0
4	54	6	0
4	55	2	0
4	56	0	0
4	57	0	0
4	58	0	0
4	59	0	0
4	60	0	0

Table 15A.102. Estimated percent habitat available in Lake of Egypt, December 3, 1998 (Segment 1 = 9:00 AM, Segment 2 = 2:10 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	93	100
4	51	93	100
4	52	93	100
4	53	93	100
4	54	93	100
4	55	93	84
4	56	72	72
4	57	54	16
4	58	50	0
4	59	41	0
4	60	37	0

Table 15A.103. Estimated percent habitat available in Lake of Egypt, December 15, 1998 (Segment 1 = 10:19 AM, Segment 2 = 10:49 AM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	100	100
4	51	100	100
4	52	100	32
4	53	100	0
4	54	100	0
4	55	93	0
4	56	11	0
4	57	7	0
4	58	7	0
4	59	7	0
4	60	7	0

Table 15A.104. Estimated percent habitat available in Lake of Egypt, January 7, 1999 (Segment 1 = 10:50 AM, Segment 2 = 8:30 AM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	0	0
4	51	0	0
4	52	0	0
4	53	0	0
4	54	0	0
4	55	0	0
4	56	0	0
4	57	0	0
4	58	0	0
4	59	0	0
4	60	0	0

Table 15A.105. Estimated percent habitat available in Lake of Egypt, January 20, 1999 (Segment 1 = 12:55 PM, Segment 2 = 1:54 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	2	0
4	51	2	0
4	52	2	0
4	53	2	0
4	54	2	0
4	55	2	0
4	56	0	0
4	57	0	0
4	58	0	0
4	59	0	0
4	60	0	0

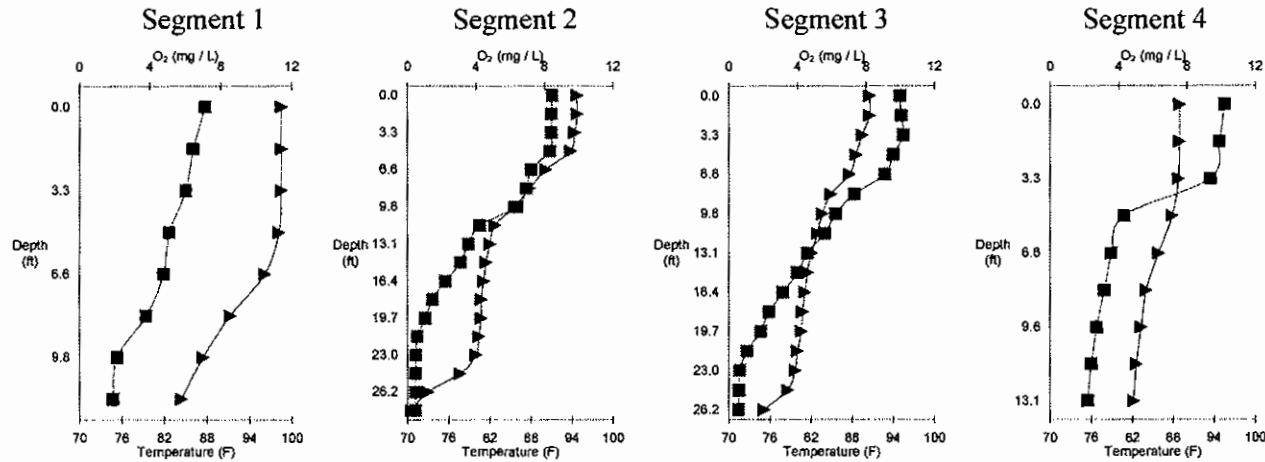
Table 15A.106. Estimated percent habitat available in Lake of Egypt, February 4, 1999 (Segment 1 = 3:00 PM, Segment 2 = 2:40 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	25	0
4	51	20	0
4	52	0	0
4	53	0	0
4	54	0	0
4	55	0	0
4	56	0	0
4	57	0	0
4	58	0	0
4	59	0	0
4	60	0	0

Table 15A.107. Estimated percent habitat available in Lake of Egypt, February 17, 1999 (Segment 1 = 2:35 PM, Segment 2 = 1:55 PM). Habitat was considered available if it contained no less than the minimum oxygen or minimum temperature indicated.

Minimum Oxygen (ppm)	Minimum Temperature (°F)	% Habitat Available	
		Segment 1	Segment 2
4	50	16	0
4	51	11	0
4	52	11	0
4	53	11	0
4	54	7	0
4	55	2	0
4	56	2	0
4	57	0	0
4	58	0	0
4	59	0	0
4	60	0	0

Newton Lake – August 28, 1997



Newton Lake - September 12, 1997

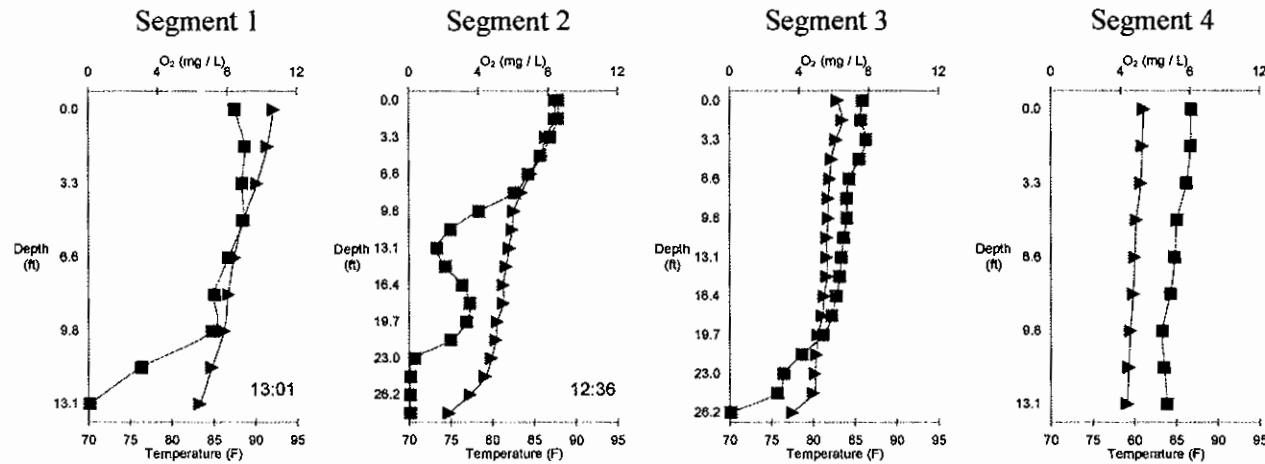
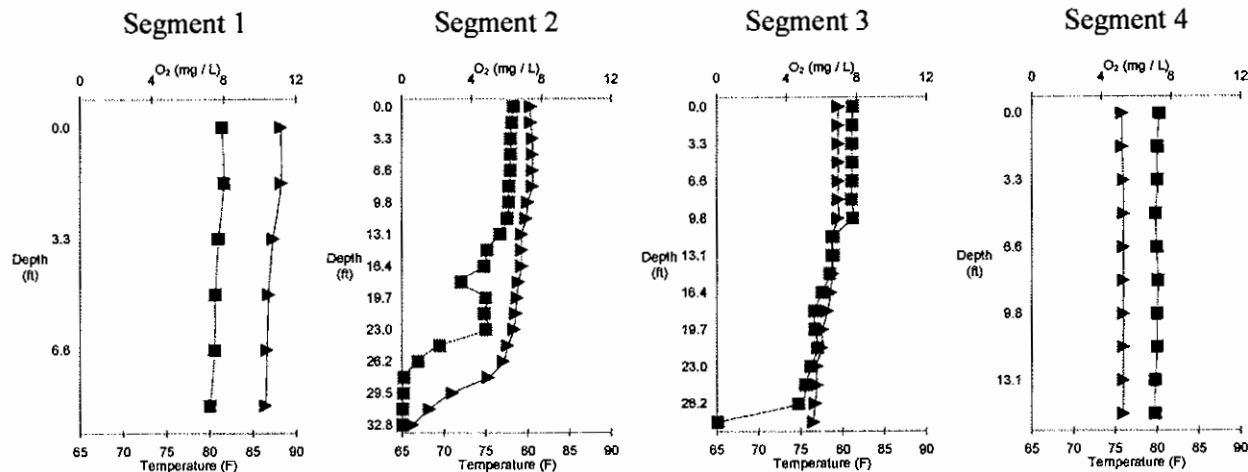


Figure 15A.1. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake - September 26, 1997



Newton Lake – October 8, 1997

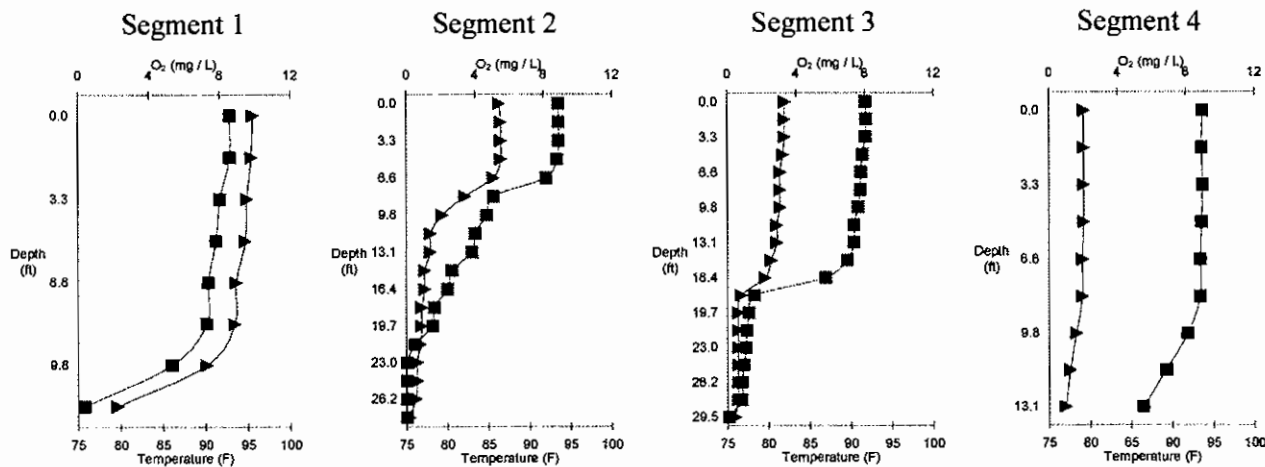
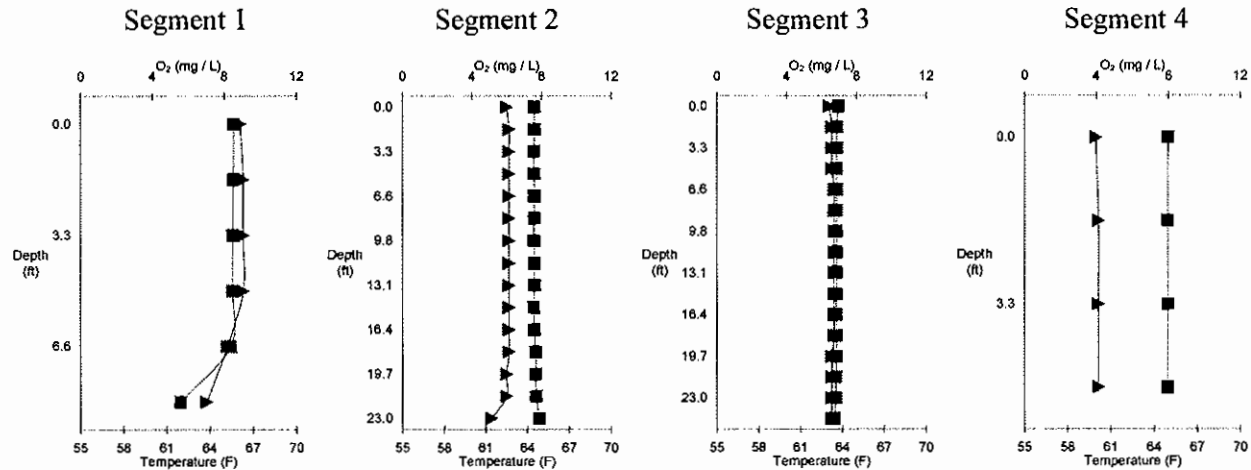


Figure 15A.2. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – October 28, 1997



Newton Lake - November 12, 1997

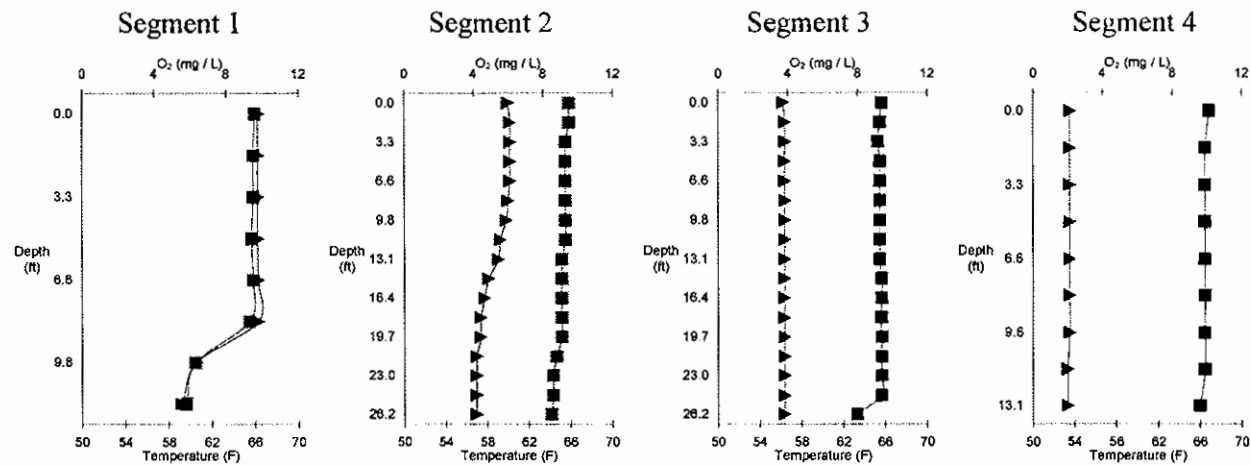
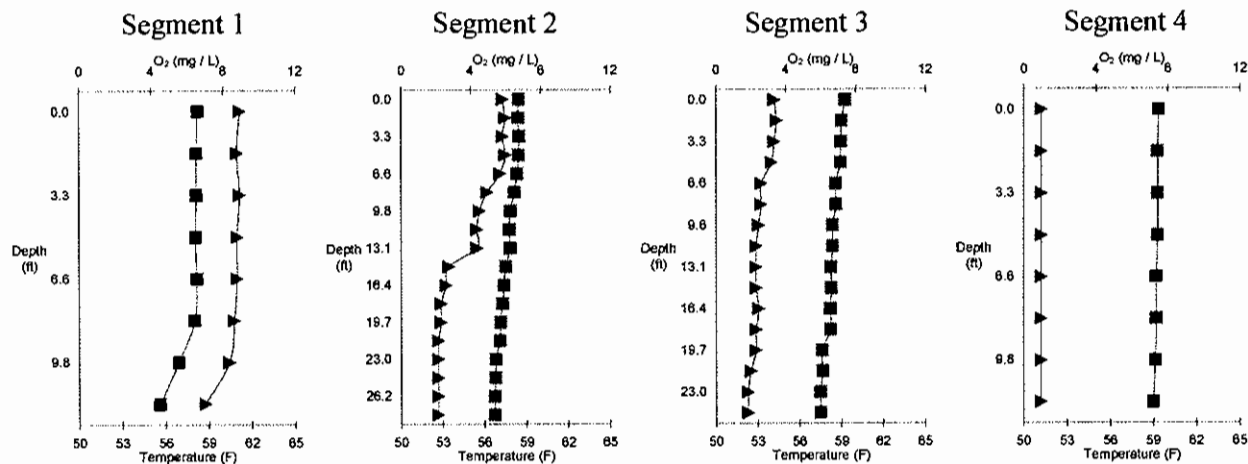


Figure 15A.3. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – November 24, 1997



Newton Lake – December 17, 1997

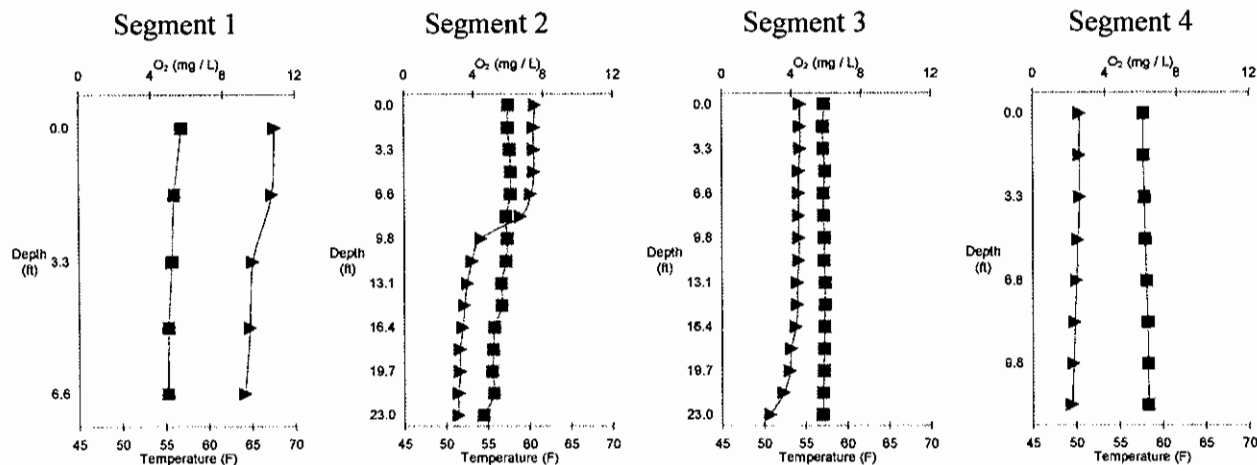
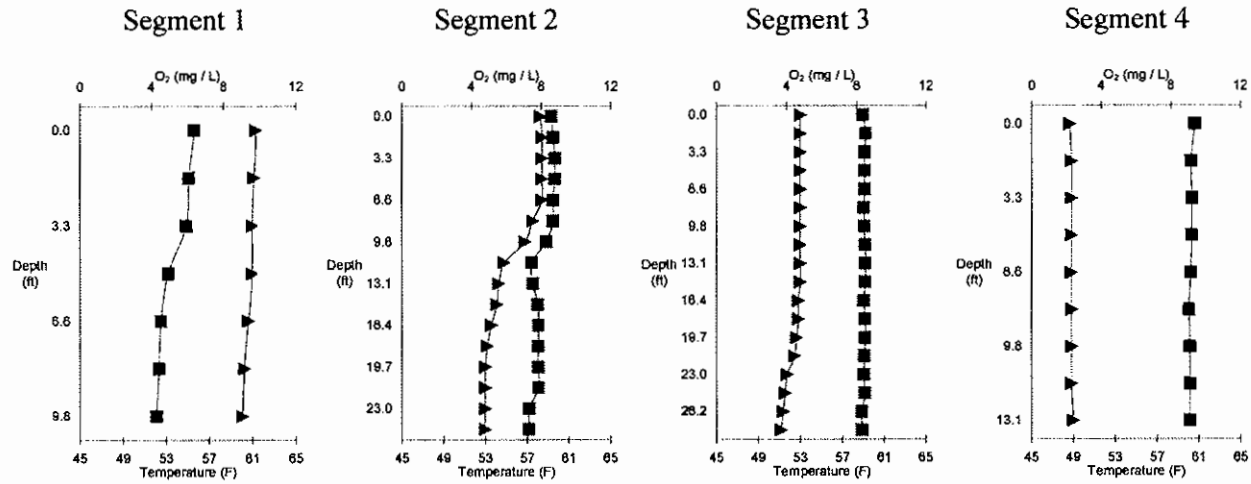


Figure 15A.4. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – December 26, 1997



Newton Lake – January 15, 1998

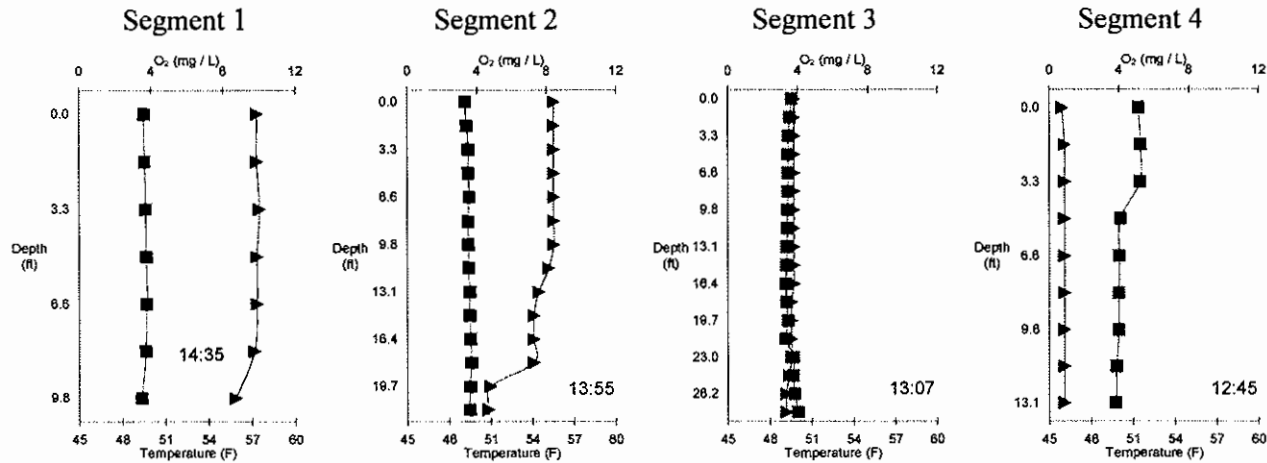
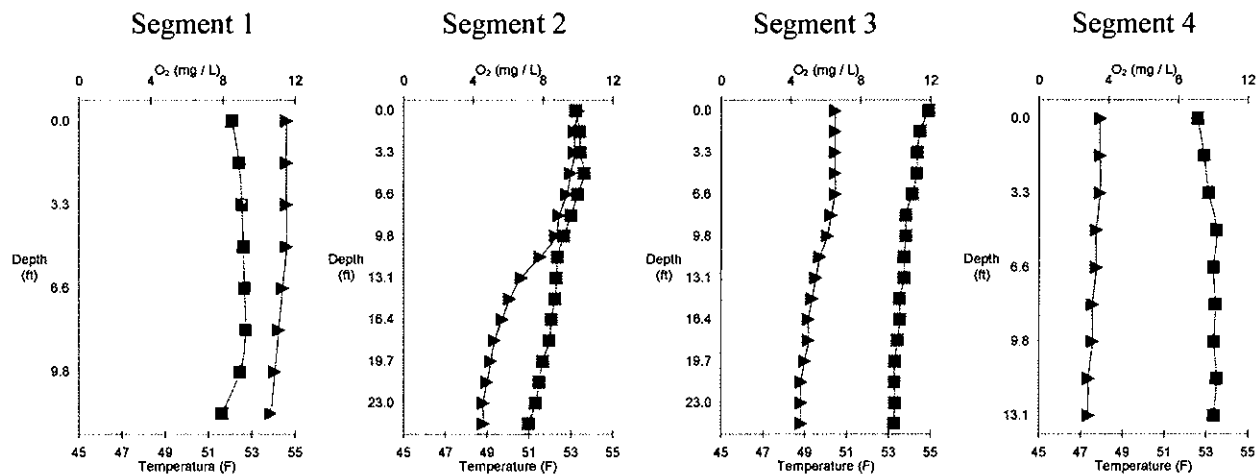


Figure 15A.5. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – January 31, 1998



Newton Lake - February 12, 1998

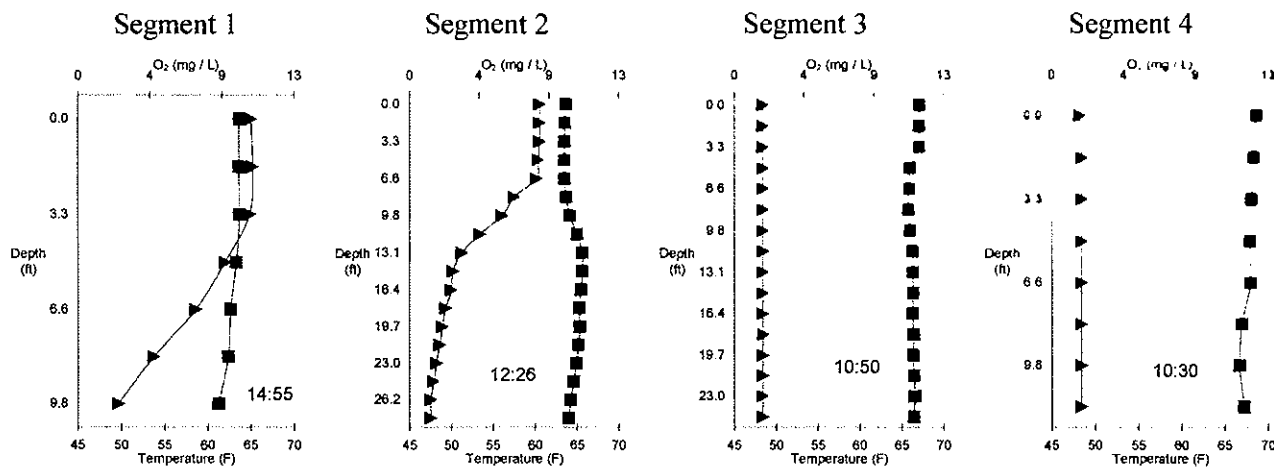
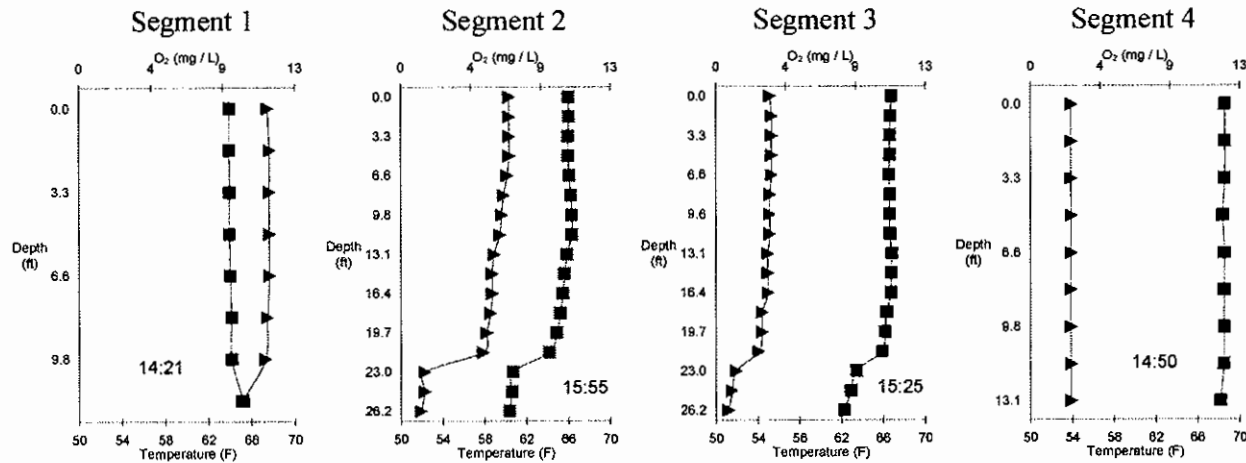


Figure 15A.6. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – February 26, 1998



Newton Lake – March 29, 1998

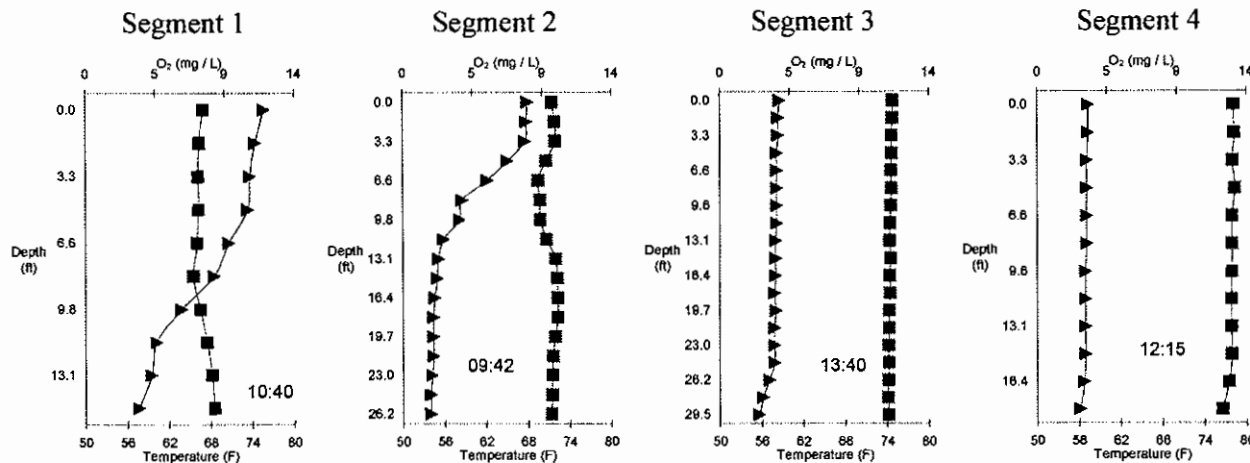
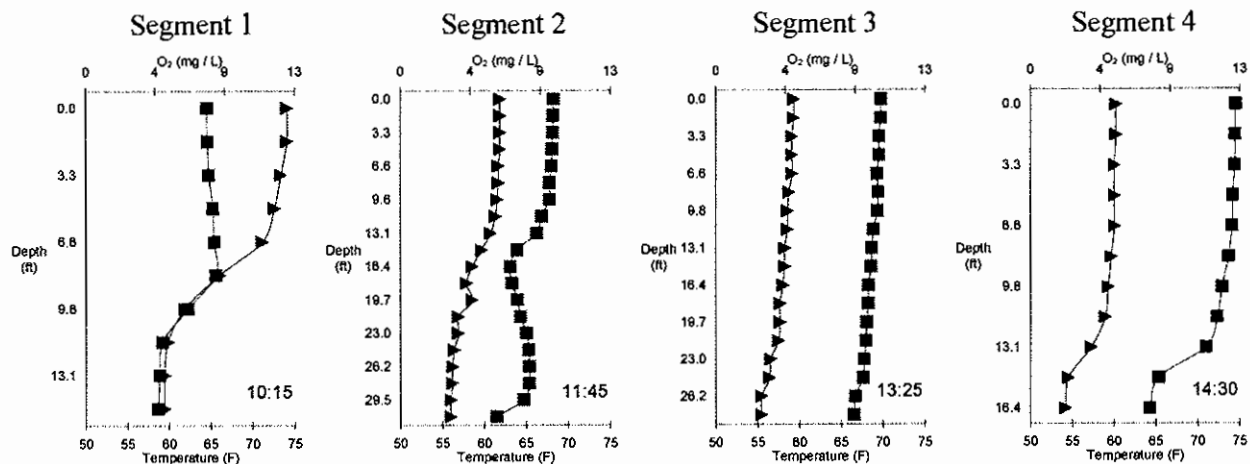


Figure 15A.7. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – April 7, 1998



Newton Lake – April 16, 1998

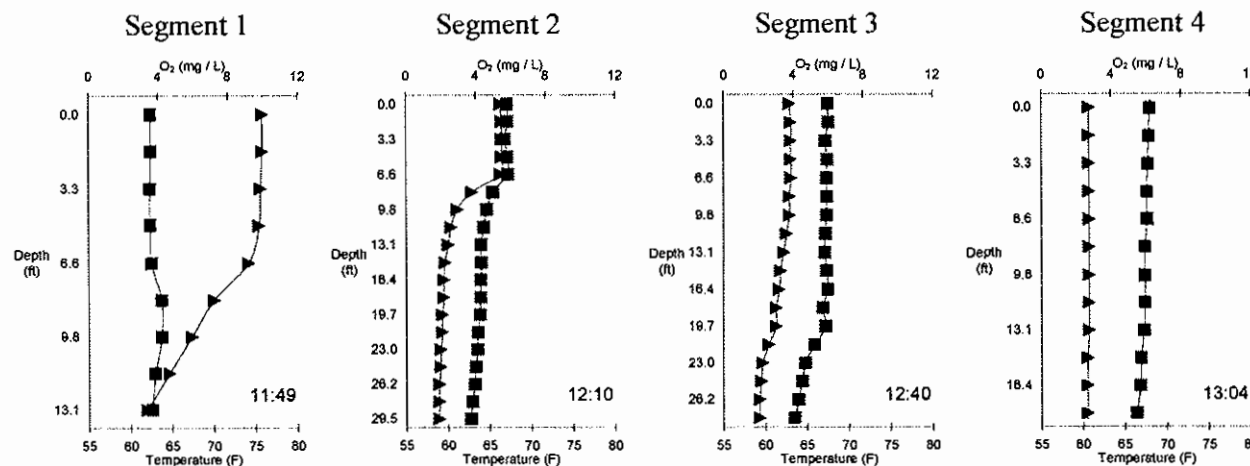
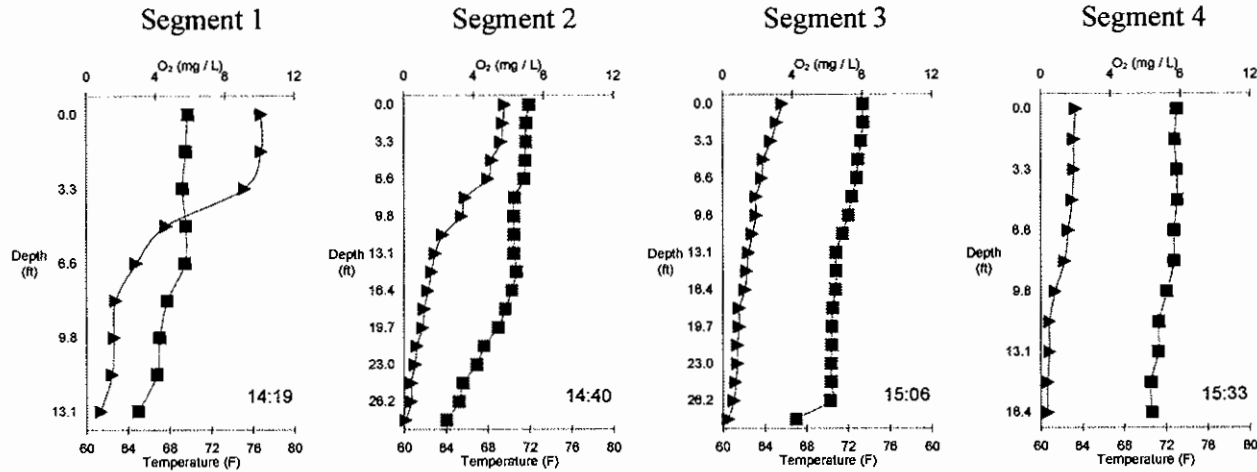


Figure 15A.8 Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – April 23, 1998



Newton Lake – May 7, 1998

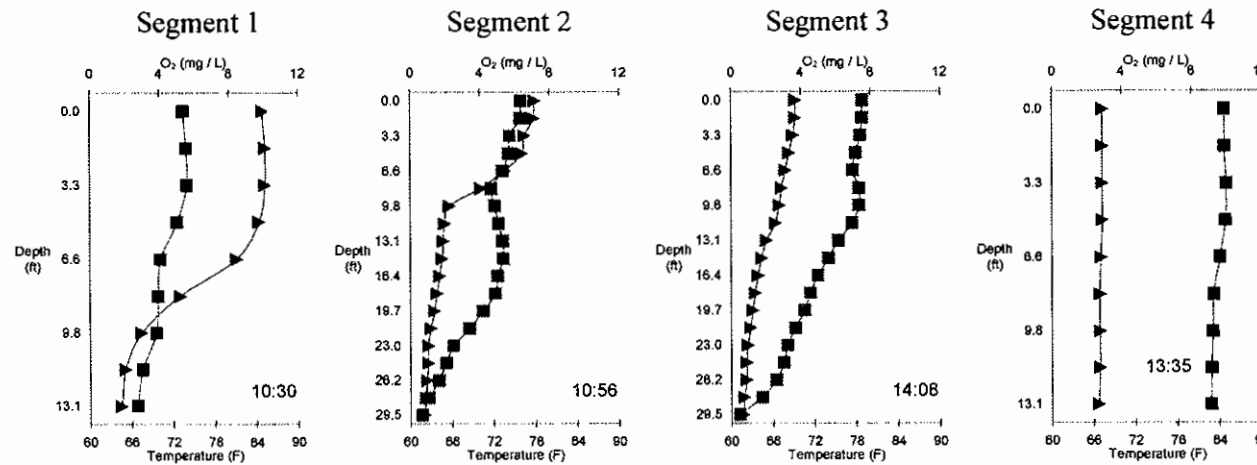
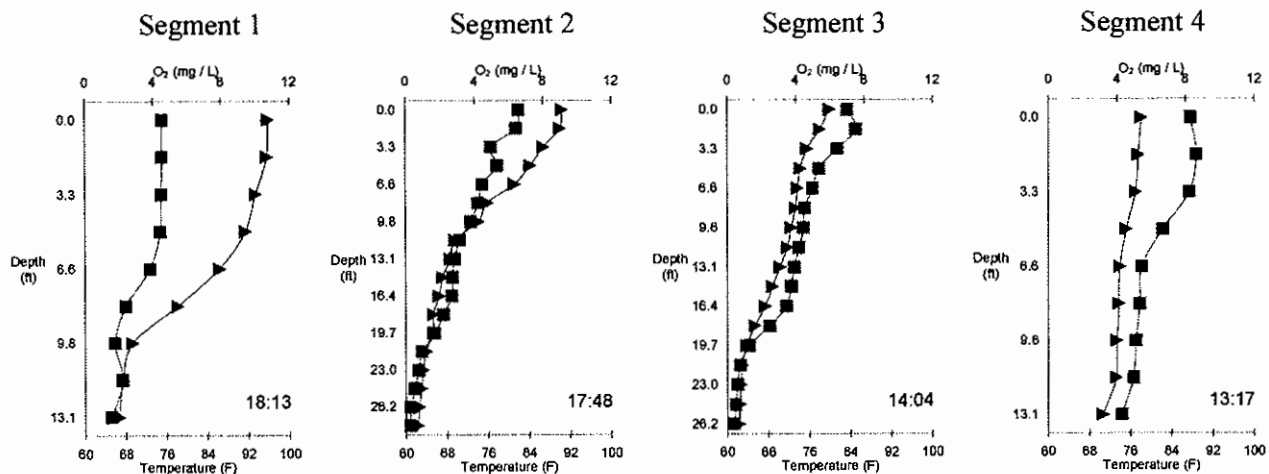


Figure 15A.9. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – May 13, 1998



Newton Lake – May 20, 1998

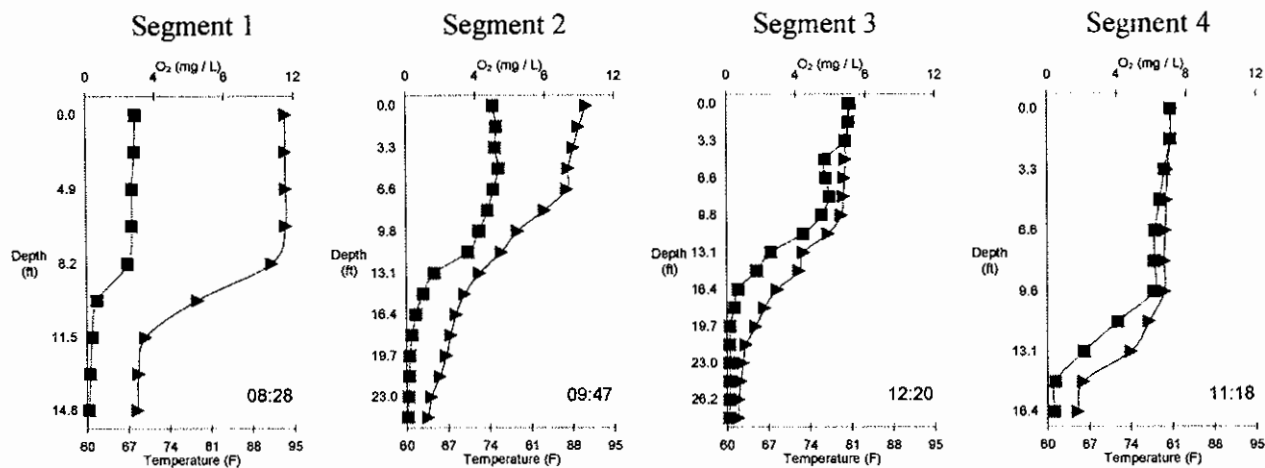


Figure 15A.10 Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – May 26, 1998

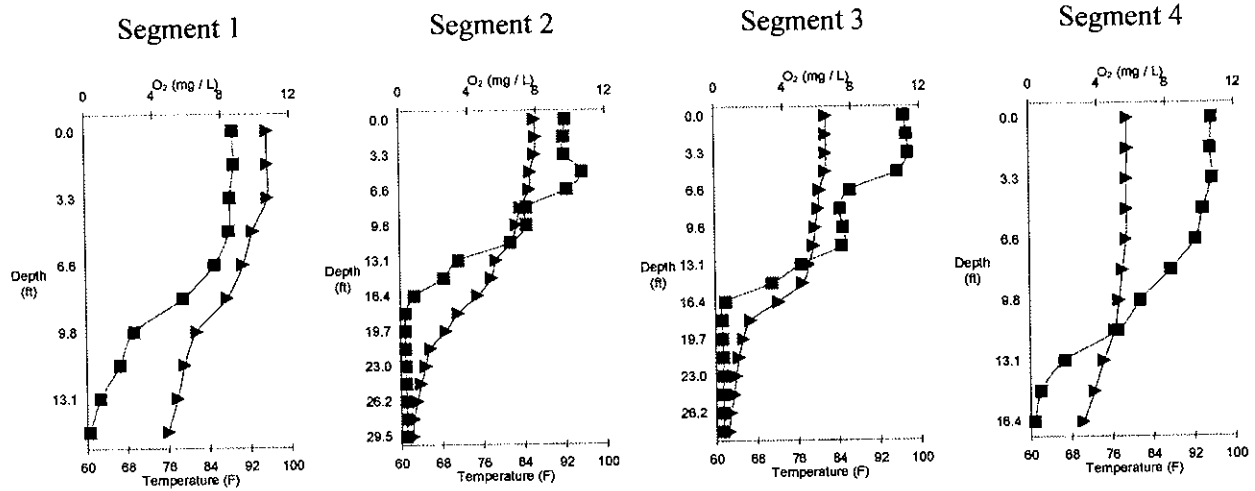
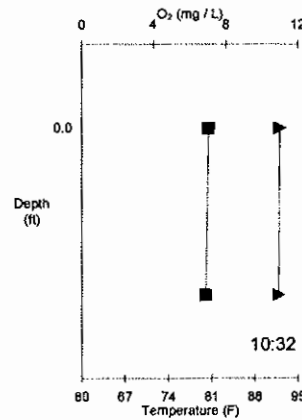


Figure 15A.11. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 3, 1998

Segment 1



Segment 2

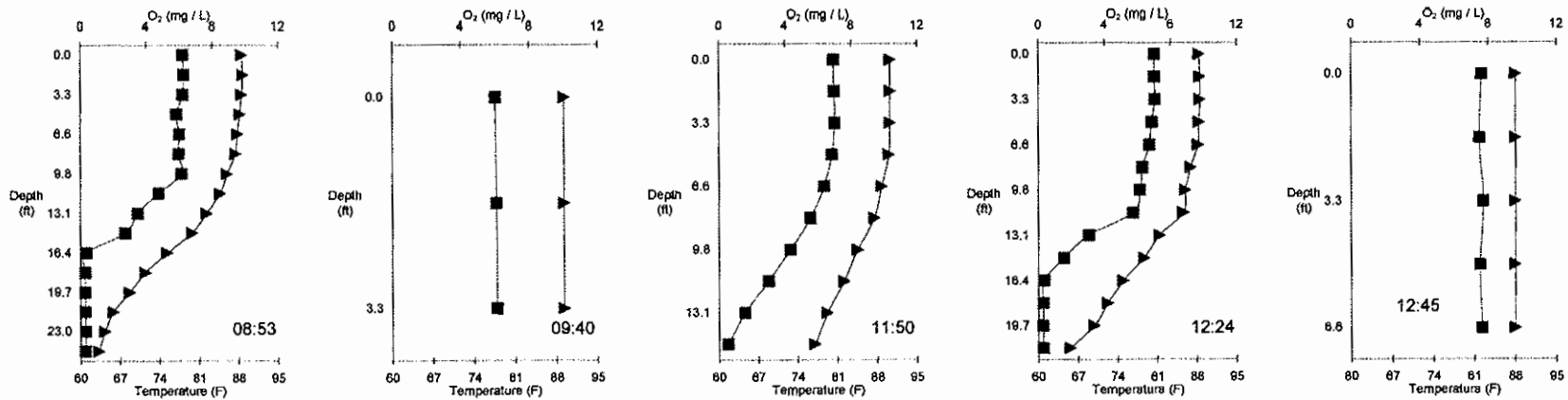


Figure 15A.12. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 5, 1998

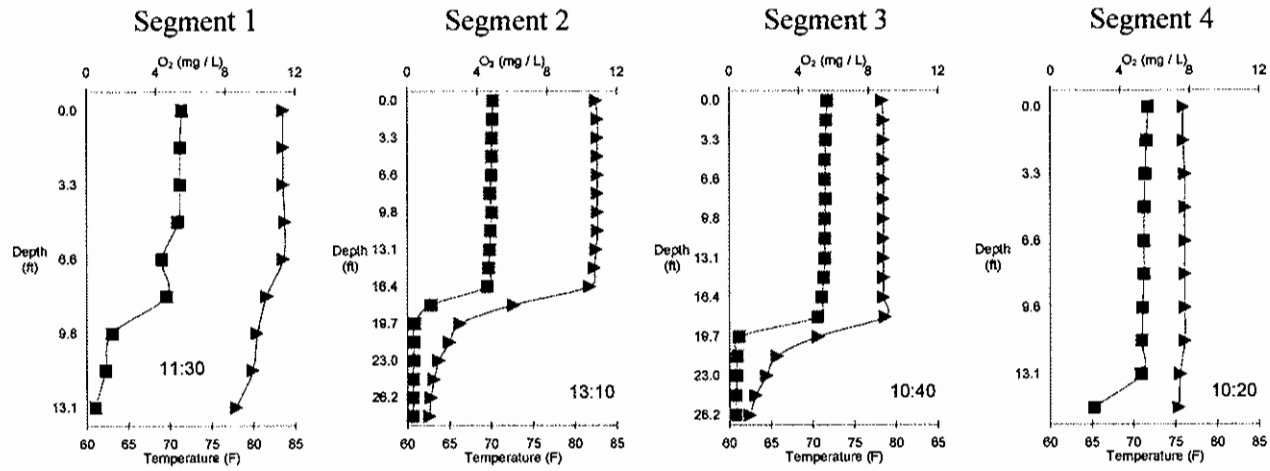
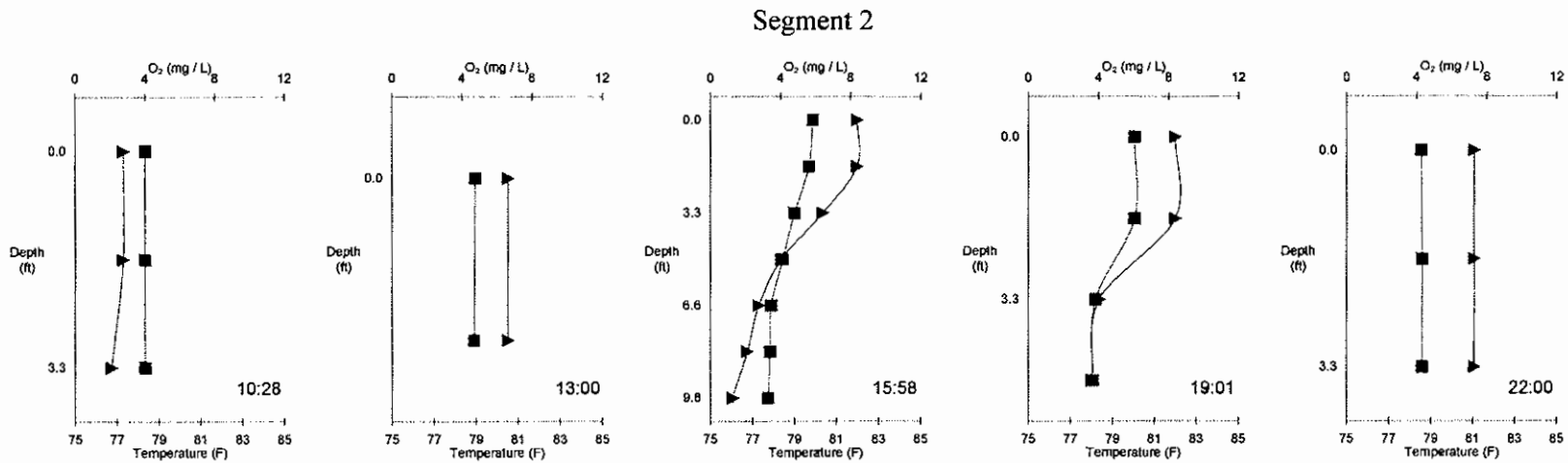


Figure 15A.13. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 9, 1998



Newton Lake – June 10, 1998

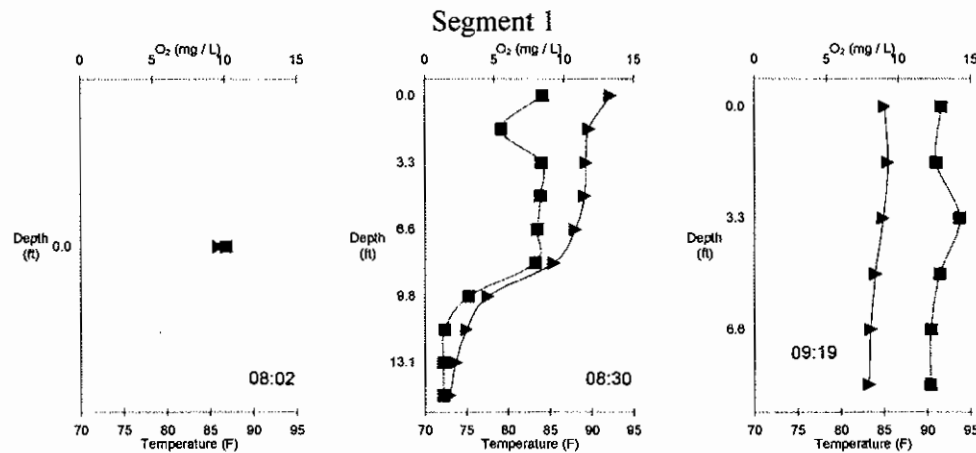


Figure 15A.14. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 10, 1998

Segment 2

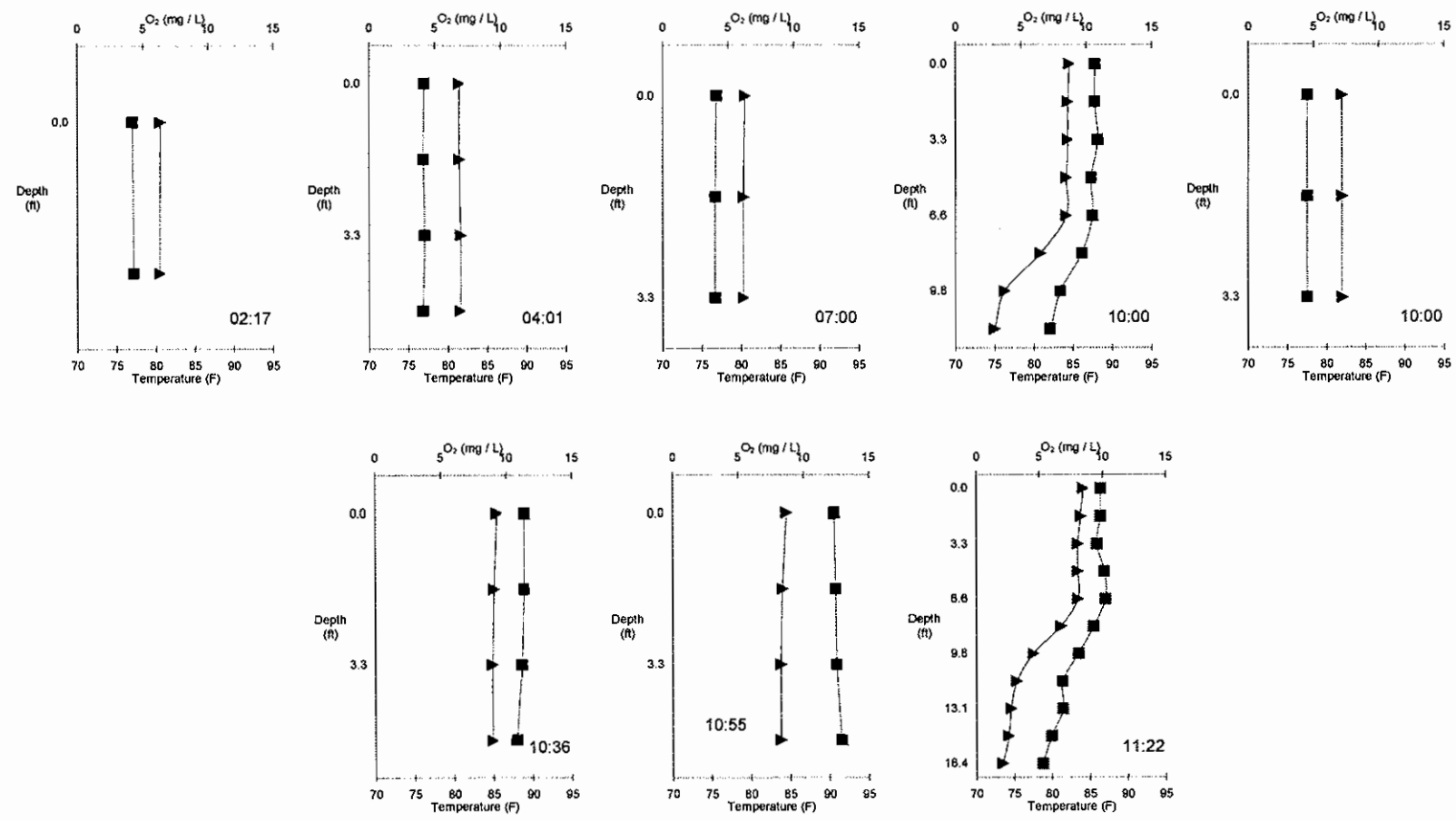


Figure 15A.15 Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 10, 1998

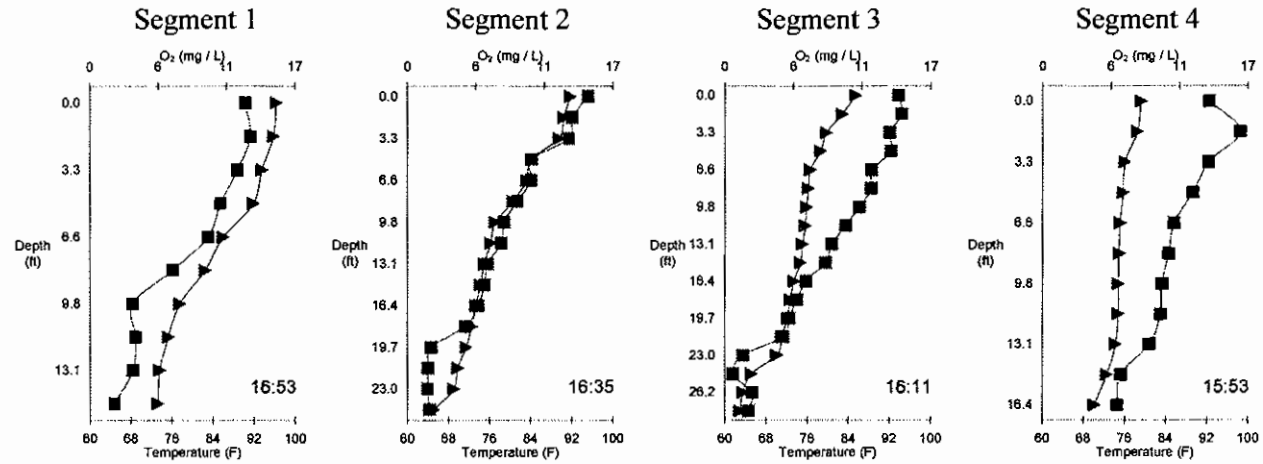
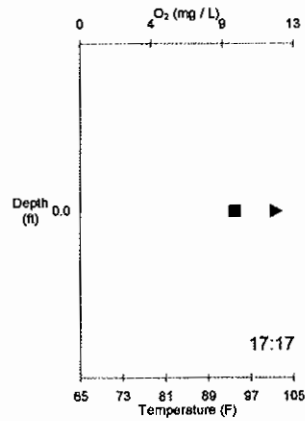


Figure 15A.16. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 19, 1998

Segment 1



Segment 2

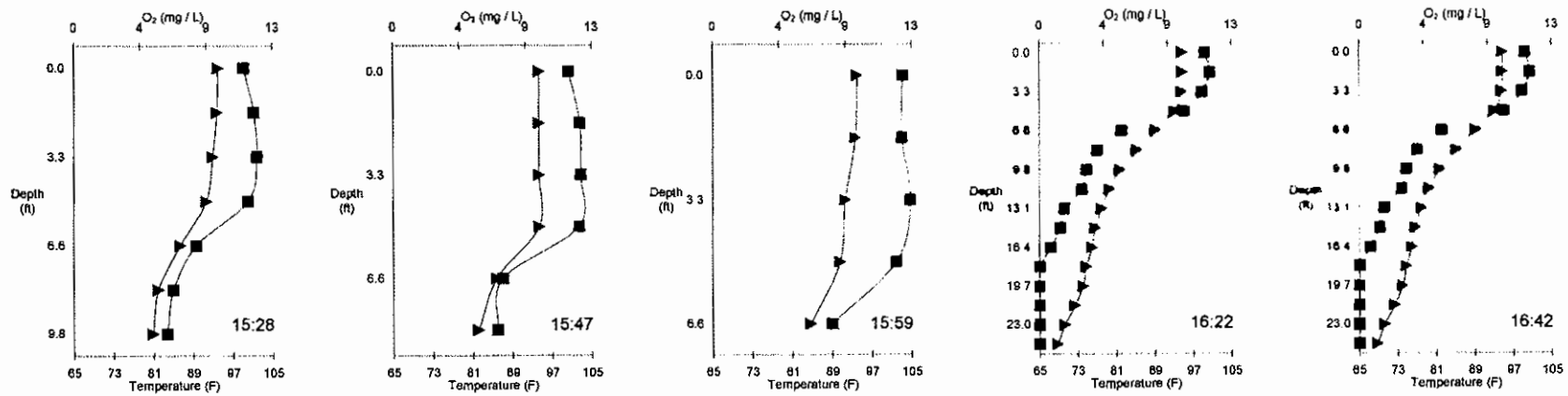
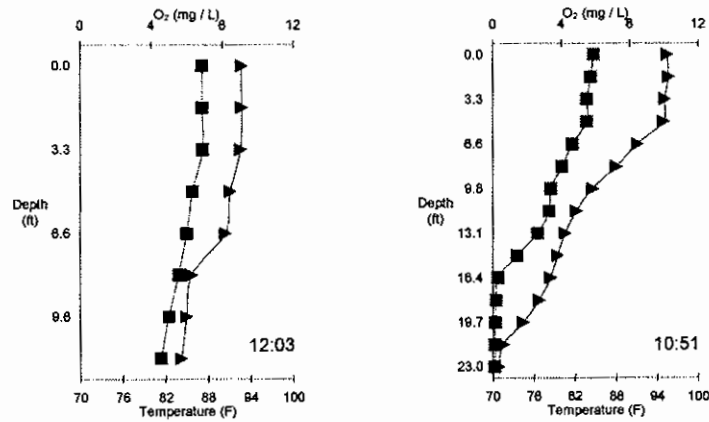


Figure 15A.17. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 23, 1998

Segment 1



Segment 2

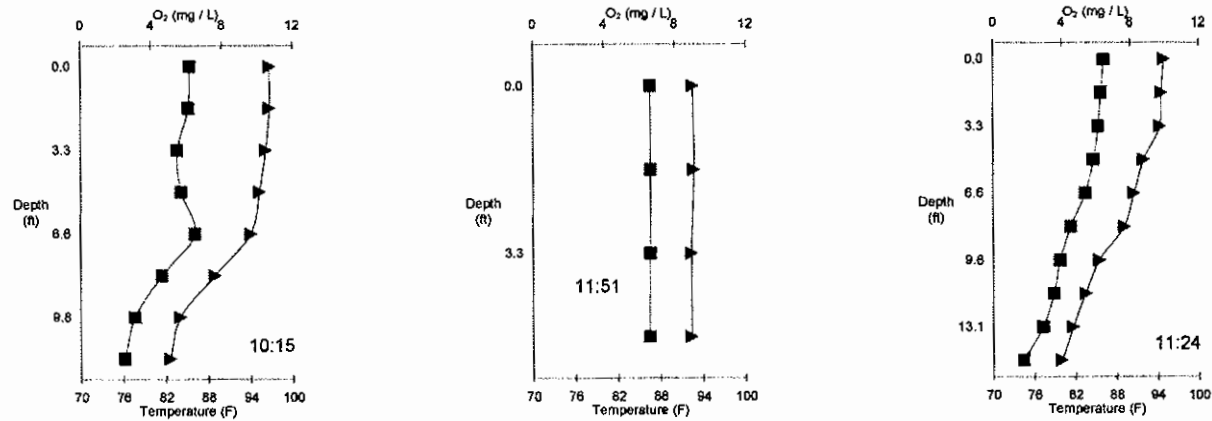


Figure 15A.18. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 26, 1998

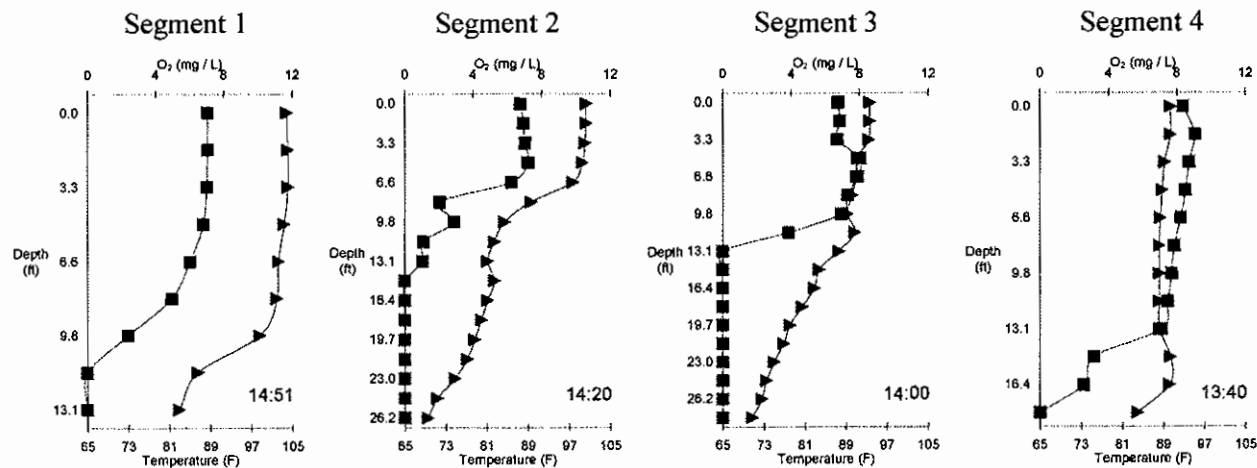


Figure 15A.19. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 30, 1998

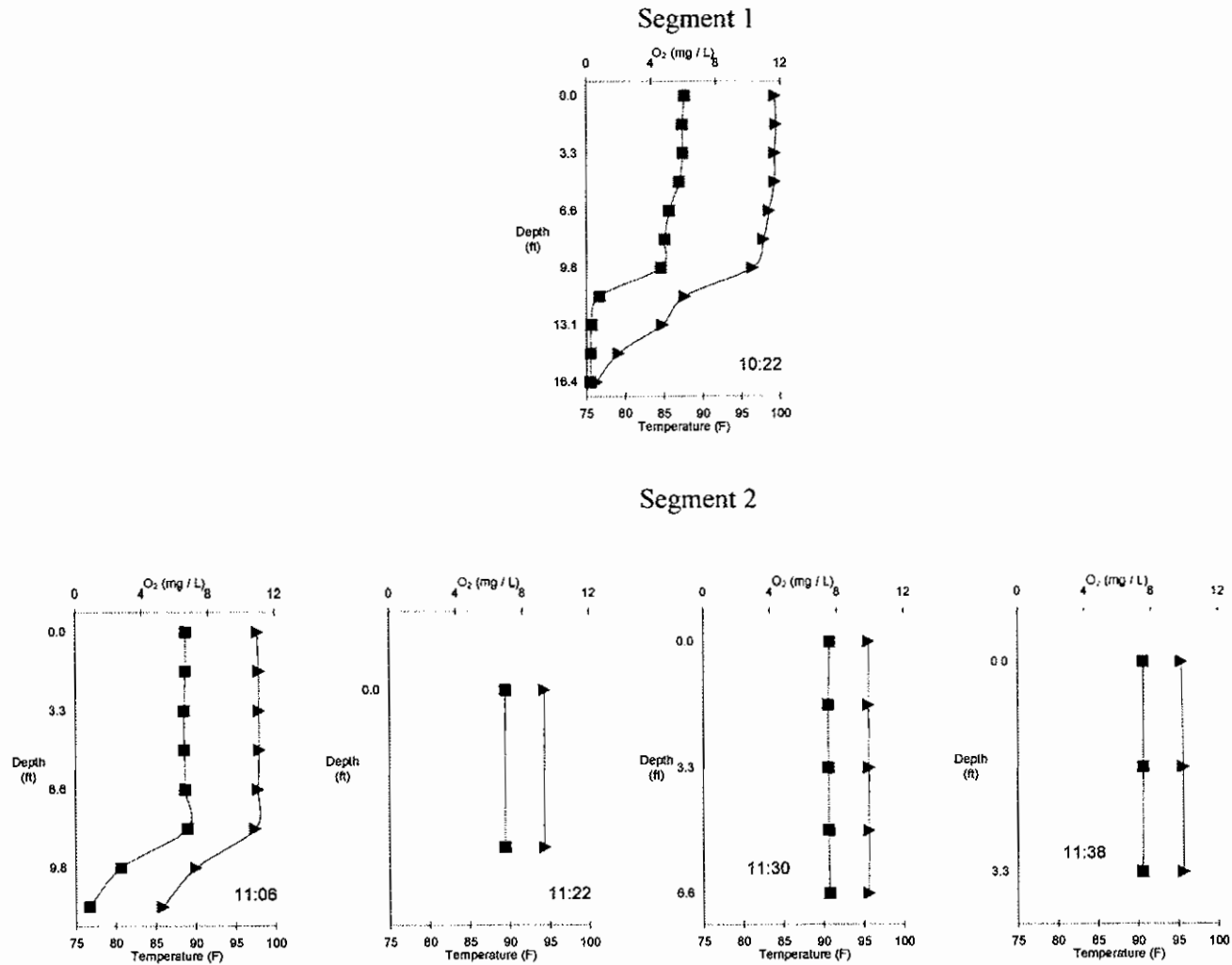


Figure 15A.20. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – July 7, 1998

Segment 2

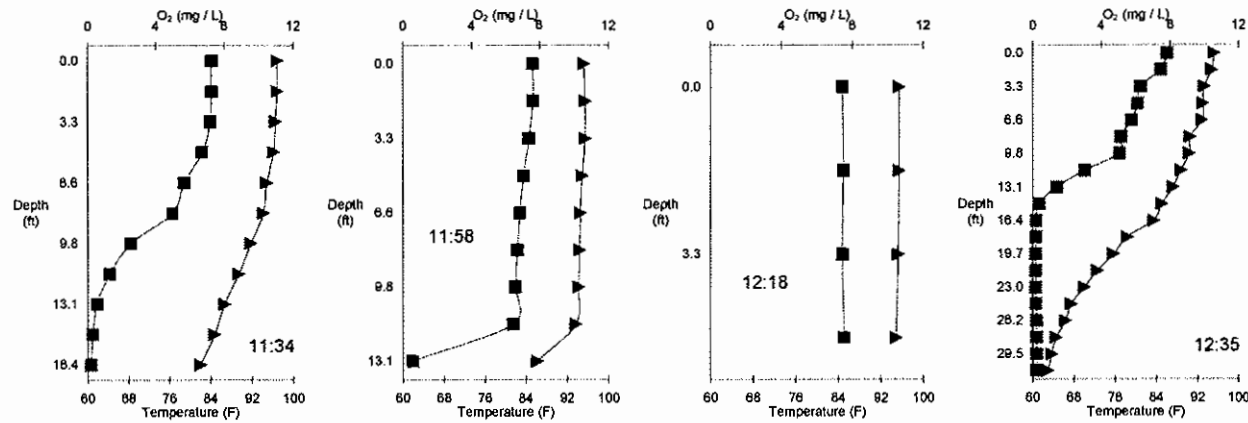


Figure 15A.21. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – July 11, 1998

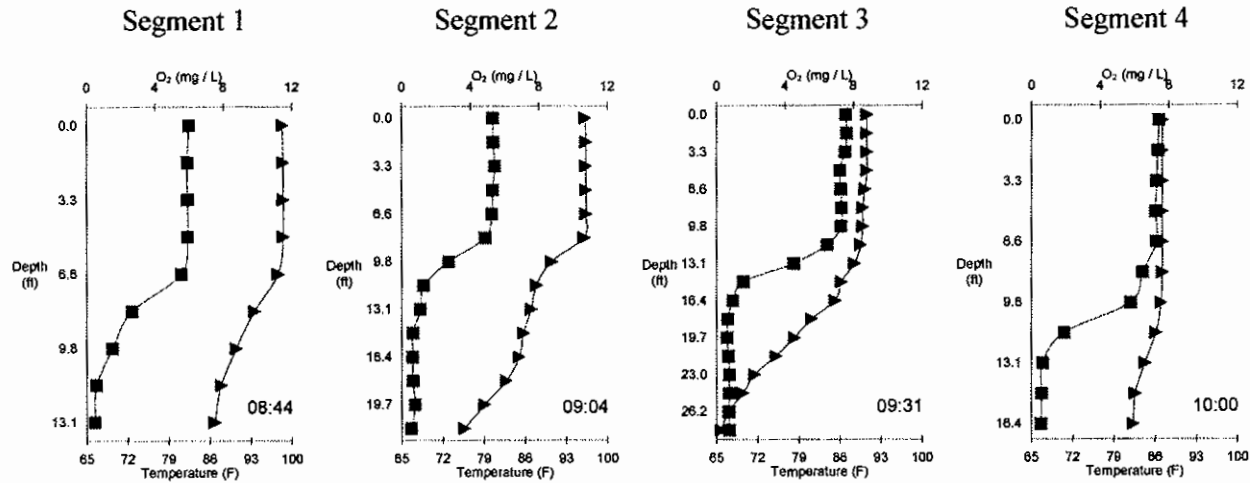


Figure 15A.22. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – July 13, 1998

Segment 2

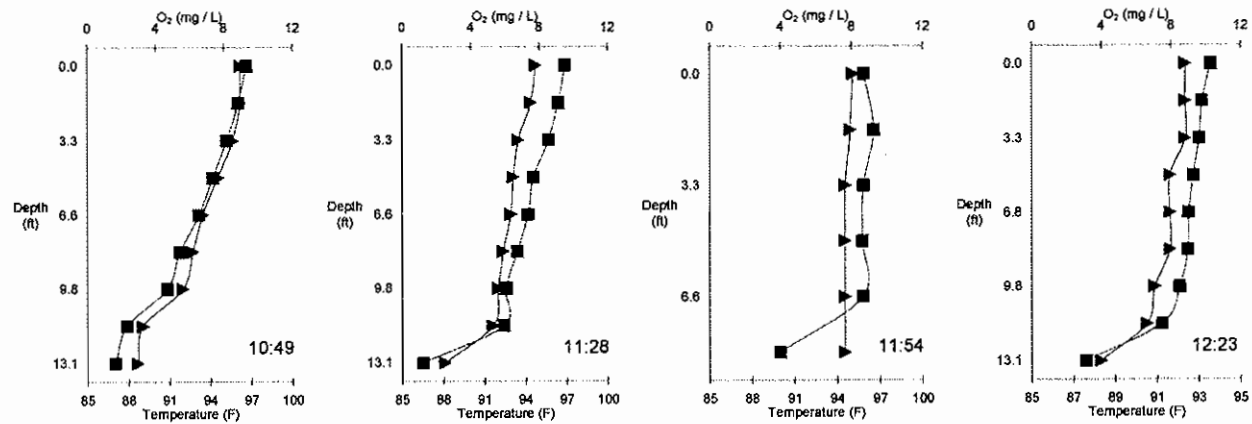


Figure 15A.23. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – July 18, 1998

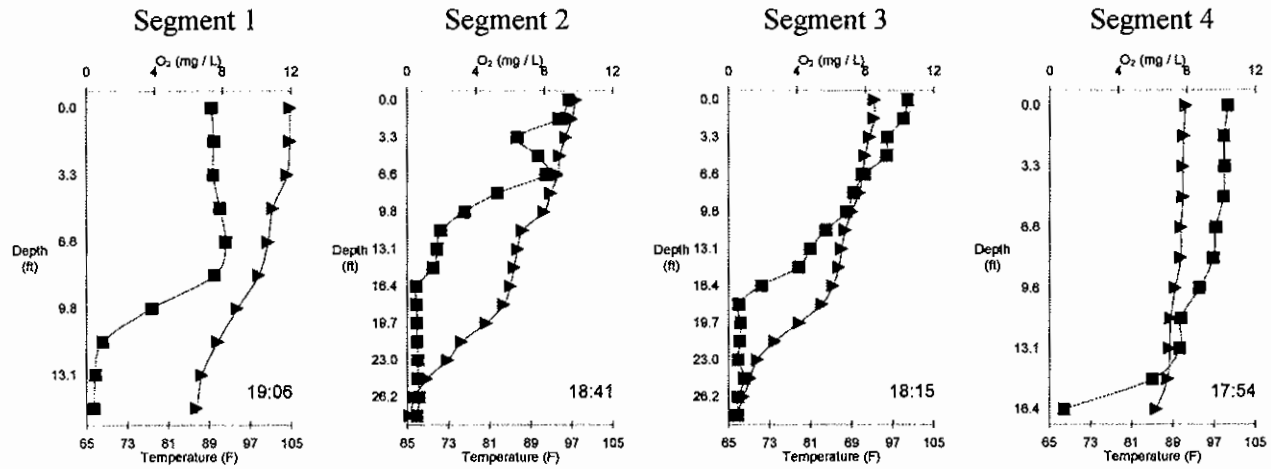
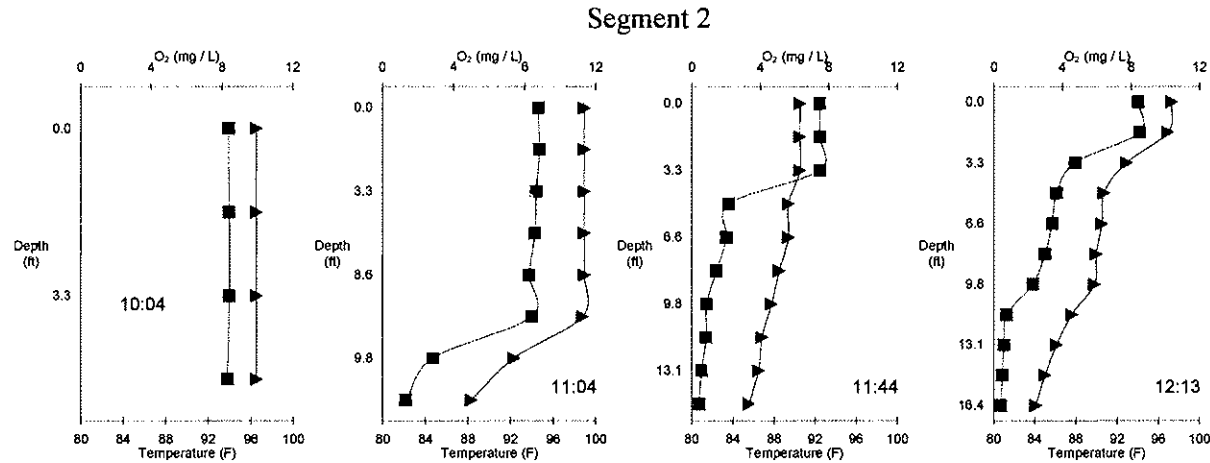


Figure 15A.24 Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – July 21, 1998



Newton Lake – July 28, 1998

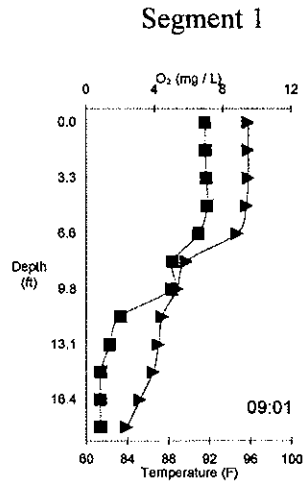


Figure 15A.25. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – July 28, 1998

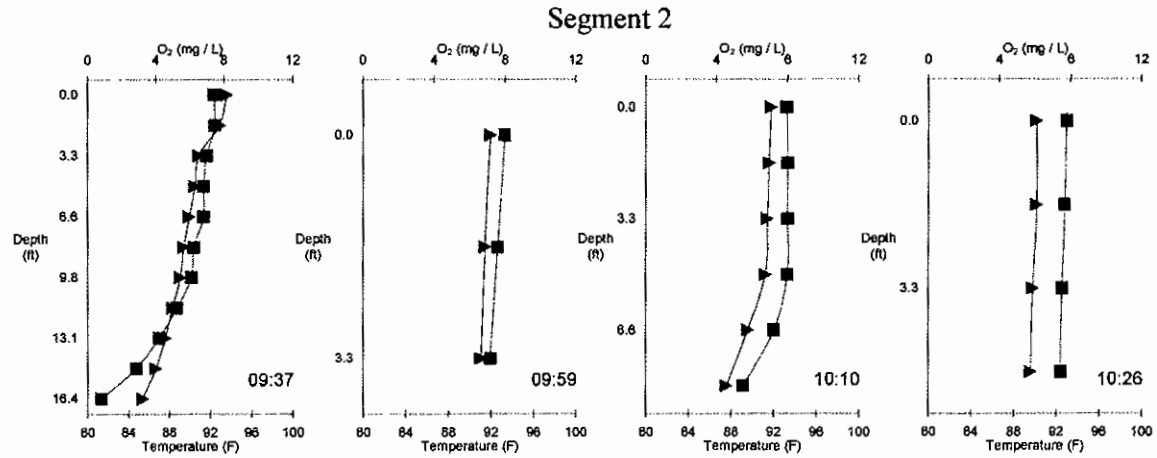
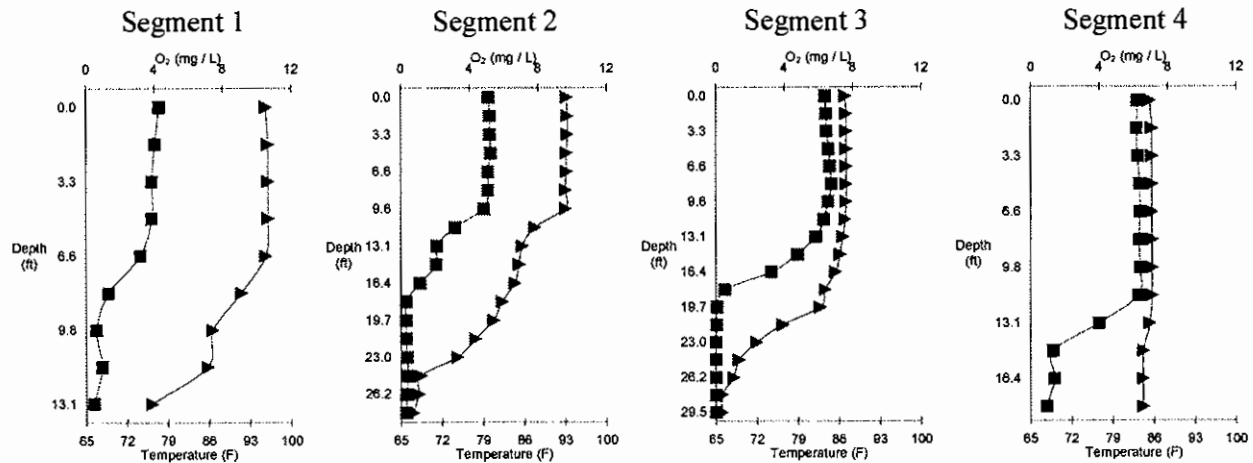


Figure 15A.26. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – July 30, 1998



Newton Lake – August 4, 1998

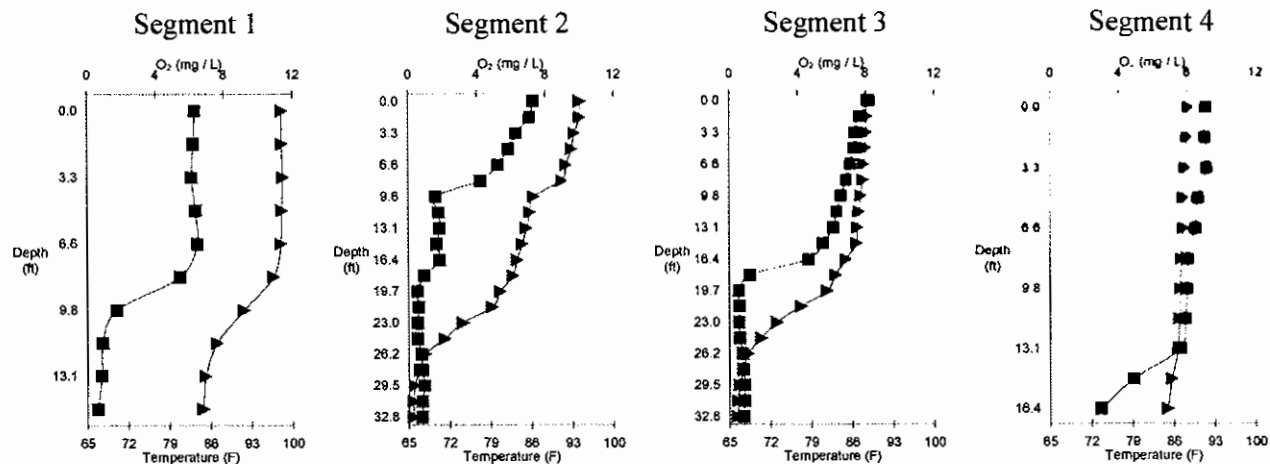


Figure 15A.27. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 7, 1998

Segment 2

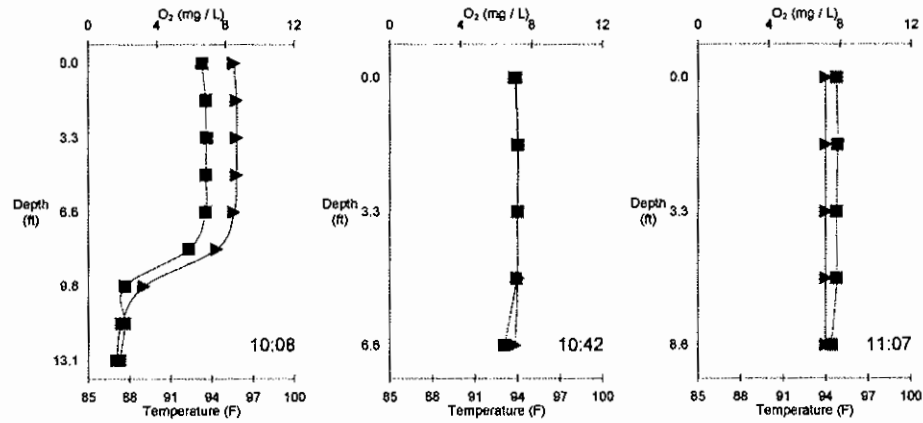


Figure 15A.28. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake –August 12, 1998

Segment 2

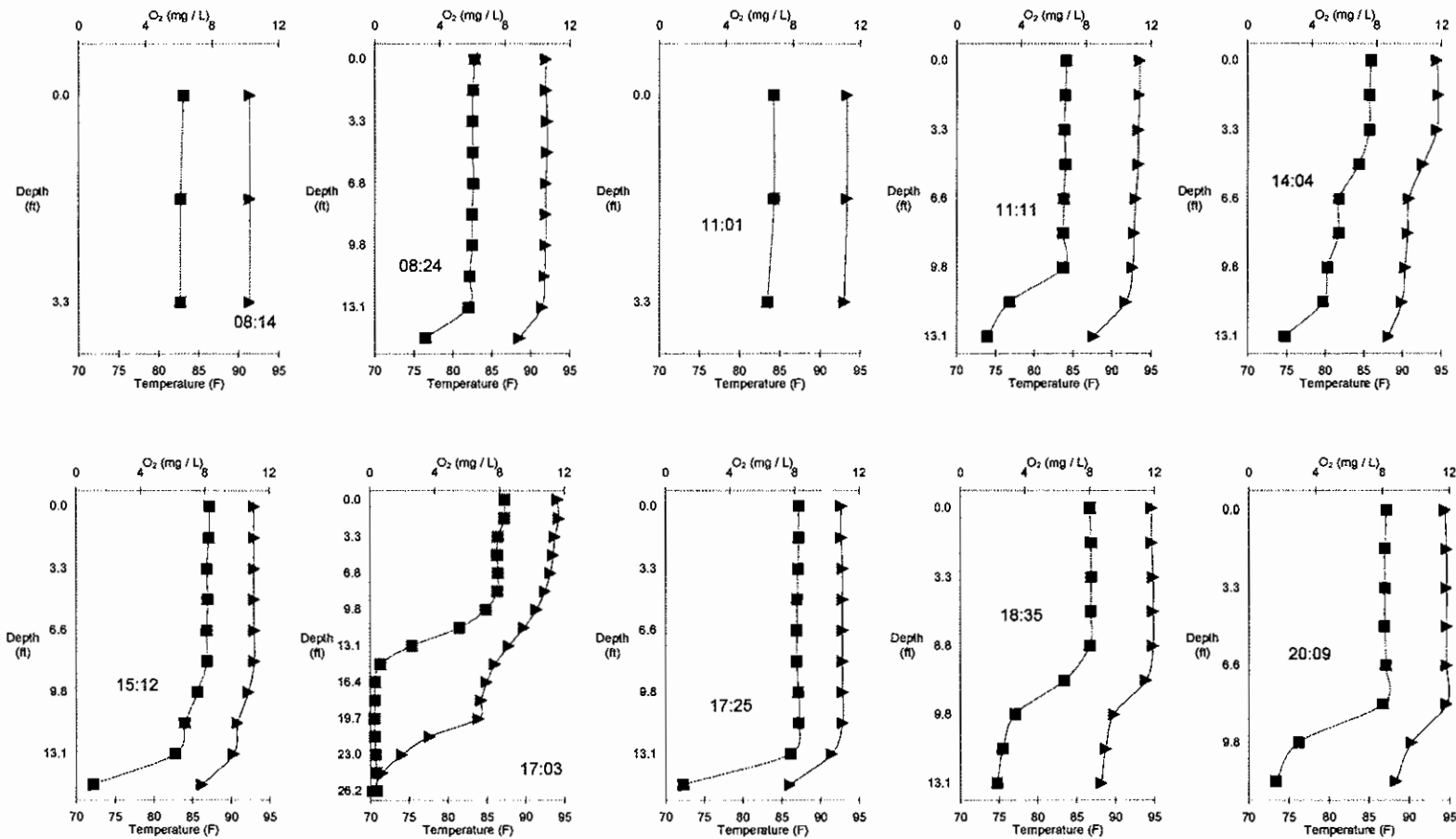
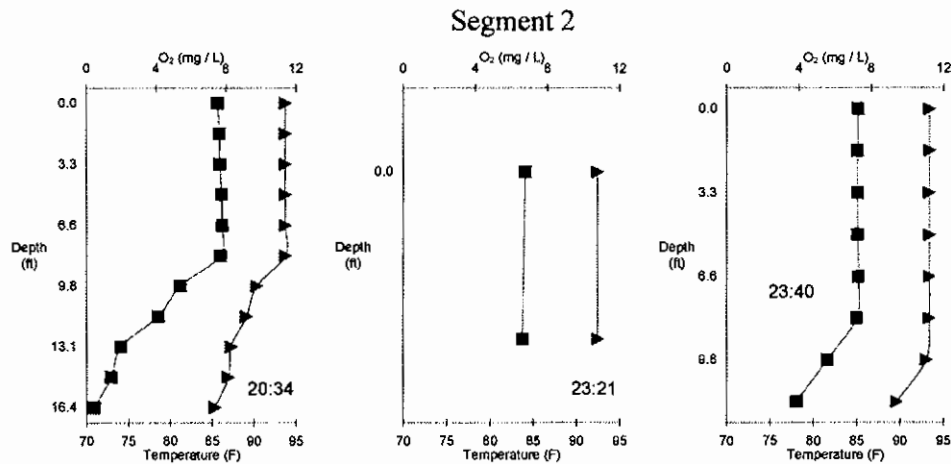


Figure 15A.29. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 12, 1998



Newton Lake – August 13, 1998

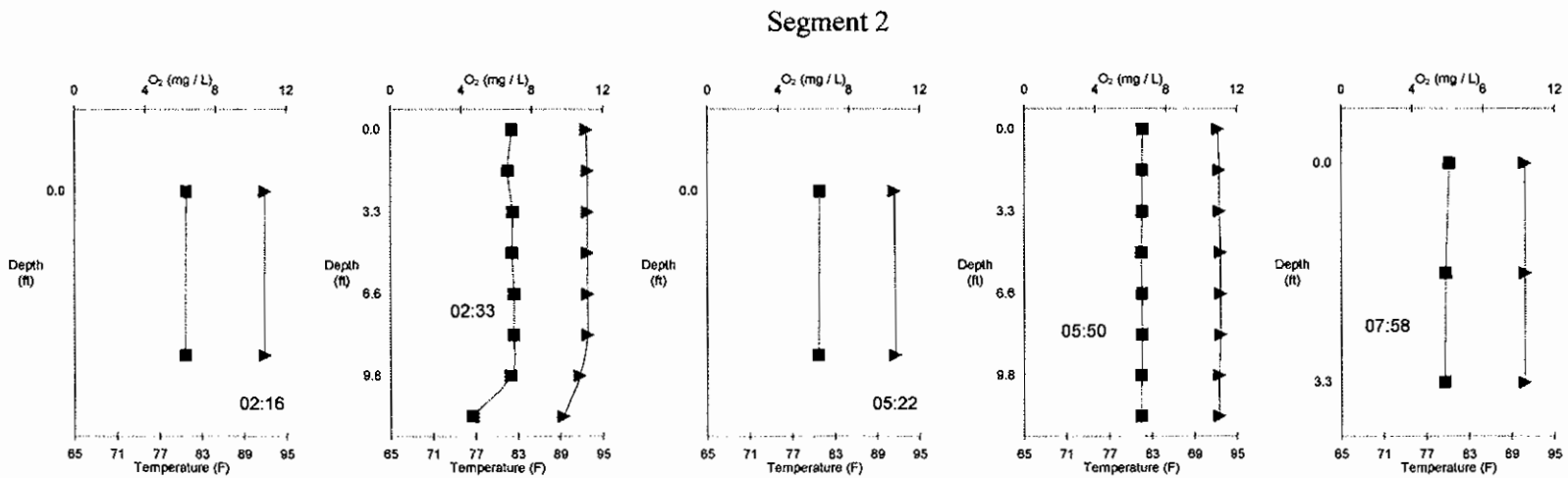
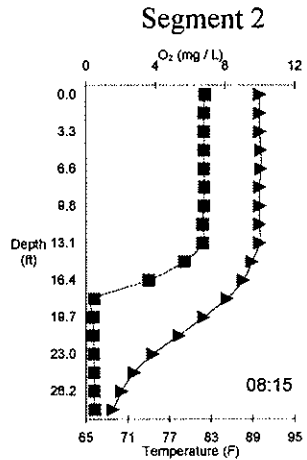


Figure 15A.30. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 13, 1998



Newton Lake – August 18, 1998

Segment 2

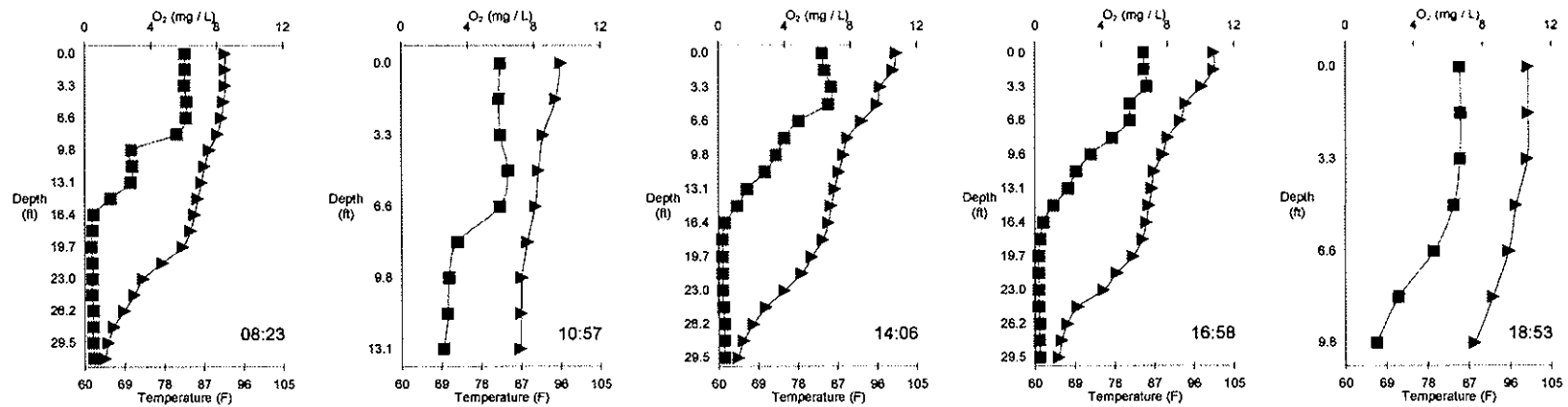
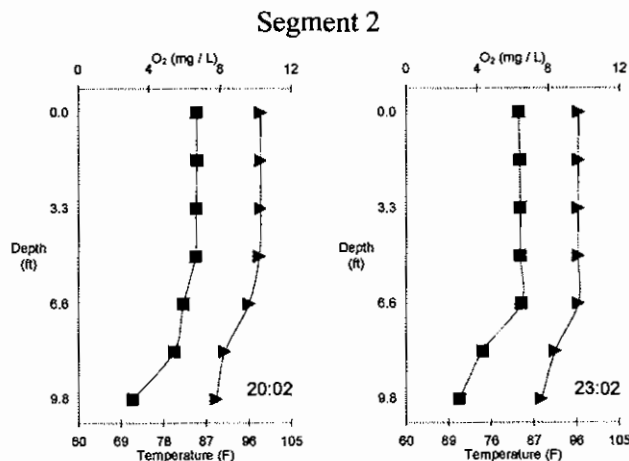


Figure 15A.31. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake –August 18, 1998



Newton Lake –August 19, 1998

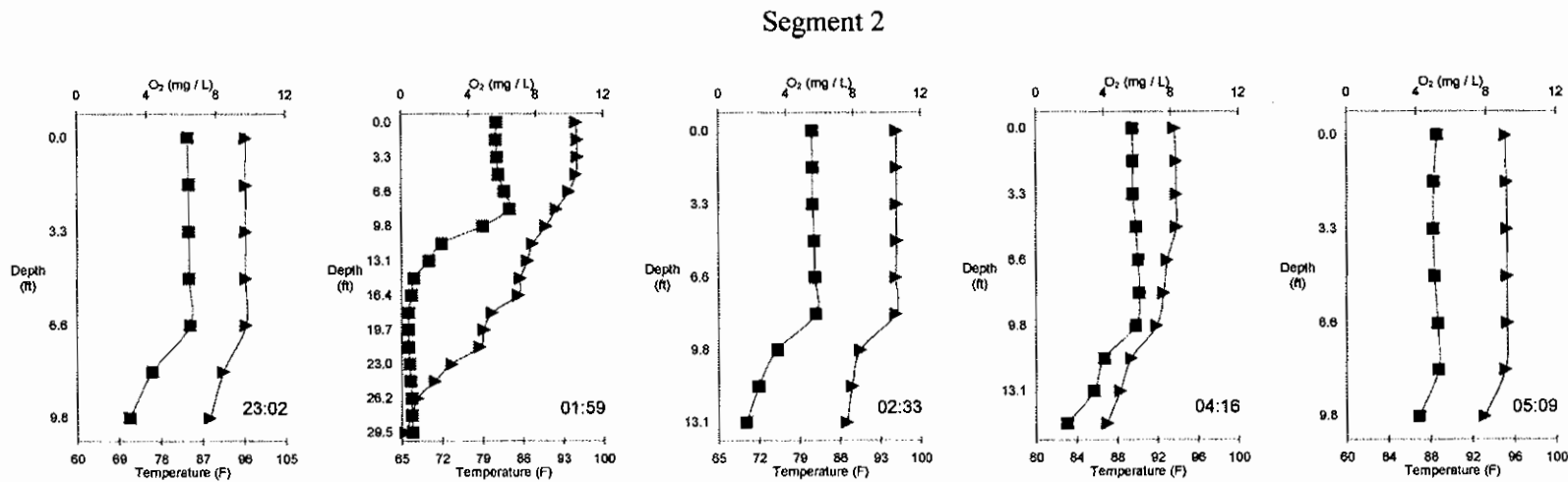


Figure 15A.32. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 19, 1998

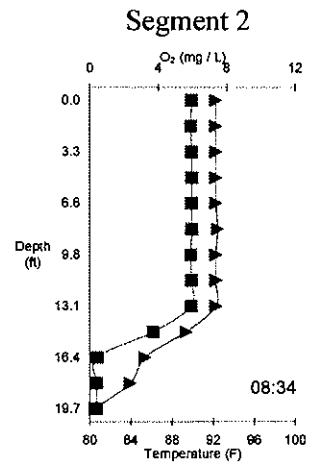


Figure 15A.33. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 24, 1998

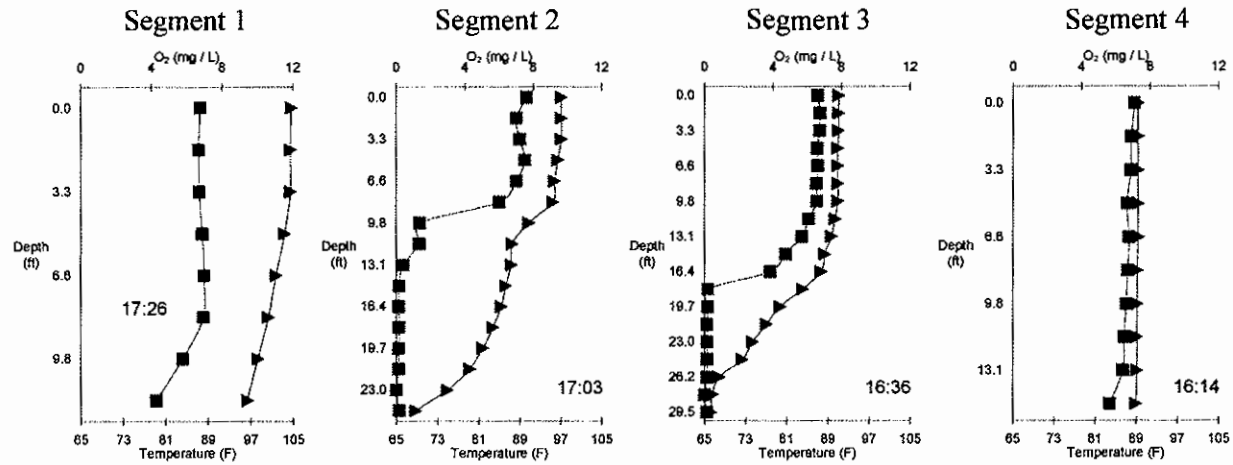
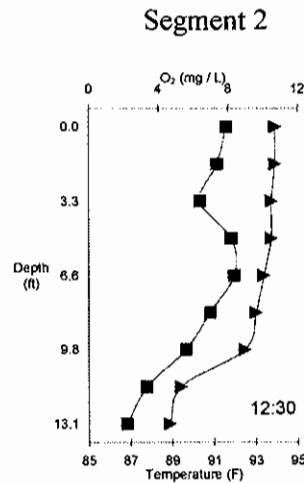


Figure 15A.34. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 27, 1998



Newton Lake – September 3, 1998

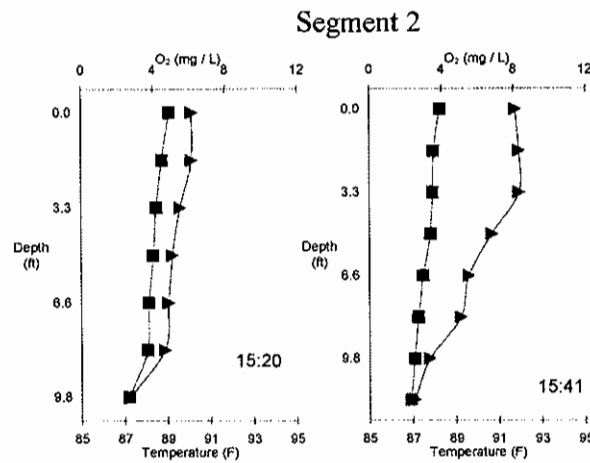


Figure 15A.35. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake - September 8, 1998

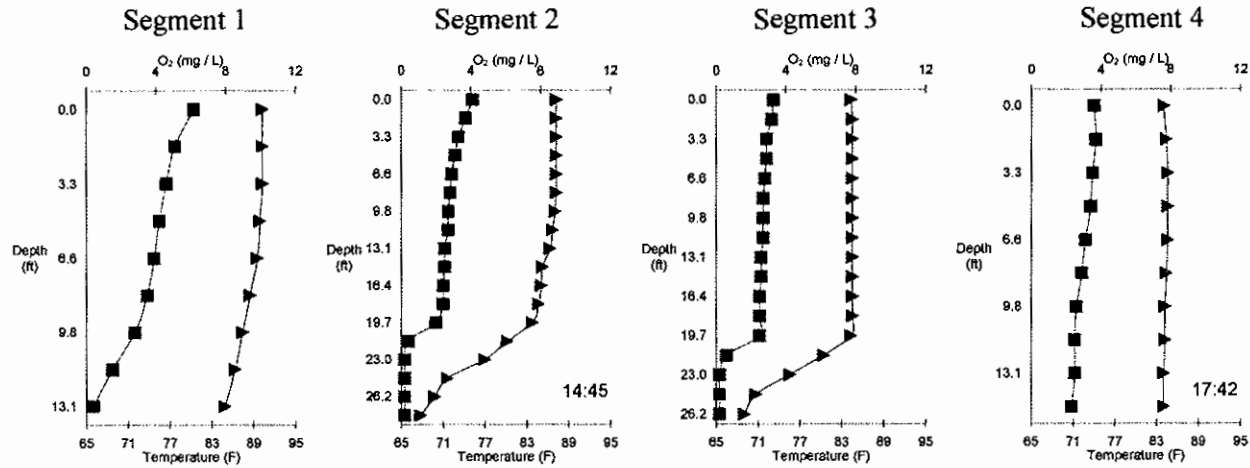
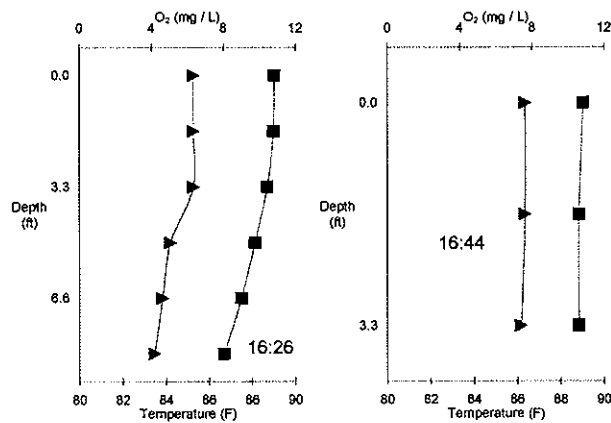


Figure 15A.36. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – September 10, 1998

Segment 2



Newton Lake - September 12, 1998

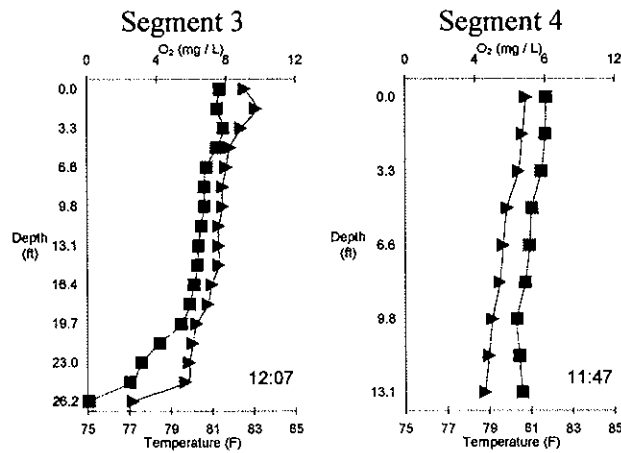


Figure 15A.37. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake –September 15, 1998

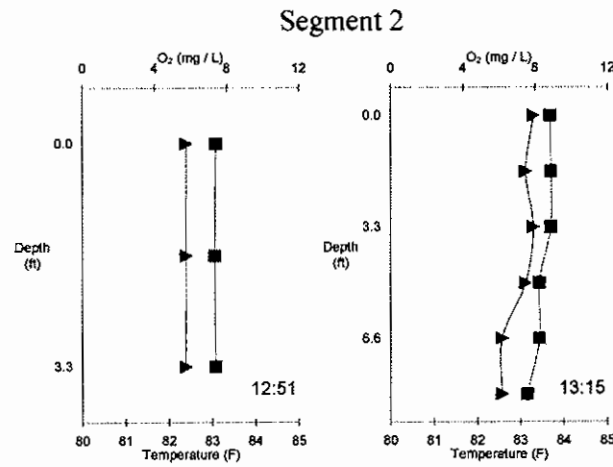


Figure 15A.38. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake - September 21, 1998

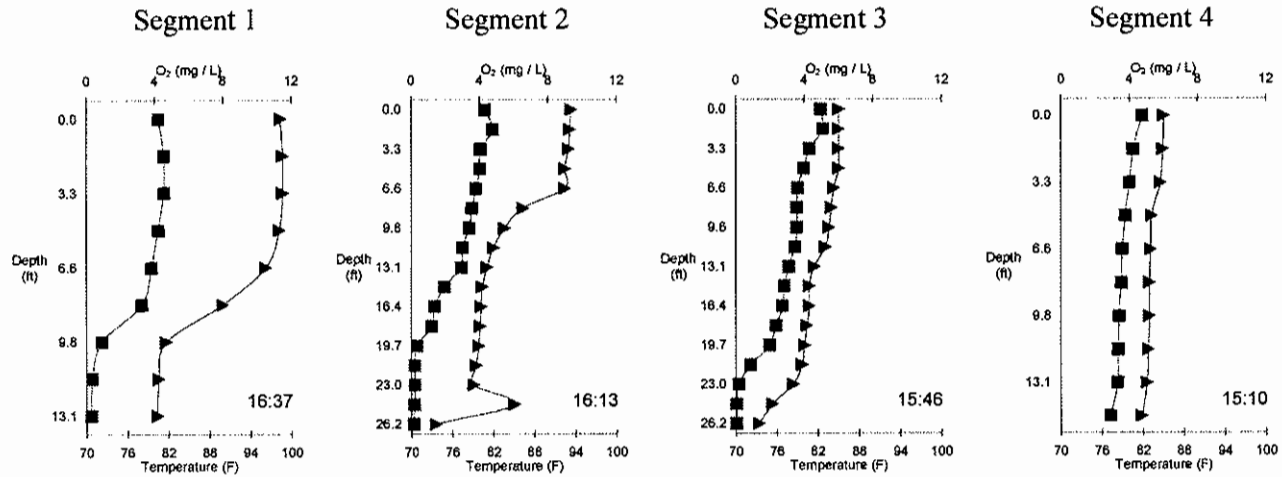
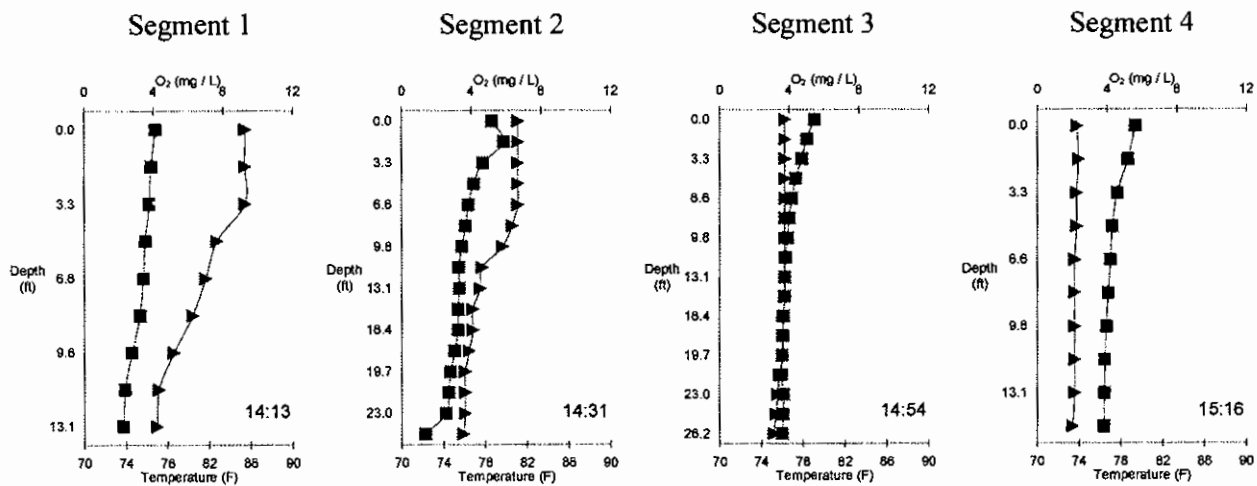


Figure 15A.39. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake - October 8, 1998



Newton Lake - October 21, 1998

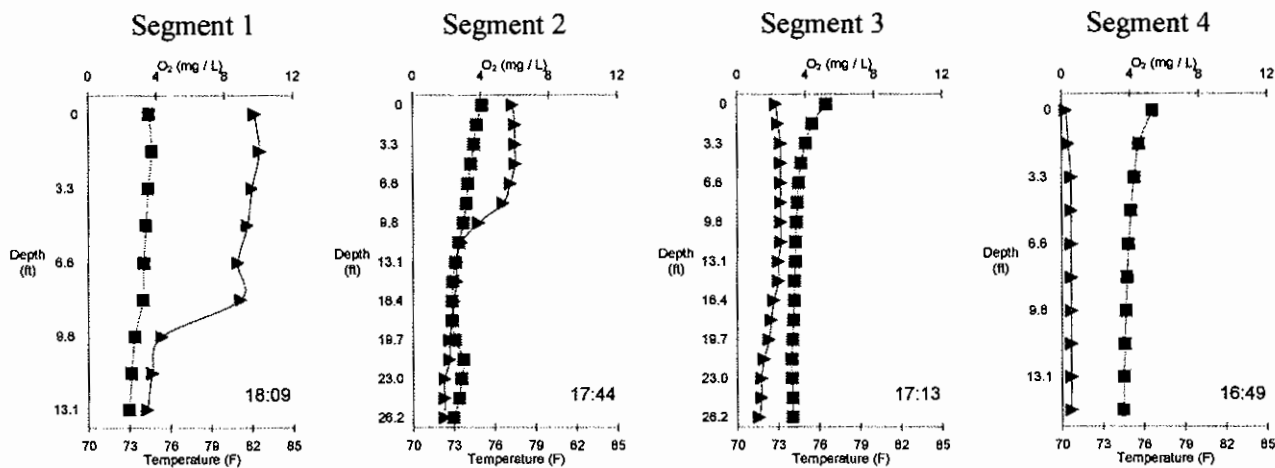
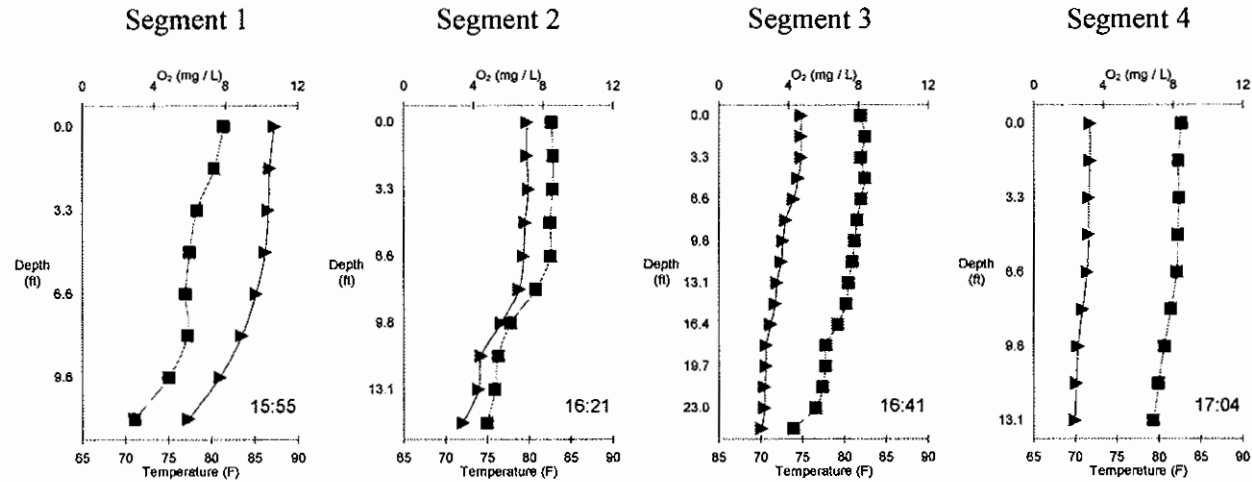


Figure 15A.40. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – October 29, 1998



Newton Lake – November 3, 1998

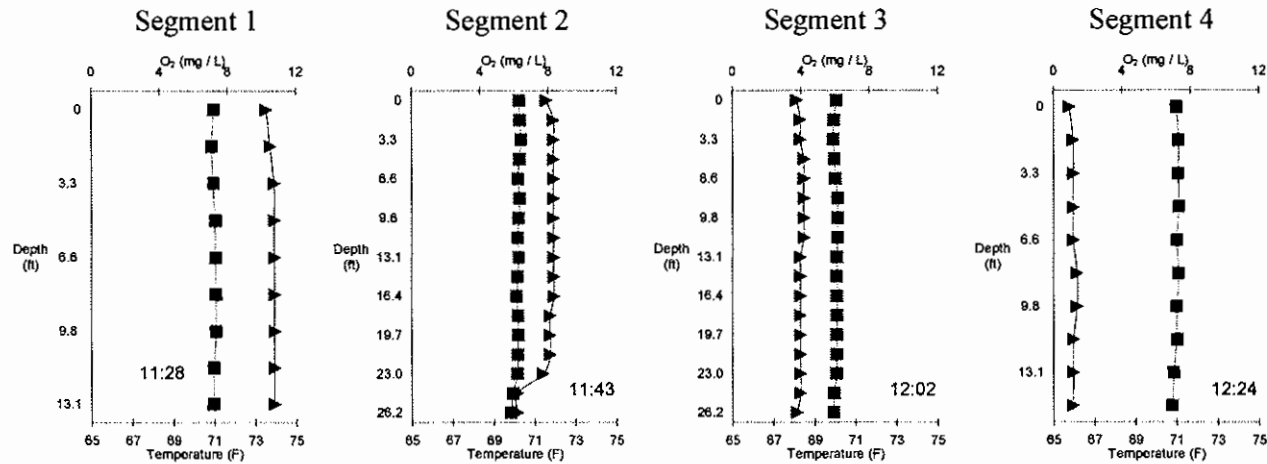
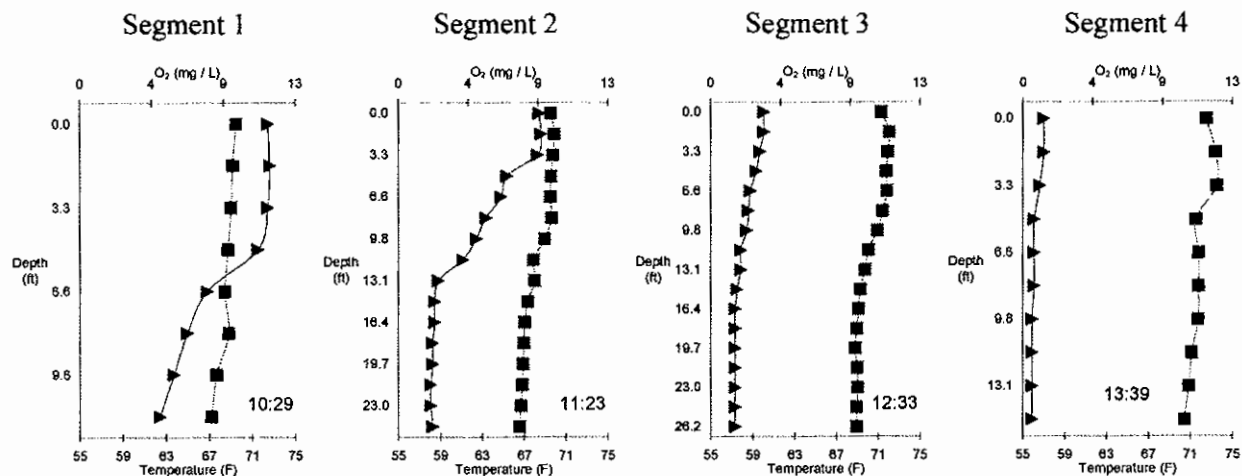


Figure 15A.41. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – November 24, 1998



Newton Lake – December 9, 1998

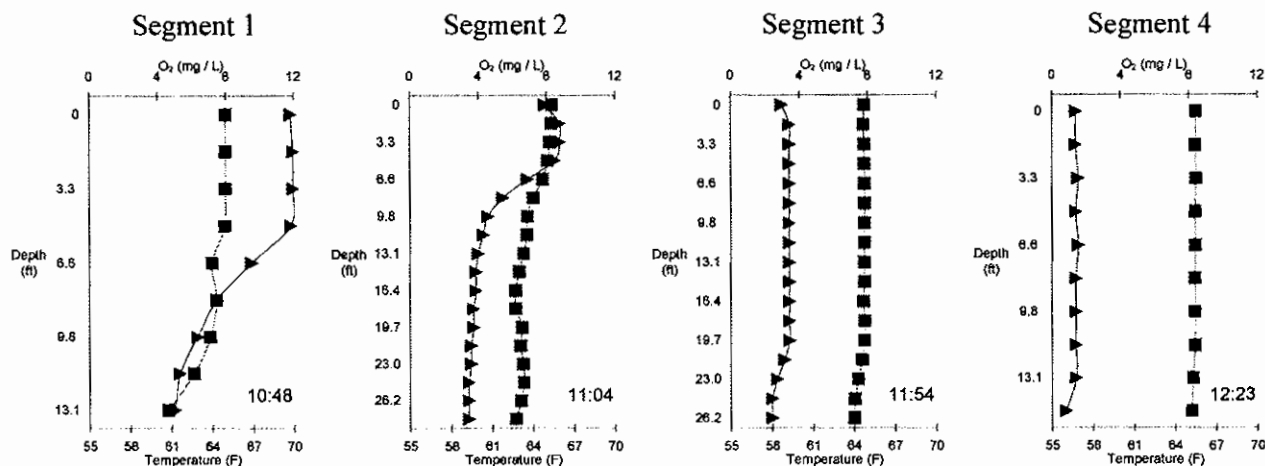
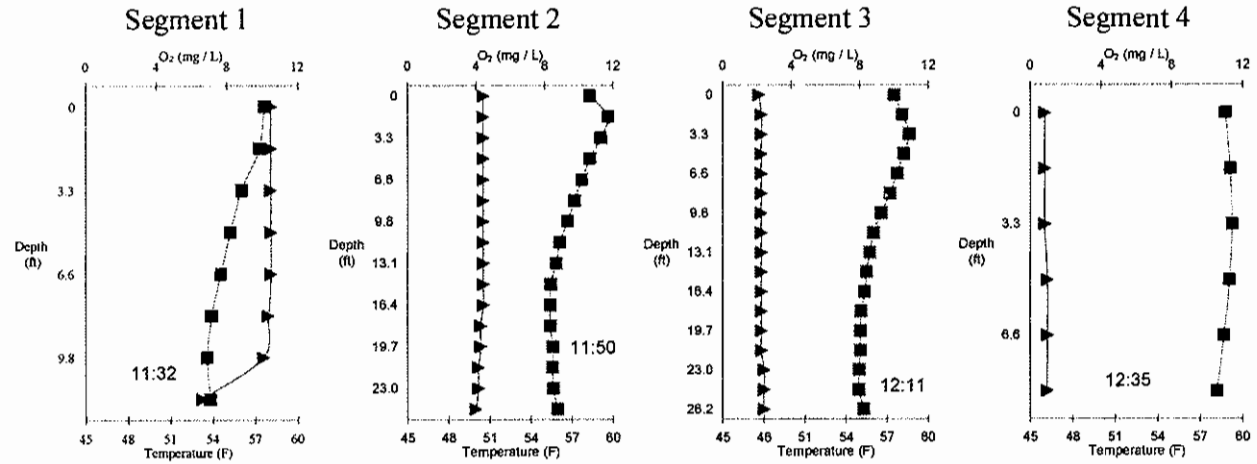


Figure 15A.42. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg/l). Time of measurement is indicated on each graph.

Newton Lake – December 29, 1998



Newton Lake – January 11, 1999

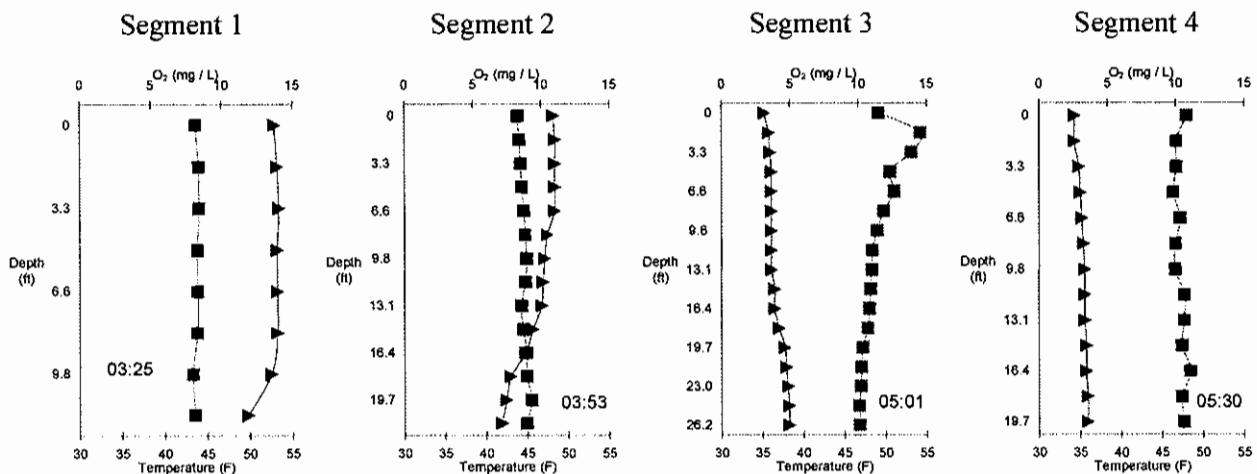
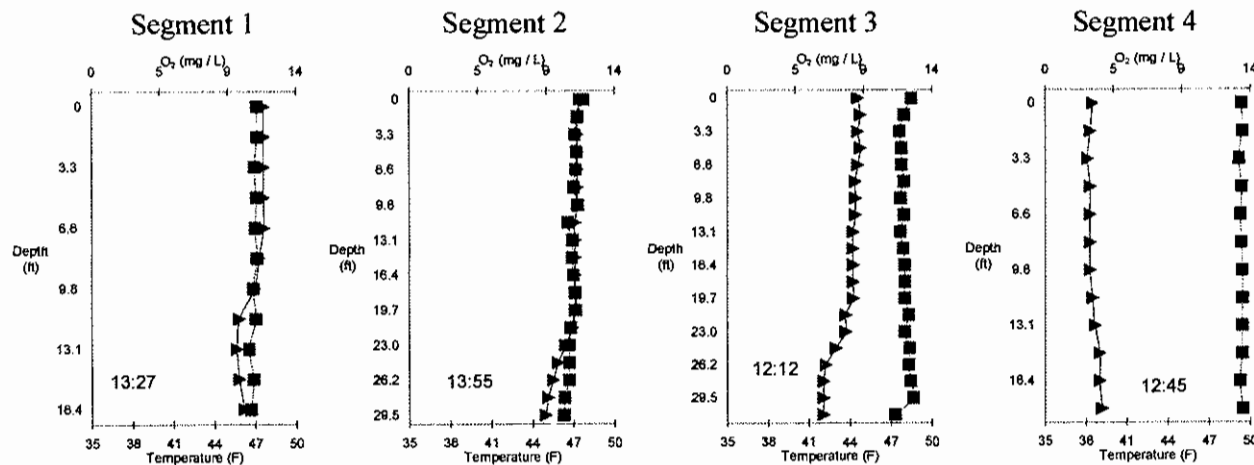


Figure 15A.43. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – January 22, 1999



Newton Lake – February 10, 1999

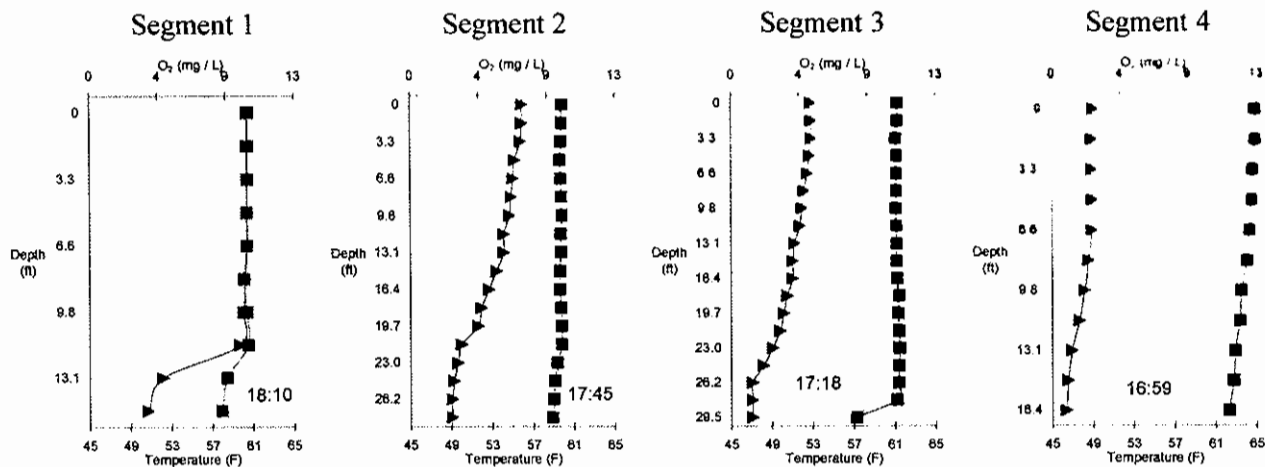
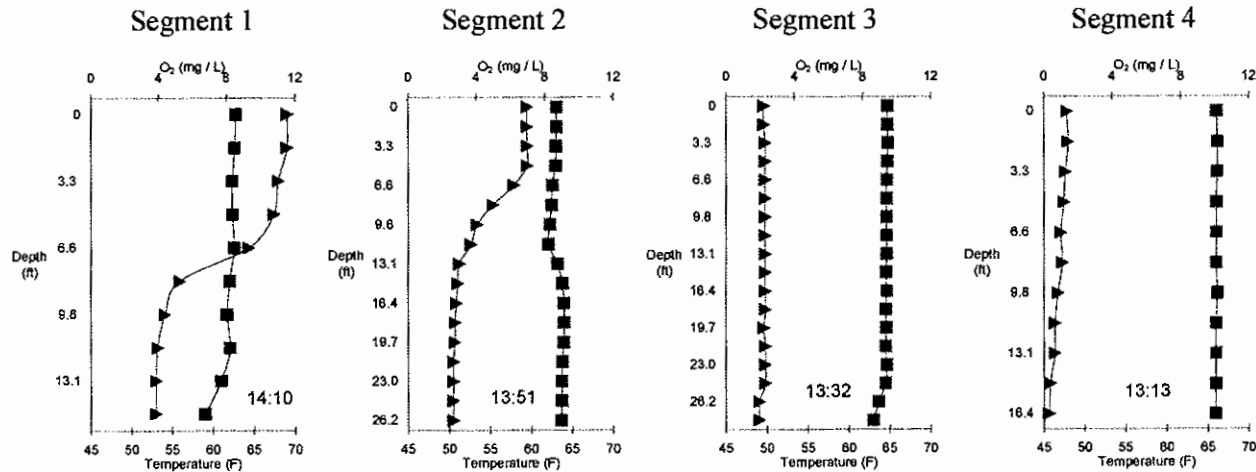


Figure 15A.44. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – February 24, 1999



Newton Lake – March 10, 1999

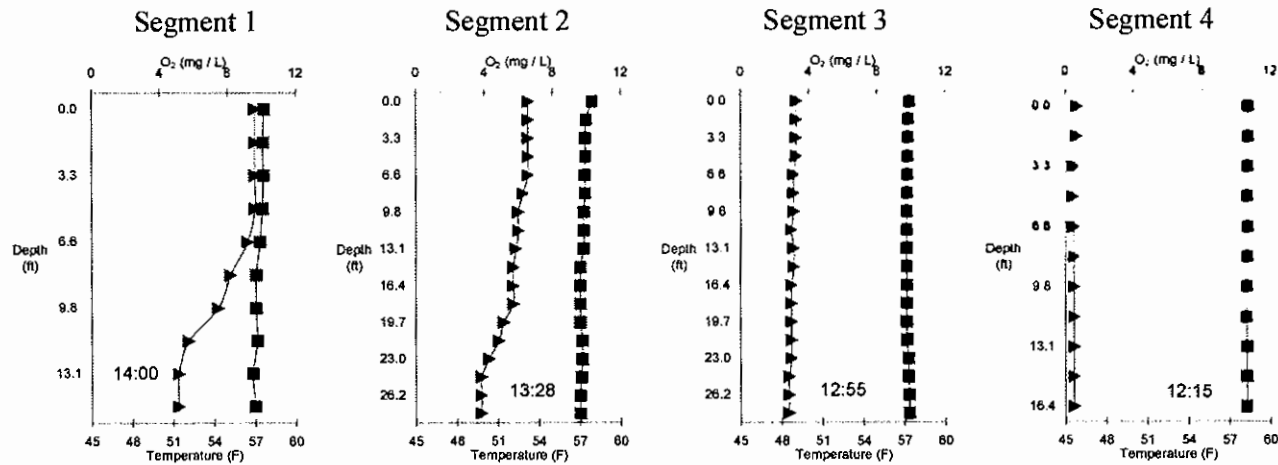
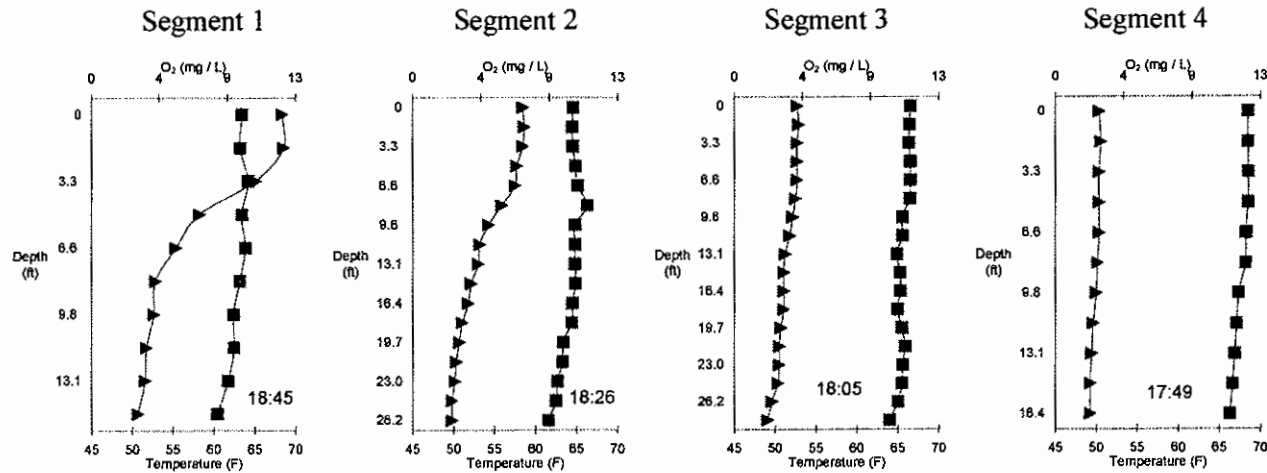


Figure 15A.45. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – March 22, 1999



Newton Lake – April 7, 1999

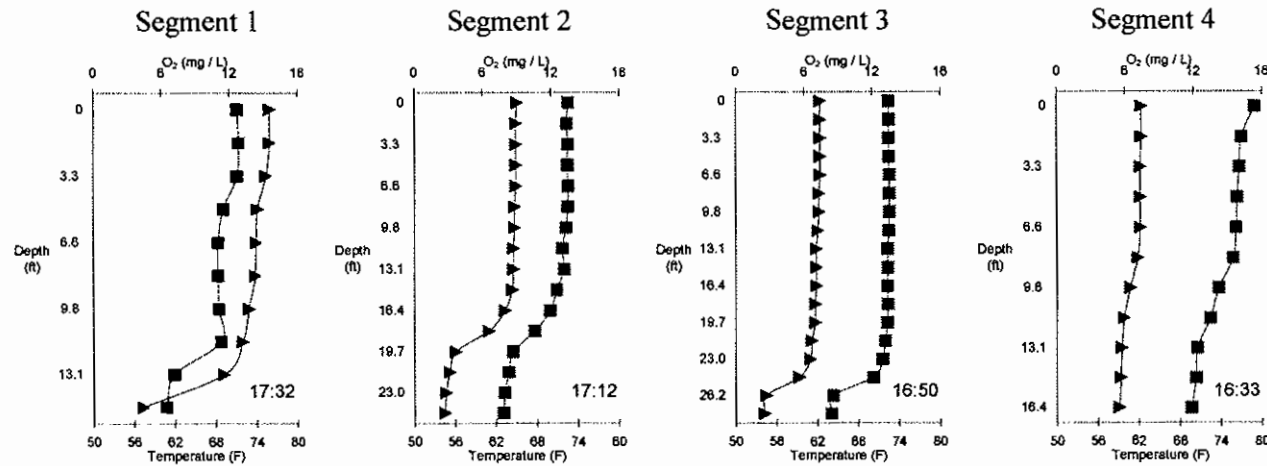
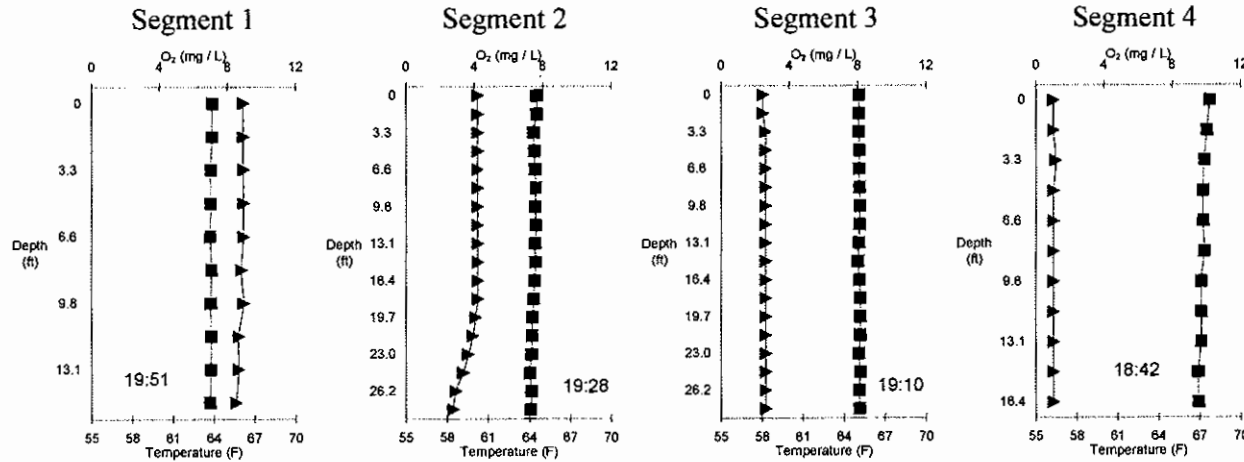


Figure 15A.46. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – April 16, 1999



Newton Lake – April 23, 1999

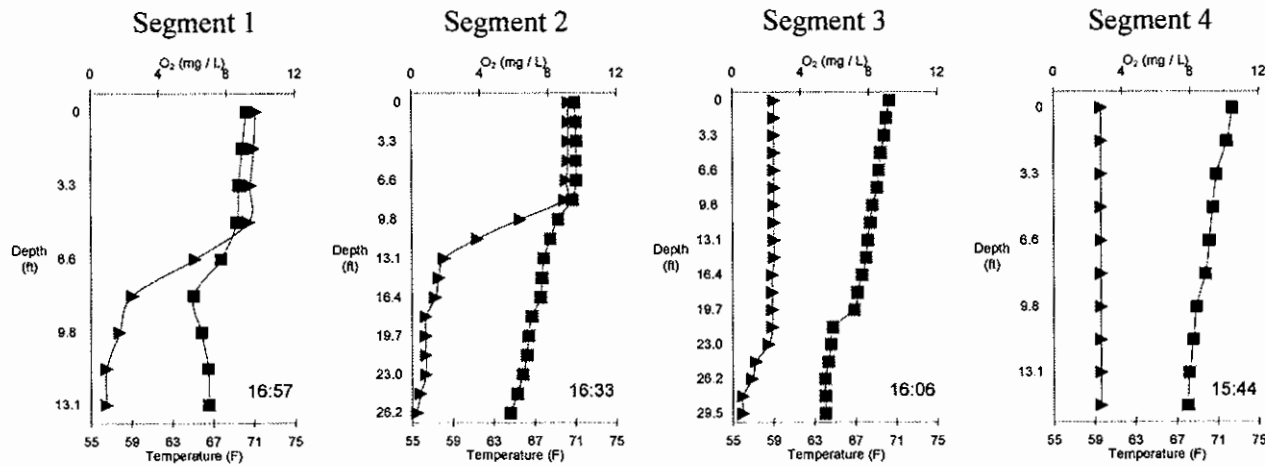
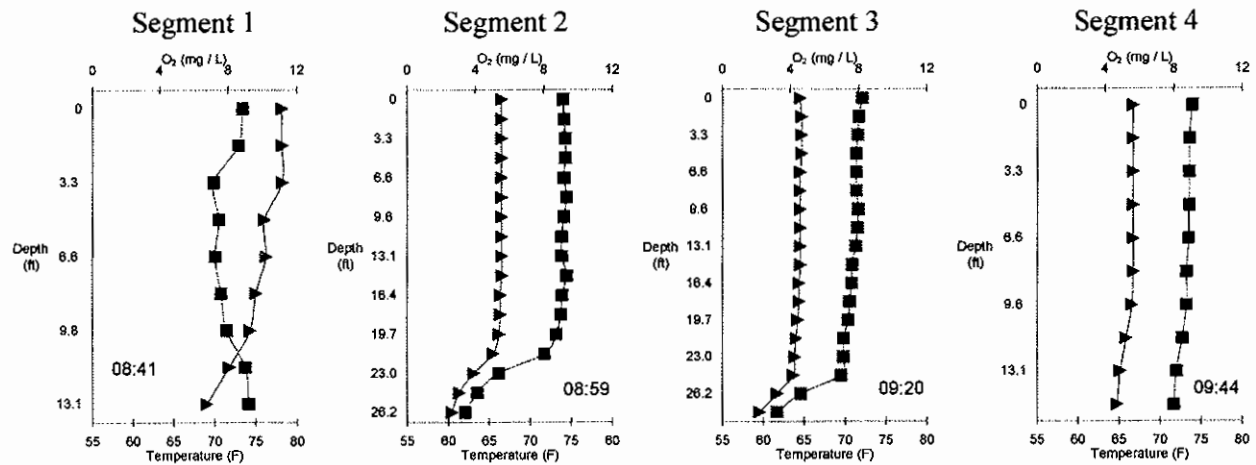


Figure 15A.47. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – May 5, 1999



Newton Lake – May 19, 1999

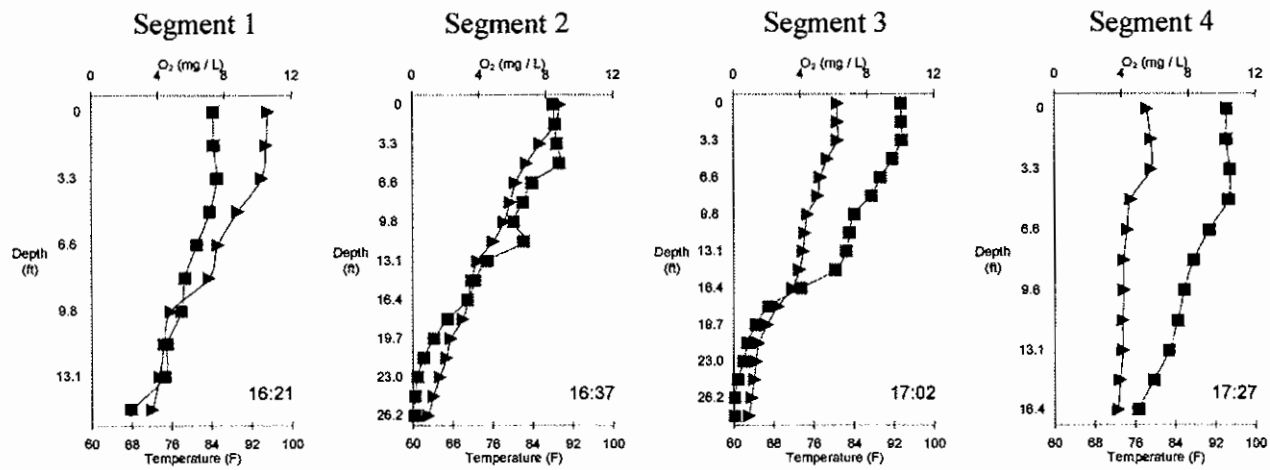


Figure 15A.48. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 2, 1999

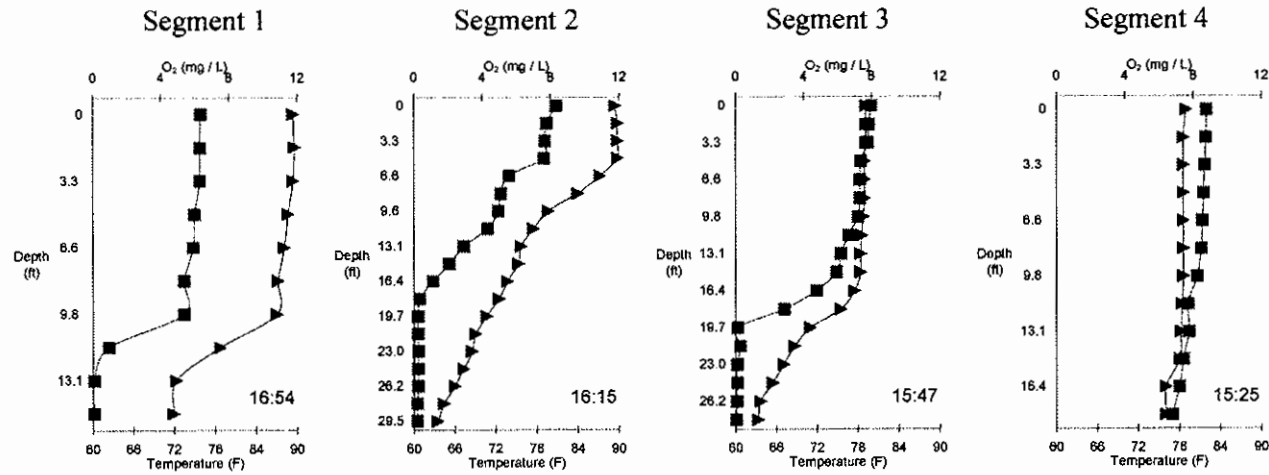


Figure 15A.49. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 3, 1999

Segment 2

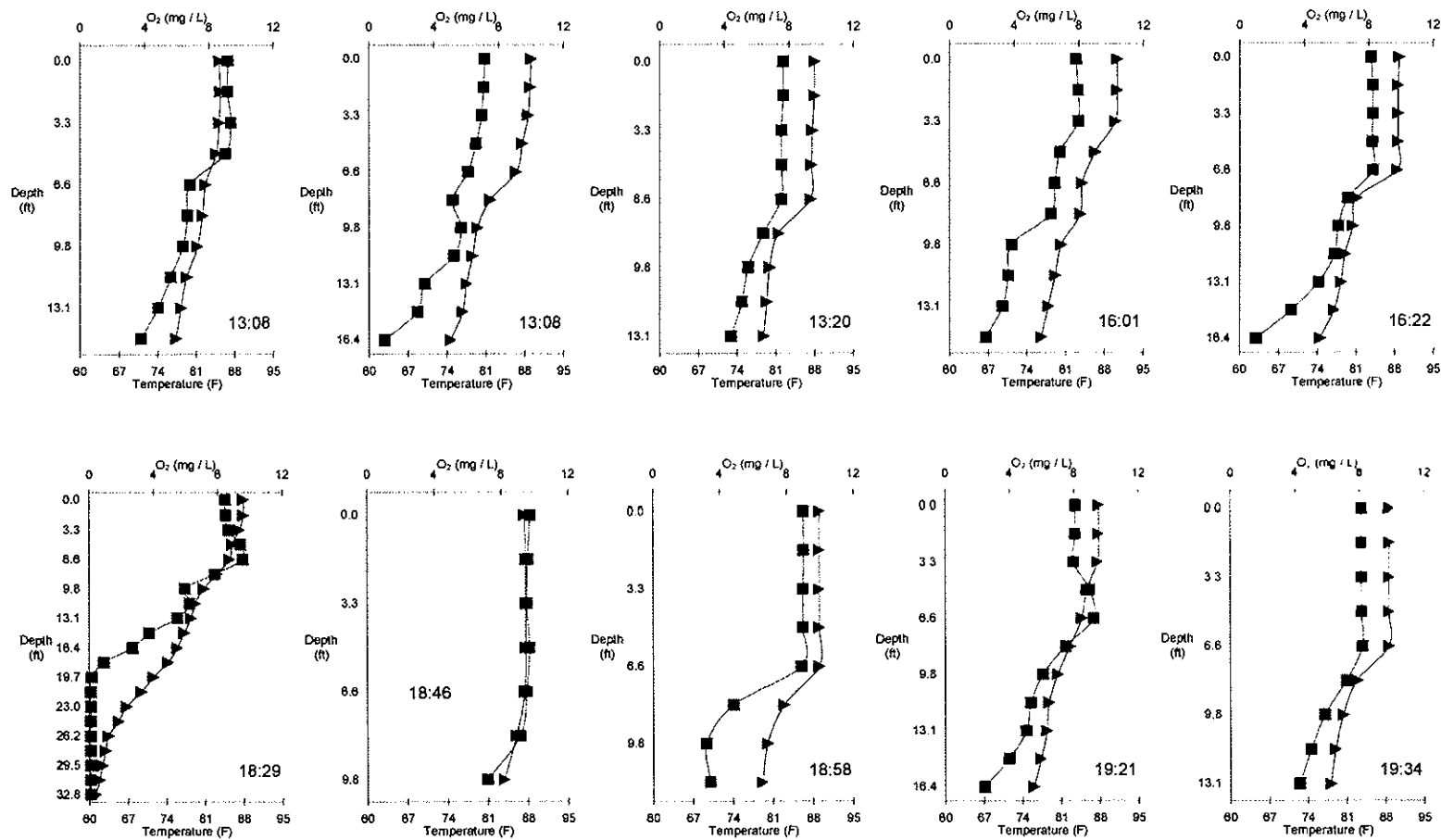
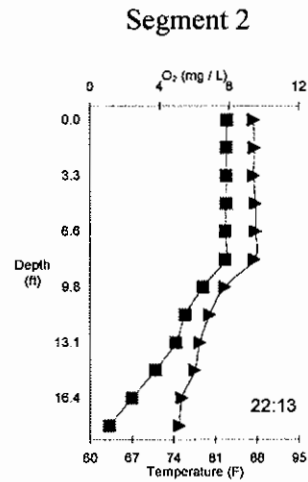


Figure 15A.50. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 3, 1999



Newton Lake – June 4, 1999

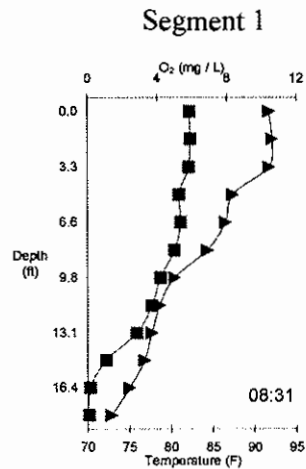


Figure 15A.51. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 4, 1999

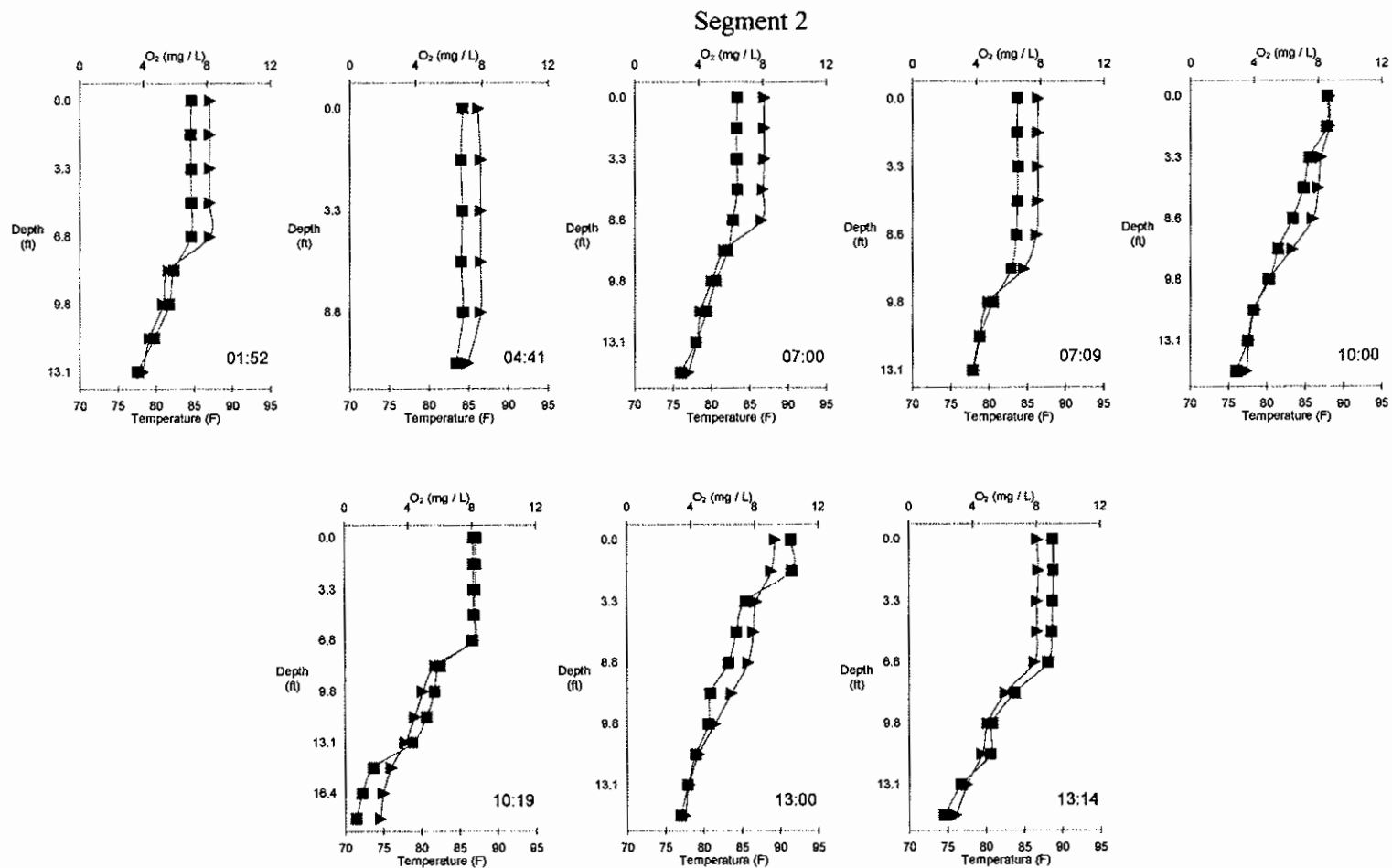


Figure 15A.52. – Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake - June 8, 1999

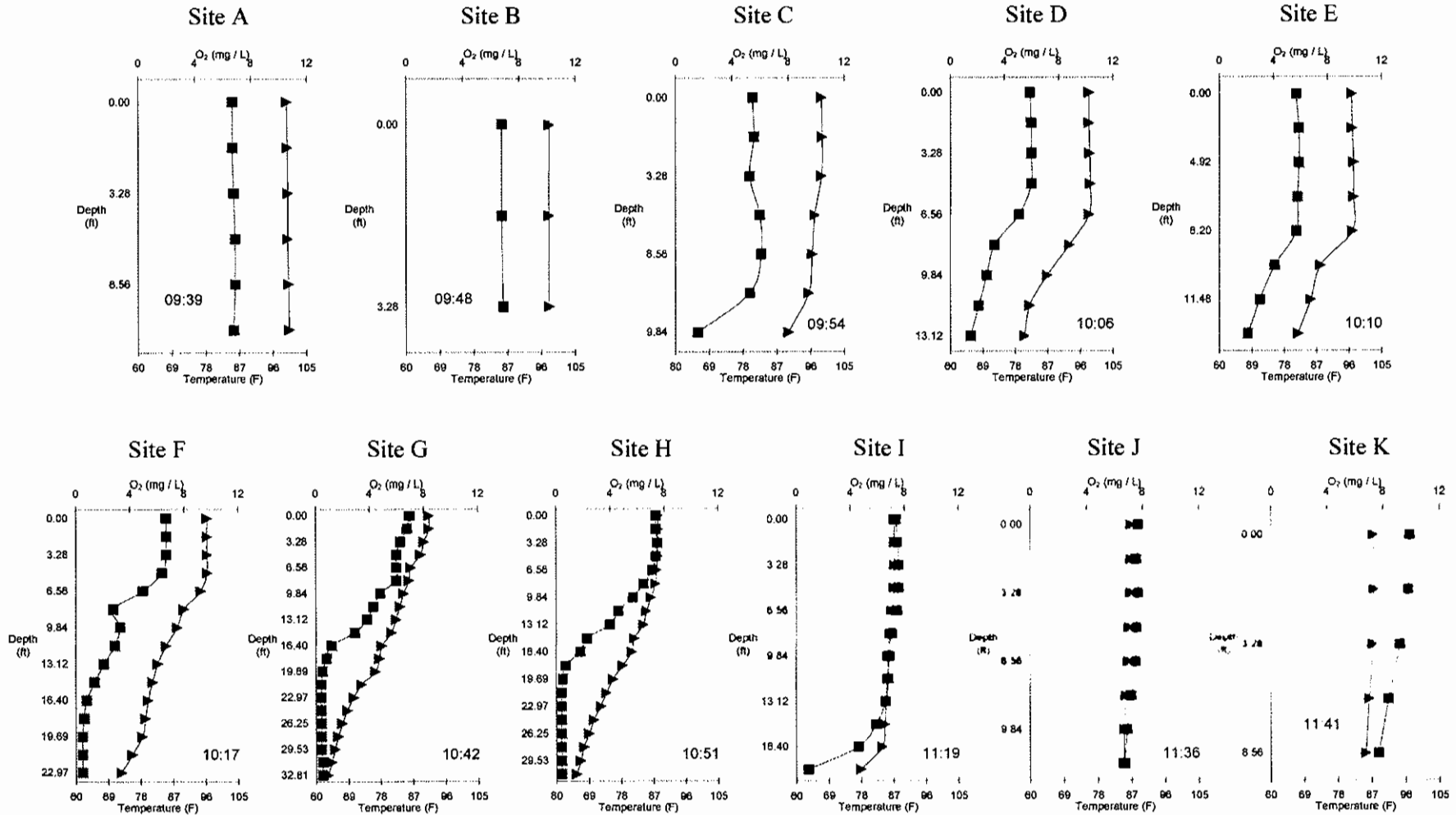
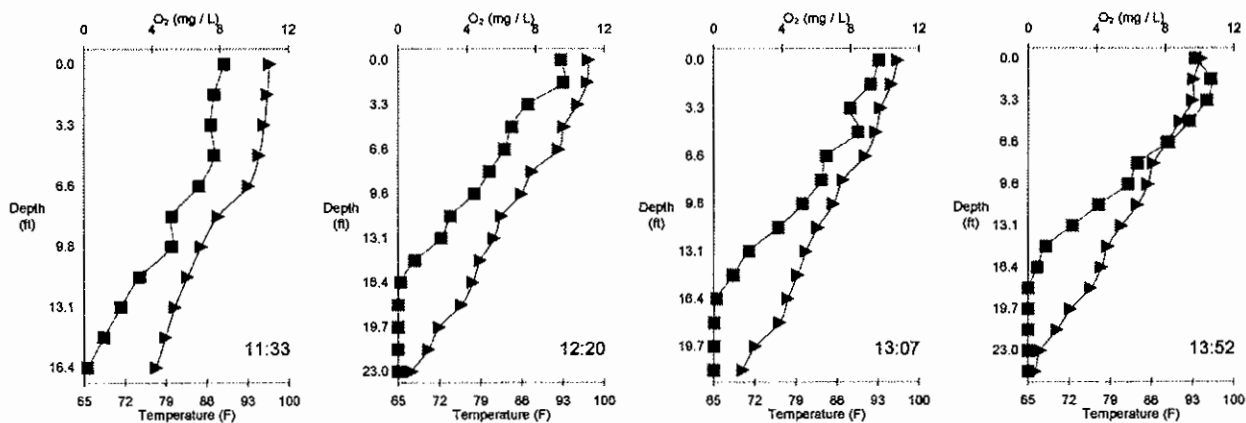


Figure 15A.53. Temperature and dissolved oxygen at Newton Lake, IL, as measured by Ameren CIPS. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 9, 1999

Segment 2



Newton Lake – June 14, 1999

Segment 2

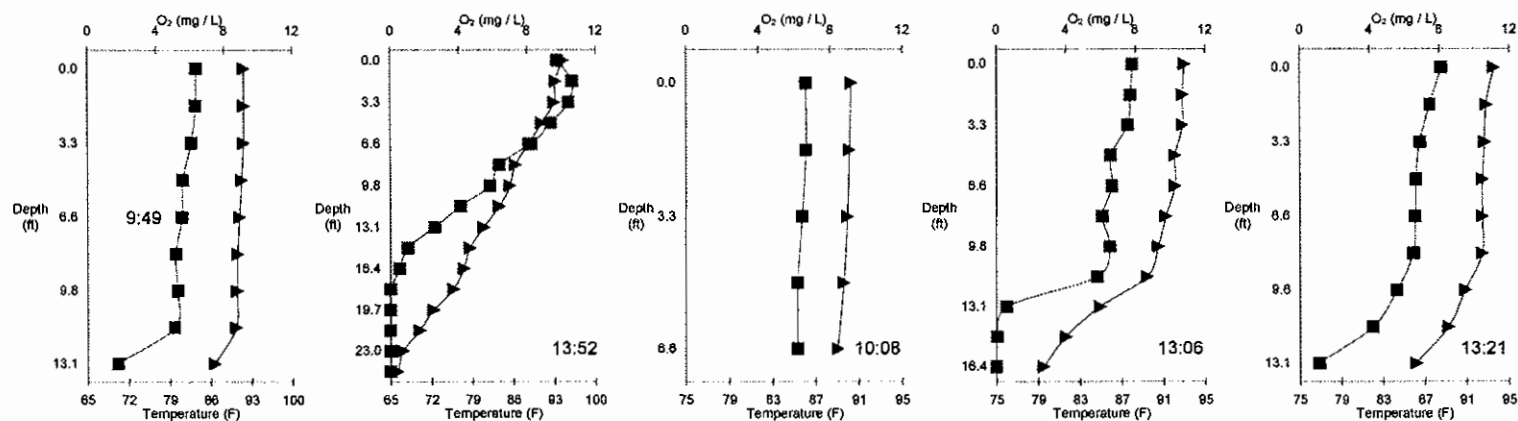


Figure 15A.54. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 14, 1999

Segment 2

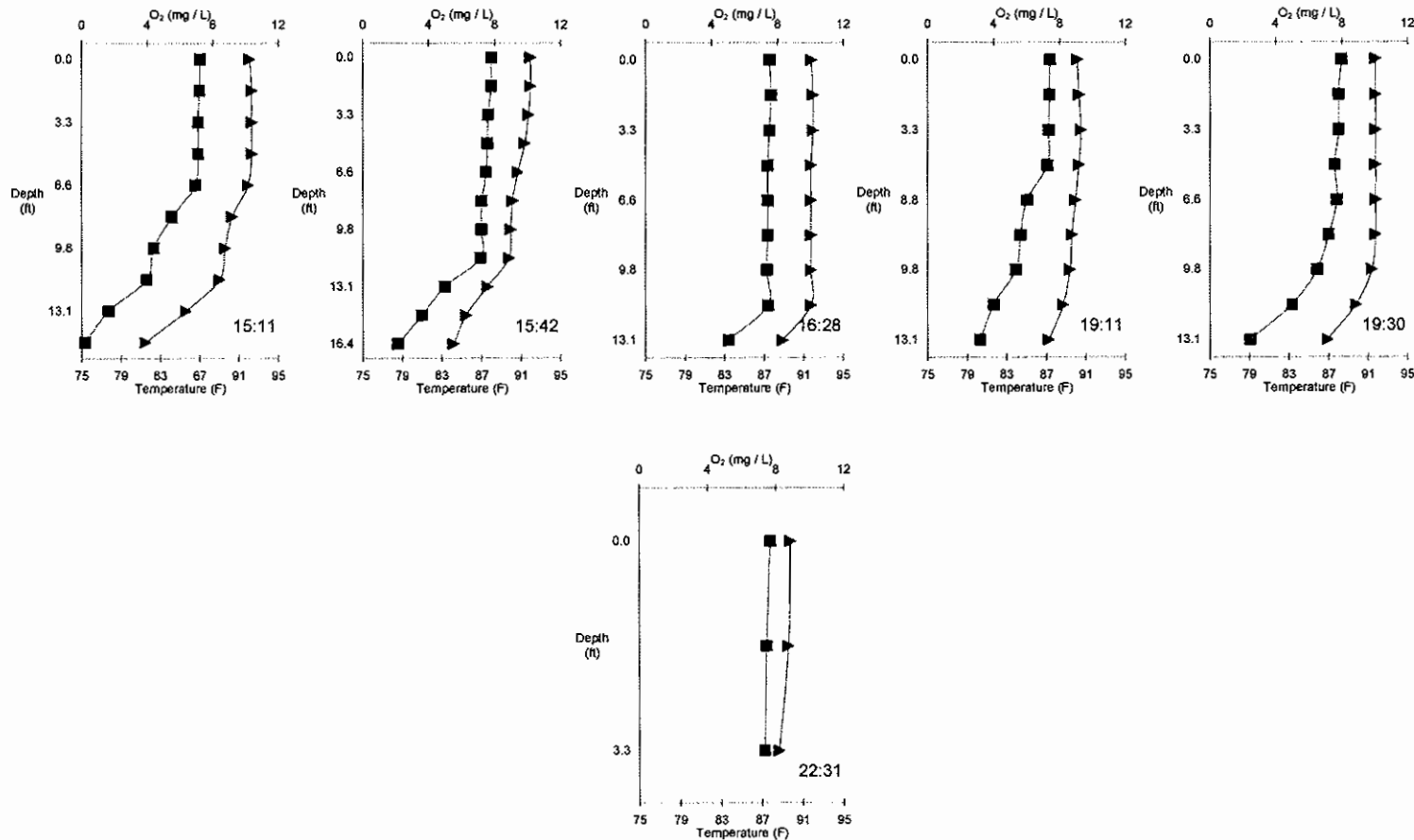


Figure 15A.55. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 15, 1999

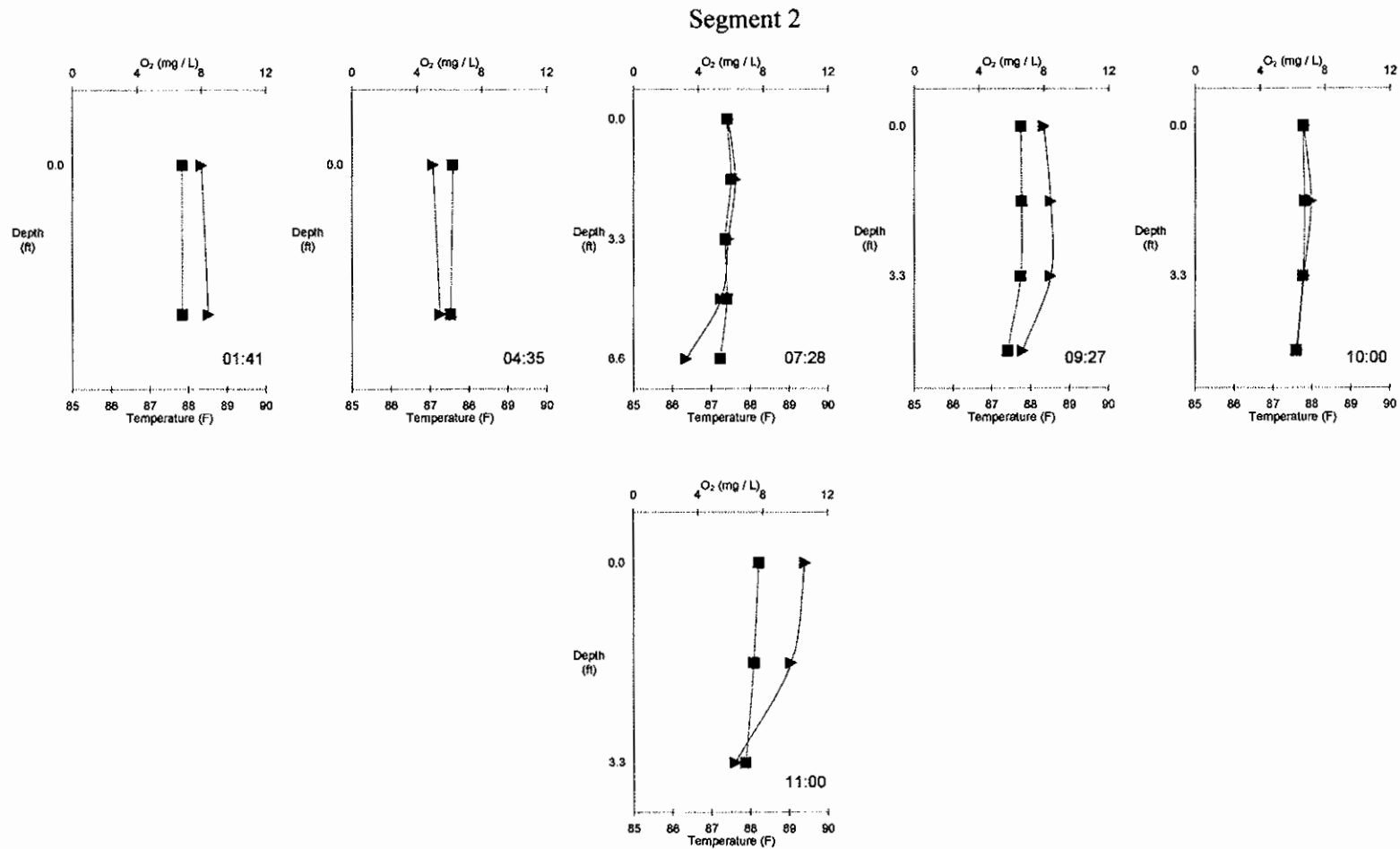


Figure 15A.56. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 18, 1999

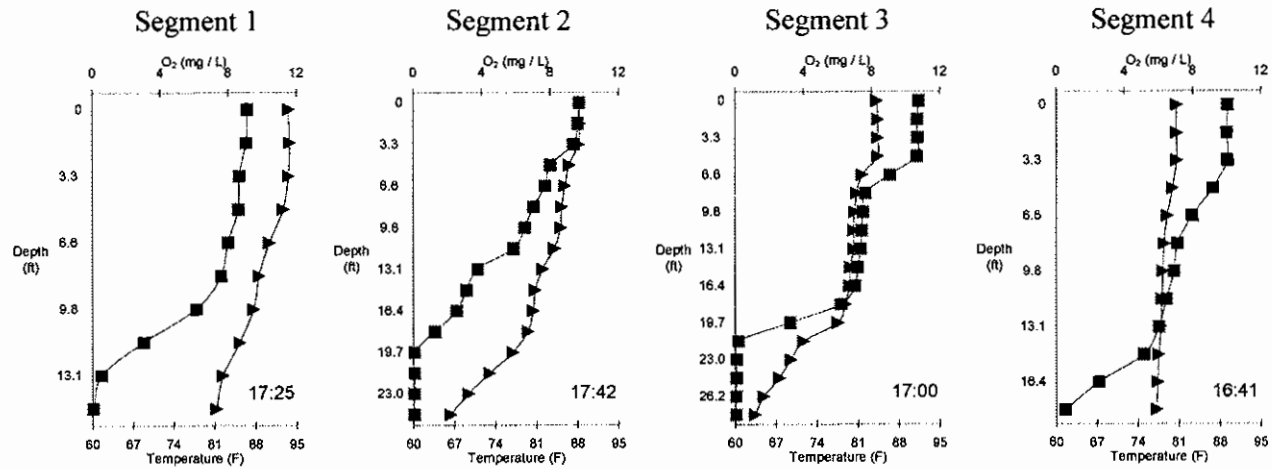


Figure 15A.57. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake - June 22, 1999

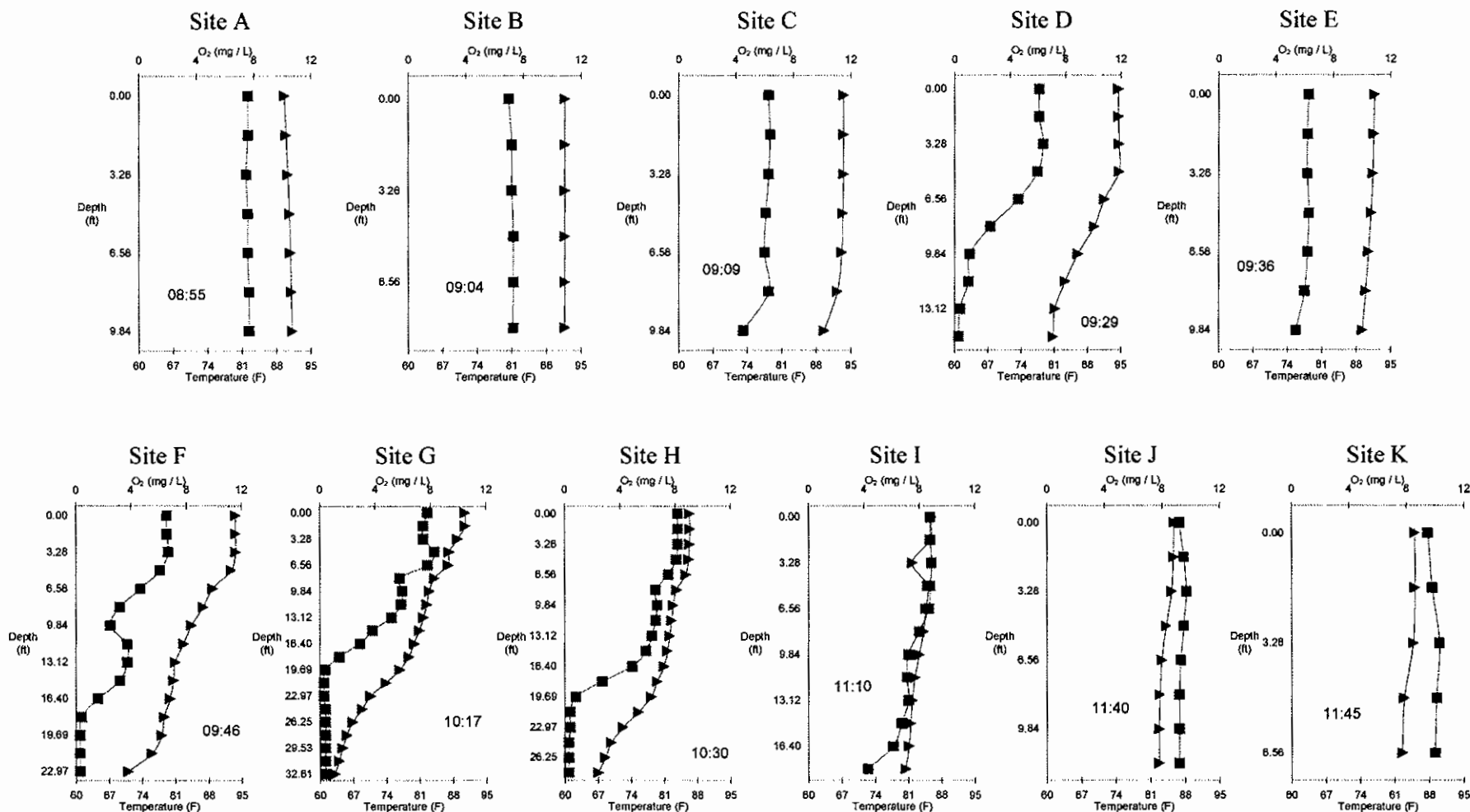
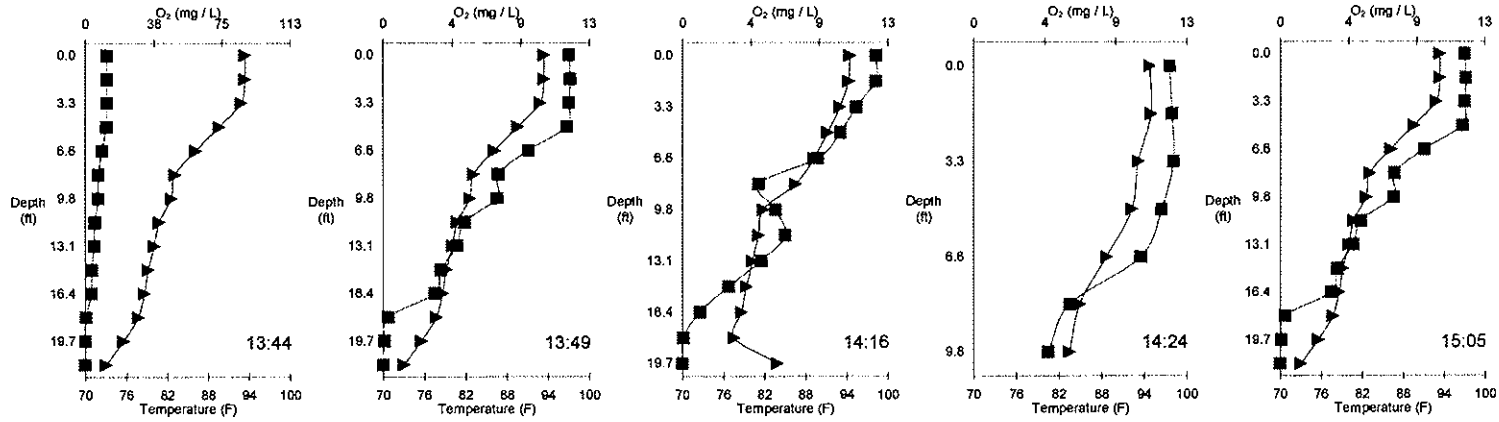


Figure 15A.58. Temperature and dissolved oxygen at Newton Lake, IL, as measured by Ameren CIPS. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – June 22, 1999

Segment 2



Newton Lake – June 29, 1999

Segment 2

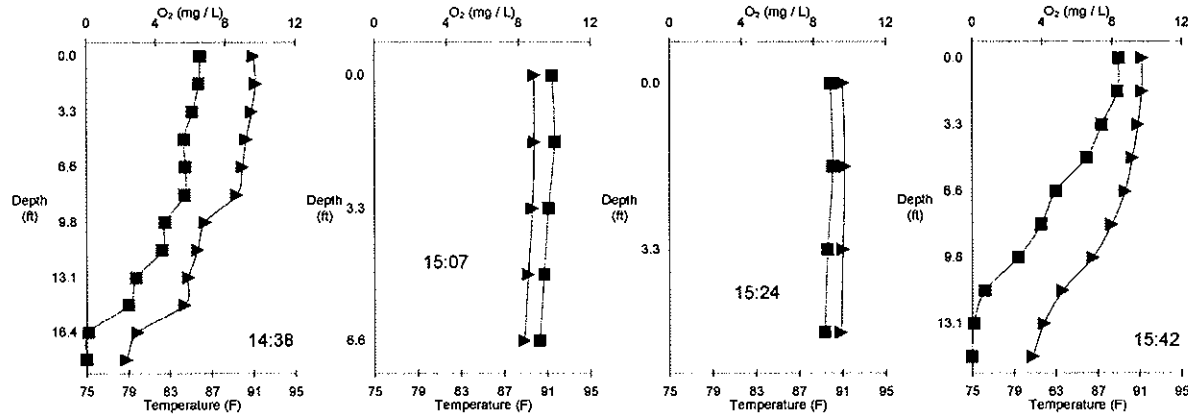


Figure 15A.59. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – July 2, 1999

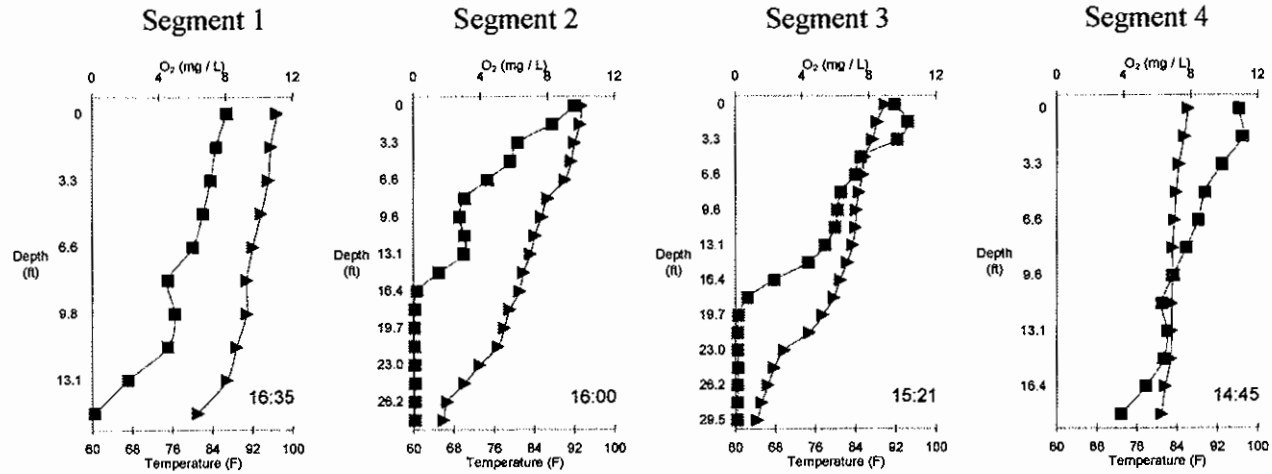


Figure 15A.60. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake - July 6, 1999

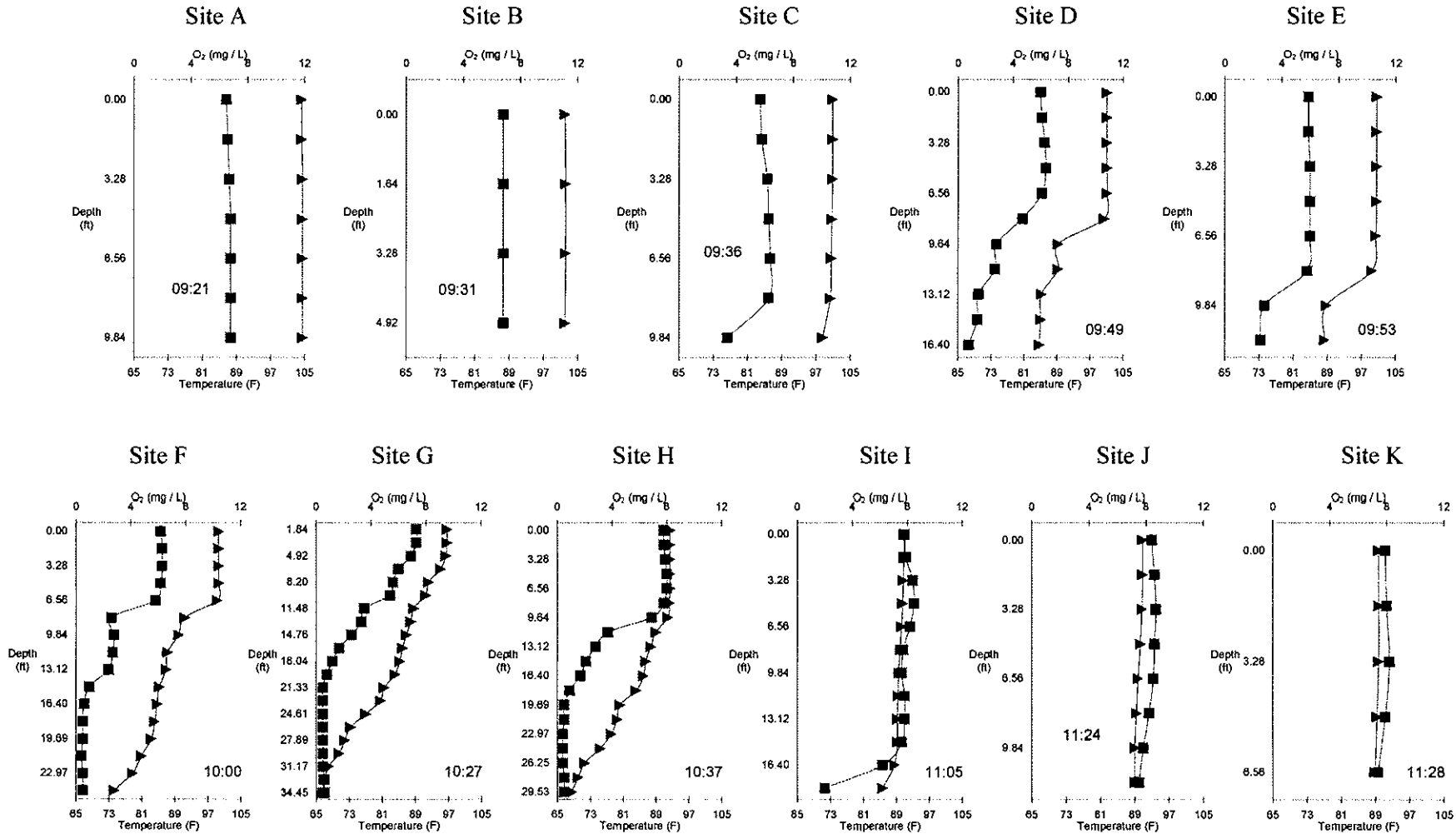
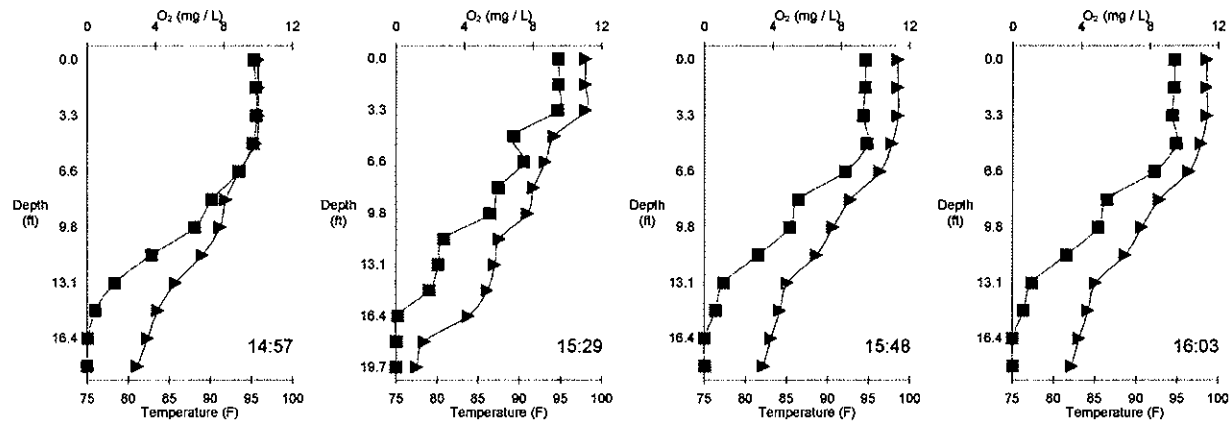


Figure 15A.61. Temperature and dissolved oxygen at Newton Lake, IL, as measured by Ameren CIPS. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – July 7, 1999

Segment 2



Newton Lake – July 13, 1999

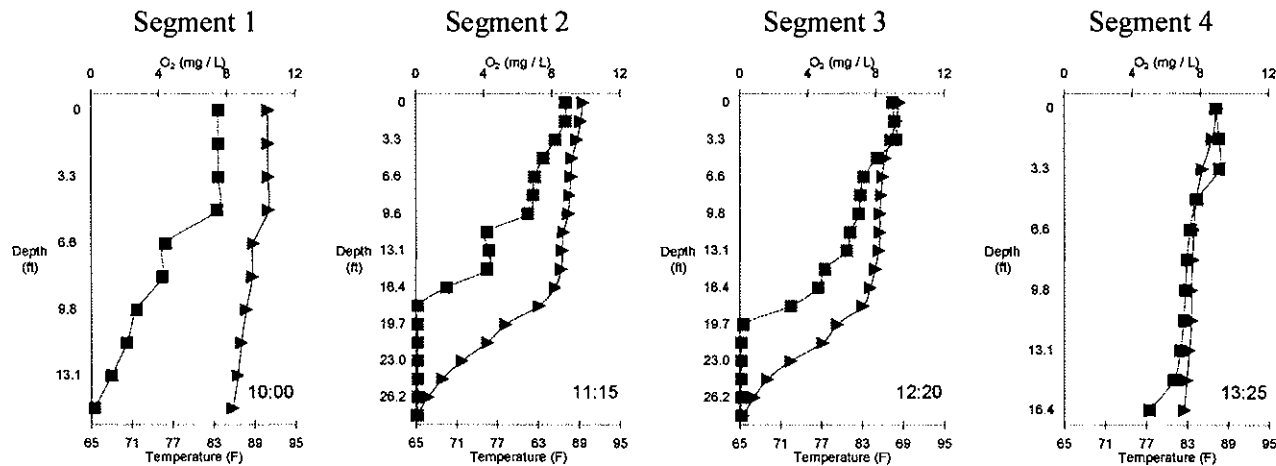


Figure 15A.62. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – July 15, 1999

Segment 2

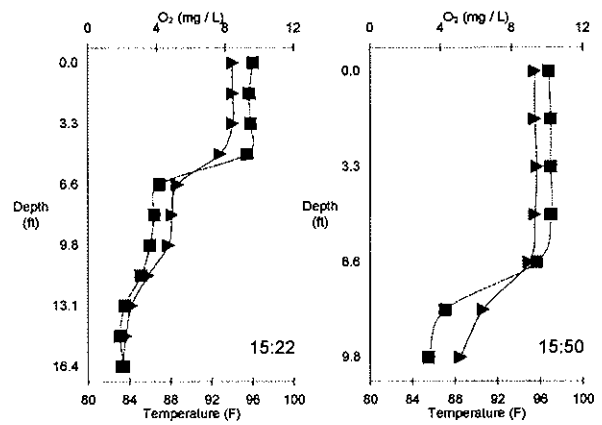


Figure 15A.63. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake - July 19, 1999

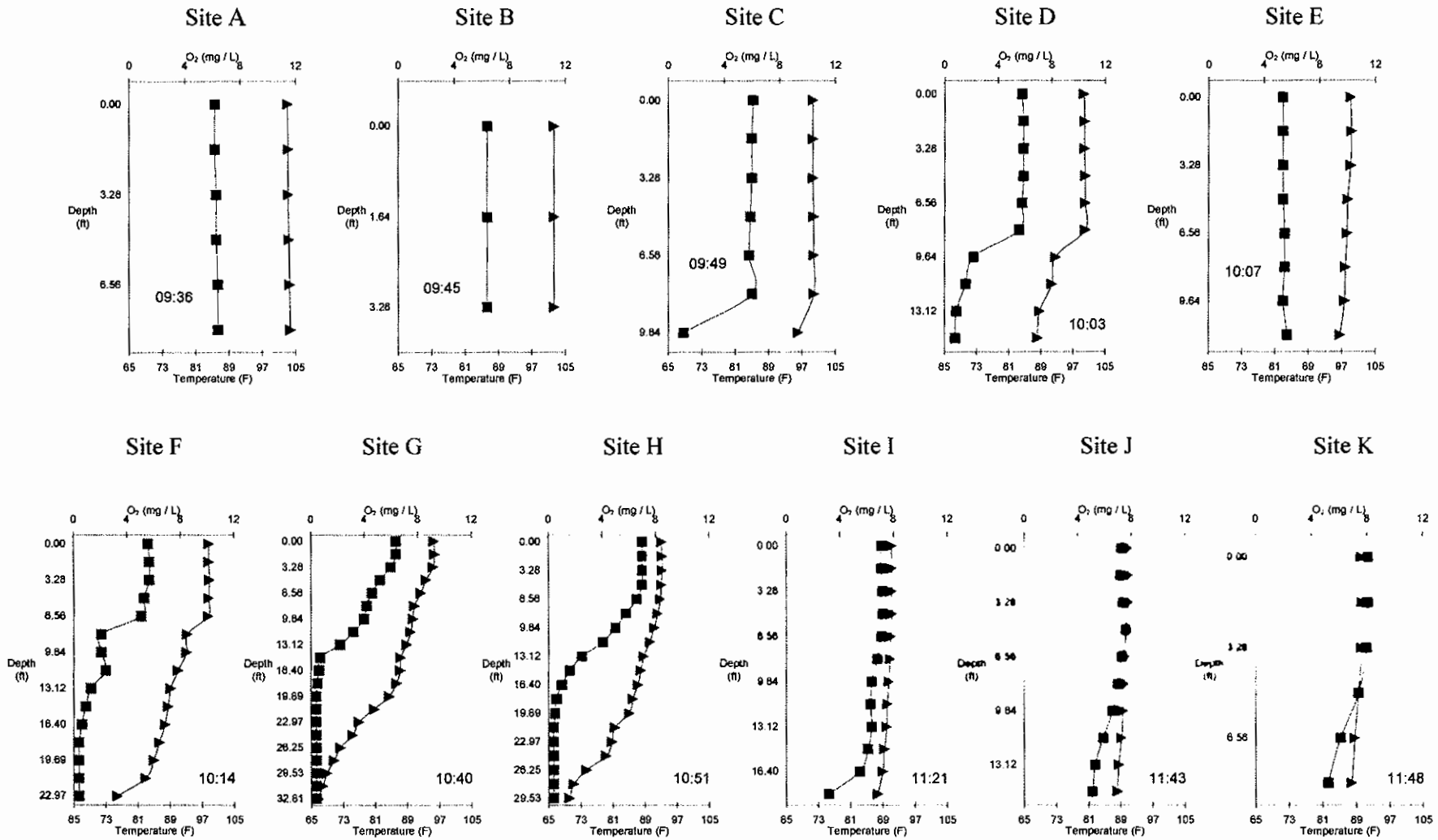
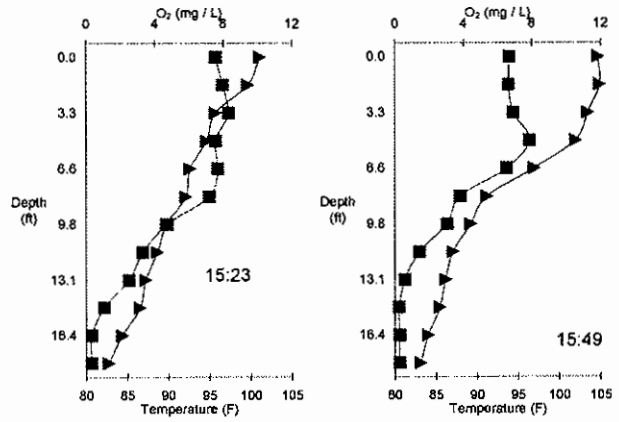


Figure 15A.64. Temperature and dissolved oxygen at Newton Lake, IL, as measured by Ameren CIPS. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – July 20, 1999

Segment 2



Newton Lake – July 20, 1999

Segment 2

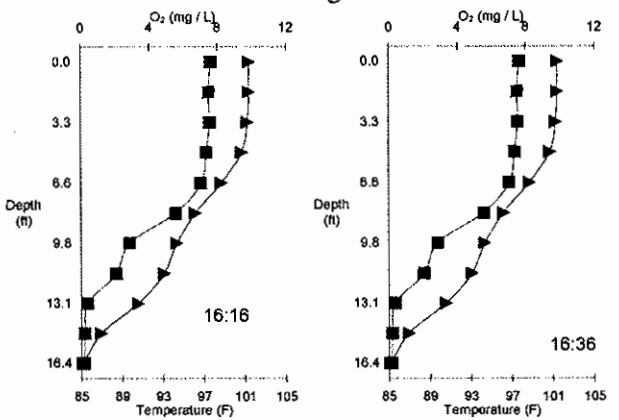


Figure 15A.65. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – July 24, 1999

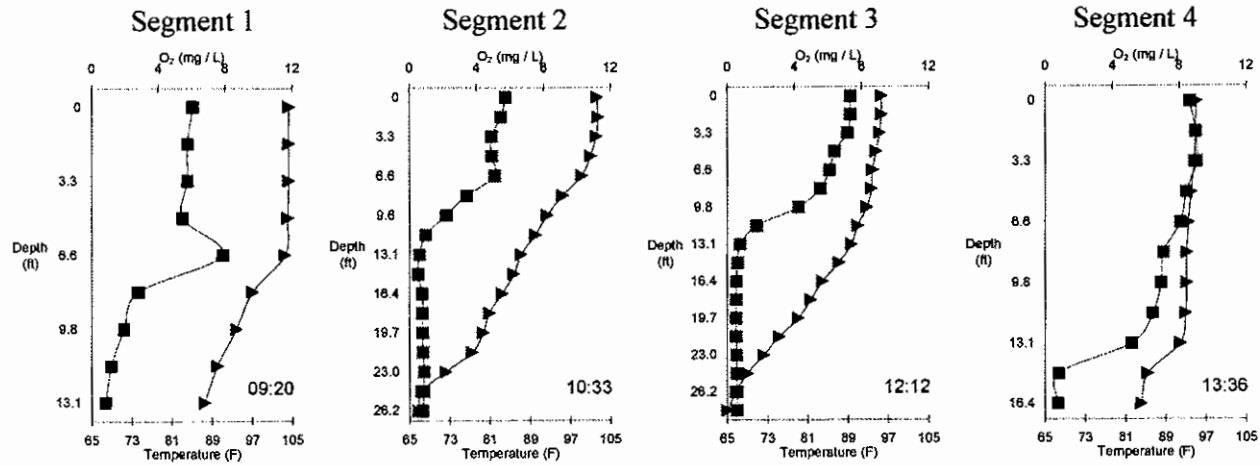
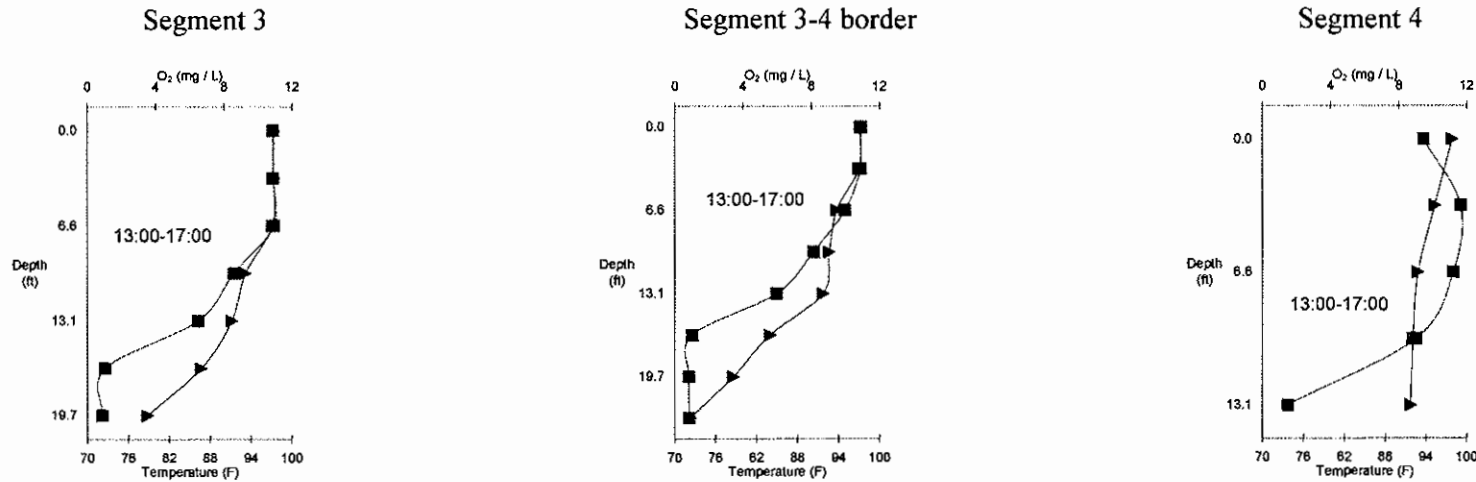


Figure 15A.66. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – July 29, 1999



Newton Lake – July 30, 1999

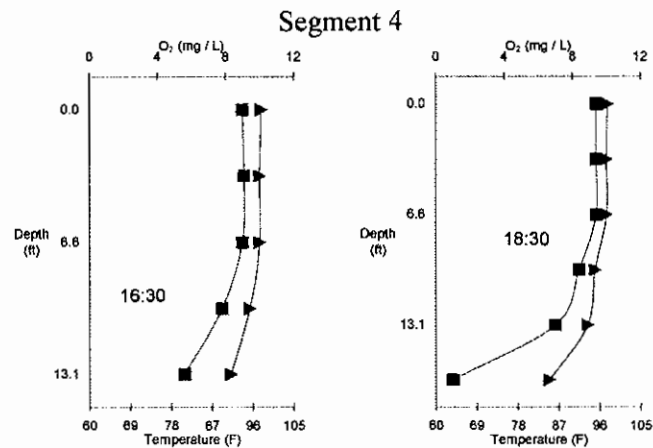


Figure 15A.67. Temperature and dissolved oxygen obtained during fish health sampling, Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 5, 1999

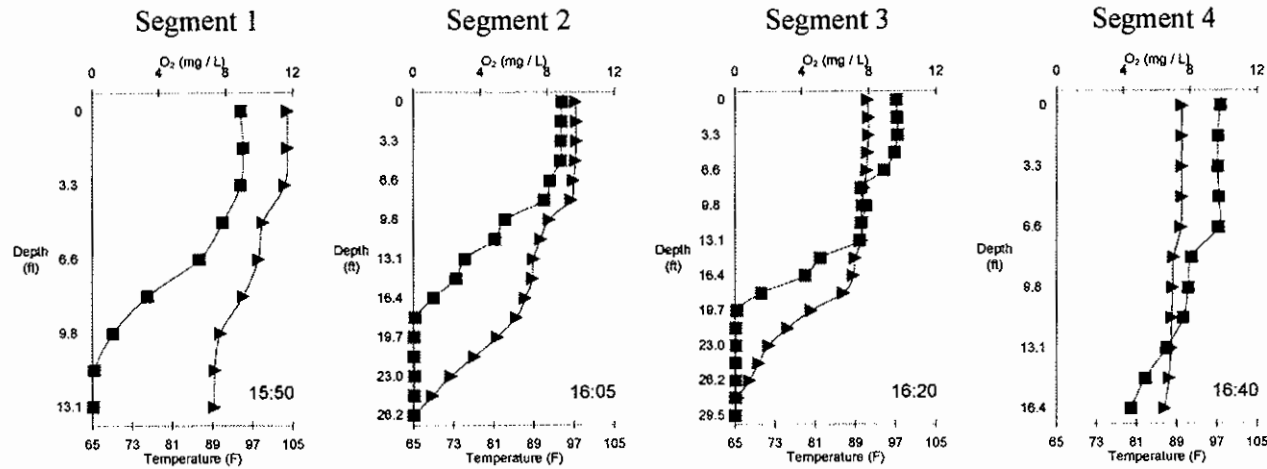
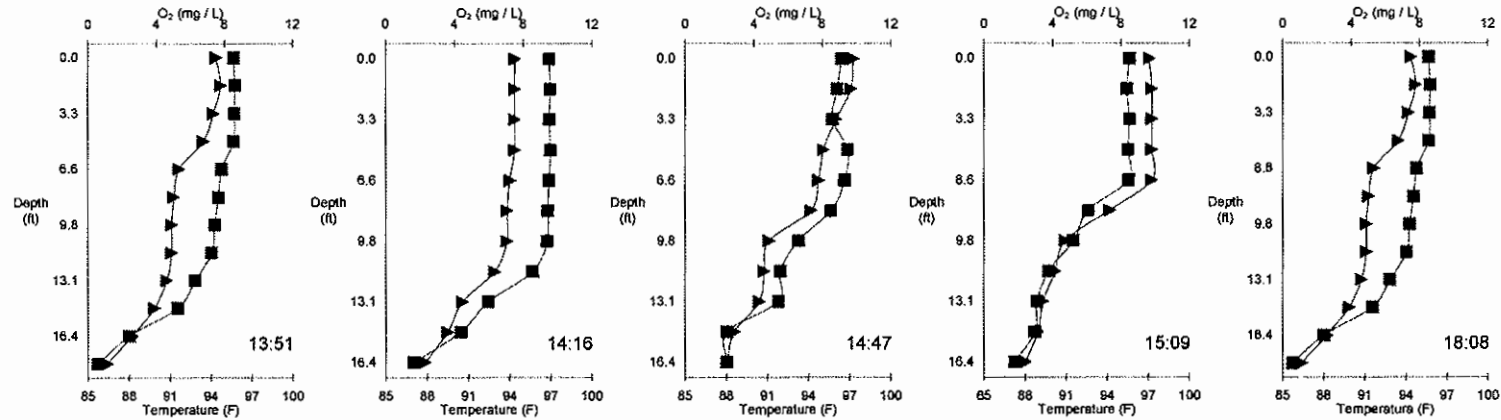


Figure 15A.68. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 5, 1999

Segment 2



Newton Lake – August 9, 1999

Segment 2

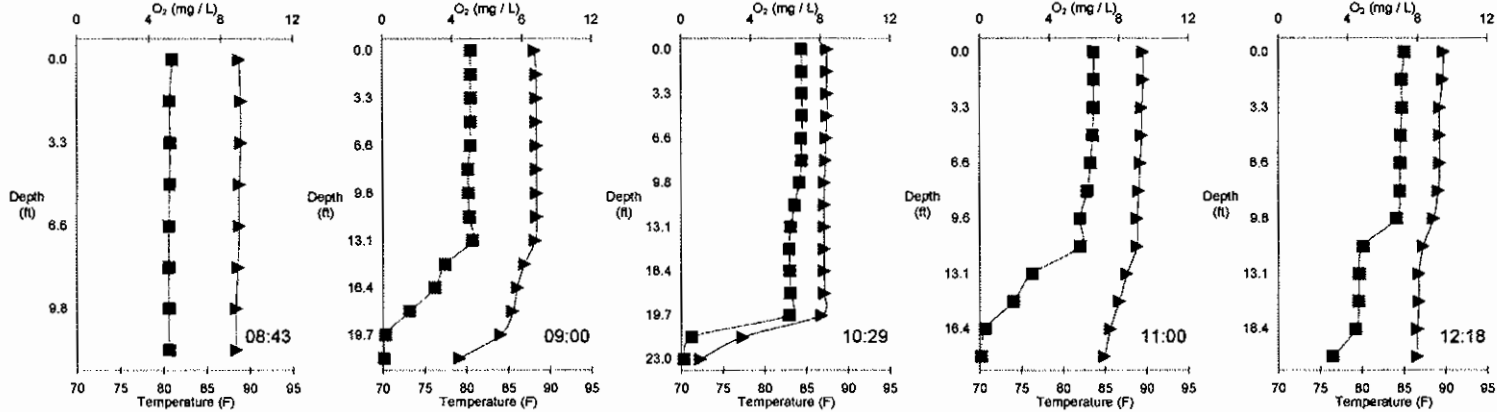
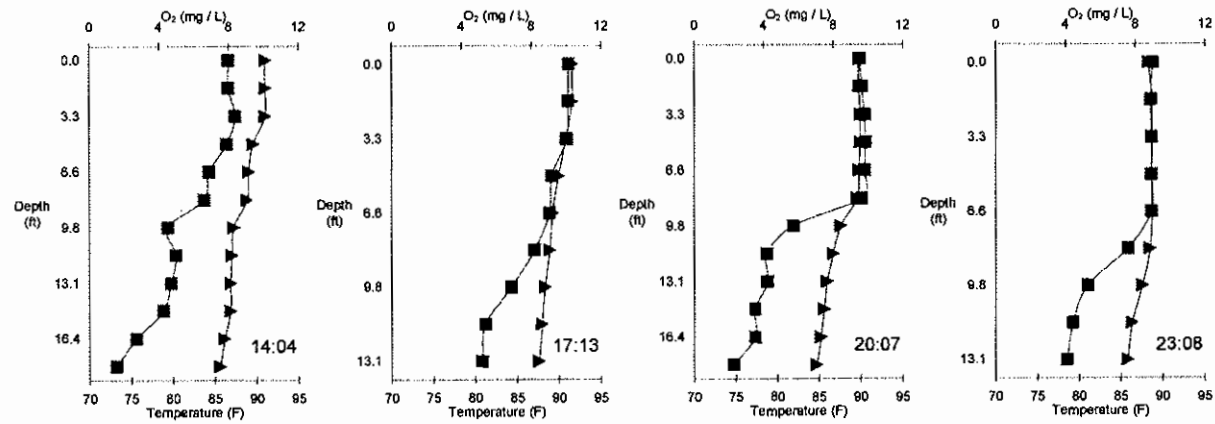


Figure 15A.69. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake –August 9, 1999

Segment 2



Newton Lake –August 10, 1999

Segment 2

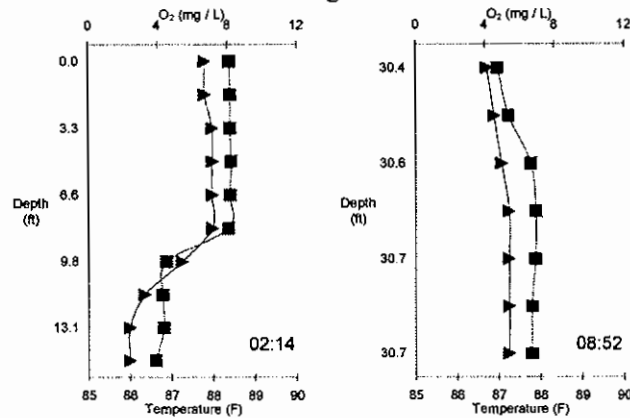


Figure 15A.70. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 10, 1999

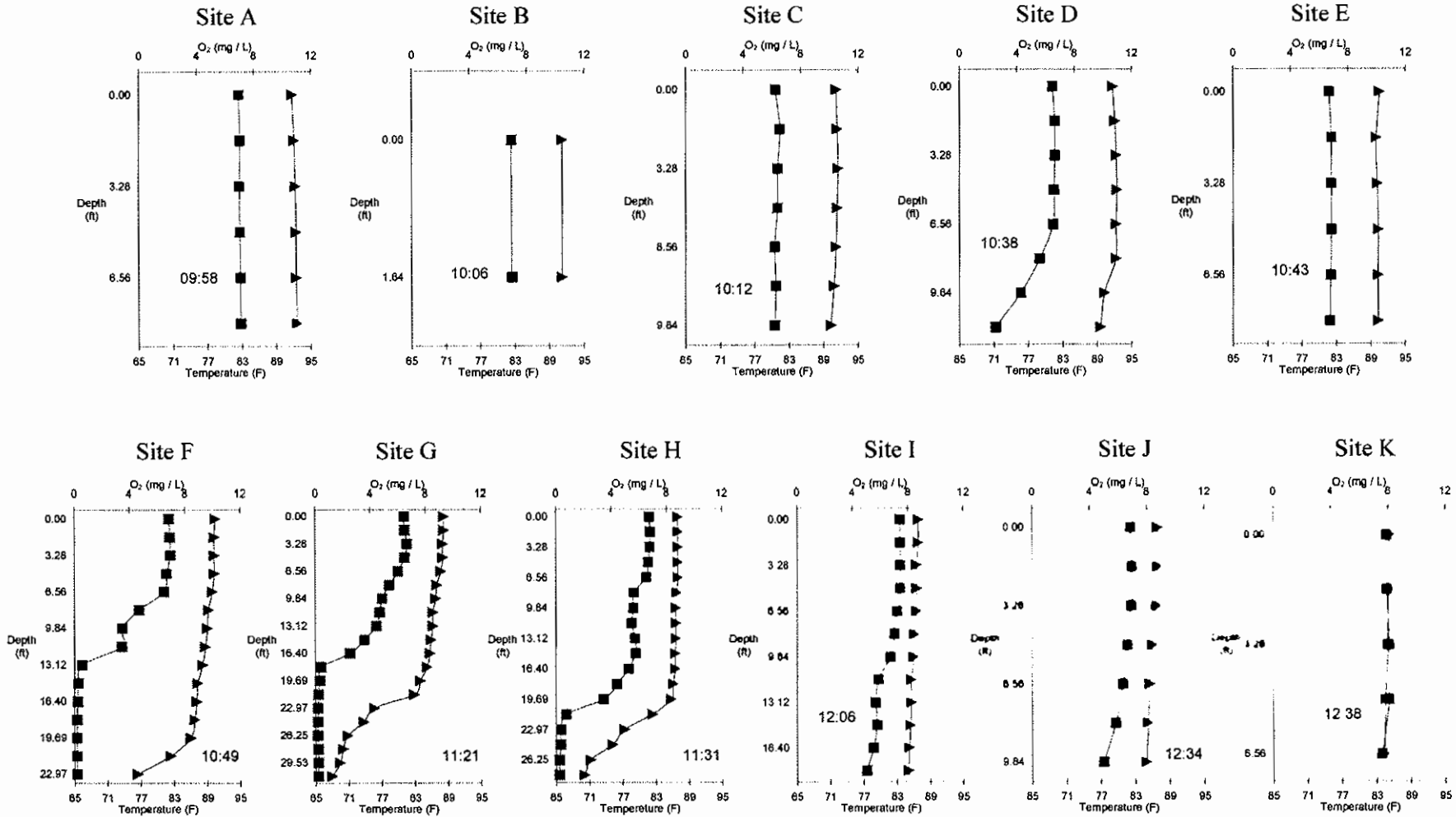


Figure 15A.71. Temperature and dissolved oxygen at Newton Lake, IL, as measured by Ameren CIPS. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 18, 1999

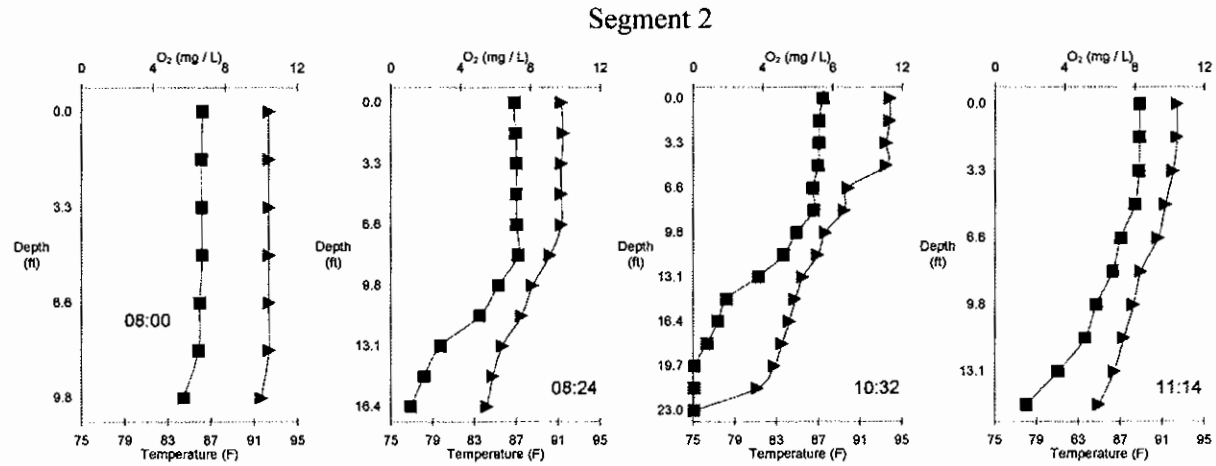


Figure 15A.72. – Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 18, 1999

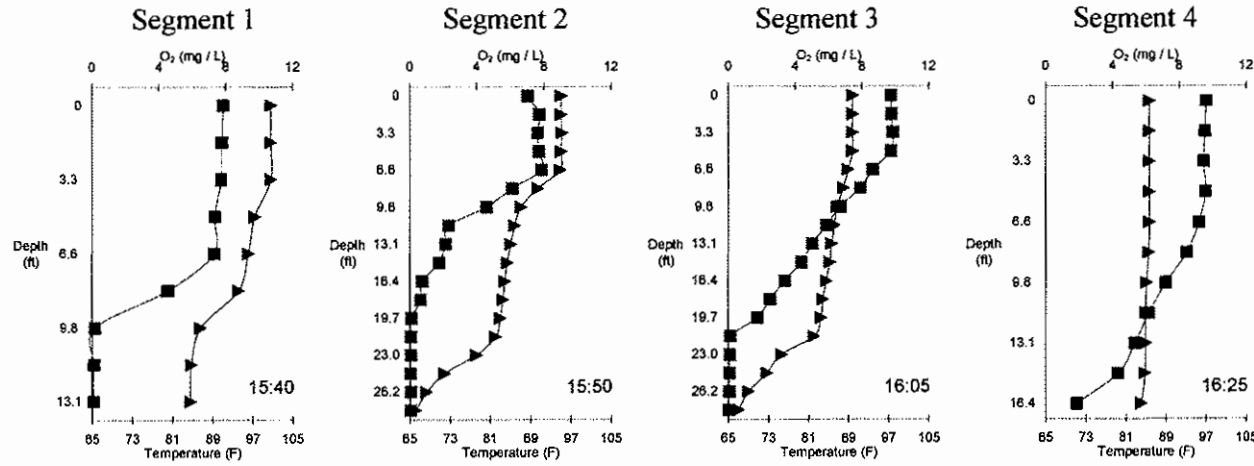


Figure 15A.73. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 24, 1999

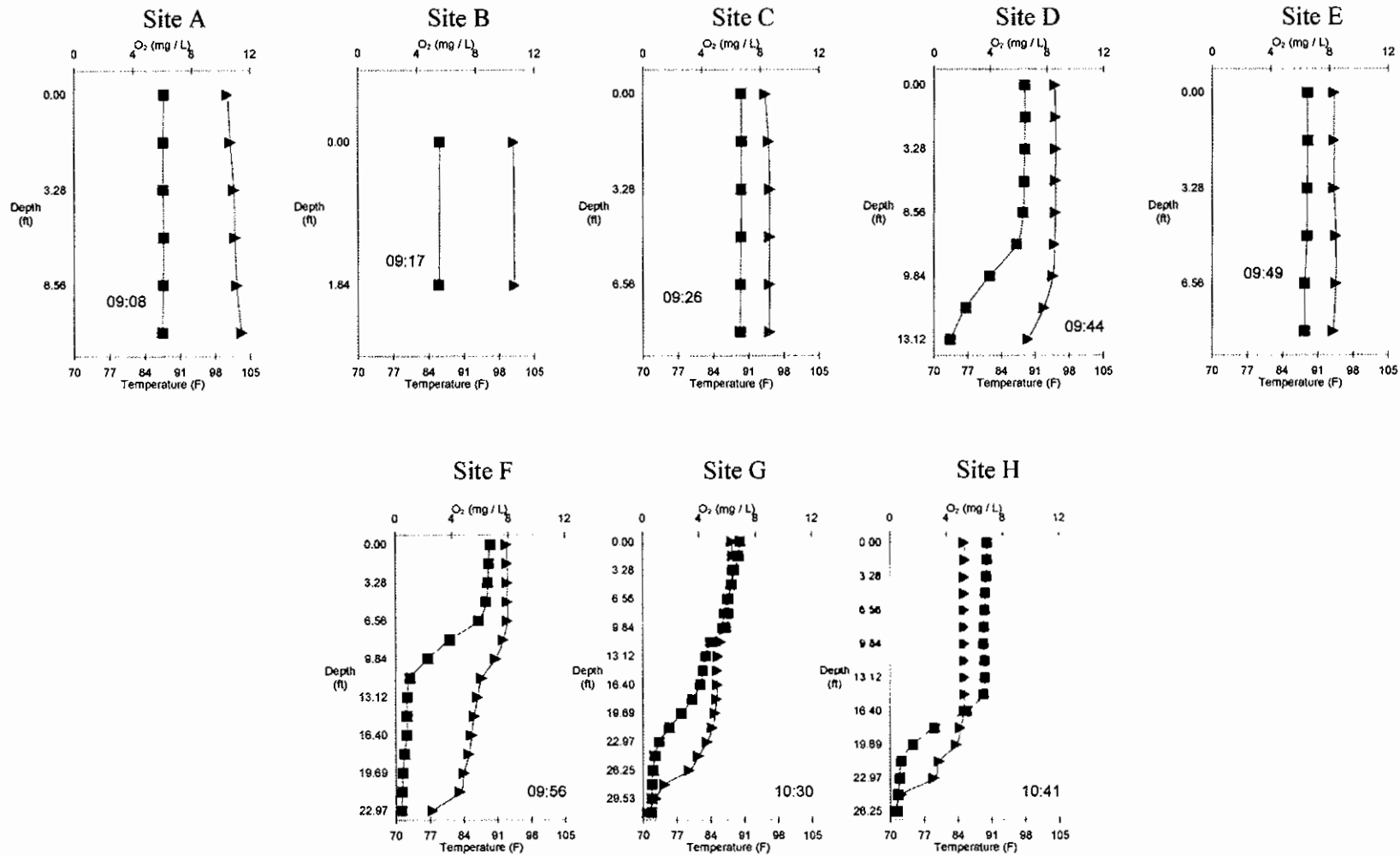


Figure 15A.74. Temperature and dissolved oxygen at Newton Lake, IL, as measured by Ameren CIPS. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 26, 1999

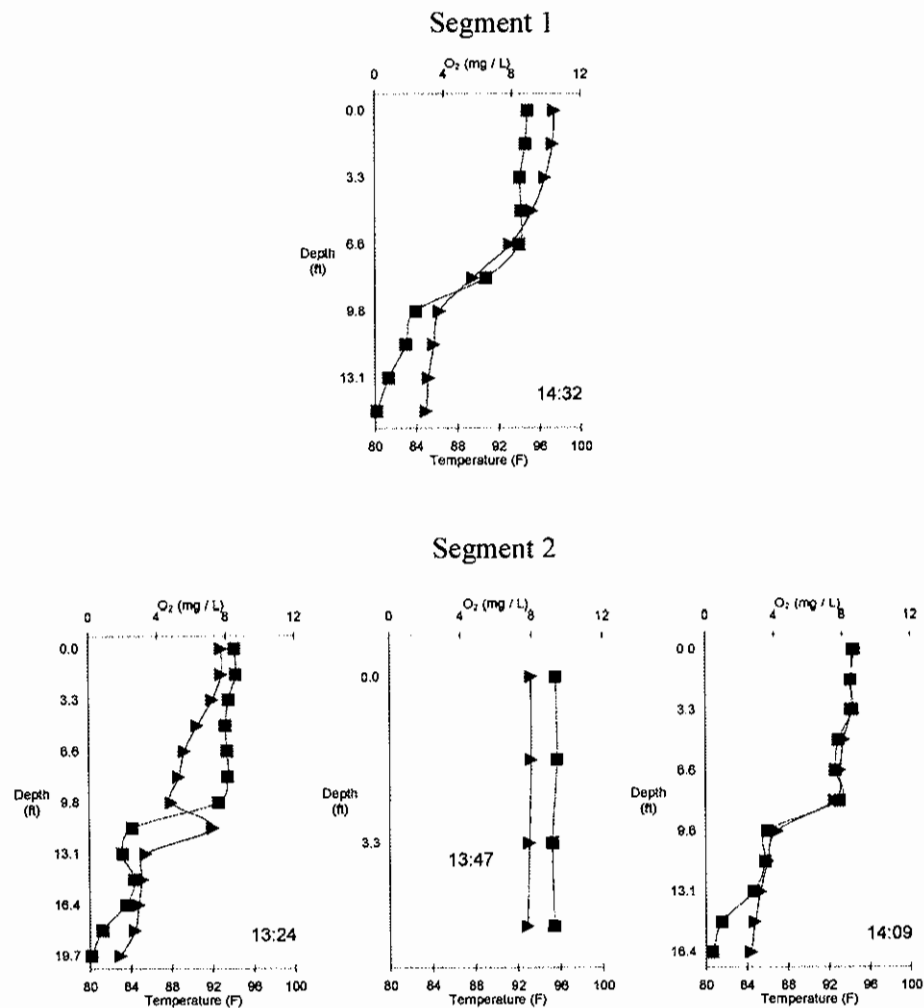


Figure 15A.75. Temperature and dissolved oxygen measured during fish tracking in Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – August 31, 1999

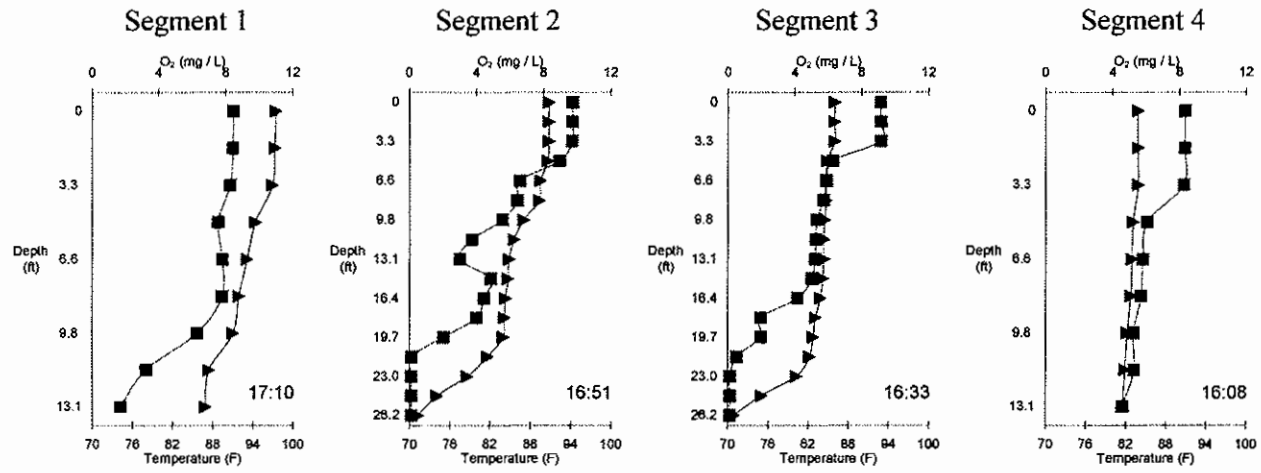


Figure 15A.76. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – September 7, 1999

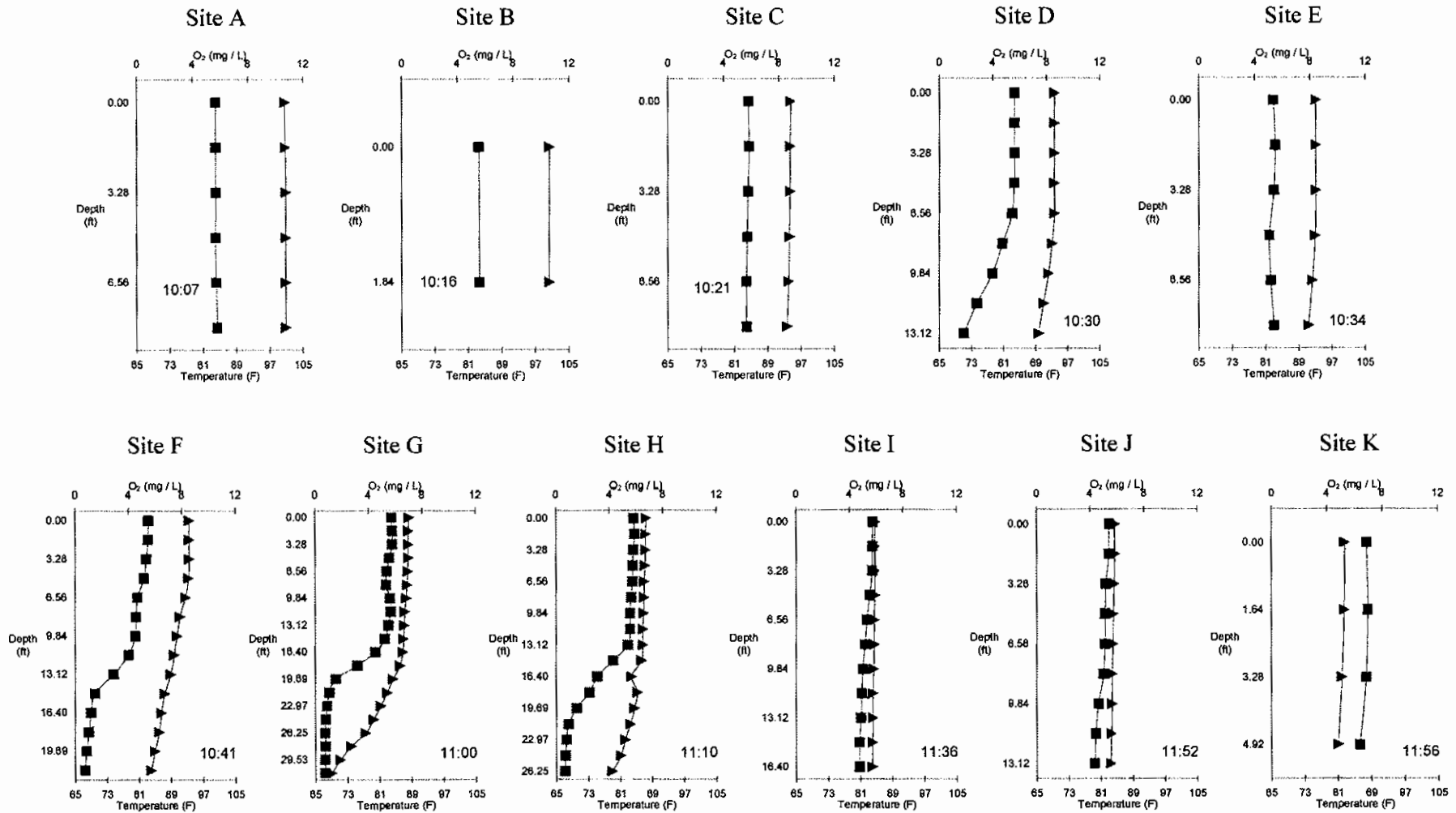
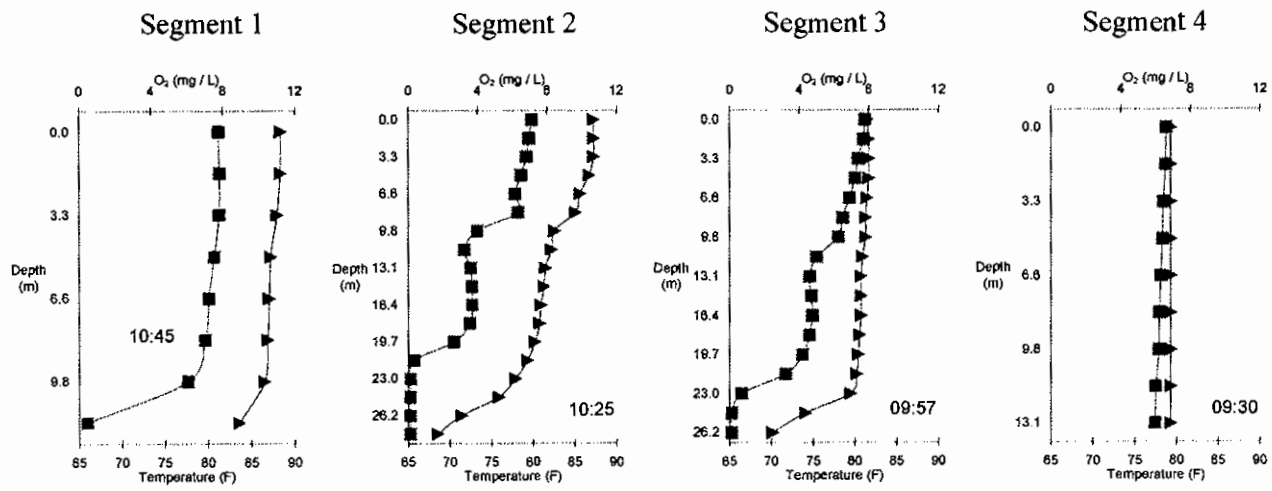


Figure 15A.77. Temperature and dissolved oxygen at Newton Lake, IL, as measured by Ameren CIPS. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake - September 15, 1999



Newton Lake - October 13, 1999

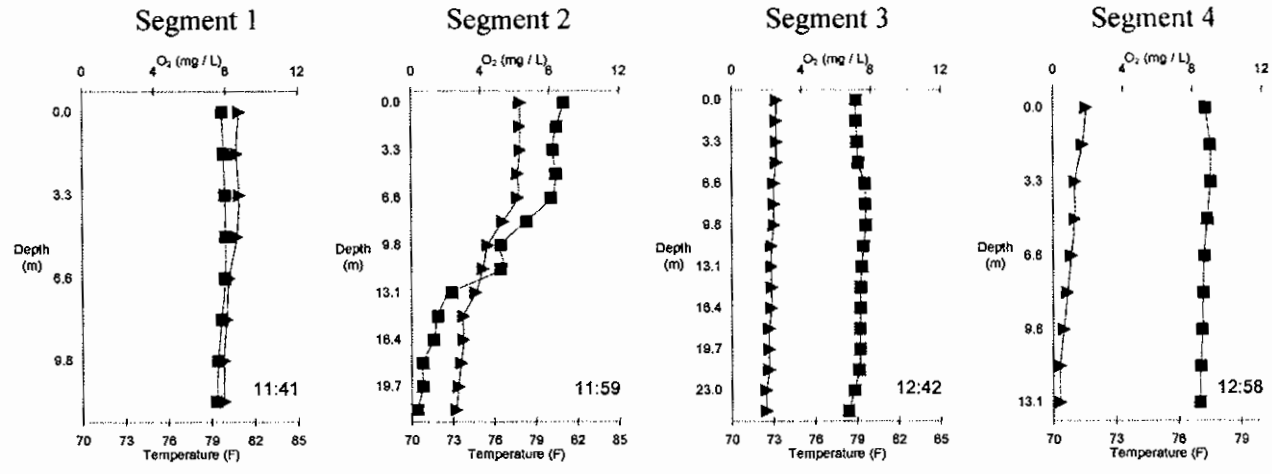
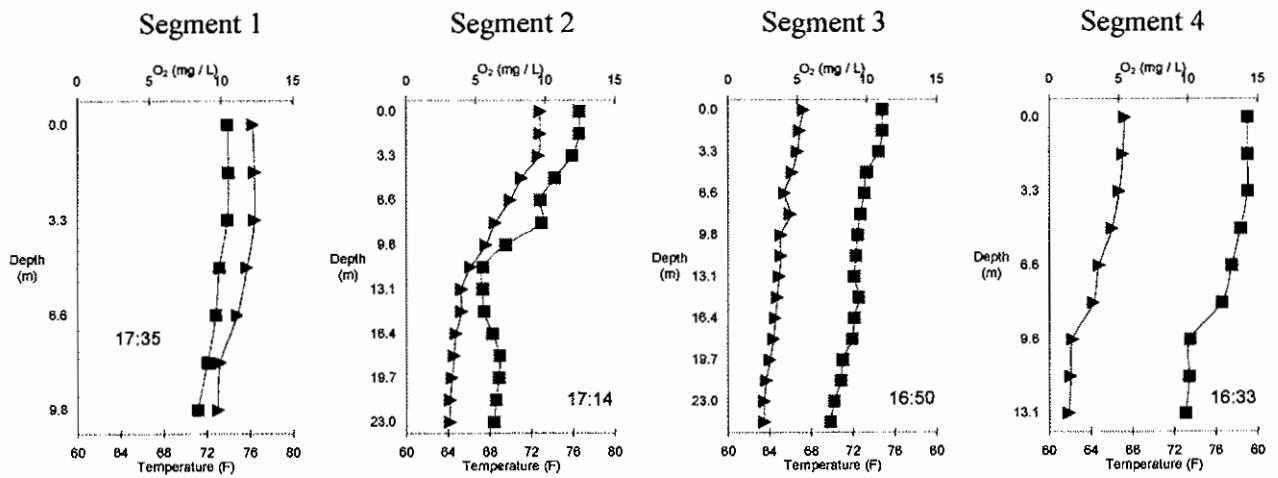


Figure 15A.78. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake - October 28, 1999



Newton Lake - November 10, 1999

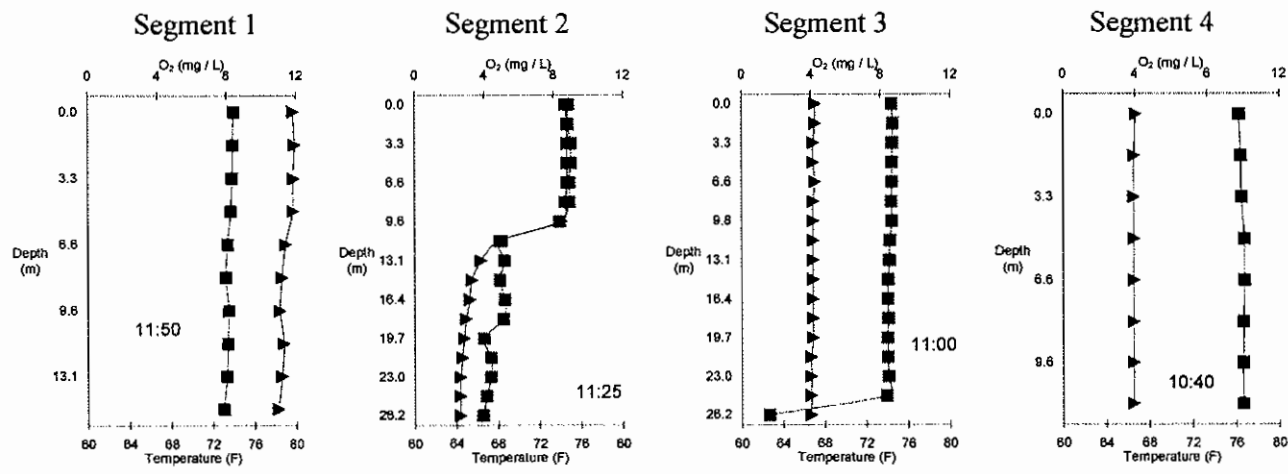
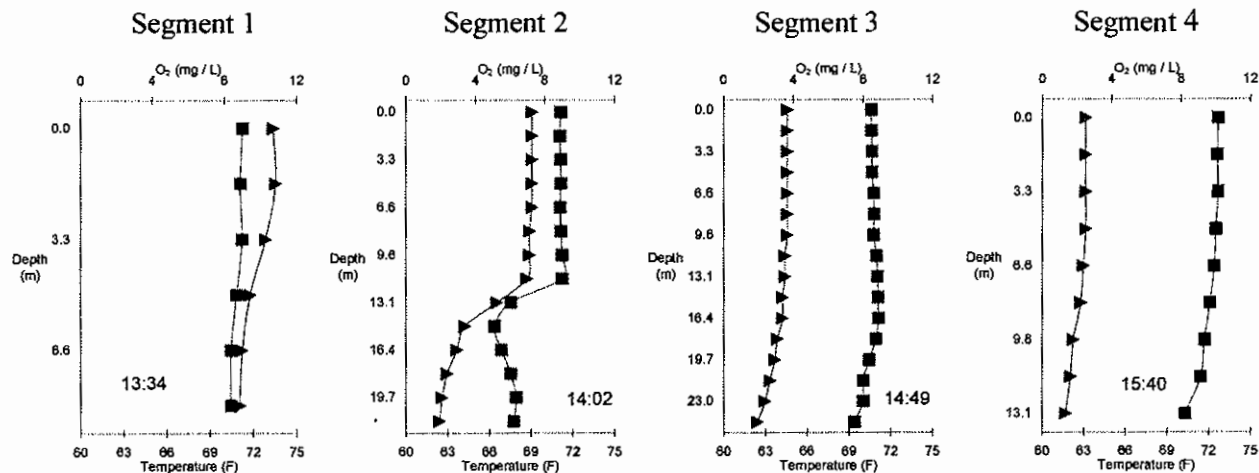


Figure 15A.79. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – November 22, 1999



Newton Lake – December 15, 1999

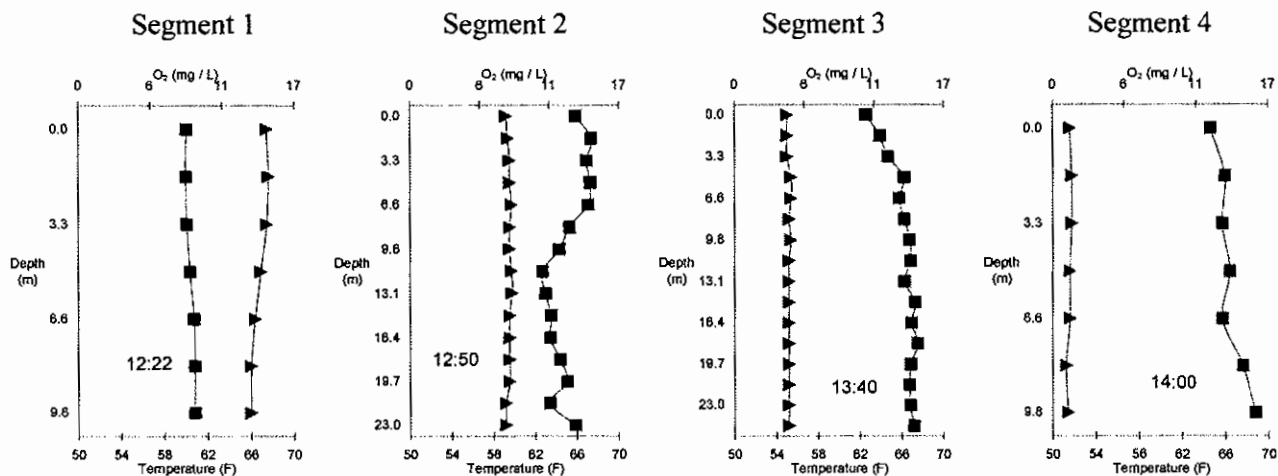
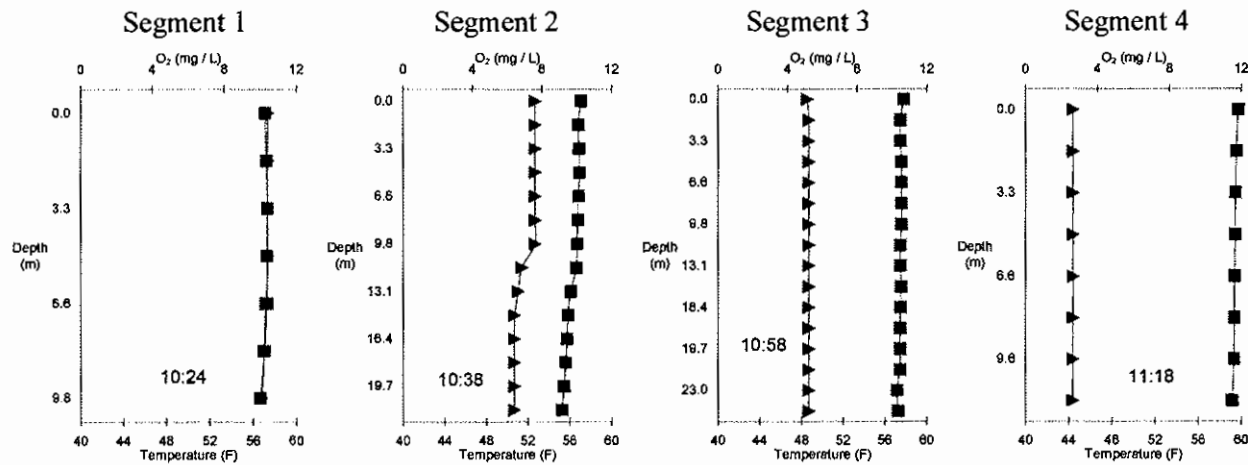


Figure 15A.80. Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake – December 27, 1999



Newton Lake – January 6, 2000

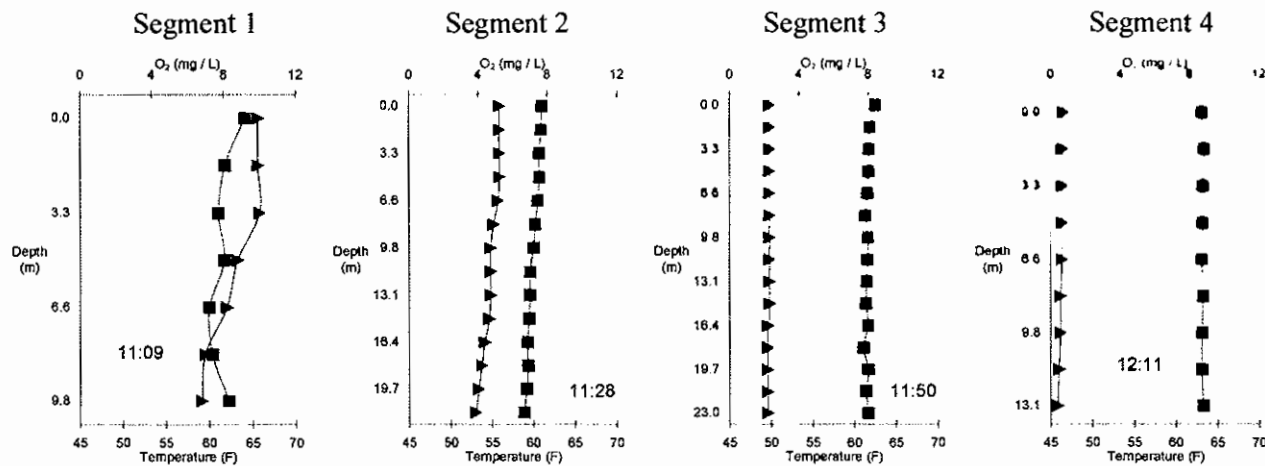
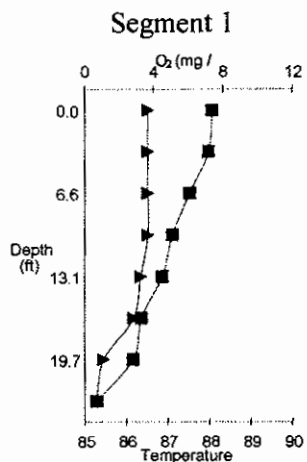
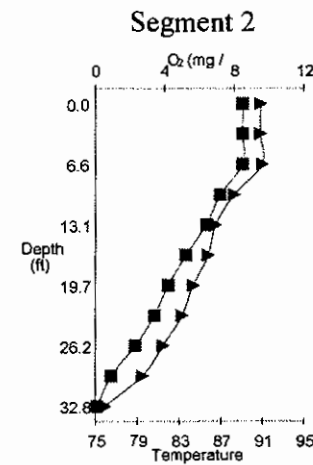
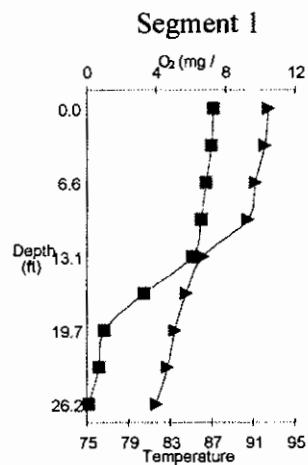


Figure 15A.81. – Temperature and dissolved oxygen by date within 4 segments of Newton Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

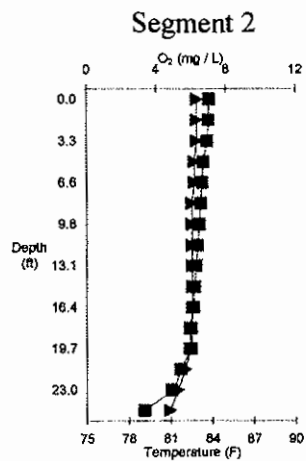
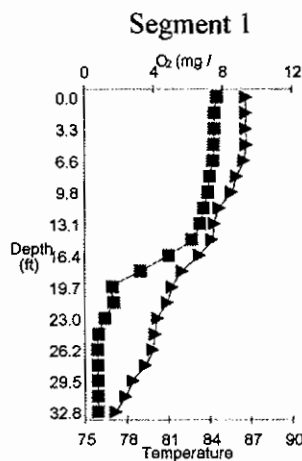
Coffeen Lake – August 15, 1997



Coffeen Lake – August 28, 1997



Coffeen Lake - September 10, 1997



Coffeen Lake - September 24, 1997

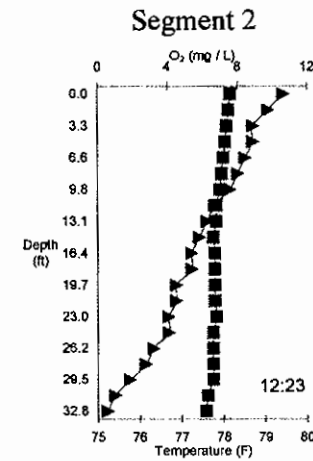
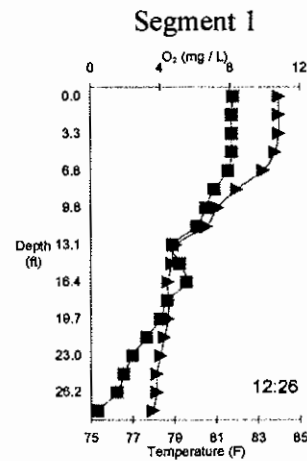
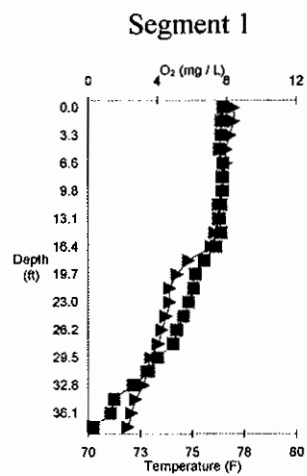
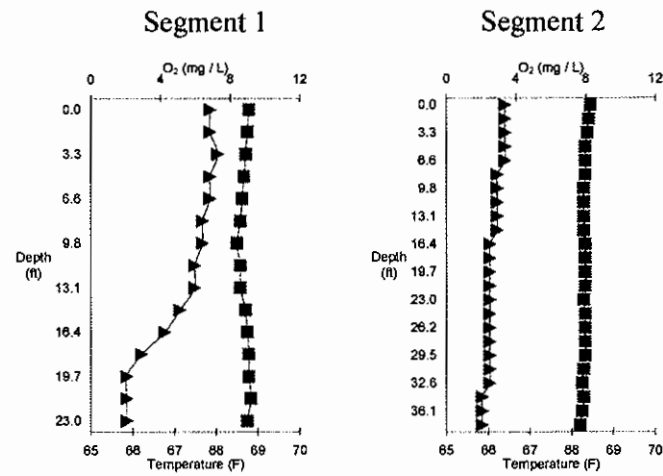


Figure 15A.82. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

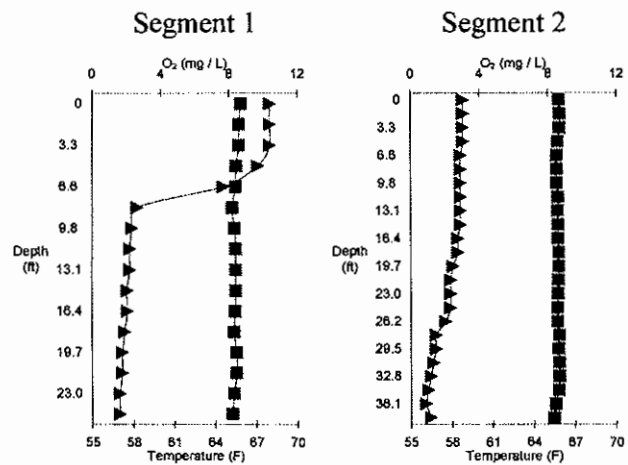
Coffeen Lake – October 10, 1997



Coffeen Lake – October 22, 1997



Coffeen Lake – November 6, 1997



Coffeen Lake – November 19, 1997

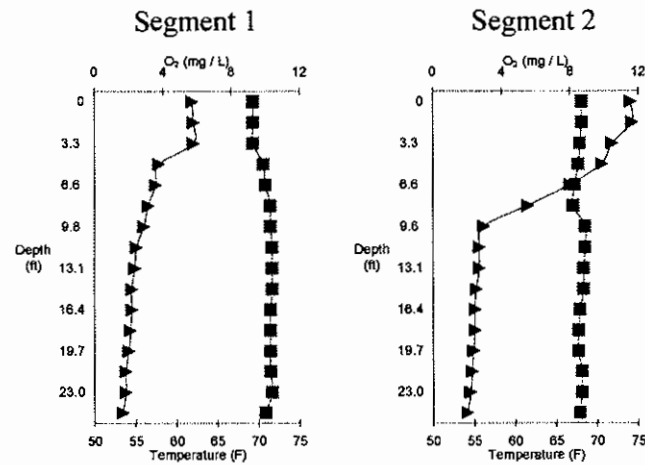
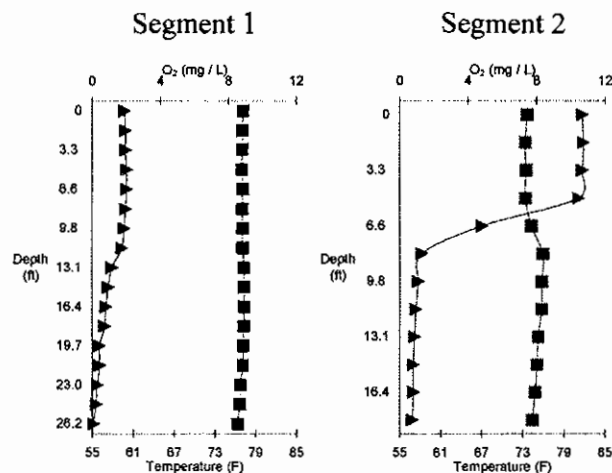
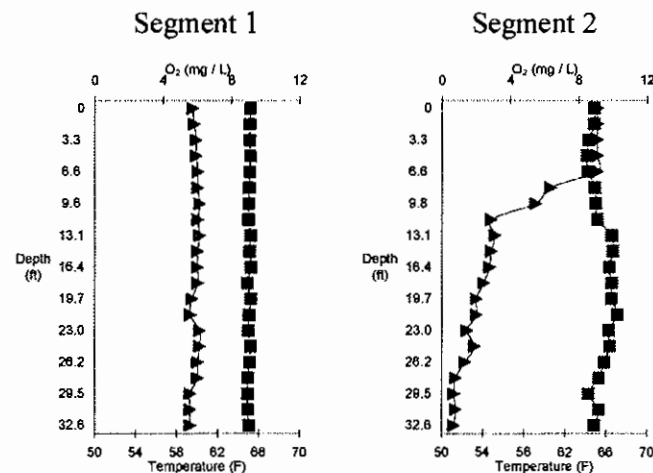


Figure 15A.83. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

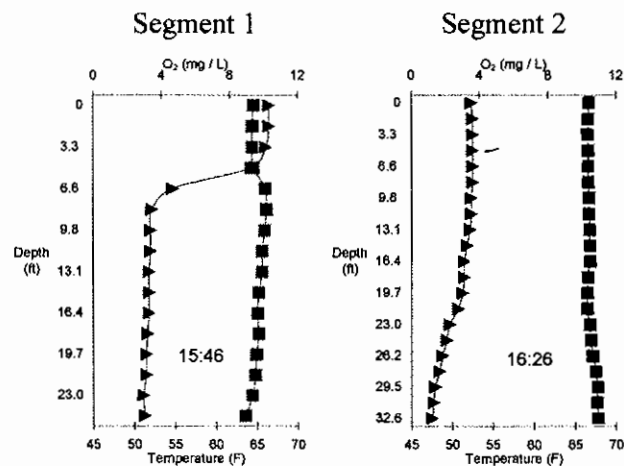
Coffeen Lake – December 3, 1997



Coffeen Lake – January 7, 1998



Coffeen Lake – February 6, 1998



Coffeen Lake – April 9, 1998

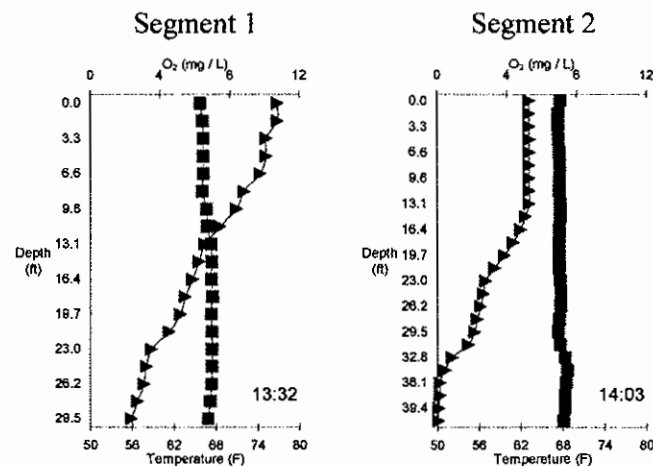
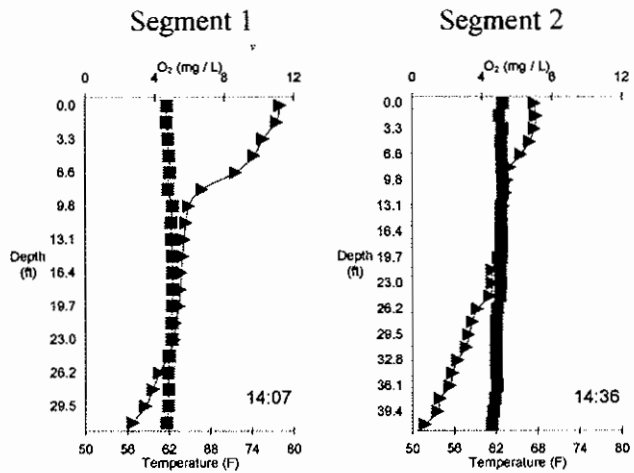
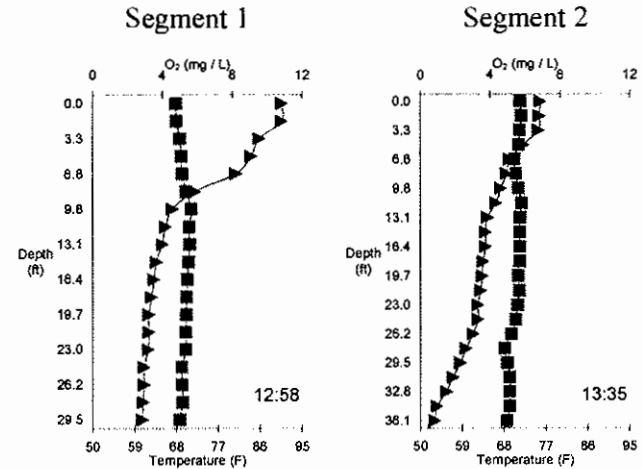


Figure 15A.84. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

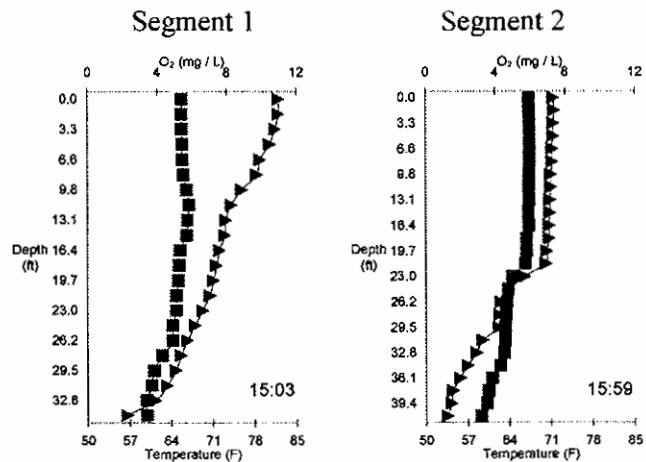
Coffeen Lake – April 17, 1998



Coffeen Lake – April 24, 1998



Coffeen Lake – May 8, 1998



Coffeen Lake – May 15, 1998

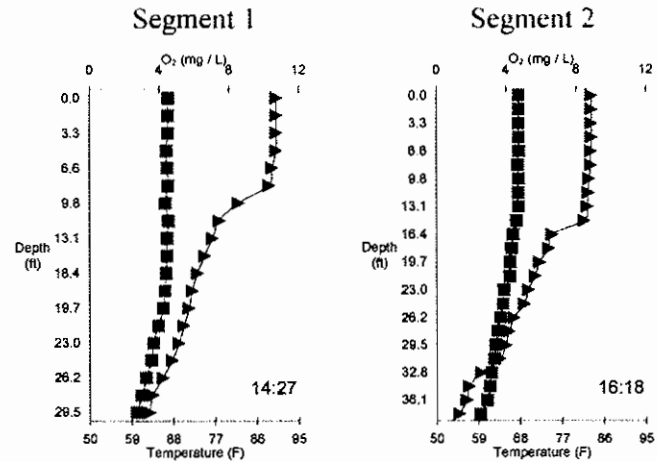


Figure 15A.85. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – May 29, 1998

Coffeen Lake – June 5, 1998

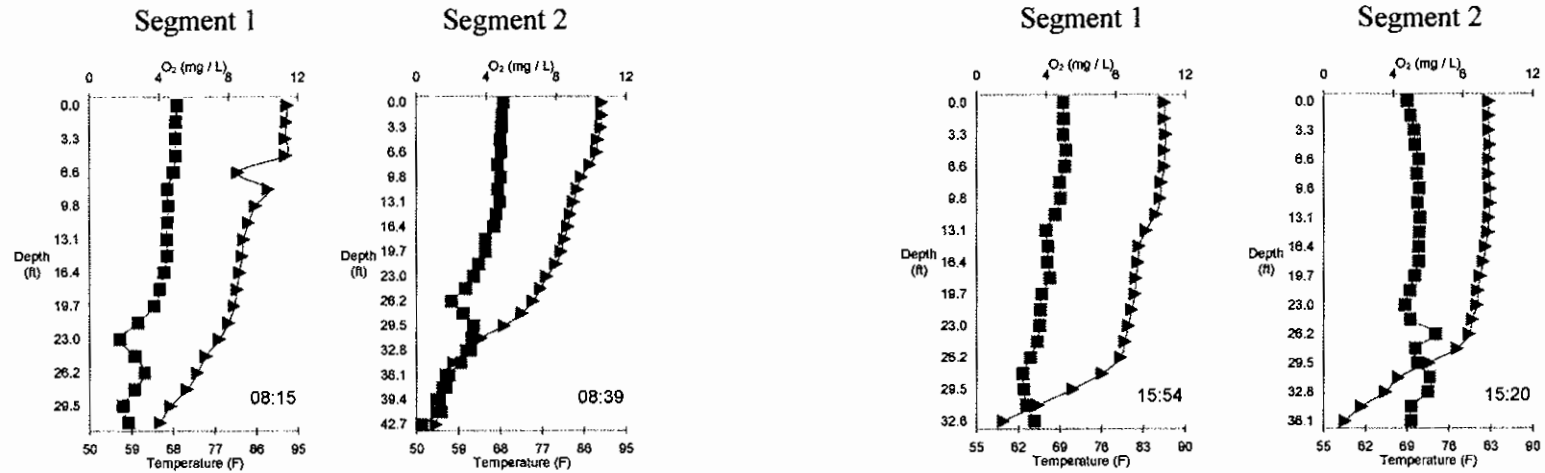


Figure 15A.86. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg/l). Time of measurement is indicated on each graph.

Coffeen Lake – June 5, 1998

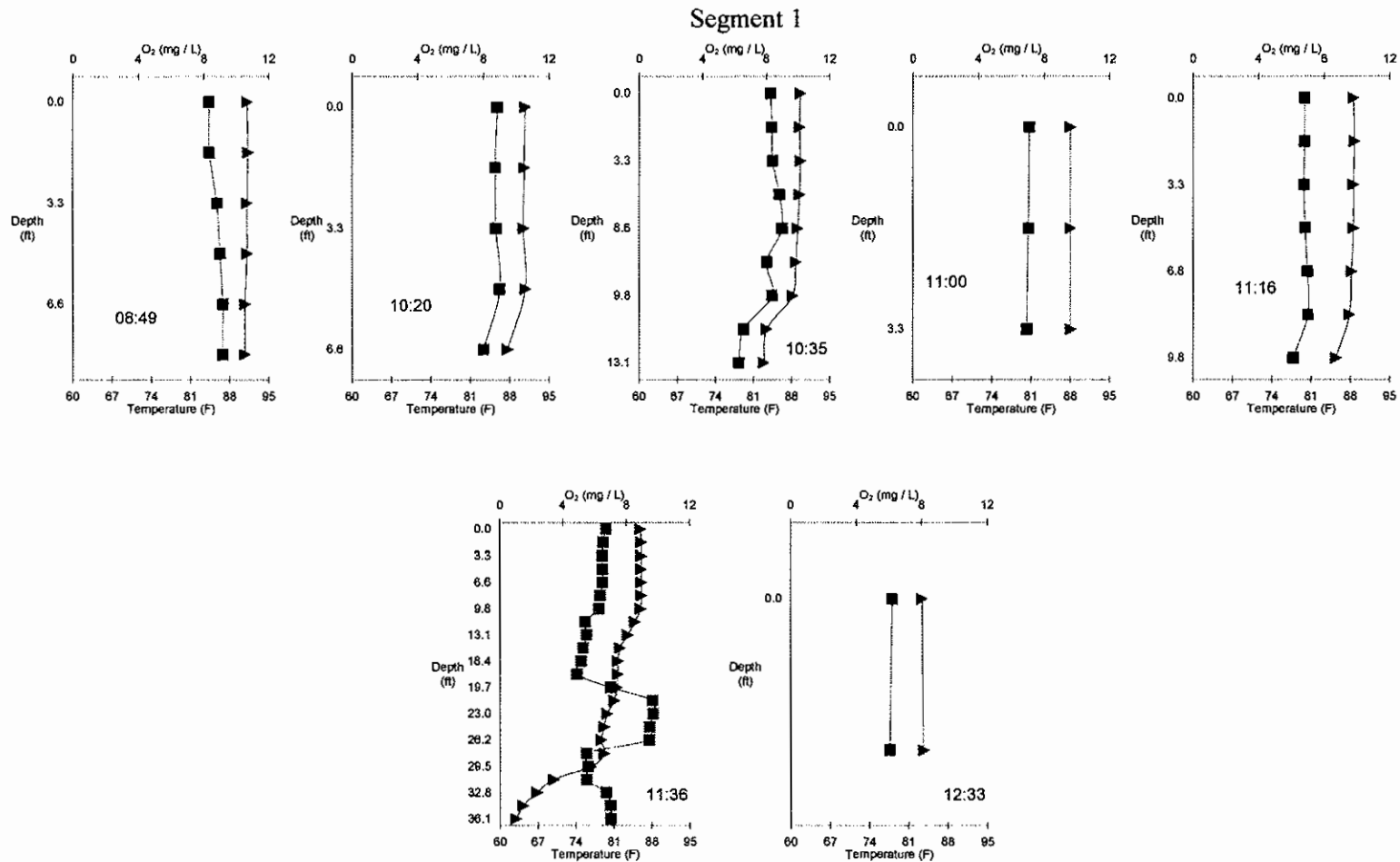


Figure 15A.87. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – June 11, 1998

Segment 1

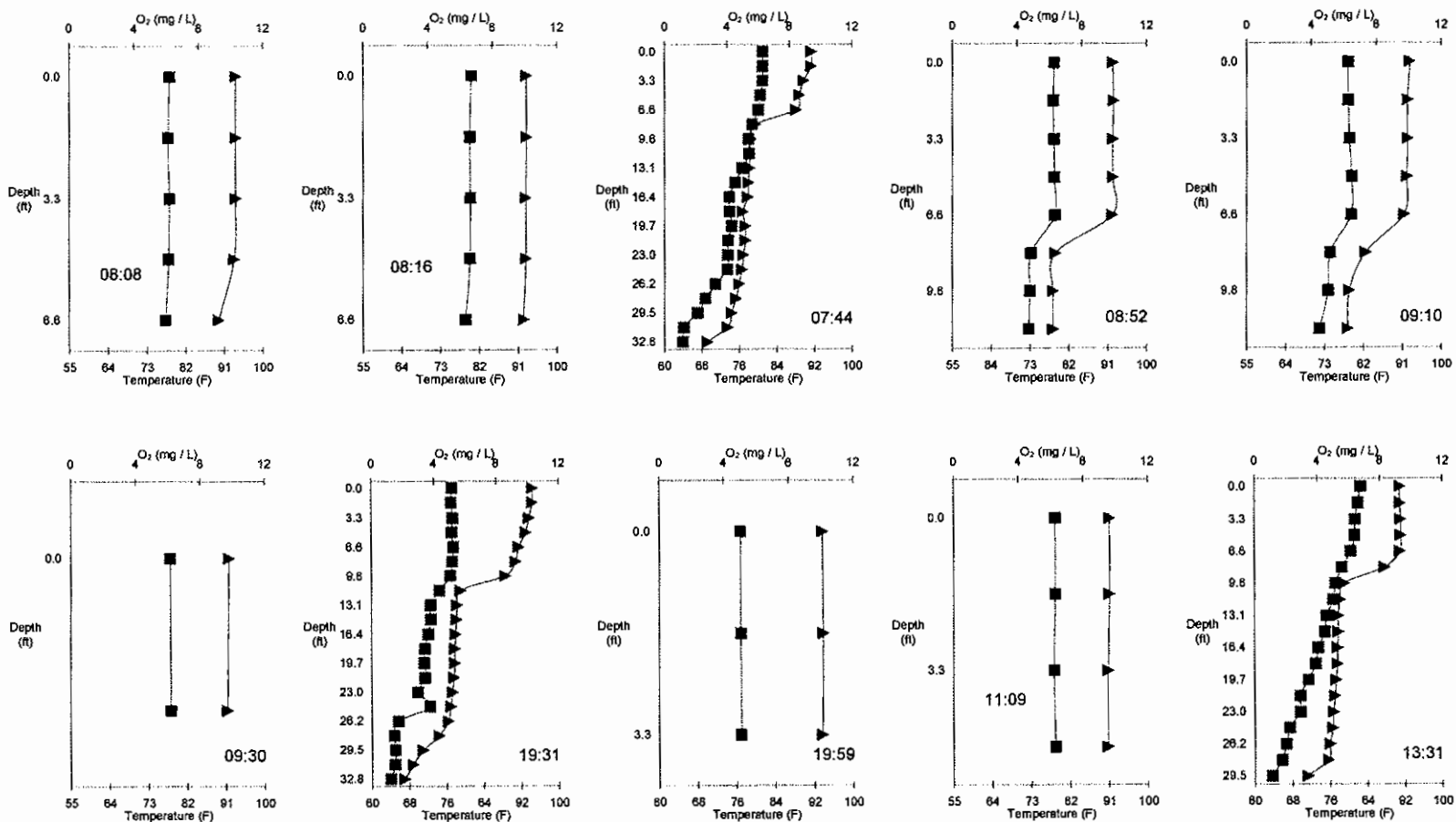


Figure 15A.88. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – June 11, 1998

Segment 1

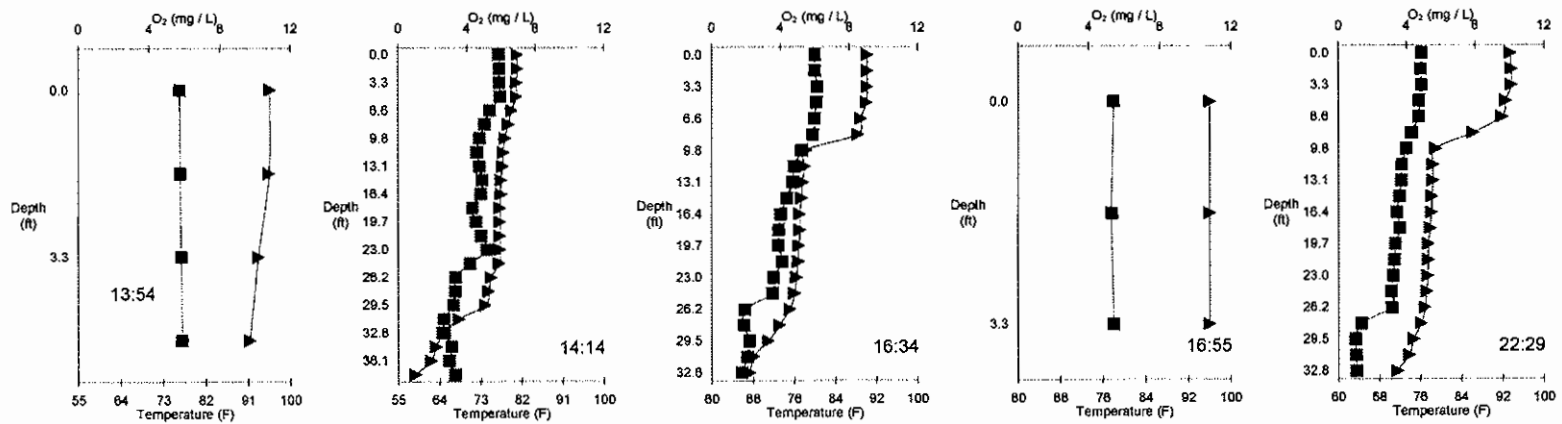


Figure 15A.89. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – June 12, 1998

Segment 1

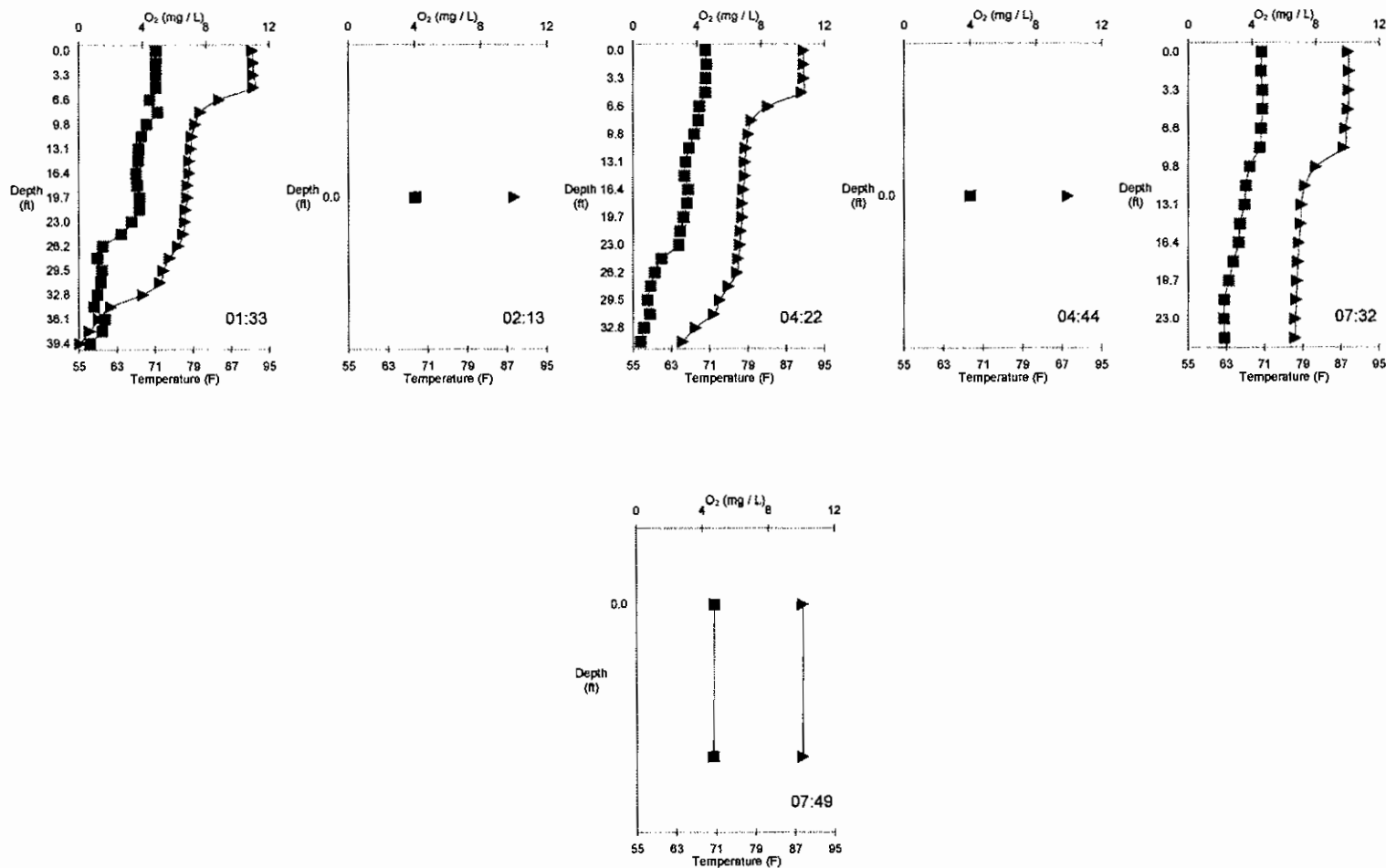


Figure 15A.90. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – June 16, 1998

Segment 1

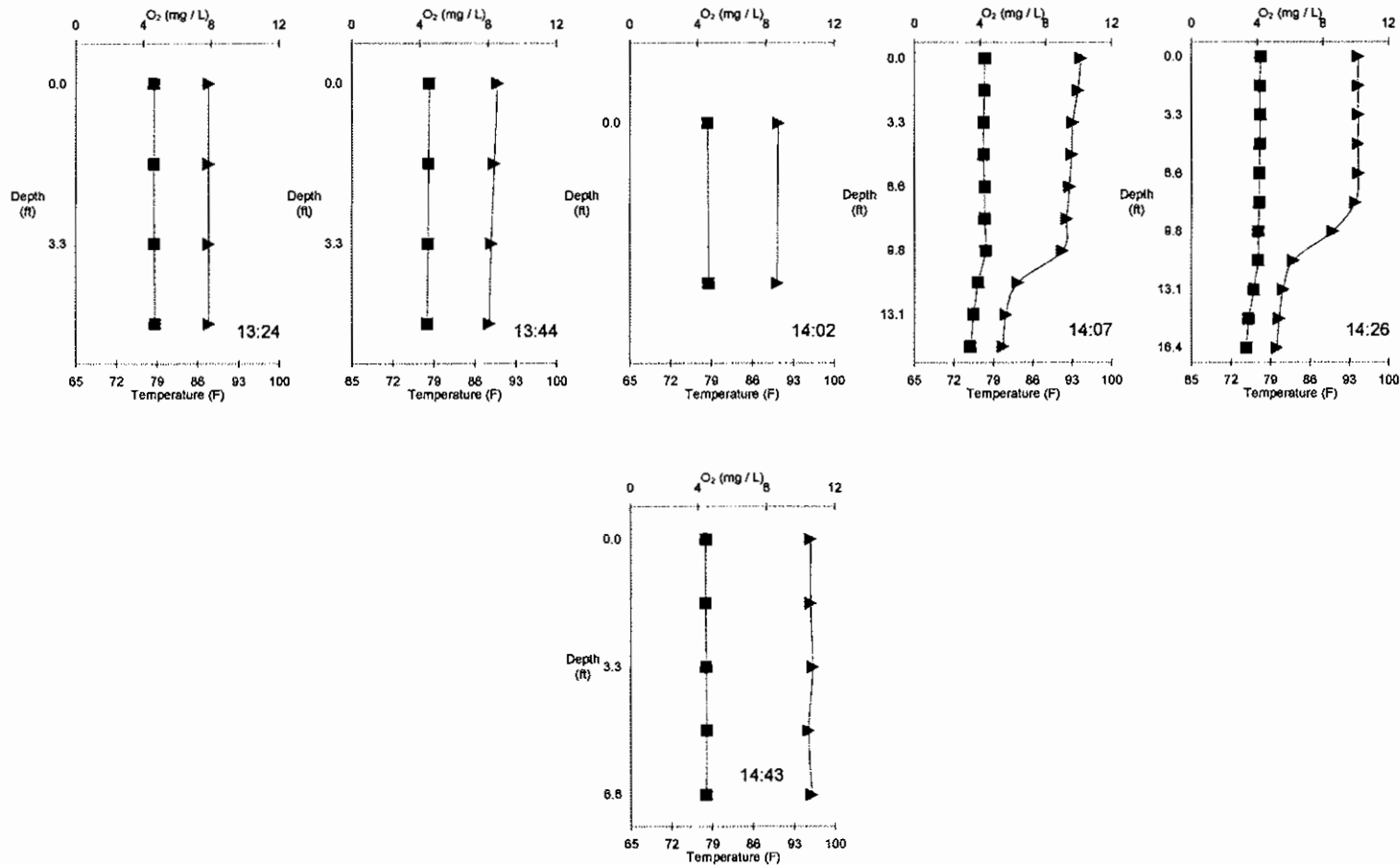


Figure 15A.91. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – June 16, 1998

Coffeen Lake – June 26, 1998

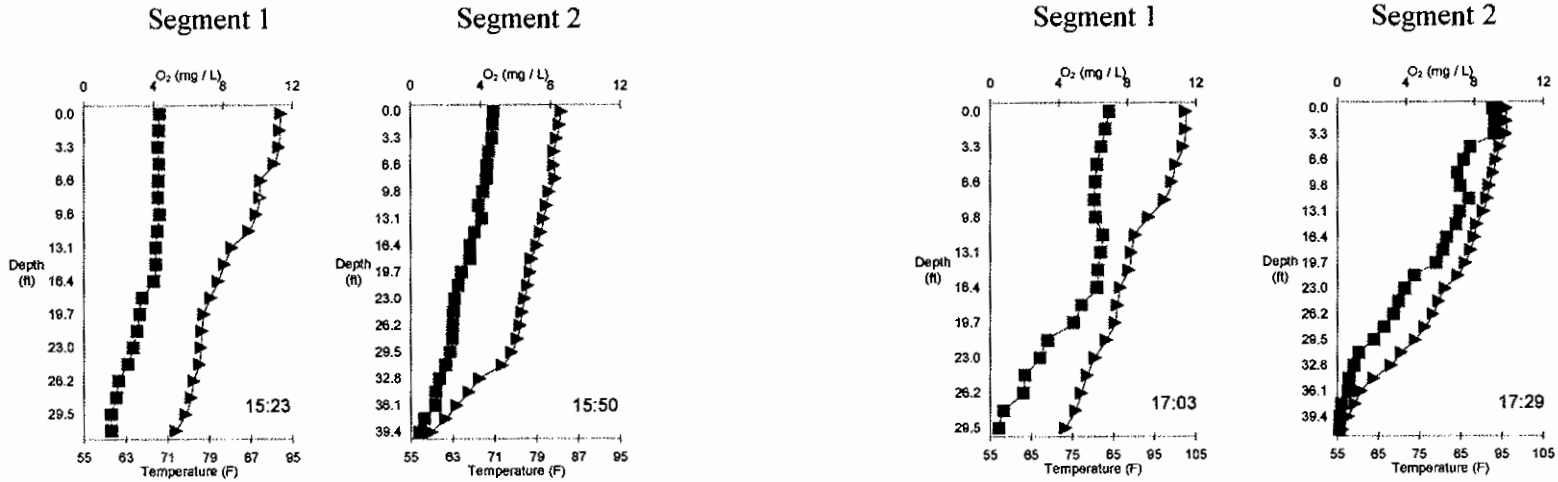
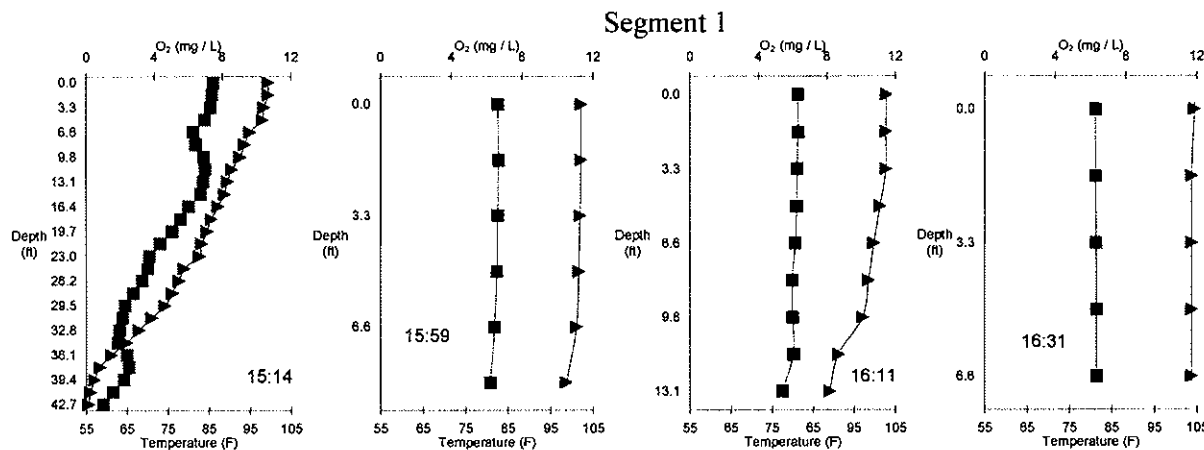


Figure 15A.92. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – June 26, 1998



Coffeen Lake – July 3, 1998

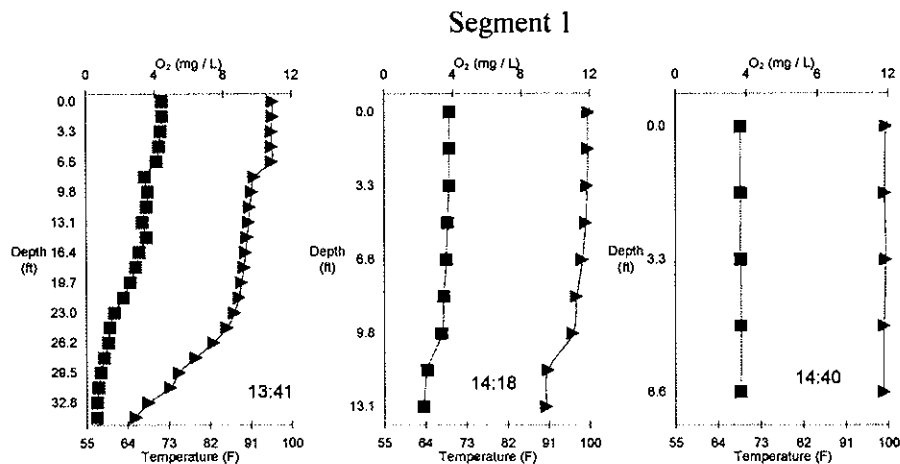


Figure 15A.93. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – July 3, 1998

Coffeen Lake – July 10, 1998

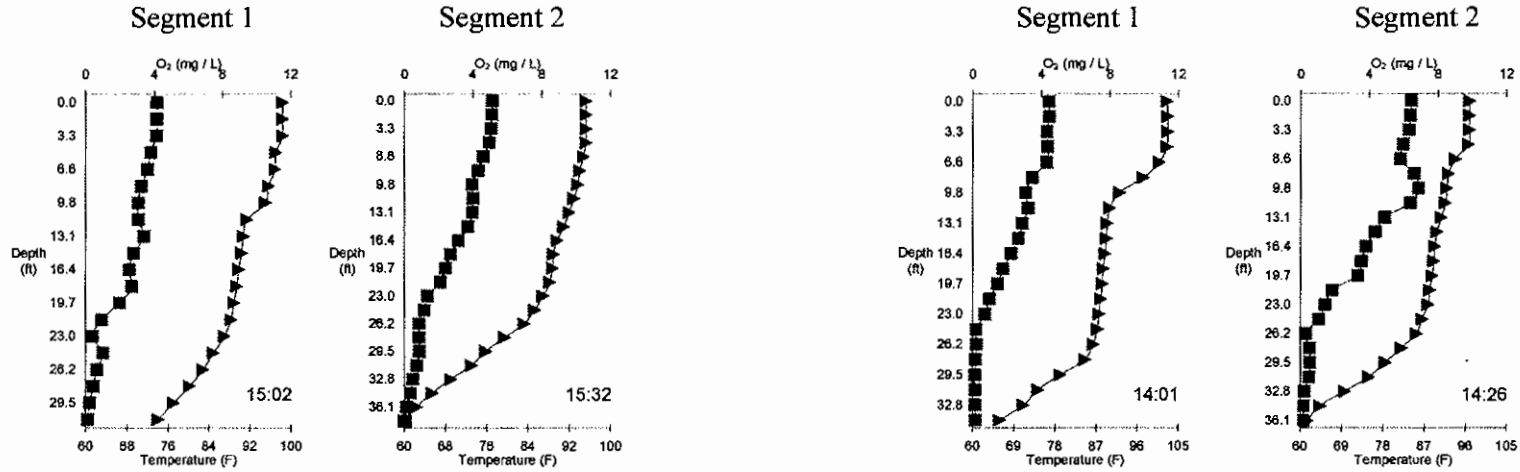
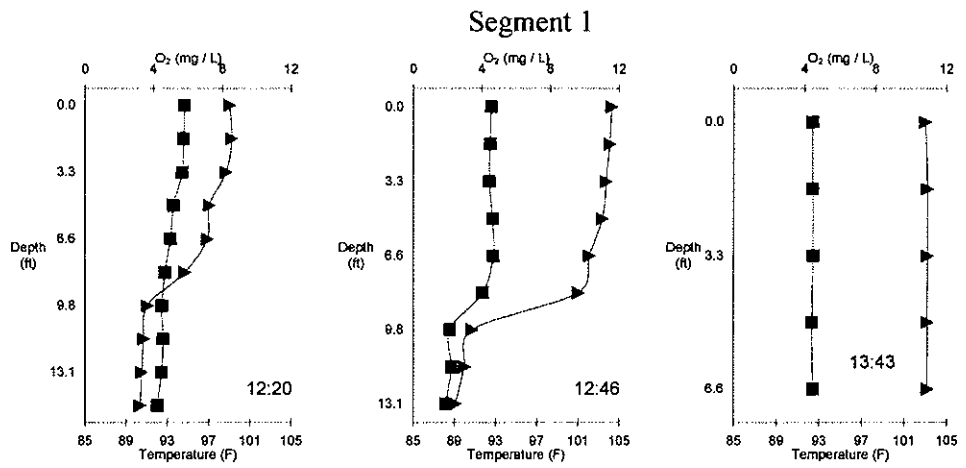


Figure 15A.94. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – July 10, 1998



Coffeen Lake – July 14, 1998

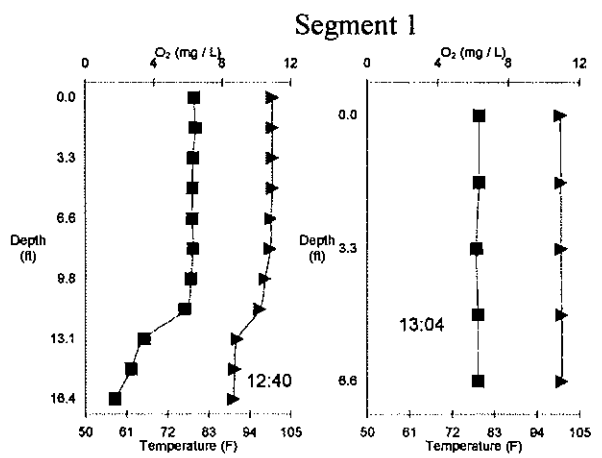


Figure 15A.95. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – July 14, 1998

Coffeen Lake – July 24, 1998

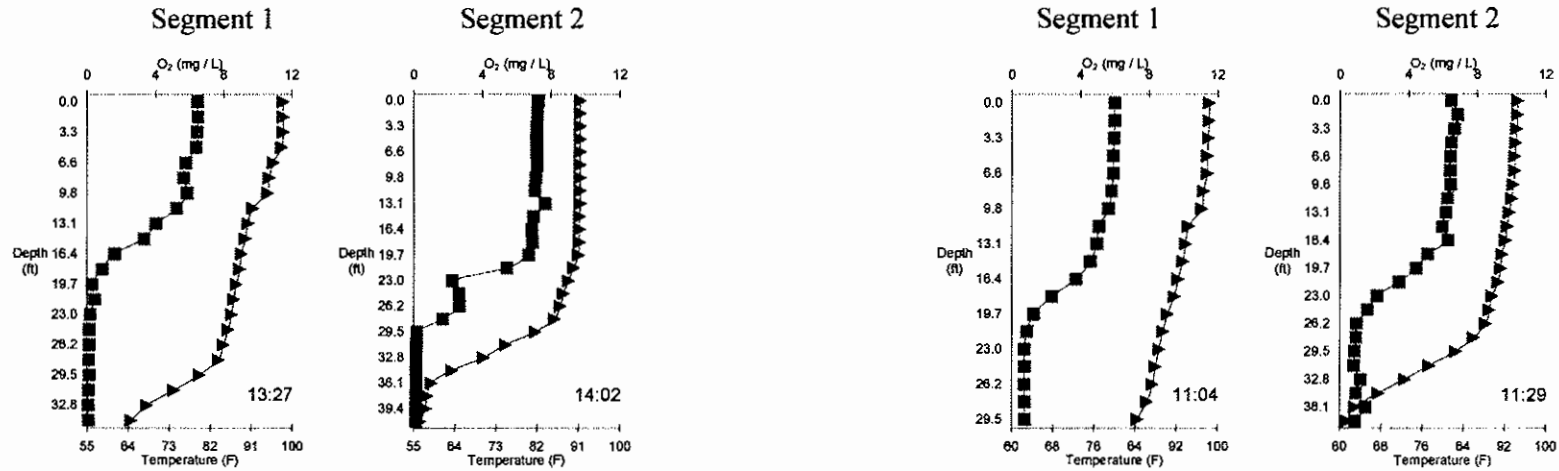
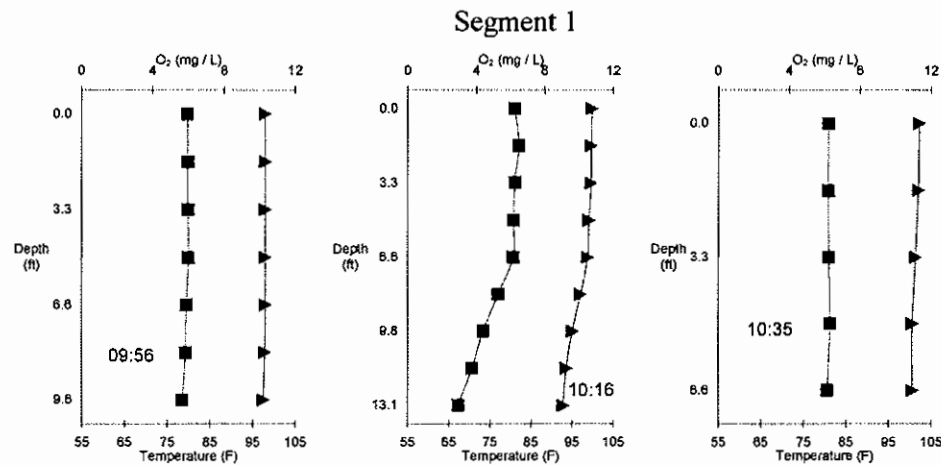


Figure 15A.96. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – July 24, 1998



Coffeen Lake – July 31, 1998

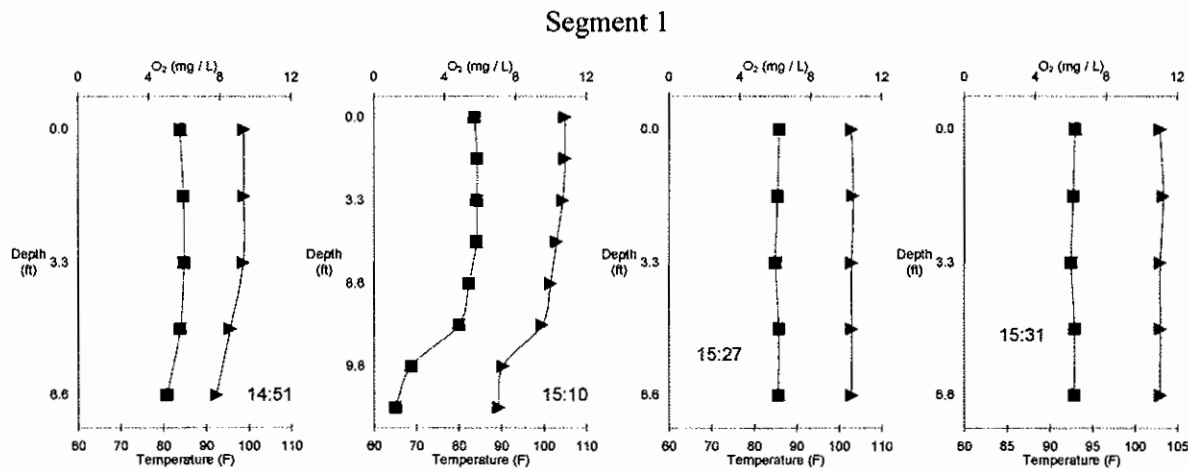


Figure 15A.97. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – July 31, 1998

Coffeen Lake – August 8, 1998

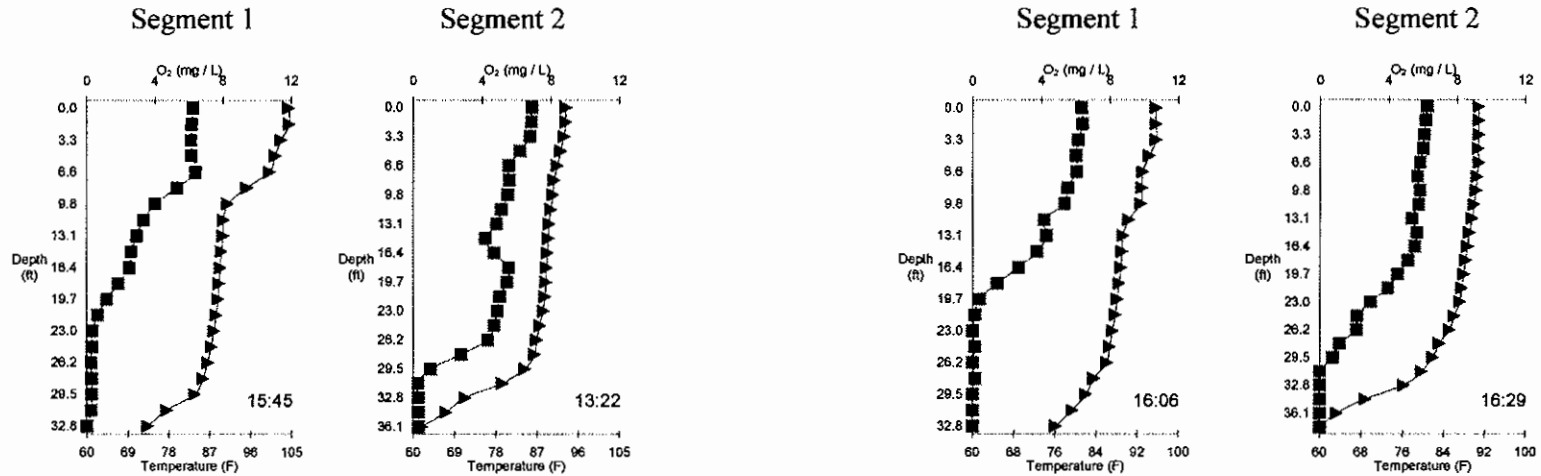
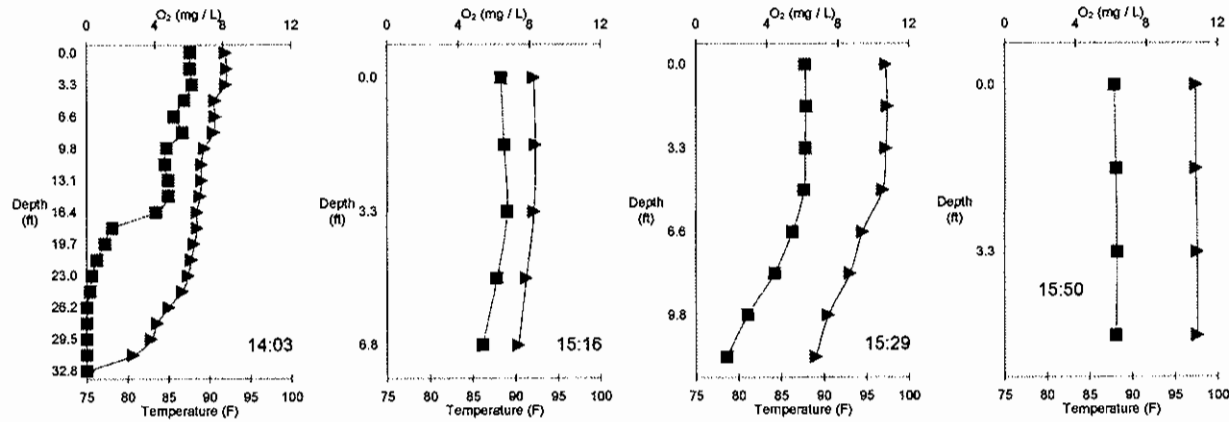


Figure 15A.98. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – August 8, 1998

Segment 1



Coffeen Lake – August 13, 1998

Segment 1

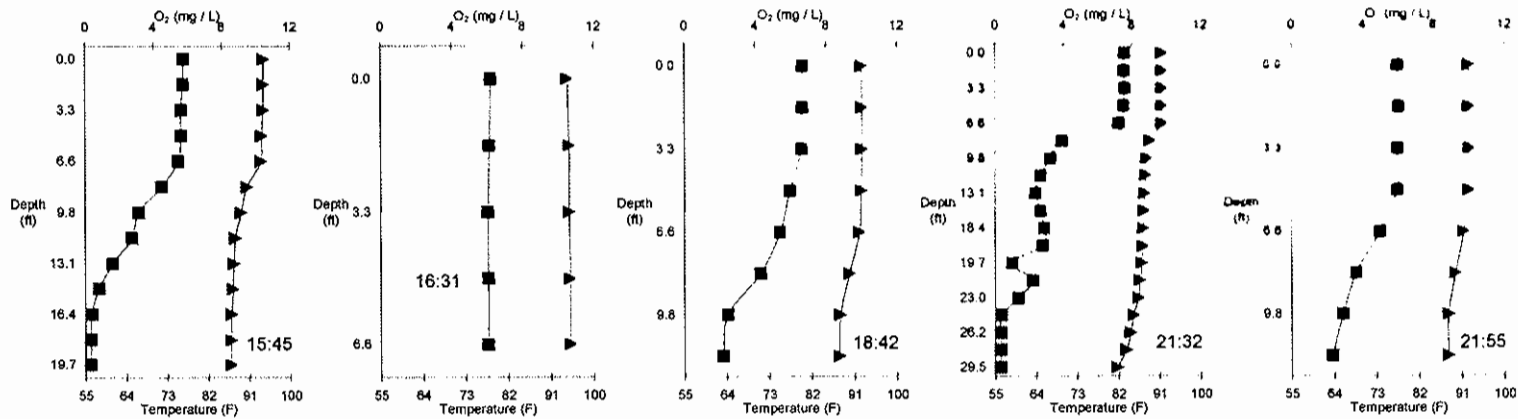


Figure 15A.99. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – August 13, 1998

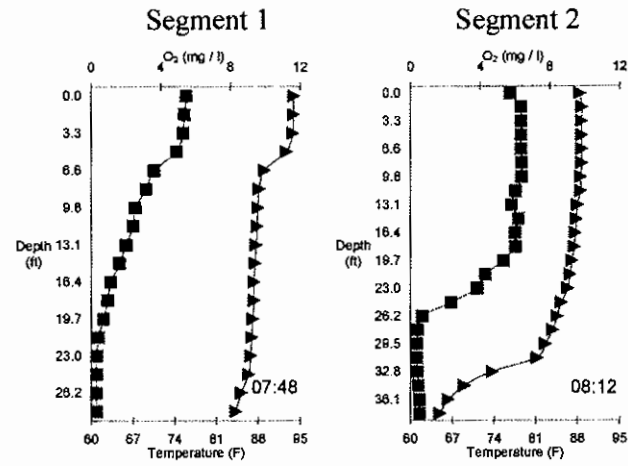


Figure 15A.100. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – August 14, 1998

Segment 1

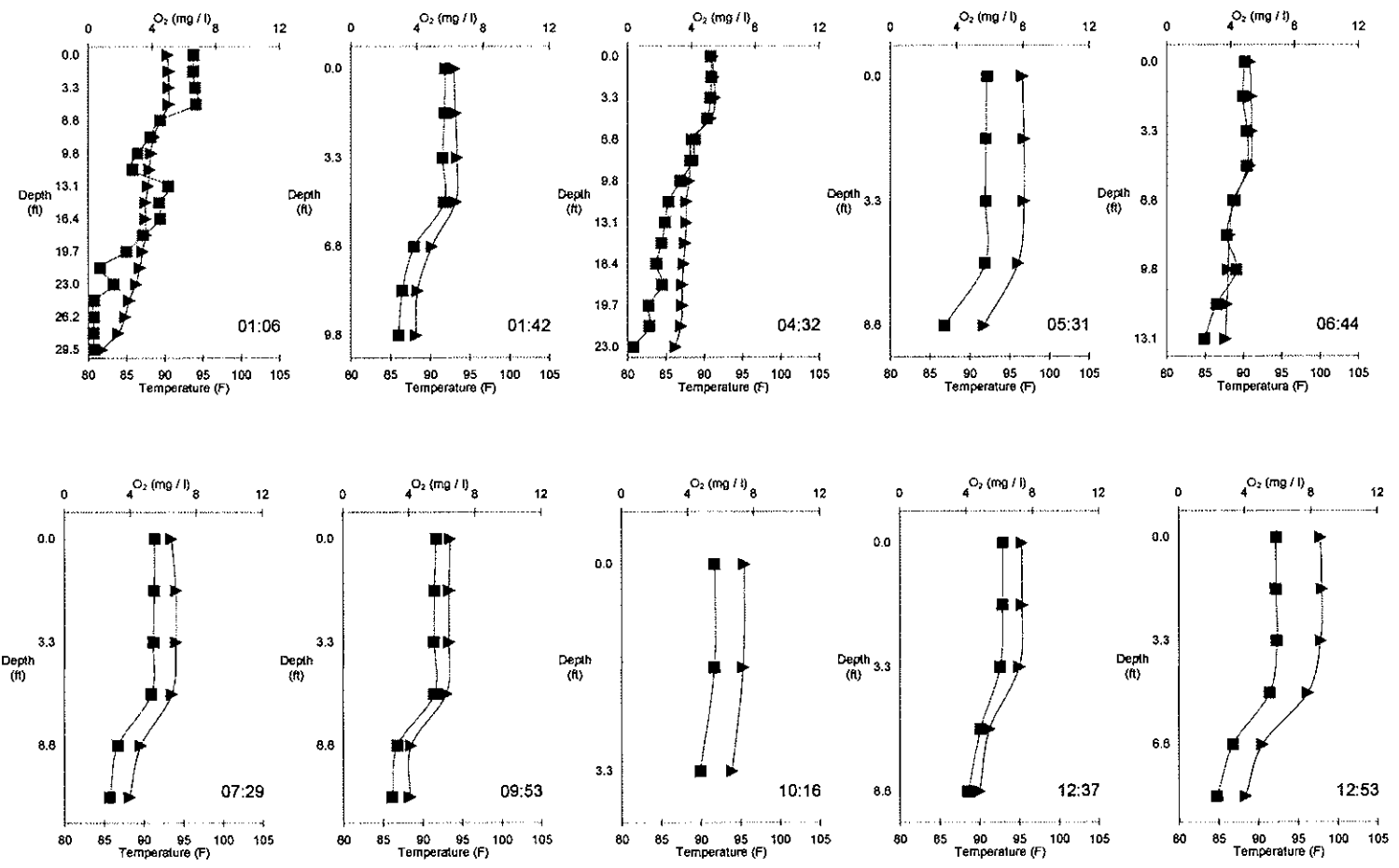
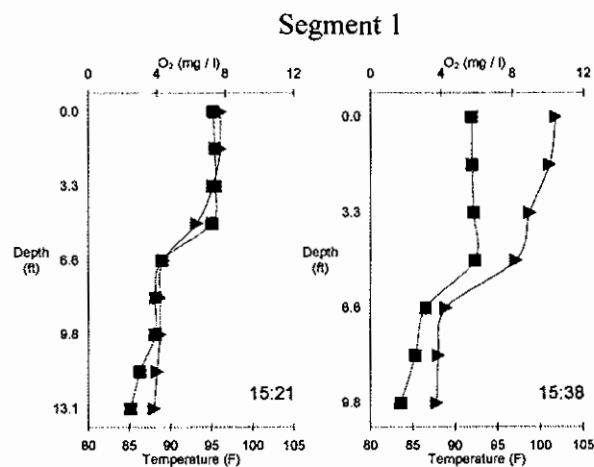


Figure 15A.101. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – August 14, 1998



Coffeen Lake – August 19, 1998

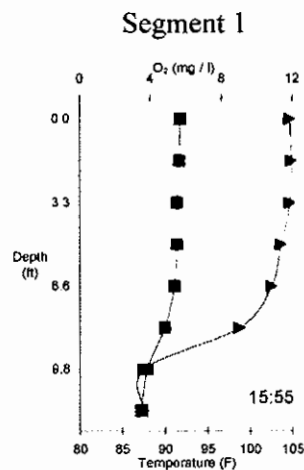


Figure 15A.102. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake –August 20, 1998

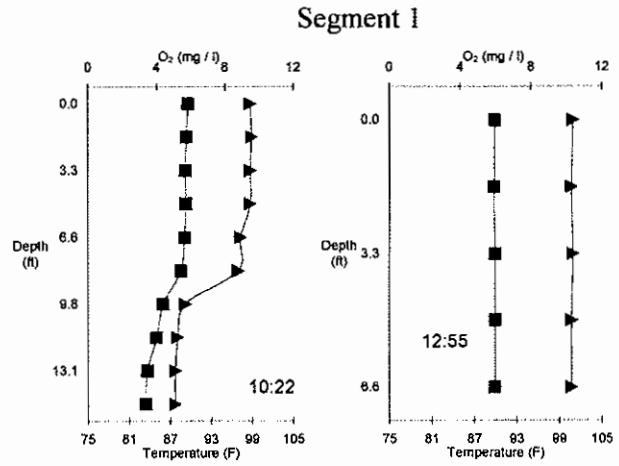


Figure 15A.103. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – August 20, 1998

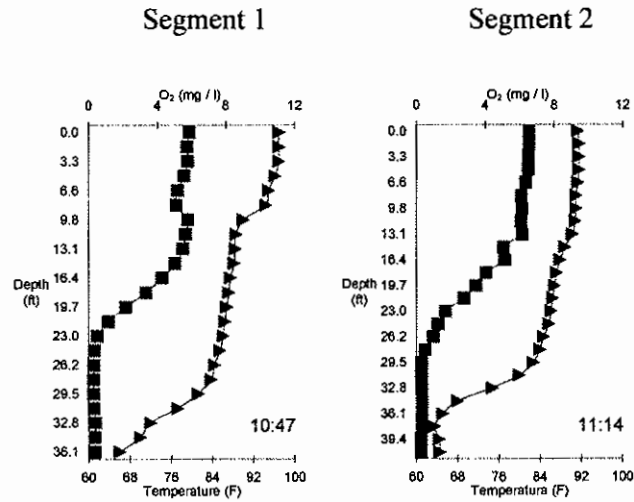


Figure 15A.104. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – August 28, 1998

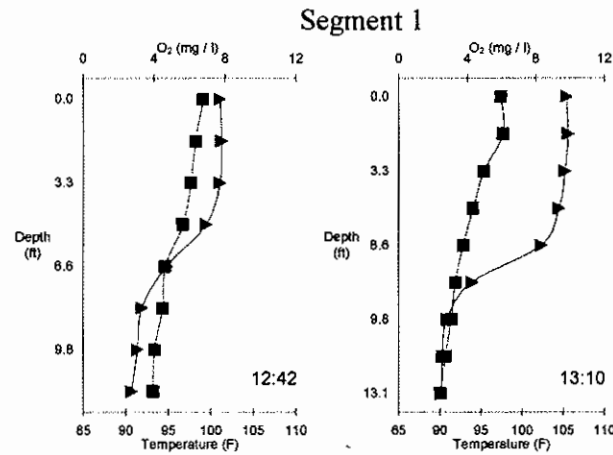


Figure 15A.105. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – August 28, 1998

Coffeen Lake - September 4, 1998

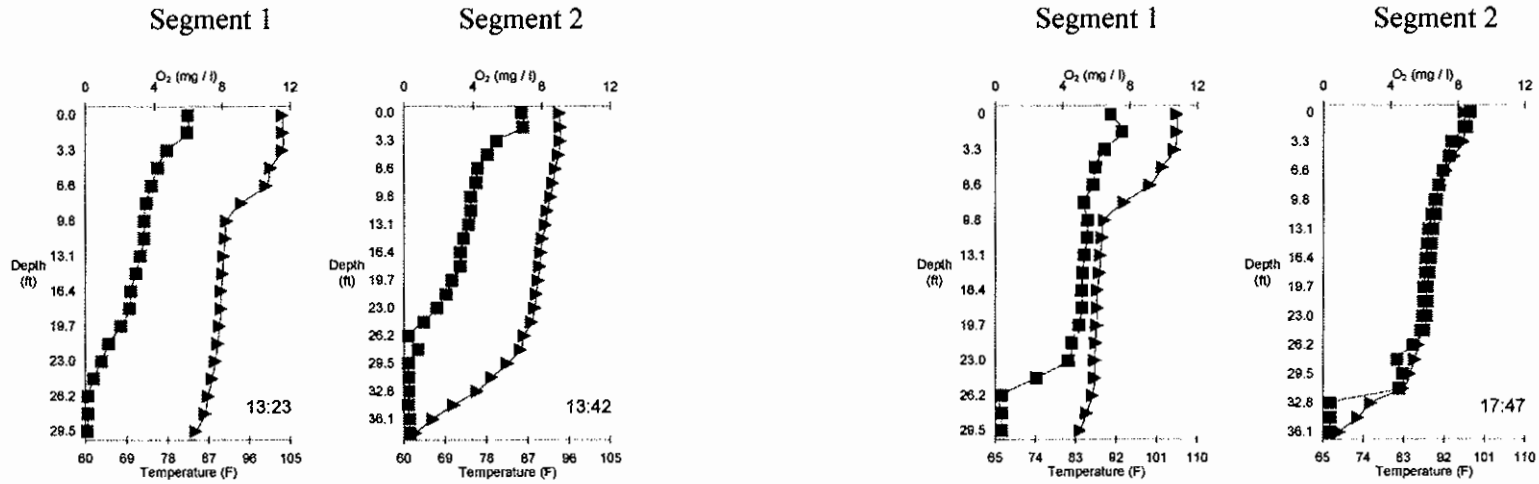
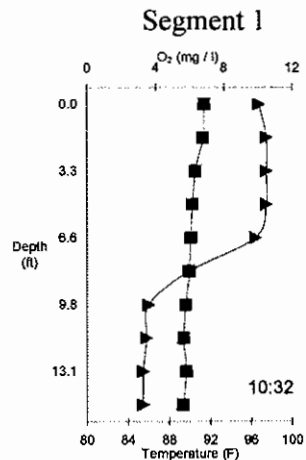


Figure 15A.106. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – September 4, 1998



Coffeen Lake – September 11, 1998

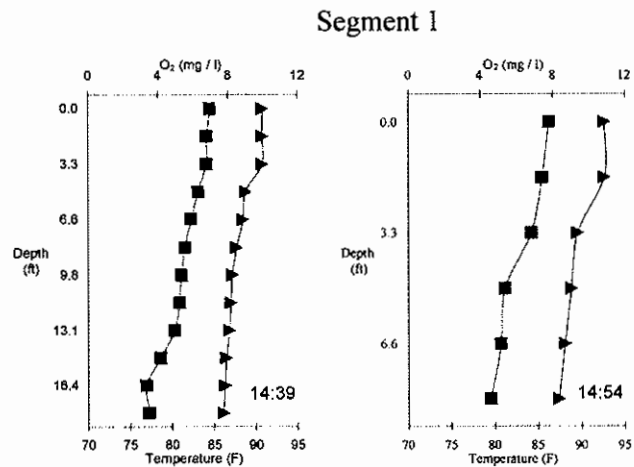


Figure 15A.107. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake - September 11, 1998

Coffeen Lake - September 18, 1998

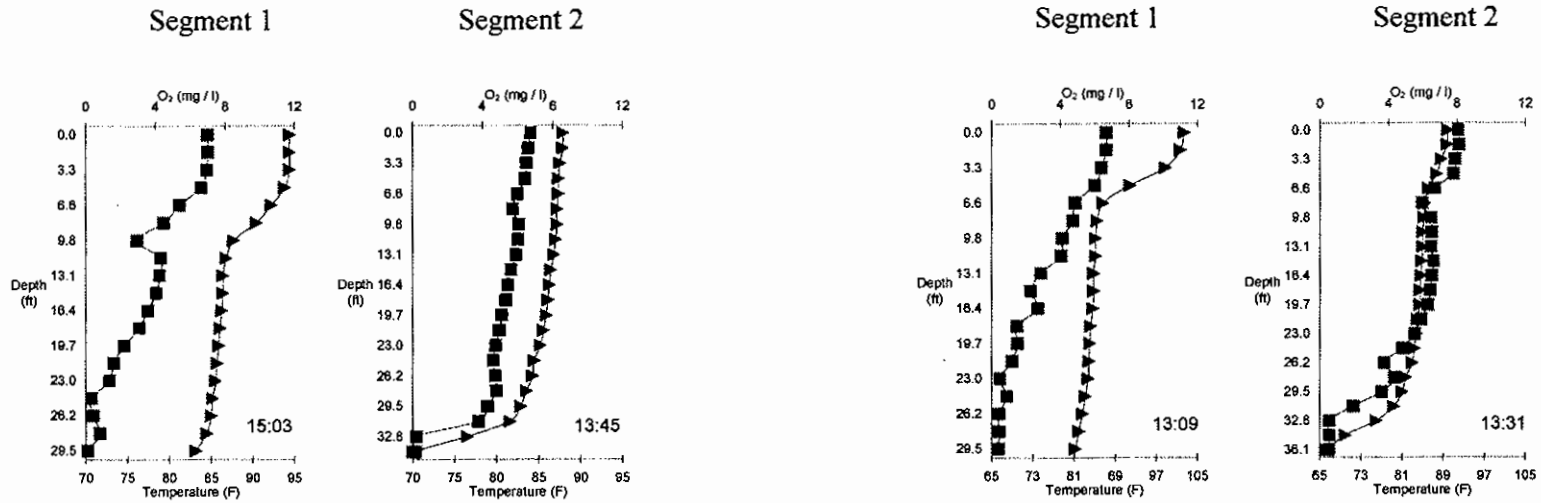
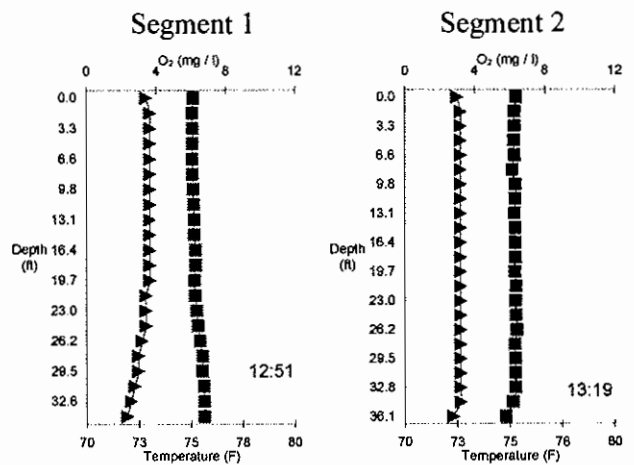
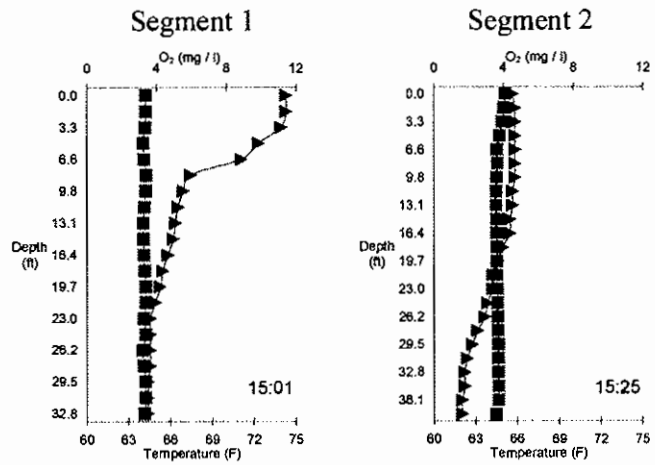


Figure 15A.108. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

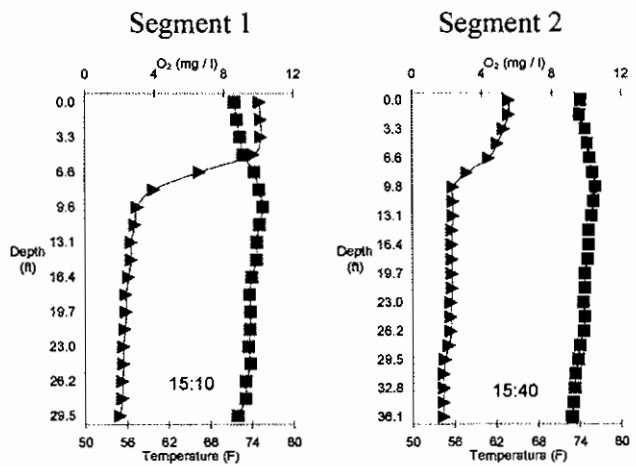
Coffeen Lake – October 8, 1998



Coffeen Lake – November 5, 1998



Coffeen Lake – December 1, 1998



Coffeen Lake – December 17, 1998

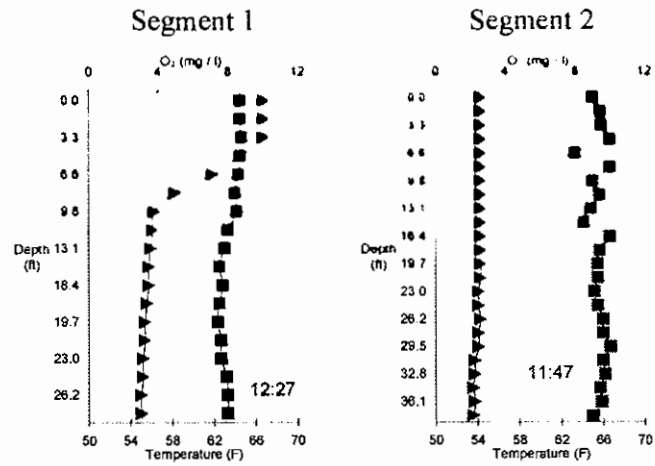
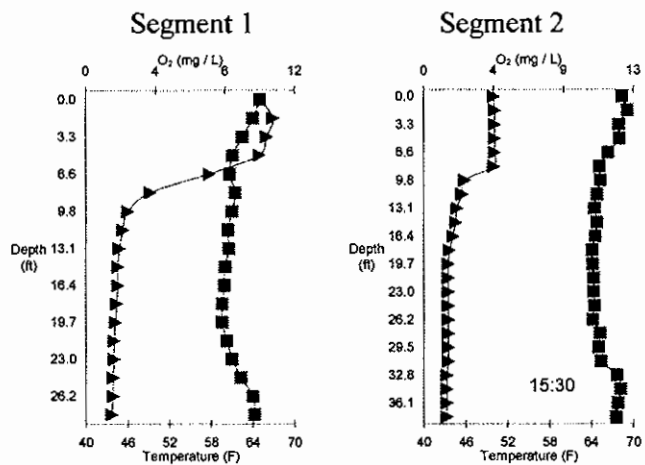
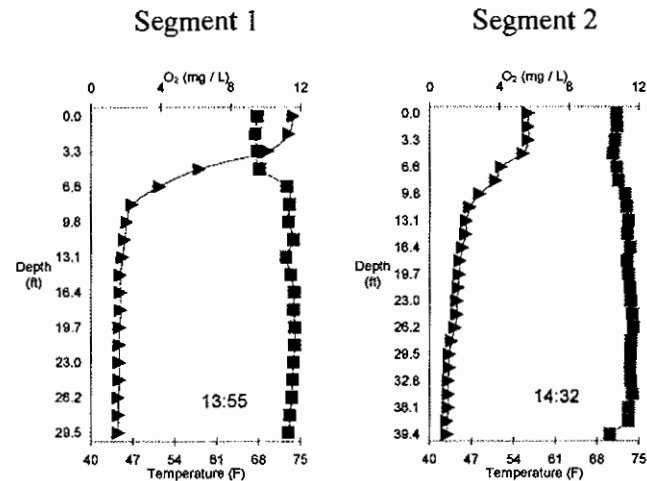


Figure 15A.109. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

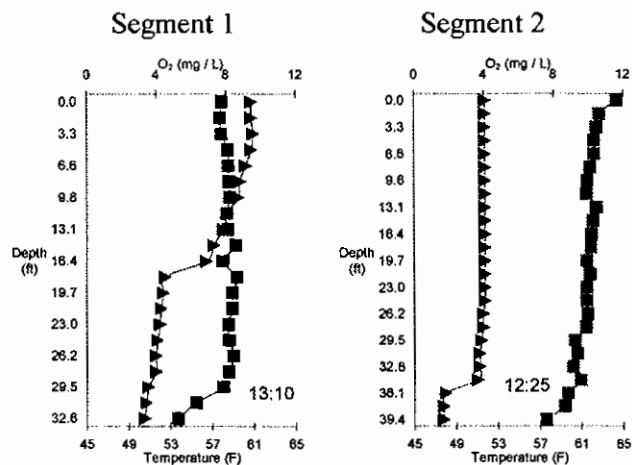
Coffeen Lake – January 7, 1999



Coffeen Lake – January 21, 1999



Coffeen Lake – February 3, 1999



Coffeen Lake – February 18, 1999

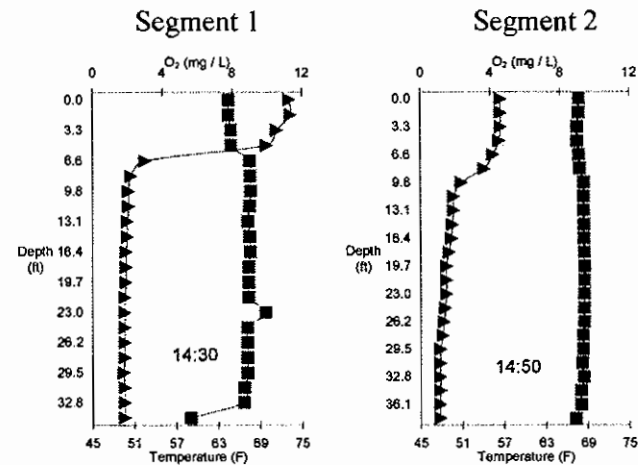
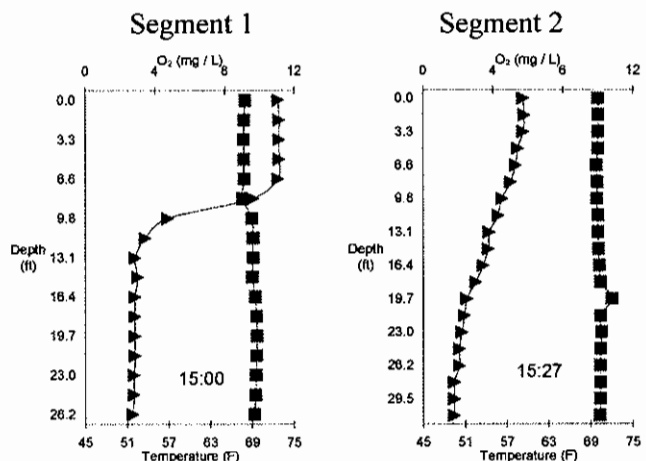
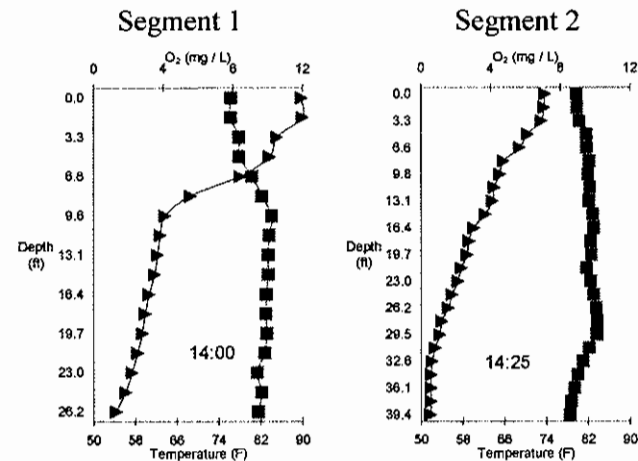


Figure 15A.110. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

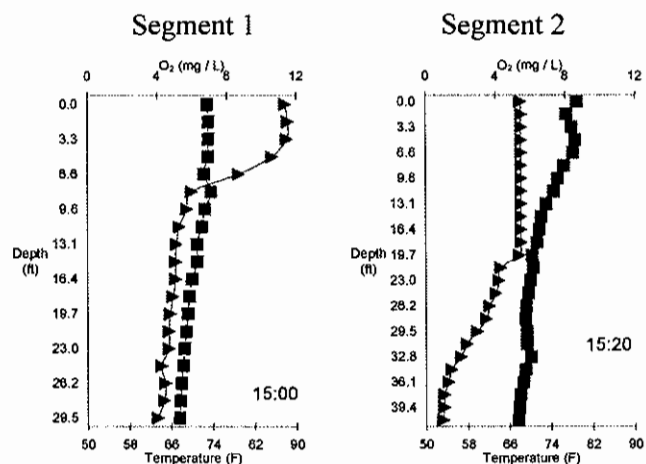
Coffeen Lake - March 4, 1999



Coffeen Lake - April 2, 1999



Coffeen Lake - April 15, 1999



Coffeen Lake - April 29, 1999

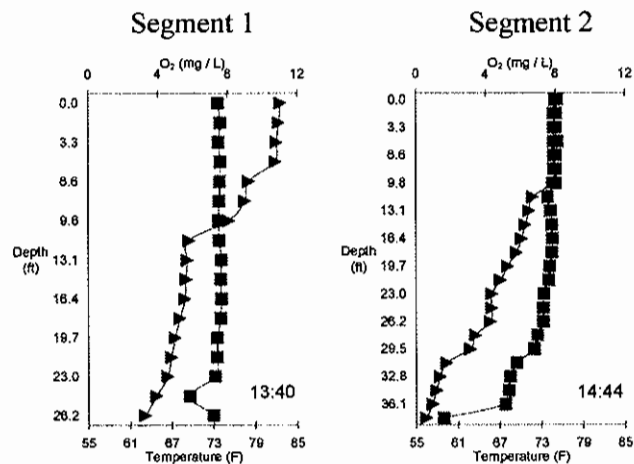
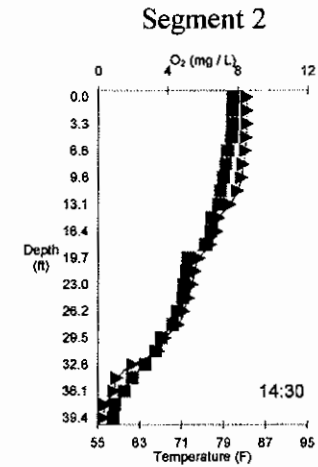
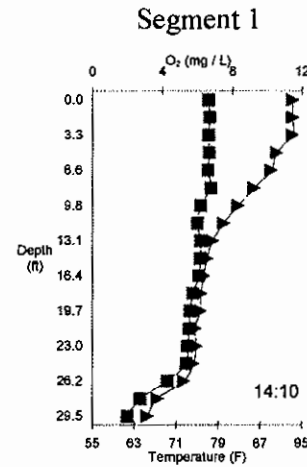
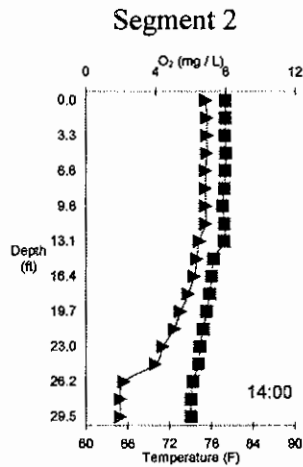
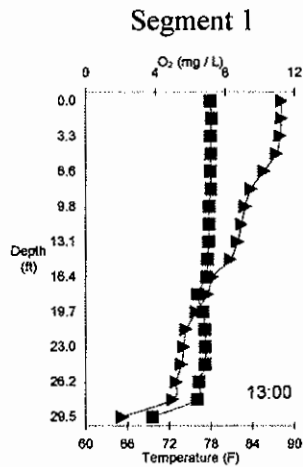


Figure 15A.111. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – May 6, 1999

Coffeen Lake – May 20, 1999



Coffeen Lake – June 2, 1999

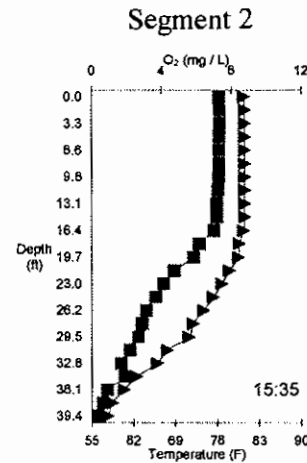
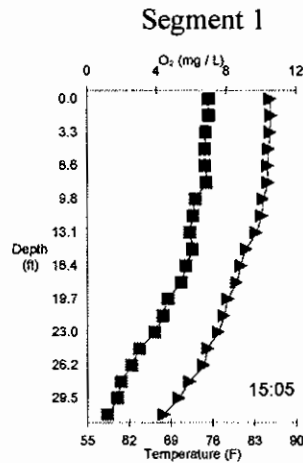


Figure 15A.112. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – June 2, 1999

Segment 1

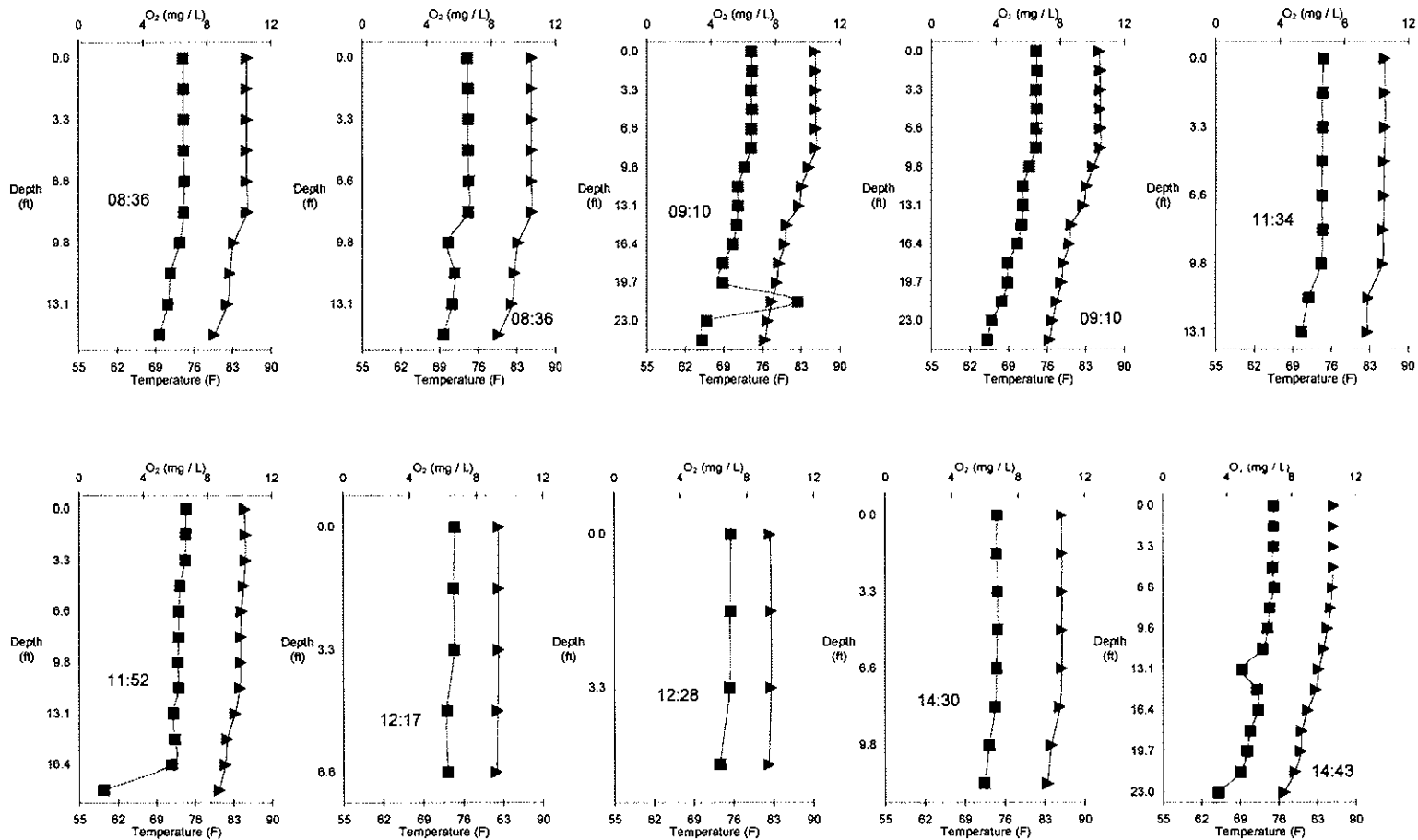
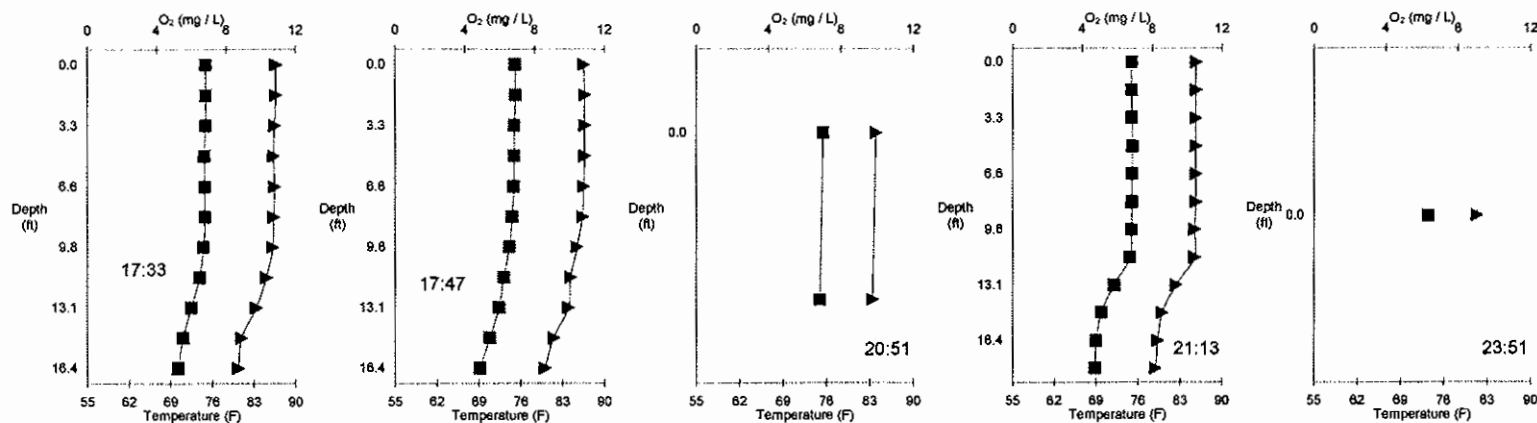


Figure 15A.113. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – June 2, 1999

Segment 1



Coffeen Lake – June 3, 1999

Segment 1

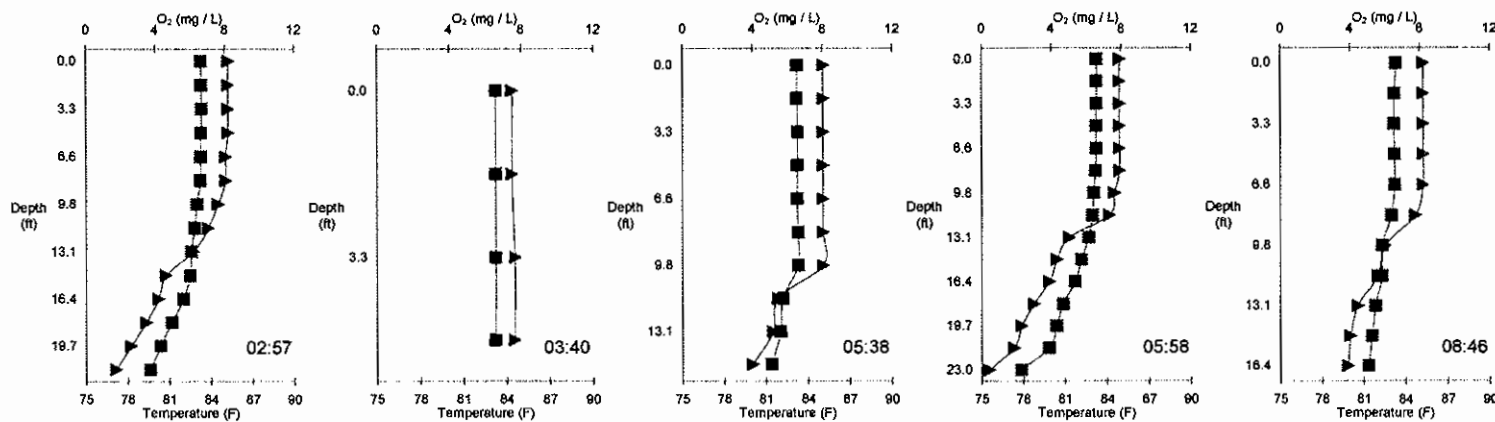
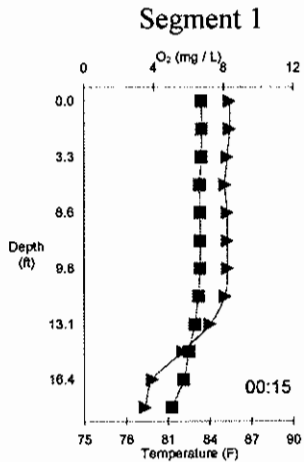


Figure 15A.114. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – June 3, 1999



Coffeen Lake – June 8, 1999

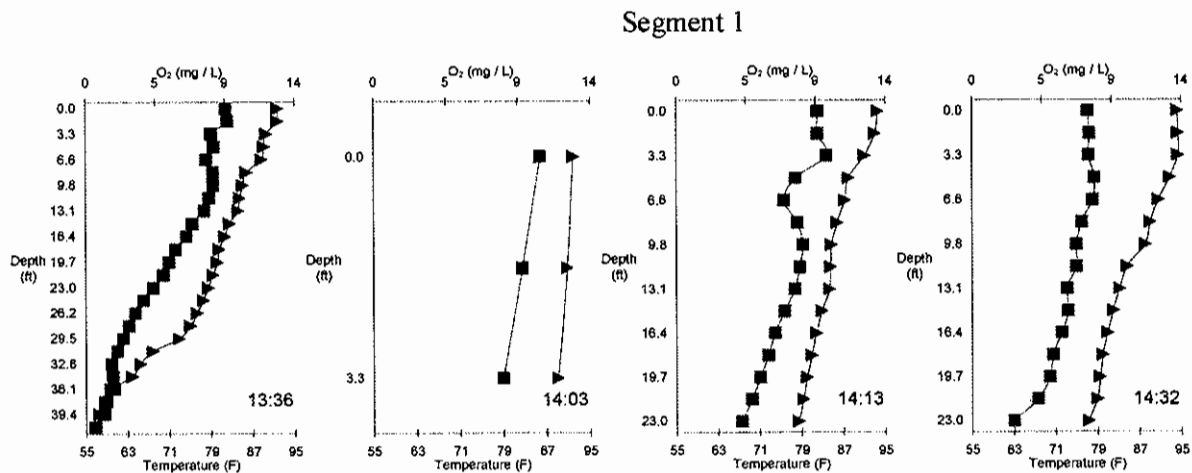


Figure 15A.115. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – June 15, 1999

Segment 1

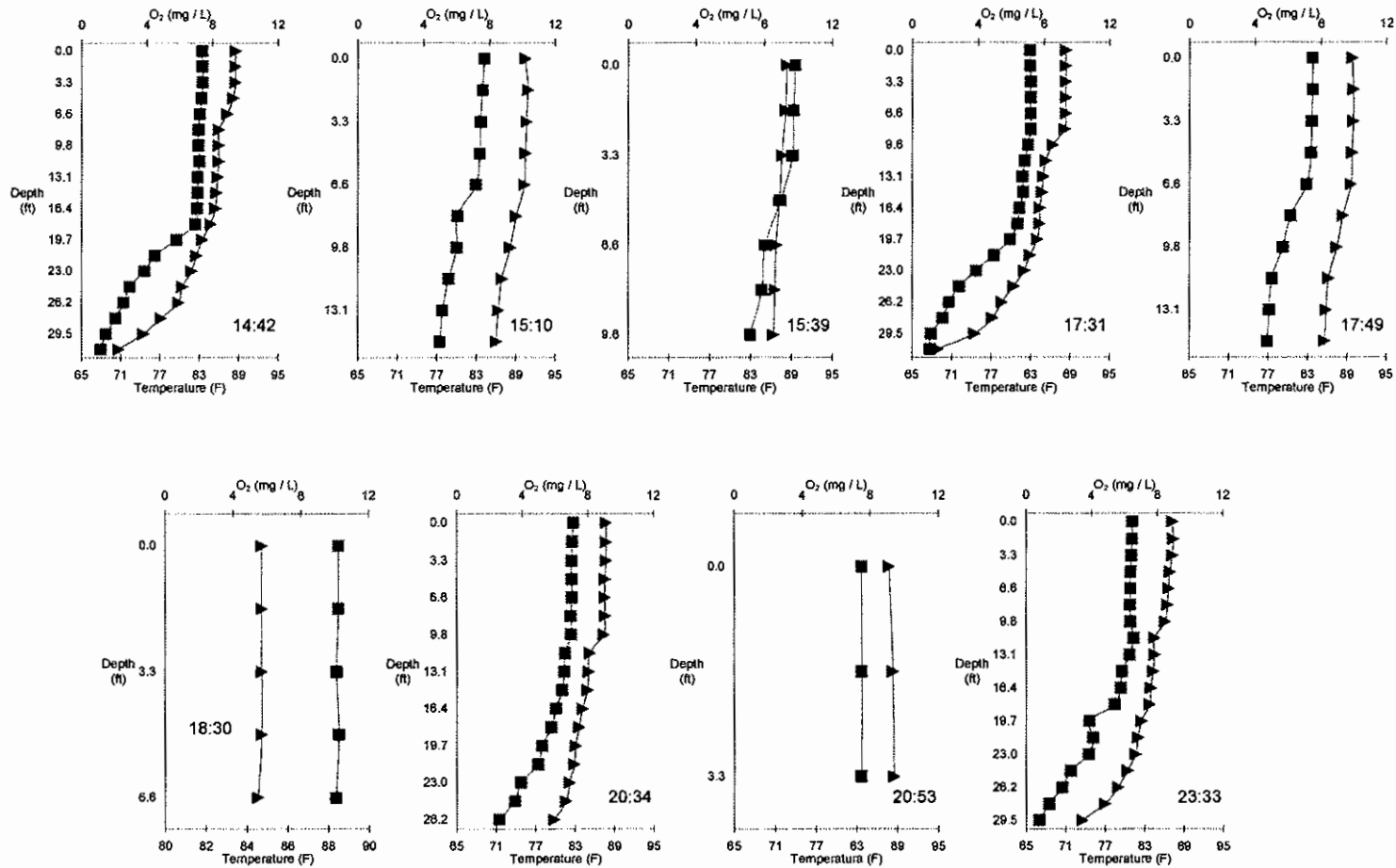


Figure 15A.116. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – June 16, 1999

Segment 1

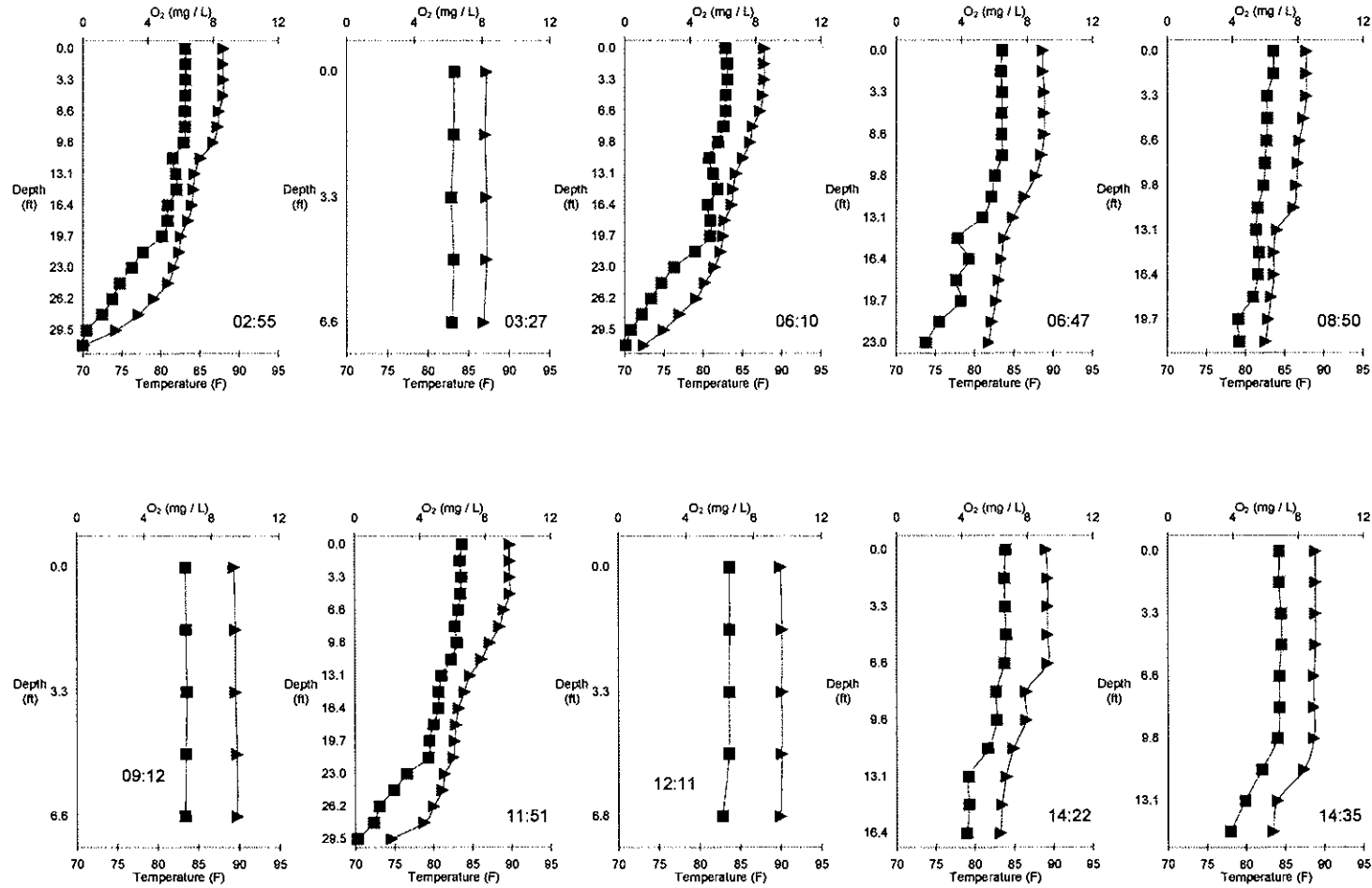


Figure 15A.117. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – June 16, 1999

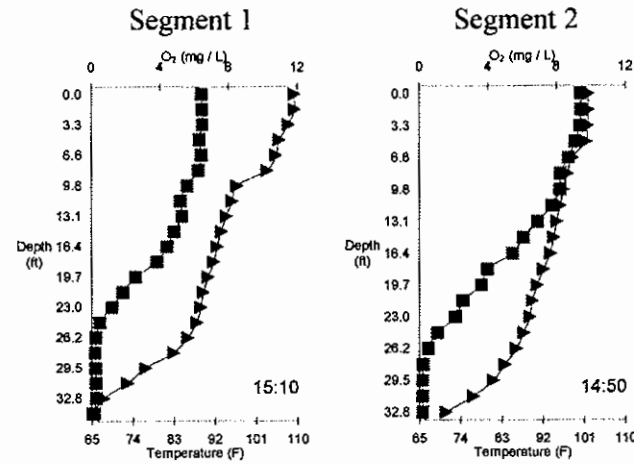
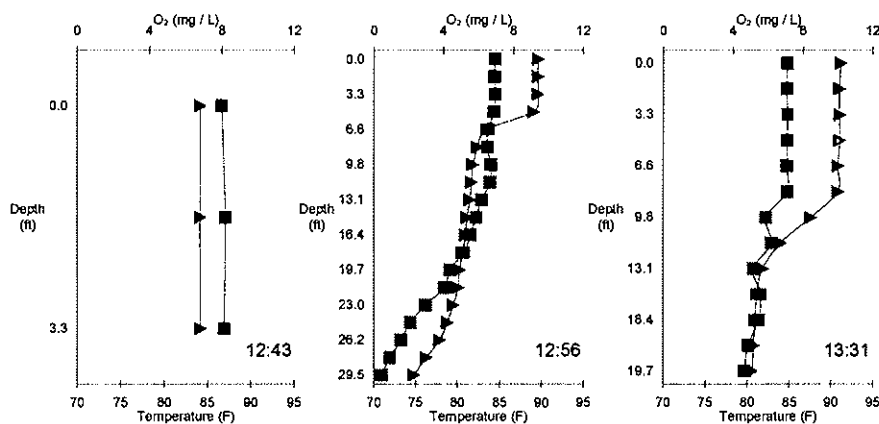


Figure 15A.118. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – June 23, 1999

Segment 1



Coffeen Lake – June 30, 1999

Segment 1

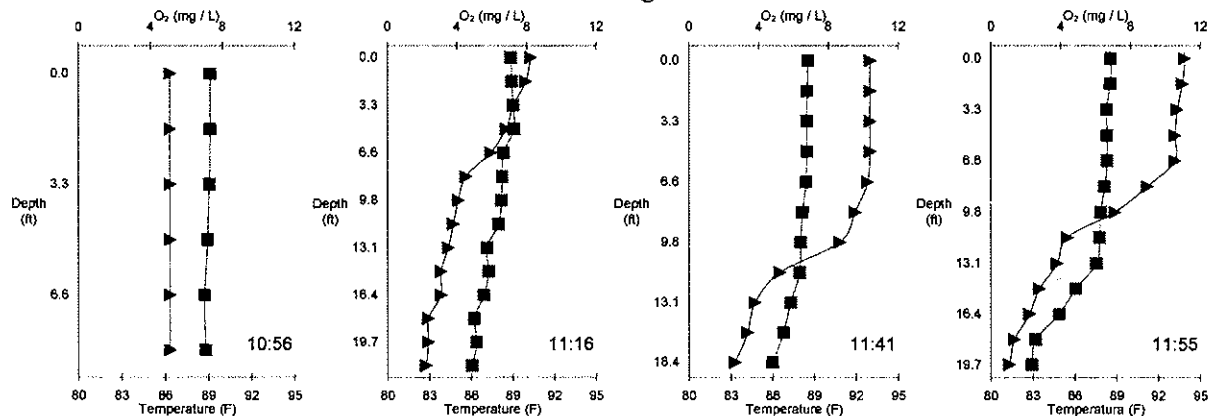


Figure 15A.119. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – July 8, 1999

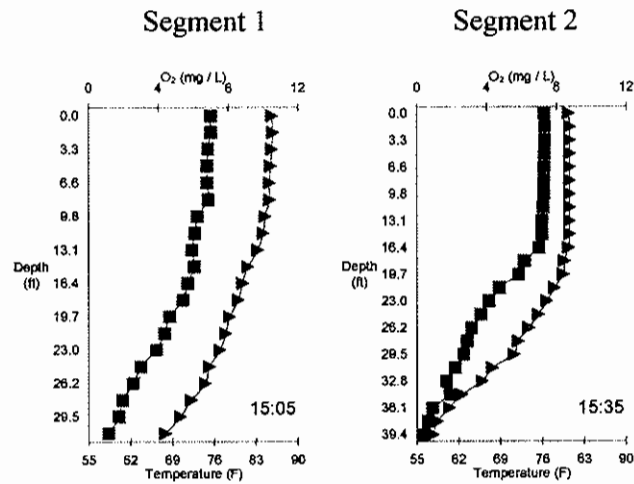
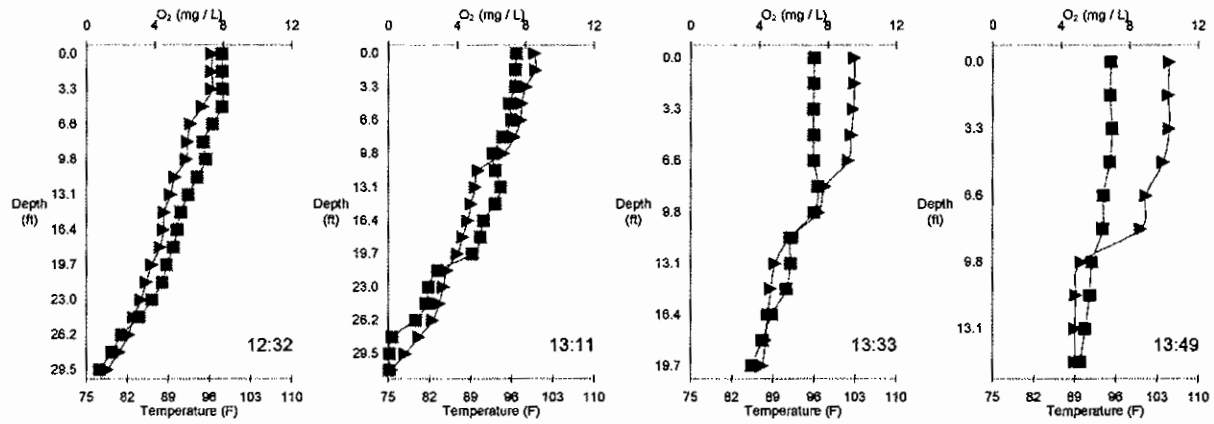


Figure 15A.120. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – July 8, 1999

Segment 1



Coffeen Lake – July 21, 1999

Segment 1

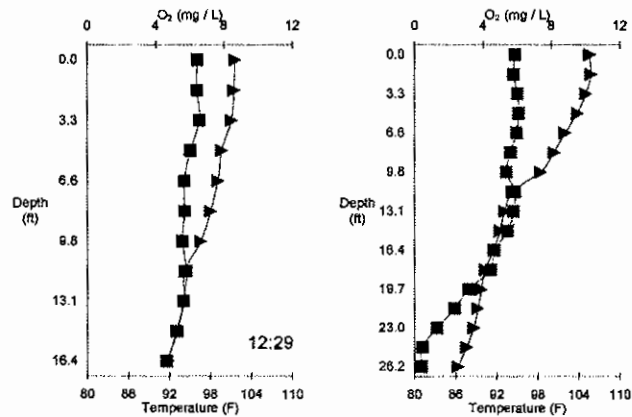


Figure 15A.121. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – July 21, 1999

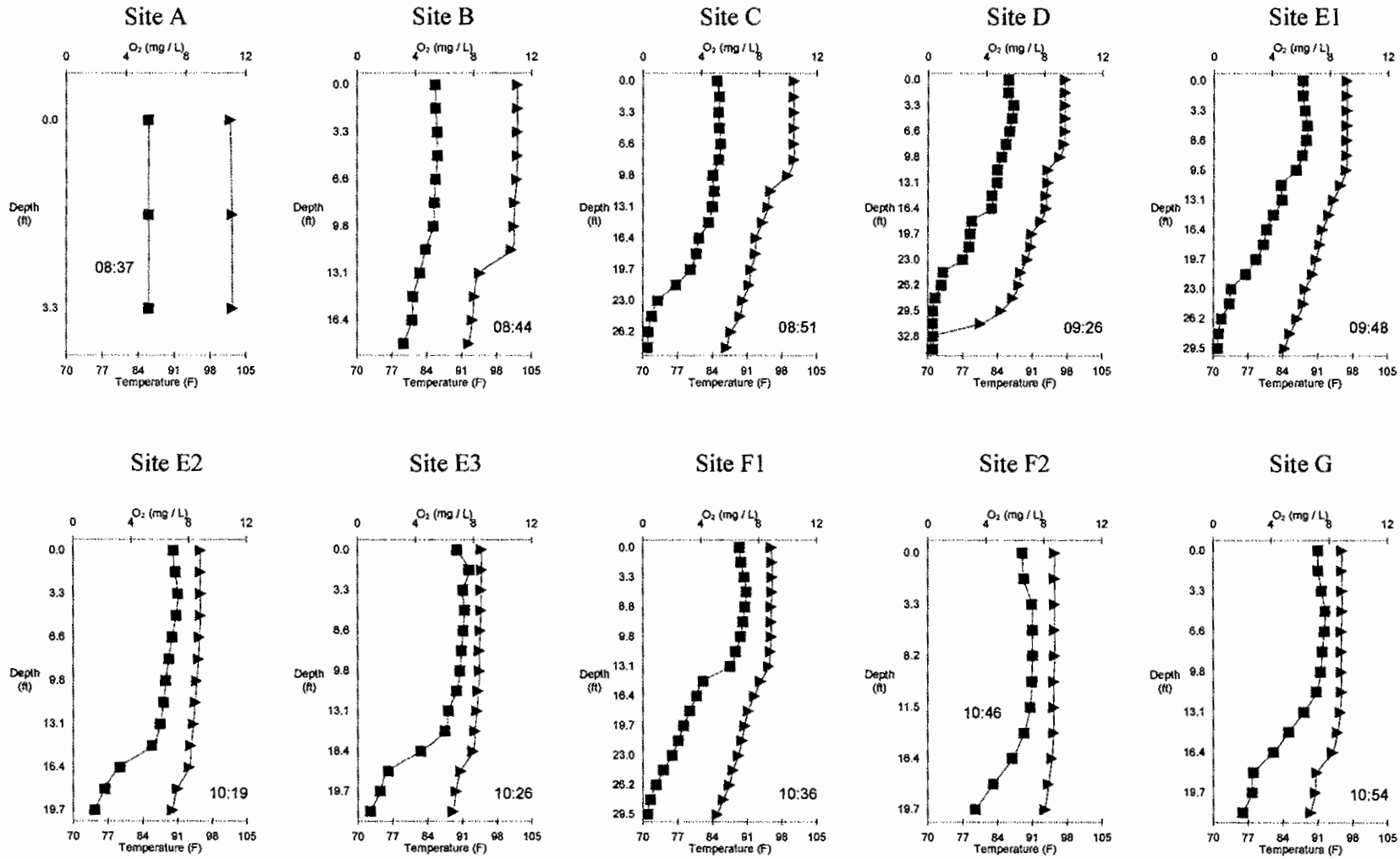


Figure 15A.122. Temperature and dissolved oxygen at Coffeen Lake, IL, as measured by Ameren CIPS. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – July 23, 1999

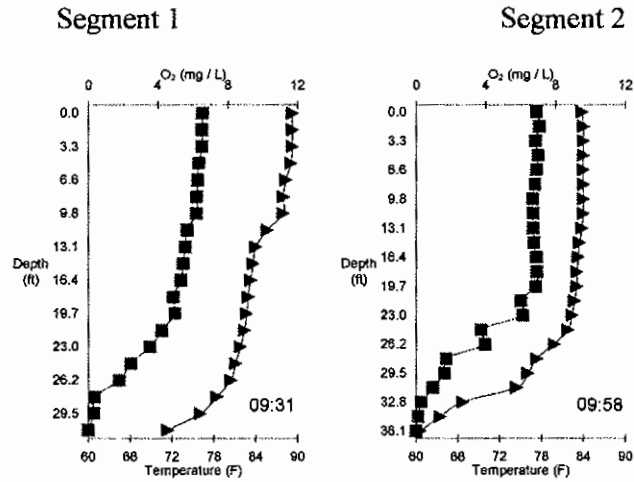


Figure 15A.123. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – July 28, 1999

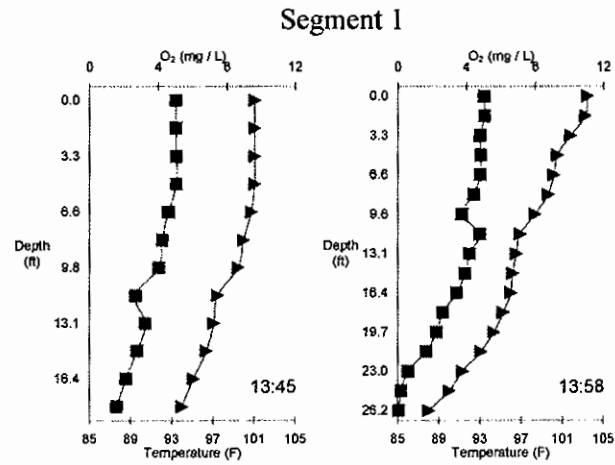
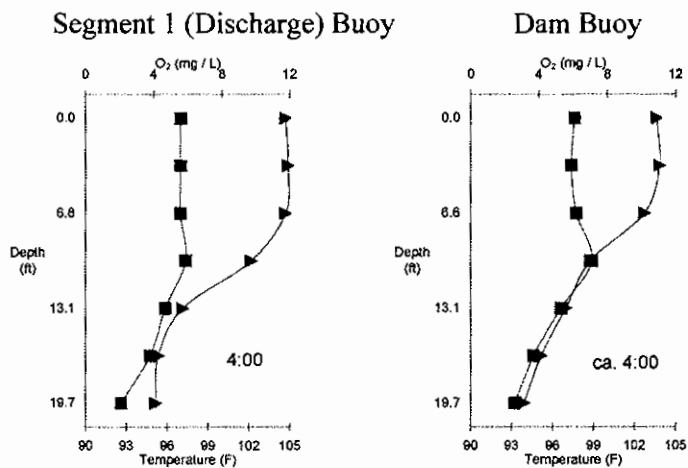


Figure 15A.124. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – July 31, 1999



Coffeen Lake – August 1, 1999

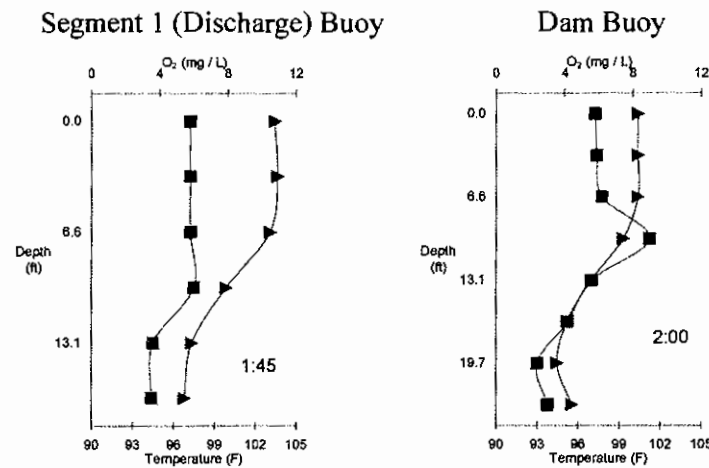


Figure 15A.125. Temperature and dissolved oxygen obtained during fish health sampling, Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – August 6, 1999

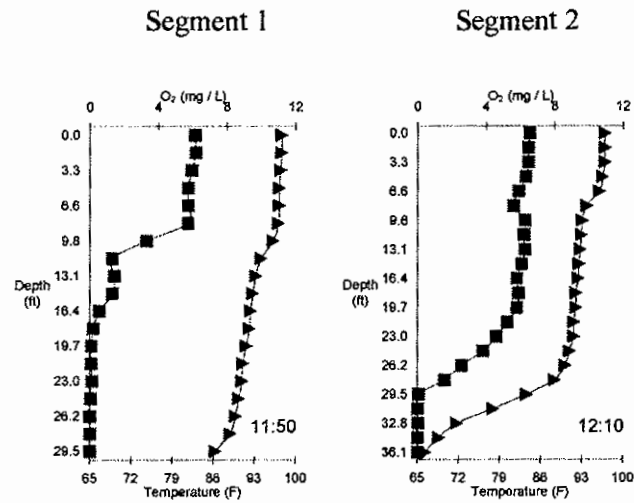


Figure 15A.126. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – August 11, 1999

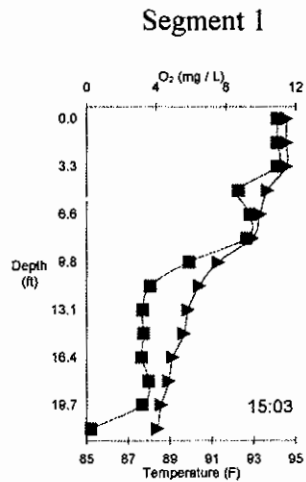


Figure 15A.127. Temperature and dissolved oxygen measured during fish tracking in Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Coffeen Lake – August 19, 1999

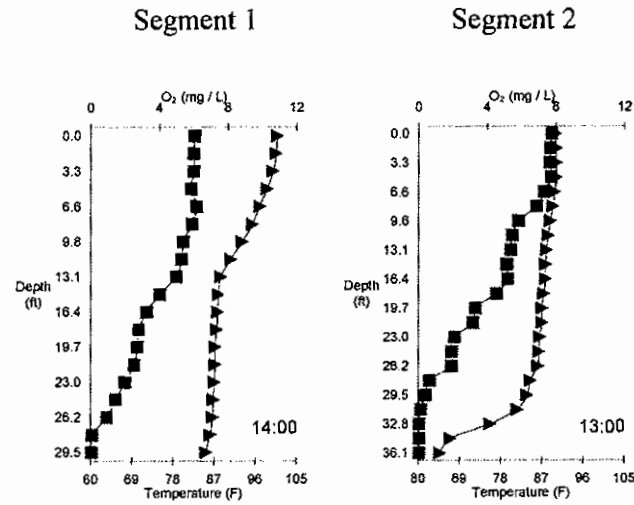
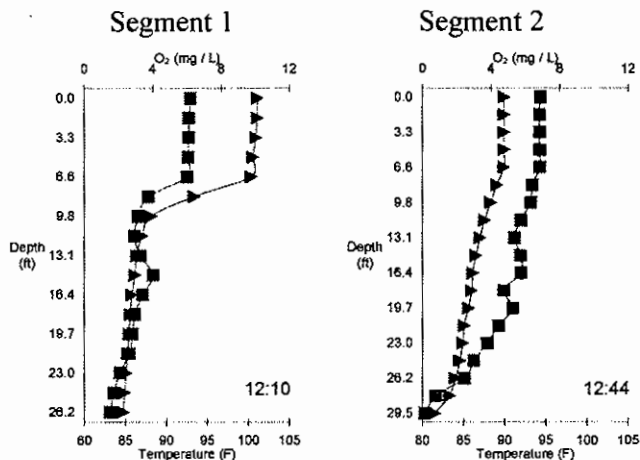
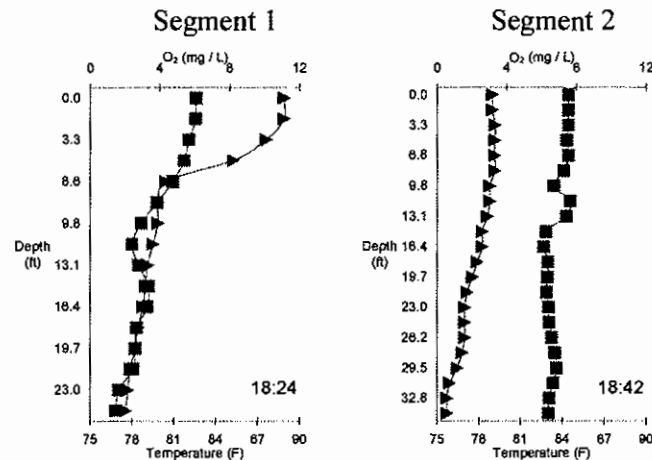


Figure 15A.128. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

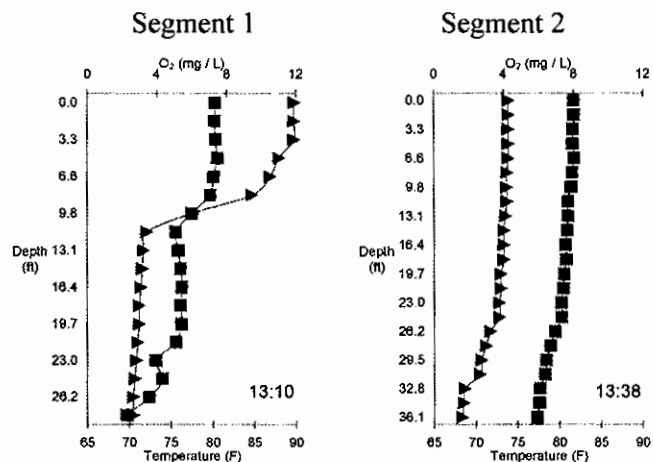
Coffeen Lake - September 8, 1999



Coffeen Lake - September 21, 1999



Coffeen Lake - October 7, 1999



Coffeen Lake - October 22, 1999

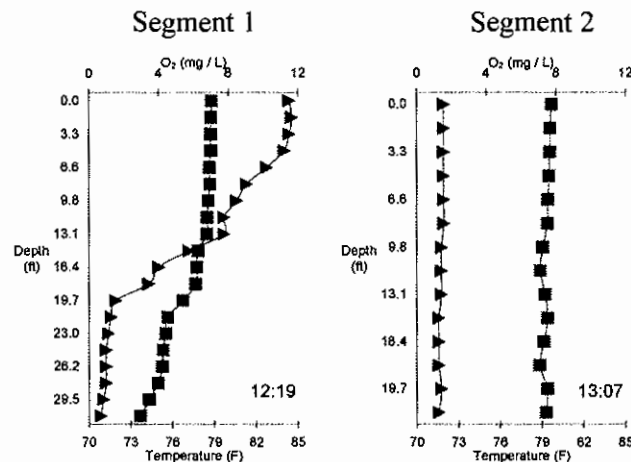
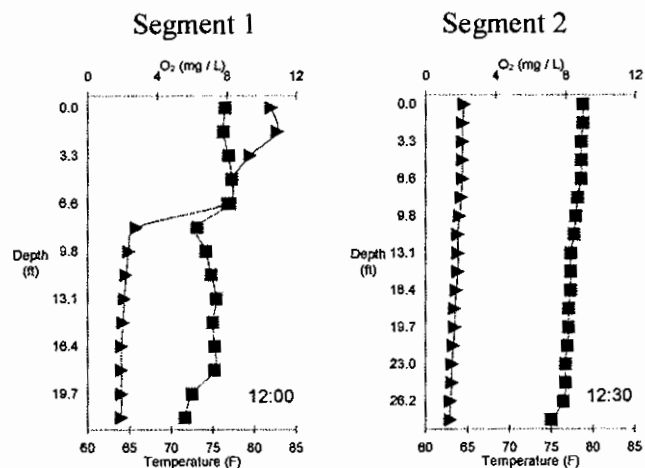
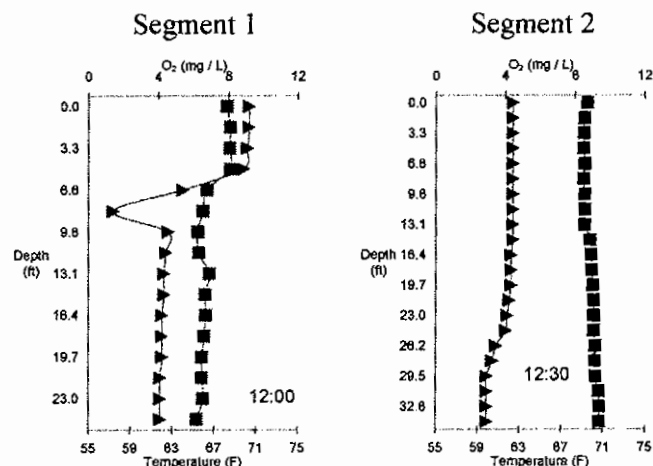


Figure 15A.129. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

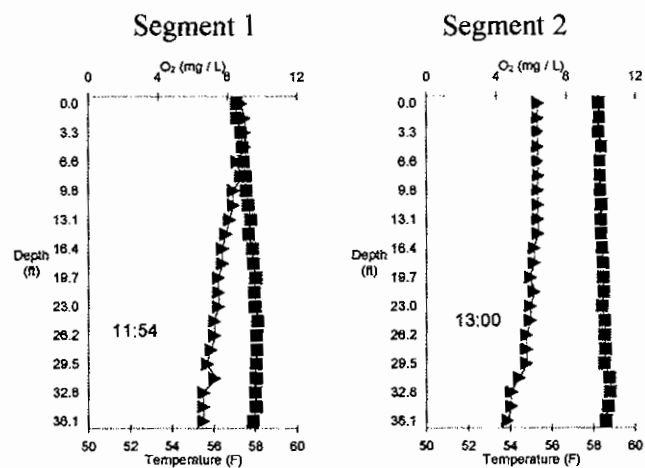
Coffeen Lake - November 4, 1999



Coffeen Lake - November 17, 1999



Coffeen Lake - December 1, 1999



Coffeen Lake - December 14, 1999

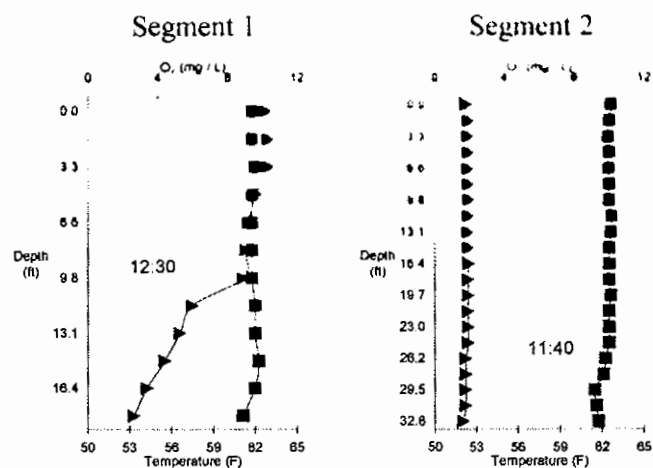


Figure 15A.130. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg/l). Time of measurement is indicated on each graph.

Coffeen Lake – December 29, 1999

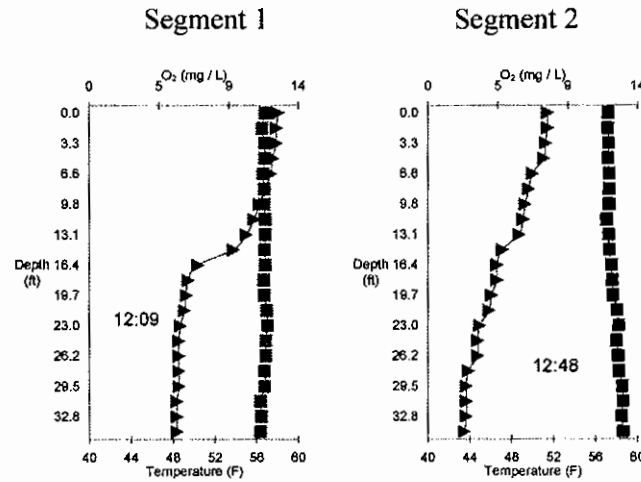
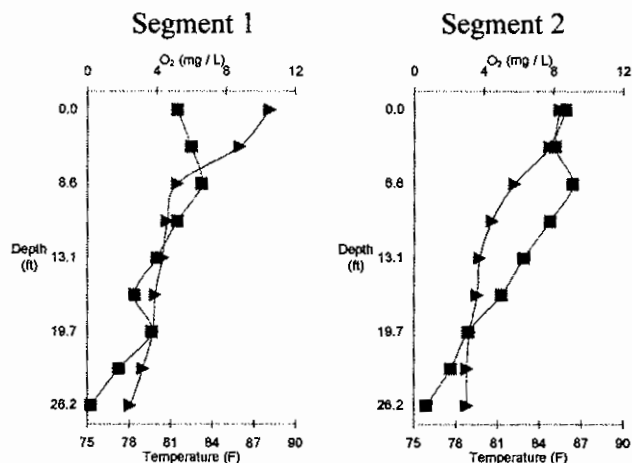
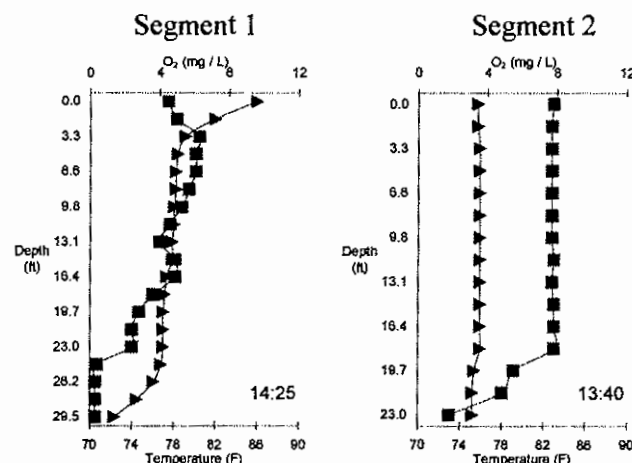


Figure 15A.131. Temperature and dissolved oxygen by date within 2 segments of Coffeen Lake, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

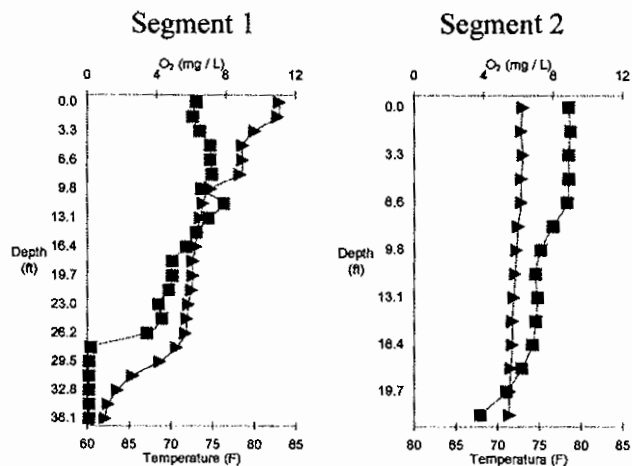
Lake of Egypt – August 27, 1997



Lake of Egypt - September 23, 1997



Lake of Egypt – October 7, 1997



Lake of Egypt – November 13, 1997

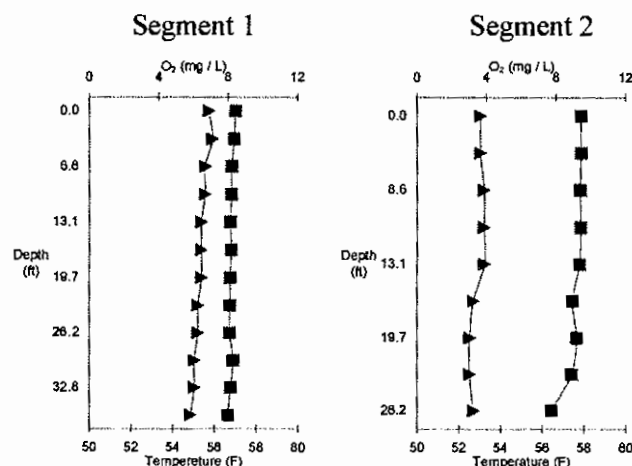
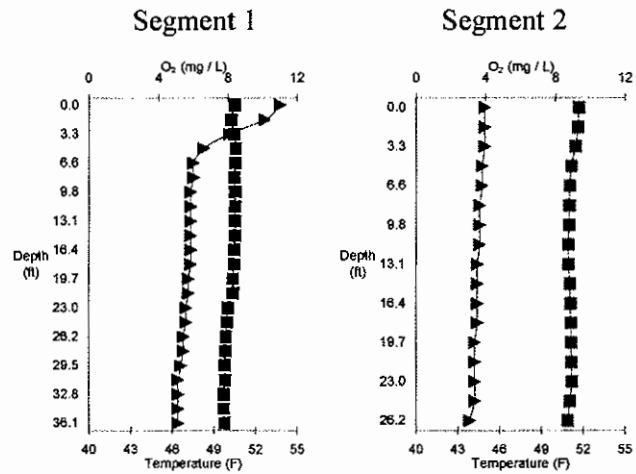
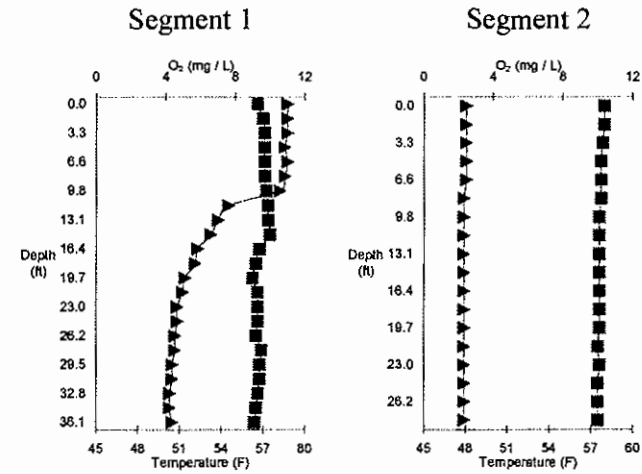


Figure 15A.132. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

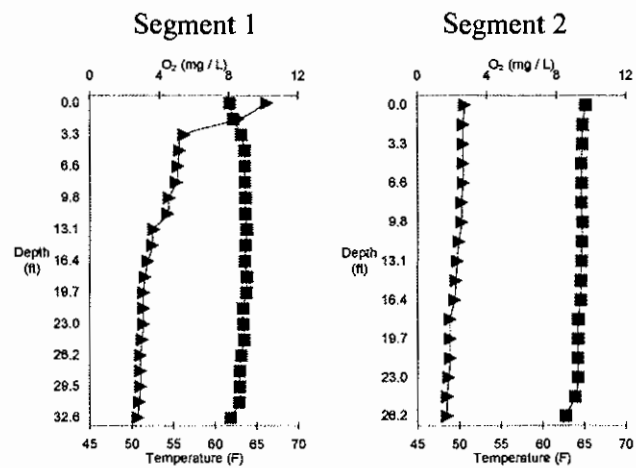
Lake of Egypt – November 17, 1997



Lake of Egypt – November 20, 1997



Lake of Egypt – December 3, 1997



Lake of Egypt – January 5, 1998

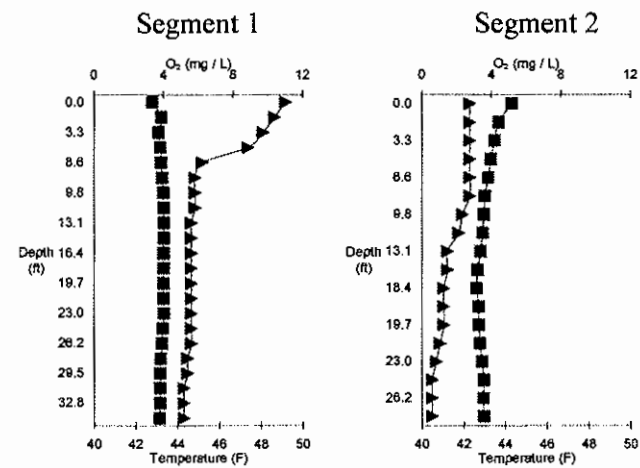
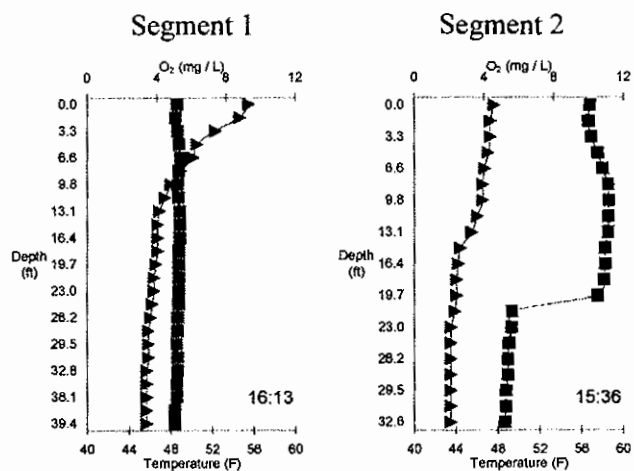
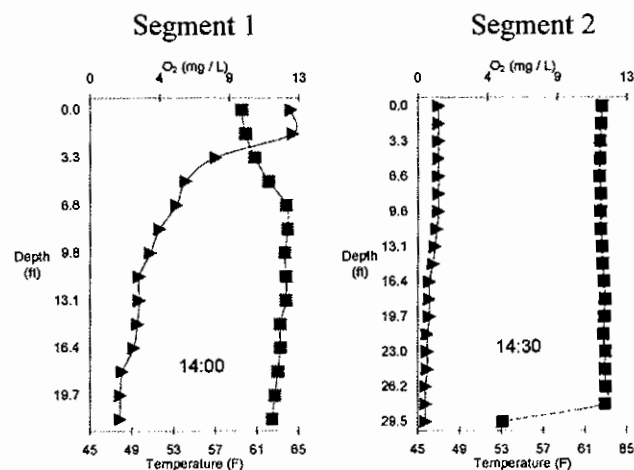


Figure 15A.133. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

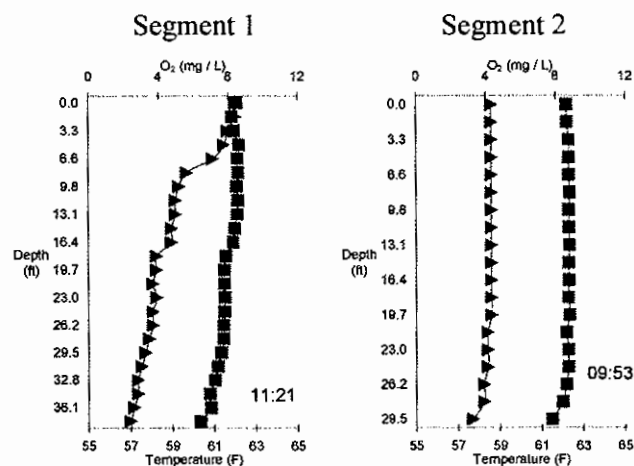
Lake of Egypt – February 19, 1998



Lake of Egypt – March 16, 1998



Lake of Egypt – April 10, 1998



Lake of Egypt – April 14, 1998

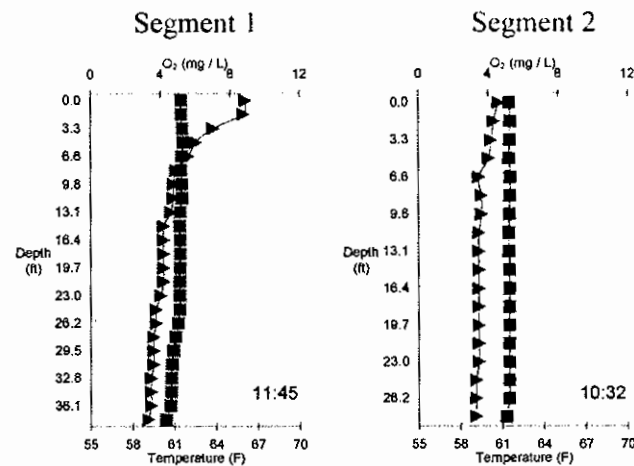
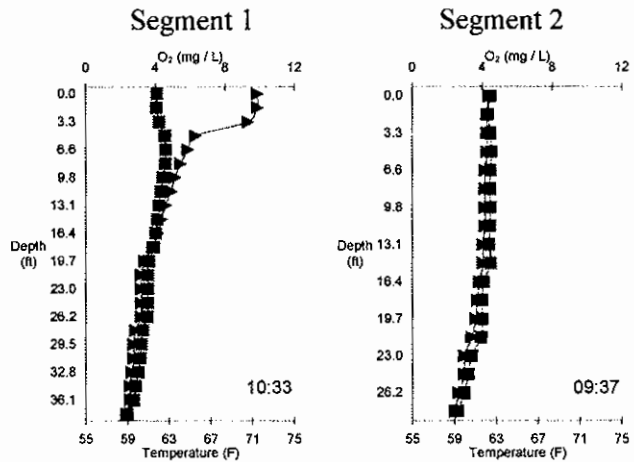
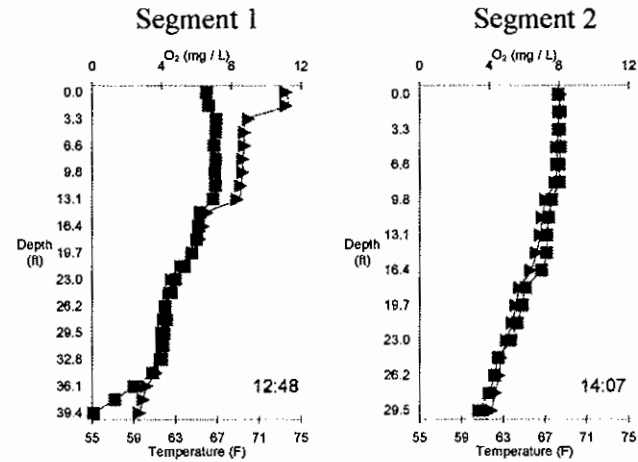


Figure 15A.134. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – April 21, 1998



Lake of Egypt – May 9, 1998



Lake of Egypt – May 14, 1998

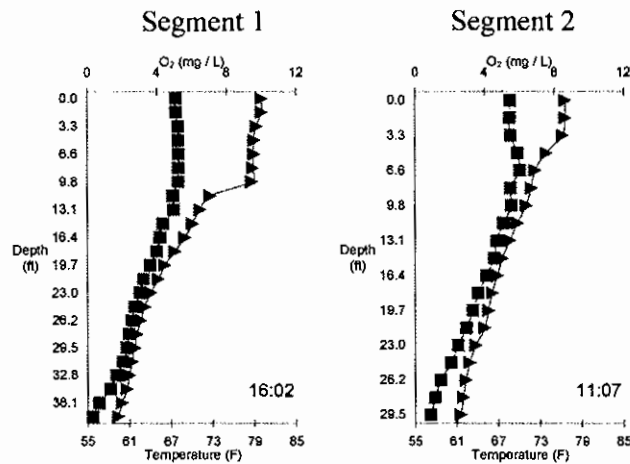


Figure 15A.135. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 3, 1998

Segment 1

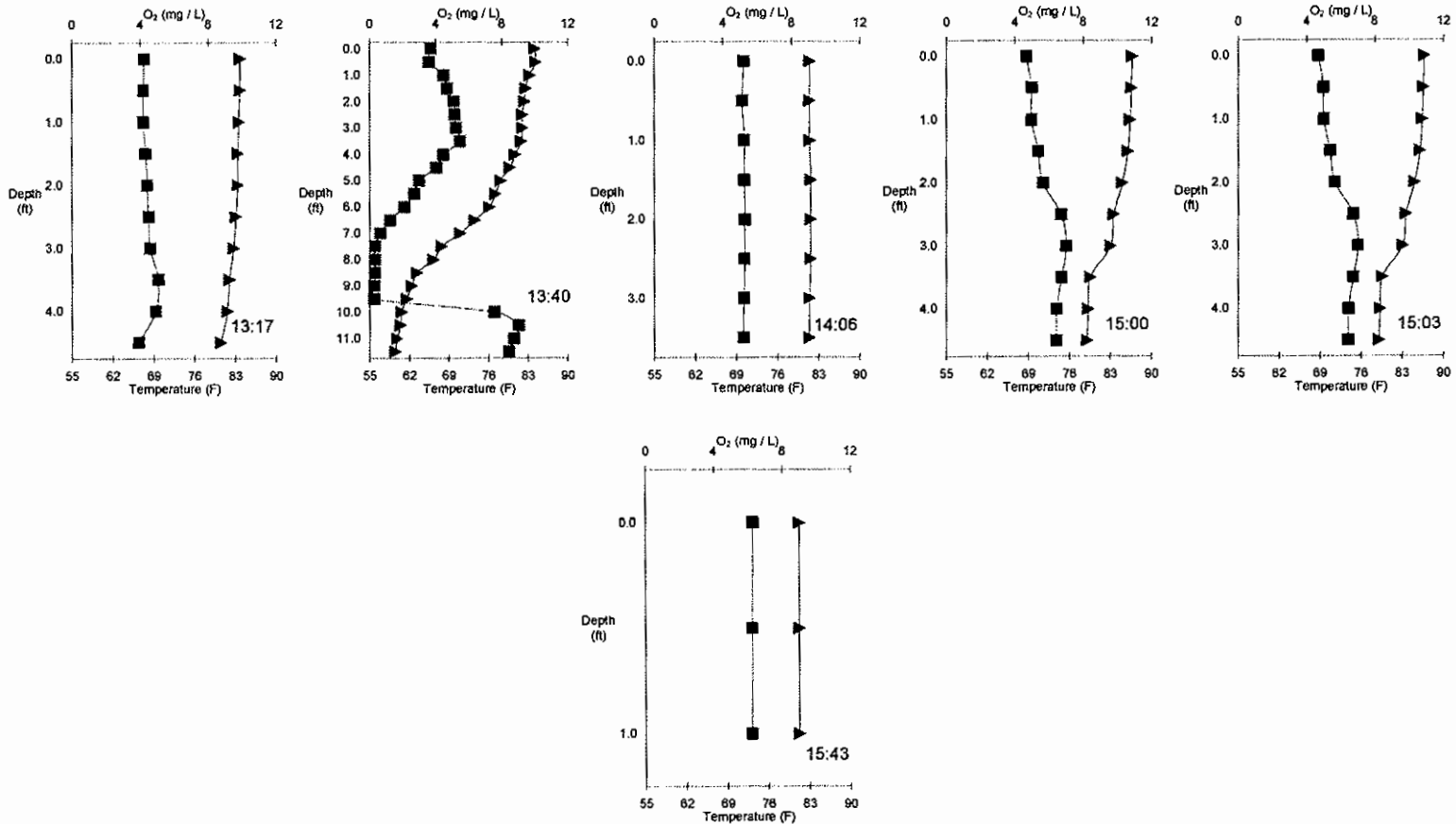


Figure 15A.136. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 4, 1998

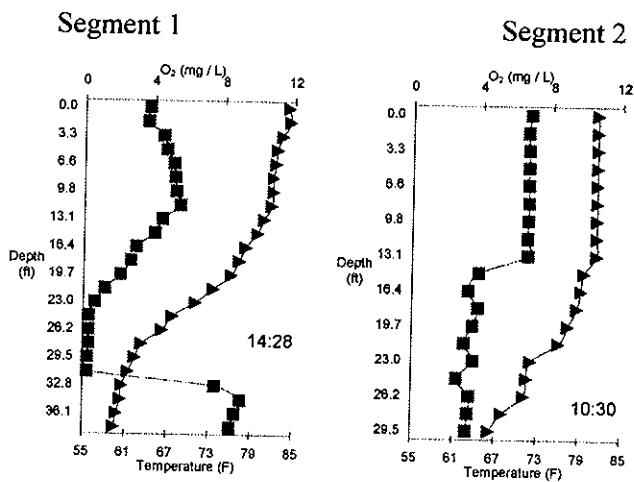


Figure 15A.137. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 7, 1998

Segment 1

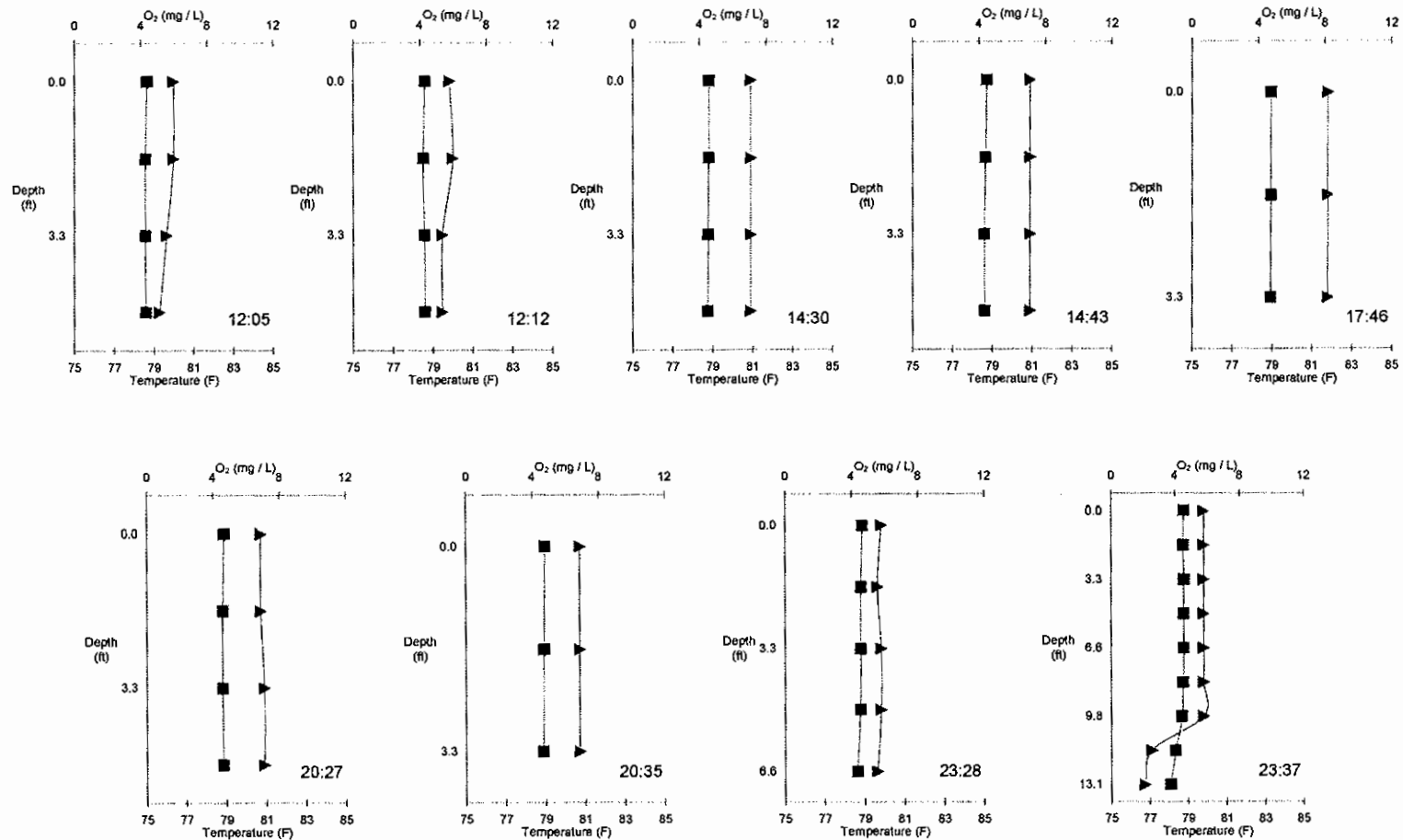


Figure 15A.138. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 12, 1998

Segment 1

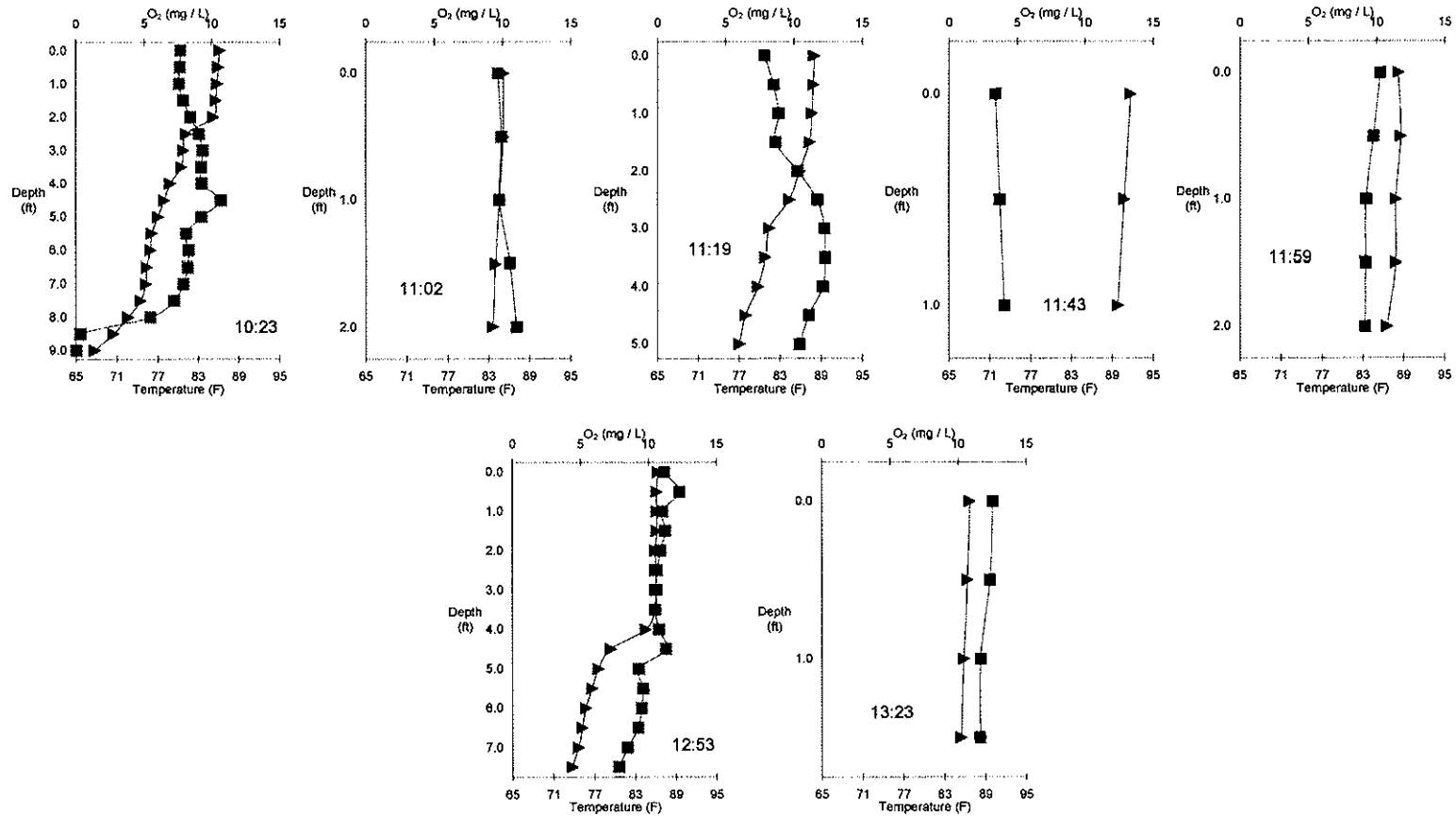


Figure 15A.140. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 8, 1998

Segment 1

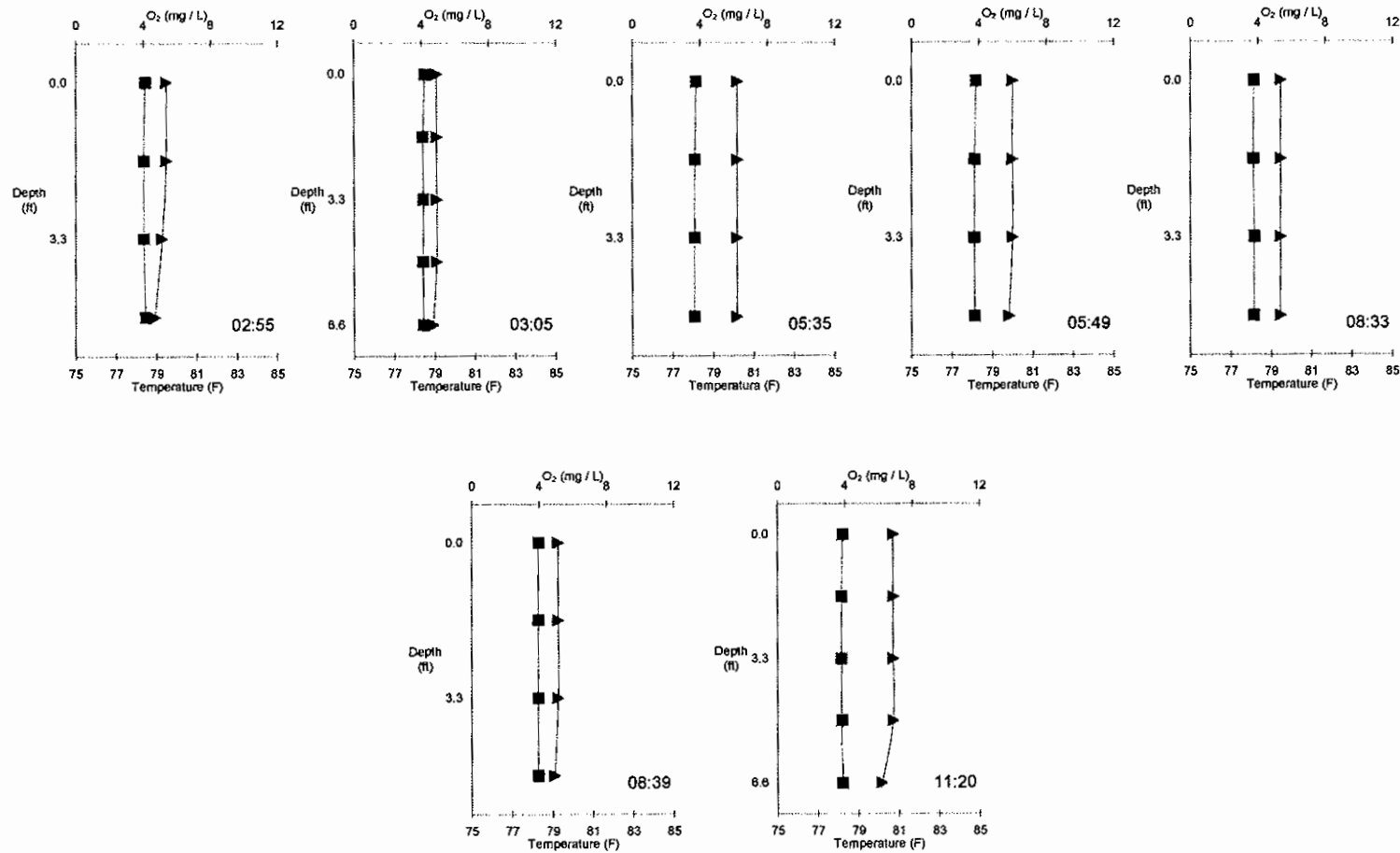
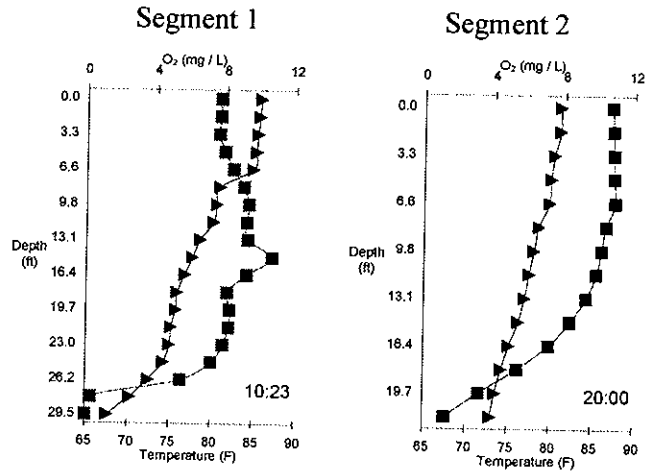


Figure 15A.139. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 12, 1998



Lake of Egypt – June 18, 1998

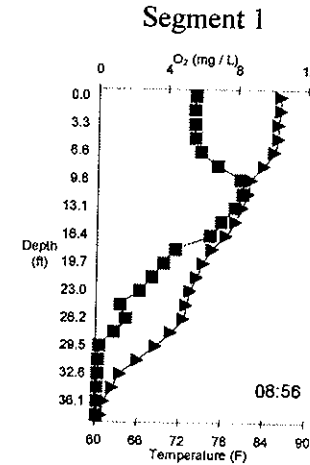
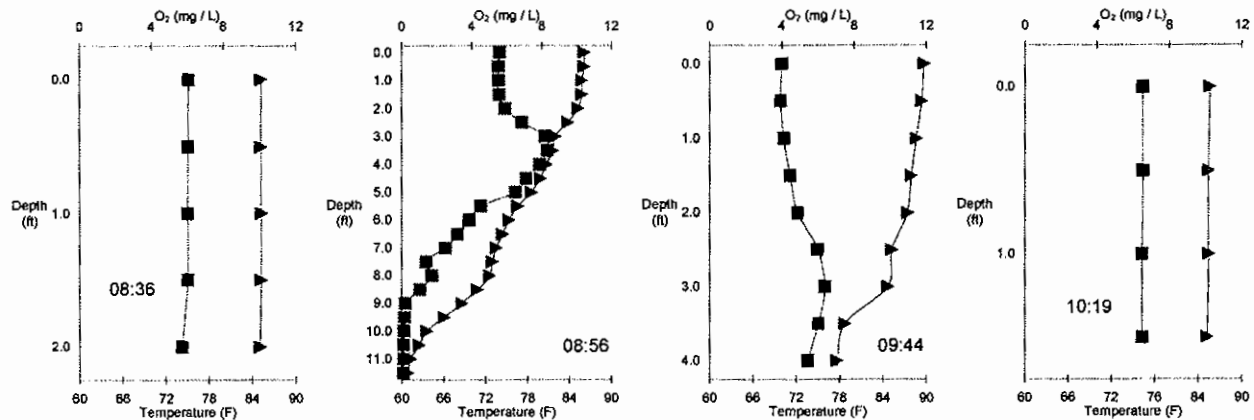


Figure 15A.141. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 18, 1998

Segment 1



Lake of Egypt – June 25, 1998

Segment 1

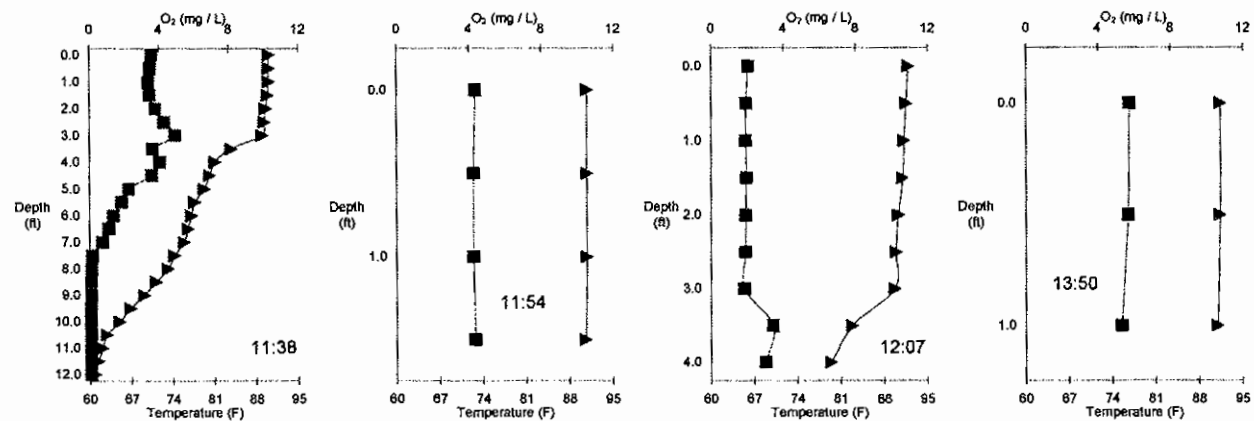
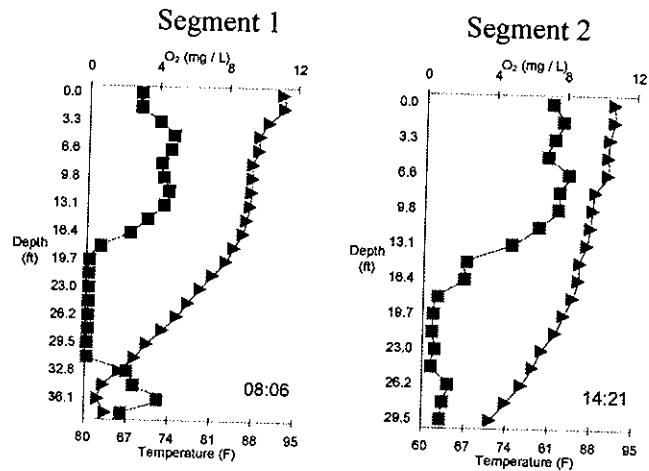


Figure 15A.142. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 25, 1998



Lake of Egypt – July 2, 1998

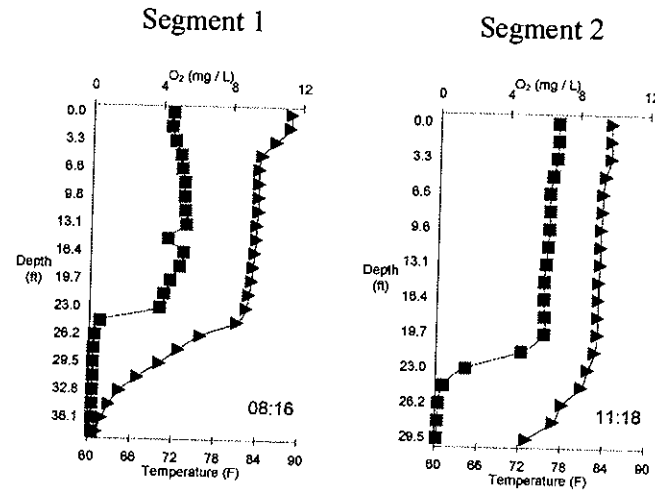


Figure 15A.143. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – July 2, 1998

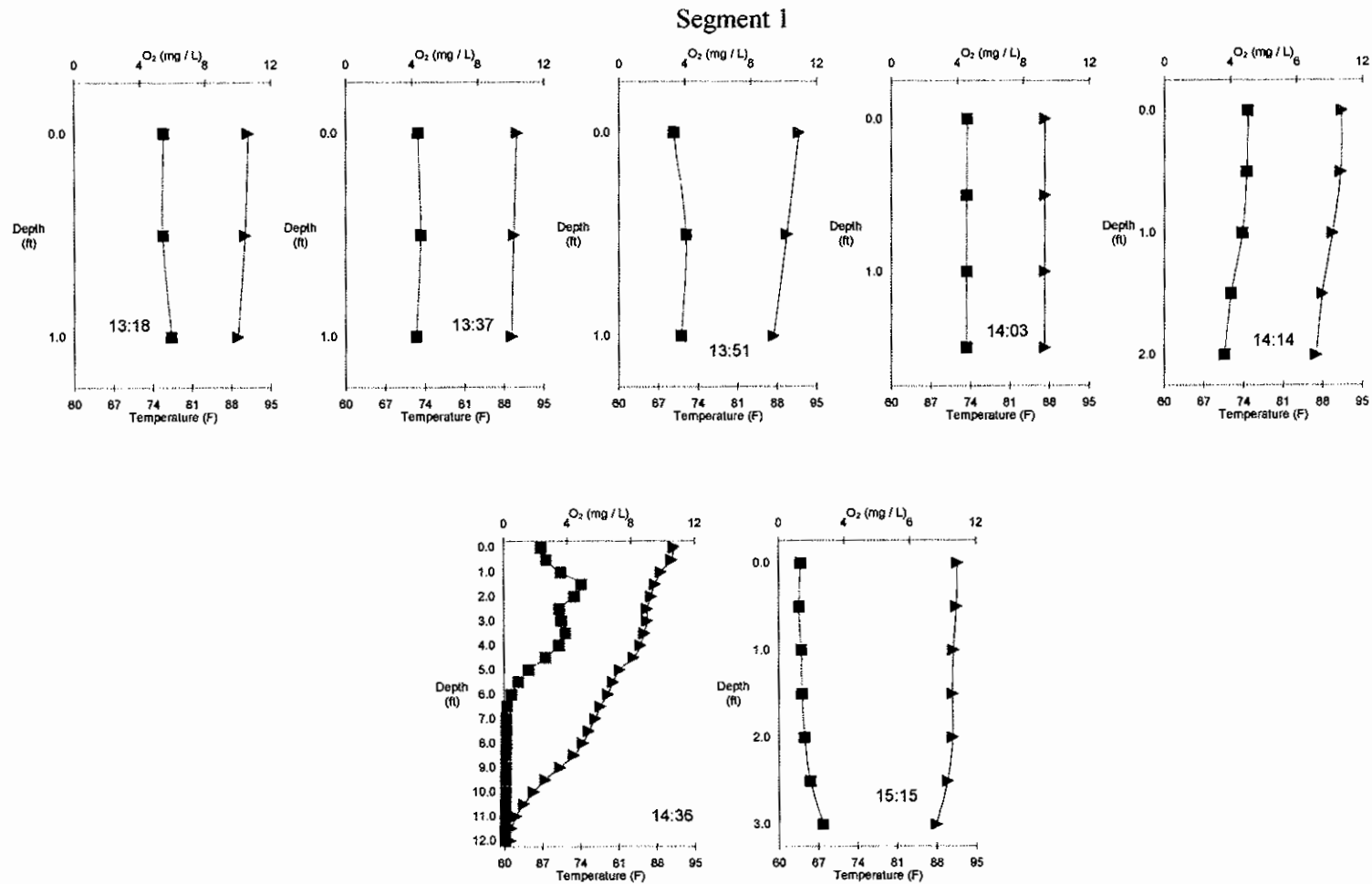


Figure 15A.144. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – July 9, 1998

Segment 1

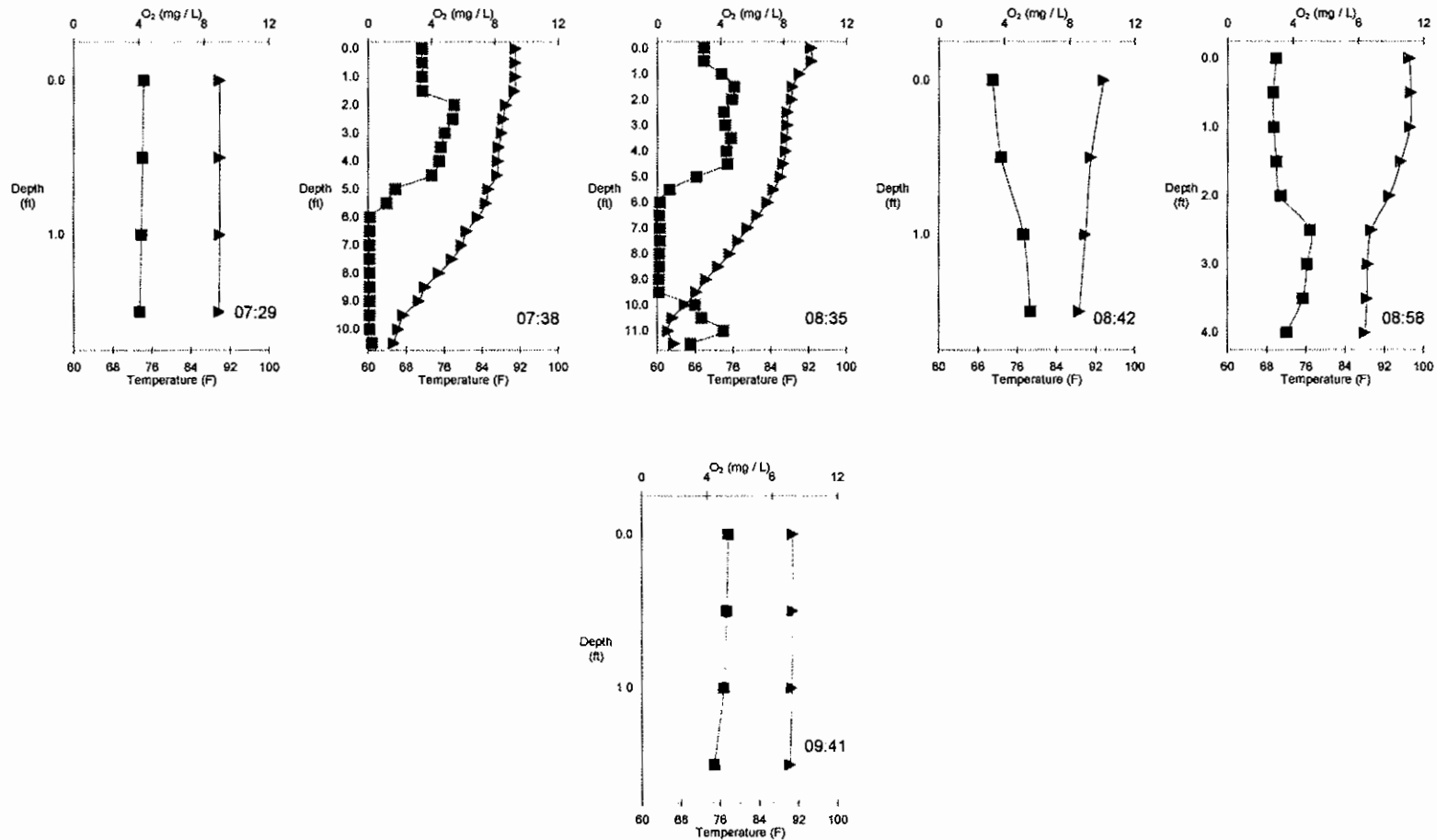


Figure 15A.145. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – July 9, 1998

Lake of Egypt – July 16, 1998

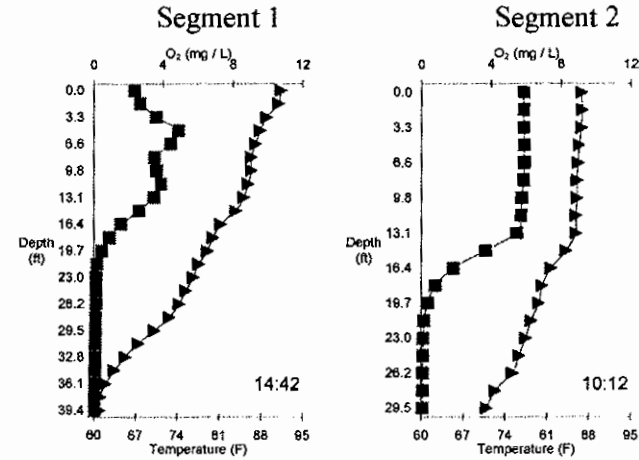
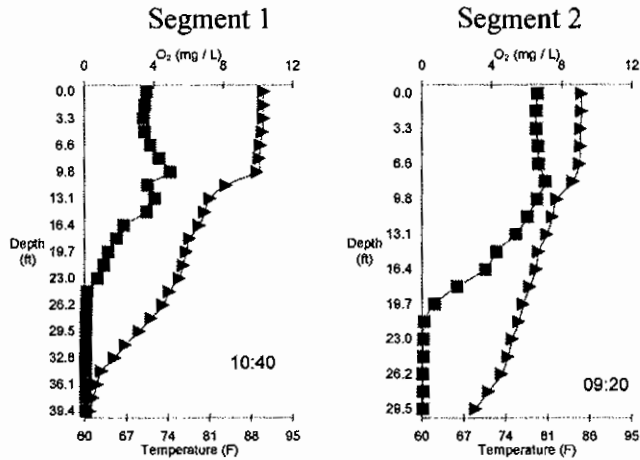


Figure 15A.146. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – July 16, 1998

Segment 1

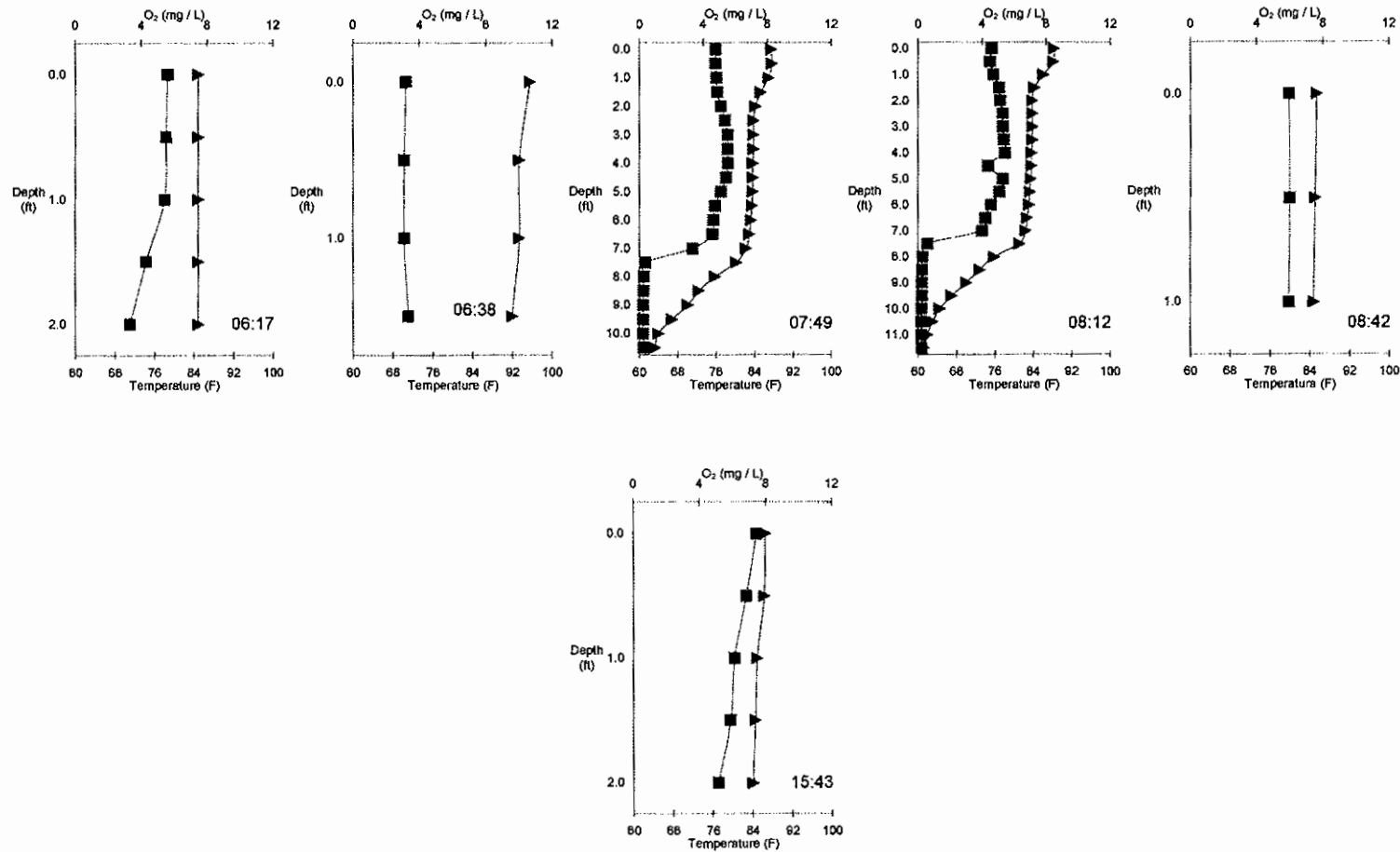
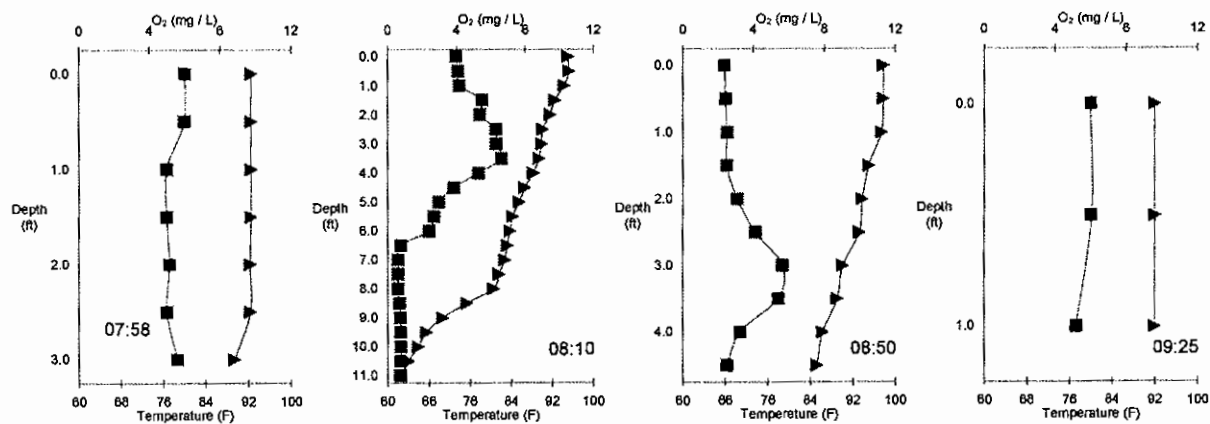


Figure 15A.147. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – July 23, 1998

Segment 1



Lake of Egypt – July 30, 1998

Segment 1

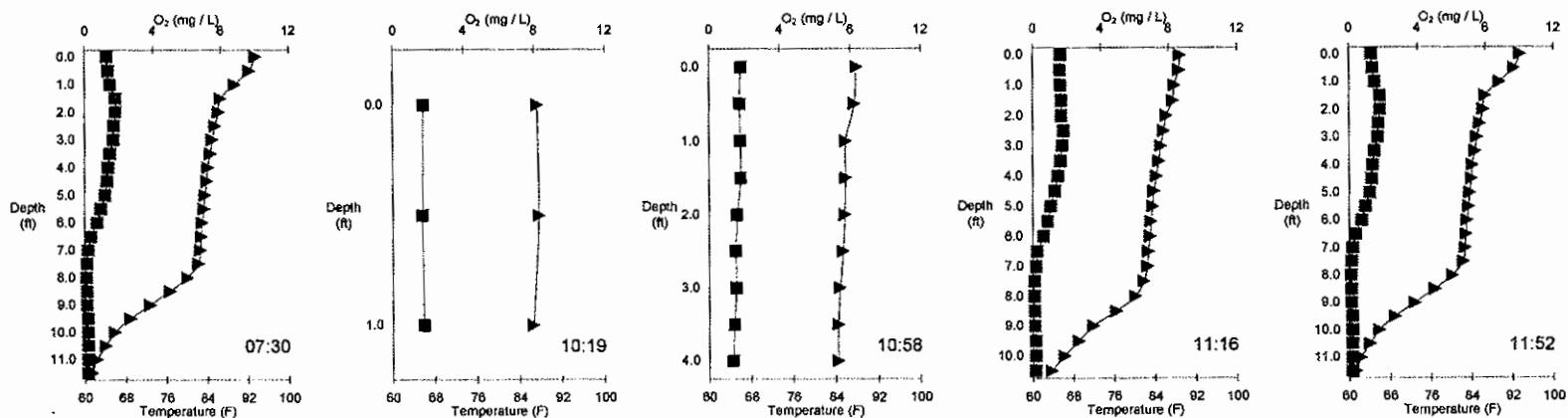


Figure 15A.148. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – July 23, 1998

Lake of Egypt – July 30, 1998

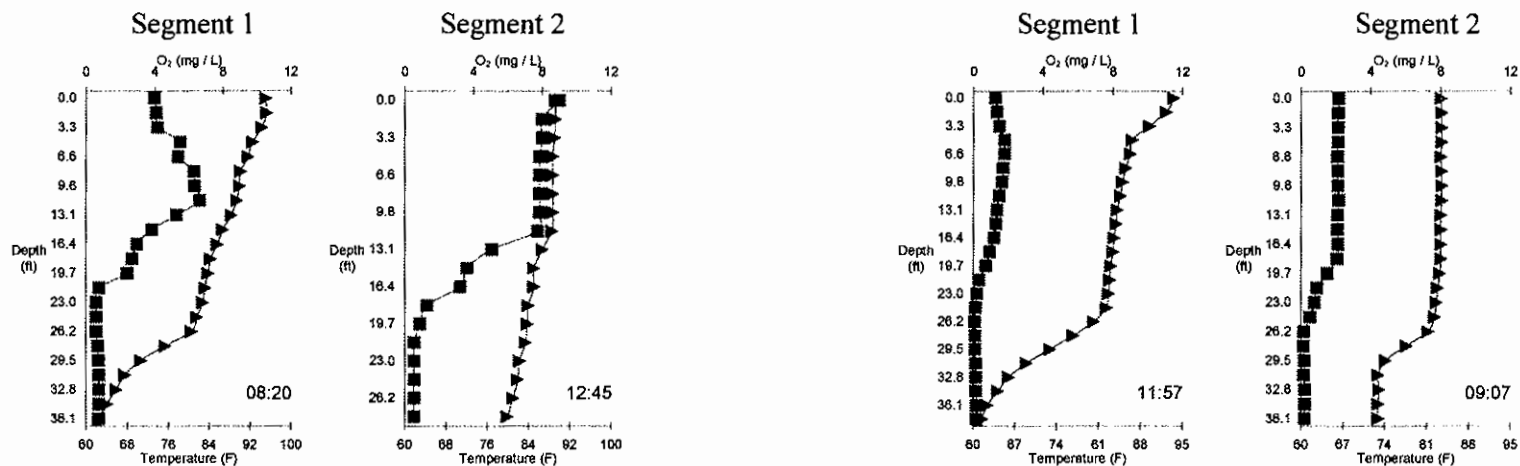
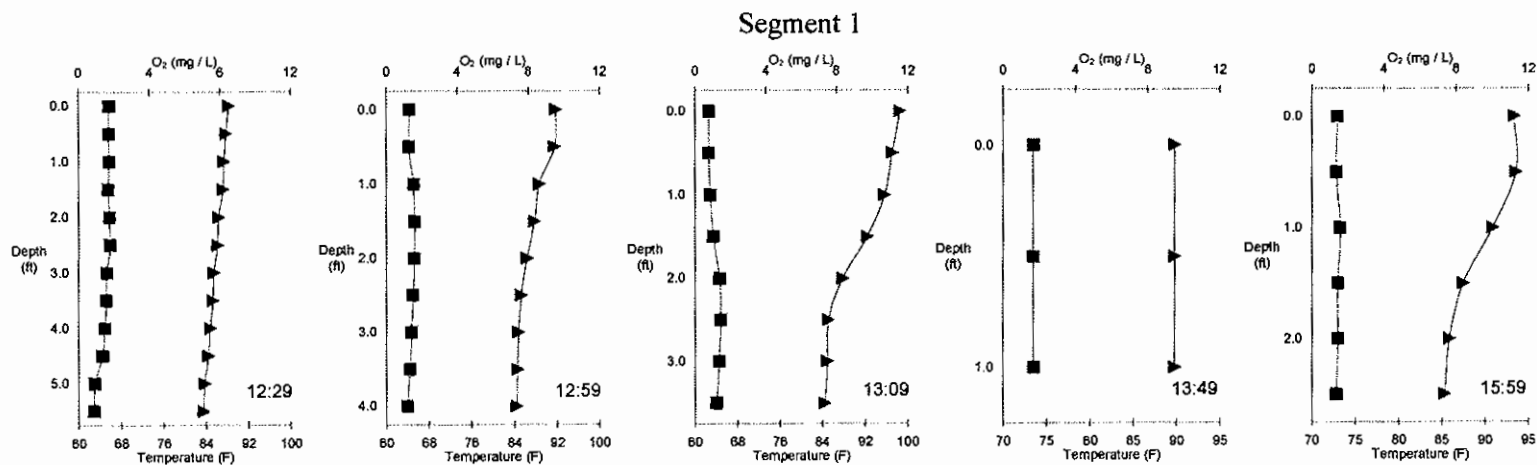


Figure 15A.149. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – July 30, 1998



Lake of Egypt – August 4, 1998

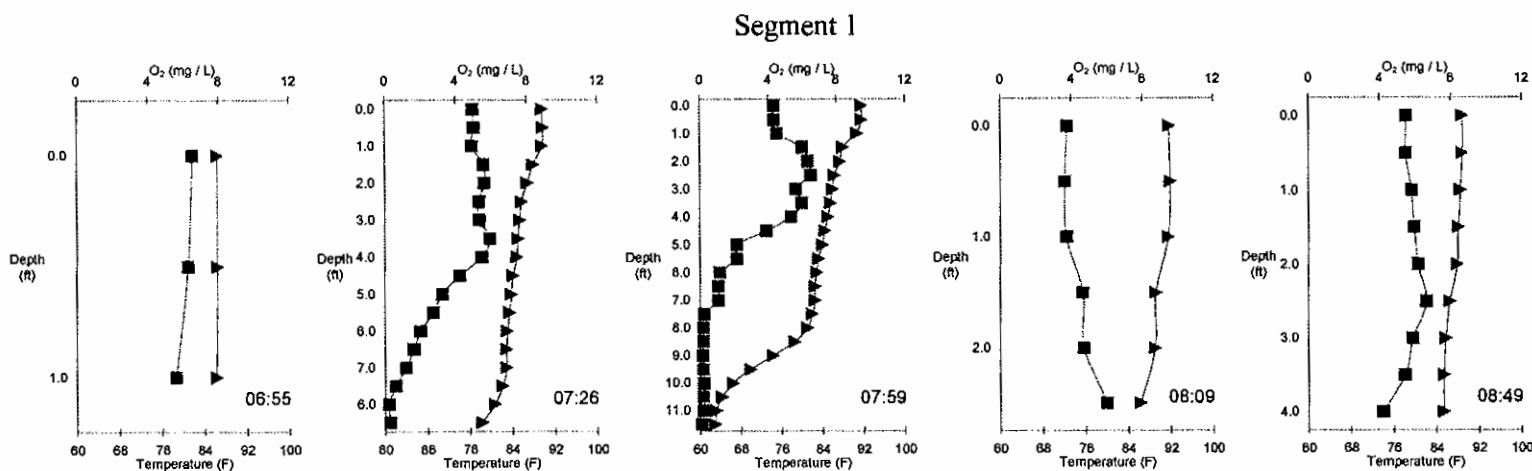


Figure 15A.150. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 4, 1998

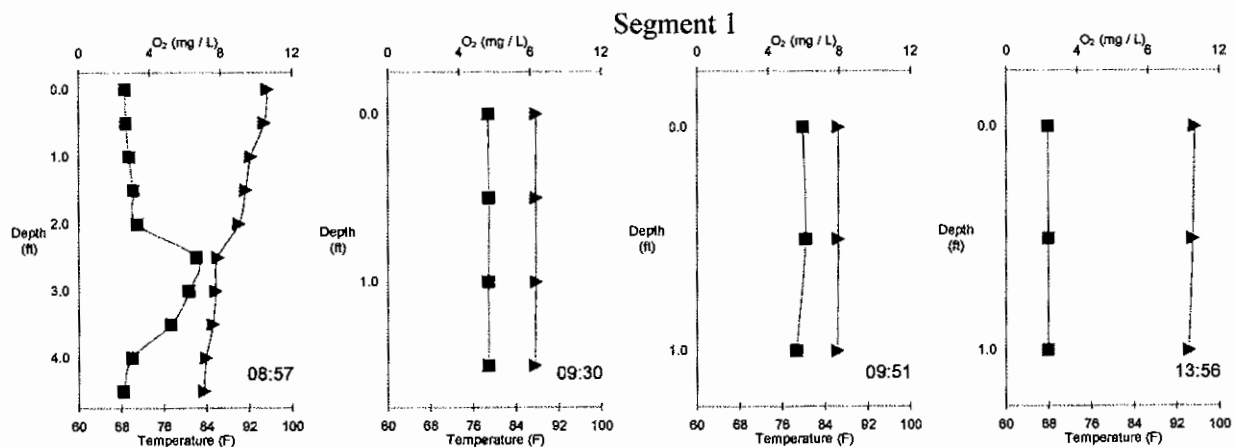


Figure 15A.151. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 4, 1998

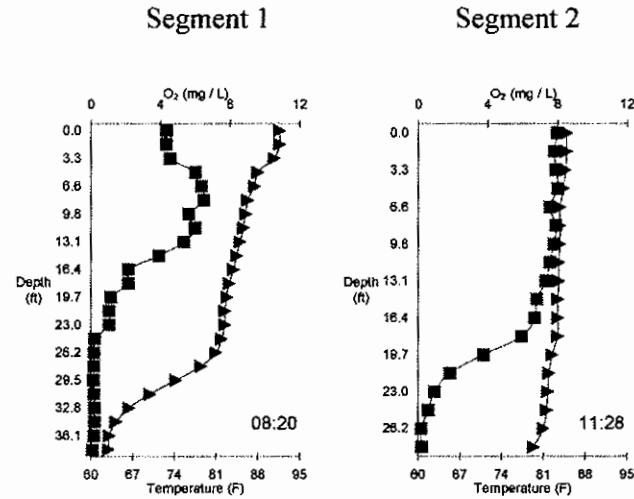


Figure 15A.152. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 10, 1998

Segment 1

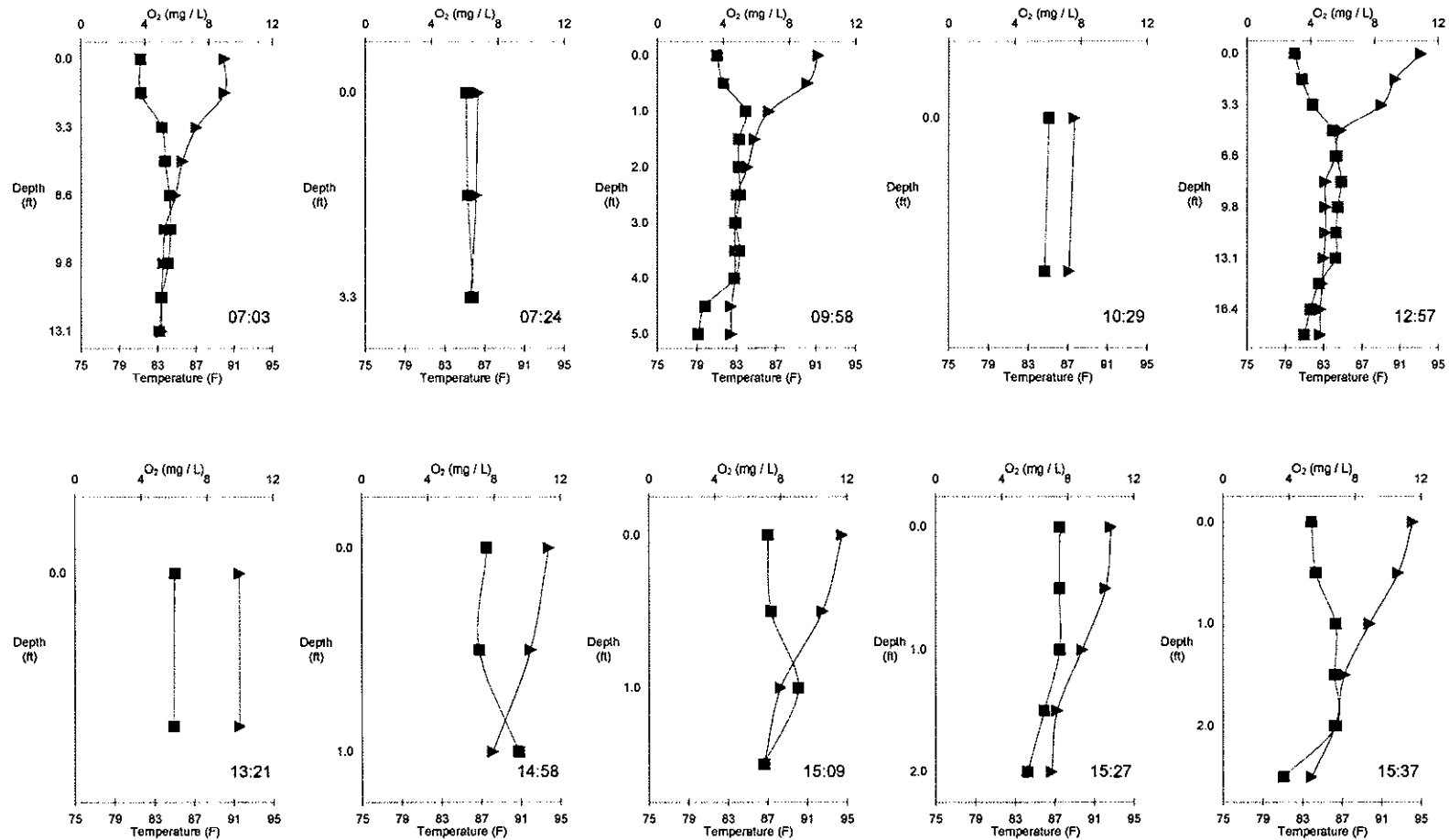


Figure 15A.153. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 10, 1998

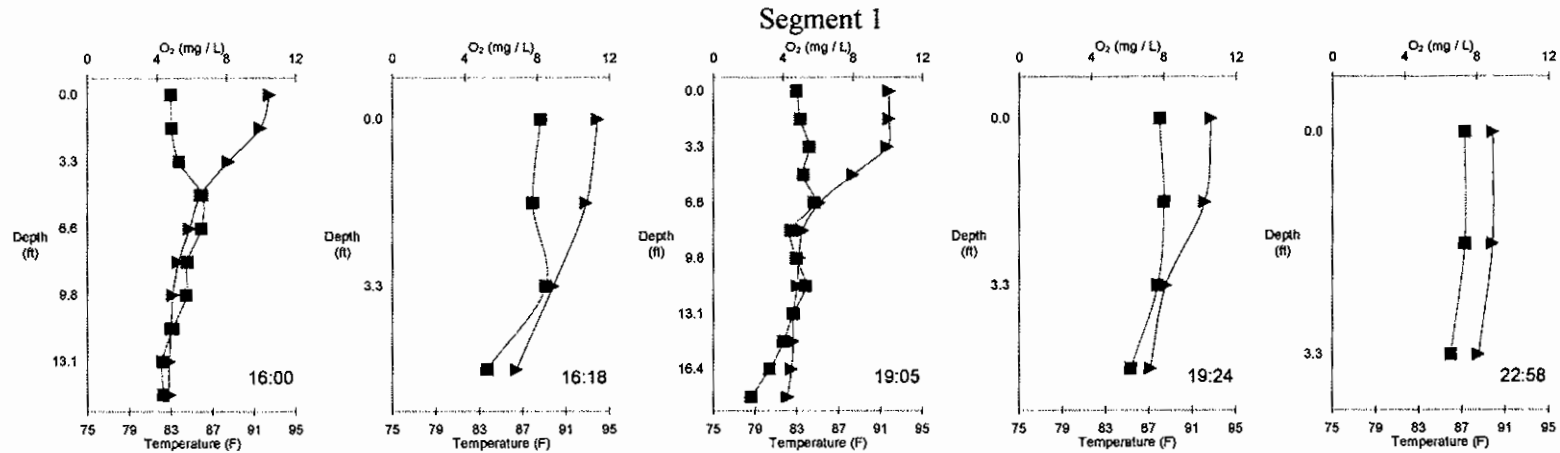


Figure 15A.154. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 11, 1998

Segment 1

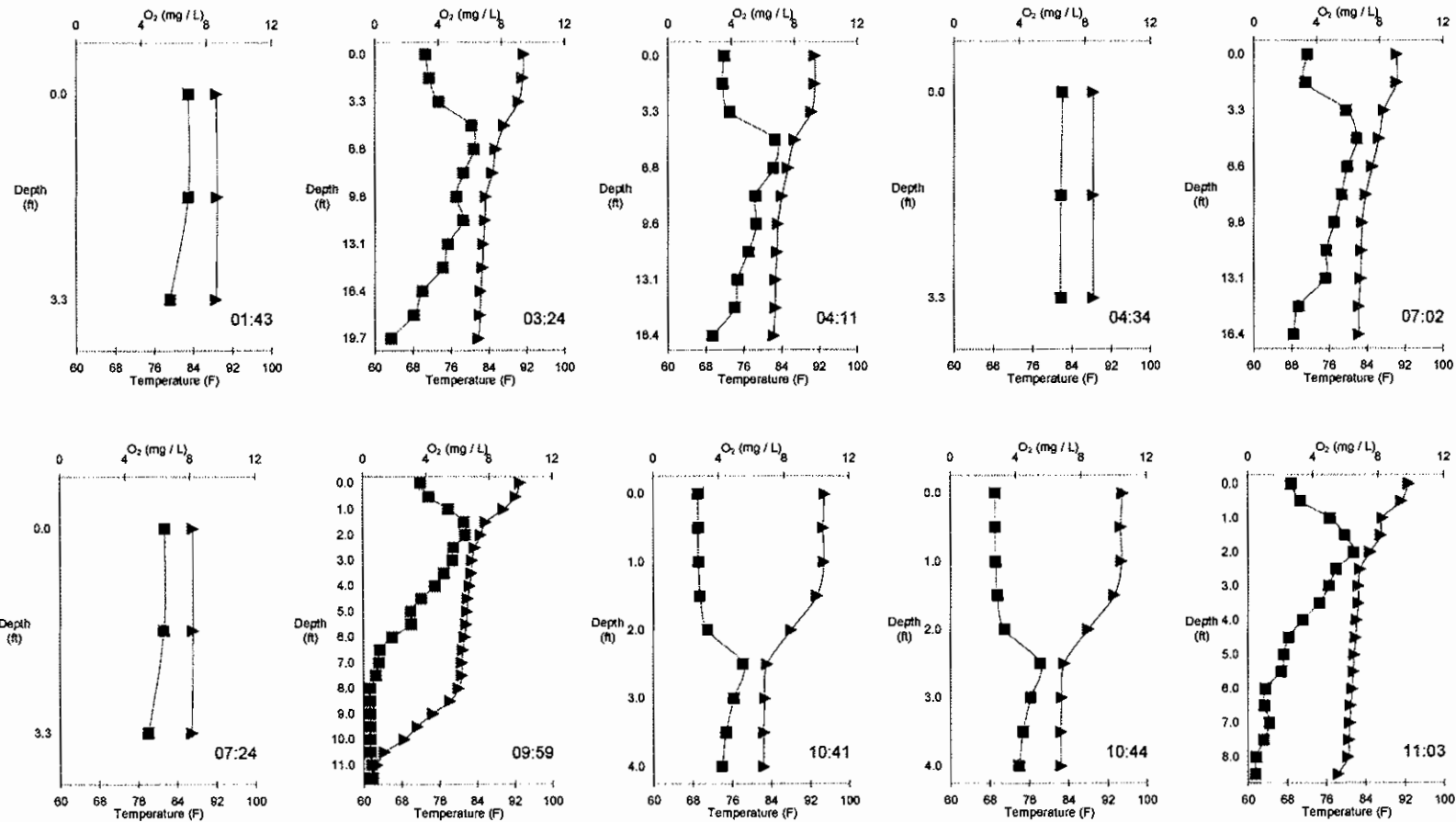
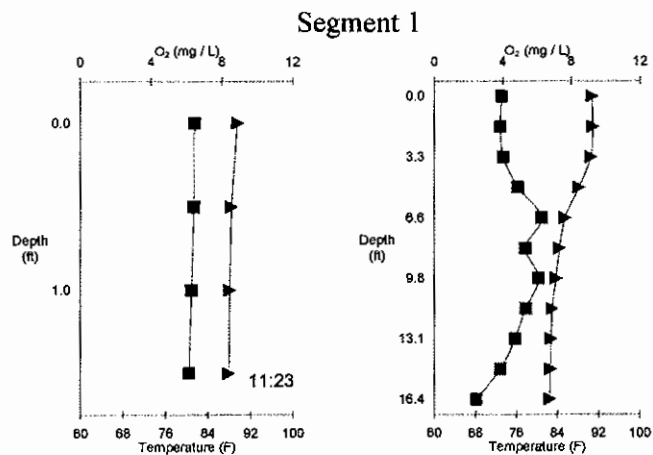


Figure 15A.155. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 11, 1998



Lake of Egypt – August 16, 1998

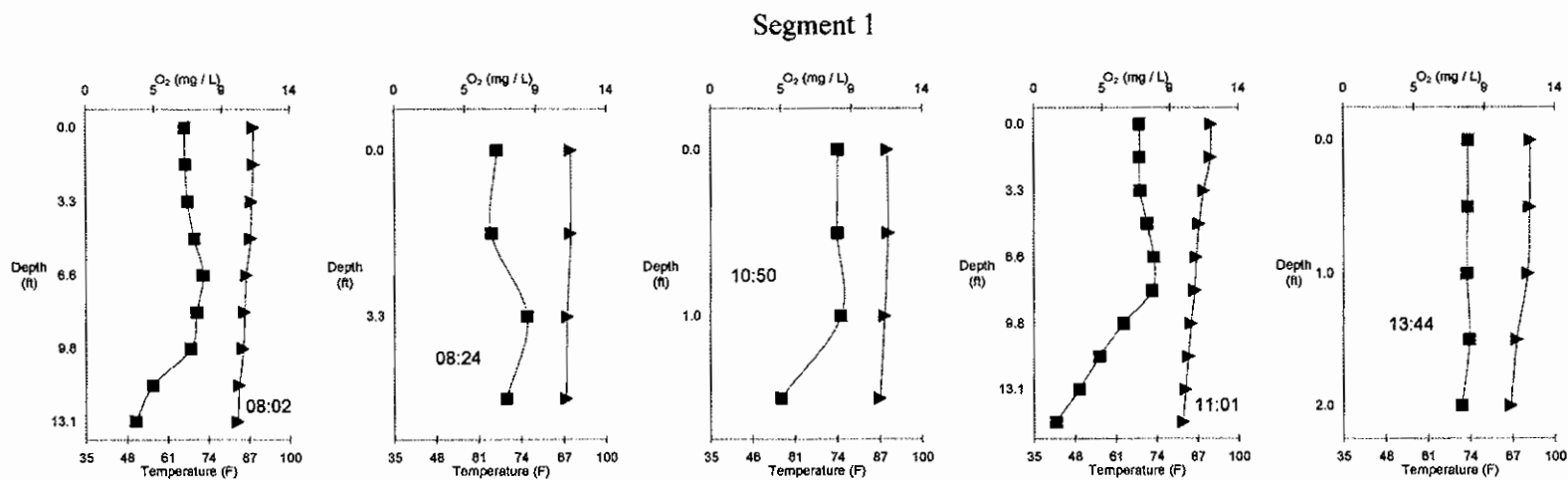


Figure 15A.156. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 16, 1998

Segment 1

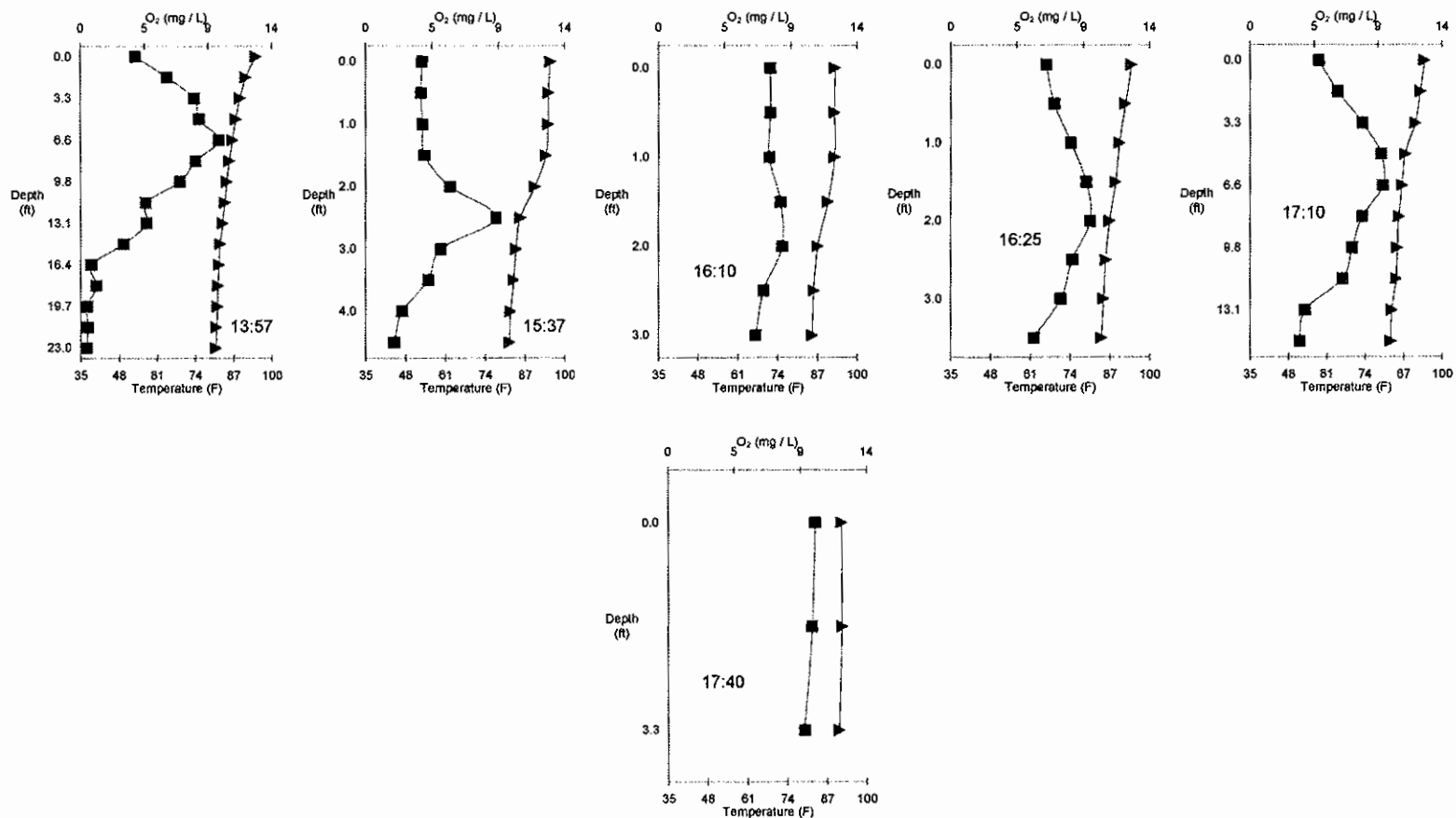


Figure 15A.157. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 17, 1998

Segment 1

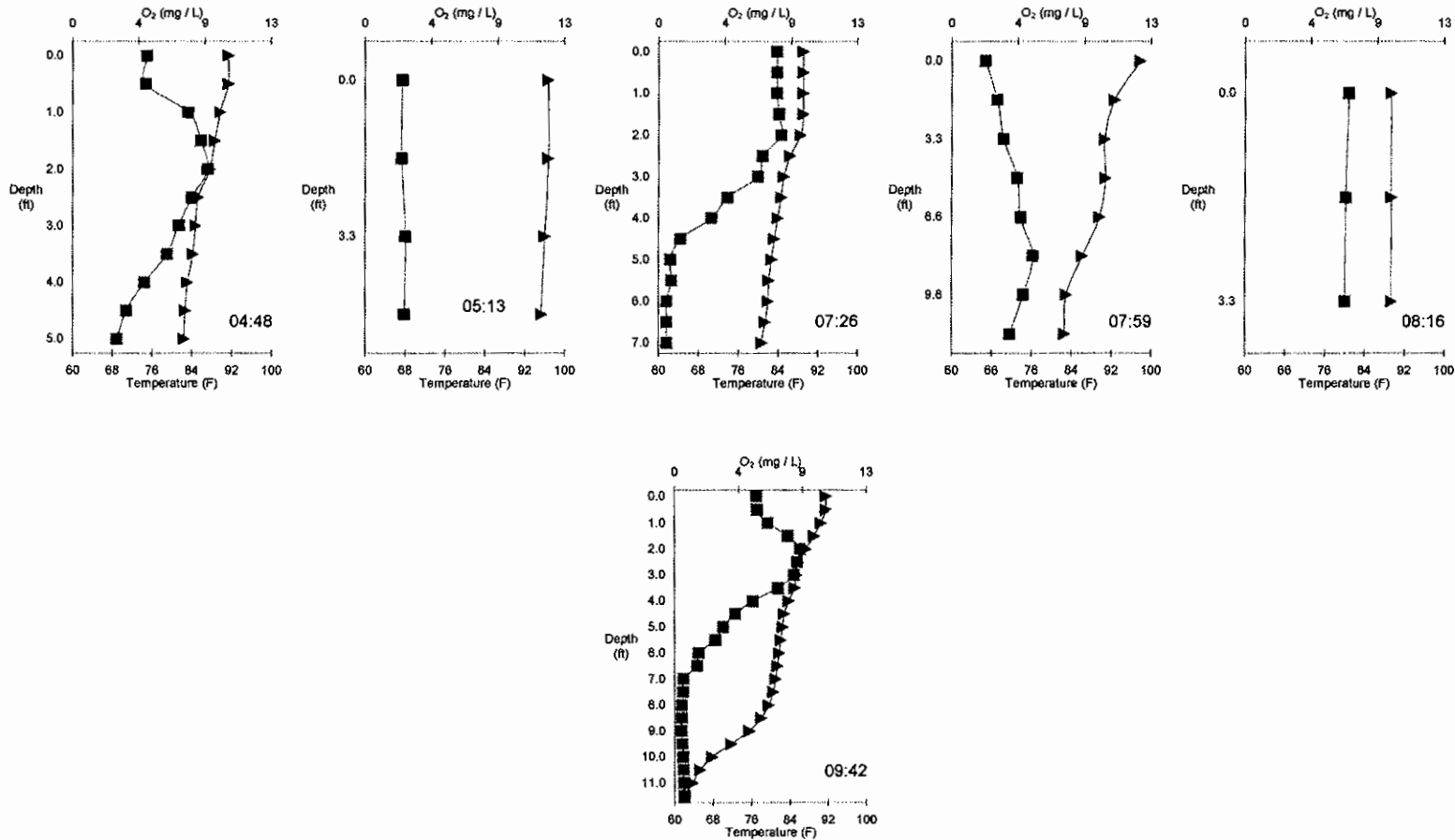
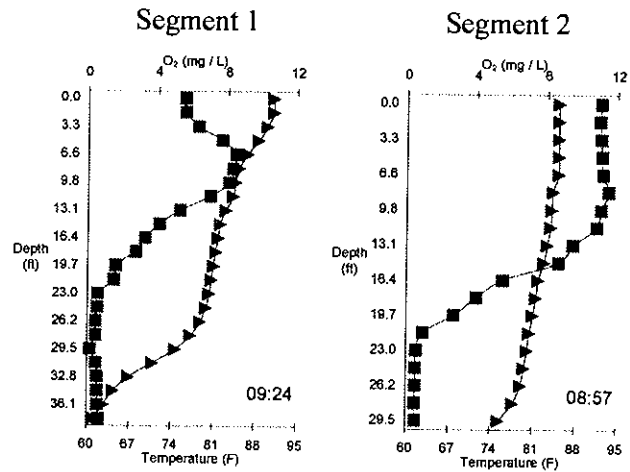


Figure 15A.158. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 17, 1998



Lake of Egypt – August 25, 1998

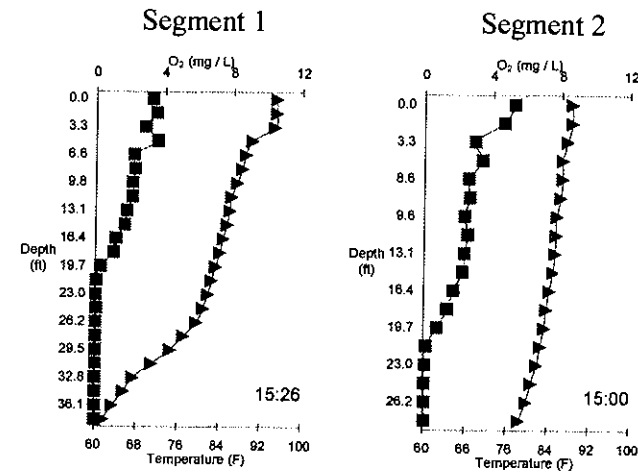


Figure 15A.159. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 25, 1998

Segment 1

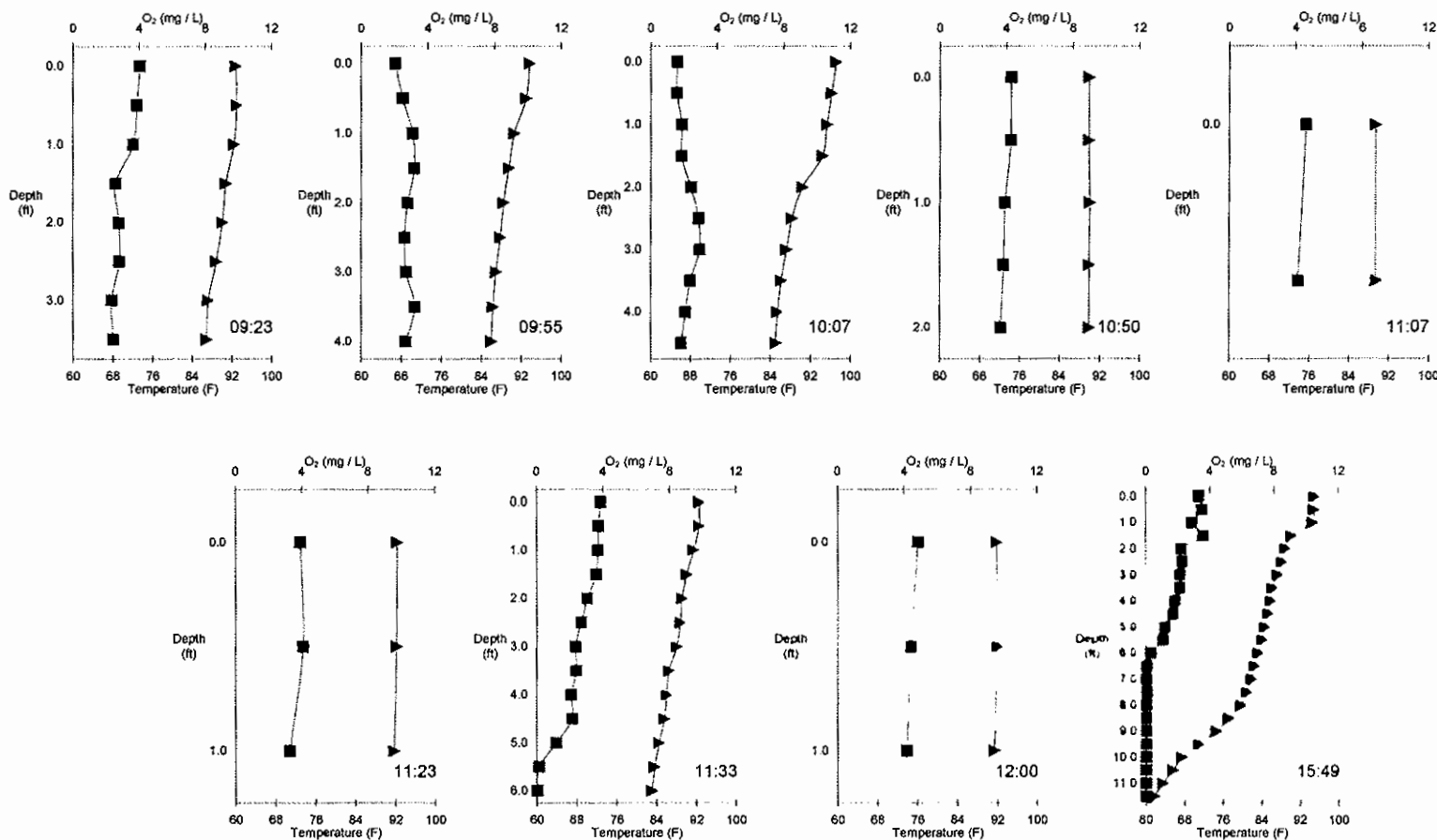
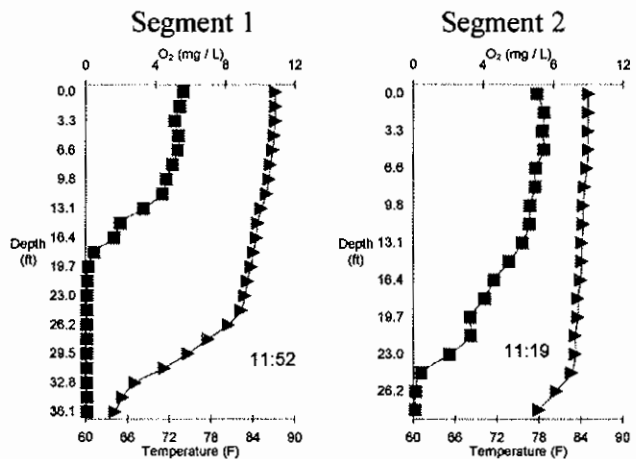
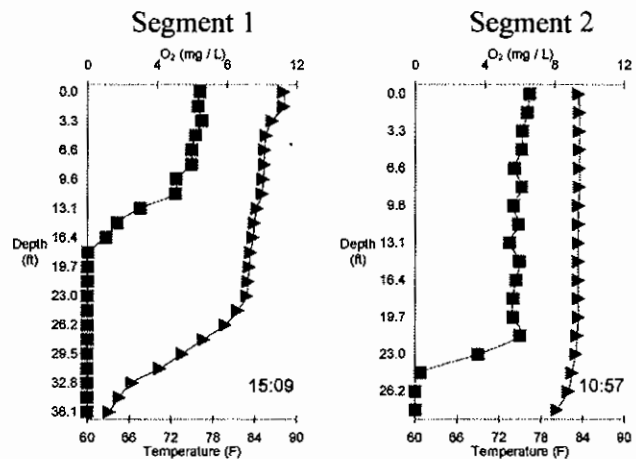


Figure 15A.160. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

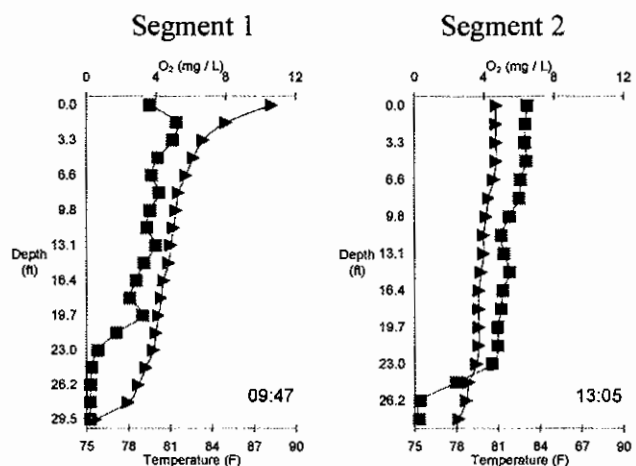
Lake of Egypt - September 4, 1998



Lake of Egypt - September 8, 1998



Lake of Egypt - September 17, 1998



Lake of Egypt - September 24, 1998

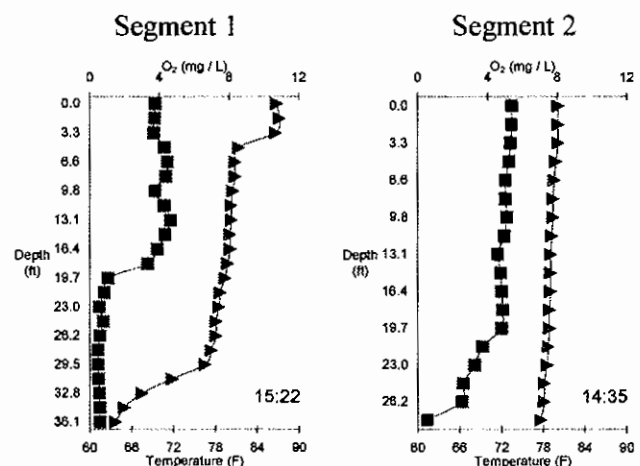
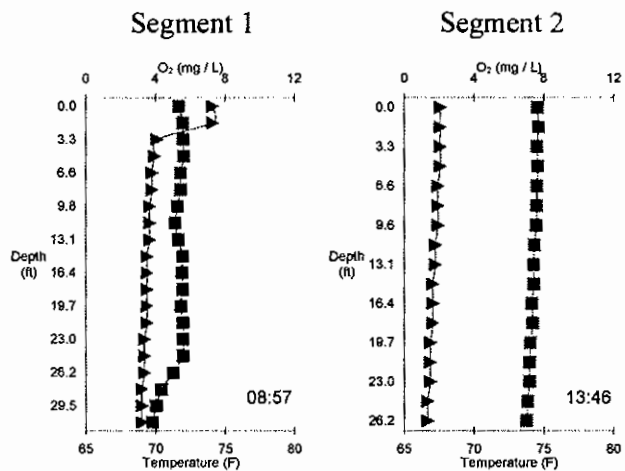
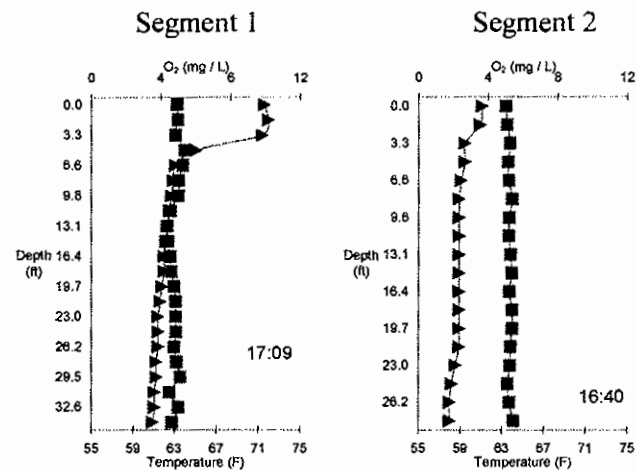


Figure 15A.161. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

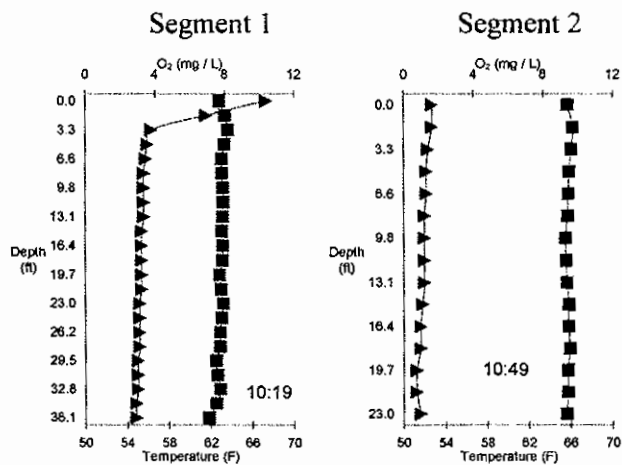
Lake of Egypt – October 22, 1998



Lake of Egypt – November 9, 1998



Lake of Egypt – November 17, 1998



Lake of Egypt – December 3, 1998

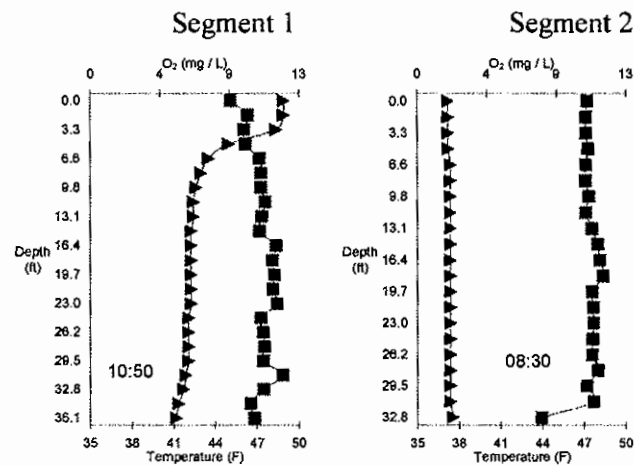
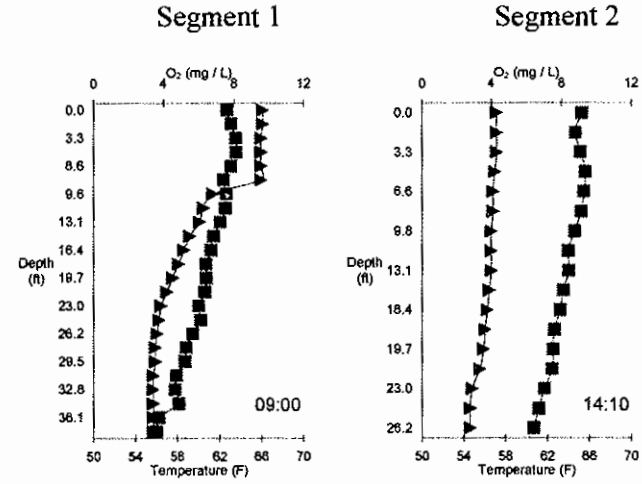
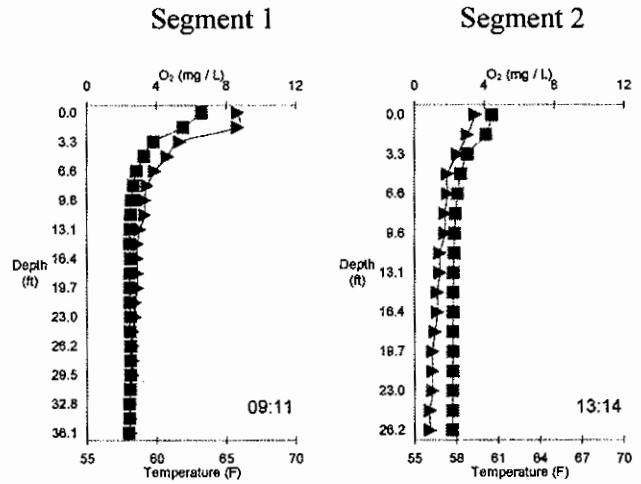


Figure 15A.162. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – December 15, 1998

Lake of Egypt – January 7, 1999



Lake of Egypt – January 20, 1999

Lake of Egypt – February 4, 1999

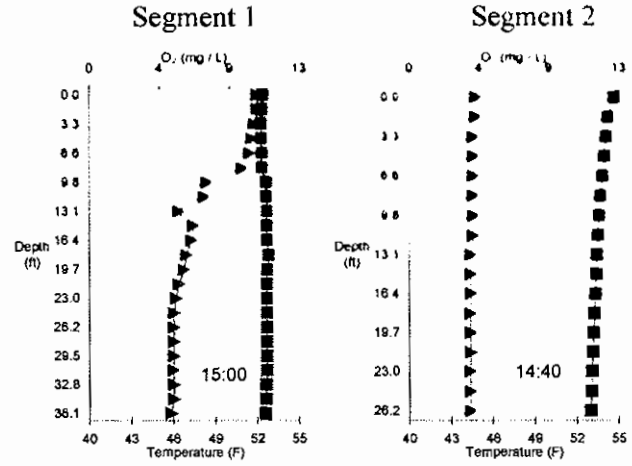
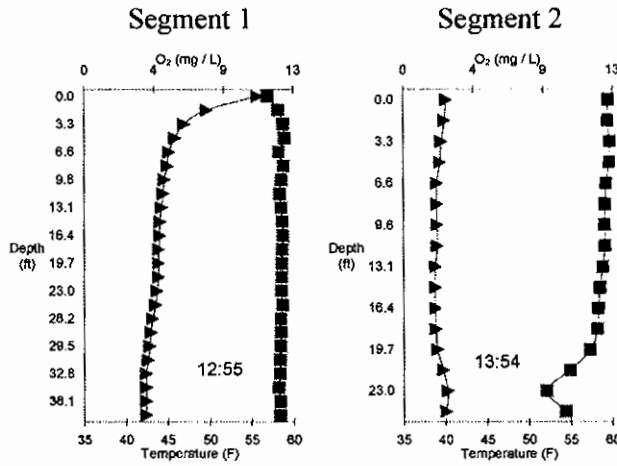
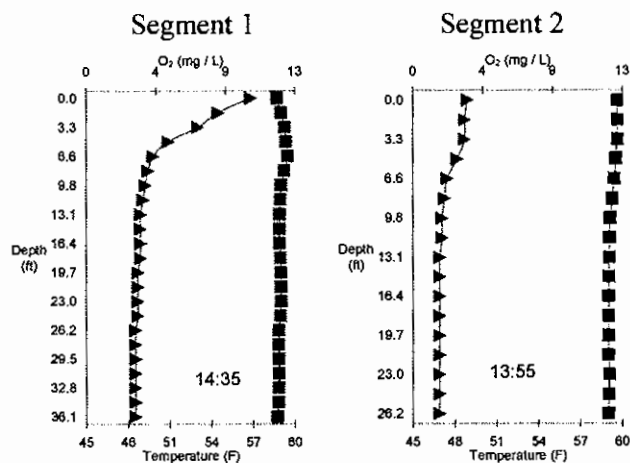
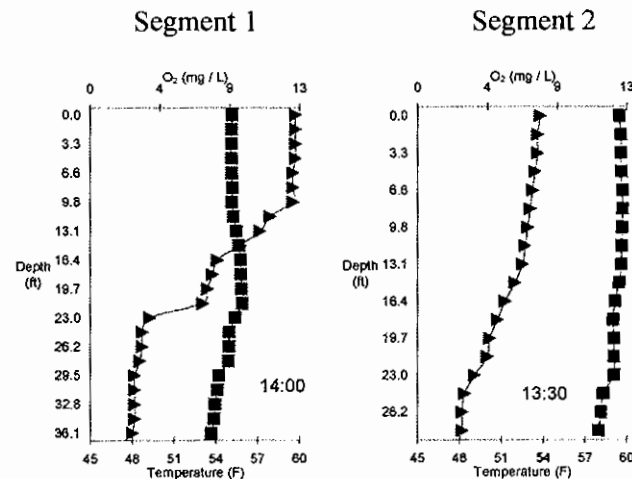


Figure 15.163. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

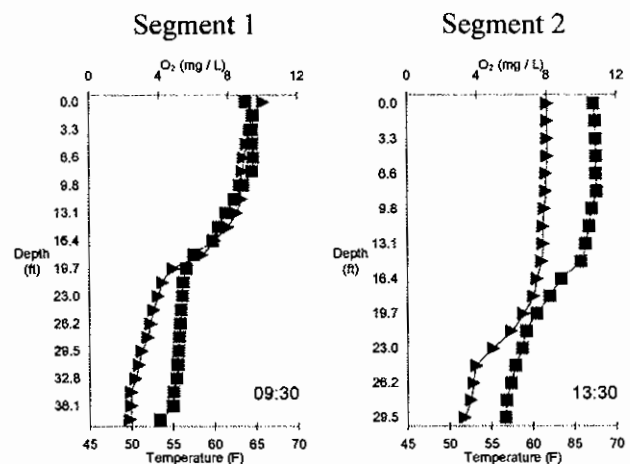
Lake of Egypt – February 17, 1999



Lake of Egypt – April 1, 1999



Lake of Egypt – April 13, 1999



Lake of Egypt – April 27, 1999

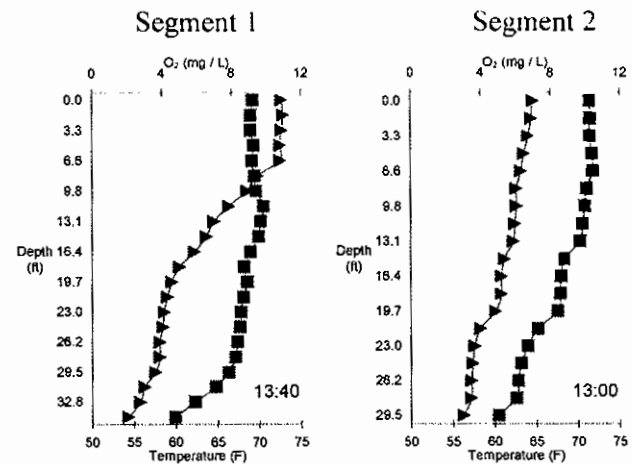
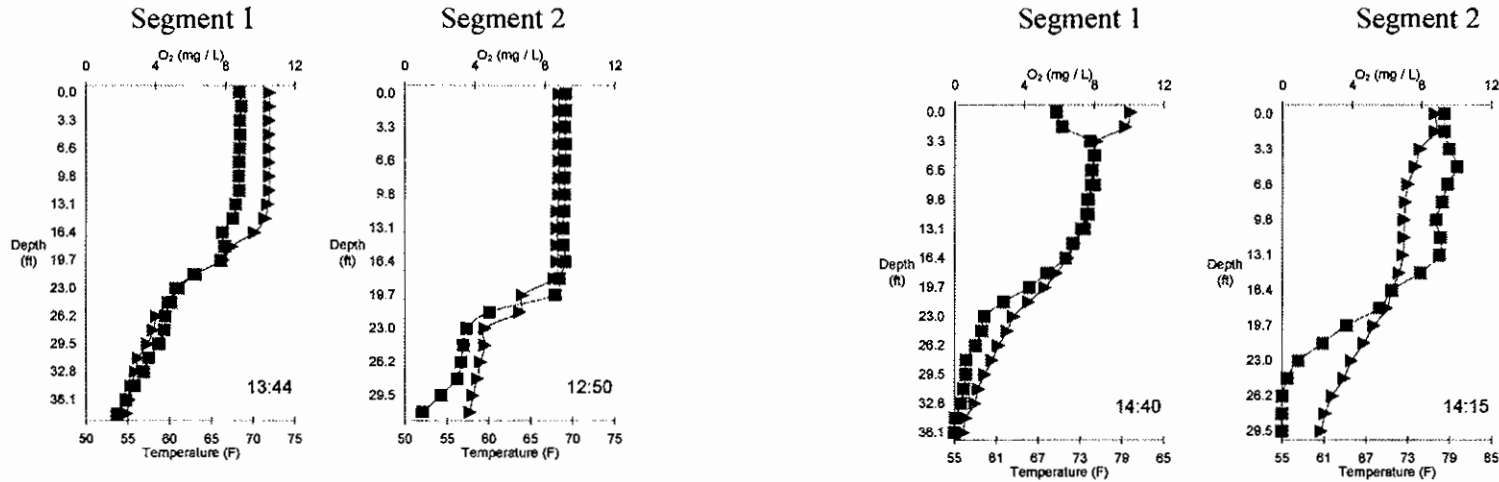


Figure 15A.164. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – May 7, 1999

Lake of Egypt – May 19, 1999



Lake of Egypt – June 1, 1999

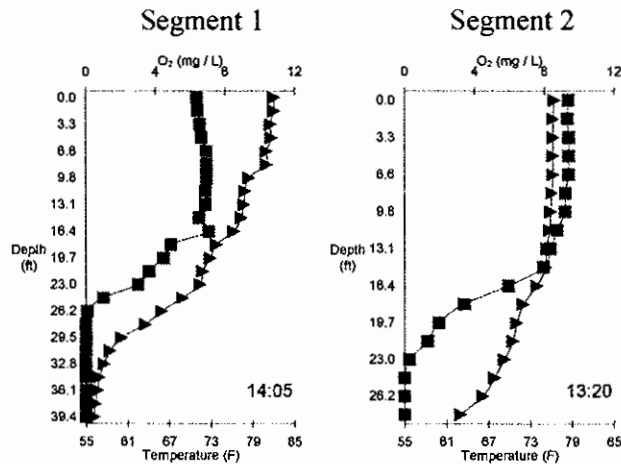


Figure 15A.165. – Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 1, 1999

Segment 1

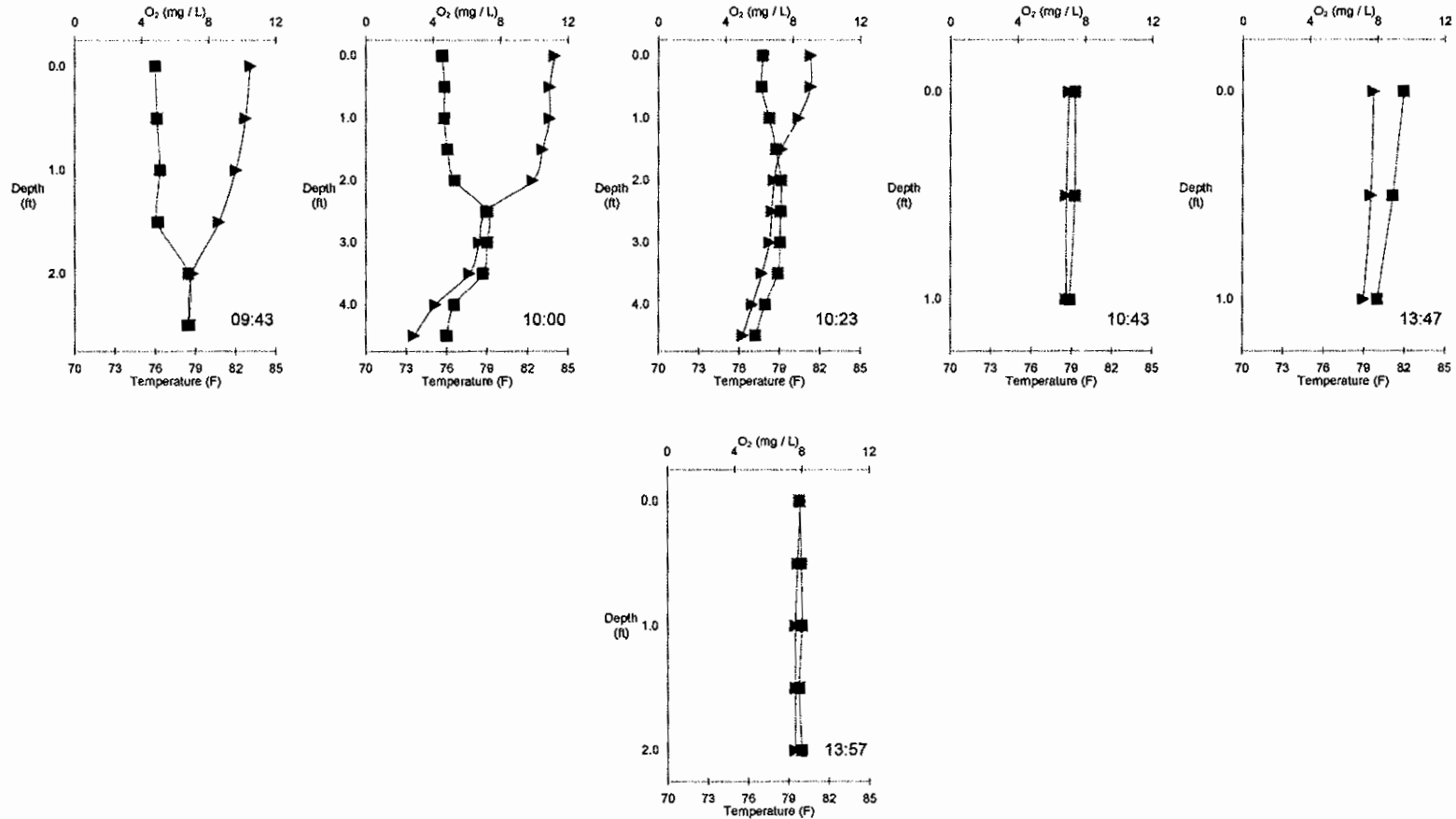


Figure 15A.166. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 6, 1999

Segment 1

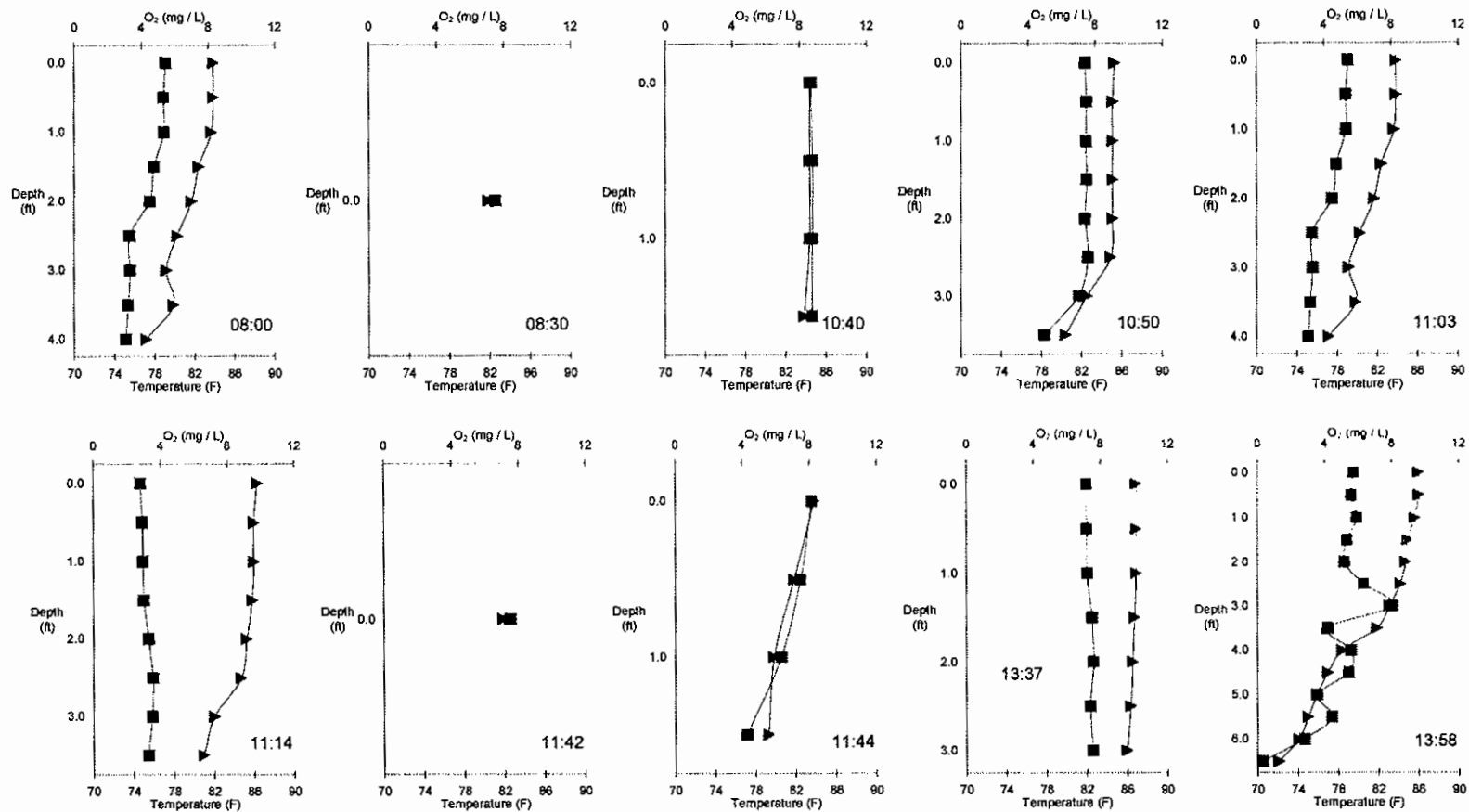


Figure 15A.167. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 6, 1999

Segment 1

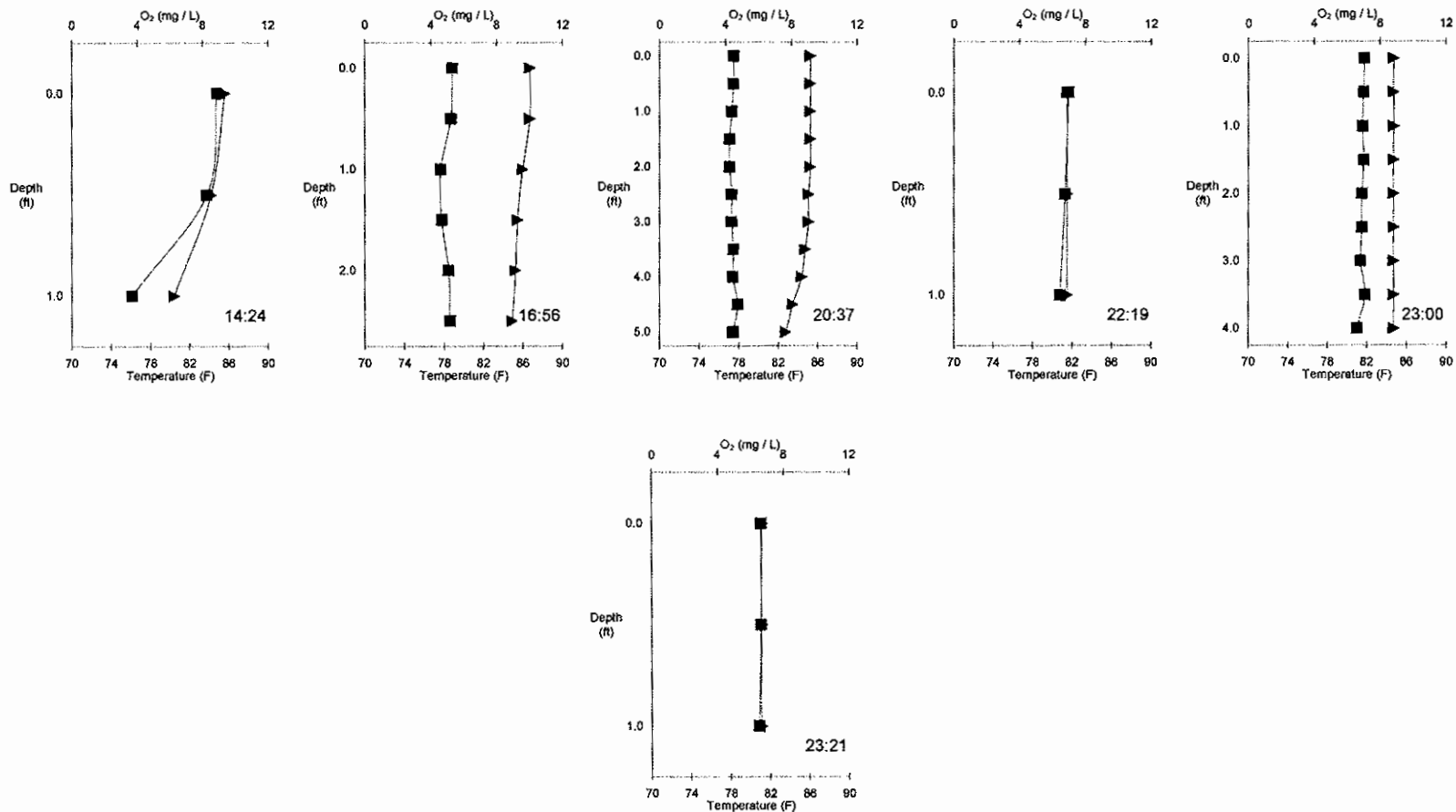


Figure 15A.168. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 7, 1999

Segment 1

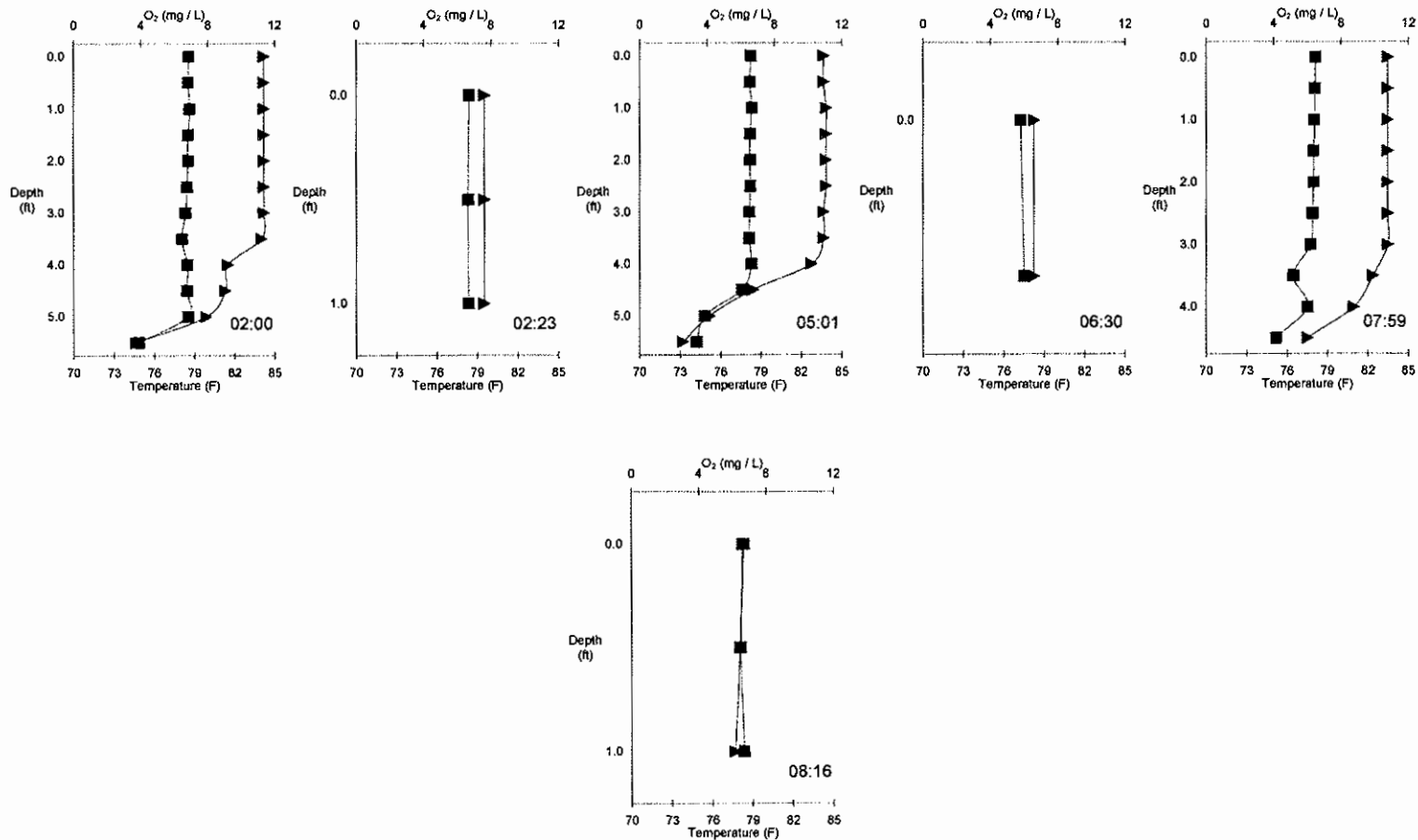


Figure 15A.169. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 18, 1999

Segment 1

Segment 2

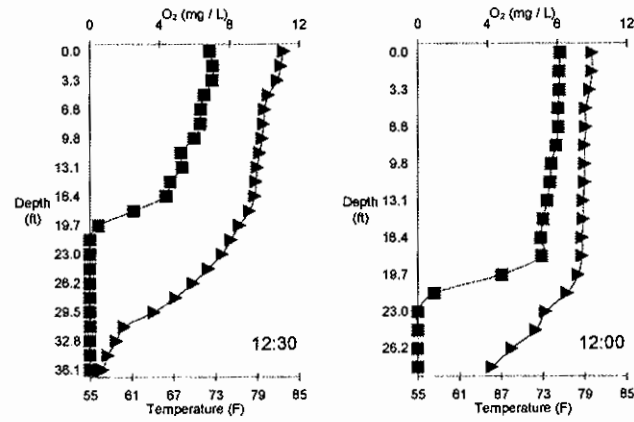


Figure 15A.170. – Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 18, 1999

Segment 1

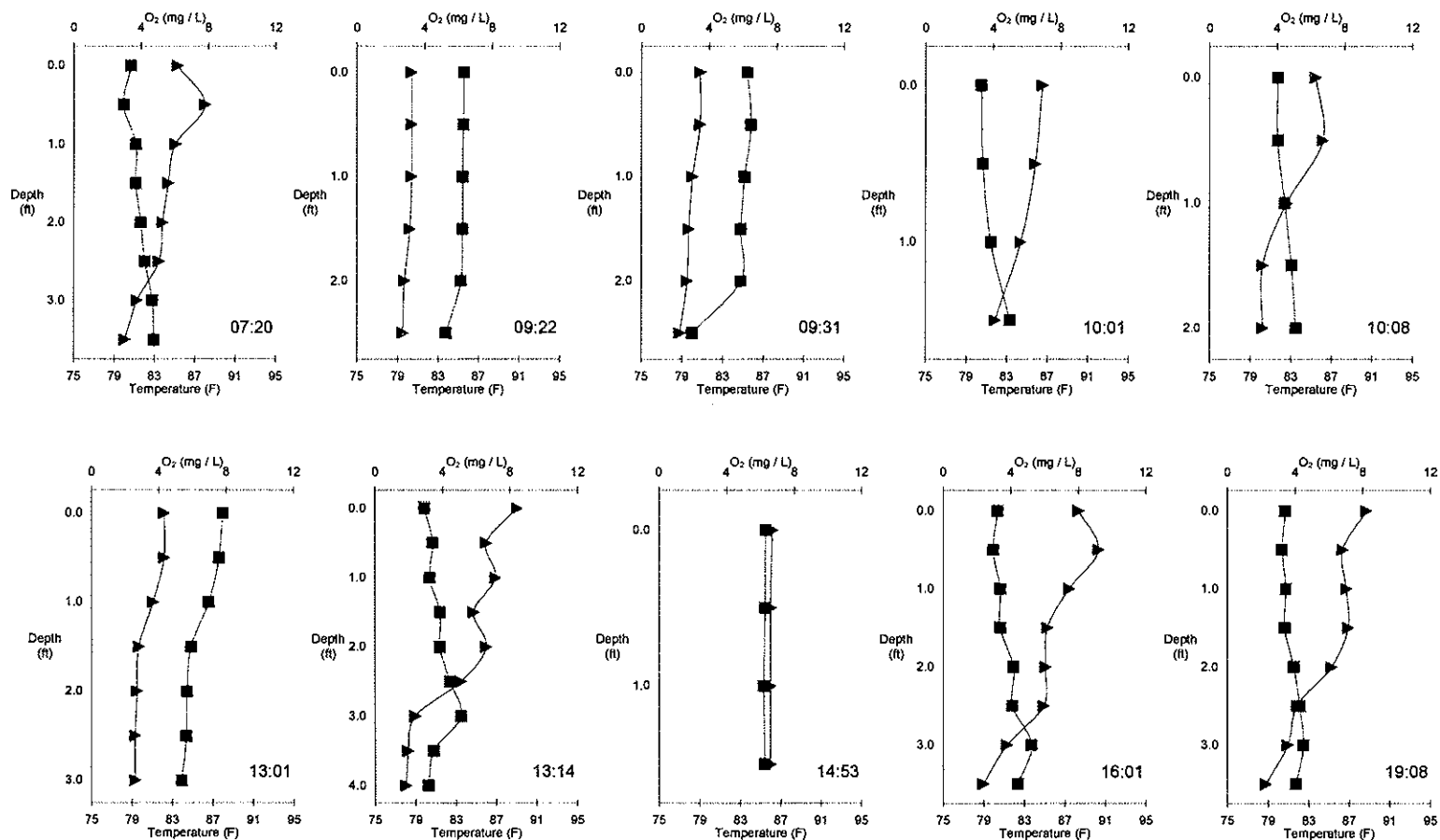
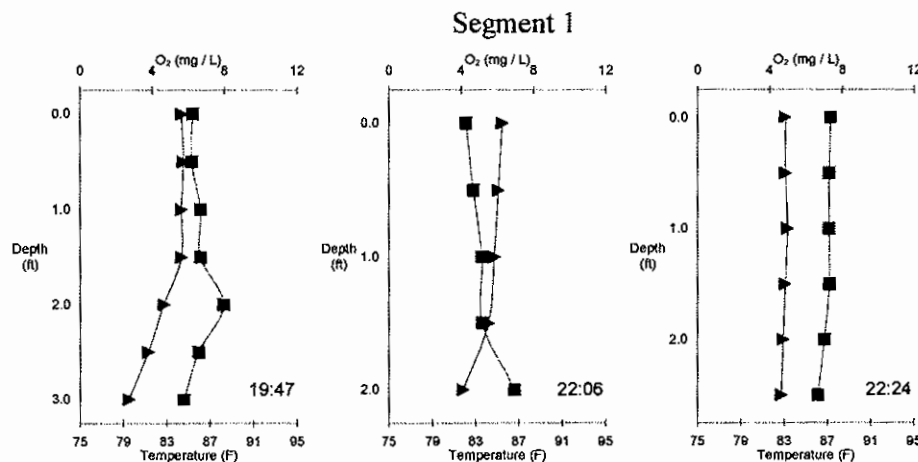


Figure 15A.171. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 18, 1999



Lake of Egypt – June 19, 1999

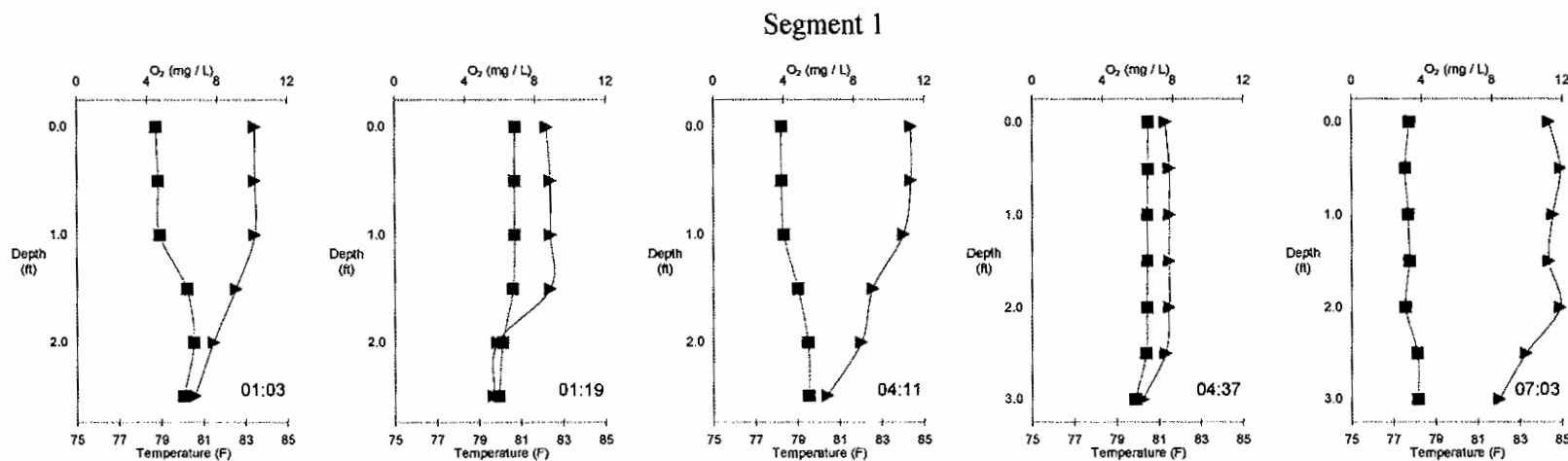
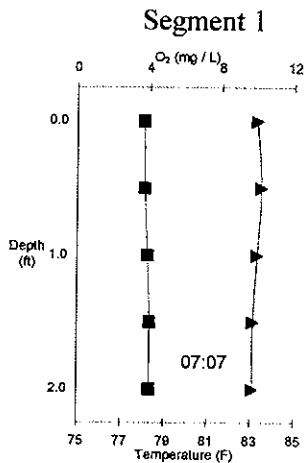


Figure 15A.172. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 19, 1999



Lake of Egypt – June 25, 1999

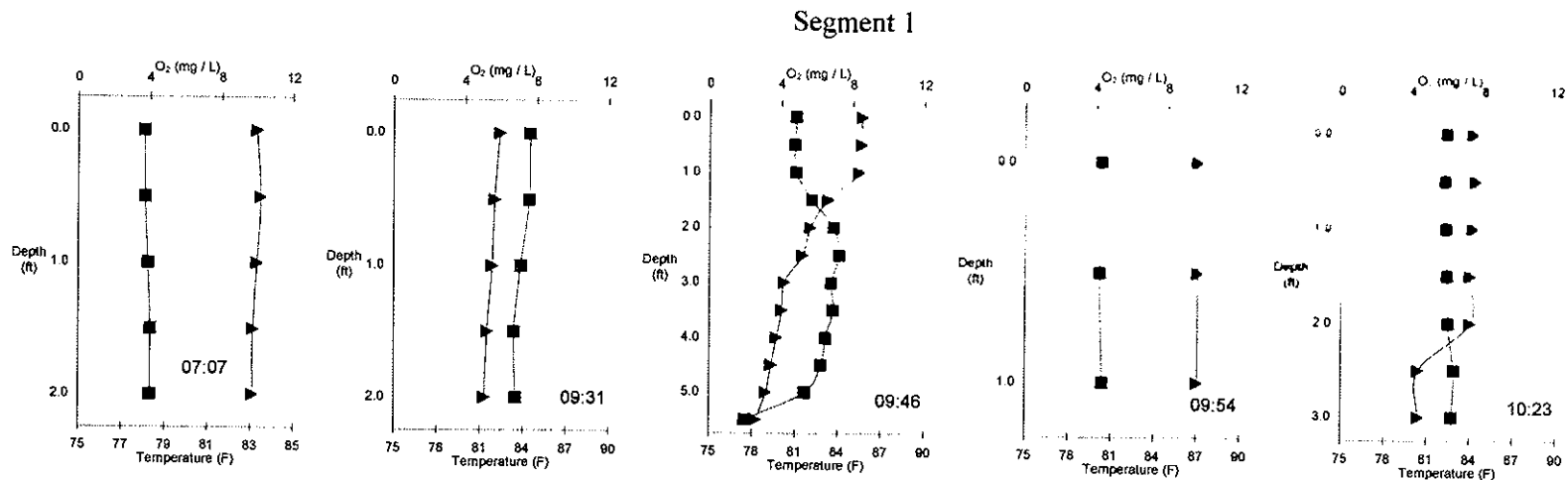
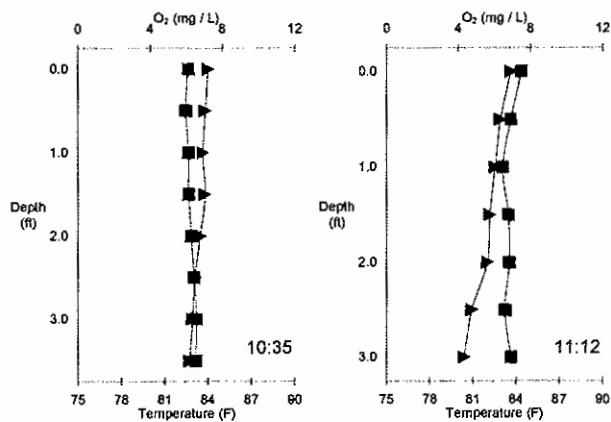


Figure 15A.173. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – June 25, 1999

Segment 1



Lake of Egypt – June 28, 1999

Segment 1

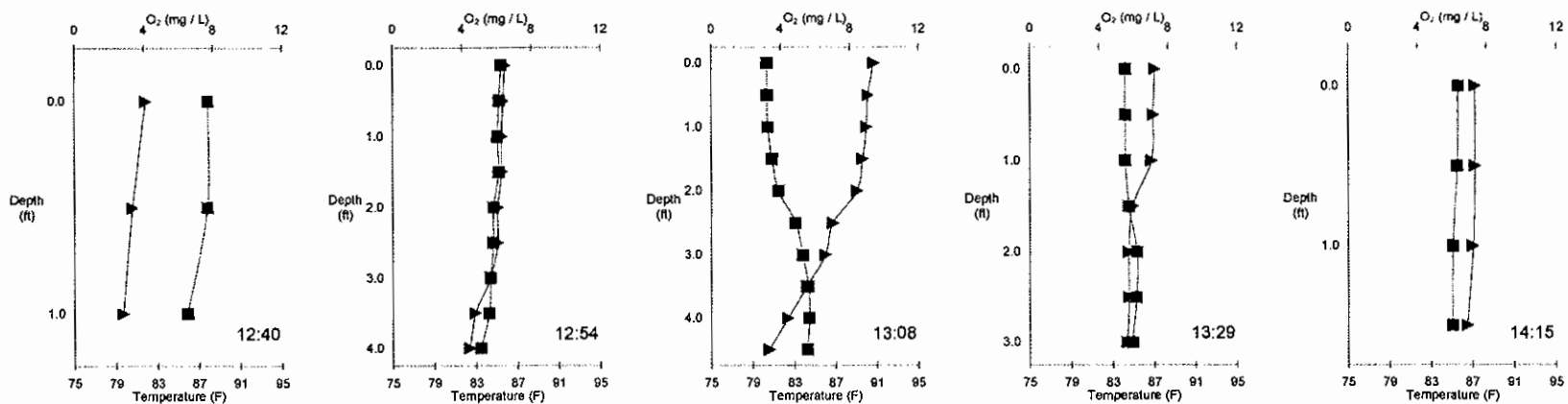


Figure 15A.174. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – July 9, 1999

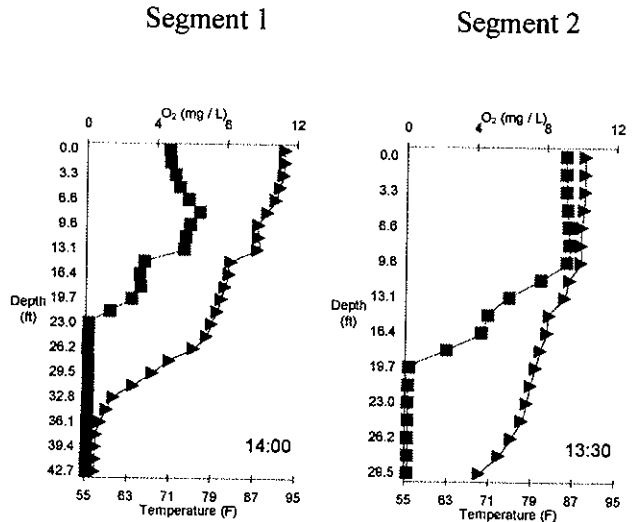
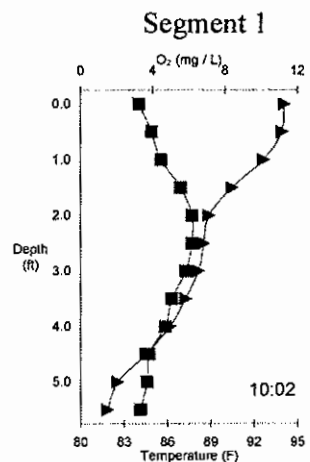


Figure 15A.175. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – July 9, 1999



Lake of Egypt – July 13, 1999

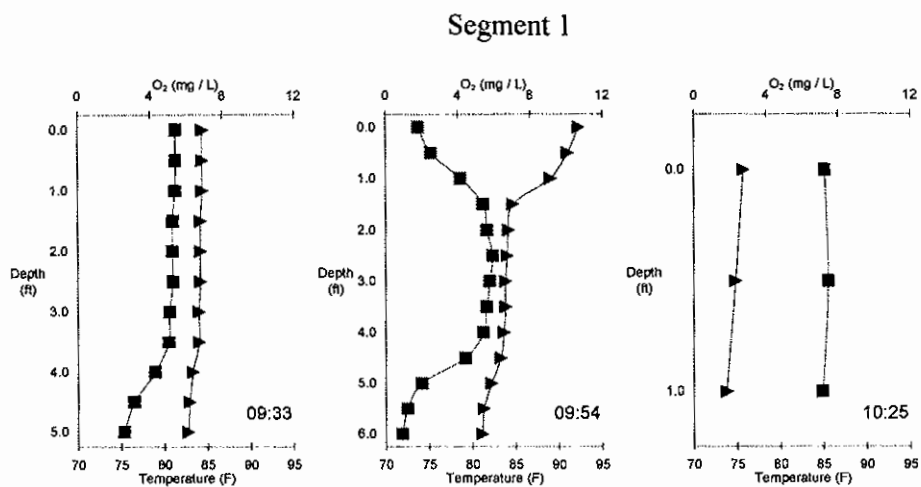


Figure 15A.176. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – July 22, 1999

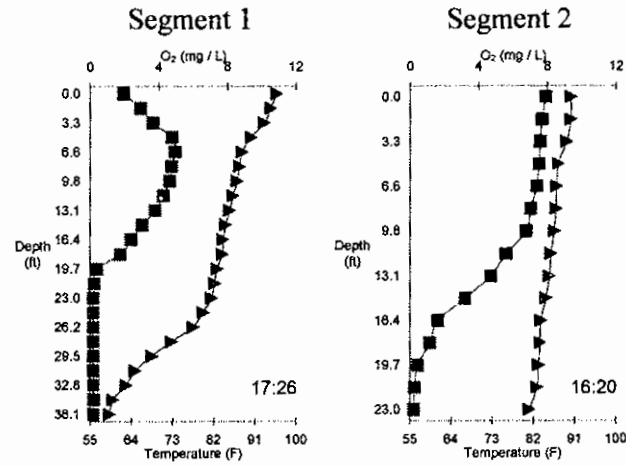
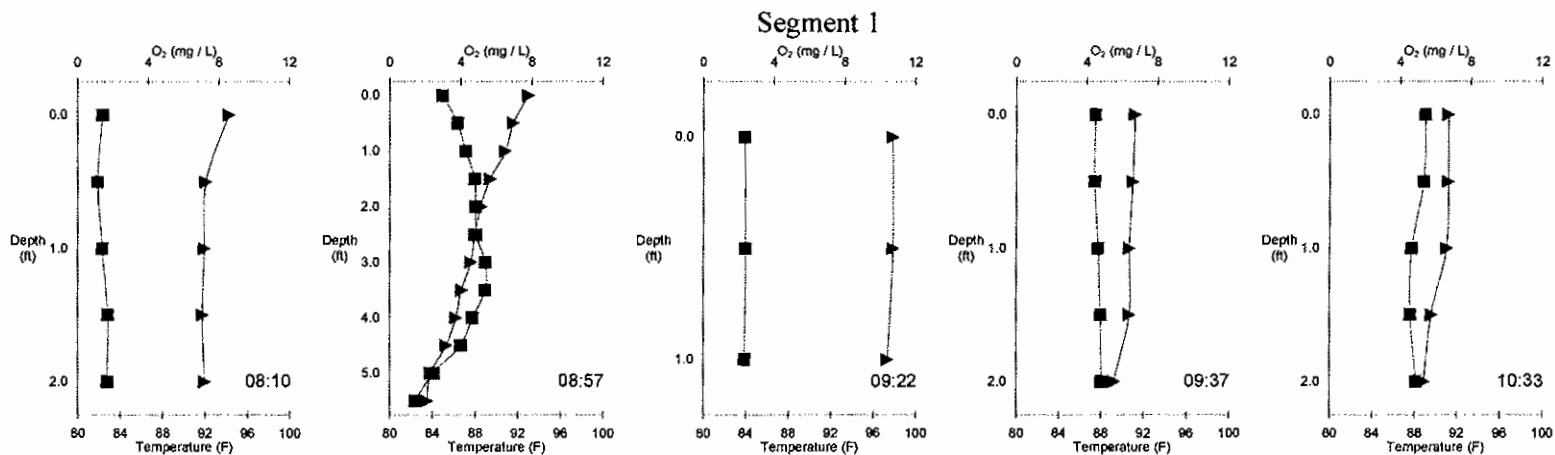


Figure 15A.177. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – July 22, 1999



Lake of Egypt – July 29, 1999

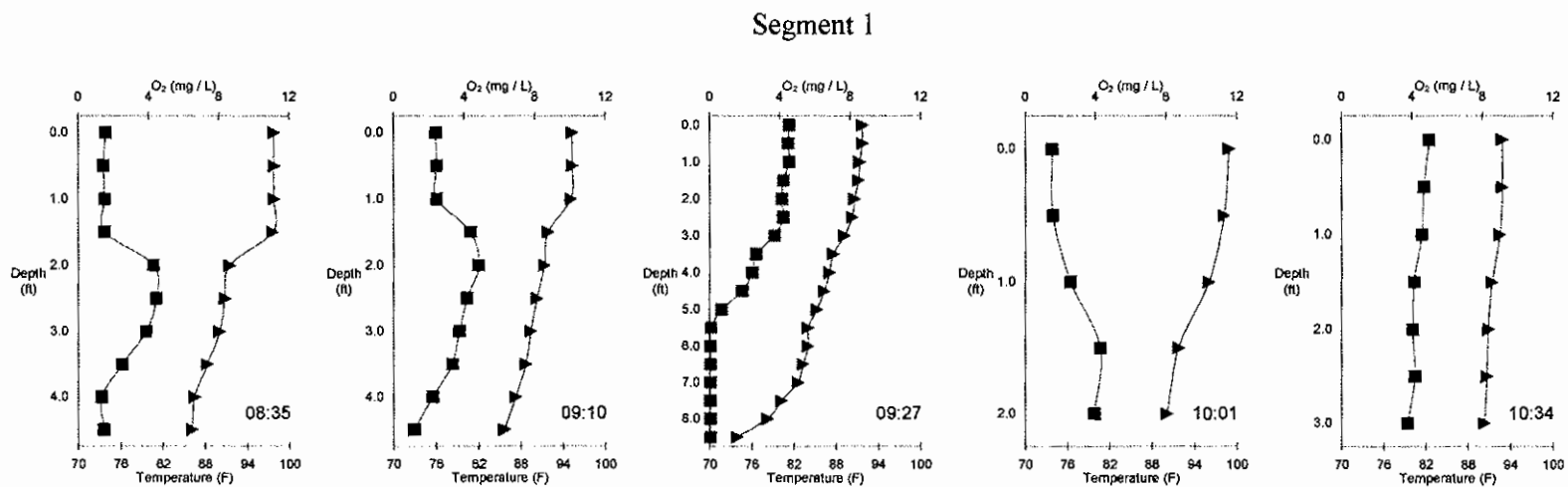
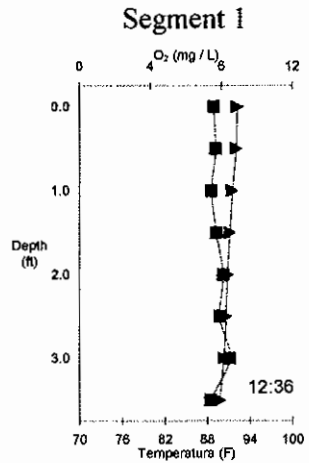


Figure 15A.178. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – July 29, 1999



Lake of Egypt – August 3, 1999

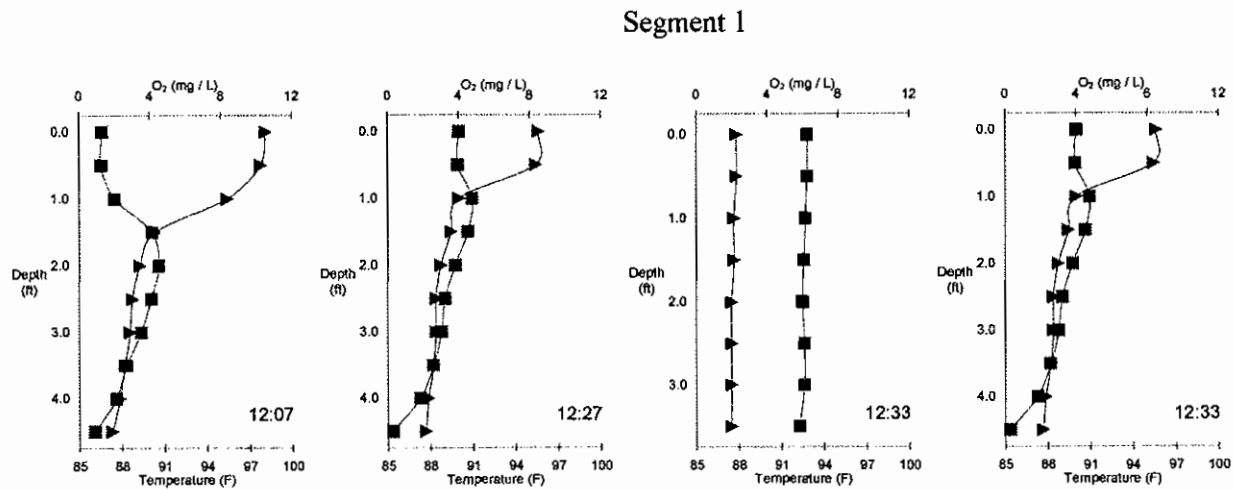


Figure 15A.179. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 3, 1999

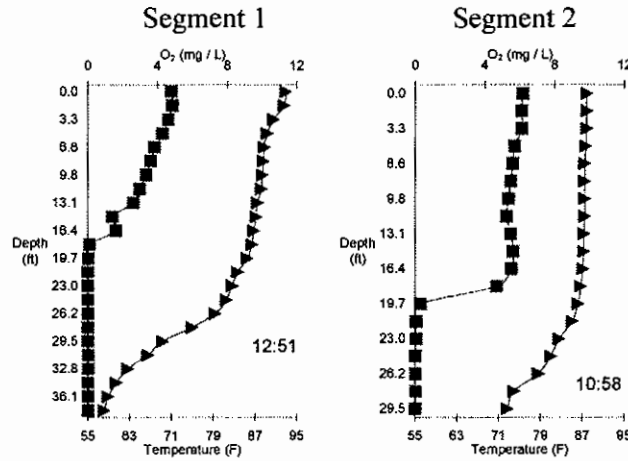


Figure 15A.180. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 12, 1999

Segment 1

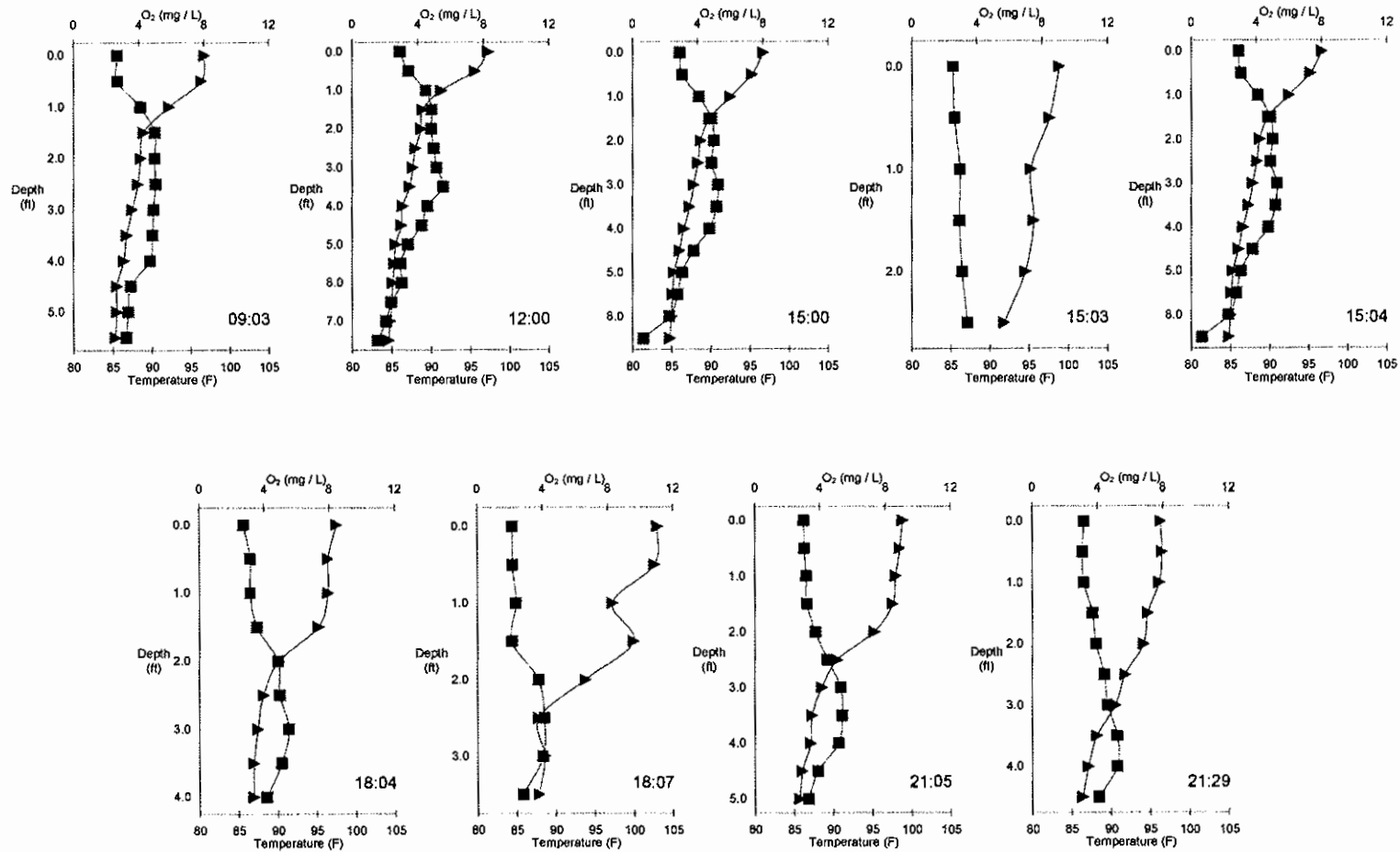


Figure 15A.181. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 13, 1999

Segment 1

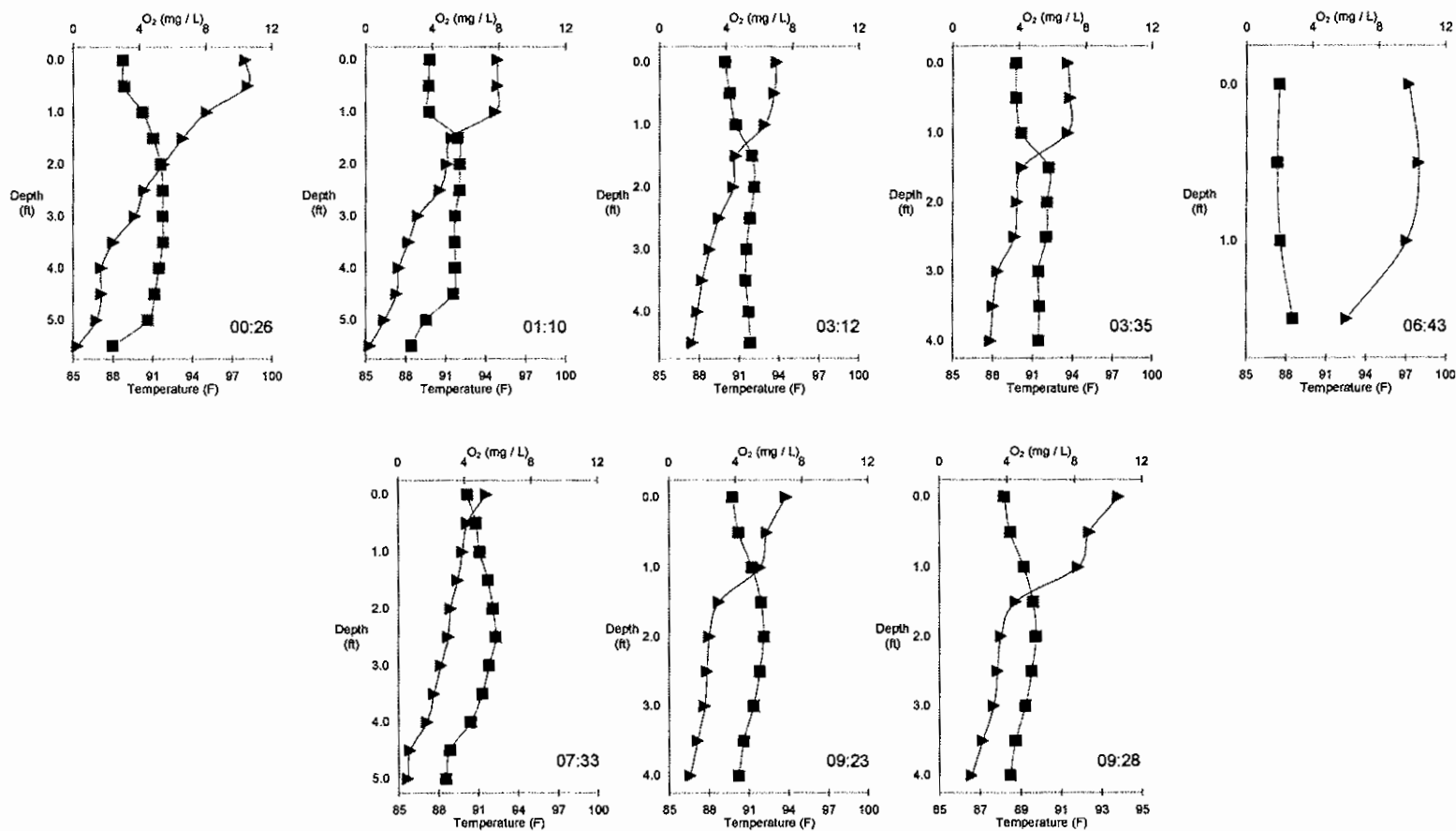


Figure 15A.182. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 16, 1999

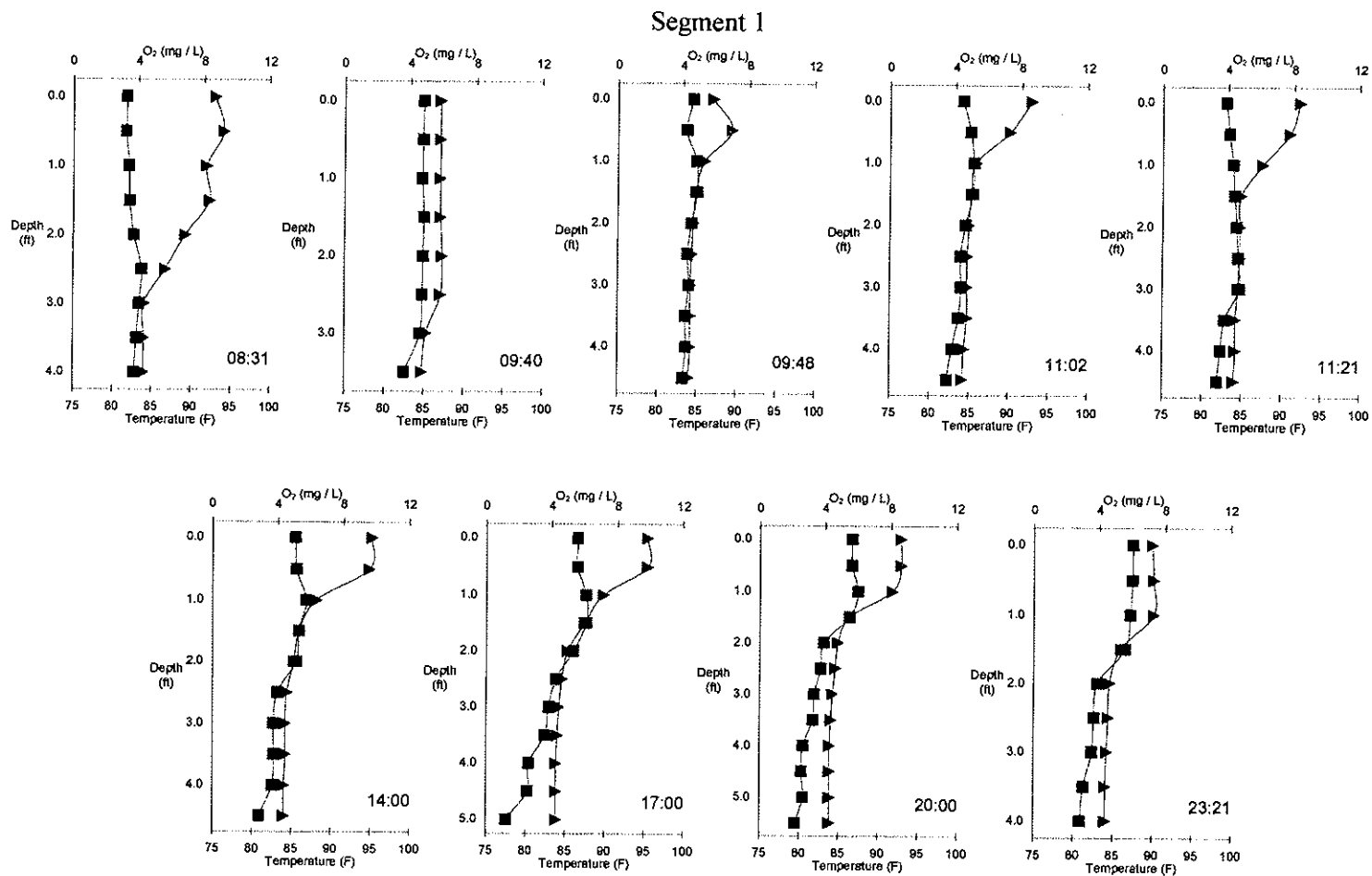


Figure 15A.183. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 16, 1999

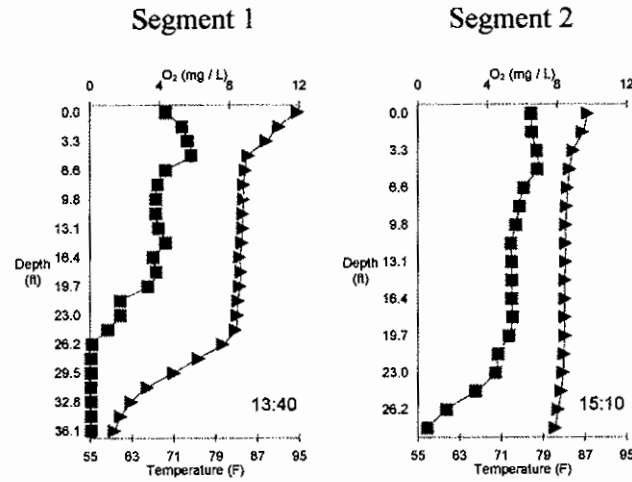
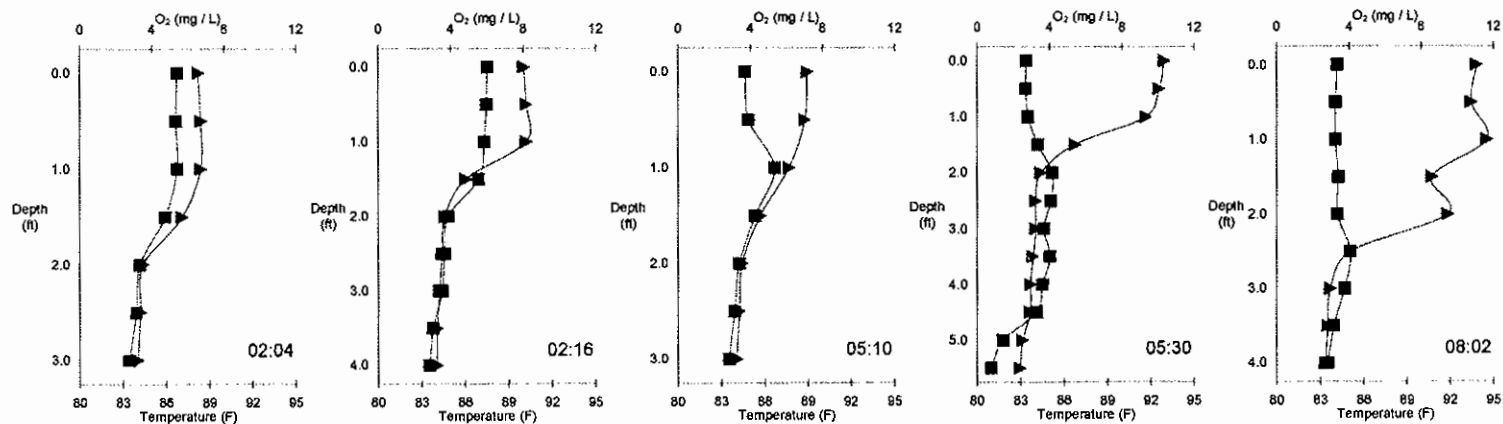


Figure 15A.184. Temperature and dissolved oxygen by date within 2 segments of Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Lake of Egypt – August 17, 1999

Segment 1



Lake of Egypt – August 25, 1999

Segment 1

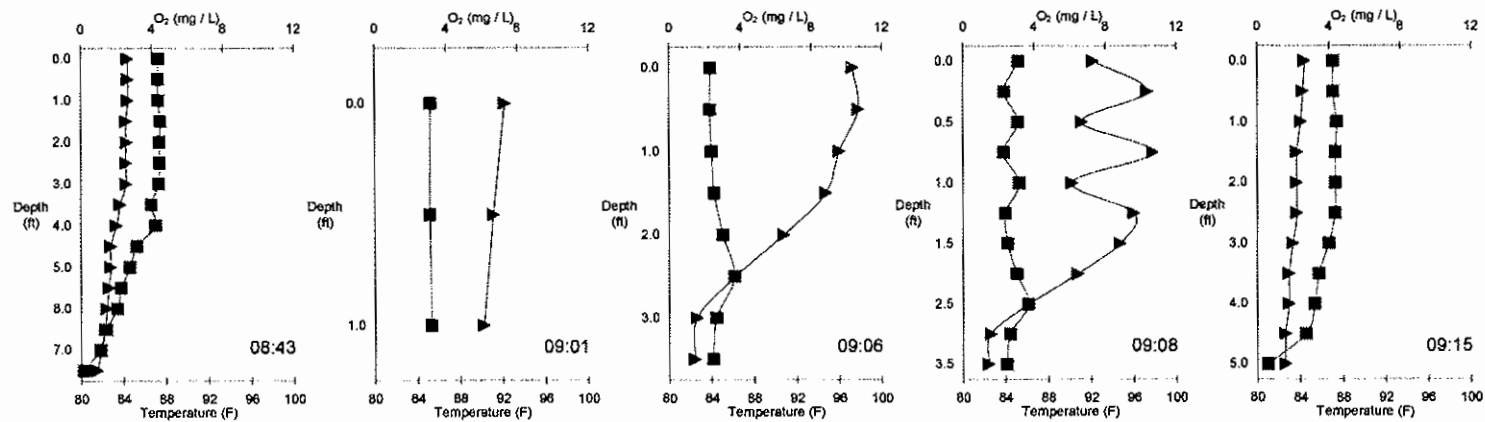


Figure 15A.185. Temperature and dissolved oxygen measured during fish tracking in Lake of Egypt, IL. Triangles represent temperature (F) and squares represent oxygen (mg / l). Time of measurement is indicated on each graph.

Newton Lake - Discharge

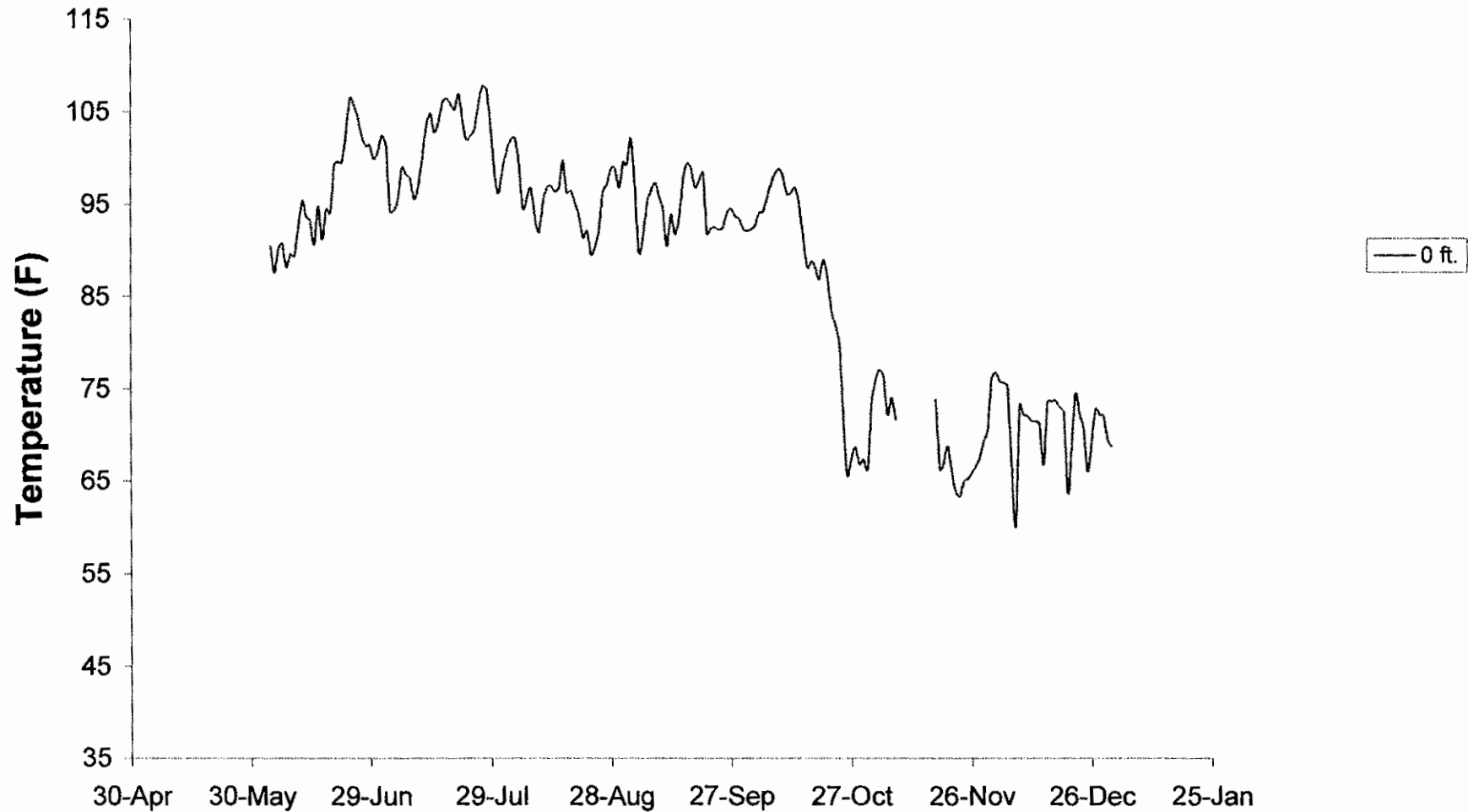


Figure 15A.186. Mean daily temperature during 1997, Newton Lake discharge.

Newton Lake - Discharge

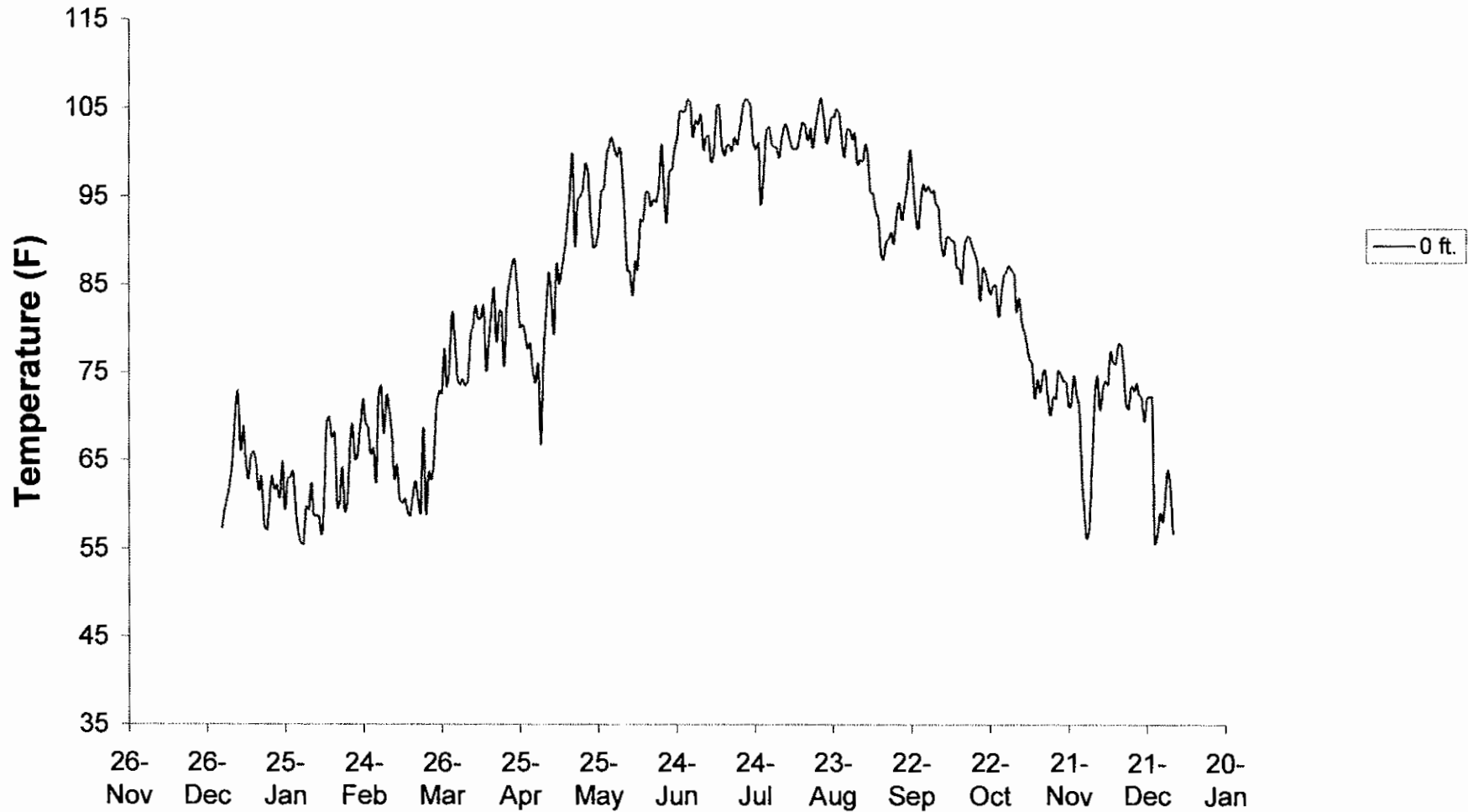


Figure 15A.187. Mean daily temperature during 1998, Newton Lake discharge.

Newton Lake - Discharge

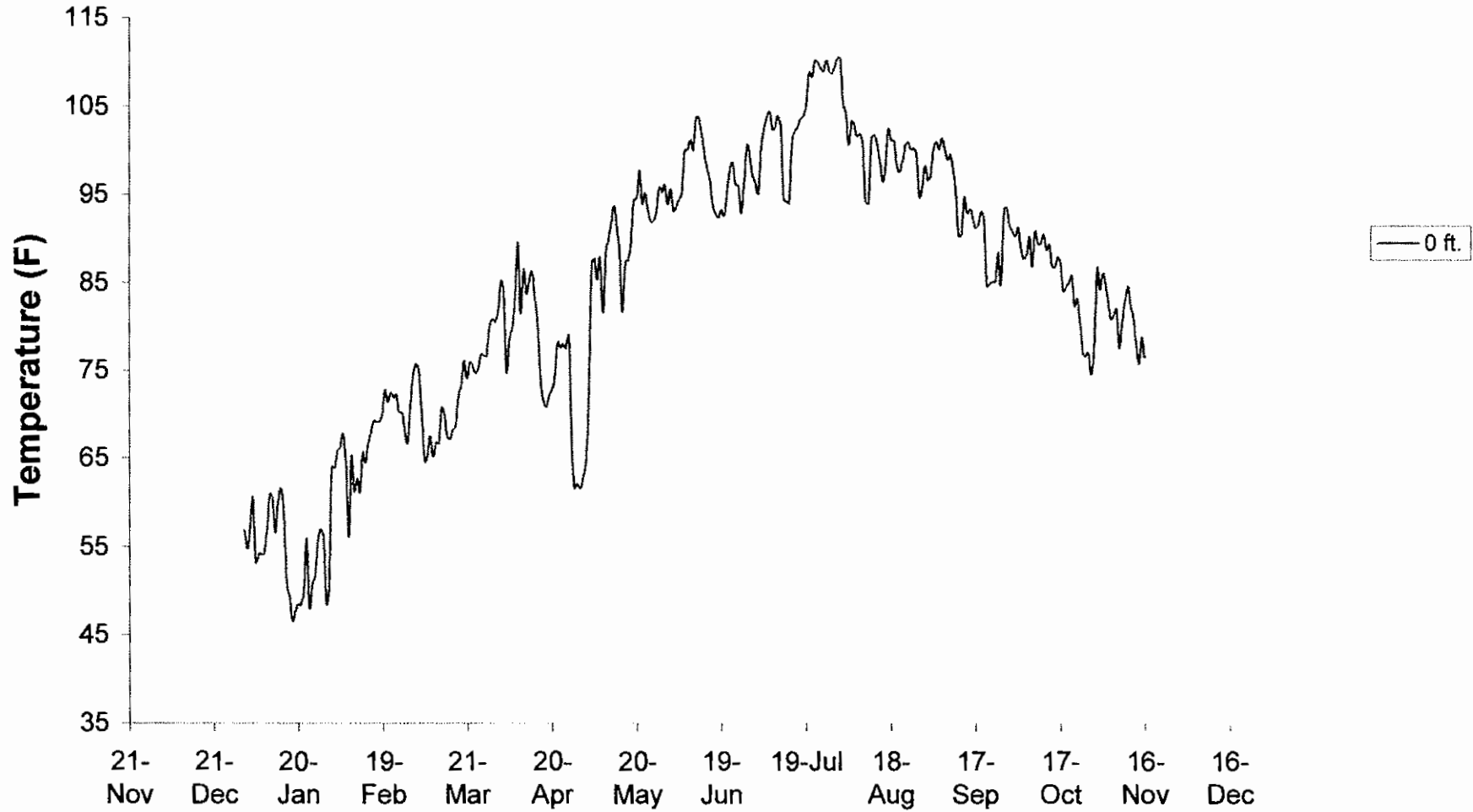


Figure 15A.188. Mean daily temperature during 1999, Newton Lake discharge.

Newton Lake - Segment 1

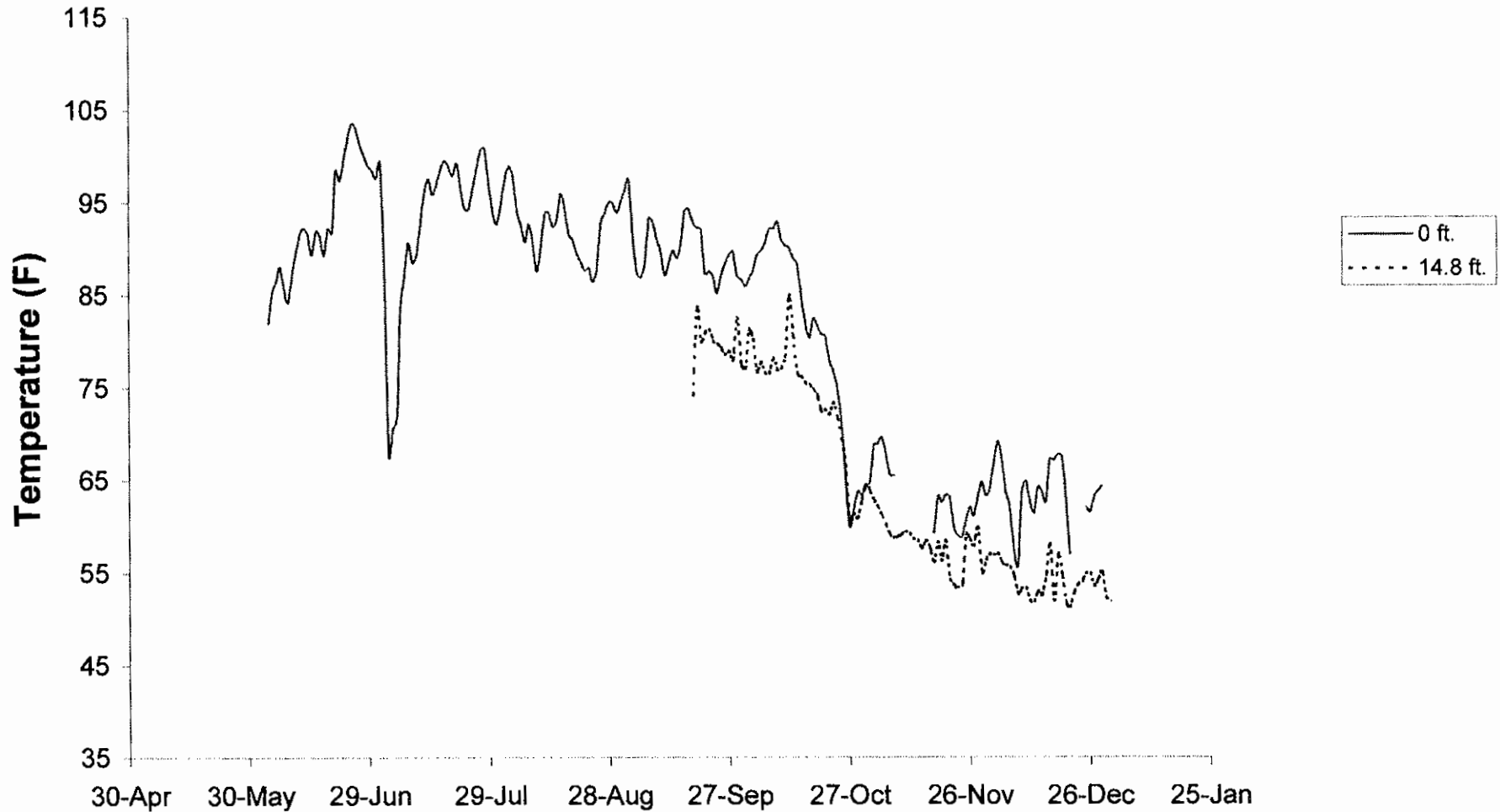


Figure 15A.189. Mean daily temperature during 1997, Newton Lake Segment 1. Lake bottom is approximately 16.4 ft.

Newton Lake - Segment 1

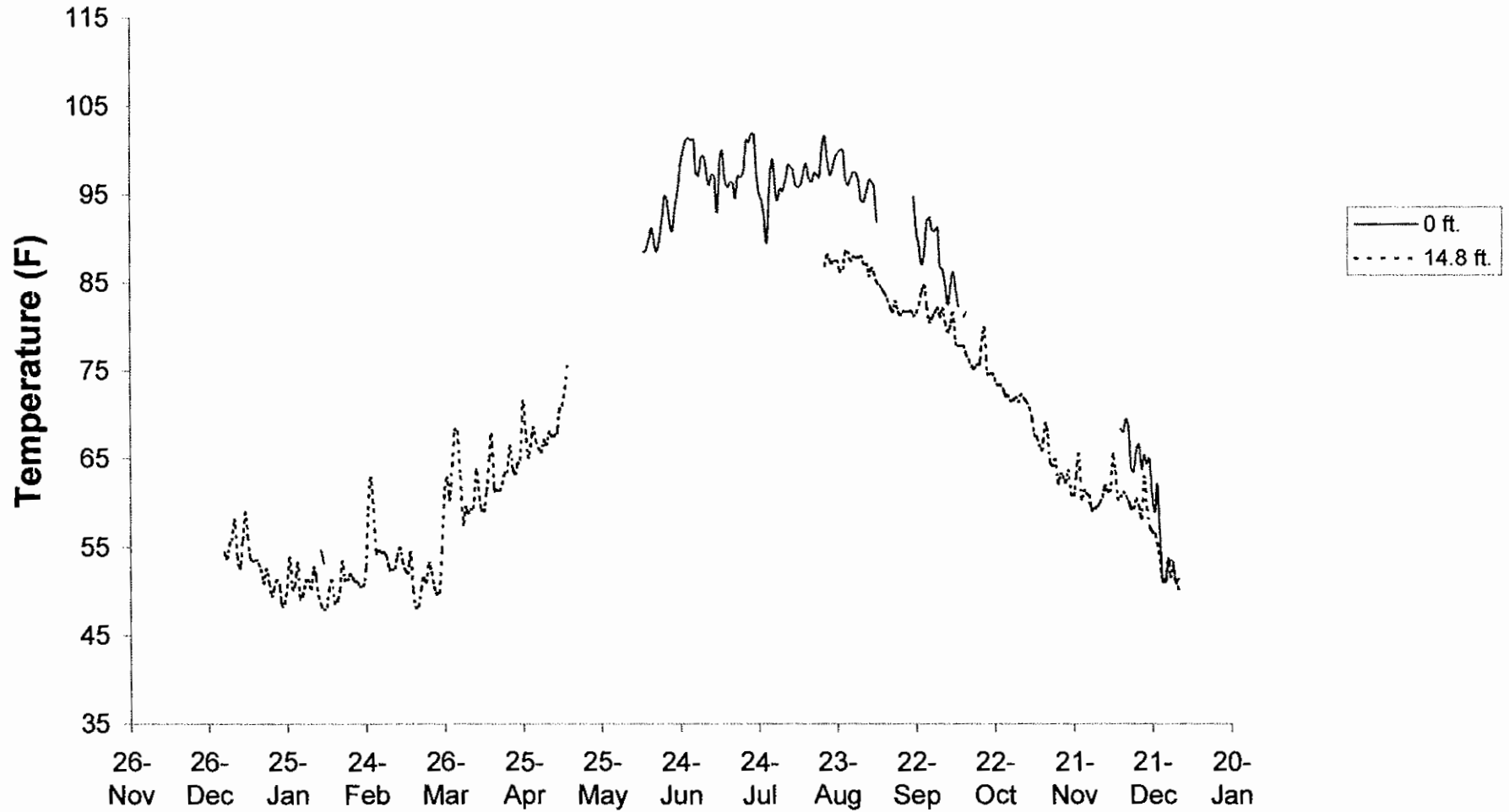


Figure 15A.190. Mean daily temperature during 1998, Newton Lake Segment 1. Lake bottom is approximately 16.4 ft.

Newton Lake - Segment 1

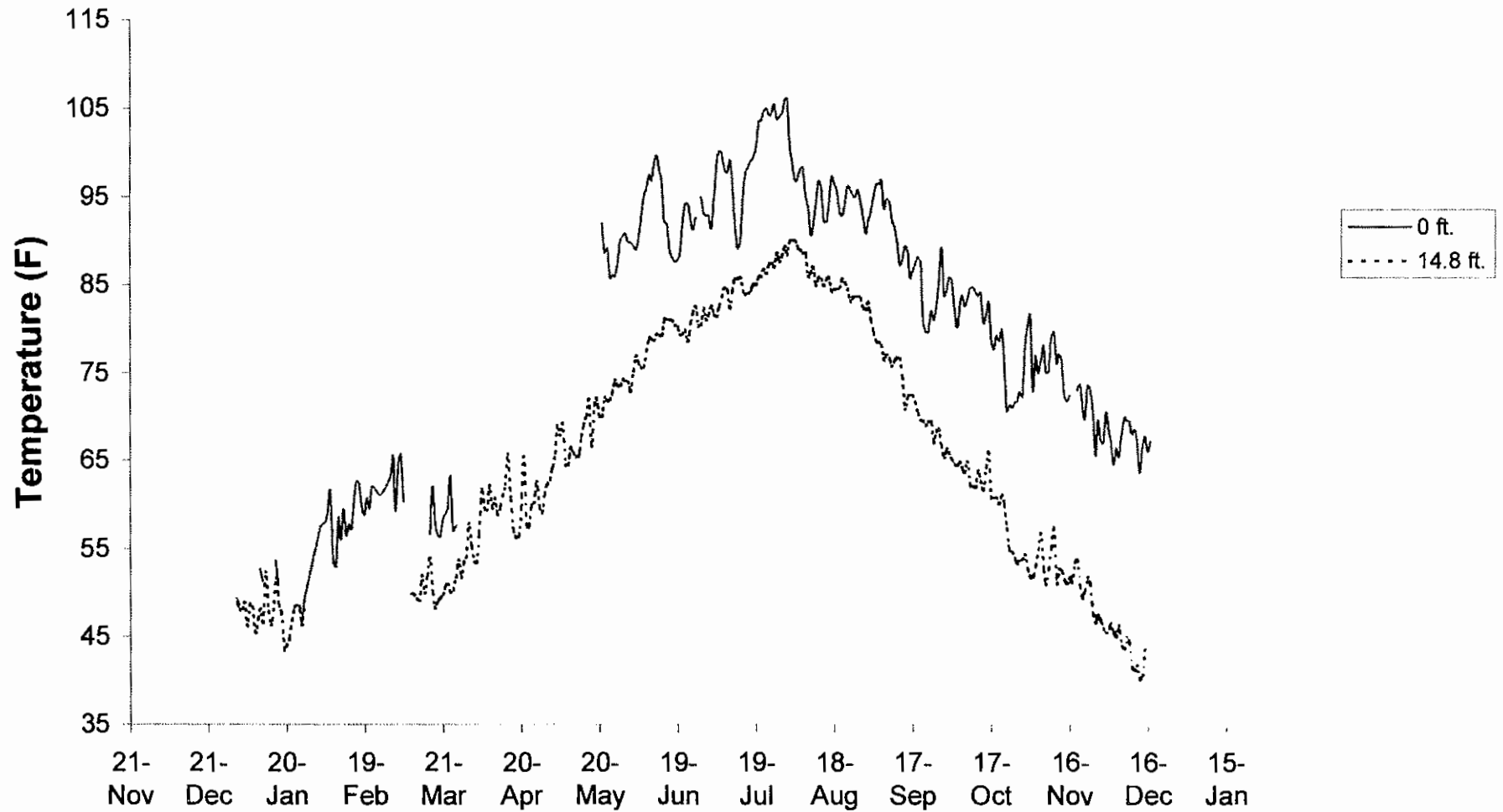


Figure 15A.191. Mean daily temperature during 1999, Newton Lake Segment 1. Lake bottom is approximately 16.4 ft.

Newton Lake - Segment 2

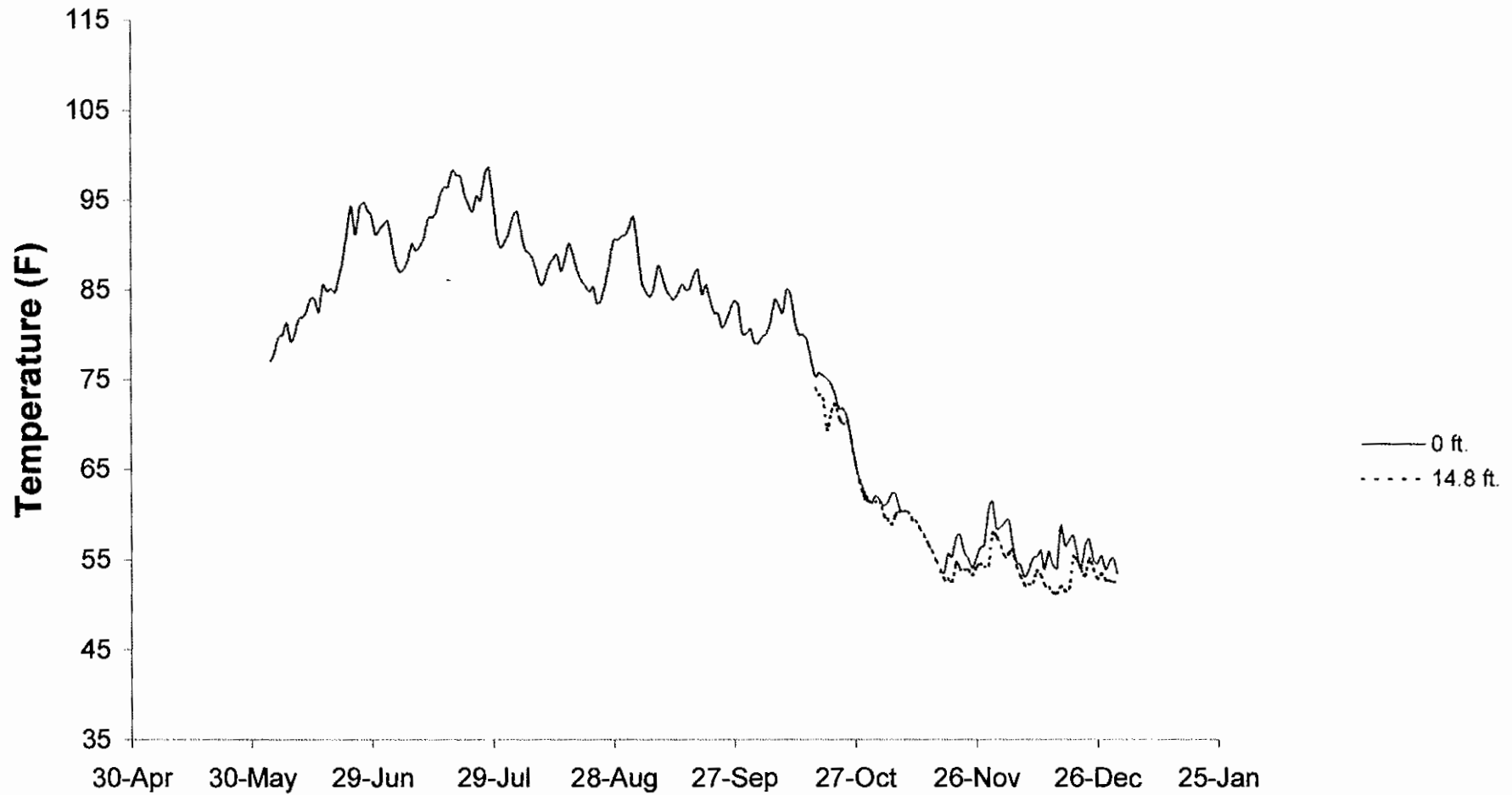


Figure 15A.192. Mean daily temperature during 1997, Newton Lake Segment 2. Lake bottom is approximately 32.8 ft.

Newton Lake - Segment 2

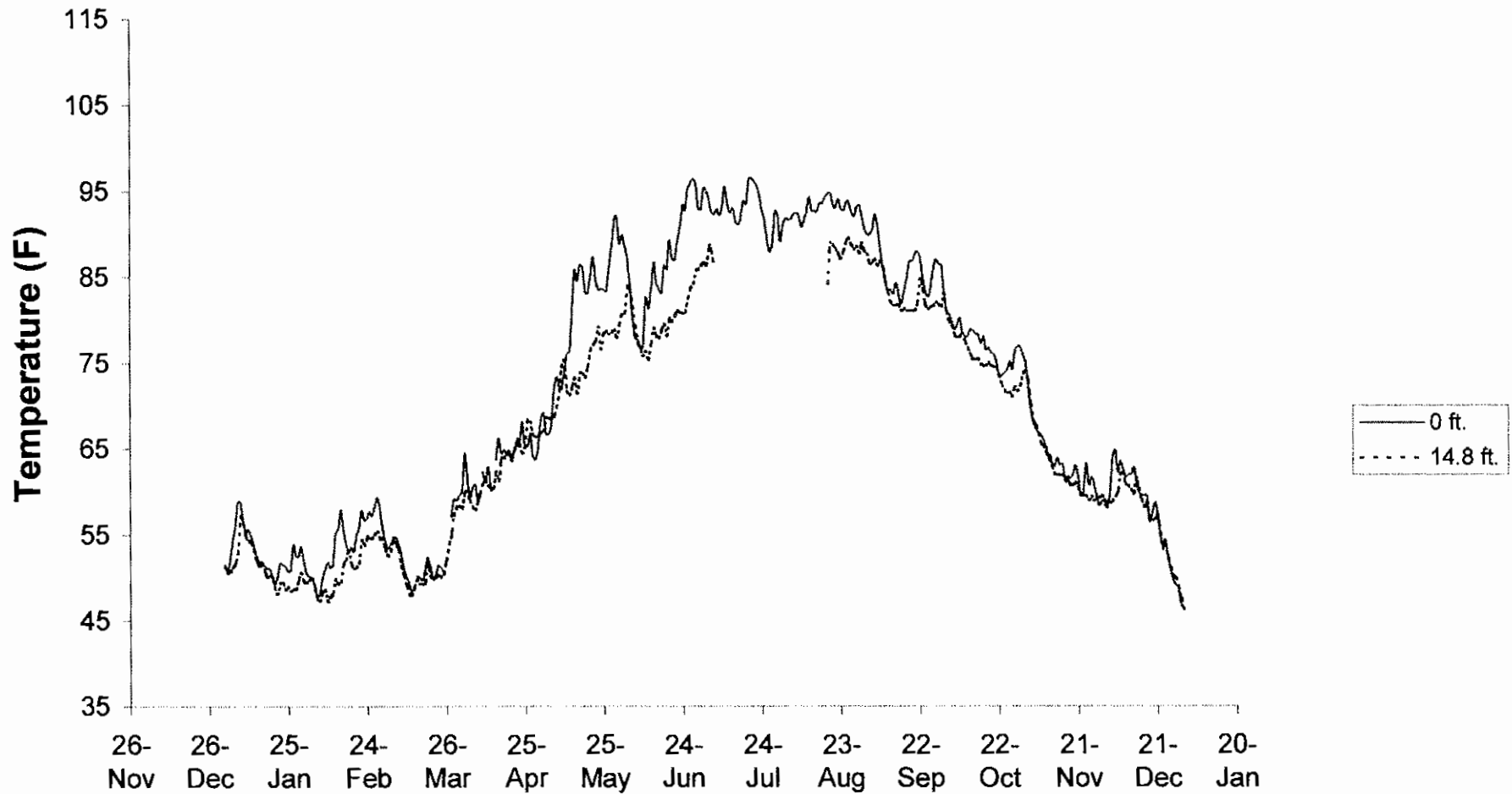


Figure 15A.193. Mean daily temperature during 1998, Newton Lake Segment 2. Lake bottom is approximately 32.8 ft.

Newton Lake - Segment 2

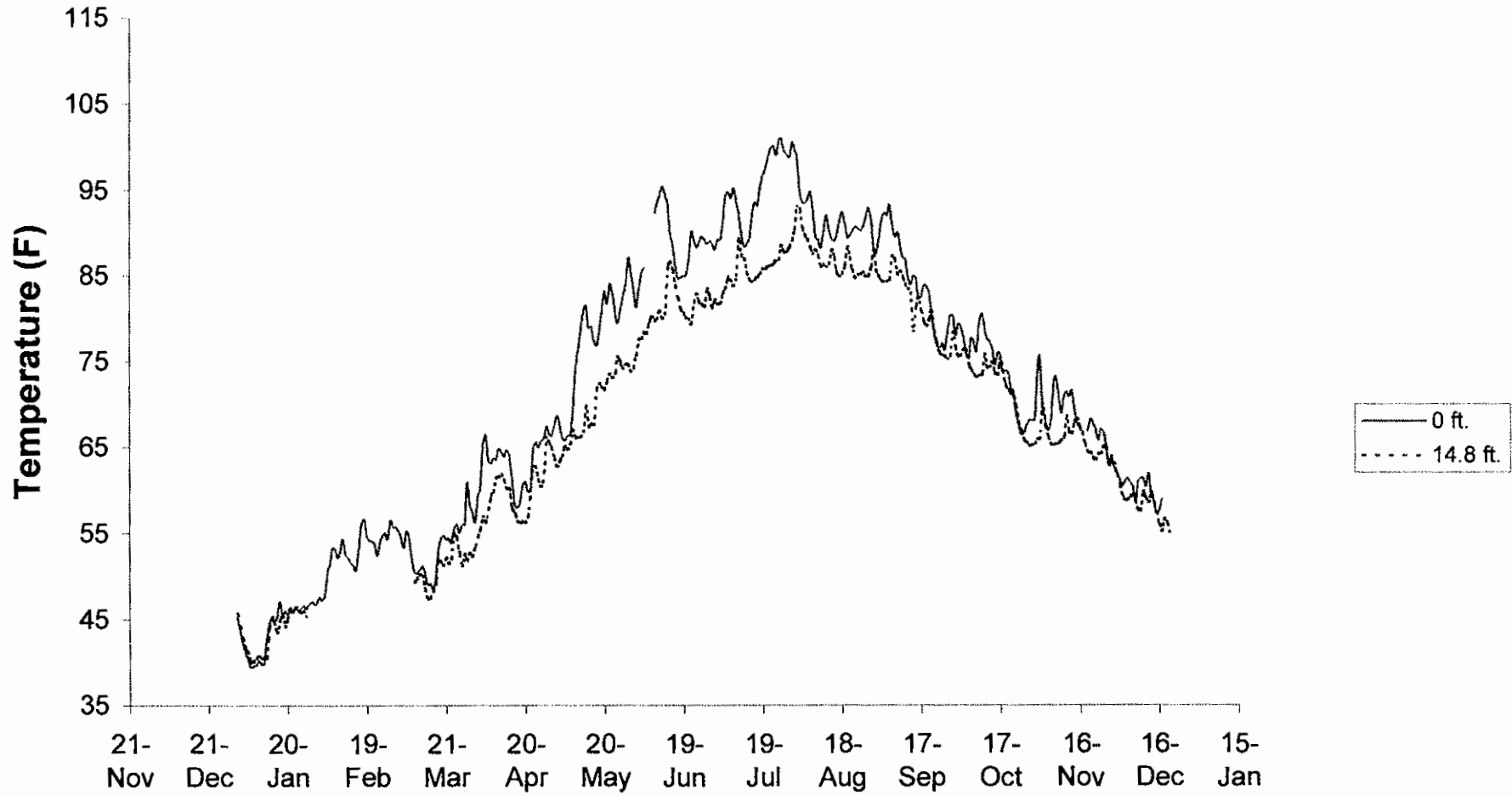


Figure 15A.194. Mean daily temperature during 1999, Newton Lake Segment 2. Lake bottom is approximately 32.8 ft.

Newton Lake - Segment 4

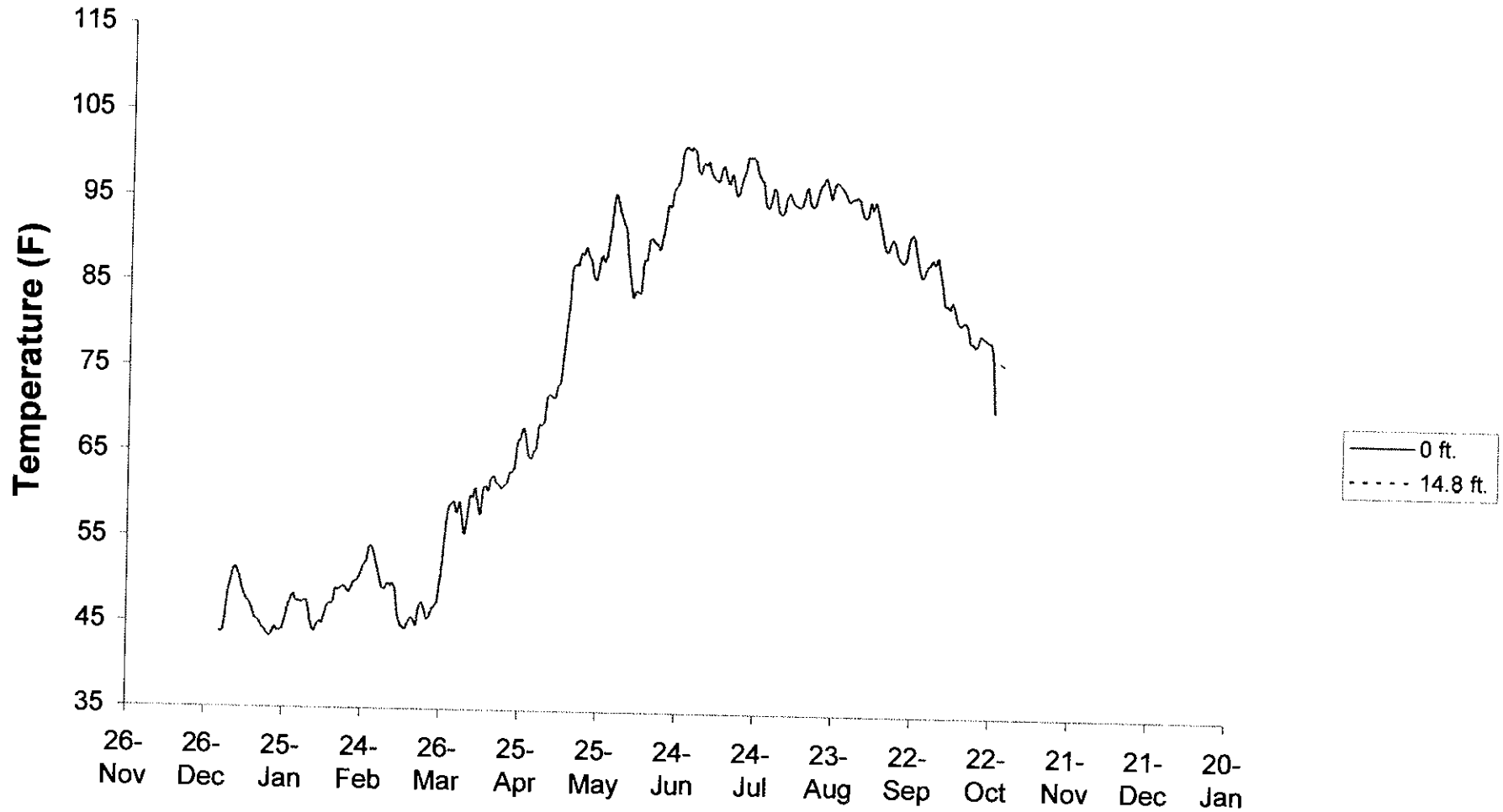


Figure 15A.199. Mean daily temperature during 1998, Newton Lake Segment 4. Lake bottom is approximately 15.0 ft.

Newton Lake - Segment 4

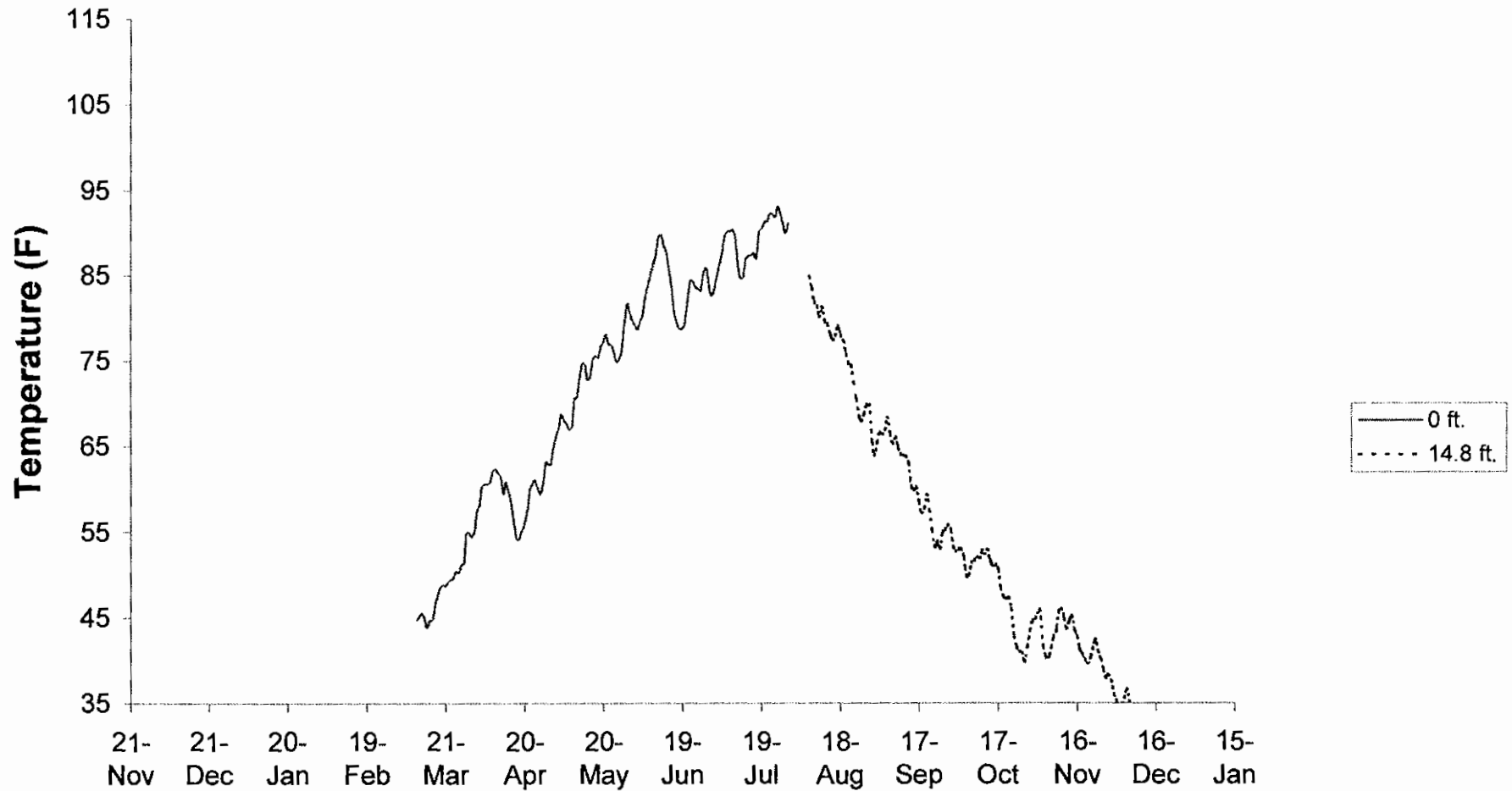


Figure 15A.200. Mean daily temperature during 1999, Newton Lake Segment 4. Lake bottom is approximately 15.0 ft.

Newton Lake - Intake

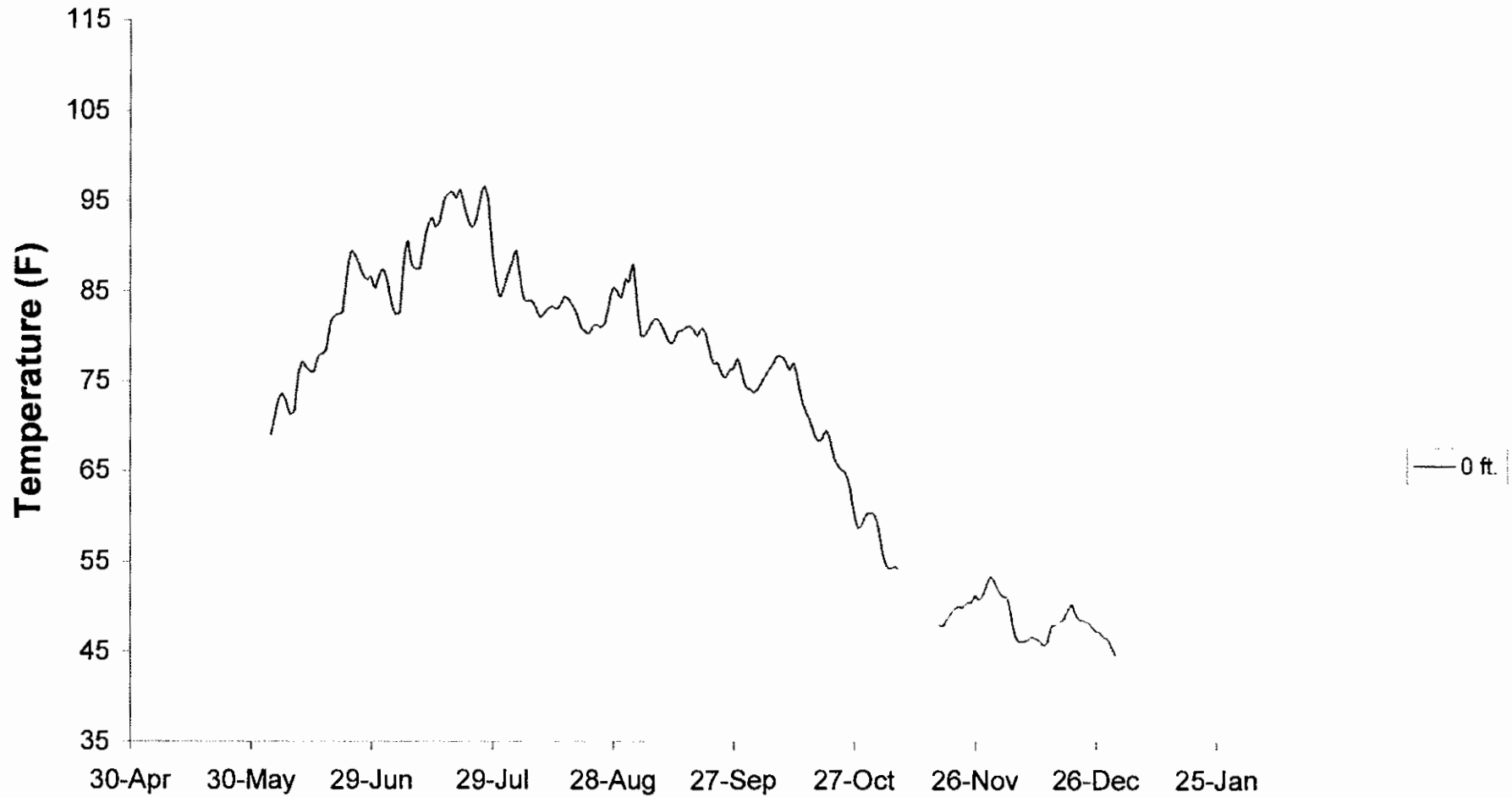


Figure 15A.201. Mean daily temperature during 1997, Newton Lake intake.

Newton Lake - Intake

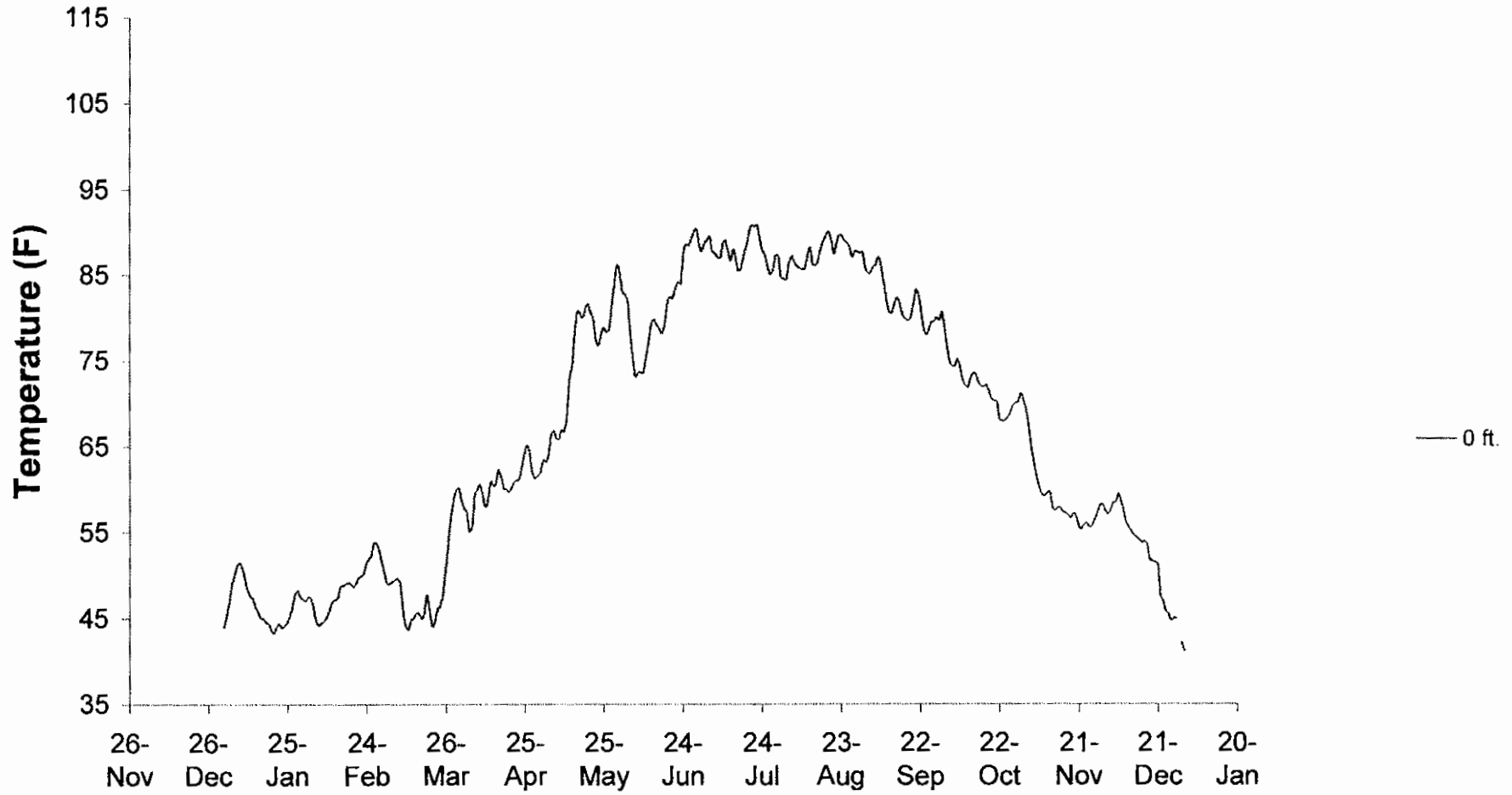


Figure 15A.202. Mean daily temperature during 1998, Newton Lake intake.

Newton Lake - Intake

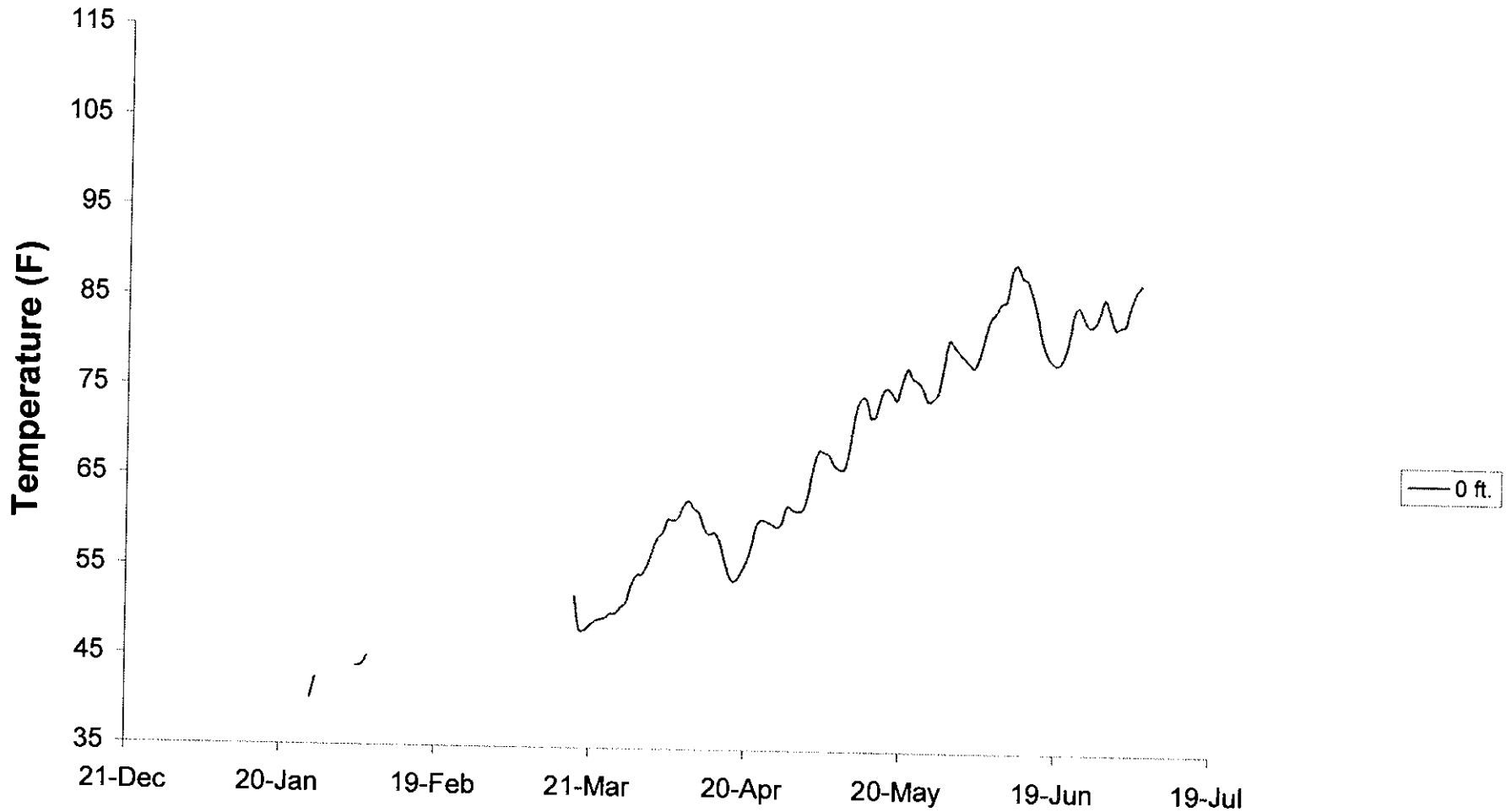


Figure 15A.203. Mean daily temperature during 1999, Newton Lake intake.

Coffeen Lake - Discharge

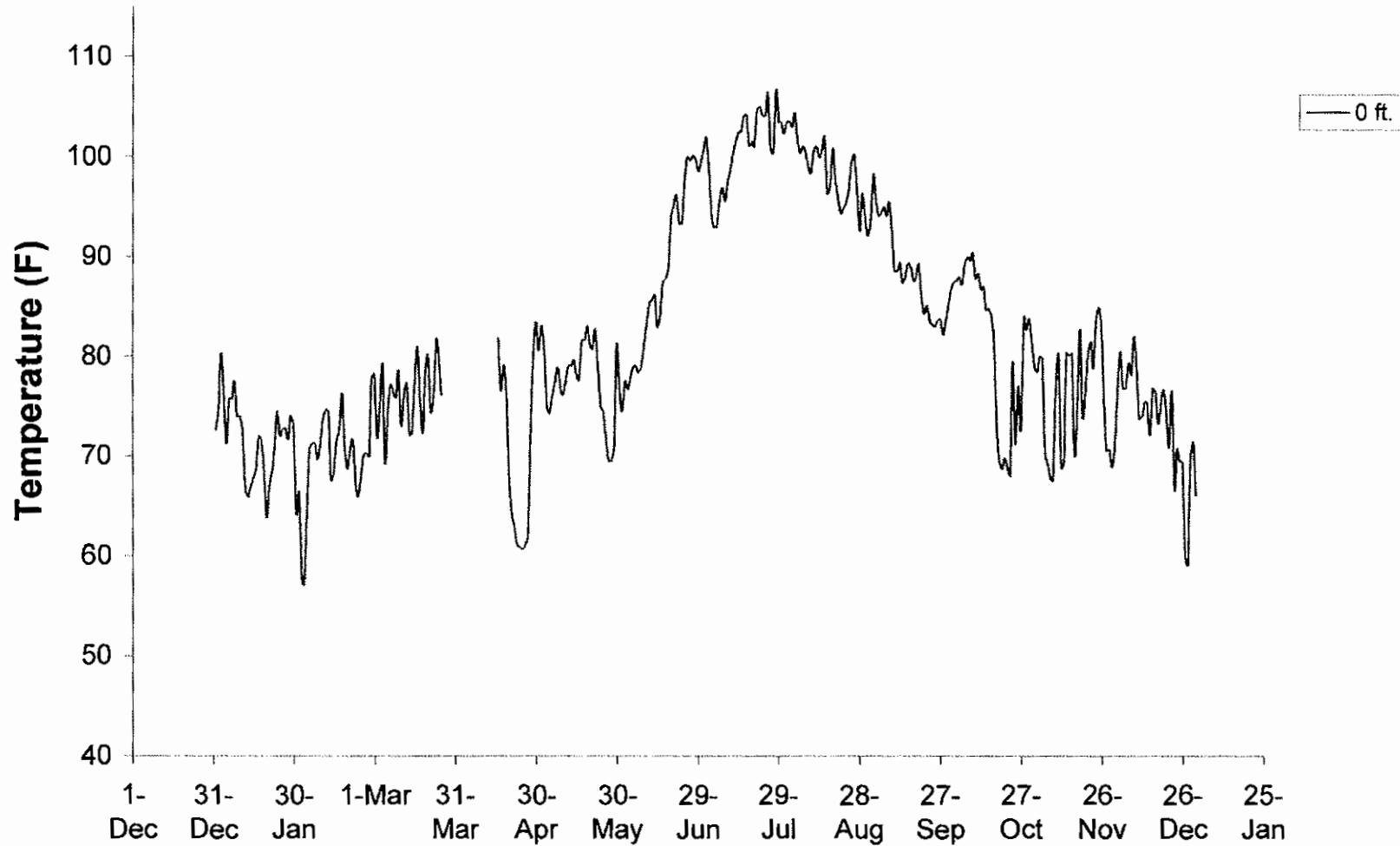


Figure 15A.204. Mean daily temperature during 1997, Coffeen Lake discharge. Lake bottom is approximately 18.0 feet.

Coffeen Lake - Discharge

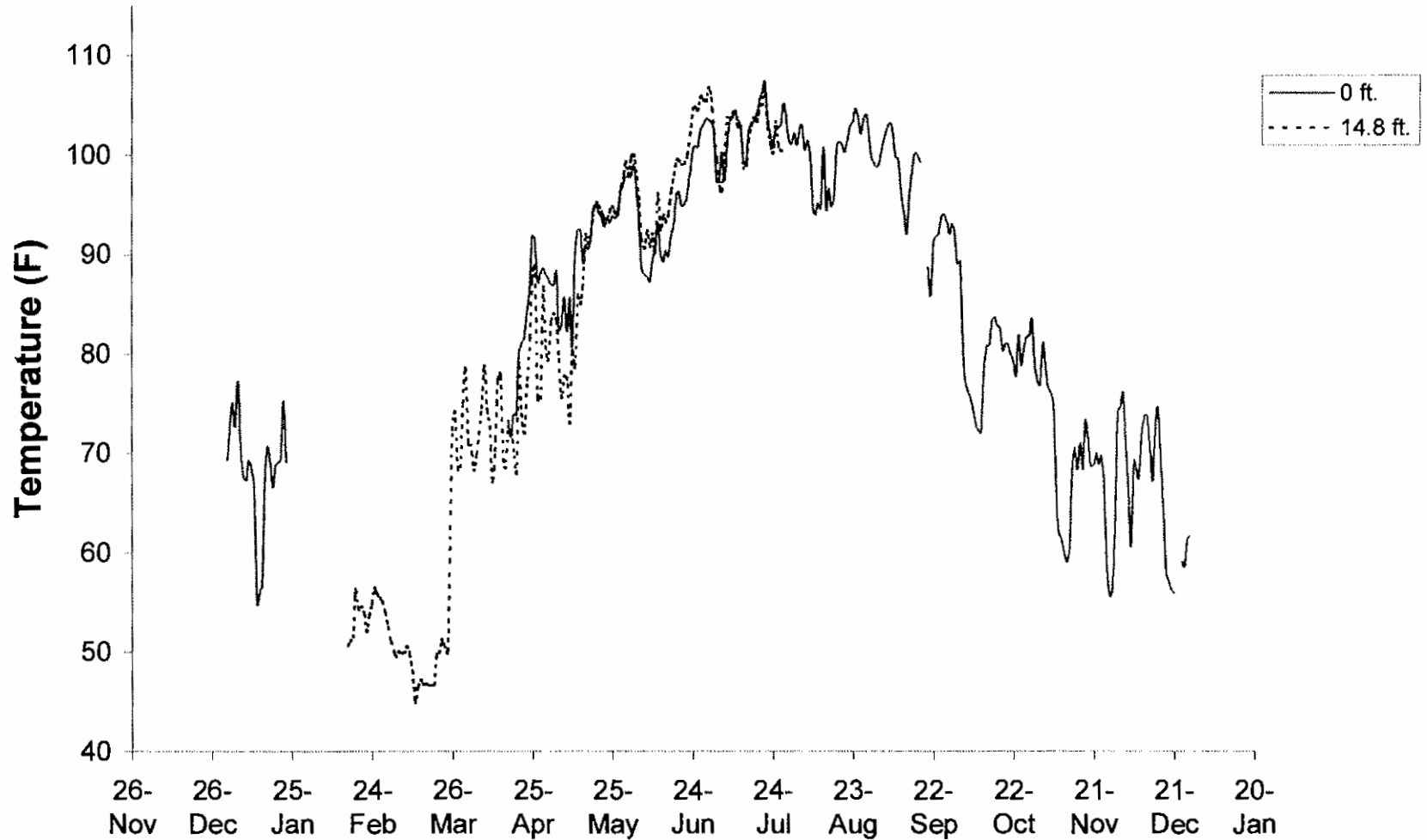


Figure 15A.205. Mean daily temperature during 1997, Coffeen Lake discharge. Lake bottom is approximately 18.0 feet.

Coffeen Lake - Discharge

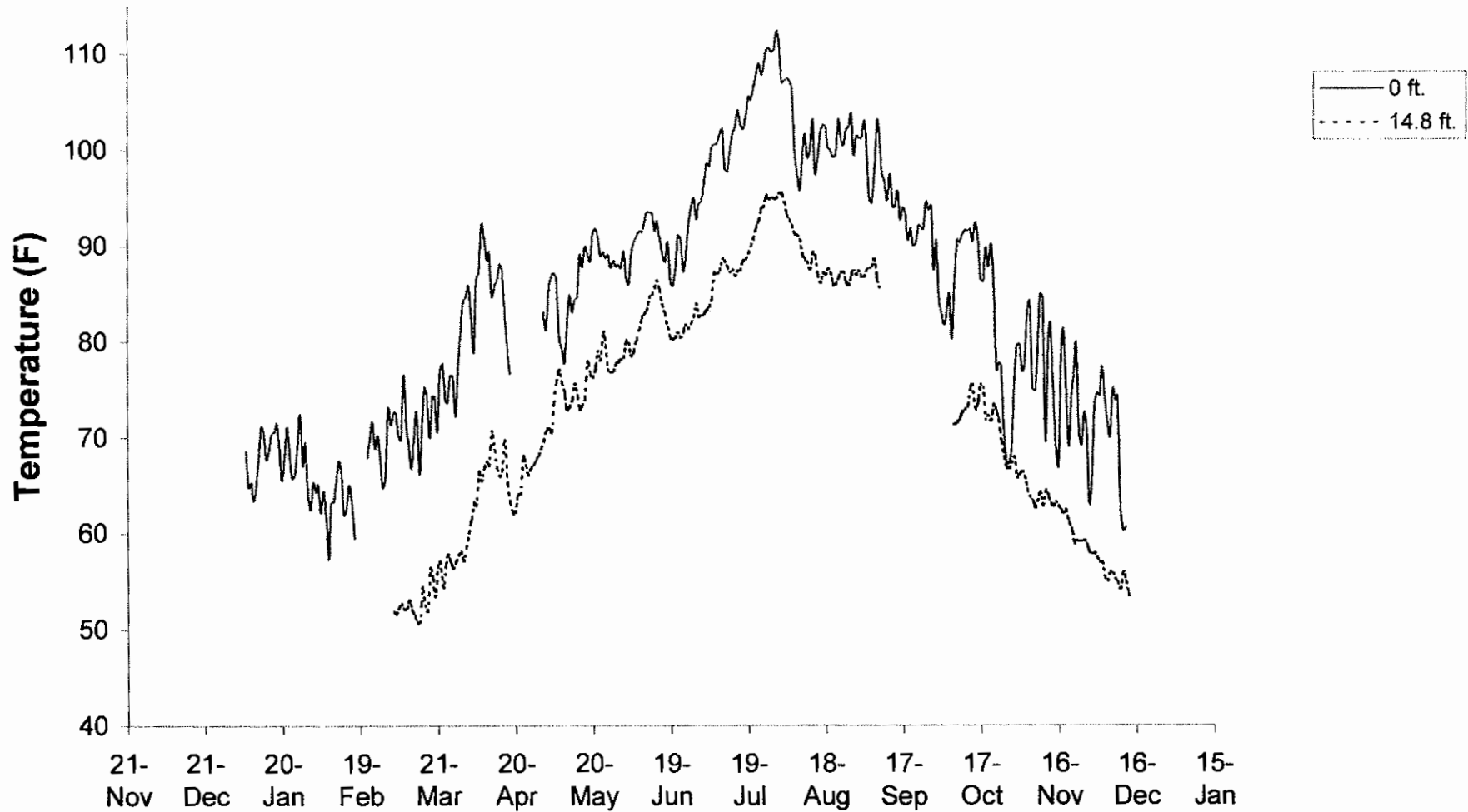


Figure 15A.206. Mean daily temperature during 1997, Coffeen Lake discharge. Lake bottom is approximately 18.0 feet.

Coffeen Lake - Dam

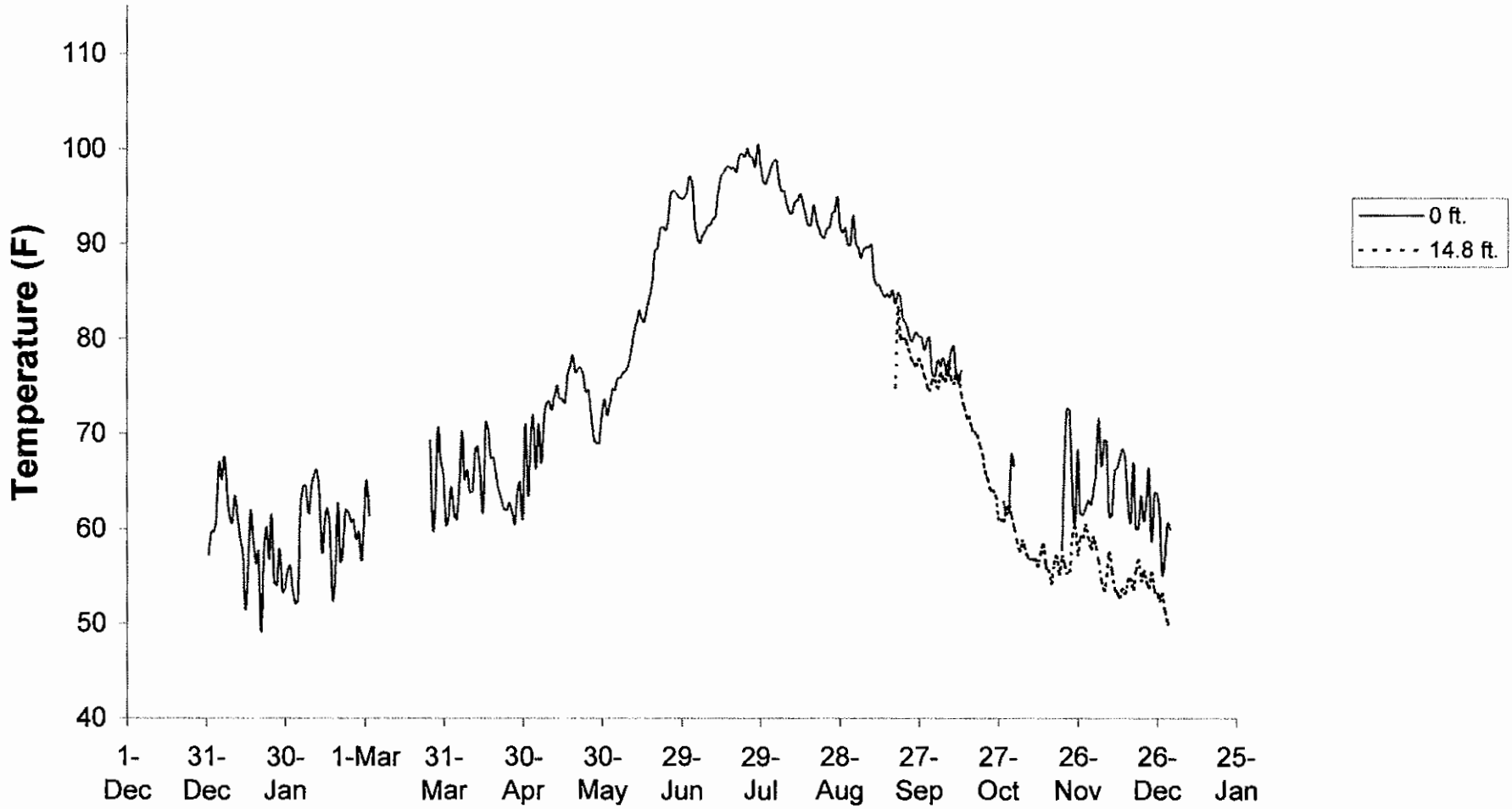


Figure 15A.207. Mean daily temperature during 1997, Coffeen Lake dam. Lake bottom is approximately 42.6 feet.

Coffeen Lake - Dam

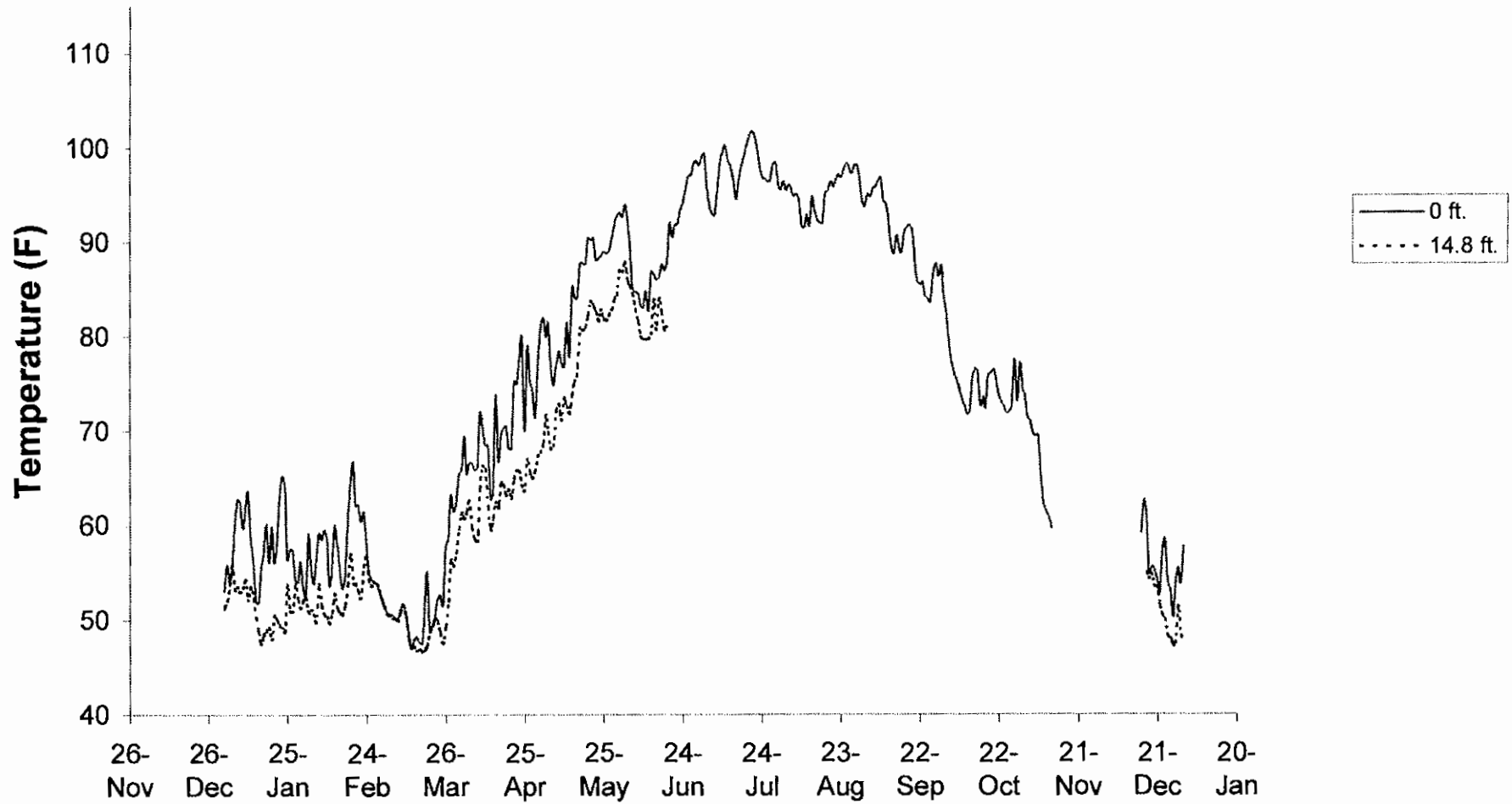


Figure 15A.208. Mean daily temperature during 1997, Coffeen Lake dam. Lake bottom is approximately 42.6 feet.

Coffeen Lake - Dam

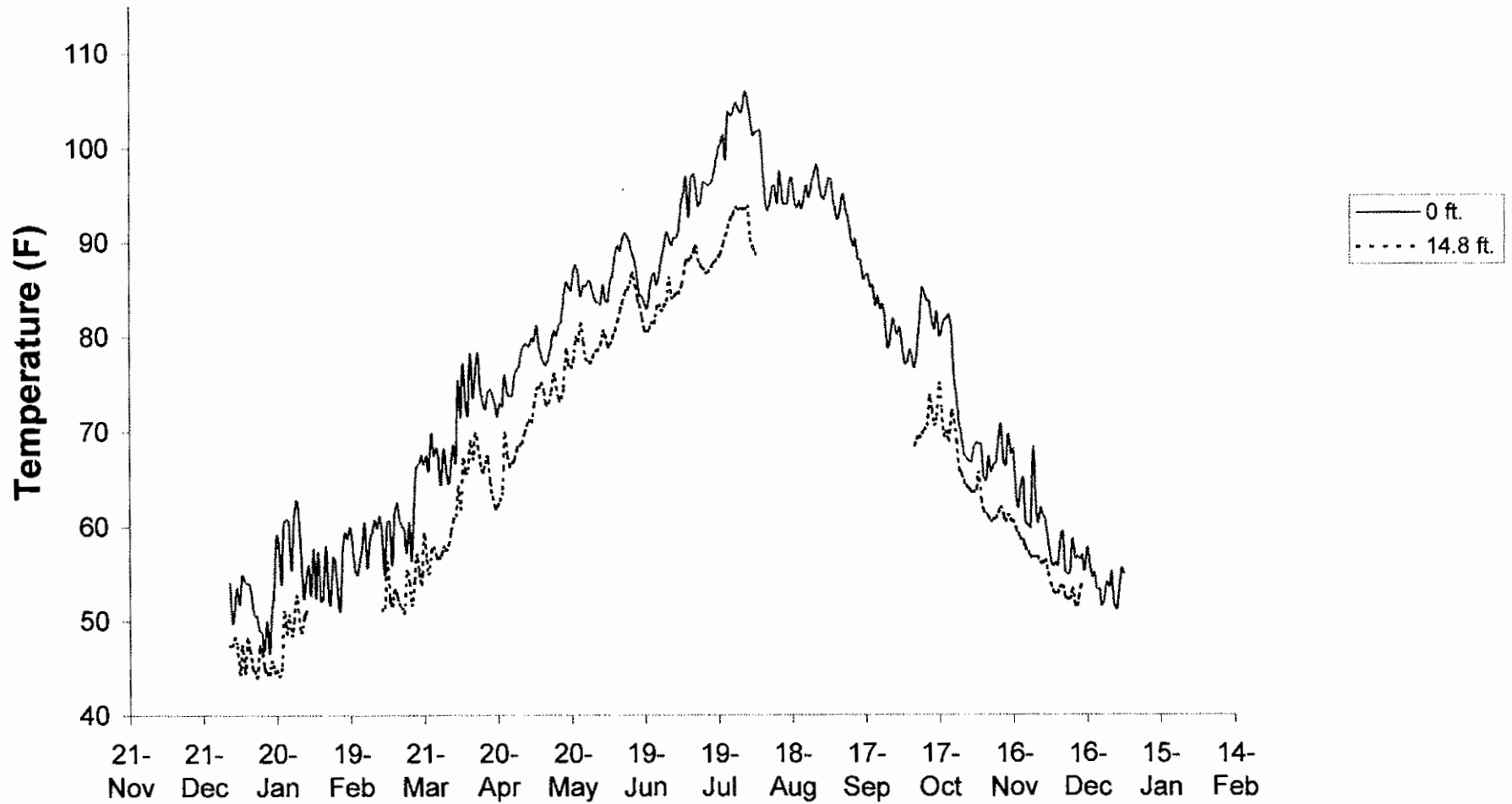


Figure 15A.209. Mean daily temperature during 1997, Coffeen Lake dam. Lake bottom is approximately 42.6 feet.

Coffeen Lake - Intake

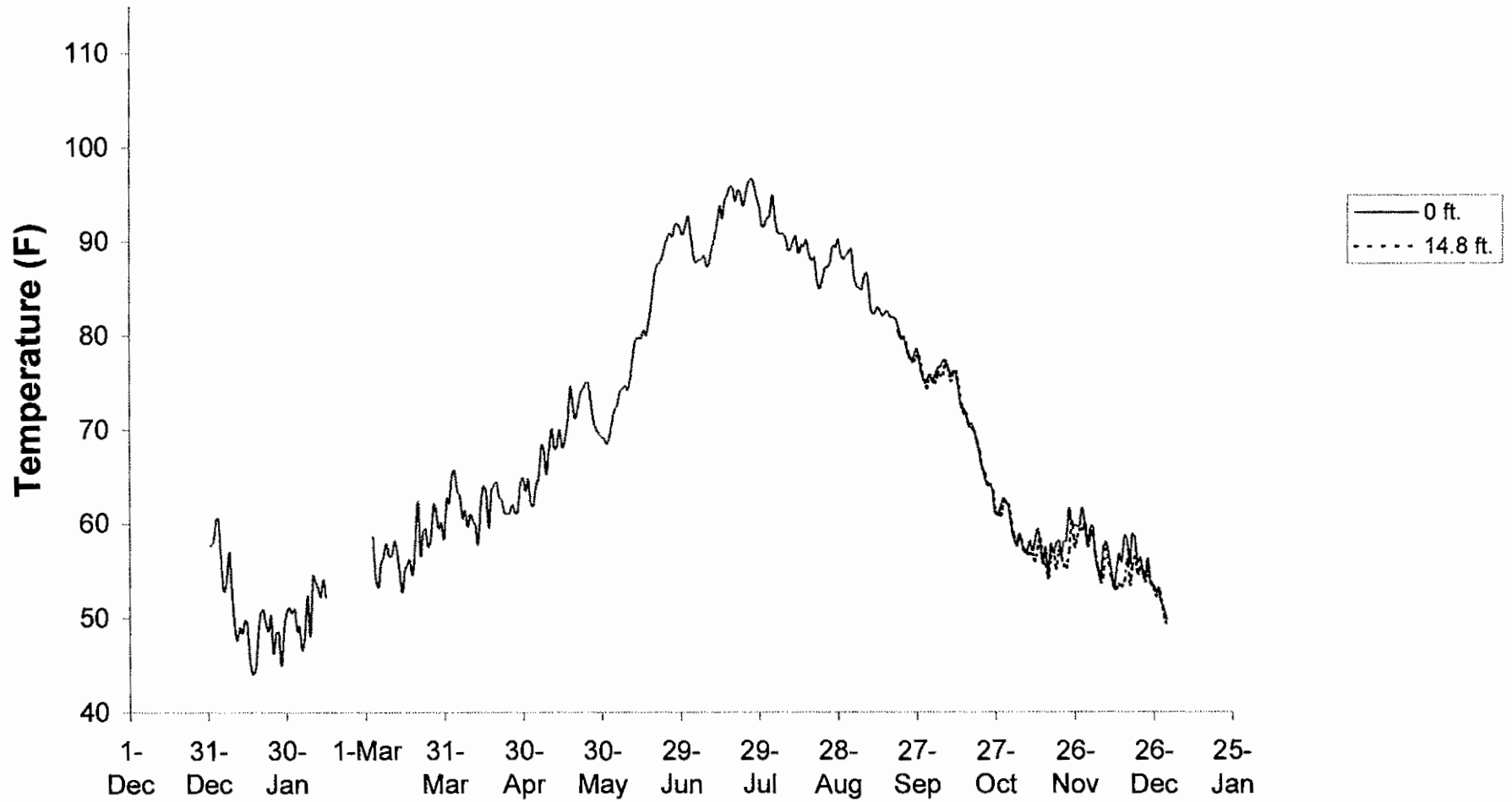


Figure 15A.210. Mean daily temperature during 1997, Coffeen Lake intake. Lake bottom is approximately 26.2 feet.

Coffeen Lake - Intake

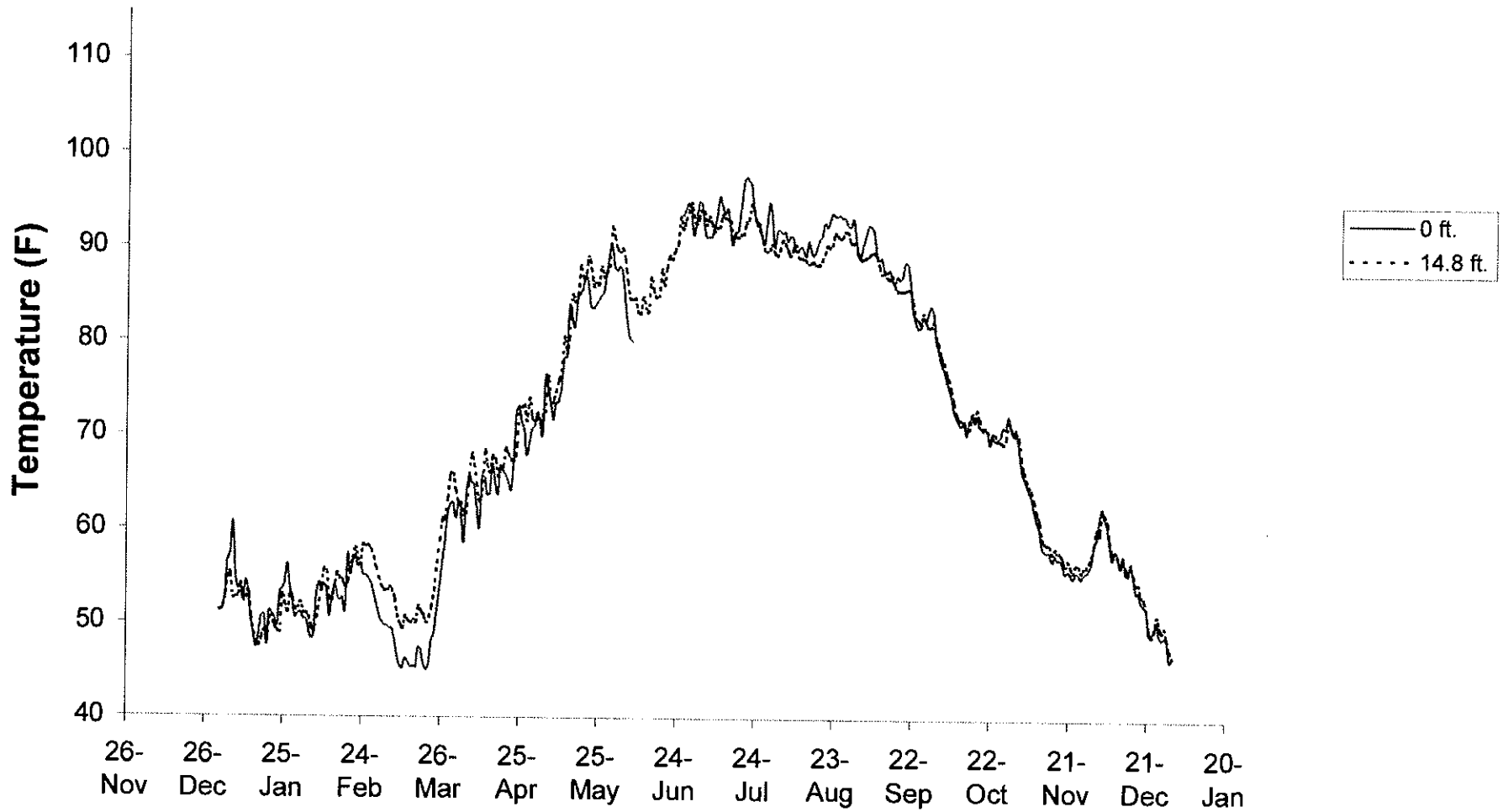


Figure 15A.211. Mean daily temperature during 1997, Coffeen Lake intake. Lake bottom is approximately 26.2 feet.

Coffeen Lake - Intake

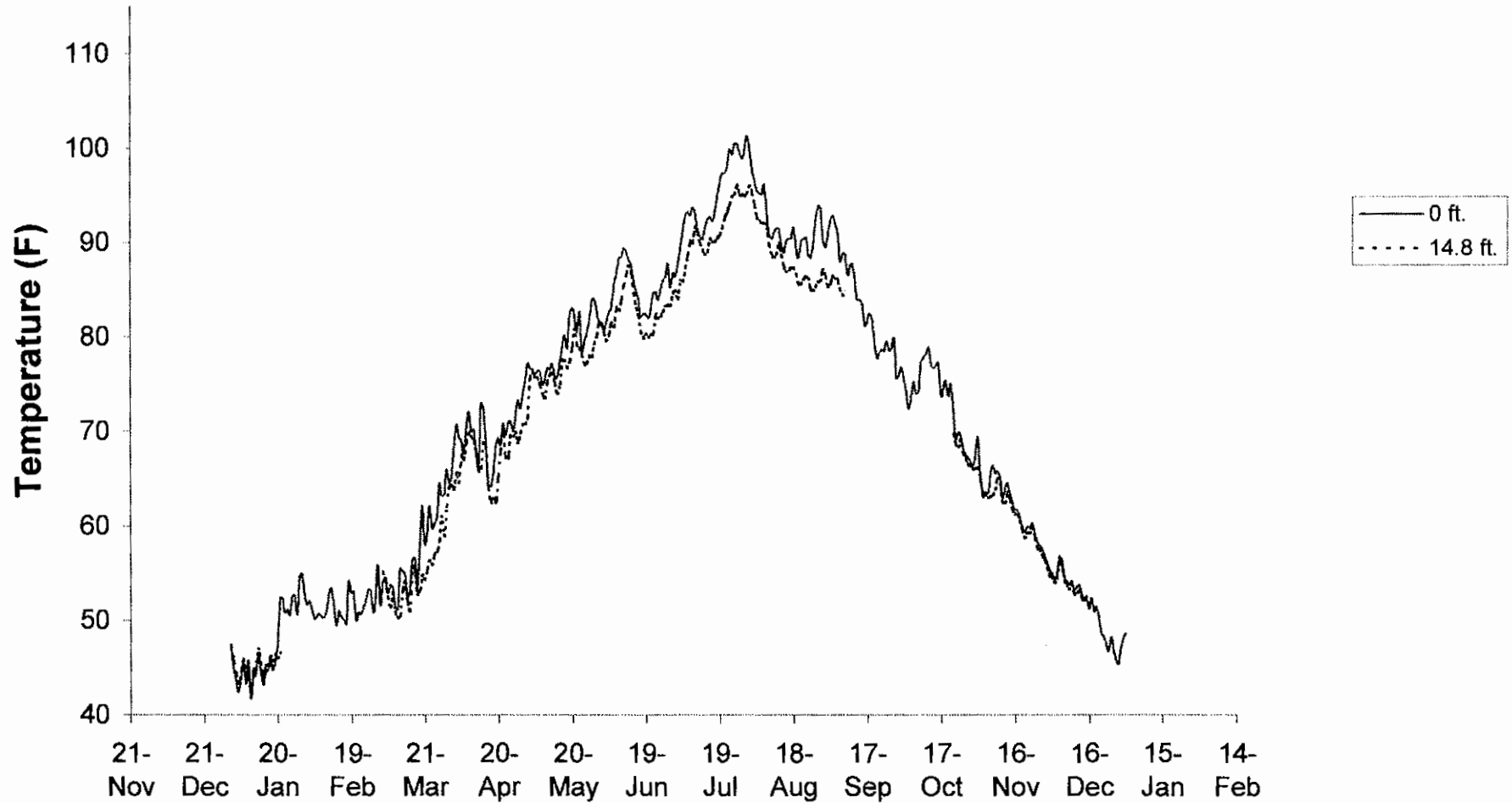


Figure 15A.212. Mean daily temperature during 1997, Coffeen Lake intake. Lake bottom is approximately 26.2 feet.

Lake of Egypt - Segment 1

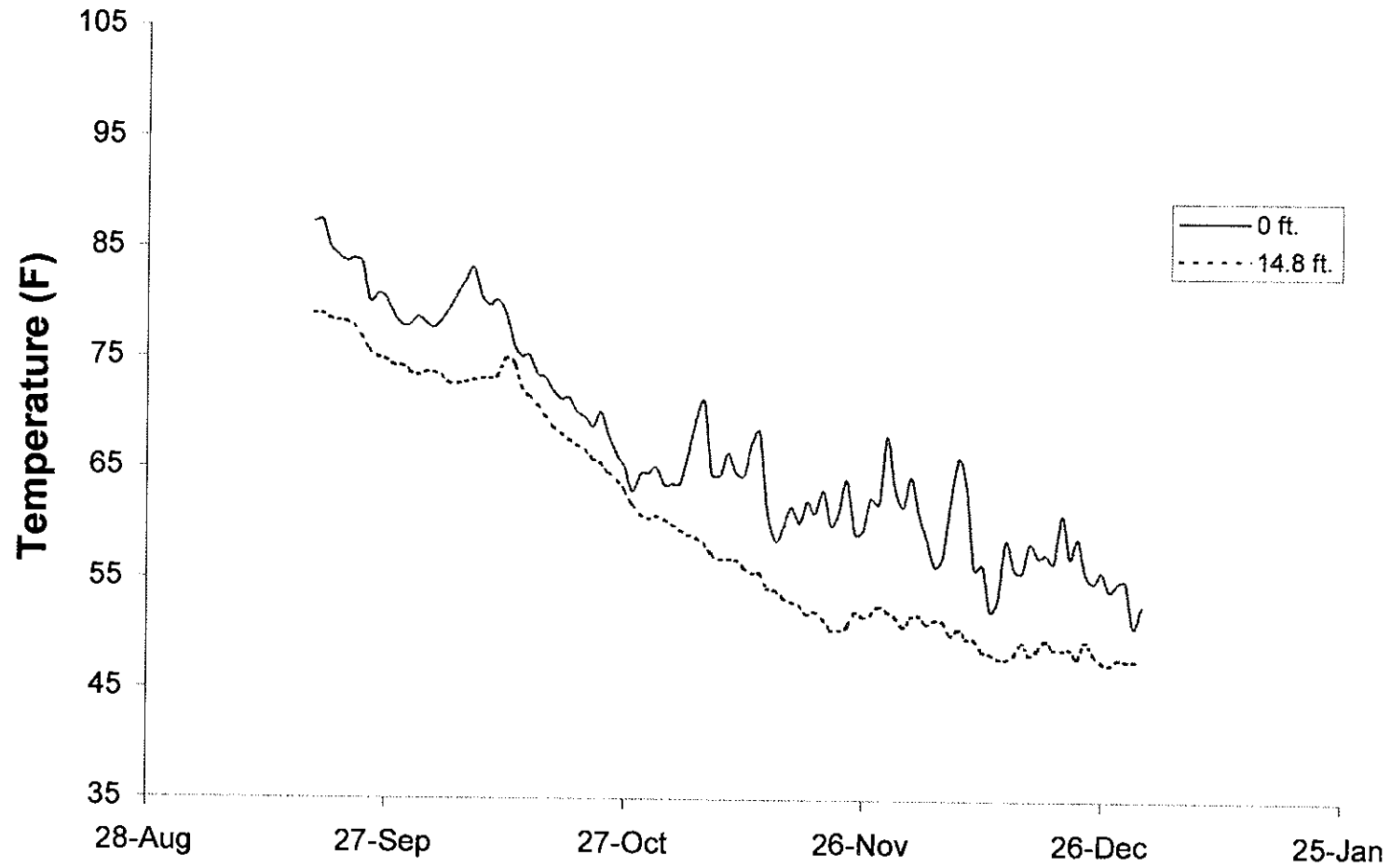


Figure 15A.213. Mean daily temperature during 1997, Lake of Egypt Segment 1. Lake bottom is approximately 36.1 feet.

Lake of Egypt - Segment 1

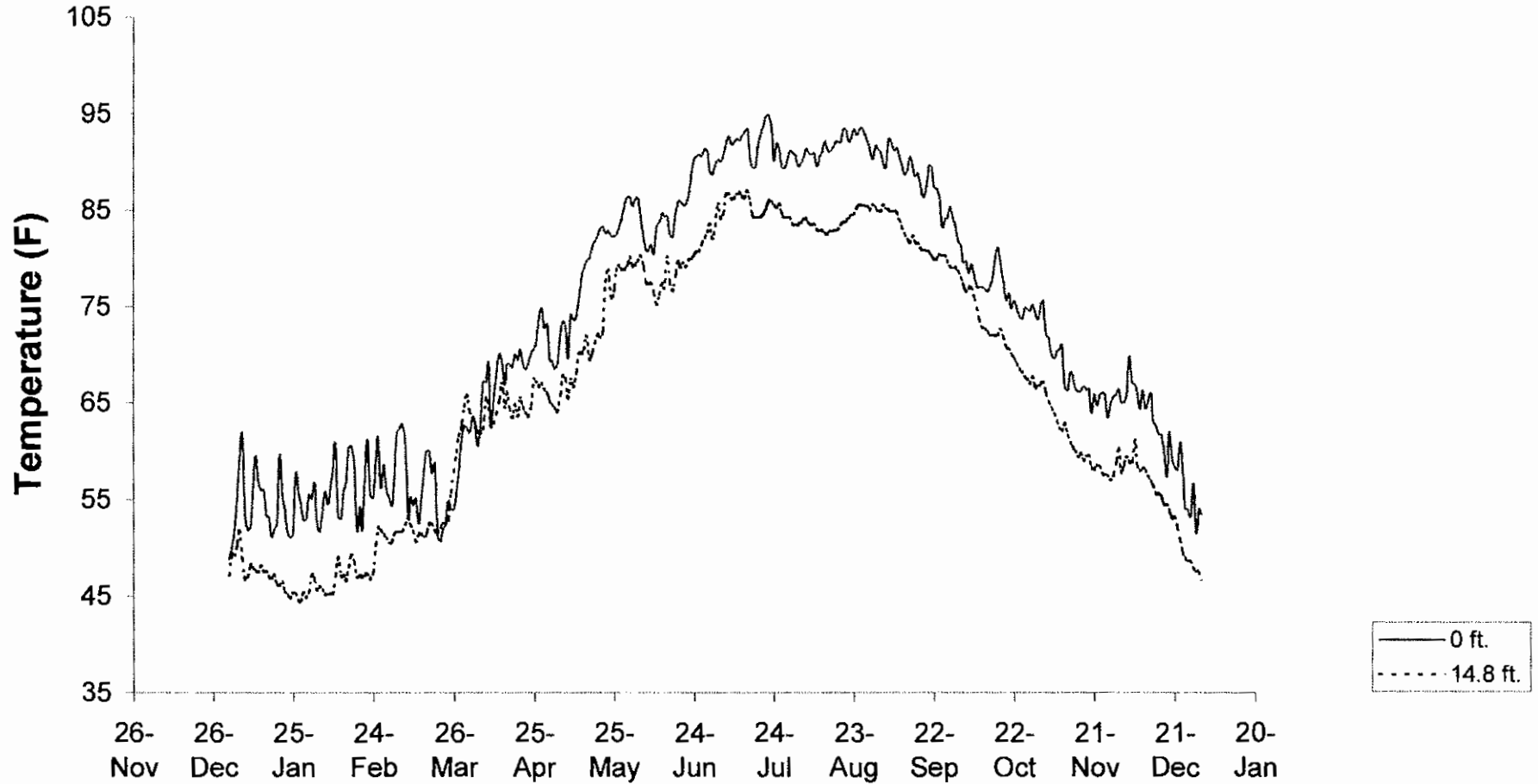


Figure 15A.214. Mean daily temperature during 1998, Lake of Egypt Segment 1. Lake bottom is approximately 36.1 feet.

Lake of Egypt - Segment 1

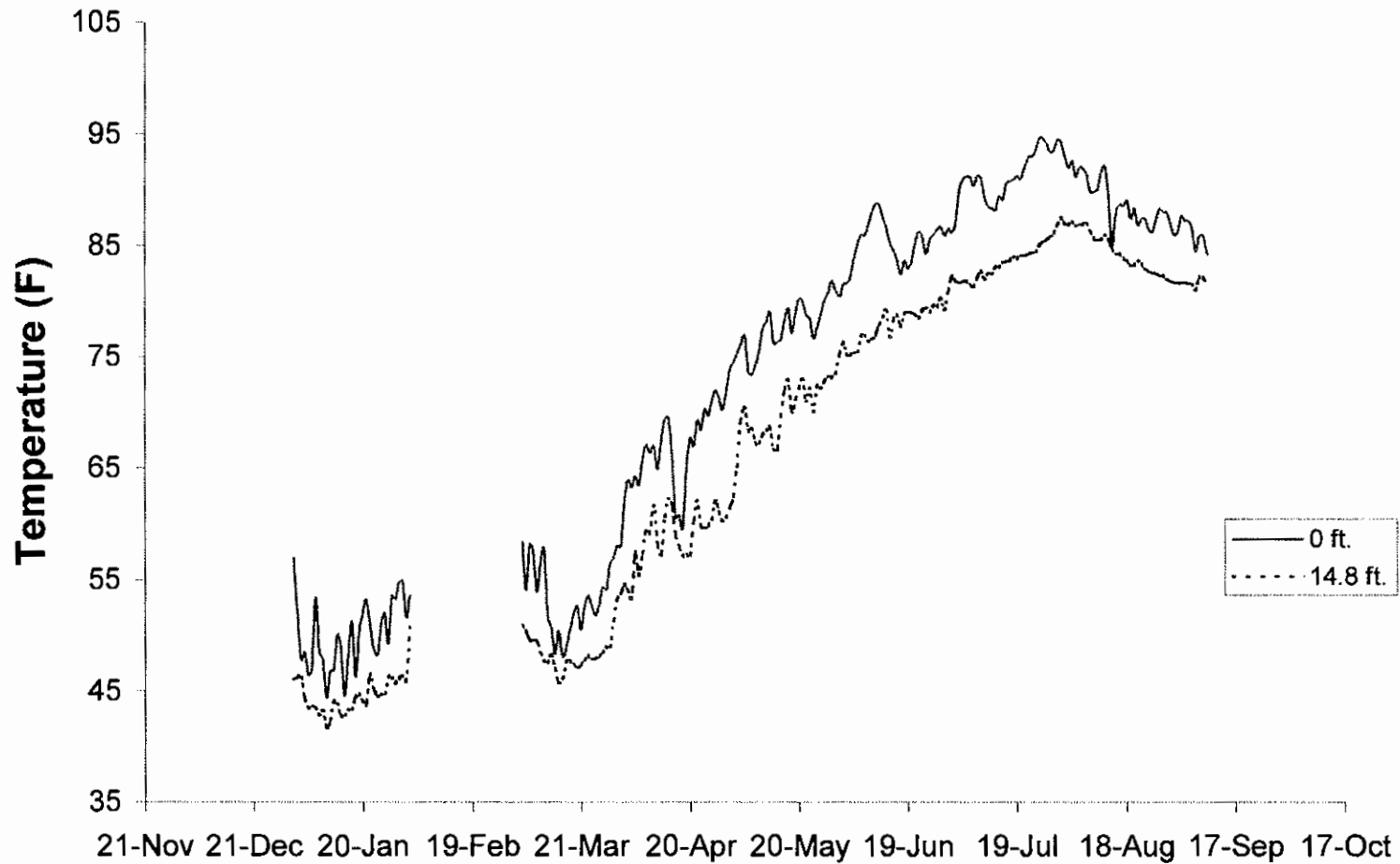


Figure 15A.215. Mean daily temperature during 1999, Lake of Egypt Segment 1. Lake bottom is approximately 36.1 feet.

Lake of Egypt - Segment 2

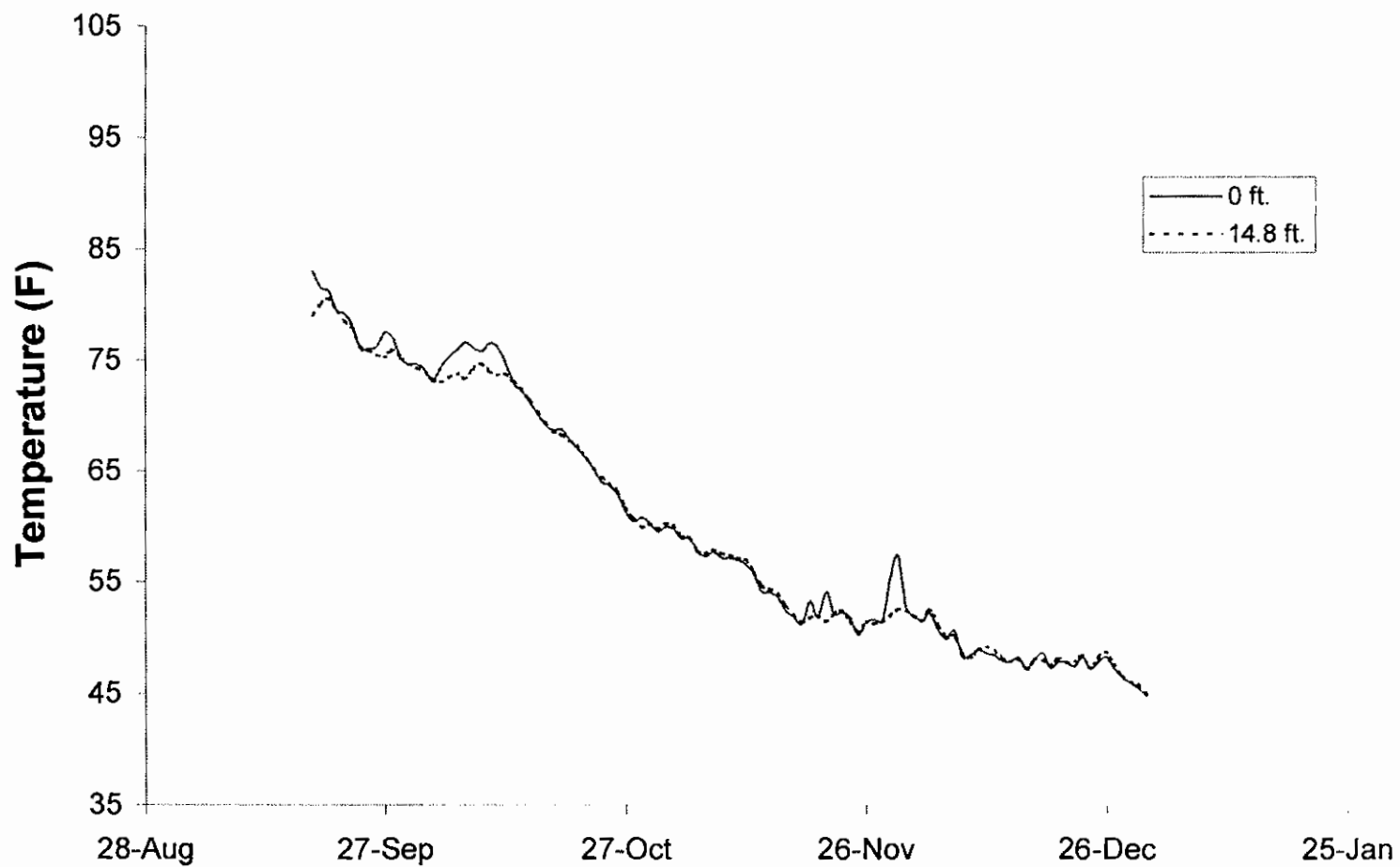


Figure 15A.216. Mean daily temperature during 1997, Lake of Egypt Segment 2. Lake bottom is approximately 13.1 feet.

Lake of Egypt - Segment 2

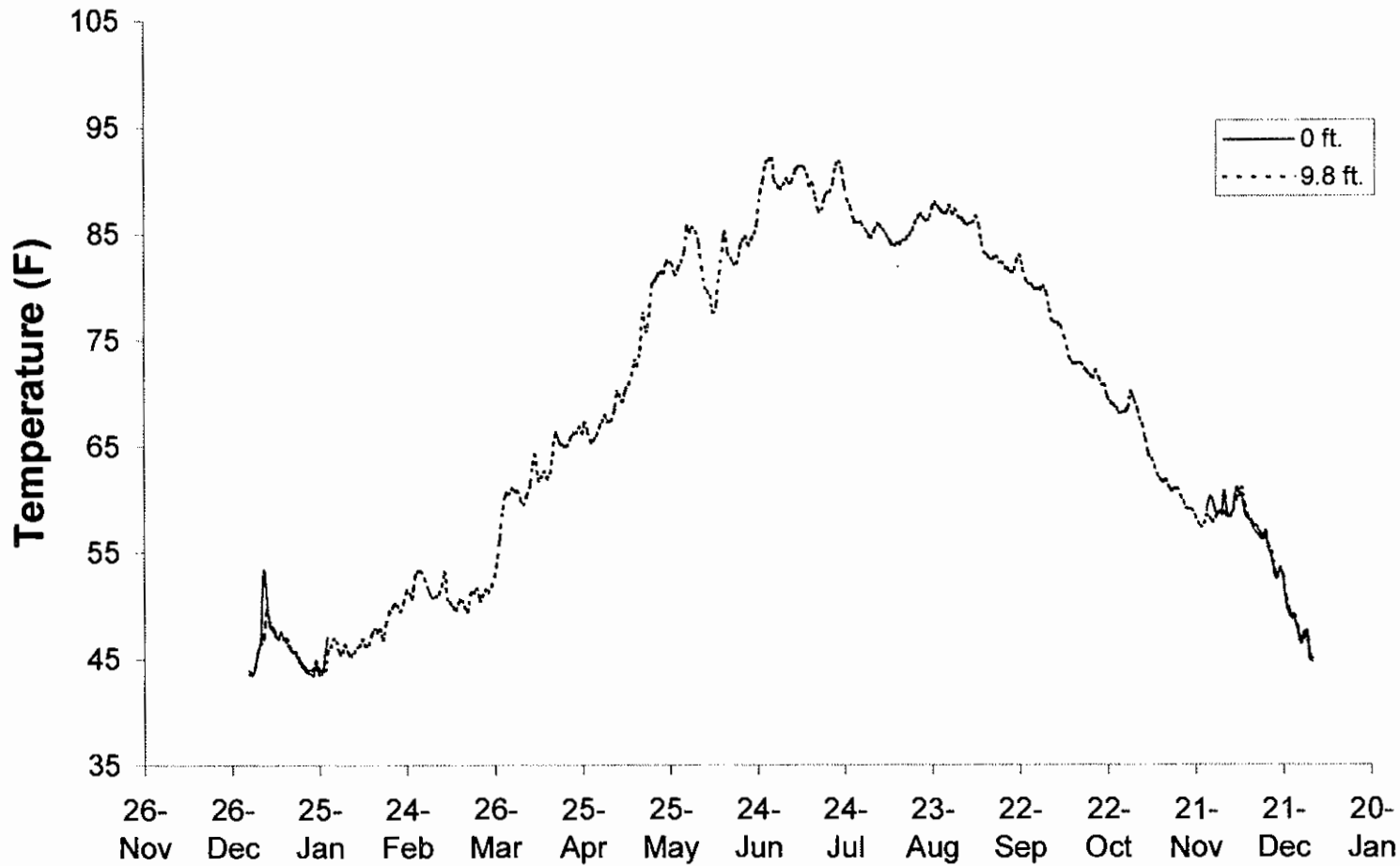


Figure 15A.217. Mean daily temperature during 1998, Lake of Egypt Segment 2. Lake bottom is approximately 13.1 feet.

Lake of Egypt - Segment 2

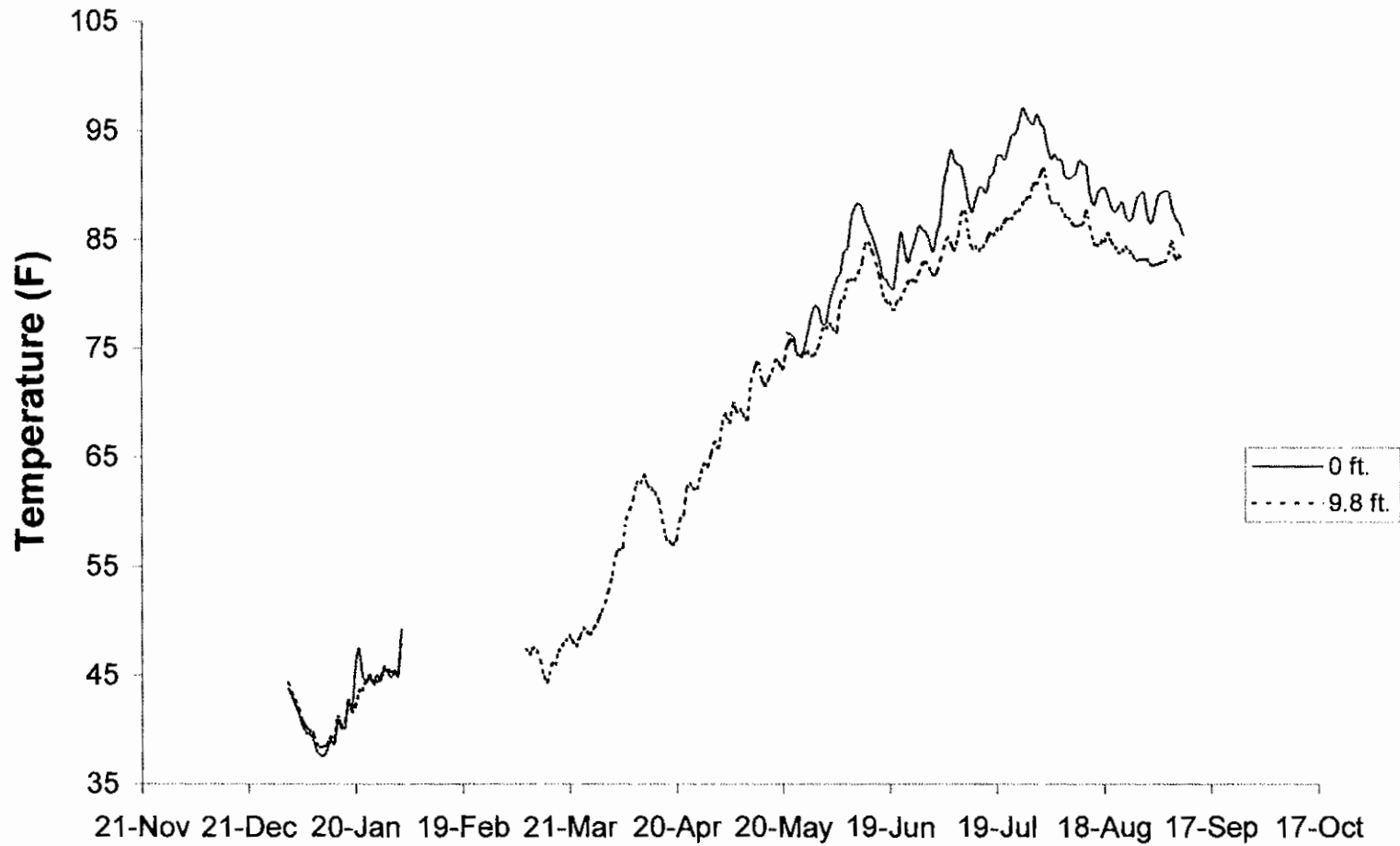


Figure 15A.218. Mean daily temperature during 1999, Lake of Egypt Segment 2. Lake bottom is approximately 13.1 feet.

Newton Lake - Segment 3

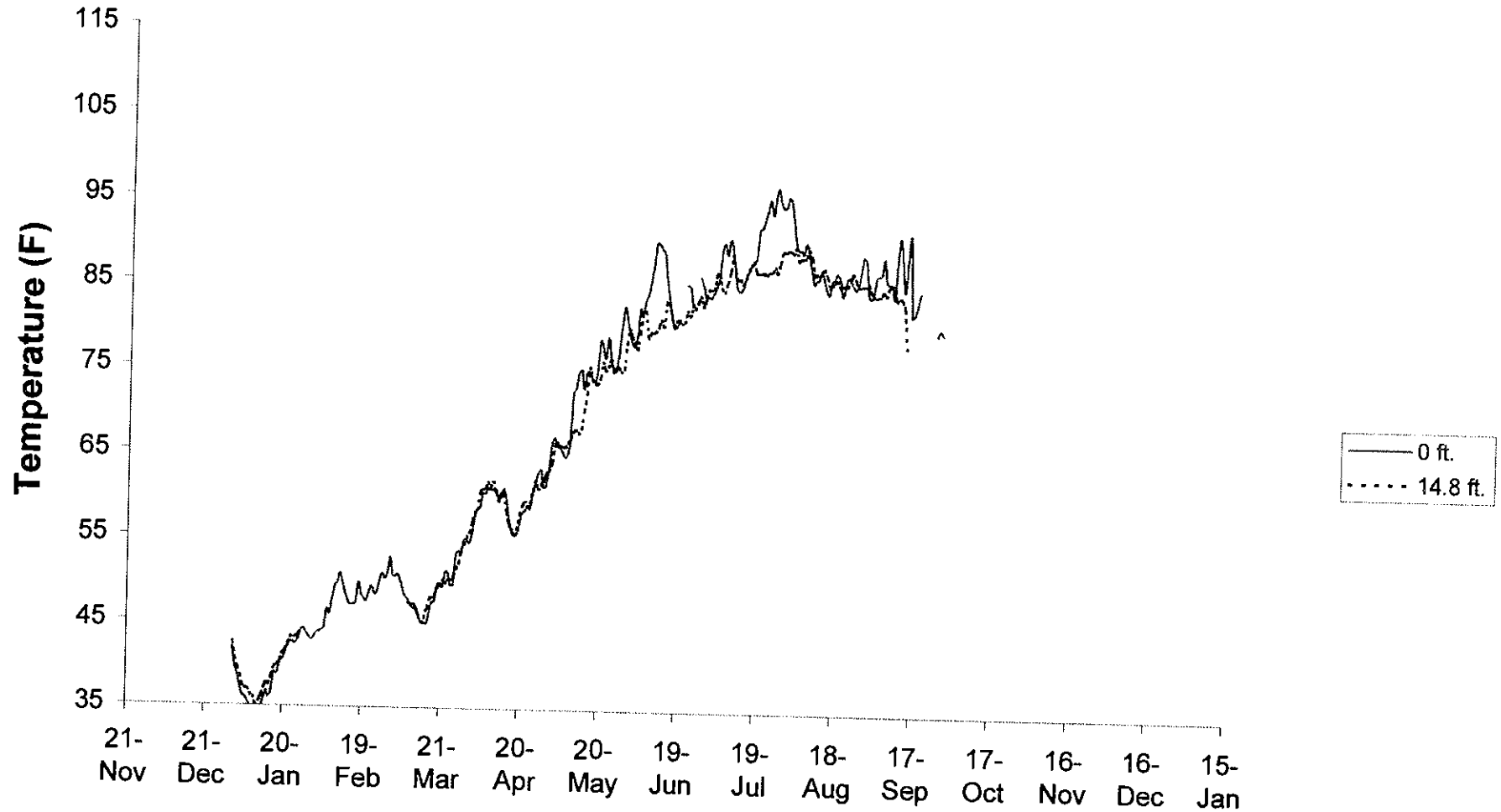


Figure 15A.197. Mean daily temperature during 1999, Newton Lake Segment 3. Lake bottom is approximately 29.5 ft.

Newton Lake - Segment 4

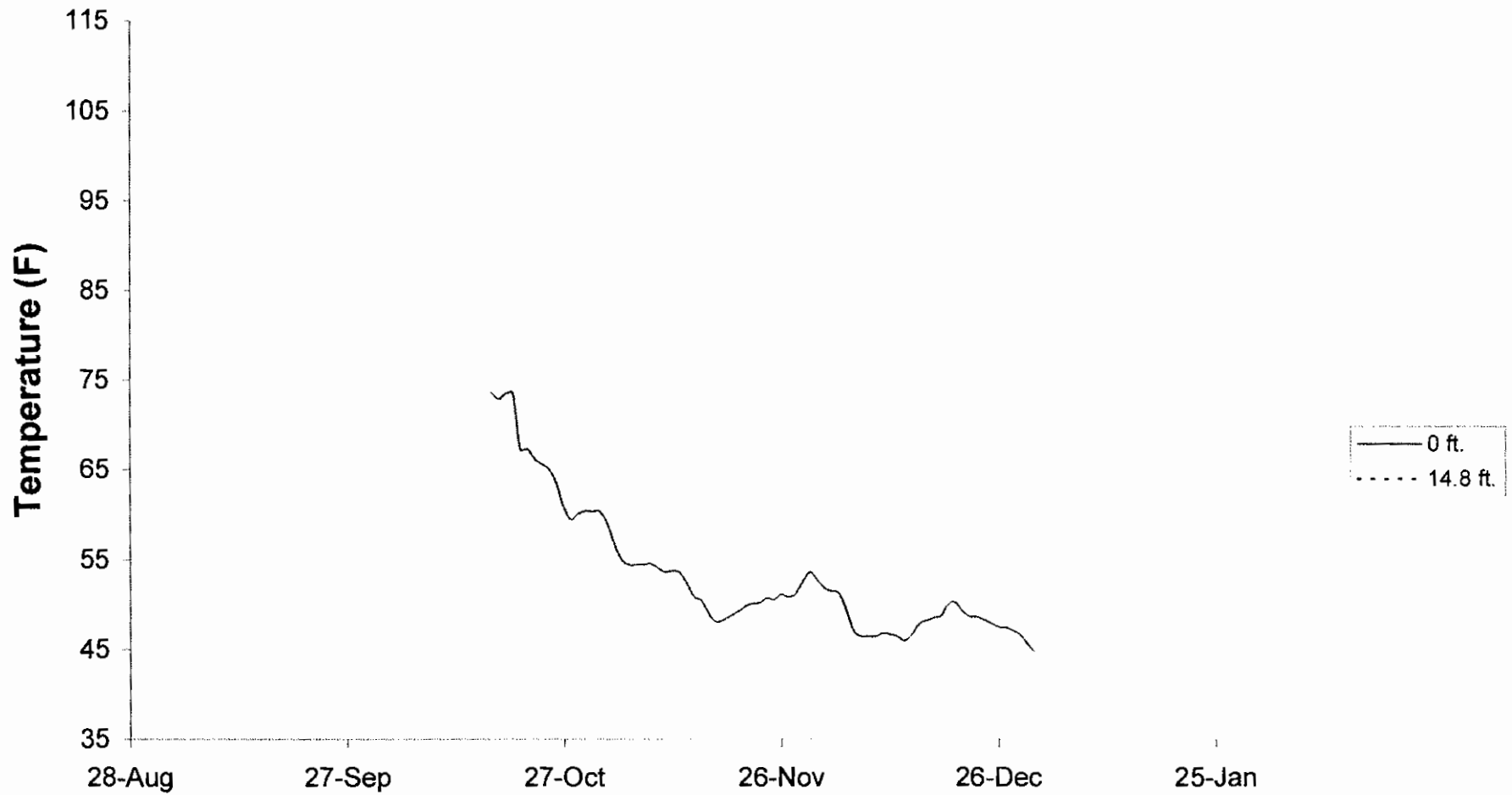


Figure 15A.198. Mean daily temperature during 1997, Newton Lake Segment 4. Lake bottom is approximately 15.0 ft.

Newton Lake - Segment 3

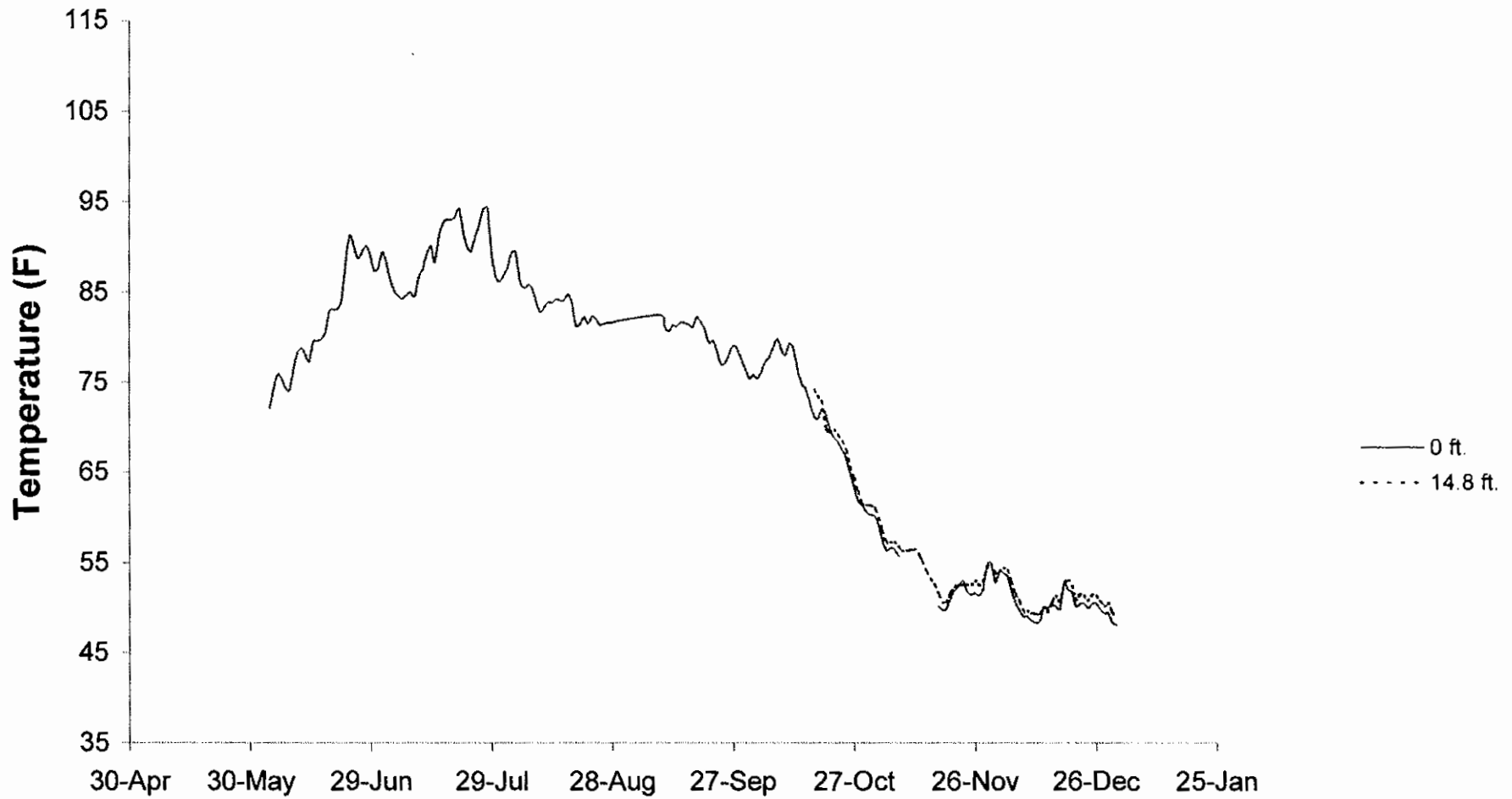


Figure 15A.195. Mean daily temperature during 1997, Newton Lake Segment 3. Lake bottom is approximately 29.5 ft.

Newton Lake - Segment 3

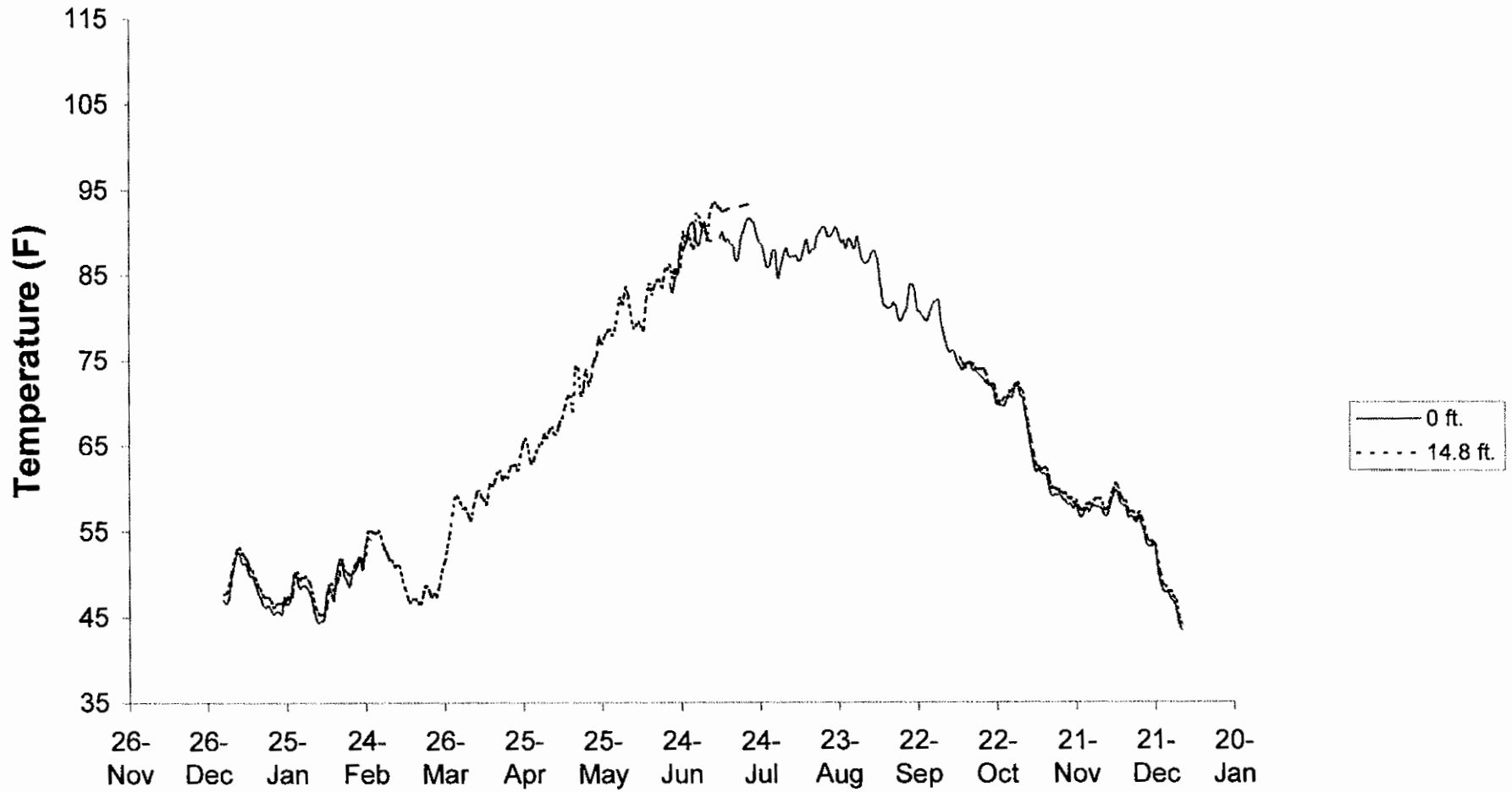


Figure 15A.196. Mean daily temperature during 1998, Newton Lake Segment 3. Lake bottom is approximately 29.5 ft.

CHAPTER 16. CREEL

Creels were not run on either Coffeen Lake or Lake of Egypt in 1997-1999. Historical 12-month creel data for Newton Lake was provided by AmerenCIPS. These creels were designed to yield harvest, but not catch data. AmerenCIPS contracted with the Illinois Natural History Survey to conduct a creel survey on Newton Lake in 1998 and 1999. The 1998 creel survey, April 12, 1999 report covered only nine months. The heavily fished November, December, and January months were included.

Angling effort dropped from a high of 150,814 hours in 1986 (12 months) to a 12 month low level of 70,330 hours in 1991 (Table 16.1). In 1998, fishing pressure was back up to 105,931 hours for the nine months of creel. Harvest of largemouth bass has remained remarkably consistent since 1986 (Table 16.2). In 1998, a total of 1,287 largemouth bass was harvested. A size limit of 18 inches total length and three fish per day has been in place since Newton Lake was open to fishing in 1980.

The harvest of 947 bluegill in 1998 approaches the 1986 high of 1,009 fish (Table 16.3). Bluegill harvest has been very low throughout all creel years. The harvest of crappie fell from 89,499 in 1986 and 66,971 in 1987 to 69 in 1988. This drastic decrease in harvest reflects a significant reduction in recruitment of crappie which is well documented in power cooling lakes but not understood. Since angler harvest of crappie tend to be dominated by three and four year old fish, the reduction in recruitment probably started in 1985.

Channel catfish harvest in Newton Lake during 1998 was approximately one-half that of previous years (Table 16.4). The harvested fish averaged approximately one pound in weight which reflects the relatively slow growth rate of channel catfish in Newton Lake. Since a 10-

year old catfish averages approximately 0.6 pounds, the harvested fish were probably the faster growing portion of the population.

Table 16.1. Summary of fishing and harvest effort on Newton Lake (1,750 acres) from 1986-1993 and 1998. Creel data for 1986-1993 was taken from Merle Price's report to AmerenCIPS (Table 50). Creel data for 1998 was taken from INHS April 12, 1999, report to AmerenCIPS.

Year	Angling	Total no. Fish		Fish/acre		Fish/hr.	Total pounds		Pounds/acre		Pounds/hr	
	hours	Caught	Harvested	Caught	Harvested	caught	Caught	Harvested	Caught	Harvested	Caught	Harvested
1986	150,814	125,746		72			76,368		43.6		0.51	
1987	119,609	90,018		51			64,448		36.8		0.54	
1988	73,395	25,537		15			26,630		15.2		0.36	
1989	84,022	24,942		14			29,146		16.6		0.35	
1990	82,351	32,102		18			44,356		25.3		0.34	
1991	70,330	21,029		12			23,142		16.1		0.33	
1992	78,531	24,320		14			30,514		17.4		0.39	
1993	51,152	10,495		6			14,991		8.6		0.29	
1998	105,931	89,726	12,432	127	7	1	114,902	11,937	66	6.8	0.68	0.08

^a Lake was closed 5/20/93 – 8/31/93.

^b Creel was only run from 2/01/98 through 10/31/98 (9 months).

Table 16.2. Summary of largemouth bass catch and harvest on Newton Lake (1,750 acres) from 1986-1993 and 1998. Creel data for 1986-1993 was taken from Merle Price's report to AmerenCIPS (Table 50). Creel data for 1998 was summarized from INHS April 12, 1999 report to AmerenCIPS.

Year	Total no. fish		Fish/acre		No. fish/hr.		Total pounds		Pounds/acre		Pounds/hr.	
	Caught	Harvested	Caught	Harvested	Caught	Harvested	Caught	Harvested	Caught	Harvested	Caught	Harvested
1986		1,743		1.0		0.01		7,033		4.0		0.05
1987		1,278		0.7		0.01		5,409		3.0		0.04
1988		1,231		0.7		0.02		5,322		3.0		0.07
1989		1,141		0.6		0.01		5,160		3.0		0.06
1990		1,216		0.7		0.01		5,248		3.0		0.06
1991		1,143		0.7		0.02		4,883		2.8		0.07
1992		1,441		0.8		0.02		6,351		3.6		0.08
1993		731		0.4		0.01		3,465		2.0		0.07
1998	56,339	1,287	32	0.7	0.35	0.01	103,364	4,752	59	2.7	0.60	0.03

^a Lake was closed 5/20/93 – 8/31/93.

^b Creel was only run from 2/01/98 through 10/31/98 (9 months).

Table 16.3. Summary of bluegill and white crappie harvest, on Newton Lake (1,750 acres), from 1986-1993 and 1998. Creel data for 1986-1993 was taken from Merle Price's report to AmerenCIPS (Table 50). Creel data for 1998 was summarized from INHS April 12, 1999 report to AmerenCIPS.

Year	Number of bluegill		Number of harvested white crappie
	Harvested	Caught	
1986	1,009		89,499
1987	619		66,971
1988	90		69
1989	283		141
1990	281		199
1991	112		3
1992	29		0
1993 ^a	91		0
1998 ^b	947	4,482	? ^c

a Lake was closed 5/20/93 - 8/31/93

b In 1998 creel was only run from 2/01/98 through 10/31/98 (9 months).

c Some of the miscellaneous category that contains 61 fish may be crappie.

Table 16.4. Summary of channel catfish catch and harvest on Newton Lake (1,750 acres) from 1986-1993 and 1998. Creel data for 1986-1993 was taken from Merle Price's report to AmerenCIPS (Table 50). Creel data for 1998 was summarized from INHS April 12, 1999 report to AmerenCIPS.

Year	Total no. fish		Fish/acre		No. fish/hr.		Total pounds		Pounds/acre		Pounds/hr.	
	Caught	Harvested	Caught	Harvested	Caught	Harvested	Caught	Harvested	Caught	Harvested	Caught	Harvested
1986		32,280		18.0		0.21		35,231		20.0		0.23
1987		20,691		12.0		0.17		21,398		12.0		0.18
1988		23,939		14.0		0.33		21,070		12.0		0.29
1989		22,887		13.0		0.27		23,605		13.0		0.28
1990		30,133		17.0		0.37		38,824		22.0		0.47
1991		19,500		11.0		0.28		23,154		13.0		0.33
1992		22,755		13.0		0.29		24,058		14.0		0.31
1993		9,642		6.0		0.19		11,486		7.0		0.22
1998		9,720		5.6		0.19		6,984		4.0		0.05

^a Lake was closed 5/20/93 – 8/31/93.

^b Creel was only run from 2/01/98 through 10/31/98 (9 months).

Chapter 17. AmerenCIPS Water Quality Data Summary

Introduction:

During the course of this study, several water quality parameters were measured in both Newton Lake and Coffeen Lake by individuals from AmerenCIPS. The sampling frequency and location, as well as the subsequent analysis, differed from that from SIU and thus no attempt will be made to synthesize the AmerenCIPS data with the SIU data.

Methods:

Both Coffeen Lake and Newton lake were sampled monthly from October to March and semimonthly from April to September. Sampling sites are given in Figures 17.1 and 17.2. To distinguish AmerenCIPS sampling sites from SIU sampling sites, the former will be referred to as "locations" while the latter will be referred to as "segments." Thus, for Newton Lake, Location F and Location H correspond exactly with sampling sites in Segment 2 and Segment 3, respectively. Location C is near the sampling site for Segment 1, while Location I is near the sampling site for Segment 4. Since no water quality analysis was performed by SIU on Coffeen Lake, there are no corresponding segments between AmerenCIPS and SIU on this lake.

Temperature and dissolved oxygen was measured at 1 m intervals in all locations. Secchi depth was measured to the nearest 0.25 m in each location.

All other water quality parameters were measured in Locations C, F, H, and I only on Newton Lake, and Locations C and E1 only in Coffeen Lake. Each parameter was measured at 1-m intervals as well. Analyses were performed by PDC Labs or by AmerenCIPS laboratories. Methods used by both laboratories were not available for all parameters.

Parameters measured at 1-m intervals included pH, carbon dioxide (mg/L CO₂), alkalinity (mg/L CaCO₃), phenolphthalein alkalinity (mg/L CaCO₃), total hardness (mg/L CaCO₃), calcium hardness (mg/L CaCO₃), total ammonia (mg/L NH₃), nitrate (mg/L NO₃ and mg/L NO₃ - N), nitrite (mg/L NO₂ - N), total Kjeldahl nitrogen (TKN) (mg/L NH₃ - N), orthophosphate (mg/L PO₄ and mg/L PO₄ - P), total inductively coupled plasma mass spectroscopy (ICPMS) phosphorus (mg/L PO₄ - P), total dissolved solids (TDS) (mg/L TDS), sulfate (mg/L SO₄), and chloride (mg/L Cl⁻). Note that digestions were only performed sporadically before ICPMS analysis of total phosphorus. Prior to April 1998, values for nitrate were given in mg/L NO₃ and values for orthophosphate were given in mg/L PO₄, while after April 1998, values for nitrate were given in mg/L NO₃ - N and values for orthophosphate were given in mg/L PO₄ - P. Although these units can be easily converted from one to the other, they were kept separate to reflect possible changes in analytical procedure.

Daily mean values were calculated over all depths within a location for all parameters except secchi depth and pH. Only 1 secchi depth was determined at each segment each date, so calculation of a mean secchi depth was impossible. Since it is not appropriate to calculate a mean value for a series of pH measurements, the minimum and maximum pH was determined for each location on each date.

Results and Discussion

Temperature and dissolved oxygen profiles obtained during the summer months are given in Chapter 15. For all other parameters, means with 95% confidence intervals are given in Tables 4.1 - 4.36. Note that larger samples sizes within certain locations were the result of

deeper water in those locations. None of the parameters measured by AmerenCIPS had values outside the acceptable range for fish.

Many of the analyses performed were not able to detect the low levels of some parameters found in Newton Lake. Any sample in which the parameter was not detected was recorded as having 0 value; the high number of these 0 values likely led to underestimation of the parameters. Consequently, analysis of AmerenCIPS samples consistently demonstrated lower values for some parameter than did the samples taken by SIU. For example, on September 28, 1999 samples were taken by both AmerenCIPS and SIU. AmerenCIPS data showed no ammonia, nitrate, or total phosphorus for Segment 2, while SIU data showed mean values of 0.28 mg/L ammonia, 1.20 mg/L nitrate, and 0.20 mg/L total phosphorus.

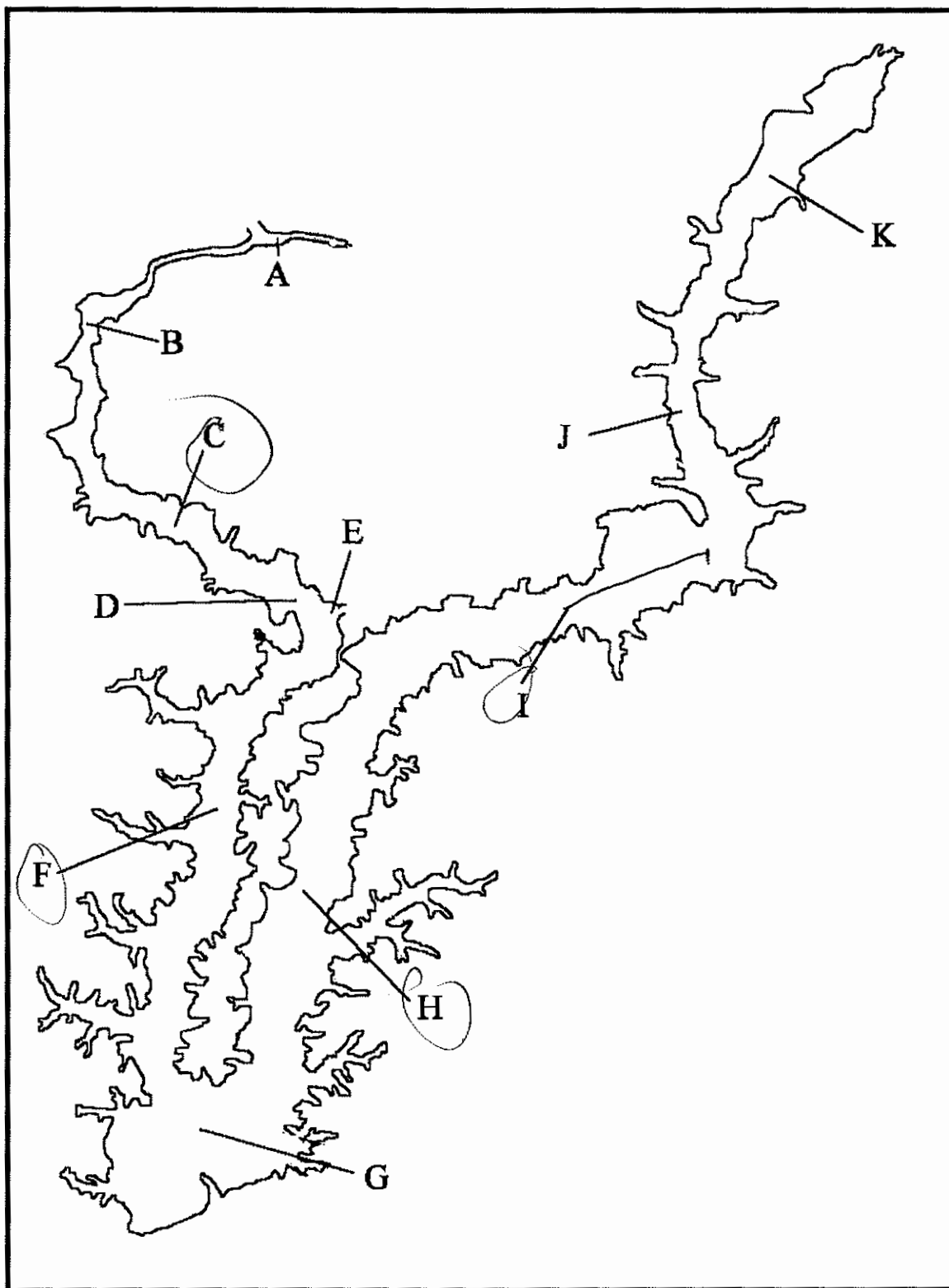


Figure 17.1. Location of AmerenCIPS water quality sampling sites, Newton Lake.

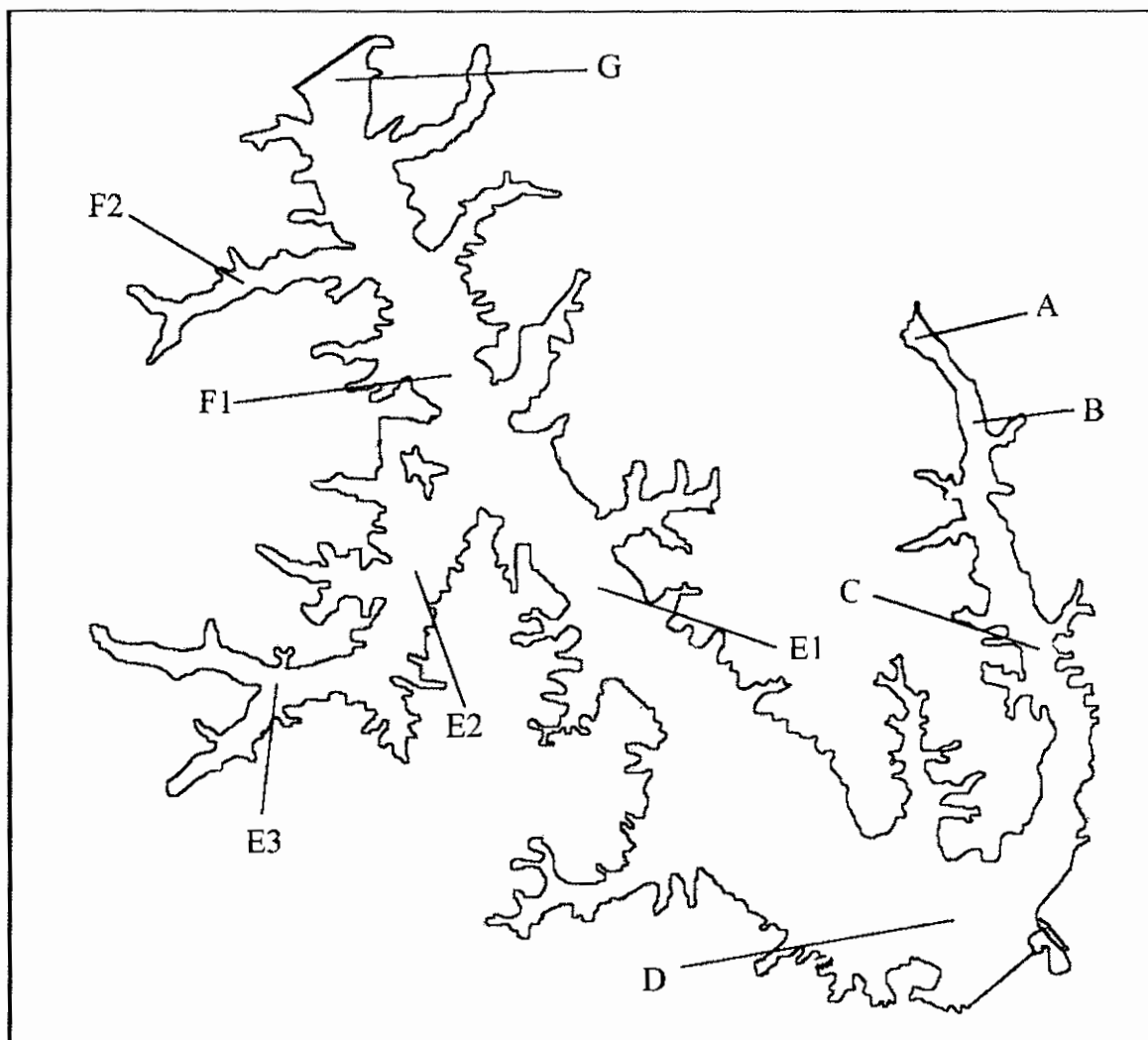


Figure 17.2. Location of AmerenCIPS water quality sampling sites, Coffeen Lake. Sites H and I (not shown) lie north of the railroad bridge.

Table 17.1. Mean CO₂ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L CO₂.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	25.63 ± 19.73	2	10.50 ± 3.92	7	8.00 ± 2.40	9	6.00 ± 2.75	6
09/17/1997	3.75 ± 0.00	3	7.14 ± 1.15	7	7.08 ± 0.95	9	6.46 ± 0.42	6
10/15/1997	8.67 ± 5.15	3	9.43 ± 1.11	7	9.33 ± 1.07	9	9.33 ± 0.85	6
11/12/1997	15.00 ± 7.60	3	12.96 ± 2.92	7	7.00 ± 0.72	8	6.67 ± 0.85	6
12/17/1997	8.00 ± 0.00	3	8.86 ± 0.79	7	8.00 ± 0.00	8	6.40 ± 0.85	5
01/22/1998	6.00 ± 0.00	3	6.00 ± 0.00	7	5.40 ± 0.56	10	4.40 ± 0.85	5
02/11/1998	5.42 ± 1.22	3	6.25 ± 0.92	7	3.44 ± 0.74	8	2.50 ± 0.00	6
03/18/1998	5.00 ± 0.00	4	5.00 ± 0.63	8	4.17 ± 0.39	9	4.64 ± 0.45	7
04/08/1998	5.63 ± 0.85	4	6.53 ± 0.52	9	7.38 ± 0.41	10	4.46 ± 0.49	7
04/22/1998	6.56 ± 0.74	4	5.78 ± 0.62	8	4.63 ± 0.60	10	1.61 ± 0.45	7
05/06/1998	6.88 ± 0.85	4	10.63 ± 2.28	8	8.00 ± 1.19	10	6.61 ± 0.87	7
05/20/1998	5.00 ± 0.00	4	7.50 ± 1.42	8	7.88 ± 2.90	10	2.50 ± 0.00	2
06/15/1998	7.50 ± 1.20	4	7.78 ± 1.33	9	6.67 ± 1.23	9	5.00 ± 0.00	4
06/24/1998	6.88 ± 0.85	4	7.19 ± 1.32	8	7.75 ± 2.83	10	3.21 ± 1.58	7
07/06/1998	8.44 ± 0.74	4	7.19 ± 1.16	8	6.25 ± 0.68	10	5.00 ± 0.53	7
07/22/1998	3.75 ± 0.00	3	7.97 ± 3.41	8	7.25 ± 4.33	10	2.50 ± 0.00	4
08/05/1998	3.75 ± 1.20	4	5.47 ± 1.90	8	6.57 ± 3.11	10	2.71 ± 0.42	6
08/17/1998	3.13 ± 0.85	4	6.56 ± 2.52	8	6.11 ± 3.21	9	3.33 ± 1.25	6
09/09/1998	5.83 ± 1.22	3	6.56 ± 1.40	8	5.56 ± 0.41	9	6.46 ± 1.01	6
09/23/1998	6.67 ± 1.22	3	5.18 ± 0.63	7	4.17 ± 0.55	9	5.63 ± 0.86	6
10/14/1998	5.42 ± 1.22	3	4.38 ± 0.63	8	4.17 ± 0.95	9	4.38 ± 0.56	6
11/18/1998	8.75 ± 0.00	3	9.17 ± 0.53	6	9.58 ± 0.55	9	7.92 ± 0.84	6
12/17/1998	5.83 ± 1.22	3	5.16 ± 0.30	8	4.32 ± 0.36	11	4.38 ± 0.85	4
01/20/1999	4.06 ± 0.74	4	5.78 ± 0.43	8	5.38 ± 0.35	10	5.00 ± 0.00	4
02/16/1999	3.75 ± 0.00	4	4.69 ± 0.39	8	4.75 ± 0.31	10	5.00 ± 0.00	6
03/23/1999	5.00 ± 0.00	4	5.47 ± 0.43	8	5.00 ± 0.39	9	5.00 ± 0.00	7
04/06/1999	5.00 ± 0.00	4	3.59 ± 1.14	8	4.03 ± 0.34	9	4.29 ± 0.72	7
04/20/1999	5.94 ± 0.74	4	6.88 ± 0.78	8	6.67 ± 0.39	9	6.25 ± 0.92	6
05/03/1999	3.44 ± 0.74	4	4.22 ± 1.61	8	5.13 ± 1.54	10	4.17 ± 1.55	6
05/19/1999	5.00 ± 0.00	4	6.41 ± 1.14	8	6.25 ± 1.08	10	5.18 ± 0.35	7
06/08/1999	5.94 ± 0.74	4	6.38 ± 1.21	8	0.00 ± 0.00	0	4.38 ± 0.86	6
06/22/1999	3.75 ± 0.00	4	5.00 ± 1.48	8	4.72 ± 1.44	9	2.71 ± 0.42	6
07/06/1999	4.38 ± 0.85	4	5.47 ± 1.09	8	5.70 ± 1.25	10	3.75 ± 0.00	6
07/19/1999	5.00 ± 0.00	4	6.25 ± 0.90	8	7.38 ± 2.00	10	4.38 ± 0.56	6
08/10/1999	5.94 ± 0.74	4	7.66 ± 2.21	8	6.53 ± 1.01	9	6.04 ± 0.42	6
08/24/1999	4.38 ± 0.85	4	7.34 ± 2.26	8	5.97 ± 0.93	9	5.00 ± 0.92	6
09/07/1999	6.25 ± 0.00	3	6.43 ± 0.35	7	7.36 ± 1.25	9	5.83 ± 0.53	6
09/28/1999	6.25 ± 0.00	3			6.13 ± 0.23	10	6.04 ± 0.42	6
10/13/1999	13.75 ± 4.21	3	8.38 ± 2.07	6	7.64 ± 2.03	9	7.92 ± 2.02	6
11/22/1999	11.67 ± 1.22	3	10.83 ± 0.53	6	13.75 ± 1.27	8	15.50 ± 1.36	5
12/13/1999	12.50 ± 3.65	3	9.64 ± 0.69	7	7.86 ± 0.69	7	5.42 ± 0.53	6

Table 17.2. Mean alkalinity levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L CaCO₃.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	71 ± 2	3	73 ± 1	7	72 ± 1	9	72 ± 2	6
09/17/1997	74 ± 3	3	75 ± 1	7	75 ± 1	9	77 ± 3	6
10/15/1997	78 ± 3	3	82 ± 1	7	81 ± 1	9	81 ± 1	6
11/12/1997	80 ± 0	3	81 ± 1	7	73 ± 4	8	72 ± 7	6
12/17/1997	82 ± 0	3	82 ± 0	7	81 ± 3	8	81 ± 1	5
01/22/1998	78 ± 3	3	77 ± 1	7	77 ± 1	10	77 ± 2	5
02/11/1998	79 ± 2	3	79 ± 1	7	78 ± 3	8	79 ± 1	6
03/18/1998	75 ± 2	4	80 ± 2	8	80 ± 1	9	81 ± 2	7
04/08/1998	73 ± 2	4	72 ± 0	9	75 ± 1	10	75 ± 1	7
04/22/1998	72 ± 0	4	74 ± 1	8	73 ± 1	10	75 ± 1	7
05/06/1998	79 ± 5	4	75 ± 4	8	79 ± 1	10	77 ± 6	6
05/20/1998	80 ± 1	4	79 ± 1	8	78 ± 2	10	74 ± 16	2
06/15/1998	76 ± 1	4	78 ± 4	9	76 ± 2	9	76 ± 2	4
06/24/1998	76 ± 2	4	77 ± 2	8	81 ± 6	10	73 ± 4	7
07/06/1998	61 ± 2	4	69 ± 7	8	80 ± 4	10	76 ± 1	6
07/22/1998	76 ± 1	3	79 ± 5	8	82 ± 7	10	76 ± 4	4
08/05/1998	76 ± 3	4	78 ± 3	8	82 ± 7	10	76 ± 2	4
08/17/1998	79 ± 1	4	82 ± 7	8	85 ± 8	9	80 ± 1	6
09/09/1998	84 ± 1	3	87 ± 2	8	85 ± 1	9	84 ± 1	6
09/23/1998	85 ± 2	3	85 ± 1	7	84 ± 1	9	85 ± 1	6
10/14/1998	88 ± 3	3	88 ± 1	8	87 ± 1	9	86 ± 2	6
11/18/1998	80 ± 1	3	80 ± 2	6	79 ± 1	9	80 ± 1	6
12/17/1998	80 ± 2	3	80 ± 0	8	80 ± 1	10	80 ± 0	4
01/20/1999	63 ± 2	4	66 ± 5	8	85 ± 0	9	76 ± 11	4
02/16/1999	62 ± 2	4	63 ± 2	8	58 ± 1	10	60 ± 1	6
03/23/1999	58 ± 1	4	59 ± 1	8	59 ± 0	9	59 ± 1	7
04/06/1999	59 ± 1	4	61 ± 1	8	61 ± 1	9	62 ± 1	7
04/20/1999	64 ± 1	4	61 ± 1	8	62 ± 1	9	62 ± 1	5
05/03/1999	65 ± 1	4	65 ± 1	8	63 ± 1	10	63 ± 1	6
05/19/1999	68 ± 1	4	66 ± 1	8	68 ± 1	10	67 ± 1	7
06/08/1999	68 ± 1	4	68 ± 1	8	70 ± 2	10	70 ± 1	6
06/22/1999	67 ± 1	4	68 ± 1	8	68 ± 1	9	67 ± 1	6
07/06/1999	63 ± 1	4	64 ± 2	8	64 ± 3	10	60 ± 2	6
07/19/1999	66 ± 1	4	66 ± 1	8	66 ± 1	8	66 ± 1	6
08/10/1999	72 ± 1	4	72 ± 1	8	71 ± 1	9	71 ± 1	6
08/24/1999	73 ± 1	3	72 ± 1	8	73 ± 3	9	72 ± 1	6
09/07/1999	75 ± 1	3	76 ± 1	7	76 ± 3	9	75 ± 0	6
09/28/1999	79 ± 4	3	78 ± 2	7	76 ± 1	10	76 ± 0	6
10/13/1999	81 ± 4	3	79 ± 1	7	79 ± 1	9	80 ± 0	6
11/22/1999	79 ± 1	3	78 ± 1	6	78 ± 1	8	78 ± 1	5
12/13/1999	76 ± 2	3	76 ± 1	7	77 ± 1	7	76 ± 1	6

Table 17.3. Mean phenolphthalein alkalinity levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L CaCO₃.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	3 ± 2	3	1 ± 1	7	2 ± 2	9	4 ± 2	6
09/17/1997	0 ± 0	3	0 ± 0	7	0 ± 0	9	0 ± 0	6
10/15/1997	0 ± 0	3	0 ± 0	7	0 ± 0	9	0 ± 0	6
11/12/1997	0 ± 0	3	0 ± 0	7	0 ± 0	8	0 ± 0	6
12/17/1997	2 ± 0	3	1 ± 1	7	0 ± 0	8	2 ± 1	5
01/22/1998	0 ± 0	3	0 ± 0	7	0 ± 0	10	0 ± 0	5
02/11/1998	0 ± 0	3	0 ± 0	7	0 ± 0	8	0 ± 0	6
03/18/1998	0 ± 0	4	3 ± 1	8	3 ± 1	9	4 ± 0	7
04/08/1998	0 ± 0	4	0 ± 0	9	0 ± 0	10	0 ± 0	7
04/22/1998	0 ± 0	4	0 ± 0	8	0 ± 0	10	0 ± 0	7
05/06/1998	0 ± 0	4	0 ± 0	8	0 ± 0	10	0 ± 0	6
05/20/1998	0 ± 0	4	0 ± 0	8	0 ± 0	10	0 ± 0	2
06/15/1998	0 ± 0	4	0 ± 0	9	0 ± 0	9	0 ± 0	4
06/24/1998	0 ± 0	4	0 ± 0	8	0 ± 0	10	2 ± 2	7
07/06/1998	0 ± 0	4	0 ± 0	8	0 ± 0	10	0 ± 0	6
07/22/1998	0 ± 0	3	0 ± 0	8	1 ± 1	8	3 ± 2	4
08/05/1998	0 ± 0	4	0 ± 0	8	0 ± 0	10	0 ± 0	4
08/17/1998	3 ± 0	4	1 ± 1	8	1 ± 1	9	6 ± 2	6
09/09/1998	0 ± 0	1	0 ± 0	8	0 ± 0	9	0 ± 0	6
09/23/1998	0 ± 0	3	0 ± 0	7	0 ± 0	9	0 ± 0	6
10/14/1998	0 ± 0	3	0 ± 0	8	0 ± 0	9	0 ± 0	6
11/18/1998	0 ± 0	3	0 ± 0	6	0 ± 0	9	0 ± 0	6
12/17/1998	0 ± 0	3	0 ± 0	8	0 ± 0	10	0 ± 0	4
01/20/1999	0 ± 0	4	0 ± 0	8	0 ± 0	9	0 ± 0	4
02/16/1999	0 ± 0	4	0 ± 0	8	0 ± 0	10	0 ± 0	6
03/23/1999	0 ± 0	4	0 ± 0	8	0 ± 0	9	0 ± 0	7
04/06/1999	0 ± 0	4	0 ± 0	8	2 ± 1	9	4 ± 1	7
04/20/1999	0 ± 0	4	0 ± 0	8	0 ± 0	9	0 ± 0	5
05/03/1999	4 ± 1	4	3 ± 2	8	2 ± 1	10	2 ± 2	6
05/19/1999	0 ± 0	4	0 ± 0	8	1 ± 1	10	1 ± 1	7
06/08/1999	0 ± 0	4	0 ± 0	8	1 ± 1	10	0 ± 0	6
06/22/1999	3 ± 1	4	1 ± 1	8	2 ± 2	9	5 ± 1	6
07/06/1999	2 ± 1	4	1 ± 1	8	1 ± 1	10	3 ± 1	6
07/19/1999	0 ± 0	4	0 ± 0	8	1 ± 1	8	2 ± 1	6
08/10/1999	1 ± 1	4	1 ± 1	8	0 ± 1	9	1 ± 1	6
08/24/1999	2 ± 1	3	1 ± 1	8	0 ± 0	9	1 ± 1	6
09/07/1999	0 ± 0	3	0 ± 1	7	1 ± 1	9	0 ± 0	6
09/28/1999	1 ± 2	3	1 ± 1	7	1 ± 1	10	1 ± 1	6
10/13/1999	0 ± 0	3	2 ± 2	7	4 ± 0	9	4 ± 0	6
11/22/1999	0 ± 0	3	0 ± 0	6	0 ± 0	8	0 ± 0	5
12/13/1999	0 ± 0	3	0 ± 0	7	0 ± 0	7	0 ± 0	6

Table 17.4. Mean NH₃ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L NH₃.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
09/17/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
10/15/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
11/12/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	8	0.00 ± 0.00	6
12/17/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	8	0.00 ± 0.00	5
01/22/1998	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	10	0.00 ± 0.00	5
02/11/1998	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	8	0.00 ± 0.00	6
03/18/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	7
04/08/1998	0.00 ± 0.00	4	0.00 ± 0.00	9	0.00 ± 0.00	10	0.00 ± 0.00	7
04/22/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	7
05/06/1998	0.15 ± 0.35	4	0.16 ± 0.20	8	0.08 ± 0.15	10	0.00 ± 0.00	6
05/20/1998	1.17 ± 0.42	4	0.45 ± 0.34	8	0.17 ± 0.16	10	0.25 ± 1.58	2
06/15/1998	0.63 ± 0.63	4	0.79 ± 0.24	9	0.14 ± 0.18	9	0.15 ± 0.35	4
06/24/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.42 ± 0.29	10	0.13 ± 0.25	7
07/06/1998	0.25 ± 0.59	4	0.32 ± 0.33	8	0.31 ± 0.24	10	0.15 ± 0.30	6
07/22/1998	0.00 ± 0.00	3	0.21 ± 0.26	8	0.37 ± 0.29	10	0.00 ± 0.00	4
08/05/1998	0.00 ± 0.00	4	0.24 ± 0.30	8	0.46 ± 0.37	10	0.17 ± 0.41	4
08/17/1998	0.00 ± 0.00	4	0.56 ± 0.79	8	0.30 ± 0.44	9	0.00 ± 0.00	6
09/09/1998	0.40 ± 2.53	2	0.14 ± 0.17	8	0.08 ± 0.14	9	0.00 ± 0.00	6
09/23/1998	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
10/14/1998	0.00 ± 0.00	3	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
11/18/1998	0.00 ± 0.00	3	0.10 ± 0.20	6	0.07 ± 0.12	9	0.13 ± 0.27	6
12/17/1998	0.27 ± 0.78	3	0.06 ± 0.12	8	0.14 ± 0.17	10	0.00 ± 0.00	4
01/20/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	4
02/16/1999	0.00 ± 0.00	4	0.30 ± 0.21	8	0.28 ± 0.21	10	0.00 ± 0.00	6
03/23/1999	0.00 ± 0.00	4	0.06 ± 0.12	8	0.00 ± 0.00	9	0.00 ± 0.00	7
04/06/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.06 ± 0.10	9	0.00 ± 0.00	7
04/20/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	5
05/03/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	6
05/19/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	7
06/08/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.05 ± 0.09	10	0.00 ± 0.00	6
06/22/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
07/06/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.06 ± 0.11	10	0.00 ± 0.00	6
07/19/1999	0.00 ± 0.00	4	0.08 ± 0.14	8	0.00 ± 0.00	8	0.00 ± 0.00	6
08/10/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.06 ± 0.10	9	0.00 ± 0.00	6
08/24/1999	0.00 ± 0.00	3	0.00 ± 0.00	8	0.20 ± 0.25	9	0.25 ± 0.50	6
09/07/1999	0.00 ± 0.00	3	0.00 ± 0.00	7	0.16 ± 0.29	9	0.00 ± 0.00	6
09/28/1999	0.00 ± 0.00	3	0.00 ± 0.00	7	0.15 ± 0.27	10	0.00 ± 0.00	6
10/13/1999	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
11/22/1999	0.00 ± 0.00	3	0.00 ± 0.00	6	0.00 ± 0.00	8	0.00 ± 0.00	5
12/13/1999	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	6	0.00 ± 0.00	6

Table 17.5. Mean Cl⁻ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L Cl⁻.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	27 ± 0	3	28 ± 0	7	26 ± 0	9	27 ± 0	6
09/17/1997	24 ± 0	3	26 ± 1	7	26 ± 0	9	26 ± 0	6
10/15/1997	26 ± 2	3	26 ± 1	7	26 ± 0	9	27 ± 0	6
11/12/1997	26 ± 5	3	27 ± 1	7	28 ± 0	8	28 ± 0	6
12/17/1997	26 ± 0	3	27 ± 0	7	27 ± 0	8	26 ± 1	5
01/22/1998	31 ± 0	3	31 ± 1	7	31 ± 0	10	31 ± 0	5
02/11/1998	28 ± 3	3	22 ± 2	7	25 ± 3	8	29 ± 1	6
03/18/1998	24 ± 2	4	28 ± 1	8	28 ± 0	9	28 ± 0	7
04/08/1998	21 ± 2	4	20 ± 1	9	21 ± 1	10	20 ± 1	7
04/22/1998	22 ± 1	4	22 ± 0	8	22 ± 0	10	22 ± 1	7
05/06/1998	21 ± 2	4	20 ± 2	8	23 ± 0	10	22 ± 2	6
05/20/1998	21 ± 0	4	21 ± 1	8	22 ± 1	10	22 ± 3	2
06/15/1998	20 ± 0	4	21 ± 1	9	20 ± 0	9	20 ± 0	4
06/24/1998	20 ± 1	4	20 ± 0	8	21 ± 1	10	20 ± 0	7
07/06/1998	14 ± 0	4	18 ± 1	8	20 ± 0	10	20 ± 0	6
07/22/1998	21 ± 1	3	20 ± 0	8	20 ± 0	10	21 ± 1	4
08/05/1998	19 ± 1	4	19 ± 0	8	19 ± 0	10	18 ± 1	4
08/17/1998	19 ± 1	4	20 ± 1	8	19 ± 1	9	19 ± 0	6
09/09/1998	22 ± 2	3	21 ± 0	8	21 ± 0	9	21 ± 0	6
09/23/1998	22 ± 1	3	22 ± 0	7	22 ± 0	9	22 ± 0	6
10/14/1998	22 ± 0	3	22 ± 2	8	22 ± 0	9	22 ± 0	6
11/18/1998	22 ± 3	3	22 ± 1	6	22 ± 1	9	22 ± 0	6
12/17/1998	23 ± 1	3	22 ± 0	8	22 ± 0	10	22 ± 0	4
01/20/1999	16 ± 1	4	17 ± 2	8	22 ± 0	9	20 ± 3	4
02/16/1999	14 ± 0	4	14 ± 0	8	13 ± 0	10	14 ± 0	6
03/23/1999	14 ± 1	4	14 ± 0	8	13 ± 2	9	14 ± 0	7
04/06/1999	13 ± 0	4	13 ± 0	8	13 ± 0	9	13 ± 0	7
04/20/1999	14 ± 1	4	14 ± 0	8	14 ± 0	9	14 ± 0	5
05/03/1999	14 ± 0	4	14 ± 0	8	13 ± 1	10	13 ± 1	6
05/19/1999	14 ± 0	4	14 ± 0	8	14 ± 0	10	14 ± 0	7
06/08/1999	15 ± 0	4	15 ± 0	8	15 ± 0	10	15 ± 0	6
06/22/1999	15 ± 1	4	14 ± 1	8	13 ± 0	9	14 ± 1	6
07/06/1999	14 ± 1	4	14 ± 0	8	14 ± 0	10	13 ± 0	6
07/19/1999	14 ± 0	4	14 ± 0	8	14 ± 0	8	14 ± 1	6
08/10/1999	15 ± 1	4	15 ± 1	8	15 ± 0	9	15 ± 0	6
08/24/1999	15 ± 0	3	15 ± 0	8	15 ± 0	9	15 ± 1	6
09/07/1999	15 ± 1	3	15 ± 1	7	16 ± 0	9	16 ± 0	6
09/28/1999	15 ± 1	3	16 ± 0	7	16 ± 0	10	17 ± 0	6
10/13/1999	18 ± 1	3	19 ± 1	7	19 ± 0	9	19 ± 0	6
11/22/1999	20 ± 0	3	20 ± 0	6	20 ± 0	8	20 ± 0	5
12/13/1999	21 ± 1	3	21 ± 0	7	21 ± 0	7	21 ± 0	6

Table 17.6. Mean water hardness levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L CaCO₃.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	136 ± 3	3	135 ± 2	7	135 ± 1	9	134 ± 1	6
09/17/1997	139 ± 4	3	140 ± 3	7	139 ± 1	9	139 ± 1	6
10/15/1997	145 ± 2	3	144 ± 2	7	144 ± 1	9	145 ± 2	6
11/12/1997	154 ± 3	3	154 ± 1	7	154 ± 2	8	155 ± 1	6
12/17/1997	152 ± 3	3	152 ± 1	7	152 ± 1	8	152 ± 1	5
01/22/1998	151 ± 2	3	151 ± 1	7	151 ± 1	10	152 ± 2	5
02/11/1998	176 ± 0	3	171 ± 4	7	169 ± 4	8	166 ± 4	6
03/18/1998	155 ± 12	4	163 ± 3	8	160 ± 0	9	160 ± 0	7
04/08/1998	143 ± 6	4	142 ± 3	9	140 ± 0	10	141 ± 3	7
04/22/1998	145 ± 7	4	143 ± 3	8	140 ± 0	10	146 ± 4	7
05/06/1998	125 ± 7	4	119 ± 9	8	131 ± 2	10	125 ± 10	6
05/20/1998	140 ± 0	4	140 ± 0	8	144 ± 3	10	140 ± 0	2
06/15/1998	130 ± 0	4	132 ± 3	9	132 ± 3	9	130 ± 0	4
06/24/1998	130 ± 0	4	131 ± 2	8	135 ± 5	10	130 ± 0	7
07/06/1998	108 ± 6	4	123 ± 9	8	132 ± 2	10	130 ± 0	6
07/22/1998	120 ± 0	3	126 ± 3	8	127 ± 5	10	125 ± 7	4
08/05/1998	120 ± 0	4	120 ± 0	8	124 ± 5	10	120 ± 0	4
08/17/1998	125 ± 7	4	126 ± 3	8	123 ± 4	9	122 ± 3	6
09/09/1998	127 ± 10	3	130 ± 0	8	130 ± 0	9	130 ± 0	6
09/23/1998	137 ± 10	3	140 ± 0	7	139 ± 2	9	135 ± 7	6
10/14/1998	140 ± 0	3	140 ± 0	8	140 ± 0	9	140 ± 0	6
11/18/1998	130 ± 0	3	130 ± 0	6	130 ± 0	9	130 ± 0	6
12/17/1998	130 ± 0	3	136 ± 3	8	133 ± 3	10	133 ± 6	4
01/20/1999	108 ± 11	4	113 ± 6	8	141 ± 2	9	128 ± 18	4
02/16/1999	110 ± 10	4	113 ± 10	8	102 ± 4	10	100 ± 5	6
03/23/1999	98 ± 3	4	97 ± 2	8	97 ± 1	9	99 ± 1	7
04/06/1999	103 ± 6	4	103 ± 3	8	101 ± 2	9	101 ± 3	7
04/20/1999	120 ± 17	4	114 ± 9	8	110 ± 0	9	108 ± 8	5
05/03/1999	110 ± 0	4	111 ± 2	8	110 ± 0	10	112 ± 3	6
05/19/1999	110 ± 0	4	110 ± 0	8	110 ± 0	10	110 ± 0	7
06/08/1999	123 ± 6	4	121 ± 2	8	121 ± 3	10	123 ± 4	6
06/22/1999	110 ± 0	4	113 ± 3	8	117 ± 3	9	118 ± 3	6
07/06/1999	100 ± 1	4	101 ± 2	8	104 ± 3	10	100 ± 0	6
07/19/1999	110 ± 0	4	110 ± 0	8	111 ± 2	8	112 ± 3	6
08/10/1999	110 ± 0	4	113 ± 3	8	113 ± 3	9	117 ± 4	6
08/24/1999	113 ± 10	3	110 ± 0	8	110 ± 3	9	110 ± 0	6
09/07/1999	103 ± 10	3	104 ± 4	7	104 ± 3	9	100 ± 0	6
09/28/1999	140 ± 17	3	139 ± 10	7	138 ± 7	10	148 ± 12	6
10/13/1999	153 ± 10	3	147 ± 7	7	149 ± 4	9	150 ± 5	6
11/22/1999	129 ± 1	3	129 ± 0	6	128 ± 0	8	129 ± 1	5
12/13/1999	130 ± 1	3	129 ± 0	7	129 ± 0	7	129 ± 0	6

Table 17.7. Mean calcium water hardness levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L CaCO₃.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	103 ± 4	3	102 ± 2	7	101 ± 1	9	100 ± 1	6
09/17/1997	103 ± 4	3	103 ± 2	7	101 ± 1	9	102 ± 2	6
10/15/1997	107 ± 2	3	108 ± 2	7	108 ± 1	9	108 ± 1	6
11/12/1997	115 ± 4	3	114 ± 1	7	114 ± 1	8	115 ± 1	6
12/17/1997	111 ± 4	3	112 ± 2	7	113 ± 2	8	112 ± 2	5
01/22/1998	111 ± 2	3	112 ± 1	7	112 ± 1	10	114 ± 2	5
02/11/1998	125 ± 4	3	121 ± 6	7	126 ± 3	8	120 ± 0	6
03/18/1998	108 ± 6	4	118 ± 3	8	117 ± 3	9	120 ± 0	7
04/08/1998	110 ± 0	4	109 ± 2	9	105 ± 3	10	107 ± 4	7
04/22/1998	103 ± 6	4	103 ± 3	8	101 ± 2	10	104 ± 4	7
05/06/1998	88 ± 6	4	89 ± 5	8	98 ± 1	10	93 ± 6	6
05/20/1998	101 ± 24	4	103 ± 13	8	115 ± 3	10	115 ± 32	2
06/15/1998	96 ± 2	4	98 ± 1	9	96 ± 1	9	97 ± 2	4
06/24/1998	97 ± 0	4	99 ± 2	8	98 ± 2	10	96 ± 3	7
07/06/1998	70 ± 3	4	84 ± 4	8	95 ± 1	10	95 ± 1	6
07/22/1998	92 ± 0	3	95 ± 1	8	95 ± 2	10	94 ± 3	4
08/05/1998	96 ± 3	4	94 ± 1	8	93 ± 2	10	92 ± 0	4
08/17/1998	97 ± 4	4	96 ± 2	8	97 ± 1	9	96 ± 3	6
09/09/1998	100 ± 0	3	105 ± 4	8	104 ± 3	9	103 ± 4	6
09/23/1998	107 ± 10	3	104 ± 4	7	101 ± 2	9	102 ± 3	6
10/14/1998	110 ± 0	3	110 ± 0	8	110 ± 0	9	110 ± 0	6
11/18/1998	97 ± 3	3	97 ± 2	6	98 ± 1	9	98 ± 1	6
12/17/1998	97 ± 3	3	101 ± 0	8	100 ± 1	10	100 ± 2	4
01/20/1999	78 ± 3	4	83 ± 7	8	101 ± 2	9	94 ± 15	4
02/16/1999	30 ± 3	4	31 ± 4	8	28 ± 1	10	30 ± 3	6
03/23/1999	27 ± 1	4	28 ± 1	8	29 ± 1	9	28 ± 1	7
04/06/1999	31 ± 1	4	31 ± 1	8	29 ± 2	9	30 ± 1	7
04/20/1999	33 ± 2	4	30 ± 0	8	32 ± 0	9	30 ± 1	5
05/03/1999	31 ± 0	4	31 ± 0	8	31 ± 0	10	31 ± 0	6
05/19/1999	31 ± 1	4	31 ± 0	8	31 ± 0	10	31 ± 0	7
06/08/1999	82 ± 2	4	84 ± 1	8	83 ± 1	10	82 ± 2	6
06/22/1999	84 ± 3	4	81 ± 1	8	81 ± 1	9	81 ± 1	6
07/06/1999	77 ± 1	4	73 ± 2	8	80 ± 5	10	70 ± 2	6
07/19/1999	72 ± 0	4	72 ± 0	8	74 ± 1	8	72 ± 3	6
08/10/1999	79 ± 5	4	75 ± 0	8	77 ± 3	9	79 ± 2	6
08/24/1999	77 ± 0	3	78 ± 2	8	76 ± 3	9	72 ± 1	6
09/07/1999	68 ± 6	3	67 ± 1	7	70 ± 2	9	71 ± 1	6
09/28/1999	90 ± 0	3	93 ± 4	7	94 ± 6	10	93 ± 7	6
10/13/1999	80 ± 45	3	96 ± 4	7	94 ± 3	9	103 ± 7	6
11/22/1999	90 ± 1	3	88 ± 3	6	89 ± 1	8	89 ± 1	5
12/13/1999	91 ± 1	3	90 ± 0	7	90 ± 1	7	90 ± 1	6

Table 17.8. Mean NO₃ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L NO₃.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.01 ± 0.02	9	0.00 ± 0.00	6
09/17/1997	0.13 ± 0.19	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
10/15/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
11/12/1997	1.00 ± 0.00	3	1.00 ± 0.00	7	1.00 ± 0.00	8	1.00 ± 0.00	6
12/17/1997	0.57 ± 0.10	3	0.70 ± 0.10	7	0.66 ± 0.03	8	0.60 ± 0.00	5
01/22/1998	1.27 ± 0.10	3	1.21 ± 0.08	7	1.18 ± 0.04	10	1.16 ± 0.05	5
02/11/1998	0.80 ± 0.00	3	0.76 ± 0.04	7	0.75 ± 0.09	8	0.58 ± 0.03	6
03/18/1998	1.50 ± 0.68	4			0.00 ± 0.00	9	0.00 ± 0.00	7
04/08/1998	0.15 ± 0.23	4	0.19 ± 0.09	9	0.45 ± 0.13	10	0.06 ± 0.07	7
04/22/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	7

Table 17.9. Mean NO₂ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L NO₂ - N.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
09/17/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
10/15/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
11/12/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	8	0.00 ± 0.00	6
12/17/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	8	0.00 ± 0.00	5
01/22/1998	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	10	0.00 ± 0.00	5
02/11/1998	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	8	0.00 ± 0.00	6
03/18/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	7
04/08/1998	0.00 ± 0.00	4	0.00 ± 0.00	9	0.00 ± 0.00	10	0.00 ± 0.00	7
04/22/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	7
05/06/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	6
05/20/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	2
06/15/1998	0.00 ± 0.00	4	0.00 ± 0.00	9	0.00 ± 0.00	9	0.00 ± 0.00	4
06/24/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	7
07/06/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	6
07/22/1998	0.00 ± 0.00	3	0.00 ± 0.00	8	0.00 ± 0.00	8	0.00 ± 0.00	4
08/05/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	4
08/17/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
09/09/1998	0.00	1	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
09/23/1998	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
10/14/1998	0.00 ± 0.00	3	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
11/18/1998	0.00 ± 0.00	3	0.00 ± 0.00	6	0.00 ± 0.00	9	0.00 ± 0.00	6
12/17/1998	0.00 ± 0.00	3	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	4
01/20/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	4
02/16/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	6
03/23/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	7
04/06/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	7
04/20/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	5
05/03/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	6
05/19/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	7
06/08/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	6
06/22/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
07/06/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	6
07/19/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	8	0.00 ± 0.00	6
08/10/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
08/24/1999	0.00 ± 0.00	3	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
09/07/1999	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
09/28/1999	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	10	0.00 ± 0.00	6
10/13/1999	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
11/22/1999	0.00 ± 0.00	3	0.00 ± 0.00	6	0.00 ± 0.00	8	0.00 ± 0.00	5
12/13/1999	0.00 ± 0.00	3	0.02 ± 0.04	7	0.00 ± 0.00	7	0.00 ± 0.00	6

Table 17.10. Mean NO₃ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L NO₃ - N.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
05/06/1998	0.07 ± 0.02	4	0.16 ± 0.03	8	0.03 ± 0.01	10	0.04 ± 0.06	6
05/20/1998	0.03 ± 0.01	4	0.11 ± 0.06	8	0.11 ± 0.06	10	0.00 ± 0.00	2
06/15/1998	0.13 ± 0.02	4	0.14 ± 0.03	9	0.14 ± 0.03	9	0.07 ± 0.00	4
06/24/1998	0.11 ± 0.06	4	0.10 ± 0.02	8	0.05 ± 0.02	10	0.02 ± 0.02	7
07/06/1998	0.21 ± 0.01	4	0.10 ± 0.04	8	0.01 ± 0.01	10	0.00 ± 0.00	6
07/22/1998	0.01 ± 0.03	3	0.00 ± 0.01	8	0.00 ± 0.00	8	0.00 ± 0.00	4
08/05/1998	0.01 ± 0.02	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	4
08/17/1998	0.01 ± 0.02	4	0.00 ± 0.00	8	0.01 ± 0.01	9	0.01 ± 0.01	6
09/09/1998	0.00	1	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
09/23/1998	0.02 ± 0.00	3	0.02 ± 0.01	7	0.00 ± 0.00	9	0.00 ± 0.00	6
10/14/1998	0.00 ± 0.00	3	0.02 ± 0.01	8	0.00 ± 0.00	9	0.00 ± 0.00	6
11/18/1998	0.30 ± 0.00	3	0.27 ± 0.04	6	0.30 ± 0.03	9	0.31 ± 0.00	6
12/17/1998	0.36 ± 0.20	3	0.31 ± 0.01	8	0.30 ± 0.00	10	0.29 ± 0.01	4
01/20/1999	0.46 ± 0.01	4	0.43 ± 0.02	8	0.36 ± 0.00	9	0.38 ± 0.04	4
02/16/1999	0.58 ± 0.15	4	0.51 ± 0.02	8	0.50 ± 0.00	10	0.51 ± 0.00	6
03/23/1999	0.56 ± 0.03	4	0.55 ± 0.00	8	0.54 ± 0.01	9	0.55 ± 0.00	7
04/06/1999	0.29 ± 0.01	4	0.30 ± 0.04	8	0.26 ± 0.01	9	0.24 ± 0.00	7
04/20/1999	0.23 ± 0.01	4	0.23 ± 0.01	8	0.25 ± 0.00	9	0.26 ± 0.00	5
05/03/1999	0.01 ± 0.02	4	0.05 ± 0.04	8	0.09 ± 0.03	10	0.08 ± 0.02	6
05/19/1999	0.05 ± 0.01	4	0.09 ± 0.05	8	0.10 ± 0.08	9	0.01 ± 0.01	7
06/08/1999	0.05 ± 0.01	4	0.05 ± 0.01	8	0.02 ± 0.01	10	0.00 ± 0.00	6
06/22/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
07/06/1999	0.00 ± 0.00	4	0.02 ± 0.01	8	0.02 ± 0.01	10	0.00 ± 0.00	6
07/19/1999	0.00 ± 0.01	4	0.00 ± 0.00	8	0.00 ± 0.00	8	0.00 ± 0.00	6
08/10/1999	0.20 ± 0.46	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
08/24/1999	0.00 ± 0.00	3	0.00 ± 0.01	8	0.02 ± 0.01	9	0.01 ± 0.01	6
09/07/1999	0.00 ± 0.00	3	0.01 ± 0.01	7	0.01 ± 0.01	9	0.00 ± 0.01	6
09/28/1999	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	10	0.00 ± 0.00	6
10/13/1999	0.05 ± 0.01	3	0.08 ± 0.06	7	0.02 ± 0.01	9	0.00 ± 0.00	6
11/22/1999	0.13 ± 0.00	3	0.12 ± 0.00	6	0.12 ± 0.00	8	0.10 ± 0.00	5
12/13/1999	0.22 ± 0.00	3	0.21 ± 0.01	7	0.21 ± 0.00	7	0.20 ± 0.00	6

Table 17.11. Mean Total Kjeldahl Nitrogen levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L NH₃ - N.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	0.41 ± 0.16	3	0.67 ± 0.10	7	0.69 ± 0.17	9	0.63 ± 0.20	6
09/17/1997	0.11 ± 0.17	3	0.15 ± 0.17	7	0.23 ± 0.15	9	0.20 ± 0.14	6
10/15/1997	0.77 ± 0.18	3	1.10 ± 0.19	7	0.80 ± 0.11	9	0.76 ± 0.09	6
11/12/1997	0.52 ± 0.52	3	0.49 ± 0.22	7	0.63 ± 0.37	8	0.43 ± 0.10	6
12/17/1997	0.28 ± 0.21	3	0.45 ± 0.40	7	0.40 ± 0.07	8	1.40 ± 1.64	5
01/22/1998	0.48 ± 0.05	3	0.44 ± 0.05	7	0.44 ± 0.05	10	0.41 ± 0.07	5
02/11/1998	0.80 ± 0.10	3	0.68 ± 0.07	7	0.79 ± 0.10	8	0.74 ± 0.05	6
03/18/1998	0.69 ± 0.14	4	0.57 ± 0.14	8	0.76 ± 0.15	9	0.56 ± 0.11	7
04/08/1998	1.32 ± 1.43	4	0.81 ± 0.06	9	0.72 ± 0.06	10	0.97 ± 0.29	7
04/22/1998	0.91 ± 0.20	4	0.74 ± 0.15	8	0.81 ± 0.15	10	0.87 ± 0.14	7
05/06/1998	1.42 ± 0.31	4	1.51 ± 0.17	8	1.37 ± 0.17	10	1.70 ± 0.14	6
05/20/1998	1.65 ± 0.07	4	1.89 ± 0.19	8	1.50 ± 0.39	10	1.05 ± 0.32	2
06/15/1998	2.10 ± 0.76	4	1.44 ± 0.20	9	1.06 ± 0.08	9	1.30 ± 0.21	4
06/24/1998	1.40 ± 0.10	4	1.33 ± 0.07	8	1.24 ± 0.15	10	1.11 ± 0.18	7
07/06/1998	1.35 ± 0.39	4	1.51 ± 0.28	8	1.15 ± 0.21	10	1.03 ± 0.24	6
07/22/1998	0.80 ± 0.34	3	0.84 ± 0.14	8	1.07 ± 0.20	10	0.63 ± 0.10	3
08/05/1998	0.88 ± 0.15	4	0.81 ± 0.14	8	0.90 ± 0.20	10	0.80 ± 0.10	4
08/17/1998	1.35 ± 0.07	4	1.48 ± 0.53	8	1.71 ± 0.49	9	1.28 ± 0.10	6
09/09/1998	0.83 ± 0.10	3	0.95 ± 0.09	8	0.77 ± 0.06	9	0.75 ± 0.11	6
09/23/1998	0.80 ± 0.00	3	0.76 ± 0.06	7	0.71 ± 0.05	9	0.78 ± 0.03	6
10/14/1998	1.17 ± 0.26	3	1.01 ± 0.10	8	1.21 ± 0.21	9	1.25 ± 0.14	6
11/18/1998	0.90 ± 0.17	3	0.78 ± 0.10	6	0.92 ± 0.04	9	0.85 ± 0.07	6
12/17/1998	0.77 ± 0.10	3	0.85 ± 0.11	8	0.95 ± 0.11	10	0.57 ± 0.11	4
01/20/1999	0.68 ± 0.06	4	1.25 ± 0.21	8	1.38 ± 0.28	9	0.98 ± 0.15	4
02/16/1999	1.15 ± 0.60	4	1.05 ± 0.11	8	1.00 ± 0.26	10	1.05 ± 0.19	6
03/23/1999	0.88 ± 0.06	4	0.80 ± 0.11	8	0.96 ± 0.05	9	1.06 ± 0.16	7
04/06/1999	0.60 ± 0.47	4	0.89 ± 0.06	8	1.02 ± 0.10	9	0.71 ± 0.05	7
04/20/1999	0.98 ± 0.15	4	1.08 ± 0.14	8	0.86 ± 0.08	9	1.12 ± 0.12	5
05/03/1999	1.15 ± 0.15	4	1.14 ± 0.07	8	1.00 ± 0.06	10	1.63 ± 0.35	6
05/19/1999	1.02 ± 0.18	4	0.90 ± 0.11	8	1.05 ± 0.13	10	1.29 ± 0.08	7
06/08/1999	1.70 ± 0.25	4	1.26 ± 0.12	8	1.31 ± 0.09	10	0.82 ± 0.36	6
06/22/1999	1.38 ± 0.24	4	1.17 ± 0.17	8	1.06 ± 0.11	9	1.08 ± 0.06	6
07/06/1999	1.15 ± 0.24	4	1.13 ± 0.29	8	1.12 ± 0.06	10	1.03 ± 0.13	6
07/19/1999	0.75 ± 0.68	4	1.04 ± 0.26	8	0.70 ± 0.95	8	2.07 ± 0.99	6
08/10/1999	1.42 ± 0.31	4	1.00 ± 0.12	8	1.09 ± 0.14	9	0.80 ± 0.10	6
08/24/1999	1.50 ± 0.88	3	1.16 ± 0.07	8	0.94 ± 0.26	9	0.95 ± 0.23	6
09/07/1999	1.23 ± 0.87	3	1.26 ± 0.11	7	1.04 ± 0.17	9	1.05 ± 0.23	6
09/28/1999	1.47 ± 0.19	3	1.40 ± 0.06	7	1.14 ± 0.24	10	1.35 ± 0.05	6
10/13/1999	1.30 ± 0.00	3	0.60 ± 0.56	7	0.11 ± 0.21	9	1.37 ± 0.08	6
11/22/1999	1.35 ± 0.32	2	1.68 ± 0.53	6	1.25 ± 0.06	8	1.86 ± 0.13	5
12/13/1999	1.36 ± 1.38	3	1.69 ± 0.77	7	0.90 ± 0.13	7	0.98 ± 0.27	6

Table 17.12. Mean orthophosphate levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L PO₄.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.17 ± 0.22	6
09/17/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
10/15/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9		
11/12/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	8	0.00 ± 0.00	6
12/17/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	8	0.00 ± 0.00	5
01/22/1998	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	10	0.00 ± 0.00	5
02/11/1998	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	8	0.00 ± 0.00	6
03/18/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	7
04/08/1998	0.00 ± 0.00	4	0.00 ± 0.00	9	0.00 ± 0.00	10	0.00 ± 0.00	7
04/22/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	7

Table 17.13. Mean orthophosphate levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L PO₄ - P.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
05/06/1998	0.00 ± 0.00	4	0.03 ± 0.03	8	0.00 ± 0.00	10	0.01 ± 0.03	6
05/20/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	2
06/15/1998	0.00 ± 0.00	4	0.00 ± 0.00	9	0.00 ± 0.00	9	0.00 ± 0.00	4
06/24/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	7
07/06/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	6
07/22/1998	0.00 ± 0.00	3	0.02 ± 0.04	8	0.03 ± 0.03	10	0.00 ± 0.00	4
08/05/1998	0.00 ± 0.00	4	0.02 ± 0.04	8	0.05 ± 0.06	10	0.00 ± 0.00	4
08/17/1998	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
09/09/1998	0.00	1	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
09/23/1998	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
10/14/1998	0.00 ± 0.00	3	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
11/18/1998	0.00 ± 0.00	3	0.00 ± 0.00	6	0.00 ± 0.00	9	0.00 ± 0.00	6
12/17/1998	0.00 ± 0.00	3	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	4
01/20/1999	0.13 ± 0.00	4	0.10 ± 0.04	8	0.00 ± 0.00	9	0.02 ± 0.05	4
02/16/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	6
03/23/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.02 ± 0.03	7
04/06/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	7
04/20/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	5
05/03/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	6
05/19/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	7
06/08/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	6
06/22/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
07/06/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	6
07/19/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	8	0.00 ± 0.00	6
08/10/1999	0.00 ± 0.00	4	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
08/24/1999	0.03 ± 0.10	3	0.00 ± 0.00	8	0.00 ± 0.00	9	0.00 ± 0.00	6
09/07/1999	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
09/28/1999	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	10	0.00 ± 0.00	6
10/13/1999	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	9	0.00 ± 0.00	6
11/22/1999	0.07 ± 0.21	3	0.00 ± 0.00	6	0.00 ± 0.00	8	0.00 ± 0.00	5
12/13/1999	0.05 ± 0.14	3	0.00 ± 0.00	7	0.00 ± 0.00	7	0.00 ± 0.00	6

Table 17.14. Mean total phosphorus levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L PO₄ - P.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	0.03 ± 0.01	3	0.02 ± 0.01	7	0.03 ± 0.01	9	0.02 ± 0.01	6
09/17/1997	0.00	1	0.04 ± 0.06	3	0.03 ± 0.04	5	0.00 ± 0.00	5
10/15/1997	0.00 ± 0.00	3	0.04 ± 0.07	7	0.01 ± 0.02	9	0.00 ± 0.00	6
11/12/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	8	0.00 ± 0.00	6
12/17/1997	0.00 ± 0.00	3	0.00 ± 0.00	7	0.02 ± 0.04	8	0.00 ± 0.00	5
01/22/1998	0.04 ± 0.11	3	0.00 ± 0.00	7	0.00 ± 0.00	10	0.00 ± 0.00	5
02/11/1998	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	8	0.00 ± 0.00	6
03/18/1998	0.27 ± 0.10	4	0.02 ± 0.02	8	0.00 ± 0.00	9	0.00 ± 0.00	7
04/08/1998	0.07 ± 0.04	4	0.08 ± 0.01	9	0.06 ± 0.00	10	0.07 ± 0.00	7
04/22/1998	0.04 ± 0.03	4	0.01 ± 0.02	8	0.01 ± 0.01	10	0.00 ± 0.00	7
05/06/1998	0.16 ± 0.03	4	0.18 ± 0.04	8	0.08 ± 0.02	10	0.14 ± 0.06	6
05/20/1998	0.08 ± 0.01	4	0.09 ± 0.01	8	0.09 ± 0.02	10	0.09 ± 0.02	2
06/15/1998	0.12 ± 0.02	4	0.10 ± 0.03	9	0.09 ± 0.01	9	0.07 ± 0.02	4
06/24/1998	0.09 ± 0.01	4	0.04 ± 0.03	8	0.10 ± 0.11	10	0.03 ± 0.03	7
07/06/1998	0.24 ± 0.02	4	0.16 ± 0.06	8	0.06 ± 0.06	10	0.00 ± 0.00	6
07/22/1998	0.00 ± 0.00	3	0.04 ± 0.08	8	0.09 ± 0.10	10	0.00 ± 0.00	4
08/05/1998	0.03 ± 0.04	4	0.01 ± 0.02	8	0.10 ± 0.11	10	0.00 ± 0.00	4
08/17/1998	0.02 ± 0.05	4	0.01 ± 0.01	8	0.08 ± 0.13	9	0.00 ± 0.00	6
09/09/1998	0.07 ± 0.02	3	0.09 ± 0.03	8	0.07 ± 0.02	9	0.09 ± 0.01	6
09/23/1998	0.06 ± 0.02	3	0.04 ± 0.03	7	0.03 ± 0.03	9	0.05 ± 0.02	6
10/14/1998	0.04 ± 0.06	3	0.00 ± 0.00	8	0.01 ± 0.02	9	0.01 ± 0.02	6
11/18/1998	0.12 ± 0.04	3	0.11 ± 0.02	6	0.11 ± 0.01	9	0.12 ± 0.01	6
12/17/1998	0.08 ± 0.01	3	0.07 ± 0.01	8	0.07 ± 0.01	10	0.06 ± 0.05	4
01/20/1999	0.19 ± 0.03	4	0.18 ± 0.05	8	0.05 ± 0.02	9	0.09 ± 0.09	4
02/16/1999	0.18 ± 0.05	4	0.17 ± 0.01	8	0.17 ± 0.04	10	0.15 ± 0.03	6
03/23/1999	0.09 ± 0.01	4	0.09 ± 0.01	8	0.09 ± 0.00	9	0.09 ± 0.01	7
04/06/1999	0.11 ± 0.01	4	0.10 ± 0.02	8	0.01 ± 0.01	9	0.02 ± 0.02	7
04/20/1999	0.03 ± 0.04	4	0.01 ± 0.01	8	0.00 ± 0.00	9	0.00 ± 0.00	5
05/03/1999	0.03 ± 0.04	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	6
05/19/1999	0.01 ± 0.04	4	0.00 ± 0.00	8	0.00 ± 0.00	10	0.00 ± 0.00	7
06/08/1999	0.08 ± 0.02	4	0.06 ± 0.00	8	0.07 ± 0.02	10	0.00 ± 0.00	6
06/22/1999	0.07 ± 0.01	4	0.07 ± 0.01	8	0.05 ± 0.02	9	0.04 ± 0.03	6
07/06/1999	0.06 ± 0.01	4	0.03 ± 0.02	8	0.02 ± 0.02	10	0.00 ± 0.00	6
07/19/1999	0.08 ± 0.01	4	0.06 ± 0.04	8	0.10 ± 0.01	8	0.11 ± 0.02	6
08/10/1999	0.05 ± 0.04	4	0.06 ± 0.02	8	0.09 ± 0.03	9	0.01 ± 0.02	6
08/24/1999	0.09 ± 0.01	3	0.07 ± 0.01	8	0.06 ± 0.02	9	0.03 ± 0.02	6
09/07/1999	0.05 ± 0.08	3	0.07 ± 0.01	7	0.09 ± 0.03	9	0.07 ± 0.01	6
09/28/1999	0.00 ± 0.00	3	0.00 ± 0.00	7	0.00 ± 0.00	10	0.00 ± 0.00	6
10/13/1999	0.02 ± 0.05	3	0.01 ± 0.01	7	0.00 ± 0.00	9	0.01 ± 0.02	6
11/22/1999	0.06 ± 0.01	3	0.06 ± 0.01	6	0.08 ± 0.01	8	0.07 ± 0.01	5
12/13/1999	0.02 ± 0.05	3	0.04 ± 0.02	7	0.01 ± 0.01	7	0.01 ± 0.02	6

Table 17.15. Mean SO₄ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L SO₄.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	121 ± 1	3	121 ± 1	7	123 ± 8	9	120 ± 2	6
09/17/1997	125 ± 5	3	129 ± 7	7	111 ± 1	9	111 ± 2	6
10/15/1997	132 ± 4	3	126 ± 2	7	127 ± 0	9	129 ± 2	6
11/12/1997	135 ± 14	3	135 ± 4	7	140 ± 6	8	143 ± 13	6
12/17/1997	140 ± 0	3	142 ± 1	7	142 ± 1	8	141 ± 1	5
01/22/1998	150 ± 9	3	150 ± 2	7	152 ± 1	10	152 ± 4	5
02/11/1998	144 ± 14	3	146 ± 2	7	151 ± 4	8	154 ± 4	6
03/18/1998	135 ± 10	4	148 ± 2	8	150 ± 1	9	148 ± 2	7
04/08/1998	137 ± 7	4	141 ± 2	9	142 ± 2	10	141 ± 2	7
04/22/1998	146 ± 6	4	147 ± 3	8	148 ± 2	10	147 ± 1	7
05/06/1998	108 ± 6	4	100 ± 12	8	118 ± 5	10	113 ± 13	6
05/20/1998	102 ± 2	4	101 ± 3	8	103 ± 3	10	99 ± 9	2
06/15/1998	93 ± 2	4	97 ± 1	9	99 ± 3	9	96 ± 4	4
06/24/1998	87 ± 2	4	90 ± 3	8	93 ± 3	10	92 ± 1	7
07/06/1998	63 ± 1	4	84 ± 3	8	95 ± 1	10	95 ± 0	6
07/22/1998	94 ± 1	3	92 ± 2	8	95 ± 1	10	95 ± 1	4
08/05/1998	95 ± 2	4	93 ± 2	8	93 ± 2	10	94 ± 2	4
08/17/1998	92 ± 1	4	91 ± 4	8	105 ± 18	9	97 ± 10	6
09/09/1998	95 ± 4	3	93 ± 1	8	95 ± 1	9	93 ± 3	6
09/23/1998	97 ± 3	3	99 ± 1	7	100 ± 1	9	97 ± 2	6
10/14/1998	98 ± 5	3	97 ± 1	8	96 ± 1	9	99 ± 0	6
11/18/1998	100 ± 0	3	100 ± 0	6	100 ± 3	9	99 ± 1	6
12/17/1998	110 ± 0	3	110 ± 0	8	109 ± 2	10	110 ± 0	4
01/20/1999	73 ± 2	4	83 ± 9	8	110 ± 0	9	98 ± 17	4
02/16/1999	64 ± 1	4	65 ± 2	8	61 ± 1	10	66 ± 3	6
03/23/1999	69 ± 2	4	70 ± 1	8	69 ± 1	9	69 ± 1	7
04/06/1999	66 ± 2	4	71 ± 1	8	70 ± 1	9	69 ± 1	7
04/20/1999	72 ± 1	4	72 ± 1	8	75 ± 2	9	74 ± 1	5
05/03/1999	70 ± 1	4	75 ± 1	8	72 ± 1	10	73 ± 1	6
05/19/1999	75 ± 2	4	74 ± 2	8	72 ± 1	10	72 ± 1	7
06/08/1999	74 ± 1	4	74 ± 1	8	73 ± 1	10	75 ± 2	6
06/22/1999	75 ± 2	4	73 ± 2	8	74 ± 7	9	71 ± 3	6
07/06/1999	63 ± 1	4	65 ± 1	8	65 ± 1	10	65 ± 2	6
07/19/1999	66 ± 1	4	67 ± 1	8	64 ± 2	8	67 ± 1	6
08/10/1999	71 ± 6	4	71 ± 2	8	72 ± 2	9	74 ± 3	6
08/24/1999	67 ± 1	3	67 ± 1	8	66 ± 2	9	71 ± 7	6
09/07/1999	71 ± 3	3	69 ± 1	7	70 ± 2	9	71 ± 1	6
09/28/1999	77 ± 0	3	78 ± 1	7	79 ± 0	10	79 ± 0	6
10/13/1999	79 ± 7	3	76 ± 2	7	75 ± 1	9	75 ± 1	6
11/22/1999	88 ± 0	3	88 ± 0	6	88 ± 0	8	88 ± 0	5
12/13/1999	94 ± 2	3	95 ± 0	7	95 ± 0	7	97 ± 1	6

Table 17.16. Mean total dissolved solids (TDS) levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in mg/L TDS.

Date	Location C		Location F		Location H		Location I	
	95% C. I.	n	95% C. I.	n	95% C. I.	n	95% C. I.	n
08/28/1997	311 ± 27	3	313 ± 8	7	305 ± 5	9	318 ± 11	6
09/17/1997	337 ± 52	3	347 ± 23	7	339 ± 35	9	340 ± 17	6
10/15/1997	338 ± 27	3	333 ± 10	7	336 ± 19	9	353 ± 19	6
11/12/1997	377 ± 51	3	366 ± 16	7	380 ± 23	8	363 ± 16	6
12/17/1997	365 ± 19	3	360 ± 21	7	369 ± 12	8	363 ± 9	5
01/22/1998	379 ± 15	3	369 ± 11	7	367 ± 20	10	379 ± 11	5
02/11/1998	489 ± 108	3	374 ± 24	7	376 ± 15	8	446 ± 98	6
03/18/1998	355 ± 29	4	401 ± 11	8	404 ± 6	9	397 ± 3	7
04/08/1998	329 ± 27	4	321 ± 8	9	347 ± 24	10	322 ± 17	7
04/22/1998	336 ± 10	4	338 ± 4	8	340 ± 5	10	342 ± 9	7
05/06/1998	305 ± 12	4	293 ± 20	8	336 ± 21	10	327 ± 30	6
05/20/1998	300 ± 14	4	308 ± 12	8	304 ± 11	10	285 ± 32	2
06/15/1998	318 ± 6	4	327 ± 14	9	320 ± 32	9	290 ± 10	4
06/24/1998	275 ± 7	4	286 ± 11	8	289 ± 10	10	276 ± 6	7
07/06/1998	210 ± 10	4	244 ± 14	8	272 ± 8	10	267 ± 4	6
07/22/1998	260 ± 0	3	288 ± 28	8	299 ± 22	10	273 ± 22	4
08/05/1998	265 ± 7	4	275 ± 6	8	272 ± 8	10	260 ± 10	4
08/17/1998	278 ± 11	4	274 ± 3	8	333 ± 61	9	283 ± 21	6
09/09/1998	297 ± 10	3	298 ± 28	8	287 ± 4	9	280 ± 5	6
09/23/1998	280 ± 29	3	284 ± 10	7	284 ± 9	9	282 ± 27	6
10/14/1998	290 ± 0	3	305 ± 6	8	298 ± 4	9	292 ± 8	6
11/18/1998	303 ± 10	3	295 ± 5	6	314 ± 22	9	315 ± 23	6
12/17/1998	310 ± 0	3	304 ± 3	8	308 ± 6	10	300 ± 17	4
01/20/1999	243 ± 22	4	265 ± 25	8	316 ± 26	9	285 ± 41	4
02/16/1999	313 ± 162	4	280 ± 64	8	194 ± 11	10	207 ± 13	6
03/23/1999	323 ± 120	4	343 ± 83	8	304 ± 81	9	380 ± 78	7
04/06/1999	188 ± 6	4	218 ± 23	8	201 ± 16	9	259 ± 92	7
04/20/1999	238 ± 11	4	256 ± 20	8	217 ± 20	9	242 ± 25	5
05/03/1999	288 ± 83	4	253 ± 28	8	257 ± 22	10	253 ± 50	6
05/19/1999	205 ± 15	4	218 ± 46	8	415 ± 148	10	277 ± 60	7
06/08/1999	300 ± 66	4	340 ± 63	8	252 ± 27	10	267 ± 54	6
06/22/1999	225 ± 12	4	218 ± 6	8	210 ± 14	9	213 ± 34	6
07/06/1999	198 ± 11	4	203 ± 8	8	193 ± 12	10	157 ± 11	6
07/19/1999	223 ± 22	4	263 ± 40	8	250 ± 66	8	210 ± 13	6
08/10/1999	203 ± 6	4	273 ± 127	8	280 ± 66	9	207 ± 14	6
08/24/1999	213 ± 10	3	240 ± 18	8	269 ± 53	9	230 ± 16	6
09/07/1999	217 ± 10	3	267 ± 48	7	252 ± 36	9	283 ± 80	6
09/28/1999	237 ± 2	3	219 ± 12	7	236 ± 6	10	225 ± 11	6
10/13/1999	247 ± 7	3	253 ± 15	7	245 ± 9	9	242 ± 6	6
11/22/1999	245 ± 26	3	249 ± 13	6	246 ± 3	8	271 ± 58	5
12/13/1999	271 ± 8	3	269 ± 3	7	267 ± 3	7	271 ± 3	6

Table 17.17. Secchi depths measured by AmerenCIPS in Newton Lake, 1997 – 1999. Values are in meters.

Date	Location										
	A	B	C	D	E	F	G	H	I	J	K
08/28/97	0.75	1.00	0.75	0.75	1.00	1.00	1.00	1.25	1.25	1.25	1.00
09/17/97	1.00		1.00	1.00	1.00	1.00	1.00	1.25	1.25	0.75	0.50
10/15/97	0.75		1.00	0.75	1.00	1.00	1.25	1.25	1.00	1.00	0.75
11/12/97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.75
12/17/97	1.00	1.00	1.00	1.00	1.00	1.00	1.25	1.25	1.25	1.25	1.00
01/22/98		0.75	1.25	1.25	1.25	1.25	1.25	1.50	1.50	1.50	0.50
02/11/98		0.75	1.00	1.00	1.00	1.00	1.25	1.25	1.00	1.00	0.50
03/18/98	0.25	0.25	0.50	0.50	0.50	0.75	0.75	0.75	0.75	0.75	0.25
04/08/98	0.50	0.50	0.50	0.50	0.50	0.50	0.75	0.75	0.75	0.75	0.25
04/22/98	0.75	0.75	0.75	0.75	0.75	0.75	1.00	1.00	1.00	0.75	0.25
05/06/98	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.75	0.75	0.75	0.25
05/20/98	0.75	0.75	0.75	0.75	0.75	0.75	1.00	1.00	1.00		
06/15/98	0.50	0.50	0.50	0.50	0.50	0.50	0.75	1.00	1.00	0.75	0.25
06/24/98	0.75	0.75	0.75	0.75	0.75	0.75	0.75	1.00	1.00	1.00	0.75
07/06/98	0.25	0.25	0.25	0.25	0.25	0.25	0.75	1.00	1.00	0.75	0.50
07/22/98	0.75	0.75	0.75	0.75	0.75	0.75	1.00	1.25	1.25	1.00	0.50
08/05/98	0.50	0.75	0.75	0.75	0.75	1.00	1.00	1.00	1.25	1.00	0.25
08/17/98	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.25	1.25	0.50
09/09/98	0.50	0.50	0.75	0.75	0.75	1.00	1.25	1.25	1.00	0.75	0.50
09/23/98	0.75	0.75	0.75	0.75	1.00	0.75	1.25	1.50	1.00	0.75	0.50
10/14/98	0.75	0.75	0.75	0.75	0.75	0.75	1.00	1.00	0.75	0.75	0.75
11/18/98	0.75	0.75	0.75	0.75	0.75	1.00	0.75	1.00	1.00	1.00	0.50
12/17/98	0.75	0.75	0.75	1.00	1.00	1.00	1.25	1.25	1.25	1.00	0.75
01/20/99	0.50	0.50	0.50	0.50	0.50	0.50	1.00	0.75	0.50		
02/16/99	0.25	0.25	0.25	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.25
03/23/99	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.25
04/06/99	0.25	0.25	0.50	0.50	0.50	0.50	0.75	0.75	0.75	0.50	0.25
04/20/99	0.75	0.75	0.50	0.75	0.50	0.50	0.75	0.75	0.75	1.00	
05/03/99	0.75	0.75	0.75	0.75	0.75	1.25	1.25	1.50	1.50	1.00	0.50
05/19/99	0.75	0.75	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	0.25
06/08/99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.25	1.25	1.25	0.50
06/22/99	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
07/06/99	0.75	0.75	0.75	0.75	0.75	0.75		1.00	1.00	1.00	0.50
07/19/99	0.75	0.75	0.75	0.75	0.75	0.75	1.00	1.00	1.00	1.25	0.50
08/10/99	0.50	0.50		0.75	0.75	0.75	0.75	0.75	1.00	0.75	0.50
08/24/99	0.75	0.75	0.75	0.75		0.75	0.75	1.00	1.00	0.75	0.50
09/07/99	0.50	0.50	0.50	0.75	0.75	0.75	0.75	1.00	1.25	0.75	0.50
09/28/99	0.75		0.75	0.75	0.75	0.75	0.75	1.00	1.00	1.00	0.50
10/13/99	0.75		0.75	0.75	0.75	0.75	1.00	1.00	1.00	0.75	0.50
11/22/99			0.75	0.75	0.75	1.00	1.00	1.00	1.00	0.75	0.50
12/13/99			0.75	1.00	1.00	1.00	1.25	1.25	1.00	1.00	0.75

Table 17.18. Range of pH determined by AmerenCIPS in Newton Lake, 1997 – 1999.

Date	Location C		Location F		Location H		Location I	
	Minimum pH	Maximum pH	Minimum pH	Maximum pH	Minimum pH	Maximum pH	Minimum pH	Maximum pH
10/15/97	7.52	8.12	7.37	8.09	7.85	8.35	7.89	8.20
11/12/97	8.10	8.30	7.81	8.07	7.53	8.01	7.62	8.00
12/17/97	8.23	8.49	7.80	8.20	7.95	7.98	8.11	8.14
01/22/98	7.84	7.88	7.57	7.84	7.70	7.75	7.77	7.79
02/11/98	7.91	8.05	7.83	8.05	8.08	8.20	8.36	8.40
03/18/98	7.87	8.19	8.07	8.29	8.24	8.35	8.20	8.43
04/08/98	8.25	8.58	7.69	8.45	7.95	8.02	8.11	8.66
04/22/98	7.82	8.12	7.57	8.36	7.58	8.50	8.49	8.66
05/06/98	7.95	8.16	7.39	7.80	7.27	8.40	7.86	8.36
05/20/98	7.95	7.98	7.03	7.96	7.12	8.40	8.22	8.43
06/15/98	7.66	7.79	7.01	7.79	7.13	7.79	8.06	8.07
06/24/98	7.75	7.98	7.13	8.03	7.03	8.19	7.29	8.47
07/06/98	7.57	7.60	7.23	7.66	7.27	8.04	7.93	8.05
07/22/98	8.22	8.27	7.00	8.21	6.94	8.37	8.29	8.33
08/05/98	7.82	8.29	7.04	8.21	6.95	8.20	7.90	8.17
08/17/98	7.93	8.19	6.86	8.24	6.94	8.27	8.24	8.40
09/09/98	7.79	7.95	7.29	7.83	7.06	7.71	7.21	7.73
09/23/98	7.80	7.83	7.19	7.85	7.31	8.15	7.46	7.68
10/14/98	8.14	8.25	7.33	8.15	7.78	8.23	8.09	8.17
11/18/98	7.36	7.42	7.30	7.61	7.41	7.46	7.48	7.52
12/17/98	7.30	7.47	7.52	7.60	7.63	7.68	7.68	7.73
01/20/99	7.16	7.19	6.99	7.18	7.09	7.68	7.52	7.70
02/16/99	7.15	7.17	7.12	7.27	7.08	7.12	7.10	7.12
03/23/99	7.29	7.29	7.12	7.52	7.30	7.48	7.12	7.35
04/06/99	7.20	7.57	7.05	8.03	7.76	8.17	8.01	8.20
04/20/99	7.39	7.53	7.12	7.77	7.31	7.49	7.65	7.75
05/03/99	8.44	8.49	7.64	8.64	7.38	8.53	8.19	8.52
05/19/99	7.51	7.77	7.00	7.70	6.85	8.23	7.79	8.18
06/08/99	7.64	7.83	6.85	7.97			7.90	8.20
06/22/99	8.05	8.21	6.85	8.34	7.06	8.42	8.27	8.45
07/06/99	7.25	7.92	6.75	7.98	6.65	8.23	8.12	8.25
07/19/99	8.00	8.02	6.95	8.10	6.91	8.36	8.28	8.43
08/10/99	8.08	8.21	7.11	8.43	7.46	8.29	8.18	8.42
08/24/99	7.94	8.12	6.96	8.29	7.10	8.13	8.16	8.29
09/07/99	8.01	8.13	7.24	8.19	7.05	8.22	7.90	8.19
09/28/99	7.84	7.92			7.35	8.04	7.80	8.13
10/13/99	7.65	7.68	7.50	7.90	7.93	7.96	7.91	8.02
11/22/99	7.34	7.50	7.38	7.74	7.51	7.62	7.67	7.74
12/13/99	7.25	7.40	7.16	7.41	7.30	7.66	7.41	7.52

Table 17.19. Mean CO₂ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L CO₂.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	10.17 ± 1.78	9	7.79 ± 0.72	13
09/16/97	7.19 ± 0.59	8	7.41 ± 0.66	11
10/14/97	9.16 ± 0.87	8	7.23 ± 0.80	10
11/13/97	4.00 ± 0.00	9	4.00 ± 0.00	11
12/16/97	4.50 ± 0.62	8	4.00 ± 0.00	12
01/28/98	4.00 ± 0.00	8	4.00 ± 0.00	11
02/12/98	4.17 ± 0.39	9	3.96 ± 0.25	12
03/25/98	5.00 ± 0.00	9	5.10 ± 0.19	12
04/07/98	5.14 ± 0.26	9	6.04 ± 0.47	12
04/23/98	4.58 ± 0.39	9	5.10 ± 0.75	12
05/05/98	6.53 ± 0.34	9	6.25 ± 0.68	11
05/19/98	6.67 ± 0.87	9	6.25 ± 0.53	11
06/09/98	6.39 ± 0.47	9	4.66 ± 0.62	11
06/23/98	6.63 ± 0.69	10	6.36 ± 0.98	11
07/07/98	5.56 ± 0.41	9	5.23 ± 0.41	11
07/21/98	6.53 ± 2.00	9	6.38 ± 1.54	10
08/04/98	8.19 ± 1.55	9	6.88 ± 1.04	10
08/18/98	5.00 ± 0.34	10	3.82 ± 1.22	11
09/10/98	5.69 ± 0.88	9	4.77 ± 0.28	11
09/22/98	5.42 ± 0.39	9	5.57 ± 0.83	11
10/13/98	5.28 ± 0.34	9	4.20 ± 0.34	11
11/19/98	5.28 ± 0.34	9	5.13 ± 0.23	10
12/29/98	3.75 ± 0.00	9	3.75 ± 0.00	10
01/19/99	3.75 ± 0.00	9	3.75 ± 0.00	10
02/17/99	3.75 ± 0.00	10	3.75 ± 0.00	11
03/17/99	4.13 ± 0.35	10	4.03 ± 0.34	9
04/07/99	5.07 ± 0.49	10	6.70 ± 0.98	11
04/21/99	6.00 ± 0.67	10	4.88 ± 0.53	10
05/06/99	5.69 ± 0.41	9	5.75 ± 0.51	10
05/20/99	6.11 ± 0.82	9	6.14 ± 0.37	11
06/09/99	5.97 ± 0.52	9	5.75 ± 0.70	10
06/23/99	6.25 ± 0.00	9	5.75 ± 0.37	10
07/07/99	6.53 ± 0.85	9	5.91 ± 0.54	11
07/21/99	5.97 ± 0.34	9	5.43 ± 0.34	10
08/11/99	6.11 ± 0.47	9	6.14 ± 0.48	11
08/25/99	6.53 ± 0.52	9	5.45 ± 0.34	11
09/08/99	6.81 ± 0.41	9	6.75 ± 0.37	10
09/29/99	6.28 ± 0.65	9	6.36 ± 0.37	11
10/12/99	7.13 ± 0.86	8	7.34 ± 0.94	8
11/23/99	11.39 ± 1.25	9	12.39 ± 0.83	11
12/14/99	3.75 ± 0.00	8	4.00 ± 0.31	10

Table 17.20. Mean alkalinity levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L CaCO₃.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	54 ± 1	9	56 ± 4	13
09/16/97	51 ± 1	8	49 ± 1	11
10/14/97	48 ± 1	8	47 ± 1	11
11/13/97	46 ± 3	9	47 ± 1	11
12/16/97	48 ± 1	8	46 ± 4	12
01/28/98	47 ± 1	8	49 ± 1	11
02/12/98	51 ± 1	9	50 ± 1	12
03/25/98	52 ± 0	9	52 ± 0	12
04/07/98	48 ± 1	9	50 ± 1	12
04/23/98	48 ± 1	9	48 ± 1	12
05/05/98	56 ± 1	9	58 ± 1	11
05/19/98	60 ± 1	9	60 ± 1	11
06/09/98	59 ± 1	9	58 ± 1	11
06/23/98	58 ± 1	10	59 ± 1	11
07/07/98	58 ± 1	9	59 ± 1	11
07/21/98	58 ± 1	9	59 ± 1	10
08/04/98	59 ± 1	9	58 ± 1	10
08/18/98	54 ± 1	10	54 ± 2	11
09/10/98	49 ± 1	9	48 ± 0	11
09/22/98	47 ± 1	9	48 ± 1	11
10/13/98	48 ± 0	9	48 ± 1	11
11/19/98	43 ± 3	9	44 ± 1	10
12/29/98	44 ± 1	9	44 ± 1	10
01/19/99	49 ± 1	9	48 ± 2	10
02/17/99	50 ± 1	10	50 ± 0	11
03/17/99	47 ± 1	10	46 ± 1	9
04/07/99	48 ± 1	10	47 ± 0	11
04/21/99	48 ± 0	10	49 ± 1	10
05/06/99	50 ± 1	9	50 ± 0	10
05/20/99	54 ± 1	9	54 ± 1	11
06/09/99	53 ± 1	9	53 ± 1	10
06/23/99	51 ± 1	9	51 ± 0	10
07/07/99	49 ± 1	8	49 ± 1	11
07/21/99	50 ± 1	9	50 ± 0	10
08/11/99	54 ± 1	9	55 ± 1	11
08/25/99	57 ± 1	9	57 ± 1	11
09/08/99	56 ± 0	9	56 ± 1	10
09/29/99	54 ± 1	9	54 ± 1	11
10/12/99	55 ± 1	8	55 ± 1	8
11/23/99	55 ± 1	9	55 ± 1	11
12/14/99	53 ± 1	8	53 ± 1	10

Table 17.21. Mean phenolphthalein alkalinity levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L CaCO₃.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	0 ± 0	9	0 ± 0	13
09/16/97	0 ± 0	8	0 ± 0	11
10/14/97	0 ± 0	8	0 ± 0	11
11/13/97	0 ± 0	9	0 ± 0	11
12/16/97	0 ± 0	8	0 ± 0	12
01/28/98	0 ± 0	8	0 ± 0	11
02/12/98	0 ± 0	9	0 ± 0	12
03/25/98	0 ± 0	9	0 ± 0	12
04/07/98	0 ± 0	9	0 ± 0	12
04/23/98	0 ± 0	9	0 ± 0	12
05/05/98	0 ± 0	9	0 ± 0	11
05/19/98	0 ± 0	9	0 ± 0	11
06/09/98	0 ± 0	9	0 ± 0	11
06/23/98	0 ± 0	10	0 ± 0	11
07/07/98	0 ± 0	9	0 ± 0	11
07/21/98	0 ± 0	9	0 ± 0	10
08/04/98	0 ± 0	9	0 ± 0	10
08/18/98	0 ± 0	10	0 ± 0	11
09/10/98	0 ± 0	9	0 ± 0	11
09/22/98	0 ± 0	9	0 ± 0	11
10/13/98	0 ± 0	9	0 ± 0	11
11/19/98	0 ± 0	9	0 ± 0	10
12/29/98	0 ± 0	9	0 ± 0	10
01/19/99	0 ± 0	9	0 ± 0	10
02/17/99	0 ± 0	10	0 ± 0	11
03/17/99	0 ± 0	10	0 ± 0	9
04/07/99	0 ± 0	10	0 ± 0	11
04/21/99	0 ± 0	10	0 ± 0	10
05/06/99	0 ± 0	9	0 ± 0	10
05/20/99	0 ± 0	9	0 ± 0	11
06/09/99	0 ± 0	9	0 ± 0	10
06/23/99	0 ± 0	9	0 ± 0	10
07/07/99	0 ± 0	8	0 ± 0	11
07/21/99	2 ± 0	9	2 ± 0	10
08/11/99	2 ± 0	9	2 ± 0	11
08/25/99	0 ± 0	9	0 ± 0	11
09/08/99	2 ± 0	9	2 ± 0	10
09/29/99	2 ± 0	9	2 ± 0	11
10/12/99	0 ± 0	8	0 ± 0	8
11/23/99	0 ± 0	9	0 ± 0	11
12/14/99	0 ± 0	8	0 ± 0	10

Table 17.22. Mean NH₃ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L NH₃.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	0.00 ± 0.00	9	0.11 ± 0.19	13
09/16/97	0.00 ± 0.00	8	0.00 ± 0.00	11
10/14/97	0.00 ± 0.00	8	0.00 ± 0.00	11
11/13/97	0.00 ± 0.00	9	0.00 ± 0.00	11
12/16/97	0.00 ± 0.00	8	0.00 ± 0.00	12
01/28/98	0.00 ± 0.00	8	0.00 ± 0.00	11
02/12/98	0.00 ± 0.00	9	0.00 ± 0.00	12
03/25/98	0.00 ± 0.00	9	0.00 ± 0.00	12
04/07/98	0.00 ± 0.00	9	0.00 ± 0.00	12
04/23/98	0.00 ± 0.00	9	0.00 ± 0.00	12
05/05/98	0.28 ± 0.26	9	0.06 ± 0.12	11
05/19/98	0.00 ± 0.00	9	0.00 ± 0.00	11
06/09/98	0.32 ± 0.24	9	0.11 ± 0.13	11
06/23/98	0.32 ± 0.21	10	0.31 ± 0.20	11
07/07/98	0.20 ± 0.19	9	0.13 ± 0.15	11
07/21/98	0.08 ± 0.14	9	0.06 ± 0.11	10
08/04/98	0.16 ± 0.19	9	0.21 ± 0.20	10
08/18/98	0.00 ± 0.00	10	0.00 ± 0.00	11
09/10/98	0.00 ± 0.00	9	0.00 ± 0.00	11
09/22/98	0.00 ± 0.00	9	0.00 ± 0.00	11
10/13/98	0.00 ± 0.00	9	0.00 ± 0.00	11
11/19/98	0.00 ± 0.00	9	0.00 ± 0.00	10
12/29/98	0.33 ± 0.25	9	0.06 ± 0.11	10
01/19/99	0.21 ± 0.20	9	0.24 ± 0.23	10
02/17/99	0.05 ± 0.09	10	0.12 ± 0.14	11
03/17/99	0.00 ± 0.00	10	0.13 ± 0.16	9
04/07/99	0.00 ± 0.00	10	0.00 ± 0.00	11
04/21/99	0.00 ± 0.00	10	0.00 ± 0.00	10
05/06/99	0.00 ± 0.00	9	0.00 ± 0.00	10
05/20/99	0.00 ± 0.00	9	0.00 ± 0.00	11
06/09/99	0.00 ± 0.00	9	0.00 ± 0.00	10
06/23/99	0.00 ± 0.00	9	0.00 ± 0.00	10
07/07/99	0.00 ± 0.00	8	0.00 ± 0.00	11
07/21/99	0.00 ± 0.00	9	0.00 ± 0.00	10
08/11/99	0.00 ± 0.00	9	0.00 ± 0.00	11
08/25/99	0.19 ± 0.23	9	0.00 ± 0.00	11
09/08/99	0.00 ± 0.00	9	0.00 ± 0.00	10
09/29/99	0.00 ± 0.00	9	0.00 ± 0.00	11
10/12/99	0.00 ± 0.00	8	0.00 ± 0.00	8
11/23/99	0.00 ± 0.00	9	0.00 ± 0.00	11
12/14/99	0.00 ± 0.00	8	0.00 ± 0.00	10

Table 17.23. Mean Cl⁻ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L Cl⁻.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	24 ± 1	9	24 ± 0	13
09/16/97	27 ± 0	8	24 ± 1	11
10/14/97	24 ± 0	8	23 ± 0	11
11/13/97	23 ± 1	9	24 ± 0	11
12/16/97	24 ± 1	8	23 ± 0	12
01/28/98	25 ± 0	8	20 ± 0	11
02/12/98	21 ± 0	9	22 ± 2	12
03/25/98	19 ± 0	9	19 ± 0	13
04/07/98	19 ± 1	9	17 ± 1	12
04/23/98	20 ± 1	9	20 ± 1	12
05/05/98	20 ± 0	9	20 ± 0	11
05/19/98	19 ± 0	9	19 ± 0	11
06/09/98	18 ± 0	9	18 ± 0	11
06/23/98	18 ± 0	10	18 ± 0	11
07/07/98	18 ± 0	9	18 ± 0	11
07/21/98	17 ± 0	9	17 ± 0	10
08/04/98	19 ± 0	9	19 ± 0	10
08/18/98	20 ± 2	10	17 ± 0	11
09/10/98	19 ± 0	9	19 ± 0	11
09/22/98	20 ± 0	9	20 ± 0	11
10/13/98	20 ± 0	9	19 ± 0	11
11/19/98	20 ± 1	9	19 ± 1	10
12/29/98	20 ± 0	9	19 ± 0	10
01/19/99	18 ± 0	9	19 ± 0	10
02/17/99	18 ± 0	10	18 ± 0	11
03/17/99	17 ± 0	10	18 ± 0	9
04/07/99	18 ± 0	10	17 ± 0	11
04/21/99	19 ± 1	10	20 ± 0	10
05/06/99	18 ± 0	9	19 ± 0	10
05/20/99	19 ± 1	9	18 ± 1	11
06/09/99	19 ± 0	9	19 ± 0	10
06/23/99	19 ± 0	9	19 ± 0	10
07/07/99	20 ± 0	8	19 ± 0	11
07/21/99	21 ± 0	9	21 ± 0	10
08/11/99	22 ± 0	9	21 ± 0	11
08/25/99	22 ± 0	9	22 ± 0	11
09/08/99	23 ± 0	9	24 ± 1	10
09/29/99	26 ± 0	9	26 ± 0	11
10/12/99	28 ± 1	8	27 ± 1	8
11/23/99	29 ± 0	9	29 ± 0	11
12/14/99	27 ± 0	8	27 ± 0	10

Table 17.24. Mean water hardness levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L CaCO₃.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	124 ± 1	9	123 ± 2	13
09/16/97	118 ± 2	8	116 ± 2	11
10/14/97	111 ± 4	8	110 ± 2	11
11/13/97	117 ± 2	9	118 ± 1	11
12/16/97	118 ± 1	8	118 ± 1	12
01/28/98	126 ± 2	8	127 ± 1	11
02/12/98	134 ± 2	9	132 ± 2	12
03/25/98	127 ± 2	9	129 ± 1	12
04/07/98	118 ± 3	9	118 ± 2	12
04/23/98	120 ± 0	9	120 ± 0	12
05/05/98	121 ± 2	9	120 ± 0	11
05/19/98	139 ± 2	9	137 ± 3	11
06/09/98	132 ± 3	9	130 ± 0	11
06/23/98	122 ± 2	10	121 ± 3	11
07/07/98	121 ± 2	9	120 ± 0	11
07/21/98	120 ± 0	9	120 ± 0	10
08/04/98	120 ± 0	9	120 ± 0	10
08/18/98	111 ± 2	10	113 ± 3	11
09/10/98	111 ± 2	9	110 ± 0	11
09/22/98	117 ± 3	9	111 ± 2	11
10/13/98	117 ± 3	9	110 ± 0	11
11/19/98	102 ± 3	9	100 ± 0	10
12/29/98	108 ± 3	9	109 ± 2	10
01/19/99	127 ± 3	9	118 ± 2	10
02/17/99	110 ± 0	10	110 ± 0	11
03/17/99	110 ± 0	10	110 ± 0	9
04/07/99	110 ± 0	10	110 ± 0	11
04/21/99	119 ± 2	10	120 ± 0	10
05/06/99	119 ± 2	9	120 ± 0	10
05/20/99	120 ± 0	9	120 ± 0	11
06/09/99	131 ± 2	9	129 ± 2	10
06/23/99	121 ± 2	9	122 ± 2	10
07/07/99	125 ± 4	8	127 ± 3	11
07/21/99	120 ± 0	9	121 ± 2	10
08/11/99	128 ± 3	9	128 ± 2	11
08/25/99	112 ± 3	9	117 ± 3	11
09/08/99	119 ± 2	9	119 ± 2	10
09/29/99	149 ± 6	9	152 ± 5	11
10/12/99	156 ± 8	8	153 ± 5	8
11/23/99	130 ± 0	9	130 ± 0	11
12/14/99	130 ± 0	8	130 ± 0	10

Table 17.25. Mean calcium water hardness levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L CaCO₃.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	56 ± 1	9	58 ± 2	13
09/16/97	49 ± 3	8	49 ± 1	11
10/14/97	49 ± 2	8	47 ± 2	11
11/13/97	48 ± 1	9	46 ± 2	11
12/16/97	46 ± 2	8	47 ± 2	12
01/28/98	52 ± 1	8	52 ± 2	11
02/12/98	55 ± 1	9	55 ± 1	12
03/25/98	56 ± 2	9	57 ± 1	12
04/07/98	51 ± 2	9	53 ± 3	12
04/23/98	52 ± 3	9	52 ± 2	12
05/05/98	55 ± 1	9	55 ± 1	11
05/19/98	68 ± 3	9	67 ± 3	11
06/09/98	64 ± 1	9	63 ± 1	11
06/23/98	67 ± 1	10	65 ± 1	11
07/07/98	63 ± 3	9	62 ± 1	11
07/21/98	66 ± 3	9	63 ± 2	10
08/04/98	59 ± 1	9	58 ± 2	10
08/18/98	56 ± 1	10	58 ± 2	11
09/10/98	52 ± 1	9	52 ± 1	11
09/22/98	48 ± 0	9	48 ± 1	11
10/13/98	48 ± 1	9	49 ± 1	11
11/19/98	44 ± 1	9	45 ± 1	10
12/29/98	44 ± 0	9	45 ± 1	10
01/19/99	49 ± 1	9	48 ± 0	10
02/17/99	20 ± 1	10	19 ± 1	11
03/17/99	19 ± 1	10	19 ± 1	9
04/07/99	21 ± 1	10	22 ± 0	11
04/21/99	24 ± 2	10	23 ± 1	10
05/06/99	23 ± 0	9	22 ± 1	10
05/20/99	23 ± 0	9	23 ± 0	11
06/09/99	56 ± 12	9	62 ± 1	10
06/23/99	58 ± 4	9	56 ± 1	10
07/07/99	53 ± 2	8	50 ± 2	11
07/21/99	50 ± 2	9	48 ± 1	10
08/11/99	58 ± 2	9	57 ± 2	11
08/25/99	63 ± 2	9	62 ± 1	11
09/08/99	48 ± 2	9	49 ± 1	10
09/29/99	68 ± 3	9	65 ± 4	11
10/12/99	66 ± 3	8	66 ± 3	8
11/23/99	49 ± 1	9	49 ± 0	11
12/14/99	52 ± 3	8	54 ± 3	10

Table 17.26. Mean NO₃ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L NO₃.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	0.00 ± 0.00	9	0.00 ± 0.00	13
09/16/97	0.23 ± 0.16	8	0.18 ± 0.33	11
10/14/97	0.13 ± 0.24	8	0.00 ± 0.00	10
11/13/97	1.00 ± 0.00	9	1.00 ± 0.00	11
12/16/97	1.05 ± 0.05	8	0.96 ± 0.04	12
01/28/98	1.44 ± 0.05	8	1.31 ± 0.08	11
02/12/98	1.41 ± 0.08	9	1.65 ± 0.13	12
03/25/98	2.56 ± 0.33	9	2.50 ± 0.27	12
04/07/98	2.47 ± 0.03	9	3.03 ± 0.27	12
04/23/98	3.00 ± 0.00	9	3.00 ± 0.00	12

Table 17.27. Mean NO₂ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L NO₂ - N.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	0.00 ± 0.00	9	0.00 ± 0.00	13
09/16/97	0.00 ± 0.00	8	0.00 ± 0.00	11
10/14/97	0.00 ± 0.00	8	0.00 ± 0.00	11
11/13/97	0.00 ± 0.00	9	0.00 ± 0.00	11
12/16/97	0.00 ± 0.00	8	0.00 ± 0.00	12
01/28/98	0.00 ± 0.00	8	0.00 ± 0.00	11
02/12/98	0.00 ± 0.00	9	0.00 ± 0.00	12
03/25/98	0.00 ± 0.00	9	0.00 ± 0.00	12
04/07/98	0.00 ± 0.00	9	0.00 ± 0.00	12
04/23/98	0.00 ± 0.00	9	0.00 ± 0.00	12
05/05/98	0.00 ± 0.00	9	0.00 ± 0.00	11
05/19/98	0.00 ± 0.00	9	0.00 ± 0.00	11
06/09/98	0.00 ± 0.00	9	0.00 ± 0.00	11
06/23/98	0.00 ± 0.00	10	0.00 ± 0.00	11
07/07/98	0.00 ± 0.00	9	0.00 ± 0.00	11
07/21/98	0.00 ± 0.00	9	0.00 ± 0.00	10
08/04/98	0.00 ± 0.00	9	0.00 ± 0.00	10
08/18/98	0.00 ± 0.00	10	0.00 ± 0.00	11
09/10/98	0.00 ± 0.00	9	0.00 ± 0.00	11
09/22/98	0.02 ± 0.03	9	0.01 ± 0.02	11
10/13/98	0.00 ± 0.00	9	0.00 ± 0.00	11
11/19/98	0.00 ± 0.00	9	0.00 ± 0.00	10
12/29/98	0.00 ± 0.00	9	0.00 ± 0.00	10
01/19/99	0.00 ± 0.00	9	0.00 ± 0.00	10
02/17/99	0.00 ± 0.00	10	0.00 ± 0.00	11
03/17/99	0.00 ± 0.00	10	0.00 ± 0.00	9
04/07/99	0.00 ± 0.00	10	0.00 ± 0.00	11
04/21/99	0.00 ± 0.00	10	0.00 ± 0.00	10
05/06/99	0.00 ± 0.00	9	0.00 ± 0.00	10
05/20/99	0.00 ± 0.00	9	0.00 ± 0.00	11
06/09/99	0.00 ± 0.00	9	0.00 ± 0.00	10
06/23/99	0.00 ± 0.00	9	0.00 ± 0.00	10
07/07/99	0.00 ± 0.00	8	0.00 ± 0.00	11
07/21/99	0.00 ± 0.00	9	0.00 ± 0.00	10
08/11/99	0.00 ± 0.00	9	0.00 ± 0.00	11
08/25/99	0.00 ± 0.00	9	0.00 ± 0.00	11
09/08/99	0.00 ± 0.00	9	0.00 ± 0.00	10
09/29/99	0.00 ± 0.00	9	0.00 ± 0.00	11
10/12/99	0.00 ± 0.00	8	0.00 ± 0.00	8
11/23/99	0.00 ± 0.00	9	0.00 ± 0.00	11
12/14/99	0.00 ± 0.00	8	0.00 ± 0.00	10

Table 17.28. Mean NO₃ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L NO₃ - N.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
05/05/98	0.75 ± 0.01	9	0.73 ± 0.01	11
05/19/98	0.70 ± 0.01	9	0.70 ± 0.02	11
06/09/98	0.85 ± 0.01	9	0.85 ± 0.01	11
06/23/98	0.74 ± 0.03	10	0.73 ± 0.06	11
07/07/98	0.50 ± 0.05	9	0.50 ± 0.08	11
07/21/98	0.20 ± 0.08	9	0.19 ± 0.08	10
08/04/98	0.19 ± 0.07	9	0.14 ± 0.04	10
08/18/98	0.08 ± 0.04	10	0.12 ± 0.03	11
09/10/98	0.09 ± 0.03	9	0.03 ± 0.00	11
09/22/98	0.07 ± 0.00	9	0.07 ± 0.02	11
10/13/98	0.15 ± 0.01	9	0.14 ± 0.00	11
11/19/98	0.18 ± 0.01	9	0.18 ± 0.00	10
12/29/98	0.09 ± 0.00	9	0.09 ± 0.00	10
01/19/99	0.13 ± 0.01	9	0.12 ± 0.03	10
02/17/99	0.41 ± 0.01	10	0.41 ± 0.00	11
03/17/99	0.52 ± 0.00	10	0.52 ± 0.00	9
04/07/99	0.52 ± 0.00	10	0.52 ± 0.00	11
04/21/99	0.59 ± 0.01	10	0.57 ± 0.00	10
05/06/99	0.54 ± 0.00	9	0.52 ± 0.00	10
05/20/99	0.59 ± 0.01	9	0.59 ± 0.01	11
06/09/99	0.36 ± 0.03	9	0.36 ± 0.05	10
06/23/99	0.21 ± 0.02	9	0.18 ± 0.02	10
07/07/99	0.12 ± 0.05	8	0.14 ± 0.06	11
07/21/99	0.06 ± 0.01	9	0.06 ± 0.03	10
08/11/99	0.11 ± 0.03	9	0.03 ± 0.01	11
08/25/99	0.03 ± 0.04	9	0.02 ± 0.02	11
09/08/99	0.04 ± 0.02	9	0.00 ± 0.00	10
09/29/99	0.00 ± 0.00	9	0.00 ± 0.00	11
10/12/99	0.02 ± 0.04	8	0.00 ± 0.00	8
11/23/99	0.00 ± 0.01	9	0.00 ± 0.00	11
12/14/99	0.00 ± 0.00	8	0.00 ± 0.00	10

Table 17.29. Mean Total Kjeldahl Nitrogen levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L NH₃ - N.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	0.47 ± 0.09	9	0.78 ± 0.25	13
09/16/97	0.02 ± 0.03	8	0.01 ± 0.02	11
10/14/97	0.86 ± 0.55	8	0.69 ± 0.12	11
11/13/97	0.32 ± 0.07	9	0.32 ± 0.07	11
12/16/97	0.61 ± 0.16	8	0.27 ± 0.12	11
01/28/98	0.69 ± 0.10	8	0.66 ± 0.06	11
02/12/98	0.68 ± 0.15	9	0.70 ± 0.05	12
03/25/98	0.63 ± 0.07	9	0.62 ± 0.06	12
04/07/98	0.65 ± 0.10	9	0.62 ± 0.07	12
04/23/98	0.49 ± 0.12	9	0.48 ± 0.05	12
05/05/98	1.63 ± 0.44	9	1.27 ± 0.16	11
05/19/98	1.11 ± 0.07	9	1.62 ± 0.24	11
06/09/98	1.38 ± 0.21	9	1.58 ± 0.30	11
06/23/98	1.20 ± 0.14	10	1.10 ± 0.06	11
07/07/98	0.81 ± 0.09	9	0.93 ± 0.16	11
07/21/98	1.21 ± 0.20	9	0.80 ± 0.19	10
08/04/98	0.94 ± 0.11	9	0.80 ± 0.11	10
08/18/98	1.24 ± 0.14	10	1.09 ± 0.08	11
09/10/98	0.66 ± 0.07	9	0.64 ± 0.08	11
09/22/98	0.88 ± 0.09	9	0.68 ± 0.02	11
10/13/98	0.74 ± 0.06	9	0.78 ± 0.06	11
11/19/98	0.88 ± 0.03	9	0.55 ± 0.12	10
12/29/98	1.51 ± 0.27	9	0.92 ± 0.10	10
01/19/99	1.06 ± 0.15	9	0.98 ± 0.15	10
02/17/99	1.13 ± 0.15	10	0.96 ± 0.10	11
03/17/99	0.58 ± 0.21	10	0.56 ± 0.41	9
04/07/99	0.90 ± 0.09	10	0.84 ± 0.11	11
04/21/99	0.73 ± 0.23	10	0.87 ± 0.05	10
05/06/99	1.03 ± 0.17	9	1.02 ± 0.07	10
05/20/99	0.94 ± 0.07	9	0.53 ± 0.23	11
06/09/99	0.79 ± 0.02	9	0.80 ± 0.05	10
06/23/99	0.80 ± 0.22	9	0.86 ± 0.06	10
07/07/99	0.81 ± 0.02	8	0.66 ± 0.20	11
07/21/99	0.98 ± 0.14	9	0.71 ± 0.04	10
08/11/99	1.54 ± 0.31	9	0.73 ± 0.05	11
08/25/99	1.02 ± 0.23	9	0.66 ± 0.05	11
09/08/99	0.81 ± 0.06	9	0.74 ± 0.04	10
09/29/99	1.04 ± 0.05	9	1.11 ± 0.11	11
10/12/99	1.15 ± 0.14	8	0.94 ± 0.12	8
11/23/99	1.08 ± 0.28	9	1.21 ± 0.19	11
12/14/99	0.74 ± 0.08	8	0.66 ± 0.25	10

Table 17.30. Mean orthophosphate levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L PO₄.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	0.34 ± 0.30	9	0.28 ± 0.18	13
09/16/97	0.00 ± 0.00	8	0.00 ± 0.00	11
10/14/97	0.00 ± 0.00	8	0.00 ± 0.00	11
11/13/97	0.00 ± 0.00	9	0.00 ± 0.00	11
12/16/97	0.10 ± 0.13	8	0.00 ± 0.00	12
01/28/98	0.00 ± 0.00	8	0.00 ± 0.00	11
02/12/98	0.00 ± 0.00	9	0.00 ± 0.00	12
03/25/98	0.00 ± 0.00	9	0.00 ± 0.00	12
04/07/98	0.00 ± 0.00	9	0.00 ± 0.00	12
04/23/98	0.00 ± 0.00	9	0.00 ± 0.00	12

Table 17.31. Mean orthophosphate levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L PO₄ - P.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
05/05/98	0.00 ± 0.00	9	0.00 ± 0.00	11
05/19/98	0.00 ± 0.00	9	0.00 ± 0.00	11
06/09/98	0.00 ± 0.00	9	0.00 ± 0.00	11
06/23/98	0.00 ± 0.00	10	0.00 ± 0.00	11
07/07/98	0.00 ± 0.00	9	0.00 ± 0.00	11
07/21/98	0.00 ± 0.00	9	0.00 ± 0.00	10
08/04/98	0.02 ± 0.03	9	0.01 ± 0.02	10
08/18/98	0.00 ± 0.00	10	0.00 ± 0.00	11
09/10/98	0.00 ± 0.00	9	0.00 ± 0.00	11
09/22/98	0.00 ± 0.00	9	0.00 ± 0.00	11
10/13/98	0.00 ± 0.00	9	0.00 ± 0.00	11
11/19/98	0.00 ± 0.00	9	0.00 ± 0.00	10
12/29/98	0.00 ± 0.00	9	0.00 ± 0.00	10
01/19/99	0.00 ± 0.00	9	0.00 ± 0.00	10
02/17/99	0.00 ± 0.00	10	0.00 ± 0.00	11
03/17/99	0.09 ± 0.02	10	0.10 ± 0.00	9
04/07/99	0.01 ± 0.02	10	0.01 ± 0.02	11
04/21/99	0.00 ± 0.00	10	0.00 ± 0.00	10
05/06/99	0.00 ± 0.00	9	0.00 ± 0.00	10
05/20/99	0.00 ± 0.00	9	0.00 ± 0.00	11
06/09/99	0.00 ± 0.00	9	0.00 ± 0.00	10
06/23/99	0.00 ± 0.00	9	0.00 ± 0.00	10
07/07/99	0.00 ± 0.00	8	0.01 ± 0.02	11
07/21/99	0.00 ± 0.00	9	0.00 ± 0.00	10
08/11/99	0.00 ± 0.00	9	0.00 ± 0.00	11
08/25/99	0.01 ± 0.02	9	0.00 ± 0.00	11
09/08/99	0.00 ± 0.00	9	0.00 ± 0.00	10
09/29/99	0.05 ± 0.00	9	0.00 ± 0.00	11
10/12/99	0.00 ± 0.00	8	0.01 ± 0.02	8
11/23/99	0.00 ± 0.00	9	0.00 ± 0.00	11
12/14/99	0.00 ± 0.00	8	0.00 ± 0.00	10

Table 17.32. Mean total phosphorus levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L PO₄ - P.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	0.04 ± 0.01	9	0.04 ± 0.01	12
09/16/97	0.00 ± 0.00	8	0.01 ± 0.02	11
10/14/97	0.02 ± 0.02	8	0.01 ± 0.01	11
11/13/97	0.00 ± 0.00	9	0.04 ± 0.04	11
12/16/97	0.00 ± 0.00	8	0.01 ± 0.01	12
01/28/98	0.00 ± 0.00	8	0.01 ± 0.02	11
02/12/98	0.00 ± 0.00	9	0.00 ± 0.01	12
03/25/98	0.03 ± 0.02	9	0.06 ± 0.01	12
04/07/98	0.09 ± 0.00	9	0.11 ± 0.01	12
04/23/98	0.08 ± 0.02	9	0.10 ± 0.01	12
05/05/98	0.09 ± 0.01	9	0.08 ± 0.00	11
05/19/98	0.09 ± 0.01	9	0.10 ± 0.03	11
06/09/98	0.09 ± 0.01	9	0.08 ± 0.01	11
06/23/98	0.11 ± 0.01	10	0.13 ± 0.01	11
07/07/98	0.09 ± 0.01	9	0.10 ± 0.01	11
07/21/98	0.06 ± 0.02	9	0.05 ± 0.02	10
08/04/98	0.08 ± 0.01	9	0.07 ± 0.01	10
08/18/98	0.04 ± 0.02	10	0.07 ± 0.02	11
09/10/98	0.10 ± 0.01	9	0.09 ± 0.01	11
09/22/98	0.08 ± 0.01	9	0.08 ± 0.01	11
10/13/98	0.05 ± 0.01	9	0.06 ± 0.01	11
11/19/98	0.13 ± 0.01	9	0.14 ± 0.01	10
12/29/98	0.09 ± 0.01	8	0.09 ± 0.01	10
01/19/99	0.12 ± 0.06	9	0.05 ± 0.02	10
02/17/99	0.17 ± 0.02	10	0.24 ± 0.02	11
03/17/99	0.12 ± 0.02	10	0.09 ± 0.01	9
04/07/99	0.09 ± 0.00	10	0.08 ± 0.00	11
04/21/99	0.06 ± 0.00	10	0.06 ± 0.00	10
05/06/99	0.07 ± 0.00	9	0.06 ± 0.00	10
05/20/99	0.00 ± 0.00	9	0.00 ± 0.00	11
06/09/99	0.10 ± 0.01	9	0.07 ± 0.02	10
06/23/99	0.10 ± 0.01	9	0.09 ± 0.00	10
07/07/99	0.01 ± 0.02	8	0.00 ± 0.00	11
07/21/99	0.11 ± 0.01	9	0.08 ± 0.02	10
08/11/99	0.08 ± 0.00	9	0.08 ± 0.00	11
08/25/99	0.09 ± 0.01	9	0.07 ± 0.01	11
09/08/99	0.12 ± 0.01	9	0.09 ± 0.00	10
09/29/99	0.00 ± 0.00	9	0.05 ± 0.00	11
10/12/99	0.07 ± 0.01	8	0.06 ± 0.02	8
11/23/99	0.27 ± 0.22	9	0.31 ± 0.21	11
12/14/99	0.03 ± 0.02	8	0.06 ± 0.00	10

Table 17.33. Mean SO₄ levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L SO₄.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	133 ± 1	9	135 ± 3	13
09/16/97	139 ± 2	8	135 ± 2	11
10/14/97	145 ± 2	8	143 ± 1	11
11/13/97	138 ± 5	9	138 ± 3	11
12/16/97	152 ± 1	8	150 ± 2	12
01/28/98	155 ± 1	8	144 ± 3	11
02/12/98	154 ± 1	9	153 ± 2	12
03/25/98	153 ± 2	9	154 ± 2	12
04/07/98	152 ± 2	9	150 ± 2	12
04/23/98	148 ± 2	9	145 ± 2	12
05/05/98	142 ± 3	9	139 ± 3	11
05/19/98	141 ± 2	9	143 ± 4	11
06/09/98	140 ± 11	9	130 ± 0	11
06/23/98	121 ± 2	10	118 ± 2	11
07/07/98	120 ± 0	9	121 ± 2	11
07/21/98	120 ± 0	9	120 ± 0	10
08/04/98	131 ± 2	9	130 ± 0	10
08/18/98	123 ± 3	10	125 ± 5	11
09/10/98	124 ± 3	9	125 ± 3	11
09/22/98	129 ± 2	9	129 ± 2	11
10/13/98	128 ± 3	9	128 ± 2	11
11/19/98	132 ± 3	9	130 ± 0	10
12/29/98	139 ± 2	9	141 ± 2	10
01/19/99	132 ± 3	9	137 ± 3	10
02/17/99	120 ± 0	10	119 ± 2	11
03/17/99	124 ± 3	10	124 ± 3	9
04/07/99	120 ± 0	10	120 ± 0	11
04/21/99	129 ± 2	10	125 ± 3	10
05/06/99	123 ± 3	9	121 ± 2	10
05/20/99	130 ± 0	9	129 ± 2	11
06/09/99	130 ± 0	9	130 ± 0	10
06/23/99	131 ± 6	9	133 ± 3	10
07/07/99	134 ± 6	8	120 ± 0	11
07/21/99	137 ± 3	9	137 ± 3	10
08/11/99	140 ± 0	9	141 ± 2	11
08/25/99	141 ± 2	9	140 ± 0	11
09/08/99	150 ± 3	9	151 ± 2	10
09/29/99	148 ± 1	9	143 ± 1	11
10/12/99	168 ± 5	8	165 ± 5	8
11/23/99	170 ± 1	9	172 ± 0	11
12/14/99	174 ± 1	8	175 ± 1	10

Table 17.34. Mean total dissolved solids (TDS) levels with 95% confidence intervals (C. I.) measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in mg/L TDS.

Date	Location C		Location E1	
	95% C. I.	n	95% C. I.	n
08/29/97	332 ± 8	9	330 ± 6	13
09/16/97	316 ± 8	8	319 ± 12	11
10/14/97	305 ± 14	8	303 ± 11	11
11/13/97	313 ± 4	9	329 ± 8	11
12/16/97	330 ± 9	8	322 ± 8	12
01/28/98	348 ± 17	8	348 ± 10	11
02/12/98	375 ± 19	9	386 ± 20	12
03/25/98	332 ± 4	9	324 ± 3	12
04/07/98	312 ± 13	9	312 ± 13	12
04/23/98	310 ± 5	9	302 ± 2	12
05/05/98	344 ± 11	9	346 ± 17	11
05/19/98	336 ± 5	9	329 ± 9	11
06/09/98	351 ± 18	9	347 ± 17	11
06/23/98	315 ± 7	10	312 ± 4	11
07/07/98	311 ± 14	9	310 ± 10	11
07/21/98	301 ± 8	9	372 ± 56	10
08/04/98	323 ± 20	9	299 ± 7	10
08/18/98	285 ± 3	10	284 ± 5	11
09/10/98	323 ± 65	9	290 ± 16	11
09/22/98	310 ± 24	9	285 ± 8	11
10/13/98	289 ± 8	9	306 ± 4	11
11/19/98	336 ± 18	9	318 ± 9	10
12/29/98	326 ± 12	9	303 ± 12	10
01/19/99	326 ± 10	9	317 ± 18	10
02/17/99	322 ± 20	10	282 ± 13	11
03/17/99	346 ± 36	10	316 ± 25	9
04/07/99	293 ± 10	10	276 ± 15	11
04/21/99	276 ± 13	10	268 ± 6	10
05/06/99	303 ± 13	9	296 ± 12	10
05/20/99	327 ± 56	9	318 ± 11	11
06/09/99	302 ± 11	9	258 ± 12	10
06/23/99	300 ± 14	9	286 ± 7	10
07/07/99	295 ± 4	8	302 ± 3	11
07/21/99	408 ± 33	9	384 ± 18	10
08/11/99	302 ± 7	9	293 ± 7	11
08/25/99	312 ± 10	9	296 ± 15	11
09/08/99	306 ± 8	9	347 ± 20	10
09/29/99	316 ± 9	9	295 ± 21	11
10/12/99	335 ± 6	8	335 ± 3	8
11/23/99	344 ± 6	9	349 ± 4	11
12/14/99	351 ± 7	8	351 ± 8	10

Table 17.35. Secchi depths measured by AmerenCIPS in Coffeen Lake, 1997 – 1999. Values are in meters.

Date	Location									
	A	B	C	D	E1	E2	E3	F1	F2	G
08/29/97	1.00		1.00	1.25	1.50	1.50	1.50	1.50	1.50	1.75
09/16/97	1.25	1.25	1.25	1.50	1.75	1.75	1.75	1.50	1.75	1.75
10/14/97	1.00	1.25	1.50	1.50	2.00	2.00	1.50	1.50	1.25	1.50
09/16/97		1.75	1.75	1.75	1.75	2.00	2.00	1.75	2.00	2.00
12/16/97	1.00	1.50	1.50	2.00	2.00	2.00	2.00	2.00	2.00	1.75
01/28/98	1.50	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.25	2.25
02/12/98	1.00	2.00	2.00		2.00	2.00	2.00	2.00	2.50	2.50
03/25/98	0.75	0.75	0.75	0.75	0.75	0.75	0.50	0.75	0.75	0.50
04/07/98	0.75	0.75	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00
04/23/98	0.75	0.75	0.75	0.75	1.00	1.00	1.00		1.00	0.75
05/05/98	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	0.75
05/19/98	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
06/09/98	0.50	0.50	0.50	0.50	0.50	0.75	0.75		0.75	0.50
06/23/98	0.50	0.50	0.50	0.50		0.75	0.75	1.00	0.75	0.75
07/07/98	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.50	1.00	1.00
07/21/98	1.00	1.00	1.00	1.00	1.50	1.50	1.50	1.25	1.50	1.50
08/04/98	1.00	1.00	1.00	1.00	1.25	1.25	1.25	1.25	1.25	1.50
08/18/98	1.00	1.00	1.00	1.00	1.25	1.25	1.25	1.25	1.50	1.50
09/10/98	1.25	1.25	1.25	1.25	1.50	1.50	1.50	1.75	1.75	2.00
09/22/98	1.25	1.25	1.25	1.50	1.50	1.50	1.25	1.50	1.25	
10/13/98	1.25	1.25	1.50	1.50	2.00	1.50	1.50	1.75	2.00	
11/19/98	1.50	1.75	1.50	1.50	1.75	1.75	1.50	2.25	2.00	2.00
12/29/98	1.75	2.25	2.25	2.25	2.25	2.25	2.25	1.75	2.25	2.25
01/19/99	1.25	1.75	1.50	1.75	1.50	1.75	1.25	0.75	1.75	2.00
02/17/99	0.75	0.75	0.75	0.75	1.00	0.75	0.75	1.25	0.75	0.50
03/17/99	1.25	1.25	1.00	1.50	1.25	1.25	1.25	1.25	1.25	1.25
04/07/99	1.00	1.25	1.25	1.50	1.50	1.50	1.25	1.25		1.50
04/21/99	1.00	1.00	1.00	1.25	1.25	1.25	1.00	1.00	1.25	1.50
05/06/99	0.75	0.75	1.00	1.00	1.00	1.00	1.00		1.25	1.25
05/20/99	0.75	0.75	0.75	1.00	1.00	1.00	1.00		1.00	1.00
06/09/99	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
06/23/99	0.75	0.75	0.75	1.00	1.00	1.00	1.25	1.00	1.25	1.25
07/07/99	0.75	1.00	1.00	1.25	1.25	1.50	1.50	1.50	1.50	1.50
07/21/99	1.00	1.00	1.00	1.25	1.25	0.75	1.25	1.25	1.50	
08/11/99	1.00	1.00	1.25	1.25	1.25	1.50	1.50	1.50	1.50	1.50
08/25/99	1.00	1.00	1.00	1.25	1.50	1.25	1.25	1.25	1.25	1.50
09/08/99	1.00	1.00	1.00	1.00	1.25	1.25	1.25	1.50	1.50	1.50
09/29/99	1.00	1.25	1.25	1.25	0.75	1.25	1.50	1.50	1.00	1.00
10/12/99	1.00	1.00	1.00	1.25	1.50	1.50	1.50	1.50	1.50	
11/23/99	1.50	1.50	1.50	1.75	1.75	1.75	2.00	2.00	2.00	1.75
12/14/99	1.50	1.50	1.50	1.75	1.75	1.75	1.75	1.75	1.75	1.75

Table 17.36. Range of pH determined by AmerenCIPS in Coffeen Lake, 1997 – 1999.

Date	Location C		Location E1	
	Minimum pH	Maximum pH	Minimum pH	Maximum pH
09/16/97	7.13	7.60	7.56	7.62
10/14/97	7.08	7.53	7.20	7.27
11/13/97	7.56	7.86	7.48	7.81
12/16/97	7.63	8.01	7.62	7.88
01/28/98	7.63	7.80	7.52	7.82
02/12/98	7.79	8.01	7.81	7.90
03/25/98	7.57	7.70	7.50	7.63
04/07/98	7.48	7.74	7.31	7.56
04/23/98	7.66	7.70		
05/05/98	7.00	7.45	7.22	7.55
05/19/98	7.18	7.54	7.17	7.60
06/09/98	7.08	7.28	7.26	7.37
06/23/98	6.97	7.42	6.84	7.69
07/07/98	7.01	7.58	6.54	7.68
07/21/98	7.19	7.91	7.14	8.30
08/04/98	6.94	7.54	7.18	7.78
08/18/98	6.92	7.33	6.93	7.95
09/10/98	7.00	7.67	7.09	7.38
09/22/98	6.66	7.06	6.99	7.33
10/13/98	6.71	7.13	7.24	7.31
11/19/98	5.79	6.15	5.98	6.08
12/29/98	6.90	8.61		
01/19/99	6.90	7.12	7.10	7.14
02/17/99	7.08	7.45	7.05	7.16
03/17/99	6.92	7.25	7.15	7.27
04/07/99	6.95	7.13	6.90	7.15
04/21/99	6.85	7.01	7.05	7.25
05/06/99	7.06	7.25	7.17	7.47
05/20/99	7.03	7.14	6.90	7.23
06/09/99	6.95	7.57	6.70	7.79
06/23/99	6.87	7.03	7.10	7.45
07/07/99	6.92	7.48	6.85	7.72
07/21/99	7.12	7.94	7.00	7.73
08/11/99	7.00	7.57	7.43	8.28
08/25/99	6.90	7.67	7.16	7.86
09/08/99	6.96	7.45	7.14	7.54
09/29/99	7.20	7.59	7.37	7.47
10/12/99	7.11	7.46	6.90	7.74
11/23/99	7.15	7.43	7.24	7.52
12/14/99	7.03	7.30	7.10	7.36