

South Holston Reservoir

Annual Report 2005

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Table of contents

	Page
Species Summaries	3-6
Stocking	7
Habitat	7
 Tables	
1. Morphometric, physical, and chemical characteristics	9
2. Fish stocked in Boone Reservoir 1992-2004	10
3. Number of species collected by gear type	11
4. CPUE and RSD by category and species	12
5. Largemouth bass mean relative weights (Wr)	13
6. Smallmouth bass mean relative weights (Wr)	13
7. Black crappie mean relative weights (Wr)	14
8. Geometric means of clupeids from South Holston and Boone Reservoirs	14
9. Habitat enhancement summary	15
 Figures	
1. Sites sampled on South Holston Reservoir in 2004	16
2. Largemouth bass incremental CPUE values.....	17
3. Largemouth bass length frequency by percent	17
4. Largemouth bass mean relative weights (Wr).....	18
5. Largemouth bass traditional PSD and RSD-15 values	18
6. Smallmouth bass incremental CPUE values.....	19
7. Smallmouth bass length frequency by percent	19
8. Smallmouth bass mean relative weights (Wr)	20
9. Smallmouth bass traditional PSD and RSD-14 values.....	20
10. Black crappie length frequency by percent	21
11. Black crappie mean relative weights (Wr)	21
12. Geometric mean density of clupeid catches.....	22
 Appendix A – Water Quality	
Tables A1 – A11 Summer water quality sampling data.....	24 – 36
Figures A1 – A11 Summer water quality sampling data	37 – 47
 Appendix B – Reservoir Elevations	
Table B1. Daily reservoir elevation data	49
Figure B1. Daily reservoir elevation data with guide curve	52

Largemouth Bass

Population Parameter	Annual Rating	Measure	Gear	Value
Recruitment	Poor	Sub-stock CPUE	Electrofishing	1.4 fish/hr.
<i>Growth*</i>	<i>Good</i>	<i>Mean TL at Age-3</i>	<i>Electrofishing</i>	<i>361 mm</i>
	Good	RSD-381 mm	Electrofishing	51%
Density	Good	CPUE \geq Stock Size (203 mm)	Electrofishing	13.4 fish/hr.
	N/A	CPUE \geq Minimum Size Limit	Electrofishing	No limit
<i>Mortality*</i>	<i>Low</i>	<i>Total Mortality (Z)</i>	<i>Electrofishing</i>	<i>22%</i>
Angling Pressure	N/A	Fishing Effort (hours)	Creel Survey	N/A
Fishing Success	N/A	Angler Catch Rate	Creel Survey	N/A
Value of Fishery	N/A	Trip Expenditures	Creel Survey	N/A

* - Based on a 2000 data set.

Fishery Forecast:

Although densities of largemouth bass in South Holston Reservoir are not very high, when compared to other reservoirs, the percentage of larger fish in the population is good. The same thing is true in Watauga Reservoir. The percentage of largemouth bass in South Holston over 381 mm (15 inches) has remained around 40 percent since 1994 which indicates recruitment to be very stable; even though some years, as in 2005, the sub-stock catch rates are low. This indicates a quality stable fishery and it should remain that way in 2006.

Management Recommendations:

No change to the current regulation is recommended.

Smallmouth Bass

Population Parameter	Annual Rating	Measure	Gear	Value
Recruitment	Fair	Sub-stock CPUE	Electrofishing	2.5 fish/hr.
<i>Growth*</i>	<i>Good</i>	<i>Mean TL at Age-3</i>	<i>Electrofishing</i>	<i>281 mm</i>
	Fair	RSD-P (356 mm)	Electrofishing	38%
Density	Good	CPUE \geq Stock Size (178 mm)	Electrofishing	15.3 fish/hr.
	N/A	CPUE \geq Minimum Size Limit	Electrofishing	No limit
<i>Mortality*</i>	<i>Low</i>	<i>Total Mortality (Z)</i>	<i>Electrofishing</i>	<i>36%</i>
Angling Pressure	N/A	Fishing Effort (hours)	Creel Survey	N/A
Fishing Success	N/A	Angler Catch Rate	Creel Survey	N/A
Value of Fishery	N/A	Trip Expenditures	Creel Survey	N/A

* *Based on a 2000 data set.*

Fishery Forecast:

The sub-stock catch increased in 2005 which might indicate a good 2004 reproductive year. The smallmouth bass fishery on South Holston has some of the highest percentages of quality and preferred smallmouth bass when compared to the other reservoirs in the area. The fishery should remain stable for the 2006 season.

Management Recommendations:

Continue to monitor the concern that some smallmouth bass anglers have for the quality of the smallmouth. A few anglers have stated that there have been some bank anglers, along with other anglers, fishing with "trout minnows" and harvesting several large smallmouth bass. They are concerned that this legal activity will diminish the quality of the smallmouth bass fishery. We will attempt to closely monitor the sizes and number of the smallmouth bass in South Holston Reservoir. Also, the creel clerk will be collecting data on South Holston in 2006 to help us get an idea of the amount of smallmouth bass harvest on the reservoir. There are currently no special regulations on South Holston and none are recommended at this time. We will attempt to collect enough smallmouth bass for an age, growth, and mortality analysis in 2006.

Black Crappie

Population Parameter	Annual Rating	Measure	Gear	Value
Recruitment	Poor	Sub-stock CPUE	Electrofishing	0.0 fish/hr.
<i>Growth*</i>	<i>Good</i>	<i>Mean TL at Age-3</i>	<i>Electrofishing</i>	<i>254 mm</i>
	Good	RSD-P (254 mm)	Electrofishing	77%
Density	Fair	CPUE \geq Stock Size (127 mm)	Electrofishing	8.5 fish/hr.
	Fair	CPUE \geq Minimum size Limit	Electrofishing	6.1 fish/hr.
<i>Mortality*</i>	<i>Low</i>	<i>Total Mortality (Z)</i>	<i>Electrofishing</i>	<i>29%</i>
Angling Pressure	N/A	Fishing Effort (hours)	Creel Survey	N/A
Fishing Success	N/A	Angler Catch Rate	Creel Survey	N/A
Value of Fishery	N/A	Trip Expenditures	Creel Survey	N/A

* *Based on a 2002 data set.*

Fishery Forecast:

The quality of the black crappie fishery should remain good. The percentage of harvestable fish in the sample was good and increased from 2004.

Management Recommendations:

Maintain the current 15 fish, 254 mm (10-inch) length limit.

Rainbow Trout

Population Parameter	Annual Rating	Measure	Gear	Value
Angling Pressure		Fishing Effort (hours)	Creel Survey	N/A
Fishing Success		Angler Catch Rate	Creel Survey	N/A
Value of Fishery		Trip Expenditures	Creel Survey	N/A

Fishery Forecast:

The quality of the rainbow trout fishery should remain stable.

Management Recommendations

None.

Stocking and Stocking Evaluations

Species	Number Stocked	Mark	Evaluation	# Fish / Net Night
Walleye	41,199	None	Gill Netting	No Sample in 2005
Rainbow Trout	37,712	None	Creel	N/A
Brown Trout	20,012	None	Creel	N/A

Habitat Enhancement and Monitoring

Type of Work	Details	Date
Shoreline Stabilization		See table 10.
Shoreline Seeding		"
Aquatic Plants		"
Fish Attractors (Shallow Water)		"
Fish Attractors (Deep Water)		"
Smallmouth Spawning Benches		"
Stake Beds		"
Water Quality Monitoring	Temperature, pH, Conductivity, and D.O.	July, August, September

Tables

Table 1. South Holston Reservoir study area morphometric, physical, and chemical characteristics.

Parameter	Measurement	
	<i>English</i>	<i>Metric</i>
Surface Area	7,580 ac	3,068 ha
Drainage Area	703 sq mi	1,822 sq km
Full Pool Elevation	1,729 ft msl	527 m msl
Mean Annual Fluctuation	39 feet	12 m
Shoreline Distance	182 mi	293 km
Maximum Depth	245 ft	75 m
Thermocline Depth	13 ft	4.0 m
Mean Chlorophyll (Forebay)	4.2 ppm	4.2 mg/l
Shoreline Development		14%
Trophic Status (Forebay)		Mesotrophic
Trophic Index, Carlson (1977)		44.7
Hydraulic Retention Time		340 days
Reservoir Age		53 years

Table 2. South Holston Reservoir stocking records 1992 – 2005.

Species	Date	Rate (per acre)	Mean Length	Number
Walleye	May 1995*	4.0	1.5	31,900
	May 1997	5.0	1.5	37,900
	May 1998*	5.2	1.5	39,182
	May 1999	5.2	1.0 – 3.0	39,508
	May 2000*	19.3	1.5	146,000
	May 2001*	19.7	1.0 – 1.25	149,700
	May 2002	6.8	1.25 – 1.6	51,411
	May 2002*	6.3	1.0 – 2.0	47,553
	May 2003	2.2	1.25 – 2.25	17,047
	May 2003	23.6		179,033
	May 2004	6.2	1.00 – 1.25	46,725
	May 2005	5.4	1.0 – 1.1	41,199
	Blacknose	Nov. 1996	15.1	2.50
Black Crappie	Nov.-Dec. 1997	15.0	2.50	113,469
	Nov. 1998	16.1	2.50	121,921
Rainbow Trout	1994	3.1	Adult	23,124
	1995	5.3	Adult	40,001
	1996	4.1	Adult	31,230
	1997	4.6	Adult	34,977
	1998	7.0	Adult	52,724
	1999	5.3	Adult	40,533
	2000	5.4	Adult	40,627
	2001	4.9	Adult	37,502
	2002	6.5	Adult	49,003
	2003	5.3	Adult	40,576
	2004	5.3	Adult	40,210
	2005	4.2	Adult	31,712
Brown Trout	2001	1.3	Fingerling	10,092
	2002	1.3	Fingerling	10,156
	2003	1.3	Fingerling	10,031
	2004			0
	2005	2.6	Fingerling	20,012

* - fished stocked by VDGIF

Table 3. Number of species collected by gear type in South Holston Reservoir, 2005. Effort is represented in hours for electrofishing and net nights for gill netting

Species	Summer Gill Netting			Spring Electrofishing			Winter Gill Netting		
	No.	CPUE (# fish / net night)	Total Effort	No.	CPUE (# fish / hour)	Total Effort	No.	CPUE (# fish / net night)	Total Effort
Largemouth Bass	X	X	X	75	14.8	5	X	X	X
Smallmouth Bass	X	X	X	91	17.8	5	X	X	X
Spotted Bass	X	X	X	0	0	5	X	X	X
Black Crappie	X	X	X	43	8.5	5	X	X	X
Black-Nose Crappie	X	X	X	1	0.2	5	X	X	X
White Crappie	X	X	X	0	0	5	X	X	X
Walleye	X	X	X	23	4.5	5	None in 2005		
White Bass	X	X	X	0	0	5	X	X	X
Gizzard Shad	98	4.9	20	X	X	X	X	X	X
Threadfin Shad	278	13.9	20	X	X	X	X	X	X
Alewife	6	0.3	20	X	X	X	X	X	X

X = non targeted species

Table 4. Black bass catch, mean CPUE, and RSD by incremental category for target species by gear in South Holston Reservoir 1998 – 2005.

Species	Year	Gear	Number of Samples	RSD			RSD			RSD			RSD			RSD			PSD	Total				
				Substock			Stock - Quality			Quality - Preferred			Preferred-Memorabile			Memorable-Trophy				Trophy			#	CPUE
				#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD		#	CPUE	RSD		
Largemouth Bass	1998	EL	22	4	0.6	3	46	8	37	20	3.5	16	50	8.6	40	5	0.8	4				60	130	21.6
	1999	EL	18	6	1.3	5	25	5.6	22	34	7.6	29	54	12	47	3	0.7	3				79	122	27.1
	2000	EL	18	9	2	13	11	2.4	18	17	3.7	28	29	6.2	48	3	0.6	5				81	69	15
	2001	EL	17	11	2.5	14	21	4.8	30	19	4.4	27	28	6.4	40	2	0.5	3				70	81	18.5
	2002	EL	14	13	3.6	22	12	3.2	26	15	4.1	33	19	5.3	41	0	0	0				74	59	16.2
	2003	EL	20	5	1	5	32	6	32	14	2.6	14	49	9	49	4	1	4				67	104	19.3
	2004	EL	20	9	1.7	9	15	2.9	17	28	5.4	33	37	7.1	43	6	1.2	7	0	0	0	83	95	18.4
	2005	EL	20	7	1.4	9	21	4.1	31	12	2.4	18	35	6.9	51	0	0	0	0	0	0	69	75	14.8
Smallmouth Bass	1998	EL	22	30	5.2	19	31	5.4	24	59	10	46	31	5.4	24	9	1.5	7				77	160	27.7
	1999	EL	18	19	4.2	14	35	7.8	30	37	8.2	32	27	6	23	17	3.8	15				70	135	30
	2000	EL	18	23	5	17	31	6.7	27	27	5.8	24	22	6.2	19	29	6.2	26				69	136	29.3
	2001	EL	17	7	1.6	5	13	2.9	10	32	7.3	25	42	9.6	33	36	8.2	29				87	133	30.17
	2002	EL	14	3	0.8	7	10	2.7	24	7	2	17	15	4.3	37	8	2.3	20	1	0.3	2	74	44	12.3
	2003	EL	20	1	0.2	2	13	2.4	28	9	1.7	20	11	2.1	24	10	1.9	22				66	47	8.8
	2004	EL	20	1	0.2	1	26	5	29	24	4.6	27	19	3.7	21	17	3.3	19	0	0	0	67	91	17.5
	2005	EL	20	13	2.5	14	29	5.7	37	19	3.7	24	18	3.5	23	10	2	13	2	0.4	3	63	91	17.8

Table 5. Black crappie and Walleye catch, mean CPUE, and RSD by incremental category for target species by gear in South Holston Reservoir 1998 – 2005.

Species	Year	Gear	Number of Samples	RSD Substock			RSD Stock - Quality			RSD Quality - Preferred			RSD Preferred-Memorable			RSD Memorable-Trophy			RSD Trophy			PSD	Total	
				#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	%	#	CPUE
Black Crappie	1998	EL	22	1	0.1	3	4	0.7	11	8	1.3	22	17	2.9	50	5	0.8	14				86	36	6
	1999	EL	18	0	0		0	0		24	5.3	34	41	9.1	59	5	1.1	7				100	70	15.6
	2000	EL	18	0	0		0	0		3	0.7	14	10	2.2	48	8	1.7	38				100	21	4.6
	2001	EL	17	1	0.2	1	15	3.4	13	26	5.9	23	54	12	47	19	4.3	17				87	115	26.3
	2002	EL	14	1	0.3	4	1	0.3	5	3	0.9	14	11	3.1	50	7	2	32				96	23	6.5
	2003	EL	20	0	0		2	0.4	3	12	2.1	19	22	4.1	35	27	5.1	43				97	63	11.7
	2004	EL	20	0	0	0	2	0.4	6	7	1.4	20	18	3.5	51	8	1.5	23	0	0	0	94	35	6.8
	2005	EL	20	0	0	0	2	0.4	5	8	1.6	19	12	2.4	28	21	4.1	49	0	0	0	96	43	8.5
Walleye (Winter Gill Net)	1998	GN	6	0			0			56	9.7	75	19	3.2	25	0	0		0			100	77	12.8
	1999	GN	9	0			1	0.1	1	53	5.9	60	35	3.9	48	0	0		0			100	89	9.8
	2000	GN	23	0			2	0.1	1	79	3.4	48	80	3.5	49	3	0.1	2	1	0	1	99	164	7.1
	2001	GN*																						
	2002	GN	36	1	0		8	0.2	2	190	5.3	56	130	3.6	39	9	0.3	3				98	338	9.4
	2003	GN																						
	2004	GN	14	1	0.1	1	5	0.4	5	47	3.4	47	46	3.3	46	2	0.1	2	0	0	0	95	101	7.21
2005	GN																							

Table 6. Largemouth bass mean relative weights (Wr) in South Holston Reservoir, spring 2005.

Length Group	Mean Wr	Std. Error	N
150	70.667		1
175	103.663		1
200	103.530	8.945	4
225	81.736	2.040	5
250	84.401	1.080	5
275	90.793	2.701	7
300	91.332	3.789	4
325	97.964	2.394	3
350	89.299	6.935	3
375	94.233	2.062	10
400	94.266	3.088	8
425	98.072	3.742	7
450	95.148	3.964	5
475	97.231	6.027	6
500	113.510		1
Total =			70

Table 7. Smallmouth bass mean relative weights (Wr) in South Holston Reservoir, spring 2005.

Length Group	Mean Wr	Std. Error	N
150	75.615	2.797	5
175	81.258	1.695	9
200	87.780	3.377	6
225	93.075	4.449	8
250	91.061	3.453	6
275	98.745	6.281	5
300	91.124	1.987	9
325	91.896	2.861	7
350	89.456	3.864	5
375	90.758	2.618	6
400	89.649	2.644	5
425	93.622	6.318	3
450	83.885	5.844	4
475	86.002	7.114	3
500	94.599	5.924	3
525	95.669		1
550			
Total =			85

Table 8. Black crappie mean relative weights (Wr) in South Holston Reservoir, spring 2005.

Length Group	Mean Wr	Std. Error	N
175	94.861	4.320	2
200	104.612	4.636	2
225	100.839	7.631	6
250	107.638	2.903	3
275	90.382	2.147	9
300	87.379	2.466	12
325	87.389	0.681	7
350	82.653	0.076	2
Total =			43

Table 9. Geometric means of the clupeid catch in experimental gill nets from South Holston 2001 - 2005.

Species	2001	2002	2003	2004	2005
Threadfin Shad	9.4	29.7	5.5	4	3.9
Gizzard Shad	4.2	3.2	4	2.2	3.1
Alewife	42.4	3.5	8.2	1.8	0.2

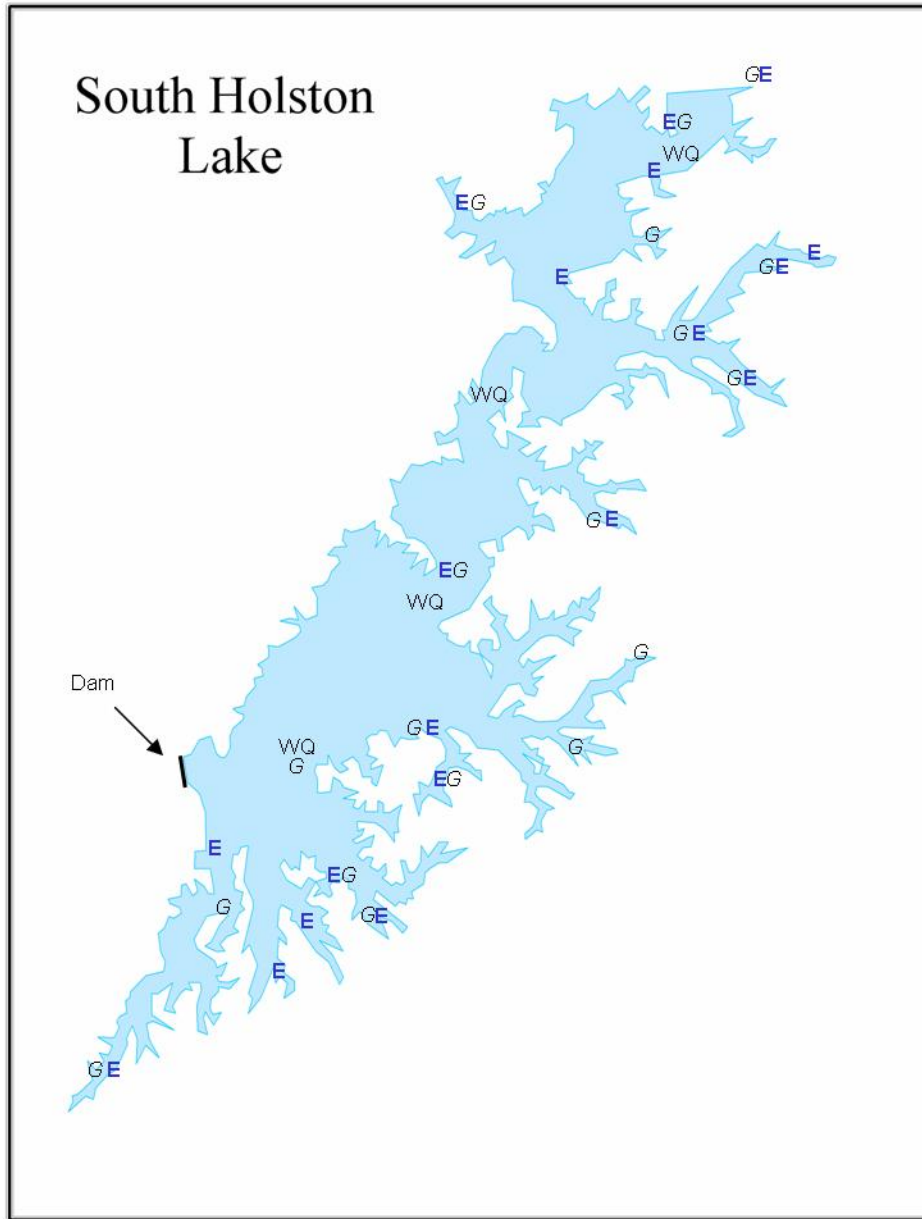
Table 10. South Holston Reservoir fish habitat enhancement summary for 2005.

Location	New Sites			Renovated Sites			Expanded Sites		
	Number	Units	Acres	Number	Units	Acres	Number	Units	Acres
SFHRM 60.65 L*				1	350	7.00			
SFHRM 60.65 L*				1	780	15.60			
Total	0	0	0	2	1130	23	0	0	0

*Christmas Trees

Figures

Figure 1. South Holston Reservoir with sites sampled in 2005.



E = Spring Electrofishing
WQ = Water Quality
G = Gillnet

Largemouth Bass

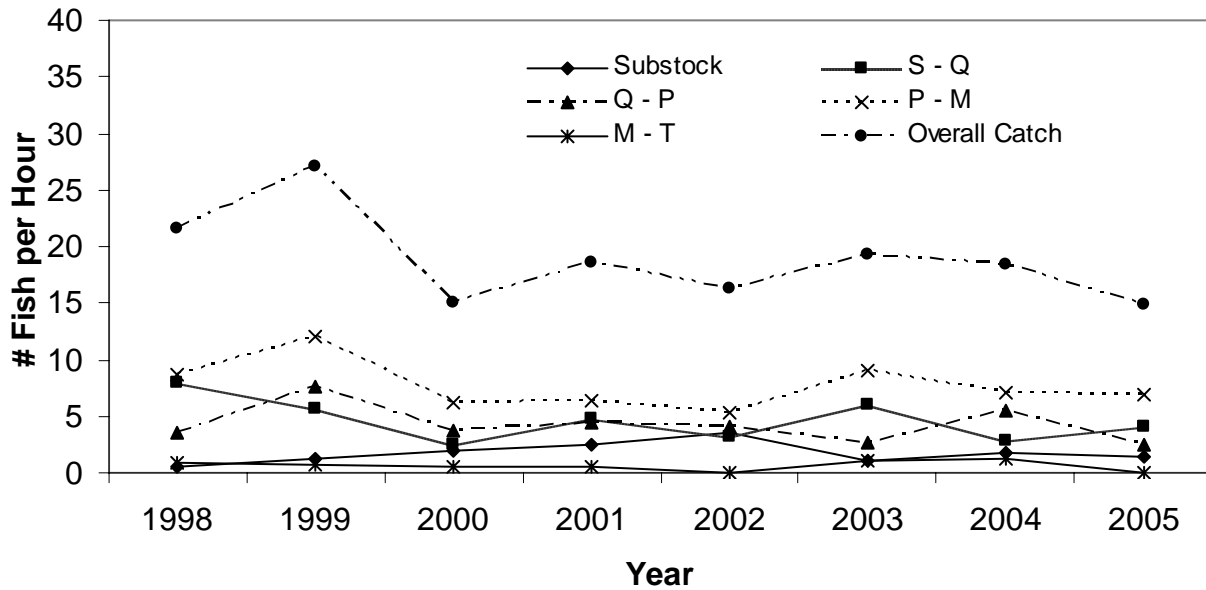


Figure 2. Largemouth bass incremental catch per unit effort (CPUE) values in South Holston Reservoir, 1998 - 2005.

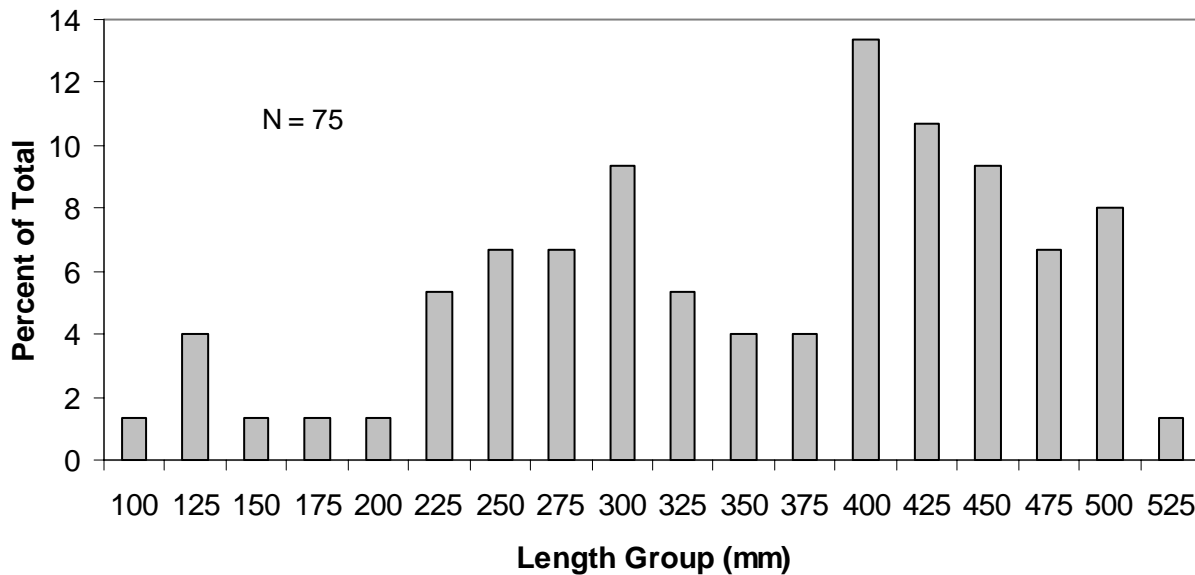


Figure 3. Largemouth bass length frequency by percent in South Holston Reservoir, spring 2005.

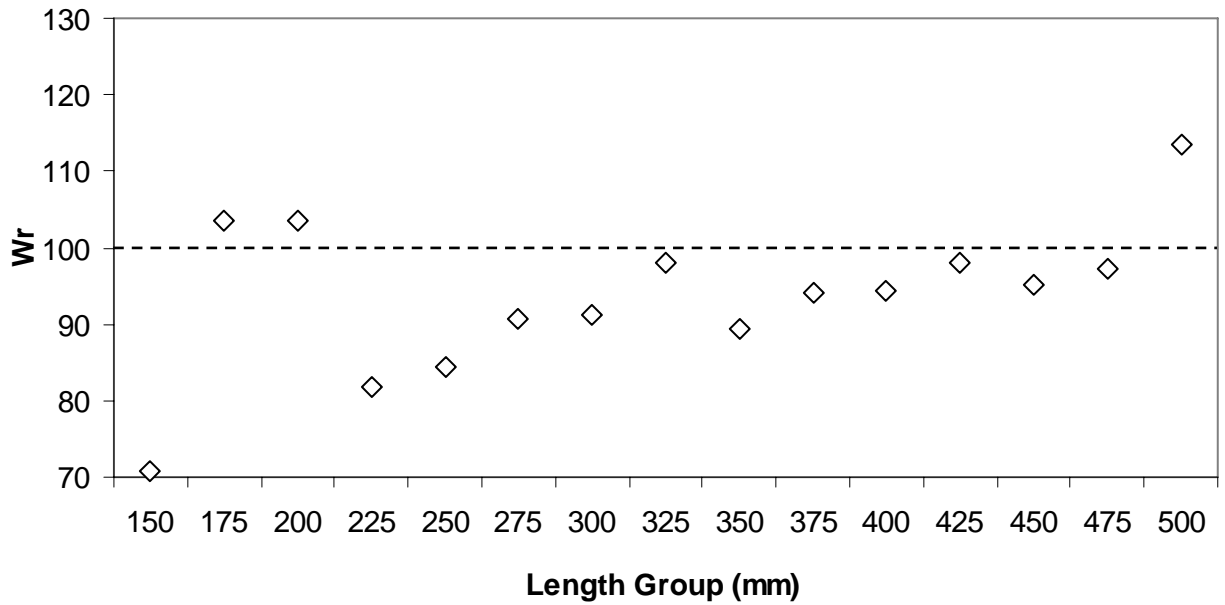


Figure 4. Largemouth bass mean relative weights (Wr) in South Holston Reservoir, spring 2005.

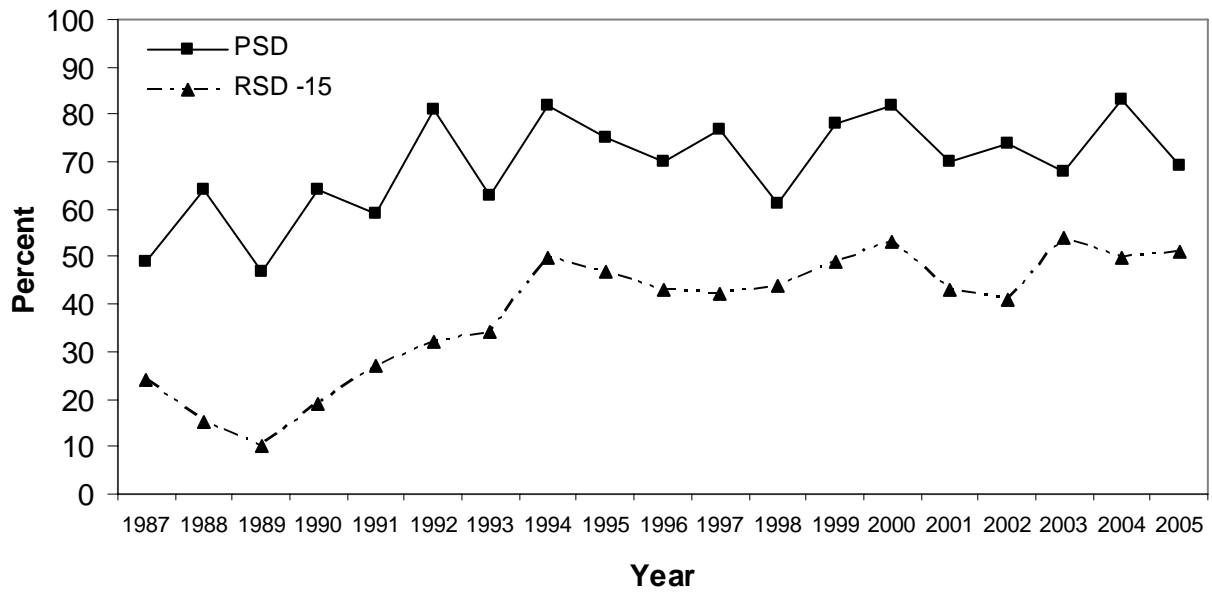


Figure 5. Largemouth bass traditional PSD and RSD -15 values in South Holston Reservoir 1987 – 2005.

Smallmouth Bass

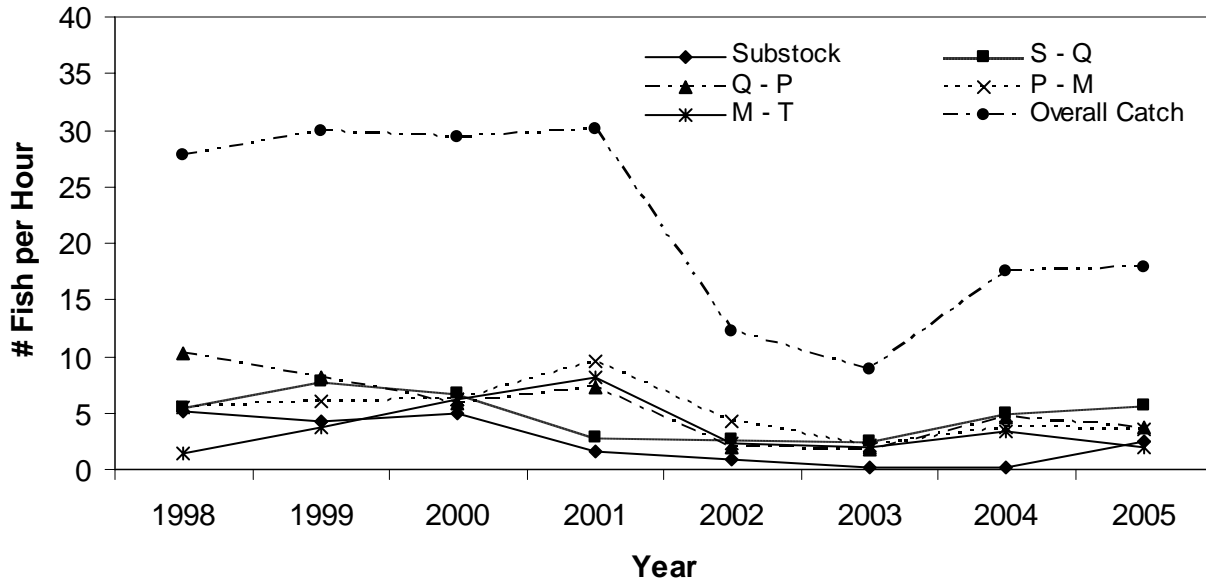


Figure 6. Smallmouth bass CPUE by incremental length category in South Holston Reservoir, 1998 - 2005.

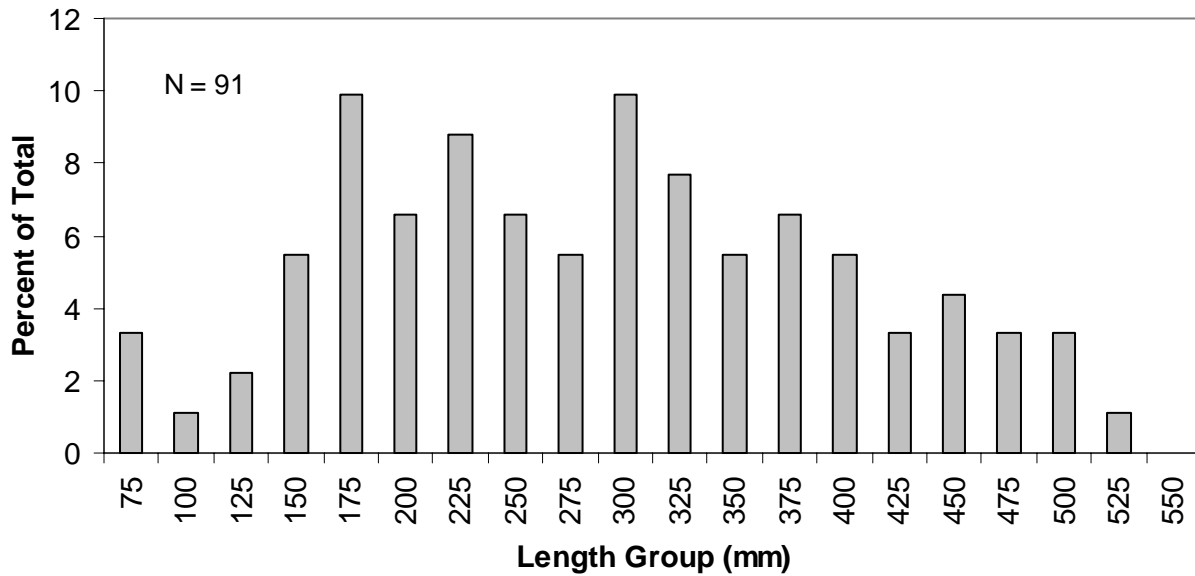


Figure 7. Smallmouth bass length frequency by percent in South Holston Reservoir, spring 2005.

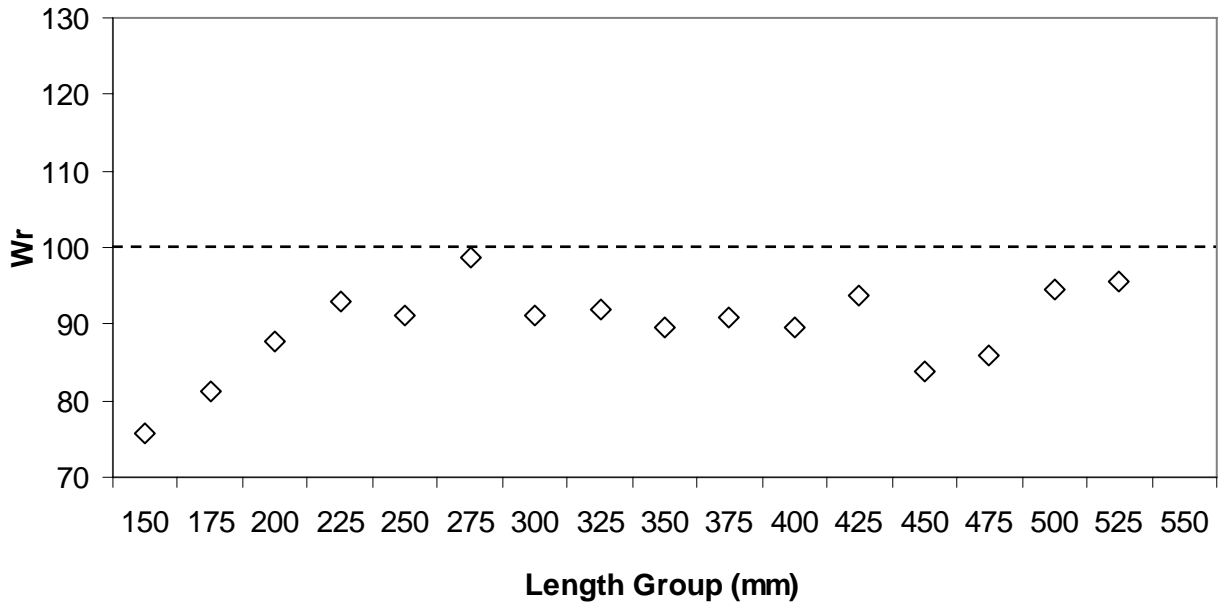


Figure 8. Smallmouth bass mean relative weights (Wr) in South Holston Reservoir, spring 2005.

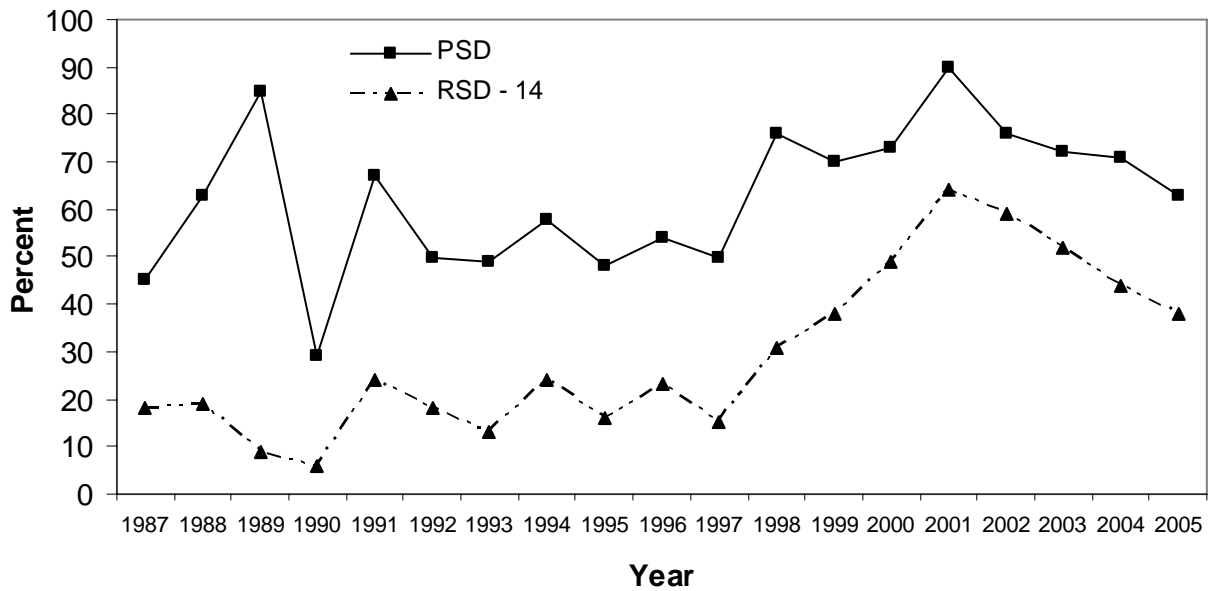


Figure 9. Smallmouth bass traditional PSD and RSD - 14 values in South Holston Reservoir 1987 – 2005.

Black Crappie

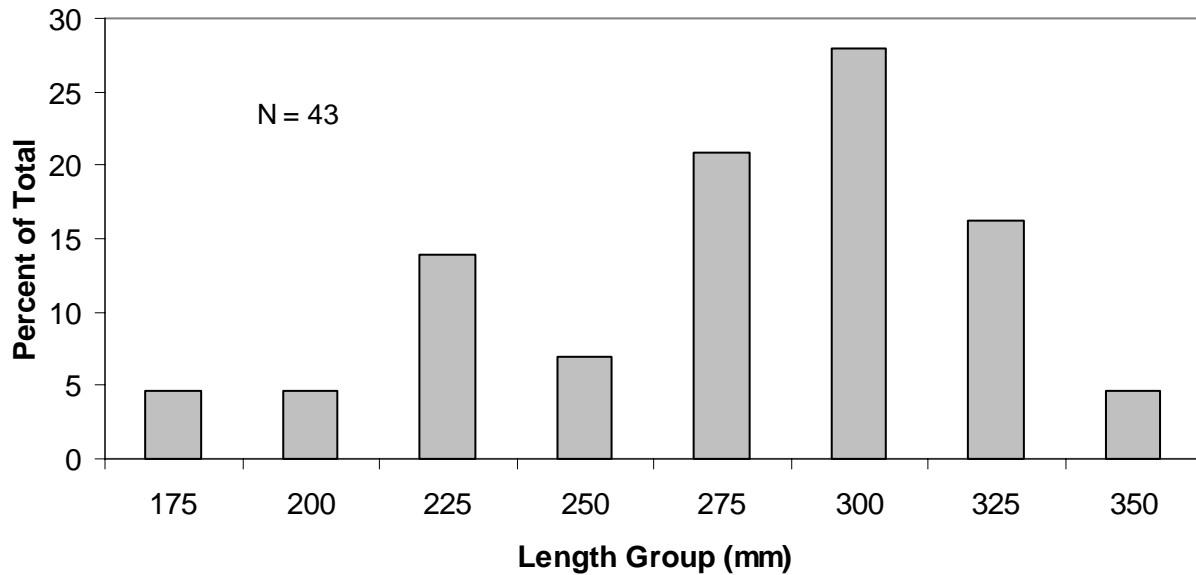


Figure 10. Black crappie bass length frequency by percent in South Holston Reservoir, spring 2005.

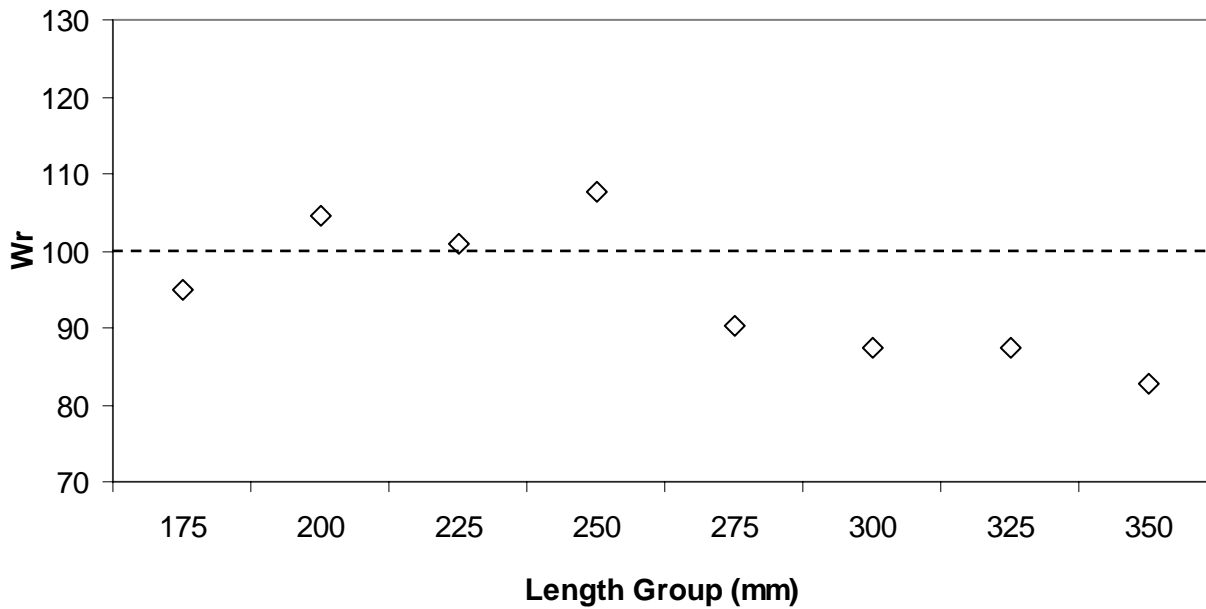


Figure 11. Black crappie mean relative weights (W_r) in South Holston Reservoir, spring 2005.

Clupeid Species

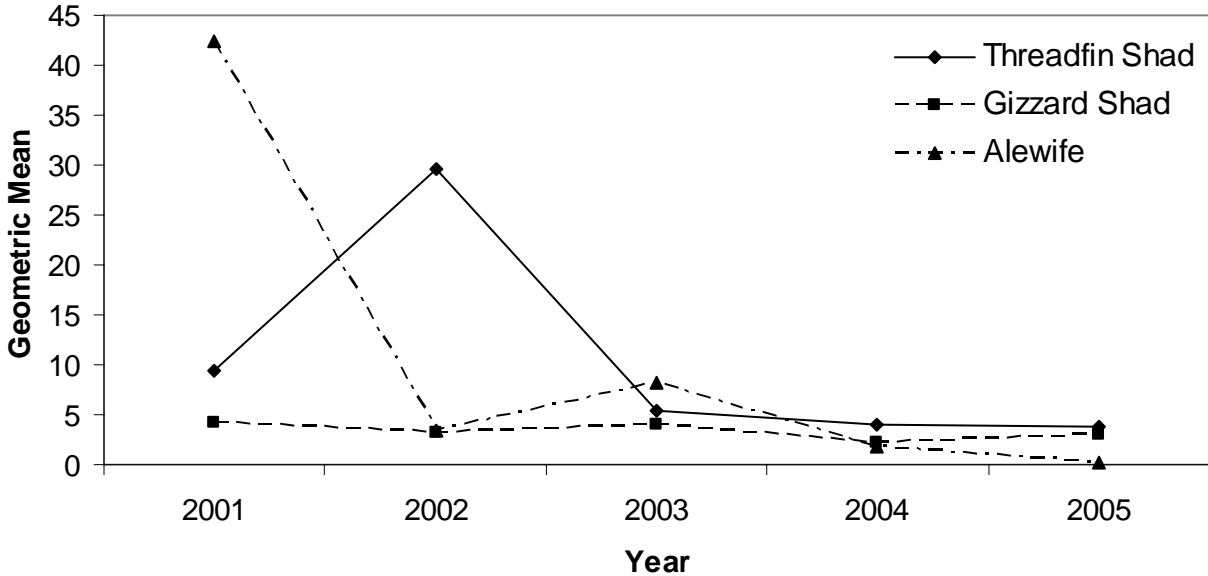


Figure 12. Geometric means of clupeid catch in surface set - experimental gill nets in South Holston Reservoir, 2001 - 2005.

Appendix A
Water Quality

Table A1. South Holston Reservoir, water quality summary at SFHRM 51, July 19, 2005.

Depth (m)	Temp ©	Cond	DO	Site	Secchi (m)	Time
0	26.8	216	8.8	HRM51	3.5	0940
1	26.8	217	8.8			
2	26.8	217	8.8			
3	26.8	217	8.8			
4	26.8	218	8.8			
5	24.9	221	8.9			
6	23.0	221	8.9			
7	21.3	234	8.6			
8	19.8	236	8.4			
9	18.1	240	8.1			
10	16.6	243	7.9			
11	15.4	243	7.8			
12	14.2	244	7.8			
13	13.5	244	7.8			
14	13.0	244	7.8			
15	12.4	246	7.8			
16	12.0	247	7.8			
17	11.4	249	7.8			
18	11.1	249	7.8			
19	10.8	250	7.8			
20	10.4	251	7.8			
21	9.9	251	7.8			
22	9.6	251	7.8			
23	9.4	251	7.8			
24	9.0	251	7.8			
25	8.8	251	7.8			
26	8.5	251	7.8			
27	8.3	250	7.8			
28	8.1	250	7.8			
29	7.9	250	7.8			
30	7.8	250	7.8			

Table A2. South Holston Reservoir, water quality summary at SFHRM 55, July 19, 2005.

Depth (m)	Temp ©	Cond	DO	Site	Secchi (m)	Time
0	26.9	214	8.9	HRM55	3.6	1030
1	26.9	217	8.9			
2	26.9	217	8.9			
3	26.9	217	8.9			
4	26.8	217	8.9			
5	25.4	231	8.9			
6	22.0	258	8.3			
7	21.0	262	7.9			
8	19.5	254	7.9			
9	18.4	250	7.8			
10	17.1	245	7.8			
11	15.8	247	7.7			
12	14.4	247	7.7			
13	13.8	236	7.7			
14	13.1	247	7.7			
15	12.5	247	7.8			
16	12.1	248	7.8			
17	11.6	249	7.8			
18	11.2	250	7.8			
19	10.7	252	7.8			
20	10.3	252	7.8			
21	9.9	252	7.8			
22	9.6	252	7.8			
23	9.3	252	7.8			
24	9.1	252	7.9			
25	8.8	251	7.8			
26	8.6	251	7.8			
27	8.4	251	7.8			
28	8.2	251	7.8			
29	8.0	251	7.8			
30	7.8	251	7.8			

Table A3. South Holston Reservoir, water quality summary at SFHRM 58, July 19, 2005.

Depth (m)	Temp ©	Cond	DO	Site	Secchi (m)	Time
0	26.9	218	8.8	HRM58	3.0	1105
1	26.9	220	8.8			
2	26.8	221	8.8			
3	26.8	221	8.8			
4	26.7	222	8.8			
5	25.1	247	8.5			
6	23.4	270	7.9			
7	21.9	280	7.7			
8	20.5	276	7.6			
9	18.7	254	7.5			
10	17.0	251	7.5			
11	15.4	249	7.6			
12	14.5	248	7.6			
13	13.7	247	7.6			
14	12.9	247	7.0			
15	12.4	247	7.4			
16	11.9	248	7.7			
17	11.3	250	7.7			
18	11.0	250	7.7			
19	10.5	252	7.7			
20	10.1	252	7.7			
21	9.7	252	7.8			
22	9.4	252	7.8			
23	9.1	252	7.8			
24	8.9	252	7.8			
25	8.7	252	7.8			
26	8.5	252	7.7			
27	8.3	252	7.7			
28	8.1	252	7.7			
29	7.9	252	7.7			
30	7.7	252	7.7			

Table A4. South Holston Reservoir, water quality summary at SFHRM 64, July 19, 2005.

Depth (m)	Temp ©	Cond	DO	Site	Secchi (m)	Time
0	27.1	232	9.0	HRM64	2.0	1159
1	27.1	234	9.0			
2	27.0	234	9.0			
3	26.9	234	9.0			
4	26.9	235	9.0			
5	25.6	266	8.5			
6	23.5	283	8.0			
7	22.4	282	7.8			
8	20.4	279	7.7			
9	18.5	268	7.6			
10	16.8	262	7.6			
11	15.9	259	7.6			
12	14.5	254	7.6			
13	13.5	254	7.7			
14	13.0	247	7.7			
15	12.3	243	7.7			
16	11.7	243	7.8			
17	11.2	242	7.8			
18	10.9	243	7.8			
19	10.6	245	7.8			
20	10.3	246	7.8			
21	10.0	249	7.8			
22	9.5	250	7.8			
23	9.3	251	7.8			
24	9.0	251	7.8			
25	8.8	253	7.8			
26	8.6	254	7.7			
27	8.4	256	7.7			
28	8.3	273	7.4			
29						
30						

Table A5. South Holston Reservoir, water quality summary at SFHRM 51, August 5, 2005.

Depth (m)	Temp ©	Cond	DO	Site	Secchi (m)	Time
0	28.4	213	8.4	HRM51	3.8	0950
1	28.4	213	8.7			
2	28.3	214	8.8			
3	28.3	214	8.9			
4	28.2	212	8.9			
5	28.0	213	8.9			
6	25.6	224	8.9			
7	23.4	241	8.5			
8	21.4	242	8.1			
9	19.6	236	7.8			
10	17.8	232	7.6			
11	16.6	234	7.5			
12	15.4	235	7.4			
13	14.4	235	7.5			
14	13.5	234	7.5			
15	13.0	235	7.5			
16	12.4	236	7.5			
17	12.0	236	7.6			
18	11.5	237	7.6			
19	11.1	238	7.6			
20	10.7	239	7.6			
21	10.4	239	7.6			
22	10.0	240	7.7			
23	9.6	240	7.6			
24	9.3	240	7.6			
25	9.1	240	7.6			
26	8.8	239	7.7			
27	8.6	238	7.7			
28	8.4	238	7.7			
29	8.2	238	7.6			
30	8.0	238	7.6			

Table A6. South Holston Reservoir, water quality summary at SFHRM 55, August 5, 2005.

Depth (m)	Temp ©	Cond	DO	Site	Secchi (m)	Time
0	28.5	209	9.0	HRM55	3.7	1045
1	28.3	211	9.0			
2	28.2	213	9.0			
3	28.1	214	9.0			
4	28.1	214	9.0			
5	27.5	215	9.0			
6	25.9	234	8.9			
7	23.4	258	8.1			
8	20.9	250	7.6			
9	19.1	241	7.4			
10	17.6	238	7.4			
11	16.5	237	7.4			
12	15.1	238	7.4			
13	14.2	236	7.4			
14	13.3	236	7.4			
15	12.8	236	7.5			
16	12.3	236	7.5			
17	12.0	237	7.6			
18	11.5	238	7.6			
19	11.1	239	7.6			
20	10.8	239	7.6			
21	10.4	240	7.6			
22	10.0	240	7.6			
23	9.7	240	7.6			
24	9.3	240	7.6			
25	9.0	239	7.6			
26	8.8	239	7.6			
27	8.5	239	7.6			
28	8.3	239	7.6			
29	8.2	239	7.6			
30	8.0	239	7.6			

Table A7. South Holston Reservoir, water quality summary at SFHRM 58, August 5, 2005.

Depth (m)	Temp ©	Cond	DO	Site	Secchi (m)	Time
0	28.7	211	9.1	HRM58	2.6	1125
1	28.4	214	9.1			
2	28.2	215	9.1			
3	28.1	215	9.0			
4	28.0	215	9.1			
5	27.6	216	9.1			
6	25.6	244	8.7			
7	23.4	276	7.7			
8	21.9	271	7.6			
9	19.8	257	7.5			
10	18.0	243	7.4			
11	16.4	241	7.4			
12	15.5	241	7.4			
13	14.4	237	7.4			
14	13.6	237	7.5			
15	13.0	237	7.5			
16	12.4	237	7.6			
17	12.0	237	7.6			
18	11.6	237	7.6			
19	11.1	238	7.6			
20	10.7	239	7.6			
21	10.3	240	7.6			
22	10.0	241	7.6			
23	9.7	240	7.6			
24	9.4	240	7.6			
25	9.2	240	7.6			
26	8.8	241	7.6			
27	8.6	240	7.6			
28	8.4	240	7.6			
29	8.2	240	7.5			
30	8.0	240	7.5			

Table A8. South Holston Reservoir, water quality summary at SFHRM 64, August 5, 2005.

Depth (m)	Temp ©	Cond	DO	Site	Secchi (m)	Time
0	28.7	220	9.0	HRM64	1.6	1205
1	28.1	220	9.0			
2	28.0	220	9.0			
3	27.8	221	9.0			
4	27.4	222	9.0			
5	26.4	249	8.3			
6	25.3	271	7.9			
7	23.8	288	7.6			
8	22.9	282	7.5			
9	20.7	274	7.5			
10	18.4	261	7.4			
11	16.5	256	7.4			
12	15.2	250	7.5			
13	14.2	243	7.5			
14	13.4	240	7.5			
15	12.7	237	7.5			
16	12.2	234	7.6			
17	11.8	233	7.5			
18	11.3	231	7.5			
19	11.0	231	7.6			
20	10.5	234	7.5			
21	10.1	236	7.5			
22	9.9	236	7.6			
23	9.6	238	7.6			
24	9.4	238	7.6			
25	9.1	240	7.5			
26	8.9	243	7.4			
27	8.7	245	7.4			
28	8.5	249	7.3			
29						
30						

Table A9. South Holston Reservoir, water quality summary at SFHRM 51, September 13, 2005.

Depth (m)	Temp ©	Cond	DO	Site	Secchi (m)	Time
0	25.0	252	8.7	HRM51	3.8	1020
1	25.0	252	8.7			
2	25.0	252	8.7			
3	25.0	252	8.7			
4	24.9	252	8.7			
5	24.9	252	8.7			
6	24.0	252	8.7			
7	24.9	252	8.7			
8	24.8	253	8.7			
9	24.3	258	8.5			
10	21.5	269	7.8			
11	19.6	269	7.3			
12	17.6	265	7.2			
13	16.3	264	7.1			
14	15.2	262	7.2			
15	14.4	261	7.2			
16	13.7	261	7.3			
17	13.1	261	7.3			
18	12.5	261	7.3			
19	12.2	260	7.4			
20	11.8	261	7.4			
21	11.4	262	7.4			
22	11.1	262	7.4			
23	10.8	262	7.4			
24	10.5	263	7.5			
25	10.1	263	7.5			
26	9.8	263	7.5			
27	9.5	263	7.4			
28	9.1	263	7.4			
29	8.7	263	7.5			
30	8.6	262	7.5			

Table A10. South Holston Reservoir, water quality summary at SFHRM 55, September 13, 2005.

Depth (m)	Temp ©	Cond	DO	Site	Secchi (m)	Time
0	25.1	249	8.8	HRM55	3.8	1105
1	25.0	250	8.8			
2	24.9	251	8.8			
3	24.9	251	8.8			
4	24.9	252	8.8			
5	24.9	253	8.8			
6	24.9	253	8.8			
7	24.8	254	8.8			
8	24.8	255	8.7			
9	23.7	270	8.1			
10	21.8	271	7.7			
11	19.4	275	7.4			
12	18.2	270	7.2			
13	16.9	270	7.2			
14	15.3	267	7.2			
15	14.5	264	7.3			
16	13.6	263	7.3			
17	13.2	263	7.3			
18	12.7	262	7.4			
19	12.3	262	7.4			
20	11.9	263	7.4			
21	11.4	264	7.5			
22	11.1	265	7.5			
23	10.6	266	7.5			
24	10.5	265	7.5			
25	10.1	265	7.4			
26	9.9	264	7.4			
27	9.6	265	7.5			
28	9.2	264	7.5			
29	8.9	264	7.5			
30	8.7	264	7.5			

Table A11. South Holston Reservoir, water quality summary at SFHRM 58, September 13, 2005.

Depth (m)	Temp ©	Cond	DO	Site	Secchi (m)	Time
0	25.2	254	8.7	HRM58	2.6	1140
1	24.9	258	8.6			
2	24.9	257	8.6			
3	24.7	257	8.6			
4	24.7	258	8.6			
5	23.6	259	8.6			
6	23.6	259	8.6			
7	23.6	259	8.6			
8	23.6	260	8.6			
9	23.6	282	7.8			
10	21.9	294	7.4			
11	20.2	288	7.3			
12	18.2	274	7.2			
13	17.1	274	7.2			
14	15.3	270	7.2			
15	14.4	268	7.2			
16	13.9	266	7.2			
17	13.2	264	7.3			
18	12.8	263	7.3			
19	12.2	263	7.3			
20	11.8	263	7.4			
21	11.3	264	7.4			
22	11.1	263	7.4			
23	10.7	264	7.4			
24	10.3	264	7.4			
25	10.1	264	7.4			
26	9.8	264	7.4			
27	9.6	264	7.4			
28	9.0	266	7.4			
29	8.8	265	7.3			
30	8.7	265	7.3			

No measurements taken at SFHRM 64 in September 2005.

Figure A1. S. Holston Reservoir water quality data at HRM 51, July 2005.

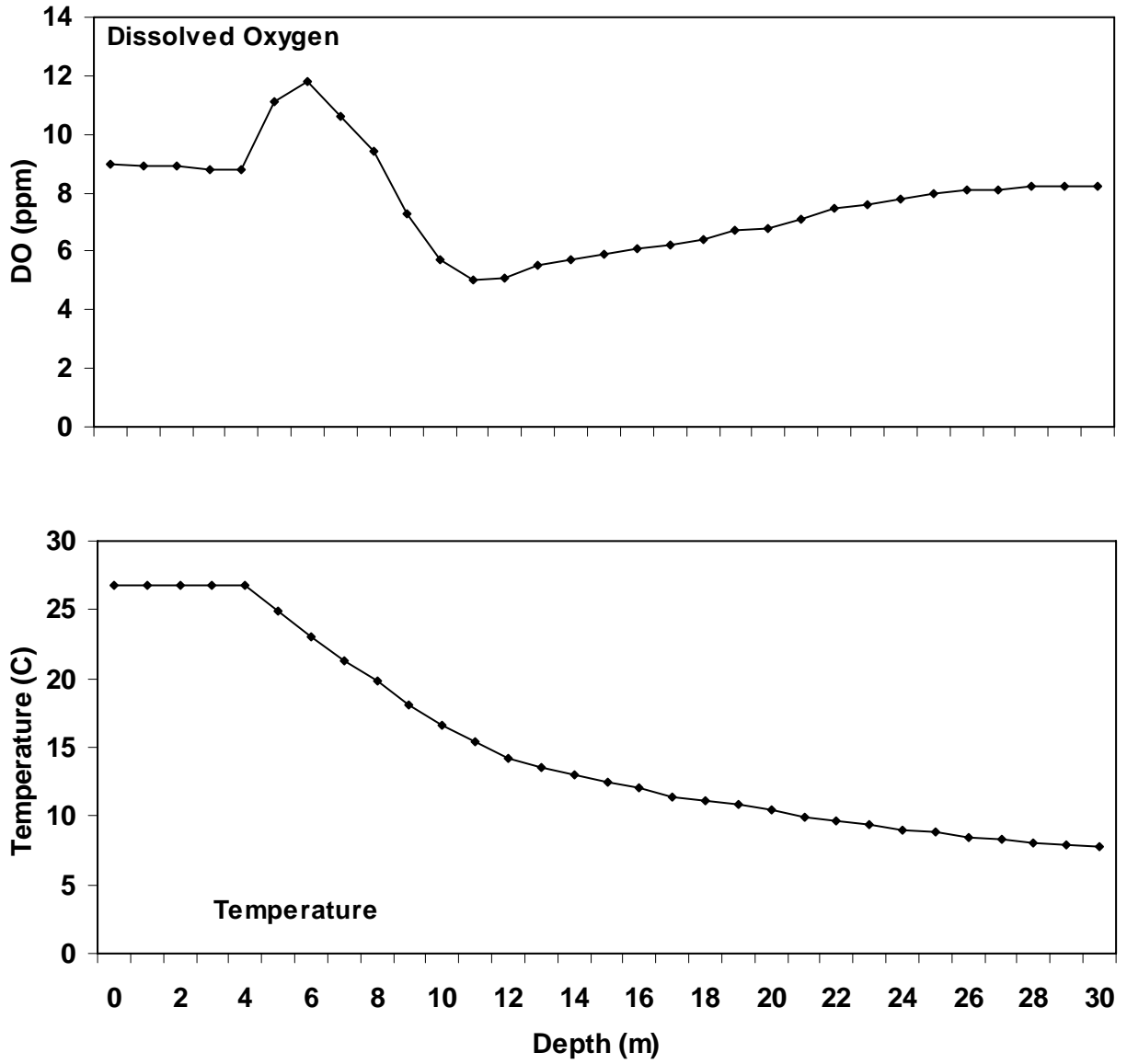


Figure A2. S. Holston Reservoir water quality data at HRM 55, July 2005.

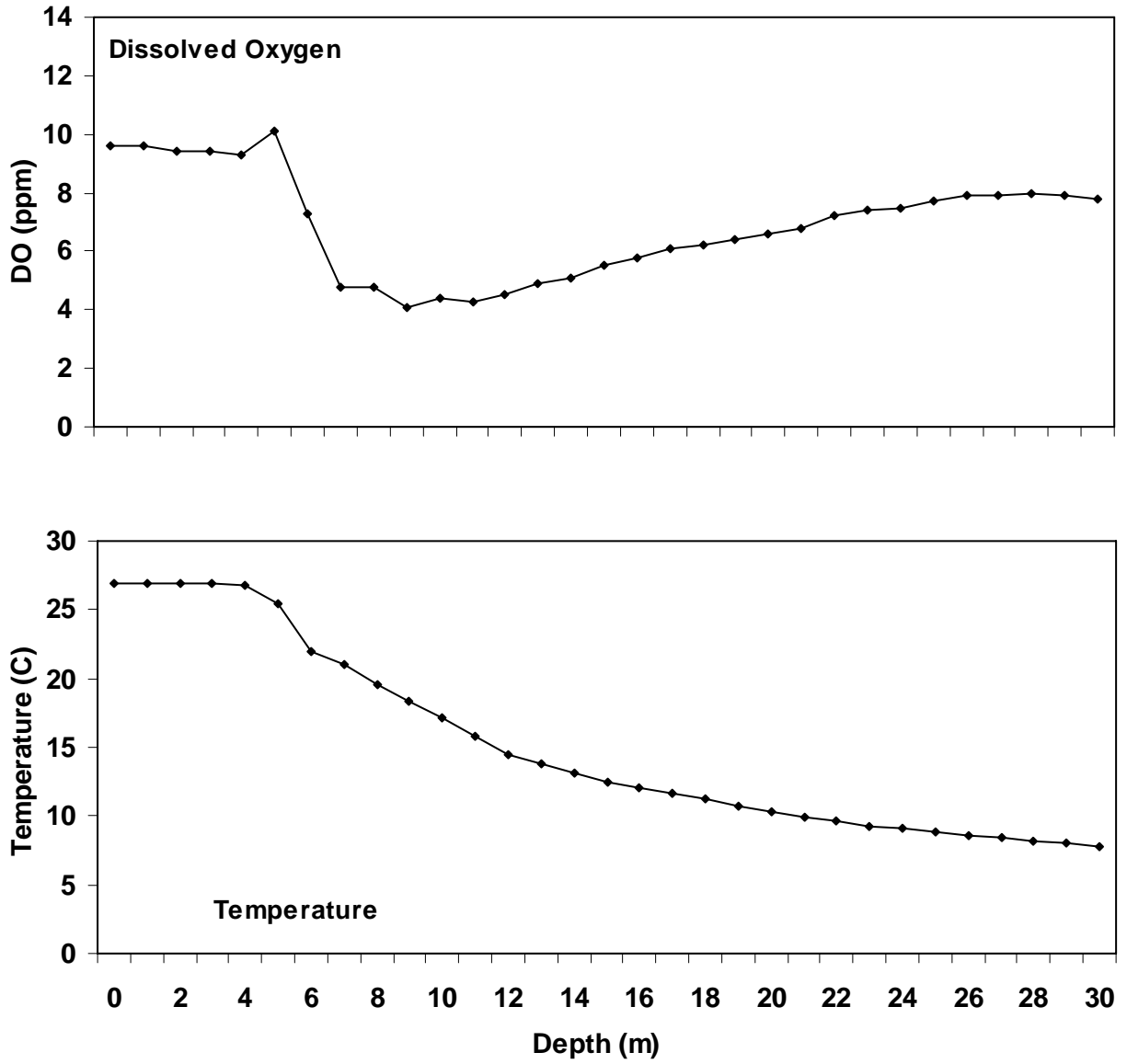


Figure A3. S. Holston Reservoir water quality data at HRM 58, July 2005.

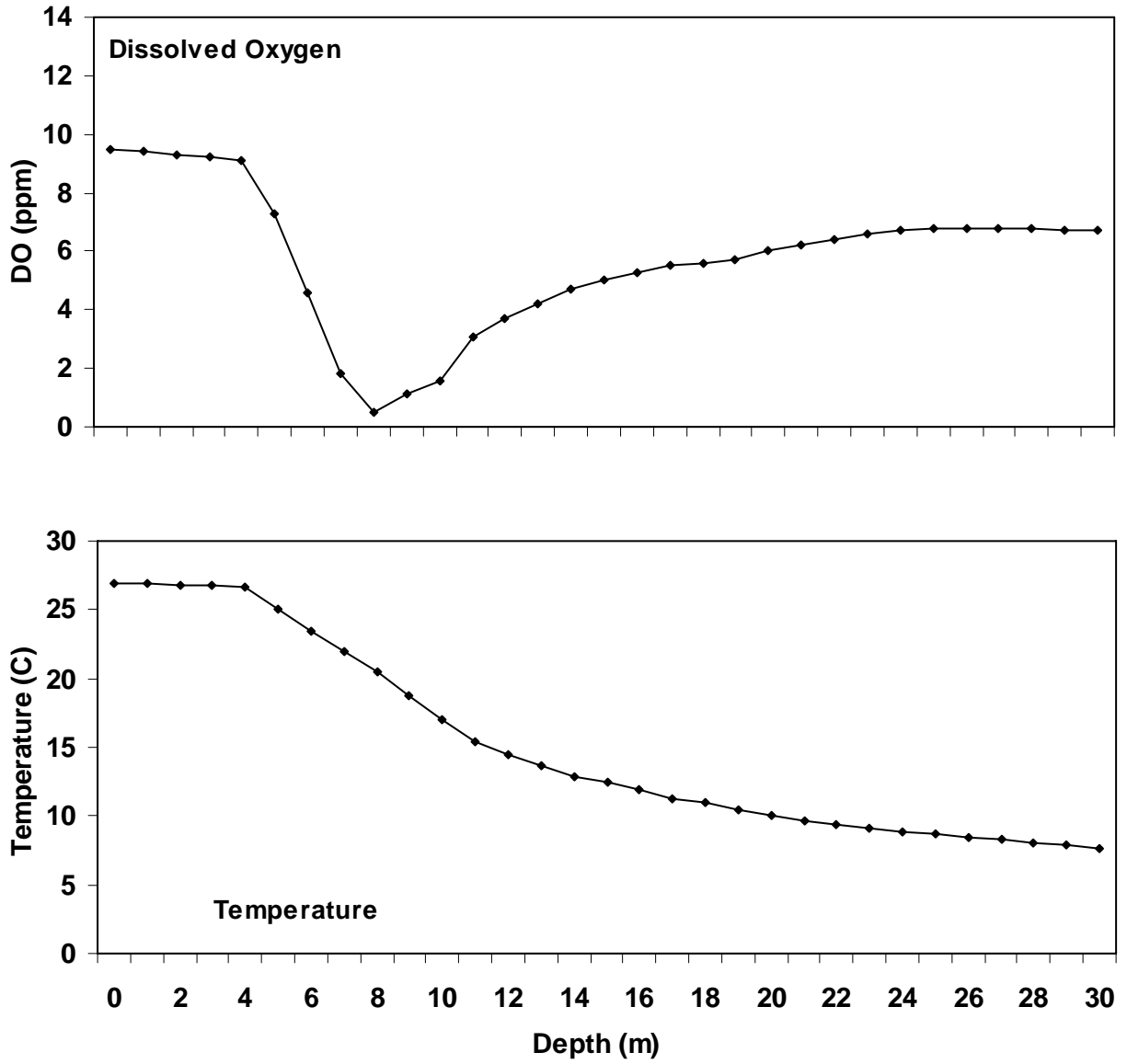


Figure A4. S. Holston Reservoir water quality data at HRM 64, July 2005.

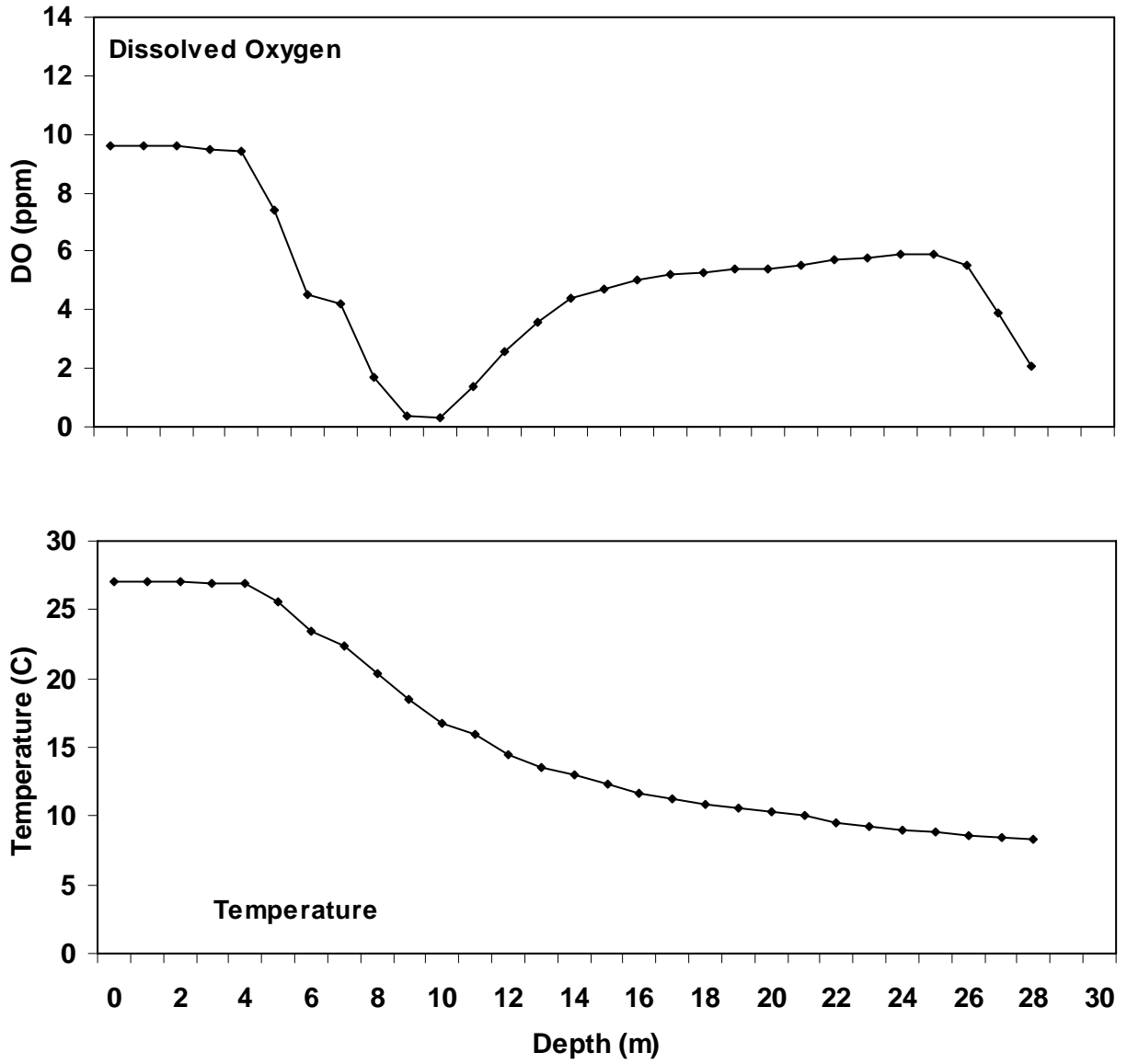


Figure A4. S. Holston Reservoir water quality data at HRM 51, August 2005.

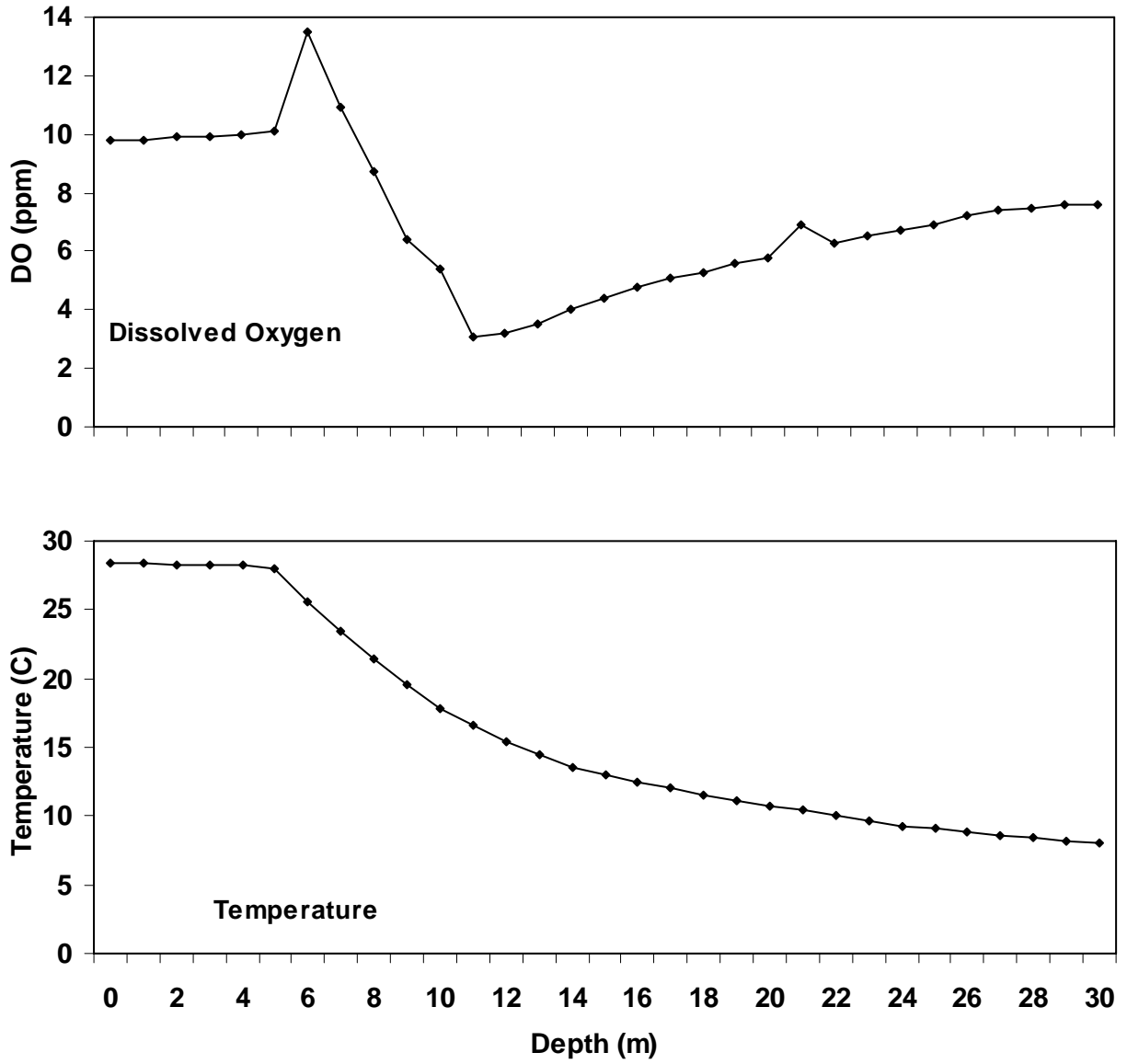


Figure A5. S. Holston Reservoir water quality data at HRM 55, August 2005.

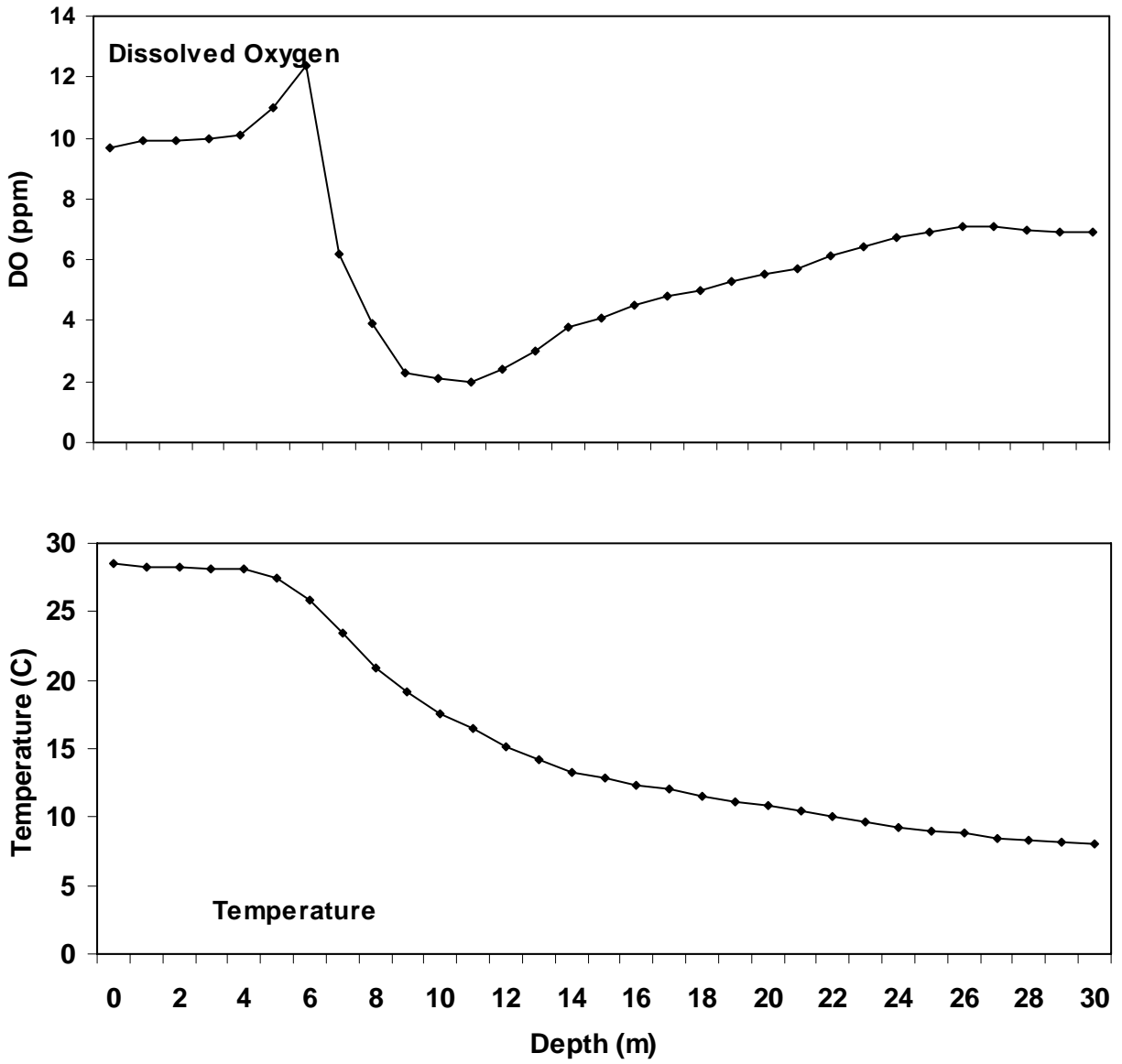


Figure A6. S. Holston Reservoir water quality data at HRM 58, August 2005.

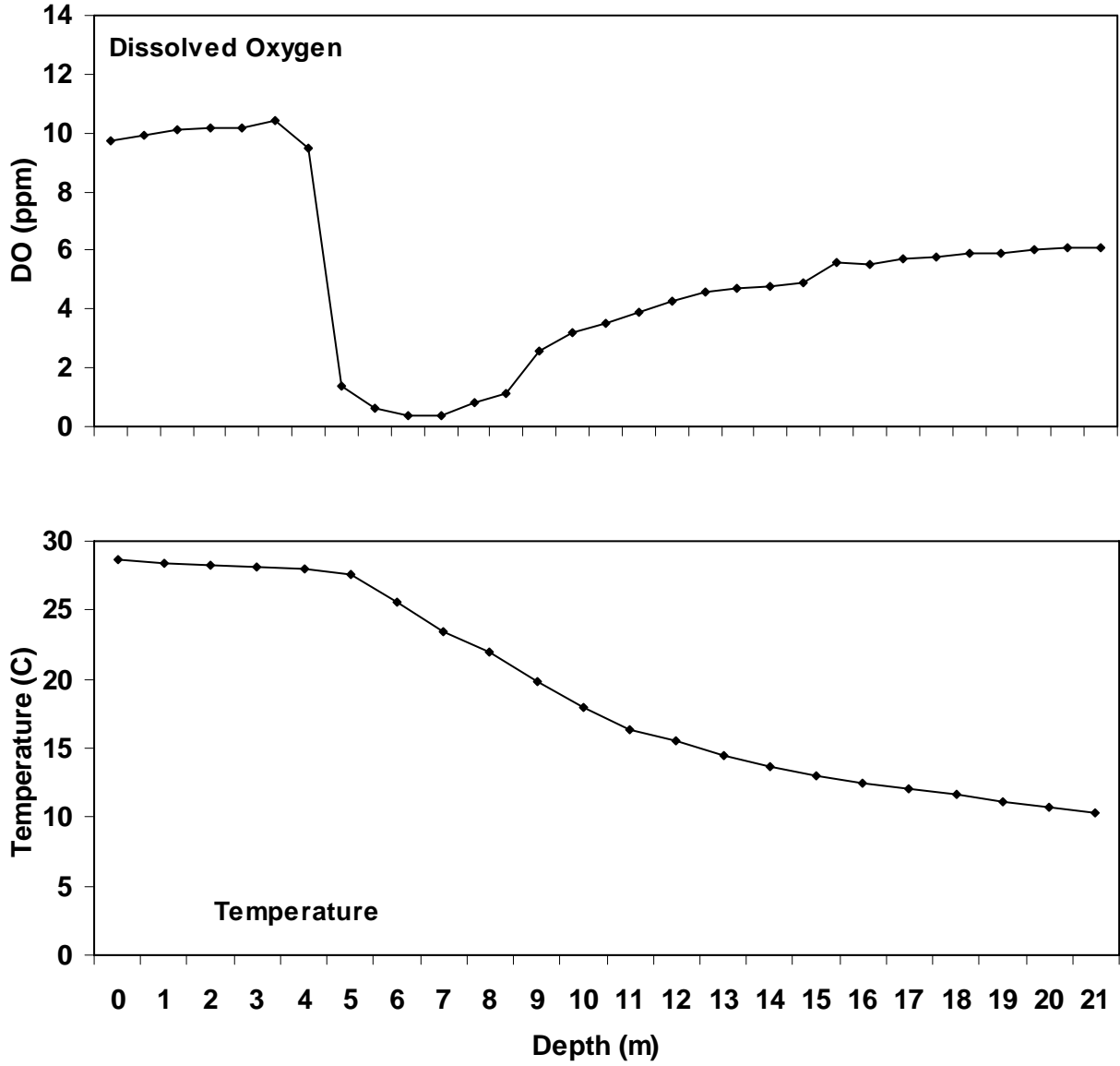


Figure A7. S. Holston Reservoir water quality data at HRM 64, August 2005.

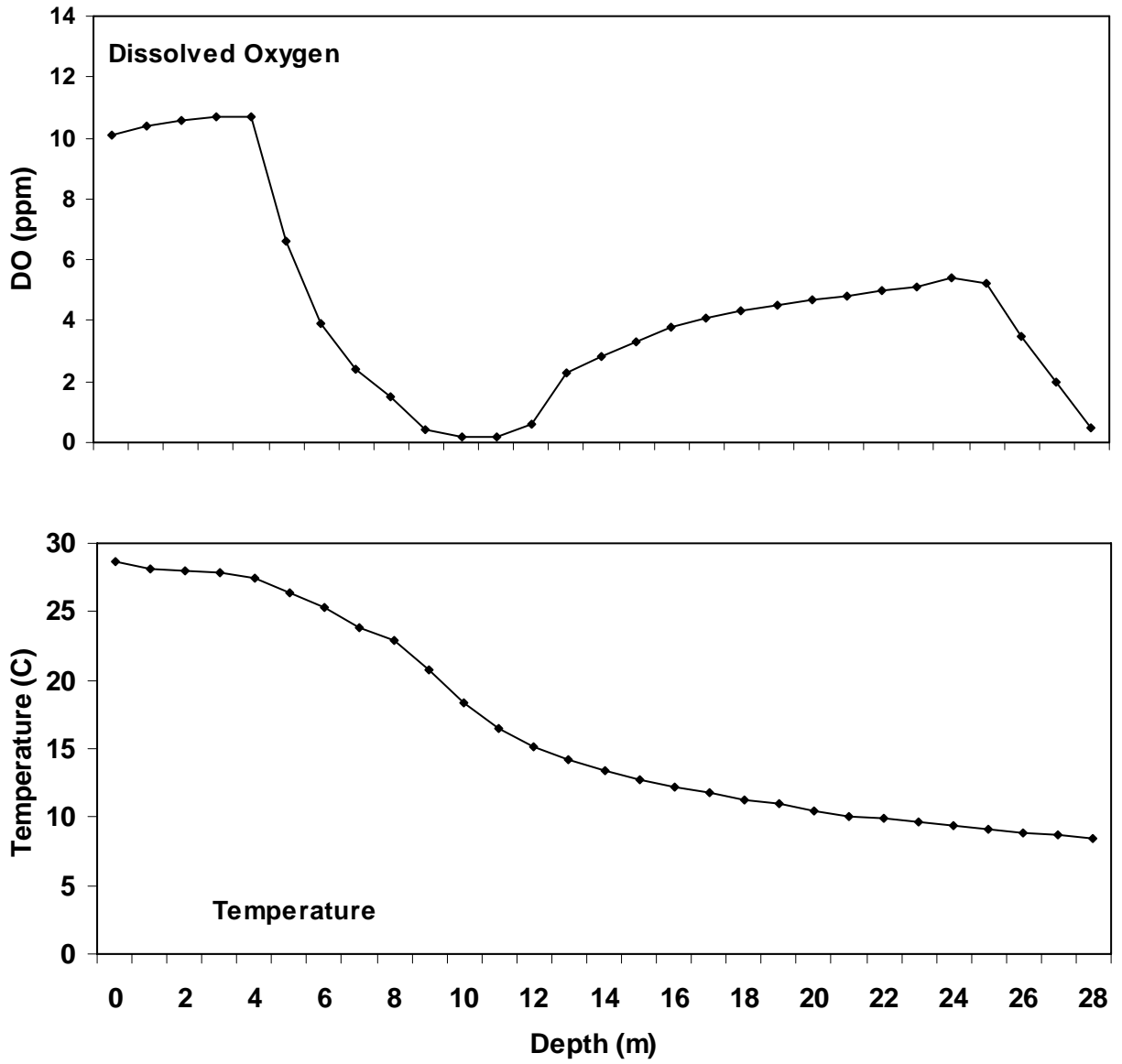


Figure A8. S. Holston Reservoir water quality data at HRM 51, September 2005.

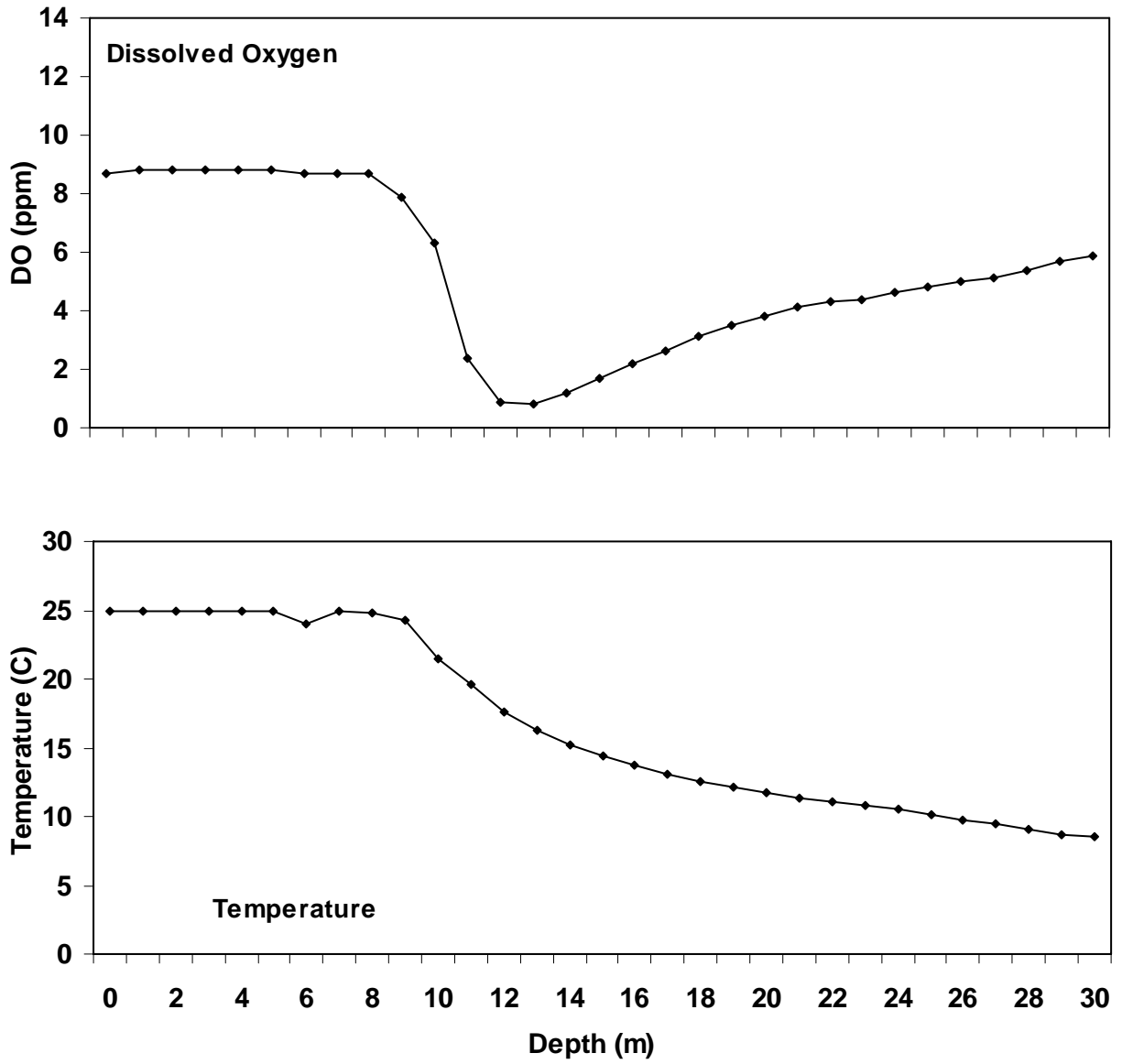


Figure A9. S. Holston Reservoir water quality data at HRM 55, September 2005.

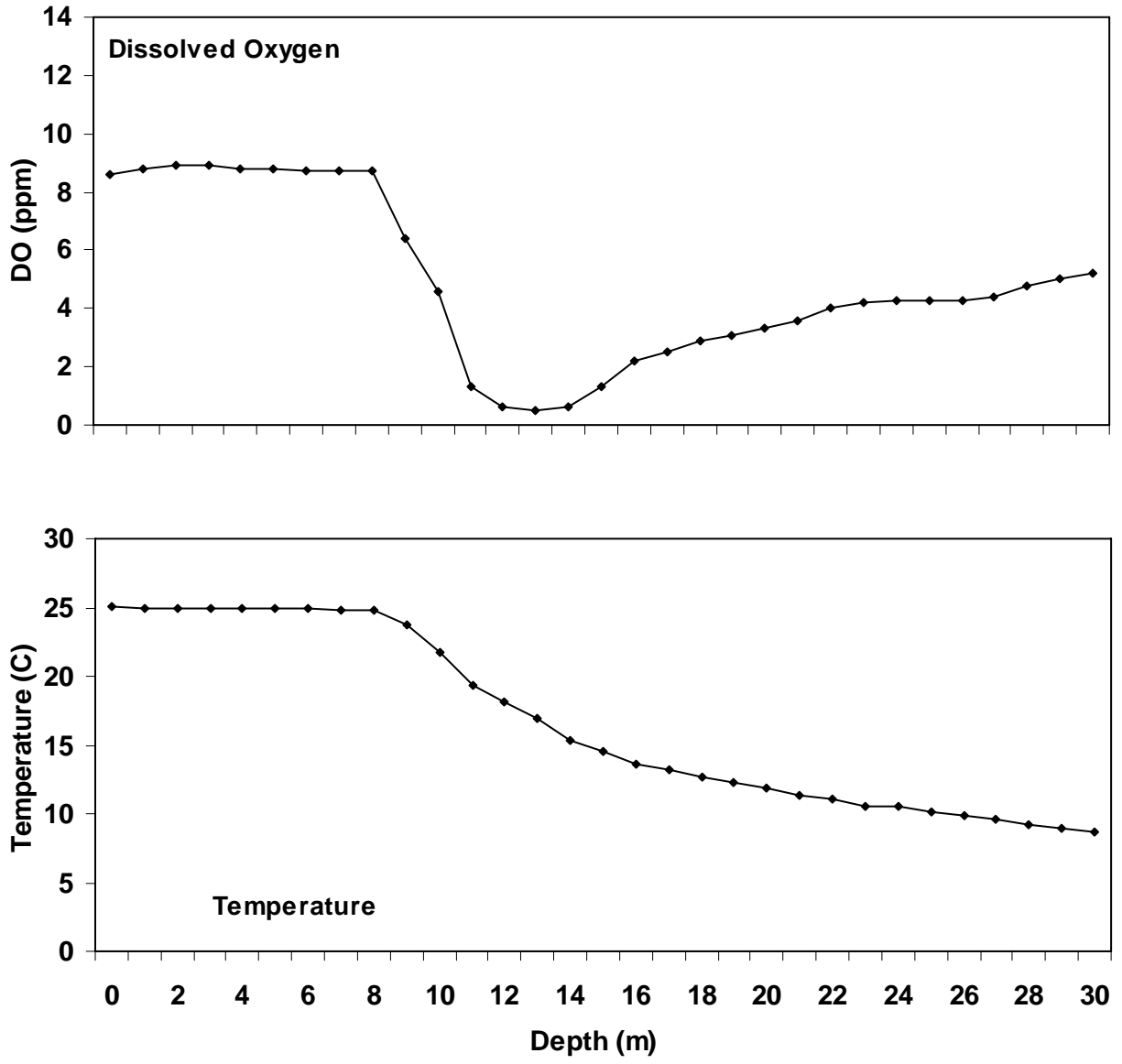
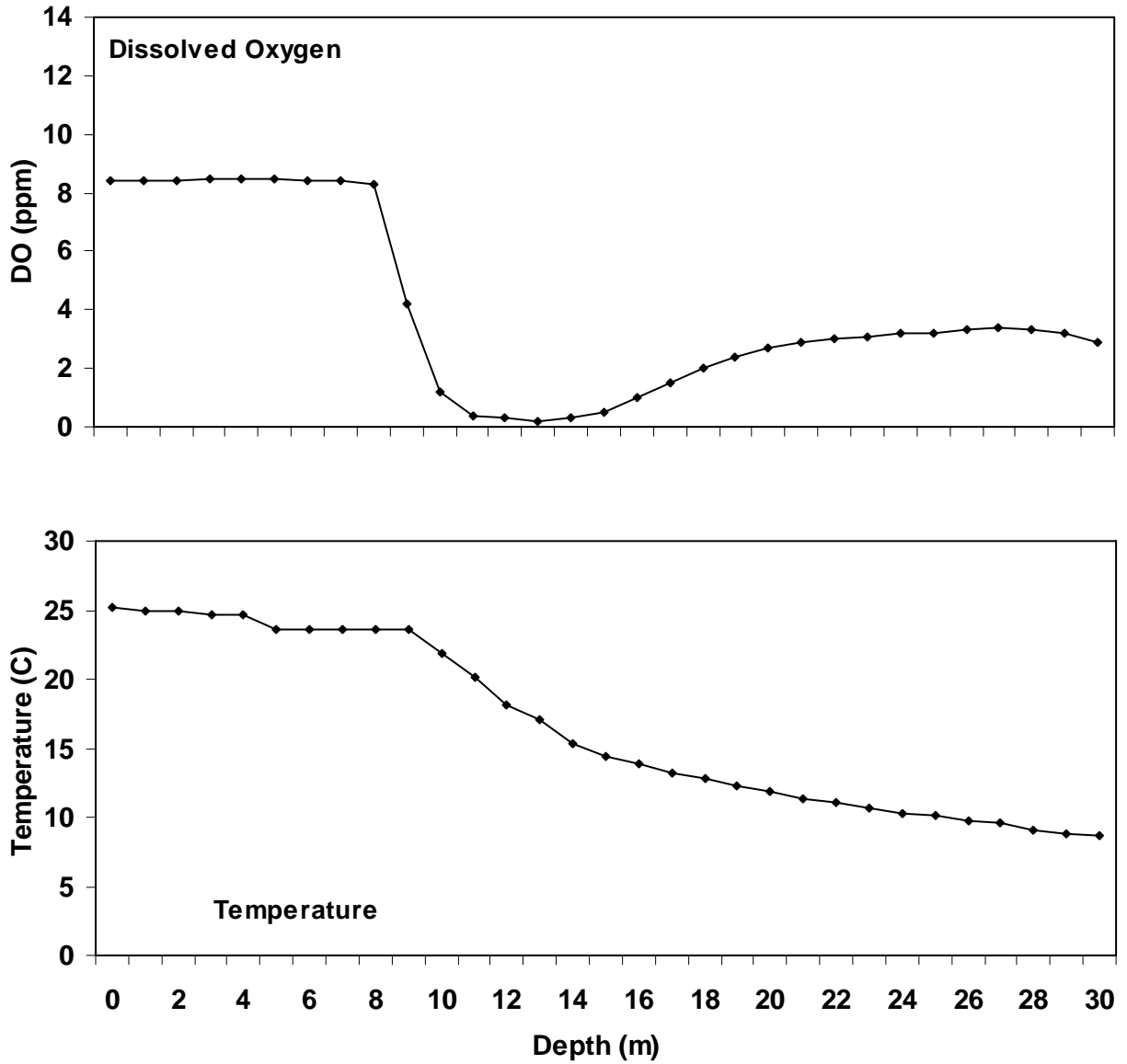


Figure A10. S. Holston Reservoir water quality data at HRM 58, September 2005.



Appendix B
South Holston Daily Elevations

Table B1. S. Holston Reservoir elevation data for 2005. Data is courtesy of TVA.

Elevation	Month	Day	Elevation	Month	Day	Elevation	Month	Day
0.00	January	1	0.00	February	24	0.00	April	19
0.00	January	2	0.00	February	25	0.00	April	20
0.00	January	3	0.00	February	26	0.00	April	21
0.00	January	4	0.00	February	27	0.00	April	22
0.00	January	5	0.00	February	28	0.00	April	23
0.00	January	6	0.00	March	1	0.00	April	24
0.00	January	7	0.00	March	2	0.00	April	25
0.00	January	8	0.00	March	3	0.00	April	26
0.00	January	9	0.00	March	4	0.00	April	27
0.00	January	10	0.00	March	5	0.00	April	28
0.00	January	11	0.00	March	6	0.00	April	29
0.00	January	12	0.00	March	7	0.00	April	30
0.00	January	13	0.00	March	8	0.00	May	1
0.00	January	14	0.00	March	9	0.00	May	2
0.00	January	15	0.00	March	10	0.00	May	3
0.00	January	16	0.00	March	11	0.00	May	4
0.00	January	17	0.00	March	12	0.00	May	5
0.00	January	18	0.00	March	13	0.00	May	6
0.00	January	19	0.00	March	14	0.00	May	7
0.00	January	20	0.00	March	15	0.00	May	8
0.00	January	21	0.00	March	16	0.00	May	9
0.00	January	22	0.00	March	17	0.00	May	10
0.00	January	23	0.00	March	18	0.00	May	11
0.00	January	24	0.00	March	19	0.00	May	12
0.00	January	25	0.00	March	20	0.00	May	13
0.00	January	26	0.00	March	21	0.00	May	14
0.00	January	27	0.00	March	22	0.00	May	15
0.00	January	28	0.00	March	23	0.00	May	16
0.00	January	29	0.00	March	24	0.00	May	17
0.00	January	30	0.00	March	25	0.00	May	18
0.00	January	31	0.00	March	26	0.00	May	19
0.00	February	1	0.00	March	27	0.00	May	20
0.00	February	2	0.00	March	28	0.00	May	21
0.00	February	3	0.00	March	29	0.00	May	22
0.00	February	4	0.00	March	30	0.00	May	23
0.00	February	5	0.00	March	31	0.00	May	24
0.00	February	6	0.00	April	1	0.00	May	25
0.00	February	7	0.00	April	2	0.00	May	26
0.00	February	8	0.00	April	3	0.00	May	27
0.00	February	9	0.00	April	4	0.00	May	28
0.00	February	10	0.00	April	5	0.00	May	29
0.00	February	11	0.00	April	6	0.00	May	30
0.00	February	12	0.00	April	7	0.00	May	31
0.00	February	13	0.00	April	8	0.00	June	1
0.00	February	14	0.00	April	9	0.00	June	2
0.00	February	15	0.00	April	10	0.00	June	3
0.00	February	16	0.00	April	11	0.00	June	4
0.00	February	17	0.00	April	12	0.00	June	5
0.00	February	18	0.00	April	13	0.00	June	6
0.00	February	19	0.00	April	14	0.00	June	7
0.00	February	20	0.00	April	15	0.00	June	8
0.00	February	21	0.00	April	16	0.00	June	9
0.00	February	22	0.00	April	17	0.00	June	10
0.00	February	23	0.00	April	18	0.00	June	11

Table B1. Continued.

Elevation	Month	Day	Elevation	Month	Day	Elevation	Month	Day
0.00	June	12	0.00	August	5	0.00	September	28
0.00	June	13	0.00	August	6	0.00	September	29
0.00	June	14	0.00	August	7	0.00	September	30
0.00	June	15	0.00	August	8	0.00	October	1
0.00	June	16	0.00	August	9	0.00	October	2
0.00	June	17	0.00	August	10	0.00	October	3
0.00	June	18	0.00	August	11	0.00	October	4
0.00	June	19	0.00	August	12	0.00	October	5
0.00	June	20	0.00	August	13	0.00	October	6
0.00	June	21	0.00	August	14	0.00	October	7
0.00	June	22	0.00	August	15	0.00	October	8
0.00	June	23	0.00	August	16	0.00	October	9
0.00	June	24	0.00	August	17	0.00	October	10
0.00	June	25	0.00	August	18	0.00	October	11
0.00	June	26	0.00	August	19	0.00	October	12
0.00	June	27	0.00	August	20	0.00	October	13
0.00	June	28	0.00	August	21	0.00	October	14
0.00	June	29	0.00	August	22	0.00	October	15
0.00	June	30	0.00	August	23	0.00	October	16
0.00	July	1	0.00	August	24	0.00	October	17
0.00	July	2	0.00	August	25	0.00	October	18
0.00	July	3	0.00	August	26	0.00	October	19
0.00	July	4	0.00	August	27	0.00	October	20
0.00	July	5	0.00	August	28	0.00	October	21
0.00	July	6	0.00	August	29	0.00	October	22
0.00	July	7	0.00	August	30	0.00	October	23
0.00	July	8	0.00	August	31	0.00	October	24
0.00	July	9	0.00	September	1	0.00	October	25
0.00	July	10	0.00	September	2	0.00	October	26
0.00	July	11	0.00	September	3	0.00	October	27
0.00	July	12	0.00	September	4	0.00	October	28
0.00	July	13	0.00	September	5	0.00	October	29
0.00	July	14	0.00	September	6	0.00	October	30
0.00	July	15	0.00	September	7	0.00	October	31
0.00	July	16	0.00	September	8	0.00	November	1
0.00	July	17	0.00	September	9	0.00	November	2
0.00	July	18	0.00	September	10	0.00	November	3
0.00	July	19	0.00	September	11	0.00	November	4
0.00	July	20	0.00	September	12	0.00	November	5
0.00	July	21	0.00	September	13	0.00	November	6
0.00	July	22	0.00	September	14	0.00	November	7
0.00	July	23	0.00	September	15	0.00	November	8
0.00	July	24	0.00	September	16	0.00	November	9
0.00	July	25	0.00	September	17	0.00	November	10
0.00	July	26	0.00	September	18	0.00	November	11
0.00	July	27	0.00	September	19	0.00	November	12
0.00	July	28	0.00	September	20	0.00	November	13
0.00	July	29	0.00	September	21	0.00	November	14
0.00	July	30	0.00	September	22	0.00	November	15
0.00	July	31	0.00	September	23	0.00	November	16
0.00	August	1	0.00	September	24	0.00	November	17
0.00	August	2	0.00	September	25	0.00	November	18
0.00	August	3	0.00	September	26	0.00	November	19
0.00	August	4	0.00	September	27	0.00	November	20

Table B1. Continued.

Elevation	Month	Day
1704.88	November	21
1704.57	November	22
1704.62	November	23
1704.66	November	24
1704.68	November	25
1704.69	November	26
1704.75	November	27
1704.83	November	28
1704.86	November	29
1705.10	November	30
1705.21	December	1
1705.28	December	2
1705.37	December	3
1705.51	December	4
1705.54	December	5
1705.41	December	6
1705.35	December	7
1705.04	December	8
1704.80	December	9
1704.95	December	10
1704.95	December	11
1705.06	December	12
1705.07	December	13
1704.74	December	14
1704.88	December	15
1705.05	December	16
1705.18	December	17
1705.19	December	18
1705.11	December	19
1704.82	December	20
1704.51	December	21
1704.30	December	22
1704.28	December	23
1704.36	December	24
1704.41	December	25
1704.13	December	26
1703.59	December	27
1703.63	December	28
1703.77	December	29
1703.94	December	30
1704.09	December	31

Figure B1. S. Holston Reservoir daily reservoir elevations for 2005 (TVA data).

