Boone Reservoir

Annual Report 2009

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Table of contents

Page

Boone Reservoir

Description

Surface Area: 4,520 acres
Counties: Sullivan, Washington
Full Pool Elevation: 1384 feet above mean sea level
Maximum Depth: 122 feet
Mean Chlorophyll (Forebay): 10.8 parts per million
Trophic Status (Forebay): Mesotrophic
Hydraulic Retention Time: 38 days
Total Fishing Effort: N/A in 2009

Shoreline Distance: 127 miles
Drainage Area: 1840 square miles
Mean Annual Fluctuation: 54 feet
Thermocline Depth: 7 feet
Shoreline Development: 13%
Trophic Index, Carlson (1977): 53.9
Reservoir Age: 57 years (dam completed 1952)
Total Value by Anglers: N/A in 2009

Habitat Enhancement and Monitoring

	New Sites			Renovated Sites			Expanded Sites		
Location	**Number**	**Units**	**Acres**	**Number**	**Units**	**Acres**	**Number**	**Units**	**Acres**
SFHRM 20.10 L*				1	50	1.00			
SFHRM 20.30 R*				1	50	1.00			
SFHRM 20.40 R*				1	50	1.00			
SFHRM 20.55 R*				1	50	1.00			
SFHRM 19.75 L*				1	100	2.00			
WRM 0.75 L*				1	50	1.00			
WRM 0.80 L*				1	50	1.00			
WRM 11.00 L*				1	14	0.28			
Total	***0***	***0***	***0***	***8***	***414***	***8***	***0***	***0***	***0***

*Christmas trees with block

Parameter	Date Collected
Temperature, pH, Conductivity, and D.O.	July, August, September

Black Bass

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Angling Pressure (creel survey data)												
All Black Bass	(hrs)	no survey	63,918	77,967	no survey	81,983	63,918	51,416	49,352	86,235	no survey	67,827
	(hrs/acre)	no survey	14.1	17.2	no survey	18.1	14.1	11.4	10.9	19.1	no survey	15
Any Black Bass	(hrs)	no survey	54,695	77,555	no survey	79,864	62,545	49,785	47,724	84,872	no survey	65,291
	(hrs/acre)	no survey	12.1	17.2	no survey	17.7	13.8	11.0	10.6	18.8	no survey	14
Largemouth Bass	(hrs)	no survey	1,573	0	no survey	278	178	146	0	236	no survey	344
	(hrs/acre)	no survey	0.3	0.0	no survey	0.1	0.0	0.0	0.0	0.1	no survey	0
Smallmouth Bass	(hrs)	no survey	7,650	412	no survey	1,841	1,195	1,485	1,628	1,127	no survey	2,191
	(hrs/acre)	no survey	1.7	0.1	no survey	0.4	0.3	0.3	0.4	0.2	no survey	0
Spotted Bass	(hrs)	no survey	0	0	no survey	0	0	0	0	0	no survey	0
	(hrs/acre)	no survey	0.0	0.0	no survey	0.0	0.0	0.0	0.0	0.0	no survey	0
Tournaments (BITE program & creel survey data)												
# Tournaments (BITE)			10	6	2	none reported	none reported	2	none reported	none reported	3	4.6
Pounds/Angler Day (BITE)			2.07	2.39	3.09			2.84			4.64	3.01
Bass/Angler Day (BITE)			0.86	0.96	1.53			1.19			2.17	1.34
Value of Fishery (creel survey data - trip expenditures)												
All Black Bass		no survey	$126,300	$153,430	no survey	$189,070	$139,480	$109,680	$109,650	$319,140	no survey	$163,821
Any Black Bass		no survey	$104,710	$152,680	no survey	$185,500	$136,730	$106,360	$106,840	$304,620	no survey	$156,777
Largemouth Bass		no survey	$2,240	$0	no survey	$600	$270	$620	$0	$2,360	no survey	$870
Smallmouth Bass		no survey	$19,350	$750	no survey	$2,970	$2,480	$2,700	$2,810	$12,160	no survey	$6,174
Spotted Bass		no survey	$0	$0	no survey	$0	$0	$0	$0	$0	no survey	$0

Largemouth Bass

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Recruitment (electrofishing data - CPUE = # fish/hour)											
Age-1 CPUE	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	#DIV/0!
Substock CPUE	2.9	11.2	10.8	8.9	0.0	3.1	3.7	13.0	18.0	20.0	9.2
Density (electrofishing data - CPUE = # fish/hour)											
PSD	83%	58%	63%	77%	91%	86%	89%	68%	72%	70%	75.7%
RSD - Preferred	59%	28%	29%	35%	57%	48%	64%	46%	35%	38%	43.9%
CPUE	46.3	66.3	63.2	70.5	39.1	58.8	38.4	58.3	108.0	95.4	64.4
CPUE ≥ Stock	43.4	55.1	52.3	61.5	39.2	55.7	34.7	44.8	89.7	75.4	55.2
CPUE ≥ MSL (15")	22.2	13.3	12.7	18.0	22.5	16.7	20.4	19.7	28.6	24.3	19.8
Growth (electrofishing data)											
Mean TL at Age-1 (mm)	N/A	N/A	N/A	N/A	N/A	142	N/A	N/A	N/A	N/A	142
Mean TL at Age-3 (mm)	N/A	N/A	N/A	N/A	N/A	334	N/A	N/A	N/A	N/A	334
Relative Weight (electrofishing data)											
Stock - Quality	83.4	84.5	87.9	94.0	82.4	94.4	89.6	92.3	89.5	87.5	88.6
Quality - Preferred	92.1	84.3	91.6	90.4	88.7	87.1	89.2	95.2	91.8	88.9	89.9
Preferred - Memorable	93.3	92.3	96.5	92.5	89.8	90.7	95.6	94.5	94.7	90.6	93.1
Memorable - Trophy	94.3	none	87.0	none	97.2	100.2	98.1	92.0	93.1	96.7	94.8
Trophy	none	none	none	none	none	none	none	none	none	none	
Mortality (electrofishing data)											
Total Mortality	N/A	N/A	N/A	N/A	N/A	31%	N/A	N/A	N/A	N/A	31.0%
Fishing Success (creel survey data)											
Catch Rate	no survey	0.24	0.21	no survey	0.22	0.23	0.14	0.16	0.23	no survey	0.20
Harvest Rate	no survey	0.01	0.01	no survey	0.01	0.01	0.01	0.01	0.00	no survey	0.01
Percent Harvested	no survey	2.4%	2.6%	no survey	3.9%	3.2%	5.2%	6.8%	1.9%	no survey	3.7%
Mean Weight (pounds)	no survey	2.6	2.28	no survey	2.54	2.67	2.99	2.84	2.76	no survey	2.7

Fishery Forecast

The 2009 largemouth bass densities in Boone Reservoir were not as high as 2008, but they were still above average. The size structure was also good where 50% of the largemouth collected were between 12 and 18-inches. About 40% of the largemouth collected were 10-inches and below, which will maintain the quality of the largemouth bass fishery in Boone Reservoir. Boone is a good quality largemouth bass fishery and should continue to be for the next several years.

Management Recommendations

Maintain the 15-inch (381 mm) minimum length limit.

Smallmouth Bass

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Recruitment (electrofishing data - CPUE = # fish/hour)											
Age-1 CPUE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Substock CPUE	1.3	0.4	0.8	0.4	0.0	2.3	0.9	1.1	3.7	1.7	1.3
Density (electrofishing data - CPUE = # fish/hour)											
PSD	85%	44%	71%	81%	81%	49%	66%	79%	73%	73%	70.2%
RSD - Preferred	60%	15%	56%	62%	64%	25%	37%	71%	50%	55%	49.5%
CPUE	19.3	11.9	14.0	8.2	17.5	21.2	11.3	13.1	29.4	16.3	16.2
CPUE ≥ Stock	18.0	11.4	13.3	7.8	17.5	18.9	10.8	12.0	25.7	14.6	15.0
CPUE ≥ MSL (15")	4.6	0.8	5.6	3.3	8.6	3.4	3.1	6.0	7.4	5.4	4.8
Growth (electrofishing data)											
Mean TL at Age-1 (mm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mean TL at Age-3 (mm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Relative Weight (electrofishing data)											
Stock - Quality	71.2	85.9	81.3	85.1	83.3	85.2	90.2	85.5	86.1	83.5	83.7
Quality - Preferred	80.1	79.6	91.4	93.8	91.6	80.5	82.2	83.3	83.3	81.6	84.7
Preferred - Memorable	88.1	81.2	89.4	83.5	85.7	80.4	87.8	82.9	83.2	81.7	84.4
Memorable - Trophy	81.1	83.0	91.6	83.6	80.5	82.2	78.6	80.6	79.8	80.6	82.1
Trophy	none	none	none	none	none	none	none	none	none	none	
Mortality (electrofishing data)											
Total Mortality	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fishing Success (creel survey data)											
Catch Rate	no survey	0.30	0.17	no survey	0.14	0.17	0.13	0.14	0.21	no survey	0.18
Harvest Rate	no survey	0.01	0.01	no survey	0.01	0.01	0.01	0.01	0.00	no survey	0.01
Percent Harvested	no survey	3.9%	3.9%	no survey	5.7%	5.5%	8.6%	6.5%	3.6%	no survey	5.4%
Mean Weight (pounds)	no survey	2.1	1.99	no survey	2.17	2.19	2.41	2.4	2.62	no survey	2.3

Fishery Forecast

Smallmouth bass catch rates were just below average in 2009. However, the smallmouth bass size structure was really good where about 60% of the smallmouth bass collected were over 12-inches. Most likely, the size structure will not improve because the size limits have been reverted back to a 15-inch minimum length limit. This management will provide ample opportunity for recruitment of the smaller size classes but may not promote growth into the higher size classes above 18-inches. Also, there were several smallmouth bass collected under 10-inches which will maintain the stability of the fishery.

Management Recommendations

Maintain the current regulations.

Spotted Bass

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Recruitment (electrofishing data - CPUE = # fish/hour)											
Age-1 CPUE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Substock CPUE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Density (electrofishing data - CPUE = # fish/hour)											
PSD	0%	none	none	100%	none	100%	none	50%	100%	0%	58%
RSD - Preferred	0%	none	none	100%	none	100%	none	0%	0%	0%	33%
CPUE	0.3	0.0	0.0	0.7	0.0	0.3	0.0	0.6	2.0	2.0	0.6
CPUE ≥ Stock	0.3	0.0	0.0	0.7	0.0	0.3	0.0	0.6	2.0	2.0	0.6
Growth (electrofishing data)											
Mean TL at Age-1 (mm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mean TL at Age-3 (mm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Relative Weight (electrofishing data)											
Stock - Quality	83.8	none	none	none	none	none	none	88.6	none	101.1	91.2
Quality - Preferred	none	none	none	none	none	none	none	97.7	106.6	none	102.2
Preferred - Memorable	none	none	none	102.1	none	99.0	none	none	none	none	100.5
Memorable - Trophy	none	none	none	none	none	none	none	none	none	none	
Trophy	none	none	none	none	none	none	none	none	none	none	
Mortality (electrofishing data)											
Total Mortality	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fishing Success (creel survey data)											
Catch Rate	no survey	0.00	N/A	no survey	N/A	N/A	N/A	N/A	0.01	no survey	0.01
Harvest Rate	no survey	0.00	N/A	no survey	N/A	N/A	N/A	N/A	0.00	no survey	0.00
Percent Harvested	no survey	N/A	0%	no survey	N/A	0%	N/A	N/A	0%	no survey	0.0%
Mean Weight (pounds)	no survey	N/A	N/A	no survey	N/A	N/A	N/A	N/A	N/A	no survey	

Fishery Forecast

Spotted bass in Boone Reservoir are fortunately only found in a few locations. Although they are not detrimental to any fish species, there are not as sought after by anglers as other species of black bass. They can also be more aggressive and will often grab bait and lures quicker than the more desirable smallmouth and largemouth bass. The spotted bass population in Boone Reservoir seems to be stable and not increasing.

Management Recommendations

Continue to monitor the spotted bass population and maintain current regulations.

White Crappie

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Recruitment (electrofishing data - CPUE = # fish/ hour)											
Age-0 CPUE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Substock CPUE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Density (electrofishing data - CPUE = # fish/ hour)											
PSD	none	100%	none	100%	100%	none	100%	none	100%	100%	100%
RSD - Preferred	none	100%	none	57%	67%	none	50%	none	100%	100%	79%
CPUE	0.00	3.76	0.00	2.77	0.81	0.00	0.57	0.00	0.29	0.29	0.85
CPUE ≥ Stock	0.00	3.76	0.00	2.77	0.81	0.00	0.29	0.00	0.29	0.29	0.82
CPUE ≥ MSL (10")	0.00	3.76	0.00	1.59	0.27	0.00	0.29	0.00	0.29	0.29	0.65
Growth (electrofishing data)											
Mean TL at Age-1 (mm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mean TL at Age-3 (mm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Relative Weight (electrofishing data)											
Stock - Quality	none	none	none	none	none	none	none	none	none	none	
Quality - Preferred	none	none	none	86.7	90.4	none	105.5	none	none	none	94.2
Preferred - Memorable	none	91.9	none	none	112.0	none	92.4	none	none	none	98.8
Memorable - Trophy	none	79.9	none	94.5	101.3	none	none	none	96.7	94.2	93.3
Trophy	none	none	none	none	none	none	none	none	none	none	
Mortality (electrofishing data)											
Total Mortality	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stocking											
# per Acre	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Angling Pressure (creel survey data - **any crappie**)											
Angler Hours	no survey	15,616	10,183	no survey	10,181	8,936	8,748	8,783	8,067	no survey	10,073
Angler Hours/Acre	no survey	3.5	2.3	no survey	2.3	2.0	1.9	1.9	1.8	no survey	2.2
Fishing Success (creel survey data)											
Catch Rate	no survey	0.02	0.01	no survey	0.01	0.01	0.01	0.02	0.65	no survey	0.10
Harvest Rate	no survey	0.00	0.01	no survey	0.01	0.00	0.01	0.01	0.22	no survey	0.04
Percent Harvested	no survey	23.6%	100.0%	no survey	100.0%	38.9%	100.0%	79.5%	30.0%	no survey	67.4%
Mean Weight (pounds)	no survey	0.68	0.93	no survey	1.08	1.05	1.07	1.08	0.81	no survey	0.96
Value of Fishery (creel survey data - trip expenditures)											
Any Crappie	no survey	$21,100	$12,770	no survey	$14,880	$12,950	$12,820	$13,860	$20,710	no survey	$15,584

Fishery Forecast

White crappie in Boone Reservoir are not very plentiful. However, the population should remain in the reservoir and some years will be higher in numbers than other years.

Management Recommendations

Maintain current monitoring and fishing regulations.

Black Crappie

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Recruitment (electrofishing data) - CPUE = # fish/ hour)											
Age-0 CPUE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Substock CPUE	0	0	0	0	0	0	0	0	0	0	0
Density (electrofishing data - CPUE = # fish/ hour)											
PSD	100%	76%	92%	86%	92%	97%	100%	100%	91%	92%	92.6%
RSD - Preferred	69%	52%	31%	43%	62%	74%	100%	72%	52%	44%	59.9%
CPUE	8.63	8.62	3.39	10.90	3.67	22.40	0.86	8.29	13.14	17.43	9.73
CPUE ≥ Stock	8.63	8.62	3.39	10.90	3.67	20.40	0.86	8.29	13.14	17.43	9.53
CPUE ≥ MSL (10")	4.32	4.14	0.78	4.31	1.98	13.32	0.86	6.00	6.57	6.86	4.91
Growth (electrofishing data)											
Mean TL at Age-1 (mm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mean TL at Age-3 (mm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Relative Weight (electrofishing data)											
Stock - Quality	none	91.7	78.5	87.3	90.7	104.3	none	none	92.8	88.0	90.5
Quality - Preferred	90.4	79.1	98.5	85.3	85.5	88.9	none	98.1	95.9	90.2	90.2
Preferred - Memorable	94.3	81.4	97.2	94.1	87.4	90.5	76.2	90.9	92.0	89.5	89.4
Memorable - Trophy	60.8	82.1	91.2	85.6	88.4	85.6	88.9	89.6	86.5	87.7	84.6
Trophy	none	none	none	none	none	none	none	none	none	none	
Mortality (electrofishing data)											
Total Mortality	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stocking											
# per Acre	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	10.6	10.7	2.7
Angling Pressure (creel survey data - **any crappie**)											
Angler Hours	no survey	15,616	10,183	no survey	10,181	8,936	8,748	8,783	8,067	no survey	10,073
Angler Hours/Acre	no survey	3.5	2.3	no survey	2.3	2.0	1.9	1.9	1.8	no survey	2.2
Fishing Success (creel survey data)											
Catch Rate	no survey	0.59	0.15	no survey	0.12	0.13	0.09	0.11	0.58	no survey	0.25
Harvest Rate	no survey	0.15	0.03	no survey	0.05	0.08	0.07	0.07	0.14	no survey	0.08
Percent Harvested	no survey	32.5%	18.6%	no survey	8.3%	51.7%	69.2%	53.6%	22.5%	no survey	36.6%
Mean Weight (pounds)	no survey	0.83	0.82	no survey	0.81	0.79	0.88	0.86	0.91	no survey	0.84
Value of Fishery (creel survey data - trip expenditures)											
Any Crappie	no survey	$21,100	$12,770	no survey	$14,880	$12,950	$12,820	$13,860	$20,710	no survey	$15,584

Fishery Forecast

Crappie catch rates increased in 2009 for the third year in a row. Over 40% of the black crappie collected were over the 10-inch minimum size limit and available for harvest. Also, there were plenty of crappie in the smaller size classes available to grow or "recruit" into the larger size classes over 10-inches. Since 2007, black crappie have been stocked into Boone at a rate of about 15 fish/acre. This will help stabilize the fishery and hopefully increase the black crappie density in Boone Reservoir.

Management Recommendations

1. Continue to refine sampling strategy for black crappie.
2. Continue to stock crappie at a rate of 15 fish per acre, if available from the hatchery.

Striped Bass

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Recruitment (summer shad gill net data - CPUE = # fish/net night))											
Substock CPUE	no survey	0.154	no data	0.3	0.2	0.1	0	0.1	0	0.05	0.1
Density (summer shad gill net data - CPUE = # fish/net night)											
PSD	no survey	100%	no data	9%	53%	33%	40%	0%	23%	27%	35.6%
RSD - Preferred	no survey	33%	no data	1%	16%	0%	0%	0%	0%	0%	6.3%
CPUE	no survey	0.385	no data	3.70	1.15	0.65	0.50	0.70	2.00	4.75	1.73
CPUE ≥ Stock	no survey	0.231	no data	3.40	0.95	0.60	0.50	0.65	2.00	4.70	1.63
CPUE ≥ 15"	no survey	0.231	no data	1.10	0.60	0.50	0.30	0.50	3.45	3.55	1.28
Growth (summer shad gill net data)											
Mean TL at Age-1 (mm)	no survey	no data	no data	no data	311	370	370	399	384	385	369.8
Mean TL at Age-3 (mm)	no survey	no data	no data	595	643	669	673	N/A	N/A	664	648.8
Relative Weight (winter gill net; data 300' nets)											
Stock - Quality	no survey	no survey	no survey	no survey	no survey	no survey	N/A	N/A	98.6	103.5	101.1
Quality - Preferred	no survey	no survey	no survey	no survey	no survey	no survey	106.8	N/A	95.2	93.3	98.4
Preferred - Memorable	no survey	no survey	no survey	no survey	no survey	no survey	92.2	78	N/A	97.3	89.2
Memorable - Trophy	no survey	no survey	no survey	no survey	no survey	no survey	93.7	N/A	93.4	none	93.6
Trophy	no survey	no survey	no survey	no survey	no survey	no survey	N/A	N/A	N/A	none	N/A
Mortality (summer shad gill net data)											
Total Mortality	no survey	no survey	no survey	*	*	*	*	*	*	*	
Stocking											
# per Acre	0	5.1	6.3	9.7	3.5	2.7	5.6	9.9	5.9	6.2	5.5
Angling Pressure (creel survey data - striped bass only)											
Angler Hours	no survey	17,410	6,996	no survey	13,212	9,898	9,069	8,798	10,954	no survey	10,905
Angler Hours/Acre	no survey	3.9	1.5	no survey	2.9	2.2	2.0	1.9	2.4	no survey	2.4
Fishing Success (creel survey data - striped bass only)											
Catch Rate	no survey	0.09	0.04	no survey	0.04	0.02	0.04	0.03	0.05	no survey	0.04
Harvest Rate	no survey	0.03	0.02	no survey	0.00	0.00	0.01	0.01	0.00	no survey	0.01
Percent Harvested	no survey	8.5%	36.9%	no survey	1.9%	0.6%	23.9%	20.3%	5.6%	no survey	14.0%
Mean Weight (pounds)	no survey	8.1	10.91	no survey	2.6	4.78	9.96	10.55	16.16	no survey	9.01
Value of Fishery (creel survey data - trip expenditures)											
Any Morones	no survey	$2,150	$9,610	no survey	$19,540	$16,740	$9,500	$13,990	$770	no survey	$10,329
Striped Bass Only	no survey	$43,550	$10,090	no survey	$19,310	$20,580	$15,990	$15,080	$42,810	no survey	$23,916

*data did not meet criteria for calculating mortality

Fishery Forecast

Striped bass are difficult to sample within the reservoir. Therefore, by-catch data from summer shad netting is used for *morone sp*. population analyses. The 2009 sample showed another increase in density, which has been increasing since 2006. About 25% of the striped bass sampled were over 20-inches while we saw plenty of smaller striped bass to keep the fishery stable for 2010. In 2008, there was a new 36-inch (914-mm) minimum size limit from November through March that went into effect. This will hopefully protect the larger fish in the population and we will begin to see these fish in our sampling. Due to stocking efforts, the fishery should remain stable within the reservoir.

Management Recommendations

1. Stock at a rate of 5 fish/acre if possible.
2. Refine sampling strategies for collecting good numbers of striped bass.

Hybrid Striped Bass

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Recruitment (summer shad gill net data - CPUE = # fish/net night))											
Substock CPUE	no survey	0.77	no data	0.05	0.00	0.10	0.00	0.00	0.00	0.00	0.11
Density (summer shad gill net data - CPUE = # fish/net night)											
PSD	no survey	75%	no data	90%	98%	77%	78%	100%	100%	97%	89.4%
RSD - Preferred	no survey	34%	no data	46%	63%	54%	50%	78%	85%	71%	60.1%
CPUE	no survey	6.00	no data	4.60	2.15	2.45	2.75	1.40	4.10	3.85	3.41
CPUE ≥ Stock	no survey	5.23	no data	4.55	2.15	2.35	2.75	1.40	4.10	3.85	3.30
CPUE ≥ MSL (15")	no survey	1.39	no data	1.90	1.35	1.15	1.30	1.10	3.45	2.70	1.79
Growth (summer shad gill net data)											
Mean TL at Age-1 (mm)	no survey	no data	no data	no data	365	319	347	370	407	353	360.2
Mean TL at Age-3 (mm)	no survey	no data	no data	562	590	572	584	560	576	554	571.1
Relative Weight (winter gill net data)											
Stock - Quality	no survey	no survey	no survey	no survey	no survey	none	none	168.3	none	none	168.3
Quality - Preferred	no survey	no survey	no survey	no survey	no survey	none	93.1	none	none	none	93.1
Preferred - Memorable	no survey	no survey	no survey	no survey	no survey	88.1	90.4	98.9	95.2	90.8	92.7
Memorable - Trophy	no survey	no survey	no survey	no survey	no survey	90.7	90.8	91.1	98.2	91.7	92.5
Trophy	no survey	no survey	no survey	no survey	no survey	none	none	none	none	none	N/A
Mortality (summer shad gill net data)											
Total Mortality				*	*	*	*	*	*	*	
Stocking											
# per Acre	5.2	2.5	3.3	3.6	5	3.6	2.7	3.2	5.1	6.9	4.1
Angling Pressure (creel survey data - hybrid striped bass only)											
Angler Hours	no survey	2,155	823	no survey	1,517	1,061	9,069	260	2,300	no survey	2,455
Angler Hours/Acre	no survey	0.5	0.2	no survey	0.3	0.2	2.0	0.1	0.5	no survey	0.5
Fishing Success (creel survey data - hybrid striped bass only)											
Catch Rate	no survey	0.04	0.21	no survey	0.08	0.02	0.02	0.02	0.02	no survey	0.06
Harvest Rate	no survey	0.01	0.01	no survey	0.02	0.01	0.02	0.02	0.00	no survey	0.01
Percent Harvested	no survey	12.7%	6.3%	no survey	14.2%	20.6%	32.5%	31.1%	17.3%	no survey	19.2%
Mean Weight (pounds)	no survey	6.02	3.76	no survey	4.08	3.06	2.96	3.03	4.64	no survey	3.94
Value of Fishery (creel survey data - trip expenditures)											
Any Morones	no survey	$2,150	$9,610	no survey	$19,540	$16,740	$9,500	$13,990	$770	no survey	$10,329
Hybrid Striped Bass Only	no survey	$5,230	$1,050	no survey	$2,630	$2,140	$0	$550	$6,240	no survey	$2,549

* Data did not meet criteria for calculating mortality.

Fishery Forecast

As with striped bass, Cherokee bass are difficult to sample within the reservoir. Therefore by-catch data from summer shad netting is used for *morone sp*. population analyses. The 2009 sample of Cherokee bass showed a slight increase in fish that were in the memorable size class. Also, there was an above average number of Cherokee bass collected for the second year in a row. The population appears to be very stable with similar sizes and numbers from year to year, and due to stocking efforts, the fishery should remain stable within the reservoir.

Management Recommendations

1. Maintain the current 2 fish, 15-inch (381 mm) minimum length limit.
2. Continue to evaluate the changes made in the stocking regime in 2001. Prior to 2001, Cherokee bass were stocked at a rate of 5/acre every other year. They are now stocked at a rate of 2.5/acre every year. So far, data suggests that this rate is sufficient to maintain a quality fishery.
3. Refine sampling strategies for collecting good numbers of Cherokee bass.

Sunfish

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Angling Pressure (creel survey data - any sunfish)											
Angler Hours	no survey	8,277	9,295	no survey	5,227	3,386	833	1,955	6,985	no survey	5,137
Angler Hours/Acre	no survey	1.8	2.1	no survey	1.2	0.7	0.2	0.4	1.5	no survey	1.1
Fishing Success (creel survey data - bluegill only)											
Catch Rate (bluegill)	no survey	2.15	1.39	no survey	1.55	1.10	1.58	2.16	3.01	no survey	1.85
Harvest Rate (bluegill)	no survey	0.12	0.10	no survey	0.12	0.10	0.27	0.55	0.42	no survey	0.24
% Harvested (bluegill)	no survey	8.4%	5.1%	no survey	4.1%	4.3%	4.1%	58.6%	4.6%	no survey	12.7%
Mean Weight (bluegill)	no survey	0.19	0.22	no survey	0.25	0.14	0.26	0.22	0.26	no survey	0.22
Value of Fishery (creel survey data - trip expenditures only)											
Any Sunfish	no survey	$7,410	$5,950	no survey	$4,610	$3,260	$610	$1,960	$7,880	no survey	$4,526

Catfish

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Angling Pressure (creel survey data - all catfish)											
Angler Hours	no survey	5,186	4,664	no survey	7,204	2,901	1,901	1,978	2,421	no survey	3,750.7
Angler Hours/Acre	no survey	1.1	1.0	no survey	1.6	0.6	0.4	0.4	0.5	no survey	0.8
Fishing Success (creel survey data)											
Catch Rate (channel cat)	no survey	0.29	0.20	no survey	0.20	0.18	0.16	0.21	0.15	no survey	0.20
Harvest Rate (channel cat)	no survey	0.09	0.09	no survey	0.16	0.17	0.16	0.20	0.11	no survey	0.14
% Harvested (channel cat)	no survey	40.7%	29.6%	no survey	58.4%	50.1%	65.6%	77.9%	20.1%	no survey	48.9%
Mean Weight (channel cat)	no survey	1.99	2.98	no survey	3.38	4.29	3.14	2.93	4.95	no survey	3.38
Value of Fishery (creel survey data - trip expenditures only)											
Any Catfish	no survey	$5,290	$6,150	no survey	$12,200	$5,010	$4,040	$4,270	$5,980	no survey	$6,134

Shad

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Density (summer shad gill net data - geometric mean density)											
Gizzard Shad	N/A	46.1	32.7	14.4	42.3	26.1	25.9	23.9	8.9	9.0	25.5
Threadfin Shad	N/A	2.5	22.2	0.0	1.5	15.9	11.2	40.2	5.0	1.3	11.1
Alewife	N/A	52.3	4.6	107.3	2.9	2.4	2.4	3.3	7.3	3.2	20.6

Tables

Table 1. Fish stocked in Boone Reservoir 1998-2009.

Species	Date	Rate (per acre)	Mean Length	Number
Cherokee Bass	July 1998	4.9	2.5	22,016
	July 2000	5.2	1.0 – 2.0	23,700
	July 2001	2.5	2.0 – 5.0	11,289
	July 2002	3.3	1.3 – 4.0	14,702
	July 2003	3.6	1.5 – 4.0	16,249
	June 2004	5.0	2.0 – 2.5	22,420
	June 2005	3.6	2.0 – 2.5	16,410
	June 2006	2.7	1.0 – 2.5	12,376
	June 2007	3.2	1.0 – 2.0	14,620
	July 2008	5.1	1.5 – 2.5	22,992
	June 2009	6.9	1.0 – 3.5	31,186
Striped Bass	July 1999	5.3	2.0 – 4.0	23,859
	July 2001	5.1	3.0 – 4.0	22,866
	July 2002	6.3	3.0 – 4.0	25,713
	July 2003	9.7	1.0 – 2.0	44,038
	July 2004	2.9	2.0 – 4.0	13,000
	July 2005	2.7	2.0 – 3.5	11,991
	July 2006	5.6	1.0 – 3.0	25,445
	June/July 2007	9.9	1.0 – 3.5	44,608
	July 2008	5.9	1.5 – 3.0	26,489
	July 2009	6.2	1.5 – 3.5	27,994
Blue Catfish	July 1995	3.1	4.0	14,000
	Nov 1998	2.4	5.0	10,850
Black-Nose	Dec 1996	20.7	2.5	93,583
Black Crappie	Nov 1997	18.5	2.0	83,587
	Nov–Dec 1998	15.5	2.5	69,994
	October 2007*	6.1	2.0 – 7.0	27,558
	October 2008*	10.6	1.5 – 5.0	47,720
	October 2009*	10.7	1.5 – 5.0	48,482

*Black and Blacknose Crappie

Table 2. Number of species collected by gear type in Boone Reservoir, 2009. Effort is in hours for electrofishing and net nights for gill netting.

	Summer Shad Gill Netting			Spring Electrofishing		
Species	No.	CPUE (# fish / net night)	Total Effort	No.	CPUE (# fish / hour)	Total Effort
Largemouth Bass	X	X	X	334	95.4	3.5
Smallmouth Bass	X	X	X	57	16.3	3.5
Spotted Bass	X	X	X	7	2.0	3.5
Black Crappie	X	X	X	61	17.4	3.5
Black-Nose Crappie	X	X	X	2	0.6	3.5
White Crappie	X	X	X	1	0.3	3.5
Walleye	X	X	X	0	0	3.5
Sauger	X	X	X	X	X	X
White Bass	X	X	X	0	0	3.5
Channel Catfish	X	X	X	X	X	X
Gizzard Shad	221	11.1	20	X	X	X
Alewife	150	7.5	20	X	X	X
Striped Bass	95	4.8	20	X	X	X
Cherokee Bass	77	3.9	20	X	X	X
Bluegill	X	X	X	X	X	X

X = this type of data not collected with this method

Table 3. Black bass catch; mean catch per unit effort and relative stock density by RSD category for Boone Reservoir 1999 – 2009.

				Substock			Stock - Quality			Quality - Preferred			Preferred-Memorable			Memorable-Trophy			Trophy			PSD	Total	
Species	Year	Gear	Number of Samples	#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	#	CPUE	RSD	%	#	CPUE
Largemouth	1999	EL	19	14	3	**7.1**	5	0.7	**2**	74	11	**40**	102	15	**56**	2	11	**1**				**97**	198	42
Bass	2000	EL	12	9	2.9	**6**	23	7.5	**17**	31	10	**23**	78	25	**59**	1	0.3	**1**				**83**	142	46
	2001	EL	9	26	11	**17**	54	23	**52**	39	17	**30**	36	15	**28**	0	0	**0**				**75**	155	66
	2002	EL	15	42	11	**17**	75	19	**37**	69	18	**34**	57	15	**28**	1	0.6	**1**				**63**	244	63
	2003	EL	10	23	9	**12**	38	15	**23**	68	26	**42**	57	21	**35**	0	0	**0**				**77**	186	71
	2004	EL	14	0	0	**0**	13	39	**9**	48	13	**34**	79	22	**56**	1	0.3	**1**	0	0	**0**	**91**	141	39
	2005	EL	14	11	3.1	**5**	27	7.6	**14**	75	21	**38**	93	26	**47**	2	0.6	**1**	0	0	**0**	**86**	208	59
	2006	EL	14	13	3.7	**10**	14	4	**11**	30	8.5	**25**	76	22	**62**	2	0.6	**2**	0	0	**0**	**89**	135	38
	2007	EL	14	47	13	**23**	51	15	**32**	33	9.4	**21**	72	21	**46**	1	0.3	**1**	0	0	**0**	**68**	204	58
	2008	EL	14	64	18	**17**	106	25	**28**	115	33	**37**	106	30	**34**	5	1.4	**2**	0	0	**0**	**72**	378	108
	2009	EL	14	70	20	**21**	78	22	**30**	87	25	**33**	96	27	**36**	3	0.9	**1**	0	0	**0**	**70**	334	95
Smallmouth	1999	EL	19	8	1.2	**5**	29	4.3	**18**	36	5.3	**23**	62	9.2	**41**	24	3.6	**16**	1	0.3		**81**	161	24
Bass	2000	EL	12	4	1.3	**7**	8	2.6	**15**	14	4.6	**25**	26	8.5	**47**	7	2.3	**13**				**85**	59	20
	2001	EL	9	1	0.4	**4**	15	6.4	**56**	8	3.4	**30**	3	1.2	**11**		0.4					**44**	28	12
	2002	EL	17	3	0.8	**5**	15	3.8	**29**	8	2.1	**15**	14	3.6	**27**	14	3.5	**27**	2	0.3		**71**	55	14
	2003	EL	10	1	0.4	**5**	4	1.6	**19**	4	1.5	**19**	11	3.8	**52**	2	0.8	**10**				**81**	22	8.1
	2004	EL	14	0	0	**0**	14	3.8	**22**	11	3.1	**17**	27	7.5	**46**	10	2.8	**16**	1	0.3	**2**	**81**	63	18
	2005	EL	14	8	2.3	**11**	34	9.6	**51**	16	4.5	**24**	9	2.5	**13**	8	2.3	**12**	0	0	**0**	**49**	75	21
	2006	EL	14	3	0.9	**7**	13	3.7	**34**	10	2.8	**26**	6	1.7	**16**	8	2.3	**21**	1	0	**3**	**66**	41	12
	2007	EL	14	4	1.1	**9**	9	2.6	**21**	3	0.9	**7**	19	5.4	**45**	11	3.1	**26**	0	0	**0**	**79**	46	13
	2008	EL	14	13	3.7	**13**	24	6.9	**27**	21	6	**23**	23	6.6	**26**	21	6	**23**	1	0.3	**1**	**73**	103	29
	2009	EL	14	6	1.7	**11**	14	4	**27**	9	2.6	**18**	17	4.9	**33**	10	2.9	**20**	1	0.3	**2**	**73**	57	16

Table 4. Striped bass and Cherokee bass catch; mean catch per unit effort and relative stock density by RSD category in Boone Reservoir 2003 – 2009.

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
Striped	2003	GN	20	6	0.3	**8**	62	3.1	**91**	5	0.3	**7**	0	0	**0**	1	0.1	**1**	0	0	**0**	**8**	74	3.7
Bass	2004	GN	20	4	0.2	**17**	9	0.5	**47**	7	0.4	**37**	1	0.1	**5**	2	0.1	**11**	0	0	**0**	**53**	23	1.2
	2005	GN	20	1	0.1	**8**	8	0.4	**67**	4	0.2	**33**	0	0	**0**	0	0	**0**	0	0	**0**	**33**	13	0.7
	2006	GN	20	0	0	**0**	6	0.3	**60**	4	0.2	**40**	0	0	**0**	0	0	**0**	0	0	**0**	**40**	10	0.5
	2007	GN	20	1	0.1	**7**	13	0.7	**100**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**	14	0.7
	2008	GN	20	0	0	**0**	31	1.6	**78**	9	0.5	**23**	0	0	**0**	0	0	**0**	0	0	**0**	**23**	40	2
	2009	GN	20	1	0.1	**1**	69	3.5	**73**	25	1.3	**27**	0	0	**0**	0	0	**0**	0	0	**0**	**27**	95	3.6
Cherokee	2003	GN	20	1	0.1	**1**	9	0.5	**10**	40	2.9	**44**	25	1.3	**27**	16	0.8	**18**	0	0	**0**	**89**	92	4.6
Bass	2004	GN	20	0	0	**0**	1	0.1	**2**	15	0.8	**35**	15	0.8	**35**	12	0.6	**28**	0	0	**0**	**98**	43	2.2
	2005	GN	20	2	0.1	**4**	11	0.6	**23**	11	0.6	**23**	5	0.3	**11**	15	0.8	**32**	5	0.3	**11**	**77**	49	2.5
	2006	GN	20	0	0	**0**	12	0.6	**22**	16	0.8	**29**	19	1	**35**	7	0.4	**13**	1	0.1	**2**	**78**	55	2.8
	2007	GN	20	0	0	**0**	0	0	**0**	6	0.3	**21**	9	0.5	**32**	11	0.6	**39**	2	0.1	**7**	**100**	28	1.4
	2008	GN	20	0	0	**0**	0	0	**0**	12	0.6	**15**	61	3.1	**74**	7	0.4	**9**	2	0.1	**2**	**100**	82	4.1
	2009	GN	20	0	0	**0**	2	0.1	**3**	20	1	**26**	41	2.1	**53**	12	0.6	**16**	2	0.1	**3**	**97**	77	3.9

Table 5. Largemouth bass mean relative weights (Wr) in Boone Reservoir, spring 2009.

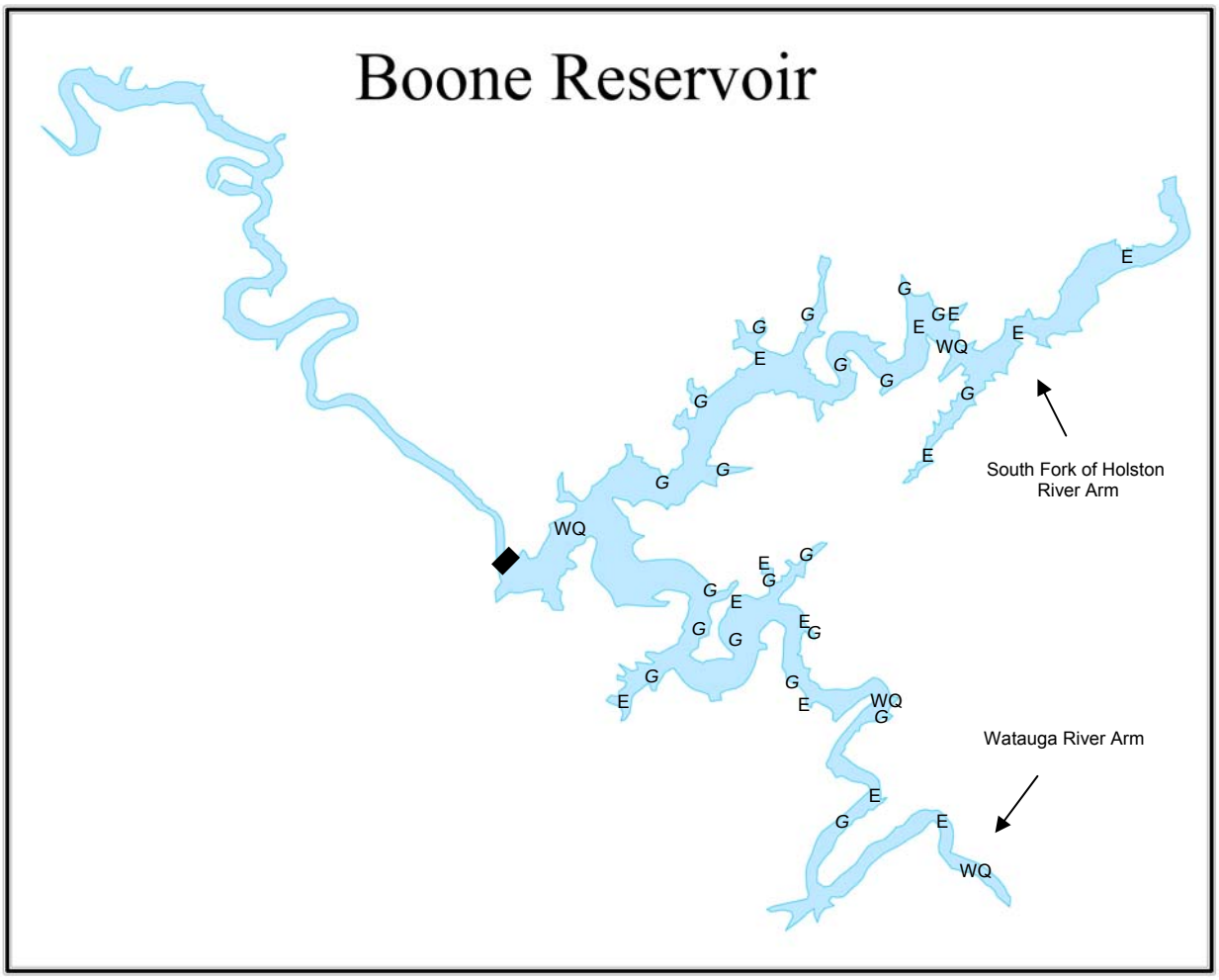
Length Group	Mean Wr	Std. Error	N
150	83.9	1.7	24
175	84.7	1.2	32
200	87.7	2.3	39
225	87.8	2.2	11
250	84.9	1.8	14
275	89.7	1.8	13
300	89.2	1.2	27
325	88.2	1.0	27
350	88.9	1.2	25
375	91.5	1.2	30
400	89.5	1.9	15
425	91.2	1.4	19
450	89.9	2.0	13
475	87.1	1.7	11
500	96.7	4.5	6
525	99.2		1
550			0
		Total =	**307**

Table 6. Smallmouth bass mean relative weights in Boone Reservoir, spring 2009.

Length Group	Mean Wr	Std. Error	N
150	85.5		1
175	80.7	2.3	4
200	85.1	2.8	5
225	86.0	1.2	3
250	85.7		1
275	81.3	2.5	4
300	77.4		1
325	81.8	1.2	5
350	79.3	2.4	5
375	84.5	2.2	6
400	80.2	2.3	5
425	81.2	2.4	6
450	83.2		1
475	77.7	0.7	3
500	86.9		1
525	72.3		1
550			0
		Total =	**52**

Figures

Figure 1. Sites sampled on Boone Reservoir in 2009.



E = Electrofishing
G = Gill Netting
WQ = Water Quality

Largemouth Bass

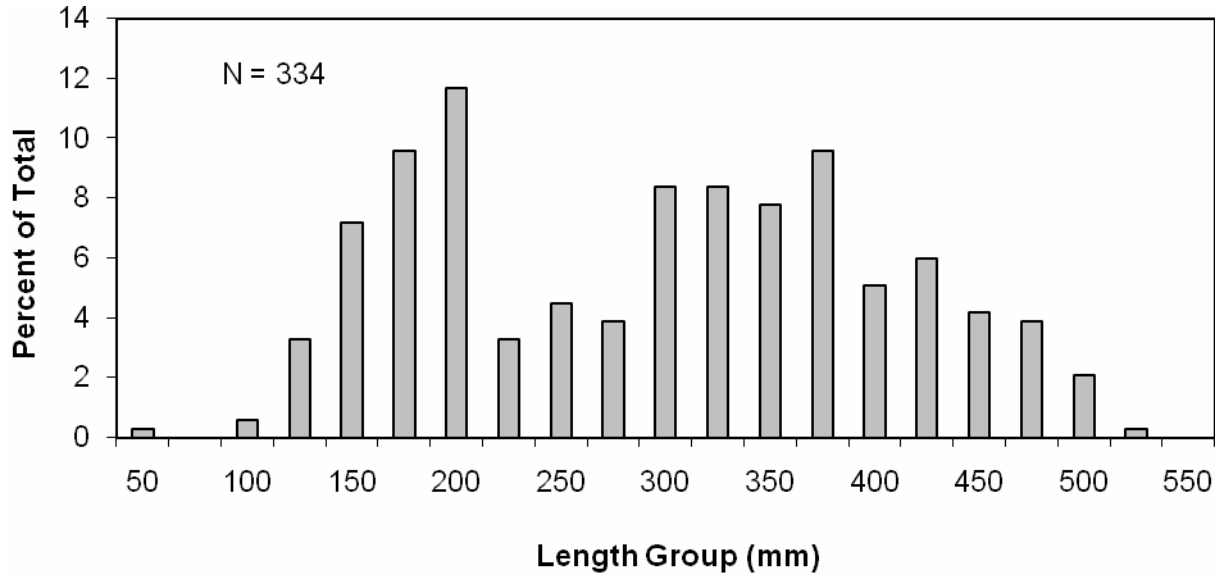


Figure 2. Largemouth bass length frequency by percent in Boone Reservoir, spring 2009.

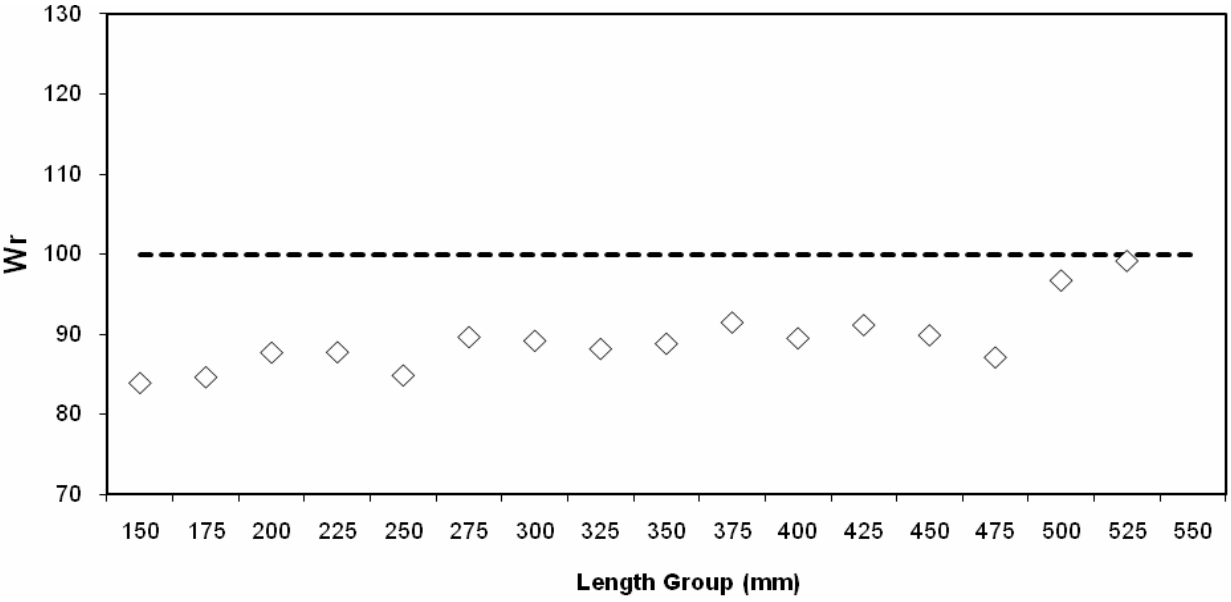


Figure 3. Largemouth bass mean relative weights (Wr) in Boone Reservoir, spring 2009.

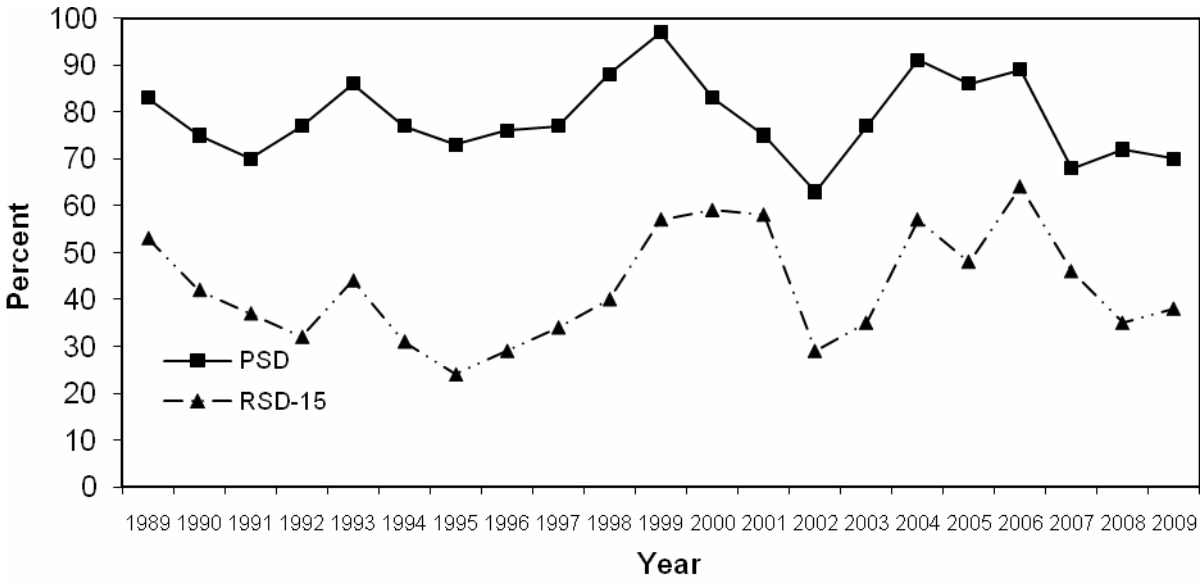


Figure 4. Largemouth bass traditional PSD and RSD-15 values in Boone Reservoir 1989 – 2009.

Smallmouth Bass

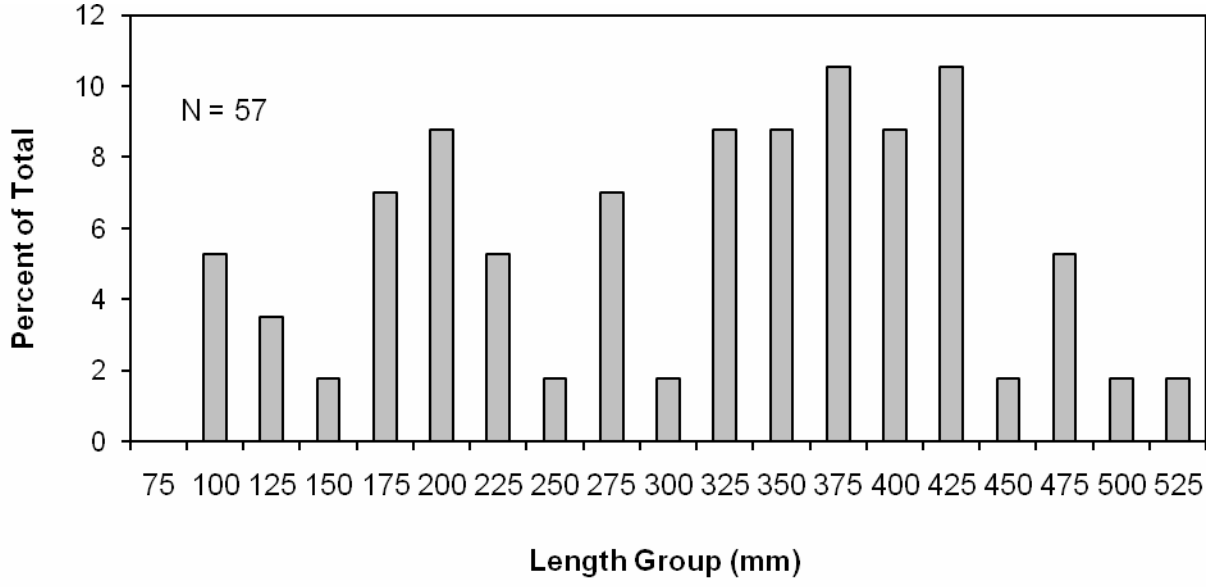


Figure 5. Smallmouth bass length frequency by percent in Boone Reservoir, spring 2009.

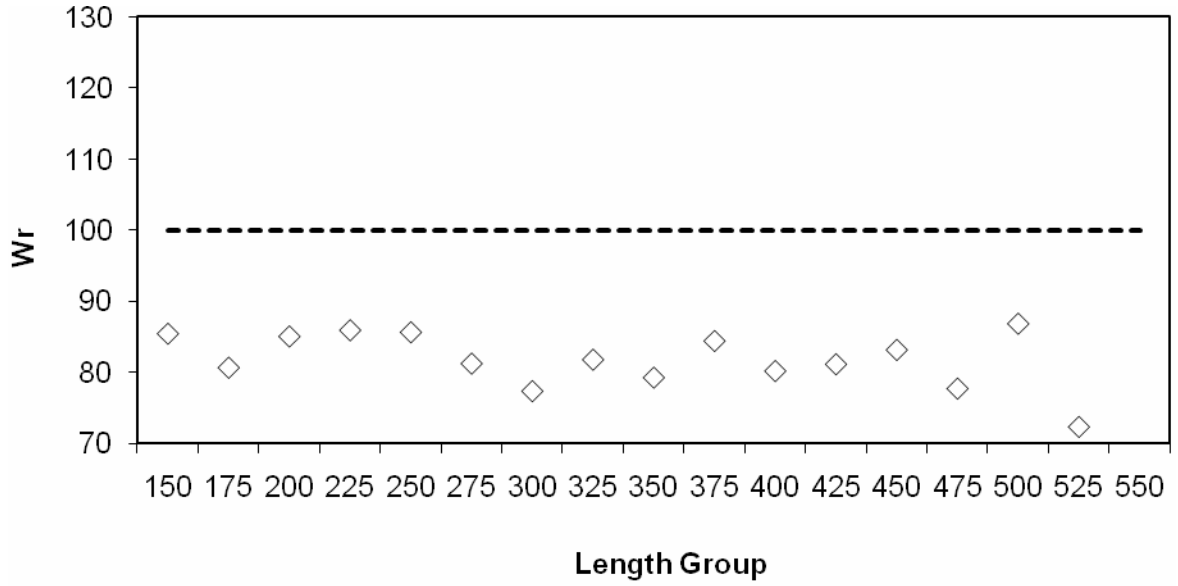


Figure 6. Smallmouth bass mean relative weights (Wr) in Boone Reservoir, spring 2009.

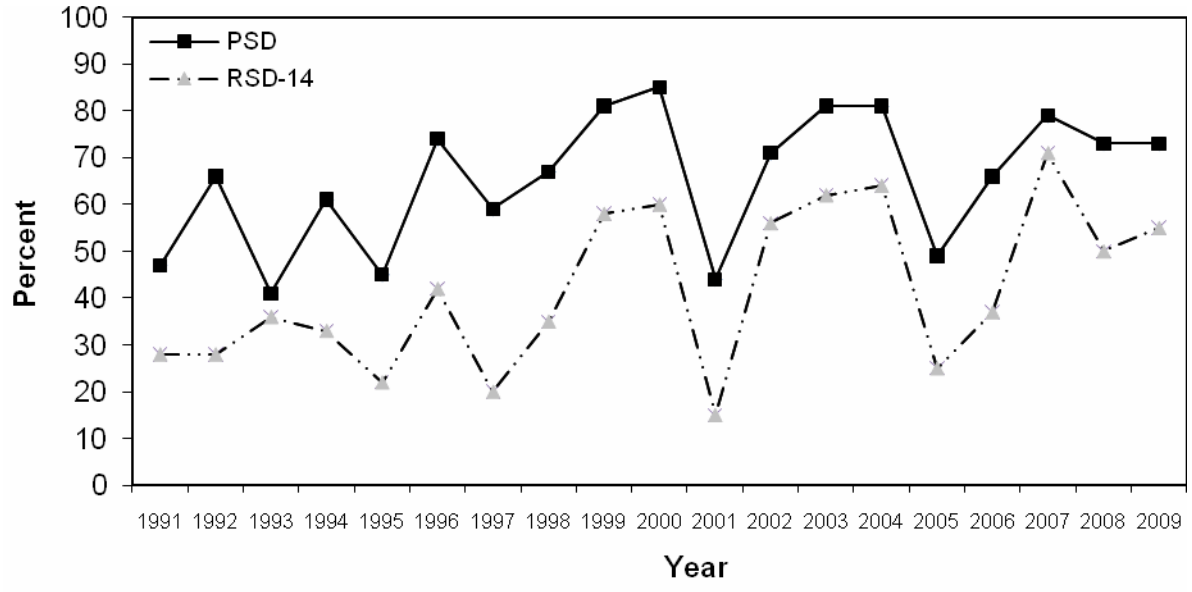


Figure 7. Smallmouth bass traditional PSD and RSD-14 values in Boone Reservoir 1991 – 2009.

Striped Bass

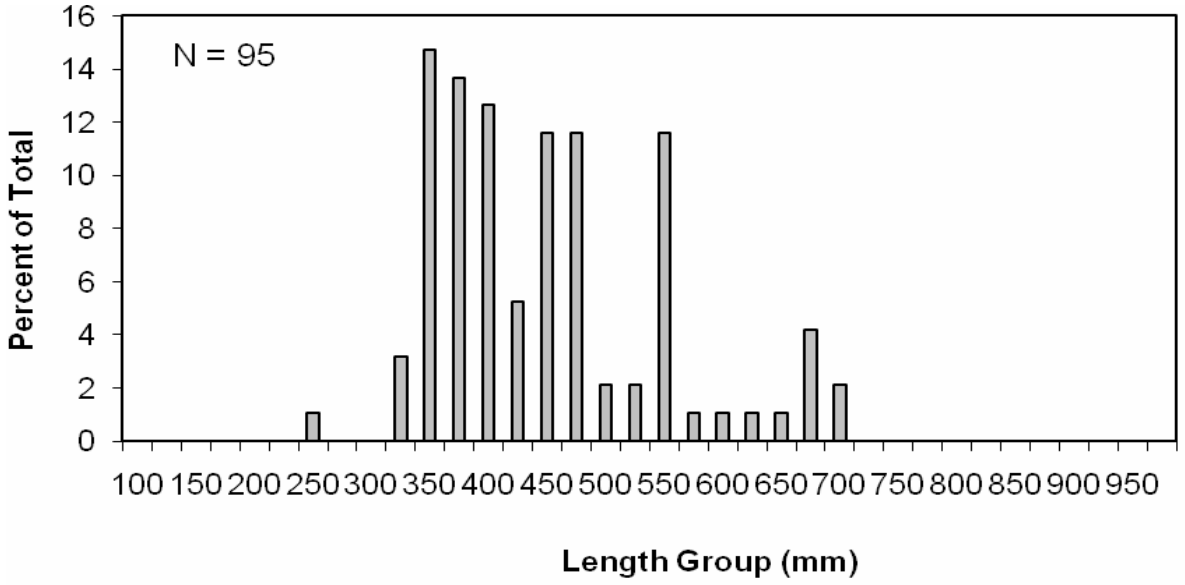


Figure 8. Striped bass length frequency in Boone Reservoir, summer 2009.

Figure 9. Striped Bass mean length at age in Boone Reservoir, September 2009.

Cherokee Bass

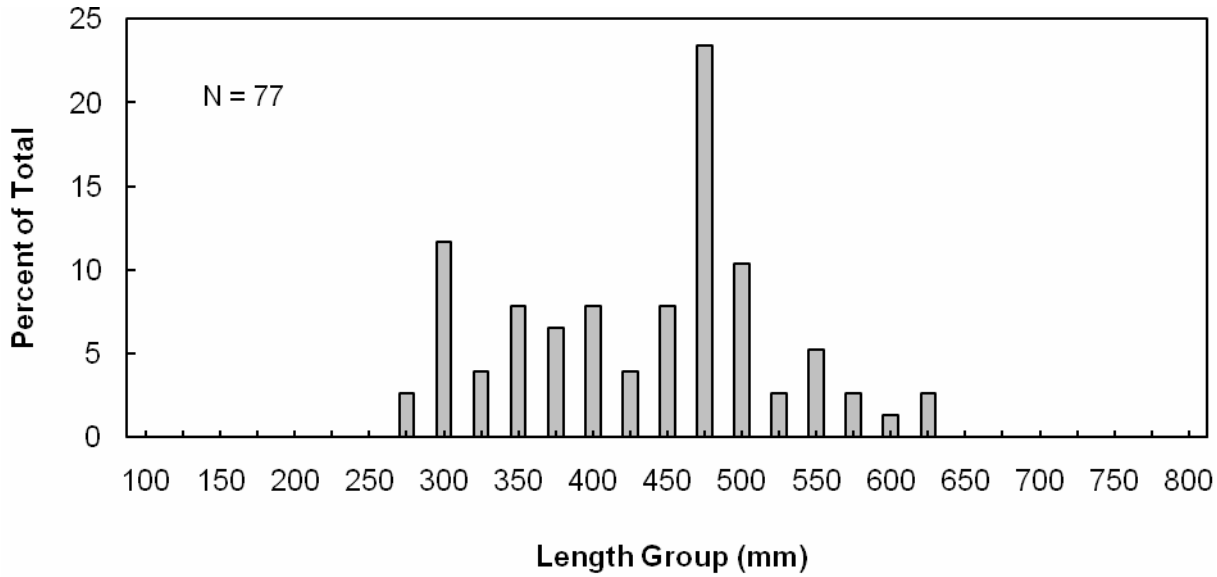


Figure 10. Cherokee bass length frequency by percent in Boone Reservoir, Summer 2009.

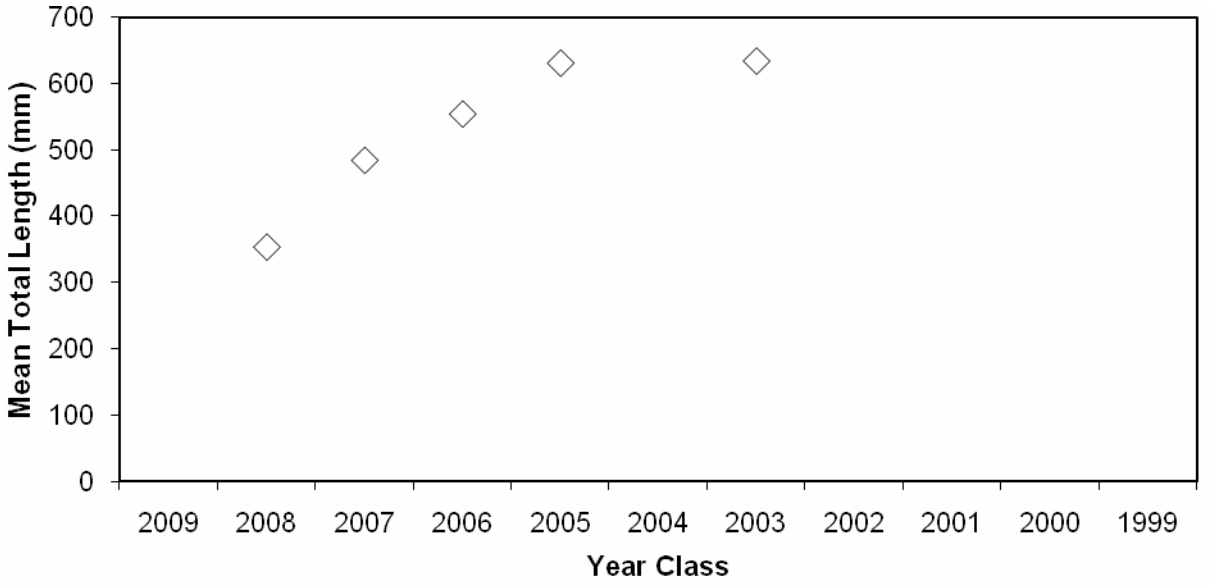


Figure 11. Cherokee Bass mean length at age in Boone Reservoir, September 2009.

Clupeid Species

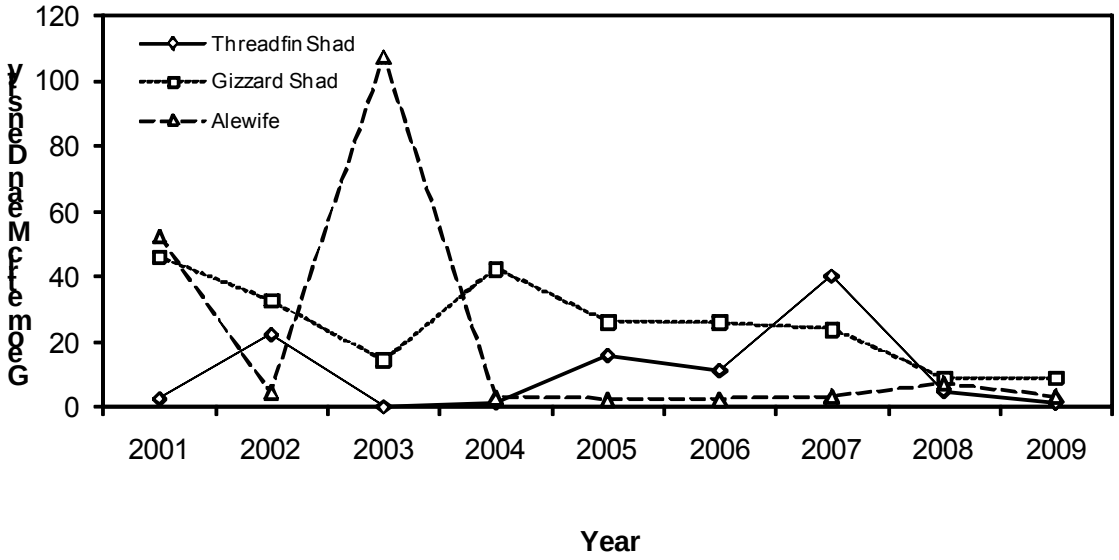


Figure 12. Geometric mean density of the clupeid catches in experimental gill nets from Boone Reservoir 2001 - 2009

Appendix A

Water Quality

Table A1. Boone Reservoir, water quality data at SFHRM 19, July 6, 2009.

Depth (m)	Temp (C)	Cond	DO	Site	Secchi (m)	Time
0	25.0	229	12.2	SFHRM19	1.8	13:40
1	24.4	230	12.6			
2	24.2	228	12.8			
3	24.1	226	12.8			
4	22.2	226	9.2			
5	19.5	226	4.4			
6	18.3	227	2.7			
7	17.7	223	2.8			
8	17.2	217	3.0			
9	16.8	212	3.3			
10	16.4	206	3.5			
11	15.9	198	4.8			
12	15.5	191	5.3			
13	15.3	195	5.5			
14	15.1	188	6.1			
15	14.9	186	6.8			
16	14.7	185	7.3			
17	14.6	181	7.5			
18	14.4	183	7.7			
19	14.3	190	7.6			
20	14.3	251	7.3			
21	14.2	271	7.1			
22	14.0	278	7.4			
23	13.8	277	7.8			
24	13.6	271	8.1			
25	13.4	267	8.4			
26	13.1	251	8.4			
27	13.0	256	8.3			
28	12.8	259	8.3			
29	12.6	261	8.1			
30	12.4	260	7.9			

Table A2. Boone Reservoir, water quality data at SFHRM 26, July 6, 2009.

Depth (m)	Temp (C)	Cond	DO	Site	Secchi (m)	Time
0	25.5	273	12.5	SFHRM26	1.6	14:24
1	25.2	272	12.7			
2	24.9	273	12.9			
3	24.5	281	10.8			
4	23.1	313	7.5			
5	20.9	312	2.8			
6	19.7	291	0.6			
7	18.2	249	0.3			
8	17.6	244	0.1			
9	17.1	251	0.0			
10	16.8	270	0.0			
11	16.6	293	0.2			
12	16.3	296	2.9			
13	15.8	294	5.0			
14	15.6	291	5.0			
15	15.4	288	6.7			
16	15.3	288	7.2			
17	15.0	284	7.4			
18	14.5	281	9.1			
19	13.6	276	9.8			
20	12.9	273	10.3			
21	12.5	271	10.3			
22	12.5	274	10.0			
23	Bottom					
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Table A3. Boone Reservoir, water quality data at WRM 6, July 6, 2009.

Depth (m)	Temp (C)	Cond	DO	Site	Secchi (m)	Time
0	25.3	208	12.3	WRM6	1.5	15:10
1	25.1	207	12.4			
2	24.8	207	12.5			
3	24.7	208	12.5			
4	22.4	221	9.4			
5	19.7	212	8.6			
6	18.4	208	8.4			
7	17.6	205	8.4			
8	16.9	202	8.7			
9	16.7	201	8.7			
10	16.5	199	8.7			
11	16.2	198	8.7			
12	16.0	195	8.4			
13	15.8	193	8.0			
14	15.5	185	8.2			
15	15.2	182	8.6			
16	14.8	181	8.9			
17	14.7	180	8.7			
18	14.4	181	7.6			
19	14.3	183	6.1			
20	14.2	185	3.9			
21	14.1	189	2.4			
22	Bottom					
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Table A4. Boone Reservoir, water quality data at WRM 11, July 6, 2009.

Depth (m)	Temp (C)	Cond	DO	Site	Secchi (m)	Time
0	25.7	205	13.4	WRM11	1.3	15:45
1	25.6	205	13.5			
2	25.0	205	13.8			
3	24.2	210	12.4			
4	22.4	230	10.8			
5	19.5	235	11.4			
6	17.3	224	11.3			
7	15.0	202	11.8			
8	14.3	197	11.6			
9	14.1	195	11.4			
10	13.9	200	11.0			
11	Bottom					
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Table A5. Boone Reservoir, water quality data at SFHRM 19, August 4, 2009.

Depth (m)	Temp (C)	Cond	DO	Site	Secchi (m)	Time
0	25.9	214	10.7	SFHRM19	16	10:50
1	25.6	215	10.8			
2	25.5	215	10.8			
3	25.3	218	10.8			
4	22.9	235	6.8			
5	21.6	237	3.5			
6	20.3	232	1.8			
7	19.4	228	1.6			
8	18.8	220	1.3			
9	18.4	219	1.2			
10	18.0	204	1.9			
11	17.6	199	3.4			
12	17.2	195	3.9			
13	17.0	195	4.0			
14	16.7	202	3.8			
15	16.5	202	3.5			
16	16.3	197	3.5			
17	16.1	231	3.7			
18	15.9	220	3.9			
19	15.7	256	5.5			
20	15.5	246	6.2			
21	15.2	235	6.4			
22	15.0	259	7.3			
23	14.7	234	7.3			
24	14.5	256	7.7			
25	14.4	264	8.9			
26	14.3	263	9.1			
27	14.0	263	9.2			
28	13.9	263	9.3			
29	13.9	263	9.3			
30	13.8	263	9.2			

Table A6. Boone Reservoir, water quality data at SFHRM 26, August 4, 2009.

Depth (m)	Temp (C)	Cond	DO	Site	Secchi (m)	Time
0	26.8	236	11.7	SFHRM26	1.4	13:00
1	26.5	238	11.8			
2	26.2	239	12.1			
3	25.2	268	10.2			
4	23.1	318	8.0			
5	21.6	326	5.5			
6	20.3	308	2.5			
7	19.1	263	0.8			
8	18.5	247	0.6			
9	17.9	246	0.5			
10	17.7	251	0.4			
11	17.4	266	1.4			
12	17.1	273	3.6			
13	16.8	277	5.9			
14	16.6	279	7.1			
15	15.6	279	9.6			
16	14.7	276	10.9			
17	13.8	272	11.4			
18	13.6	271	11.7			
19	13.5	270	11.9			
20	13.2	269	12.0			
21	13.0	268	12.0			
22	13.0	271	3.9			
23	Bottom					
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Table A7. Boone Reservoir, water quality data at WRM 6, August 4, 2009.

Depth (m)	Temp (C)	Cond	DO	Site	Secchi (m)	Time
0	26.9	196	11.7	WRM6	1.3	11:30
1	26.7	196	11.9			
2	26.3	196	12.3			
3	24.2	221	9.2			
4	22.8	222	7.4			
5	21.2	211	7.4			
6	20.4	204	7.6			
7	19.2	197	8.3			
8	18.7	194	8.6			
9	18.0	190	8.7			
10	17.8	189	8.7			
11	17.4	188	8.9			
12	17.1	184	9.0			
13	16.8	181	9.2			
14	16.5	179	9.2			
15	16.2	177	9.1			
16	16.1	172	9.0			
17	16.0	171	8.9			
18	15.9	177	8.9			
19	15.6	172	8.7			
20	14.4	175	7.8			
21	14.2	187	2.0			
22	Bottom					
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Table A8. Boone Reservoir, water quality data at WRM 11, August 4, 2009.

Depth (m)	Temp (C)	Cond	DO	Site	Secchi (m)	Time
0	26.4	197	12.4	WRM11	1.3	12:15
1	26.0	197	12.6			
2	25.7	198	12.6			
3	24.2	196	11.9			
4	21.7	185	11.2			
5	20.2	178	10.3			
6	19.9	174	10.0			
7	19.5	177	9.9			
8	18.8	198	8.9			
9	18.1	202	8.3			
10	17.6	245	7.9			
11	Bottom					
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Table A9. Boone Reservoir, water quality data at SFHRM 19, September 1, 2009.

Depth (m)	Temp (C)	Cond	DO	Site	Secchi (m)	Time
0	25.0	227	12.7	SFHRM19	1.7	8:30
1	25.0	227	12.7			
2	25.0	227	12.7			
3	25.0	227	12.7			
4	22.4	227	11.6			
5	20.5	232	4.4			
6	19.4	219	3.8			
7	18.6	219	2.1			
8	18.1	199	2.9			
9	17.7	190	4.4			
10	17.4	185	4.8			
11	17.0	184	5.3			
12	16.7	181	5.9			
13	16.5	181	6.4			
14	16.1	183	6.9			
15	15.9	181	7.3			
16	15.6	179	7.6			
17	15.2	175	8.2			
18	15.1	179	8.4			
19	14.8	174	8.4			
20	14.7	174	8.3			
21	14.5	192	6.9			
22	14.4	209	5.2			
23	14.3	249	5.3			
24	14.2	255	6.1			
25	14.1	265	7.9			
26	14.0	268	9.0			
27	13.8	269	9.3			
28	13.7	269	9.5			
29	13.7	269	9.6			
30	13.6	270	9.6			

Table A10. Boone Reservoir, water quality data at SFHRM 26, September 1, 2009.

Depth (m)	Temp (C)	Cond	DO	Site	Secchi (m)	Time
0	25.1	265	14.7	SFHRM26	1.3	09:15
1	25.1	265	14.7			
2	25.1	265	14.7			
3	25.1	264	14.7			
4	22.2	354	6.2			
5	21.1	327	2.1			
6	19.8	275	0.3			
7	18.9	238	0.0			
8	18.5	231	0.0			
9	18.0	225	0.2			
10	17.6	237	0.2			
11	17.3	247	0.3			
12	17.1	258	1.8			
13	16.9	263	3.7			
14	16.6	271	6.3			
15	16.3	275	8.2			
16	16.1	276	9.6			
17	15.7	275	10.1			
18	14.7	274	11.2			
19	14.0	270	11.4			
20	13.7	269	11.4			
21	13.4	269	11.1			
22	Bottom					
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Table A11. Boone Reservoir, water quality data at WRM 6, September 1, 2009.

Depth (m)	Temp (C)	Cond	DO	Site	Secchi (m)	Time
0	25.1	206	13.5	WRM 6	1.4	10:00
1	25.1	207	13.6			
2	25.1	207	13.7			
3	25.0	207	13.7			
4	22.7	221	10.5			
5	21.2	221	8.5			
6	20.0	220	8.3			
7	19.3	218	8.4			
8	18.5	205	8.7			
9	18.1	195	9.4			
10	17.4	189	9.9			
11	17.0	187	10.8			
12	16.6	183	11.3			
13	16.2	182	11.6			
14	15.5	178	11.9			
15	14.7	172	12.0			
16	14.4	172	11.8			
17	14.0	170	11.8			
18	13.7	168	11.7			
19	13.4	165	11.6			
20	13.4	165	11.4			
21	13.4	167	11.2			
22	Bottom					
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Table A12. Boone Reservoir, water quality data at WRM 11, September 1, 2009.

Depth (m)	Temp (C)	Cond	DO	Site	Secchi (m)	Time
0	24.5	202	14.3	WRM 6	1.1	10:30
1	24.5	202	14.5			
2	24.5	201	14.6			
3	20.3	192	14.5			
4	17.6	180	13.6			
5	16.3	170	13.4			
6	15.4	161	13.1			
7	14.7	159	12.7			
8	14.7	158	12.4			
9	14.5	155	12.1			
10	Bottom					
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Figure A1. Boone Reservoir water quality data at SFHRM 19, July 2009.

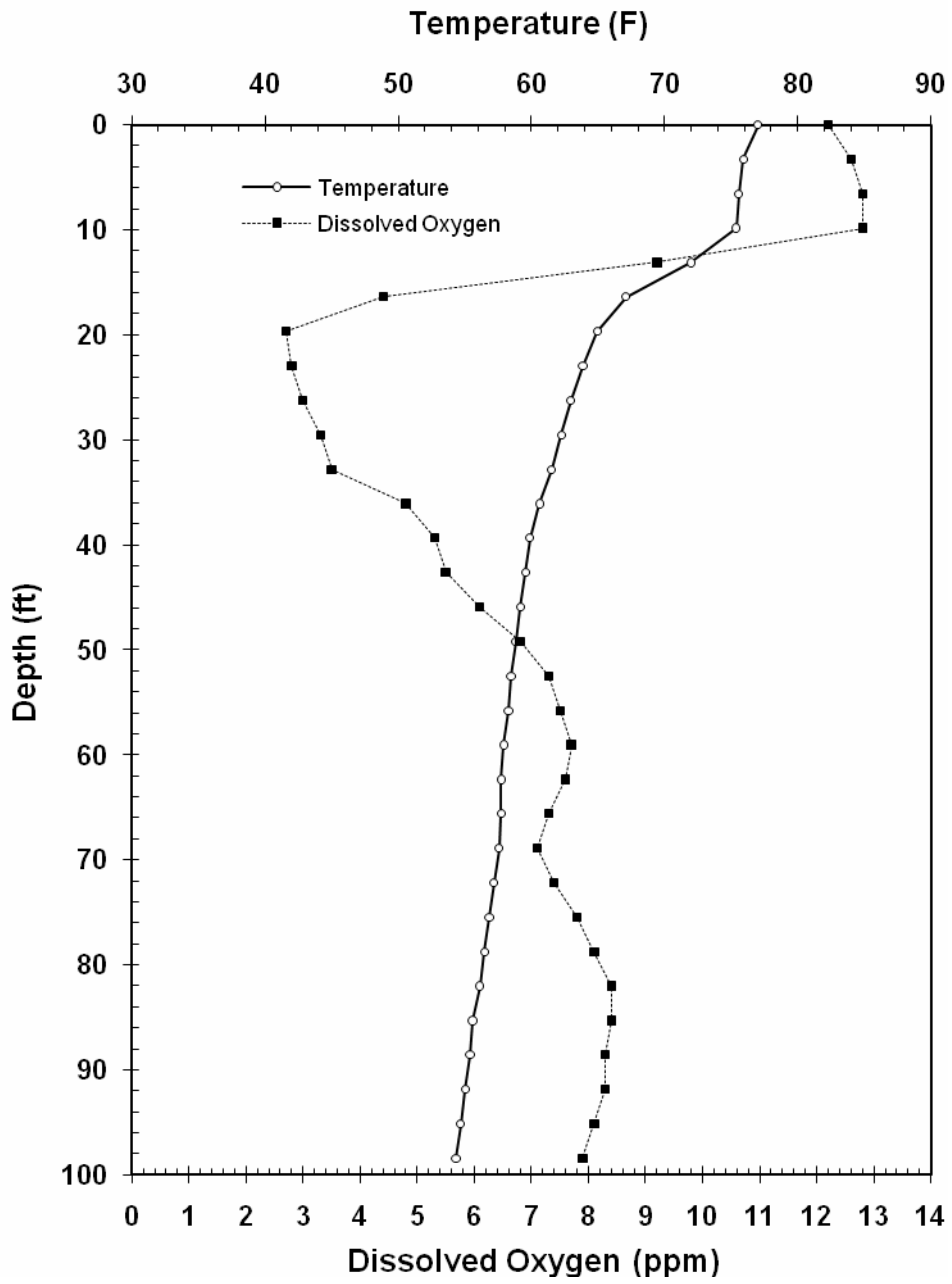


Figure A2. Boone Reservoir water quality data at SFHRM 26, July 2009.

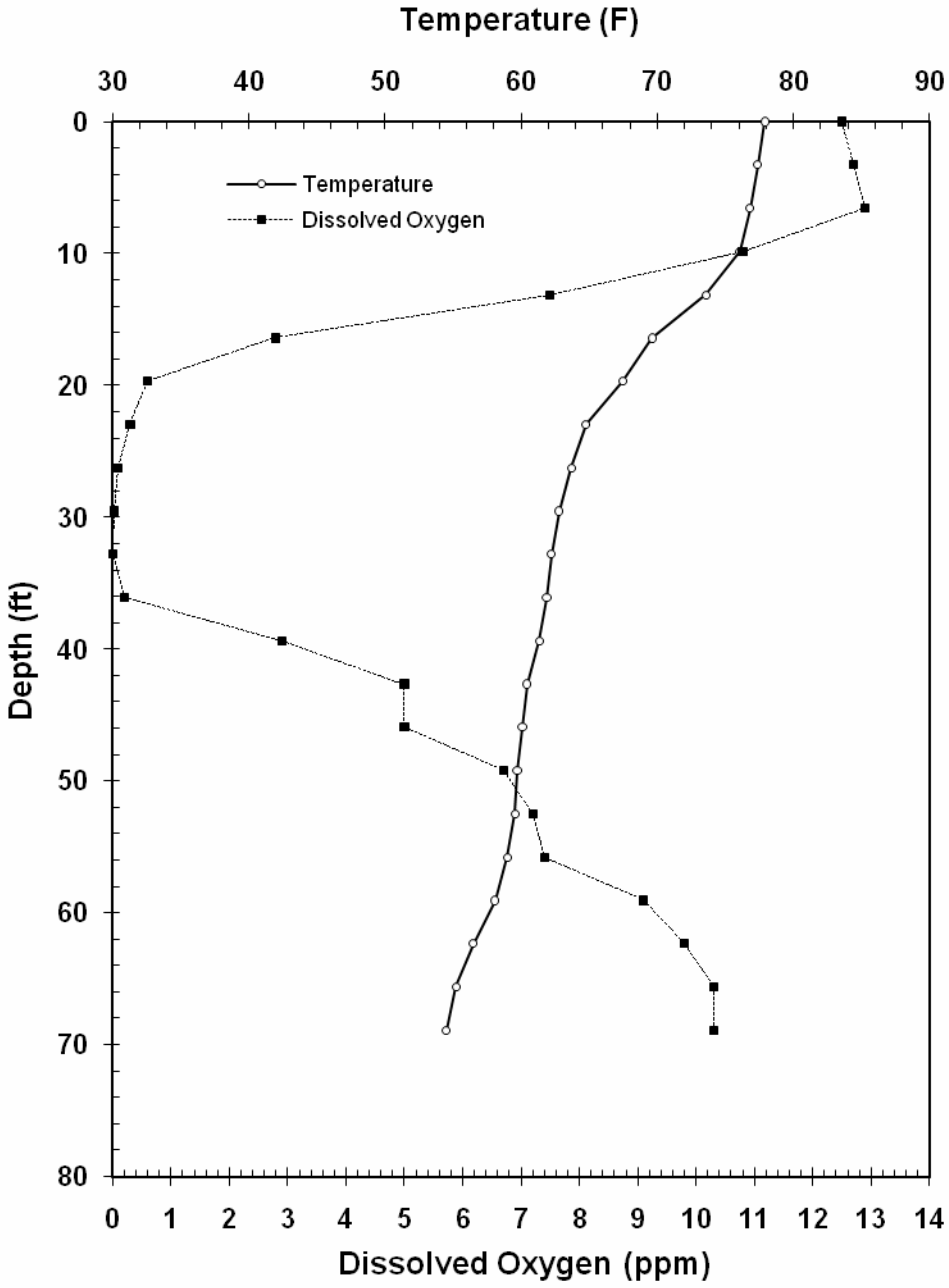


Figure A3. Boone Reservoir water quality data at WRM 6, July 2009.

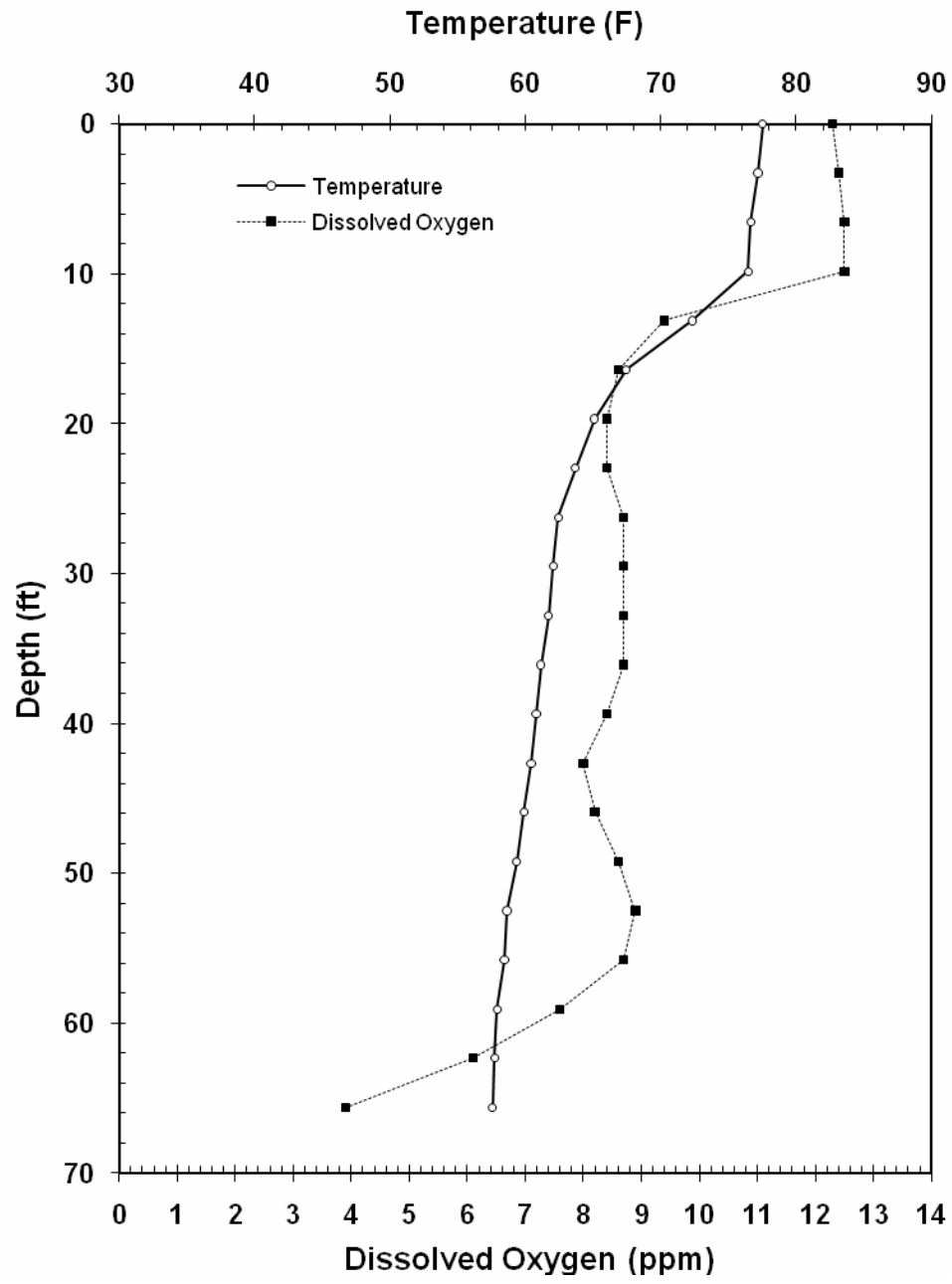


Figure A4. Boone Reservoir water quality data at WRM 11, July 2009.

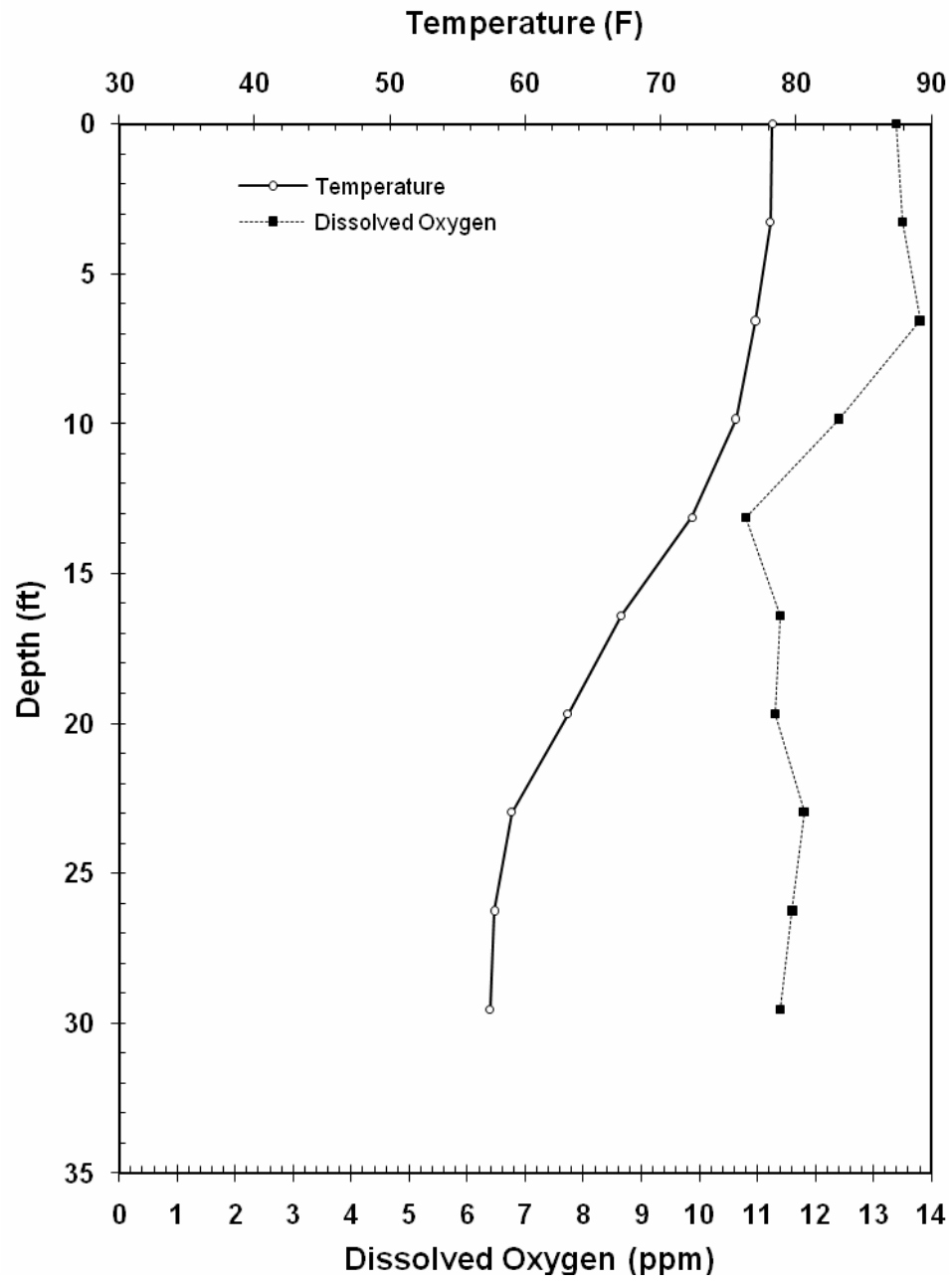


Figure A5. Boone Reservoir water quality data at SFHRM 19, August 2009.

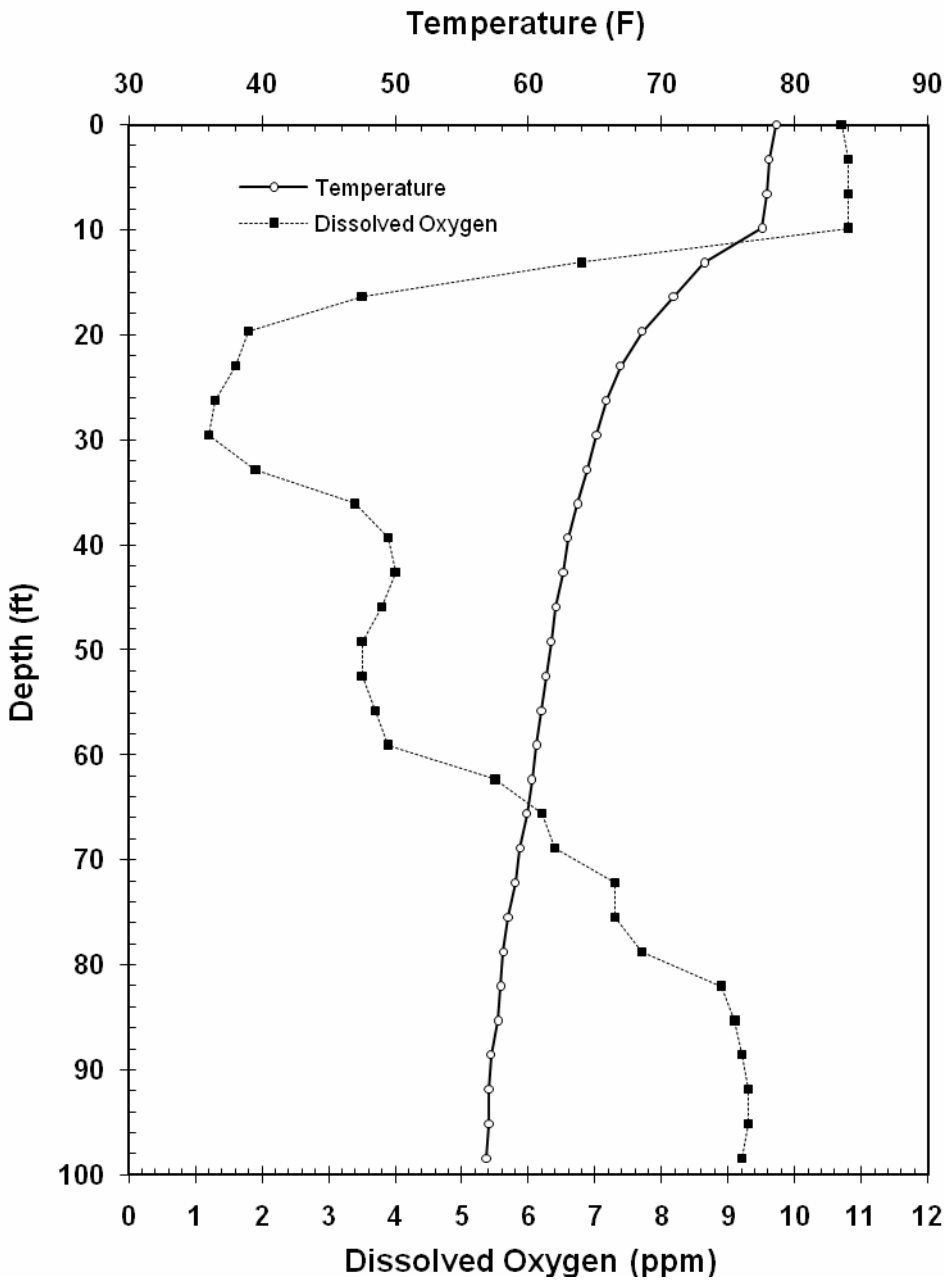


Figure A6. Boone Reservoir water quality data at SFHRM 26, August 2009.

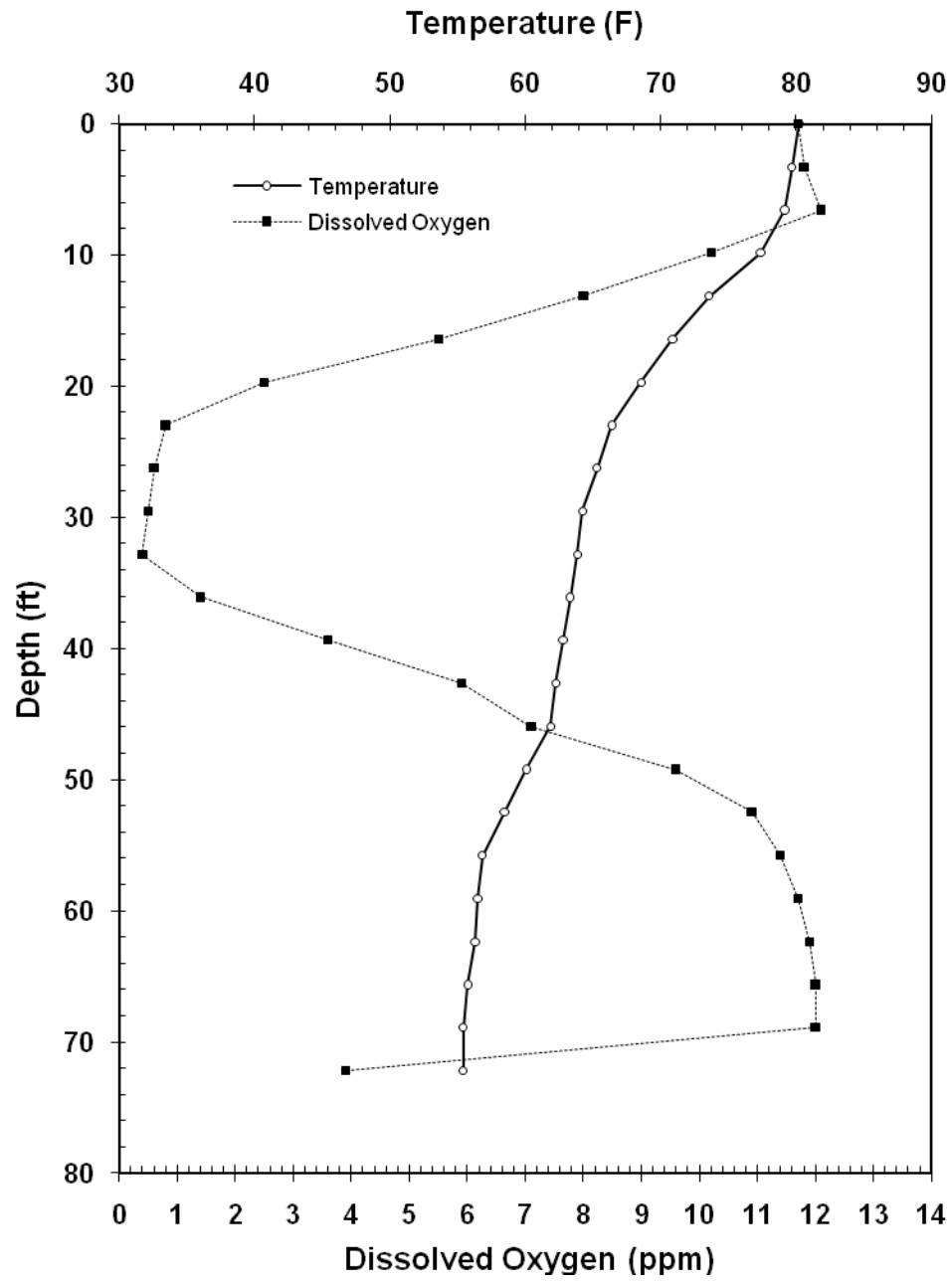


Figure A7. Boone Reservoir water quality data at WRM 6, August 2009.

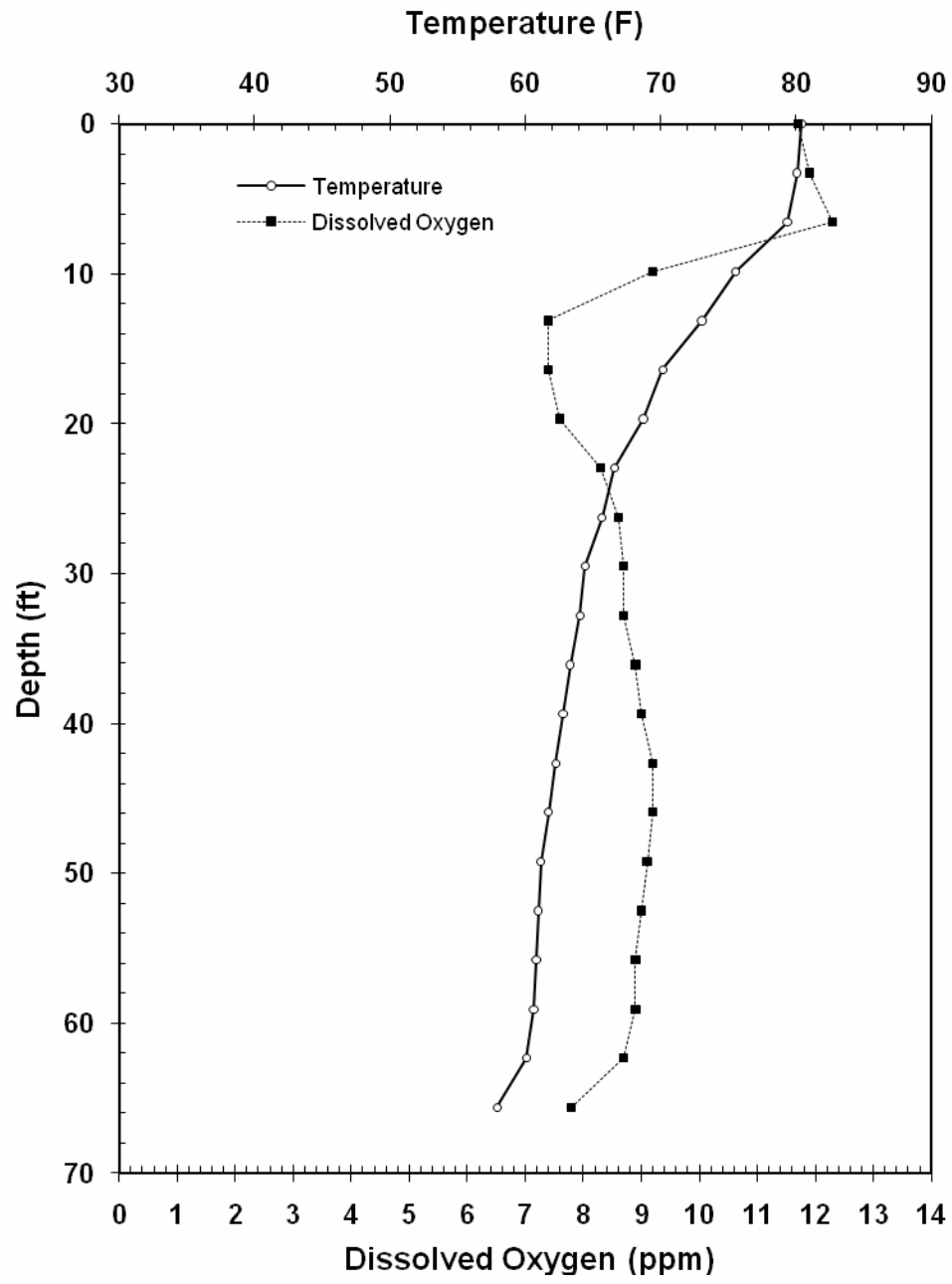


Figure A8. Boone Reservoir water quality data at WRM 11, August 2009.

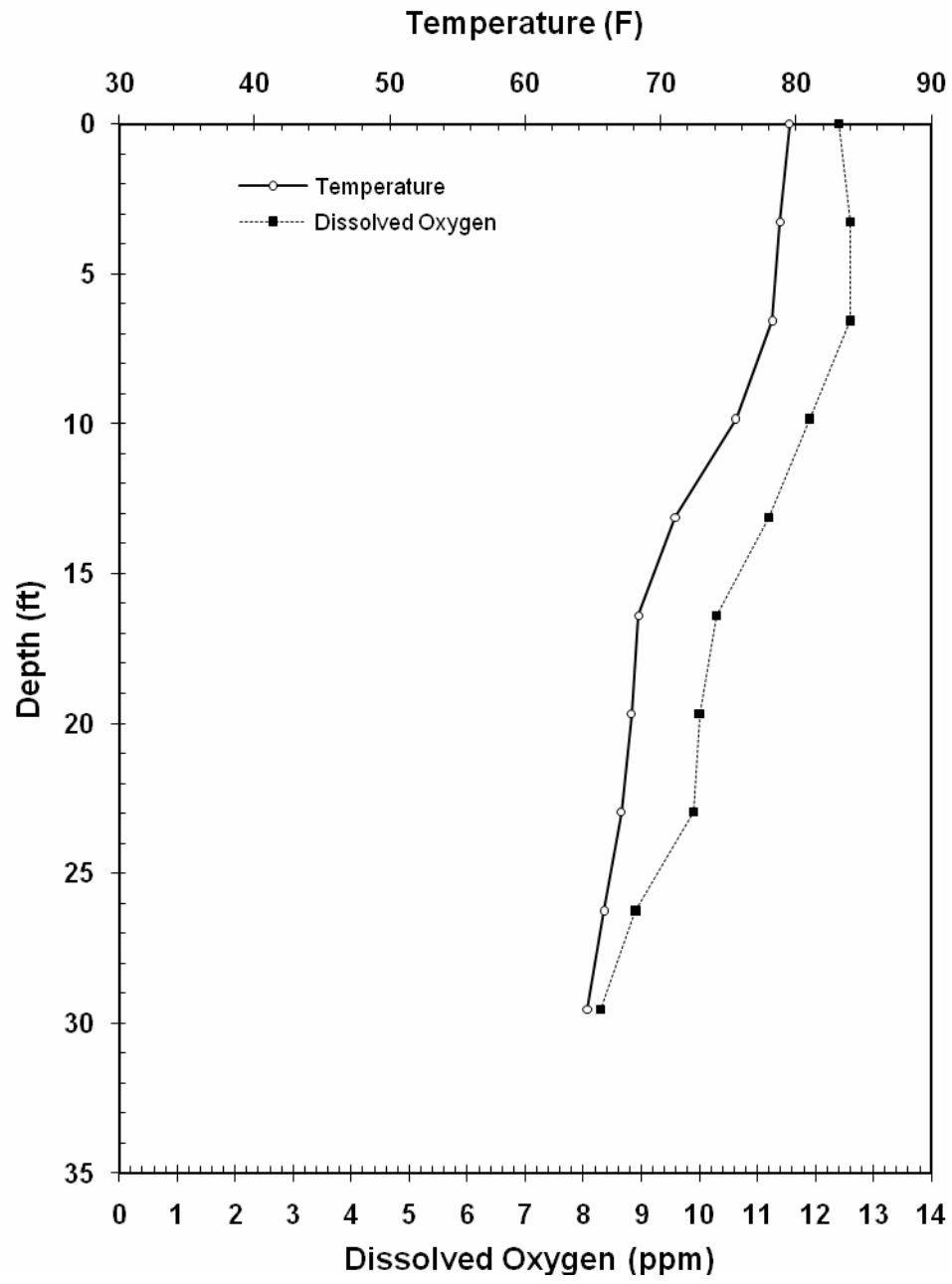


Figure A9. Boone Reservoir water quality data at SFHRM 19, Sept. 2009.

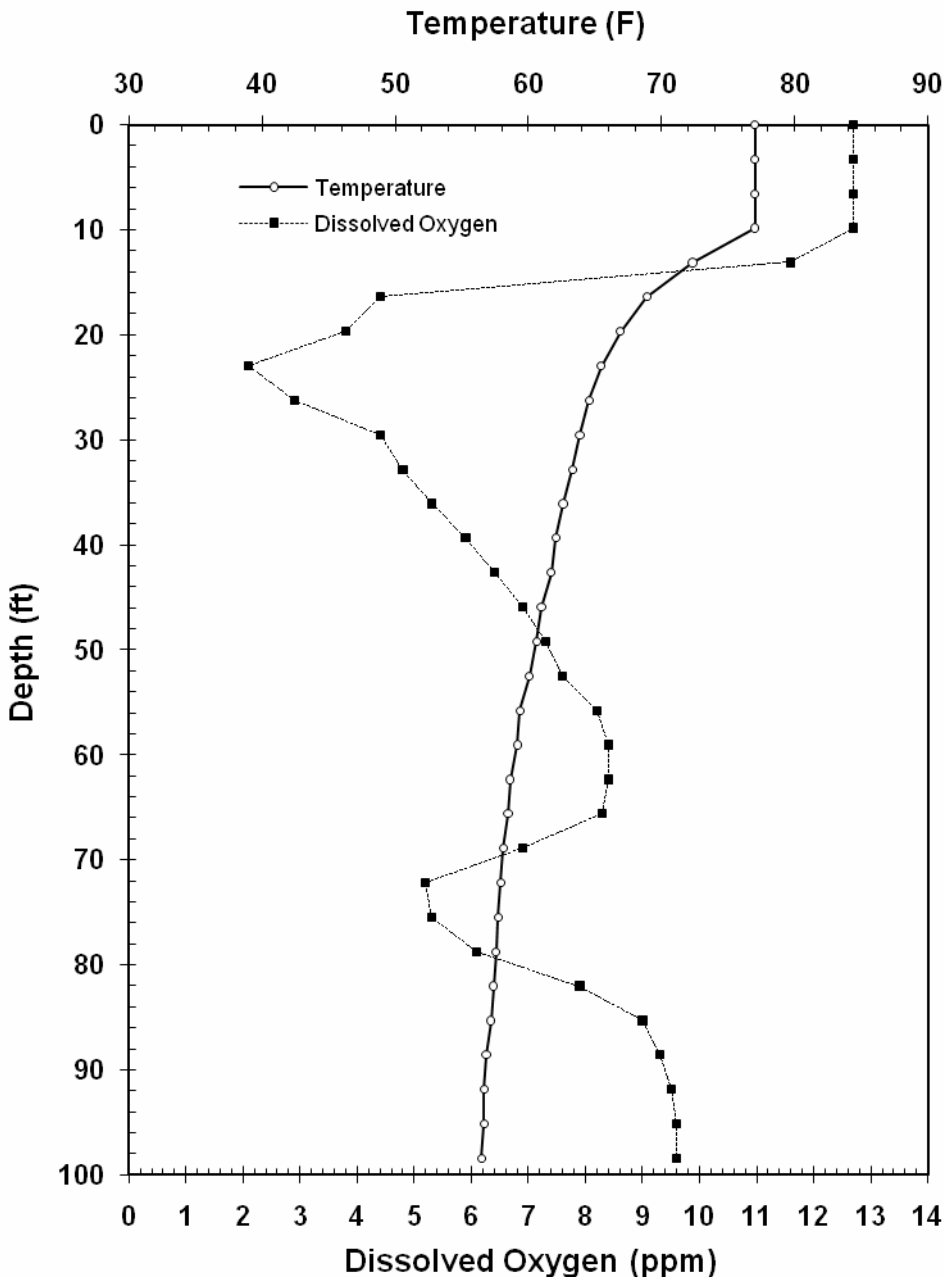


Figure A10. Boone Reservoir water quality data at SFHRM 26, Sept. 2009.

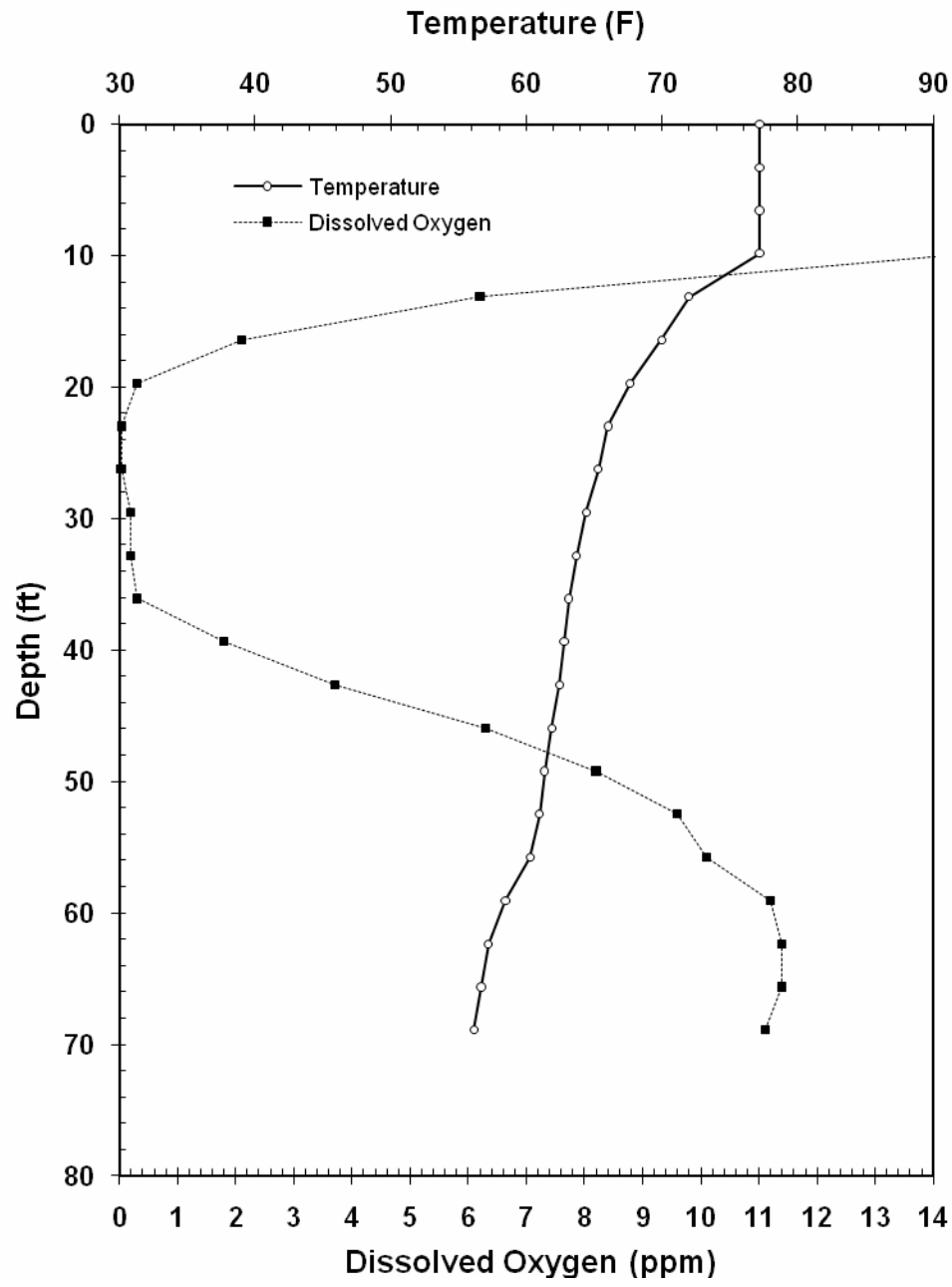


Figure A11. Boone Reservoir water quality data at WRM 6, Sept. 2009.

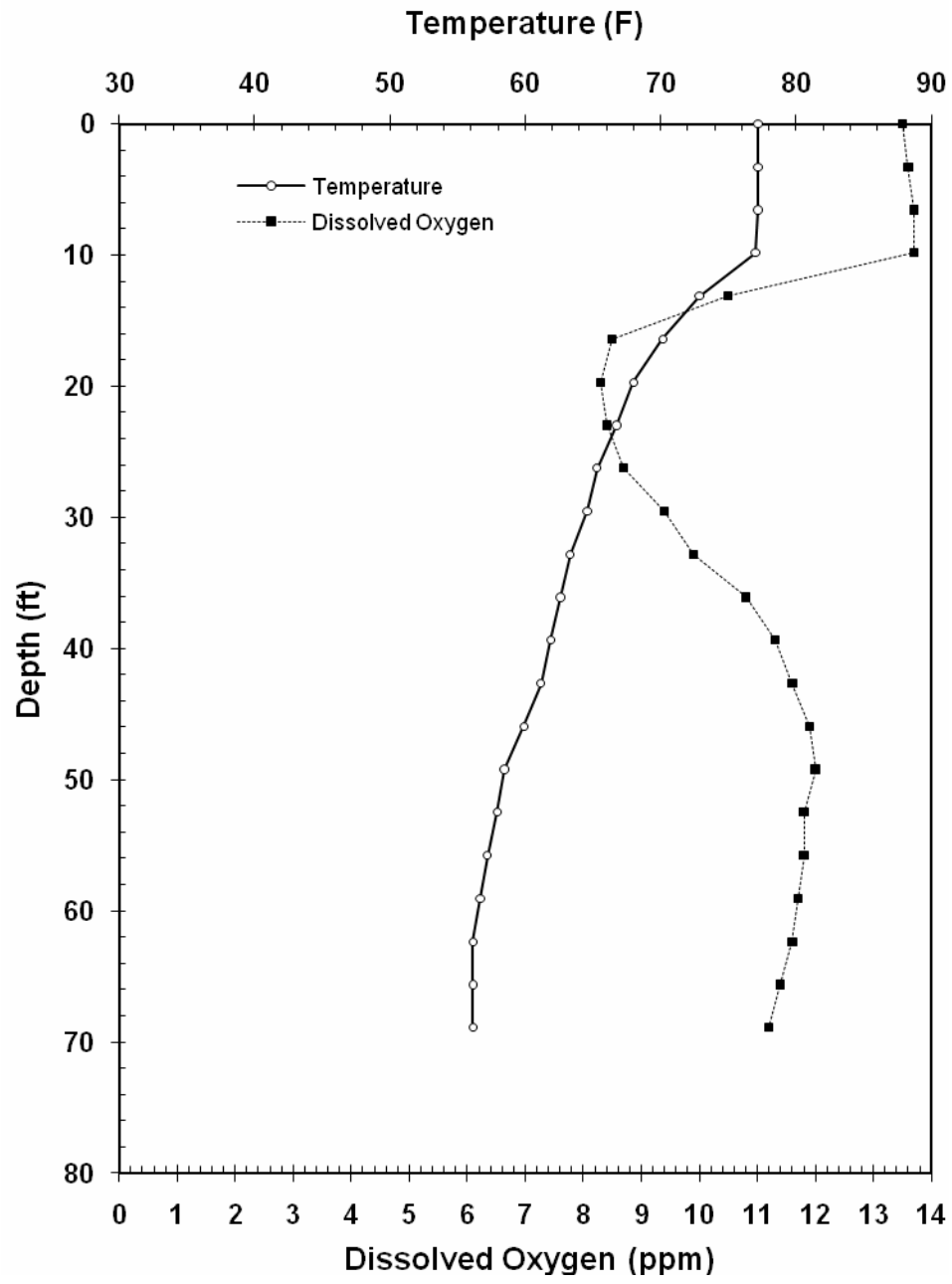
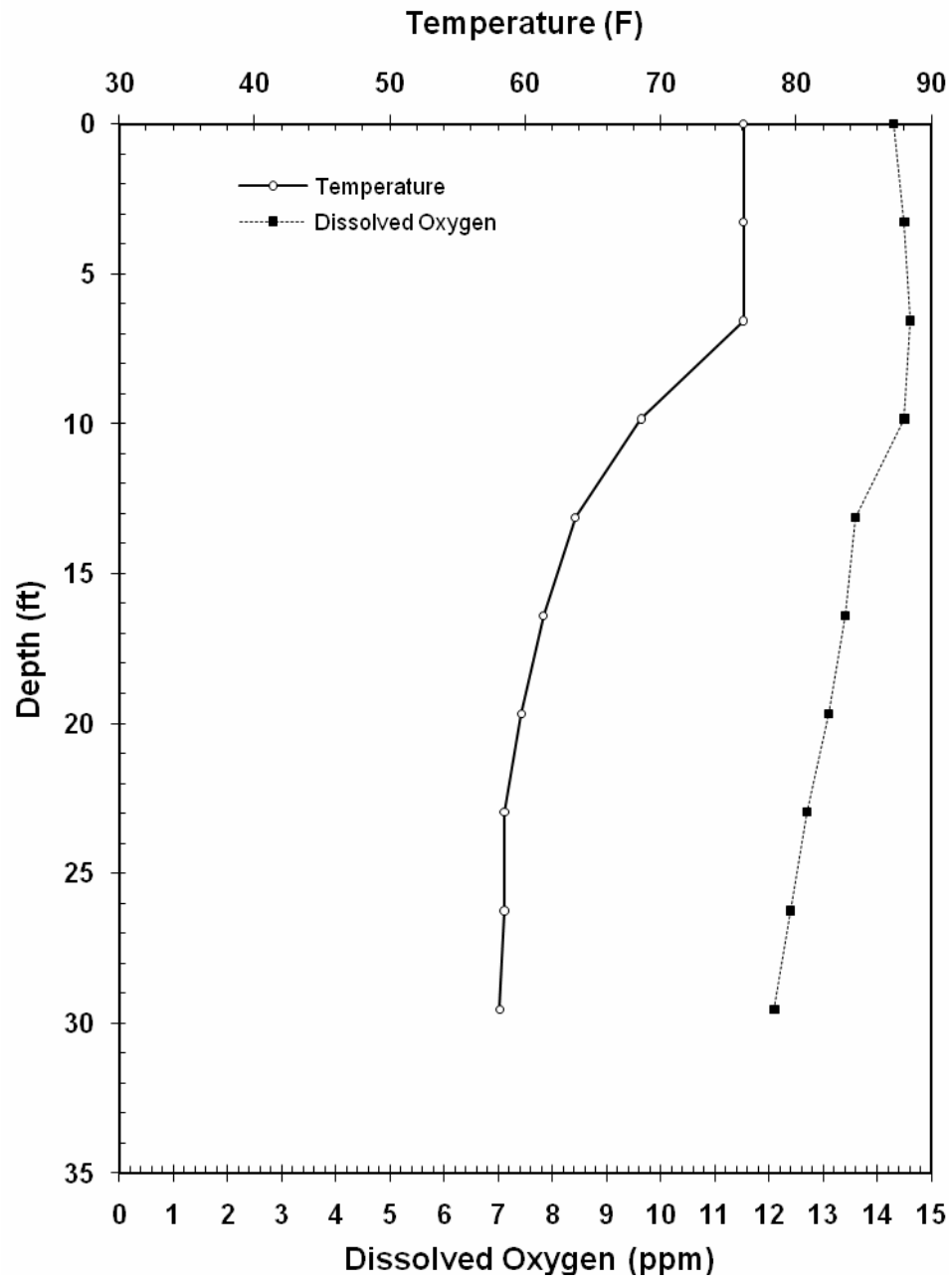


Figure A12. Boone Reservoir water quality data at WRM 11, Sept. 2009.



Appendix B

Reservoir Elevations

Table B1. Boone Reservoir elevation data for 2009. Data is courtesy of TVA.

Elevation	Month	Day	Elevation	Month	Day	Elevation	Month	Day
1363.50	January	1	1369.94	February	24	1380.10	April	19
1363.35	January	2	1370.10	February	25	1380.35	April	20
1363.16	January	3	1370.19	February	26	1380.48	April	21
1363.17	January	4	1370.44	February	27	1380.67	April	22
1363.11	January	5	1370.29	February	28	1380.76	April	23
1364.90	January	6	1370.30	March	1	1380.87	April	24
1369.00	January	7	1370.21	March	2	1380.87	April	25
1368.30	January	8	1369.83	March	3	1380.79	April	26
1367.82	January	9	1369.79	March	4	1380.93	April	27
1367.35	January	10	1370.14	March	5	1381.06	April	28
1368.58	January	11	1370.23	March	6	1381.22	April	29
1367.98	January	12	1370.65	March	7	1381.32	April	30
1366.60	January	13	1370.83	March	8	1381.41	May	1
1365.29	January	14	1371.07	March	9	1381.31	May	2
1364.59	January	15	1371.00	March	10	1381.29	May	3
1363.76	January	16	1371.24	March	11	1381.67	May	4
1363.73	January	17	1371.15	March	12	1381.85	May	5
1363.91	January	18	1371.02	March	13	1382.19	May	6
1363.80	January	19	1371.28	March	14	1382.36	May	7
1363.95	January	20	1371.71	March	15	1381.90	May	8
1364.03	January	21	1372.30	March	16	1380.88	May	9
1363.93	January	22	1372.72	March	17	1381.26	May	10
1363.89	January	23	1372.94	March	18	1381.12	May	11
1363.83	January	24	1373.22	March	19	1381.01	May	12
1363.77	January	25	1373.28	March	20	1381.13	May	13
1363.86	January	26	1373.35	March	21	1380.89	May	14
1364.17	January	27	1373.43	March	22	1381.24	May	15
1364.12	January	28	1373.49	March	23	1380.57	May	16
1364.32	January	29	1373.56	March	24	1381.33	May	17
1364.74	January	30	1373.31	March	25	1381.18	May	18
1364.60	January	31	1373.34	March	26	1380.78	May	19
1364.34	February	1	1373.65	March	27	1380.48	May	20
1364.19	February	2	1373.70	March	28	1380.97	May	21
1363.99	February	3	1373.96	March	29	1381.38	May	22
1364.03	February	4	1374.11	March	30	1381.82	May	23
1364.24	February	5	1374.33	March	31	1381.67	May	24
1364.31	February	6	1374.53	April	1	1381.79	May	25
1364.42	February	7	1374.82	April	2	1381.80	May	26
1364.57	February	8	1375.25	April	3	1381.61	May	27
1364.74	February	9	1375.54	April	4	1381.70	May	28
1364.84	February	10	1375.70	April	5	1382.07	May	29
1365.34	February	11	1376.05	April	6	1382.23	May	30
1365.64	February	12	1376.42	April	7	1382.12	May	31
1365.97	February	13	1376.77	April	8	1382.20	June	1
1366.09	February	14	1376.99	April	9	1382.48	June	2
1366.18	February	15	1377.51	April	10	1382.45	June	3
1366.51	February	16	1378.13	April	11	1382.33	June	4
1366.56	February	17	1378.58	April	12	1382.59	June	5
1367.43	February	18	1378.95	April	13	1382.46	June	6
1368.29	February	19	1379.17	April	14	1382.21	June	7
1368.78	February	20	1379.44	April	15	1382.28	June	8
1369.20	February	21	1379.62	April	16	1382.43	June	9
1369.33	February	22	1379.80	April	17	1382.42	June	10
1369.70	February	23	1379.92	April	18	1382.55	June	11

Table B1. Continued.

Elevation	Month	Day	Elevation	Month	Day	Elevation	Month	Day
1382.47	June	12	1381.84	August	5	1378.90	September	28
1382.40	June	13	1381.94	August	6	1378.23	September	29
1382.11	June	14	1381.89	August	7	1378.37	September	30
1382.24	June	15	1382.05	August	8	1377.94	October	1
1382.60	June	16	1382.07	August	9	1377.44	October	2
1382.72	June	17	1382.07	August	10	1377.69	October	3
1383.00	June	18	1382.07	August	11	1377.47	October	4
1382.57	June	19	1382.12	August	12	1377.36	October	5
1382.25	June	20	1381.89	August	13	1377.25	October	6
1382.27	June	21	1381.80	August	14	1376.93	October	7
1382.03	June	22	1381.74	August	15	1376.56	October	8
1381.97	June	23	1381.87	August	16	1376.33	October	9
1382.11	June	24	1381.95	August	17	1376.24	October	10
1381.99	June	25	1382.13	August	18	1376.30	October	11
1381.97	June	26	1382.64	August	19	1376.21	October	12
1382.21	June	27	1382.38	August	20	1375.97	October	13
1382.11	June	28	1382.10	August	21	1375.73	October	14
1381.96	June	29	1382.17	August	22	1375.91	October	15
1382.01	June	30	1382.09	August	23	1375.80	October	16
1381.91	July	1	1381.93	August	24	1375.91	October	17
1381.97	July	2	1381.99	August	25	1375.56	October	18
1381.95	July	3	1381.90	August	26	1375.49	October	19
1382.10	July	4	1382.05	August	27	1375.33	October	20
1381.99	July	5	1382.00	August	28	1375.19	October	21
1381.99	July	6	1381.96	August	29	1374.93	October	22
1382.01	July	7	1381.78	August	30	1374.75	October	23
1382.11	July	8	1381.58	August	31	1374.82	October	24
1382.24	July	9	1381.69	September	1	1374.39	October	25
1382.28	July	10	1381.69	September	2	1374.58	October	26
1381.75	July	11	1381.75	September	3	1374.52	October	27
1381.51	July	12	1381.84	September	4	1374.30	October	28
1382.11	July	13	1381.85	September	5	1373.82	October	29
1381.93	July	14	1381.91	September	6	1373.69	October	30
1381.79	July	15	1381.88	September	7	1373.23	October	31
1381.80	July	16	1381.64	September	8	1372.85	November	1
1382.19	July	17	1381.36	September	9	1373.00	November	2
1382.20	July	18	1381.07	September	10	1372.44	November	3
1381.81	July	19	1380.84	September	11	1371.84	November	4
1381.79	July	20	1380.78	September	12	1371.14	November	5
1382.00	July	21	1380.59	September	13	1371.07	November	6
1381.98	July	22	1380.23	September	14	1371.17	November	7
1382.02	July	23	1379.54	September	15	1371.09	November	8
1381.93	July	24	1379.47	September	16	1370.52	November	9
1381.92	July	25	1379.32	September	17	1370.60	November	10
1381.97	July	26	1379.62	September	18	1372.97	November	11
1382.10	July	27	1379.67	September	19	1372.17	November	12
1382.21	July	28	1379.10	September	20	1371.78	November	13
1382.41	July	29	1379.24	September	21	1371.37	November	14
1382.41	July	30	1379.00	September	22	1370.25	November	15
1382.20	July	31	1378.96	September	23	1370.52	November	16
1381.99	August	1	1378.91	September	24	1370.07	November	17
1381.87	August	2	1379.29	September	25	1369.19	November	18
1382.11	August	3	1379.41	September	26	1368.47	November	19
1381.87	August	4	1379.29	September	27	1367.97	November	20

Table B1. Continued.

Elevation	Month	Day
1367.88	November	21
1367.65	November	22
1367.35	November	23
1366.89	November	24
1366.50	November	25
1366.57	November	26
1366.17	November	27
1365.89	November	28
1365.63	November	29
1366.10	November	30
1365.73	December	1
1365.60	December	2
1365.36	December	3
1364.40	December	4
1364.59	December	5
1364.78	December	6
1364.44	December	7
1363.14	December	8
1365.94	December	9
1366.39	December	10
1365.12	December	11
1364.22	December	12
1364.44	December	13
1364.00	December	14
1363.57	December	15
1362.81	December	16
1362.33	December	17
1362.81	December	18
1360.71	December	19
1361.13	December	20
1362.18	December	21
1361.88	December	22
1362.69	December	23
1363.63	December	24
1364.09	December	25
1364.77	December	26
1364.57	December	27
1364.74	December	28
1363.90	December	29
1363.28	December	30
1362.82	December	31

Figure B1. Boone Reservoir daily reservoir elevations for 2009 (TVA data).