

Douglas Reservoir
Annual Report 2009

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Douglas Reservoir

Description

Surface Area: 30,400 acres Counties: Jefferson, Sevier, Cocke Full Pool Elevation: 994 feet above mean sea level Maximum Depth: 129 feet Mean Chlorophyll (Forebay): 6.8 parts per million Trophic Status (Forebay): Mesotrophic Hydraulic Retention Time: 105 days Total Fishing Effort: N/A in 2009	Shoreline Distance: 127 miles Drainage Area: 4541 square miles Mean Annual Fluctuation: 50 feet Thermocline Depth: 23 feet Shoreline Development: 17% Trophic Index, Carlson (1977): 49.3 Reservoir Age: 66 years (dam closure 1943) Total Value by Anglers: N/A in 2009
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Habitat Enhancement and Monitoring

Location	New Sites			Renovated Sites			Expanded Sites		
	Number	Units	Acres	Number	Units	Acres	Number	Units	Acres
FBRM 42.5 L*							1	1100	22.00
FBRM 43.75 L**	1	100	2.00						
FBRM 43.6 L**	1	100	2.00						
FBRM 43.0 L**	1	105	2.10						
Total	3	305	6	0	0	0	1	1100	22

*Cedars and hardwoods anchored with arbor anchors and rope

**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)	138,920	300,140	N o	225,947	N o	189,271	N o	204,725	N o	N o	211,801
	(hrs/acre)	4.6	9.9		7.4		6.2		6.7			7.0
Any Black Bass	(hrs)	87,596	1,021	S u r v e y	30,219	S u r v e y	330	S u r v e y	116,281	S u r v e y	S u r v e y	47,089
	(hrs/acre)	2.9	0.0		1.0		0.0		3.8			2
Largemouth Bass	(hrs)	50,801	298,727	S u r v e y	195,728	S u r v e y	188,941	S u r v e y	88,444	S u r v e y	S u r v e y	164,528
	(hrs/acre)	1.7	9.8		6.4		6.2		2.9			5
Smallmouth Bass	(hrs)	523	392	S u r v e y	0	S u r v e y	0	S u r v e y	0	S u r v e y	S u r v e y	183
	(hrs/acre)	0.0	0.0		0.0		0.0		0.0			0
Spotted Bass	(hrs)	0	0	S u r v e y	0	S u r v e y	0	S u r v e y	0	S u r v e y	S u r v e y	0
	(hrs/acre)	0.0	0.0		0.0		0.0		0.0			0
Tournaments (BITE program)												
# Tournaments (BITE)			31	32	18	5	10	9	4	3	3	12.8
Pounds/Angler Day (BITE)			4.70	4.32	4.68	5.53	4.96	4.89	4.29	3.73	3.49	4.51
Bass/Angler Day (BITE)			3.23	2.72	2.74	3.35	3.00	3.03	2.28	2.17	1.84	2.71
Value of Fishery (creel survey data - trip expenditures)												
All Black Bass		\$345,150	\$518,570	No	\$618,060	No	\$698,920	No	\$1,013,420	No	No	\$638,824
Any Black Bass		\$180,530	\$1,030		\$93,390		\$960		\$610,600			\$177,302
Largemouth Bass		\$164,050	\$517,060	Survey	\$524,670	Survey	\$697,960	Survey	\$402,820	Survey	Survey	\$461,312
Smallmouth Bass		\$570	\$480		\$0		\$0		\$0			\$210
Spotted Bass		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	

Largemouth Bass

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Recruitment (electrofishing data - CPUE = # fish/hour)											
Age-1 CPUE	46.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	46.5
Substock CPUE	50.3	38.6	25.1	14.3	19.9	26.9	17.3	42.6	45.7	64.9	34.6
Density (electrofishing data - CPUE = # fish/hour)											
PSD	49%	54%	74%	62%	50%	62%	65%	44%	68%	53%	58.1%
RSD - Preferred	7%	11%	16%	33%	15%	21%	18%	10%	13%	12%	15.6%
CPUE	179.6	133.4	152.2	69.2	115.8	196.0	121.3	132.3	153.7	185.7	143.9
CPUE ≥ Stock	129.3	94.7	127.1	54.9	95.9	169.1	104.1	89.7	108.0	120.9	109.4
CPUE ≥ MSL	N o M i n i m u m S i z e L i m i t										
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	
Mean TL at Age-3 (mm)	342	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	342
Relative Weight (electrofishing data)											
Stock - Quality	85.2	83.3	90.9	87.1	85.7	92.0	85.9	92.0	87.7	90.5	88.0
Quality - Preferred	88.1	86.4	90.4	92.9	91.0	91.8	88.1	88.5	90.3	90.1	89.8
Preferred - Memorable	86.9	91.0	92.3	90.4	93.1	96.8	91.2	93.0	91.0	91.4	91.7
Memorable - Trophy	94.0	92.2	53.6	101.1	none	111.3	100.7	98.8	102.4	103.2	95.3
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	
Fishing Success (creel survey data)											
Catch Rate	not calculated	1.01	No	1.3	No	0.99	No	1.20	No	No	1.13
Harvest Rate	not calculated	0.04		0.06		0.03		0.04			0.04
Percent Harvested	13.9%	7.1%	Survey	7.7%	Survey	5.2%	Survey	6.1%	Survey	Survey	8.0%
Mean Weight (pounds)	1.44	1.11		1.23		1.33		1.45			1.3

Fishery Forecast

The largemouth bass population has potential to be comprised of larger fish due to excellent growth rates and recruitment. However, the percentages of preferred size largemouth (15-inches and bigger) in the population are consistently low. Due to the excellent productivity of the reservoir and the high numbers of largemouth bass we sample, we still manage to see several fish in preferred size range. Again in 2009, we saw above average numbers of all sizes of largemouth bass with only a small percent of them over 15-inches. The fishery should remain stable due to good natural reproduction and recruitment.

Management Recommendations:

Maintain current regulations, but consider a slot limit because of the potential of the fast growth and steady reproduction and recruitment of the largemouth bass in Douglas Reservoir.

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	0.0	0.0	2.3	0.3	0.6	0.0	0.0	0.0	0.0	0.0	0.3
*Density (electrofishing data - CPUE = # fish/hour)											
PSD	100%	75%	64%	0%	62%	58%	61%	29%	46%	66%	56.1%
RSD - Preferred	0%	0%	45%	0%	35%	44%	36%	9%	30%	34%	23.3%
CPUE	0.7	1.3	5.9	0.3	19.9	15.5	17.1	19.8	44.9	18.7	14.4
CPUE ≥ Stock	0.7	1.3	3.6	0.0	19.4	15.5	17.1	19.8	44.9	18.7	14.1
CPUE ≥ MSL (20")	0.0	0.0	0.0	0.0	0.0	0.4	0.5	0.0	0.0	0.0	0.1
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	77.8	79.3	none	86.2	89.4	81.1	82.8	86.9	87.6	83.9
Quality - Preferred	77.2	78.6	80.1	none	86.6	83.0	84.0	80.9	86.1	83.3	82.2
Preferred - Memorable	none	none	91.7	none	82.2	81.8	89.6	79.8	87.0	88.4	85.8
Memorable - Trophy	none	none	92.3	none	81.7	91.7	91.7	71.0	87.1	88.0	86.2
Trophy	none	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	0.3	0.1	0.0	0.0	0.3	0.06
Fishing Success (creel survey data)											
Catch Rate	not calculate	not calculated	No	0.01	No	0.00	No	0.05	No	No	0.02
Harvest Rate	not calculate	not calculated	No	0.00	No	0.00	No	0.00	No	No	0.00
Percent Harvested	22.5%	38.0%	Survey	0.0%	Survey	0.8%	Survey	0.0%	Survey	Survey	12.3%
Mean Weight (pounds)	2.53	1.13	Survey	N/A	Survey	2.00	Survey	N/A	Survey	Survey	1.89

* 2004 - present data was collected from targetted smallmouth bass sample. Previous data was collected from standardized springtime electrofishing samples.

Fishery Forecast:

In 2009, we did not see as many smallmouth bass under 10-inches as the year before. This is most likely due to the lack of stocking fingerlings in 2007 and 2008. However, the size structure of smallmouth over 10-inches has improved the last several years. We saw a little below average numbers of smallmouth in 2009, but smallmouth are very difficult to collect and the population seems to be very stable based on size structure. The Douglas smallmouth bass population has the potential to become a nice trophy size fishery with the 20-inch minimum size limit in place.

Management Recommendations:

Continue to monitor the effects of the 20-inch, 1 fish creel limit imposed in 2001. Collect a sample large enough to analyze age and growth.

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
Density (electrofishing data - CPUE = # fish/hour)											
PSD	none	none	none	none	none	none	none	none	none	none	
RSD - Preferred	none	none	none	none	none	none	none	none	none	none	
CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
CPUE ≥ Stock	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
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	none	none	none	none	none	none	none	
Preferred - Memorable	none	none	none	none	none	none	none	none	none	none	
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	not calculated	not calculated	No	0.00	No	0.00	No	0.00	No	No	0.00
Harvest Rate	not calculated	not calculated	No	0.00	No	0.00	No	0.00	No	No	0.00
Percent Harvested	N/A	N/A	Survey	N/A	Survey	N/A	Survey	N/A	Survey	Survey	
Mean Weight (pounds)	N/A	N/A	Survey	N/A	Survey	N/A	Survey	N/A	Survey	Survey	

Fishery Forecast:

It has been 10 sample seasons since a spotted bass has been collected in Douglas Reservoir. Although they are present and numerous in the headwaters of the reservoir, they do not seem to prefer the reservoir itself. Therefore, there is little chance of them becoming a significant part of the Douglas Reservoir "bass" fishery through natural migration.

Management Recommendations:

Maintain current regulations.

Black Crappie

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Recruitment (trap net data) - CPUE = # fish/ net night)											
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	1.77	0.24	1.10	6.90	0.35	0.58	0.40	0.10	0.13	0.11	1.17
Density (trap net data) - CPUE = # fish/ net night)											
PSD	84%	80%	69%	82%	88%	85%	98%	100%	82%	86%	85.4%
RSD - Preferred	35%	48%	27%	41%	37%	42%	66%	63%	58%	31%	44.8%
CPUE	3.44	1.20	6.00	10.60	6.70	8.00	3.60	2.13	1.31	3.43	4.64
CPUE ≥ Stock	1.67	0.97	4.85	4.90	6.30	7.40	3.20	2.03	1.18	3.32	3.58
CPUE ≥ MSL (10")	0.44	0.43	1.11	1.30	1.61	2.33	1.80	1.10	0.60	0.69	1.14
Growth (trap net 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 (trap net data)											
Stock - Quality	156.2	90.3	85.3	90.7	91.0	94.2	113.1	none	105.8	110.2	104.1
Quality - Preferred	111.6	96.9	88.1	99.2	96.7	97.4	106.2	107.2	98.7	105.4	100.7
Preferred - Memorable	103.2	94.0	86.2	95.9	93.7	95.2	100.7	101.2	97.7	98.3	96.6
Memorable - Trophy	103.6	88.5	78.9	87.1	87.6	93.5	90.1	95.1	93.6	95.2	91.3
Trophy	none	none	none	none	none	none	none	none	none	none	none
Mortality (trap net data)											
Total Mortality	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	#DIV/0!
Stocking											
# per Acre	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	5.4	1.1
Angling Pressure (creel survey data - any crappie)											
Angler Hours	156,002	310,674	No Survey	223,758	No Survey	231,877	No Survey	227,504	No Survey	No Survey	229,963
Angler Hours/Acre	5.1	10.2		7.4		7.6		7.5			7.6
Fishing Success (creel survey data)											
Catch Rate	0.14	0.02	No Survey	0.1	No Survey	0.12	No Survey	0.31	No Survey	No Survey	0.14
Harvest Rate	0.09	0.01		0.04		0.06		0.18			0.08
Percent Harvested	59.7%	89.9%	No Survey	33.3%	No Survey	47.7%	No Survey	55.7%	No Survey	No Survey	57.3%
Mean Weight (pounds)	0.95	0.87		0.76		0.74		0.81			0.83
Value of Fishery (creel survey data - trip exp)											
Any Crappie	\$203,450	\$208,070	No Survey	\$173,960	No Survey	\$171,420	No Survey	\$229,760	No Survey	No Survey	\$197,332

Fishery Forecast:

In 2009, we managed to see evidence of natural reproduction from 2008. This is good news because we saw only very limited natural reproduction for three years prior to 2009. Although the densities are still a little below average, the population is showing signs of recovery.

Management Recommendations:

1. Maintain current size and creel limit.
2. The TWRA is recommending to TVA that an elevation of 975 feet msl be attained by April 1.
3. Continue to use Henderson Island pond for a crappie nursery pond.
4. Continue to stock crappie when available from the hatchery.

White Crappie

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Recruitment (trap net data) - CPUE = # fish/ net night)											
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	0.35	0.09	0.28	8.76	0.10	1.13	0.06	0.02	0.01	0.00	1.08
Density (trap net data) - CPUE = # fish/ net night)											
PSD	100%	88%	65%	65%	87%	91%	100%	100%	100%	100%	90%
RSD - Preferred	100%	75%	26%	48%	47%	67%	75%	40%	67%	100%	65%
CPUE	0.44	0.18	0.99	9.02	0.50	1.50	0.20	0.18	0.04	0.01	1.31
CPUE ≥ Stock	0.08	0.09	0.71	0.26	0.43	0.37	0.13	0.17	0.03	0.01	0.23
CPUE ≥ MSL (10")	0.08	0.06	0.13	0.11	0.16	0.20	0.09	0.07	0.02	0.01	0.09
Growth (trap net 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	#DIV/0!
Relative Weight (trap net data)											
Stock - Quality	none	69.9	78.3	93.2	87.4	91.0	none	none	none	none	84.0
Quality - Preferred	none	107.1	89.3	99.9	91.0	93.7	105.7	97.4	97.8	none	#NAME?
Preferred - Memorable	78.4	102.4	97.3	97.9	99.0	95.5	99.3	101.3	92.4	none	95.9
Memorable - Trophy	97.8	96.9	67.0	96.2	90.2	94.8	93.7	112.8	none	51.3	89.0
Trophy	none	none	none	none	none	none	none	none	none	none	none
Mortality (trap net 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	0.8	0.0	0.0	0.5	0.0	0.5	1.2	0.6	0.4
Angling Pressure (creel survey data - any crappie)											
Angler Hours	156,002	310,674	No	223,758	No	231,877	No	227,504	No	No	229,963
Angler Hours/Acre	5.1	10.2		7.4		7.6		7.5			7.6
Fishing Success (creel survey data)											
Catch Rate	0.67	0.83	Survey	1.7	Survey	1.68	Survey	1.57	Survey	Survey	1.29
Harvest Rate	0.38	0.60		0.63		0.69		0.67			0.59
Percent Harvested	53.6%	68.3%	30.9%	36.5%	39.9%	45.8%					
Mean Weight (pounds)	0.95	0.90	0.73	0.68	0.64	0.78					
Value of Fishery (creel survey data - trip exp)											
Any Crappie	\$203,450	\$208,070	\$173,960	\$171,420	\$229,760	\$197,332					

Fishery Forecast:

Unfortunately in 2009, we did not see the same signs of recovery with white crappie as we did with black crappie. As a matter of fact, we only sampled one individual white crappie. Hopefully, we will see some sort of signs of natural reproduction when we sample in 2010.

Management Recommendations:

1. Maintain current size and creel limit.
2. The TWRA is recommending that an elevation of 975 feet msl be attained by April 1.
3. Continue to use Henderson Island pond for a crappie nursery pond.
4. Continue to stock crappie when available from the hatchery.

Sauger

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Mean
Recruitment (winter gill net data)											
Substock CPUE	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Density (winter gill net data - CPUE = # fish/net night)											
PSD	100%	97%	100%	58%	88%	88%	93%	74%	100%	65%	86%
RSD - Preferred	79%	57%	43%	24%	45%	14%	47%	37%	37%	36%	42%
CPUE	4.22	5.08	20.00	10.71	0.48	7.00	13.00	11.29	5.83	9.43	8.70
CPUE = Stock	4.22	5.08	20.00	10.57	0.48	7.00	13.00	11.29	5.83	9.43	8.69
CPUE = MSL (15")	2.67	2.33	6.33	2.00	0.19	1.00	5.10	3.30	2.00	N/A	2.77
Growth (winter gill net data)											
Mean TL at Age-1 (mm)			377	268		340	333	342	360	370	341.4
Mean TL at Age-3 (mm)			443	455	426	425	none	409	367	448	424.7
Relative Weight (winter gill net data)											
Stock - Quality	none	98.1	none	90.4	90.1	89.0	87.1	88.7	none	91.8	90.7
Quality - Preferred	89.8	98.7	100.2	99.7	91.2	91.2	92.4	90.9	95.1	99.0	94.8
Preferred - Memorable	81.9	100.5	99.1	103.8	98.5	92.0	93.0	96.2	92.8	95.5	95.3
Memorable - Trophy	96.2	none	none	none	92.9	none	none	none	none	96.3	95.1
Trophy	none	none	none	none	none	none	none	none	none	none	
Mortality (winter gill net data)											
Total Mortality	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	3.7	5.6	0.0	4.8	1.2	1.7	0.9	2.2	2.0	2.2
Angling Pressure (creel survey data - sauger data only)											
Angler Hours	463	239	35,171	No	26,566	No	11,140	No	15,001	No	14,763
Angler Hours/Acre	0.02	0.01	1.16		0.87		0.37		0.49		0.49
Fishing Success (creel survey data - sauger data only)											
Percent Harvested	59.0%	36.5%	22.9%	Survey	20.6%	Survey	17.4%	Survey	21.3%	Survey	29.6%
Mean Weight (pounds)	N/A	1.60	1.29		1.54		0.92		1.27		1.32
Value of Fishery (creel survey data - trip expenditures)											
All Sanders	not calculated	\$8,770	\$34,020	Survey	\$20,440	Survey	\$24,260	Survey	\$33,040	Survey	\$24,106
Sauger Data Only	not calculated	\$310	\$31,280		\$19,170		\$13,150		\$28,030		\$18,388

Fishery Forecast:

The 2009 sauger densities were a little below average, but the percentage of sauger over 15-inches was the highest ever recorded. This is most likely due to the new "experimental" sauger regulation that went into effect March 1, 2008. We hope that the sauger in the population over 15-inches will be able to naturally reproduce in 2009. The purpose of the new regulation is to protect the mature females from being harvested.

Management Recommendations:

Maintain current sauger/walleye regulations. Monitor angler harvest composition, in response to the new regulation, with a creel survey targeting sauger anglers on Douglas Reservoir.

Walleye

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Recruitment (winter gill net data)											
Substock CPUE	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.01
Density (winter gill net data - CPUE = # fish/net night)											
PSD	57%	75%	11%	0%	80%	100%	27%	86%	57%	22%	51.5%
RSD - Preferred	0%	0%	0%	0%	0%	38%	9%	4%	11%	0%	6.2%
CPUE	0.58	1.33	1.29	0.08	1.00	1.14	6.43	4.67	4.00	4.57	2.51
CPUE ≥ Stock	0.58	1.33	1.29	0.08	1.00	1.14	6.29	4.67	4.00	4.57	2.49
CPUE ≥ MSL (15")	0.33	0.00	0.14	0.00	0.40	1.14	1.71	4.40	2.29	1.00	1.14
Growth (winter gill net data)											
Mean TL at Age-1 (mm)								402	N/A	429	415.5
Mean TL at Age-3 (mm)								458	450	N/A	454.0
Relative Weight (winter gill net data)											
Stock - Quality	92.9	95.8	88.8	none	72.2	none	91.2	87.1	91.7	88.3	88.5
Quality - Preferred	90.4	95.5	none	none	84.7	84.6	87.3	84.2	88.4	87.8	87.9
Preferred - Memorable	none	none	none	none	none	87.7	93.7	80.6	94.3	none	89.1
Memorable - Trophy	none	none	none	none	none	none	none	none	97.2	none	97.2
Trophy	none	none	none	none	none	none	none	none	none	none	
Mortality (winter gill net data)											
Total Mortality	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	80.00%	80.00%
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 - walleye data only)											
Angler Hours	3,137	8,305	No Survey	625	No Survey	9,499	No Survey	5,178	No Survey	No Survey	5,349
Angler Hours/Acre	0.10	0.27		0.02		0.31		0.17			0.18
Fishing Success (creel survey data - walleye)											
Percent Harvested	N/A	21.4%	No Survey	35.9%	No Survey	14.3%	No Survey	21.6%	No Survey	No Survey	23.3%
Mean Weight (pounds)	N/A	1.78		1.95		1.36		1.89			1.75
Value of Fishery (creel survey data - trip exp)											
All Sanders	\$8,770	\$34,020	No Survey	\$20,440	No Survey	\$24,260	No Survey	\$33,040	No Survey	No Survey	\$24,106
Walleye Data Only	\$8,460	\$2,010		\$1,270		\$11,110		\$5,010			\$5,572

Fishery Forecast:

Walleye numbers have been steadily increasing in Douglas Reservoir the last few years. Natural reproduction still occurs in the reservoir due to the absence of alewives which allows walleye to be managed with no stocking. The population is made up of good size individuals and should continue to contribute to the *stizostedion* fishery in Douglas Reservoir.

Management Recommendations:

Maintain current sauger/walleye regulations. Monitor angler harvest composition, in response to the new regulation, with a creel survey targeting sauger anglers on Douglas Reservoir.

Sunfish

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Angling Pressure (creel survey data - any sunfish)											
Angler Hours	* 27,222	46,661	N o	49,700	N o	26,311	N o	31,338	N o	N o	36,246
Angler Hours/Acre	0.90	1.53		1.63		0.87		1.03			1.19
Fishing Success (creel survey data - bluegill)											
Catch Rate (bluegill)	2.90	2.77	S u r v e y	not reported	S u r v e y	not reported	S u r v e y	5.23	S u r v e y	S u r v e y	3.63
Harvest Rate (bluegill)	2.01	2.19		not reported		not reported		3.32			2.51
% Harvested (bluegill)	61.2%	56.6%		not reported		not reported		55.5%			57.8%
Mean Weight (bluegill)	0.40	0.52		not reported		not reported		0.28			0.40
Value of Fishery (creel survey data - trip expey)											
Any Sunfish	\$16,770	\$22,600		\$10,580		\$5,970		\$12,640			\$13,712

* Bluegill only

Catfish

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Angling Pressure (creel survey data - any catfish)											
Angler Hours	16,790	35,734	N o	21,578	N o	46,630	N o	46,155	N o	N o	33,377
Angler Hours/Acre	0.55	1.18		0.71		1.53		1.52			1.10
Fishing Success (creel survey data)											
Catch Rate (channel cat)	0.94	0.68	S u r v e y	1.21	S u r v e y	0.93	S u r v e y	0.93	S u r v e y	S u r v e y	0.94
Harvest Rate (channel cat)	0.94	0.60		0.75		0.63		0.61			0.71
% Harvested (channel cat)	88.0%	88.5%		61.2%		63.9%		62.5%			72.8%
Mean Weight (channel cat)	2.16	1.74		1.65		1.75		1.66			1.79
Value of Fishery (creel survey data - trip expey)											
Any Catfish	\$14,130	\$23,740		\$10,630		\$25,100		\$23,200			\$19,360

Shad

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Mean
Density (summer shad gill net data - geometric mean density)											
Gizzard Shad	No Survey							19.51	19.51	7.74	15.59
Threadfin Shad	No Survey							91.43	42.75	10.72	48.30
Alewife	No Survey							0.00	0.00	0.00	0.00

Tables

Table 1. Fish stocked in Douglas Reservoir 1993 – 2009.

Species	Month/Year	Rate (per acre)	Length Range (in)	Number
Sauger	May 1993	0.1	1.5	1,760
	May 2000	3.6	1.0 – 2.0	111,158
	May 2001	5.6	1.0 – 2.0	169,904
	May 2003	4.8	1.25 – 2.25	145,245
	June 2004	0.7	2.0 – 3.0	20,000
	May 2005	1.7	1.5 – 2.25	50,848
	May 2006	0.9	1.0 – 2.0	27,883
	May 2007	2.3	1.0 – 1.75	68,610
	May 2008	1.98	1.0 – 2.1	60,134
	May 2009	1.8	1.0 – 1.25	53,432
White Crappie	Oct 2002	0.8	2.0 – 6.0	22,959
	June 2005	0.5	2.0 – 5.0	15,000
	July 2007	0.5	2.0 – 2.5	15,000
	July, Sept., Oct. 2008	1.2	1.0 – 7.0	36,090
	August 2009	0.6	1.5 – 2.0	17,500
Smallmouth Bass	June 2005	0.25	2.0 – 3.5	7,650
	July 2006	0.08	3.0 – 5.5	2,500
	June 2009	0.3	1.0 – 5.0	10,400
Black Crappie	Oct 2002	5.3	1.25 – 4.5	161,786
	Oct./Nov. 2009	5.4	1.0 – 6.0	165,020

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

Species	Winter Gill Netting			Spring Electrofishing			Fall Trapnetting		
	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	650	185.7	3.5	X	X	X
Smallmouth Bass	X	X	X	44	18.7	2.4	X	X	X
Spotted Bass	X	X	X	0	0.0	3.5	X	X	X
Black Crappie	X	X	X	42	12.0	3.5	305	3.4	89
Black-Nose Crappie	X	X	X	0	0.0	3.5	3	0.0	89
White Crappie	X	X	X	10	2.9	3.5	1	0.0	89
Walleye	32	4.6	7	2	0.6	3.5	X	X	X
Sauger	33	4.7	7	0	0.0	3.5	X	X	X
White Bass	29	4.143	7	X	X	X	X	X	X
Gizzard Shad	X	X	X	X	X	X	X	X	X
Threadfin Shad	X	X	X	X	X	X	X	X	X
Alewife	X	X	X	X	X	X	X	X	X
Bluegill	X	X	X	X	X	X	X	X	X

X = non targeted species

Table 3. Mean catch per unit effort and relative stock density for black bass species by RSD category for Douglas Reservoir 2000 – 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		#	CPUE		#	CPUE		#	CPUE		#	CPUE		#	CPUE			#	CPUE
					RSD	RSD		RSD	RSD		RSD	RSD		RSD	RSD		RSD	RSD		RSD	RSD			
Largemouth Bass	2000	EL	6	76	50	28	100	66	51	82	54	42	7	8.6	7	1	0.1	1				49	272	179
	2001	EL	12	120	39	29	134	43	46	129	42	44	30	10	10	1	0.3				54	414	133	
	2002	EL	12	77	25	17	99	33	26	225	74	58	60	20	16	1	0.3				74	462	152	
	2003	EL	13	50	14	21	73	21	38	55	16	29	57	21	30	7	3	4				62	242	80
	2004	EL	12	61	20	17	147	48	50	102	34	35	45	15	15	0	0	0	0	0	0	50	355	116
	2005	EL	12	82	27	14	194	64	38	216	71	42	100	33	19	6	2	1	0	0	0	62	598	196
	2006	EL	14	61	17	14	130	37	35	171	48	46	59	17	16	9	2.5	2	0	0	0	65	430	121
	2007	EL	14	149	43	32	177	51	56	105	30	33	30	8.6	10	2	0.6	1	0	0	0	44	463	132
	2008	EL	14	160	46	30	122	35	32	208	59	55	41	12	11	7	2	2	0	0	0	68	538	154
2009	EL	14	227	65	35	197	56	47	174	50	41	45	13	11	7	2	2	0	0	0	53	650	186	
Smallmouth Bass	2004	EL	2	1	0.6	3	13	7.4	38	9	5.1	26	8	4.6	24	3	1.7	9	0	0	0	62	35	19.9
	2005	EL	2	0	0	0	15	6.5	42	5	2.1	14	11	4.7	31	4	1.7	11	1	0.4	3	58	36	15.5
	2006	EL	2	0	0	0	13	6.7	39	8	4.1	24	4	2.1	12	7	3.6	21	1	0.5	3	61	33	17.1
	2007	EL	1	0	0	0	32	14	71	9	4	20	3	1.3	7	1	0.4	2	0	0	0	29	45	19.8
	2008	EL	1	0	0	0	41	24	54	12	7.1	16	19	11	25	4	2.4	5	0	0	0	46	76	44.9
2009	EL	1	0	0	0	15	6.4	34	14	5.9	32	12	5.1	27	3	1.3	7	0	0	0	66	44	18.7	

Table 4. Mean catch per unit effort and relative stock density for crappie species by RSD category for Douglas Reservoir 2000 – 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		
Black Crappie	2000	TN	90	85	0.9	52	13	0.1	16	39	0.4	49	26	0.3	33	2	0	3						165	1.8
	2001	TN	89	21	0.2	20	17	0.2	20	28	0.3	33	27	0.3	31	13	0.2	15						107	1.2
	2002	TN	90	97	1.1	19	134	1.5	31	177	2	41	105	1.1	25	11	0.1	3						525	6
	2003	TN	89	619	6.9	66	58	0.7	18	112	1.4	35	112	1.3	35	18	0.2	6						935	10.6
	2004	TN	89	31	0.4	5	69	0.8	12	283	3.2	50	197	2.2	35	12	0.1	2	0	0	0	88	592	6.7	
	2005	TN	90	52	0.6	7	104	1.2	15	287	3.2	43	253	2.8	38	27	0.3	4	0	0	0	85	723	8	
	2006	TN	90	35	0.4	11	7	0.1	2	91	1	31	168	1.9	58	23	0.3	8	0	0	0	98	324	3.6	
	2007*	TN	60	6	0.1	5	0	0	0	45	0.8	37	57	1	47	18	0.3	15	2	0	2	100	128	2.13	
	2008	TN	90	12	0.1	10	19	0.2	18	25	2.8	24	43	0.5	41	19	0.2	18	0	0	0	82	118	1.31	
2009	TN	89	10	0.1	3	40	0.4	14	165	1.9	56	75	0.8	25	14	0.2	5	1	0	0	86	305	3.43		
White Crappie	2000	TN	90	16	0.2	76	0	0	0	0	0	0	1	0	5	3	0	14						21	0.2
	2001	TN	89	8	0.1	50	1	0	13	1	0	13	3	0	38	3	0	38						16	0.2
	2002	TN	90	1	0.2	2	22	0.2	35	24	0.3	39	7	0.1	11	8	0.1	13						87	1
	2003	TN	89	780	8.8	97	8	0.1	35	4	0.1	17	6	0.1	26	5	0.1	22						803	9
	2004	TN	89	9	0.1	19	5	0.1	13	15	0.2	39	16	0.2	39	3	0	8	0	0	0	87	47	0.5	
	2005	TN	90	102	1.1	76	3	0	9.1	8	0.1	24	15	0.2	46	7	0.1	21	0	0	0	91	135	1.5	
	2006	TN	90	5	0.1	29	0	0	0	3	0.03	25	5	0.1	42	4	0.04	33	0	0	0	100	17	0.2	
	2007*	TN	60	1	0	9	0	0	0	6	0.1	60	2	0	20	2	0.03	20	0	0	0	100	11	0.18	
	2008	TN	90	1	0	25	0	0	0	1	0.01	33	1	0	33	0	0	0	1	0	33	100	4	0.04	
2009	TN	89	0	0	0	0	0	0	0	0	0	0	0	0	1	0.01	100	0	0	0	100	1	0.01		

* Could not sample the upper end because of low water. Main Channel was only 7 feet deep at Indian Creek. Only netted 30 sites instead of 45.

Table 5. Largemouth bass mean relative weights (Wr) in Douglas reservoir, spring 2009.

Length Group	Mean Wr	Std. Error	N
150	84.421	1.148	60
175	85.575	0.638	128
200	89.364	1.187	89
225	92.707	0.873	46
250	88.128	2.039	25
275	92.205	1.117	37
300	90.818	0.649	69
325	89.838	0.785	57
350	89.314	0.965	42
375	88.979	1.222	26
400	91.284	2.211	10
425	95.270	3.688	8
450	99.279	1.128	2
475	95.981	3.293	4
500	109.975		1
525	98.111	1.753	2
550	98.295	0.439	2
575	116.661		1
Total =			609

Table 6. Black crappie mean relative weights (Wr) in Douglas Reservoir fall 2009.

Length Group	Mean Wr	Std. Error	N
125	125.097		1
150	111.209	1.178	14
175	109.110	1.613	25
200	107.380	1.151	53
225	104.536	0.727	112
250	99.243	1.248	55
275	95.859	1.590	20
300	101.016	2.664	10
325	91.510	3.976	3
350			0
375	65.933	17.151	2
400			0
Total =			295

Table 7. White crappie mean relative weights (Wr) in Douglas Reservoir fall 2009.

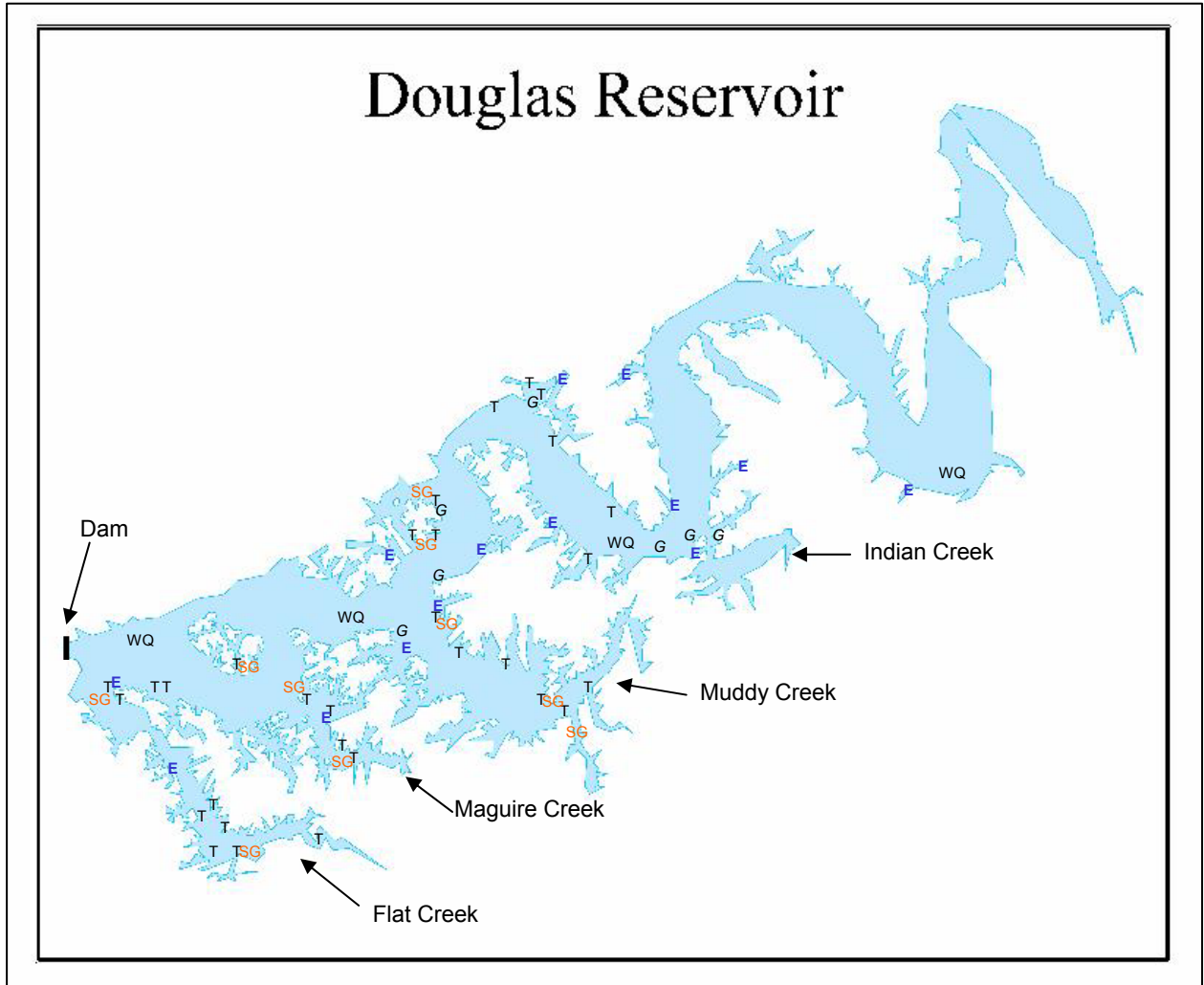
Length Group	Mean Wr	Std. Error	N
125			0
150			0
175			0
200			0
225			0
250			0
275			0
300			0
325	51.286		1
350			0
375			0
400			0
Total =			1

Table 8. Sauger mean relative weights in Douglas Reservoir December 2009.

Length Group	Mean Wr	Std. Error	N
150			0
175			0
200			0
225			0
250	86.261	5.143	2
275	96.188	3.307	3
300			0
325			0
350	94.584	2.297	4
375	90.521	1.255	4
400	95.101	4.995	3
425	99.591	2.134	7
450	95.143	2.684	6
475	98.118	3.148	3
500	100.789		1
Total =			33

Figures

Figure 1. Douglas Reservoir with sites sampled in 2009.



E = Electrofishing
G = Sauger Gill Netting
SG = Shad Gill Netting
T = Trap Netting
WQ = Water Quality

Largemouth Bass

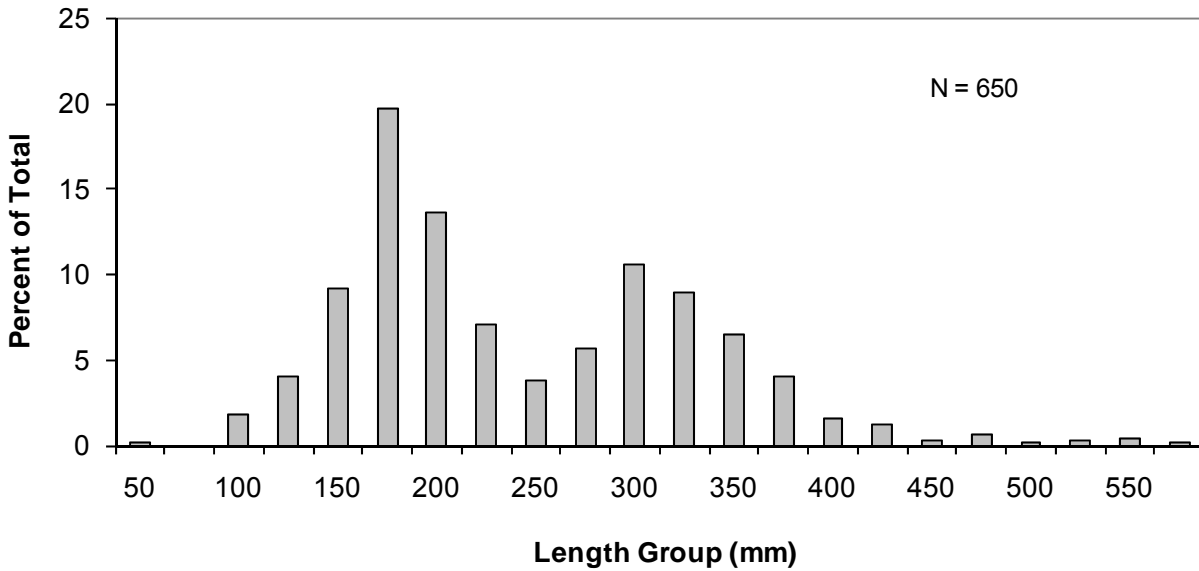


Figure 2. Largemouth bass length frequency in Douglas Reservoir, spring 2009.

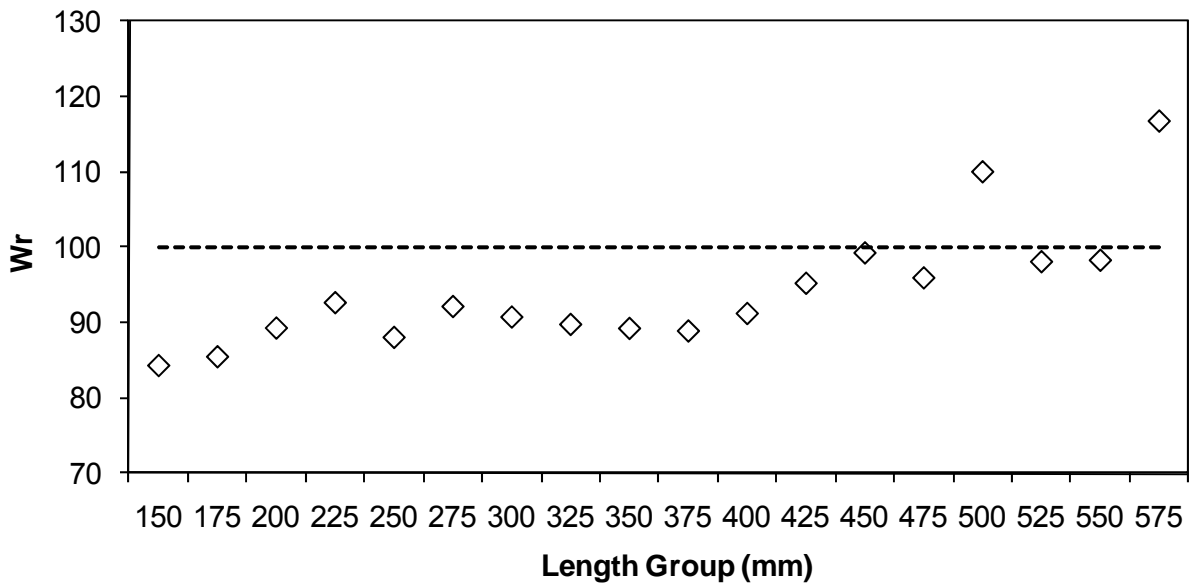


Figure 3. Largemouth bass mean relative weights (Wr) in Douglas Reservoir, spring 2009.

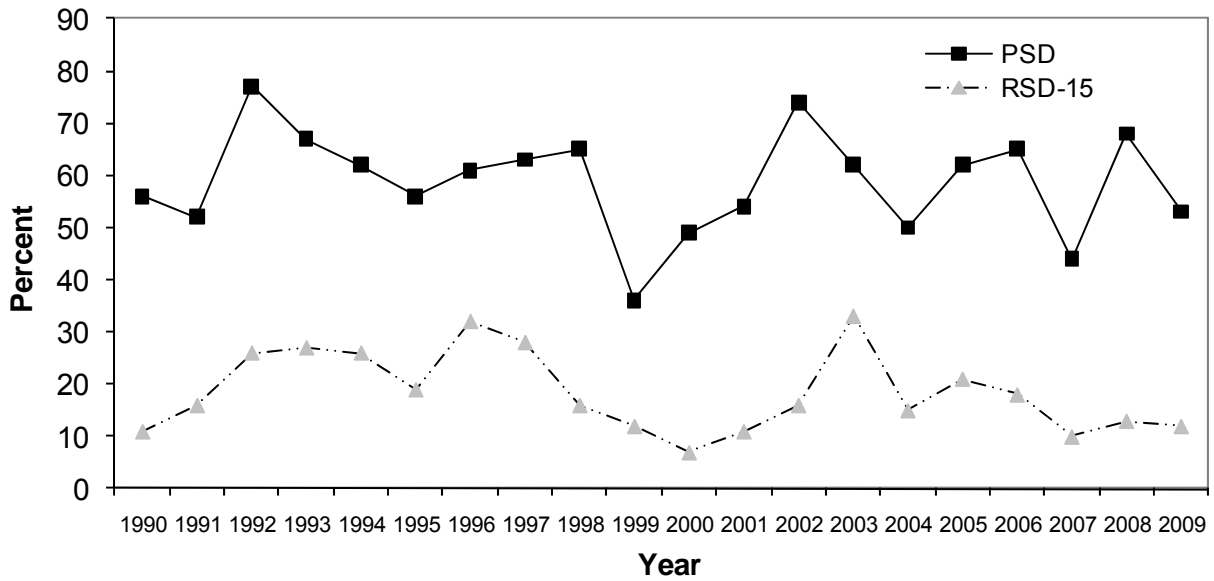


Figure 4. Largemouth bass traditional PSD and RSD-15 values in Douglas Reservoir 1990 – 2009.

Black Crappie

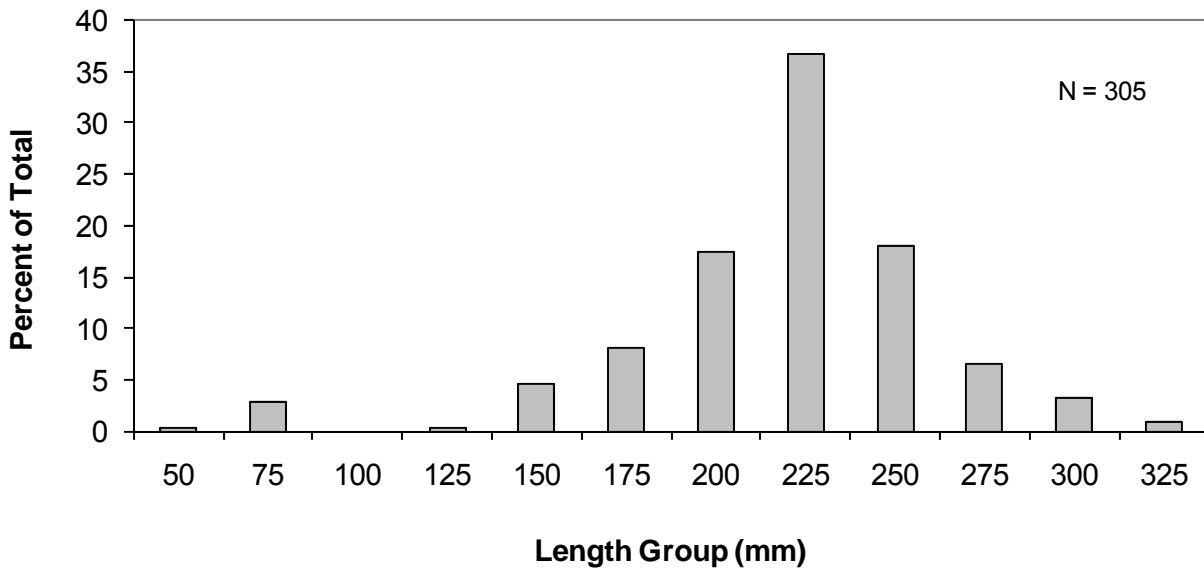


Figure 5. Black Crappie length frequency in Douglas Reservoir, fall 2009.

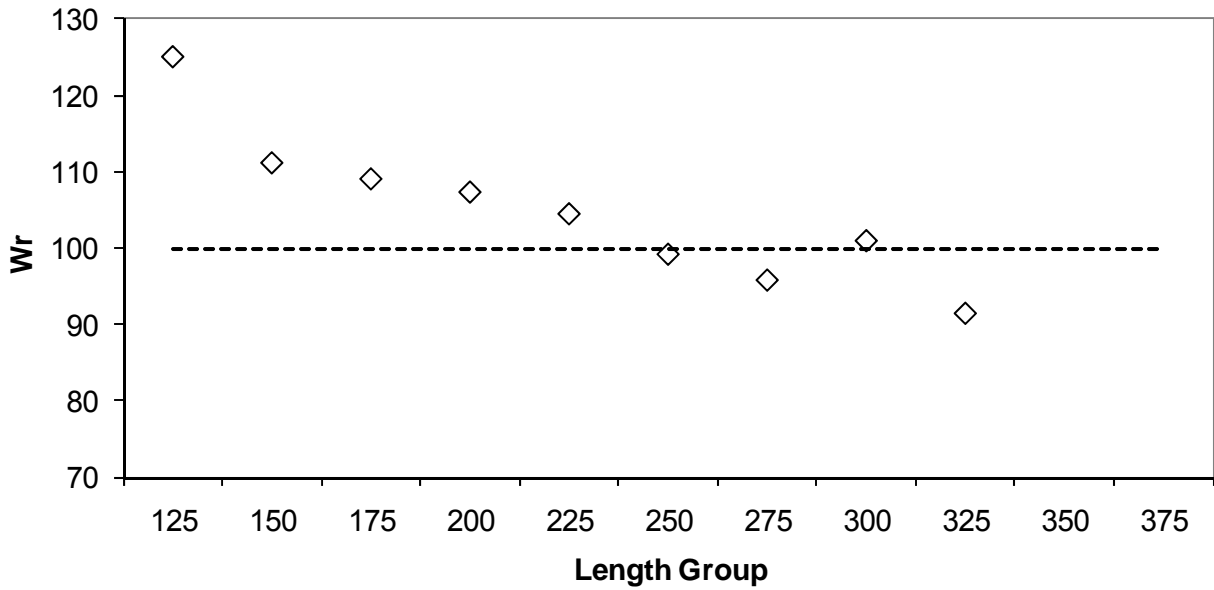


Figure 6. Black crappie mean relative weights (Wr) in Douglas Reservoir, fall 2009.

White Crappie

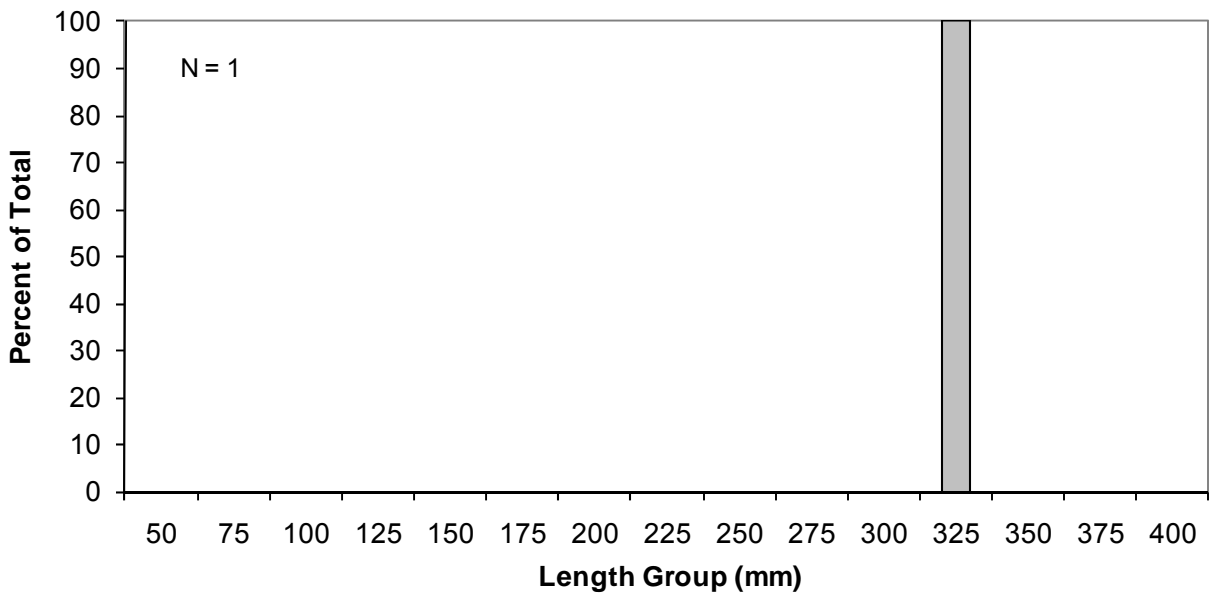


Figure 7. White Crappie length frequency in Douglas Reservoir, fall 2009.

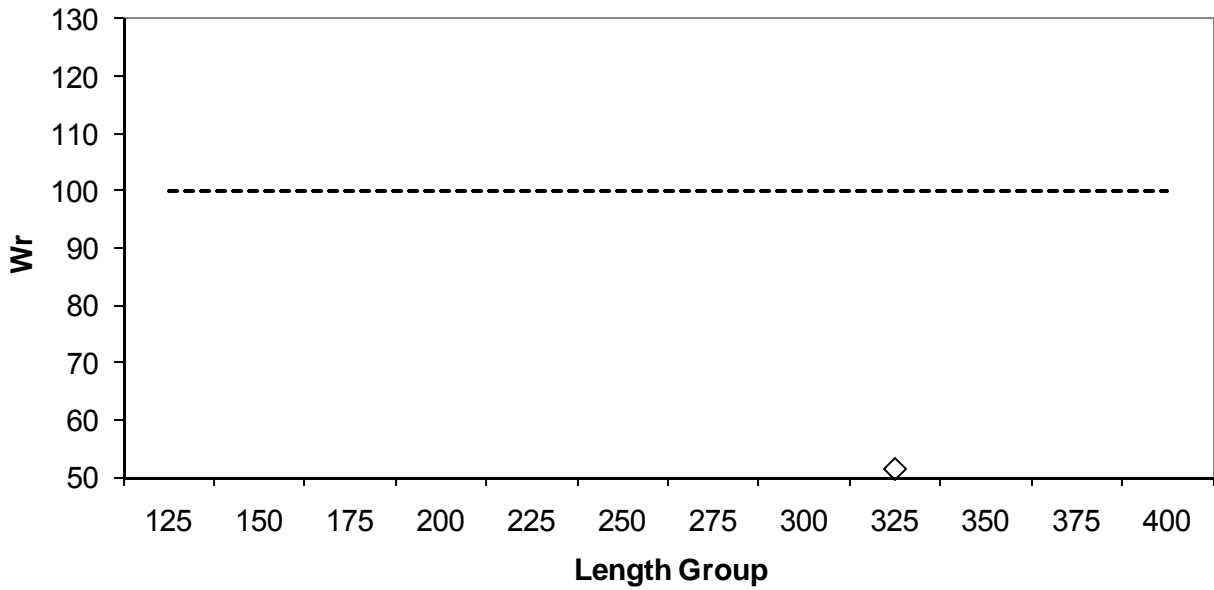


Figure 8. White crappie mean relative weights (Wr) in Douglas Reservoir, fall 2009.

Sauger

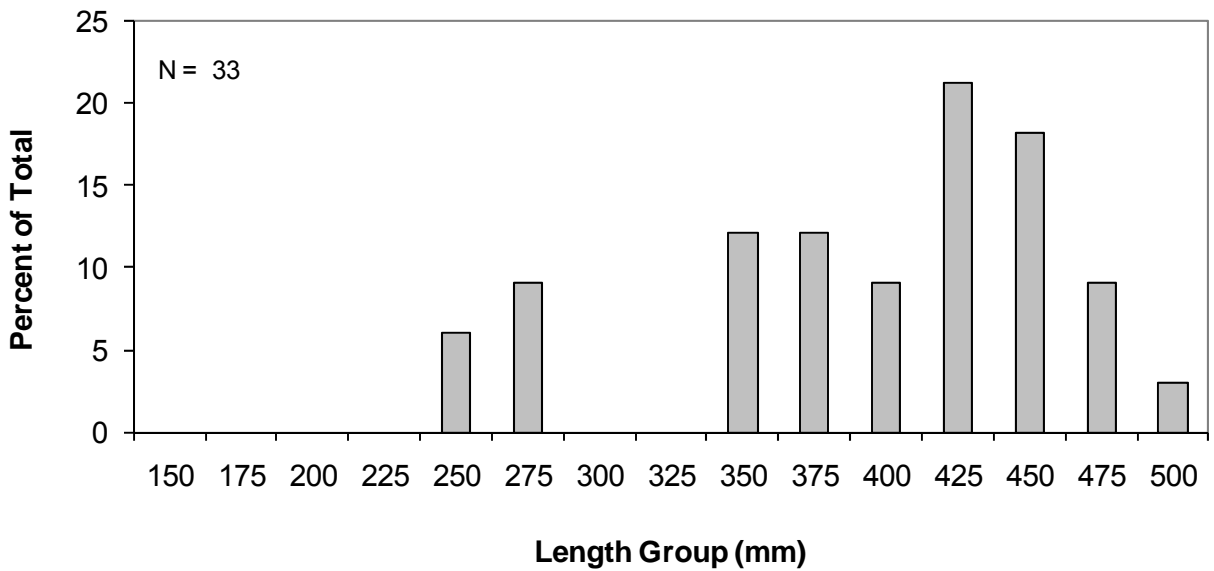


Figure 9. Sauger length frequency in Douglas Reservoir, winter 2009.

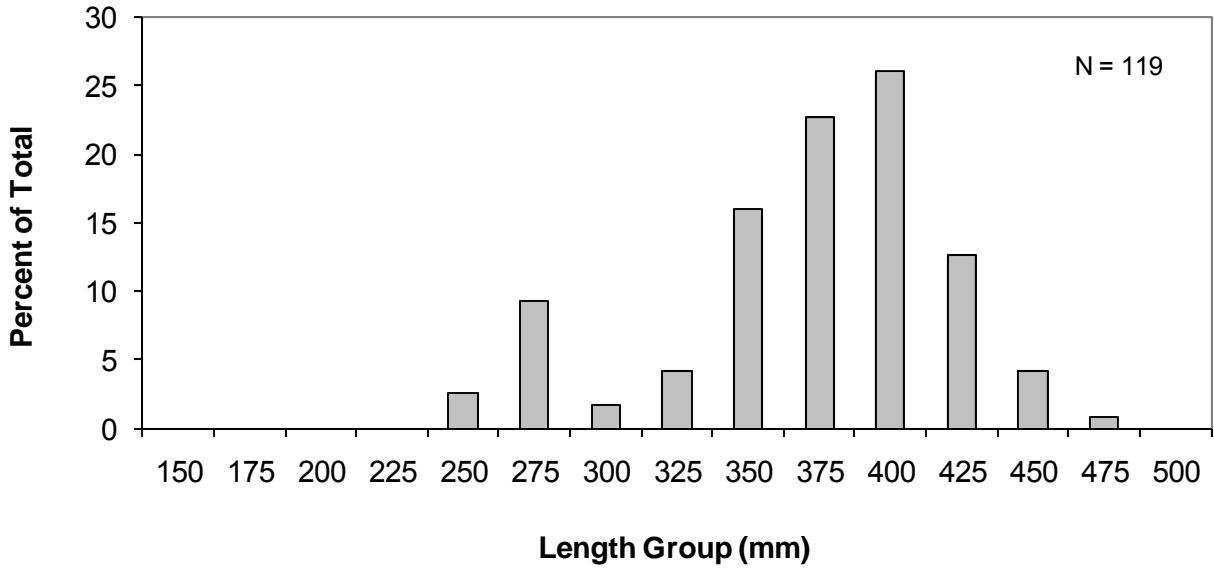


Figure 10. Sauger length frequency in Douglas Reservoir, spring 2009.

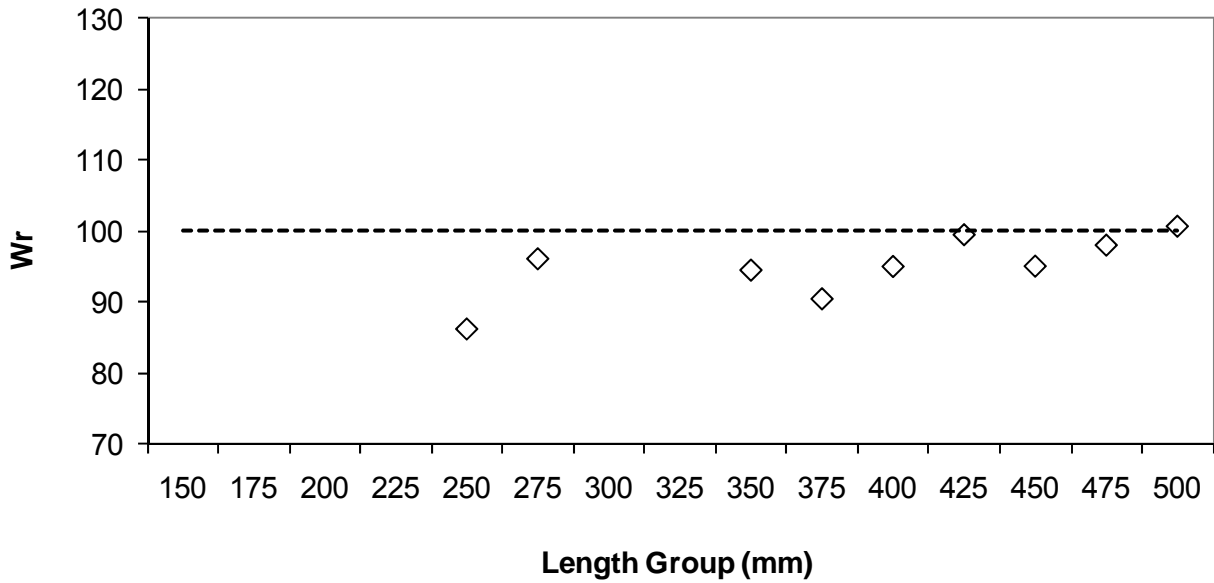


Figure 11. Sauger mean relative weights (Wr) in Douglas Reservoir, winter 2009.

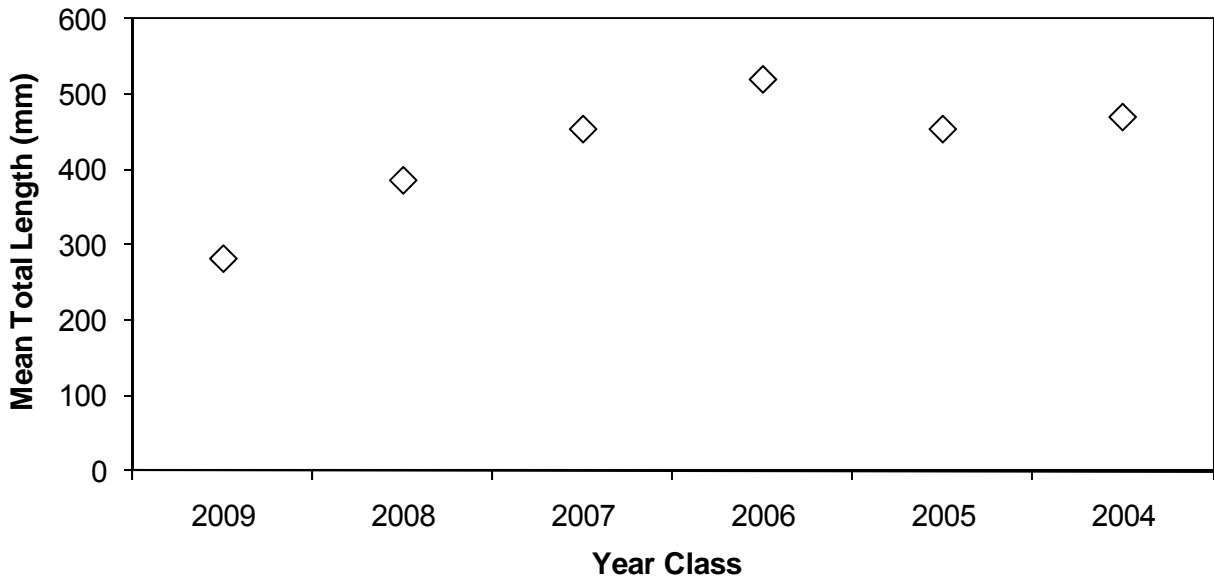


Figure 12. Sauger mean length at age in Douglas Reservoir, December 2009.

Appendix A
Water Quality

Table A1. Douglas Reservoir, water quality data at FB 34, July 7, 2009.

Depth (m)	Temp °C	Cond	DO	Site	Secchi (m)	Time
0	26.8	155	9.3	FB34	1.8	13:00
1	26.6	155	9.4			
2	26.2	154	9.4			
3	26.0	155	9.4			
4	25.9	154	9.2			
5	25.8	154	9.0			
6	25.8	154	8.9			
7	25.8	155	8.7			
8	25.0	151	5.5			
9	23.0	140	1.3			
10	22.5	138	1.2			
11	21.9	142	1.0			
12	21.6	155	0.4			
13	21.0	154	0.3			
14	20.6	171	0.3			
15	20.2	169	0.4			
16	19.7	170	0.6			
17	19.5	171	0.7			
18	19.3	169	0.8			
19	19.0	160	1.1			
20	18.7	158	1.3			
21	18.5	163	1.4			
22	18.2	163	1.4			
23	18.1	166	1.3			
24	17.7	156	1.4			
25	17.5	155	1.4			
26	17.1	157	1.3			
27	16.8	151	1.2			
28	16.4	152	1.0			
29	16.0	155	0.7			
30	15.8	158	0.2			

Table A2. Douglas Reservoir, water quality data at FB 40, July 7, 2009.

Depth (m)	Temp °C	Cond	DO	Site	Secchi (m)	Time
0	26.9	160	9.1	FB40	1.6	12:17
1	26.8	160	9.1			
2	26.5	157	9.1			
3	26.3	156	9.2			
4	26.2	155	8.8			
5	25.8	152	6.7			
6	25.5	150	5.5			
7	24.5	146	3.3			
8	23.4	141	2.1			
9	22.5	138	1.9			
10	21.7	137	1.6			
11	21.4	140	1.4			
12	20.8	147	1.2			
13	20.5	146	1.1			
14	20.0	150	1.1			
15	19.8	151	1.1			
16	19.5	152	1.1			
17	19.2	151	1.2			
18	19.1	150	1.3			
19	18.8	150	1.4			
20	18.6	150	1.5			
21	18.4	150	1.4			
22	18.2	150	1.2			
23	17.8	152	0.2			
24	17.4	153	0.1			
25	17.0	153	0.0			
26	16.8	154	0.0			
27	16.6	155	0.0			
28	16.4	156	0.0			
29	Bottom					
30						

Table A3. Douglas Reservoir, water quality data at FB 50, July 7, 2009.

Depth (m)	Temp °C	Cond	DO	Site	Secchi (m)	Time
0	27.2	151	9.8	FB50	1.3	11:40
1	27.1	146	9.9			
2	26.9	146	9.9			
3	26.8	146	10.0			
4	26.7	145	9.5			
5	26.5	145	8.3			
6	26.2	146	6.9			
7	25.0	144	2.9			
8	23.9	140	2.2			
9	22.4	135	2.0			
10	22.1	134	1.9			
11	21.4	130	1.8			
12	21.0	130	1.7			
13	20.6	130	1.7			
14	20.4	129	1.8			
15	20.1	130	1.2			
16	19.8	133	0.2			
17	19.1	137	0.1			
18	18.7	141	0.0			
19	18.4	146	0.0			
20	Bottom					
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23						
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29						
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Table A4. Douglas Reservoir, water quality data at FB 60, July 7, 2009.

Depth (m)	Temp °C	Cond	DO	Site	Secchi (m)	Time
0	27.5	145	10.1	FB60	1.2	10:50
1	27.1	146	10.4			
2	27.0	145	10.3			
3	26.9	145	9.5			
4	26.9	145	9.2			
5	26.8	144	8.1			
6	26.7	145	7.8			
7	26.6	145	7.5			
8	24.6	174	6.0			
9	23.2	150	2.1			
10	22.3	142	0.7			
11	21.3	143	0.5			
12	21.0	143	0.3			
13	20.4	146	0.3			
14	20.2	149	0.2			
15	19.9	158	0.2			
16	Bottom					
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Table A5. Douglas Reservoir, water quality data at FB 34, August 7, 2009.

Depth (m)	Temp °C	Cond	DO	Site	Secchi (m)	Time
0	27.5	154	9.4	FB34	2.5	11:15
1	27.3	154	9.5			
2	27.2	154	9.5			
3	27.1	153	9.5			
4	27.0	153	9.5			
5	26.8	153	9.5			
6	26.6	154	7.7			
7	26.3	154	7.4			
8	26.0	154	7.5			
9	25.0	153	2.1			
10	24.3	150	0.9			
11	23.7	146	0.6			
12	23.0	141	0.5			
13	22.2	141	0.5			
14	21.9	148	0.5			
15	21.1	152	0.4			
16	20.6	154	0.4			
17	20.2	153	0.4			
18	19.8	153	0.4			
19	19.5	149	0.6			
20	19.3	149	0.6			
21	19.1	148	0.5			
22	19.0	150	0.4			
23	18.8	151	0.5			
24	18.6	152	0.5			
25	18.4	150	0.4			
26	18.2	142	0.3			
27	18.0	142	0.2			
28	17.6	143	0.2			
29	17.3	146	0.2			
30	17.0	150	0.1			

Table A6. Douglas Reservoir, water quality data at FB 40, August 7, 2009.

Depth (m)	Temp °C	Cond	DO	Site	Secchi (m)	Time
0	27.6	154	9.0	FB40	1.9	10:30
1	27.5	154	9.0			
2	27.3	154	9.1			
3	27.2	154	9.1			
4	27.0	154	9.1			
5	26.9	154	8.4			
6	26.6	155	7.3			
7	26.3	157	5.3			
8	25.8	161	3.5			
9	25.2	159	2.0			
10	24.6	156	0.8			
11	23.4	147	0.5			
12	22.8	145	0.5			
13	22.1	141	0.5			
14	21.6	143	0.4			
15	20.8	147	0.4			
16	20.5	137	0.4			
17	20.0	139	0.3			
18	19.9	140	0.3			
19	19.6	140	0.3			
20	19.4	140	0.3			
21	19.2	139	0.2			
22	19.1	139	0.2			
23	19.0	140	0.2			
24	18.7	140	0.2			
25	18.4	143	0.2			
26	18.2	145	0.2			
27	17.9	149	0.2			
28	17.7	151	0.2			
29	17.5	155	0.2			
30	16.8	176	0.1			

Table A7. Douglas Reservoir, water quality data at FB 50, August 7, 2009.

Depth (m)	Temp °C	Cond	DO	Site	Secchi (m)	Time
0	27.3	151	9.5	FB50	2.1	10:00
1	27.3	151	9.5			
2	27.3	151	9.5			
3	27.3	151	9.5			
4	27.0	152	8.2			
5	26.6	154	6.5			
6	26.5	155	5.6			
7	26.3	156	4.6			
8	25.9	161	3.3			
9	25.6	176	2.7			
10	24.6	178	1.5			
11	24.0	181	1.0			
12	23.3	165	0.6			
13	22.7	157	0.6			
14	21.8	140	0.6			
15	21.1	135	0.6			
16	20.4	145	0.5			
17	20.2	148	0.5			
18	19.7	153	0.4			
19	19.3	168	0.4			
20	Bottom					
21						
22						
23						
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27						
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29						
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Table A8. Douglas Reservoir, water quality data at FB 60, August 7, 2009.

Depth (m)	Temp °C	Cond	DO	Site	Secchi (m)	Time
0	27.5	156	10.4	FB60	1.4	09:15
1	27.5	154	10.6			
2	27.5	154	10.7			
3	27.3	154	9.4			
4	27.2	155	8.7			
5	27.2	156	8.3			
6	26.9	161	7.5			
7	26.4	171	6.3			
8	26.1	176	6.5			
9	24.4	176	6.5			
10	24.2	178	5.5			
11	24.0	181	4.2			
12	23.7	185	2.9			
13	23.0	189	1.1			
14	22.4	199	0.8			
15	Bottom					
16						
17						
18						
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23						
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26						
27						
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29						
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Table A9. Douglas Reservoir, water quality data at FB 34, September 3, 2009.

Depth (m)	Temp °C	Cond	DO	Site	Secchi (m)	Time
0	26.4	159	10.6	FB34	3.3	11:30
1	26.3	161	10.6			
2	26.3	161	10.6			
3	26.3	161	10.6			
4	26.3	161	10.6			
5	26.3	161	10.6			
6	26.3	161	10.6			
7	26.3	161	10.6			
8	26.3	161	10.6			
9	26.3	161	10.6			
10	26.2	162	10.5			
11	25.2	169	0.5			
12	24.4	170	0.4			
13	23.8	163	0.4			
14	23.2	157	0.6			
15	22.7	154	0.7			
16	21.9	152	0.6			
17	21.3	150	0.5			
18	20.9	146	0.5			
19	20.5	144	0.6			
20	20.3	142	0.5			
21	20.1	143	0.3			
22	19.8	143	0.2			
23	19.7	143	0.1			
24	19.5	142	0.1			
25	19.4	143	0.0			
26	19.1	144	0.0			
27	18.9	148	0.0			
28	18.6	152	0.0			
29	18.4	156	0.0			
30	18.2	158	0.0			

Table A10. Douglas Reservoir, water quality data at FB 40, September 3, 2009.

Depth (m)	Temp °C	Cond	DO	Site	Secchi (m)	Time
0	26.6	167	10.5	FB40	2.8	12:15
1	26.4	167	10.6			
2	26.3	167	10.7			
3	26.2	167	10.7			
4	26.2	167	10.7			
5	26.1	167	10.6			
6	26.1	167	10.6			
7	26.1	167	10.6			
8	26.1	167	10.5			
9	26.1	167	10.4			
10	25.9	168	7.8			
11	24.8	176	1.6			
12	24.3	174	0.4			
13	23.8	169	0.3			
14	23.1	167	0.3			
15	22.5	160	0.3			
16	22.0	158	0.3			
17	21.3	153	0.3			
18	20.8	150	0.3			
19	20.7	152	0.3			
20	20.4	153	0.3			
21	20.1	153	0.2			
22	19.9	155	0.2			
23	19.7	156	0.1			
24	19.4	159	0.1			
25	19.3	160	0.1			
26	19.1	161	0.0			
27	18.9	164	0.0			
28	18.1	172	0.0			
29	17.7	181	0.0			
30	Bottom					

Table A11. Douglas Reservoir, water quality data at FB 50, September 3, 2009.

Depth (m)	Temp °C	Cond	DO	Site	Secchi (m)	Time
0	26.9	170	12.7	FB50	1.4	13:00
1	26.6	170	12.9			
2	26.6	170	13.0			
3	26.4	170	12.9			
4	26.3	170	12.8			
5	26.3	170	12.6			
6	26.3	170	12.3			
7	26.3	170	12.1			
8	26.2	172	10.4			
9	25.9	187	3.9			
10	25.4	194	0.9			
11	24.7	194	0.6			
12	24.4	194	0.5			
13	23.6	195	0.4			
14	23.3	193	0.3			
15	22.8	202	0.3			
16	22.3	205	0.3			
17	21.3	203	0.3			
18	Bottom					
19						
20						
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28						
29						
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No data taken for FB 60 in September, 2009.

Figure A1. Douglas Reservoir water quality at FBRM 34, July 2009.

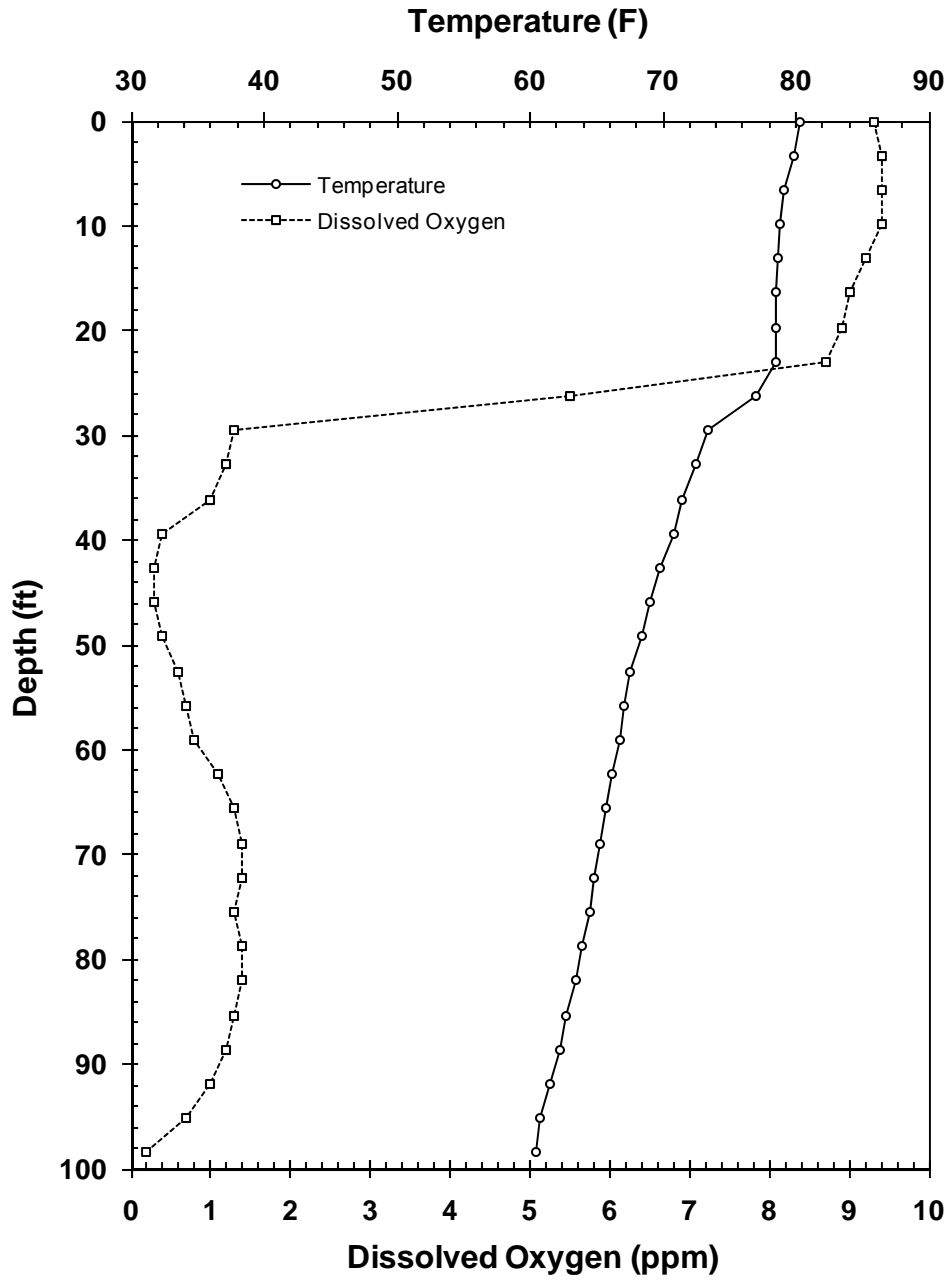


Figure A2. Douglas Reservoir water quality at FBRM 40, July 2009.

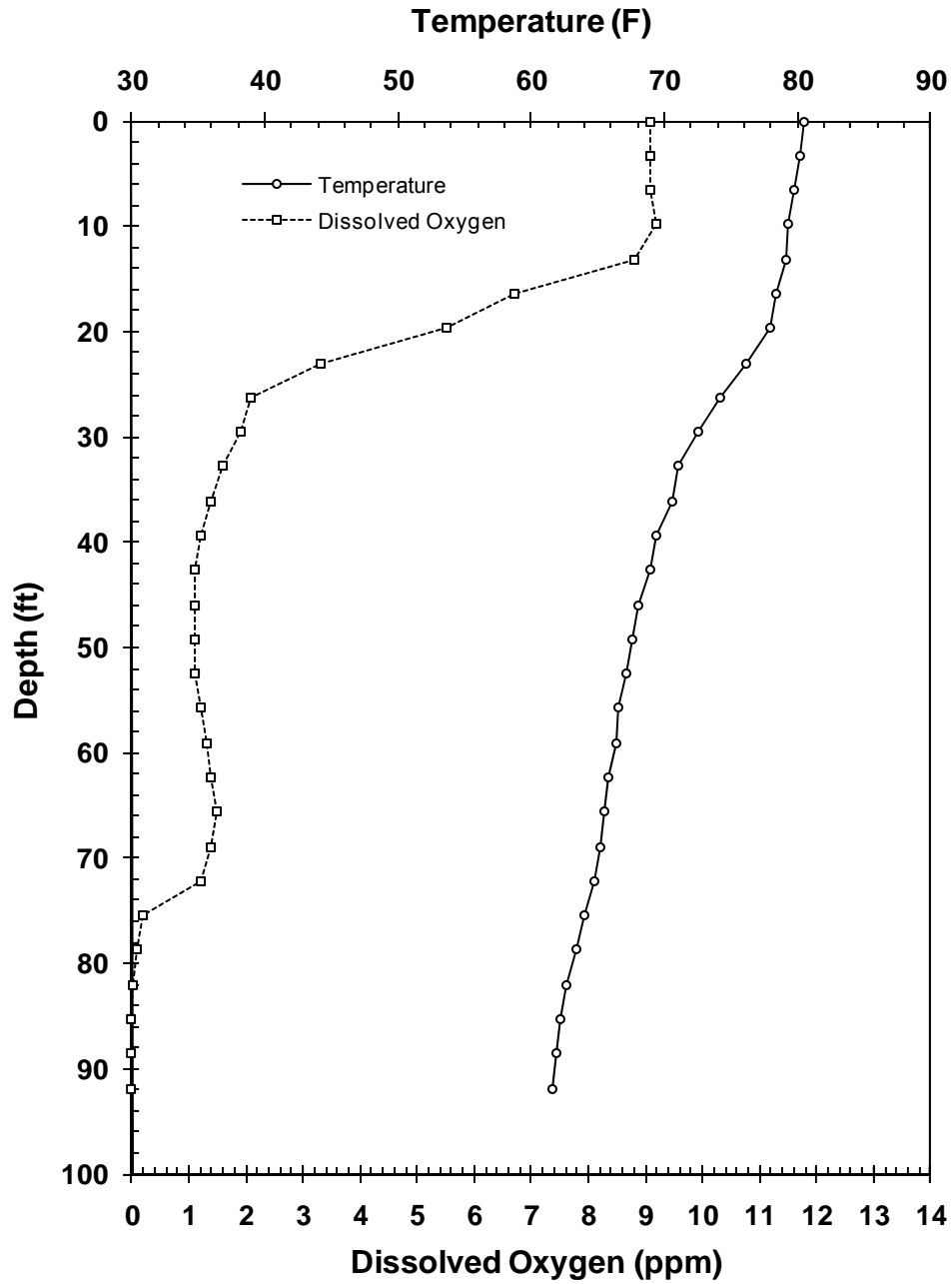


Figure A3. Douglas Reservoir water quality at FBRM 50, July 2009.

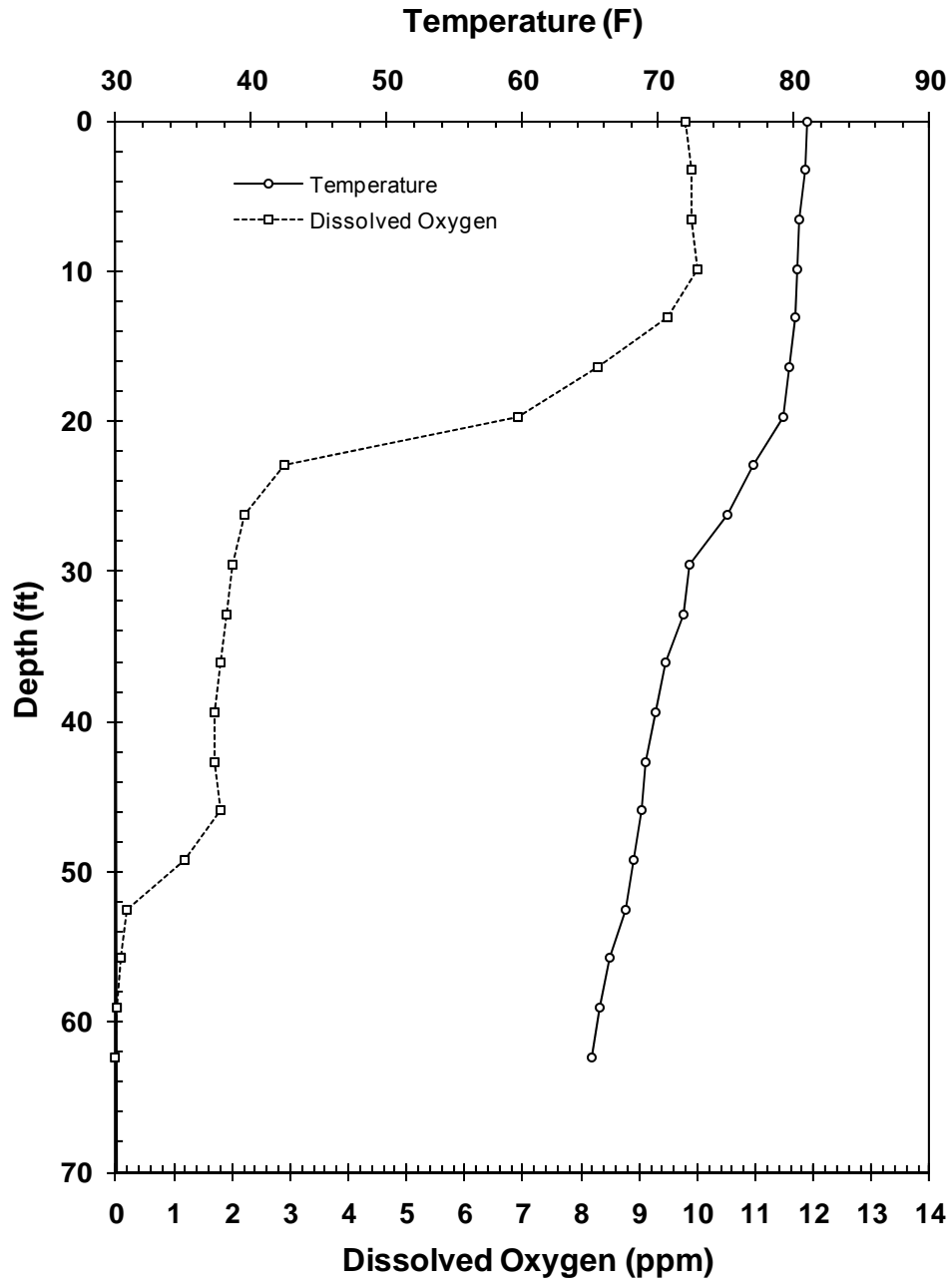


Figure A4. Douglas Reservoir water quality at FBRM 60, July 2009.

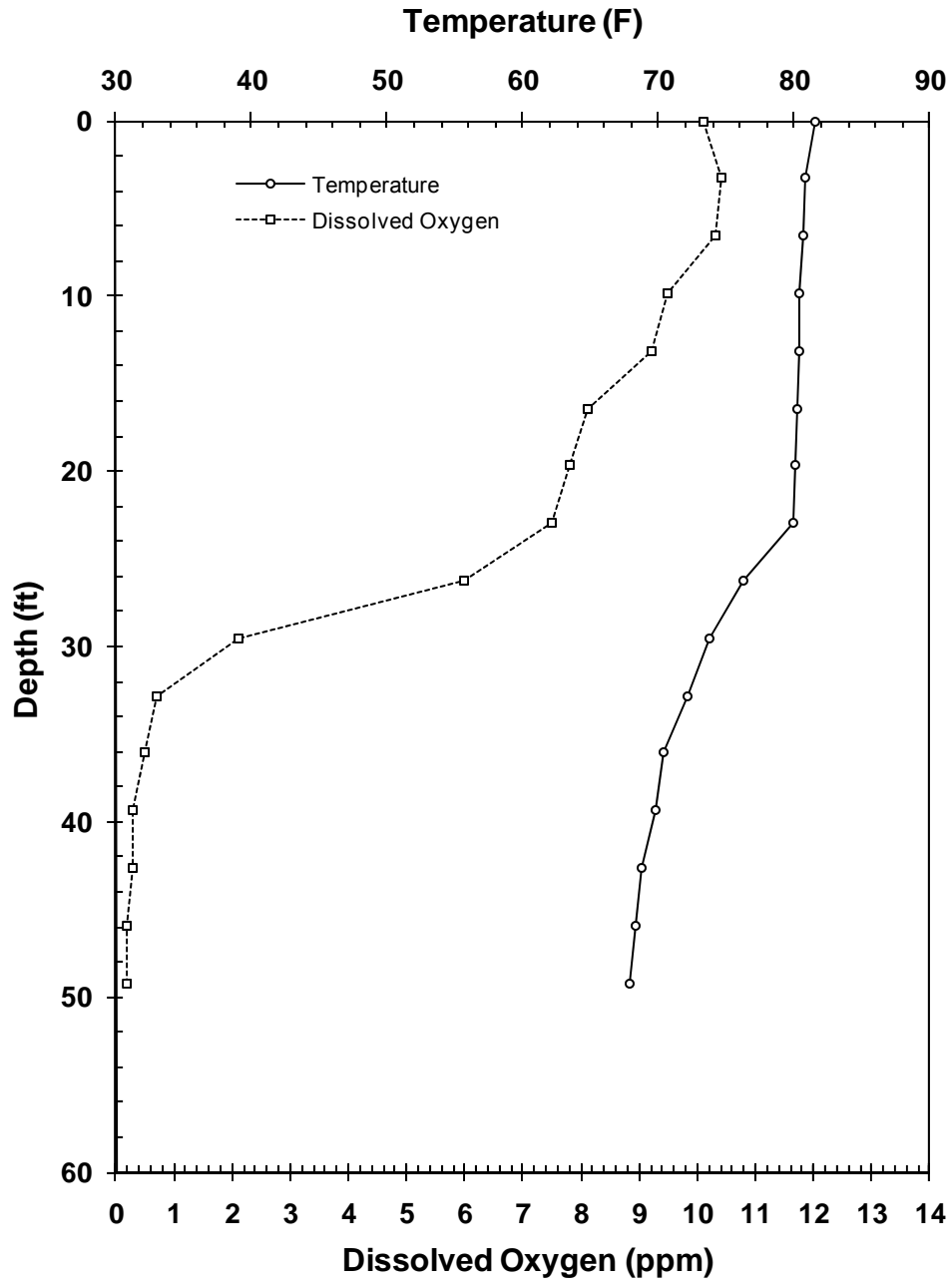


Figure A5. Douglas Reservoir water quality at FBRM 34, August 2009.

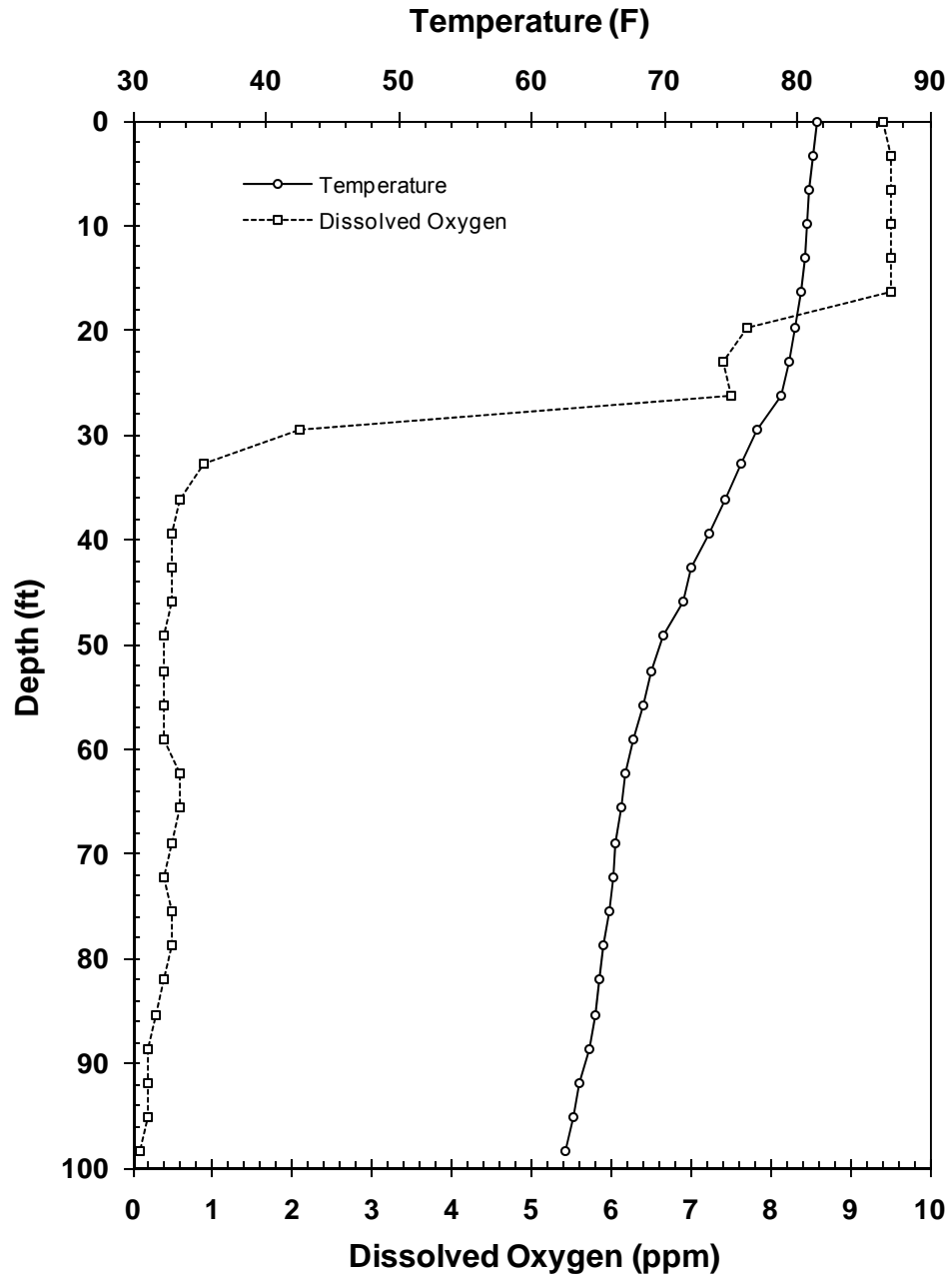


Figure A6. Douglas Reservoir water quality at FBRM 40, August 2009.

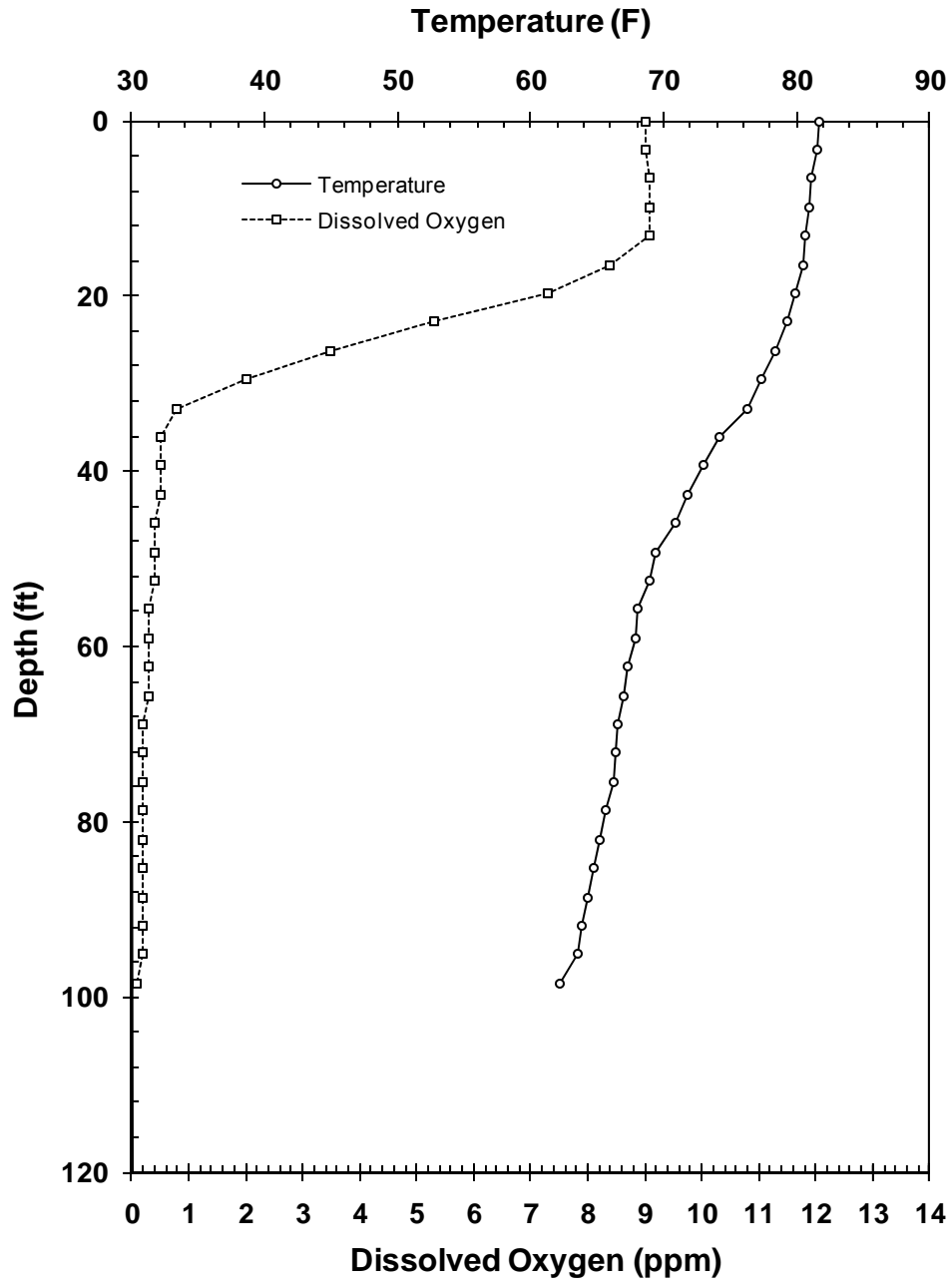


Figure A7. Douglas Reservoir water quality at FBRM 50, August 2009.

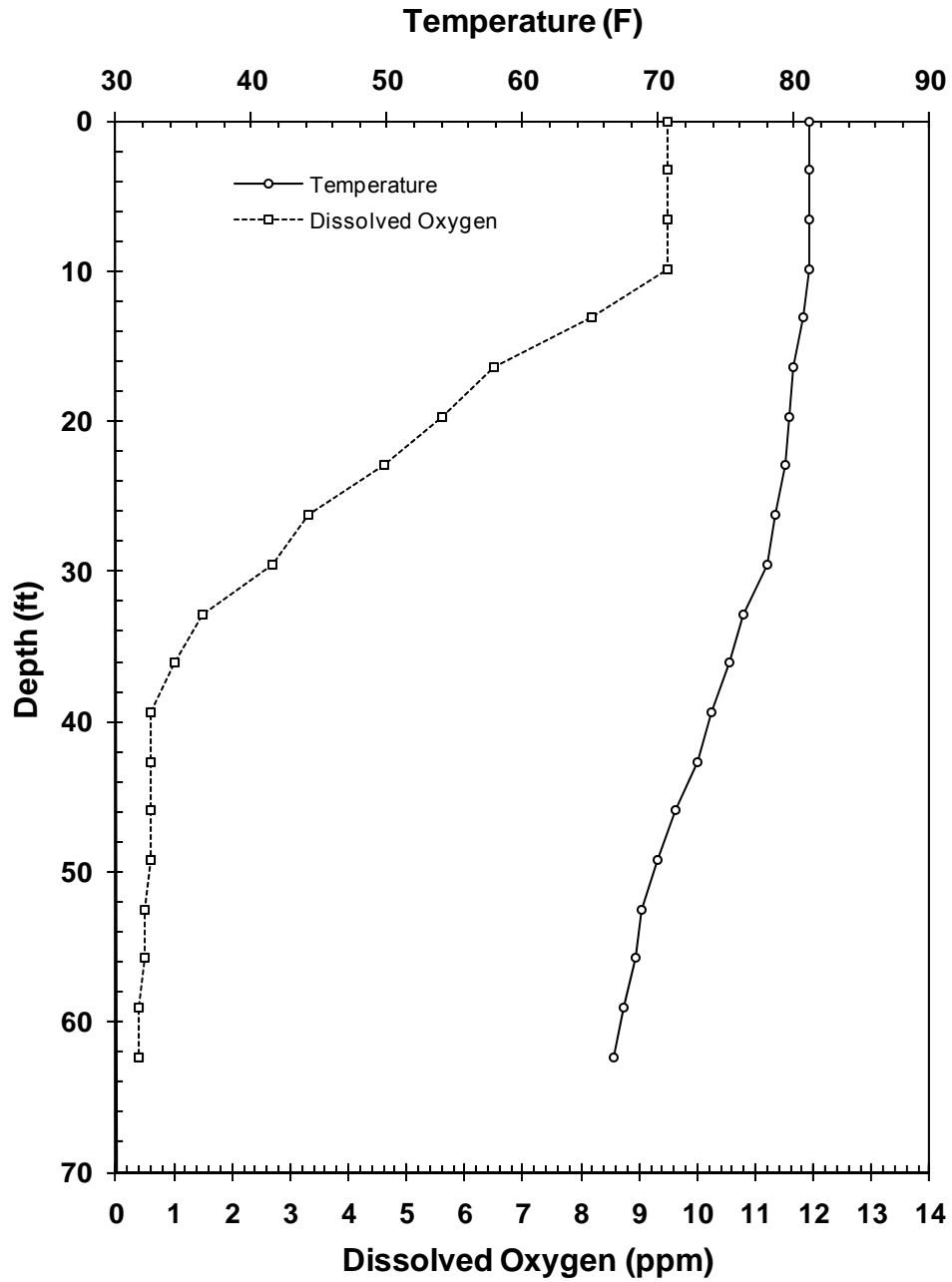


Figure A8. Douglas Reservoir water quality at FBRM 60, August 2009.

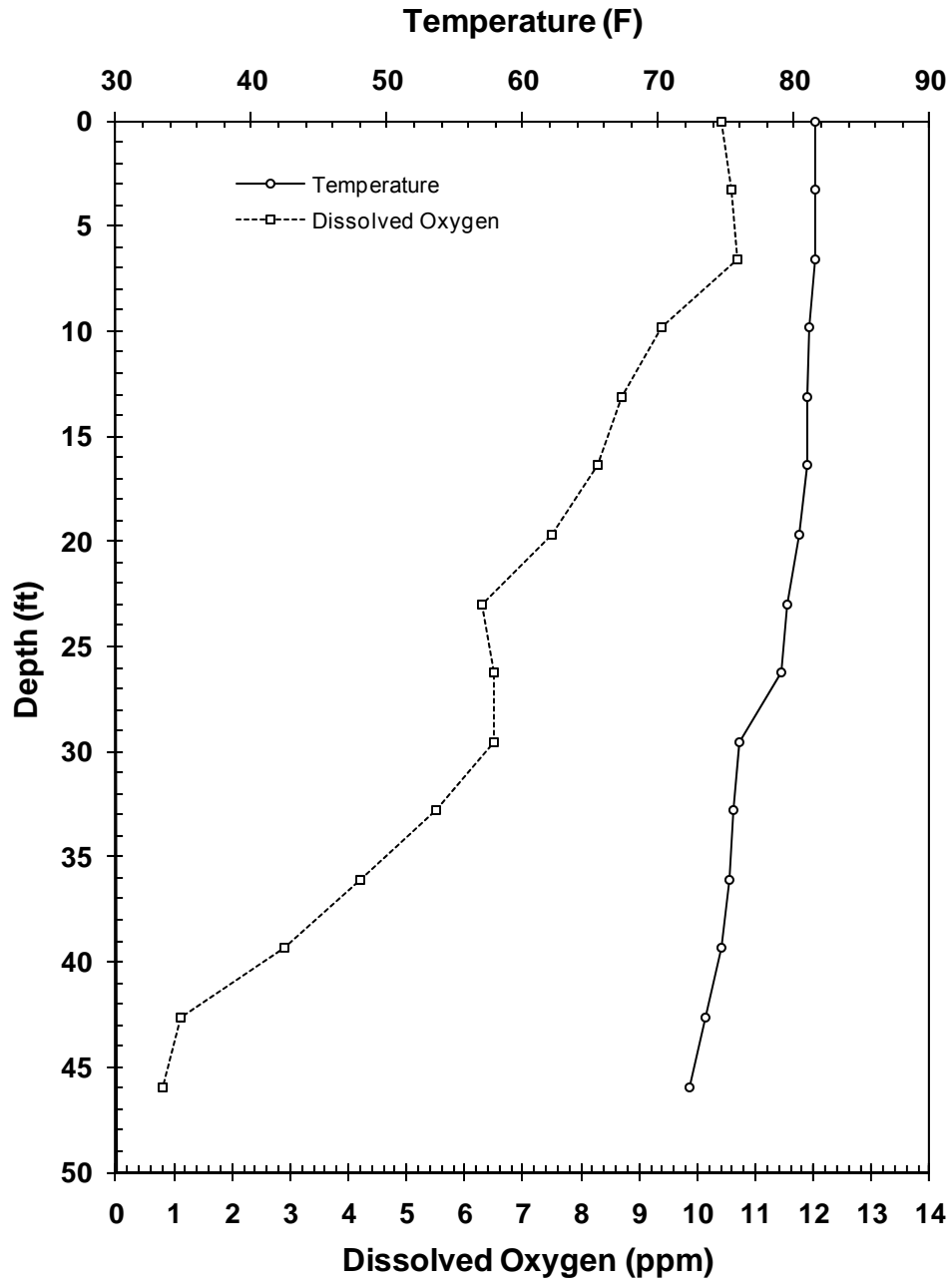


Figure A9. Douglas Reservoir water quality at FBRM 34, September 2009.

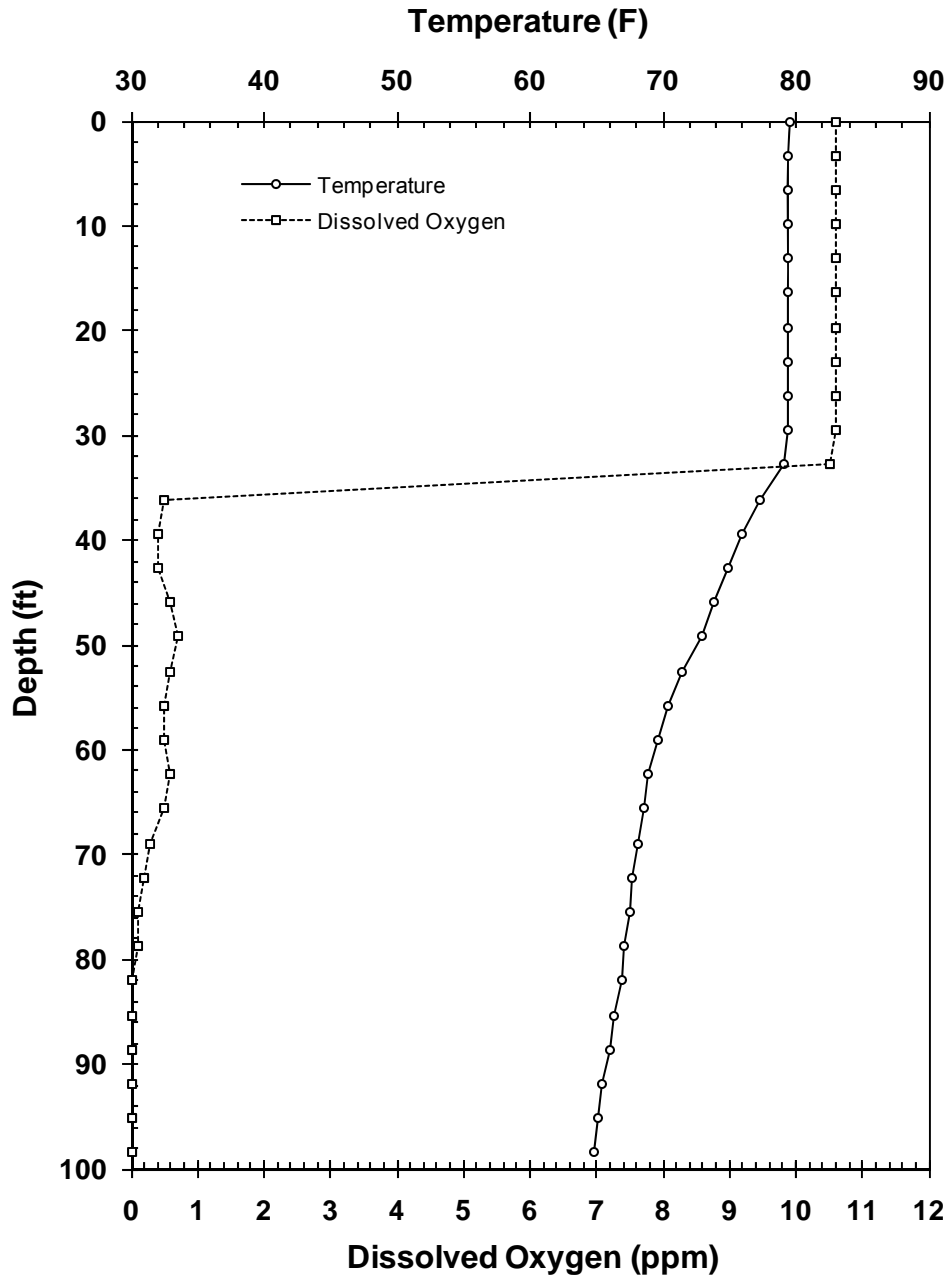


Figure A10. Douglas Reservoir water quality at FBRM 40, September 2009.

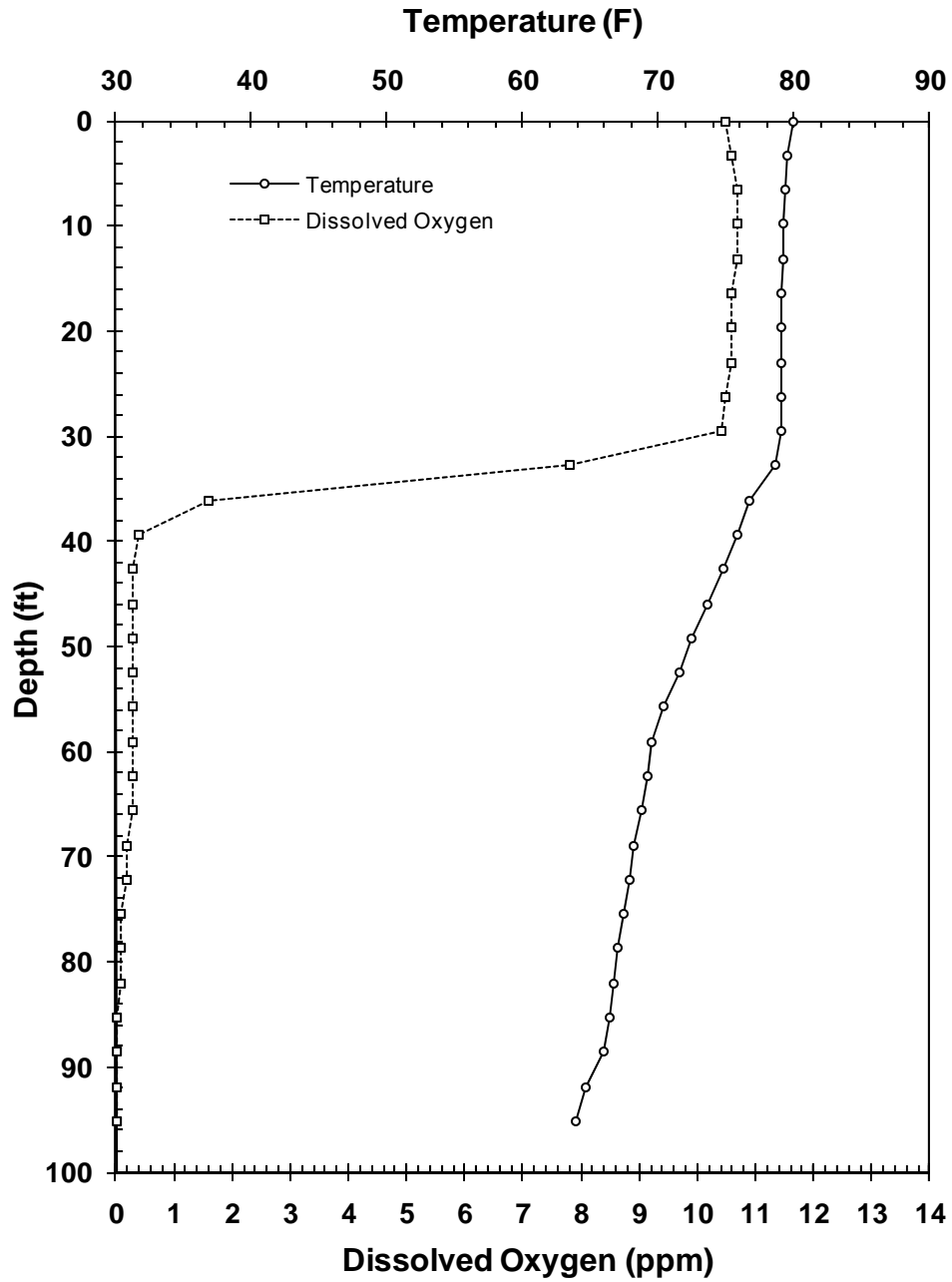
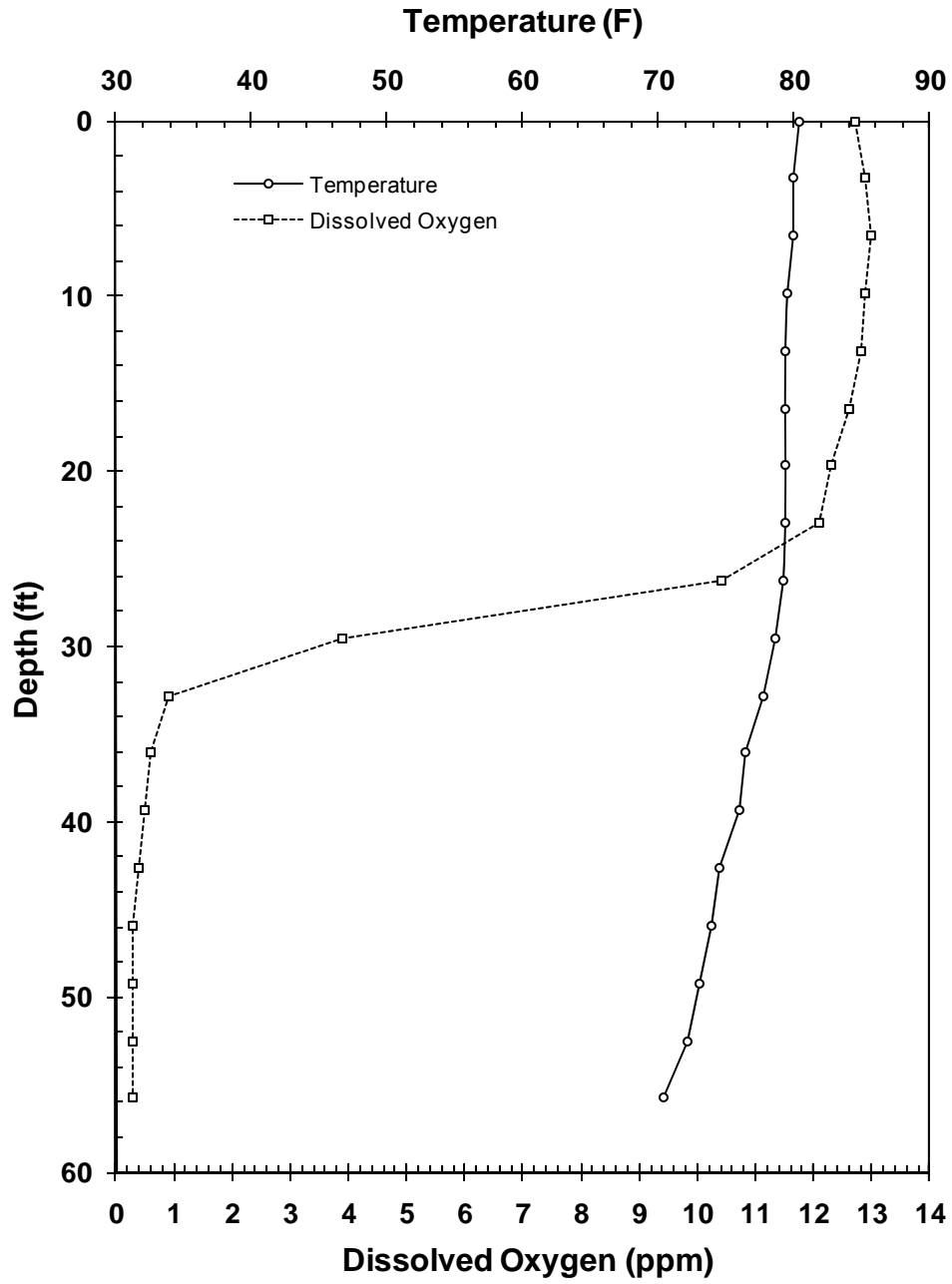


Figure A11. Douglas Reservoir water quality at FBRM 50, September 2009.



Appendix B
Elevation Data

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

Elevation	Month	Day	Elevation	Month	Day	Elevation	Month	Day
954.57	January	1	957.38	February	24	982.21	April	19
954.38	January	2	957.21	February	25	982.69	April	20
954.42	January	3	956.90	February	26	983.34	April	21
953.77	January	4	956.70	February	27	983.97	April	22
953.86	January	5	957.04	February	28	984.49	April	23
954.68	January	6	957.65	March	1	984.93	April	24
958.90	January	7	957.36	March	2	985.29	April	25
962.39	January	8	957.47	March	3	985.59	April	26
962.76	January	9	957.33	March	4	985.85	April	27
962.60	January	10	956.85	March	5	986.11	April	28
962.09	January	11	956.06	March	6	986.32	April	29
961.60	January	12	956.59	March	7	986.53	April	30
961.01	January	13	957.05	March	8	986.76	May	1
960.10	January	14	957.61	March	9	987.02	May	2
959.27	January	15	958.14	March	10	987.35	May	3
958.46	January	16	958.60	March	11	987.80	May	4
957.64	January	17	959.05	March	12	988.27	May	5
956.80	January	18	959.46	March	13	988.87	May	6
956.50	January	19	960.00	March	14	989.85	May	7
956.17	January	20	960.67	March	15	991.02	May	8
955.89	January	21	961.59	March	16	991.98	May	9
955.55	January	22	962.50	March	17	992.79	May	10
955.17	January	23	963.26	March	18	993.36	May	11
955.15	January	24	963.89	March	19	993.55	May	12
955.09	January	25	964.44	March	20	993.61	May	13
955.05	January	26	964.92	March	21	993.75	May	14
955.08	January	27	965.36	March	22	994.17	May	15
955.14	January	28	965.84	March	23	994.94	May	16
955.21	January	29	966.27	March	24	995.70	May	17
955.32	January	30	966.69	March	25	995.97	May	18
955.43	January	31	967.13	March	26	995.86	May	19
955.42	February	1	967.60	March	27	995.55	May	20
955.36	February	2	968.21	March	28	995.09	May	21
955.21	February	3	968.99	March	29	994.64	May	22

Table B1. Continued.

Elevation	Month	Day	Elevation	Month	Day	Elevation	Month	Day
994.00	June	12	990.79	August	5	990.55	September	28
993.83	June	13	990.71	August	6	990.43	September	29
993.49	June	14	990.58	August	7	989.91	September	30
993.44	June	15	990.50	August	8	989.31	October	1
993.45	June	16	990.35	August	9	988.62	October	2
993.96	June	17	990.07	August	10	988.21	October	3
994.30	June	18	989.90	August	11	987.81	October	4
994.46	June	19	989.72	August	12	987.26	October	5
994.24	June	20	989.50	August	13	986.71	October	6
994.13	June	21	989.25	August	14	986.15	October	7
994.05	June	22	989.04	August	15	985.56	October	8
993.78	June	23	988.84	August	16	985.03	October	9
993.44	June	24	988.45	August	17	984.71	October	10
993.13	June	25	988.07	August	18	984.36	October	11
992.85	June	26	987.82	August	19	983.74	October	12
992.93	June	27	987.64	August	20	983.11	October	13
993.00	June	28	987.58	August	21	982.51	October	14
992.82	June	29	987.83	August	22	982.06	October	15
992.61	June	30	987.90	August	23	982.29	October	16
992.43	July	1	987.62	August	24	982.29	October	17
992.24	July	2	987.25	August	25	982.31	October	18
992.00	July	3	986.91	August	26	982.00	October	19
992.07	July	4	986.61	August	27	981.62	October	20
992.21	July	5	986.22	August	28	981.16	October	21
992.19	July	6	986.24	August	29	980.63	October	22
991.92	July	7	986.31	August	30	980.12	October	23
991.66	July	8	986.12	August	31	979.88	October	24
991.49	July	9	985.87	September	1	979.72	October	25
991.59	July	10	985.57	September	2	979.37	October	26
991.57	July	11	985.10	September	3	979.01	October	27
991.56	July	12	984.60	September	4	978.98	October	28
991.56	July	13	984.50	September	5	978.89	October	29
991.46	July	14	984.35	September	6	978.77	October	30
991.28	July	15	984.07	September	7	978.70	October	31

Table B1. Continued.

Elevation	Month	Day
974.16	November	21
973.22	November	22
972.16	November	23
971.47	November	24
970.65	November	25
969.67	November	26
968.66	November	27
967.59	November	28
966.47	November	29
965.80	November	30
964.98	December	1
963.97	December	2
963.65	December	3
963.42	December	4
963.03	December	5
962.33	December	6
961.46	December	7
960.63	December	8
962.61	December	9
964.14	December	10
964.50	December	11
964.47	December	12
964.14	December	13
963.75	December	14
963.25	December	15
962.55	December	16
961.71	December	17
961.54	December	18
961.38	December	19
961.05	December	20
960.03	December	21
958.37	December	22
956.54	December	23
955.18	December	24
956.43	December	25
959.48	December	26
961.20	December	27
961.25	December	28
960.33	December	29
958.94	December	30
957.49	December	31

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

