

**Claytor Lake Volunteer
Monitoring Program
Summary of 2006 Water
Quality Monitoring Results**

By: Dr. Carolyn Lee Thomas, Dr. Jason
Powell, Dr. David Johnson, and
Ms. Carol Love

**Claytor Lake Volunteer
Water Quality Monitoring Program**

Sponsoring Organizations

**Friends of Claytor Lake
Ferrum College
American Electric Power
Pulaski County**

Friends of Claytor Lake

Pulaski, Virginia

2007 Officers

President-	Ron Powers, Hiwassee, VA
Vice President-	Jackson Beamer, Salem, VA
Treasurer-	Bill Cunningham, Dublin, VA
Secretary-	Laura Bullard,, Dublin, VA

Ferrum College

Ferrum, Virginia

“Educating with Confidence since 1913”

President	Dr. Jennifer L. Braaten
Vice President and Dean	Dr. Leslie Lambert
Associate Dean, Science and Math	Dr. Dave Johnson

Claytor Lake Volunteer Water Quality Monitoring Program

- **Project Goals:**
 - (1) Monitor Trophic Status of Claytor Lake
 - (2) Monitor Bacterial Quality of Claytor Lake
 - (3) Involve citizens in environmental protection
- **Each volunteer monitors water quality**
 - at three stations
 - every other week from Memorial Day to Labor Day
- **Monitors measure water clarity and collect**
 - samples to be analyzed at Ferrum College for
 - chlorophyll-A, nitrate and total phosphorus

2007 Monitors

Litt Furr

Dean Jackson

Ronnie Powers

Laura Walters and Jeff Arnold

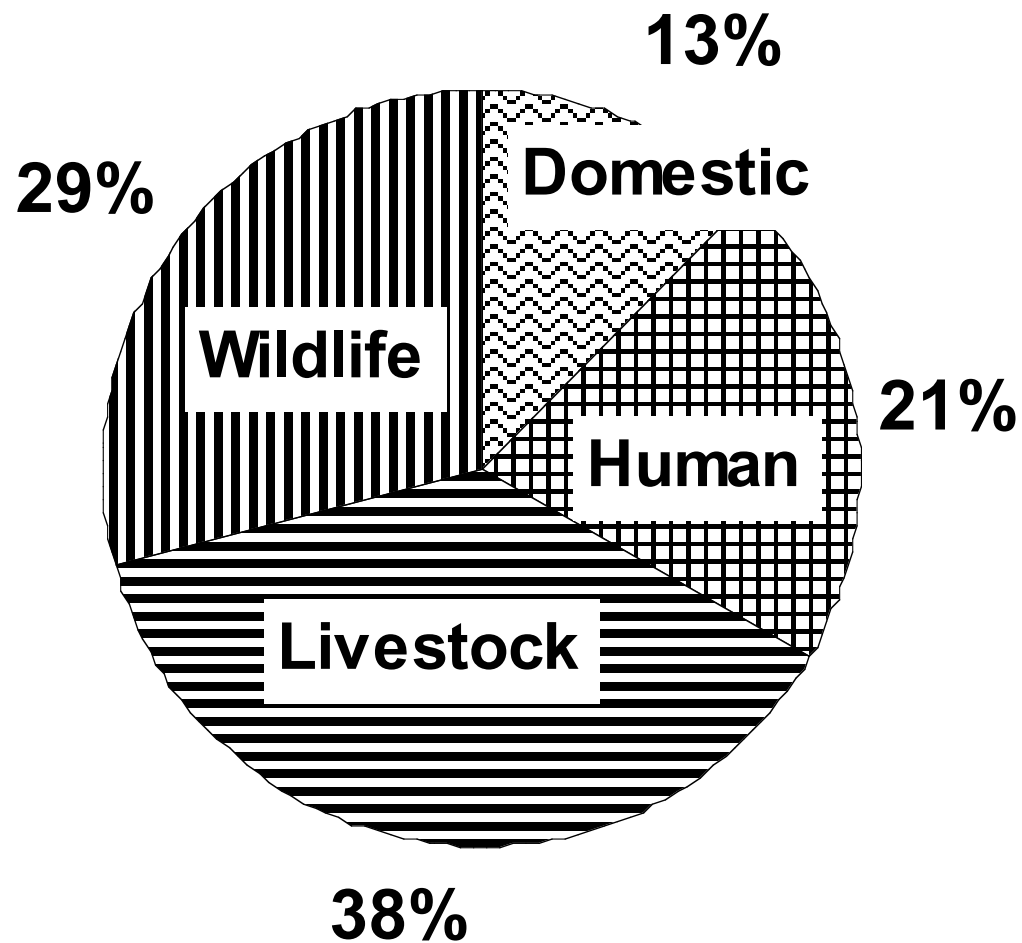
Charles and Nancy Warren

Bacteria: *Escherichia coli*

Most Probable Number for <i>Escherichia coli</i>				
Station	Week 1	Week 2	Week 3	Average
1-1	<1.0		1 <1.0	1
1-2	<1.0	<1.0	<1.0	1
2-1	<1.0	<1.0	<1.0	1
2-2		1	1 1	1
2A-1	<1.0	<1.0	1	1
2A-2	<1.0	<1.0	<1.0	1
3-1		17.5 <1	2	17.5
3-2		1	1 <1.0	1
4-1		13.4	14.8 1	14.1
4-2		10.8	15.5 2	13.15
5-1	<1.0	<1	<1.0	1
5-2		1 <1	<1.0	1
6-1		13.4	3.1 5.2	8.25
6-2		6.3	2 1	4.15
6A-1		30.1	21.1 16	25.6
6A-2		16	25.3 6.3	20.65

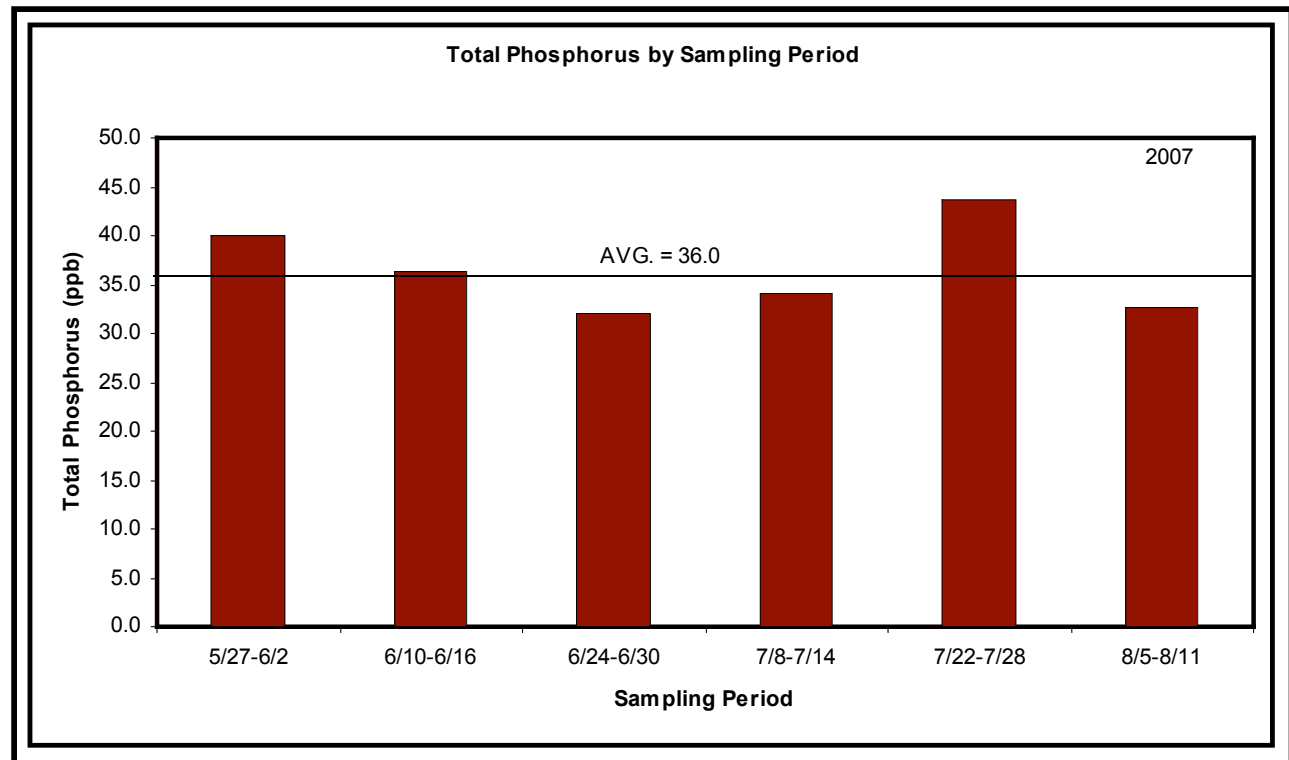
Sample Date	<i>E. coli</i> MPN
June 2007	11.1
July 2007	9.4
August 2007	3.9

Bacterial Source Tracking by ARA at Station 6-A August 2007



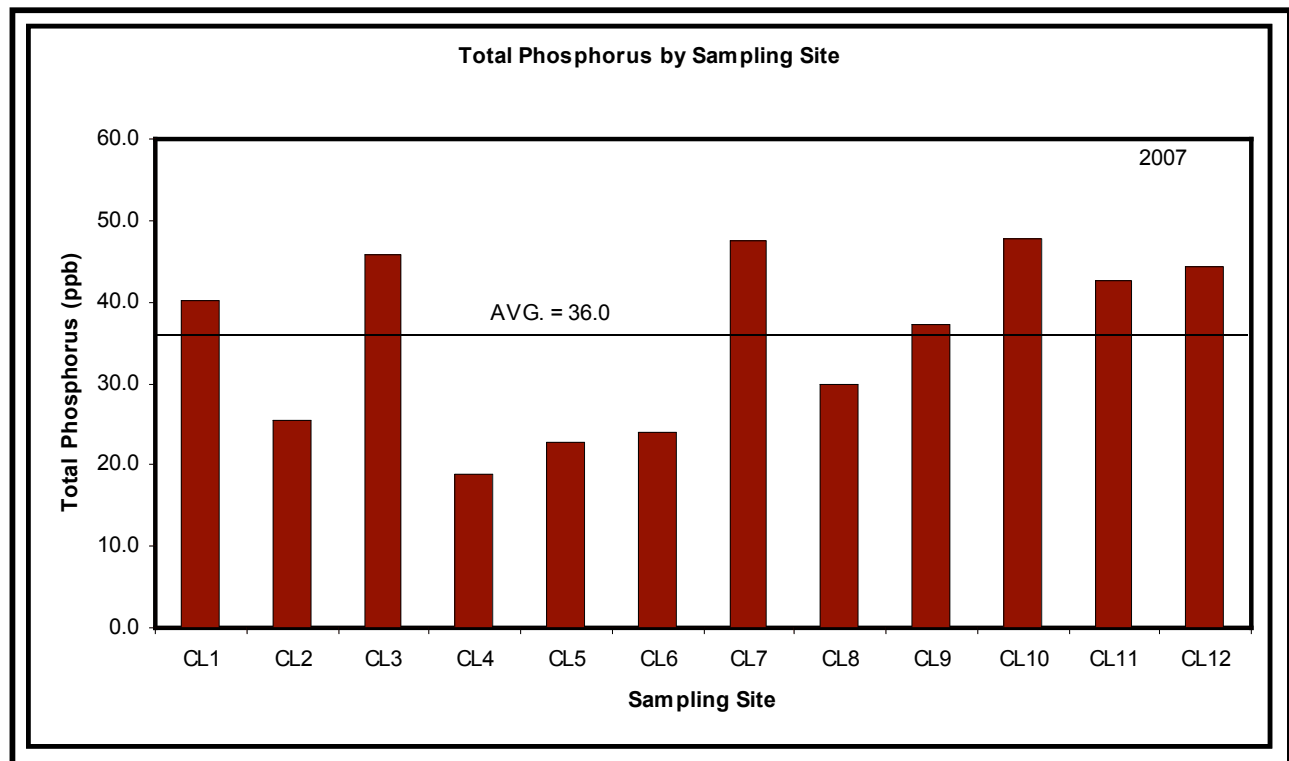
Total Phosphorus

Sampling Period	Phosphorus Avg (ppb)
5/27-6/2	40
6/10-6/16	36.3
6/24-6/30	32.1
7/8-7/14	34.1
7/22-7/28	43.6
8/5-8/11	32.7



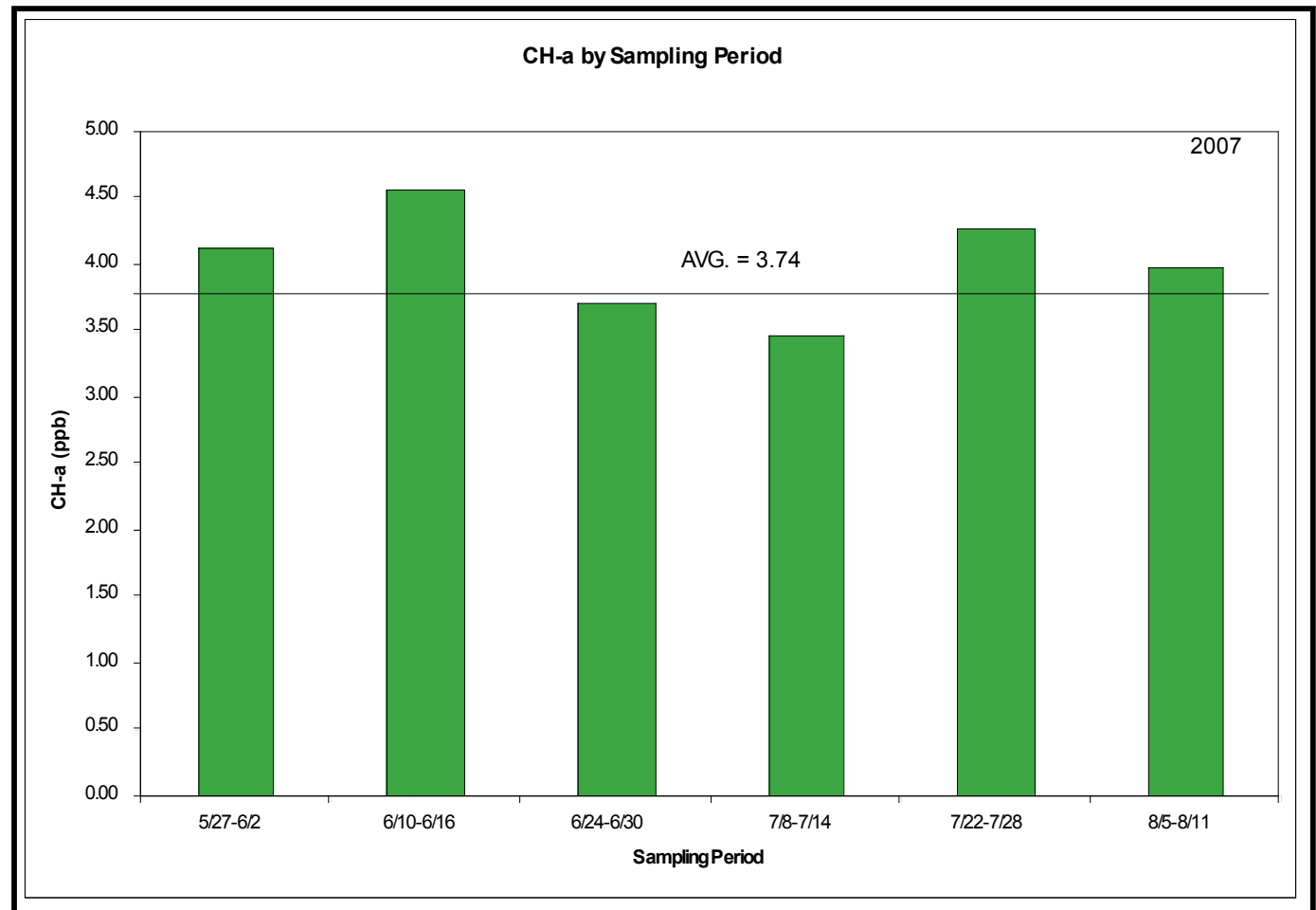
Total Phosphorus

Station	Phosphorus AVG (ppb)
CL1	40.2
CL2	25.5
CL3	45.8
CL4	19.0
CL5	22.9
CL6	24.0
CL7	47.5
CL8	30.0
CL9	37.2
CL10	47.7
CL11	42.5
CL12	44.3



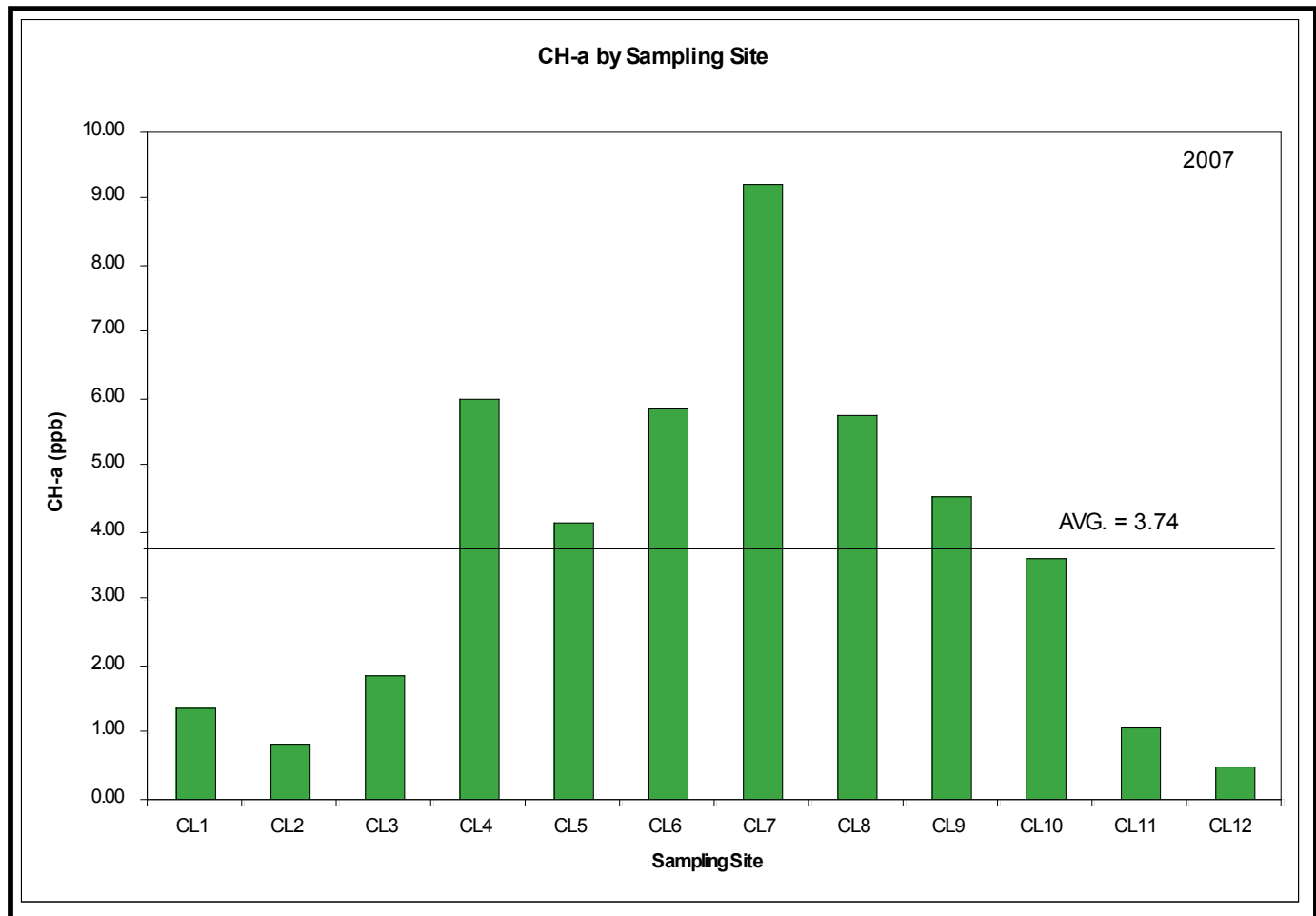
Chlorophyll-A

Sampling Period	Chlorophyll-a Avg (ppb)
5/27-6/2	4.14
6/10-6/16	4.57
6/24-6/30	3.72
7/8-7/14	3.47
7/22-7/28	4.27
8/5-8/11	3.99



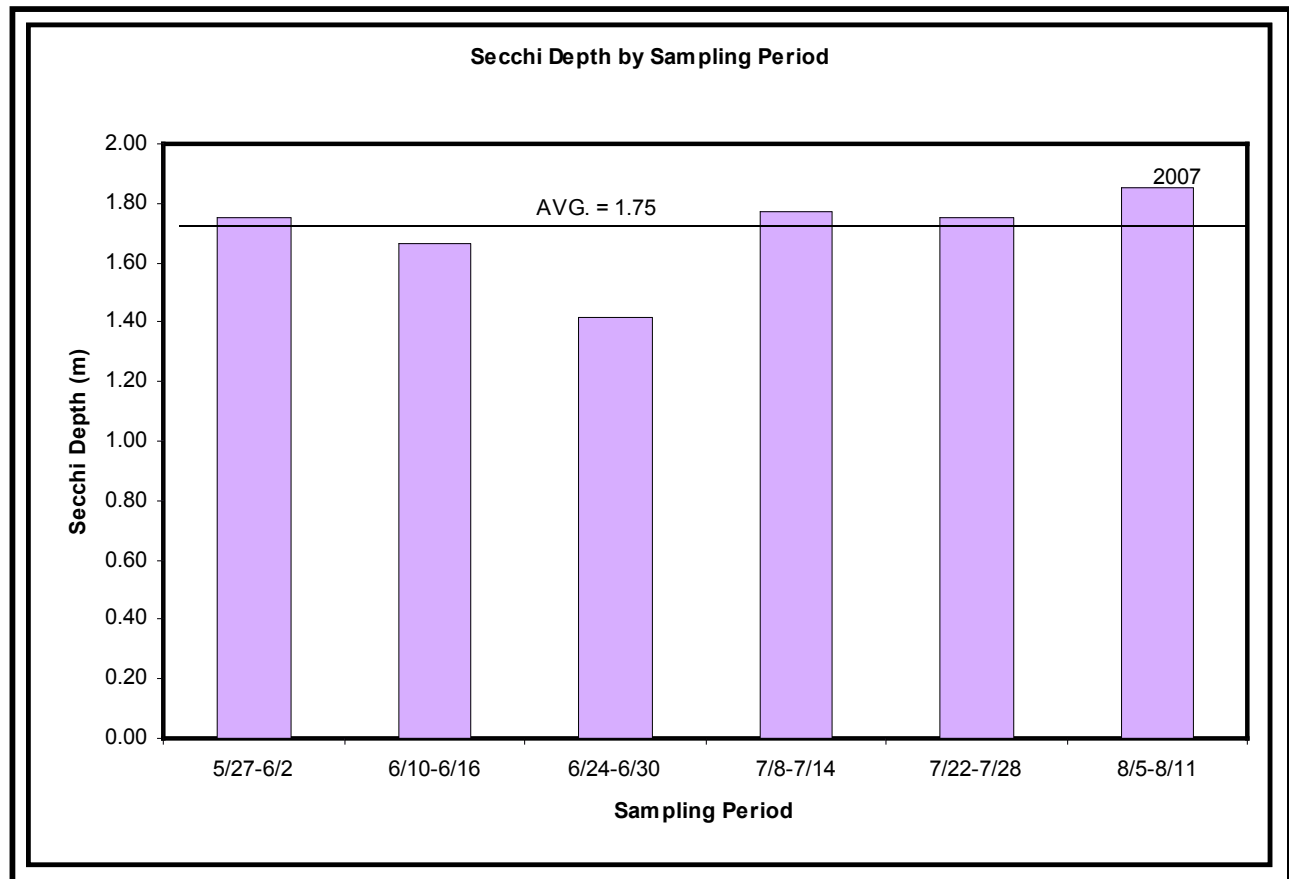
Chlorophyll-A

Station	Chlorophyll -a Avg (ppb)
CL1	1.40
CL2	0.84
CL3	1.86
CL4	5.99
CL5	4.16
CL6	5.86
CL7	9.25
CL8	5.78
CL9	4.53
CL10	3.64
CL11	1.08
CL12	0.51



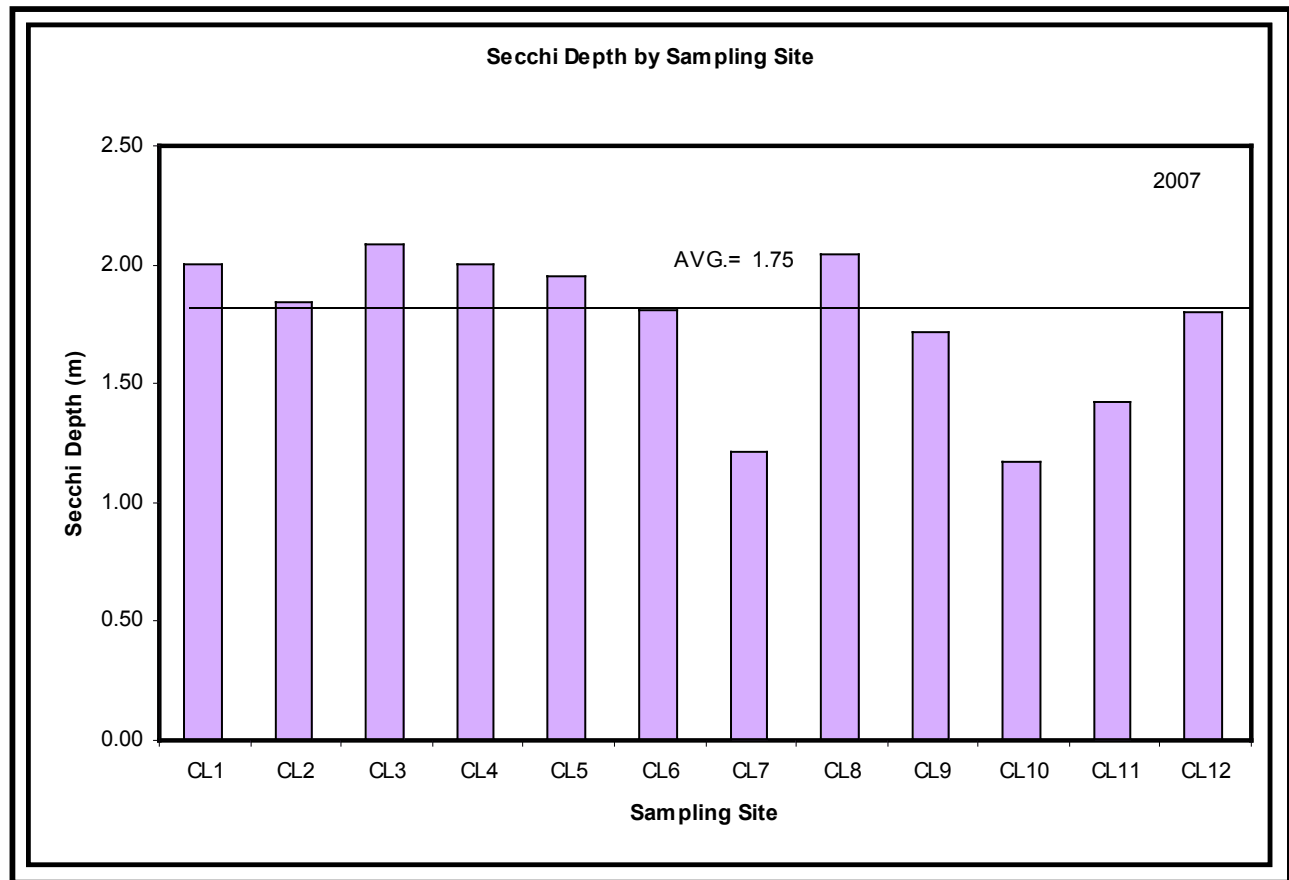
Secchi Depth

Sampling Period	Secchi AVG (m)
5/27-6/2	1.75
6/10-6/16	1.67
6/24-6/30	1.42
7/8-7/14	1.77
7/22-7/28	1.75
8/5-8/11	1.85



Secchi Depth

STATION	Secchi Avg. (m)
CL1	2.00
CL2	1.83
CL3	2.08
CL4	2.00
CL5	1.95
CL6	1.80
CL7	1.21
CL8	2.04
CL9	1.71
CL10	1.17
CL11	1.42
CL12	1.79



Trophic State Index

Claytor Lake 2007 TSI Comparison by Station

Site	TP (ppb)	TSI-TP	CA (ppb)	TSI- CA	SD (m)	TSI -SD	C- TSI
CL1	40.2	22.3	1.4	40.7	2	46.3	36.4
CL2	25.5	21.8	0.84	40.2	1.83	46.2	36.1
CL3	45.8	22.4	1.86	41.0	2.08	46.3	36.6
CL4	19	21.5	5.99	42.2	2	46.3	36.7
CL5	22.9	21.7	4.16	41.8	1.95	46.3	36.6
CL6	24	21.7	5.86	42.2	1.8	46.2	36.7
CL7	47.5	22.4	9.25	42.6	1.21	45.8	36.9
CL8	30	22.0	5.78	42.2	2.04	46.3	36.8
CL9	37.2	22.2	4.53	41.9	1.71	46.1	36.7
CL10	47.7	22.4	3.64	41.7	1.17	45.7	36.6
CL11	42.5	22.3	1.08	40.5	1.42	45.9	36.2
CL12	44.3	22.4	0.51	39.7	1.79	46.2	36.1

Trophic State Index

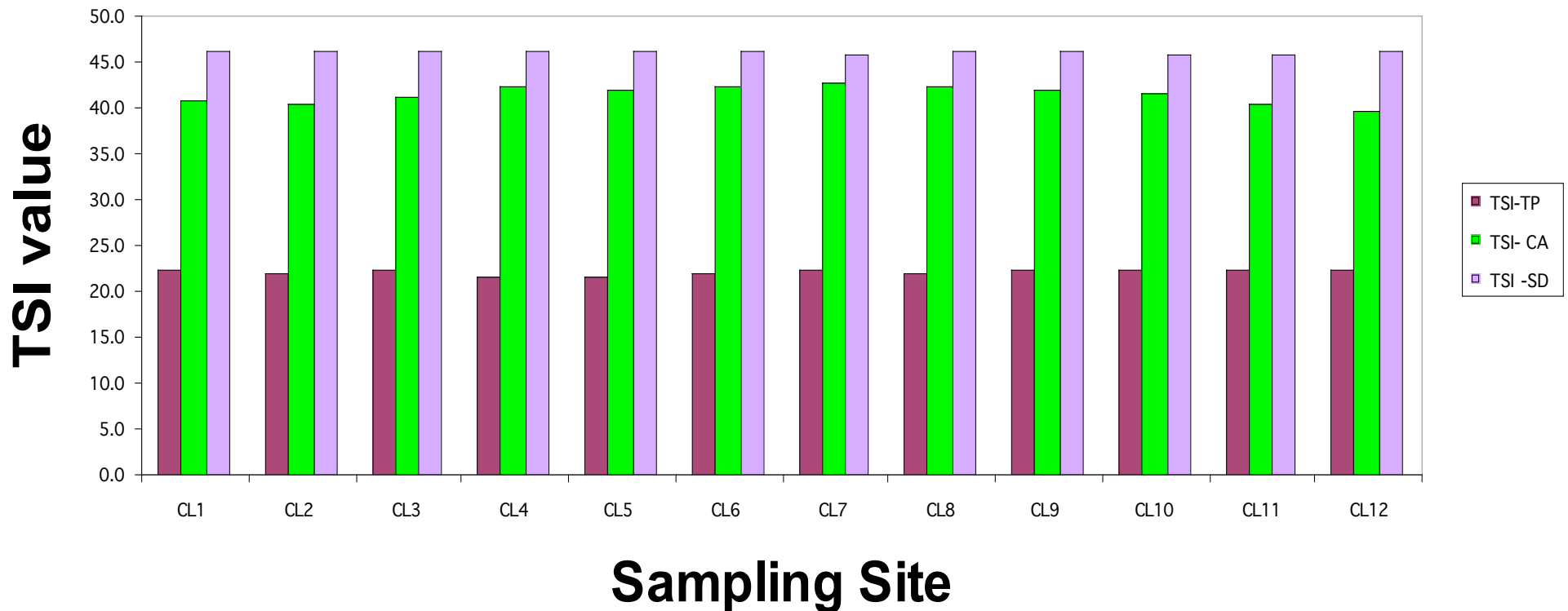
TSI Average for all Stations Claytor Lake 2007

Parameters	AVG Value	TSI
TP	36.0	22.2
CA	3.7	41.7
SD	1.8	46.1
Combined		36.7

Trophic State Index

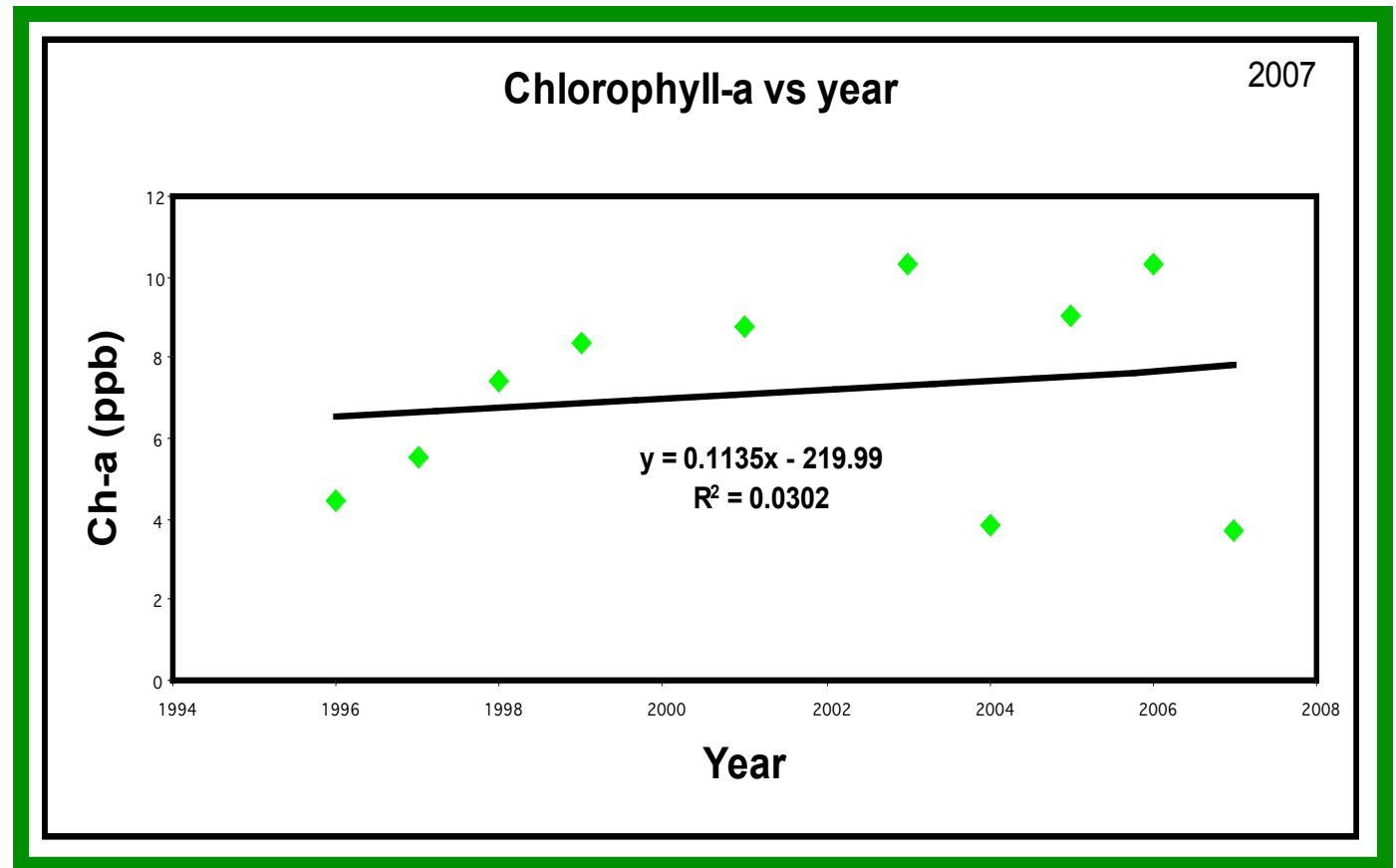
2007

TSI vs Sampling Site



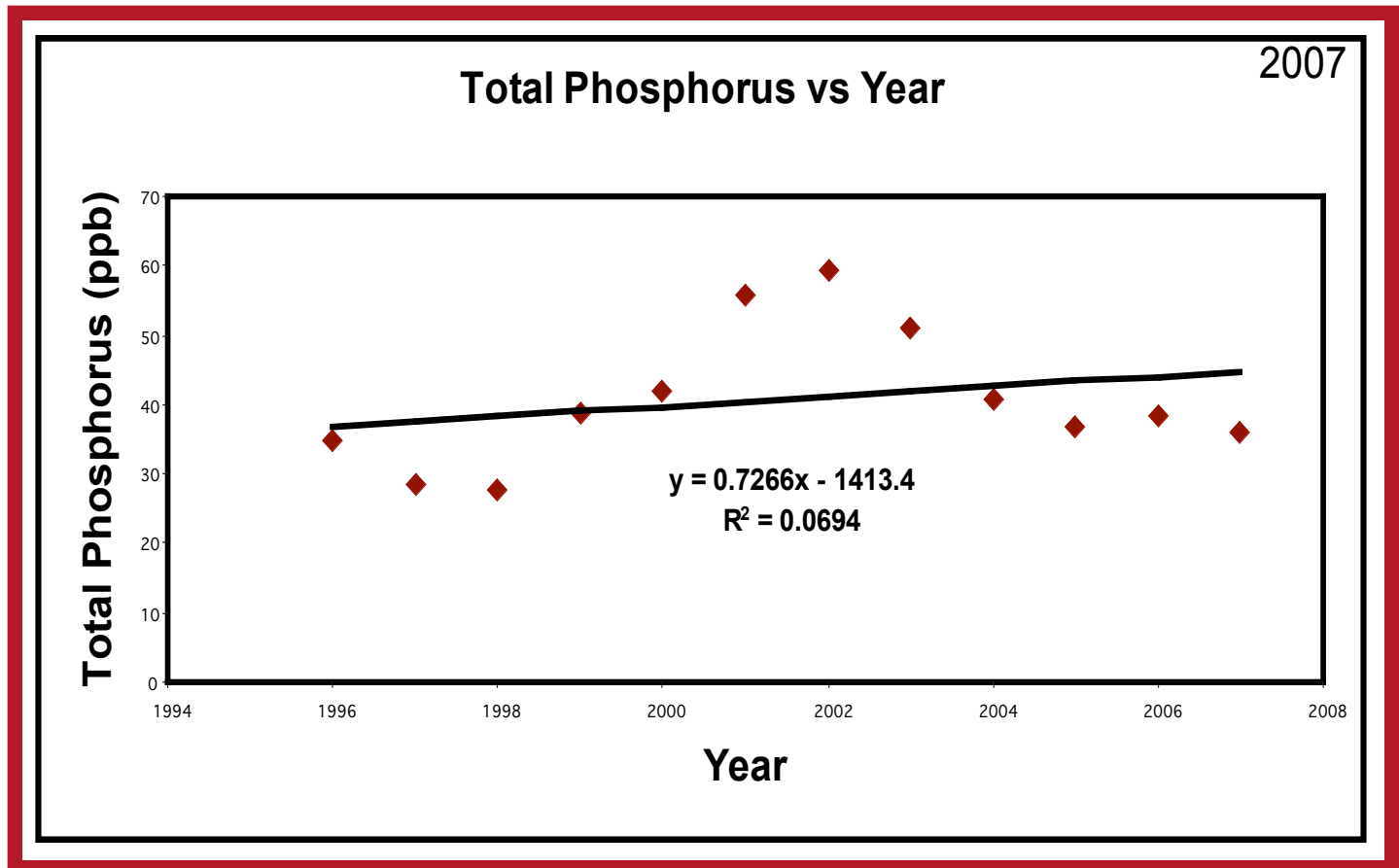
Water Quality Trends

Year	Chlorophyll-a Average
1996	4.46
1997	5.53
1998	7.42
1999	8.35
2001	8.75
2003	10.29
2004	3.85
2005	9.05
2006	10.32
2007	3.74



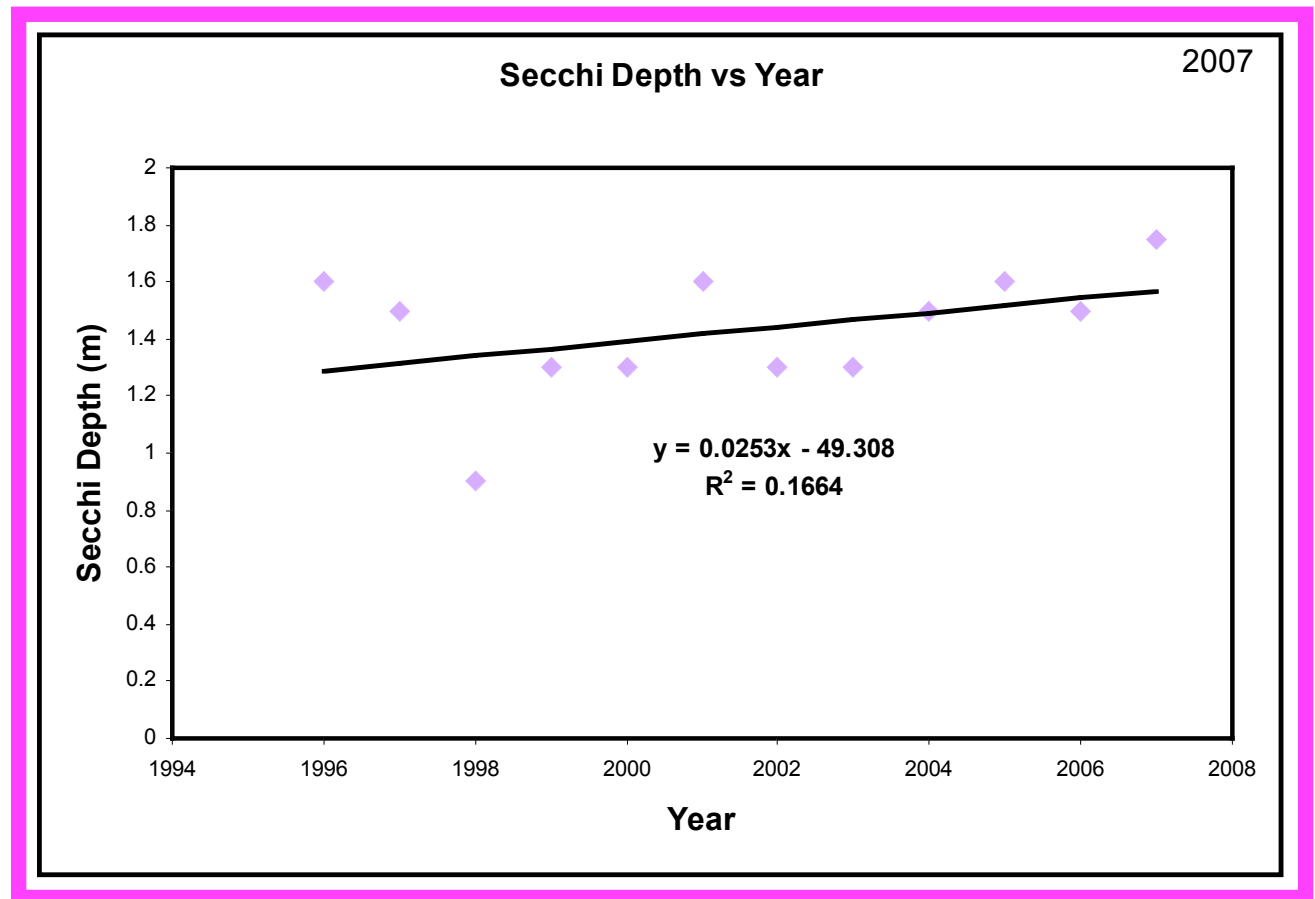
Water Quality Trends

Year	Total Phosphorus AVG
1996	34.8
1997	28.4
1998	27.7
1999	38.8
2000	41.9
2001	55.7
2002	59.4
2003	51.2
2004	40.7
2005	36.9
2006	38.3
2007	36.0



Water Quality Trends

Year	Secchi AVG(m)
1996	1.6
1997	1.5
1998	0.9
1999	1.3
2000	1.3
2001	1.6
2002	1.3
2003	1.3
2004	1.5
2005	1.6
2006	1.5
2007	1.75



Water Quality Trends

Year	TSI-C
1996	51.3
1997	51.3
1998	52.5
1999	56.1
2000	54.9
2001	56.6
2002	56.1
2003	57
2004	51.6
2005	53.9
2006	54.8
2007	36.7

