

# **Claytor Lake Volunteer Monitoring Program Summary of 2008 Water Quality Monitoring Results**

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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
Provost and Vice President for Academic Affairs	Dr. Leslie Lambert
Dean of Natural Science and Mathematics	Dr. David 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**
  - samples to be chemically analyzed at Ferrum College
  - chlorophyll-*a*, nitrate and total phosphorus are analyzed

## **2008 Monitors**

Litt Furr

Dean Jackson

Ronnie Powers

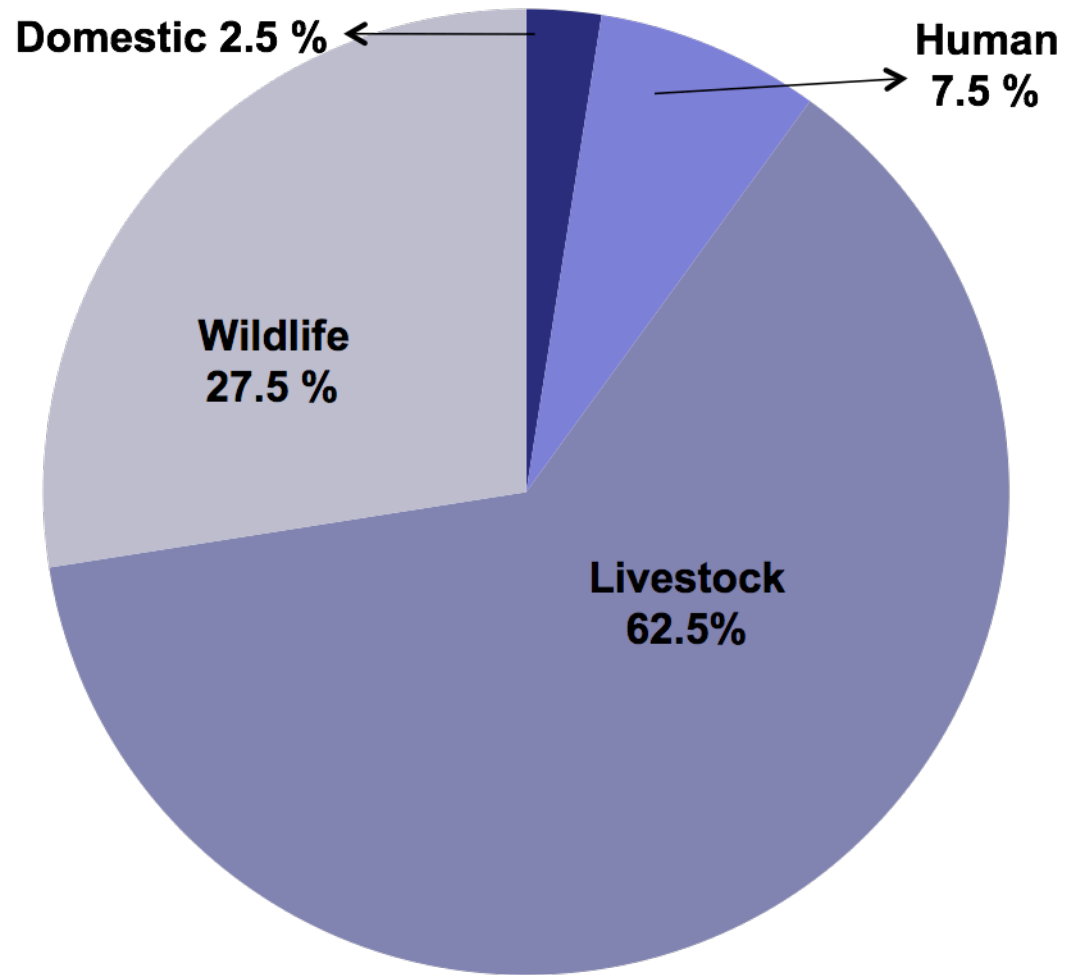
Laura Walters and Jeff Arnold

Charles and Nancy Warren

# Bacteria: *Escherichia coli*

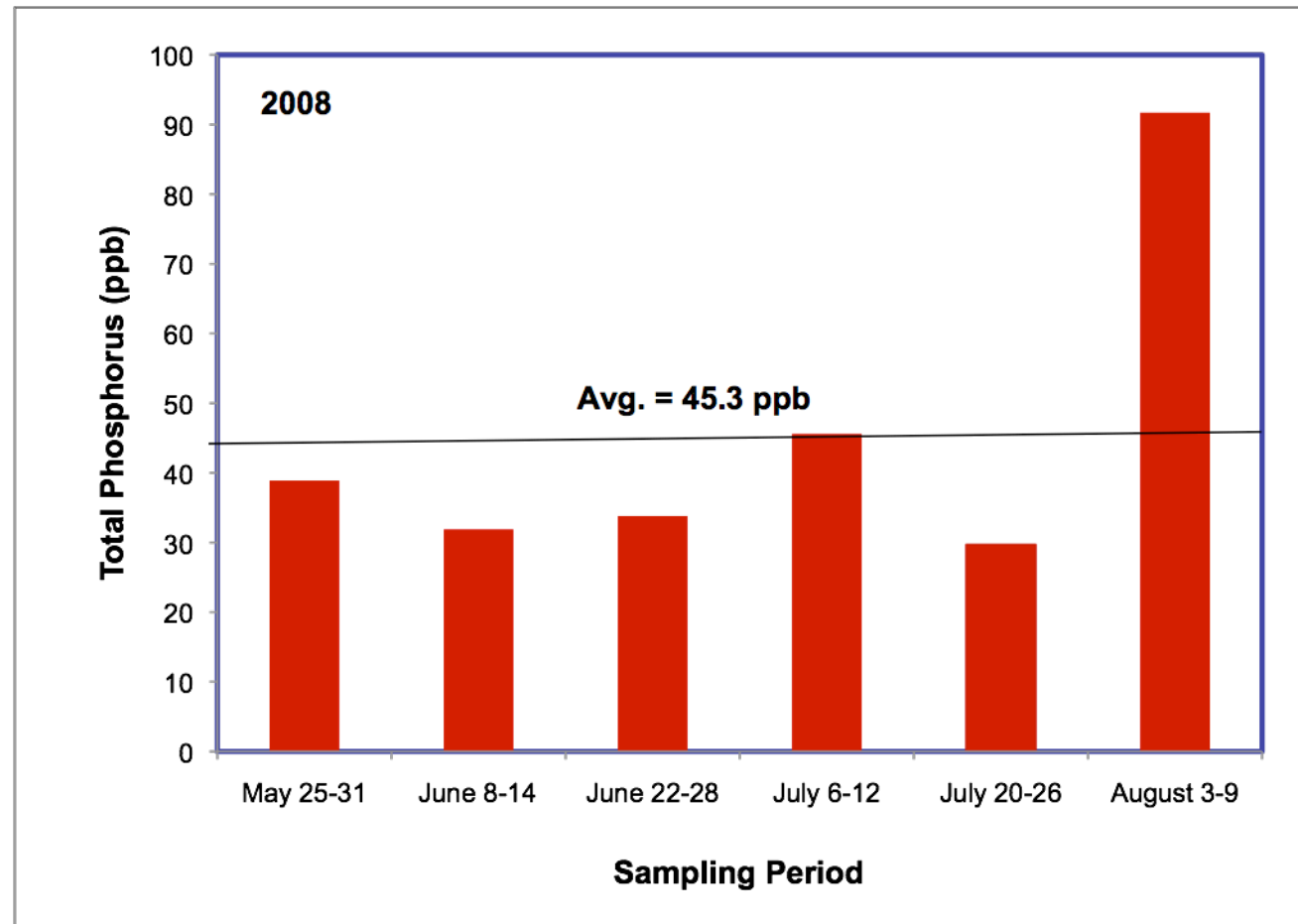
<b>Most Probable Number (MPN) for for <i>E. coli</i> in 2008</b>				
<b>Station</b>	<b>June 2008</b>	<b>July 2008</b>	<b>August 2008</b>	<b>Average</b>
1-1	0.0	3.0	0.0	1.0
1-2	0.0	0.0	0.0	0.0
2-1	0.0	0	0.0	0.0
2-2	0.0	0	0.0	0.0
2A-1	1.0	1	0.0	0.7
2A-2	0.0	1	0.0	0.3
3-1	0.0	0.0	1.0	0.3
3-2	1.0	0	2	1.0
4-1	1119.9	22.3	18.7	387.0
4-2	>2419.6	18.1	16.8	818.2
5-1	2	4.1	2	2.7
5-2	5.2	7.3	0.0	4.2
6-1	20.3	19.5	5.2	15.0
6-2	13.2	13.5	3.1	9.9
6A-1	45.7	148.3	19.5	71.2
6A-2	62.0	137.2	25.9	75.0
<b>Average</b>	<b>230.6</b>	<b>23.5</b>	<b>5.9</b>	<b>86.7</b>

# Bacterial Source Tracking using ARA at Station 6-A August 2008



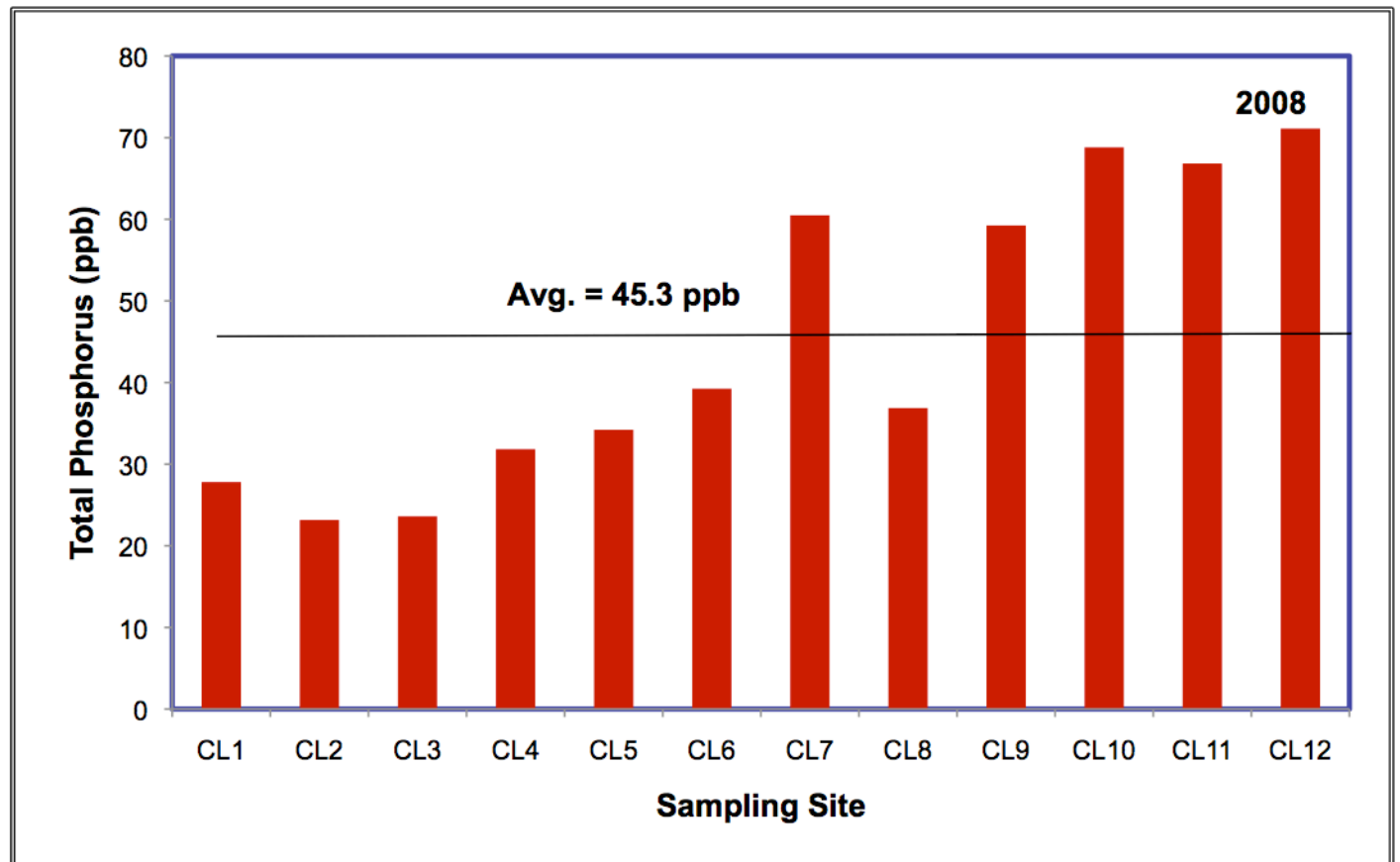
# Total Phosphorus

Sampling Period	Phosphorus Avg. (ppb)
May 25-31	38.9
June 8-14	31.9
June 22-28	33.8
July 6-12	45.6
July 20-26	29.7
August 3-9	91.7



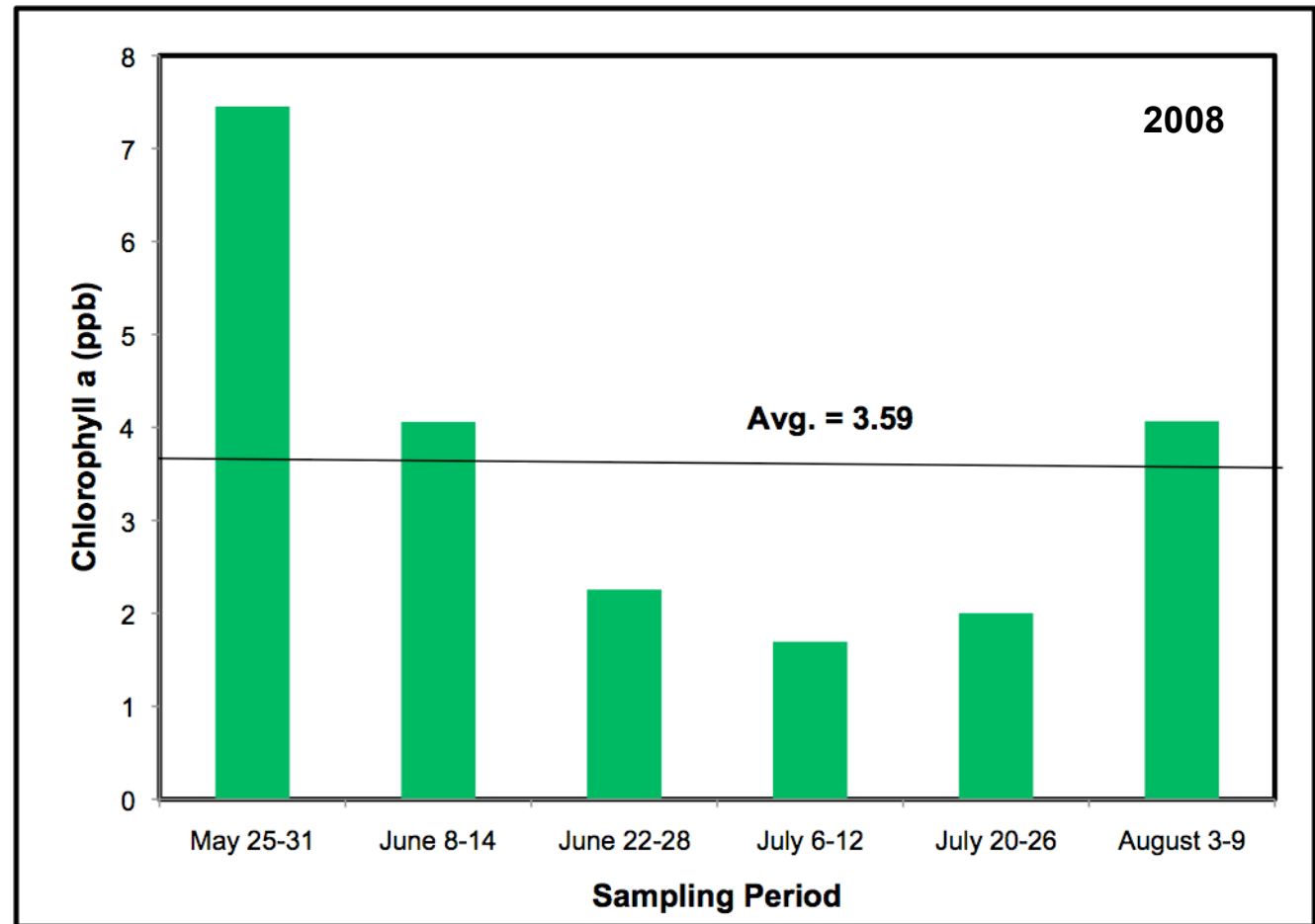
# Total Phosphorus

Station	Phosphorus Average
CL1	27.8
CL2	23.2
CL3	23.6
CL4	31.8
CL5	34.2
CL6	39.3
CL7	60.5
CL8	36.9
CL9	59.2
CL10	68.8
CL11	66.8
CL12	71.1



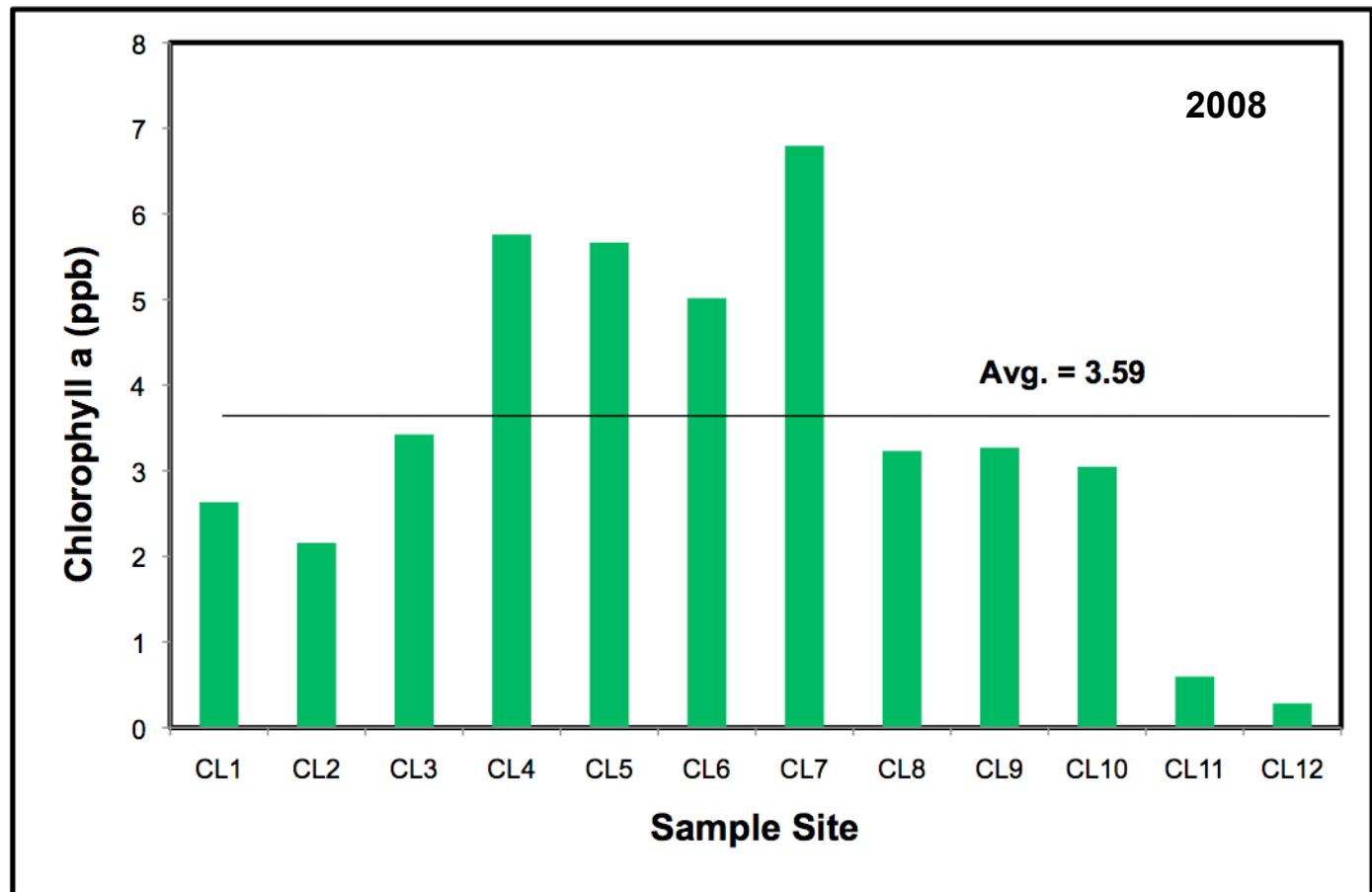
# Chlorophyll -a

Sampling period	Chlorophyll- <i>a</i> Avg. (ppb)
May 25-31	7.45
June 8-14	4.06
June 22-28	2.26
July 6-12	1.69
July 20-26	2.00
August 3-9	4.07
<b>AVG.</b>	<b>3.59</b>



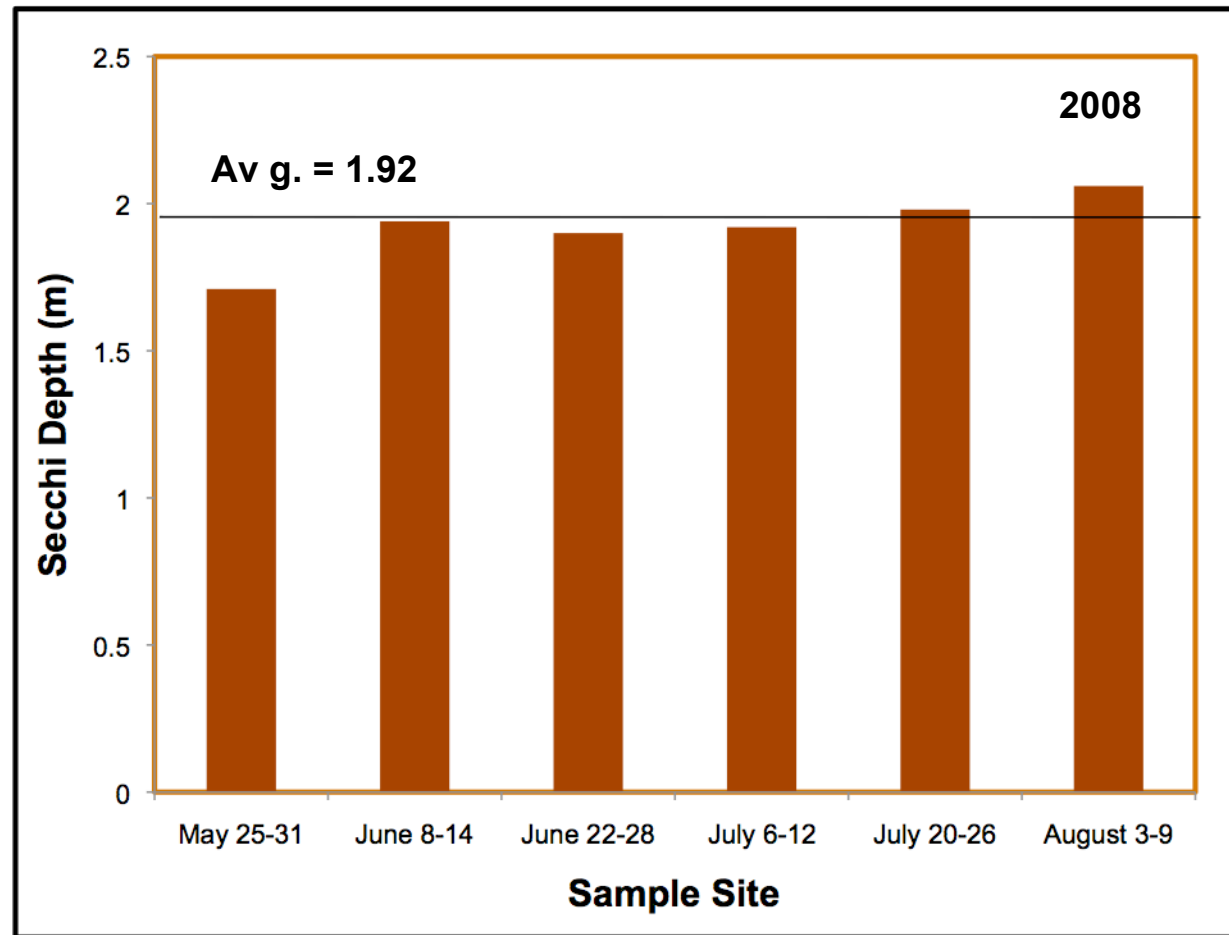
# Chlorophyll -a

Station	Chlorophyll -a Average (ppb)
CL1	2.63
CL2	2.16
CL3	3.42
CL4	5.76
CL5	5.67
CL6	5.02
CL7	6.80
CL8	3.23
CL9	3.27
CL10	3.05
CL11	0.60
CL12	0.28
<b>AVG.</b>	<b>3.59</b>



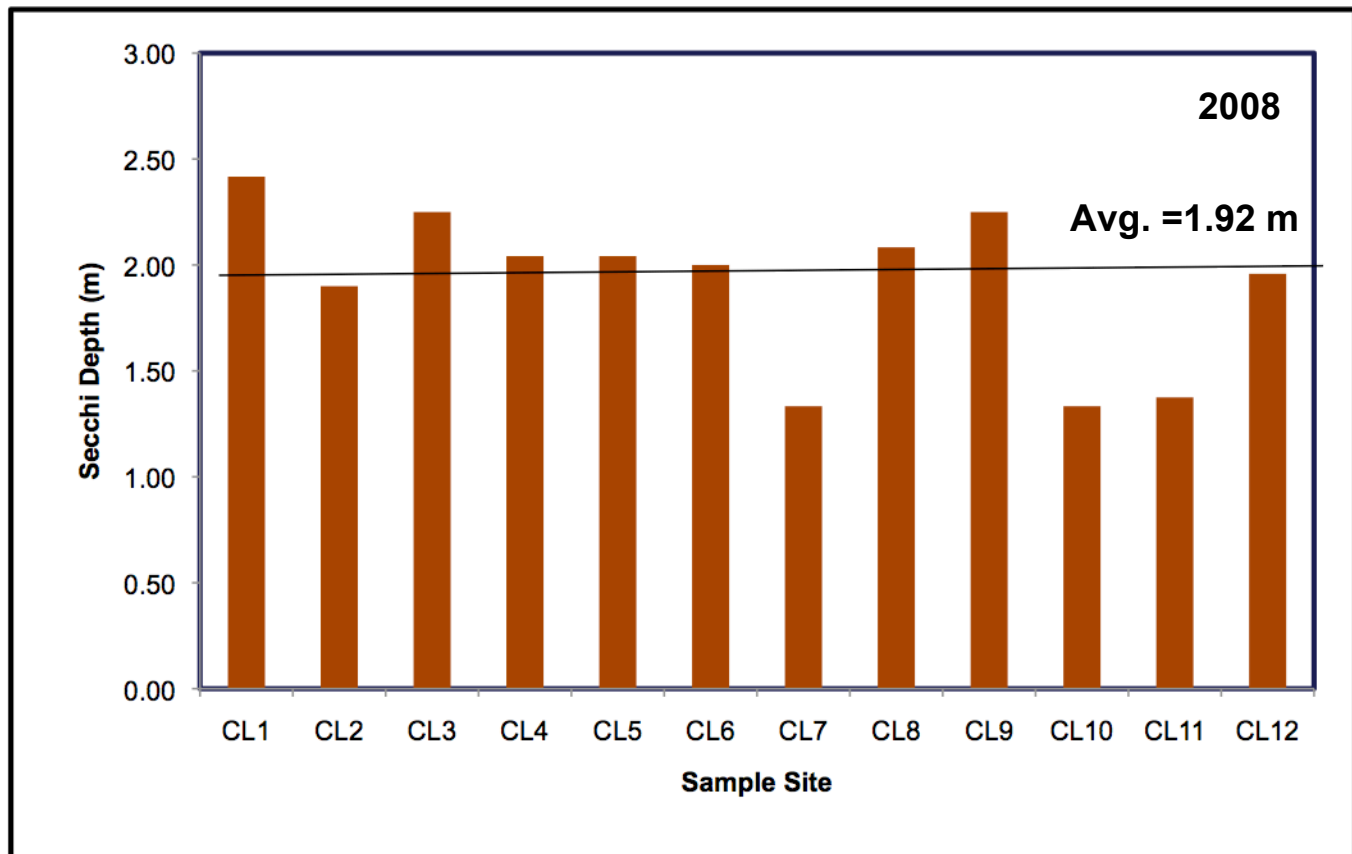
# Secchi Depth

Sampling Period	Secchi Depth Avg. (m)
May 25-31	1.71
June 8-14	1.94
June 22-28	1.90
July 6-12	1.92
July 20-26	1.98
August 3-9	2.06
<b>Average</b>	<b>1.92</b>



# Secchi Depth

Station	Secchi Depth avg. (m)
CL1	2.42
CL2	1.90
CL3	2.25
CL4	2.04
CL5	2.04
CL6	2.00
CL7	1.33
CL8	2.08
CL9	2.25
CL10	1.33
CL11	1.38
CL12	1.96
Average	1.92



# Trophic State Index

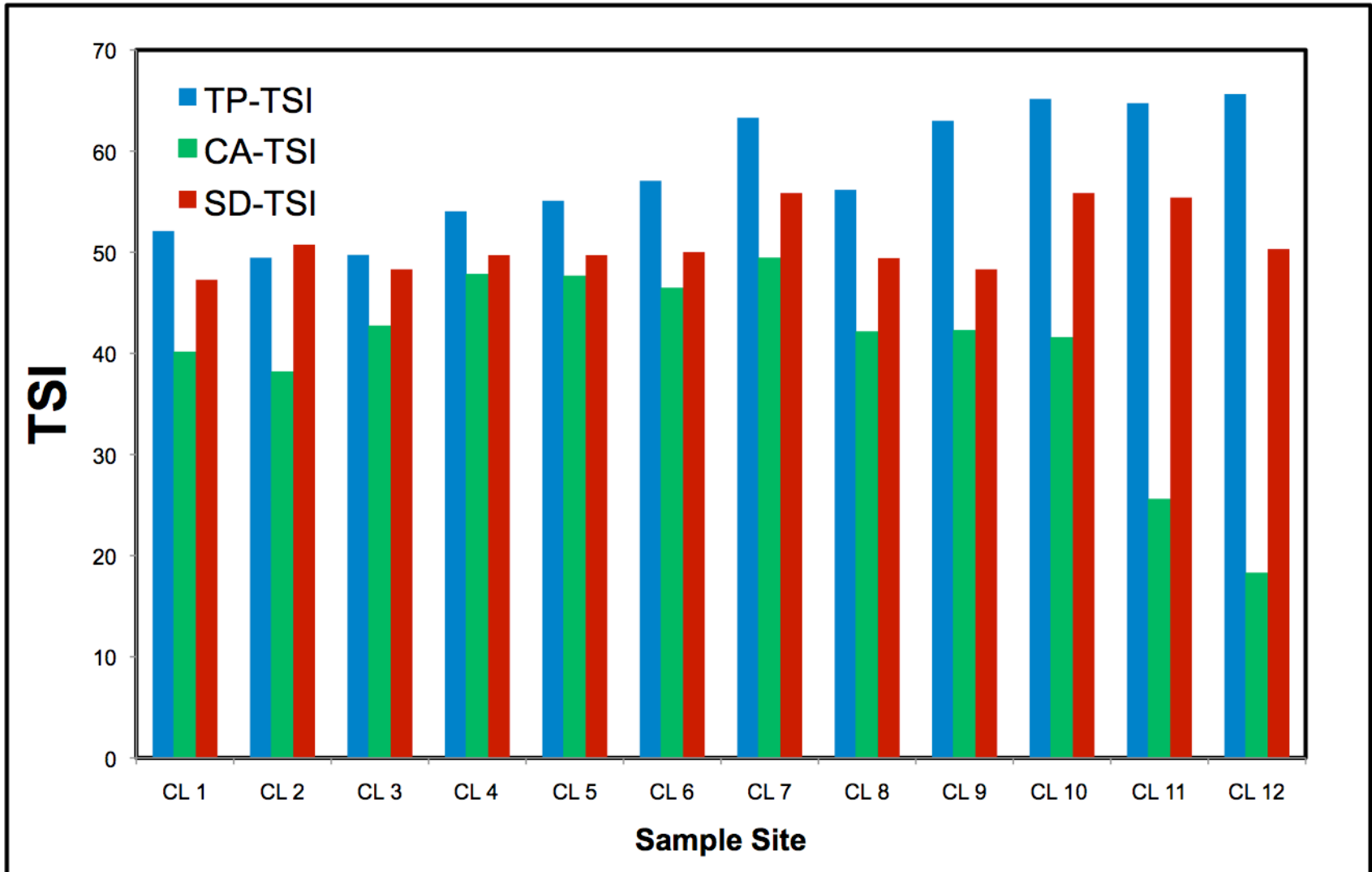
## Claytor Lake TSI 2008

Station	TP avg	<b>TP-TSI</b>	CA avg	<b>CA-TSI</b>	SD avg	<b>SD-TSI</b>	<b>TSI-C</b>
CL 1	27.8	<b>52.1</b>	2.63	<b>40.1</b>	2.42	<b>47.3</b>	<b>55.8</b>
CL 2	23.2	<b>49.5</b>	2.16	<b>38.1</b>	1.90	<b>50.8</b>	<b>55.8</b>
CL 3	23.6	<b>49.7</b>	3.42	<b>42.7</b>	2.25	<b>48.3</b>	<b>53.6</b>
CL 4	31.8	<b>54.0</b>	5.76	<b>47.8</b>	2.04	<b>49.7</b>	<b>52.9</b>
CL 5	34.2	<b>55.1</b>	5.67	<b>47.6</b>	2.04	<b>49.7</b>	<b>53.3</b>
CL 6	39.3	<b>57.1</b>	5.02	<b>46.4</b>	2.00	<b>50.0</b>	<b>54.7</b>
CL 7	60.5	<b>63.3</b>	6.80	<b>49.4</b>	1.33	<b>55.9</b>	<b>55.7</b>
CL 8	36.9	<b>56.2</b>	3.23	<b>42.1</b>	2.08	<b>49.4</b>	<b>56.5</b>
CL 9	59.2	<b>63.0</b>	3.27	<b>42.2</b>	2.25	<b>48.3</b>	<b>59.1</b>
CL 10	68.8	<b>65.2</b>	3.05	<b>41.5</b>	1.33	<b>55.9</b>	<b>60.2</b>
CL 11	66.8	<b>64.7</b>	0.60	<b>25.5</b>	1.38	<b>55.4</b>	<b>67.9</b>
CL 12	71.1	<b>65.6</b>	0.28	<b>18.2</b>	1.96	<b>50.3</b>	<b>71.8</b>
Avg		<b>58.0</b>		<b>40.2</b>		<b>50.9</b>	<b>58.1</b>

# Trophic State Index

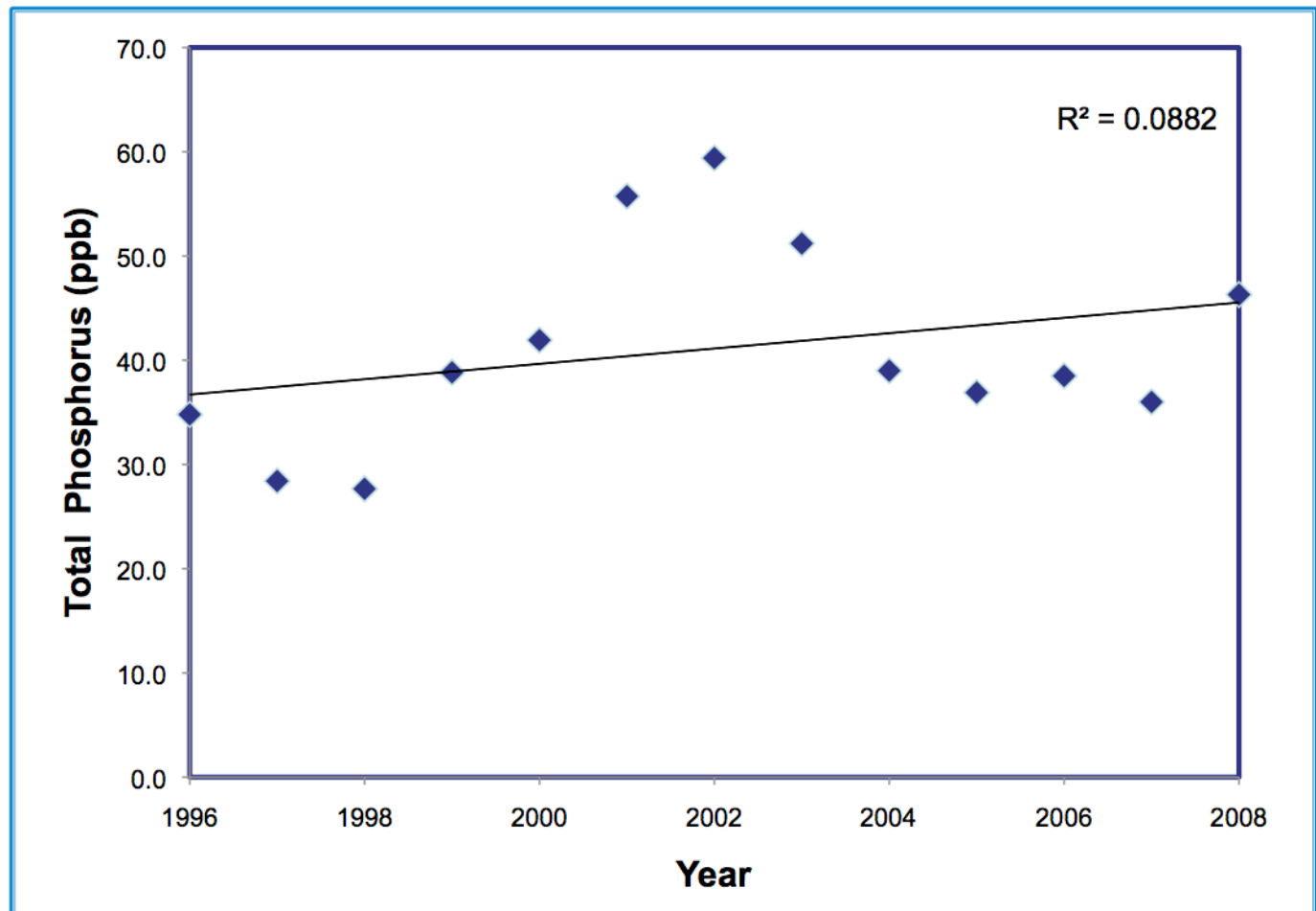
<b>TSI Average for All Stations Claytor Lake 2008</b>				
<b>Parameter</b>		<b>Average Value</b>		<b>TSI</b>
<b>TP</b>		<b>45.30</b>		<b>58.0</b>
<b>CA</b>		<b>3.59</b>		<b>40.1</b>
<b>SD</b>		<b>1.92</b>		<b>50.9</b>
<b>Combined</b>				<b>49.7</b>

# Trophic State Index



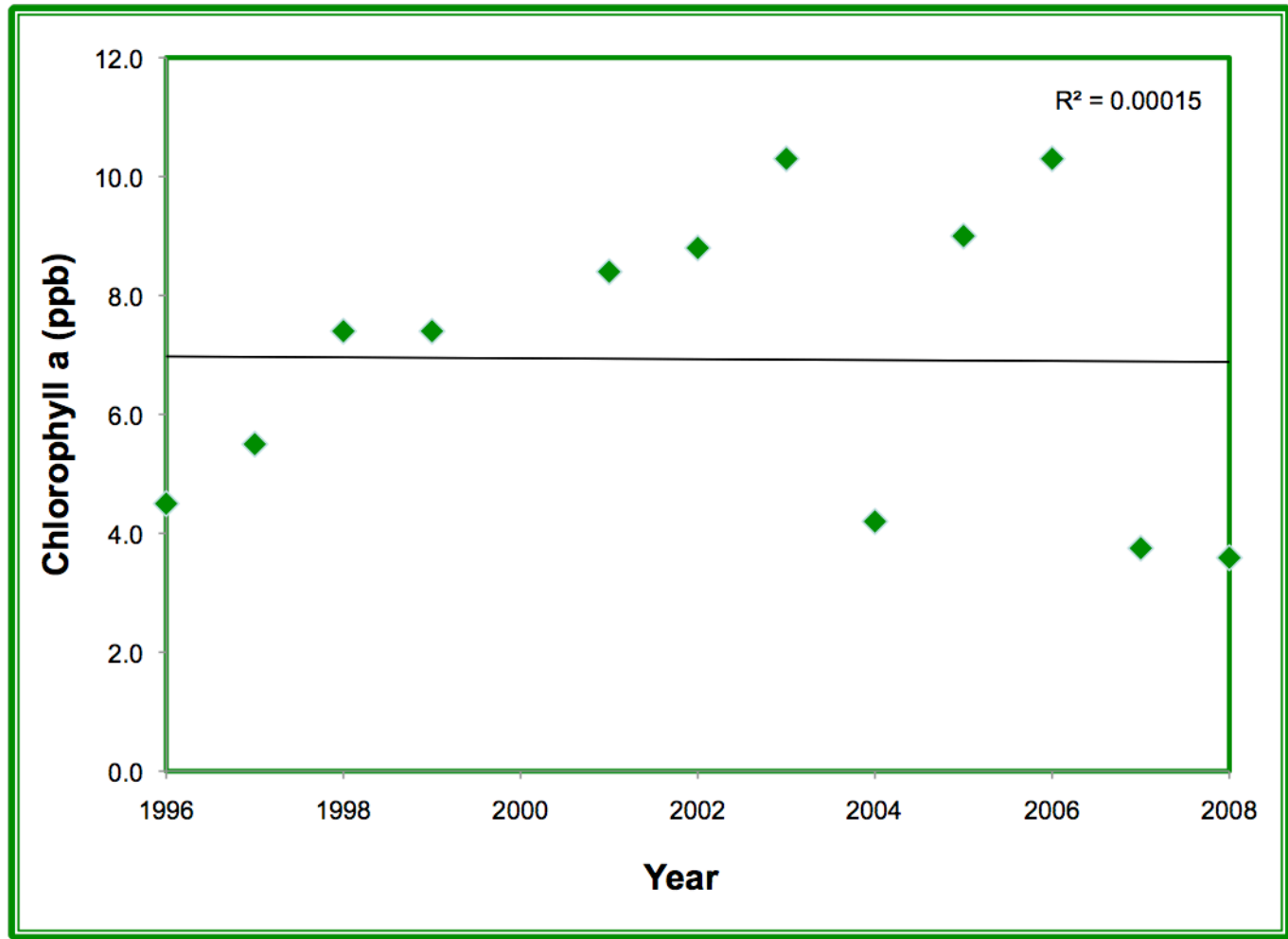
# Water Quality Trends

Year	Avg. TP ppb
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	39.0
2005	36.9
2006	38.5
2007	36.0
2008	46.3



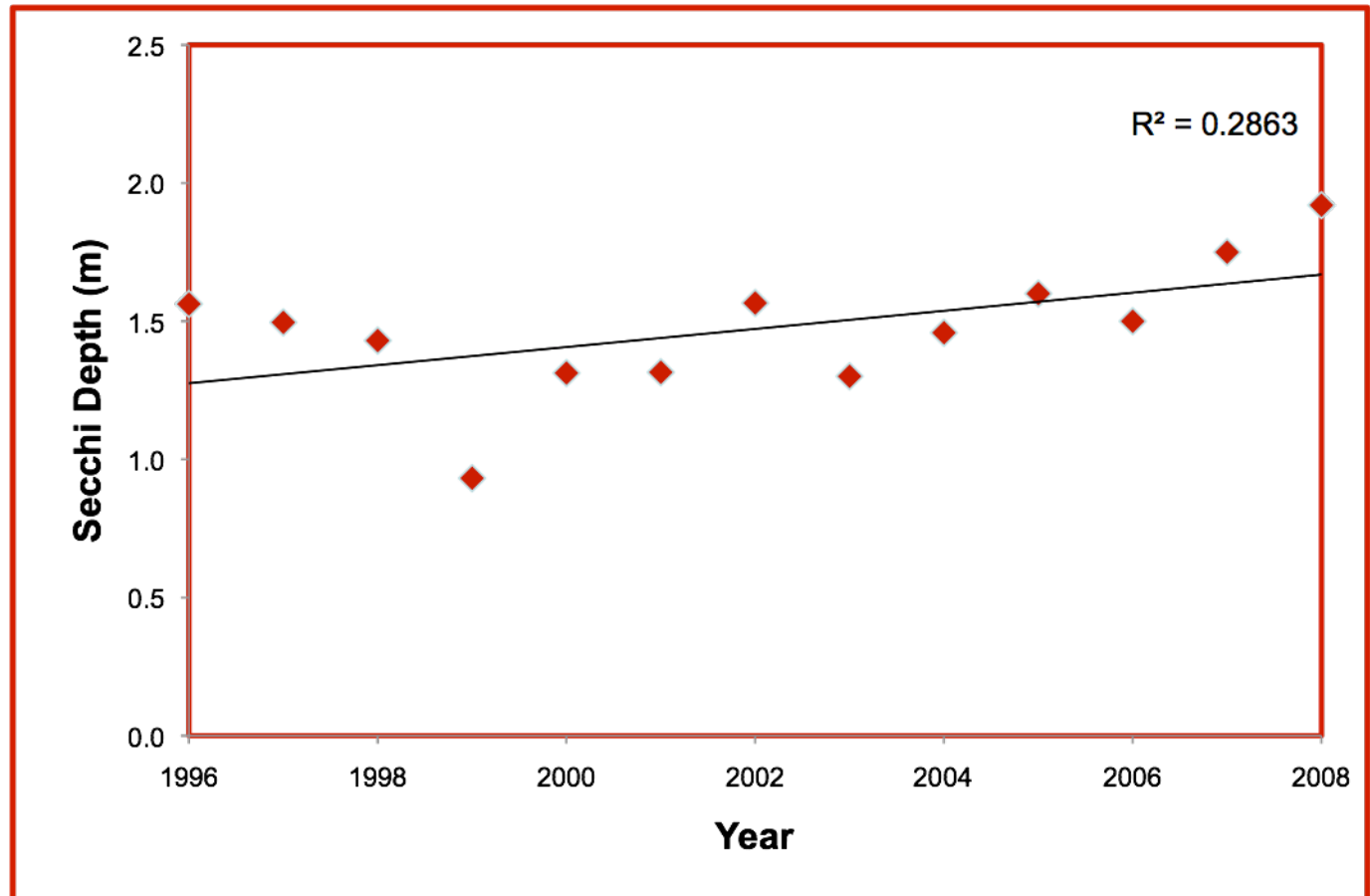
# Water Quality Trends

Year	Avg. CA ppb
1996	4.5
1997	5.5
1998	7.4
1999	7.4
2000	
2001	8.4
2002	8.8
2003	10.3
2004	4.2
2005	9.0
2006	10.3
2007	3.8
2008	3.6



# Water Quality Trends

Year	Avg SD m
1996	1.6
1997	1.5
1998	1.4
1999	0.9
2000	1.3
2001	1.3
2002	1.6
2003	1.3
2004	1.5
2005	1.6
2006	1.5
2007	1.8
2008	1.9



# 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	57.0
2004	51.6
2005	53.9
2006	54.8
2007	36.7
2008	49.7

