

CRWA 2005 Monthly Monitoring Program

FINAL REPORT

Created by:

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Introduction

The Charles River Watershed Association (CRWA) is devoted to conducting and using sound science upon which to base its policy platforms, advocacy work, and public education. Monitoring the Charles River is extremely important because it helps us to understand the complex hydrological, biological and chemical interactions in the watershed, identify and resolve problem areas (hot spots), and track trends in water quality behavior over time and under different weather conditions. Water quality sampling is time and resource intensive and CRWA heavily relies upon volunteers to collect samples and make in-stream measurements. CRWA's Monthly Monitoring Program is essential to establishing baseline water quality information from which to understand the overall health of the river and identify and react to change. We greatly appreciate the time and effort you have put into making this type of work possible and hope that you will continue to feel closer to this beautiful and valuable natural resource that you are helping protect.

The Charles River Monthly Monitoring program involves river monitoring at 37 sampling sites, spanning the entire 80-mile stretch of the Charles River, and two sites located at Stop River in Medfield and Muddy River in Boston (Figure 1). Bacteria levels are monitored on a monthly basis at all sites while chlorophyll *a* and different chemical forms of nitrogen and phosphorus are monitored on a quarterly basis at 12 sites. *In situ* temperature and depth readings are taken at all sites on a monthly basis.

Highlighted Results

Samples were not collected in January due to frozen conditions. Below are highlights of the 2005 monitoring results.

E. Coli

In 2004, Massachusetts Water Resources Authority (MWRA) switched analyzed bacterium from fecal coliform to *E. coli* since it is a better indicator of health risk. Bacteria levels are compared to recommended *E. coli* standards set by EPA ambient water quality criteria. For 2005, we continue to use *E. Coli* as a primary indicator of water quality health risks associated with recreational river use.

The strain of *E. coli* bacteria cultured for water quality analysis is not directly implicated in causing adverse health effects, but its presence indicates the likely presence of other harmful bacteria. In 2005, a total of 313 *E. coli* samples were collected, 51% of which were below the safe swimming standard (126 colonies/100mL of water) and 92% of which fell under the safe boating requirements (630 colonies/100mL of water) (Table 1). 56% and 93% of samples taken during dry conditions (< 0.1 inch of rain fell within 72 hours before sampling at the rain gage at Logan Airport) fell within safe swimming and boating standards, respectively, and 27% and 90% of samples taken in wet conditions fell within safe swimming and safe boating conditions, respectively.

In the Charles River Basin from Watertown Dam, Site 012S, to the Charles River Dam, Site 784S, 33% of all samples fell within EPA limits for safe swimming and 85% fell within safe boating limits (Table 2). During three wet weather events, 12% and 76% of samples taken in the Basin fell within EPA safe swimming and boating standards, respectively. Water quality in the Basin improved slightly during three dry weather event with 48% and 84% of samples taken fell within EPA limits for safe swimming and boating, respectively (Table 2).

Phosphorus

The primary sources for phosphorus in urban river systems are fertilizers applied to residential yards, playing fields and golf courses, and detergent-rich wastewaters. In the Charles River watershed, phosphorus is the limiting nutrient, implying that minor increases in phosphorus concentrations can cause eutrophication or major algal blooms. Many stretches of the Charles River are listed in the EPA 303(d) list of impaired waters for nutrients. CRWA is currently working on a project to assess current phosphorus concentrations in the upper watershed and determine the maximum load the river can receive and still attain its designated use. Data collected from the Monthly Monitoring program is invaluable in this assessment. The Monthly Monitoring Program includes analyses of total phosphorus and orthophosphate (the amount of phosphorus immediately available for algal use). In 2005, 31 total phosphorus samples were collected, of which nearly 97% exceeded the EPA recommended criteria of 0.024 mg/L (Table 3). However, of the 34 orthophosphate tests, only 29% did not meet 0.024 mg/L, EPA's recommended criteria for total phosphorus (Table 4).

Nitrogen

CRWA tests waters for total nitrogen, ammonia, and nitrate-nitrite which may originate from atmospheric deposition, wastewater treatment plants septic systems, and fertilizers. Total nitrogen testing analyzes for both organic and inorganic nitrogen forms. Ammonia is commonly found in untreated sewage and its oxidation yields nitrite, which is quickly converted to nitrate, the nutrient form directly available to algae and other aquatic plants. Of 32 ammonia samples taken, 9% exceeded EPA recommended criteria (0.3 mg/L) for suggested ambient waters (Table 5). Of 33 nitrate-nitrite samples, 79% exceeded EPA recommended criteria of 0.57 mg/L (Table 6). Of 26 total nitrogen samples, 100% exceeded EPA action standards of 0.57mg/L (Table 7).

Chlorophyll a

Chlorophyll *a* is the principle photosynthetic pigment in algae and vascular plants. It is an indicator of algae concentrations in the water column. Increased algal content can lead to anoxic (no available oxygen) conditions detrimental to fish and other aquatic fauna as bacteria use oxygen to break algae down. It is another measure of the over-enrichment of nutrients in a river stretch alongside phosphorus and nitrogen. Of the 34 chlorophyll analyses, 44% failed to meet EPA action limits of 0.00375 mg/L.

Conclusions

Each chemical and biological parameter is an indicator of overall stream health. With each month's data, we can identify new problems and refocus our efforts to tackle the most urgent water quality issues. With this year's *Find It and Fix It* program underway, we can combine monthly monitoring data with shoreline survey results to obtain a better picture of river health. We will be able to use this data to target sections for clean-up and watershed improvement.

As shown in Table 2, the bacteria results for the Charles River Basin have not improved this year from last year. While the river basin maintains a 'B+' for the year, the percent of time the river meets standards has decreased since 2004. The Monthly Monitoring data will continue to be essential to monitor our progress towards achieving an A grade for the river.

As shown by the accumulated data over the past 10 years and the 'grade' given by the EPA, Charles River water quality is improving. By continuously sampling over a long period of time, we find that overall trends are leading towards water quality improvement as CRWA, its staff and you work towards protecting our valuable rivers.

Figure 1: Charles River Watershed Sampling Locations

Charles River Monthly Sampling Locations

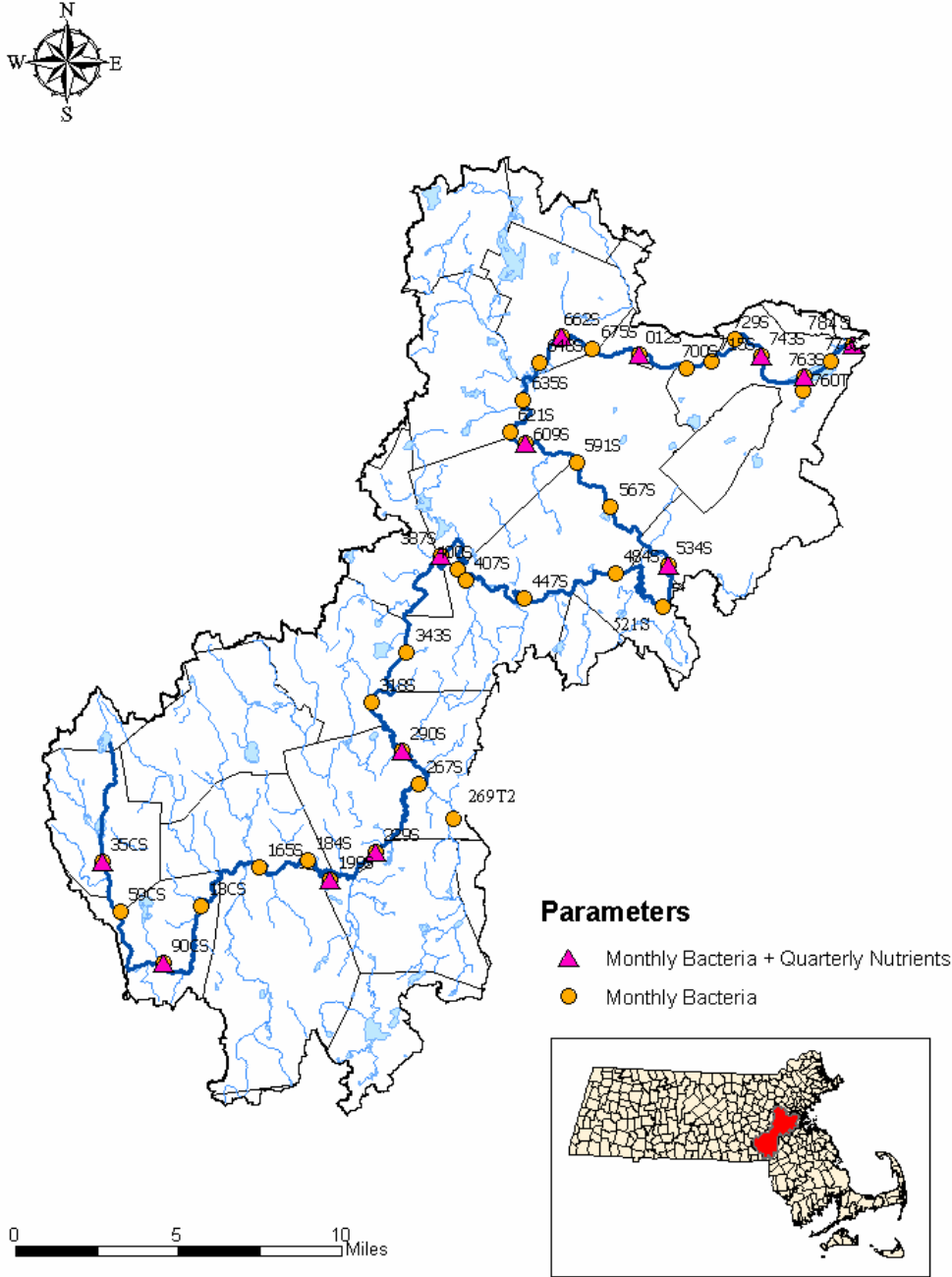


Table 1: E. coli Bacteria Results

Charles River Watershed Association
 Monthly Water Quality Sampling Data
 Concentrations of Escherichia Coli (E. coli) Bacteria (#/100 ml)

Site #	Description	Town	River mile	1/18/2005	2/15/2005	3/15/2005	4/12/2005	5/17/2005	6/21/2005
35CS	Central Street Bridge	Milford	3.5	Cancelled	80	50	10	170	740
35CD	Discharge Pipe @ Central St	Milford	3.5						
35CE	2nd Discharge Pipe @ Central St	Milford	3.5						
59CS	Mellen St. Bridge	Bellingham	5.9		3200	170	70	140	270
90CS	Rt. 126. N. Main St.	Bellingham	9.0		2500	40	50	40	30
13CS	Maple St. Bridge	Bellingham	12.9		270	10	40	40	40
16SS	Shaw St. Bridge	Franklin	16.5		95	(a)	50	(a)	380
199S	Populatic Pond Boat Launch	Norfolk	19.9						
229S	Rt. 115. Baltimore St.	Norfolk/Millis	22.9						
267S	Dwight St. Bridge	Millis	26.7		200	10	<10	80	70
269T	Causeway St. Stop River	Medfield	26.9		<10	(a)	<10	<10	210
290S	Old Bridge St.	Medfield	29.0		60		<10	40	110
318S	Rt. 27 Bridge	Medfield	31.8		100	<10	<10	10	50
343S	Farm Rd./Bridge St.	Sherborn/Dover	34.3		70	10	<10	40	60
387S	Cheney Bridge	Wellesley	38.7		100	10	<10	10	50
400S	Charles River Road Bridge	Dover	40.0						
447S	Dover Gage	Dover	44.7				20	90	30
484S	Dedham Medical Center	Dedham	48.4		40	30	<10	50	40
521S	Ames St. Bridge	Dedham	52.1			<10	40	60	30
534S	Rt. 109 Bridge	Dedham	53.4		190	120	<10	(a)	40
567S	Nahantton Park	Newton	56.7		60	10	<10	20	(a)
591S	Rt. 9 Gaging Station	Newton	59.1					20	225
609S	Washington St. Hunnewell Bridg	Wellesley	60.9		180	<10	<10	40	430
621S	Leo J. Martin Golf Course/Park	Newton	62.1		190	20	10	840	1700
635S	2391 Commonwealth Ave.	Newton	63.5				230	810	1800
648S	Lakes Region	Waltham	64.8						
662S	Moody St. Bridge	Waltham	66.2		1120	490	160	280	220
675S	North St.	Waltham	67.6		1150	480	240	220	240
012S	Watertown Dam Footbridge	Watertown	69.3		1180	410	260	240	260
700S	N. Beacon St.	Newton	70.9		970	180	310	220	300
715S	Arsenal St.	Brighton	71.5			340	280	570	130
729S	Eliot Bridge	Cambridge	72.9		680	250	(a)	180	110
743S	Western Ave	Cambridge	74.3		380	100	70	640	10
760S	Muddy River at Comm. Ave.	Boston	76.0		400	550	380	120	120
763S	Mass. Ave. at Harvard Bridge	Boston	76.3			880	260	120	70
773S	Longfellow Bridge	Cambridge	77.3			270	70	<10	60
784S	New Charles River Dam	Boston	78.4			240	30	15	(a)
QA/QC	Samples								
	Equipment Blank				n/a	<1	n/a	<1	
	Site No.				n/a	387S	n/a	521S	
	Equipment Blank				n/a	n/a	n/a	n/a	
	Site No.				n/a	n/a	n/a	n/a	
	Rainfall At Logan International Airport (inches)								
	3 Days Prior to Sampling				trace	0.8	0	0	trace
	2 Days Prior to Sampling				0	0	0	0	0
	1 Day Prior to Sampling				0	0	0	0	0
	Day of Sampling				trace	0	0.03	0.01	0

Site #	7/19/2005	8/16/2005	9/20/2005	10/18/2005	11/15/2005	12/13/2005	Mean	Median	Stnd Dev	Min	Max
35CS	840	n/a	540	180	130	130	287	150	303	10	840
35CD							No Data	No Data	No Data	No Data	No Data
35C2							No Data	No Data	No Data	No Data	No Data
59CS	170	210	180	750			535	185	955	70	3200
90CS	220	300	285	(a)	130	190	400	175	750	30	2500
13CS	60	2000	110	240	<10	20	310	60	641	10	2000
165S	170	n/a	200	180		20	142	133	118	20	380
199S	60	n/a	20	362			147	60	187	20	362
229S	50	n/a	90	220	40		97	90	72	10	220
267S	50	140	110	160	20	20	86	75	65	10	200
269T	130	400	250		20	17.5	171	170	147	18	400
290S	110	200	140	340	20		128	110	103	20	340
318S	90	50	100	340	<10		106	90	108	10	340
343S	<10.0		60	280	10	30	70	50	88	10	280
387S	120			290	20	40	80	45	94	10	290
400S	20	310	70	290	10		123	55	139	10	310
447S	20	10	10	320	20		65	20	106	10	320
484S	30	(a)	90	230	10	40	65	40	63	10	230
521S	40	170	70	320	<10		104	60	106	30	320
534S	50	(a)	60	250	10	10	126	55	150	10	490
567S	20	n/a		170	10	<10.0	48	20	62	10	170
591S		n/a	110	200	60		123	110	88	20	225
609S	450	340	310			30	262	310	161	30	450
621S	1490	370	(a)	280	<10		336	190	458	10	1490
635S	117	390	3690	230	40		905	310	1250	40	3690
648S	510		325	(a)	40		629	418	628	40	1800
662S	70	190	70	150	40	40	257	160	315	40	1120
675S	220	370	280	250	30	30	319	240	304	30	1150
012S		490	120	180	20	50	321	250	335	20	1180
700S	990	900	260	300	50		413	300	359	50	990
715S	3140	4600	230	430		140	1096	340	1621	130	4600
729S	510	220	210	530	60	170	319	220	215	60	680
743S	350	150	340	310	100	160	237	160	185	10	640
760S	1130				110		448	390	375	110	1130
763S	10	230		1020		240	354	235	380	10	1020
773S	10	100	150	820	310	170	218	150	246	10	820
784S	20	<10	40	960	200	110	183	40	303	15	960
	<1.00	<1.00	560	<1.00	n/a	<1.00					
	35CS	635S	662S	130S		743S					
	<1.00		<1.00			n/a					
	567S	n/a	130S	n/a	n/a						
	0	0.07	0.01	2.89	0	0					
	0	0.6	0	0	0	0					
	0.03	0.13	0	0	0	0					
	Trace	0	0.01	0.02	0.1	Trace					

Table 2: Charles River Basin Bacteria Trends



**Percent of Time
CHARLES RIVER BASIN
Meets State Water Quality Standards**

	Overall		Dry Weather		Wet Weather		River Grade
	Swimming	Boating	Swimming	Boating	Swimming	Boating	
1995	19	39					D
1996	21	57	40	94	15	45	C-
1997	34	70	56	87	22	61	C
1998	51	83	85	98	31	74	C+
1999	55	90	69	100	47	84	B-
2000	52	91	88	88	49	91	B
2001	69	87	87	96	36	71	B
2002 (a)	33	88	78	100	27	86	B
2003 (b)	50	89	48	90	56	89	B-
2004 (c)	53	98	48	96	57	100	B+
2005	33	87	41	89	12	76	B+

(a) Only one dry weather event (rainfall less than 0.1 inches in previous 72 hours) occurred in 2002. Rainfall data collected at Logan Airport in Boston.

(b) In 2003, monthly water quality monitoring was conducted seven out of twelve months; of which, only two monthly monitoring events occurred during wet weather, which may have skewed the percentages of the time the river met the swimming and boating standards.

(c) Statistics from 1995 to 2003 and 2005 based on CRWA monthly fecal coliform testing at in Charles River Basin. In 2004, samples were analyzed for e.coli bacteria instead of fecal coliform bacteria and these results were compared to US EPA recommended recreational standards. The numbers in parentheses are the statistics for the lower four sampling sites.

Contact CRWA at (781) 788-0007 or visit the website at www.charlesriver.org for more information.

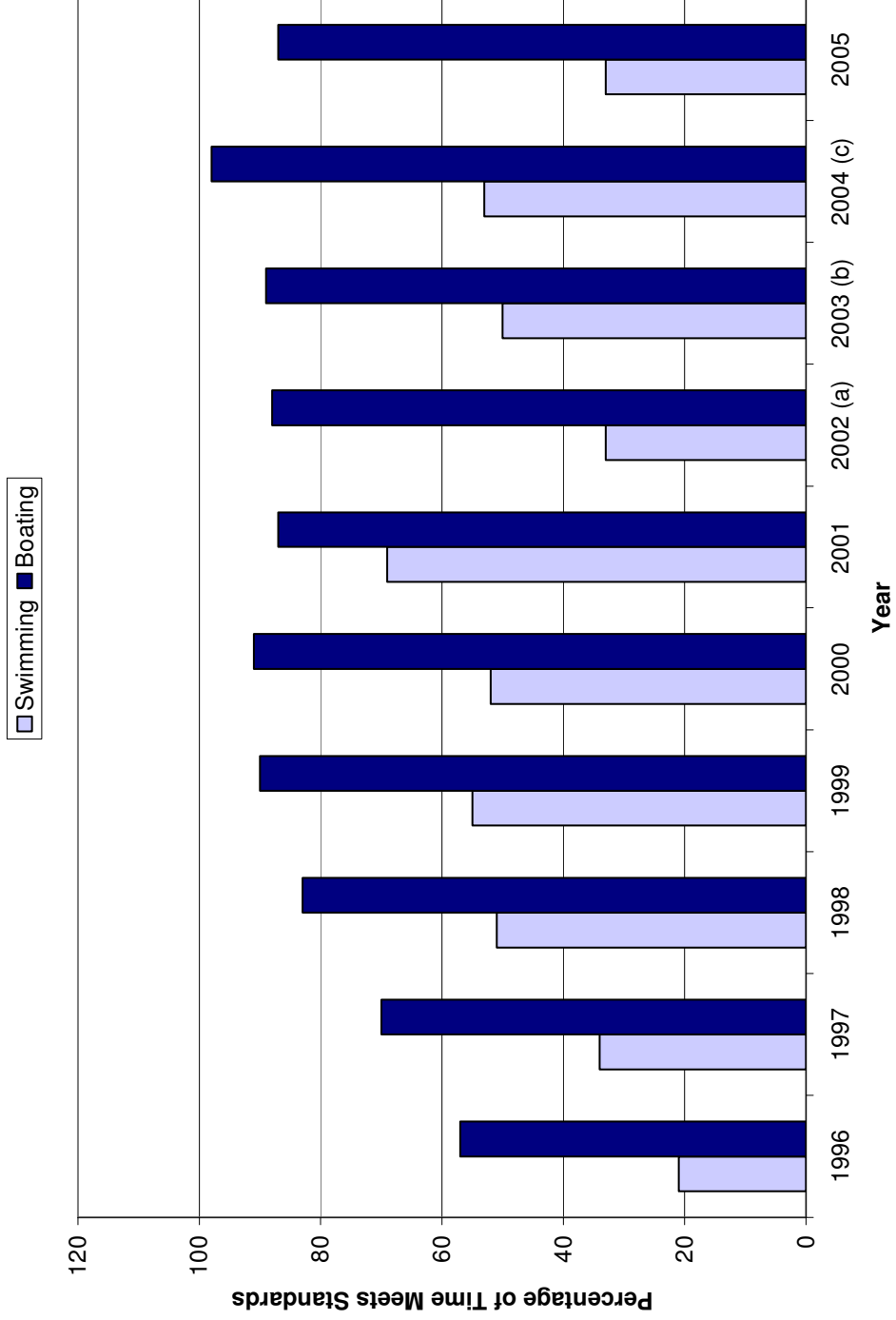


Figure 2: Charles River Basin Bacteria Trends

Table 3: Total Phosphorus Results

Site #	Description	Town	River mile	3/15/2005	6/21/2005	9/20/2005	12/21/2005	Mean	Median	St Dev	Min	Max
35CS	Central Street Bridge	Milford	3.5	0.021		0.240	0.037	0.100	0.037	0.122	0.021	0.240
90CS	Rt. 126, N. Main St.	Bellingham	9.0		0.057	0.046 (b)		0.051	0.051	0.007	0.046	0.057
199S	Populatic Pond Boat Launch	Norfolk	19.9			0.065		0.065	0.065	N/A	0.065	0.065
229S	Rt. 115, Baltimore St.	Norfolk/Milllis	22.9					No Data	No Data	No Data	No Data	No Data
290S	Old Bridge St.	Medfield	29.0		0.069	0.075		0.072	0.072	0.004	0.069	0.075
387S	S. Natick Dam	Natick	37.8	0.028	0.073		0.057	0.052	0.057	0.023	0.028	1.830
534S	Rt. 109 Bridge	Dedham	53.4	0.025	0.069	0.072	0.053	0.055	0.061	0.022	0.025	0.072
609S	Washington St. Hunnewell Bridge	Wellesley	60.9					No Data	No Data	No Data	No Data	No Data
662S	Moody St. Bridge	Waltham	66.2	0.026	0.073	0.074 (b)	0.049	0.055	0.061	0.023	0.026	0.074
012S	Watertown Dam Footbridge	Watertown	69.3	0.038	0.085	0.055		0.060	0.055	0.024	0.038	0.085
743S	Western Ave	Cambridge	74.3	0.031	0.081	0.085	0.052	0.062	0.067	0.026	0.031	0.085
763S	Mass. Ave. at Harvard Bridge	Boston	76.3	0.046	0.096			0.071	0.071	0.035	0.046	0.096
784S	New Charles River Dam	Boston	78.4		0.085	0.098	0.057	0.080	0.085	0.021	0.057	0.098
	QA/QC Samples											
	Equipment Blank											
	Site No.											
	Rainfall At Logan International Airport (inches)											
	3 Days Prior to Sampling			0.8	trace	0.01	0					
	2 Days Prior to Sampling			0	0	0	0					
	1 Day Prior to Sampling			0	0	0	0					
	Day of Sampling			0	0	0.01	trace					
	* Samples analyzed at Massachusetts Water Resources Authority's Central Lab.											
	(a) Concentrations reported in table is equal to less than twice of reported											
	(b) Average of duplicate samples.											
	(c) Equipment blank sample was collected incorrectly. It was observed that the sample appeared like											

Table 6: Nitrate/Nitrite Results

Site #	Description	Town	River mile	3/15/2005	6/21/2005	9/21/2005	12/13/2005	Mean	Median	St. Dev	Min	Max
35CS	Central Street Bridge	Milford	3.5	0.539		0.668	0.402	0.536	0.539	0.133	0.402	0.668
90CS	Rt. 126, N. Main St.	Bellingham	9.0	2.511	3.702	4.454		3.556	3.702	0.980	2.511	4.454
199S	Populatic Pond Boat Launch	Norfolk	19.9			2.283		2.283	2.283	N/A	2.283	2.283
290S	Old Bridge St.	Medfield	29.0		1.111	1.527		1.319	1.319	0.294	1.111	1.527
387S	S. Natick Dam	Natick	37.8	1.031	1.191		1.210	1.144	1.191	0.099	1.031	1.210
534S	Rt. 109 Bridge	Dedham	53.4	0.914	0.922	0.290	1.000	0.782	0.918	0.330	0.290	1.000
609S	Washington St. Hunnewell Bridge	Wellesley	60.9					No Data	No Data	No Data	No Data	No Data
621S	Leo J. Martin Golf Course/Park Rd.	Weston				0.263		0.263	0.263	N/A	0.263	0.263
662S	Moody St. Bridge	Waltham	66.2	0.924	0.697	0.190 (a)	0.888	0.675	0.793	0.338	0.190	0.924
012S	Watertown Dam Footbridge	Watertown	69.3	0.951	0.741	0.417	0.944	0.703	0.741	0.269	0.417	0.951
743S	Western Ave.	Cambridge	74.3	0.985	0.678	0.364		0.743	0.811	0.287	0.364	0.985
763S	Mass. Ave. at Harvard Bridge	Boston	76.3	0.990	0.636			0.813	0.813	0.250	0.636	0.990
784S	New Charles River Dam	Boston	78.4		0.632	0.060	0.727	0.473	0.632	0.361	0.060	0.727
Total # Samples												
Total # Samples Exceeding Action Limit (b)				33								
% Samples Exceeding Action Limit				26								
				79								
Rainfall At Logan International Airport (inches)												
				0.8	trace	0.01	0.00					
3 Days Prior to Sampling				0	0.00	0.00	0.00					
2 Days Prior to Sampling				0	0.00	0.00	0.00					
1 Day Prior to Sampling				0	0.00	0.00	0.00					
Day of Sampling				0	0.00	0.01	trace					
* Analyzed at Massachusetts Water Resource Authority's Central Lab												
(a) Average of duplicates												
(b) Scattered showers throughout watershed.												
** Action limit of 0.57 mg/L based on EPA Ambient Water Quality Criteria Recommendations for Rivers and Streams in Nutrient Ecoregion XIV												

Table 7: Total Nitrogen Results

Site #	Description	Town	River mile	3/15/2005	6/21/2005	9/21/2005	12/21/2005	Mean	Median	St Dev	Min	Max
35CS	Central Street Bridge	Milford	3.5	0.89		2.33	0.81	1.34	0.89	0.85	0.81	2.33
90CS	Rt. 126, N. Main St.	Bellingham	9.0	3.14		5.53 (a)		4.34	4.34	1.69	3.14	5.53
199S	Populatic Pond Boat Launch	Norfolk	19.9			3.19		3.19	3.19	N/A	3.19	3.19
290S	Old Bridge St.	Medfield	29.0			2.41		2.41	2.41	N/A	2.41	2.41
387S	S. Natick Dam	Natick	37.8	1.28			1.44	1.36	1.36	0.11	1.28	1.44
534S	Rt. 109 Bridge	Dedham	53.4	1.25		1.32	1.32	1.30	1.32	0.04	1.25	1.32
609S	Washington St. Hunnewell Bridge	Wellesley	60.9					No Data	No Data	No Data	No Data	No Data
621S	Leo J. Martin Golf Course/Park Rd.	Weston				1.01		1.01	1.01	N/A	1.01	1.01
662S	Moody St. Bridge	Waltham	66.2	1.32		0.99 (a)	1.25	1.19	1.25	0.18	0.99	1.32
012S	Watertown Dam Footbridge	Watertown	69.3	1.36	1.07	1.03		1.15	1.07	0.18	1.03	1.36
743S	Western Ave.	Cambridge	74.3	1.37	1.10	1.19	1.30	1.24	1.25	0.12	1.10	1.37
763S	Mass. Ave. at Harvard Bridge	Boston	76.3	1.56				1.56	1.56	N/A	1.56	1.56
784S	New Charles River Dam	Boston	78.4			1.26	1.18	1.22	1.22	0.06	1.18	1.26
	Total # Samples		26									
	Total # Samples Exceeding Action Limit (b)		26									
	% Samples Exceeding Action Limit		100									
	Site No.											
	Rainfall At Logan International Airport (inches)											
	3 Days Prior to Sampling			0.8	trace	0.01	0.00					
	2 Days Prior to Sampling			0	0.00	0.00	0.00					
	1 Day Prior to Sampling			0	0.00	0.00	0.00					
	Day of Sampling			0	0.00	0.01	trace					
	* Samples analyzed at Massachusetts Water Resources Authority's Central Lab.											
	(a) Average of duplicates											
	(b) Scattered showers throughout watershed.											
	(b) Action limit of 0.57 mg/L based on US EPA Ambient Water Quality Criteria Recommendations for Rivers and Streams in Nutrient Ecoregion XIV											

Table 8: Chlorophyll a Results

Site #	Description	Town	River mile	Summary Statistics for Chlorophyll a									
				3/15/2005	6/21/2005	9/20/2005	12/13/2005	Chlorophyll a					
				Chlorophyll a	Chlorophyll a	Chlorophyll a	Chlorophyll a	Chlorophyll a	Mean	Median	St Dev	Min	Max
35CS	Central Street Bridge	Milford	3.5	0.82		49.9	1.05		17.25667	1.05	28.27019	0.82	49.9
90CS	Rt. 126, N. Main St.	Beltingham	9.0	0.89		1.285	(a)		1.0875	1.0875	0.279307	0.89	1.285
199S	Populatic Pond Boat Launch	Norfolk	19.9			11			11	N/A		11	11
290S	Old Bridge St.	Medfield	29.0	1.42	1.99	33.5			17.745	17.745	22.28093	1.99	33.5
387S	S. Natick Dam	Natick	37.8	1.42	3.39		0.68		1.83	1.42	1.40075	0.68	3.39
35CS	Central Street Bridge	Milford	3.5	1.17		49.9	1.05		25.475	25.475	34.54217	1.05	49.9
534S	Rt. 109 Bridge	Dedham	53.4		5.61	10.2	0.67		4.4125	No Data	4.451564	0.67	10.2
609S	Washington St. Hunnewell Bridge	Wellesley	60.9						No Data	No Data	No Data	No Data	No Data
621S	Leo J. Martin Golf Course/Park Rd.	Weston	62.1			14.3			14.3	14.3	N/A	14.3	14.3
662S	Moody St. Bridge	Waltham	66.2	1.59	10.4	11.1	(a)	0.69	5.945	5.995	5.567827	0.69	11.1
012S	Watertown Dam Footbridge	Watertown	69.3	2.47	4.3	2.73			3.166667	2.73	0.990067	2.47	4.3
743S	Western Ave	Cambridge	74.3	1.52	25.5	14.7	0.64		10.59	8.11	11.83874	0.64	25.5
763S	Mass. Ave. at Harvard Bridge	Boston	76.3	1.68	4.97				3.325	3.325	2.326381	1.68	4.97
784S	New Charles River Dam	Boston	78.4		2.03	91.4	1.02		31.48333	2.03	51.89181	1.02	91.4
Total # Samples				34									
Total # Samples Exceeding Action Limit				15									
% Samples Exceeding Action Limit				44.1									
QA/QC Samples													
Equipment Blank													
Site No.													
					trace	0.01	0						
					0	0	0						
					0	0	0						
Rainfall At Logan International Airport (inches)					0	0.01	trace						
3 Days Prior to Sampling				0.8									
2 Days Prior to Sampling				0									
1 Day Prior to Sampling				0									
Day of Sampling				0									
* Samples analyzed at Massachusetts Water Resources Authority's Central Lab.													
(a) Average of duplicates													
(b) Scattered showers throughout watershed													
** Action Limit 3.75ug/L based on US EPA Ambient Water Quality Criteria Recommendations for Rivers and Streams in Nutrient Ecoregion XIV													