

Charles River Monthly Monitoring Program

2007 Year-End Report

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1.0 Introduction

The Charles River Watershed Association (CRWA) is devoted to using sound science to conduct research on the Charles River to inform our policy platforms, advocacy work, and public education. Monitoring of the Charles River is extremely important in helping us to comprehend the complex hydrological, biological and chemical interactions in the watershed, to identify and resolve problem areas and to track trends in water quality behavior over time and under different weather conditions. Water quality sampling is time and resource intensive and CRWA relies heavily upon volunteers to collect samples, make in-stream measurements and observations of river conditions. CRWA's Monthly Monitoring Program is essential to establishing baseline water quality information that helps CRWA understand the overall health of the river, identify water quality issues and guide our management and restoration work.

The Charles River Monthly Monitoring Program involves river monitoring at 35 sampling sites spanning the entire 80-mile stretch of the Charles River. Two of these sites are located on tributaries: Stop River in Medfield and Muddy River in Boston (Figure 1 and Table 1). A network of over 70 trained volunteers and CRWA staff collect samples and take *in situ* measurements at 6:00 a.m. on the second or third Tuesday of every month. Samples from every site are analyzed monthly for *E. coli* bacteria. On a quarterly basis, samples from twelve sites are analyzed for a variety of nutrient parameters including total phosphorus, total nitrogen, and chlorophyll a. Additionally, as funding allows, supplementary samples are collected and analyzed for a variety of parameters including TSS and sodium. *In situ* temperature and depth readings are taken at all sites monthly. All sampling is done in accordance with CRWA's approved Quality Assurance Project Plan (QAPP). Table 2 summarizes the parameters which were sampled during the 2007 sampling season.

Figure 1: Charles River Watershed Monthly Monitoring Program Sampling Locations



Source data: MassGIS Commonwealth of Massachusetts

Table 1: Charles River Monthly Monitoring Program Sampling Locations

Site #	Description	Town
35CS	Central Street Bridge	Milford
59CS	Mellen Street Bridge	Bellingham
90CS	Route 126, North Main Street	Bellingham
130S	Maple Street Bridge	Bellingham
165S	Shaw Street Bridge	Medway/Franklin
199S	Populatic Pond Boat Launch	Norfolk
229S	Route 115, Baltimore Street	Norfolk/Millis
267S	Dwight Street Bridge	Millis
269T	Stop River at Causeway Street	Medfield
290S	Old Bridge Street	Medfield
318S	Route 27 Bridge	Medfield
343S	Farm Road/Bridge Street	Sherborn/Dover
387S	Cheney Bridge	Wellesley
400S	Charles River Road Bridge	Dover
447S	Dover Gage	Dover
484S	Dedham Medical Center	Dedham
521S	Ames Street Bridge	Dedham
534S	Route 109 Bridge	Dedham
567S	Nahanton Park	Newton
591S	Route 9 Gaging Station	Newton
609S	Washington Street/Hunnewell Bridge	Wellesley
621S	Leo J. Martin Golf Course/Park Road	Weston
635S	2391 Commonwealth Avenue	Newton
648S	Lakes Region	Waltham
662S	Moody Street Bridge	Waltham
675S	North Street	Waltham
012S	Watertown Dam Footbridge	Watertown
700S	North Beacon Street Bridge	Newton
715S	Arsenal Street	Brighton
729S	Elliot Bridge	Cambridge
743S	Western Avenue Bridge	Cambridge
760T	Muddy River/Back Bay Fens	Boston
763S	Harvard Bridge	Boston
773S	Longfellow Bridge	Boston
784S	New Charles River Dam	Boston

2.0 Water Quality Results

Monitoring was conducted in nine out of twelve months in 2007. Monitoring was not conducted in January, February or December of 2007 due to cold temperatures and frozen river conditions. Table 2 summarizes sampling dates, weather conditions and sampling parameters for the nine sampling events. Sampling events are considered wet weather events when more than 0.1 inches of rain falls at the rain gauge located at Logan Airport in Boston in the three days preceding the sampling event. Conversely, sampling events are considered dry weather events when less than 0.1 inches of rain falls in the preceding 72 hours.

Table 2: Summary of 2007 Sampling Events

Sampling Date	Wet or Dry	Parameters Analyzed
1/23/2007	<i>Cancelled due to inclement weather</i>	
2/13/2007	<i>Cancelled due to inclement weather</i>	
3/20/2007	Wet (1.53" of rain in preceding 72 hours)	<i>E. coli</i> , Nitrate-Nitrite, Orthophosphate, Ammonia, Total Phosphorus, Total Nitrogen, Chlorophyll <i>a</i> , Phaeophytin, Enterococcus, TSS, Sodium, Total Phosphorus
4/10/2007	Dry	<i>E. coli</i> , TSS, Sodium, Total Phosphorus
5/15/2007	Dry	<i>E. coli</i> , TSS, Sodium, Total Phosphorus
6/19/2007	Dry	<i>E. coli</i> , Nitrate-Nitrite, Orthophosphate, Ammonia, Total Phosphorus, Total Nitrogen, Chlorophyll <i>a</i> , Phaeophytin, Enterococcus, Sodium, Total Phosphorus
7/17/2007	Dry	<i>E. coli</i> , Total Phosphorus
8/21/2007	Dry	<i>E. coli</i> , Total Phosphorus
9/18/2007	Wet (0.34" of rain in preceding 72 hours)	<i>E. coli</i> , Nitrate-Nitrite, Orthophosphate, Ammonia, Total Phosphorus, Total Nitrogen, Chlorophyll <i>a</i> , Phaeophytin, Enterococcus, Total Phosphorus
10/16/2007	Dry	<i>E. coli</i>
11/20/2007	Dry	<i>E. coli</i>
12/18/2007	<i>Cancelled due to inclement weather</i>	

Table 3 shows the action limits for all of the parameters tested at CRWA. An action limit is the numerical value for a given parameter that alerts CRWA to potentially impaired water quality. In most cases, the action limits are based on a regulatory threshold such as the Massachusetts Surface Water Quality Standards for Class B Waterways established by the Massachusetts Department of Environmental Protection (MassDEP) and nutrient criteria recommended by the US Environmental Protection Agency (EPA) (MassDEP 2007, US EPA 2000).

Table 3: Water Quality Action Limits

Parameter	Action Limit	Source
<i>E. Coli</i> (bacteria)	126 cfu/100 mL (primary contact) 630 cfu/100 mL (secondary contact)	Massachusetts Surface Water Quality Standards
Total Phosphorus	0.0238 mg/l (as P)	U.S. EPA Ambient Water Quality Criteria Recommendations for Rivers and Streams in Nutrient Ecoregion XIV
Orthophosphate	0.0238 mg/l (as P)	
Ammonia	0.3 mg/l	
Nitrate/Nitrite	0.31 mg/l (as N)	
Total Nitrogen	0.5 mg/l	
Chlorophyll <i>a</i>	0.0037 mg/l	
Sodium	0.0238 mg/l	

2.1 Core Project Monitoring

CRWA’s core project monitoring plan involves monthly collection of samples at all 35 sites which are analyzed for *E. coli* bacteria and quarterly (March, June, September and December) collection of samples at 12 sites which are analyzed for nutrient parameters including chlorophyll *a* and different chemical forms of nitrogen and phosphorus. All samples are analyzed at the MWRA’s Central Laboratory. This monitoring plan has been in place since 2002 and is consistent from year to year. Results of samples collected under CRWA’s core monitoring plan are discussed below.

E. coli Bacteria

E. coli levels are compared to the State Surface Water Quality Standards for primary (swimming) and secondary (boating) contact recreation. In January 2007, MassDEP revised and approved changes to the state standards which included changing the indicator bacteria from fecal coliform to *E. coli*. The strain of *E. coli* bacteria cultured for water quality analysis is not directly implicated in causing adverse health effects, but its occurrence indicates the likely presence of other harmful bacteria and viruses.

In 2007, a total of 292 *E. coli* samples were collected. Of these samples, 72.6% met, or fell below, the state swimming standard of 126 colony forming units (cfu) per 100 milliliters of water (mL), and 97.6% met the state boating standard (630 cfu/100mL of water)(Table 4). March and September monitoring events were wet weather events, meaning more than 0.1 inches of rain fell at the rainfall gauge at Logan Airport in the three days preceding sampling. All other monitoring events were considered dry weather events. During dry weather, 75% and 97.8% of samples were below the state swimming and boating standards, respectively. During wet weather, 64% of samples met the state swimming standard, while 96.9% met the state boating standard (Table 3). Figure 2 shows the average *E. coli* concentrations at each sampling location for 2007.

In the Lower Charles River Basin, the area of the river stretching from the Watertown Dam (site 012S) to the New Charles River Dam (site 784S), 54.9% of all samples were within the state swimming standard and 97.1% were within the boating standard. During the two wet weather events, 37.5% and 93.7% of samples collected in the Lower Basin fell within swimming and boating standards, respectively. Water quality in the Lower Basin improved slightly during the seven dry weather events with 60% of samples meeting the swimming standard and 98% meeting the boating standard (Table 4). Figure 3 shows the percentage of time that the Lower Charles River Basin met the state standards for both swimming and boating.

All *E. coli* samples were analyzed at MWRA's Central Laboratory. Raw data and statistical analysis can be found in the Appendix of Water Quality Tables included at the end of this report.

Table 4: Summary of Charles River 2007 *E. coli* Results

Description	3/20/2007	4/10/2007	5/15/2007	6/19/2007	7/17/2007	8/21/2007	9/18/2007	10/16/2007	11/20/2007	Total Wet	Total Dry	Total
# Samples Met Swimming Standard	19	29	26	24	23	21	22	27	21	41	171	212
# Samples Met Boating Standard	29	33	32	33	31	31	33	32	31	62	223	285
# Sites Sampled	30	33	33	34	32	32	34	32	32	64	228	292
% Met Swimming Standard	63.33%	87.88%	78.79%	70.59%	71.88%	65.63%	64.71%	84.38%	65.63%	64.06%	75.00%	72.60%
% Met Boating Standard	96.67%	100.00%	96.97%	97.06%	96.88%	96.88%	97.06%	100.00%	96.88%	96.88%	97.81%	97.60%
Rainfall At Logan International Airport (inches)												
3 Days Prior to Sampling	1.46	0.00	0.00	Trace	Trace	0.04	0.34	0.04	0.00			
2 Days Prior to Sampling	0	0.00	0	0.02	Trace	0.00	0.00	0.00	0.00			
1 Day Prior to Sampling	0.05	0.00	0	0.00	0.00	Trace	0.00	0.00	Trace			
Day of Sampling	0.02	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.08			

Figure 2: Mean *E. coli* Concentrations by Site for 2007

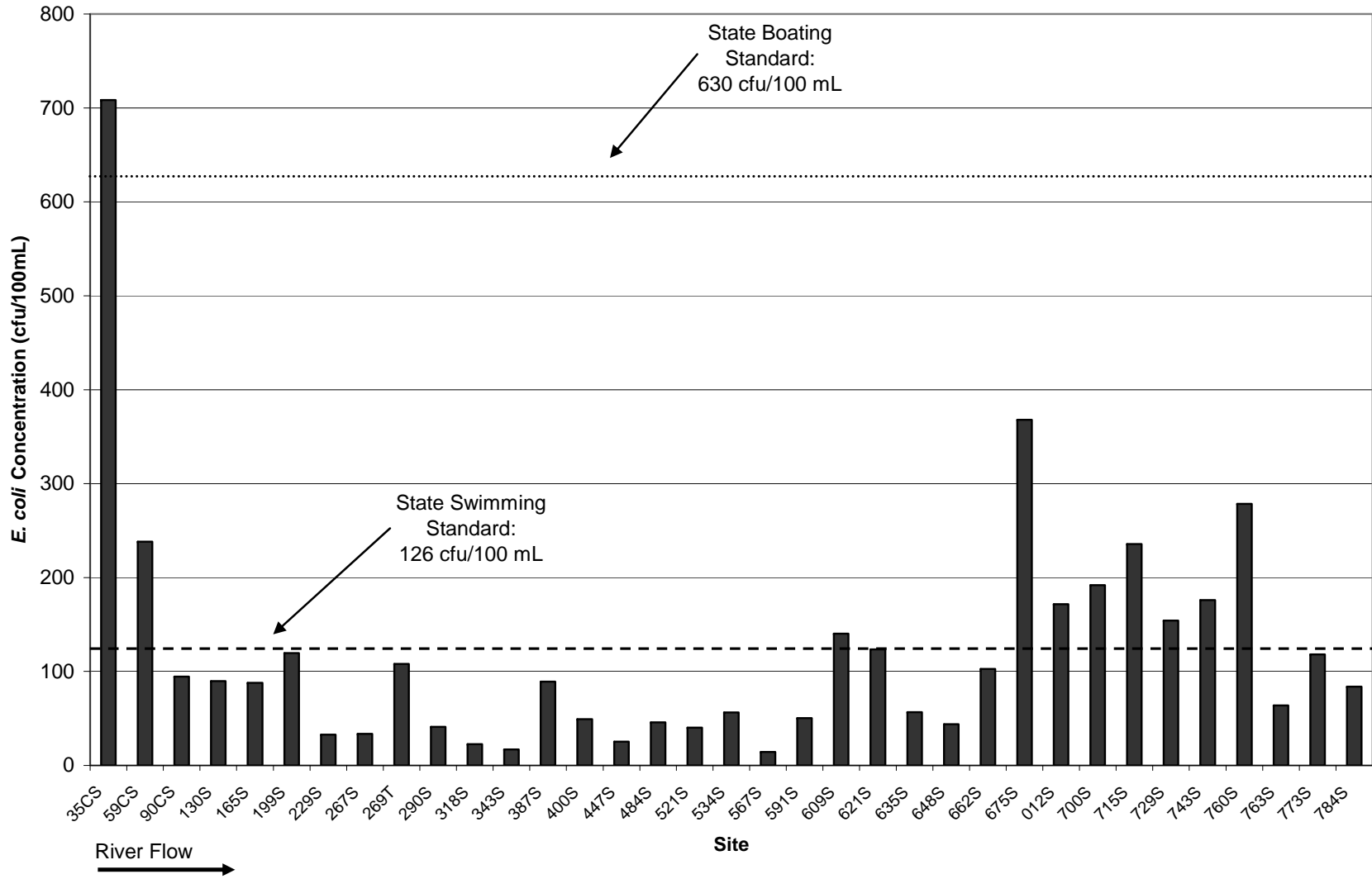


Table 5: Percentage of Time the Lower Charles River Basin Met State Bacteria Standards (1995 – 2007)

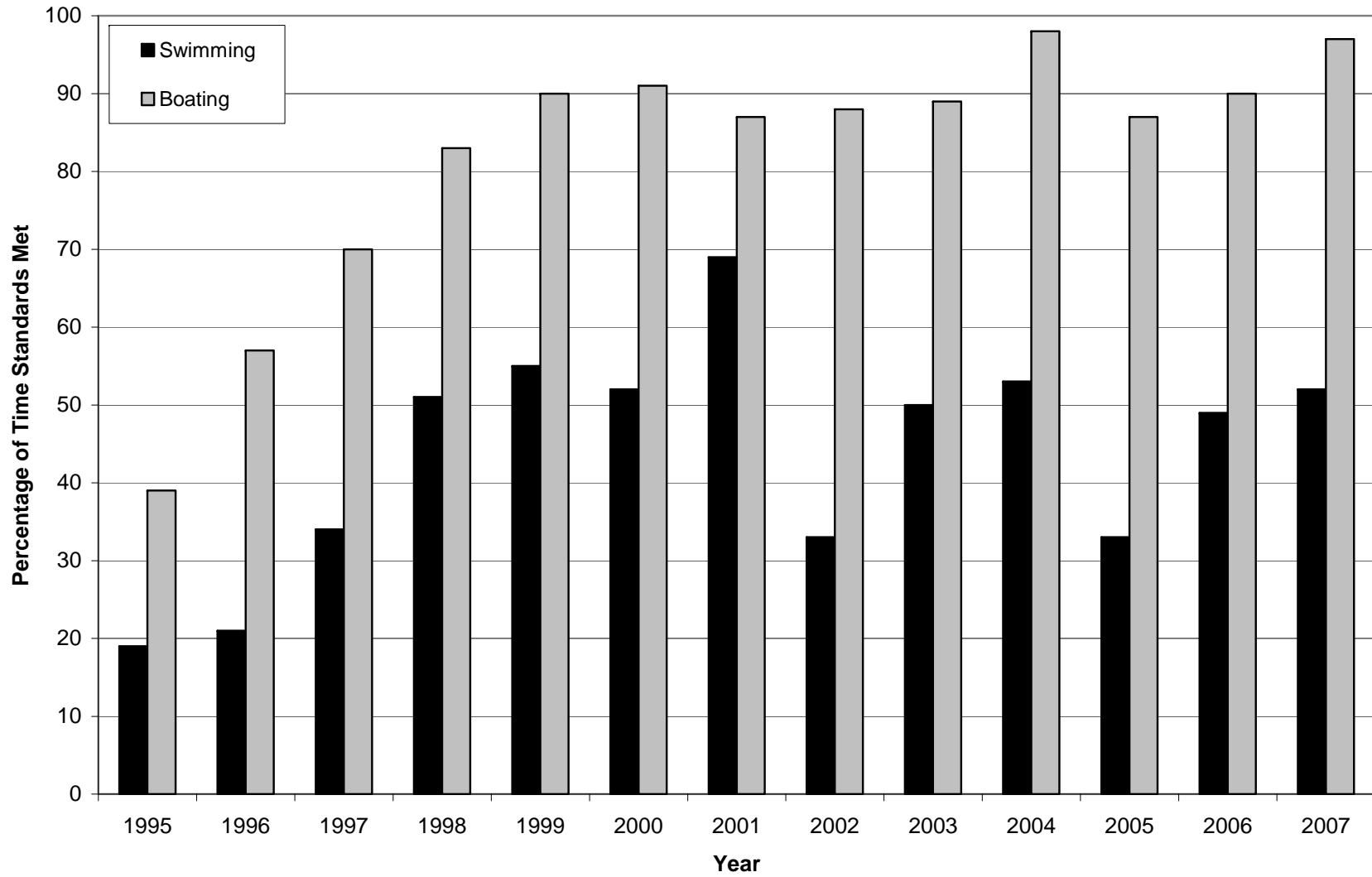
	Overall		Dry Weather		Wet Weather		River Grade
	Swimming	Boating	Swimming	Boating	Swimming	Boating	
1995	19	39					D
1996	21	57	40	94	15	45	C-
1997	34	70	56	87	22	61	C
1998	51	83	85	98	31	74	C+
1999	55	90	69	100	47	84	B-
2000	52	91	88	88	49	91	B
2001	69	87	87	96	36	71	B
2002 (a)	33	88	78	100	27	86	B
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+
2006	49	90	53	100	42	67	B+
2007	55	97	60	98	38	94	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 based on CRWA monthly fecal coliform testing at in Lower Charles River Basin. Since 2004, samples were analyzed for *E. coli* bacteria instead of fecal coliform bacteria and these results were compared to the State surface water quality standards for primary and secondary contact recreation.

Figure 3: Percentage of Time Lower Charles River Basin *E. coli* Concentration Met Bacteria Standards (1995-2007)



Phosphorus

Phosphorus is a natural part of any aquatic system. In fresh water systems like the Charles River, phosphorus is one limiting nutrient, meaning that the growth of aquatic plants, including algae, is limited by the supply of phosphorus, which is naturally relatively low. Phosphorus naturally enters rivers and other water bodies through erosion of rocks and soils and decomposition of organic matter. Today, as human activities add excess phosphorus to the Charles River, even minor increases in the phosphorus concentration of the river can cause eutrophication, the overgrowth of vegetation due to excessive input of nutrients.

The primary sources of phosphorus to the Charles River are stormwater runoff, discharges from wastewater treatment plants, combined sewer overflows, and releases from sediment. Of these four, stormwater is by far the largest contributor. Phosphorus from fertilizers, detergents used to wash cars and pets outdoors, loose sediment, automobile exhaust and animal waste is carried by stormwater runoff into the river. Due to common human activities and natural abundance, phosphorus is ubiquitous in the environment. The larger the volume of stormwater runoff that enters the river, the larger the load of phosphorus it will carry with it.

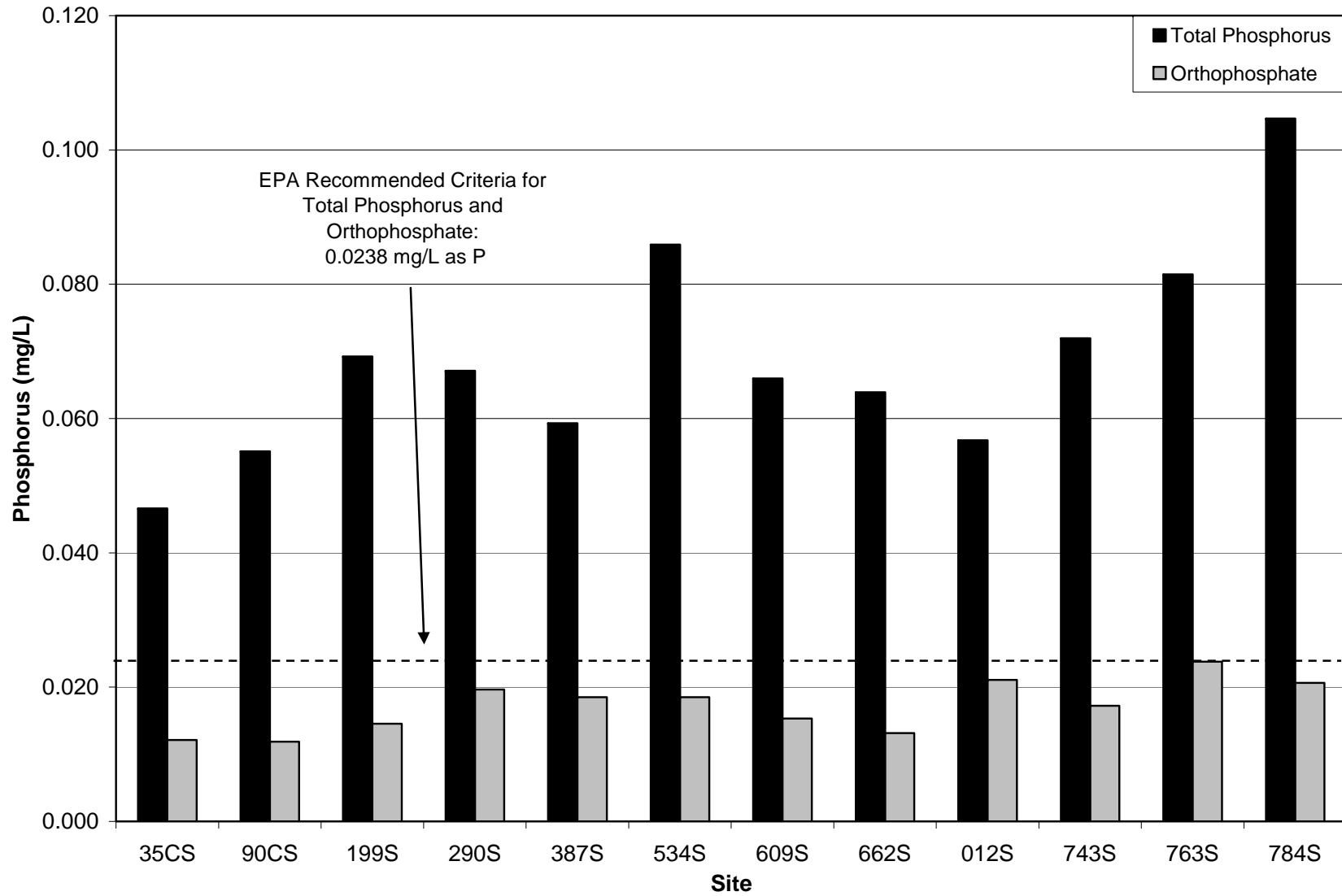
Algal blooms are a potential result of the overloading of phosphorus to a river system such as the Charles. Algal blooms can have severe impacts on the ecological environment including starving benthic habitats of oxygen, altering the water's pH, and inducing gas-bubble disease in fish. Additionally, blooms of toxin-producing organisms, such as cyanobacteria, can have adverse impacts on humans and other mammals that come in contact with the water. Cyanobacteria are photosynthetic bacteria that produce toxins, which are harmful to humans and pets at large doses. In the summer of 2007, the Lower Charles River Basin experienced a severe cyanobacteria bloom which impacted recreation in this segment of the river.

Many stretches of the Charles River are listed as impaired for nutrients in the Massachusetts Year 2006 Integrated List of Waters, which identifies those water bodies that do not meet surface water quality standards (MassDEP, 2007). CRWA is working on a project to assess current phosphorus concentrations and sources in the upper watershed and to determine the total maximum daily load (TMDL) of phosphorus and other nutrients the river can receive and still attain its designated use. Data collected from this Monthly Monitoring Program has been invaluable to CRWA's TMDL work.

The Monthly Monitoring Program includes analyses of total phosphorus and orthophosphate (the amount of soluble phosphorus in the water which is immediately available for use by plants). In 2007, 31 total phosphorus samples were collected, of which 100% exceeded the EPA recommended criterion of 0.0238 milligrams per liter (mg/L) (Figure 4) (US EPA, 2000). Of the 31 orthophosphate tests, only 29% exceeded the EPA's recommended criterion for orthophosphate (0.0238 mg/L) (Figure 4).

Total phosphorus results are from samples analyzed at MWRA's Central Laboratory. Raw data and statistical analysis for total phosphorus and orthophosphate can be found in the Appendix.

Figure 4: Mean Charles River Phosphorus Concentrations by Site 2007



Nitrogen

CRWA tests the river for ammonia, nitrate-nitrite and total nitrogen. These forms of nitrogen may originate from atmospheric deposition of automobile and power plant emissions, wastewater treatment plants, septic systems, animal waste and fertilizers. Ammonia is commonly found in untreated sewage. The oxidation of ammonia yields nitrite, which is quickly converted to nitrate, the form of nitrogen that is most readily available to algae and other aquatic plants. Total nitrogen is the sum of all organic and inorganic nitrogen forms. High levels of these forms of nitrogen can indicate the presence of untreated human sewage.

In 2007, 31 samples were collected and analyzed for ammonia. None exceeded EPA's recommended criterion of 0.3 mg/L for ambient waters in New England (Figure 5) (US EPA, 2000). Of the 31 nitrate-nitrite samples, however, 77% exceeded the EPA recommended criterion of 0.31 mg/L (Figure 5). Of the 31 total nitrogen samples, all but one (or 97%) exceeded EPA's recommended criteria of 0.57 mg/L for total nitrogen (Figure 5).

Nitrogen parameter results are from samples analyzed at MWRA's Central Laboratory. Complete results for ammonia, nitrate-nitrite and total nitrogen can be found in the Appendix of Water Quality Tables at the end of this report.

Chlorophyll *a*

Chlorophyll *a* is the principle photosynthetic pigment molecule in algae and vascular plants. It is an indicator of the presence and concentration of algae in the water column. An abundance of algae can lead to oxygen depleted, or anoxic, conditions as the algae inhibit oxygen exchange with the air and the abundant, decaying organic matter depletes oxygen from the water as it decomposes. Algae can also block sunlight penetration into the water, clouding out submerged aquatic vegetation. These conditions are detrimental to fish and other aquatic fauna that are dependant on dissolved oxygen availability for their survival. Of the 31 chlorophyll *a* samples, 20 (or 65%) exceeded the EPA recommended criteria of 0.00375 mg/L (US EPA, 2000). The June sampling event had the highest percentage of samples exceeding this limit with 83%, or 10 out of 12, sites exceeding the limit. During the September sampling events, seven sites exceeded this limit, while only three sites exceeded this limit during the March sampling event. These results are in-line with typical algae growth pattern which usually consist of large blooms in the late spring or early summer and smaller blooms in the fall. The levels of organic matter being observed in these samples, however, indicated that an *excessive* amount of algae is growing in the Charles. Therefore although we would expect to see high chlorophyll *a* concentrations in June, the concentrations being observed are indicative of eutrophic conditions.

Site 743S, the Western Ave. bridge located in the Lower Basin, exceeded the EPA recommended criteria during all three sampling events. Site 784S, the New Charles River dam also in the Lower Basin, exceeded this limit in June and March but was not sampled in March.

Chlorophyll *a* results are from samples analyzed at MWRA's Central Laboratory. Chlorophyll *a* values are corrected for phaeophytin. Complete results for chlorophyll *a* can be found in the Appendix of Water Quality Tables at the end of this report.

Figure 5: Mean Charles River Nitrogen Concentrations by Site 2007

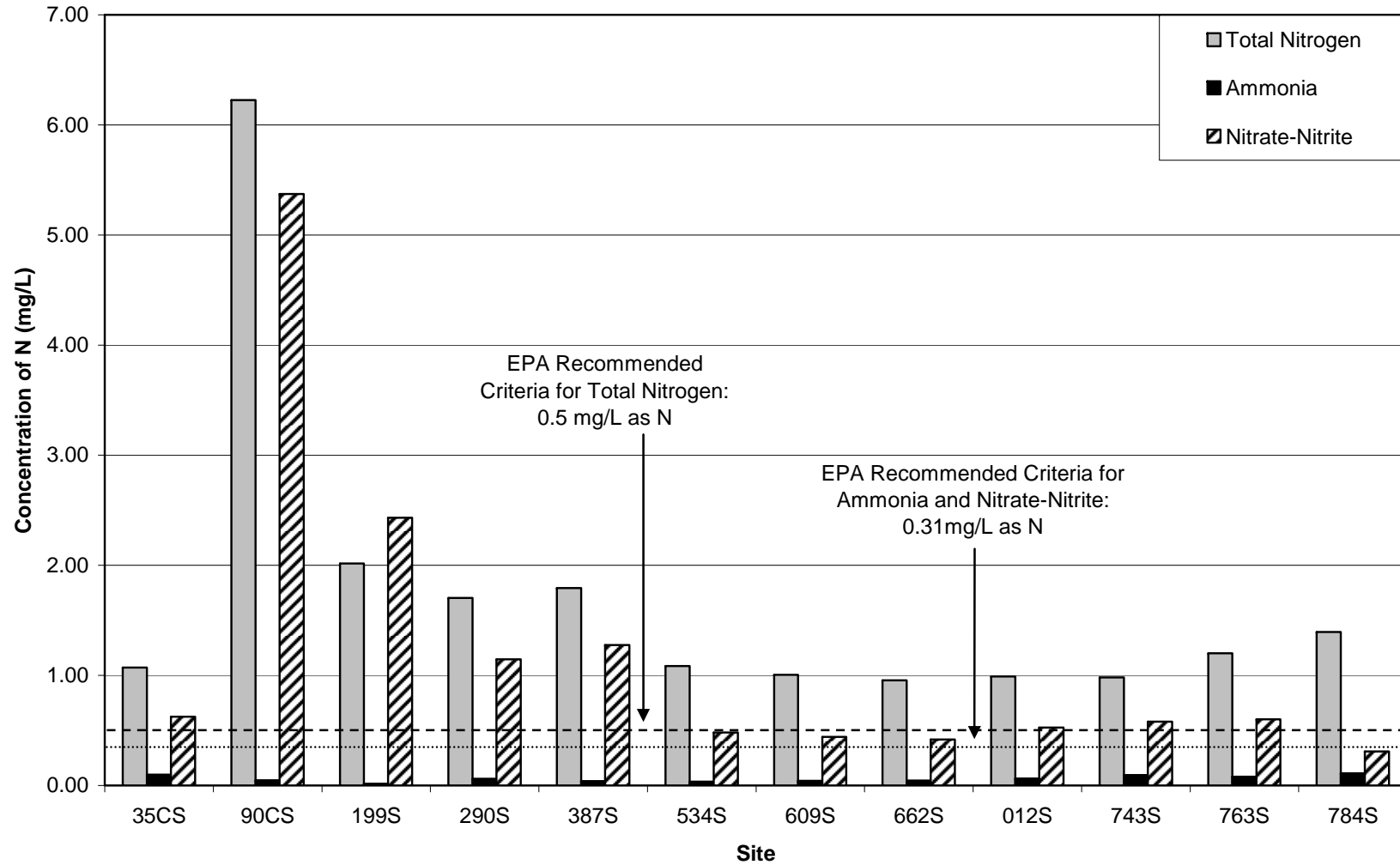
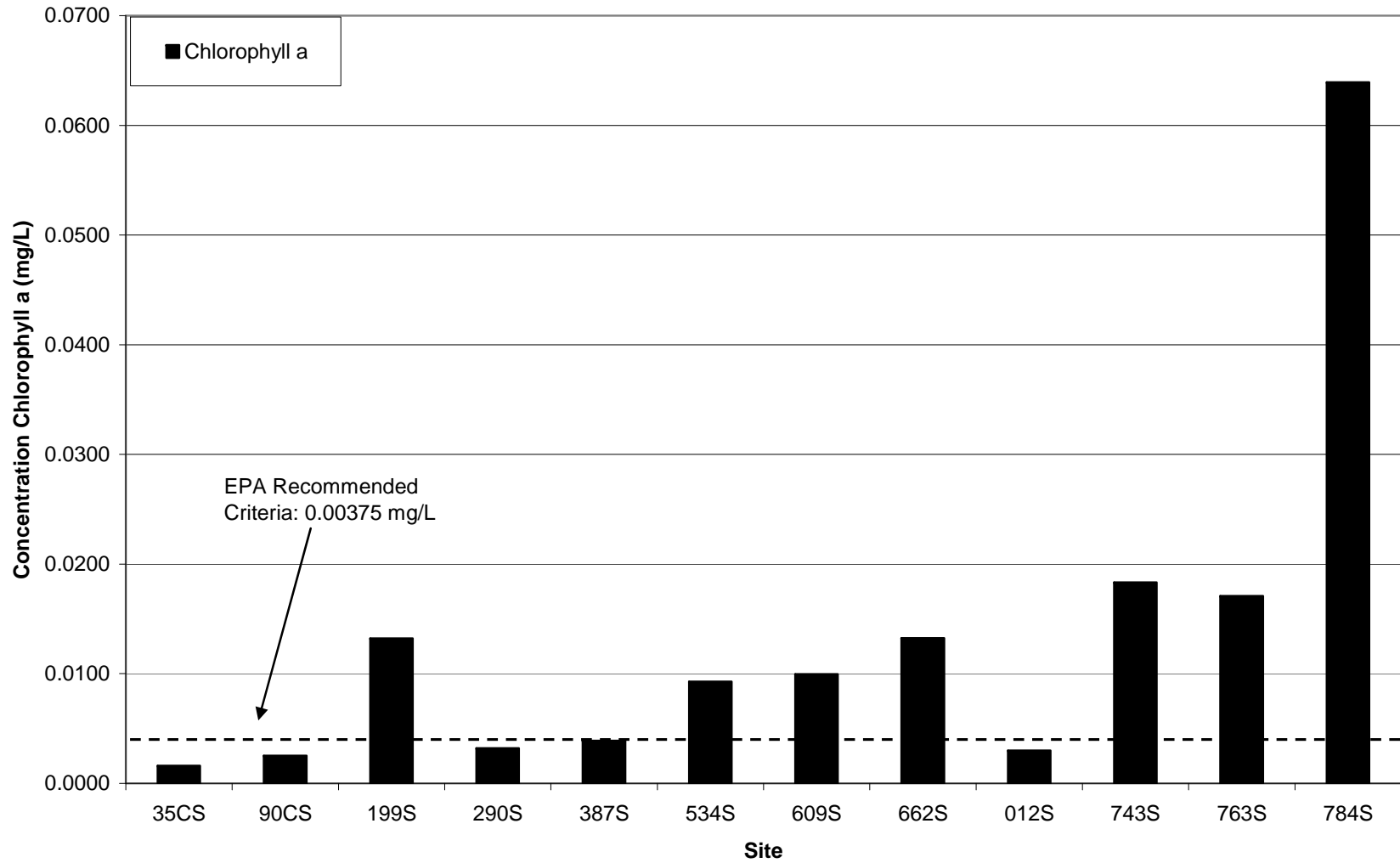


Figure 6: Mean Charles River Chlorophyll a Concentrations by Site 2007



Temperature

Water temperature is an important factor affecting the natural habitat. Temperature has an important role in many of the biological and chemical processes, which take place in the river. As a Class B Warm Water Fishery, Massachusetts Surface Water Quality Standards state that temperatures in the Charles River should not exceed 28.3°C. Temperature violations are often the result of river water being used as a coolant in various industrial practices, such as electricity production. There are multiple plants located along the Charles that use river water for this purpose. Nevertheless, no violations of this standard were observed in CRWA's 2007 Monthly Monitoring Results. Complete temperature results are available in the Appendix.

2.2 Supplemental Project Monitoring

When funding is available, CRWA adds additional parameters such as total suspended solids (TSS) or collects and analyzes samples for nutrient parameters during additional months or from additional sites. In 2007, samples were collected and analyzed for TSS at all sites in March, April and May. Samples were collected and analyzed for total phosphorus at all sites in April, May, June, July, August and September. Finally, samples were collected and analyzed for sodium at all sites in March, April and May of 2007. All samples collected under our supplemental project monitoring were analyzed at Alpha Analytical Laboratory.

Sodium

Sodium level is a vital factor affecting the health of an ecosystem. Plants and animals have varying degrees of tolerance to salinity or dissolved salt, in the water. High concentrations of salt can hinder the daily biological processes of the river flora and fauna. One source of the increase in salt in the waterways is the runoff laden with salt used to de-ice the roads during the winter. CRWA collected samples during the spring to document these impacts and found that much of the river is severely impacted by sodium inputs. Out of the 95 samples collected, 100% of them exceeded the action limit. Complete results for sodium can be found in the Appendix of Water Quality Tables at the end of this report.

Phosphorus

Data was gathered on total phosphorus levels for the entire stretch of the river during the spring and summer months when algae thrive in the Charles. Out of the 189 samples collected in 2007, 91% of them were above the recommended action limit of 0.0238 mg/L. Complete results for Total Phosphorus collected as part of our 2007 supplementary monitoring plan can be found in the Appendix of Water Quality Tables at the end of this report.

Total Suspended Solids (TSS)

Beginning in late winter and continuing through the spring, stormwater runoff is laden with sand, minerals and other types of materials used to de-ice our roadways and parking lots. Dirt and sand can also be carried off of construction sites, playing fields and eroding river banks. This influx of particles can often have adverse effects on our waterways, making the water cloudy or murky. Particles can inhibit sunlight from reaching the aquatic vegetation that need it. CRWA collects samples which are analyzed for total suspended solids (TSS) to determine areas where high levels of sand or silt are being washed off into the river and tributaries.

None of the samples exceeded CRWA's Action Limit for TSS of 30 mg/L. The highest TSS value observed occurred at site 199S during the May sampling event, the TSS concentration was 15 mg/L. In general, TSS levels rose from March to May at almost all measured sites. Complete TSS results can be found in the Appendix.

Figure 7: Mean Charles River Sodium Concentrations by Site 2007

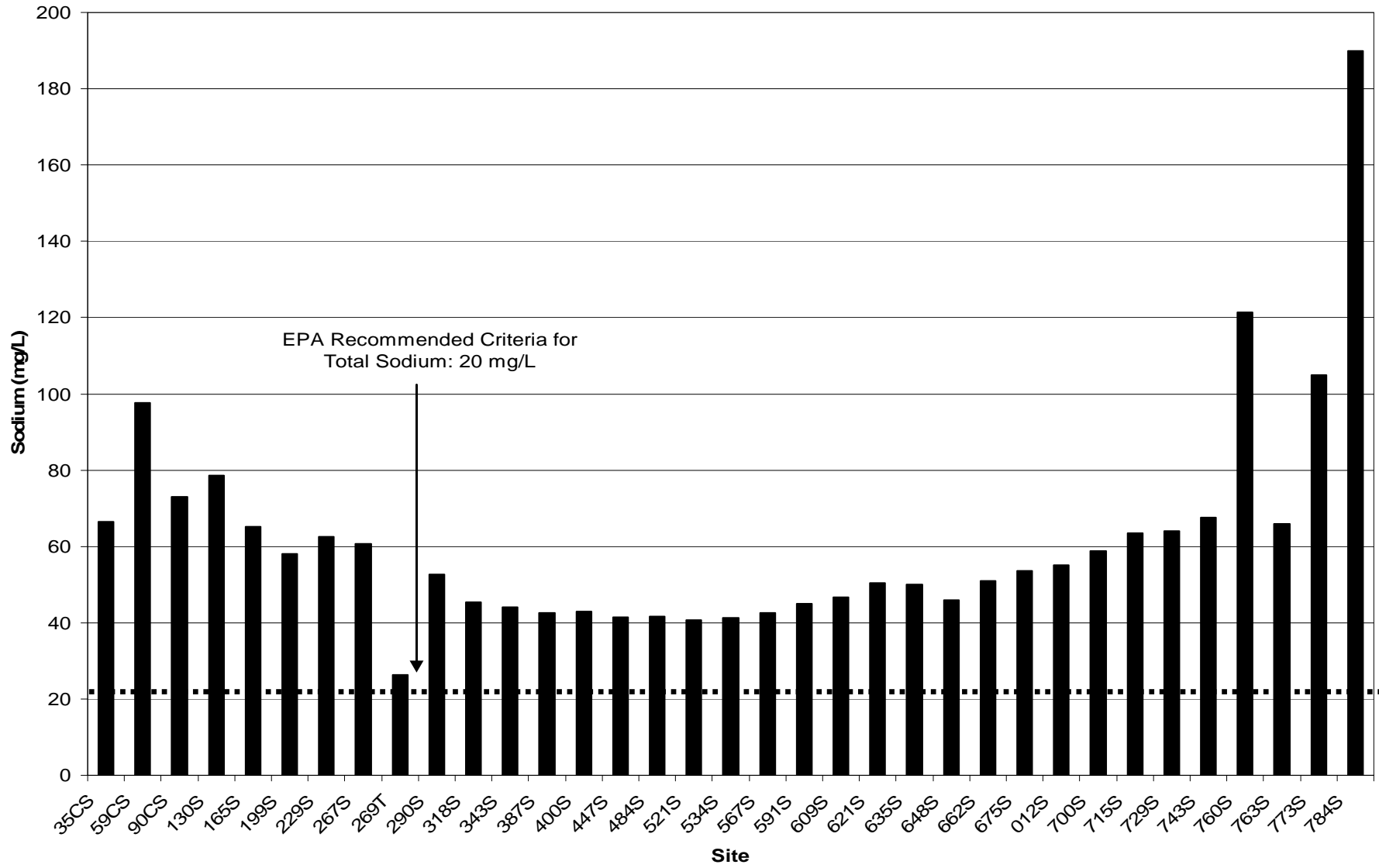


Figure 8: Mean Charles River Spring and Summer Phosphorus Concentrations by Site (samples collected April-September 2007)

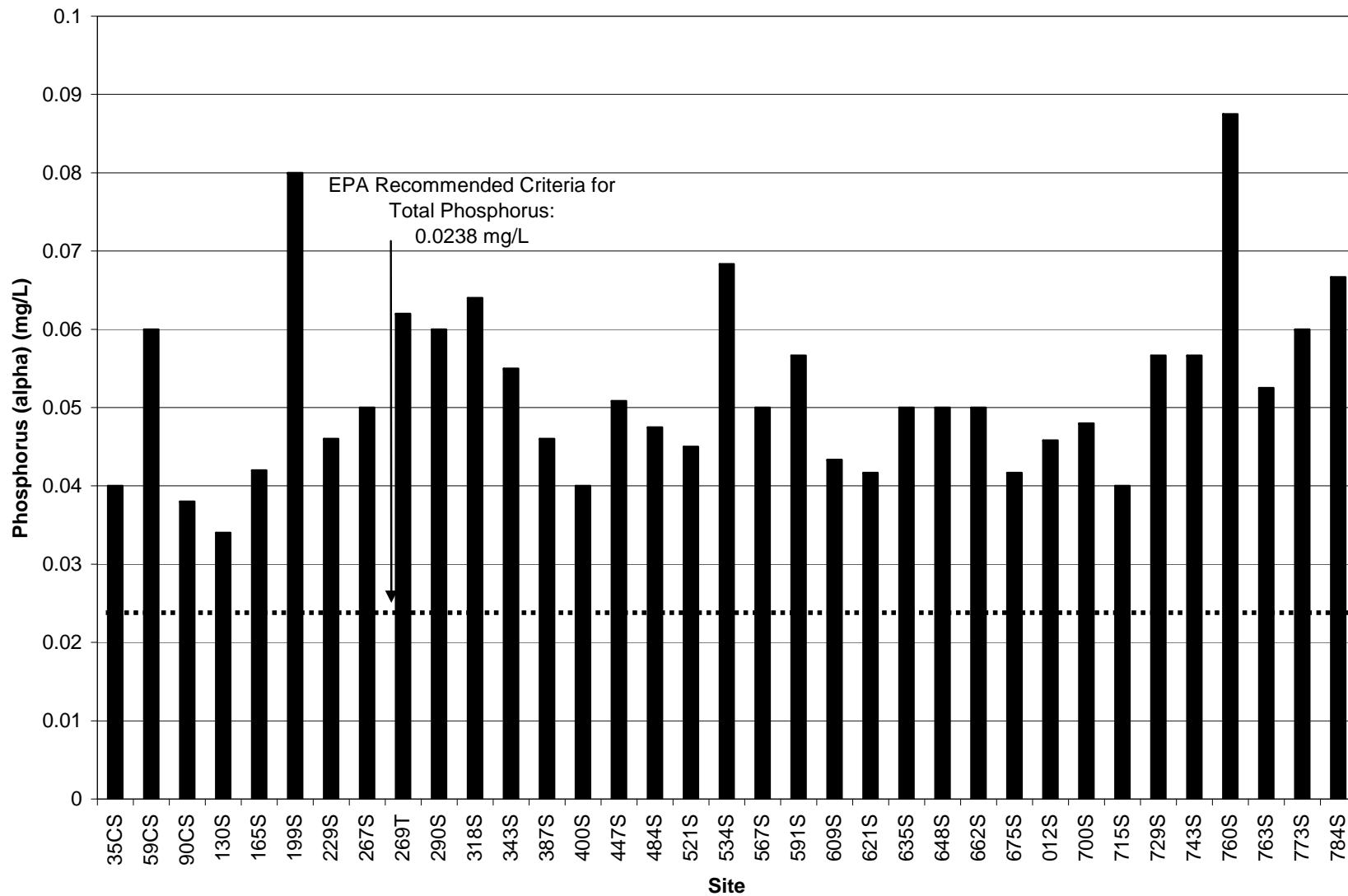
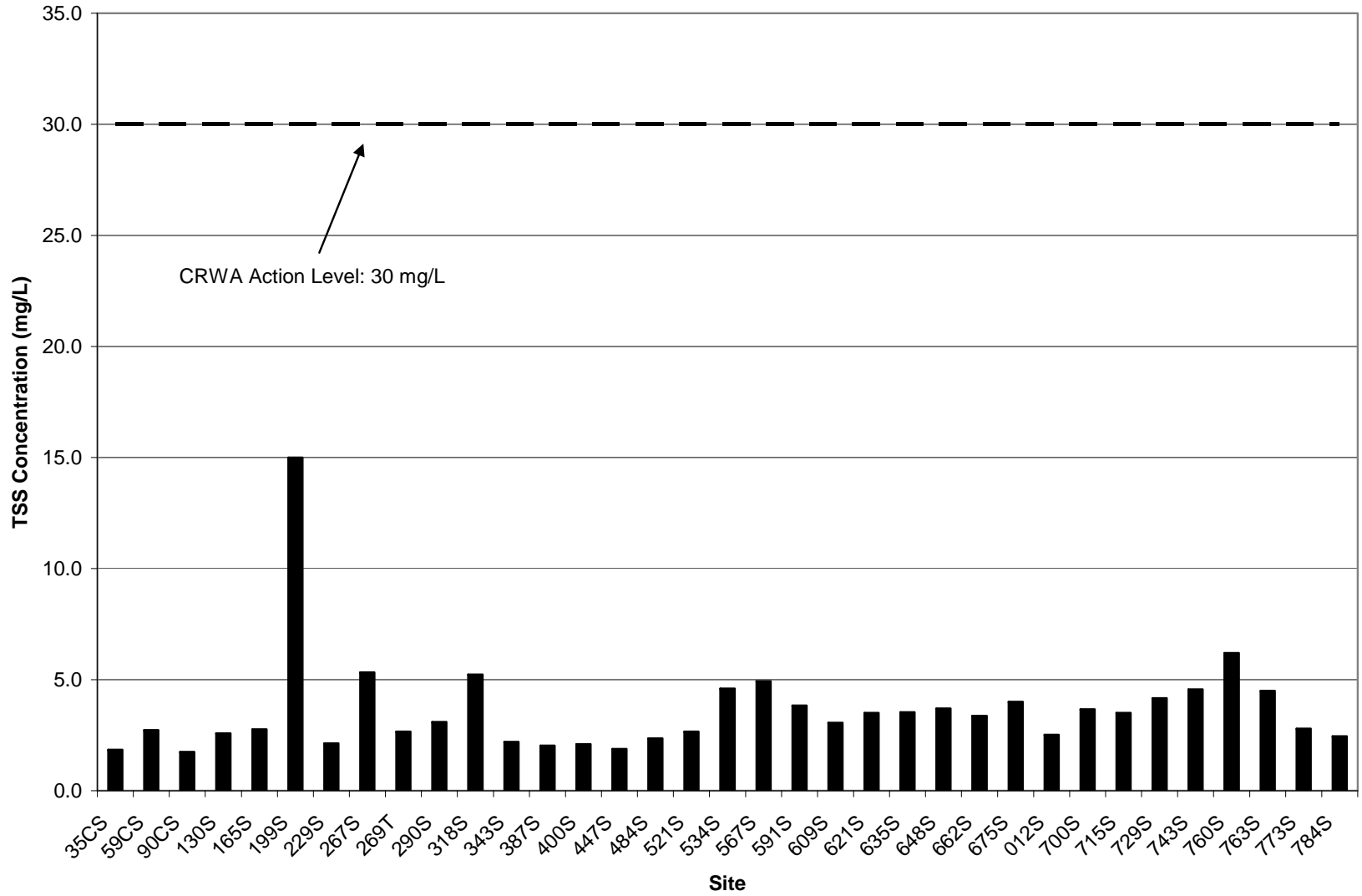


Figure 9: Mean Springtime Charles River TSS Concentrations by Site (samples collected March – May 2007)



3.0 Conclusions

Data generated from this water quality monitoring program helps to indicate current overall river health. Each month, we can identify new problems and refocus our efforts to tackle the most urgent water quality issues. Taken in conjunction with CRWA's other monitoring efforts, including tributary monitoring and summer recreational monitoring, we can obtain a better picture of the river's health and target areas of the watershed for remediation and improved watershed management.

As shown in Table 5, overall bacteria results for the Lower Charles River Basin have improved from last year. The Charles River achieved a B++ for water quality in 2007, the highest grade to date. The river's report card grade is determined by the EPA and is based partially upon CRWA's monthly monitoring data. Over the course of this thirteen-year program, water quality in the Charles has been steadily improving in large part due to the monitoring work of CRWA staff and volunteers, which has identified the most problematic areas in the river and guided where remediation and management efforts should occur in the watershed. With continued monitoring, the Charles is nearing its goal of reaching an A grade by 2010.

4.0 References

MA Department of Environmental Protection, 2007. *Massachusetts Surface Water Quality Standards*. Massachusetts Department of Environmental Protection, Division of Water Pollution Control, Technical Services Branch. Westborough, MA (314 CMR 4.00).

MA Department of Environmental Protection, 2006. *Massachusetts Year 2006 Integrated List of Waters – Proposed listing of the condition of MA waters pursuant to Sections 303(d) and 305(b) Clean Water Act*. MassDEP, Division of Watershed Management. Worcester, MA.

U.S. Environmental Protection Agency, 2000. *Ambient Water Quality Criteria Recommendations for Rivers and Streams in Nutrient Ecoregion XIV*. EPA-822/B-00/022. US EPA Office of Water Regulations and Standards, Washington, DC.

Appendix of Water Quality Table

E. coli Bacteria Results 2007

Site #	Description	Town	River Mile	E. coli Concentrations (cfu/100 mL)												Mean	Median	Stnd Dev	Min	Max	
				1/23/2007	2/13/2007	3/20/2007	4/10/2007	5/15/2007	6/19/2007	7/17/2007	8/21/2007	9/18/2007	10/16/2007	11/20/2007	12/18/2007						
35CS	Central Street Bridge	Milford	3.5	Sampling cancelled due to freezing conditions or otherwise inclement weather	Sampling cancelled due to freezing conditions or otherwise inclement weather	557	63	557.5 (a)	88	697	1200	816	538	1860	Sampling cancelled due to freezing conditions or otherwise inclement weather	709	557	554	63	1860	
59CS	Mellen Street Bridge	Bellingham	5.9			146	<10	158	471	627	74	285	223	52		238	158	194	52	627	
90CS	Rt 126, North Main St	Bellingham	9.0				<10		52	173	211	41	85			95	69	81	<10	211	
130S	Maple St Bridge	Bellingham	12.9			20	15 (a)	52	86	84	229.5 (a)	171	97	52		90	84	70	15	229.5	
165S	Shaw St Bridge	Medway/Franklin	16.5			10	(a)	10	41	171	120	108	134 (a)	145	52		88	108	61	10	171
199S	Populatic Pond Boat Launch	Norfolk	19.9					<10.0	98	620	<10.0	10	<10.0 (a)	94		120	10	225	<10	620	
229S	Rt 115, Baltimore St	Norfolk/Millis	22.9			<10	⊙ <10	31 (a)	41	73	52	10	25.5 (a)			33	31	24	<10	73	
267S	Dwight St Bridge	Millis	26.7			20	<10	<10.0	63 (a)	52	31	63	30			34	31	24	<10	63	
269T	Stop River at Causeway St	Medfield	26.9			<10	<10	20	135	297.5 (a)	189	216	74	31		108	74	107	<10	297.5	
290S	Old Bridge St	Medfield	29.0			31	<10	52	85	20	41 (a)	74	52	10		41	41	28	<10	85	
318S	Rt 27 Bridge	Medfield	31.8			20	<10	<10.0	30	20	20	41.5 (a)	52	10		23	20	16	<10	52	
343S	Farm Rd/Bridge St	Sherborn/Dover	34.3			10	10	<10.0	31	52	10	20	10	<10.0		17	10	15	<10	52	
387S	Cheney Bridge	Wellesley	38.7			41	(a) <10	52	31	419		72	63	30.5 (a)		89	47	135	<10	419	
400S	Charles River Rd Bridge	Dover	40.0			31	10	20	108	122	20	52		30		49	31	43	10	122	
447S	Dover Gage	Dover	44.7				7.5 (a)	10	51	10	10	41	20	52		25	15	20	7.5	52	
484S	Dedham Medical Center	Dedham	48.4			31	20	23 (a)	63	98	41	41	74	20		46	41	27	20	98	
521S	Ames St Bridge	Dedham	52.1			10	<10	20	31 (a)	10	20	41	63	161		40	20	49	<10	161	
534S	Rt 109 Bridge	Dedham	53.4			31	41	10	74	15 (a)	41	41	86	168		56	41	49	<10	168	
567S	Nahanton Park	Newton	56.7			20	<10	<10.0	<10.0	<10.0	15 (a)	20		41		15	10	13	<10	41	
591S	Rt 9 Gaging Station	Newton	59.1			<10	10	74	74	52	52	103 (a)	63	20		50	52	33	<10	103	
609S	Washington St/Hunnewell Bridge	Wellesley	60.9			52	10	63	52	389	359	187	120	30		140	63	143	10	389	
621S	Leo J. Martin Golf Course	Weston	62.1			<10		52	171	272	145	221	80.5 (a)	41		123	113	94	<10	272	
635S	2391 Commonwealth Avenue	Newton	63.5			10	20	41	160	63	74	110	20	12.5 (a)		57	41	51	10	160	
648S	Lakes Region	Waltham	64.8				<10	10	146	20	20	10	96			44	20	55	<10	146	
662S	Moody St Bridge	Waltham	66.2			31	20	31	63	97	226	171	86	199		103	86	78	20	226	
675S	North St	Waltham	67.6			251.5 (a)	52	393	683	594	408	341	265	323		368	341	187	52	683	
012S	Watertown Dam Footbridge	Watertown	69.3			240	46.5 (a)	275	120	63	318	158	31	295		172	158	113	31	318	
700S	North Beacon St Bridge	Newton	70.9			457	52	154.5 (a)	173	243		52	20	384		192	164	160	20	457	
715S	Arsenal St	Brighton	71.5			594	145				145	109	135	285		236	145	186	109	594	
729S	Elliot Bridge	Cambridge	72.9			528	169	187	175	86 (a)	10	10	63	160		154	160	157	10	528	
743S	Western Ave	Cambridge	74.3			768	201	52	107	20	<10 (a)	52	52	327		176	52	245	<10	768	
760S	Muddy River/Back Bay Fens	Boston	76.0			364	74	816	175	110	465	161	63			279	168	260	63	816	
763S	Harvard Bridge	Boston	76.3				63	20	41		10			185		64	41	71	10	185	
773S	Longfellow Bridge	Boston	77.3			557 (a)	110	20	10	10		98	31	109 (a)		118	65	183	10	557	
784S	New Charles River Dam	Boston	78.4			457	133 (a)	20	<10.0	<10.0	10	10	<10.0	109		84	10	148	<10	457	
# sites swimmable		212																			
# sites boatable		285																			
# sites sampled		292																			
% of sites swimmable		72.6%																			
% of sites boatable		97.6%																			
QA/QC Samples																					
	Equipment Blank					<1.00	<10	<10	<10	<10		<10	<10	<10							
	Site No.					269T	662S	290S	229S	675S		400S	484S	700S							
	Equipment Blank							<10	<10				<10								
	Site No.							591S	012S				743S								
Rainfall At Logan International Airport (inches)																					
	3 Days Prior to Sampling					1.46	0.00	0.00	Trace	Trace	0.04	0.34	0.04	0.00							
	2 Days Prior to Sampling					0.00	0.00	0.00	0.02	Trace	0.00	0.00	0.00	0.00							
	1 Day Prior to Sampling					0.05	0.00	0.00	0.00	0.00	Trace	0.00	0.00	Trace							
	Day of Sampling					0.02	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.08							

Samples are analyzed at MWRA Central Laboratory
(a) Average of duplicate samples.
(b) For summary statistics a <10 value is considered equal to 5

Total Phosphorus Results 2007

Site #	Description	Town	River Mile	Total Phosphorus Concentrations (mg/L)				Mean	Median	Std Dev	Min	Max
				3/20/2007	6/19/2007	9/18/2007	12/18/2007					
35CS	Central Street Bridge	Milford	3.5	0.026	0.038	0.076	0.047	0.038	0.026	0.026	0.076	
90CS	Rt. 126, North Main St.	Bellingham	9.0		0.064	0.046	0.055	0.055	0.012	0.046	0.064	
199S	Populatic Pond Boat Launch	Norfolk	19.9		0.075	0.063	0.069	0.069	0.009	0.063	0.075	
290S	Old Bridge St.	Medfield	29.0	0.046	0.101	0.055	0.067	0.055	0.030	0.046	0.101	
387S	Cheney Bridge	Wellesley	37.8	0.047 (a)	0.088	0.043	0.059	0.047	0.025	0.043	0.088	
534S	Rt. 109 Bridge	Dedham	53.4	0.046	0.107	0.105	0.086	0.105	0.035	0.046	0.107	
609S	Washington St./Hunnewell Bridge	Wellesley	60.9	0.042	0.093	0.063	0.066	0.063	0.025	0.042	0.093	
662S	Moody St. Bridge	Waltham	66.2	0.045	0.090	0.057	0.064	0.057	0.023	0.045	0.090	
012S	Watertown Dam Footbridge	Watertown	69.3	0.045	0.079	0.046	0.057	0.046	0.019	0.045	0.079	
743S	Western Ave	Cambridge	74.3	0.047	0.088	0.081	0.072	0.081	0.022	0.047	0.088	
763S	Harvard Bridge	Boston	76.3		0.081		0.081	0.081	N/A	0.081	0.081	
784S	New Charles River Dam	Boston	78.4		0.079	0.130	0.105	0.105	0.036	0.079	0.130	
Total # of samples exceeding action limit		31										
Total # of samples		31										
% of samples exceeding action limit		100%										
Action limit = 0.0238 mg/L												
QA/QC Samples												
	Equipment Blank				0.004							
	Site No.				012S							
Rainfall At Logan International Airport (inches)												
	3 Days Prior to Sampling			1.46	Trace	0.34						
	2 Days Prior to Sampling			0.00	0.02	0.00						
	1 Day Prior to Sampling			0.05	0.00	0.00						
	Day of Sampling			0.02	0.00	0.00						

Samples analyzed at Massachusetts Water Resources Authority's Central Laboratory.

(a) Average of duplicate samples.

Orthophosphate Results 2007

Site #	Description	Town	River Mile	Concentrations of Orthophosphate (mg/L)				Mean	Median	Std Dev	Min	Max	
				3/20/2007	6/19/2007	9/18/2007	12/18/2007						
35CS	Central Street Bridge	Milford	3.5	0.008		0.011	0.017	Sampling cancelled due to freezing temperatures or otherwise inclement conditions	0.012	0.011	0.005	0.008	0.017
90CS	Rt. 126, North Main St.	Bellingham	9.0			0.015	0.009		0.012	0.012	0.005	0.009	0.015
199S	Populatic Pond Boat Launch	Norfolk	19.9			0.022	0.007		0.015	0.015	0.011	0.007	0.022
290S	Old Bridge St.	Medfield	29.0	0.014		0.034	0.011		0.020	0.014	0.013	0.011	0.034
387S	Cheney Bridge	Wellesley	37.8	0.013	(a)	0.034	0.008		0.019	0.013	0.014	0.008	0.034
534S	Rt. 109 Bridge	Dedham	53.4	0.013		0.040	0.003		0.018	0.013	0.019	0.003	0.040
609S	Washington St./Hunnewell Bridge	Wellesley	60.9	0.013		0.031	0.003		0.015	0.013	0.014	0.003	0.031
662S	Moody St. Bridge	Waltham	66.2	0.014		0.024	0.002		0.013	0.014	0.011	0.002	0.024
012S	Watertown Dam Footbridge	Watertown	69.3	0.013		0.033	0.018		0.021	0.018	0.010	0.013	0.033
743S	Western Ave.	Cambridge	74.3	0.016		0.027	0.009		0.017	0.016	0.010	0.009	0.027
763S	Harvard Bridge	Boston	76.3			0.024			0.024	0.024	N/A	0.024	0.024
784S	New Charles River Dam	Boston	78.4			0.036	0.005		0.021	0.021	0.022	0.005	0.036
Total # of samples exceeding action limit			9										
Total # of samples			31										
% of samples exceeding action limit			29%										
Action Limit = 0.0238 mg/L													
QA/QC Samples													
	Equipment Blank					0.001							
	Site No.					012S							
Rainfall At Logan International Airport (inches)													
	3 Days Prior to Sampling			1.46		Trace	0.34						
	2 Days Prior to Sampling			0.00		0.02	0.00						
	1 Day Prior to Sampling			0.05		0.00	0.00						
	Day of Sampling			0.02		0.00	0.00						

Samples analyzed at Massachusetts Water Resources Authority's Central Laboratory
(a) Average of duplicate samples.

Ammonia Results 2007

Site #	Description	Town	River Mile	Ammonia Concentration (mg/L)				Mean	Median	Std Dev	Min	Max	
				3/20/2007	6/19/2007	9/18/2007	12/18/2007						
35CS	Central Street Bridge	Milford	3.5	0.064		0.109	0.123	Sampling cancelled due to freezing temperatures or otherwise inclement conditions	0.099	0.109	0.031	0.064	0.123
90CS	Rt. 126, North Main St.	Bellingham	9.0			0.068	0.026		0.047	0.047	0.030	0.026	0.068
199S	Populatic Pond Boat Launch	Norfolk	19.9			0.027	0.006		0.016	0.016	0.015	0.006	0.027
290S	Old Bridge St.	Medfield	29.0	0.125		0.045	0.013		0.061	0.045	0.058	0.013	0.125
387S	Cheney Bridge	Wellesley	37.8	0.073	(a)	0.028	0.017		0.039	0.028	0.030	0.017	0.073
534S	Rt. 109 Bridge	Dedham	53.4	0.073		0.030	0.006		0.036	0.030	0.034	0.006	0.073
609S	Washington St./Hunnewell Bridge	Wellesley	60.9	0.090		0.032	0.002		0.041	0.032	0.045	0.002	0.090
662S	Moody St. Bridge	Waltham	66.2	0.087		0.014	0.033		0.045	0.033	0.038	0.014	0.087
012S	Watertown Dam Footbridge	Watertown	69.3	0.089		0.054	0.051		0.065	0.054	0.021	0.051	0.089
743S	Western Ave.	Cambridge	74.3	0.098		0.075	0.114		0.096	0.098	0.020	0.075	0.114
763S	Harvard Bridge	Boston	76.3			0.080			0.080	0.080	N/A	0.080	0.080
784S	New Charles River Dam	Boston	78.4			0.207	0.000	0.104	0.104	0.146	0.000	0.207	
Total # of samples exceeding action limit		0											
Total # of samples		31											
% of samples exceeding action limit		0%											
Action limit = 0.3 mg/L													
QA/QC Samples													
	Equipment Blank					0.008							
	Site No.					012S							
Rainfall At Logan International Airport (inches)													
	3 Days Prior to Sampling			1.46		Trace	0.34						
	2 Days Prior to Sampling			0.00		0.02	0.00						
	1 Day Prior to Sampling			0.05		0.00	0.00						
	Day of Sampling			0.02		0.00	0.00						

Samples analyzed at Massachusetts Water Resources Authority's Central Laboratory.

(a) Average of duplicate samples.

Nitrate-Nitrite Results 2007

Site #	Description	Town	River Mile	Concentrations of nitrate-nitrite (mg/L)				Mean	Median	Std Dev	Min	Max
				3/20/2007	6/19/2007	9/18/2007	12/18/2007					
35CS	Central Street Bridge	Milford	3.5	0.503	0.254	1.121	0.626	0.503	0.446	0.254	1.121	
90CS	Rt. 126, North Main St.	Bellingham	9.0		3.866	6.877	5.372	6.877	2.129	3.866	6.877	
199S	Populatic Pond Boat Launch	Norfolk	19.9		1.041	3.824	2.432	3.824	1.968	1.041	3.824	
290S	Old Bridge St.	Medfield	29.0	0.853 (a)	0.852	1.737	1.147	0.853	0.511	0.852	1.737	
387S	Cheney Bridge	Wellesley	37.8	0.741	0.793	2.297	1.277	0.793	0.884	0.741	2.297	
534S	Rt. 109 Bridge	Dedham	53.4	0.763	0.599	0.082	0.482	0.599	0.356	0.082	0.763	
609S	Washington St./Hunnewell Bridge	Wellesley	60.9	0.721	0.529	0.073	0.441	0.529	0.333	0.073	0.721	
662S	Moody St. Bridge	Waltham	66.2	0.714	0.466	0.075	0.418	0.466	0.323	0.075	0.714	
012S	Watertown Dam Footbridge	Watertown	69.3	0.747	0.557	0.273	0.526	0.557	0.238	0.273	0.747	
743S	Western Ave.	Cambridge	74.3	0.770	0.684	0.289	0.581	0.684	0.257	0.289	0.770	
763S	Harvard Bridge	Boston	76.3		0.602		0.602	0.602	N/A	0.602	0.602	
784S	New Charles River Dam	Boston	78.4		0.618	0.001	0.310	0.310	0.436	0.001	0.618	
Total # of samples exceeding action limit		24										
Total # of samples		31										
% of samples exceeding action limit		77%										
Action limit = 0.31 mg/L												
QA/QC Samples												
	Equipment Blank				0.138							
	Site No.				012S							
Rainfall At Logan International Airport (inches)												
	3 Days Prior to Sampling			1.46	Trace	0.34						
	2 Days Prior to Sampling			0.00	0.02	0.00						
	1 Day Prior to Sampling			0.05	0.00	0.00						
	Day of Sampling			0.02	0.00	0.00						

Analyzed at Massachusetts Water Resource Authority's Central Lab.
(a) Average of duplicate samples.

Total Nitrogen Results 2007

Site #	Description	Town	River Mile	Total Nitrogen Concentration (mg/L)				Mean	Median	Std Dev	Min	Max	
				3/20/2007	6/19/2007	9/18/2007	12/18/2007						
35CS	Central Street Bridge	Milford	3.5	0.82		0.84	1.55	Sampling cancelled due to freezing temperatures or otherwise inclement weather	1.072	0.839	0.418	0.822	1.555
90CS	Rt. 126, North Main St.	Bellingham	9.0			4.78	7.68		6.226	6.226	2.050	4.776	7.676
199S	Populatic Pond Boat Launch	Norfolk	19.9			1.53	2.51		2.017	2.017	0.693	1.527	2.507
290S	Old Bridge St.	Medfield	29.0	1.30		1.41	2.40		1.703	1.415	0.602	1.300	2.395
387S	Cheney Bridge	Wellesley	37.8	1.15	(a)	1.28	2.96		1.794	1.280	1.008	1.145	2.955
534S	Rt. 109 Bridge	Dedham	53.4	1.17		1.13	0.95		1.085	1.130	0.115	0.954	1.170
609S	Washington St./Hunnewell Bridge	Wellesley	60.9	1.16		1.12	0.74		1.005	1.121	0.235	0.735	1.160
662S	Moody St. Bridge	Waltham	66.2	1.15		1.03	0.68		0.954	1.030	0.242	0.684	1.150
012S	Watertown Dam Footbridge	Watertown	69.3	1.19		1.08	0.70		0.990	1.080	0.257	0.700	1.191
743S	Western Ave.	Cambridge	74.3	1.23		1.26	0.45		0.981	1.230	0.458	0.452	1.261
763S	Mass. Ave. at Harvard Bridge	Boston	76.3			1.20			1.200	1.200	N/A	1.200	1.200
784S	New Charles River Dam	Boston	78.4			1.26	1.53		1.394	1.394	0.188	1.261	1.527
Total # of samples exceeding action limit		30											
Total # of samples		31											
% of samples exceeding action limit		97%											
Action limit = 0.57 mg/L													
QA/QC Samples													
	Equipment Blank					0.17							
	Site No.					012S							
Rainfall At Logan International Airport (inches)													
	3 Days Prior to Sampling			1.46		Trace	0.34						
	2 Days Prior to Sampling			0.00		0.02	0.00						
	1 Day Prior to Sampling			0.05		0.00	0.00						
	Day of Sampling			0.02		0.00	0.00						

Samples analyzed at Massachusetts Water Resources Authority's Central Lab.

(a) Average of duplicate samples.

Chlorophyll a Results 2007

Site #	Description	Town	River Mile	Chlorophyll a Concentrations (mg/L)				Mean	Median	Std Dev	Min	Max
				3/20/2007	6/19/2007	9/18/2007	12/18/2007					
35CS	Central Street Bridge	Milford	3.5	0.0007	0.00083	0.00334	0.0016	0.0008	0.0015	0.0007	0.0033	
90CS	Rt. 126, North Main St.	Bellingham	9.0		0.00397	0.0011	0.0025	0.0025	0.0020	0.0011	0.0040	
199S	Populatic Pond Boat Launch	Norfolk	19.9		0.00314	0.0233	0.0132	0.0132	0.0143	0.0031	0.0233	
290S	Old Bridge St.	Medfield	29.0	0.00158	0.00424	0.00385	0.0032	0.0039	0.0014	0.0016	0.0042	
387S	Cheney Bridge	Wellesley	37.8	0.00219 (a)	0.00627	0.00325	0.0039	0.0033	0.0021	0.0022	0.0063	
534S	Rt. 109 Bridge	Dedham	53.4	0.00295	0.0106	0.0143	0.0093	0.0106	0.0058	0.0030	0.0143	
609S	Washington St./Hunnewell Bridge	Wellesley	60.9	0.00302	0.0128	0.0141	0.0100	0.0128	0.0061	0.0030	0.0141	
662S	Moody St. Bridge	Waltham	66.2	0.00384	0.0233	0.0126	0.0132	0.0126	0.0097	0.0038	0.0233	
012S	Watertown Dam Footbridge	Watertown	69.3	0.00404	0.00403	0.00096	0.0030	0.0040	0.0018	0.0010	0.0040	
743S	Western Ave	Cambridge	74.3	0.00378	0.0104	0.0408	0.0183	0.0104	0.0197	0.0038	0.0408	
763S	Harvard Bridge	Boston	76.3		0.0171		0.0171	0.0171	N/A	0.0171	0.0171	
784S	New Charles River Dam	Boston	78.4		0.00387	0.124	0.0639	0.0639	0.0849	0.0039	0.1240	
Total # of samples exceeding action limit			20									
Total # of samples			31									
% of samples exceeding action limit			65%									
Action limit = 0.0037 mg/L												
Rainfall At Logan International Airport (inches)												
	3 Days Prior to Sampling			1.46	Trace	0.34						
	2 Days Prior to Sampling			0.00	0.02	0.00						
	1 Day Prior to Sampling			0.05	0.00	0.00						
	Day of Sampling			0.02	0.00	0.00						

Samples analyzed at Massachusetts Water Resources Authority's

(a) Average of duplicate samples.

Total Phosphorus Non-quarterly Results 2007

Site #	Description	Town	River mile	Total Phosphorus Concentrations (ng/L)						Mean	Median	Std Dev	Min	Max
				4/10/2007	5/15/2007	6/19/2007	7/17/2007	8/21/2007	9/18/2007					
35CS	Central Street Bridge	Milford	3.5		0.02 (a)	0.04	0.04	0.04	0.06	0.04	0.040	0.014	0.020	0.06
59CS	Mellen St. Bridge	Bellingham/Milford/Hopedale	5.9		0.06	0.05	0.04	0.05	0.1	0.06	0.055	0.023	0.040	0.10
90CS	Rt. 126, N. Main St.	Bellingham	9.0		0.06	0.06		0.04	0.03	0.04	0.060	0.015	0.030	0.06
130S	Maple St. Bridge	Bellingham	12.9		0.04	0.04	0.04	0.03 (a)	0.02	0.03	0.040	0.009	0.020	0.04
165S	Shaw St. Bridge	Franklin/Medway	16.5		0.04	0.06	0.04	0.03	0.04 (a)	0.04	0.040	0.011	0.030	0.06
199S	Populatic Pond Boat Launch	Norfolk	19.9		0.07	0.06	0.09	0.08	0.1	0.08	0.075	0.016	0.060	0.10
229S	Rt. 115, Baltimore St.	Norfolk/Millis	22.9	0.02	0.04 (a)	0.05	0.05	0.05	0.04	0.05	0.040	0.012	0.020	0.05
267S	Dwight St. Bridge	Millis/Medfield	26.7	0.02	0.05	0.08 (a)	0.04	0.05	0.03	0.05	0.045	0.021	0.020	0.08
269T	Causeway St. Stop River	Medfield	26.9	0.02	0.07	0.08	0.05 (a)	0.06	0.05	0.06	0.055	0.021	0.020	0.08
290S	Old Bridge St.	Millis/Medfield	29.0	0.02	0.06	0.09	0.05	0.06 (a)	0.04	0.06	0.055	0.023	0.020	0.09
318S	Rt. 27 Bridge	Medfield/Sherborn	31.8	0.01	0.06		0.05	0.12	0.08 (a)	0.06	0.060	0.040	0.010	0.12
343S	Farm Rd./Bridge St.	Sherborn/Dover	34.3	0.02		0.08	0.05		0.07	0.06	0.050	0.026	0.020	0.08
387S	Cheney Bridge	Wellesley/Natick	38.7	0.01	0.06	0.08	0.04		0.04	0.05	0.040	0.026	0.010	0.08
400S	Charles River Road Bridge	Dover/Wellesley	40.0	0.02	0.05	0.07	0.04	0.03	0.03	0.04	0.035	0.018	0.020	0.07
447S	Dover Gage	Dover	44.7	0.025 (a)	0.05	0.07	0.04	0.03	0.09	0.05	0.045	0.025	0.025	0.09
484S	Dedham Medical Center	Dedham/Needham	48.4	0.03	0.055 (a)	0.07	0.05	0.03	0.05	0.05	0.050	0.015	0.030	0.07
521S	Ames St. Bridge	Dedham	52.1	0.02	0.05	0.08 (a)	0.05	0.04	0.03	0.05	0.045	0.021	0.020	0.08
534S	Rt. 109 Bridge	Dedham/Boston	53.4	0.02	0.06	0.09	0.06 (a)	0.08	0.1	0.07	0.060	0.029	0.020	0.10
567S	Nahanton Park	Newton/Needham	56.7	0.01	0.05	0.08	0.05	0.06 (a)	0.05	0.05	0.050	0.023	0.010	0.08
591S	Rt. 9 Gaging Station	Newton	59.1	0.03	0.05	0.08	0.07	0.06	0.05 (a)	0.06	0.050	0.018	0.030	0.08
609S	Washington St. Hunnewell Bridge	Wellesley/Newton	60.9	0.02	0.04	0.07	0.05	0.04	0.04	0.04	0.040	0.016	0.020	0.07
621S	Leo J. Martin Golf Course/Park Rd.	Weston/Newton	62.1		0.04	0.08	0.05	0.04	0.04	0.04	0.040	0.017	0.040	0.08
635S	2391 Commonwealth Ave.	Newton	63.5	0.02	0.05	0.08	0.07	0.04	0.04	0.05	0.045	0.022	0.020	0.08
648S	Lakes Region	Waltham	64.8	0.02	0.05	0.08	0.06	0.05	0.04	0.05	0.050	0.020	0.020	0.08
662S	Moody St. Bridge	Waltham	66.2	0.03	0.05	0.07	0.06	0.05	0.04	0.05	0.050	0.014	0.030	0.07
675S	North St.	Waltham/Newton	67.6	0.02	0.04	0.06	0.06	0.04	0.03	0.04	0.040	0.016	0.020	0.06
012S	Watertown Dam Footbridge	Watertown	69.3	0.025 (a)	0.04	0.07	0.05	0.05	0.04	0.05	0.040	0.015	0.025	0.07
700S	N. Beacon St.	Watertown/Brighton	70.9	0.03	0.04 (a)	0.07	0.05		0.05	0.05	0.040	0.015	0.030	0.07
715S	Arsenal St.	Watertown/Brighton	71.5	0.03				0.04	0.05	0.04	0.035	0.010	0.030	0.05
729S	Eliot Bridge	Cambridge/Boston	72.9	0.03	0.05	0.08	0.05 (a)	0.05	0.08	0.06	0.050	0.020	0.030	0.08
743S	Western Ave.	Cambridge/Boston	74.3	0.03	0.06	0.07	0.05	0.06 (a)	0.07	0.06	0.060	0.015	0.030	0.07
760S	Muddy River at Comm. Ave.	Boston	76.0	0.03	0.15	0.08	0.09			0.09	0.085	0.049	0.030	0.15
763S	Mass. Ave. at Harvard Bridge	Boston/Cambridge	76.3	0.04	0.05	0.07		0.05		0.05	0.050	0.013	0.040	0.07
773S	Longfellow Bridge	Cambridge/Boston	77.3	0.03	0.04	0.07	0.04		0.12	0.06	0.040	0.037	0.030	0.12
784S	New Charles River Dam	Boston/Cambridge	78.4	0.03 (a)	0.03	0.06	0.12	0.05	0.11	0.07	0.040	0.039	0.030	0.12
Total # of samples exceeding action limit			172											
Total # of samples			189											
% of samples exceeding action limit			91%											
Action limit = 0.0238 mg/L														
QA/QC Samples														
	Equipment Blank				<0.01	<0.01	<0.01		<0.01					
	Site No.				290S	012S	675S		400S					
	Equipment Blank				<0.01	<0.01								
	Site No.				591S	229S								
Rainfall At Logan International Airport (inches)														
	3 Days Prior to Sampling			0	0	Trace	Trace	0.04	0.34					
	2 Days Prior to Sampling			0	0	0.02	Trace	0.00	0.00					
	1 Day Prior to Sampling			0	0	0	0	Trace	0.00					
	Day of Sampling			0	0.09	0	0	0.00	0.00					

- (a) Average of duplicates
- (b) Rainfall data from Muddy River USGS gauge; Logan not available
- (c) Rainfall occurred after 6:30am

* All samples analyzed by Alpha Woods Hole Labs

Sodium Results 2007

Site #	Description	Town	River mile	Sodium Concentration (mg/L)			Mean	Median	Std Dev	Min	Max
				3/20/2007	4/10/2007	5/15/2007					
35CS	Central Street Bridge	Milford	3.5	72	61	82	66.5	66.5	7.8	61.0	72.0
59CS	Mellen St. Bridge	Bellingham/Milford/Hopedale	5.9	130	81	82	97.7	82.0	28.0	81.0	130.0
90CS	Rt. 126, N. Main St.	Bellingham	9.0		67	79	73.0	73.0	8.5	67.0	79.0
130S	Maple St. Bridge	Bellingham	12.9	100	67 (a)	69 (a)	78.7	69.0	18.5	67.0	100.0
165S	Shaw St. Bridge	Franklin/Medway	16.5	78.5	(a) 55	62	65.2	62.0	12.1	55.0	78.5
199S	Populatic Pond Boat Launch	Norfolk	19.9			58	58.0	58.0	N/A	58.0	58.0
229S	Rt. 115, Baltimore St.	Norfolk/Millis	22.9	78	54	55.5	62.5	55.5	13.4	54.0	78.0
267S	Dwight St. Bridge	Millis/Medfield	26.7	76	51	55	60.7	55.0	13.4	51.0	76.0
269T	Causeway St. Stop River	Medfield	26.9	23	27	29	26.3	27.0	3.1	23.0	29.0
290S	Old Bridge St.	Millis/Medfield	29.0	65	45	48	52.7	48.0	10.8	45.0	65.0
318S	Rt. 27 Bridge	Medfield/Sherborn	31.8	51	41	44	45.3	44.0	5.1	41.0	51.0
343S	Farm Rd./Bridge St.	Sherborn/Dover	34.3	48	40		44.0	44.0	5.7	40.0	48.0
387S	Cheney Bridge	Wellesley/Natick	37.8	45 (a)	40	43	42.7	43.0	2.5	40.0	45.0
400S	Charles River Road Bridge	Dover/Wellesley	40.0	45	41	43	43.0	43.0	2.0	41.0	45.0
447S	Dover Gage	Dover	44.7		40 (a)	43 (a)	41.5	41.5	2.1	40.0	43.0
484S	Dedham Medical Center	Dedham/Needham	48.4	40	41	44	41.7	41.0	2.1	40.0	44.0
521S	Ames St. Bridge	Dedham	52.1	38	40	44	40.7	40.0	3.1	38.0	44.0
534S	Rt. 109 Bridge	Dedham/Boston	53.4	40	40	44	41.3	40.0	2.3	40.0	44.0
567S	Nahanton Park	Newton/Needham	56.7	43	41	44	42.7	43.0	1.5	41.0	44.0
591S	Rt. 9 Gaging Station	Newton	59.1	49	40	46	45.0	46.0	4.6	40.0	49.0
609S	Washington St. Hunnewell Bridge	Wellesley/Newton	60.9	51	42	47	46.7	47.0	4.5	42.0	51.0
621S	Leo J. Martin Golf Course/Park Rd.	Weston/Newton	62.1	54		47	50.5	50.5	4.9	47.0	54.0
635S	2391 Commonwealth Ave.	Newton	63.5	58	42	50	50.0	50.0	8.0	42.0	58.0
648S	Lakes Region	Waltham	64.8		43	49	46.0	46.0	4.2	43.0	49.0
662S	Moody St. Bridge	Waltham	66.2	60	43	50	51.0	50.0	8.5	43.0	60.0
675S	North St.	Waltham/Newton	67.6	65 (a)	44	52	53.7	52.0	10.6	44.0	65.0
012S	Watertown Dam Footbridge	Watertown	69.3	69	45.5 (a)	51 (a)	55.2	51.0	12.3	45.5	69.0
700S	N. Beacon St.	Watertown/Brighton	70.9	73	48	55.5	58.8	55.5	12.8	48.0	73.0
715S	Arsenal St.	Watertown/Brighton	71.5	78	49		63.5	63.5	20.5	49.0	78.0
729S	Eliot Bridge	Cambridge/Boston	72.9	86	49	57	64.0	57.0	19.5	49.0	86.0
743S	Western Ave	Cambridge/Boston	74.3	96	50	57	67.7	57.0	24.8	50.0	96.0
760S	Muddy River at Comm. Ave.	Boston	76.0	200	64	100	121.3	100.0	70.5	64.0	200.0
763S	Mass. Ave. at Harvard Bridge	Boston/Cambridge	76.3		68	64	66.0	66.0	2.8	64.0	68.0
773S	Longfellow Bridge	Cambridge/Boston	77.3	180 (a)	71	64	105.0	71.0	65.0	64.0	180.0
784S	New Charles River Dam	Boston/Cambridge	78.4	280	130 (a)	160 (a)	190.0	160.0	79.4	130.0	280.0
Total # of samples exceeding action limit			95								
Total # of samples			95								
% of samples exceeding action limit			100%								
Action limit = 20 mg/L											
QA/QC Samples											
Equipment Blank			28	<2							
Site No.			662S	290S							
Equipment Blank				<2							
Site No.				591S							
Rainfall At Logan International Airport (inches)											
3 Days Prior to Sampling			1.46	0.0	0						
2 Days Prior to Sampling			0	0.0	0						
1 Day Prior to Sampling			0.05	0.0	0						
Day of Sampling			0.02	0.0	0.09						

All Samples Analyzed at Alpha Woods Hole Labs
(a) Average of duplicate samples.

Total Suspended Solids 2007

Site #	Description	Town	River Mile	Total Suspended Solids (mg/L)			Mean	Median	Std Dev	Min	Max
				3/20/2007	4/10/2007	5/15/2007					
35CS	Central Street Bridge	Milford	3.5	<5	1.2		1.9	1.9	0.9	1.2	2.5
59CS	Mellen Street Bridge	Bellingham	5.9	<5	2.1	3.6	2.7	2.5	0.8	2.1	3.6
90CS	Rt. 126, N. Main St	Bellingham	9.0		1.6	1.9	1.8	1.8	0.2	1.6	1.9
130S	Maple St Bridge	Bellingham	12.9	<5	1.25 (a)	4.0	2.6	2.5	1.4	1.3	4.0
165S	Shaw St Bridge	Medway/Franklin	16.5	<5 (a)	2.2	3.6	2.8	2.5	0.7	2.2	3.6
199S	Populatic Pond Boat Launch	Norfolk	19.9			15.0	15.0	15.0		15.0	15.0
229S	Rt 115, Baltimore St	Norfolk/Millis	22.9	<5	1.4	2.5 (a)	2.1	2.5	0.6	1.4	2.5
267S	Dwight St Bridge	Millis	26.7	7.2	1.8	7.0	5.3	7.0	3.1	1.8	7.2
269T	Stop River @ Causeway St	Medfield	26.9	<5	<1	5.0	2.7	2.5	2.3	0.5	5.0
290S	Old Bridge St	Medfield	29.0	<5	1.4	5.4	3.1	2.5	2.1	1.4	5.4
318S	Rte. 27 Bridge	Medfield	31.8	9.4	1.1	5.2	5.2	5.2	4.2	1.1	9.4
343S	Farm Rd/Bridge St	Sherborn/Dover	34.3	<5	<1	3.6	2.2	2.5	1.6	0.5	3.6
387S	Cheney Bridge	Wellesley	37.8	<5 (a)	1.4	2.2	2.0	2.2	0.6	1.4	2.5
400S	Charles River Rd Bridge	Dover	40.0	<5	1.6	2.2	2.1	2.2	0.5	1.6	2.5
447S	Dover Gage	Dover	44.7		1.55 (a)	2.2	1.9	1.9	0.5	1.6	2.2
484S	Dedham Medical Center	Dedham	48.4	<5	2.0	2.55 (a)	2.4	2.5	0.3	2.0	2.6
521S	Ames St Bridge	Dedham	52.1	<5	2.1	3.4	2.7	2.5	0.7	2.1	3.4
534S	Rte 109 Bridge	Dedham	53.4	<5	2.9	8.4	4.6	2.9	3.3	2.5	8.4
567S	Nahanton Park	Newton	56.7	<5	4.6	7.7	4.9	4.6	2.6	2.5	7.7
591S	Rte 9 Gaging Station	Newton	59.1	<5	3.9	5.1	3.8	3.9	1.3	2.5	5.1
609S	Washington St/Hunnewell Br	Wellesley	60.9	<5	2.6	4.1	3.1	2.6	0.9	2.5	4.1
621S	Leo J. Martin Golf Course	Weston	62.1	<5		4.5	3.5	3.5	1.4	2.5	4.5
635S	2391 Commonwealth	Newton	63.5	<5	2.8	5.3	3.5	2.8	1.5	2.5	5.3
648S	Lakes Region	Waltham	64.8		2.3	5.1	3.7	3.7	2.0	2.3	5.1
662S	Moody St Bridge	Waltham	66.2	<5	3.9	3.7	3.4	3.7	0.8	2.5	3.9
675S	North St	Waltham	67.6	<5 (a)	3.4	6.1	4.0	3.4	1.9	2.5	6.1
012S	Watertown Dam Footbridge	Watertown	69.3	<5	3.55 (a)	1.5	2.5	2.5	1.0	1.5	3.6
700S	N. Beacon St	Newton	70.9	<5	4.1	4.4 (a)	3.7	4.1	1.0	2.5	4.4
715S	Arsenal St	Brighton	71.5	<5	4.5		3.5	3.5	1.4	2.5	4.5
729S	Elliot Bridge	Cambridge	72.9	<5	3.7	6.3	4.2	3.7	1.9	2.5	6.3
743S	Western Ave	Cambridge	74.3	<5	5.1	6.1	4.6	5.1	1.9	2.5	6.1
760S	Muddy River/Back Bay Fens	Boston	76.0	<5	3.1	13.0	6.2	3.1	5.9	2.5	13.0
763S	Mass Ave @ Harvard Bridge	Boston	76.3	<5	4.6	6.4	4.5	4.6	2.0	2.5	6.4
773S	Longfellow Bridge	Boston	77.3	<5 (a)	3.0	2.9	2.8	2.9	0.3	2.5	3.0
784S	New Charles River Dam	Boston	78.4	<5	2.95 (a)	1.9	2.5	2.5	0.5	1.9	3.0
Total # of samples exceeding action limit			0								
Total # of samples			97								
% of samples exceeding action limit			0%								
Action limit = 0.3 mg/L											
QA/QC Samples											
	Equipment Blank			<5	<1	<1					
	Site No.			269T	662S	290S					
	Equipment Blank					<1					
	Site No.					591S					
Rainfall At Logan International Airport (inches)											
	3 Days Prior to Sampling			1.46	0.00	0.00					
	2 Days Prior to Sampling			0.00	0.00	0.00					
	1 Day Prior to Sampling			0.05	0.00	0.00					
	Day of Sampling			0.02	0.00	0.09					

(a) Average of duplicates

Temperature 2007

Site #	Description	Town	River mile	Temperature degrees (c°)												Mean	Median	Std Dev	Min	Max
				1/23/2007	2/13/2007	3/20/2007	4/10/2007	5/15/2007	6/19/2007	7/17/2007	8/21/2007	9/18/2007	10/16/2007	11/20/2007	12/18/2007					
35CS	Central Street Bridge	Milford	3.5			5	5	13	22	19	15	12	12	5						
35CD	Discharge Pipe @ Central St.	Milford	3.5	Sampling cancelled due to freezing conditions or otherwise inclement weather	Sampling cancelled due to freezing conditions or otherwise inclement weather															
35C2	2nd Discharge Pipe @ Central St.	Milford	3.5			5	5													
59CS	Mellen St. Bridge	Bellingham/Milford/Hopedale	5.9			4	6.5		19.5	21	20	18	17	10						
90CS	Rt. 126, N. Main St.	Bellingham	9.0				6		21		17	15	13	4.5						
130S	Maple St. Bridge	Bellingham	12.9			1	5	14	21.5	22	15.5		10	2						
165S	Shaw St. Bridge	Franklin/Medway	16.5			4		18	23	24	17	13	10	5						
199S	Populatic Pond Boat Launch	Norfolk	19.9					17	22	25	20	15	14							
229S	Rt. 115, Baltimore St.	Norfolk/Milllis	22.9			0.5	5.5	15.5	22	25	18	15	8	4						
267S	Dwight St. Bridge	Millis/Medfield	26.7			0	5	16	24	24	19.0	14.5	11							
269T	Causeway St. Stop River	Medfield	26.9			0.5	17	15	21	22.5	17.5	12.5	11	3						
290S	Old Bridge St.	Millis/Medfield	29.0			1	5.5	16	21.5	24.5	20	14	12	3						
318S	Rt. 27 Bridge	Medfield/Sherborn	31.8			2	10	17.5	21	25	19	9	12	4						
343S	Farm Rd./Bridge St.	Sherborn/Dover	34.3			1.5	6	18	22	25	21		14							
387S	S. Natick Dam	Wellesley/Natick	37.8			1.5	7	14	22	21		15		3						
400S	Charles River Road Bridge	Dover/Wellesley	40.0			2	6	16	22	25	19	12		4						
447S	Dover Gage	Dover	44.7				5	18	23	25	20	15	13	4						
484S	Dedham Medical Center	Dedham/Needham	48.4			1.5	6.5	17.5	21.5	25	19	16	12	4						
521S	Ames St. Bridge	Dedham	52.1			2	3	18	23	25	20	16	11	3						
534S	Rt. 109 Bridge	Dedham/Boston	53.4			2	6	16.5	22.5	27	21	18		5.5						
567S	Nahant Park	Newton/Needham	56.7			3	6	18	22	27	20	16	11	5						
591S	Rt. 9 Gaging Station	Newton	59.1			2.5	4.5	16	22	25	17	12	12.5	4						
609S	Washington St. Hunnewell Bridge	Wellesley/Newton	60.9			1	6	18	21.5	25	20.5	14	11.5	4						
621S	Leo J. Martin Golf Course/Park Rd.	Weston/Newton	62.1			1		15	20	24	16	11	10	2						
635S	2391 Commonwealth Ave.	Newton	63.5			2	5	18.5	23	25	18	15.5	12	4						
648S	Lakes Region	Waltham	64.8				4		20	23		15.5	12.5							
662S	Moody St. Bridge	Waltham	66.2			6	6	18	24		20	16	12	3						
675S	North St.	Waltham/Newton	67.6			3		17	21	25	18	16	16	6						
012S	Watertown Dam Footbridge	Watertown	69.3			3	7	18	22	25	20	17	13.5	5						
700S	N. Beacon St.	Watertown/Brighton	70.9			5	9	18	22	26		18	14	6						
715S	Arsenal St.	Watertown/Brighton	71.5			5	6				20	14	14.5	3						
729S	Eliot Bridge	Cambridge/Boston	72.9			2	5.5	16.1	22.2	24	21.5	18	14.5	4.5						
743S	Western Ave.	Cambridge/Boston	74.3			4	5	17	21	25	22	18	13	4						
760T	Muddy River at Comm. Ave.	Boston	76.0			4	6.0	7	23.5	24.5	19	11	12							
763S	Mass. Ave. at Harvard Bridge	Boston/Cambridge	76.3			3	4		21		20			4						
773S	Longfellow Bridge	Cambridge/Boston	77.3			3	5	16	22	23		17	16	3						
784S	New Charles River Dam	Boston/Cambridge	78.4			4.5	7	18.5	24	26	24	22	18	9						
Rainfall At Logan International Airport (inches)																				
	3 Days Prior to Sampling					1.46	0.00	0.00	Trace	Trace	0.04	0.34	0.04	0.00						
	2 Days Prior to Sampling					0	0.00	0	0.02	Trace	0.00	0.00	0.00	0.00						
	1 Day Prior to Sampling					0.05	0.00	0	0.00	0.00	Trace	0.00	0.00	Trace						
	Day of Sampling					0.02	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.08						

Depth 2007

Site #	Description	Town	River mile	Depth (feet)											Mean	Median	StdDev	Min	Max		
				1/23/2007	2/13/2007	3/20/2007	4/10/2007	5/15/2007	6/19/2007	7/17/2007	8/21/2007	9/18/2007	10/16/2007	11/20/2007						12/18/2007	
35CS	Central Street Bridge	Milford	3.5	Sampling	Sampling	2.3	1.8	1	1	0.8	0.8	0.7	0.7	0.9	Sampling	1.1	0.9	0.6	0.7	2.3	
59CS	Mellen St. Bridge	Bellingham/Milford/Hopedale	5.9	cancelled due	cancelled due	1.8	1.8	1.3	1.2	0.8	0.8	1.0	1.0	1.0	cancelled due	1.2	1.0	0.4	0.8	1.8	
90CS	Rt. 126, N. Main St.	Bellingham	9.0	to freezing	to freezing		1.9		2.2		1.3	1.1	1.1	1.0	to freezing	1.4	1.2	0.5	1.0	2.2	
130S	Maple St. Bridge	Bellingham	12.9	conditions or	conditions or	1.3	1.2	0.8	0.8	0.5	0.5	0.4	0.5	0.6	conditions or	0.7	0.6	0.3	0.4	1.3	
165S	Shaw St. Bridge	Franklin/Medway	16.5	otherwise	otherwise	2.5	4.5		2.4	1.8	0.8	1.3	1.2	0.9	otherwise	1.9	1.5	1.2	0.8	4.5	
199S	Populatic Pond Boat Launch	Norfolk	19.9	inclement	inclement										inclement						
229S	Rt. 115, Baltimore St.	Norfolk/Millis	22.9	weather	weather	6.1	4.4	3.2	3.5	2.1	1.8	1.8	1.8	1.8	weather	2.9	2.1	1.5	1.8	6.1	
267S	Dwight St. Bridge	Millis/Medfield	26.7			3.8	4.5	1.8	1.5	0.7	0.1	1.2				1.9	1.5	1.6	0.1	4.5	
269T	Causeway St. Stop River	Medfield	26.9			4.4	4.9	2.4	1.8	1.2	1.1	1.3	0.8	0.8		2.1	1.3	1.5	0.8	4.9	
290S	Old Bridge St.	Millis/Medfield	29.0			9.5	9.9	7.3	7.9	5.7	4.9	5.0	5.5	5.5		6.8	5.7	1.9	4.9	9.9	
318S	Rt. 27 Bridge	Medfield/Sherborn	31.8				6.0	6.5		5.2	3.8	5.5	3.6	5.0		5.1	5.2	1.1	3.6	6.5	
343S	Farm Rd./Bridge St.	Sherborn/Dover	34.3			8.1	7.7	6.2	5.9	4.9	3.7		4.1			5.8	5.9	1.7	3.7	8.1	
387S	S. Natick Dam	Wellesley/Natick	37.8			2.8	6.8	5.9	1.1	4.3		4.5		4.5		4.3	4.5	1.9	1.1	6.8	
400S	Charles River Road Bridge	Dover/Wellesley	40.0			7.4	7.6	6.3	6.0	6.2	5.9	5.8		5.1		6.3	6.1	0.8	5.1	7.6	
447S	Dover Gage	Dover	44.7					2.0	2	1.7	1.4	1.6	1.5	1.8		1.7	1.7	0.2	1.4	2.0	
484S	Dedham Medical Center	Dedham/Needham	48.4			5.1	5.4	4.4	3.5	3.0	2.6	2.5	1.9	3.0		3.5	3.0	1.2	1.9	5.4	
521S	Ames St. Bridge	Dedham	52.1			4.4	4.5	3.6	3.3	3.2	2.9	2.6	2.0	3.8		3.4	3.3	0.8	2.0	4.5	
534S	Rt. 109 Bridge	Dedham/Boston	53.4			6.3	7.3	6.0	5.9	5.7	5.1	5.2	4.3	5.6		5.7	5.7	0.9	4.3	7.3	
567S	Nahanton Park	Newton/Needham	56.7			7.5	8.0	7.5	7	7.0	6.8	6.3	5.2	7.2		6.9	7.0	0.8	5.2	8.0	
591S	Rt. 9 Gaging Station	Newton	59.1						4.9					1.1		3.0	3.0	2.7	1.1	4.9	
609S	Washington St. Hunnewell Bridge	Wellesley/Newton	60.9																		
621S	Leo J. Martin Golf Course/Park Rd.	Weston/Newton	62.1			6.1		5.8	4.8	5.3	4.9	5.0	5.2	5.7		5.3	5.2	0.5	4.8	6.1	
635S	2391 Commonwealth Ave.	Newton	63.5			4.8	4.9	4.8	4.3	3.9	3.7	3.6	3.6	4.2		4.2	4.2	0.5	3.6	4.9	
648S	Lakes Region	Waltham	64.8				9.5	9.3	8.6	8.6	8.4	8.6	8.0			8.7	8.6	0.5	8.0	9.5	
662S	Moody St. Bridge	Waltham	66.2			9	9.5	9.0	9		9.0	9.1	8.9	9.0		9.1	9.0	0.2	8.9	9.5	
675S	North St.	Waltham/Newton	67.6			3		2.1	2.1	1.0	1.0	0.9	1.2	1.3		1.6	1.2	0.8	0.9	3.0	
012S	Watertown Dam Footbridge	Watertown	69.3			3.6	3.8	3.0	3.0	2.9	2.4	2.5	2.8	2.9		3.0	2.9	0.5	2.4	3.8	
700S	N. Beacon St.	Watertown/Brighton	70.9			7.8	8.4	8.4	8.7	8.8		7.9	8.7	8.2		8.4	8.4	0.4	7.8	8.8	
715S	Arsenal St.	Watertown/Brighton	71.5			9.3						7.9	8.7	7.6		8.4	8.3	0.8	7.6	9.3	
729S	Eliot Bridge	Cambridge/Boston	72.9			11.2	13.6	14.2	14.8	13.9	15.4	13.9	15.9	14.4		14.1	14.2	1.3	11.2	15.9	
743S	Western Ave.	Cambridge/Boston	74.3			14.6	13.5	13.8	18	14.5	14.4	14.6	14.9	13.0		14.6	14.5	1.4	13.0	18.0	
760T	Muddy River at Comm. Ave.	Boston	76.0			6.0	6.1	6.3	6.5	7.2	6.6	7.0	6.6			6.5	6.5	0.4	6.0	7.2	
763S	Mass. Ave. at Harvard Bridge	Boston/Cambridge	76.3					1.5	18.0	16		17.1		11.0		12.7	16.0	6.8	1.5	18.0	
773S	Longfellow Bridge	Cambridge/Boston	77.3			6.3	5.9	6.3				6.4	6.2	6.9		6.3	6.3	0.3	5.9	6.9	
784S	New Charles River Dam	Boston/Cambridge	78.4			2.1	25	24.3	24.9	24.4	25.8	14.3	25.6	25.3		21.3	24.9	8.0	2.1	25.8	
Rainfall At Logan International Airport (inches)																					
						1.46	0.00	0.00	Trace	Trace	0.04	0.34	0.04	0.00							
						0	0.00	0	0.02	Trace	0.00	0.00	0.00	0.00							
						0.05	0.00	0	0.00	0.00	Trace	0.00	0.00	Trace							
						0.02	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.08							