

Charles River Monthly Monitoring Program

2008 Year-End Report

Submitted by:

Charles River Watershed Association
190 Park Road
Weston, Massachusetts 02493

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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 outreach and education. Monitoring of the Charles River is extremely important in helping us comprehend the complex hydrological, biological and chemical interactions in the watershed, to identify and resolve problem areas and to track trends in water quality 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 to observe river conditions. CRWA's Monthly Volunteer 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 Volunteer Monitoring Program involves river monitoring at 35 sampling sites spanning the entire 80-mile stretch of the Charles River, including two sites 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 are analyzed for *E. coli* bacteria concentrations on a monthly basis at all sites, while various nutrient parameters, such as chlorophyll *a* and different chemical forms of nitrogen and phosphorus, are monitored on a quarterly basis (March, June, September and December) at 12 sites. 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 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 in 2008.

Figure 1: Charles River Watershed Monthly Volunteer Monitoring Program Sampling Locations

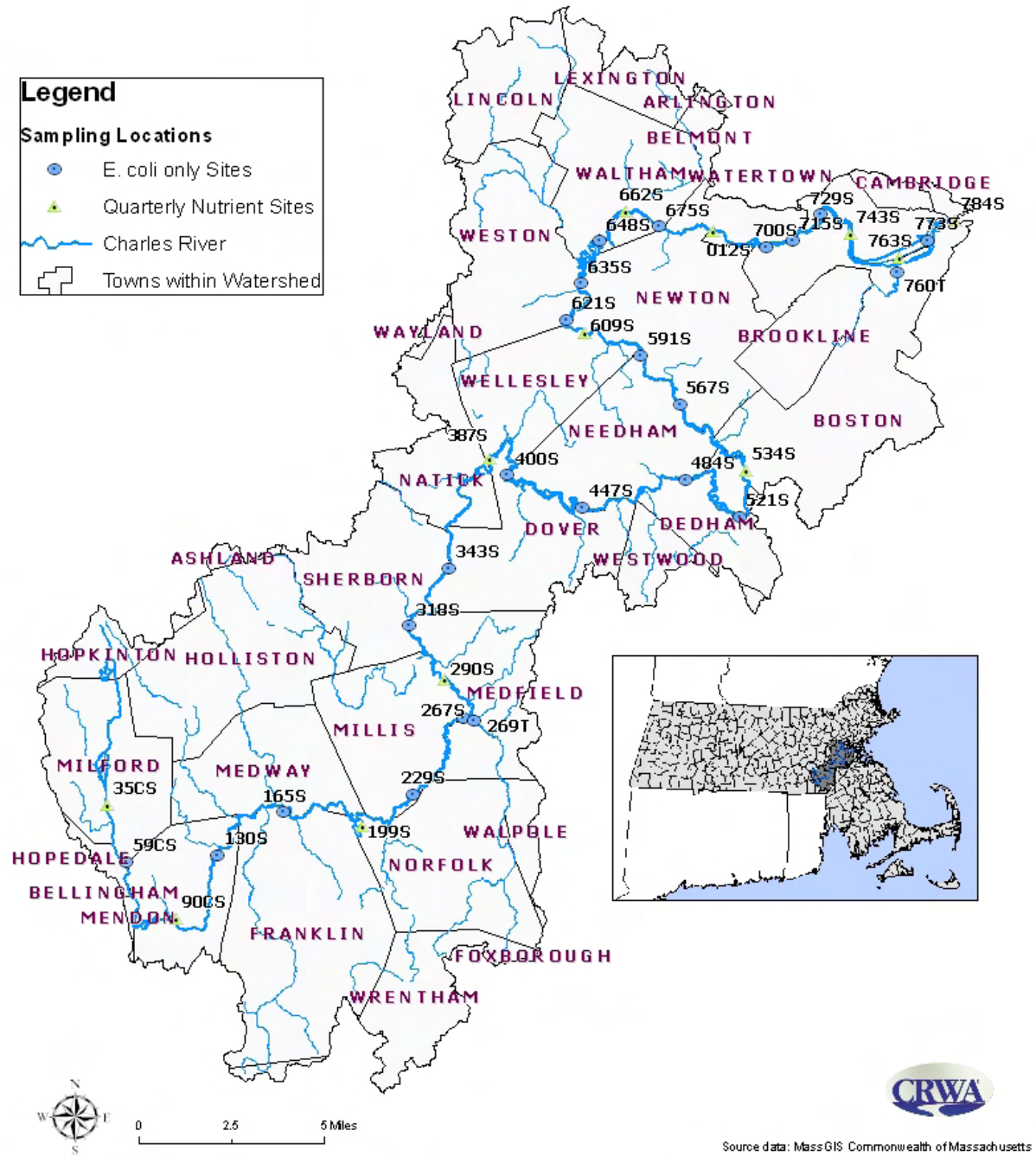


Table 1: Charles River Monthly Monitoring Program Sampling Location

| 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/Elm Street Bridge | Medway/Franklin |
| 199S | Populatic Pond Boat Launch | Norfolk |
| 229S | Route 115, Baltimore Street | Millis |
| 267S | Dwight Street Bridge | Millis |
| 269T | Causeway Street/Stop River | Medfield |
| 290S | Old Bridge Street | Medfield |
| 318S | Route 27 Bridge | Medfield |
| 343S | Farm Road/Bridge Street | Sherborn/Dover |
| 387S | Cheney Drive 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 | Watertown/Brighton |
| 715S | Arsenal Street | Watertown/Brighton |
| 729S | Elliot Street | Cambridge |
| 743S | Western Avenue | Cambridge |
| 760T | Muddy River/Back Bay Fens | Boston |
| 763S | Harvard Bridge | Boston |
| 773S | Longfellow Bridge | Cambridge |
| 784S | New Charles River Dam | Boston |

2.0 Water Quality Results

Monitoring was conducted in ten out of twelve months in 2008. Monitoring was not conducted in January or February of 2008 due to cold temperatures and frozen river conditions. Table 2 summarizes sampling dates, weather conditions and sampling parameters for the ten sampling months. 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 the 3 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 3 days.

Table 2: Summary of 2008 Sampling Events

| Sampling Date | Wet or Dry | Parameters Analyzed |
|---------------|--|--|
| 1/15/2008 | <i>Cancelled due to inclement weather</i> | |
| 2/12/2008 | <i>Cancelled due to inclement weather</i> | |
| 3/18/2008 | Wet (0.30" of rain in preceding 3 days) | <i>E. coli</i> , Nitrate-Nitrite*, Orthophosphate*, Ammonia*, Total Phosphorus*, Total Nitrogen*, Chlorophyll <i>a</i> *, Phaeophytin*, Enterococcus*, TSS |
| 4/15/2008 | Wet (0.45" of rain in preceding 3 days) | <i>E. coli</i> , TSS |
| 5/20/2008 | Wet (0.44" of rain in preceding 3 days) | <i>E. coli</i> , TSS |
| 6/24/2008 | Wet (1.24" of rain in preceding 3 days) | <i>E. coli</i> , Nitrate-Nitrite*, Orthophosphate*, Ammonia*, Total Phosphorus*, Total Nitrogen*, Chlorophyll <i>a</i> *, Phaeophytin*, Enterococcus* |
| 7/15/2008 | Dry | <i>E. coli</i> , Total Phosphorus, Chlorophyll <i>a</i> |
| 8/19/2008 | Dry | <i>E. coli</i> , Nitrate-Nitrite*, Orthophosphate*, Ammonia*, Total Phosphorus, Total Nitrogen*, Chlorophyll <i>a</i> , Phaeophytin, Enterococcus |
| 9/16/2008 | Wet (0.35" of rain in preceding 3 days) | <i>E. coli</i> , Nitrate-Nitrite, Orthophosphate, Ammonia, Total Phosphorus, Total Nitrogen, Chlorophyll <i>a</i> , Phaeophytin*, Enterococcus* |
| 10/14/2008 | Dry | <i>E. coli</i> |
| 11/18/2008 | Wet (0.47" of rain in preceding 3 days) | <i>E. coli</i> |
| 12/16/2008 | Dry | <i>E. coli</i> , Nitrate-Nitrite*, Orthophosphate*, Ammonia*, Total Phosphorus*, Total Nitrogen*, Chlorophyll <i>a</i> *, Phaeophytin*, Enterococcus* |

* Only at twelve nutrient sites

Table 3 shows the action limits for all of the parameters analyzed by CRWA. An action limit is a numerical value for a given parameter that alerts CRWA to 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 monitoring program involves monthly collection of samples at every site 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. This year, we also took samples for nutrient parameters in August. 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. These results are discussed below.

***E. coli* Bacteria**

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. *E. coli* is present in the digestive tracts of warm-blooded mammals and increased presence in the river can indicate presence of fecal matter. *E. coli* levels are compared to the State Surface Water Quality Standards for primary (swimming) and secondary (boating) contact recreation. In January 2007, Mass DEP revised and approved the changes to the state standards which included changing the indicator bacteria from fecal coliform to *E. coli*. These standards are used to determine when the river is safe for human use.

In 2008, a total of 323 *E. coli* samples were collected; of these samples, 57% met, or fell below, the state swimming standard of 126 colony forming units (cfu) per 100 millimeters of water (mL), and 87% met the state boating standard (630 cfu/100mL of water) (Table 4). The March, April, May, June, September and November 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, 46.5% and 82.2% of samples met the state swimming and boating standards, respectively. During wet weather, 64.4% of samples met the state swimming standard, while 90.2% of samples met the state boating standards (Table 4). Figure 2 shows the average *E. coli* concentrations at each sampling location for 2008.

In 2008, monthly water quality monitoring was conducted ten out of twelve months; only four of the ten monitoring events occurred during dry weather, which may have skewed the percentages of the time the river met the swimming and boating standards. December was technically a dry weather event although there was approximately 3.5 inches of rain four days prior to the sampling event. The water quality was still likely affected by this large rainfall event. If December is classified as a wet weather event instead of a dry weather event, then during wet weather events 55.8% of samples met the state swimming standard, while 83.0% met the state boating standard, and during dry weather 60.6% met the state swimming standard, while 96.0% met the state boating standard. Figure 3 shows the percentage of time the river met the swimming standard in wet and dry weather, from 1995 to 2008.

In the Lower Charles River Basin, the area of the river stretching from Watertown Dam (site 012S) to the New Charles Dam (site 784S), 29.7% of all the samples were within the state swimming standard and 86.5% were within the boating standard. During the six wet weather events, 26.7% and 82.2% of samples collected in the Basin fell within swimming and boating standards, respectively. During the four dry weather events, 34.4% of samples met the swimming standard and 93.1% met the boating standard (Table 5 and Figure 4).

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 the report.

Table 4: Summary of Charles River 2008 *E. coli* Results

| Description | 3/18/2008 | 4/15/2008 | 5/20/2008 | 6/24/2008 | 7/15/2008 | 8/19/2008 | 9/16/2008 | 10/14/2008 | 11/18/2008 | 12/16/2008 | Total |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|-------------------|--------------|
| # Samples Met Swimming Standard | 24 | 27 | 24 | 12 | 15 | 21 | 17 | 24 | 21 | 0 | 185 |
| # Samples Met Boating Standard | 32 | 31 | 31 | 18 | 30 | 33 | 34 | 32 | 29 | 11 | 281 |
| # Sites Sampled | 32 | 33 | 31 | 33 | 33 | 34 | 34 | 32 | 31 | 30 | 323 |
| % Met Swimming Standard | 75% | 81.82% | 77.42% | 36.36% | 45.45% | 61.76% | 50.00% | 75.00% | 67.74% | 0.00% | 57.28% |
| %Met Boating Standard | 100.00% | 93.94% | 100.00% | 54.55% | 90.91% | 97.06% | 100.00% | 100.00% | 93.55% | 36.67% | 87.00% |
| Rainfall at Logan International Airport (inches) | | | | | | | | | | | |
| 3 Days Prior to Sampling | 0.31 | 0.45 | 0.44 | 0.00 | 0.00 | Trace | 0.00 | 0.00 | 0.47 | 0.00 | 1.67 |
| 2 Days Prior to Sampling | Trace | 0.01 | Trace | Trace | 0.00 | 0.00 | 0.35 | 0.00 | 0.37 | 0.00 | 0.73 |
| 1 Day Prior to Sampling | 0.00 | 0.00 | 0.00 | 0.46 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.53 |
| Day of Sampling | Trace | 0.00 | Trace | 0.78 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 | 0.81 |
| Wet or Dry | Wet | Wet | Wet | Wet | Dry | Dry | Wet | Dry | Wet | Dry | |

Figure 2: Mean *E. coli* Concentrations by Site for 2008

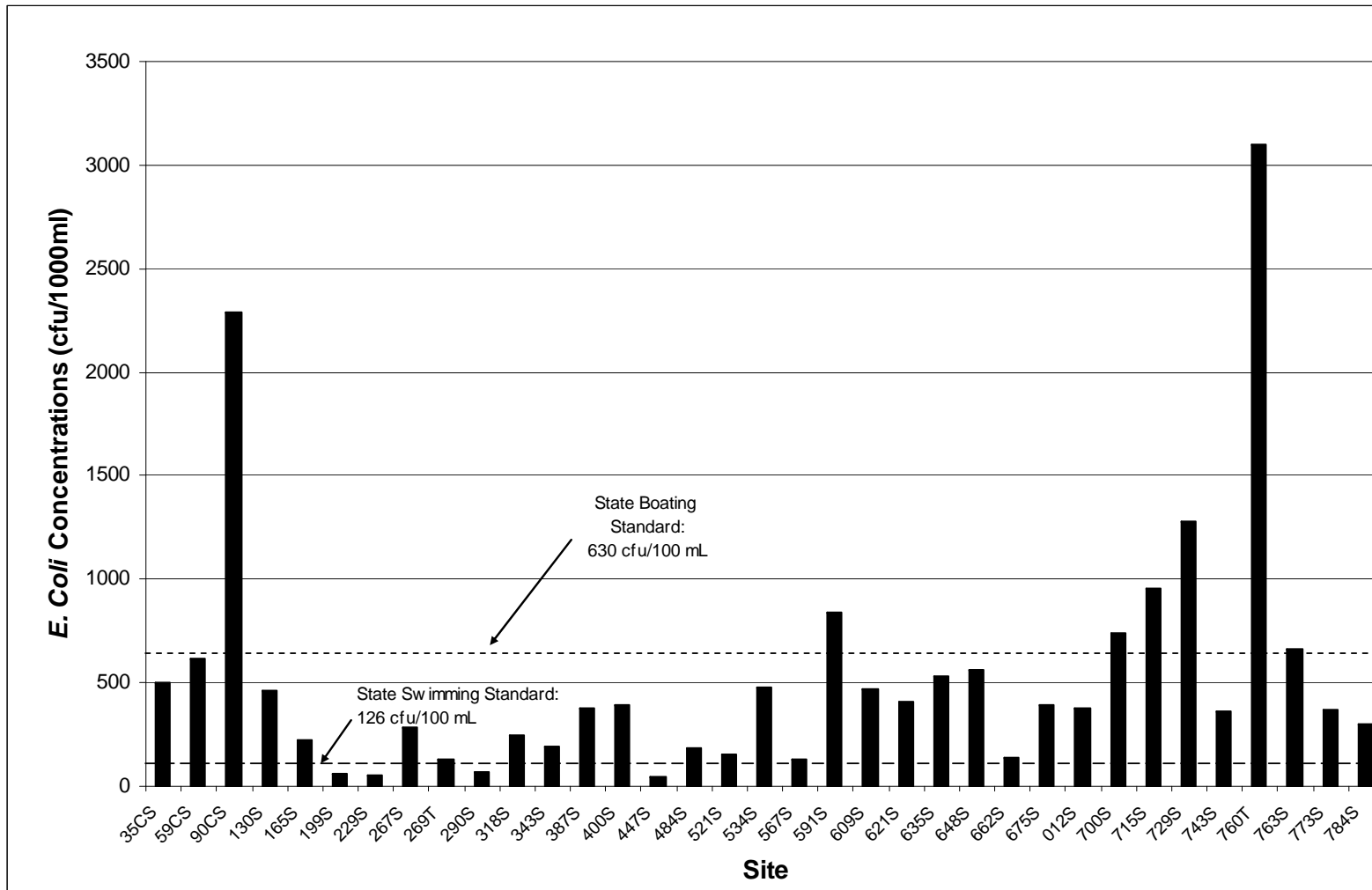


Table 5: Percentage of Time the Lower Charles Basin Met Bacteria Standards (1995-2008)

| | Overall | | Dry Weather | | Wet Weather | | EPA 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++ |
| 2008 | 30 | 86 | 34 | 93 | 27 | 82 | 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; only two 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. Since 2005, 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 River Met Swimming Standard in Wet and Dry Weather (1995-2008)

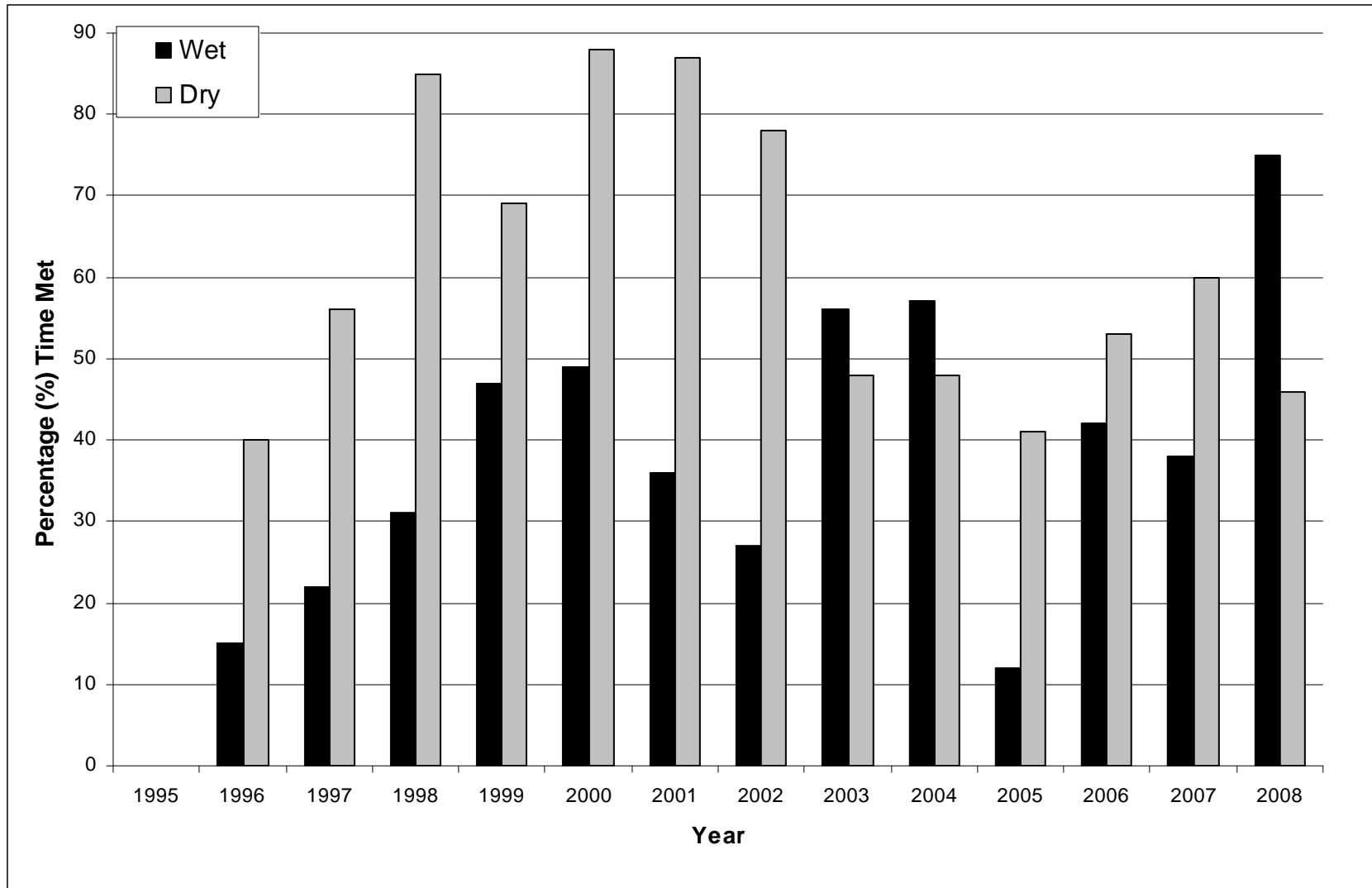
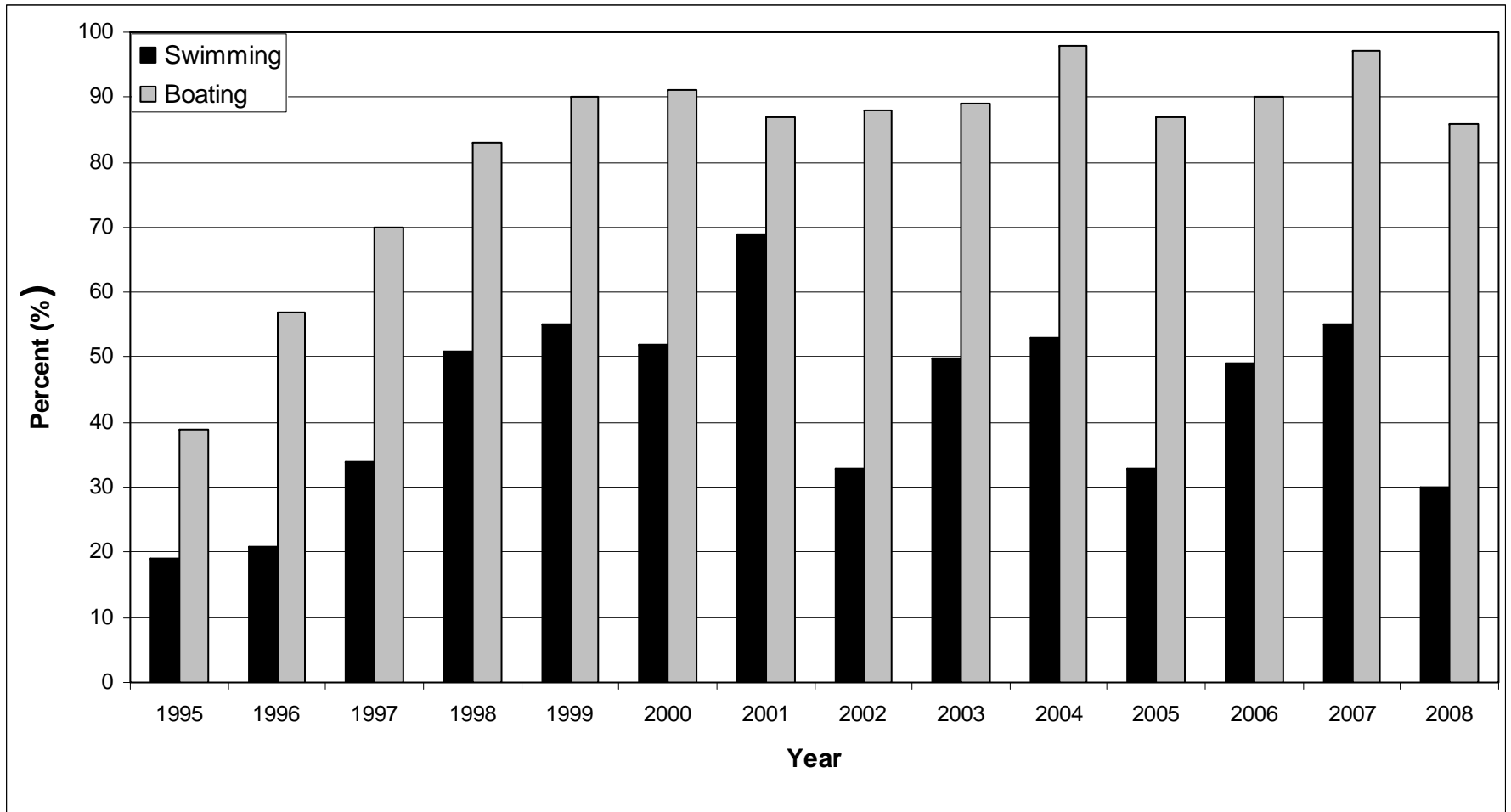


Figure 4: Percentage of Time Lower Charles River Basin *E. coli* Concentration Met Bacteria Standards (1995-2008)



Phosphorus

Phosphorus is a natural part of any aquatic system and an essential component of primary production or photosynthesis. In fresh water systems like the Charles River, phosphorus is the 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, human activities add excess phosphorus to the Charles River, and even minor increases in the phosphorus concentration of the river can cause eutrophication, the overgrowth of vegetation.

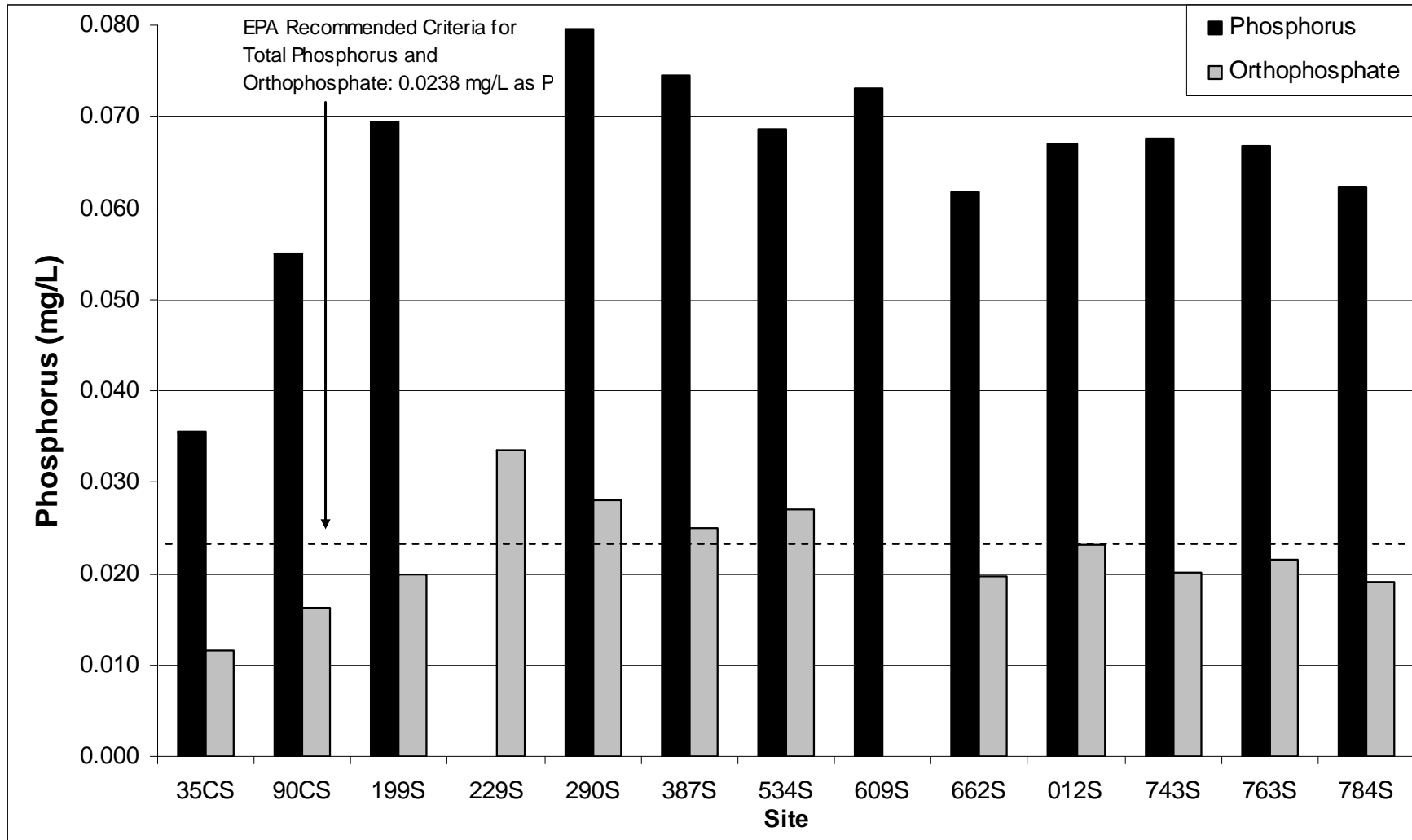
The primary sources of phosphorus to the Charles River are stormwater runoff, discharges from wastewater treatment plants and combined sewer overflows. Of these, stormwater is by far the largest contributor. Phosphorus is found in fertilizers, detergents used to wash cars and pets outdoors, loose sediment, automobile exhaust and animal waste, all of which contribute to stormwater runoff. Due to common human activities and natural abundance, phosphorus is ubiquitous in the environment and 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 depleting oxygen concentrations in the water column suffocating (oxygen dependent) organisms such as 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.

Many stretches of the Charles River are listed as impaired for nutrients in the Massachusetts Year 2006 Integrated List of Waters, which identifies 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 maximum load of phosphorus and other nutrients the river can receive and still attain its designated use. Data collected from this Monthly Volunteer Monitoring Program has been invaluable to CRWA's total maximum daily load (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 2008, 55 total phosphorus samples were collected, of which 87.3% exceeded the EPA recommended criterion of 0.0238 milligrams per liter (mg/L) (US EPA, 2000). Of the 55 orthophosphate tests, only 42% exceeded the EPA's recommended criterion for orthophosphate (0.0238 mg/L). Figure 5 displays mean concentration by site for 2008. Phosphorus parameter 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 of Water Quality Tables at the end of this report.

Figure 5: Mean Charles River Phosphorus Concentrations by Site 2008



Nitrogen

CRWA tests the river for ammonia, nitrate-nitrite and total nitrogen. These forms of nitrogen originate from atmospheric deposition of automobile emissions and power plant emissions, wastewater treatment plants, septic systems, animal wastes and fertilizers. Ammonia is commonly found in untreated sewage and also illicit connections of sewage to stormwater drainage systems. 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 2008, 55 samples were collected and analyzed for ammonia. Only one sample (or 1.82%) exceeded EPA's recommended criterion of 0.30 mg/L for ambient waters in New England (Figure 6) (US EPA, 2000). Of the 55 nitrate-nitrite samples, however, 90.0% exceeded criterion of 0.31 mg/L (Figure 5). Of the 55 total nitrogen samples, all but one (or 98.2%) exceeded EPA's recommended criterion of 0.57 mg/L for total nitrogen (Figure 6). 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 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 dependent on oxygen availability for their survival. Of the 56 chlorophyll *a* samples, 31 (or 55.4%) exceeded the EPA recommended criteria of 0.00375 mg/L (US EPA, 2000). The March sampling event had the highest percentage of samples exceeding this limit with 91.7%, or 11 out of 12 sites exceeding the limit. Nine samples exceeded this limit during the June sampling event, seven exceeded this limit during the August event, four exceeded the limit during the September event, and none exceeding this limit during the December event. These results are in-line with typical algae growth pattern which usually consist of large blooms in the spring time 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 March, the concentrations being observed are indicative of eutrophic conditions. Figure 7 shows 2008 mean chlorophyll *a* concentrations for twelve nutrient sites.

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 6: Mean Charles River Nitrogen Concentrations by Site 2008

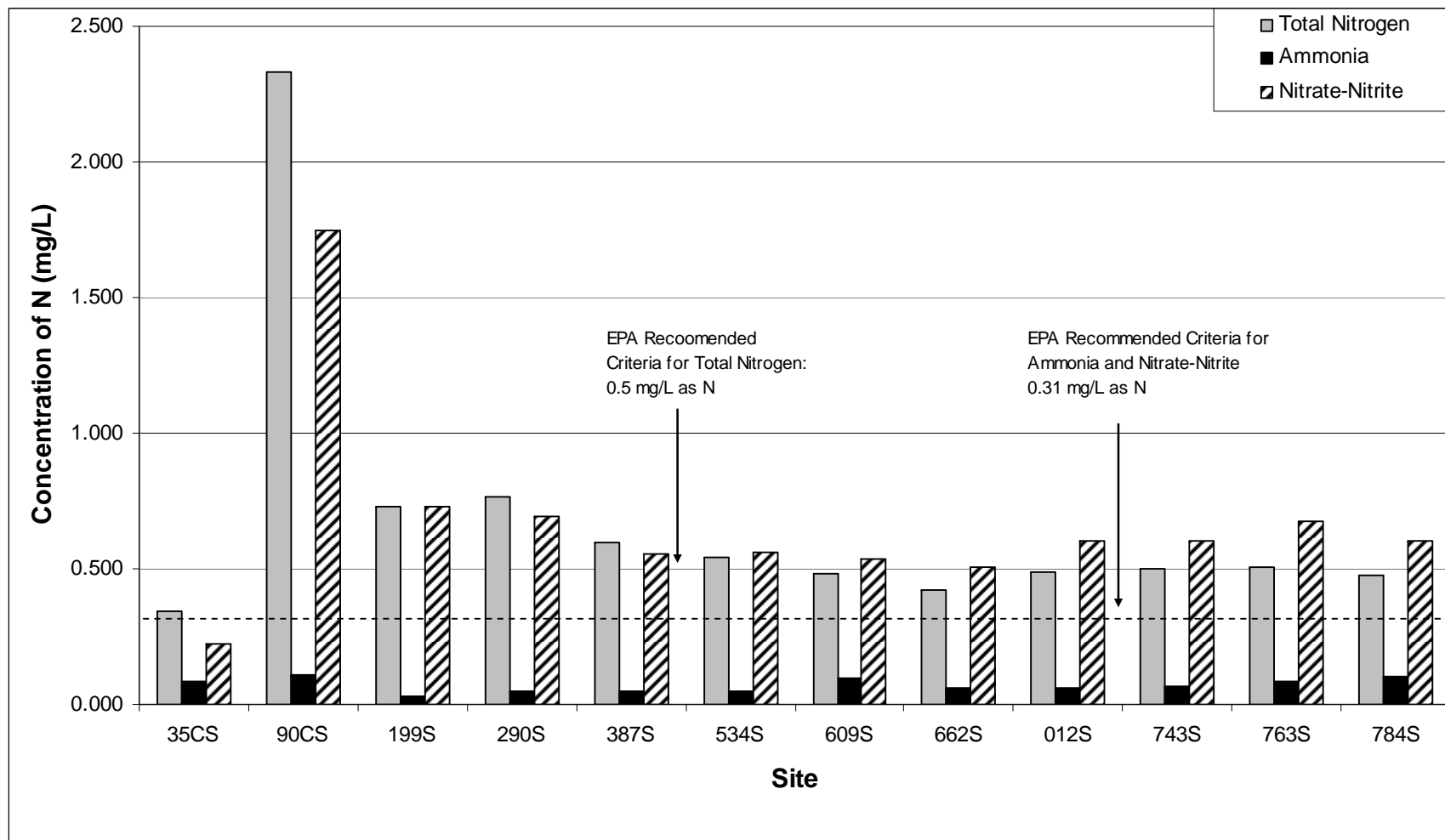
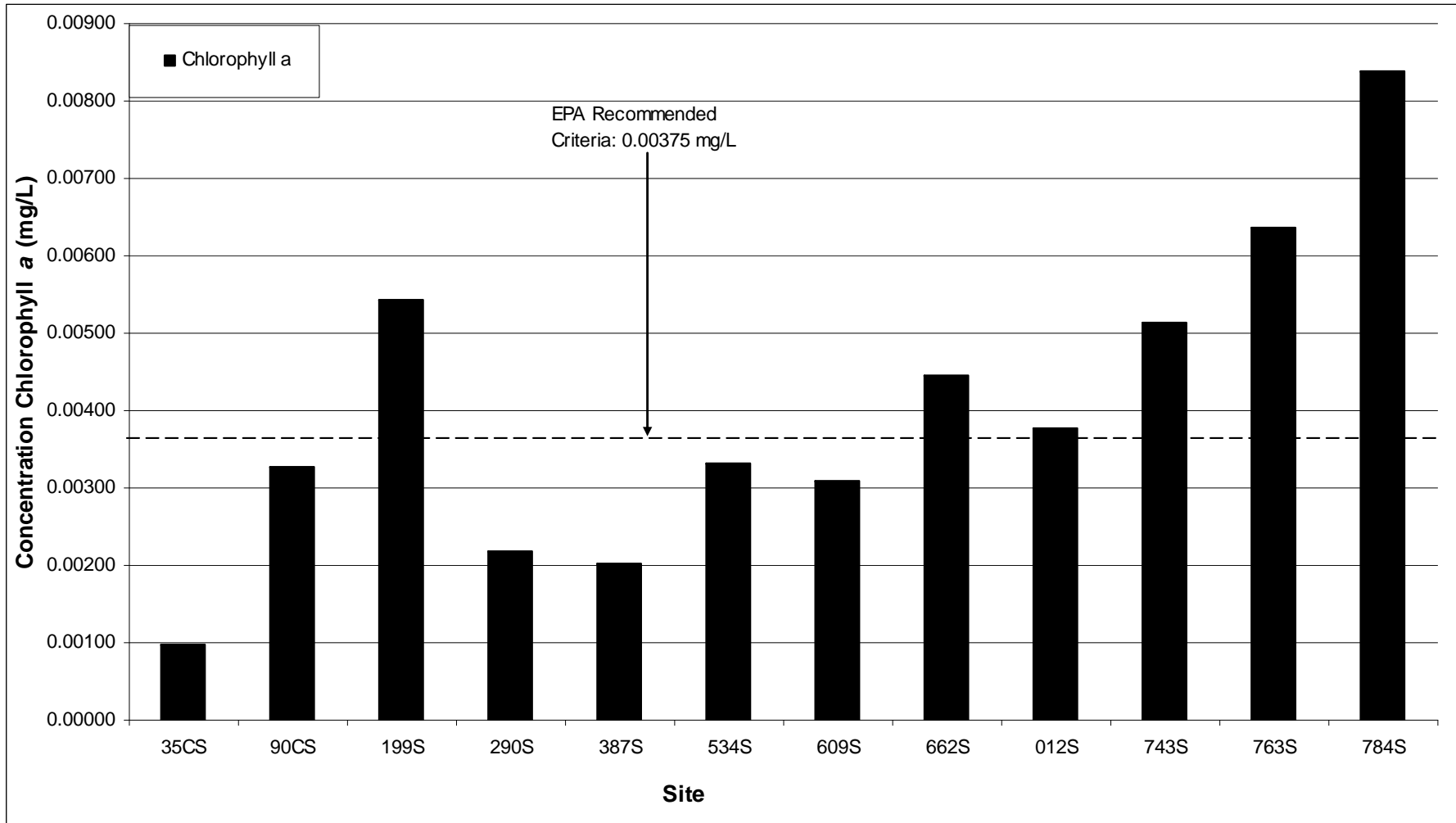


Figure 7: Mean Charles River Chlorophyll a Concentrations by Site 2008



Temperature

Water temperature is an important factor affecting the natural habitat of an aquatic system. 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 2008 Monthly Monitoring Results. Complete temperatures 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 more sites than are possible through our core monitoring program. In 2008, 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 July, August and September. Finally, samples were collected and analyzed at selected sites for chlorophyll *a* in July, August, and September (Table 2). All samples collected under our supplemental project monitoring were analyzed at Alpha Analytical Laboratory.

Chlorophyll *a*

As part of the supplemental monitoring program data for chlorophyll *a* concentration was tested at seven select sites in July, August, and September. Out of the 11 samples collected in 2008, 63.6% exceeded the recommended action limit of 0.0037 mg/L. Complete results for chlorophyll *a* can be found in the Appendix of Water Quality Tables at the end of this report.

Total Phosphorus

As part of the supplemental monitoring program, total phosphorus levels were analyzed for the entire stretch of the river during summer months, when algae thrive in the Charles. Out of the 100 samples collected in 2008, 98% were above CRWA's action limit of 0.0238 mg/L. Complete results for total phosphorus collected as part of our 2008 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, sediment 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 needs

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.

Samples were collected and analyzed for TSS at all sites in March, April and May. None of the samples exceeded CRWA's action limit for TSS of 30 mg/L. The highest TSS value observed occurred at site 567S during the May sampling event, the TSS concentration was 12 mg/L. Complete TSS results can be found in the Appendix of Water Quality Tables at the end of this report.

Figure 8: Mean Charles River Chlorophyll *a* Concentrations by Site 2008 – Supplemental Monitoring (Analyzed at Alpha Analytical Laboratory)

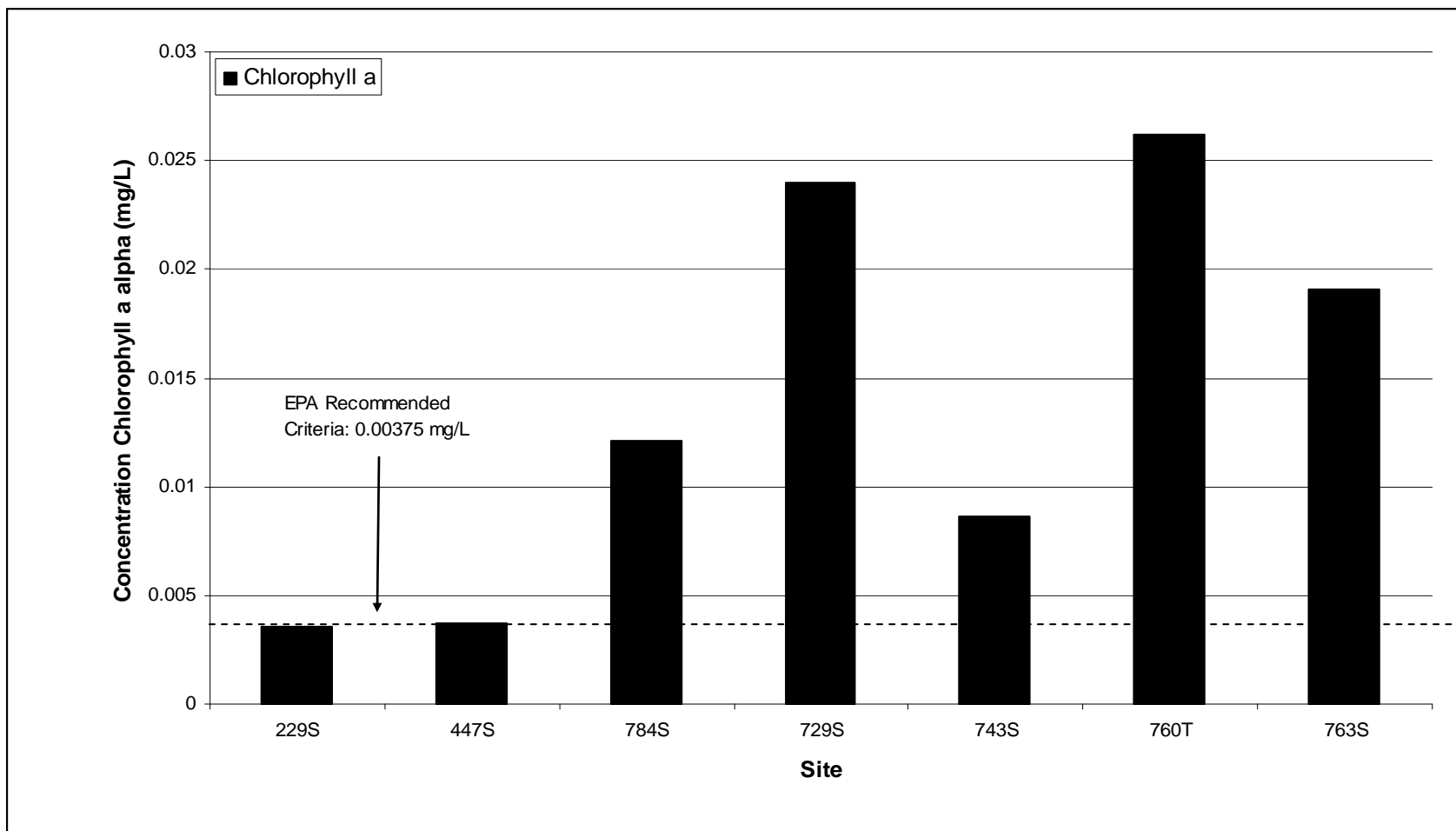
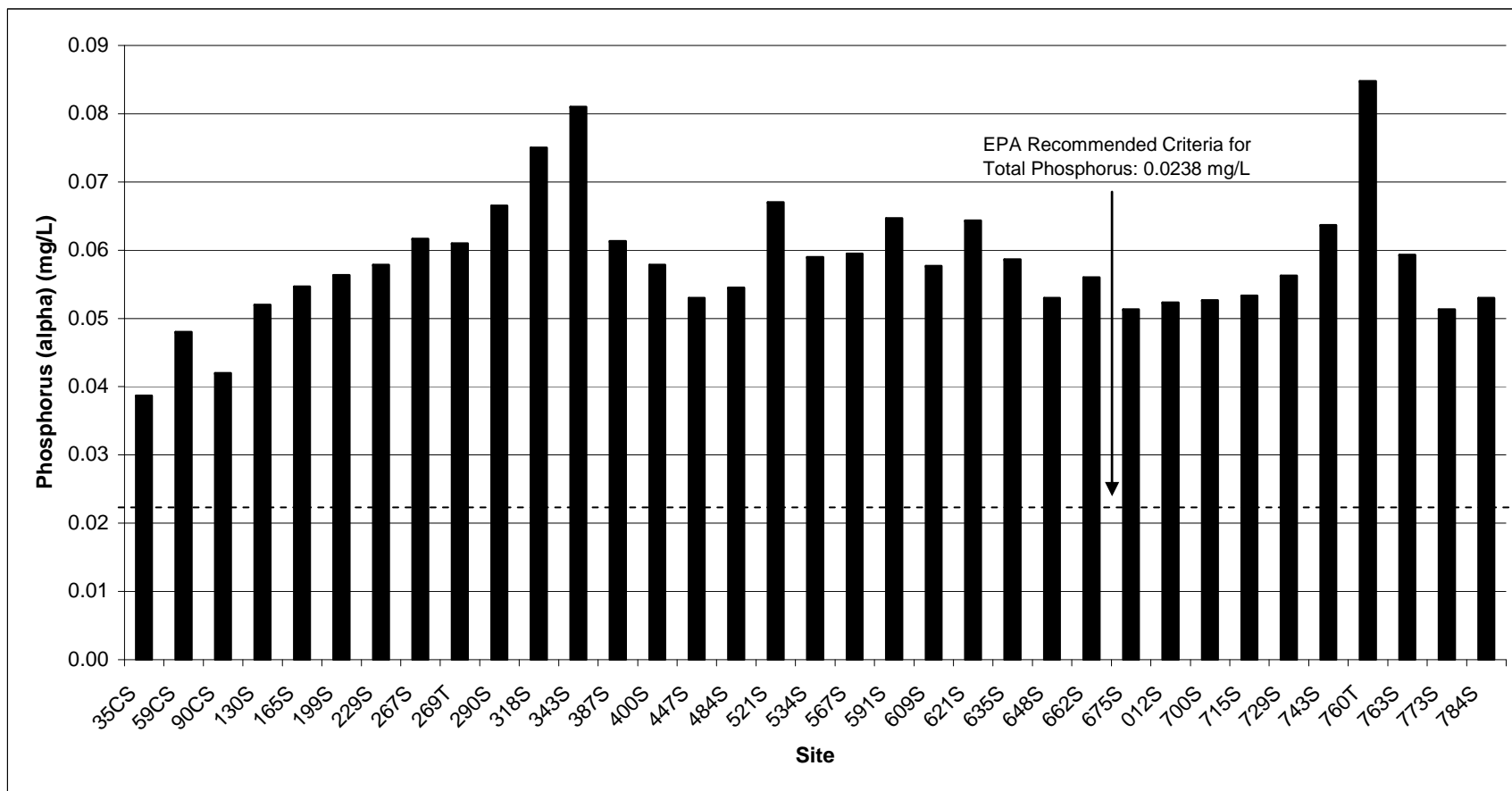


Figure 9: Mean Charles River Spring and Summer Phosphorus Concentrations by Site (samples collected July-September 2008) – Supplemental Monitoring (Analyzed at Alpha Analytical Laboratory)



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. The Charles River achieved a B+ for water quality in 2008. 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 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 Tables

E. coli Bacteria Results 2008

| Site # | Description | Town | River mile | E. coli Concentrations (cfu/100 mL) | | | | | | | | | | | | Mean | Median | Std Dev | Min | Max | |
|--|------------------------------------|-----------------------------|------------|--|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|---------|---------|---------|---------|-------|------|
| | | | | 1/15/2008 (h) | 2/12/2008 (h) | 3/18/2008 | 4/15/2008 | 5/20/2008 | 6/24/2008 | 7/15/2008 | 8/19/2008 | 9/16/2008 | 10/14/2008 | 11/18/2008 | 12/16/2008 | | | | | | |
| 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 | 52 | 216 | 388 | 2250 | 907 | 173 | 98 | 249 | 148 | 498 | 216 | 705 | 52 | 2250 | | |
| 35CD | Discharge Pipe @ Central St | Milford | 3.5 | | | | | | | | | | | | no data | no data | no data | no data | no data | | |
| 35C2 | 2nd Discharge Pipe @ Central St | Milford | 3.5 | | | | | | | | | | | | no data | no data | no data | no data | no data | | |
| 59CS | Mellen St. Bridge | Bellingham/Milford/Hopedale | 5.9 | | | 86 | 74 | 146 | 3610 | 464 | 313 | 148 | 294 | 63 | 985 | 618 | 221 | 1087 | 63 | 3610 | |
| 90CS | Rt. 126, N. Main St. | Bellingham | 9.0 | | | 20 | (a) 20 | | 97 | 171 | 171 | 121 | 74 | 41 | 19900 | 2291 | 97 | 6604 | 20 | 19900 | |
| 130S | Maple St. Bridge | Bellingham | 12.9 | | | 10 | 31 | (a) 5 | 145 | 145 | 145 | 211 | 41 | 52 | 3870 | 466 | 99 | 1198 | 5 | 3870 | |
| 165S | Shaw St. Bridge | Franklin/Medway | 16.5 | | | 20 | 10 | 52.5 | (a) 173 | 187 | 97 | 109 | 74 | 10 | 1520 | 225 | 86 | 459 | 10 | 1520 | |
| 199S | Populatic Pond Boat Launch | Norfolk | 19.9 | | | | 20 | 41 | 41 | (a) 52 | 122 | 84 | | 52 | | 59 | 52 | 34 | 20 | 122 | |
| 229S | Rt. 115, Baltimore St. | Norfolk/Millis | 22.9 | | | 5 | 31 | 52 | 110 | 10 | (a) 74 | 110 | 10 | 74 | | 53 | 52 | 42 | 5 | 110 | |
| 267S | Dwight St. Bridge | Millis/Medfield | 26.7 | | | 5 | 30 | 209 | 10 | 20 | 89.5 | (a) 74 | 10 | 63 | 2400 | 289 | 47 | 744 | 5 | 2400 | |
| 269T | Causeway St. Stop River | Medfield | 26.9 | | | 10 | 5 | 98 | 134 | 354 | 96 | 262 | 108 | (a) 20 | 187 | 127 | 103 | 113 | 5 | 354 | |
| 290S | Old Bridge St. | Millis/Medfield | 29.0 | | | 10 | (a) 10 | | 84 | 41 | 107 | 128.5 | (a) 31 | | | 67 | 63 | 47 | 10 | 128.5 | |
| 318S | Rt. 27 Bridge | Medfield/Sherborn | 31.8 | | | 5 | 5 | 47 | (a) 74 | 20 | 86 | 85 | 31 | 30 | (a) 2100 | 248 | 39 | 651 | 5 | 2100 | |
| 343S | Farm Rd./Bridge St. | Sherborn/Dover | 34.3 | | | 5 | 12.5 | (a) 10 | 41 | | 109 | 74 | 20 | 20 | 1445 | (a) 193 | 20 | 471 | 5 | 1445 | |
| 387S | Cherney Bridge | Wellesley/Natick | 38.7 | | | 5 | (a) 31 | 41 | 1540 | 465 | 63 | 41 | 63 | 20 | 1500 | 377 | 52 | 617 | 5 | 1540 | |
| 400S | Charles River Road Bridge | Dover/Wellesley | 40.0 | | | 41 | 41 | 41 | 2010 | 155 | (a) 85 | 52 | | | 1060 | 392 | 52 | 691 | 41 | 2010 | |
| 447S | Dover Gage | Dover | 44.7 | | | 5 | 15 | (a) 62 | 52 | 72 | 86 | (a) 61 | 10 | | | 45 | 57 | 31 | 5 | 86 | |
| 484S | Dedham Medical Center | Dedham/Needham | 48.4 | | | 10 | 5 | 31 | 108 | 301 | 41 | 41 | (a) 5 | 20 | 1270 | 183 | 36 | 392 | 5 | 1270 | |
| 521S | Ames St. Bridge | Dedham | 52.1 | | | 10 | 10 | 20 | 197 | 52 | 122 | 110 | 5 | (a) 63 | 960 | 155 | 58 | 290 | 5 | 960 | |
| 534S | Rt. 109 Bridge | Dedham/Boston | 53.4 | | | 5 | 10 | | 226 | 2360 | 85 | 110 | 31 | 10 | 1005 | (a) 427 | 85 | 791 | 5 | 2360 | |
| 567S | Nahanton Park | Newton/Needham | 56.7 | | | 10 | | 31 | (a) 20 | 108 | 31 | | 61 | 64.5 | (a) 723 | 131 | 46 | 241 | 10 | 723 | |
| 591S | Rt. 9 Gaging Station | Newton | 59.1 | | | 5 | 20 | 63 | 6870 | 169.5 | (a) 31 | 183 | 41 | 96 | 932 | 841 | 80 | 2136 | 5 | 6870 | |
| 609S | Washington St. Hunnewell Bridge | Wellesley/Newton | 60.9 | | | 5 | 31 | 63 | 2545 | (a) 563 | 122 | 201 | 10 | 109 | 1050 | 470 | 116 | 800 | 5 | 2545 | |
| 621S | Leo J. Martin Golf Course/Park Rd. | Weston/Newton | 62.1 | | | 5 | 10 | 52 | 2220 | 650 | 194 | (a) 95 | 10 | 97 | 733 | 407 | 96 | 691 | 5 | 2220 | |
| 635S | 2391 Commonwealth Ave. | Newton | 63.5 | | | 10 | 5 | 63 | 3650 | 240 | 216 | 210.5 | (a) 364 | 98 | 428 | 528 | 213 | 1106 | 5 | 3650 | |
| 648S | Lakes Region | Waltham | 64.8 | | | | | 30.5 | (a) 63 | 3450 | 20 | 120 | 175 | 103 | (a) | 566 | 103 | 1273 | 20 | 3450 | |
| 662S | Moody St. Bridge | Waltham | 66.2 | | | 7.5 | (a) 52 | 30 | 563 | 47.4 | (a) 84 | 134 | 52 | | 132 | 285 | (a) 139 | 68 | 169 | 7.5 | 563 |
| 675S | North St. | Waltham/Newton | 67.6 | | | 5 | 52 | 98 | 2480 | 309 | 134 | 216 | 41 | 173 | (a) 408 | 392 | 154 | 744 | 5 | 2480 | |
| 012S | Watertown Dam Footbridge | Watertown | 69.3 | | | 233 | 31 | 134 | 2610 | 161 | 134 | 108 | 41 | 63 | 262 | 378 | 134 | 788 | 31 | 2610 | |
| 700S | N. Beacon St. | Watertown/Brighton | 70.9 | | | | | 132 | 98 | (a) 5170 | 97 | 197 | 199 | 31 | 301 | 402 | 736 | 197 | 1666 | 31 | 5170 |
| 715S | Arsenal St. | Watertown/Brighton | 71.5 | | | 410 | 97 | 97 | 7640 | (a) 98 | 146 | 292 | 146 | 228 | 437 | 959 | 187 | 2351 | 97 | 7640 | |
| 729S | Eliot Bridge | Cambridge/Boston | 72.9 | | | 457 | 120 | 314 | 9210 | 347.5 | (a) 292 | 173 | 169 | 404 | 1276 | 314 | 2977 | 120 | 9210 | | |
| 743S | Western Ave | Cambridge/Boston | 74.3 | | | 323 | 132 | 41 | 1050 | | | 199 | 383 | (a) 110 | 530 | 504 | 364 | 323 | 310 | 41 | 1050 |
| 760T | Muddy River at Comm. Ave. | Boston | 76.0 | | | 413 | 97 | 238 | | 464 | 873 | (a) 441 | 495 | 637 | 24200 | 3095 | 464 | 7917 | 97 | 24200 | |
| 763S | Mass. Ave. at Harvard Bridge | Boston/Cambridge | 76.3 | | | 309 | 644 | | | 20 | 201 | 272 | | 563 | 2610 | 660 | 309 | 886 | 20 | 2610 | |
| 773S | Longfellow Bridge | Cambridge/Boston | 77.3 | | | 613 | 723 | 471 | 20 | 5 | 74 | 295 | 495 | 681 | (a) 323 | 370 | 397 | 270 | 5 | 723 | |
| 784S | New Charles River Dam | Boston/Cambridge | 78.4 | | | 627 | 364 | 74 | 25.5 | (a) 62 | 63 | 31 | 145 | 145 | 1450 | (a) 299 | 110 | 446 | 25.5 | 1450 | |
| # sites swimable | | | | | | 24 | 27 | 23 | 12 | 15 | 21 | 17 | 24 | 21 | 0 | WET | DRY | Total | | | |
| # sites boatable | | | | | | 32 | 31 | 31 | 16 | 30 | 33 | 34 | 32 | 29 | 11 | 95 | 89 | 184 | | | |
| # sites sampled | | | | | | 32 | 33 | 31 | 33 | 33 | 34 | 34 | 32 | 31 | 30 | 123 | 156 | 279 | | | |
| % sites swimable | | | | | | 75% | 82% | 74% | 36% | 45% | 62% | 50% | 75% | 68% | 0% | 127 | 196 | 463 | | | |
| % sites boatable | | | | | | 75% | 82% | 74% | 36% | 45% | 62% | 50% | 75% | 68% | 0% | 75% | 46% | 40% | | | |
| QA/QC Samples | | | | | | | | | | | | | | | | 97% | 80% | 60% | | | |
| Equipment Blank | | | | | | | | | | | | | | | | | | | | | |
| Site No. | | | | | | | | | | | | | | | | | | | | | |
| Equipment Blank | | | | | | | | | | | | | | | | | | | | | |
| Site No. | | | | | | | | | | | | | | | | | | | | | |
| Rainfall At Logan International Airport (inches) | | | | | | WET | WET | WET | DRY | DRY | DRY | DRY | DRY | DRY | WET | DRY | | | | | |
| 3 Days Prior to Sampling | | | | | | 0.31 | 0.45 | 0.44 | 0.00 | 0.00 | Trace | 0.00 | 0.00 | 0.47 | 0.00 | | | | | | |
| 2 Days Prior to Sampling | | | | | | Trace | 0.01 | Trace | Trace | 0.00 | 0.00 | 0.35 | 0.00 | 0.37 | 0.00 | | | | | | |
| 1 Day Prior to Sampling | | | | | | 0.00 | 0.00 | 0.00 | 0.46 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | |
| Day of Sampling | | | | | | Trace | 0.00 | Trace | 0.78 | (i) 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 | | | | | | |

(a) Average of duplicates

Total Phosphorus Results 2008

| Site # | Description | Town | River mile | Total Phosphorus Concentrations (mg/L) | | | | | | | | | | | | Mean | Median | Std Dev | Min | Max |
|--|---|-----------------------------|------------|--|-----------|-----------|-----------|-----------|-------|-----------|-----------|------------|-----------|---------|---------|---------|---------|---------|-----|-----|
| | | | | 3/18/2008 | | 6/24/2008 | | 8/19/2008 | | 9/16/2008 | | 12/16/2008 | | | | | | | | |
| 35CS | Central Street Bridge | Milford | 3.5 | 0.022 | 0.000 | 0.063 | 1.000 | 0.034 | 1.000 | 0.023 | 0.000 | | 0.000 | 0.268 | 0.029 | 0.452 | 0.000 | 1.000 | | |
| 90CS | Rt. 126, N. Main St. | Bellingham/Milford/Hopedale | 9.0 | 0.028 | 1.000 (a) | 0.078 | 1.000 | 0.053 | 1.000 | 0.045 | 1.000 | 0.071 | 1.000 | 0.475 | 0.078 | 0.498 | 0.028 | 1.000 | | |
| 199S | Populatic Pond Boat Launch | Norfolk | 19.9 | 0.000 | | 0.068 | 1.000 (a) | 0.070 | 1.000 | 0.069 | 1.000 | | 0.000 | 0.458 | 0.070 | 0.507 | 0.000 | 1.000 | | |
| 229S | Rt. 115, Baltimore St. | Medfield/Millis | 22.9 | 0.000 | | 0.000 | | 0.000 | | 0.000 | | | 0.000 | no data | no data | no data | no data | no data | | |
| 290S | Old Bridge St. | Natick/Wellesley | 29.0 | 0.022 | 0.000 (a) | 0.090 | 1.000 | 0.102 | 1.000 | 0.104 | 1.000 (a) | | 0.000 | 0.415 | 0.103 | 0.486 | 0.000 | 1.000 | | |
| 387S | S. Natick Dam | Dedham/Boston | 37.8 | 0.015 | 0.000 (a) | 0.091 | 1.000 | 0.102 | 1.000 | 0.088 | 1.000 | 0.077 | 1.000 | 0.375 | 0.091 | 0.470 | 0.000 | 1.000 | | |
| 534S | Rt. 109 Bridge | Wellesley/Newton | 53.4 | 0.017 | 0.000 | 0.089 | 1.000 | 0.094 | 1.000 | 0.074 | 1.000 | 0.069 | 1.000 (a) | 0.371 | 0.089 | 0.472 | 0.000 | 1.000 | | |
| 609S | Washington St. Hunnewell Bridge | Weston/Newton | 60.9 | 0.018 | 0.000 | 0.098 | 1.000 (a) | 0.098 | 1.000 | 0.074 | 1.000 | 0.076 | 1.000 | 0.374 | 0.098 | 0.471 | 0.000 | 1.000 | | |
| 662S | Moody St. Bridge | Waltham | 66.2 | 0.021 | 0.000 (a) | 0.067 | 1.000 | 0.090 | 1.000 | 0.071 | 1.000 | 0.060 | 1.000 (a) | 0.368 | 0.071 | 0.475 | 0.000 | 1.000 | | |
| 012S | Watertown Dam Footbridge | Watertown | 69.3 | 0.025 | 1.000 | 0.085 | 1.000 | 0.090 | 1.000 | 0.074 | 1.000 | 0.062 | 1.000 | 0.482 | 0.090 | 0.492 | 0.025 | 1.000 | | |
| 743S | Western Ave | Cambridge/Boston | 74.3 | 0.031 | 1.000 | 0.080 | 1.000 | 0.094 | 1.000 | 0.074 | 1.000 (a) | 0.059 | 1.000 | 0.482 | 0.094 | 0.492 | 0.031 | 1.000 | | |
| 763S | Mass. Ave. at Harvard Bridge | Boston/Cambridge | 76.3 | 0.033 | 1.000 | 0.000 | 1.000 | 0.101 | 1.000 | 0.072 | 1.000 | 0.061 | 1.000 | 0.408 | 0.087 | 0.491 | 0.000 | 1.000 | | |
| 784S | New Charles River Dam | Boston/Cambridge | 78.4 | 0.036 | 1.000 | 0.052 | 1.000 (a) | 0.085 | 1.000 | 0.057 | 1.000 | 0.082 | 1.000 (a) | 0.479 | 0.085 | 0.494 | 0.036 | 1.000 | | |
| | Total # of Samples exceeding action limit | 48 | | 5 | 5 | 11 | 11 | 12 | 12 | 11 | 11 | 9 | 9 | | | | | | | |
| | Total # of Samples | 55 | | 11 | | 11 | | 12 | | 12 | | 9 | | | | | | | | |
| | % of samples exceeding action limit | 87.3% | | 45.5% | | 100.0% | | 100.0% | | 91.7% | | 100.0% | | | | | | | | |
| QA/QC Samples | | | | | | | | | | | | | | | | | | | | |
| | Equipment Blank | | | | | | | | | | | | | | | | | | | |
| | Site No. | | | | | | | | | | | | | | | | | | | |
| Rainfall At Logan International Airport (inches) | | | | | | | | | | | | | | | | | | | | |
| | 3 Days Prior to Sampling | | | WET | | WET | | DRY | | WET | | DRY | | | | | | | | |
| | 2 Days Prior to Sampling | | | 0.31 | | 0.00 | | Trace | | 0.00 | | 0.00 | | | | | | | | |
| | 1 Day Prior to Sampling | | | Trace | | Trace | | 0.00 | | 0.35 | | 0.00 | | | | | | | | |
| | Day of Sampling | | | 0.00 | | 0.46 | | 0.00 | | 0.00 | | 0.00 | | | | | | | | |
| | | | | Trace | | 0.78 | | 0.01 | | 0.00 | | 0.02 | | | | | | | | |

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

(a) Average of duplicate samples.

Total Phosphorus Alpha Results 2008

| Site # | Description | Town | River mile | Total Phosphorus Concentrations (mg/L) | | | Mean | Median | Std Dev | Min | Max |
|--|------------------------------------|-----------------------------|------------|--|-----------|-----------|------|--------|---------|------|------|
| | | | | 7/15/2008 | 8/19/2008 | 9/16/2008 | | | | | |
| 35CS | Central Street Bridge | Milford | 3.5 | 0.097 | 0.005 | 0.014 | 0.04 | 0.01 | 0.05 | 0.01 | 0.10 |
| 59CS | Mellen St. Bridge | Bellingham/Milford/Hopedale | 5.9 | 0.065 | 0.035 | 0.044 | 0.05 | 0.04 | 0.02 | 0.04 | 0.07 |
| 90CS | Rt. 126, N. Main St. | Bellingham | 9.0 | 0.066 | 0.024 | 0.036 | 0.04 | 0.04 | 0.02 | 0.02 | 0.07 |
| 130S | Maple St. Bridge | Bellingham | 12.9 | 0.066 | 0.043 | 0.047 | 0.05 | 0.05 | 0.01 | 0.04 | 0.07 |
| 165S | Shaw St. Bridge | Franklin/Medway | 16.5 | 0.049 | 0.046 | 0.069 | 0.05 | 0.05 | 0.01 | 0.05 | 0.07 |
| 199S | Populatic Pond Boat Launch | Norfolk | 19.9 | 0.051 | 0.067 | 0.051 | 0.06 | 0.05 | 0.01 | 0.05 | 0.07 |
| 229S | Rt. 115, Baltimore St. | Norfolk/Millis | 22.9 | 0.0445 (a) | 0.052 | 0.077 | 0.06 | 0.05 | 0.02 | 0.04 | 0.08 |
| 267S | Dwight St. Bridge | Millis/Medfield | 26.7 | 0.047 | 0.056 (a) | 0.082 | 0.06 | 0.06 | 0.02 | 0.05 | 0.08 |
| 269T | Causeway St. Stop River | Medfield | 26.9 | | 0.068 | 0.054 | 0.06 | 0.06 | 0.01 | 0.05 | 0.07 |
| 290S | Old Bridge St. | Millis/Medfield | 29.0 | 0.061 | 0.054 | 0.0845 | 0.07 | 0.06 | 0.02 | 0.05 | 0.08 |
| 318S | Rt. 27 Bridge | Medfield/Sherborn | 31.8 | 0.071 | 0.068 | 0.086 | 0.08 | 0.07 | 0.01 | 0.07 | 0.09 |
| 343S | Farm Rd./Bridge St. | Sherborn/Dover | 34.3 | | 0.079 | 0.083 | 0.08 | 0.08 | 0.00 | 0.08 | 0.08 |
| 387S | Cheney Bridge | Wellesley/Natick | 38.7 | 0.039 | 0.073 | 0.072 | 0.06 | 0.07 | 0.02 | 0.04 | 0.07 |
| 400S | Charles River Road Bridge | Dover/Wellesley | 40.0 | 0.0375 (a) | 0.071 | 0.065 | 0.06 | 0.07 | 0.02 | 0.04 | 0.07 |
| 447S | Dover Gage | Dover | 44.7 | 0.027 | 0.064 (a) | 0.068 | 0.05 | 0.06 | 0.02 | 0.03 | 0.07 |
| 484S | Dedham Medical Center | Dedham/Needham | 48.4 | 0.037 | 0.065 | 0.0615 | 0.05 | 0.06 | 0.02 | 0.04 | 0.07 |
| 521S | Ames St. Bridge | Dedham | 52.1 | 0.039 | 0.066 | 0.096 | 0.07 | 0.07 | 0.03 | 0.04 | 0.10 |
| 534S | Rt. 109 Bridge | Dedham/Boston | 53.4 | 0.05 | 0.062 | 0.065 | 0.06 | 0.06 | 0.01 | 0.05 | 0.07 |
| 567S | Nahanton Park | Newton/Needham | 56.7 | 0.052 | 0.067 | | 0.06 | 0.06 | 0.01 | 0.05 | 0.07 |
| 591S | Rt. 9 Gaging Station | Newton | 59.1 | 0.05 (a) | 0.077 | 0.067 | 0.06 | 0.07 | 0.01 | 0.05 | 0.08 |
| 609S | Washington St. Hunnewell Bridge | Wellesley/Newton | 60.9 | 0.042 | 0.062 | 0.069 | 0.06 | 0.06 | 0.01 | 0.04 | 0.07 |
| 621S | Leo J. Martin Golf Course/Park Rd. | Weston/Newton | 62.1 | 0.047 | 0.072 (a) | 0.074 | 0.06 | 0.07 | 0.02 | 0.05 | 0.07 |
| 635S | 2391 Commonwealth Ave. | Newton | 63.5 | 0.044 | 0.064 | 0.068 | 0.06 | 0.06 | 0.01 | 0.04 | 0.07 |
| 648S | Lakes Region | Waltham | 64.8 | 0.042 | 0.057 | 0.06 | 0.05 | 0.06 | 0.01 | 0.04 | 0.06 |
| 662S | Moody St. Bridge | Waltham | 66.2 | 0.047 (a) | 0.057 | 0.064 | 0.06 | 0.06 | 0.01 | 0.05 | 0.06 |
| 675S | North St. | Waltham/Newton | 67.6 | 0.041 | 0.055 | 0.058 | 0.05 | 0.06 | 0.01 | 0.04 | 0.06 |
| 012S | Watertown Dam Footbridge | Watertown | 69.3 | 0.039 | 0.057 | 0.061 | 0.05 | 0.06 | 0.01 | 0.04 | 0.06 |
| 700S | N. Beacon St. | Watertown/Brighton | 70.9 | 0.041 | 0.059 | 0.058 | 0.05 | 0.06 | 0.01 | 0.04 | 0.06 |
| 715S | Arsenal St. | Watertown/Brighton | 71.5 | 0.045 | 0.054 | 0.061 | 0.05 | 0.05 | 0.01 | 0.05 | 0.06 |
| 729S | Eliot Bridge | Cambridge/Boston | 72.9 | 0.0545 (a) | | 0.058 | 0.06 | 0.06 | 0.00 | 0.05 | 0.06 |
| 743S | Western Ave. | Cambridge/Boston | 74.3 | 0.06 | 0.068 | 0.063 | 0.06 | 0.06 | 0.00 | 0.06 | 0.07 |
| 760T | Muddy River at Comm. Ave. | Boston | 76.0 | | 0.096 (a) | 0.074 | 0.08 | 0.08 | 0.02 | 0.07 | 0.10 |
| 763S | Mass. Ave. at Harvard Bridge | Boston/Cambridge | 76.3 | 0.045 | 0.072 | 0.061 | 0.06 | 0.06 | 0.01 | 0.05 | 0.07 |
| 773S | Longfellow Bridge | Cambridge/Boston | 77.3 | 0.042 | 0.057 | 0.055 | 0.05 | 0.06 | 0.01 | 0.04 | 0.06 |
| 784S | New Charles River Dam | Boston/Cambridge | 78.4 | 0.037 | 0.074 | 0.048 | 0.05 | 0.05 | 0.02 | 0.04 | 0.07 |
| Total # of Samples exceeding action limit | | 98 | | 32 | 33 | 33 | | | | | |
| Total # of Samples | | 100 | | 32 | 34 | 34 | | | | | |
| % of samples exceeding action limit | | 98.0% | | 100.0% | 97.1% | 97.1% | | | | | |
| QA/QC Samples | | | | | | | | | | | |
| | Equipment Blank | | | <0.01 | <0.01 | <0.01 | | | | | |
| | Site No. | | | 130S | 165S | 012S | | | | | |
| | Equipment Blank | | | | <0.01 | | | | | | |
| | Site No. | | | | 700S | | | | | | |
| Rainfall At Logan International Airport (inches) | | | | | | | | | | | |
| | 3 Days Prior to Sampling | | | 0.00 | Trace | 0.00 | | | | | |
| | 2 Days Prior to Sampling | | | 0.00 | 0.00 | 0.35 | | | | | |
| | 1 Day Prior to Sampling | | | 0.07 | 0.00 | 0.00 | | | | | |
| | Day of Sampling | | | 0.00 | 0.01 | 0.00 | | | | | |

(a) Average of duplicates

Orthophosphate Results 2008

| Site # | Description | Town | River mile | Concentrations of Orthophosphate (mg/L) | | | | | Mean | Median | Std Dev | Min | Max | |
|--|---|-----------------------------|------------|---|-----------|-----------|-----------|------------|-------|--------|---------|-------|-------|-------|
| | | | | 3/18/2008 | 6/24/2008 | 8/19/2008 | 9/16/2008 | 12/16/2008 | | | | | | |
| 35CS | Central Street Bridge | Milford | 3.5 | 0.005 | 0.019 | 0.013 | 0.010 | | 0.012 | 0.011 | 0.006 | 0.005 | 0.019 | |
| 90CS | Rt. 126, N. Main St. | Bellingham/Milford/Hopedale | 9.0 | 0.011 | 0.016 | 0.019 | 0.017 | 0.018 | 0.016 | 0.017 | 0.003 | 0.011 | 0.019 | |
| 199S | Populatic Pond Boat Launch | Norfolk | 19.9 | | 0.016 | 0.019 | 0.025 | | 0.020 | 0.019 | 0.004 | 0.016 | 0.025 | |
| 229S | Rt. 115, Baltimore St. | Norfolk/Millis | 22.9 | | | | 0.000 | | 0.000 | 0.000 | | 0.000 | 0.000 | |
| 290S | Old Bridge St. | Medfield/Millis | 29.0 | 0.007 | 0.035 | 0.036 | 0.057 | (e) | 0.034 | 0.035 | 0.021 | 0.007 | 0.057 | |
| 387S | S. Natick Dam | Natick/Wellesley | 37.8 | 0.003 | 0.031 | 0.042 | 0.044 | 0.021 | 0.028 | 0.031 | 0.017 | 0.003 | 0.044 | |
| 534S | Rt. 109 Bridge | Dedham/Boston | 53.4 | 0.004 | 0.028 | 0.039 | 0.033 | 0.021 | (e) | 0.025 | 0.028 | 0.014 | 0.004 | 0.039 |
| 609S | Washington St. Hunnewell Bridge | Wellesley/Newton | 60.9 | 0.004 | 0.040 | 0.038 | 0.033 | 0.020 | 0.027 | 0.033 | 0.015 | 0.004 | 0.040 | |
| 662S | Moody St. Bridge | Waltham | 66.2 | 0.005 | 0.014 | 0.032 | 0.030 | 0.017 | (e) | 0.020 | 0.017 | 0.011 | 0.005 | 0.032 |
| 012S | Watertown Dam Footbridge | Watertown | 69.3 | 0.006 | 0.024 | 0.037 | 0.033 | 0.015 | 0.023 | 0.024 | 0.013 | 0.006 | 0.037 | |
| 743S | Western Ave. | Cambridge/Boston | 74.3 | 0.006 | 0.013 | 0.037 | 0.028 | (e) | 0.020 | 0.016 | 0.012 | 0.006 | 0.037 | |
| 763S | Mass. Ave. at Harvard Bridge | Boston/Cambridge | 76.3 | 0.009 | | 0.033 | 0.027 | 0.018 | 0.021 | 0.022 | 0.010 | 0.009 | 0.033 | |
| 784S | New Charles River Dam | Boston/Cambridge | 78.4 | 0.012 | 0.014 | 0.019 | 0.028 | 0.023 | (e) | 0.019 | 0.019 | 0.006 | 0.012 | 0.028 |
| | Total # of Samples exceeding action limit | 22 | | 0 | 4 | 8 | 10 | 0 | | | | | | |
| | Total # of Samples | 55 | | 11 | 11 | 12 | 12 | 9 | | | | | | |
| | % of samples exceeding action limit | 42% | | 0 | 0.5 | 0.7 | 0.8 | 0.0 | | | | | | |
| QA/QC Samples | | | | | | | | | | | | | | |
| | Equipment Blank | | | | | | | | | | | | | |
| | Site No. | | | | | | | | | | | | | |
| Rainfall At Logan International Airport (inches) | | | | | | | | | | | | | | |
| | 3 Days Prior to Sampling | | | WET | WET | DRY | WET | DRY | | | | | | |
| | 2 Days Prior to Sampling | | | 0.31 | 0.00 | Trace | 0.00 | 0.00 | | | | | | |
| | 1 Day Prior to Sampling | | | Trace | Trace | 0.00 | 0.35 | 0.00 | | | | | | |
| | Day of Sampling | | | 0.00 | 0.46 | 0.00 | 0.00 | 0.00 | | | | | | |
| | | | | Trace | 0.78 | 0.01 | 0.00 | 0.02 | | | | | | |

(e) Average of duplicate samples

Ammonia Results 2008

| Site # | Description | Town | River mile | Ammonia Concentration (mg/L) | | | | | | Mean | Median | Std Dev | Min | Max | | |
|--------|--|------------------|-------------|------------------------------|-----|-----------|-----|-----------|-----|-------|--------|---------|-------|--------|-----------|-------|
| | | | | 3/18/2008 | | 6/24/2008 | | 8/19/2008 | | | | | | | 9/16/2008 | |
| 35CS | Central Street Bridge | Milford | 3.5 | 0.030 | | 0.240 | | 0.049 | | 0.028 | | 0.086 | 0.086 | 0.103 | 0.028 | 0.2 |
| 90CS | Rt. 126, N. Main St. | Bellingham | 9.0 | 0.167 | (d) | 0.160 | | 0.034 | | 0.043 | | 0.107 | 0.131 | 0.064 | 0.034 | 0.167 |
| 199S | Populatic Pond Boat Launch | Norfolk | 19.9 | | | 0.024 | (d) | 0.020 | | 0.045 | | 0.029 | 0.024 | 0.013 | 0.020 | 0.045 |
| 290S | Old Bridge St. | Millis/Medfield | 29.0 | 0.064 | (d) | 0.055 | | 0.031 | | 0.054 | (d) | 0.051 | 0.054 | 12.946 | 0.031 | 0.064 |
| 387S | Cheney Bridge | Wellesley/Natick | 38.7 | 0.013 | (d) | 0.093 | | 0.029 | | 0.057 | | 0.047 | 0.043 | 0.031 | 0.013 | 0.093 |
| 534S | Rt. 109 Bridge | Dedham/Boston | 53.4 | 0.008 | | 0.106 | | 0.025 | | 0.059 | | 0.046 | 0.032 | 0.038 | 0.008 | 0.106 |
| 609S | Washington St. Hunnewell Bridge | Wellesley/Newton | 60.9 | 0.013 | | 0.333 | (d) | 0.029 | | 0.076 | | 0.096 | 0.030 | 0.135 | 0.013 | 0.333 |
| 662S | Moody St. Bridge | Waltham | 66.2 | 0.010 | (d) | 0.120 | | 0.046 | | 0.105 | | 0.063 | 0.046 | 0.048 | 0.010 | 0.120 |
| 012S | Watertown Dam Footbridge | Watertown | 69.3 | 0.013 | | 0.123 | | 0.052 | | 0.094 | | 0.063 | 0.052 | 0.045 | 0.013 | 0.123 |
| 743S | Western Ave | Cambridge/Boston | 74.3 | 0.020 | | 0.115 | | 0.070 | | 0.095 | (d) | 0.067 | 0.070 | 0.040 | 0.020 | 0.115 |
| 763S | Mass. Ave. at Harvard Bridge | Boston/Cambridge | 76.3 | 0.039 | | | | 0.128 | | 0.111 | | 0.085 | 0.086 | 0.041 | 0.039 | 0.128 |
| 784S | New Charles River Dam | Boston/Cambridge | 78.4 | 0.059 | | 0.195 | | 0.061 | | 0.119 | | 0.105 | 0.091 | 0.056 | 0.059 | 0.195 |
| | | | | | | | | | | | | | | | | |
| | Total # of Samples exceeding action limit | | 1 | | | 0 | | 1 | | 0 | | | | | | |
| | Total # of Samples | | 55 | | | 11 | | 11 | | 12 | | | | | | |
| | % of samples exceeding action limit | | 1.8% | | | 0 | | 9.1% | | 0 | | | | | | |
| | | | | | | | | | | | | | | | | |
| | QA/QC Samples | | | | | | | | | | | | | | | |
| | Equipment Blank | | | | | 0.007 | | | | 0.004 | | | | | | |
| | Site No. | | | | | 90CS | | | | 012S | | | | | | |
| | | | | | | | | | | | | | | | | |
| | Rainfall At Logan International Airport (inches) | | | | | WET | | WET | | DRY | | WET | | DRY | | |
| | 3 Days Prior to Sampling | | | | | 0.31 | | 0 | | Trace | | 0.00 | | 0.00 | | |
| | 2 Days Prior to Sampling | | | | | Trace | | Trace | (g) | 0.00 | | 0.35 | | 0.00 | (h) | |
| | 1 Day Prior to Sampling | | | | | 0.00 | | 0.46 | | 0.00 | | 0.00 | | 0.00 | | |
| | Day of Sampling | | | | | Trace | | 0.78 | | 0.01 | | 0.00 | | 0.02 | | |

(d) Average of duplicates

(g) Rainfall took place after sampling event

(h) Rainfall took place during and following sampling event

Nitrate-Nitrite Results 2008

| Site # | Description | Town | River mile | Concentrations of nitrate-nitrite (mg/L) | | | | | | Mean | Median | Std Dev | Min | Max |
|--|------------------------------------|------------------|--------------|--|-----------|-----------|-----------|------------|-------|-------|------------|---------|-------|-----|
| | | | | 3/18/2008 | 6/24/2008 | 8/19/2008 | 9/16/2008 | 12/16/2008 | | | | | | |
| 35CS | Central Street Bridge | Milford | 3.5 | 0.534 | 0.511 | 0.220 | 0.120 | | 0.346 | 0.366 | 0.20775356 | 0.120 | 0.534 | |
| 90CS | Rt. 126, N. Main St. | Bellingham | 9.0 | 1.926 (a) | 3.978 | 1.080 (f) | 2.353 | 1.210 | 2.109 | 1.926 | 1.16758701 | 1.080 | 3.978 | |
| 199S | Populatic Pond Boat Launch | Norfolk | 19.9 | | 1.235 (a) | 0.248 | 0.700 | | 0.728 | 0.700 | 0.49396326 | 0.248 | 1.235 | |
| 290S | Old Bridge St. | Millis/Medfield | 29.0 | 0.704 (a) | 1.331 | 0.268 | 0.760 (a) | | 0.765 | 0.732 | 0.35768289 | 0.268 | 1.331 | |
| 387S | Cheney Bridge | Wellesley/Natick | 38.7 | 0.585 (a) | 0.980 | 0.249 | 0.578 | 0.431 | 0.565 | 0.578 | 0.26958363 | 0.249 | 0.980 | |
| 534S | Rt. 109 Bridge | Dedham/Boston | 53.4 | 0.552 | 0.821 | 0.450 | 0.347 | 0.427 (a) | 0.519 | 0.450 | 0.18361836 | 0.347 | 0.821 | |
| 609S | Washington St. Hunnewell Bridge | Wellesley/Newton | 60.9 | 0.555 | 0.662 (a) | 0.392 | 0.328 | 0.457 | 0.479 | 0.457 | 0.1323454 | 0.328 | 0.662 | |
| 621S | Leo J. Martin Golf Course/Park Rd. | Weston/Newton | 62.1 | | | | | | 0 | 0 | 0 | 0.000 | 0.000 | |
| 662S | Moody St. Bridge | Waltham | 66.2 | 0.599 (a) | 0.382 | 0.332 | 0.384 | 0.512 (a) | 0.442 | 0.384 | 0.11014593 | 0.332 | 0.599 | |
| 012S | Watertown Dam Footbridge | Watertown | 69.3 | 0.637 | 0.422 | 0.431 | 0.464 | 0.735 | 0.538 | 0.464 | 0.14076164 | 0.422 | 0.735 | |
| 743S | Western Ave | Cambridge/Boston | 74.3 | 0.649 | 0.430 | 0.457 | 0.454 (a) | 0.642 | 0.526 | 0.457 | 0.10907757 | 0.430 | 0.649 | |
| 763S | Mass. Ave. at Harvard Bridge | Boston/Cambridge | 76.3 | 0.677 | | 0.464 | 0.373 | 0.796 | 0.577 | 0.570 | 0.19350287 | 0.373 | 0.796 | |
| 784S | New Charles River Dam | Boston/Cambridge | 78.4 | 0.691 | 0.468 (a) | 0.423 | 0.328 | 0.700 (a) | 0.522 | 0.468 | 0.16634042 | 0.328 | 0.700 | |
| Total # of Samples exceeding action limit | | | 50 | 11 | 11 | 8 | 11 | 9 | | | | | | |
| Total # of Samples | | | 55 | 11 | 11 | 12 | 12 | 9 | | | | | | |
| % of samples exceeding action limit | | | 90.9% | 100.0% | 100.0% | 66.7% | 91.7% | 100.0% | | | | | | |
| QA/QC Samples | | | | | | | | | | | | | | |
| Equipment Blank | | | | | | | | 2.93 | | | | | | |
| Site No. | | | | | | | | 743S | | | | | | |
| Rainfall At Logan International Airport (inches) | | | | | | | | | | | | | | |
| 3 Days Prior to Sampling | | | | WET | WET | DRY | WET | DRY | | | | | | |
| 2 Days Prior to Sampling | | | | 0.31 | 0.00 | Trace | 0.00 | 0.00 | | | | | | |
| 1 Day Prior to Sampling | | | | Trace | Trace | 0.00 | 0.35 | 0.00 | | | | | | |
| Day of Sampling | | | | 0.00 | 0.46 | 0.00 | 0.00 | 0.00 | | | | | | |
| | | | | Trace | 0.78 | 0.01 | 0.00 | 0.02 | | | | | | |

(a) Average of duplicates

Total Nitrogen Results 2008

| Site # | Description | Town | River mile | Total Nitrogen Concentration (mg/L) | | | | | | Mean | Median | Std Dev | Min | Max |
|--|------------------------------------|------------------|------------|-------------------------------------|-----------|-----------|-----------|------------|-------|-------|--------|---------|-------|-----|
| | | | | 3/18/2008 | 6/24/2008 | 8/19/2008 | 9/16/2008 | 12/16/2008 | | | | | | |
| 35CS | Central Street Bridge | Milford | 3.5 | 0.83 | 1.13 | 0.64 | 0.47 | | 0.768 | 0.737 | 0.284 | 0.465 | 1.130 | |
| 90CS | Rt. 126, N. Main St. | Bellingham | 9.0 | 2.49 (a) | 4.87 | 1.72 | 3.11 | 1.75 | 2.789 | 2.486 | 1.300 | 1.723 | 4.874 | |
| 199S | Populatic Pond Boat Launch | Norfolk | 19.9 | | 1.87 (a) | 2.35 | 1.33 | | 1.851 | 1.870 | 0.512 | 1.331 | 2.353 | |
| 290S | Old Bridge St. | Millis/Medfield | 29.0 | 1.10 (a) | 1.88 | 0.98 | 1.43 (a) | | 1.346 | 1.429 | 0.402 | 0.982 | 1.877 | |
| 387S | Cheney Bridge | Wellesley/Natick | 38.7 | 0.90 (a) | 1.74 | 0.95 | 1.21 | 0.87 | 1.134 | 0.952 | 0.363 | 0.873 | 1.737 | |
| 534S | Rt. 109 Bridge | Dedham/Boston | 53.4 | 0.87 | 1.43 | 1.10 | 1.00 | 0.81 (a) | 1.041 | 1.050 | 0.244 | 0.866 | 1.429 | |
| 609S | Washington St. Hunnewell Bridge | Wellesley/Newton | 60.9 | 0.86 | 1.56 (a) | 1.09 | 1.04 | 0.89 | 1.088 | 1.041 | 0.282 | 0.861 | 1.562 | |
| 621S | Leo J. Martin Golf Course/Park Rd. | Weston/Newton | 62.1 | | | | 0.00 | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| 662S | Moody St. Bridge | Waltham | 66.2 | 0.95 (a) | 0.98 | 1.10 | 1.10 | 0.90 (a) | 1.006 | 0.980 | 0.090 | 0.901 | 1.100 | |
| 012S | Watertown Dam Footbridge | Watertown | 69.3 | 0.95 | 1.03 | 1.10 | 1.15 | 0.96 | 1.038 | 1.030 | 0.087 | 0.952 | 1.150 | |
| 743S | Western Ave | Cambridge/Boston | 74.3 | 0.99 | 1.08 | 1.13 | 1.12 (a) | 1.06 | 1.077 | 1.080 | 0.055 | 0.993 | 1.130 | |
| 763S | Mass. Ave. at Harvard Bridge | Boston/Cambridge | 76.3 | 1.06 | | 1.22 | 1.03 | 1.20 | 1.128 | 1.130 | 0.097 | 1.030 | 1.220 | |
| 784S | New Charles River Dam | Boston/Cambridge | 78.4 | 1.06 | 1.18 (a) | 1.11 | 0.92 | 1.21 (a) | 1.095 | 1.109 | 0.113 | 0.922 | 1.205 | |
| Total # of Samples exceeding action limit | | 54 | | 11 | 11 | 12 | 12 | 9 | | | | | | |
| Total # of Samples | | 55 | | 11 | 11 | 12 | 13 | 9 | | | | | | |
| % of samples exceeding action limit | | 98.2% | | 100.0% | 100.0% | 100.0% | 92.3% | 100.0% | | | | | | |
| QA/QC Samples | | | | | | | | | | | | | | |
| | Equipment Blank | | | | 0.007 | | 0.004 | 1.7 | | | | | | |
| | Site No. | | | | 90CS | | 012S | 743S | | | | | | |
| Rainfall At Logan International Airport (inches) | | | | | | | | | | | | | | |
| | 3 Days Prior to Sampling | | | WET | WET | DRY | WET | DRY | | | | | | |
| | 2 Days Prior to Sampling | | | 0.31 | 0 | Trace | 0.00 | 0.00 | | | | | | |
| | 1 Day Prior to Sampling | | | Trace | Trace | 0.00 | 0.35 | 0.00 | | | | | | |
| | Day of Sampling | | | 0.00 | 0.46 | 0.00 | 0.00 | 0.00 | | | | | | |
| | | | | Trace | 0.78 | 0.01 | 0.00 | 0.02 | | | | | | |

(a) Average of duplicates

Chlorophyll a Analysis 2008

| Site # | Description | Town | River mile | Chlorophyll a Concentrations (mg/L) | | | | | Mean | Median | Std Dev | Min | Max |
|--|---|-----------------------------|------------|-------------------------------------|-------------|-------------|-----------|------------|-------------|---------|---------|---------|---------|
| | | | | 3/18/2008 | 6/24/2008 | 8/19/2008 | 9/16/2008 | 12/16/2008 | | | | | |
| 35CS | Central Street Bridge | Milford | 3.5 | 0.00350 | 0.00147 | 0.00069 | 0.00078 | | 0.00161 | 0.00113 | 0.00131 | 0.00069 | 0.00350 |
| 90CS | Rt. 126, N. Main St. | Bellingham/Milford/Hopedale | 9.0 | 0.00900 | 0.01180 | 0.00106 | 0.00191 | 0.00056 | 0.00487 | 0.00191 | 0.00517 | 0.00056 | 0.01180 |
| 199S | Populatic Pond Boat Launch | Norfolk | 19.9 | 0.01990 | (a) 0.01139 | (a) 0.00561 | 0.00476 | | 0.01041 | 0.00850 | 0.00698 | 0.00476 | 0.01990 |
| 290S | Old Bridge St. | Medfield/Millis | 29.0 | 0.02900 | 0.00511 | 0.00152 | 0.00072 | (a) | 0.00909 | 0.00332 | 0.01341 | 0.00072 | 0.02900 |
| 387S | Cheney Bridge | Natick/Wellesley | 37.8 | 0.03780 | (a) 0.00440 | 0.00216 | 0.00090 | 0.00109 | 0.00927 | 0.00216 | 0.01601 | 0.00090 | 0.03780 |
| 534S | Rt. 109 Bridge | Dedham/Boston | 53.4 | 0.05340 | (a) 0.00685 | 0.00417 | 0.00171 | 0.00171 | (a) 0.01357 | 0.00417 | 0.02237 | 0.00171 | 0.05340 |
| 609S | Washington St./Hunnewell Bridge | Wellesley/Newton | 60.9 | 0.06090 | 0.00336 | (a) 0.00556 | 0.00193 | 0.00194 | 0.01474 | 0.00336 | 0.02585 | 0.00193 | 0.06090 |
| 621S | Leo J. Martin Golf Course/Park Rd. | Weston/Newton | 62.1 | | | | | 0.00000 | no data | no data | no data | no data | no data |
| 662S | Moody St. Bridge | Waltham | 66.2 | 0.06620 | 0.00765 | 0.00737 | 0.00274 | 0.00195 | (a) 0.01718 | 0.00737 | 0.02753 | 0.00195 | 0.06620 |
| 012S | Watertown Dam Footbridge | Watertown | 69.3 | 0.06930 | (a) 0.00992 | 0.00288 | 0.00120 | 0.00208 | 0.01708 | 0.00288 | 0.02940 | 0.00120 | 0.06930 |
| 743S | Western Ave | Cambridge/Boston | 74.3 | 0.07430 | 0.01070 | 0.00459 | 0.00544 | (a) | 0.00230 | 0.01947 | 0.00544 | 0.00230 | 0.07430 |
| 763S | Mass. Ave. (Harvard) Bridge | Boston/Cambridge | 76.3 | 0.07630 | | 0.00913 | 0.01160 | 0.00219 | 0.02481 | 0.01037 | 0.03456 | 0.00219 | 0.07630 |
| 784S | New Charles River Dam | Boston/Cambridge | 78.4 | 0.07840 | 0.01395 | (a) 0.01550 | 0.00638 | 0.00235 | (a) 0.02332 | 0.01395 | 0.03126 | 0.00235 | 0.07840 |
| | Total # of samples exceeding action limit | 31 | | 11 | 9 | 7 | 3 | 0 | | | | | |
| | Total # of Samples | 56 | | 12 | 11 | 12 | 12 | 9 | | | | | |
| | % of samples exceeding action limit | 55.4% | | 91.7% | 81.8% | 58.3% | 25.0% | 0.0% | | | | | |
| QA/QC Samples | | | | | | | | | | | | | |
| | Equipment Blank | | | | | | | | | | | | |
| | Site No. | | | | | | | | | | | | |
| | Equipment Blank | | | | | | | | | | | | |
| | Site No. | | | | | | | | | | | | |
| Rainfall At Logan International Airport (inches) | | | | | | | | | | | | | |
| | 3 Days Prior to Sampling | | | 0.31 | 0.00 | Trace | 0.00 | 0.00 | | | | | |
| | 2 Days Prior to Sampling | | | Trace | Trace | 0.00 | 0.35 | 0.00 | | | | | |
| | 1 Day Prior to Sampling | | | 0.00 | 0.46 | 0.00 | 0.00 | 0.00 | | | | | |
| | Day of Sampling | | | Trace | 0.78 | 0.01 | 0.00 | 0.02 | | | | | |

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

(a) Average of duplicates

Chlorophyll a Phaeophytin Ratios 2008

| Site # | Description | Town | River mile | Chlorophyll A Phaeophytin Ratios | | | | | Mean | Median | Std Dev | Min | Max |
|--|---|-----------------------------|------------|----------------------------------|-----------|-----------|-----------|------------|---------|---------|---------|---------|---------|
| | | | | 3/18/2008 | 6/24/2008 | 8/19/2008 | 9/16/2008 | 12/16/2008 | | | | | |
| 35CS | Central Street Bridge | Milford | 3.5 | 0.00045 | 0.00060 | 0.00051 | 0.00076 | | 0.00058 | 0.00056 | 0.00014 | 0.00045 | 0.00076 |
| 90CS | Rt. 126, N. Main St. | Bellingham/Milford/Hopedale | 9.0 | 0.00100 | 0.00110 | 0.00125 | 0.00076 | 0.00077 | 0.00098 | 0.00100 | 0.00021 | 0.00076 | 0.00125 |
| 199S | Populatic Pond Boat Launch | Norfolk | 19.9 | 0.00000 | 0.00129 | 0.00283 | 0.00203 | | 0.00154 | 0.00166 | 0.00120 | 0.00000 | 0.00283 |
| 290S | Old Bridge St. | Medfield/Milllis | 29.0 | 0.00094 | 0.00101 | 0.00095 | 0.00060 | | 0.00088 | 0.00094 | 0.00019 | 0.00060 | 0.00101 |
| 387S | Cheney Bridge | Natick/Wellesley | 37.8 | 0.00073 | 0.00089 | 0.00096 | 0.00048 | 0.00065 | 0.00074 | 0.00073 | 0.00019 | 0.00048 | 0.00096 |
| 534S | Rt. 109 Bridge | Dedham/Boston | 53.4 | 0.00112 | 0.00122 | 0.00139 | 0.00068 | 0.00142 | 0.00117 | 0.00122 | 0.00030 | 0.00068 | 0.00142 |
| 609S | Washington St./Hunnewell Bridge | Wellesley/Newton | 60.9 | 0.00133 | 0.00061 | 0.00120 | 0.00057 | 0.00128 | 0.00100 | 0.00120 | 0.00037 | 0.00057 | 0.00133 |
| 621S | Leo J. Martin Golf Course/Park Rd. | Weston/Newton | 62.1 | | | | | | no data | no data | no data | no data | no data |
| 662S | Moody St. Bridge | Waltham | 66.2 | 0.00124 | 0.00121 | 0.00139 | 0.00107 | 0.00144 | 0.00127 | 0.00124 | 0.00015 | 0.00107 | 0.00144 |
| 012S | Watertown Dam Footbridge | Watertown | 69.3 | 0.00118 | 0.00115 | 0.00062 | 0.00038 | 0.00141 | 0.00095 | 0.00115 | 0.00043 | 0.00038 | 0.00141 |
| 743S | Western Ave | Cambridge/Boston | 74.3 | 0.00101 | 0.00143 | 0.00116 | 0.00177 | 0.00154 | 0.00138 | 0.00143 | 0.00030 | 0.00101 | 0.00177 |
| 763S | Mass. Ave. (Harvard) Bridge | Boston/Cambridge | 76.3 | 0.00139 | 0.00000 | 0.00139 | 0.00212 | 0.00187 | 0.00135 | 0.00139 | 0.00082 | 0.00000 | 0.00212 |
| 784S | New Charles River Dam | Boston/Cambridge | 78.4 | 0.00177 | 0.00173 | 0.00149 | 0.00127 | 0.00151 | 0.00155 | 0.00151 | 0.00020 | 0.00127 | 0.00177 |
| | Total # of Samples exceeding action limit | 0 | | 1 | 0 | 0 | 0 | 0 | | | | | |
| | Total # of Samples | 57 | | 12 | 12 | 12 | 12 | 9 | | | | | |
| | % of samples exceeding action limit | 0.0% | | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | | | | | |
| QA/QC Samples | | | | | | | | | | | | | |
| | Equipment Blank | | | | | | | | | | | | |
| | Site No. | | | | | | | | | | | | |
| | Equipment Blank | | | | | | | | | | | | |
| | Site No. | | | | | | | | | | | | |
| Rainfall At Logan International Airport (inches) | | | | | | | | | | | | | |
| | 3 Days Prior to Sampling | | | WET | WET | DRY | WET | DRY | | | | | |
| | | | | 0.31 | 0 | Trace | 0 | 0 | | | | | |
| | 2 Days Prior to Sampling | | | Trace | Trace | 0.00 | 0.35 | 0 | | | | | |
| | 1 Day Prior to Sampling | | | 0.00 | 0.46 | 0.00 | 0 | 0 | | | | | |
| | Day of Sampling | | | Trace | 0.78 | 0.01 | 0 | 0.02 | | | | | |

Chlorophyll a Alpha Results 2008

| Site # | Description | Town | River mile | Chlorophyll a Concentration (mg/L) | | | Mean | Median | Std Dev | Min | Max |
|--------|--|-----------------------------|------------|------------------------------------|-----------|-----------|----------|----------|------------|---------|---------|
| | | | | 7/15/2008 | 8/19/2008 | 9/16/2008 | | | | | |
| 35CS | Central Street Bridge | Milford | 3.5 | | | | no data | no data | no data | no data | no data |
| 59CS | Mellen St. Bridge | Bellingham/Milford/Hopedale | 5.9 | | | | no data | no data | no data | no data | no data |
| 90CS | Rt. 126, N. Main St. | Bellingham | 9.0 | | | | no data | no data | no data | no data | no data |
| 130S | Maple St. Bridge | Bellingham | 12.9 | | | | no data | no data | no data | no data | no data |
| 165S | Shaw St. Bridge | Franklin/Medway | 16.5 | | | | no data | no data | no data | no data | no data |
| 199S | Populatic Pond Boat Launch | Norfolk | 19.9 | | | | no data | no data | no data | no data | no data |
| 229S | Rt. 115, Baltimore St. | Norfolk/Millis | 22.9 | | 0.00471 | 0.00245 | 0.00358 | 0.00358 | 0.00159806 | 0.00245 | 0.00471 |
| 267S | Dwight St. Bridge | Millis/Medfield | 26.7 | | | | no data | no data | no data | no data | no data |
| 269T | Causeway St. Stop River | Medfield | 26.9 | | | | no data | no data | no data | no data | no data |
| 290S | Old Bridge St. | Millis/Medfield | 29.0 | | | | no data | no data | no data | no data | no data |
| 318S | Rt. 27 Bridge | Medfield/Sherborn | 31.8 | | | | no data | no data | no data | no data | no data |
| 343S | Farm Rd./Bridge St. | Sherborn/Dover | 34.3 | | | | no data | no data | no data | no data | no data |
| 387S | Cheney Bridge | Wellesley/Natick | 38.7 | | | | no data | no data | no data | no data | no data |
| 400S | Charles River Road Bridge | Dover/Wellesley | 40.0 | | | | no data | no data | no data | no data | no data |
| 447S | Dover Gage | Dover | 44.7 | | 0.00375 | 0.00367 | 0.00371 | 0.00371 | 5.6569E-05 | 0.00367 | 0.00375 |
| 484S | Dedham Medical Center | Dedham/Needham | 48.4 | | | | no data | no data | no data | no data | no data |
| 521S | Ames St. Bridge | Dedham | 52.1 | | | | no data | no data | no data | no data | no data |
| 534S | Rt. 109 Bridge | Dedham/Boston | 53.4 | | | | no data | no data | no data | no data | no data |
| 567S | Nahanton Park | Newton/Needham | 56.7 | | | | no data | no data | no data | no data | no data |
| 591S | Rt. 9 Gaging Station | Newton | 59.1 | | | | no data | no data | no data | no data | no data |
| 609S | Washington St. Hunnewell Bridge | Wellesley/Newton | 60.9 | | | | no data | no data | no data | no data | no data |
| 621S | Leo J. Martin Golf Course/Park Rd. | Weston/Newton | 62.1 | | | | no data | no data | no data | no data | no data |
| 635S | 2391 Commonwealth Ave. | Newton | 63.5 | | | | no data | no data | no data | no data | no data |
| 648S | Lakes Region | Waltham | 64.8 | | | | no data | no data | no data | no data | no data |
| 662S | Moody St. Bridge | Waltham | 66.2 | | | | no data | no data | no data | no data | no data |
| 675S | North St. | Waltham/Newton | 67.6 | | | | no data | no data | no data | no data | no data |
| 012S | Watertown Dam Footbridge | Watertown | 69.3 | | | | no data | no data | no data | no data | no data |
| 700S | N. Beacon St. | Watertown/Brighton | 70.9 | | | | no data | no data | no data | no data | no data |
| 715S | Arsenal St. | Watertown/Brighton | 71.5 | | | | no data | no data | no data | no data | no data |
| 729S | Eliot Bridge | Cambridge/Boston | 72.9 | 0.0232 | (a) | 0.001 | 0.0121 | 0.0121 | 0.01569777 | 0.001 | 0.0232 |
| 743S | Western Ave. | Cambridge/Boston | 74.3 | 0.024 | | | 0.024 | 0.024 | | 0.024 | 0.024 |
| 760T | Muddy River at Comm. Ave. | Boston | 76.0 | | 0.01395 | (a) | 0.008655 | 0.008655 | 0.00748826 | 0.00336 | 0.01395 |
| 763S | Mass. Ave. at Harvard Bridge | Boston/Cambridge | 76.3 | 0.0262 | | | 0.0262 | 0.0262 | no data | 0.0262 | 0.0262 |
| 773S | Longfellow Bridge | Cambridge/Boston | 77.3 | | | | no data | no data | no data | 0 | 0 |
| 784S | New Charles River Dam | Boston/Cambridge | 78.4 | 0.0191 | | | 0.0191 | 0.0191 | no data | 0.0191 | 0.0191 |
| | | | | | | | | | | | |
| | Total # of Samples exceeding action limit | 7 | | 4 | 3 | 0 | | | | | |
| | Total #of Samples | 11 | | 4 | 3 | 4 | | | | | |
| | % of samples exceeding action limit | 63.6% | | 100.00% | 100.0% | 0.0% | | | | | |
| | | | | | | | | | | | |
| | QA/QC Samples | | | | | | | | | | |
| | Equipment Blank | | | | | | | | | | |
| | Site No. | | | | | | | | | | |
| | Equipment Blank | | | | | | | | | | |
| | Site No. | | | | | | | | | | |
| | | | | | | | | | | | |
| | Rainfall At Logan International Airport (inches) | | | | | | | | | | |
| | 3 Days Prior to Sampling | | | 0.00 | Trace | 0.00 | | | | | |
| | 2 Days Prior to Sampling | | | 0.00 | 0.00 | 0.35 | | | | | |
| | 1 Day Prior to Sampling | | | 0.07 | 0.00 | 0.00 | | | | | |
| | Day of Sampling | | | 0.00 | 0.01 | 0.00 | | | | | |

(a) Average of duplicates

Total Suspended Solids Results 2008

| Site # | Description | Town | River mile | Total Suspended Solids (mg/L) | | | Mean | Median | Std Dev | Min | Max | | | |
|--------|--|-----------------------------|------------|-------------------------------|-----------|-----------|------|--------|---------|-------|-----|-----|-----|------|
| | | | | 3/18/2008 | 4/15/2008 | 5/20/2008 | | | | | | | | |
| 35CS | Central Street Bridge | Milford | 3.5 | 2.5 | | 0.5 | 1.2 | 0.5 | 1.2 | 0.5 | 2.5 | | | |
| 35CD | Discharge Pipe @ Central St. | Milford | 3.5 | | | | | | | 0.0 | 0.0 | | | |
| 35C2 | 2nd Discharge Pipe @ Central St. | Milford | 3.5 | | | | | | | 0.0 | 0.0 | | | |
| 59CS | Mellen St. Bridge | Bellingham/Milford/Hopedale | 5.9 | 2.5 | 1.6 | 1.1 | 1.7 | 1.6 | 0.7 | 1.1 | 2.5 | | | |
| 90CS | Rt. 126, N. Main St. | Bellingham | 9.0 | 2.5 | (a) | 1.7 | 2.1 | 2.1 | 0.6 | 1.7 | 2.5 | | | |
| 130S | Maple St. Bridge | Bellingham | 12.9 | 2.5 | | 1.3 | (a) | 0.5 | 1.4 | 1.3 | 1.0 | 0.5 | 2.5 | |
| 165S | Shaw St. Bridge | Franklin/Medway | 16.5 | 2.5 | | 1.0 | | 1.8 | (a) | 1.8 | 1.8 | 0.8 | 1.0 | 2.5 |
| 199S | Populatic Pond Boat Launch | Norfolk | 19.9 | | | | 8.5 | 8.5 | | 8.5 | | | 8.5 | 8.5 |
| 229S | Rt. 115, Baltimore St. | Norfolk/Millis | 22.9 | 2.5 | | 1.7 | 1.8 | 1.1 | 1.8 | 1.7 | 0.7 | 1.1 | 2.5 | |
| 267S | Dwight St. Bridge | Millis/Medfield | 26.7 | 2.5 | | 1.1 | | 3.8 | | 2.5 | 2.5 | 1.4 | 1.1 | 3.8 |
| 269T | Causeway St. Stop River | Medfield | 26.9 | 2.5 | | 1.3 | | | | 1.9 | 1.9 | 0.8 | 1.3 | 2.5 |
| 290S | Old Bridge St. | Millis/Medfield | 29.0 | 2.5 | (a) | | | | | 2.5 | 2.5 | | 2.5 | 2.5 |
| 318S | Rt. 27 Bridge | Medfield/Sherborn | 31.8 | 2.5 | | 2.2 | | 5.2 | (a) | 3.3 | 2.5 | 1.6 | 2.2 | 5.2 |
| 343S | Farm Rd./Bridge St. | Sherborn/Dover | 34.3 | 2.5 | | 3.6 | (a) | 4.3 | | 3.5 | 3.6 | 0.9 | 2.5 | 4.3 |
| 387S | S. Natick Dam | Wellesley/Natick | 37.8 | 2.5 | (a) | 1.7 | | 2.4 | | 2.2 | 2.4 | 0.4 | 1.7 | 2.5 |
| 400S | Charles River Road Bridge | Dover/Wellesley | 40.0 | 2.5 | | 2.9 | | 2.8 | | 2.7 | 2.8 | 0.2 | 2.5 | 2.9 |
| 447S | Dover Gage | Dover | 44.7 | 2.5 | | 2.2 | (a) | 2.1 | | 2.3 | 2.2 | 0.2 | 2.1 | 2.5 |
| 484S | Dedham Medical Center | Dedham/Needham | 48.4 | 2.5 | | | | 3.5 | | 3.0 | 3.0 | 0.7 | 2.5 | 3.5 |
| 521S | Ames St. Bridge | Dedham | 52.1 | 2.5 | | 3.5 | | 5.6 | | 3.9 | 3.5 | 1.6 | 2.5 | 5.6 |
| 534S | Rt. 109 Bridge | Dedham/Boston | 53.4 | 2.5 | | 8.7 | | | | 5.6 | 5.6 | 4.4 | 2.5 | 8.7 |
| 567S | Nahanton Park | Newton/Needham | 56.7 | 2.5 | | | | 12.0 | (a) | 7.3 | 7.3 | 6.7 | 2.5 | 12.0 |
| 591S | Rt. 9 Gaging Station | Newton | 59.1 | 2.5 | | 6.9 | | | | 4.7 | 4.7 | 3.1 | 2.5 | 6.9 |
| 609S | Washington St. Hunnewell Bridge | Wellesley/Newton | 60.9 | 2.5 | | 5.5 | | 7.2 | | 5.1 | 5.5 | 2.4 | 2.5 | 7.2 |
| 621S | Leo J. Martin Golf Course/Park Rd. | Weston/Newton | 62.1 | 2.5 | | 5.2 | | 6.0 | | 4.6 | 5.2 | 1.8 | 2.5 | 6.0 |
| 635S | 2391 Commonwealth Ave. | Newton | 63.5 | 2.5 | | 4.1 | | 4.2 | | 3.6 | 4.1 | 1.0 | 2.5 | 4.2 |
| 648S | Lakes Region | Waltham | 64.8 | | | 4.6 | (a) | 4.9 | | 4.8 | 4.8 | 0.2 | 4.6 | 4.9 |
| 662S | Moody St. Bridge | Waltham | 66.2 | 2.5 | (a) | 5.2 | | 4.3 | | 4.0 | 4.3 | 1.4 | 2.5 | 5.2 |
| 675S | North St. | Waltham/Newton | 67.6 | 8.9 | | 4.7 | | 3.2 | | 5.6 | 4.7 | 3.0 | 3.2 | 8.9 |
| 012S | Watertown Dam Footbridge | Watertown | 69.3 | 2.5 | | 5.0 | | 4.0 | | 3.8 | 4.0 | 1.3 | 2.5 | 5.0 |
| 700S | N. Beacon St. | Watertown/Brighton | 70.9 | | | 5.8 | | 5.4 | (a) | 5.6 | 5.6 | 0.3 | 5.4 | 5.8 |
| 715S | Arsenal St. | Watertown/Brighton | 71.5 | 2.5 | | 4.5 | | 5.4 | | 4.1 | 4.5 | 1.5 | 2.5 | 5.4 |
| 729S | Eliot Bridge | Cambridge/Boston | 72.9 | 2.5 | | 4.9 | | 5.2 | | 4.2 | 4.9 | 1.5 | 2.5 | 5.2 |
| 743S | Western Ave. | Cambridge/Boston | 74.3 | 2.5 | | 5.5 | | 5.0 | | 4.3 | 5.0 | 1.6 | 2.5 | 5.5 |
| 760S | Muddy River at Comm. Ave. | Boston | 76.0 | | | | | | | | | | 0.0 | 0.0 |
| 763S | Mass. Ave. at Harvard Bridge | Boston/Cambridge | 76.3 | 2.5 | | 3.7 | | | | 3.1 | 3.1 | 0.8 | 2.5 | 3.7 |
| 773S | Longfellow Bridge | Cambridge/Boston | 77.3 | 2.5 | | 3.8 | | 2.7 | | 3.0 | 2.7 | 0.7 | 2.5 | 3.8 |
| 784S | New Charles River Dam | Boston/Cambridge | 78.4 | 2.5 | | 3.7 | | 2.3 | | 2.8 | 2.5 | 0.8 | 2.3 | 3.7 |
| | Total # of Samples exceeding action limit | | | | | | | | | | | | | |
| | Total # of Samples | | | | | | | | | | | | | |
| | % of samples exceeding action limit | | | | | | | | | | | | | |
| | QA/QC Samples | | | | | | | | | | | | | |
| | Equipment Blank | | | | | <10 | | <1 | | <1 | | | | |
| | Site No. | | | | | 567S | | 35CS | | 59CS | | | | |
| | Equipment Blank | | | | | | | <1 | | <1 | | | | |
| | Site No. | | | | | | | 609S | | 635S | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | Rainfall At Logan International Airport (inches) | | | | | WET | | WET | | WET | | | | |
| | 3 Days Prior to Sampling | | | | | 0.31 | | 0.45 | | 0.44 | | | | |
| | 2 Days Prior to Sampling | | | | | Trace | | 0.01 | | Trace | | | | |
| | 1 Day Prior to Sampling | | | | | 0 | | 0.00 | | 0.00 | | | | |
| | Day of Sampling | | | | | Trace | | 0.00 | | Trace | | | | |

(a) Average of duplicates

Depth Results 2008

| Site # | Description | Town | River mile | Depth (feet) | | | | | | | | | | | | Mean | Median | Std Dev | Min | Max |
|--------|--|-----------------------------|------------|--|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|---------|---------|---------|------|------|
| | | | | 1/15/2008 | 2/12/2008 | 3/18/2008 | 4/15/2008 | 5/20/2008 | 6/24/2008 | 7/15/2008 | 8/19/2008 | 9/16/2008 | 10/14/2008 | 11/18/2008 | 12/16/2008 | | | | | |
| 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 | 1.5 | 1.5 | 1.2 | 1.0 | 0.7 | 1.3 | 1.2 | 0.7 | | 1.4 | 1.2 | 1.2 | 0.3 | 0.7 | 1.5 |
| 35CD | Discharge Pipe @ Central St. | Milford | 3.5 | | | | | | | | | | | | | no data | no data | no data | 0.0 | 0.0 |
| 35C2 | 2nd Discharge Pipe @ Central St. | Milford | 3.5 | | | | | | | | | | | | | no data | no data | no data | 0.0 | 0.0 |
| 59CS | Mellen St. Bridge | Bellingham/Milford/Hopedale | 5.9 | | | 1.5 | 1.6 | 1.2 | 0.7 | 0.5 | 2.2 | 2.3 | 1.5 | 1.6 | 3.3 | 1.6 | 1.6 | 0.8 | 0.5 | 3.3 |
| 90CS | Rt. 126, N. Main St. | Bellingham | 9.0 | | | 2.1 | 2.4 | | 0.9 | 1.3 | 2.2 | 2.7 | 1.8 | | | 1.9 | 2.1 | 0.6 | 0.9 | 2.7 |
| 130S | Maple St. Bridge | Bellingham | 12.9 | | | 1.2 | 1.0 | 0.8 | 0.6 | 0.3 | 1.1 | 1.0 | 0.9 | 0.9 | 1.7 | 1.0 | 1.0 | 0.4 | 0.3 | 1.7 |
| 165S | Shaw St. Bridge | Franklin/Medway | 16.5 | | | 1.5 | 1.9 | 2.3 | 0.7 | 0.5 | 2.3 | 1.7 | 1.8 | 1.9 | 4.9 | 2.0 | 1.8 | 1.2 | 0.5 | 4.9 |
| 199S | Populatic Pond Boat Launch | Norfolk | 19.9 | | | | | | | | | | | | | no data | no data | no data | 0.0 | 0.0 |
| 229S | Rt. 115, Baltimore St. | Norfolk/Millis | 22.9 | | | 4.3 | 3.3 | 2.8 | 1.9 | 2.1 | 3.6 | 2.7 | 3.2 | 2.8 | | 3.0 | 2.8 | 0.7 | 1.9 | 4.3 |
| 267S | Dwight St. Bridge | Millis/Medfield | 26.7 | | | | 2.5 | 1.8 | 0.8 | 0.5 | 3.8 | 2.3 | 1.2 | 0.8 | | 1.7 | 1.5 | 1.1 | 0.5 | 3.8 |
| 269T | Causeway St. Stop River | Medfield | 26.9 | | | 4.6 | 3.0 | 2.8 | 1.3 | 1.1 | 4.0 | 2.6 | 2.1 | 2.1 | 6.9 | 3.0 | 2.7 | 1.7 | 1.1 | 6.9 |
| 290S | Old Bridge St. | Millis/Medfield | 29.0 | | | 10.3 | | 8.1 | 5.9 | 5.5 | 8.9 | 8.2 | 7.0 | | | 7.7 | 8.1 | 1.7 | 5.5 | 10.3 |
| 318S | Rt. 27 Bridge | Medfield/Sherborn | 31.8 | | | 12.0 | 7.5 | 6.0 | 5.0 | 4.0 | 7.0 | 7.0 | 5.5 | 6.0 | 8.0 | 6.8 | 6.5 | 2.2 | 4.0 | 12.0 |
| 343S | Farm Rd./Bridge St. | Sherborn/Dover | 34.3 | | | 8.5 | 7.0 | 6.5 | 4.8 | | 7.0 | 6.0 | 6.1 | 6.4 | 10.3 | 7.0 | 6.5 | 1.6 | 4.8 | 10.3 |
| 387S | S. Natick Dam | Wellesley/Natick | 37.8 | | | 6.3 | 5.5 | 4.9 | 4.1 | 3.8 | 6.3 | 6.0 | 5.2 | 5.0 | | 5.2 | 5.2 | 0.9 | 3.8 | 6.3 |
| 400S | Charles River Road Bridge | Dover/Wellesley | 40.0 | | | 9.0 | 6.8 | 6.2 | 5.7 | 5.8 | 7.3 | 6.1 | | 5.9 | 15.3 | 7.6 | 6.2 | 3.1 | 5.7 | 15.3 |
| 447S | Dover Gage | Dover | 44.7 | | | | | 2.3 | 1.8 | 1.5 | 2.5 | 2.2 | 2.0 | | | 2.0 | 2.1 | 0.4 | 1.5 | 2.5 |
| 484S | Dedham Medical Center | Dedham/Needham | 48.4 | | | 6.2 | 4.9 | 5.7 | 3.0 | 5.3 | | 6.0 | 4.5 | 4.5 | 18.1 | 6.5 | 5.3 | 4.5 | 3.0 | 18.1 |
| 521S | Ames St. Bridge | Dedham | 52.1 | | | 5.1 | 3.8 | 3.3 | 2.8 | 2.4 | 3.9 | 3.3 | 3.3 | | 5.5 | 3.7 | 3.3 | 1.0 | 2.4 | 5.5 |
| 534S | Rt. 109 Bridge | Dedham/Boston | 53.4 | | | 7.8 | 6.1 | | 4.8 | 4.6 | 6.2 | 7.0 | 5.1 | 5.8 | 9.4 | 6.3 | 6.1 | 1.6 | 4.6 | 9.4 |
| 567S | Nahanton Park | Newton/Needham | 56.7 | | | 8.5 | | 7.2 | 5.8 | 5.6 | 7.5 | | 6.2 | 7.5 | 9.0 | 7.2 | 7.3 | 1.2 | 5.6 | 9.0 |
| 591S | Rt. 9 Gaging Station | Newton | 59.1 | | | 1.7 | 0.6 | 1.1 | 1.1 | 1.1 | 2.3 | | 1.9 | 1.6 | 1.3 | 1.4 | 1.3 | 0.5 | 0.6 | 2.3 |
| 609S | Washington St. Hunnewell Bridge | Wellesley/Newton | 60.9 | | | | | | | | | | | | | no data | no data | no data | 0.0 | 0.0 |
| 621S | Leo J. Martin Golf Course/Park Rd. | Weston/Newton | 62.1 | | | 10.2 | | 5.6 | 5.9 | 4.9 | 4.5 | 5.6 | 5.2 | 5.1 | | 5.9 | 5.4 | 1.8 | 4.5 | 10.2 |
| 635S | 2391 Commonwealth Ave. | Newton | 63.5 | | | 5.3 | 4.9 | 4.3 | 4.5 | 4.0 | 4.3 | 4.3 | 4.5 | 4.3 | 6.0 | 4.6 | 4.4 | 0.6 | 4.0 | 6.0 |
| 648S | Lakes Region | Waltham | 64.8 | | | | 9.5 | 9.1 | 8.5 | 8.4 | 9.3 | 9.1 | 9.0 | | | 9.0 | 9.1 | 0.4 | 8.4 | 9.5 |
| 662S | Moody St. Bridge | Waltham | 66.2 | | | 9.0 | 8.9 | 8.8 | 9.3 | 7.3 | 8.4 | 8.1 | 8.3 | 8.0 | 9.2 | 8.5 | 8.6 | 0.6 | 7.3 | 9.3 |
| 675S | North St. | Waltham/Newton | 67.6 | | | | 2.7 | 1.9 | 1.8 | | 2.4 | 1.6 | 2.0 | 2.3 | | 2.1 | 2.0 | 0.4 | 1.6 | 2.7 |
| 012S | Watertown Dam Footbridge | Watertown | 69.3 | | | 4.1 | 3.5 | 3.0 | 3.2 | 2.9 | 3.4 | 4.0 | 3.1 | 3.1 | 4.1 | 3.4 | 3.3 | 0.5 | 2.9 | 4.1 |
| 700S | N. Beacon St. | Watertown/Brighton | 70.9 | | | | 8.3 | 8.6 | 8.8 | 8.4 | 8.3 | 8.1 | 7.9 | 8.1 | | 8.3 | 8.3 | 0.3 | 7.9 | 8.8 |
| 715S | Arsenal St. | Watertown/Brighton | 71.5 | | | 9.6 | 8.4 | 7.2 | 9.4 | 8.8 | 8.2 | 8.9 | 9.3 | 8.9 | 8.5 | 8.7 | 8.9 | 0.7 | 7.2 | 9.6 |
| 729S | Eliot Bridge | Cambridge/Boston | 72.9 | | | 13.6 | 14.7 | 14.8 | 17.1 | 15.7 | | 15.2 | 14.0 | 13.7 | 13.3 | 14.7 | 14.7 | 1.2 | 13.3 | 17.1 |
| 743S | Western Ave. | Cambridge/Boston | 74.3 | | | 12.6 | 14.5 | 14.1 | 14.8 | 13.6 | 13.5 | 14.0 | 15.0 | 15.0 | 14.9 | 14.2 | 14.3 | 0.8 | 12.6 | 15.0 |
| 760T | Muddy River at Comm. Ave. | Boston | 76.0 | | | 5.2 | 6.4 | 6.7 | | | 6.4 | 6.8 | 6.4 | 7.0 | 6.1 | 6.4 | 6.4 | 0.6 | 5.2 | 7.0 |
| 763S | Mass. Ave. at Harvard Bridge | Boston/Cambridge | 76.3 | | | 12.0 | 12.0 | | | 15.6 | 15.9 | 15.8 | | 15.5 | 18.0 | 15.0 | 15.6 | 2.2 | 12.0 | 18.0 |
| 773S | Longfellow Bridge | Cambridge/Boston | 77.3 | | | 7.0 | 6.2 | 6.6 | 6.7 | 6.3 | 6.3 | 6.8 | 6.8 | 6.5 | 6.3 | 6.5 | 6.6 | 0.3 | 6.2 | 7.0 |
| 784S | New Charles River Dam | Boston/Cambridge | 78.4 | | | 21.0 | 26.0 | 26.7 | 26.1 | 24.9 | 26.8 | 15.2 | 26.1 | 25.5 | 24.9 | 24.3 | 25.8 | 3.6 | 15.2 | 26.8 |
| | Rainfall At Logan International Airport (inches) | | | | | | | | | | | | | | | | | | | |
| | 3 Days Prior to Sampling | | | | | 0.31 | 0.45 | 0.44 | 0.00 | 0.00 | Trace | 0.00 | 0.00 | 0.47 | 0.00 | | | | | |
| | 2 Days Prior to Sampling | | | | | Trace | 0.01 | Trace | Trace | 0.00 | 0.00 | 0.35 | 0.00 | 0.37 | 0.00 | | | | | |
| | 1 Day Prior to Sampling | | | | | 0.00 | 0.00 | 0.00 | 0.46 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | |
| | Day of Sampling | | | | | Trace | 0.00 | Trace | 0.78 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 | | | | | |