WEYMOUTH AND WEIR RIVER BASIN
2004 WATER QUALITY ASSESSMENT REPORT

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WEYMOUTH AND WEIR RIVER BASIN

2004 WATER QUALITY ASSESSMENT REPORT

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Division of Watershed Management
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LIST OF ACRONYMS AND ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
ADB	Assessment Database
BPJ	best professional judgment
CFS	Cubic foot per second
CSO	combined sewer overflow
CWA	Clean Water Act
DDT	dichlorodiphenyltrichloroethane
DMF	Division of Marine Fisheries
DWM	Division of Watershed Management
DWP	Drinking Water Program
EPA	United States Environmental Protection Agency
EPT	Ephemeroptera, Plecoptera, Tricoptera
Hg	Mercury
NEIWPCC	New England Interstate Pollution Control Council
MA DCR	Massachusetts Department of Conservation and Recreation
MA DFG	Massachusetts Department of Fish and Game
MA DPH	Massachusetts Department of Public Health
MassDEP	Massachusetts Department of Environmental Protection
MassGIS	Massachusetts Geographic Information System
MBTA	Massachusetts Bay Transit Authority
MGD	million gallons per day
MWRA	Massachusetts Water Resources Authority
NPDES	National Pollutant Discharge Elimination System
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyls
PPM	Parts per million
S-EL	severe effect level
SSO	sanitary sewer overflow
SVOC	Semi-volatile organic compound
SWQS	Surface Water Quality Standards
TMDL	total maximum daily load
VOC	Volatile organic compound
WBS	Waterbody System database
WCP	Wetlands Conservancy Program
WMA	Water Management Act

LIST OF COMMON AND SCIENTIFIC NAMES

Common name	*Scientific name*	**Common name**	*Scientific name*
Alewife	*Alosa pseudoharengus*	Inland silverside	*Menidia beryllina,*
American Eel	*Anguilla rostrata*	Largemouth bass	*Micropterus salmoides*
Bluegill	*Lepomis macrochirus*	Mysid shrimp	Mysidopsis bahia
Brown bullhead	*Ameiurus nebulosus*	Pumpkinseed	*Lepomis gibbosus*
Brown trout	*Salmo trutta*	Redfin Pickerel	*Esox americanus*
Chain pickerel	*Esox niger*	Yellow Perch	*Perca flavens*
Daphnia	*Ceriodaphnia dubia*	Swamp Darter	Etheostoma fusiforme
Eurasian milfoil	*Myriophyllum spicatum*		
Fanwort	Cabomba caroliniana		
Fathead minnow	*Pimephales promelas*		

EXECUTIVE SUMMARY

WEYMOUTH AND WEIR RIVER BASIN 2004 WATER QUALITY ASSESSMENT REPORT

The Massachusetts Surface Water Quality Standards (SWQS) designate the most sensitive uses for which surface waters in the state shall be protected. The assessment of current water quality conditions is a key step in the successful implementation of the Watershed Approach. This critical phase provides an assessment of whether or not the designated uses are supported or impaired, or not assessed, as well as basic information needed to focus resource protection and remediation activities later in the watershed management planning process.

This report presents a summary of current water quality data/information in the Weymouth and Weir River Basin used to assess the status of the designated uses as defined in the SWQS. The designated uses, where applicable, include: *Aquatic Life, Fish Consumption, Drinking Water, Primary and Secondary Contact Recreation and Aesthetics*. Each use, within a given assessment segment, is individually assessed as ***support*** or ***impaired***. When too little current data/information exists or no reliable data are available for an assessment segment the use is ***not assessed***. However, if there is some indication of water quality impairment, which is not "naturally-occurring", the use is identified with an "Alert Status". Some rivers and lakes do not have an assigned assessment segment identification number and the status of their designated uses has never been assessed, investigated, and/or reported to the United States Environmental Protection Agency (EPA) in the Commonwealth's Summary of Water Quality Report (305(b) Report) nor is information on these waters maintained in the Assessment Database (ADB).

The summary of the assessments for the *Aquatic Life, Fish Consumption, Shellfishing, and Primary and Secondary Contact Recreation* uses in the Weymouth and Weir River Basin segments are illustrated in Figures 1 through 4, respectively. Since all segments are not assessed for *Aesthetic* uses, no figure is provided in this report for that use. For the maps any waters not currently assigned an assessment segment identification number are classified as ***not assessed other waters***. Please refer to special notes 1, 3 on page 5 for more information on the *Fish Consumption Use*. MA DPH has issued a fish consumption advisory for Boston Harbor which for assessment purposes is broadly defined to include all coastal waters that drain into it, therefore all estuarine segments in the Weymouth and Weir River Basin are affected by the advisory. The percentage of total river miles, lake acreage and estuarine areas classified as impaired, support, and not assessed for each designated use in all segments are provided in Table 1.

Table 1. Percentage of total river miles, lake acreage, and estuarine areas in the Weymouth and Weir River Basin assessed as support, impaired, or not assessed for each segment use.

	River (38.2 miles)			Lakes (395 acres)			Estuaries (5.56 sq miles)		
Use	**Support**	**Impaired**	**Not Assessed[1]**	**Support**	**Impaired**	**Not Assessed[1]**	**Support**	**Impaired**	**Not Assessed**
Aquatic Life	0.0%	29.3%	70.7%	0.0%	51.9%	48.1%	0.0%	20.1	79.9%
Fish Consumption	0.0%	10.7	89.3%	0.0%	32.6%	68.4%	0.0%	100%	0.0%
Shellfishing	Not Applicable						0.0%	100%	0.0%
Drinking Water	Not Assessed in this Report[1]						Not Applicable		
Primary Contact	0.0%	0.0%	100%	0.0%	0.0%	100%	100.0%	0.0%	0.0%
Secondary Contact	0.0%	0.0%	100%	0.0%	0.0%	100%	100.0%	0.0%	0.0%
Aesthetics	0.0%	0.0%	100%	0.0%	0.0%	100%	0.0%	0.0%	100%

1 - While this use is not assessed in this report, information on drinking water source protection and finish water quality is available at http://www.mass.gov/dep/water/drinking.htm and from local public water suppliers.

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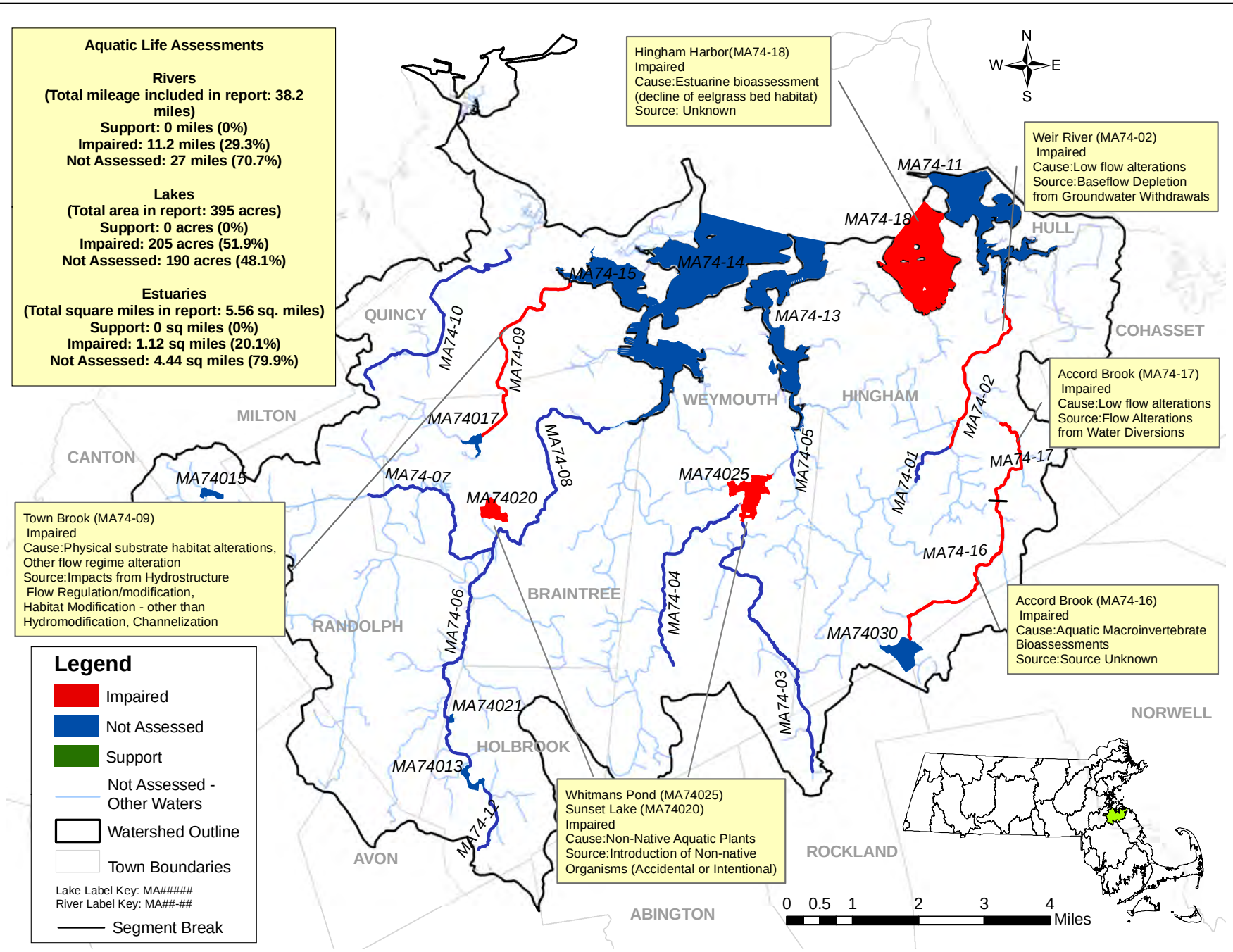

Figure 1: Weymouth and Weir River Basin *Aquatic Life Use* Summary

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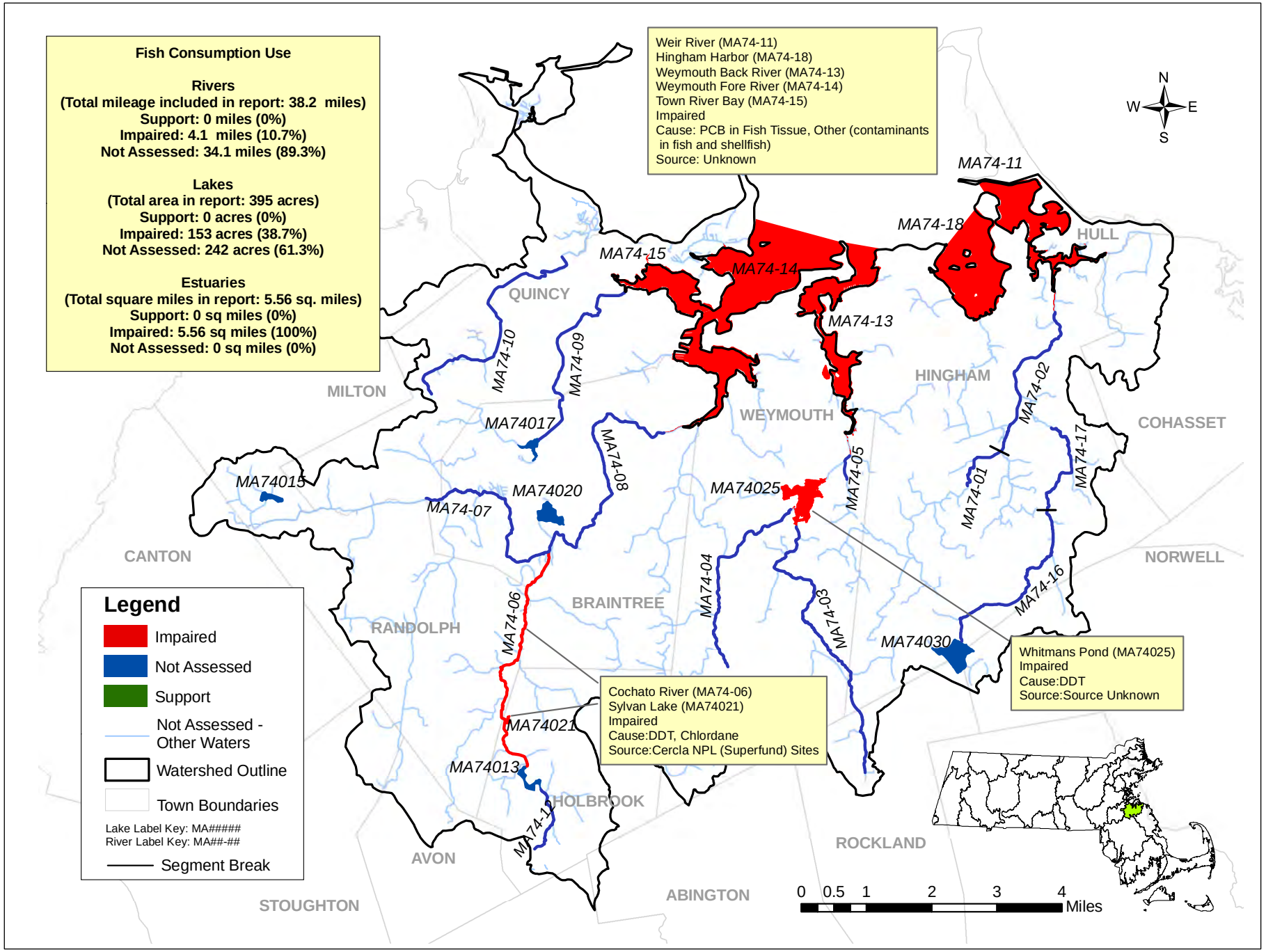

Figure 2: Weymouth and Weir River Basin *Fish Consumption Use* Summary

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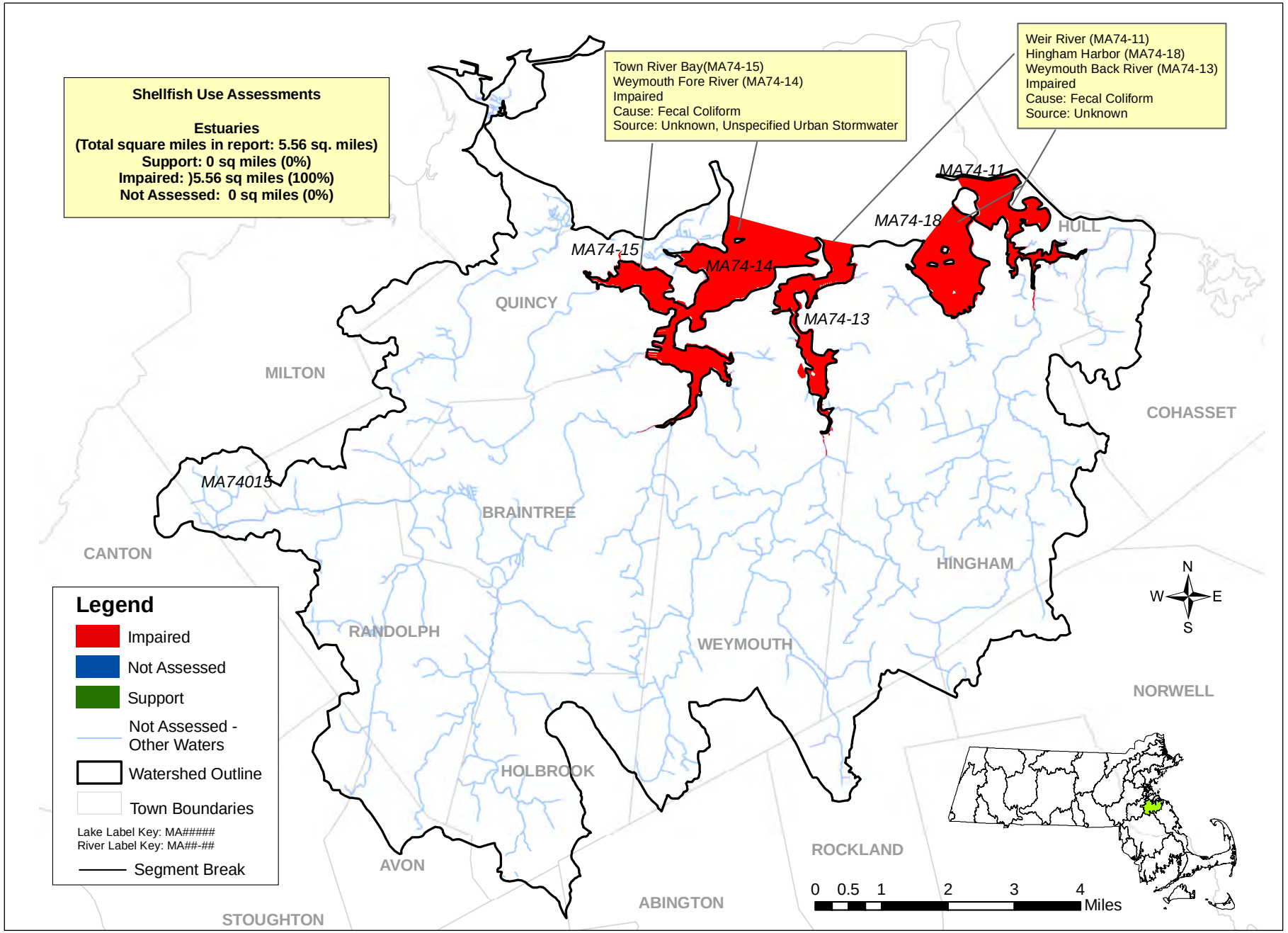

Figure 3: Weymouth and Weir River Basin *Shellfish Use* Summary

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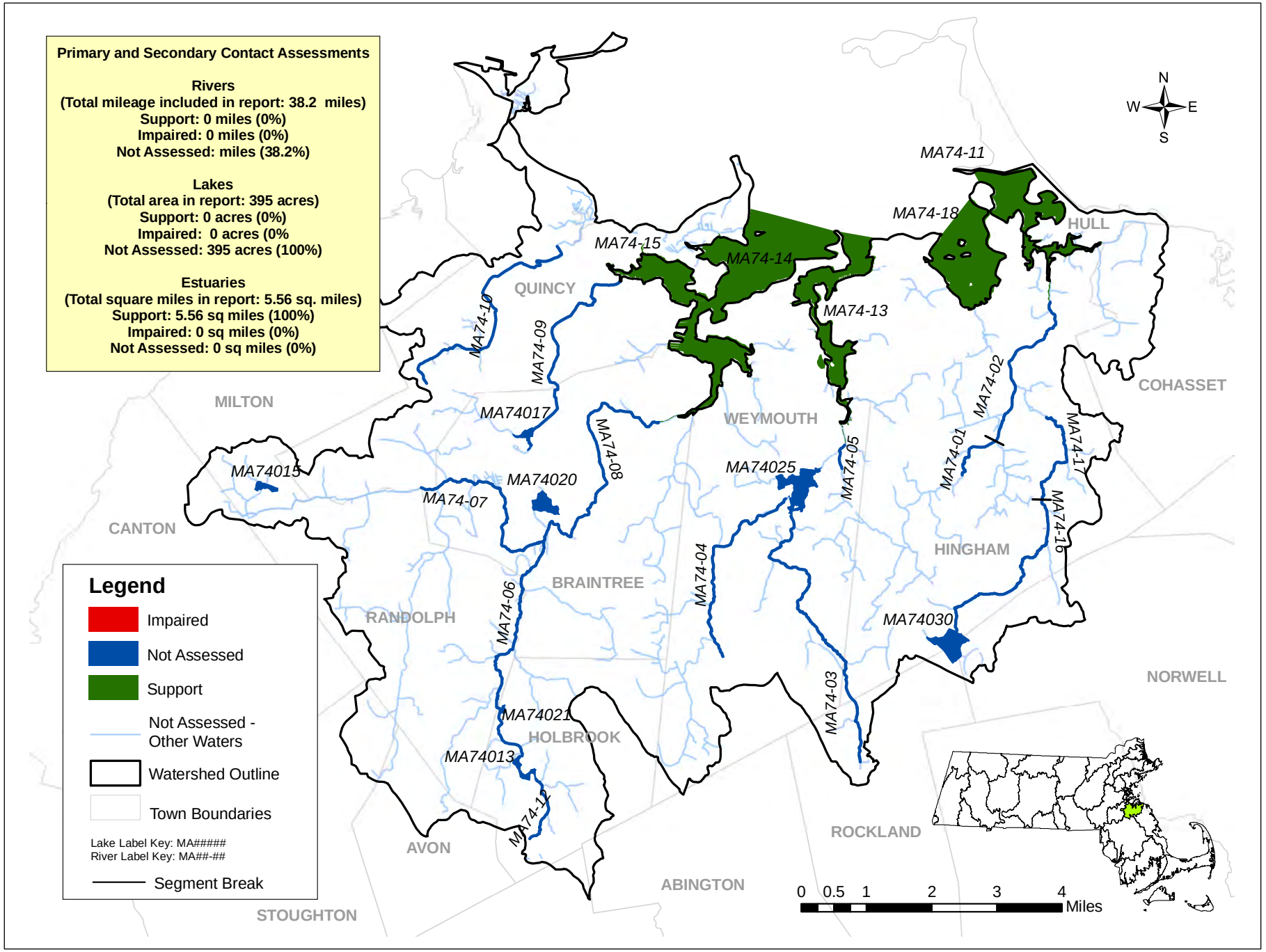

Figure 4: Weymouth and Weir River Basin *Primary and Secondary Recreation Use* Summary

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INTRODUCTION

The goal of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters (Environmental Law Reporter 1988). To meet this objective, the CWA requires states to develop information on the quality of the Nation's water resources and report this information to the U.S. Environmental Protection Agency (EPA), the U.S. Congress, and the public. Together, these agencies are responsible for implementation of the CWA mandates. Under Section 305(b) of the Federal Clean Water Act, every two years, the Massachusetts Department of Environmental Protection (MassDEP) must submit to EPA a statewide report that describes the status of water quality in the Commonwealth. Until 2002 this was accomplished as a statewide summary of water quality (the 305(b) Report). States are also required to submit, under Section 303(d) of the CWA, a list of impaired waters requiring a total maximum daily load (TMDL) calculation. In 2002, however, EPA gave states the option to combine elements of the statewide 305(b) Report and the Section 303(d) List of Impaired Waters into one "Integrated List of Waters" (Integrated List). This statewide list is based on the compilation of information for the Commonwealth's 27 watersheds. Massachusetts has opted to write individual watershed surface water quality assessment reports and use them as the supporting documentation for the Integrated List. The assessment reports utilize data compiled from a variety of sources and provide an evaluation of water quality, progress made towards maintaining and restoring water quality, and the extent to which problems remain at the watershed level. Quality-assured in-stream biological, habitat, physical/chemical, toxicity data and other information are evaluated to assess the status of water quality conditions. This analysis follows a standardized process described in the Assessment Methodology Section (Appendix A).

This report presents the current assessment of water quality conditions in the Weymouth and Weir River Basin. The assessments are based on information that has been researched and developed by the MassDEP through the first three years (information gathering, monitoring, and assessment) of the five-year basin cycle in partial fulfillment of MassDEP's federal mandate to report on the status of the Commonwealth's waters under the CWA. Due to resource limitations, Division of Watershed Management (DWM) staff did not perform year two monitoring activities in the basin in 2004.

MASSACHUSETTS INTEGRATED LIST OF WATERS

Section 305(b) of the CWA defines the process whereby states monitor and assess the quality of their surface and groundwater and report on the status of those waters every two years. Section 303(d) of the CWA requires states to periodically identify and list those waterbodies for which existing controls on point and nonpoint sources of pollutants are not stringent enough to attain or maintain compliance with applicable surface water quality standards. Through the year 2000 the MassDEP fulfilled the 305(b) and 303(d) reporting requirements in two completely separate documents. In 2001 the EPA released guidance that provided states with the option of preparing a single Integrated List of Waters to be submitted that would meet the reporting requirements of both sections 305(b) and 303(d) of the CWA.

The EPA approved the Massachusetts Year 2008 Integrated List of Waters in May of 2009. In that report each waterbody segment was placed in one of five major categories. Category 1 included those waters that were meeting all designated uses. No Massachusetts waters were listed in Category 1 because a statewide health advisory pertaining to the consumption of fish precludes any waters from being in full support of the fish consumption use. Waters listed in Category 2 were found to support some of the uses for which they were assessed but other uses were unassessed. Category 3 contained those waters for which insufficient or no information was available to assess any uses.

Waters exhibiting impairment for one or more uses were placed in either Category 4 (impaired but not requiring a TMDL report) or Category 5 (impaired and requiring one or more TMDLs) according to the EPA guidance. Category 4 was further divided into three sub-categories – 4A, 4B and 4C – depending upon the reason that TMDLs were not needed. Category 4A included waters for which the required TMDL(s) had already been completed and approved by the EPA. However, since segments could only

appear in one-category waters that had an approved TMDL for some pollutants, but not others, remained in Category 5. Category 4B was to include waters for which other pollution control requirements were reasonably expected to result in the attainment of the designated use before the next listing cycle (i.e., 2010). Because of the uncertainty related to making predictions about conditions in the future the MassDEP made a decision not to utilize Category 4B in the 2008 Integrated List. Finally, waters impaired by factors such as flow modification or habitat alteration that are not subjected to TMDL calculations because the impairment is not related to one or more pollutants were included in Category 4C. See individual segment assessments for information pertaining to the 2008 Integrated List category and causes of impairment.

WEYMOUTH AND WEIR RIVER BASIN DESCRIPTION

The Weymouth and Weir River Basin (Figure 5) is located in the southeast region of the Boston Harbor Watershed. The following sixteen communities lie within or partially within the areas drained by the Weymouth and Weir Rivers: Abington, Avon, Braintree, Brockton, Canton, Cohasset, Hingham, Holbrook, Hull, Milton, Norwell, Quincy, Randolph, Rockland, Stoughton, and Weymouth.

The Weymouth and Weir River Basin is comprised of five systems; Furnace Brook, Town River, Weymouth Fore River, Weymouth Back River and Weir River (Figure 6). Furnace Brook flows northeast draining to Quincy Bay, and the remaining four rivers flow generally northeast to Hingham Bay. The Weymouth Fore and Weymouth Back Rivers are both tidal.

Furnace Brook is a 2.7-mile brook located in Quincy. The brook flows northeasterly to Blacks Creek, and then into Quincy Bay. The Town River System originates as Town Brook in the Blue Hills. The brook flows 3.2 miles from the Old Quincy Reservoir through downtown Quincy to the Town River. The Town River then flows into Town River Bay, which joins with the Weymouth Fore River at Germantown Point, before flowing into Hingham Bay.

The Weymouth Fore River System originates at Lake Holbrook in Holbrook, and flows northerly as the Cochato River for 4.0 miles. The Farm River, a 2.7-mile river beginning in Milton, joins the Cochato River in Braintree to form the Monatiquot River. The Monatiquot River, considered the mainstem, flows north then east for a total of 4.3 miles to the Weymouth town line where the river becomes a tidal estuary and is called the Weymouth Fore River. Several of the tributaries that contribute to the rivers flow are: Lee Brook, Glovers Brook, Tumbling Brook, and Cranberry Brook. The Cranberry Brook Watershed Area of Critical Environmental Concern (ACEC) in Braintree and Holbrook was officially designated as an ACEC on 28 July 1983. The ACEC encompasses approximately 1050 acres and includes wooded swamps, a marsh, pond, stream and two quaking sphagnum bogs. The bogs contain two carnivorous indigenous plant species, the sundew and pitcher plant. The watershed contributes high-quality water to Richardi Reservoir, which supplies water for Braintree, Holbrook, and Randolph (MA DEM 2000).

The Weymouth Back River System is to the east of the Weymouth Fore River, and the hydrology parallels that of the Weymouth Fore River. The Old Swamp River originates in Rockland and flows northerly for 4.4 miles to the southern shore of Whitmans Pond, Weymouth. The Mill River originates at the outlet of Weymouth Great Pond and flows 3.5 miles to the western shores of Whitman Pond. The Weymouth Back River originates at the outlet of Whitmans Pond. It flows northerly under a network of streets and intersections for 0.8 miles to the Weymouth Back River estuary, forming the town line between Weymouth and Hingham. The Weymouth Back River ACEC in Hingham and Weymouth was officially designated as an ACEC on 10 September 1992. Fresh River (Hingham), Weymouth Back River (Weymouth), Brewer Pond (Hingham), Bouve Pond (Hingham), Whitmans Pond (Weymouth), Bear Swamp (Hingham) and Herring Brook (Weymouth) are all included within the boundaries of this 950-acre ACEC. Approximately 180 acres are tidal waters flushing into Hingham Bay and serve as shellfish areas and nursery grounds for finfish.

The final subwatershed is the Weir River System, the easternmost of the five rivers. The Weir River is formed at the confluence of Crooked Meadow River and Fulling Mill Brook, and flows 2.8 miles to its tidal portion in Hingham. This system is comprised of the Plymouth, Crooked Meadow and Weir Rivers. Tributaries to these rivers include Accord, Norroway, and Tumbling brooks and the Eel River. The Weir

River ACEC in Cohasset, Hingham, and Hull was designated as an ACEC on 11 December 1986 and includes approximately 950 acres. This area supports over 100 species of migratory and resident bird species, as well as an abundance of shellfish and finfish.

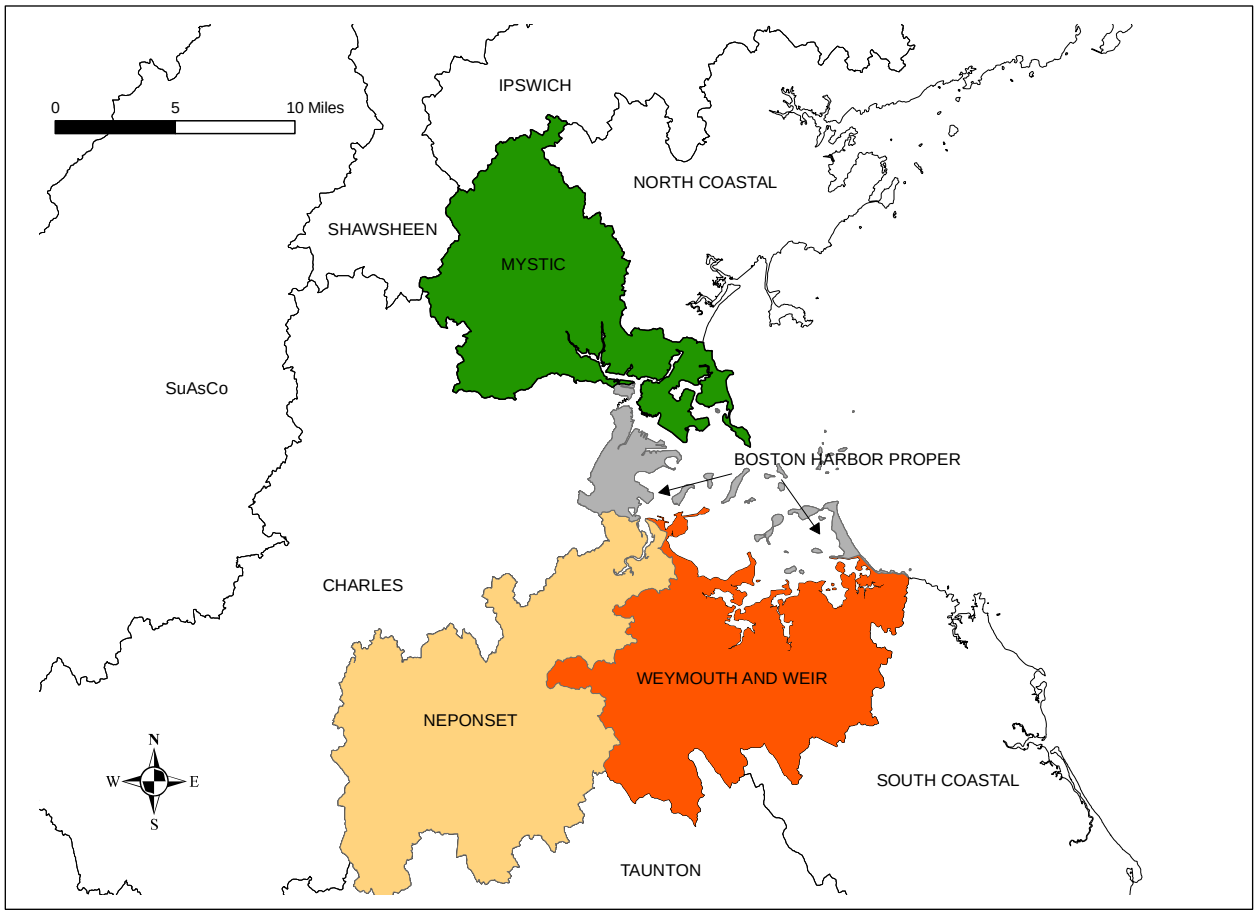

Figure 5: Location of Weymouth and Weir River Basin in the Boston Harbor Watershed

OBJECTIVES

This report is an update to the last water quality assessment report for Boston Harbor watershed (which included the Weymouth and Weir River Basin) that was published by DWM in October 2002. The methodology used to assess the status of water quality conditions of rivers and lakes in accordance with EPA's and MassDEP's use assessment methods is provided in Appendix A.

The objectives of this water quality assessment report are to:

1. evaluate whether or not surface waters in the Weymouth and Weir River Basin, defined as segments in the MassDEP/EPA databases, currently support their designated uses and
2. identify the stressors impairing designated uses and any confirmed sources of those stressors.

ASSESSMENT REPORT FORMAT

In this report the assessment information for waters that are designated as segments is summarized in a table format. The tables summarize the assessment decisions for the *Aquatic Life, Fish Consumption, Primary* and *Secondary Contact Recreation* and *Aesthetics* uses, the data that informed those decisions, the cause(s) of any impairments, and the confirmed source(s) for the impairment (Table 2).

Table 2. An example table format used to present assessment information in the 2004 Weymouth Weir River Basin Assessment Report.

Example Brook (Segment MA81-99)

Location: Fake Pond, Groton, to confluence with Cat Brook, Shirley.
Segment Length: 4.4 Miles
Classification: Class B
2006 Integrated List of Waters: Category 5 - Waters requiring a TMDL - Cause Unknown, Nutrients-Pathogens

Designated Use	Use Assessment	Alert
Aquatic Life	**Impaired**	**No**

Each Designated Use is displayed in the table for each segment and displayed in the first column. The "Use Assessment" column states the assessment decision (support, impaired, not assessed) for the use. The "Alert" column is used when an issue was identified that is of concern (i.e., an "Alert Status" was noted for the use but the use was not assessed as impaired).

Text is provided in the body of the table to summarize information relevant to the assessment decision for each use. Example text:

MassDEP DWM measured dissolved oxygen, temperature, and pH six times at one site in 2003 and found no violations of the temperature or pH criterion and five violations of the dissolved oxygen criterion. The DO violations ranged from 2.9 mg/L to 3.6 mg/L.

When appropriate, "Cause(s) of Impairment" and "Source(s) of Impairment" identify the stressors leading to the impairment decision and the any confirmed source(s)of the stressor(s). The causes and sources are selected from the list in the EPA Assessment Database Version 2 (ADB).
Cause(s) of Impairment: Dissolved oxygen
Source(s) of Impairment: Unknown

Any data sources that are used to make an assessment decision are cited for each use and displayed in the bottom right corner. The numbers identified as the data sources correspond to the numbered citations in the Assessment Data Sources section following the tables.

Data Sources: 24

The *Drinking Water* use is not assessed in this report. MassDEP's Drinking Water Program (DWP) has primacy for implementing the provisions of the federal Safe Drinking Water Act (SDWA) and maintains current drinking supply monitoring data. More information is available on the MassDEP website at http://www.mass.gov/dep/water/drinking.htm.

SPECIAL NOTES

In the data summary of some segments, there may be a reference to a special note. Special notes refer to unique assessment situations that apply to several segments and are best described in a separate section rather than repeated for each segment. The special notes for this assessment report are:

1. **Fish Consumption Advisory for Marine and Fresh Water Bodies** - In July 2001 Massachusetts Department of Public Health (MA DPH) issued consumer advisories on fish consumption due to mercury contamination (MA DPH 2001). Their most recent news release on this issue in June 2009 recommends the following (MA DPH 2009):

   If you may become pregnant or are pregnant or nursing, you and your children under 12 years old may safely eat 12 ounces (about 2 meals) per week of fish or shellfish not covered in this advisory. This recommendation includes canned tuna, the consumption of which should be limited to 2 cans per week. Very small children, including toddlers, should eat less. Consumers may wish to choose to eat light tuna rather than white or chunk white tuna, the latter of which may have higher levels of mercury. Otherwise, it is important to follow the Safe Eating Guidelines included in this advisory.'

   Safe eating guidelines for pregnant women, women who may become pregnant, nursing mothers and children under 12 years old (contaminants of concern in parenthetical as noted by MA DPH and MassDEP):

   Do Not Eat: Freshwater fish caught in streams, rivers, lakes, and ponds in Massachusetts (Hg)
   Safe To Eat: Fish that are stocked in streams, rivers, lakes, and ponds in Massachusetts
   Safe To Eat: Cod, haddock, flounder and pollock in larger amounts
   Do Not Eat: Lobster from New Bedford Harbor (PCB)
   Do Not Eat: Swordfish, shark, king mackerel, tilefish, and tuna steak (Hg)
   Do Not Eat: Bluefish caught off the Massachusetts coast (PCB)
   Do Not Eat: Lobsters, flounder, soft-shell clams and bivalves from Boston Harbor (PCB and other contaminants) NOTE: For assessment purposes Boston Harbor is broadly defined to include all coastal waters that drain into it.

   Safe eating guidelines for everyone:

   Do Not Eat: Fish and shellfish from the closed areas of New Bedford Harbor (PCB)
   Do Not Eat: Lobster tomalley (PCB)

2. **Sanitary Sewer Updates**- The Braintree- Weymouth area, along MWRA's Braintree/ Weymouth Extension Sewer from the Smelt Brook Siphon downstream to the Mill Cove Siphon, used to be at considerable risk for backups and sanitary sewer overflows (SSOs) for rainfall events up to the DEP recommended design storm. The MWRA $ 231 million Braintree/ Weymouth Relief Facilities Project by increasing the sewer capacity to greater than the design standard has eliminated SSO events, in both Braintreee and Weymouth, up to, and including the DEP recommended design storm event (Leone 2009).

   MRWA currently does not have SSOs related to dry weather sewer system capacity issues, nor with wet weather sewer capacity issues with a rain event (DEP recommended design storm) of 6 hours duration with < 1.72" total rainfall. During extreme storm events that exceed the MA DEP recommended design storm, I/I entering the upstream community- owned collection systems may cause an occasional SSO in the MWRA regional interceptor system.

   During fiscal year 2008, MWRA continued its ongoing priority program to clean and inspect all inverted siphons in the MWRA- owned collection system. This program is intended to minimize potential SSO's upstream of siphons and reduce the risk of hydraulic limitations and/ or blockage from debris buildup in siphon barrels. The cleaning and inspection program will continue in fiscal year 2009. MWRA will develop and maintain a central information database for areas at potential risk for SSO's, and will orient infrastructure improvements to address these high risk situations.

In the Town of Weymouth, sanitary sewer overflows have occurred to Whitman's Pond, Mill River, Back River, Fore River, and Old Swamp River. Between 2000 and 2008 there were 133 recorded overflow events. An overflow event was recorded anytime a specific manhole or manhole grouping experienced a sewer overflow. The Town of Weymouth also recorded the number of days each event occurred, there were 295 overflow days between 2000 and 2008. Since 2000 the Town of Weymouth has greatly reduced the amount of infiltration and inflow (I/I) in the sanitary sewer system. Numerous I/I rehabilitation projects, sewer main upgrades, sump pump removals, and pump station upgrades have been completed and have aided in the reduction of sewer overflows. In 2003 construction on the first of 5 major sewer capital improvement projects began. Construction of the final capital improvement project was completed in October 2006. Since then the Town has experienced 9 overflow events that have lasted for a total of 18 days. The Town has seen a significant decrease in the number of overflow events andan overflow's length. (Chiasson, 2009).

3. **Northeast Regional Mercury TMDL** - On 20 December 2007 the U.S. EPA approved the Northeast Regional Mercury Total Maximum Daily Load (TMDL). This TMDL is a Federal Clean Water Act mandated document that identifies pollutant load reductions necessary for regional waterbodies to meet and maintain compliance with state and federal water quality standards. It was prepared by the New England Interstate Water Pollution Control Commission (NEIWPCC) in cooperation with the states of Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. The TMDL covers inland waterbodies that are impaired primarily due to atmospheric deposition of mercury (Northeast States 2007). The TMDL target for Massachusetts is 0.3 parts per million (ppm) or less of mercury in fish tissue. The plan calls for a 75% reduction of in-region and out-of-region atmospheric sources by 2010 and a 90% or greater reduction in the future (NEIWPCC 2007). The TMDL will be reassessed in 2010 based on an evaluation of new, on-going monitoring and air deposition data. Final targets will be determined at that time.

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Weymouth and Weir River Basin River Segments

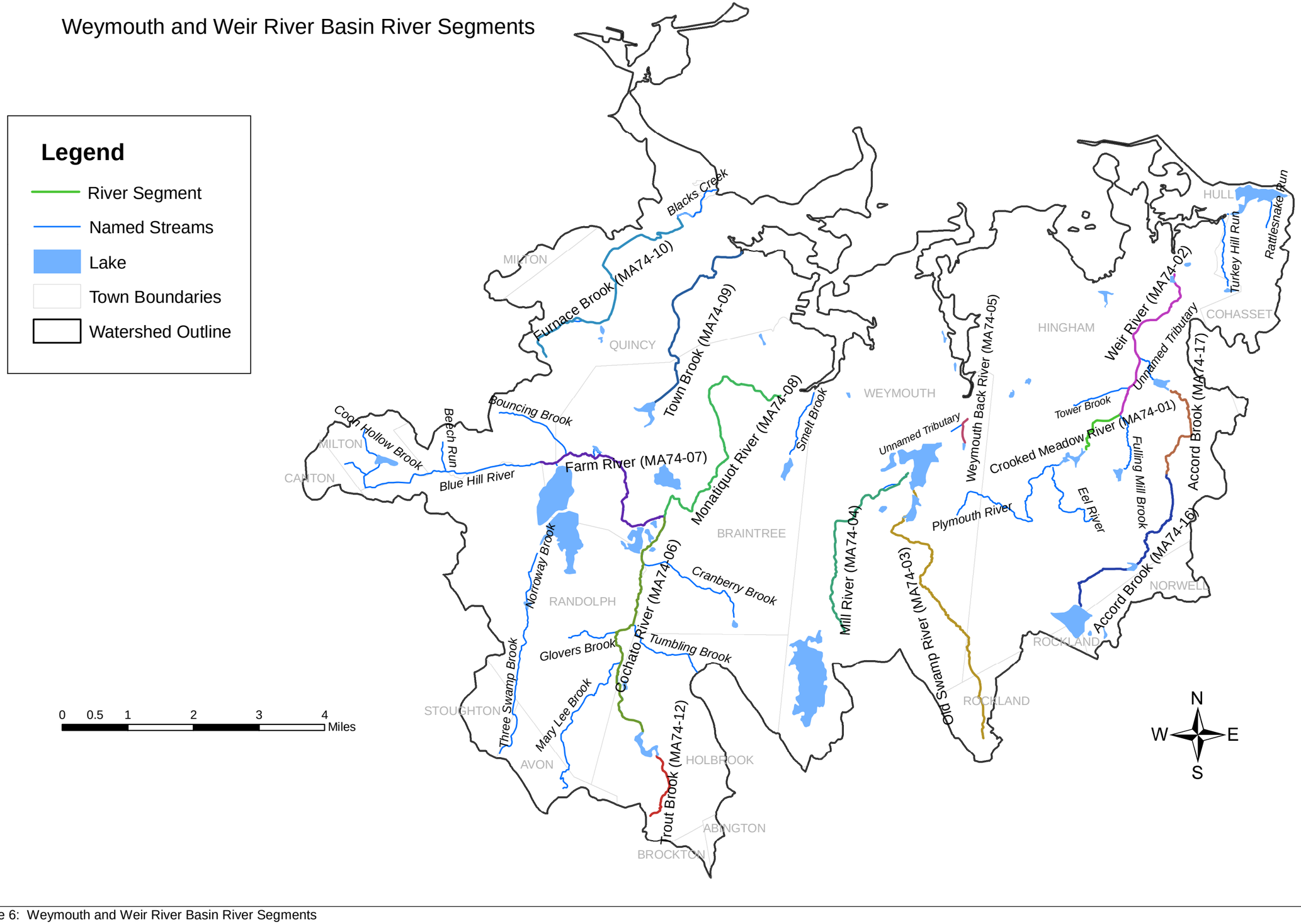

Figure 6: Weymouth and Weir River Basin River Segments

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ACCORD BROOK (SEGMENT MA74-16)

Segment Description: Headwaters, outlet Accord Pond, Hingham to water supply intake (4131000-02S Accord Brook) south of South Pleasant Street, Hingham.
Segment Length: 3.2 miles
Segment Classification: A, Public Water Supply, Outstanding Resource Water
2008 Integrated List of Waters: Not Listed
NPDES Permits: None
WMA: Aquarion Water Company: Hingham (Registration #41913101)

Designated Use	Use Assessment	Alert
Aquatic Life	**Impaired**	**--**

GZA conducted flow measurements in Accord Brook at numerous locations as well as sampling for benthic invertebrates and fish in 1999 and 2000 as part of their Weir River watershed water balance and modeling study. Within this segment, no flow was noted by GZA in August of 1999 at Prospect St. while precipitation in August that year was slightly above average. A flow of 1.2 cubic feet per second(cfs) was measured in October 1999 by GZA at Prospect Street. During average rainfall conditions under a modelled virgin condition GZA predicts an estimated minimum baseflow of 0.9 cfs in August for Accord Brook. During dry conditions under a modeled virgin condition GZA estimates Accord Brook's baseflow approaches zero in September and October .

In order to assess the aquatic health of Accord Brook given the observed and predicted flow regimes, benthic invertebrates were collected by GZA in January 2000 in two potentially impacted reaches near Prospect St (upstream of the water diversion) in Hingham and at two references reaches in Crooked Meadow Brook (known locally as Leary's Brook and known as an unnamed tributary to the Plymouth River by MassDEP). The benthic community sampled in Accord Brook was substantially different than that of Crooked Meadow Brook. GZA noted the water in Accord Brook was high in humic, tannic and fulvic acids . The benthic community in Accord Brook had less taxa richness, less EPT taxa and fewer filter feeders when compared to the reference reaches in Crooked Meadow Brook. The shredder found in Accord Brook, Ironoquia, is a genus characteristic of temporary pools and streams and drought conditions. GZA also conducted fish population sampling in Accord Brook upstream of Route 228 on 9/15/1999. They found six red fin pickerel and observed 3 eels.

The benthic community found by GZA at their sampling stations in Accord Brook may also be explained by their benthic sites' close proximity to the Valley Swamp area. It is important to note that there are four Town of Norwell drinking water wells and two Aquarion Water Company wells in the Accord Brook subbasin upstream of Prospect Street. Given the lack of flow noted in Accord Brook by GZA and the benthic community impacted by low flow, the Aquatic Life Use for Accord Brook is accessed as impaired.

Cause(s) of Impairment: Aquatic Macroinvertebrate Bioassessments
Source(s) of Impairment: Source Unknown

Data Sources: 1,2

Fish Consumption	**Not Assessed**	**--**

This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by Massachusetts Department of Public Health (MA DPH) due to mercury contamination apply to this waterbody (See Special Note 1).

Primary Contact	**Not Assessed**	**--**

Insufficient data were available to assess the Primary Contact Use.

Secondary Contact	**Not Assessed**	**--**

Insufficient data were available to assess the Secondary Contact Use.

ACCORD BROOK (SEGMENT MA74-16)		
Designated Use	**Use Assessment**	**Alert**
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

ACCORD BROOK (SEGMENT MA74-17)

Segment Description: From water supply intake (4131000-02S Accord Brook) south of South Pleasant Street, Hingham to inlet Triphammer Pond, Hingham.
Segment Length: 1.8 miles
Segment Classification: B
2008 Integrated List of Waters: Not Listed
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Impaired**	**--**
GZA conducted flow measurements in Accord Brook at South Pleasant Street in 1999 and 2000 as part of their Weir River watershed water balance and modeling study. In this segment no flow was noted by GZA on August 19, 1999at their South Pleasant Street site (downstream of a water diversion) while precipitation in August that year was slightly above average. Downstream of the surface water supply diversion on this segment, a flow of 0.0 cfs was measured on October 26, 1999 by GZA at South Pleasant Street while a flow of 1.2 cfs was measured at Prospect Street(upstream of the diversion) in Accord Brook (MA74-16). During October 1999 sampling GZA found no flow past the Accord Brook water supply diversion, a two foot high concrete diversion weir which diverts water for drinking water purposes. GZA found the diversion dam's low level outlet structure was closed during the time of their visit and it was unclear whether the outlet was functional. GZA also conducted fish population sampling in Accord Brook near the Union Street crossing in Wompatuck State Park. They found eleven red fin pickerel and a few eels and noted that most of the fish were caught in a large pool. Little flow was noted out of or between pools. During average rainfall conditions under a modelled virgin condition GZA predicts an estimated minimum baseflow of 0.9 cfs in Accord Brook in August. During dry conditions under a modeled virgin condition for the Accord Brook subwatershed, GZA estimates baseflow approaches zero in September and October. They note that it is difficult to reconcile predicted flows under developed conditions to observed flow given "the presence of the Accord Brook diversion dam, which appears to have the capacity to divert the entirety of base flow to Subbasin 5 (Fulling Mill) during a significant portion of the year". The section of Accord Brook downstream of the diversion dam going through Wompatuck State Park was dry from June to October 1999. Given the low flow and no flow conditions noted downstream of the water supply diversion, the Aquatic Life Use for Accord Brook is assessed as impaired. **Cause(s) of Impairment:** Low flow alterations **Source(s) of Impairment:** Flow Alterations from Water Diversions *Data Sources: 1,3*		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		

ACCORD BROOK (SEGMENT MA74-17)		
Designated Use	**Use Assessment**	**Alert**
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

CROOKED MEADOW RIVER (SEGMENT MA74-01)

Segment Description: Outlet Cushing Pond, Hingham to confluence with Weir River, Hingham.
Segment Length: 1. miles
Segment Classification: B
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Nutrients, Organic enrichment/Low DO, Noxious aquatic plants).
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**
Insufficient data were available to assess the Aquatic Life Use.		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

WEIR RIVER (SEGMENT MA74-02)

Segment Description: Headwaters at confluence of Crooked Meadow River and Fulling Mill Brook, Hingham to Foundry Pond outlet, Hingham (through former pond segment Foundry Pond MA74011).
Segment Length: 2.7 miles
Segment Classification: B, Outstanding Resource Water
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Nutrients, Siltation, Noxious aquatic plants, Pathogens).
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Impaired**	**--**

GZA conducted flow measurements in the Weir River at a number of locations in 1999 and 2000 as part of their Weir River watershed water balance and modeling study. During average rainfall conditions under virgin conditions GZA predicts an estimated baseflow of 3.52 cfs in August. During dry conditions under modeled virgin conditions, GZA estimates baseflow is 0.84 cfs in August, 0.13 cfs in September and 0.06 cfs in October. Under developed and average rainfall conditions GZA predicts an estimated baseflow of 2.60 cfs while during dry conditions they predicts a baseflow of 0.22 cfs in August and baseflows approaching zero in September and October. GZA estimated stream depletion due to water withdrawal in the Weir River ranging from 0.61 cfs to 2.11 cfs. GZA estimated streamflow depletion of 1.82 cfs in July and August and 2.01 cfs in September. Given the fact that net outflows from the basin of 2.98 MGD exceed the August median flow at the outflow to the ocean the Weir River basin has been identified as highly stressed by the Water Resources Commission.

GZA conducted fish population sampling as part of their Weir River watershed water balance and modeling study where they estimated recommended flows to protect aquatic life. At their Weir River site upstream of Route 228, GZA collected ten red fin pickerel, nine large mouth bass, four chain pickerel and four brown trout, one blue gill and noted abundant eels. GZA collected six redfin pickerel and two large mouth bass while noting eels were few to common at their Leavitt Street crossing location. With exception of the brown trout, all fish collected are considered macrohabitat generalists and moderately tolerant to tolerant of pollution. Massachusetts Department of Fish and Game (MA DFG) manages the Weir River as a seasonal coldwater fishery and stocks the river with brown trout. Brown trout reproduction has been detected as well.

The Weir River supports diadromous fish runs of American eel, river herring Atlantic tomcod and rainbow smelt. The Weir River was one of the largest smelt runs in Massachusetts as well as a being a source of smelt eggs for Division of Marine Fisheries (DMF) restoration efforts. A DMF biologist has observed that “it appears the smelt population has severely declined since earlier DMF studies” and indicates that water withdrawals are a “growing concern for sustaining smelt and river herring populations in the Weir River”. Given the magnitude of the water withdrawals within the Weir River watershed and its classification as highly stressed, the Aquatic Life Use is assessed as impaired due to low flow alteration.

Cause(s) of Impairment: Low flow alterations
Source(s) of Impairment: Baseflow Depletion from Groundwater Withdrawals

Data Sources: 1,4,5,6

Fish Consumption	Not Assessed	--

This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).

WEIR RIVER (SEGMENT MA74-02)		
Designated Use	**Use Assessment**	**Alert**
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		
Recommendations		
Since the Weir River formerly supported large diadromous fish runs, a A DMF fishery biologist had recommend a Weir River USGS discharge station to measure streamflow (which was installed in 2006 and recently discontinued due to budget cuts in 2009). Efforts to reduce water consumption and conserve water to protect Weir River baseflow should be supported and instituted.		

OLD SWAMP RIVER (SEGMENT MA74-03)

Segment Description: Headwaters just west of Pleasant Street and north of Liberty Street, Rockland to inlet Whitmans Pond, Weymouth.
Segment Length: 5.2 miles
Segment Classification: A, Public Water Supply, Outstanding Resource Water
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Cause Unknown, Pathogens).
NPDES Permits: None
WMA: Weymouth Department Of Public Works(Registration #41933601/Permit #9P241933602)

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**
MA DFG conducted fish population sampling in Old Swamp River downstream of Industrial Road, Weymouth (Site 790) in Weymouth on 24 July 2002 using backpack electro-shocker. Thirty-four redfin pickerel, thirteen swamp darter, thirteen American eel, twelve pumpkinseed, seven bluegill, two chain pickerel, one hybdrid bluegill, one pumpkinseed and one yellow perch were collected (85 fish total). All of the fish collected are considered macrohabitat specialists and 85% of the fish collected are characterized as moderately tolerant or tolerant to pollution. The thirteen swamp darter, representing 15% of the fish collected, are considered intolerant to pollution. Insufficient data were available to assess the Aquatic LIfe Use.		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use. See special note #2.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use. See special note #2.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

MILL RIVER (SEGMENT MA74-04)

Segment Description: Headwaters, west of Route 18 and south of Randolph Street, Weymouth to inlet Whitmans Pond, Weymouth (portions culverted underground).
Segment Length: 3.4 miles
Segment Classification: A, Public Water Supply, Outstanding Resource Water
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Nutrients, Pathogens, Noxious aquatic plants).
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**
Insufficient data were available to assess the Aquatic Life Use.		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

WEYMOUTH BACK RIVER (SEGMENT MA74-05)

Segment Description: Outlet Elias Pond, Weymouth to the base of the fish ladder north of Commercial Street, Weymouth.
Segment Length: .4 miles
Segment Classification: B, Warm Water Fishery, Outstanding Resource Water
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Organic enrichment/Low DO, Pathogens).
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**
The Weymouth Back River supports diadromous fish runs for river herring, American eel, rainbow smelt and white perch. The river herring population is one of the largest in Massachusetts north of Cape Cod. Improvements to the river herring run were observed in the 1980s and 1990s following steady efforts to improve fish passage into Whitman's Pond. The Weymouth Back River also supported one of the largest smelt runs in Massachusetts Bay. DMF has found low smelt egg production since 1995 in the Weymouth Back River, reflecting a declining trend in the region. DMF has found that habitat in the mainstem of the Back River near the tidal interface was degraded due to chronic sedimentation and excessive periphyton growth. Insufficient data were available to assess the Aquatic Life Use. *Data Sources: 8,6*		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use. See special note #2.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use. See special note #2.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		
Recommendations		
DMF has recommended attention to stormwater treatment, increased riparian trees to shade the river, and installation of a USGS gage in the river in order to improve smelt spawning habitat and success in the Weymouth Back River. A USGS gage was installed in 2002 in the Whitman's Pond.		

COCHATO RIVER (SEGMENT MA74-06)

Segment Description: Outlet Lake Holbrook, Holbrook to confluence with Farm and Monatiquot rivers, Braintree (through former pond segment Ice House Pond MA74028). (SARIS note: the upper portion of this segment is comprised of three surface waters: unnamed tributary from the
Segment Length: 4.1 miles
Segment Classification: B
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Pesticides, Organic enrichment/Low DO, Pathogens).
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**Y**

The Baird & McGuire Superfund Site, located approximately 500 feet west of the Cochato River on South Street near the Holbrook/Randolph line, was a chemical manufacturing and batching facility that operated from 1912 to 1983. Activities included mixing, packaging, storing and distribution of various products, including herbicides, pesticides, disinfectants, soaps, floor waxes, and solvents. The soils, the groundwater and the Cochato River sediments at or near the Baird & McGuire Site were contaminated with pesticides and organic and inorganic chemicals. The contaminated soils and sediments were excavated and incinerated between the years of 1994 and 1997. The on-site treatment system has continued to treat contaminated groundwater since 1991 through the present. The groundwater treatment system has been designed to capture the contaminated groundwater and prevent residual groundwater contamination from reaching the river. The most recent sampling and analysis of the river sediments and fish were conducted by US EPA in 2002. The results of the sampling and analysis showed no consistent increase or decrease in contamination levels in sediments or fish and indicated that action levels for clean-up established by US EPA for the river were being maintained. The performance of future sampling and analysis of the Cochato River sediments and fish was set at five year intervals.

Cochato River sediments downstream of the Baird and McGuire site were last sampling in 2002. Metcalf and Eddy sampled three stations (B,C,D) downstream of the Baird and McGuire site At each station three transects were created and six sediment grab samples were collected using an Eckmann dredge. The six grab samples consisted of three samples each both upstream and downstream of and within three feet of each transect were collected. Bank soil samples were also taken at station C and D. For the sediment grab samples, sediment physical characteristics were characterized including particle sizes, total organic carbon and moisture content and sediment contaminants total polycyclic aromatic hydrocarbon (PAH), total dichlorodiphenyltrichloroethane (DDT), total chlordane and arsenic were sampled at each of the sampling stations. Mean total sediment PAH from stations B, C, D ranged from 1,911 ng/g to 7,119 ng/g dry weight. All of the mean total PAH are lower than Severe Effect Concentrations and Lowest Effect Level concentrations. Total mean DDT in river sediments ranged from 645 to 796 ng/g dry weight at the three stations sampled and exceed the Lowest Effect Concentration at two of the three stations. The Severe Effect Concentration for total DDT is only exceeded at station B. Mean total chlordane at the three stations ranged from 133 to 159 ng/g dry weight and all values are below both the low effect and severe effect concentrations. The mean arsenic sediment concentrations at the three stations ranged between 10.1 and 56 ug/g dry weight. All values exceeded the low effect concentration and one station exceeded the severe effect concentration.

COCHATO RIVER (SEGMENT MA74-06)

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**Y**

In the last five year review of the Baird and McGuire superfund site, a number of constituents in the groundwater exceeded interim cleanup criteria including arsenic, petachlor expoxide, gamma-BHC, volatile organic compounds (VOCs) and semi-volatile organic compoinds (SVOCs). The state (MassDEP) continues to operate the groundwater treatment system on site as part of the ongoing cleanup process.

Insufficient information is available to assess the Aquatic Life Use but given the presence of contaminants in excess of lowest effect concentrations and severe effect concentrations along with the continued on-site superfund cleanup, this used is identified with an "Alert Status".

Data Sources: 10,11

Fish Consumption	**Impaired**	**--**

Due to the presence of pesticides, MA DPH has issued the following advisory for the Cochato River:

> Children younger than 12 years or age, pregnant women, women of childbearing age who may become pregnant, and nursing mothers should not eat any fish from this water body. The general public should not consume any of the affected fish species (Brown Bullhead, Carp, American Eel) from this water body. The general public should limit consumption of non-affected fish from this water body to two meals per month.

EPA conducted their second five year review of the site in 2004. Fish tissue samples taken between 2000 and 2002 showed elevated concentrations of contaminants including DDT and Chlordane.

Due to the presence of a site specific fish consumption advisory, the fish consumption use is assssed as impaired.

Cause(s) of Impairment: DDT, Chlordane
Source(s) of Impairment: Cercla NPL (Superfund) Sites

Data Sources: 12,13

Primary Contact	**Not Assessed**	**--**

Insufficient data were available to assess the Primary Contact Use.

Secondary Contact	**Not Assessed**	**--**

Insufficient data were available to assess the Secondary Contact Use.

Aesthetics	**Not Assessed**	**--**

Insufficient data were available to assess the Aesthetics Use.

FARM RIVER (SEGMENT MA74-07)

Segment Description: From Randolph/Braintree border (where name changes from Blue Hill River), to confluence with Cochato River (forming headwaters of Monatiquot River), Braintree.
Segment Length: 3.1 miles
Segment Classification: A, Public Water Supply, Outstanding Resource Water
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 3 - No Uses Assessed
NPDES Permits: None
WMA: Randolph/Holbrook Joint Water Board (WMA Reg#31913301)
Braintree Water and Sewer Department (WMA Reg#31904001)

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**Y**
DMF contracted with Gomez and Sullivan Engineers P.C. to help evaluate the feasibility of restoring river herring to the Fore River watershed. Gomez and Sullivan estimated using water withdrawal records for Great Pond from 1989-2006 that "virtually all the runoff in the watershed above the Great Pond Dam is used for water supply". As part of their work they also sampled water quality in Great Pond including one station immediately below the dam. They conducted water sampling in 2008 on May 28, June 17, July 22, August 19, and September 29. On all occasions they found no water being passed below Great Pond Dam. Given insufficient information the Aquatic Life Use is not assessed. Due to the observed ack of water being passed over Great Pond and into the Farm River segment, this use is given an "Alert Status". *Data Sources: 14*		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

MONATIQUOT RIVER (SEGMENT MA74-08)

Segment Description: Headwaters at confluence of Cochato and Farm rivers, Braintree to confluence with Weymouth Fore River at Commercial Street, Braintree.
Segment Length: 4.4 miles
Segment Classification: B, Warm Water Fishery
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Cause Unknown, Organic enrichment/Low DO, (Other habitat alterations*), Pathogens). * denotes a non-pollutant.
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**
The Monatiquot River supports one of the largest smelt runs in Massachusetts. The Massachusetts Division of Marine Fisheries maintains a smelt fyke net station to monitor spring smelt spawning runs in this segment. The fyke net has been set annually since 2004. The fyke net catches include six diadromous fish species and 10 other fish species. The catch per unit effort of rainbow smelt, American eel and Atlantic tomcod is the highest among eight smelt fyke net stations maintained by the project in Massachusetts. Insufficient data were available to assess the Aquatic Life Use. *Data Sources: 6,14,25*		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

TOWN BROOK (SEGMENT MA74-09)

Segment Description: Outlet Old Quincy Reservoir, Braintree to confluence with Town River north of Route 3A, Quincy (includes "The Canal") (portions culverted underground).
Segment Length: 3.5 miles
Segment Classification: B
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Cause Unknown, (Other habitat alterations*), Pathogens). * denotes a non-pollutant.
NPDES Permits: MA0033979 (MBTA Quincy Bus Garage)
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Impaired**	**--**
Massachusetts Bay Transit Authority (MBTA) Quincy Pump Statioin is permited to discharge 0.216 million gallons per day (MGD) of wet weather and groundwater to Town Brook. Beginning in June 2007 water from Town Brook was collected upstream from the the MBTA outfall for use as ambient dilution water in the facility's whole effluent toxicity tests. Between June 2007 and February 2009 survival of daphnia exposed (7 days) to the brook ranged from 90 to 100% (n=7) while survival of fathead minnow exposed (7 days) to the brook ranged from 78 to 100%(n=7). Prior to 2007 MBTA used lab water as the dilution water and Menidia beryllina as a test organism. In 2007, the MBTA discharge permit was amended to require the regulation of the pumping frequency to avoid large spikes in discharge during the smelt spawning period. The majority of Town Brook is underground and culverted. A large flood control relief project has altered the brook's flow patterns, reduced baseflows and reduced sediment transport DMF observed a large smelt egg mortality event in the spring of 1997 after the construction of flood control project and again in 2008 during record low flow conditions. Given the highly urbanized nature of the brook and its extensive alteration, the brook also experiences flashy flows. The Aquatic Life Use is assessed as impaired due to the underground, channelized and highly altered nature of this brook. **Cause(s) of Impairment:** Physical substrate habitat alterations, Other flow regime alteration **Source(s) of Impairment:** Impacts from Hydrostructure Flow Regulation/modification, Habitat Modification - other than Hydromodification, Channelization *Data Sources: 15,6,3*		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

FURNACE BROOK (SEGMENT MA74-10)

Segment Description: From headwaters north of Blue Hills Reservoir, Quincy to confluence with Blacks Creek, Quincy (portions culverted underground).
Segment Length: 4.2 miles
Segment Classification: B
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Organic enrichment/Low DO).
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**
Furance Brook supports a spring spawning run of rainbow smelt. The spawning habitat is degraded due to urban stormwater influences, sedimentation, and excessive periphyton growth. Insufficient data were available to assess the Aquatic Life Use. *Data Sources: 6*		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

TROUT BROOK (SEGMENT MA74-12)

Segment Description: Headwaters southwest of South Street, Holbrook to inlet Lake Holbrook, Holbrook.
Segment Length: 1.2 miles
Segment Classification: B
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 3 - No Uses Assessed
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**
Insufficient data were available to assess the Aquatic Life Use.		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

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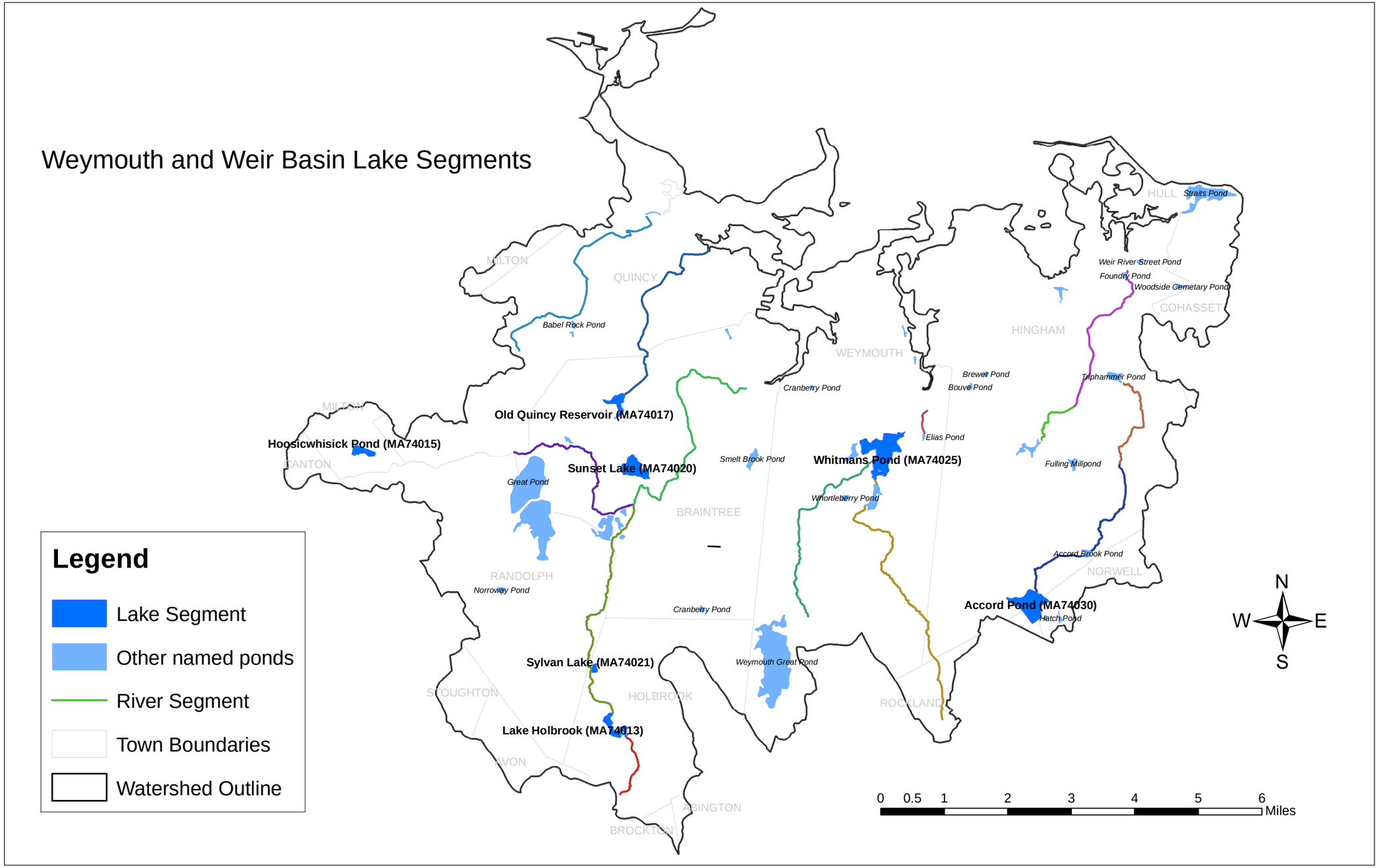

Figure 7: Weymouth and Weir River Basin Lake Segments

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LAKE HOLBROOK (SEGMENT MA74013)

Segment Description: Holbrook
Segment Length: 31 acres
Segment Classification: B
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Noxious aquatic plants).
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**
Insufficient data were available to assess the Aquatic Life Use.		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

HOOSICWHISICK POND (SEGMENT MA74015)

Segment Description: Milton
Segment Length: 23 acres
Segment Classification: B
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 3 - No Uses Assessed
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**
Insufficient data were available to assess the Aquatic Life Use.		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

OLD QUINCY RESERVOIR (SEGMENT MA74017)

Segment Description: Braintree
Segment Length: 27 acres
Segment Classification: B
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 3 - No Uses Assessed
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**
The Old Quincy Reservoir is the primary water source for Town Brook. The Operation and Maintenance Manual for the Town Brook flood control project contains direction for the City of Quincy and Town of Braintree to coordinate the release of flows from the reservoir to augment flows over the smelt spawning habitat when the USGS gage on Town Brook falls below 2 cfs during the spawning periodl Insufficient data were available to assess the Aquatic Life Use.		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

SUNSET LAKE (SEGMENT MA74020)

Segment Description: Braintree
Segment Length: 58 acres
Segment Classification: B
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 3 - No Uses Assessed
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Impaired**	**--**
MA DFG conducted fish population sampling in Sunset Lake in Braintree on 29 June 2006 using a boat shocker. One hundred and sixty-six yellow perch, thrity-nine bluegill, thirty-two pumpkinseed, thirteen American eel, nine largemouth bass, eight chain pickerel, and four brown bullhead were collected (271 fish total). All of the fish collected are considered macrohabitat specialists and all are characterized as moderately tolerant or tolerant to pollution. In 2008 observations of excessive macrophyte growth and poor outflow from Sunset Lake to the Monatiquot River were made. Eurasian mifoil has been documented in Sunset Lake. The Aquatic Life Use is assessed as impaired due to the presence of a non-native macrophyte species. **Cause(s) of Impairment:** Non-Native Aquatic Plants **Source(s) of Impairment:** Introduction of Non-native Organisms (Accidental or Intentional) *Data Sources: 7,14,16,22*		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

SYLVAN LAKE (SEGMENT MA74021)

Segment Description: Holbrook
Segment Length: 6 acres
Segment Classification: B
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Pesticides, Priority organics).
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	--
Insufficient data were available to assess the Aquatic Life Use.		
Fish Consumption	**Impaired**	--
Due to the presence of pesticides, MA DPH has issued the following advisory for the Sylvan Lake: Children younger than 12 years or age, pregnant women, women of childbearing age who may become pregnant, and nursing mothers should not eat any fish from this water body. The general public should not consume any of the affected fish species (Brown Bullhead, Carp, American Eel) from this water body. The general public should limit consumption of non-affected fish from this water body to two meals per month. Due to the presence of a site specific fish consumption advisory, the fish consumption use is assssed as impaired. **Cause(s) of Impairment:** DDT, Chlordane **Source(s) of Impairment:** Cercla NPL (Superfund) Sites *Data Sources: 12,13*		
Primary Contact	**Not Assessed**	--
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	--
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	--
Insufficient data were available to assess the Aesthetics Use.		

WHITMANS POND (SEGMENT MA74025)

Segment Description: Weymouth
Segment Length: 147 acres
Segment Classification: A, Public Water Supply, Outstanding Resource Water
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Pesticides).
NPDES Permits: None
WMA: Weymouth Department Of Public Works(Registration #41933601/Permit #9P241933602)

Designated Use	Use Assessment	Alert
Aquatic Life	**Impaired**	**--**
Whitman's Pond is the primary spawning habitat of river herring in the Back River watershed. Fanwort has been found in this pond. The Aquatic Life Use is listed as impaired due to the presence of a non-native macrophyte species. **Cause(s) of Impairment:** Non-Native Aquatic Plants **Source(s) of Impairment:** Introduction of Non-native Organisms (Accidental or Intentional) *Data Sources: 8,16,17*		
Fish Consumption	**Impaired**	**--**
Due to the presence of DDT, MA DPH has issued the following advisory for Whitmans Pond: Children younger than 12 years or age, pregnant women, women of childbearing age who may become pregnant, and nursing mothers should not eat any of the affected fish species (American Eel) from this water body. The general public should not consume any of the affected fish species (American Eel) from this water body. Due to the presence of a site specific fish consumption advisory, the fish consumption use is assssed as impaired. **Cause(s) of Impairment:** DDT **Source(s) of Impairment:** Source Unknown *Data Sources: 12*		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use. See special note #2.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use. See special note #2.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

ACCORD POND (SEGMENT MA74030)

Segment Description: Hingham/Norwell/Rockland (formerly reported as MA94002)
Segment Length: 103 acres
Segment Classification: A, Public Water Supply, Outstanding Resource Water
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 2 - Attaining Some Uses (Secondary Contact, Aesthetics); Others Not Assessed.
NPDES Permits: None
WMA: Aquarion Water Company: Hingham (Registration #41913101)

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**
Insufficient data were available to assess the Aquatic Life Use.		
Fish Consumption	**Not Assessed**	**--**
This waterbody does not have a site-specific fish consumption advisory. All applicable statewide fish consumption advisories issued by MA DPH due to mercury contamination apply to this waterbody (See Special Note 1).		
Primary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Primary Contact Use.		
Secondary Contact	**Not Assessed**	**--**
Insufficient data were available to assess the Secondary Contact Use.		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

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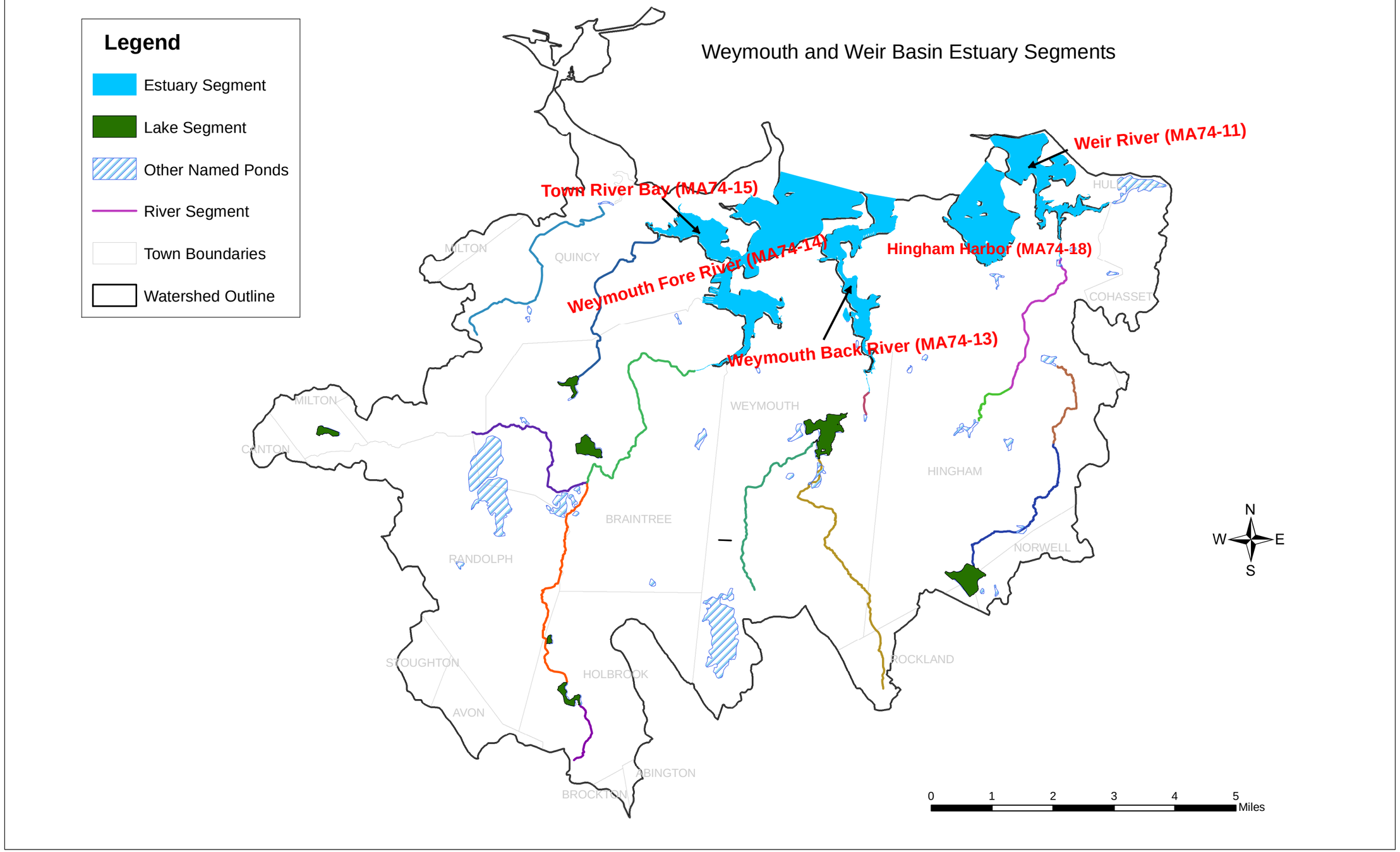

Figure 7: Weymouth and Weir River Basin Estuary Segments

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HINGHAM HARBOR (SEGMENT MA74-18)

Segment Description: Hingham Harbor inside a line from Crows Point to Worlds End, Hingham (formerly reported as MA70-08).
Segment Length: 1.12 square miles
Segment Classification: SA, Shellfishing
2008 Integrated List of Waters: Formerly reported as MA70-08, this segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Pathogens).
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Impaired**	**--**
The MassDEP Wetlands Conservancy Program (WCP) as part of the Eelgrass Mapping Project, mapped 0.15 square miles of eelgrass in this segment for 1951. This eelgrass coverage was described as patchy and represents approximately 13% of the area in this segment. All subsequent eelgrass mapping efforts (1995, 2001, 2006) have found no eelgrass in this segment since 1951. Due to the loss of eelgrass in this segment, the Aquatic Life Use is assessed as impaired.. **Cause(s) of Impairment:** Estuarine bioassessment (decline of eelgrass bed habitat) **Source(s) of Impairment:** Source Unknown *Data Sources: 26,27*		
Fish Consumption	**Impaired**	**--**
MA DPH has issued the following advisory for Boston Harbor recommending: "Pregnant women, women who may become pregnant, nursing mothers and children under 12 years of age and people with lowered immunity should not eat lobster, flounder, soft shell clams or bivalves from Boston Harbor." MA DPH also has issued the following advisory for lobster tomalley: "No one should consume lobster tomalley from any source." Since Hingham Harbor is a coastal water draining into the Boston Harbor area, the Fish Consumption Use is assessed as impaired due to PCBs and other contaminants. **Cause(s) of Impairment:** PCB in Fish Tissue, Other (contaminants in fish and shellfish) **Source(s) of Impairment:** Source Unknown *Data Sources: 24*		
Shellfish	**Impaired**	**--**
Shellfishing is conditionally restricted in 40.1% of this segment's area and is prohibited in 56.0 % of the area of the segment. The Shellfishing Use is assessed as impaired due to the restritiction on shellfish harvesting in virtually all of this segment's area. **Cause(s) of Impairment:** Fecal Coliform **Source(s) of Impairment:** Unknown *Data Sources: 19*		

HINGHAM HARBOR (SEGMENT MA74-18)

Designated Use	Use Assessment	Alert
Primary Contact	**Support**	**--**

Bacteria sampling was conducted at Melville Beach between 2002 and 2006 during the bathing season. The beach was closed for one day in 2002 (1.3% of season) while there were no postings between 2003 and 2006. Bacteria sampling was conducted at Town Beach between 2002 and 2007 during the bathing season. The beach was closed for eight days in 2005 (9.2 % of season) while there were no postings in all other years. Bacteria sampling conducted between 2002 and 2007 during the bathing season at Seal Cove resulted in beach closure for 3 days in 2005 (3.8% of season) while all other years had no closures. Bacteria sampling conducted between 2003 and 2007 during the bathing season at Yacht resulted in beach closure for 1 day in both 2005 and 2006 (representing 1.3 and 1.4% of season respectively) while all other years had no closures. Bacteria sampling was conducted at Otis beach in 2007 and there were no closures.

Given the lack of closures due to bacterial contamination at the beaches in this segment, the Primary Contact Recreation Use is assessed as support.

Data Sources: 18

Secondary Contact	**Support**	**--**

Bacteria sampling was conducted at Melville Beach between 2002 and 2006 during the bathing season. The beach was closed for one day in 2002 (1.3% of season) while there were no postings between 2003 and 2006. Bacteria sampling was conducted at Town Beach between 2002 and 2007 during the bathing season. The beach was closed for eight days in 2005 (9.2 % of season) while there were no postings in all other years. Bacteria sampling conducted between 2002 and 2007 during the bathing season at Seal Cove resulted in beach closure for 3 days in 2005 (3.8% of season) while all other years had no closures. Bacteria sampling conducted between 2003 and 2007 during the bathing season at Yacht resulted in beach closure for 1 day in both 2005 and 2006 (representing 1.3 and 1.4% of season respectively) while all other years had no closures. Bacteria sampling was conducted at Otis beach in 2007 and there were no closures.

Given the lack of closures due to bacterial contamination at the beaches in this segment, the Secondary Contact Recreation Use is assessed as support.

Data Sources: 18

Aesthetics	**Not Assessed**	**--**

Insufficient data were available to assess the Aesthetics Use.

WEIR RIVER (SEGMENT MA74-11)

Segment Description: From Foundry Pond outlet, Hingham to mouth at Worlds End, Hingham and Nantasket Road near Beech Avenue, Hull (including unnamed tributary from outlet Straits Pond, Hingham/Hull).
Segment Length: 0.83 square miles
Segment Classification: SA, Shellfishing, Outstanding Resource Water
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Pathogens).
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**

The Water Resource Commission has classified the Weir River as Highly Stressed . The 9 foot Foundry Pond dam at the upstream edge of this segment has recently been restored and the fishway that provides access was also modified at this time. The modifications to the dam spillway degraded the smelt spawning habitat. The emigration of juvenile herring was also impacted by the construction of a large rip-rap berm against the dam without plunge pools for safe passage over the dam crest. Remedial efforts are presently being plannded by DMF and the Town of Hingham. The area immediately downstream of the Foundry Pond dam has historically supported a strong smelt population. White perch and Atlantic tomcod are known to spawn in the lower river.

The MassDEP Wetlands Conservancy Program (WCP) as part of the Eelgrass Mapping Project, mapped less than 0.01 square miles of eelgrass in this segment for 1951. All subsequent eelgrass mapping efforts have found no eelgrass in this segment since 1951. Insufficient data were available to assess the Aquatic Life Use.

Data Sources: 4,6,26,27

Fish Consumption	Impaired	--

MA DPH has issued the following advisory for Boston Harbor recommending: "Pregnant women, women who may become pregnant, nursing mothers and children under 12 years of age and people with lowered immunity should not eat lobster, flounder, soft shell clams or bivalves from Boston Harbor." MA DPH also has issued the following advisory for lobster tomalley: "No one should consume lobster tomalley from any source." Since Weir River is a coastal water draining into the Boston Harbor area, the Fish Consumption Use is assessed as impaired due to PCBs and other contaminants.

Cause(s) of Impairment: PCB in Fish Tissue, Other (contaminants in fish and shellfish)
Source(s) of Impairment: Source Unknown

Data Sources: 12

Shellfish	Impaired	--

Shellfishing is conditionally restricted in approximately 47% of this segment's area and is prohibited in approximately 47 % of the segment's area. The Shellfishing Use is assessed as impaired due to the restriction on shellfish harvesting in virtually all of this segment's area.

Cause(s) of Impairment: Fecal Coliform
Source(s) of Impairment: Unknown

WEIR RIVER (SEGMENT MA74-11)		
Designated Use	**Use Assessment**	**Alert**
Primary Contact	**Support**	**--**
Bacteria sampling was conducted at the Cliff Road beach between 2002 and 2006 during the bathing season. The beach was closed for two days in 2005 (3.2% of season) while there were no postings in all other years sampled. Given the general lack of closures due to bacterial contamination at the beaches in this segment, the Primary Contact Recreation Use is assessed as support. *Data Sources: 18*		
Secondary Contact	**Support**	**--**
Bacteria sampling was conducted at the Cliff Road beach between 2002 and 2006 during the bathing season. The beach was closed for two days in 2005 (3.2% of season) while there were no postings in all other years sampled. Given the general lack of closures due to bacterial contamination at the beaches in this segment, the Secondary Contact Recreation Use is assessed as support. *Data Sources: 18*		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		
Recommendations		
DMF has recommend a restoration of spawning habitat at the Foundry Pond basin as well as the adoption of a management plan for the Foundry Pond spillway by the Town of Hingham that considers smelt spawning in terms of discharge management.		

WEYMOUTH BACK RIVER (SEGMENT MA74-13)

Segment Description: From the base of the fish ladder north of Commercial Street, Weymouth to mouth between Lower Neck, Weymouth (to the west) and Wompatuck Road, Hingham.
Segment Length: 0.86 square miles
Segment Classification: SA, Shellfishing, Outstanding Resource Water
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Pathogens).
NPDES Permits: None
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**
DMF has found low smelt egg production in the Weymouth Back River system since 1995 while previously it was considered to be an excellent smelt run. The low smelt egg production may be due to a number of influences from stormwater impacts to fluctuations in spawning runs. DMF has also noted that the river is one of the largest alewife runs in Massachusetts with improvements noted following fish passage restoration to Whitman's Pond in the 1980s and 1990s. Insufficient data were available to assess the Aquatic Life Use. *Data Sources: 6*		
Fish Consumption	**Impaired**	**--**
MA DPH has issued the following advisory for Boston Harbor recommending: "Pregnant women, women who may become pregnant, nursing mothers and children under 12 years of age and people with lowered immunity should not eat lobster, flounder, soft shell clams or bivalves from Boston Harbor." MA DPH also has issued the following advisory for lobster tomalley: "No one should consume lobster tomalley from any source." Since Weymouth Back River is a coastal water draining into the Boston Harbor area, the Fish Consumption Use is assessed as impaired due to PCBs and other contaminants. **Cause(s) of Impairment:** PCB in Fish Tissue, Other (contaminants in fish and shellfish) **Source(s) of Impairment:** Source Unknown *Data Sources: 24*		
Shellfish	**Impaired**	**--**
Shellfishing is conditionally restricted in approximately 37% of this segment's area and is prohibited in approximately 55 % of the segment's area. The Shellfishing Use is assessed as impaired due to the restritictions on shellfish harvesting in almost all of this segment's area. **Cause(s) of Impairment:** Fecal Coliform **Source(s) of Impairment:** Unknown *Data Sources: 19*		
Primary Contact	**Support**	**--**
Bacteria sampling was conducted at Wampatuck beach between 2002 and 2007 during the bathing season. The beach was closed for eight days in 2004 (11.4 % of season) while there were no postings in all other years sampled. Given the general lack of beach closures due to bacterial contamination at the beaches in this segment, the Primary Contact Recreation Use is assessed as support. *Data Sources: 18*		

WEYMOUTH BACK RIVER (SEGMENT MA74-13)		
Designated Use	**Use Assessment**	**Alert**
Secondary Contact	**Support**	**--**
Bacteria sampling was conducted at Wampatuck beach between 2002 and 2007 during the bathing season. The beach was closed for eight days in 2004 (11.4 % of season) while there were no postings in all other years sampled. Given the general lack of closures due to bacterial contamination at the beaches in this segment, the Secondary Contact Recreation Use is assessed as support. *Data Sources: 18*		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

WEYMOUTH FORE RIVER (SEGMENT MA74-14)

Segment Description: Commercial Street, Braintree to mouth (eastern point at Lower Neck, Weymouth and western point at Wall Street on Houghs Neck, Quincy).
Segment Length: 2.29 square miles
Segment Classification: SB, Shellfishing
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Pathogens).
NPDES Permits: MA0020869 (Sprague Energy), MA0004782 (Citgo Petroleum Corp,Braintree), MA0004073 (Twin Rivers Technologies L.P.), MA0005517 (Braintree Electric Light Department), MA0031551 (Clean Harbors Of Braintree,Inc)
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**

Historical observations by DMF indicate the Fore River was one of the largest smelt runs in Massachusetts supporting a large recreational fishery in Quincy Bay. Present fyke net sampling by DMF indicates the Fore River remains one of the largest smelt runs in Massachusetts with relatively higher catches of American eel and Atlantic tomcod.

Clean Harbors of Braintree, Inc. is is authorized to discharge treated stormwater runoff to Weymouth Fore River. Beginning in January 1997 water was collected upgradient from their outfall for use as ambient dilution water in the facility's whole effluent toxicity tests. Between January 1997 and June 2009, 24 hour survival of mysid shrimp exposed to the river was generally 100% and ranged from 70 to 100% while its 48 hours survival was generally 100% and ranged from 55 to 100% (n=35). Between January 1997 and February 2002, 24 hour survival of inland silverside exposed to the river was generally 100% and ranged from 80 to 100% while its 48 hour survival was mostly 100% and ranged from 35 to 100% (n=22).

Insufficent information is available to adequately assess the Aquatic Life Use, which is not assesed.

Data Sources: 6,25

Fish Consumption	**Impaired**	**--**

MA DPH has issued the following advisory for Boston Harbor recommending: "Pregnant women, women who may become pregnant, nursing mothers and children under 12 years of age and people with lowered immunity should not eat lobster, flounder, soft shell clams or bivalves from Boston Harbor." MA DPH also has issued the following advisory for lobster tomalley: "No one should consume lobster tomalley from any source." Since Weymouth Fore River is a coastal water draining into the Boston Harbor area, the Fish Consumption Use is assessed as impaired due to PCBs and other contaminants.

Cause(s) of Impairment: PCB in Fish Tissue, Other (contaminants in fish and shellfish)
Source(s) of Impairment: Source Unknown

Data Sources: 24

Shellfish	**Impaired**	**--**

Shellfishing is conditionally restricted in approximately 17% of this segment's area and is prohibited in approximately 68 % of the segment's area. The Shellfishing Use is assessed as impaired due to the restritictions on shellfish harvesting in almost all of this segment's area.

Cause(s) of Impairment: Fecal Coliform
Source(s) of Impairment: Unknown, Unspecified Urban Stormwater

Data Sources: 19

WEYMOUTH FORE RIVER (SEGMENT MA74-14)		
Designated Use	**Use Assessment**	**Alert**
Primary Contact	**Support**	**--**
Bacteria sampling was conducted at the Smith beach between 2002 and 2007 during the bathing season and had closures in every year except 2004. The beach was closed for 1.3 % of the 2002 season, 2.6 % of the 2003 season, 18.9 % of the 2005 season, 7.6% of the 2006 season, and 2.6% of the 2007 season. Bacteria sampling was conducted at the Edgeweater beach between 2002 and 2007 during the bathing season and had closures in all years except 2003 and 2006. The beach was closed for 9.0 % of the 2002 season, 10.4 % of the 2004 season, 10.7 % of the 2005 season, and 2.4% of the 2007 season. Bacteria sampling was conducted at Germantown Firestation beach between 2004 and 2007 during the bathing season and was only closed for one day in 2004. Bacteria sampling was conducted at Rhoda beach between 2002 and 2007 during the bathing season and the beach had closes in all years except 2005. The beach was closed for 2.5 % of the 2002 season, 32.1% of the 2003 season, 20.8% of the 2004 season, and 11.9% of the 2006 and 2007 seasons. Bacteria sampling was conducted at GeorgeE. Lane and Wessagusset beaches between 2002 and 2007 during the bathing season and the beaches had no closures during that period. In the majority of years, the majority of the beaches in this segment had closures during less than ten percent of their season, therefore the Primary Contact Recreation Use is assessed as support. It is important to note that sanitary sewage overflows historically have been problematic in the Fore River system but the MWRA has recently completed a deep rock tunnel under the Fore River from North Weymouth to the Nut Island Inter Island Tunnel. The tunnel under the Fore River is a major component of the $231 million MWRA Braintree-Weymouth Relief Facilities construction project that has increased sewer service capacity from 55 MGD to 73 MGD for the communities of Braintree, Weymouth, Holbrook, Randolph and Hingham. For more details see special note #2 about sanitary sewer improvements. *Data Sources: 18*		
Secondary Contact	**Support**	**--**
In the majority of years, the majority of the beaches in this segment had closures during less than ten percent of their season, therefore the Secondary Contact Recreation Use is assessed as support. See special note #2 for more information about sanitary sewer improvements. *Data Sources: 18*		
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		
Recommendations		
DMF recommends greater stormwater management effort to protect sensitive smelt habitat.		

TOWN RIVER BAY (SEGMENT MA74-15)

Segment Description: From the headwaters at the Route 3A bridge, Quincy to the mouth at Weymouth Fore River between Shipyard and Germantown Points, Quincy.
Segment Length: 0.46 square miles
Segment Classification: SB, Shellfishing
2008 Integrated List of Waters: This segment is on the 2008 Integrated List of Waters in Category 5 - Waters Requiring a TMDL (Organic enrichment/Low DO, Pathogens).
NPDES Permits: MA0028037 (Sprague Energy)
WMA: None

Designated Use	Use Assessment	Alert
Aquatic Life	**Not Assessed**	**--**
Insufficient data were available to assess the Aquatic Life Use.		
Fish Consumption	**Impaired**	**--**
MA DPH has issued the following advisory for Boston Harbor recommending: "Pregnant women, women who may become pregnant, nursing mothers and children under 12 years of age and people with lowered immunity should not eat lobster, flounder, soft shell clams or bivalves from Boston Harbor." MA DPH also has issued the following advisory for lobster tomalley: "No one should consume lobster tomalley from any source." Since Town River Bay is a coastal water draining into the Boston Harbor area, the Fish Consumption Use is assessed as impaired due to PCBs and other contaminants. **Cause(s) of Impairment:** PCB in Fish Tissue, Other (contaminants in fish and shellfish) **Source(s) of Impairment:** Source Unknown *Data Sources: 24*		
Shellfish	**Impaired**	**--**
Shellfishing is conditionally restricted in approximately 24 % of this segment's area and is prohibited in approximately 64 % of the segment's area. The Shellfishing Use is assessed as impaired due to the restritictions on shellfish harvesting in virtually all of this segment's area. **Cause(s) of Impairment:** Fecal Coliform **Source(s) of Impairment:** Unknown, Unspecified Urban Stormwater *Data Sources: 19*		
Primary Contact	**Support**	**--**
Avalon, Mound and Broady (Baker) beaches are all found on this segment. Bacteria sampling was conducted at Avalon beach between 2002 and 2007 during the bathing season and had closures in every year but the closures were less than 10% of the season during all years. Bacteria sampling was conducted at Mound beach between 2002 and 2007 during the bathing season and only had closures in 2003 (for 8 days, 8.3% of the bathing season). Bacteria sampling was conducted at Broady (Baker) beach between 2002 and 2007 during the bathing season and had closures in all years. All beaches closures were less than 10% of the bathing seasons in all years except 2003 where closures represnted 15.5 % of the season. With the exception of one beach during one season, all marine beaches had closures during less than ten percent of their season (2002-2007), therefore the Primary Contact Recreation Use is assessed as support. *Data Sources: 18*		
Secondary Contact	**Support**	**--**
With the exception of one beach during one season, all marine beaches had closures during less than ten percent of their season (2002-2007), therefore the Secondary Contact Recreation Use is assessed as support. *Data Sources: 18*		

TOWN RIVER BAY (SEGMENT MA74-15)		
Designated Use	**Use Assessment**	**Alert**
Aesthetics	**Not Assessed**	**--**
Insufficient data were available to assess the Aesthetics Use.		

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APPENDIX A
ASSESSMENT METHODOLOGY GUIDELINES FOR EVALUATING DESIGNATED USE STATUS OF MASSACHUSETTS SURFACE WATERS - 2009

WATER QUALITY CLASSIFICATION

The Massachusetts Surface Water Quality Standards (SWQS) designate the most sensitive uses for which the surface waters of the Commonwealth shall be enhanced, maintained and protected; prescribe minimum water quality criteria required to sustain the designated uses; and include provisions for the prohibition of discharges (MassDEP 2006). These regulations should undergo public review every three years. The surface waters are segmented and each segment is assigned to one of the six classes described below. Each class is identified by the most sensitive and, therefore, governing water uses to be achieved and protected. Surface waters may be suitable for other beneficial uses, but shall be regulated by the Department of Environmental Protection to protect and enhance the designated uses.

INLAND WATER CLASSES

- *CLASS A* - These waters include waters designated as a source of public water supply and their tributaries. They are designated as excellent habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation, even if not allowed. These waters shall have excellent aesthetic value. These waters are protected as Outstanding Resource Waters.
- *CLASS B* - These waters are designated as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be suitable as a source of public water supply with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value.
- *CLASS C* - These waters are designated as a habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for secondary contact recreation. These waters shall be suitable for the irrigation of crops used for consumption after cooking and for compatible industrial cooling and process uses. These waters shall have good aesthetic value.

COASTAL AND MARINE CLASSES

- *CLASS SA* - These waters are designated as an excellent habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. In certain waters, excellent habitat for fish, other aquatic life and wildlife may include, but is not limited to, sea grass. Where designated in the tables to 314 CMR 4.00 for shellfishing, these waters shall be suitable for shellfish harvesting without depuration (Approved and Conditionally Approved Shellfish Areas). These waters shall have excellent aesthetic value.
- *CLASS SB* - These waters are designated as a habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. In certain waters, habitat for fish, other aquatic life and wildlife may include, but is not limited to, seagrass. Where designated in the tables to 314 CMR 4.00 for shellfishing, these waters shall be suitable for shellfish harvesting with depuration (Restricted and Conditionally Restricted Shellfish Areas). These waters shall have consistently good aesthetic value.
- *CLASS SC* - These waters are designated as a habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for secondary contact recreation. They shall also be suitable for certain industrial cooling and process uses. These waters shall have good aesthetic value.

The Clean Water Act (CWA), Section 305(b), water quality reporting process is an essential aspect of the Nation's water pollution control effort. It is the principal means by which EPA, Congress, and the public evaluate existing water quality, assess progress made in maintaining and restoring water quality, and determine the extent of remaining problems. By this process, states report on waterbodies within the

context of meeting their designated uses. These uses include: *Aquatic Life, Fish Consumption, Drinking Water, Primary Contact Recreation, Secondary Contact Recreation, Shellfish Harvesting* and *Aesthetics*. Two subclasses of Aquatic Life are also designated in the Massachusetts Surface Water Quality Standards (SWQS): Cold Water Fishery – waters capable of sustaining a year-round population of cold water aquatic life, such as trout – and Warm Water Fishery – waters that are not capable of sustaining a year-round population of cold water aquatic life (MassDEP 2006).

The SWQS, summarized in Table A1, prescribe minimum water quality criteria to sustain the designated uses. Furthermore, these standards describe the hydrological conditions at which water quality criteria must be applied (MassDEP 2006). In rivers the lowest flow conditions at and above which aquatic life criteria must be applied are the lowest mean flow for seven consecutive days to be expected once in ten years (7Q10). In waters where flows are regulated by dams or similar structures the lowest flow conditions at which aquatic life criteria must be applied are the flows equal to or exceeded 99% of the time on a yearly basis or another equivalent flow that has been agreed upon (see Mass DEP 2006 for more detail). In coastal and marine waters and for lakes the Massachusetts Department of Environmental Protection (MassDEP) will determine on a case-by-case basis the most severe hydrological condition for which the aquatic life criteria must be applied.

The availability of appropriate and reliable scientific data and technical information is fundamental to the 305(b) reporting process. It is EPA policy (EPA Order 5360.1 CHG 1) that any individual or group performing work for or on behalf of EPA establish a quality system to support the development, review, approval, implementation, and assessment of data collection operations. To this end MassDEP describes its Quality System in an EPA-approved Quality Management Plan to ensure that environmental data collected or compiled by the MassDEP are of known and documented quality and are suitable for their intended use. For external sources of information, MassDEP requires the following: 1) an appropriate Quality Assurance Project Plan (QAPP) including a laboratory Quality Assurance /Quality Control (QA/QC) plan; 2) use of a state certified lab (or as otherwise approved by DEP for a particular analysis); and 3) sample data, QA/QC and other pertinent sample handling information documented in a citable report. This information will be reviewed by MassDEP to determine its validity and usability to assess water use support. Data use could be modified or rejected due to poor or undocumented QAPP implementation, lack of project documentation, incomplete reporting of data or information, and/or project monitoring objectives unsuitable for MassDEP assessment purposes.

EPA provides guidelines to states for making their use support determinations (EPA 1997 and 2002, Grubbs and Wayland III 2000 and Wayland III 2001). The determination of whether or not a waterbody supports each of its designated uses is a function of the type(s), quality and quantity of available current information. Although data/information older than five years are usually considered “historical” and used for descriptive purposes they can be utilized in the use support determination provided they are known to reflect the current conditions. While the water quality standards (Table A1) prescribe minimum water quality criteria to sustain the designated uses, numerical criteria are not available for every indicator of pollution. Best available guidance from available literature may be applied in lieu of actual numerical criteria (e.g., freshwater sediment data may be compared to *Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario* 1993 by D. Persaud, R. Jaagumagi and A. Hayton). Excursions from criteria due solely to “naturally occurring” conditions (e.g., low pH in some areas) do not constitute violations of the SWQS.

Each designated use within a given segment is individually assessed as ***support*** or ***impaired***. When too little current data/information exist or no reliable data are available, the use is ***not assessed***. In this report, however, if there is some indication that water quality impairment may exist, and it is not “naturally occurring”, the use is identified with an “Alert Status”. It is important to note that not all waters are assessed. Many small and/or unnamed ponds, rivers, and estuaries have never been assessed; the status of their designated uses has never been reported to EPA in the Commonwealth’s 305(b) Report or the Integrated List of Waters nor is information on these waters maintained in the waterbody system database (WBS) or the new assessment database (ADB). These waterbodies are considered ***not assessed other waters.***

Table A1. Summary of Massachusetts Surface Water Quality Standards (MassDEP 2006, MA DPH 2002, FDA 2003).

Dissolved Oxygen	Class A Cold Water Fishery (CWF) and Class B Cold Water Fishery (BCWF) and Class SA: ≥6.0 mg/L Class A and Class B Warm Water Fishery (BWWF) and Class SB: ≥5.0 mg/L Class C: Not <5.0 mg/L at least 16 hours of any 24-hour period and not <3.0 mg/L at any time. Class SC: Not <5.0 mg/L at least 16 hours of any 24-hour period and not <4.0 mg/L anytime. For all classes, where natural background conditions are lower than the criteria stated for each class, DO shall not be less than natural background conditions. Natural seasonal and daily variations that are necessary to protect existing and designated uses shall also be maintained.
Temperature	Class A CWF: ≤68℉ (20℃) based on the mean of the daily maximum temperature over a seven day period in cold water fisheries, unless naturally occurring and ΔT due to a discharge ≤1.5℉ (0.8℃). Class A WWF: ≤83℉ (28.3℃) and ΔT due to a discharge ≤1.5℉ (0.8℃). Class BCWF: ≤68℉ (20℃) based on the mean of the daily maximum temperature over a seven day period in all cold water fisheries, unless naturally occurring, and ΔT due to a discharge ≤Δ3℉ (1.7℃) Class BWWF: ≤83℉ (28.3℃) and ΔT due to a discharge ≤5℉ (2.8℃) in rivers (based on the minimum expected flow for the month) and ΔT due to a discharge ≤3℉ (1.7℃) in the epilimnion (based on the monthly average of maximum daily temperatures) in lakes, Class C and Class SC: ≤85℉ (29.4℃) and ΔT due to a discharge ≤5℉ (2.8℃) Class SA: ≤85℉ (29.4℃) nor a maximum daily mean of 80℉ (26. 7℃) and ΔT due to a discharge ≤1.5℉ (0.8℃) Class SB: ≤85℉ (29.4℃) nor a maximum daily mean of 80℉ (26. 7℃) and Δ T due to a discharge ≤1.5℉ (0.8℃) between July and September and ≤4.0℉ (2.2℃) between October and June. *For all classes, natural seasonal and daily variations that are necessary to protect existing and designated uses shall be maintained. There shall be no changes from natural background conditions that would impair any uses assigned to each class, including those conditions necessary to protect normal species diversity, successful migration, reproductive functions or growth of aquatic organisms.* For CWF waters, where a reproducing cold water aquatic community exists at a naturally higher temperature, the temperature necessary to protect the community shall not be exceeded and natural daily and seasonal temperature fluctuations necessary to protect the community shall be maintained. Class B, C, SA, SB, and SC: See MassDEP 2006 for language specific to alternative effluent limitations relating to thermal discharges and cooling water intake structures.
pH	Class A, Class BCWF and Class BWWF: 6.5 - 8.3 SU and Δ0.5 outside the natural background range. Class C: 6.5 - 9.0 SU and Δ1.0 outside the natural background range. Class SA and Class SB: 6.5 - 8.5 SU and Δ0.2 SU outside the natural background range. Class SC: 6.5 - 9.0 SU and Δ0.5 SU outside the natural background range. There shall be no change from natural background conditions that would impair any use assigned to each class.
Solids	All Classes: *These waters shall be free from floating, suspended, and settleable solids in concentrations or combinations that would impair any use assigned to each class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.*
Color and Turbidity	All Classes: *These waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use.*
Oil and Grease	Class A and Class SA: *Waters shall be free from oil and grease, petrochemicals and other volatile or synthetic organic pollutants.* Class SA: *Waters shall be free from oil and grease and petrochemicals.* Class B, Class C, Class SB and Class SC: *Waters shall be free from oil, grease, and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.*
Taste and Odor	Class A and Class SA: *None other than of natural origin.* Class B, Class C, Class SB and Class SC: *None in such concentrations or combinations that are aesthetically objectionable, that would impair any use assigned to each class, or that would cause tainting or*

Table A1. Summary of Massachusetts Surface Water Quality Standards (MassDEP 2006, MA DPH 2002, FDA 2003).

	undesirable flavors in the edible portions of aquatic life.
Aesthetics	All Classes: *All surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.*
Toxic Pollutants	All Classes: *All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. For pollutants not otherwise listed in 314 CMR 4.00, the National Recommended Water Quality Criteria: 2002, EPA 822-R-02-047, November 2002 published by EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department either establishes a site specific criterion or determines that naturally occurring background concentrations are higher. The Department shall use the water quality criteria for the protection of aquatic life expressed in terms of the dissolved fraction of metals when EPA's 304(a) recommended criteria provide for use of the dissolved fraction* (see Mass DEP 2006 for more detail regarding permit limits, conversion factors, site specific criteria).
Nutrients	*Unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and shall not exceed the site specific criteria developed in a TMDL or as otherwise established by the Department pursuant to these Standards.*
Bacteria (MassDEP 2006 and MA DPH 2002) Class A criteria apply to the *Drinking Water Use*. Class B and SB criteria apply to *Primary Contact Recreation Use* while Class C and SC criteria apply to *Secondary Contact Recreation Use*.	Class A: *At water supply intakes in unfiltered public water supplies:* either fecal coliform shall not exceed 20 organisms/100 ml in all samples taken in any six month period, or total coliform shall not exceed 100 organisms/ 100 ml in 90% of the samples taken in any six month period. If both total and fecal coliform are measured, then only the fecal coliform criterion must be met. Class A other waters, Class B: Where *E.* coli is the chosen indicator at public bathing beaches as defined by MA DPH: The geometric mean of the five most recent *E. coli* samples taken within during the same bathing season shall not exceed 126 colonies/ 100 ml and no single sample taken during the bathing season shall exceed 235 colonies/ 100 ml (these criteria may be applied on a seasonal basis at the Department's discretion). Where Enterococci are the chosen indicators at public bathing beaches*:* The geometric mean of the five most recent samples taken during the same bathing season shall not exceed 33 colonies /100 ml and no single *Enterococci* sample taken during the bathing season shall exceed 61 colonies /100 ml. For other waters and, during the non bathing season, for waters at public bathing beaches: The geometric mean of all *E. coli* samples taken within the most recent six months shall not exceed 126 colonies/ 100 ml typically based on a minimum of five samples and no single sample shall exceed 235 colonies/ 100 ml. These criteria may be applied on a seasonal basis at the Department's discretion. The geometric mean of all *Enterococci* samples taken within the most recent six months shall not exceed 33 colonies/ 100 ml typically based on a minimum of five samples and no single sample shall exceed 61 colonies/ 100 ml. These criteria may be applied on a seasonal basis at the Department's discretion. Class C: *The geometric mean of all E. coli samples taken within the most recent six months shall not exceed 630 E. coli/ 100 ml, typically based on a minimum of five samples and 10% of such samples shall not exceed 1260 E. coli/ 100 ml.* This criterion may be applied on a seasonal basis at the discretion of the Department. Class SA: Waters designated for shellfishing: *Fecal coliform bacteria shall not exceed a geometric mean (Most Probable Number (MPN) method) of 14 organisms/100 ml, nor shall more than 10% of the samples exceed an MPN of 28 organisms/100 ml, or other values of equivalent protection based on sampling and analytical methods used by the Massachusetts Division of Marine Fisheries and approved by the National Shellfish Sanitation Program in the latest revision of the Guide for the Control of Molluscan Shellfish Areas (more stringent regulations may apply, see 314 CMR 4.06(1)(d)(5)).* Class SB: Waters designated for shellfishing:

Table A1. Summary of Massachusetts Surface Water Quality Standards (MassDEP 2006, MA DPH 2002, FDA 2003).

	Fecal coliform median or geometric mean MPN shall not exceed 88 organisms/100 ml, nor shall more than 10% of the samples exceed an MPN of 260 organisms/100 ml or other values of equivalent protection based on sampling and analytical methods used by the Massachusetts Division of Marine Fisheries and approved by the National Shellfish Sanitation Program in the latest revision of the Guide for the Control of Molluscan Shellfish Areas (more stringent regulations may apply, see 314 CMR 4.06(1)(d)(5)). Class SA and Class SB: At public bathing beaches, as defined by MA DPH: No single *Enterococci* sample taken during the bathing season shall exceed 104 colonies /100 ml and the geometric mean of the five most recent *Enterococci* samples taken within the same bathing season shall not exceed 35 colonies /100 ml. At public bathing beaches during the non-bathing season and in non bathing beach waters: No single *Enterococci* sample shall exceed 104 colonies/ 100 ml and the geometric mean of all samples taken within the most recent six months, typically a minimum of five samples, shall not exceed 35 colonies/ 100 ml. These criteria may be applied on a seasonal basis at the discretion of the Department). Class SC: *The geometric mean of all Enterococci samples taken within the most recent six months shall not exceed 175 colonies/ 100 ml, typically based on the five most recent samples, and 10% of such samples shall not exceed 350 colonies/ 100 ml. This criterion may be applied on a seasonal basis at the discretion of the Department.*

Note: *Italics are direct quotations.* Δ criterion (referring to a change from natural background conditions) is applied to the effects of a permitted discharge.

DESIGNATED USES

The Massachusetts Surface Water Quality Standards designate the most sensitive uses for which the surface waters of the Commonwealth shall be enhanced, maintained and protected. Each of these uses is briefly described below (MassDEP 2006):

- *AQUATIC LIFE* - suitable habitat for sustaining a native, naturally diverse, community of aquatic flora and fauna, including, but not limited to, wildlife and threatened and endangered species and for their reproduction, migration, growth and other critical functions. Two subclasses of aquatic life are also designated in the standards for freshwater bodies: *Cold Water Fishery* - capable of sustaining a year-round population of cold water aquatic life, such as trout; *Warm Water Fishery* - waters that are not capable of sustaining a year-round population of cold water aquatic life. In certain waters, excellent habitat for fish, other aquatic life and wildlife may include, but is not limited to, seagrass.
- *FISH CONSUMPTION* - pollutants shall not result in unacceptable concentrations in edible portions of marketable fish or for the recreational use of fish, other aquatic life or wildlife for human consumption.
- *DRINKING WATER* - used to denote those waters used as a source of public drinking water. They may be subject to more stringent regulation in accordance with the Massachusetts Drinking Water Regulations (310 CMR 22.00). These waters are designated for protection as Outstanding Resource Waters under 314 CMR 4.04(3).
- *SHELLFISH HARVESTING* (in SA and SB segments) – Class SA waters where designated shall be suitable for shellfish harvesting without depuration (Approved and Conditionally Approved Shellfish Areas); Class SB waters where designated shall be suitable for shellfish harvesting with depuration (Restricted and Conditionally Restricted Shellfish Areas).
- *PRIMARY CONTACT RECREATION* - suitable for any recreation or other water use in which there is prolonged and intimate contact with the water with a significant risk of ingestion of water. These include, but are not limited to, wading, swimming, diving, surfing and water skiing.
- *SECONDARY CONTACT RECREATION* - suitable for any recreation or other water use in which contact with the water is either incidental or accidental. These include, but are not limited to, fishing, including human consumption of fish, boating and limited contact incident to shoreline activities. Where designated, secondary contact recreation also includes shellfishing, including human consumption of shellfish. Human consumption of fish and shellfish are assessed as the *Fish Consumption* and *Shellfish Harvesting* uses, respectively.
- *AESTHETICS* - all surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.
- *AGRICULTURAL AND INDUSTRIAL* - suitable for irrigation or other agricultural process water and for compatible industrial cooling and process water.

The guidance used to assess the *Aquatic Life, Fish Consumption, Drinking Water, Shellfish Harvesting, Primary* and *Secondary Contact Recreation* and *Aesthetics* uses follows.

Note: Waterbodies affected by Combined Sewer Overflow (CSO) discharges are qualified in the standards, however, unless a variance has been granted and states otherwise, excursions from criteria are not allowed during storm events (designated uses are still applicable).

AQUATIC LIFE USE

This use is suitable for sustaining a native, naturally diverse, community of aquatic flora and fauna, including, but not limited to, wildlife and threatened and endangered species and for their reproduction, migration, growth and other critical functions. The results of biological (and habitat), toxicological, and chemical data are integrated to assess this use. The nature, frequency, and precision of the MassDEP's data collection techniques dictate that a weight of evidence be used to make the assessment, with biosurvey results used as the final arbiter of borderline cases. The following chart provides an overview of the guidance used to assess the status (support or impaired) of the *Aquatic Life Use.*

Variable	***Support*** Data available clearly indicates support or minor modification of the biological community. Excursions from chemical criteria (Table A1) not frequent or prolonged and may be tolerated if the biosurvey results demonstrate support.	***Impaired*** There are frequent or severe violations of chemical criteria, presence of acute toxicity, or a moderate or severe modification of the biological community.
BIOLOGY		
Rapid Bioassessment Protocol (RBP) III*	Non/Slightly impacted	Moderately or Severely Impacted
Fish Community	Best Professional Judgment (BPJ)	BPJ
Habitat and Flow	BPJ	Dewatered streambed due to artificial regulation or channel alteration, BPJ
Eelgrass Bed Habitat (Howes *et al.* 2003, Costello 2003)	Stable (No/minimal loss), BPJ	Loss/decline, BPJ
Non-native species	BPJ	Non-native species present, BPJ
Plankton/Periphyton	No/infrequent algal blooms	Frequent and/or prolonged algal blooms
TOXICITY TESTS**		
Water Column/Ambient	≥75% survival either 48 hr or 7-day exposure	<75% survival either 48 hr or 7-day exposure
Sediment	≥75% survival	<75% survival
CHEMISTRY-WATER**		
Dissolved oxygen (DO) (MassDEP 2006, EPA 1997)	Infrequent excursion from criteria (Table A1), BPJ (minimum of three samples representing critical period)	Frequent and/or prolonged or severe excursion from criteria [river and shallow lakes - exceedances >10% of representative measurements; deep lakes (with hypolimnion) - exceedances in the hypolimnetic area >10% of the surface area during maximum oxygen depletion].
pH (MassDEP 2006, EPA 1999a)	Infrequent excursion from criteria (Table A1)	Criteria exceeded >10% of measurements.
Temperature **(**MassDEP 2006,EPA 1997) [Note: typically the analysis of this variable is applicable to a summer index period ranging anywhere from mid-June through early September.]	Infrequent excursion from criteria (Table A1)	Small datasets: Criteria exceeded >10% of measurements. Deployed probe (long term) datasets: CWF: excursion based on mean of the daily maximum temperatures over a 7-day period. WWF: BPJ (e.g., >10% days in a 30 day period or three consecutive days in a 30 day period exceed 28.3℃, or 7-day average of daily maximum temperatures exceeds 28.3℃)
Toxic Pollutants (MassDEP 2006, EPA 1999a) Ammonia-N (MassDEP 2006, EPA 1999b) Chlorine (MassDEP 2006, EPA 1999a)	Infrequent excursion from criteria (Table A1) Ammonia is pH and temperature dependent[1] 0.011 mg/L (freshwater) or 0.0075 mg/L (saltwater) total residual chlorine (TRC)[2]	Frequent and/or prolonged excursion from criteria (exceeded >10% of measurements).

AQUATIC LIFE USE (CONTINUED)

CHEMISTRY-SEDIMENT**		
Toxic Pollutants (Persaud *et al.* 1993)	Concentrations ≤ Low Effect Level (L-EL), BPJ	Concentrations ≥ Severe Effect Level (S-EL)[3], BPJ
CHEMISTRY-TISSUE		
PCB – whole fish (Coles 1998)	≤500 µg/kg wet weight	BPJ
DDT (Environment Canada 1999)	≤14.0 µg/kg wet weight	BPJ
PCB in aquatic tissue (Environment Canada 1999)	≤0.79 ng TEQ/kg wet weight	BPJ

*RBP II analysis may be considered for assessment decision on a case-by-case basis, **For identification of impairment, one or more of the following variables may be used to identify possible causes/sources of impairment: NPDES facility compliance with whole effluent toxicity test and other limits, turbidity and suspended solids data, nutrient (nitrogen and phosphorus) data for water column/sediments. [1] Saltwater is temperature dependent only. [2] The minimum quantification level for TRC is 0.05 mg/L. [3]For the purpose of this report, the S-EL for total polychlorinated biphenyl compounds (PCB) in sediment (which varies with total organic carbon (TOC) content) with 1% TOC is 5.3 ppm while a sediment sample with 10% TOC is 53 ppm.

Note: National Academy of Sciences/National Academy of Engineering (NAS/NAE) guideline for maximum organochlorine concentrations (i.e., total PCB) in fish tissue for the protection of fish-eating wildlife is 500µg/kg wet weight (ppb, not lipid-normalized). PCB data (tissue) in this report are presented in µg/kg wet weight (ppb) and are not lipid-normalized to allow for direct comparison to the NAS/NAE guideline.

FISH CONSUMPTION USE

Pollutants shall not result in unacceptable concentrations in edible portions of marketable fish or for the recreational use of fish, other aquatic life or wildlife for human consumption. The assessment of this use is made using the most recent Fish Consumption Advisories issued by the Massachusetts Executive Office of Health and Human Services, Department of Public Health (MA DPH), Bureau of Environmental Health Assessment (MA DPH 2009a). The MA DPH identifies waterbodies where elevated levels of a specified contaminant in edible portions of freshwater species pose a health risk for human consumption. Hence, the *Fish Consumption Use* is assessed as impaired in these waters.

In July 2001 MA DPH issued consumer advisories on fish consumption due to mercury contamination (MA DPH 2001). Their most recent news release on this issue in June 2009 recommends the following (MA DPH 2009b):

'Fish Consumption Advisory for Marine and Fresh Water Bodies

Fish is good for you and your family. It is a good source of protein and it is low in fat. It may also protect you against heart disease. A varied diet, including safe fish, will lead to good nutrition and better health. If you may become pregnant or are pregnant or nursing, you and your children under 12 years old may safely eat 12 ounces (about 2 meals) per week of fish or shellfish not covered in this advisory. This recommendation includes canned tuna, the consumption of which should be limited to 2 cans per week. Very small children, including toddlers, should eat less. Consumers may wish to choose to eat light tuna rather than white or chunk white tuna, the latter of which may have higher levels of mercury. Otherwise, it is important to follow the Safe Eating Guidelines included in this advisory.'

Safe eating guidelines for pregnant women, women who may become pregnant, nursing mothers and children under 12 years old: **(contaminants of concern in parenthetical as noted by MA DPH and MassDEP)**

Do Not Eat: *Freshwater fish caught in streams, rivers, lakes, and ponds in Massachusetts** (Hg)
Safe To Eat: *Fish that are stocked in streams, rivers, lakes, and ponds in Massachusetts*
Safe To Eat: *Cod, haddock, flounder and pollock in larger amounts*
Do Not Eat: *Lobster from New Bedford Harbor* (PCB)
Do Not Eat: *Swordfish, shark, king mackerel, tilefish, and tuna steak* (Hg)
Do Not Eat: *Bluefish caught off the Massachusetts coast* (PCB)
Do Not Eat: *Lobsters, flounder, soft-shell clams and bivalves from Boston Harbor* (PCB and other contaminants) **NOTE: For assessment purposes Boston Harbor is broadly defined to include all coastal waters that drain into it.**

Safe eating guidelines for everyone:

Do Not Eat: *Fish and shellfish from the closed areas of New Bedford Harbor* (PCB)
Do Not Eat: *Lobster tomalley* (PCB)

*More specific consumption advice is available for certain freshwater bodies that have been tested at: http://www.mass.gov/dph/fishadvisories or by calling the Massachusetts Department of Public Health, Bureau of Environmental Health at 617-624-5757.

The following is an overview of EPA's guidance used to assess the status (support or impaired) of the *Fish Consumption Use*. Because of the statewide advisory no waters can be assessed as support for the *Fish Consumption Use*. Therefore, if no site-specific advisory is in place, the *Fish Consumption Use* is not assessed.

Variable	***Support*** No restrictions or bans in effect	***Impaired*** There is a "no consumption" advisory or ban in effect for the general population or a sub-population for one or more fish species or there is a commercial fishing ban in effect.
MA DPH Fish Consumption Advisory	Not applicable, precluded by statewide advisories(Hg)	Waterbody has site specific MA DPH Fish Consumption Advisory

Northeast Regional Mercury TMDL: On 20 December 2007 the U.S. EPA approved the Northeast Regional Mercury Total Maximum Daily Load (TMDL). This TMDL is a Federal Clean Water Act mandated document that identifies pollutant load reductions necessary for regional waterbodies to meet

and maintain compliance with state and federal water quality standards. It was prepared by the New England Interstate Water Pollution Control Commission (NEIWPCC) in cooperation with the states of Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. The TMDL covers inland waterbodies that are impaired primarily due to atmospheric deposition of mercury (Northeast States 2007). The TMDL target for Massachusetts is 0.3 ppm or less of mercury in fish tissue. The plan calls for a 75% reduction of in-region and out of region atmospheric sources by 2010 and a 90% or greater reduction in the future (NEIWPCC 2007). The TMDL will be reassessed in 2010 based on an evaluation of new on-going monitoring and air deposition data. Final targets will be determined at that time.

DRINKING WATER USE

The term *Drinking Water Use* denotes those waters used as a source of public drinking water. These waters may be subject to more stringent regulation in accordance with the Massachusetts Drinking Water Regulations (310 CMR 22.00). They are designated for protection as Outstanding Resource Waters in 314 CMR 4.04(3). MassDEP's Drinking Water Program (DWP) has primacy for implementing the provisions of the federal Safe Drinking Water Act (SDWA). Except for suppliers with surface water sources for which a waiver from filtration has been granted (these systems also monitor surface water quality) all public drinking water supplies are monitored as finished water (tap water). Monitoring includes the major categories of contaminants established in the SDWA: bacteria, volatile and synthetic organic compounds, inorganic compounds and radionuclides. The DWP maintains current drinking supply monitoring data. The suppliers currently report to MassDEP and EPA the status of the supplies on an annual basis in the form of a consumer confidence report (http://yosemite.epa.gov/ogwdw/ccr.nsf/Massachusetts). Below is EPA's guidance to assess the status (support or impaired) of the drinking water use.

Variable	***Support***	***Impaired***
	No closures or advisories (no contaminants with confirmed exceedances of maximum contaminant levels, conventional treatment is adequate to maintain the supply).	Has one or more advisories or more than conventional treatment is required or has a contamination-based closure of the water supply.
Drinking Water Program (DWP) Evaluation	See note below	See note below

Note: While this use is not assessed in this report, information on drinking water source protection and finish water quality is available at http://www.mass.gov/dep/water/drinking.htm and from local public water suppliers.

SHELLFISHING USE

This use is assessed using information from the Department of Fish and Game's Division of Marine Fisheries (DMF). A designated shellfish growing area is an area of potential shellfish habitat. Growing areas are managed with respect to shellfish harvest for direct human consumption, and comprise at least one or more classification areas (MA DFG 2009). The classification areas are the management units, and range from being approved to prohibited (described below) with respect to shellfish harvest. Shellfish areas under management closures are *not assessed.* Not enough testing has been done in these areas to determine whether or not they are fit for shellfish harvest, therefore, they are closed for the harvest of shellfish.

Variable	***Support***	***Impaired***
	SA Waters: Approved[1] SB Waters: Approved[1], Conditionally Approved[2], or Restricted[3]	SA Waters: Conditionally Approved[2], Restricted[3], Conditionally Restricted[4], or Prohibited[5] SB Waters: Conditionally Restricted[4] or Prohibited[5]
DMF Shellfish Project Classification Area Information (MA DFG 2000)	Reported by DMF	Reported by DMF

NOTE: Designated shellfish growing areas may be viewed using the MassGIS datalayer available from MassGIS at http://www.mass.gov/mgis/dsga.htm. This coverage currently reflects classification areas as of September 30, 2009 (MA DFG 2009)..

[1] **Approved** - "...open for harvest of shellfish for direct human consumption subject to local rules and regulations..." An approved area is open all the time and closes only due to hurricanes or other major coastwide events.

[2] **Conditionally Approved** - "...subject to intermittent microbiological pollution..." During the time the area is open, it is "...for harvest of shellfish for direct human consumption subject to local rules and regulations…" A conditionally approved area is closed some of the time due to runoff from rainfall or seasonally poor water quality. When open, shellfish harvested are treated as from an approved area.

[3] **Restricted** - area contains a "limited degree of pollution." It is open for "harvest of shellfish with depuration subject to local rules and state regulations" or for the relay of shellfish. A restricted area is used by DMF for the relay of shellfish to a less contaminated area.

[4] **Conditionally Restricted** - "...subject to intermittent microbiological pollution..." During the time area is restricted, it is only open for "the harvest of shellfish with depuration subject to local rules and state regulations." A conditionally restricted area is closed some of the time due to runoff from rainfall or seasonally poor water quality. When open,

only soft-shell clams may be harvested by specially licensed diggers (Master/Subordinate Diggers) and transported to the DMF Shellfish Purification Plant for depuration (purification).

[5] **Prohibited -** Closed for harvest of shellfish.

PRIMARY CONTACT RECREATION USE

This use is suitable for any recreational or other water use in which there is prolonged and intimate contact with the water with a significant risk of ingestion of water during the primary contact recreation season (1 April to 15 October). These include, but are not limited to, wading, swimming, diving, surfing and water skiing. The chart below provides an overview of the guidance used to assess the status (support or impaired) of the *Primary Contact Recreation Use*. Excursions from criteria due to natural conditions are not considered impairment of use.

Variable	***Support*** Criteria are met, no aesthetic conditions that preclude the use	***Impaired*** Frequent or prolonged violations of criteria and/or formal bathing area closures, or severe aesthetic conditions that preclude the use
Bacteria (105 CMR 445.000) Minimum Standards for Bathing Beaches State Sanitary Code) (MassDEP 2006)	At "public bathing beach" areas: Formal beach postings/advisories neither frequent nor prolonged during the swimming season (the number of days posted or closed cannot exceed 10% during the locally operated swimming season). Collected samples* meet the geometric mean criteria (Table A1). Shellfish Growing Area classified as "Approved by DMF.	At "public bathing beach" areas: Formal beach closures/postings >10% of time during swimming season (the number of days posted or closed exceeds 10% during the locally operated swimming season). Collected samples* do not meet the geometric mean criteria (Table A1).
Aesthetics (MassDEP 1996) - *All surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance* [growth or amount] *species of aquatic life*		
Odor, oil and grease, color and turbidity, floating matter	Narrative "free from" criteria met or excursions neither frequent nor prolonged, BPJ.	Narrative "free from" criteria not met - objectionable conditions either frequent and/or prolonged, BPJ.
Transparency (MA DPH 1969)	Public bathing beach and lakes – Secchi disk depth ≥1.2 meters (≥ 4') (minimum of three samples representing critical period).	Public bathing beach and lakes - Secchi disk depth <1.2 meters (< 4') (minimum of three samples representing critical period).
Nuisance organisms	No overabundant growths (i.e., blooms) that render the water aesthetically objectionable or unusable, BPJ.	Overabundant growths (i.e., blooms and/or non-native macrophyte growth dominating the biovolume) rendering the water aesthetically objectionable and/or unusable, BPJ.

* Data sets to be evaluated for assessment purposes must be representative of a sampling location (at least five samples per station recommended) and the season being analyzed, as described in the SWQS (see Table 1). Samples collected on one date from multiple stations on a river are not considered adequate to assess this designated use. Because of low sample frequency (i.e., less than ten samples per station) an impairment decision will not be based on a single sample exceedance (i.e., the geometric mean of five samples is < 126 *E. coli* colonies/100 ml but one of the five sample exceeds 235 *E. coli* colonies/100 ml). The method detection limit (MDL) will be used in the calculation of the geometric mean when data are reported as less than the MDL (e.g., use 20 cfu/100 ml if the result is reported as <20 cfu/100 ml). Those data reported as too numerous to count (TNTC) will not be used in the geometric mean calculation; however frequency of TNTC sample results should be presented.

SECONDARY CONTACT RECREATION USE

This use is suitable for any recreation or other water use in which contact with the water is either incidental or accidental. These include, but are not limited to, fishing, boating and limited contact incident to shoreline activities. Following is an overview of the guidance used to assess the status (support or impaired) of the *Secondary Contact Use*. Excursions from criteria due to natural conditions are not considered impairment of use.

Variable	***Support*** Criteria are met, no aesthetic conditions that preclude the use	***Impaired*** Frequent or prolonged violations of criteria, or severe aesthetic conditions that preclude the use
Bacteria (MassDEP 2006)	Collected samples* meet the Class C or SC geometric mean criteria (see Table A1). Shellfish Growing Area classified as "Approved" by DMF.	Collected samples* do not meet the Class C or SC geometric mean criteria (see Table A1).
Aesthetics (MassDEP 2006) - *All surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance* [growth or amount] *species of aquatic life*		
Odor, oil and grease, color and turbidity, floating matter	Narrative "free from" criteria met or excursions neither frequent nor prolonged, BPJ.	Narrative "free from" criteria not met - objectionable conditions either frequent and/or prolonged, BPJ.
Transparency (MA DPH 1969)	Public bathing beach and lakes – Secchi disk depth ≥1.2 meters (≥ 4') (minimum of three samples representing critical period).	Public bathing beach and lakes - Secchi disk depth <1.2 meters (< 4') (minimum of three samples representing critical period).
Nuisance organisms	No overabundant growths (i.e., blooms) that render the water aesthetically objectionable or unusable, BPJ.	Overabundant growths (i.e., blooms and/or non-native macrophyte growth dominating the biovolume) rendering the water aesthetically objectionable and/or unusable, BPJ.

*Data sets to be evaluated for assessment purposes must be representative of a sampling location (at least five samples per station recommended) over time. Because of low sample frequency (i.e., less than ten samples per station) an impairment decision will not be based on a single sample exceedance. Samples collected on one date from multiple stations on a river are not considered adequate to assess this designated use.

AESTHETICS USE

All surface waters shall be free from pollutants in concentrations or combinations that settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life. The aesthetic use is closely tied to the public health aspects of the recreational uses (swimming and boating). Below is an overview of the guidance used to assess the status (support or impaired) of the *Aesthetics Use*.

Variable	***Support*** Narrative "free from" criteria met	***Impaired*** Objectionable conditions frequent and/or prolonged
Odor, oil and grease, color and turbidity, floating matter	Narrative "free from" criteria met or excursions neither frequent nor prolonged, BPJ.	Narrative "free from" criteria not met - objectionable conditions either frequent and/or prolonged, BPJ.
Transparency (MA DPH 1969)	Public bathing beach and lakes – Secchi disk depth ≥1.2 meters (≥ 4') (minimum of three samples representing critical period).	Public bathing beach and lakes - Secchi disk depth <1.2 meters (< 4') (minimum of three samples representing critical period).

Nuisance organisms	No overabundant growths (i.e., blooms) that render the water aesthetically objectionable or unusable, BPJ.	Overabundant growths (i.e., blooms and/or non-native macrophyte growth dominating the biovolume) rendering the water aesthetically objectionable and/or unusable, BPJ.

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APPENDIX B: NPDES PERMITS IN WEYMOUTH AND WEIR RIVER BASIN

Permitee	NPDES#	Receiving Water (segment)
SPRAGUE ENERGY	MA0028037	Town River Bay (MA74-15)
Sprague Energy is authorized to discharge treated stormwater from outfall 001, to Town River Bay. The permit includes monitoring requirements for flow, total suspended solids, oil and grease, polynuclear aromatic hydrocarbons, benzene and pH including limits for total suspeded solids (30 mg/L average monthly, 100 mg/L maximum daily), oil and grease (15 mg/L daily maximum), benzene (51 ug/L daily maximum) and pH (6.5-8.5)		
Permitee	**NPDES#**	**Receiving Water (segment)**
SPRAGUE ENERGY	MA0020869	Weymouth Fore River (MA74-14)
Sprague Energy is authorized to discharge treated stormwater from outfall 001, to Town River Bay. The permit includes monitoring requirements for flow rate, total flow, total suspended solids, oil and grease and pH including limits for flow rate (100 gpm daily maximum), total suspeded solids (30 mg/L average monthly, 100 mg/L maximum daily), oil and grease (15 mg/L daily maximum) and pH (6.5-8.5)		
Permitee	**NPDES#**	**Receiving Water (segment)**
CITGO PETROLEUM CORP,BRAINTREE	MA0004782	Weymouth Fore River (MA74-14)
Citgo Petroleum is authorized to discharge treated stormwater, treated hydrostatic test water and treated groundwater from outfall 001. The permit includes monitoring requirments for flow rate, total flow, total suspended solids, oil and grease, pH and enterococcus bacteria. The permit includes limits for flow rate (7,500 gpm daily maximum), total suspeded solids (30 mg/L average monthly, 100 mg/L maximum daily), oil and grease (15 mg/L daily maximum) and pH (6.5-8.5).		
Permitee	**NPDES#**	**Receiving Water (segment)**
GREAT POND W T P - WEYMOUTH	MAG640031	Weymouth Great Pond (MA74012)
Weymouth Great Pond Water Treatment Plant is authorized to dischargewater treatment plant residues and waste treatment, occasional discharges into Great Pond Reservoir.		
Permitee	**NPDES#**	**Receiving Water (segment)**
RANDOLPH-HOLBROOK W T P	MAG640032	Great Pond Reservoir (MA74012)
Randolph/Holbrook Joint Water Board is authorized to discharge water treatment plant residues and waste treatment, occasional discharges into Great Pond Reservoir.		

Permitee	NPDES#	Receiving Water (segment)
TWIN RIVERS TECHNOLOGIES MANUFACTURING CORP.	MA0004073	Weymouth Fore River (MA74-14)
Twin River Technologies Manufacturing Corporation is authorized to discharge through outfall 001 and 003, stormwater and non-contact cooling water. The permit includes monitoring requirements for outfall 001 (stormwater) for flow rate, oil and grease, total suspended solids and pH. Permit limits for outfall 001 are oil and grease (15 mg/L daily maximum), total suspeded solids (100 mg/L maximum daily) and pH (6.5-8.5). The permit includes monitoring requirements for outfall 003 (non-contact cooling water) for flow rate, effluent temperature, influent temperature and pH. The permit includes limits for flow rate (5.0 MGD average monthly and maximum daily), effluent temperature (87 degrees Fahrenheit) and pH (6.5-8.5).		
Permitee	**NPDES#**	**Receiving Water (segment)**
BRAINTREE ELECTRIC LIGHT DEPARTMENT	MA0005517	Weymouth Fore River (MA74-14)
Braintree Electric Light Department is authorized to discharge combined low volume wastewaters from floor drains, demineralized wastewater, boiler blowdown, and house service water cooling blowdown through outfall 001 and stormwater through outfall 002. The permit includes monitoring requirement on outfall 001 for flow, flow rate, total residual oxidants, total suspended solids, oil and grease, pH and temperature. The permit includes limits for flow (40,000 GPD average monthly and 80,000 GPD maximum daily), flow rate (250 GPM maximum daily), total residual oxidants (0.1 mg/L average monthly and maximum daily), total suspeded solids (30 mg/L average monthly, 100 mg/L maximum daily), oil and grease (15 mg/L average monthly and daily maximum), temperature (85 degrees Fahrenheit maximum daily) and pH (6.5-8.5). The permit includes monitoring requirments for outfall 002 for flow, pH, total suspended solids, Total BTEX including constituents Benzene, Toulene, Ethlybenzene, and Xylene, as well as total recoverable iron. The permit includes limit for outfall 002 for total suspended solids (100 mg/L average monthly), oil and grease (15 mg/L maximum daily) and pH (6.5-8.5).		
Permitee	**NPDES#**	**Receiving Water (segment)**
CLEAN HARBORS OF BRAINTREE,INC	MA0031551	Weymouth Fore River (MA74-14)
Clean Harbors of Braintree is authorized to discharge treated stormwater runoff to outfall 001 and the permit includes monitoring requirements for flow , total suspended solids, oil and grease, total polynuclear aromatic hydrocarbons, total benzene, BTEX, pH, lead, PCB, and quarterly whole effluent toxicity. The permit includes limits for total suspended solids (20 mg/L average monthly and 30 mg/L maximum daily), oil and grease (5 mg/L maximum daily), total polynuclear aromatic hydrocarbons (10 ug/L maximum daily), total benzene (5 ug/L maximum daily), BTEX (100 ug/L maximum daily), pH (6.5-8.5), lead (8.1 ug/L), PCB (1 ug/L), and quarterly whole effluent toxicity (LC50 >= 100%).		