

Action Plan 13. Protecting Ponds and Streams

Problem⁸⁰

Many rivers and ponds in the Buzzards Bay watershed are impaired because of toxic contaminants, bacteria, nutrients, sediments, nuisance species, and other problems. The Massachusetts Department of Environmental Protection (DEP) reports these impairments to the U.S. EPA as required by the Clean Water Act, in its "Integrated List of Waters" reports. These integrated lists classify bodies of waters into different categories. For example, Category 5 waters are impaired, and Category 3 waters are unassessed. As shown in Table 38, these impaired freshwaters (Category 5) total 2,328 acres (of the 4,376 acres listed) and 17.0 linear miles of streams (of the 64.9 miles listed).

To restore these waters will require considerable effort. The Clean Water Act requires that states identify those waterbodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and to prioritize and schedule them for the development of a total maximum daily load (TMDL). These TMDLs establish the maximum amount of a pollutant that may be introduced into a water body and still ensure attainment and maintenance of water quality standards. TMDLs and restoration of these bodies of waters may require a local watershed plan. The effort to characterize and assess all these bodies of water, and to restore impaired ones, represents an immense challenge to both local and state managers.

Goals

Goal 13.1. *Ensure that no beneficial water uses⁸¹ will be lost, nor ecosystems adversely affected by pollution discharges to fresh surface waters in the Buzzards Bay watershed.*

Goal 13.2. *Restore any beneficial water uses and ecosystems lost or impacted by the excessive contribution of nitrogen to any area within Buzzards Bay.*

Objectives

Objective 13.1. Help adopt TMDLs for all freshwaters.

Objective 13.2. Help ensure that plans are developed and implemented to meet recommended TMDLs.

Objective 13.3. Help restore impaired wetlands habitat.

⁸⁰ This action plan was not in the 1991 CCMP, but elements were broadly covered in the original Wetlands Protection Action Plan. Impairments of marine waters is addressed in several other action plans. Other action plans support the goals and objectives here, especially the Action Plans Managing Stormwater Runoff, and Protecting Wetlands.

⁸¹ Beneficial uses are those listed in Massachusetts Water Quality Standards, see entry in Glossary.

Objective 13.4. Protect open space that enhances and protects lakes, ponds, and streams.

Solutions

This action plan requires complying with the Clean Water Act. To achieve its goal, pollution sources in the watershed of each impaired body must be characterized, and where appropriate, a site-specific TMDL adopted. This is complex, and an immense task, because dozens of small subwatershed plans need to be developed. Moreover, many bodies of waters and tributary segments have never been assessed, so the scope of the environmental challenge remains unresolved.

DEP will need to develop TMDLs for each impaired water identified on the 303(d) and Integrated Lists in a timely way. Similarly, DEP will need to eventually evaluate all unassessed waters (those not included on the Integrated List).

Despite these challenges and prolonged timeline, and the lack of funds and staffing to solve this problem, municipalities should establish local priorities and implement common sense measures to reduce existing impairments. Municipalities should establish water quality task forces for priority freshwater systems and have these workgroups develop management strategies. Municipal legislative bodies (town meeting or city council) should authorize new funding to evaluate and develop priorities for restoration, and to implement specific remedial actions, like treating or eliminating stormwater discharges. Interested residents should become involved in protecting and monitoring these freshwater systems. Local laws and regulations are also needed to reduce the impacts of new development and to prevent new impairments.

Costs and Financing

Development of watershed characterizations, subwatershed plans, and TMDLs for impaired waters have substantial costs. State, federal, and local government must all contribute. More substantial costs will be borne by local government and property owners, and state and federal government funds could leverage action.

Measuring Success

The percent of systems impaired, the total number of impaired systems, and the percent of unimpaired systems are all key measures for tracking progress towards the goals of this action plan. Development of subwatershed plans and strategies; TMDLs, and number of systems removed from the impaired waters list are other metrics for tracking progress.

Background

The 412 square mile Buzzards Bay watershed includes 7,594 acres of open waters and 1,684 acres of deep marsh⁸². The open waters consist of ponds of various sizes with only 64 larger than 10 acres. These 64 ponds total 2,241 acres.⁸³ Many of the streams and ponds in the Buzzards Bay watershed are impaired because of toxic contaminants, bacteria, nutrients, sediments, nuisance species, and other problems⁸⁴. The Massachusetts Department of Environmental Protection (DEP) reports these impairments to the U.S. EPA as required by the Clean Water Act, in its "Integrated List of Waters" reports. These impaired waters are also known as "Category 5" waters on the state's "Integrated List" of waterbodies and as "303(d)" listed waters, named after a section of the Clean Water Act. In 2001 the EPA released guidance for the preparation of an optional Integrated List of Waters that would combine reporting elements of both sections 305(b) and 303(d) of the CWA. The integrated listing format allows states to provide the status of all their assessed waters in a single, multi-part list. These integrated lists classify bodies of water into different categories. For example, Category 5 waters are impaired, and Category 3 waters are unassessed⁸⁵.

Figure 87 shows the category classification of all the freshwaters in the Buzzards Bay watershed⁸⁶ and Table 38 shows the impaired (category 5) freshwaters which total 2,328 acres (of the 4,376 acres listed) and 17.0 linear miles of streams (of the 64.9 miles listed).

To restore these waters will require considerable effort. Section 303(d) of the CWA⁸⁷ require states to identify those waterbodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and to prioritize and schedule them for the development of a total maximum daily load (TMDL).

Massachusetts DEP is responsible for assessing water quality and wetland conditions in Massachusetts as to whether they meet federal Clean Water Act goals. In its

Integrated List of Waters reports, DEP assesses whether or not conditions support the designated uses of the water body as defined in the Massachusetts Surface Water Quality Standards⁸⁸. DEP will classify the conditions as "support," "impaired," or "not assessed." They also identify information needed to develop resource protection and remediation strategies. This information is critical for watershed management planning.

As shown in Table 36 and Table 37 many streams and ponds are unassessed or not fully assessed as to their condition (Categories 2 and 3). For example, in the 2000 list, for lakes and ponds in DEP's Buzzards Bay watershed, 53% were not assessed for primary use, 56% were not assessed for secondary use, and 83% were not assessed for aesthetics. Besides these listed unassessed bodies of freshwater, there are many small streams and ponds not included (unlisted) in the DEP integrated lists (colored purple in Figure 87). The actual total length of all streams and tributaries in the watershed is 479 miles⁸⁹, of which 365 miles are "major streams." The seven major rivers are the Westport River (East Branch), Paskamanset River, Acushnet River, Mattapoisett River, Sippican River, Wankinco River, Agawam River, and Red Brook (see Figure 87). Similarly, the total acreage of the 717 ponds in the watershed over 1 acre is 8,920 acres.

DEP periodically updates these water-quality assessment reports to publish data available to the public, review new data, determine changes in the use support status of surface water bodies, determine the causes and sources of any use impairments, and to meet reporting requirements to the U.S. EPA.

Major Issues

This action plan is one of the most simplistic in that the driving goal is to remove freshwater rivers and ponds from the list of impaired waters of the Commonwealth. This is one of the underlying goals of the Clean Water Act. However, to achieve such a goal, pollution sources in the watershed of each impaired body must be characterized, and where appropriate, a site-specific TMDL adopted. This is complex, and an immense task, because dozens of small subwatershed plans need to be developed. Moreover, many bodies of water and tributary segments have never been assessed, so the scope of the environmental challenge remains unresolved.

⁸² This is based on the Mass GIS DEP 2001 wetlands coverage, and modified by the Buzzards Bay NEP to exclude salt pond and estuary areas.

⁸³ Herring Pond in Plymouth is bisected as per Figure 1

⁸⁴ Impairments of marine waters are addressed in several other action plans.

⁸⁵ Impaired waters (Category 5) on the Integrated List are the "303(d)" listed waters, named after a section of the Clean Water Act. In 2001 the EPA released guidance for the preparation of an optional Integrated List of Waters that would combine reporting elements of both sections 305(b) and 303(d) of the CWA. The integrated listing format allows states to provide the status of all their assessed waters in a single, multi-part list.

⁸⁶ DEP includes the Cape Cod portion of the Buzzards Bay National Estuary Program watershed within a separate "Cape Cod" jurisdictional watershed. Sites within DEP integrated lists on Cape Cod in the true Buzzards Bay watershed are included in the map and table.

⁸⁷ The federal implementing regulation is 40 CFR 130.7

⁸⁸ Uses include aquatic life, fish consumption, drinking water, shellfish harvesting (where applicable), primary and secondary contact, recreation and aesthetics.

⁸⁹ This is based on the Mass GIS 2001 25K Hydro coverage which, but modified by the Buzzards Bay NEP to exclude cranberry bog ditches and salt marsh and estuary ditches and creeks.

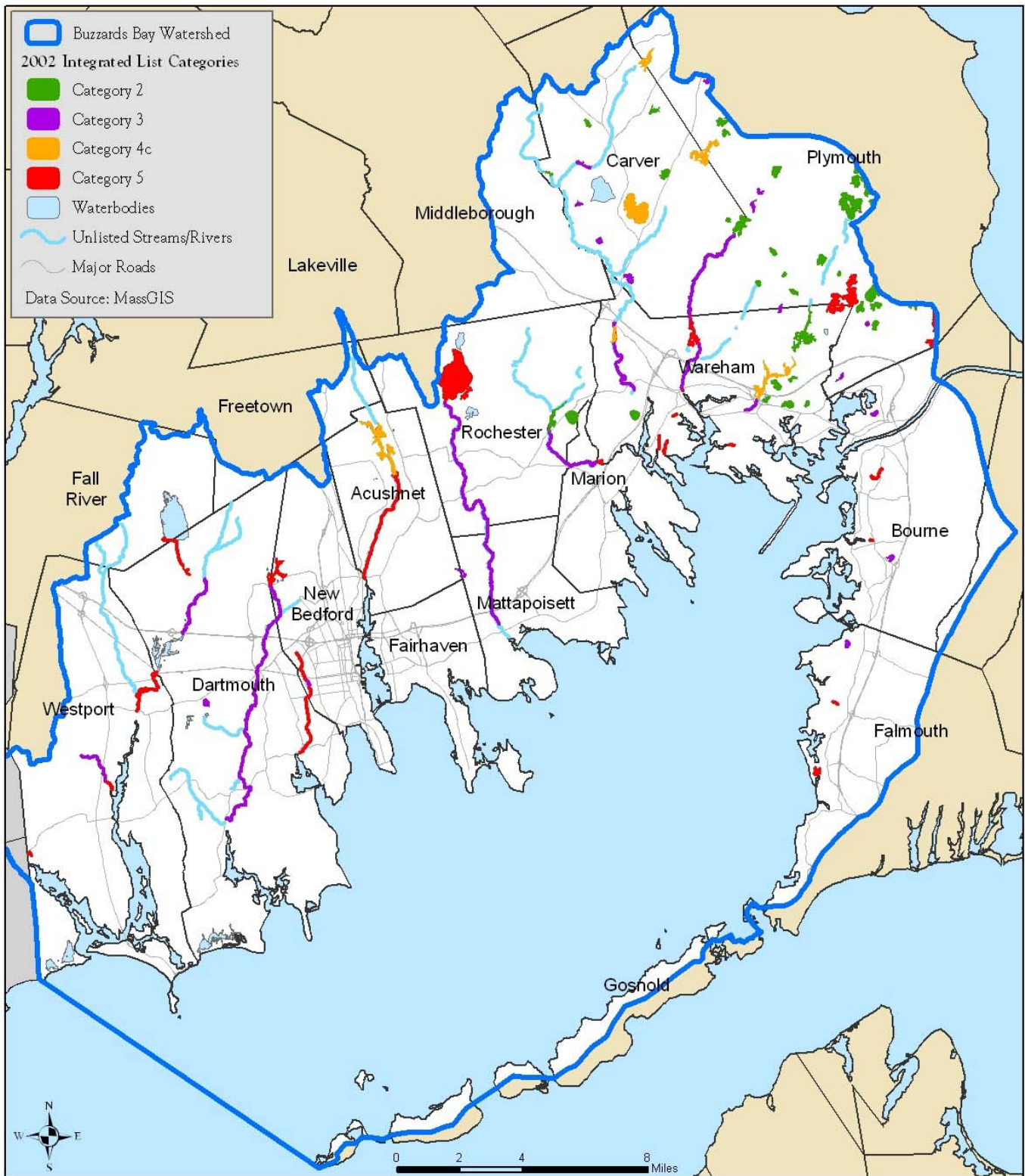


Figure 87. Water bodies included in the integrated list five categories.

Abbreviated explanation of categories: Category 1= Attaining the water quality, Category 2 =Attaining some of the designated uses, unassessed for others, Category 3 - Unassessed, Category 4 - Impaired or threatened, but does not require the development of a TMDL, Category 5 = impaired or threatened and requires a TMDL. Waters (streams and ponds) colored blue are not included (unlisted) in the integrated list.

Table 36. Water Quality Assessment for Category 2 Freshwaters in the Buzzards Bay Watershed.

NAME	SEGMENT ID	Category	DESCRIPTION	SIZE	USES ATTAINED
Barrett Pond (95004)	MA95004_2008	2	Carver	11.3 acres	Primary Contact, Secondary Contact
Charge Pond (95025)	MA95025_2008	2	Plymouth	16.4 acres	Primary Contact, Secondary Contact
College Pond (95030)	MA95030_2008	2	Plymouth	46.8 acres	Primary Contact, Secondary Contact
Curlew Pond (95034)	MA95034_2008	2	Plymouth	42.6 acres	Primary Contact, Secondary Contact
Fearing Pond (95054)	MA95054_2008	2	Plymouth	22.5 acres	Primary Contact, Secondary Contact
Glen Charlie Pond (95061)	MA95061_2008	2	Wareham	157 acres	Primary Contact, Secondary Contact
Megansett Harbor (95910)	MA95-19_2008	2	Falmouth, Bourne	1.5 sq mi	(unassessed and some uses attained)
New Long Pond (95112)	MA95112_2008	2	Plymouth	21.0 acres	Aquatic Life, Aesthetics
Queen Sewell Pond (95180)	MA95180_2008	2	Bourne (previously reported with PALIS # 96253).	17.6 acres	Primary Contact, Secondary Contact
Vaughn Pond (95153)	MA95153_2008	2	Carver	19.6 acres	Primary Contact, Secondary Contact
Weweantic River (9558900)	MA95-04_2008	2	South Meadow Brook, Carver to Horseshoe Pond, Wareham.	11.3 miles	Aesthetics

Management Approaches

Despite these challenges, and the lack of funds and staffing to solve this problem, work must proceed to restore impaired waters. This means the highest priorities must be tackled first, and meeting the action plan goals will take decades. Moreover, the success of the action plan goals will be met only if abutters and residents of each subwatershed become actively involved in finding solutions and helping implement them.

As required by the Clean Water Act, DEP will need to develop TMDLs for each impaired water body identified on the 303(d) and Integrated List. In some cases, like the bacteria TMDL for Buzzards Bay, the TMDL might represent a specific bacteria concentration limit for all discharges, or like the nitrogen TMDLs for coastal waters, a mass loading limit based on a watershed characterization and source allocation. Although this action is already required by EPA, there is no timeline for its completion. Because the effort requires considerable staffing and would require tens of millions of dollars to develop TMDLs for all impaired freshwaters in the Buzzards Bay watershed, neither of which is available, developing TMDLs for all impaired freshwaters will take many years.

Most freshwater systems in the Buzzards Bay watershed have never been assessed. This effort is also costly, and will likely take decades to achieve. The most effective strategy in moving forward on this task is to empower municipalities and involve residents of each respective subwatershed. Municipalities should establish water quality task forces for these freshwater systems and have these workgroups develop management strategies. The board of selectmen should show leadership in establishing committees, and moving forward on remedial actions. Municipal legislative bodies (town meeting or city council) should authorize new funding to tackle priority freshwater systems. State and federal agencies and municipalities should empower watershed groups, land trusts, and resident volunteers to become involved with monitoring and tracking these systems,

documenting problems with photographs and data collection, and helping develop management solutions.

These efforts can and should move forward even before TMDLs are approved by DEP and EPA. This is because adoption of TMDLs can take years or decades, and many common sense actions can be taken to remove or treat pollution discharges and improve habitat or water quality. For example, when undertaking road work or improving drainage systems, municipalities should eliminate or reduce and treat stormwater discharges to impaired water bodies, and treat for specific pollutants, floatables, and debris. Such efforts would also meet goals contained in municipal stormwater plans to comply with MS4 permits. Other recommendations addressing elements of MS4 permit plans are discussed in the Action Plan 3: Managing Stormwater Runoff.

Financial Solutions

Development of TMDLs, watershed characterizations, and subwatershed plans for all freshwaters in the Buzzards Bay watersheds will likely cost tens of millions of dollars. EPA's 604(b) watershed grant funding has assisted with this effort, but funding to Massachusetts would need to be increased many fold. State bond funds have assisted with watershed planning in previous years, but such funding may not be available until state and federal budget deficit issues are resolved.

Monitoring Progress

The percent of systems impaired, the total number of impaired systems, and the percent of unimpaired systems are all key measures for tracking progress towards the goals of this action plan. Development of subwatershed plans and strategies, TMDLs, and number of systems removed from the impaired waters list are other metrics for tracking progress.

Table 37. Water Quality Assessment for Category 2 and 3 Freshwaters in the Buzzards Bay Watershed.

NAME	SEGMENT ID	Category	DESCRIPTION	SIZE	USES ATTAINED
Abner Pond (95001)	MA95001_2008	3	Plymouth	8.9 acres	Not Assessed
Agawam River (9558725)	MA95-28_2008	3	Outlet Mill Pond, Wareham to Wareham WWTP, Wareham.	0.61 miles	Not Assessed
Bates Pond (95007)	MA95007_2008	3	Carver	19.0 acres	Not Assessed
Big Rocky Pond (95119)	MA95119_2008	3	(Rocky Pond) Plymouth	18.1 acres	Not Assessed
Big Sandy Pond (95011)	MA95011_2008	3	Plymouth	133 acres	Not Assessed
Blackmore Reservoir (95015)	MA95015_2008	3	Wareham	42.8 acres	Not Assessed
Buttonwood Park Pond (95020)	MA95020_2008	3	New Bedford	11.5 acres	Not Assessed
Cedar Dell Lake (95021)	MA95021_2008	3	Dartmouth	22.9 acres	Not Assessed
Deer Pond (95036)	MA95036_2008	3	Plymouth	8.7 acres	Not Assessed
Dicks Pond (95038)	MA95038_2008	3	Wareham	41.8 acres	Not Assessed
Dunham Pond (95044)	MA95044_2008	3	Carver	42.8 acres	Not Assessed
East Head Pond (95177)	MA95177_2008	3	Carver/Plymouth	91.5 acres	Not Assessed
Ezekiel Pond (95051)	MA95051_2008	3	Plymouth	35.6 acres	Not Assessed
Fawn Pond (95053)	MA95053_2008	3	Plymouth	43.7 acres	Not Assessed
Five Mile Pond (95056)	MA95056_2008	3	Plymouth	21.8 acres	Not Assessed
Gallows Pond (95059)	MA95059_2008	3	Plymouth	49.1 acres	Not Assessed
Halfway Pond (95178)	MA95178_2008	3	Plymouth	215 acres	Not Assessed
Horseshoe Pond (95075)	MA95075_2008	3	Wareham	59.1 acres	Not Assessed
Kings Pond (95078)	MA95078_2008	3	Plymouth	22.2 acres	Not Assessed
Leonards Pond (95080)	MA95080_2008	3	Rochester	49.4 acres	Not Assessed
Little Long Pond (95088)	MA95088_2008	3	Plymouth	47.7 acres	Not Assessed
Little Long Pond (95089)	MA95089_2008	3	Wareham/Plymouth	12.4 acres	Not Assessed
Little Rocky Pond (95091)	MA95091_2008	3	Plymouth	9.5 acres	Not Assessed
Little Sandy Pond (95092)	MA95092_2008	3	Plymouth	28.9 acres	Not Assessed
Little West Pond (95093)	MA95093_2008	3	Plymouth	24.5 acres	Not Assessed
Long Duck Pond (95095)	MA95095_2008	3	Plymouth	21.8 acres	Not Assessed
Long Pond (95096)	MA95096_2008	3	Plymouth	208 acres	Not Assessed
Mare Pond (95172)	MA95172_2008	3	Plymouth	12.5 acres	Not Assessed
Marys Pond (95100)	MA95100_2008	3	Rochester	81.2 acres	Not Assessed
Mattapoisett River (9559425)	MA95-36_2008	3	Outlet Snipatuit Pond, Rochester to Mattapoisett Rt6 bridge.	10.1 miles	Not Assessed
Micajah Pond (95102)	MA95102_2008	3	Plymouth	20.2 acres	Not Assessed
Paskamanset River (9559900)	MA95-11_2008	3	Turners Pond Dartmouth/N.Bed. to Slocums River Dartmouth.	10.5 miles	Not Assessed
Rocky Meadow Br Pnd (95118)	MA95118_2008	3	Carver	11.0 acres	Not Assessed
Rocky Pond (95179)	MA95179_2008	3	Plymouth	20.4 acres	Not Assessed
Round Pond (95123)	MA95123_2008	3	Plymouth	20.2 acres	Not Assessed
Sand Pond (95127)	MA95127_2008	3	Wareham	14.4 acres	Not Assessed
Sandy Pond (95128)	MA95128_2008	3	Wareham	15.3 acres	Not Assessed
Shingle Island River (9560175)	MA95-12_2008	3	Flag Swamp Road to Noquochoke Lake, Dartmouth.	5.0 miles	Not Assessed
Sippican River (9558950)	MA95-06_2008	3	Leonards Pond, Rochester to County Road, Marion/Wareham.	2.9 miles	Not Assessed
So. Meadow Brook Pond (95139)	MA95139_2008	3	Carver	24.8 acres	Not Assessed
South Meadow Pond (95140)	MA95140_2008	3	Carver	22.2 acres	Not Assessed
SW Atwood Bog Pond (95141)	MA95141_2008	3	Carver	11.6 acres	Not Assessed
Spectacle Pond (95142)	MA95142_2008	3	Wareham	41.5 acres	Not Assessed
Three Cornered Pond (95145)	MA95145_2008	3	Plymouth	12.3 acres	Not Assessed
Tinkham Pond (95148)	MA95148_2008	3	Mattapoisett/Acushnet	16.6 acres	Not Assessed
Union Pond (95152)	MA95152_2008	3	Wareham	17.0 acres	Not Assessed
Unnamed Tributary (9560180)	MA95-57_2008	3	Outlet Cornell Pond, to Shingle Island River, Dartmouth.	1.0 miles	Not Assessed
Wankinco River (9558800)	MA95-30_2008	3	East Head Pond, Carver/Plymouth to Elm Street Wareham.	6.5 miles	Not Assessed
Whites Pond (95168)	MA95168_2008	3	Plymouth	33.7 acres	Not Assessed

Table 38. Category 5 Freshwaters from the MA 2008 Integrated List of Waters in the Buzzards Bay Watershed.

Category 5 are impaired requiring a TMDL, and equivalent to the 303(d) list. No listed freshwater areas on Cape Cod and the Elizabeth Islands chain are within the true Buzzards Bay watershed.

NAME	SEGMENT ID	DESCRIPTION	SIZE	POLLUTANT NEEDING OR HAVING A TMDL
Acushnet River (9559625)	MA95-31_2008	Outlet New Bedford Reservoir, Acushnet to Hamlin Street culvert, Acushnet.	3.1 miles	-Nutrients, Siltation, Organic enrichment/Low DO, Pathogens
Acushnet River (9559625)	MA95-32_2008	Hamlin Street culvert, Acushnet to culvert at Main Street, Acushnet.	1.1 miles	-Nutrients, Organic enrichment/Low DO, Pathogens
Agawam River (9558725)	MA95-29_2008	Wareham WWTP, Wareham to confluence with Wankinco River at Route 6 bridge, Wareham.	0.17 sq mi	-Unknown toxicity, Unionized Ammonia, Nutrients, (Other habitat alterations*), Pathogens, Noxious aquatic plants
Beaverdam Creek (9558925)	MA95-53_2008	Outlet from cranberry bog southeast of Route 6, Wareham to confluence with Wewantic River, Wareham.	0.04 sq mi	-Nutrients, Other habitat alterations, Pathogens
Bread and Cheese Brook (9560150)	MA95-58_2008	Headwaters north of Old Bedford Road, Westport to confluence with East Branch Westport River, Westport.	4.9 miles	-Pathogens
Buttonwood Brook (9559750)	MA95-13_2008	Headwaters, at Oakdale Street, New Bedford to mouth at Apponagansett Bay, Dartmouth.	3.8 miles	-Pathogens
Cedar Island Creek (9558625)	MA95-52_2008	Headwaters near the intersection of Parker Drive and Camardo Drive, Wareham to the mouth at Marks Cove, Wareham.	0.01 sq mi	-Pathogens
Copicut River (9560200)	MA95-43_2008	Outlet of Copicut Reservoir, Fall River to the inlet of Cornell Pond, Dartmouth.	1.3 miles	-Priority organics, Metals
Cornell Pond (95031)	MA95031_2008	Dartmouth	12.4 acres	-Priority organics, Metals [12/20/2007-NEHgTMDL]
Crane Brook Bog Pond (95033)	MA95033_2008	Carver	37.3 acres	-Nutrients, Noxious aquatic plants, (Exotic species*)
Crooked River (9558650)	MA95-51_2008	Outlet of cranberry bog east of Indian Neck Road, Wareham to the confluence with the Wareham River, Wareham.	0.04 sq mi	-Pathogens
New Bedford Reservoir (95110)	MA95110_2008	Acushnet	211 acres	-Pesticides, Metals, Nutrients, Organic enrichment/Low DO, (Exotic species*)
Noquochoke Lake (95170)	MA95170_2008	(South Basin) Dartmouth	12.8 acres	-Priority organics, Metals [12/20/2007-NEHgTMDL], Noxious aquatic plants, Turbidity, (Exotic species*)
Noquochoke Lake (95171)	MA95171_2008	(North Basin) Dartmouth	16.7 acres	-Priority organics, Metals [12/20/2007-NEHgTMDL], Noxious aquatic plants, Turbidity, (Exotic species*)
7	MA95125_2008	Carver	296 acres	-Pesticides, Metals, (Exotic species*)
Sippican River (9558950)	MA95-07_2008	County Road, Marion/Webster to confluence with Wewantic River, Marion/Wareham.	0.08 sq mi	-Pathogens
Snell Creek (9560075)	MA95-44_2008	Headwaters west of Main Street, Westport to Drift Road, Westport.	1.5 miles	-Pathogens
Snell Creek (9560075)	MA95-45_2008	Drift Road, Westport to 'Marcus' Bridge', Westport	0.36 miles	-Pathogens
Snell Creek (9560075)	MA95-59_2008	'Marcus' Bridge', Westport to confluence with East Branch Westport River, Westport.	0.01 sq mi	-Pathogens
Tihonet Pond (95146)	MA95146_2008	Wareham	86.6 acres	-Organic enrichment/Low DO
White Island Pond (95166)	MA95166_2008	(East Basin) Plymouth/Wareham	165 acres	-Nutrients, Organic enrichment/Low DO, Noxious aquatic plants, Turbidity, (Exotic species*)
White Island Pond (95173)	MA95173_2008	(West Basin) Plymouth/Wareham	122 acres	-Nutrients, Organic enrichment/Low DO, Noxious aquatic plants, (Exotic species*)