SOUTH SHORE COASTAL WATERSHEDS - LAKE ASSESSMENTS

A total of 167 lakes, ponds or impoundments (the term "lakes" will hereafter be used to include all) have been identified and assigned Pond and Lake Information System (PALIS) code numbers in the South Shore Coastal Watersheds (Ackerman 1989 and MassDEP 2005b). The total surface area of the South Shore Coastal Watersheds PALIS lakes is 4,815 acres. The PALIS lakes range in size from less than one to 617 acres and lie wholly or partly within 13 of the watershed's 16 communities. However, over three quarters of the lakes are clustered in four communities - Duxbury, Kingston, Pembroke, and Plymouth - in the south central portion of the watershed. Plymouth alone contains 42% of all the lakes. This report presents information on 78 lakes totaling 4,242 acres and ranging in size from three to 617 acres (Figure 14). The remaining lakes are not currently included as segments in the WBS database and, therefore, are unassessed. Fourteen lakes are designated as Class A Public Water Supplies and Outstanding Resource Waters; accounting for 43% (1,846 acres) of the assessed acreage.

Sources of Information

The Department of Conservation Resources (DCR), Lakes and Ponds Program, provides grant funding and technical assistance to communities and citizen groups, helps to monitor water quality at various public beaches to ensure public safety, and provides education materials to the public about various lake issues. Since 1994 the following ten Lakes and Ponds Program grants have been awarded within the South Shore Coastal Watersheds. For more information see Table 3 Lake Use Assessment*,* below, and Appendix F.

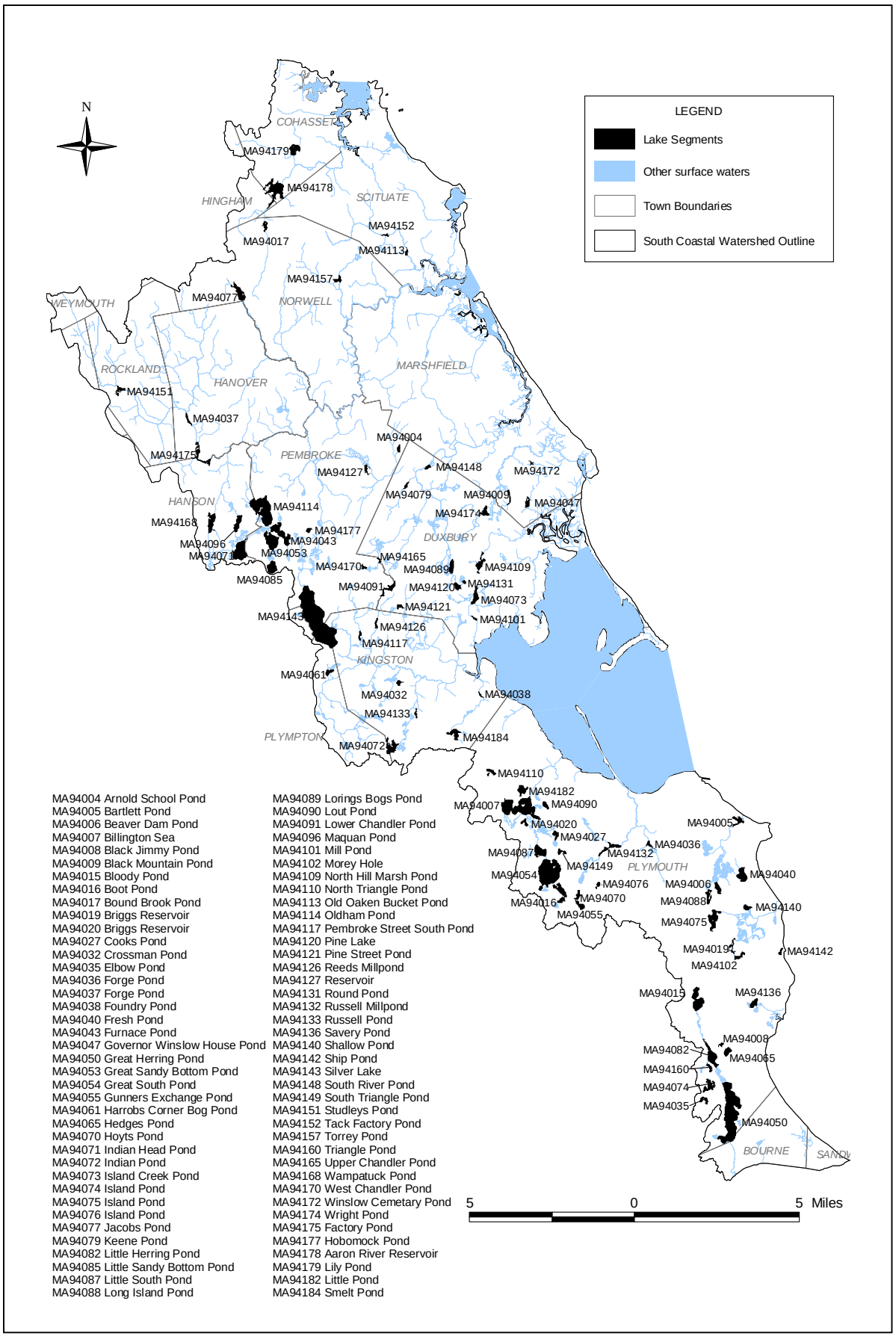
Billington Sea, Plymouth (MA94007) - award granted in FY 1998
Crossman Pond, Kingston (MA94-32) - award granted in FY 1996
Island Creek Pond, Duxbury (MA94073) - awards granted in FY 1995 and FY 1999
Jacobs Pond, Norwell (MA94077) - award granted in FY1994
Lily Pond, Cohasset (MA94179) - award granted in FY 2002
Lower Chandler Pond, Duxbury and Pembroke (MA94091) - award granted in FY1997
Oldham Pond, Pembroke (MA94114) - award granted in FY 2000
Silver Lake, Kingston (MA940143) - award granted in FY 2002
Smelt Pond, Kingston (MA94184) - award granted in FY 1994
Wampatuck Pond, Hanson - award granted in FY 1998

Funding for projects in Billington Sea, Plymouth (MA94007) include the MassDEP Section 319 Program, the Massachusetts Watershed Initiative, and the MA Coastal Zone Management Coastal Remediation Program. For more information see Table 3 and Appendix G.

The Six Ponds Improvement Association monitors the water quality of Bloody, Gallows, Round, Long, Little Long, and Halfway Ponds in South Plymouth. Bloody Pond (MA94015) is the only assessed lake located within the South Shore Coastal Watershed. Surveys were conducted over the past several years using state certified laboratory analyses of 21 chemical parameters plus other objective observations and measurements. In 2002 a temporally and spatially intensive survey program was begun of these six ponds and 13 others in Plymouth to document existing baseline conditions and to identify possible contaminant sources. Six Ponds Improvement Association uses a standard operating procedure, including reference samples and certified laboratory analysis. Moreover, the Six Ponds Improvement Association, together with other community organizations, is soliciting and organizing volunteers from other Plymouth ponds to assist in building a database of ponds conditions throughout the town. As this information is gathered it is being posted on the web site of the Plymouth Water Quality Task Force (Price 2004).

GeoSyntec Consultants completed a comprehensive non-point source pollution assessment in the three towns of Plymouth, Kingston, and Pembroke in 2002. Known as the *South Coastal Nonpoint Source Assessment,* the report evaluated the factors that affect water quality in 24 lakes, 4 rivers and 1 estuary. An inventory of each water body was conducted for possible sources of pollution from field inspections and compilation of existing information including GIS layers and community level resource protection measures. For more information see Table 3 Lake Use Assessment, below, and Appendix G (project number MWI 01-07).

Figure 14. South Shore Coastal Watersheds – Lake segment locations identified by WBID.



MA94004 Arnold School Pond
MA94005 Bartlett Pond
MA94006 Beaver Dam Pond
MA94007 Billington Sea
MA94008 Black Jimmy Pond
MA94009 Black Mountain Pond
MA94015 Bloody Pond
MA94016 Boot Pond
MA94017 Bound Brook Pond
MA94019 Briggs Reservoir
MA94020 Briggs Reservoir
MA94027 Cooks Pond
MA94032 Crossman Pond
MA94035 Elbow Pond
MA94036 Forge Pond
MA94037 Forge Pond
MA94038 Foundry Pond
MA94040 Fresh Pond
MA94043 Furnace Pond
MA94047 Governor Winslow House Pond
MA94050 Great Herring Pond
MA94053 Great Sandy Bottom Pond
MA94054 Great South Pond
MA94055 Gunners Exchange Pond
MA94061 Harrobs Corner Bog Pond
MA94065 Hedges Pond
MA94070 Hoyts Pond
MA94071 Indian Head Pond
MA94072 Indian Pond
MA94073 Island Creek Pond
MA94074 Island Pond
MA94075 Island Pond
MA94076 Island Pond
MA94077 Jacobs Pond
MA94079 Keene Pond
MA94082 Little Herring Pond
MA94085 Little Sandy Bottom Pond
MA94087 Little South Pond
MA94088 Long Island Pond
MA94089 Lorings Bogs Pond
MA94090 Lout Pond
MA94091 Lower Chandler Pond
MA94096 Maquan Pond
MA94101 Mill Pond
MA94102 Morey Hole
MA94109 North Hill Marsh Pond
MA94110 North Triangle Pond
MA94113 Old Oaken Bucket Pond
MA94114 Oldham Pond
MA94117 Pembroke Street South Pond
MA94120 Pine Lake
MA94121 Pine Street Pond
MA94126 Reeds Millpond
MA94127 Reservoir
MA94131 Round Pond
MA94132 Russell Millpond
MA94133 Russell Pond
MA94136 Savery Pond
MA94140 Shallow Pond
MA94142 Ship Pond
MA94143 Silver Lake
MA94148 South River Pond
MA94149 South Triangle Pond
MA94151 Studleys Pond
MA94152 Tack Factory Pond
MA94157 Torrey Pond
MA94160 Triangle Pond
MA94165 Upper Chandler Pond
MA94168 Wampatuck Pond
MA94170 West Chandler Pond
MA94172 Winslow Cemetary Pond
MA94174 Wright Pond
MA94175 Factory Pond
MA94177 Hobomock Pond
MA94178 Aaron River Reservoir
MA94179 Lily Pond
MA94182 Little Pond
MA94184 Smelt Pond

LAKE USE ASSESSMENTS

Lake assessments are based on information gathered during DWM surveys (recent and historic) as well as pertinent information from other reliable sources (e.g., abutters, herbicide applicators, diagnostic/feasibility studies, MDPH, etc.). The 1996 DWM synoptic surveys of 79 lakes focused on visual observations of water quality and quantity (e.g., water level, sedimentation, etc.), the presence of native and non-native aquatic plants (both distribution and aerial cover) and presence/severity of algal blooms (Appendix C, Table C1).

In 2001 baseline lake surveys were conducted by DWM on six lakes in the South Shore Coastal Watersheds: Forge Pond in Hanover, Jacobs Pond in Norwell (with assistance from MDFW), Lower Chandler Pond in Duxbury, Musquashcut Pond and Old Oaken Bucket Pond in Scituate, and Wampatuck Pond in Hanson. These lakes were sampled three times each (generally at monthly intervals). MassDEP's technical memorandum *Baseline Lake Survey 2001 Technical Memo* provides details of sample collection methods, results, data, and weed maps for the lakes surveyed in 2001 (Mattson and Haque 2004). Sampling included *in-situ* profile measurements of DO, % DO saturation, pH, temperature, and conductivity; measurements for Secchi disk transparency; sample collection of total phosphorus, chlorophyll *a*, and apparent color; and aquatic vegetation mapping (Appendix C, Tables C2 and C3). Wampatuck Pond was examined for impacts related to commercial cranberry operations. Additional samples were taken from the major inlets to this waterbody, with notes on presence or absence of cranberry operations upstream from those tributaries. Data from these inlets and tributaries are presented in Table C3 immediately following the lake segment to which they flow.

In 2003 forty lakes statewide were sampled on one occasion to provide data in support of the DWM nutrient criteria derivation effort. Three lakes in the South Shore Coastal Watersheds included in this statewide effort are Furnace Pond in Pembroke (MA94043), Fresh Pond in Plymouth (MA94040) and Great Herring Pond in Plymouth/Bourne (MA94050). Monitoring included in-situ profile measurements of DO, % DO saturation, pH, temperature, and conductivity; measurements for Secchi disk transparency; sampling for total phosphorus, chlorophyll *a* and apparent color; and aquatic vegetation mapping.

These surveys provided information to assess the status of the *Aquatic Life* and *Aesthetics* uses. Fish consumption advisory information was obtained from the MDPH and used to assess the *Fish Consumption Use* (MDPH 2004a). Fecal coliform bacteria data were not available so the *Primary Contact Recreational Use* was usually not assessed. Although the *Drinking Water Use* was not assessed in this water quality assessment report, the Class A waters were identified. Information on drinking water source protection and finish water quality is available at http://www.mass.gov/dep/brp/dws/dwshome.htm and from the South Shore Coastal Watershed's public water suppliers.

The use assessments and supporting information will be entered into the most up-to-date version of the EPA's Assessment Database (ADB) when it is available and implemented by MassDEP. Data on the presence of non-native plants were entered into the DWM informal non-native plant-tracking database.

AQUATIC LIFE

Biology

MDFW sampled fish using electrofishing and gillnetting techniques in Jacobs Ponds in 2001 as part of the *Lakes Survey for TMDL Development* (Appendix G, Project 99-06/104). The fish sampling consisted of electrofishing at night during the spring and gillnetting in the fall. A total of 10 species were collected in Jacobs Pond. The species collected, in order of abundance, were: 122 bluegill (*Lepomis macrochirus)*; 72 pumpkinseed (*Lepomis gibbosus*); 34 yellow perch (*Perca flavescens*); 29 American eel (*Anguilla rostrata*); 25 largemouth bass (*Micropterus salmoides*); 10 golden shiner (*Notemigonus crysoleucas*); 8 chain pickerel (*Esox niger*); 3 brown bullhead (*Ictalurus nebulosus*); 2 black crappie (*Pomoxis nigromaculatus*); and 1 swamp darter (*Etheostoma fusiforme*) (Hartley 2002).

Non-native aquatic macrophytes

Non-native aquatic macrophytes were observed or suspected in 21 of the 78 lakes surveyed by DWM in 1996 (Appendix C, Table C1). The four non-native aquatic species observed in the South Shore Coastal Watersheds lakes were *Cabomba caroliniana* (fanwort), *Myriophyllum heterophyllum* (variable milfoil), *Myriophyllum spicatum* (Eurasian milfoil) and *Potamogeton crispus* (curly leaf pondweed). These species have high potential for spreading and are likely to have established themselves in downstream lake and river segments in the South Shore Coastal Watershed, which may not have been surveyed.

Figure 15 indicates where these non-native aquatic species were observed during the DWM 1996 surveys and the likely, or potential, avenues of downstream spreading.

The most commonly observed non-native aquatic plant species was *Cabomba caroliniana*, which has been reported in 17 lakes. *Myriophyllum heterophyllum* was observed in eight lakes, but there also were three lakes - Crossman Pond in Kingston (MA94032), North Hill Marsh Pond in Duxbury (MA94109) and South Triangle Pond in Plymouth (MA94149) that may also be infested (flowering heads of the plants were not present to positively identify the species, but *Myriophyllum heterophyllum* is suspected). The *Aquatic Life Use* for these three lakes was identified with an Alert Status. Two lakes had populations of *Potamogeton crispus* and one had *Myriophyllum spicatum*.

It should be noted also that at least one non-native wetland species; either *Lythrum salicaria* (purple loosestrife) and/or *Phragmites australis* (common reed grass) was observed at thirteen lakes (17%) surveyed by DWM in 1996 or 2001). These two non-native wetland species were co-located at Ship Pond in Plymouth. Although the presence of these species is not generally a cause of impairment to lakes, their invasive growth habit can result in the impairment of wetland habitat associated with lakes.

Fish Barriers

Aaron River Reservoir (MA 94178), Lily Pond (MA94179), and Russell Millpond (MA94132) all have issues with associated structures that prevent fish passage into the aforementioned bodies of water.

Chemistry-water

Three of the five lakes surveyed in 2001 by the DWM for the development of TMDLs showed high total phosphorus concentrations. Two of these, Forge Pond in Hanover (MA94037) and Wampatuck Pond in Hanson (MA94168), exhibited indications of high productivity (high chlorophyll *a*, oxygen supersaturation, low Secchi disk transparency, and algal blooms). The third pond, Old Oaken Bucket Pond in Scituate (MA94113), had high color values recorded that may have inhibited some of the productivity.

The *Aquatic Life* Use is assessed as support in Forge Pond in Plymouth (MA94036) and Tack Factory Pond in Scituate (MA94152). Forge Pond is assessed as support for this use because non-native aquatic species were not recorded there and dissolved oxygen concentrations met water quality standards. Tack Factory Pond is assessed as support for this use because non-native aquatic species were not recorded and water quality conditions were deemed to be natural to ponds influenced by wetlands.

The *Aquatic Life Use* was assessed as impaired in 21 lakes due to the presence of non-native aquatic macrophyte(s). Three lakes - Crossman Pond in Kingston (MA94032), North Hill Marsh Pond in Duxbury (MA94109) and South Triangle Pond in Plymouth (MA94149) are identified with an “Alert Status” since the presence of a non-native species, *M. heterophyllum*, is suspected.

Three lakes that are affected by non-native aquatic species are listed for additional impairments, relating to heightened primary productivity. Forge Pond (MA94037), Old Oaken Bucket Pond (MA94113), and Wampatuck Pond (MA94168) are impaired because of total phosphorus. Forge Pond and Wampatuck Pond are listed for oxygen super-saturation and elevated chlorophyll *a* concentrations. Wampatuck Pond is also listed for excess algal growth. Excess algal growth has also caused impairment in Russell Millpond (MA94132).

Aaron River Reservoir (MA 94178), Lily Pond (MA94179), and Russell Millpond (MA94132) have an impaired status due to the presence of fish barriers. And, Silver Lake (MA94143) is impaired because of flow alteration. The lake is extremely affected by the flow alteration associated with water withdrawals and diversions.

The remaining 52 lakes in the South Shore Coastal Watersheds were not assessed for the *Aquatic Life Use* because insufficient data are available.

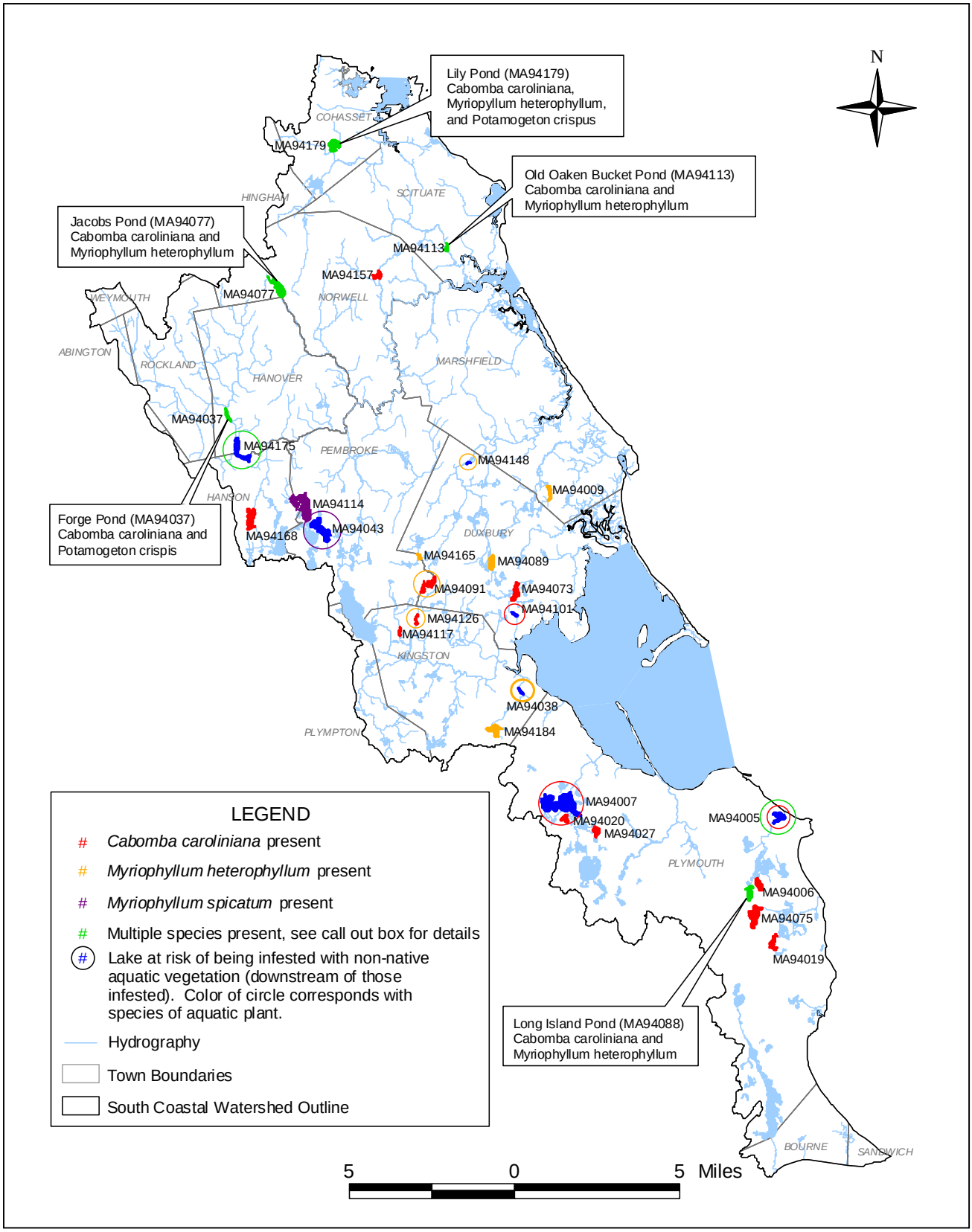


Figure 15. South Shore Coastal Watersheds Lakes – presence of non-native aquatic macrophytes (waterbodies downstream from these lakes are at risk for non-native aquatic macrophyte infestation).

FISH CONSUMPTION

In July 2001 MDPH issued new consumer advisories on fish consumption and mercury contamination. The MDPH "…is advising pregnant women, women of childbearing age who may become pregnant, nursing mothers and children under 12 years of age to refrain from eating the following marine fish; shark, swordfish, king mackerel, tuna steak and tilefish. In addition, MDPH is expanding its previously issued statewide fish consumption advisory which cautioned pregnant women to avoid eating fish from all freshwater bodies due to concerns about mercury contamination, to now include women of childbearing age who may become pregnant, nursing mothers and children under 12 years of age (MDPH 2001)." Additionally, MDPH "…is recommending that pregnant women, women of childbearing age who may become pregnant, nursing mothers and children under 12 years of age limit their consumption of fish not covered by existing advisories to no more than 12 ounces (or about 2 meals) of cooked or uncooked fish per week. 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." MDPH's statewide advisory does not include fish stocked by the state Division of Fisheries and Wildlife or farm-raised fish sold commercially. The advisory encompasses all freshwaters in Massachusetts and so the *Fish Consumption Use* for lakes in the South Shore Coastal Watersheds cannot be assessed as support.

The MDPH produces a fish consumption advisory list that contains the status of each water body for which an advisory has been issued. If a water body is not on the list, it may be because either an advisory was not warranted or the water body has not been sampled. The most current advisories are available online at http://db.state.ma.us/dph/fishadvisory/. The following Fish Consumption advisories have been issued in the South Shore Coastal Watersheds (MDPH 2004a).

Aaron River Reservoir (MA94178): MDPH has issued a fish consumption advisory based on elevated levels of mercury in some fish sampled by DWM and MDFW in 2001.

1. "Children younger than 12 years, pregnant women, and nursing mothers should not eat any fish from Aaron River Reservoir."
2. "The general public should not consume chain pickerel or yellow perch from Aaron River Reservoir."
3. "The general public should limit consumption of all other species from Aaron River Reservoir to two meals per month."

Factory Pond (MA94175), Drinkwater River (MA94-21), and Indian Head River (MA94-04): MDPH expanded a 1994 Factory Pond Fish Consumption Advisory to include the Drinkwater River/Indian Head River downstream of the Forge Pond Dam in Hanover to the Luddam's Ford Dam in Hanover/Pembroke as a result of 1995 sampling by DWM.

1. "The general public should not consume any fish from Factory Pond or the Drinkwater River/Indian Head River between Forge Pond and the Luddam's Ford Dam.

Great Herring Pond (MA94050): MDPH has issued a fish consumption advisory based on elevated levels of mercury found in smallmouth bass sampled in 1996 by DWM.

1. "Children younger than 12 years, pregnant women, and nursing mothers should not eat smallmouth bass from Great Herring Pond."
2. "The general public should limit consumption of smallmouth bass to two meals per month."

Great South Pond in Plymouth (MA94054): MDPH has issued a fish consumption advisory based on elevated levels of mercury found in some fish sampled in 2001 by DWM.

1. "Children younger than 12 years, pregnant women, and nursing mothers should not eat any fish from Great South Pond."
2. "The general public should limit consumption of all fish to two meals per month."

Due to the site-specific fish consumption advisories, Aaron River Reservoir (MA94178), Factory Pond (MA94175), Great Herring Pond (MA94050), and Great South Pond (MA94054) are assessed as impaired for the *Fish Consumption Use*. The remaining lakes in the South Shore Coastal Watersheds are currently not assessed for the *Fish Consumption Use* due to the MDPH Statewide Fish Consumption Advisory.

PRIMARY AND SECONDARY CONTACT RECREATION AND AESTHETICS

Bathing beach closure information was available for facilities on twelve (12) lakes in the South Shore Coastal Watersheds from MDPH (2003 and 2004) and all indicated no or a low frequency of closures/postings. Surveys by DWM in 1996, 2001 (MassDEP 2001a) and 2003 (MassDEP 2003b), by ENSR (2003) on Lily Pond (MA94179) and by Camp Dresser & McKee (ERWNTAC 2000, Mercer and Monnelly 2000) on Russell Millpond (MA94132) provided information about non-native aquatic species biovolume measurements and other water quality conditions affecting the recreational uses.

The *Primary* and *Secondary Contact Recreational* and *Aesthetics* use determinations for individual lakes were based on the above information sources and are described in Table 3. Only one lake, Fresh Pond in Plymouth (MA94040), is assessed as support for the *Primary* and *Secondary Contact Recreational* and *Aesthetic* uses. Twelve (12) additional lakes are assessed as support for the *Primary* and *Secondary Contact Recreational* uses (based primarily on beach closure information), while the *Aesthetics Use* is not assessed. One lake, Forge Pond in Plymouth (MA94036), is not assessed for the *Primary Contact Recreation Use* but is assessed as supporting both the *Secondary Contact Recreation* and *Aesthetics* uses. Great South Pond in Plymouth (MA94054) is not assessed for the *Primary* and *Secondary Contact Recreational* uses but is assessed as support for the *Aesthetics Use.*

Seven (7) lakes are assessed as impaired for the *Primary* and *Secondary Contact Recreational* and *Aesthetic* uses. The overabundant growth of the non-native macrophyte *Myriophyllum heterophyllum* dominated the biovolume in Black Mountain Pond (MA94009), while the growth of *Myriophyllum heterophyllum* and *Cabomba caroliniana* in both Jacobs Pond (MA94077) and Old Oaken Bucket Pond (MA94113) resulted in the use impairment for these waterbodies. Three non-native aquatic macrophytes dominated the biovolume in Lily Pond in Cohasset (MA94179) although low Secchi disk transparency is also identified as a use impairment. Excess algal growth impairs the *Recreational* and *Aesthetic* uses in three additional lakes: Forge Pond in Plymouth (MA94037), Russell Millpond in Plymouth (MA94132), and Wampatuck Pond in Hanson (MA94168). Low Secchi disk transparency is also listed as an impairment in Wampatuck Pond and low Secchi disk transparency, total phosphorus, and trash/debris are also listed as an impairment in Forge Pond (MA94037).

The *Primary Contact Recreation* use is impaired for one additional lake, Studleys Pond in Rockland (MA94151), because of elevated fecal coliform levels.

The *Primary* and *Secondary Contact Recreational* and *Aesthetics* uses are not assessed in the remaining lakes in the South Shore Coastal Watersheds because of a lack of bacteria, transparency and in-lake survey data.

SUMMARY

A total of 40 of the 78 lakes in the South Shore Coastal Watersheds reported in this document are assessed for one or more uses. Twenty-eight lakes (70% of those assessed) have one or more use impaired. The most common impairment is non-native aquatic plants, occurring in 20 of the 28 impaired lakes (71%). Other impairments, in decreasing order of frequency include: mercury (4 lakes), excess algal growth (3 lakes), Secchi disk transparency (3 lakes), total phosphorus (3 lakes), fish barriers (3 lakes), dissolved oxygen saturation (2 lakes), chlorophyll *a* (2 lakes), fecal coliform (2 lakes), flow alteration (1 lake), and trash/floatables/debris (1 lake).

Table 3. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Aaron River Reservoir (Unnamed Reservoir), Cohasset/Hingham/Scituate	MA94178	136	IMPAIRED (Fish barriers)	IMPAIRED (Mercury)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Aaron River Reservoir is a Class A public water supply used as a back up source for the town of Cohasset (Appendix E, Table E5). Aaron River Reservoir is listed in Category 3 ("No Uses Assessed") of the 2002 Integrated List of Waters (MassDEP 2003a). The Town of Cohasset has received numerous grant awards to assess and implement improvements to water quality. A multiphase project has been funded to improve water distribution system and source water improvements (Appendix F, DWSRF-1992). A Surface Water Supply Protection Plan was completed in June 2002 (Appendix F, Project 99-04/SWT.) According to the US Army Environmental Center Spring 2004 Update, cleanup of the Hingham Training Annex, upgradient of the Aaron River Reservoir, has recently been completed and the property will be incorporated into the Wompatuck State Park (Hurwitz 2004). Although there is a Denil-type fish ladder at the Aaron River Reservoir Dam, which is in excellent condition, the impassable fishway at Hunters Pond Dam prevents anadromous fish migration to Aaron River Reservoir. The *Aquatic Life Use* is assessed as impaired because of the fish barrier. The known source of impairment is the hydrostructure impact on fish passage. The MassDEP conducted fish toxics monitoring in 2001(Appendix D, Table D3). A site-specific advisory was issued by MDPH due to elevated levels of mercury, so the *Fish Consumption Use* is assessed as impaired (MDPH 2004a). The source of mercury is unknown although atmospheric deposition is suspected.							
Arnold School Pond, Pembroke	MA94004	12	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Arnold School Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (Secondary Contact Recreation and Aesthetics) and was not assessed for the others. Although no objectionable conditions were noted during the 1996 DWM synoptic survey (Appendix C, Table C1), no recent data are available, so all uses are not assessed.							
Bartlett Pond, Plymouth	MA94005	33	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Bartlett Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (Secondary Contact Recreation and Aesthetics) and was not assessed for the others. Although no objectionable conditions were noted by DWM during the 1996 synoptic survey (Appendix C, Table C1), no recent data are available, so all uses are not assessed.							
Beaver Dam Pond, Plymouth	MA94006	29	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Beaver Dam Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). Sparse plant cover including the non-native aquatic species, *Cabomba caroliniana*, was noted during the 1996 DWM synoptic survey (Appendix C, Table C1), so the *Aquatic Life Use* is assessed as impaired. Although no objectionable conditions were noted by DWM during the 1996 synoptic survey, no recent data are available, so the remaining uses are not assessed.							

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Billington Sea, Plymouth	MA94007	263	NOT ASSESSED*	NOT ASSESSED	NOT ASSESSED*	NOT ASSESSED*	NOT ASSESSED*
Billington Sea is listed in Category 5 of the 2002 Integrated List of Waters due to impairment from noxious aquatic plants and turbidity (MassDEP 2003a). A TMDL for nutrients is under development. A MA DCR Lakes & Ponds grant was awarded in FY 1998 for an algaecide treatment and to develop and distribute an educational brochure on watershed stewardship. Two §319 grants were awarded to install an innovative on-site septic system for 5 lots along the shoreline and to install stormwater drainage BMP on an unpaved section of roadway at Billington Sea Road and Black Cat Road (Appendix F - Projects 94-09/319 and 03-11/319, respectively). In September 2002, the Billington Street Dam on Town Brook was removed that allowed anadromous fish (alewife and blueback herring) to reach the spawning grounds in Billington Sea. There are currently two of six obstructions to fish passage along Town Brook between Plymouth Harbor and Billington Sea that should be replaced or lined with aluminum steeppass sections to improve fish passage efficiency. These two obstructions are the Jenny Grist Mill and the dam off Billington Street (Reback *et al.* 2004). The *Aquatic Life Use* is not assessed, but is identified with an Alert Status because of the need to improve fish passage efficiency into Billington Sea. MassDEP DWM conducted fish toxics monitoring in 1993. No site-specific advisories were issued, so the *Fish Consumption Use* is not assessed. No non-native aquatic or wetland plants were noted during the 1996 DWM synoptic survey (Appendix C, Table C1). During the non-point source field inspection, no trash was seen along shore, but there was evidence of shoreline erosion. The report also described a significant suspended algae problem at the time of the survey (GeoSyntec 2002). Too limited recent data are available, so the *Recreational* and *Aesthetics* uses are not assessed but are identified with an Alert Status since the frequency and duration of the algal blooms is uncertain.							
Black Jimmy Pond, Plymouth (Hyle's Pond)	MA94008	9	NOT ASSESSED	NOT ASSESSED	SUPPORT	SUPPORT	NOT ASSESSED
Black Jimmy Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. The swimming area at Clark Camps had no closures/postings during the 2002 or 2003 bathing beach seasons (MDPH 2003 and MDPH 2004b). No non-native aquatic or wetland plants were observed during the 1996 DWM synoptic survey (Appendix C, Table C1).							
Black Mountain Pond, Marshfield	MA94009	17	IMPAIRED (Non-native plants)	NOT ASSESSED	IMPAIRED (Non-native plants)	IMPAIRED (Non-native plants)	IMPAIRED (Non-native plants)
Black Mountain Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). During the 1996 DWM synoptic survey and recent observations by a DWM biologist documented very dense cover of floating leaf and submergent plants over the entire surface, including the non-native aquatic species *Myriophyllum heterophyllum* (Appendix C, Table C1). Because of the presence of the non-native macrophyte, the *Aquatic Life Use* is assessed as impaired. Because of the overabundant growth of a non-native aquatic plant dominating the biovolume, the *Primary* and *Secondary Contact Recreational* and *Aesthetic* uses also are assessed as impaired.							
Bloody Pond, Plymouth	MA94015	101	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Bloody Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. Although no objectionable conditions were noted by DWM during the 1996 synoptic survey (Appendix C, Table C1), no recent data are available and therefore all uses are not assessed. It should be noted that there is very little development around the pond and no gas motors are allowed.							
Boot Pond, Plymouth	MA94016	69	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Boot Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. During the 1996 DWM conducted a synoptic survey no non-native aquatic or wetland plants were observed (Appendix C, Table C1). No recent data are available so all uses are not assessed.							

* Alert Status issues identified -- see details in text.

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Bound Brook Pond, Norwell	MA94017	21	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Bound Brook Pond is listed in Category 3 ("No Uses Assessed") of the 2002 Integrated List of Waters (MassDEP 2003a). Bound Brook Pond is upstream from the Aaron River Reservoir – a Class A public water supply used as a back up source for the town of Cohasset. During the 1996 DWM conducted a synoptic survey no non-native aquatic or wetland plants were observed (Appendix C, Table C1). No recent data are available, so all uses are not assessed. However, it should be noted that the pond was being filled in by encroaching, emergent vegetation.							
Briggs Reservoir, Plymouth	MA94019	24	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Briggs Reservoir is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). According to the DWM 1996 synoptic survey the non-native aquatic species *Cabomba caroliniana* was documented (Appendix C, Table C1), so the *Aquatic Life Use* is impaired.							
Briggs Reservoir, Plymouth	MA94020	16	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Briggs Reservoir is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). The DWM 1996 synoptic survey found dense aquatic plants, including the non-native aquatic species *Cabomba caroliniana* (Appendix C, Table C1). During the non-point source field inspection, no trash was seen along shore but there was evidence of shoreline erosion. Patches of floating leaf vegetation (water lily and water shield) was not excessive (GeoSyntec 2002).							
Cooks Pond, Plymouth	MA94027	21	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Cooks Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). During the non-point source field inspection, there was trash seen along the shore and erosion was noted at the access point on the north side of pond. Also, large amounts of floating vegetation including the non-native aquatic C*abomba caroliniana*, water lily and water shield were present along the shoreline and in the southern end of the pond (GeoSyntec, 2002). The DWM 1996 synoptic survey found dense aquatic plants, including the non-native aquatic species *C. caroliniana* (Appendix C, Table C1).							
Crossman Pond, Kingston	MA94032	13	NOT ASSESSED*	NOT ASSESSED	NOT ASSESSED*	NOT ASSESSED*	NOT ASSESSED*
Crossman Pond is listed in Category 5 of the 2002 Integrated List of Waters due to impairment from noxious aquatic plants (MassDEP 2003a). The Town of Kingston received an MA DCR Lakes & Pond Grant in FY 1996 for hydrological testing, aquatic plant mapping, and installing BMPs to control weeds (Appendix F). Objectionable conditions were noted during the DWM 1996 synoptic survey (Appendix C, Table C1). During the non-point field inspection, there was no trash or evidence of shoreline erosion. Macrophyte coverage was dense (water lily, watershield, spatterdock, "excessive" milfoil sp.) (GeoSyntec 2002). The *Aquatic Life*, and *Primary* and *Secondary Contact Recreation* uses are identified with an Alert Status because of the presence of *Myriophyllum* sp., which requires further confirmation when flowering heads are evident. Stormdrain discharges on eastern shore noted as a problem (GeoSyntec 2002).							
Elbow Pond, Plymouth	MA94035	21	NOT ASSESSED	NOT ASSESSED	SUPPORT	SUPPORT	NOT ASSESSED
Elbow Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. No objectionable conditions were noted by DWM during the 1996 synoptic survey (Appendix C, Table C1). Camp Massasoit has a public bathing beach that had no reported postings/closures during the 2002 or 2003 bathing beach season, so the *Primary* and *Secondary Contact Recreational* uses are assessed as support (MDPH 2003 and MDPH 2004b).							

* Alert Status issues identified -- see details in text.

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Factory Pond, Hanson/Hanover	MA94175	51	NOT ASSESSED	IMPAIRED (Mercury)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Factory Pond is listed in Category 5 of the 2002 Integrated List of Waters due to impairment from metals (MassDEP 2003a). DWM conducted fish toxics monitoring in 1993 that resulted in a site-specific advisory by MDPH due to elevated levels of mercury (MDPH 2004a). The Former National Fireworks, Inc. waste site is considered the likely source of mercury. The DWM 1996 synoptic survey found sparse plant cover including the non-native wetland species, *Lythrum salicaria* (Appendix C, Table C1). During the non-point field inspection, there was trash and evidence of shoreline erosion (Geosyntec 2002).							
Forge Pond, Plymouth	MA94036	14	SUPPORT	NOT ASSESSED	NOT ASSESSED	SUPPORT	SUPPORT
Forge Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. No objectionable conditions were noted by DWM during the 1996 synoptic survey (Appendix C, Table C1). Between June 1999 and November 2002, water quality and biological monitoring was conducted at one station in Forge Pond as part of the Pinehills Groundwater Discharge Permit 0-680. No non-native aquatic macrophytes were observed. With the exception of one sampling date, dissolved oxygen concentrations met water quality standards. All nutrient and chlorophyll *a* concentrations were low throughout the sampling period (Horsley & Witten, Inc. 2003). Based on these data, the *Aquatic Life Use* is assessed as support. Secchi disk measurements taken between June 1999 and November 2002 ranged from 3' to 7' with 16 of 19 measurements $\geq$ 4' (Horsley & Witten, Inc. 2003). Although the *Primary Contact Recreational Use* is not assessed because of the lack of bacteria data, the *Secondary Contact Recreational* and *Aesthetic* uses are assessed as support because of the generally high transparency measurements and the lack of any objectionable conditions.							
Forge Pond, Hanover	MA94037	16	IMPAIRED (dissolved oxygen saturation, total phosphorus, chlorophyll *a*, non-native aquatic plants)	NOT ASSESSED	IMPAIRED (Excess algal growth, low Secchi disk transparency, total phosphorus, trash/debris, elevated fecal coliform bacteria)	IMPAIRED (Excess algal growth, low Secchi disk transparency, total phosphorus, trash/debris)	IMPAIRED (Excess algal growth, low Secchi disk transparency, total phosphorus, trash/debris)
Forge Pond is listed in Category 5 of the 2002 Integrated List of Waters due to impairment from turbidity and exotic species (MassDEP 2003a). In 2001 MassDEP surveyed the lake for the purpose of TMDL development. Elevated chlorophyll *a* and total phosphorus concentrations were documented (Appendix C, Table C3). Supersaturation of oxygen on two of the three survey dates is also indicative of high productivity (Appendix C, Table C2). Although no non-native aquatic macrophytes were observed during the 2001 surveys, the non-native aquatic species *Potamogeton crispis* and *Cabomba caroliniana* were observed by DWM during the 1996 synoptic survey (Appendix C, Table C1), C. *caroliniana* was reported in the pond during the non-point field inspection (Geosyntec 2002). Because of these conditions the *Aquatic Life Use* is assessed as impaired. It should also be noted that the wetland species *Lythrum salicaria* was documented (Appendix C, Table C1). DWM conducted fish toxics monitoring in Forge Pond in 1995 that did not result in a site-specific fish advisory by MDPH (Appendix D, Table D1). Therefore, the *Fish Consumption Use* is not assessed. Although no fecal coliform bacteria data are available for Forge Pond, elevated counts were documented at sampling sites in both French Stream and the Drinkwater River (Appendix A, Table A7) which may by problematic in the pond. Low Secchi disk transparency on two of three dates, filamentous algal blooms and objectionable deposits (trash/debris) were documented by DWM field survey crews (MassDEP 2001a). The *Primary* and *Secondary Contact Recreation* and *Aesthetic* uses are assessed as impaired because of these conditions. The Rockland Municipal WWTP discharge is a known source of total phosphorus and is considered to be the source of nutrient-related impairments. Other suspected sources for these use impairments include stormwater and agricultural runoff.							

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Foundry Pond, Kingston	MA94038	7	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED*	NOT ASSESSED*	NOT ASSESSED*
Foundry Pond is listed in Category 5 of the 2002 Integrated List of Waters due to turbidity (MassDEP 2003a). The DWM 1996 synoptic survey found sparse aquatic plant cover including the non-native wetland species *Phragmites australis* and noted objectionable conditions (Appendix C, Table C1). Therefore, the *Recreational* and *Aesthetics* uses are identified with an Alert Status. During the non-point field inspection, there was no trash or evidence of shoreline erosion observed (Geosyntec 2002).							
Fresh Pond, Plymouth	MA94040	60	NOT ASSESSED	NOT ASSESSED	SUPPORT	SUPPORT	SUPPORT
Fresh Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. There are two public bathing beaches (End Pond and Mid Pond) that had no closures/postings during the 2002 or 2003 bathing beach seasons (MDPH 2003 and MDPH 2004b), so the *Recreational Uses* are assessed as support. DWM sampled the pond in July 2003 to provide data in support of the DWM nutrient criteria derivation effort (MassDEP 2003d). No objectionable conditions were noted so the *Aesthetics Use* is assessed as support.							
Furnace Pond, Pembroke	MA94043	103	NOT ASSESSED*	NOT ASSESSED	SUPPORT*	SUPPORT*	NOT ASSESSED*
Furnace Pond is listed in Category 5 of the 2002 Integrated List of Waters due to impairment from organic enrichment/low dissolved oxygen (MassDEP 2003a). Furnace Pond is a Class A Public Water Supply source for the Brockton Water Commission (WMA Registration 4204401, Appendix E, Table E5). The MassDEP 1996 synoptic survey found sparse aquatic plant cover, including the non-native wetland species *Lythrum salicaria* (Appendix C, Table C1). DWM sampled the pond in September 2003 to provide data in support of the DWM nutrient criteria derivation effort (MassDEP 2003d). During that survey, high turbidity and evidence of a blue-green bloom were noted. The Secchi disk depth was also low (0.8 m). During the non-point source field inspection, there was trash and evidence of shoreline erosion at sites on the northern and southern ends of the pond (Geosyntec 2002). Two studies (a D/F Study developed in 1993 by Baystate Environmental Consultants, Inc. and one in 2001 by Comprehensive Environmental Incorporated) both documented eutrophic conditions (BEC 1993 and CEI 2001). A project was also implemented to remove sediment and other stormwater pollution (Appendix F, Project 01-19/319). A screening system for the Silver Lake diversion from Furnace Pond should be designed and installed and a diversion protocol developed to prevent the loss of juvenile herring from the system (Reback *et al.* 2004). Too limited recent data are available, so the *Aquatic Life Use* is not assessed for Furnace Pond. However, this use is identified with an Alert Status because the recent limited data do not suggest change from historic conditions (i.e., low dissolved oxygen, occasional algal blooms, and elevated nutrient levels) and the need for a screening system at the water supply intake. The Furnace Pond Neighborhood Association manages a semi-public beach that had no closures/postings during the 2002 or 2003 bathing beach seasons (MDPH 2003 and MDPH 2004b). While both the *Primary* and *Secondary Contact Recreational* uses are assessed as support, they are both identified with an Alert Status because of conditions observed during the DWM survey in September 2003. Too limited data are available, so the *Aesthetics Use* is not assessed but is also identified with an Alert Status.							
Governor Winslow House Pond, Marshfield	MA94047	23	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Governor Winslow House Pond is listed in Category 3 ("No Uses Assessed") of the 2002 Integrated List of Waters (MassDEP 2003a). Although no objectionable conditions were noted by DWM during the 1996 synoptic survey (Appendix C, Table C1), no recent data are available so all uses are not assessed.							

* Alert Status issues identified -- see details in text.

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Great Herring Pond, Bourne/Plymouth	MA94050	415	NOT ASSESSED*	IMPAIRED (Mercury)	SUPPORT	SUPPORT	SUPPORT
Great Herring Pond is listed in Category 5 of the 2002 Integrated List of Waters due to impairment from metals (MassDEP 2003a). This subwatershed system (Great Herring Pond, Little Herring Pond) supports one of the Commonwealth's most productive river herring populations. The weir pool and notched-weir-pool fishways near the mouth of the Herring River (also referred to as Monument River), however, are deteriorating and the millrace at the Carter Beale Conservation Area needs to be fitted with a barrier dam to prevent fish from moving into a dead end channel (Reback *et al.* 2004). The *Aquatic Life Use* is not assessed but is identified with an Alert Status because of the fish passage limitations. Fish toxics monitoring for PCB, organochlorine pesticides and selected metals (including Hg, As, Se, Pb, and Cd) was conducted by DWM in 1996 (Appendix D, Table D2), that resulted in MDPH issuing a site-specific advisory due to elevated levels of mercury (MDPH 2004a). The source of mercury is unknown, although atmospheric deposition is suspected. Camp Bournedale manages a public bathing beach that had no closures/postings during the 2002 bathing beach season (MDPH 2003). No objectionable conditions were noted during the MassDEP 1996 synoptic survey (Appendix C, Table C1). DWM sampled the pond in July 2003 to provide data in support of the DWM nutrient criteria derivation effort (MassDEP 2003d). No objectionable conditions were noted and the Secchi disk depth was good. Because no beach closures/postings or objectionable conditions have been reported and *Primary* and *Secondary Contact* and *Aesthetics* uses are assessed as support. Great Herring Pond has a gravel ramp designed for smaller boats, managed by MDFW for fisherman access, off Sandy Pond Road in Bourne with parking for six trailers (MA DFWELE 2003).							
Great Sandy Bottom Pond, Pembroke	MA94053	103	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Great Sandy Bottom Pond is a Class A source of public water supply for the Abington/Rockland Joint Water Works (WMA Registration 42125101, Appendix E, Table E5). Great Sandy Bottom Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. The 1996 MassDEP synoptic survey found sparse aquatic plants cover (~25%) including the non-native wetland species *Phragmites australis* (Appendix C, Table C1). A transient ground-water-flow model with 69 monthly stress periods spanning the period from January 1998 through September 2003 was calibrated to stage at Great Sandy Bottom Pond and nearby Silver Lake and streamflow and water levels collected from September 2002 through September 2003 were recently published by USGS (Carlson and Lyford 2005). The calibrated model was used to assess hydrologic responses to a variety of water-use and climatic conditions.							
Great South Pond, Plymouth	MA94054	284	NOT ASSESSED	IMPAIRED (Mercury)	NOT ASSESSED	NOT ASSESSED	SUPPORT
Great South Pond is a Class A, public water supply for the Town of Plymouth. It is listed in Category 2 of the 2002 Integrated List of Waters for supporting the uses of secondary contact recreation and aesthetics (MassDEP 2003a). The WMA Permit 9P42123901 authorizes a system-wide withdrawal of 6.0 MGD, although the Great South Pond withdrawal is an emergency source (Appendix E, Table E5). MassDEP noted no objectionable conditions during the 1996 synoptic survey (Appendix C, Table C1) or in the 2001 fish toxics monitoring. DWM sampled fish tissue for PCB, organochlorine pesticides and selected metals (including Hg, As, Se, Pb, and Cd) in 2001 that resulted in MDPH issuing a site-specific advisory due to elevated levels of mercury (MDPH 2004a and Appendix D, Table D3). The source of mercury is unknown although atmospheric deposition is suspected.							
Gunners Exchange Pond, Plymouth	MA94055	26	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Gunners Exchange Pond is listed in Category 2 of the 2002 Integrated List of Waters for supporting the uses of secondary contact recreation and aesthetics (MassDEP 2003a). In 1996 DWM conducted a synoptic survey of Gunners Exchange Pond, no non-native aquatic or wetland plants were observed (Appendix C, Table C1). No recent data are available, so all uses are not assessed.							

* Alert Status issues identified -- see details in text.

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Harrobs Corner Bog Pond, Plympton	MA94061	20	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Harrobs Corner Bog Pond is listed in Category 3 of the 2002 Integrated List of Waters since no use was assessed at that time (MassDEP 2003a). In 1996 DWM conducted a synoptic survey of Harrobs Corner Bog Pond and no non-native aquatic or wetland plants were observed (Appendix C, Table C1). Geosyntec was unable to gain access to the pond for field observations during the non-point source assessment but note excessive floating macrophytes in the satellite imagery (Geosyntec 2002). No recent data are available, so all uses are not assessed.							
Hedges Pond, Plymouth	MA94065	27	NOT ASSESSED	NOT ASSESSED	SUPPORT	SUPPORT	NOT ASSESSED
Hedges Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. No objectionable conditions were noted during the DWM 1996 synoptic survey (Appendix C, Table C1). Camp Dennen has a public bathing beach that had no closures/postings during either the 2002 or 2003 bathing beach seasons and therefore the *Primary* and *Secondary Contact Recreational* uses are assessed as support (MDPH 2003 and MDPH 2004b). Motorized watercraft are not allowed.							
Hobomock Pond, Pembroke	MA94177	13	NOT ASSESSED	NOT ASSESSED	SUPPORT	SUPPORT	NOT ASSESSED
Hobomock Pond is listed in 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. No objectionable conditions were noted during the MassDEP 1996 synoptic survey (Appendix C, Table C1). There were no closures/postings at the Finn Camp or Hobomoc Pond public bathing beaches during either the 2002 or 2003 bathing beach seasons (MDPH 2003 and MDPH 2004b). Therefore, the *Primary* and *Secondary Contact Recreational* uses are assessed as support.							
Hoyts Pond, Plymouth	MA94070	20	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Hoyts Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. No objectionable conditions were noted during the MassDEP 1996 synoptic survey (Appendix C, Table C1). No motorized watercraft are allowed.							
Indian Head Pond, Hanson	MA94071	119	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Class A, tributary to a public water supply, Furnace Pond. Indian Head Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. In 1996 MassDEP conducted a synoptic survey of Indian Head Pond. No non-native aquatic or wetland plants were observed (Appendix C, Table C1).							
Indian Pond, Kingston/Plympton	MA94072	64	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED*	NOT ASSESSED*	NOT ASSESSED*
Indian Pond is listed in Category 3 ("No Uses Assessed) of the 2002 Integrated List of Waters (MassDEP 2003a). During the non-point field inspection, there was no trash observed but there was evidence of erosion at several access points on the eastern shore, potentially associated with gravel operation (Geosyntec 2002). Therefore, the recreational and aesthetics uses are identified with an Alert Status. In 1996 MassDEP conducted a synoptic survey of Indian Pond, no non-native aquatic or wetland plants were observed (Appendix C, Table C1).							

* Alert Status issues identified -- see details in text.

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Island Creek Pond, Duxbury	MA94073	40	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED*	NOT ASSESSED*	NOT ASSESSED*
Island Creek Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). The 1996 DWM synoptic survey found emergent plants encroaching around the shore and the non-native aquatic species *Cabomba caroliniana* (Appendix C, Table C1). The Town received two MA DCR Lakes and Ponds Grants, in FY 1995 and 1999, to assess and remediate excessive vegetative growth (Appendix F). The *Recreational* and *Aesthetics uses* are not assessed but are identified with an Alert Status because of the historic density of a non-native aquatic macrophyte.							
Island Pond, west of Cedarville, Plymouth	MA94074	52	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Island Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. No objectionable conditions were noted during the MassDEP 1996 synoptic survey (Appendix C, Table C1). No recent data are available, so all uses are not assessed.							
Island Pond, (locally known as Great Island Pond), Plymouth	MA94075	79	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Island Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). It should be noted that Pine Hills LLC is authorized to discharge from their private sewer treatment facility to the ground (Groundwater Discharge Permit #0-680). The Pine Hills LLC, Golf Club is permitted to withdraw 0.39 MGD of water from four interceptor wells located downgradient of the sewer treatment discharge but upgradient of Island Pond (Appendix E, Table E5). The Pine Hills LLC private sewer treatment facility was used as a holding facility for wastewater until the spring of 2003 (Dudley 2005). The 1996 MassDEP synoptic survey found sparse surface plant cover overall, but the northeast cove had moderate plant cover including the non-native aquatic species *Cabomba caroliniana* (Appendix C, Table C1). Water quality sampling in the pond was initiated in 2003 at two sampling stations as part of the Pinehills LLC Groundwater Discharge Permit # 0-680 prior to development activity occurring within the 300' buffer (Horsley & Witten 2004). However, insufficient quality assurance data are currently available, so these data were not utilized for this assessment. DWM conducted fish toxics monitoring in 1995 that did not result in a site-specific fish advisory by MDPH (Appendix D, Table D2).							
Island Pond, northeast of Flagg Hill, Plymouth	MA94076	12	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Island Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. No objectionable conditions were noted during the DWM 1996 synoptic survey (Appendix C, Table C1). No motorized watercraft allowed.							
Jacobs Pond, Norwell	MA94077	61	IMPAIRED (Non-native plants)	NOT ASSESSED	IMPAIRED (Non-native plants)	IMPAIRED (Non-native plants)	IMPAIRED (Non-native plants)
Jacobs Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). A DCR Lakes & Pond Grant was awarded in 1994 to the Town of Norwell that included: a management plan; improved land-side public access; and a dock for small boats. The Town of Norwell manages a cartop boat access point with parking for four cars at Duncan Drive. In 2001 MDFW surveyed the lake for MassDEP for the purpose of TMDL development (Hartley 2002). Similar observations were made by DWM biologists during a 1996 synoptic survey of the pond. The 2001 lake survey for TMDL development found very dense non-native aquatic species, including both *Myriophyllum heterophyllum* and *Cabomba caroliniana* (Appendix C, Table C1 and Hartley 2002). The non-native wetland species *Lythrum salicaria* was also present. Results indicated that biovolume density was estimated as 75% with a very dense coverage of macrophytes. Limited unqualified water quality data are available (Appendix C, Tables C2 and C3). Although Secchi disk depths were low on two of four sampling dates, it is likely attributed to water color. The fish population sampled was dominated by bluegill (*Lepomis macrochirus*) and pumpkinseed (*Lepomis gibbosus*) (Hartley 2002). Because of the presence of a non-native aquatic macrophyte the *Aquatic Life Use* is assessed as impaired. Because of the high percentage of biovolume occupied by aquatic macrophytes, including a non-native aquatic plant, the *Primary* and *Secondary Contact Recreational* and *Aesthetics* uses are also assessed as impaired.							

* Alert Status issues identified -- see details in text.

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Keene Pond, Duxbury	MA94079	11	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Keene Pond is listed in Category 3 ("No Uses Assessed") of the 2002 Integrated List of Waters (MassDEP 2003a). No objectionable conditions were noted during the MassDEP 1996 synoptic survey (Appendix C, Table C1). Although Camp Wing has a bathing beach, no beach closure information for either 2002 or 2003 was reported. Therefore, the Primary and Secondary Contact Recreational uses are not assessed.							
Lily Pond, Cohasset	MA94179	51	IMPAIRED (Non-native plants Fish barriers)	NOT ASSESSED	IMPAIRED (Non-native plants, low Secchi disk transparency)	IMPAIRED (Non-native plants, low Secchi disk transparency)	IMPAIRED (Non-native plants, low Secchi disk transparency)
Lily Pond is a Class A public water supply and the primary source for Cohasset. The Cohasset Water Department has Water Management Act authorization to withdraw 0.65 MGD annually (WMA Registration 32106501, Appendix E, Table E5). The Cohasset Water Treatment Plant (MAG640070) has two lagoons for backwash and the supernatant goes into Lily Pond (Appendix E, Table E1). Chlorine is used in the process but is not added to the supernatant. The Town of Cohasset has received numerous grant awards to assess and implement improvements to water quality. A multiphase project has been funded to improve water distribution system and source water improvements (Appendix F, DWSRF-1992). Three non-native aquatic plants were documented by ENSR in 2002 - fanwort (*Cabomba caroliniana*), variable watermilfoil (*Myriopyllum heterophyllum*) and curly-leaved pondweed (*Potamogeton crispus*) (ENSR 2003; Appendix F, DCR Lakes & Ponds Grant for Lily Pond FY 2002). The poorly designed, deteriorating notched weir-pool fish ladder at Hunters Pond prevents anadromous fish passage to Lily Pond. Because of the presence of the non-native aquatic macrophytes and the fish barrier the *Aquatic Life Use* is assessed as impaired. The known source of impairment is the hydrostructure impact on fish passage. A Surface Water Supply Protection Plan was completed in June 2002 (Project 99-04/SWT.) Two grant projects, a 319 grant project (03-12/319) and a Clean Water SRF Loan (Project CWSRF 04-1945) will fund the design and installation of BMP stormwater control devices and Low Impact Development urban retrofit strategies wherever possible to contain and minimize off-site flows and pollutant loading in the Peppermint Brook subwatershed. In 2000 Cohasset extended its sewer system to include over 750 houses in the vicinity of Peppermint Brook (Lefebvre *et al.* 2003). Anticipated pollutant load removal is 658 kg/yr of nitrogen and 22 kg/yr of phosphorus. Low Secchi disk measurements (all less than 4') were reported on three surveys in 2002 (ENSR 2003). The *Recreational* and *Aesthetic* uses are assessed as impaired because of the high biovolume of non-native macrophytes and the low Secchi disk transparency documented by ENSR in 2002 (ENSR 2003).							
Little Herring Pond, Plymouth	MA94082	81	NOT ASSESSED*	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Little Herring Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. In 1996 DWM conducted a synoptic survey of Little Herring Pond. No non-native aquatic or wetland plants were observed (Appendix C, Table C1). No recent data are available, so all uses are not assessed. It should be noted, however, that this subwatershed system (Great Herring Pond, Little Herring Pond) supports one of the Commonwealth's most productive river herring populations. The weir-pool and notched weir-pool fishways near the mouth of the Herring River (also referred to as Monument River) are deteriorating and the millrace at the Carter Beale Conservation Area needs to be fitted with a barrier dam to prevent fish from moving into a dead end channel (Reback *et al.* 2004). The *Aquatic Life Use* is not assessed but is identified with an Alert Status because of the fish passage limitations.							
Little Pond, Plymouth	MA94182	40	NOT ASSESSED	NOT ASSESSED	SUPPORT	SUPPORT	NOT ASSESSED
Little Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. No objectionable conditions were noted during the DWM 1996 synoptic survey (Appendix C, Table C1). Morton Park has a public bathing beach for town residents that was posted once in 2002 and twice in 2003 because of elevated bacteria (MDPH 2003 and MDPH 2004b). Because the beach was open for the vast majority of the 2002 and 2003 bathing seasons, the *Recreational* uses are assessed as support. The *Aesthetics Use* is not assessed.							

* Alert Status issues identified -- see details in text.

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Little Sandy Bottom Pond, Pembroke	MA94085	56	NOT ASSESSED	NOT ASSESSED	SUPPORT	SUPPORT	NOT ASSESSED
Little Sandy Bottom Pond is a Class A tributary to public water supply (Great Sandy Bottom Pond). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others (MassDEP 2003a). In 1993 a Diagnostic/Feasibility Study by Baystate Environmental Consultants, Inc. was prepared for the management of the Pembroke Ponds (BEC 1993). In 1996 DWM conducted a synoptic survey of Little Sandy Bottom Pond. No non-native aquatic or wetland plants were observed (Appendix C, Table C1). The public bathing beach had no closures/postings during the either the 2002 or 2003 bathing beach seasons (MDPH 2003), so the *Recreational* uses are assessed as support.							
Little South Pond (South Pond), Plymouth	MA94087	63	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Little South Pond is a Class A public water supply for the Town of Plymouth. It is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. WMA Permit 9P42123901 authorizes a system-wide withdrawal of 6 MGD (Appendix E, Table E5). No objectionable conditions were noted during the DWM 1996 synoptic survey (Appendix C, Table C1). No bathing, boating or fishing are allowed.							
Long Island Pond, Plymouth	MA94088	33	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Long Island Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). The 1996 DWM synoptic survey found sparse surface plant cover throughout the pond, including two non-native aquatic species, *Myriophyllum heterophyllum* and *Cabomba caroliniana* (Appendix C, Table C1). Because of the presence of two non-native aquatic macrophytes the *Aquatic Life Use* is assessed as impaired.							
Lorings Bogs Pond, Duxbury	MA94089	33	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED*	NOT ASSESSED*	NOT ASSESSED*
Lorings Bogs Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). The 1996 DWM synoptic survey found very dense plant cover over the entire pond including the non-native aquatic species *Myriophyllum heterophyllum* (Appendix C, Table C1). Because of the presence of the non-native aquatic macrophyte in Lorings Bogs Pond, the Aquatic Life Use is assessed as impaired. The *Primary* and *Secondary Contact Recreational* and *Aesthetic* uses are identified with an Alert Status because of the overall plant density including the non-native species.							
Lout Pond, Plymouth	MA94090	18	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Lout Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. In 1996 DWM conducted a synoptic survey of Lout Pond and no non-native aquatic or wetland plants were observed (Appendix C, Table C1). No recent data are available, so all uses are not assessed.							
Lower Chandler Pond, Duxbury/Pembroke	MA94091	37	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Lower Chandler Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). During the non-point field inspection, there was trash and evidence of shoreline erosion observed (GeoSyntec 2002). In 2001 MassDEP surveyed the pond for the purpose of TMDL development. Low DO/saturation occurred at depths greater than 1.5 m during two of the three surveys during the summer of 2001 (Appendix C, Table C2). Lower Chandler Pond is a shallow waterbody draining cranberry bogs and wetlands. In-lake total phosphorus concentrations were moderate, although there were no other symptoms of excess productivity (Appendix C, Table C3). Three of the four Secchi disk depth measurements violated the bathing beach guidance of four feet although this may have been the result of high color. One non-native aquatic macrophyte, *Cabomba caroliniana*, was observed. The 1996 MassDEP synoptic survey found very dense submergent plant cover extending to the surface throughout the pond that includes non-native aquatic and wetland species *Cabomba caroliniana* and *Lythrum salicaria.* A limnological investigation of the pond was prepared for the Town of Duxbury (Fugro 1995). A MA DCR Lakes and Pond Program grant was awarded in FY 1997 to use the herbicide SONAR to control Fanwort (*Cabomba*) (See Appendix F- Grant Awards.) Because of the presence of a non-native aquatic macrophyte the *Aquatic Life Use* is assessed as impaired.							

* Alert Status issues identified -- see details in text.

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Maquan Pond, Hanson	MA94096	45	NOT ASSESSED	NOT ASSESSED	SUPPORT	SUPPORT	NOT ASSESSED
Maquan Pond is a Class A tributary to public water supply (Furnace Pond). Maquan Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. The Camp Kiwanee bathing beach had no closures/postings during either of the 2002 or 2003 bathing beach seasons (MDPH 2003 and MDPH 2004b), so the *Primary* and *Secondary Contact Recreational* uses are assessed as support. No objectionable conditions were noted during the DWM 1996 synoptic survey (Appendix C, Table C1).							
Mill Pond, Duxbury	MA94101	7	NOT ASSESSED*	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Mill Pond is listed in Category 3 of the 2002 Integrated List of Waters since no use was assessed at that time (MassDEP 2003a). In 1996 DWM conducted a synoptic survey of Mill Pond. No non-native aquatic or wetland plants were observed (Appendix C, Table C1). The fishway at the Mill Pond dam has become deteriorated and no longer functions properly (Reback *et al.* 2004). All of the uses are not assessed, but the *Aquatic Life Use* is identified with an Alert Status because of the problems with the fishway.							
Morey Hole, Plymouth	MA94102	22	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Morey Hole is listed in Category 2 of the 2002 Integrated List of Waters for supporting the uses of secondary contact recreation (boating) and aesthetics (MassDEP 2003a). In 1996 DWM conducted a synoptic survey of Mill Pond. No non-native aquatic or wetland plants were observed (Appendix C, Table C1). No recent data are available, so all uses are not assessed.							
North Hill Marsh Pond, Duxbury	MA94109	43	NOT ASSESSED*	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
North Hill Marsh Pond is listed in Category 3 of the 2002 Integrated List of Waters since no use was assessed at that time (MassDEP 2003a). A wildlife sanctuary and a golf course border this pond. In 1996 DWM conducted a synoptic survey of Mill Pond and a *Myriophyllum* sp. was noted, but it needs to be identified when flowering heads are present (Appendix C, Table C1). Because of the *Myriophyllum* sp. the *Aquatic Life Use* is identified with an Alert Status.							
North Triangle Pond, Plymouth	MA94110	22	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
North Triangle Pond is listed in Category 3 of the 2002 Integrated List of Waters since no use was assessed at that time (MassDEP 2003a). During the non-point source field inspection, no trash was seen along shore but there was evidence of shoreline erosion. Also, aquatic macrophytes cover was reported as dense (water lily and water shield) in this "naturally shallow" pond where the average water depth was noted being one meter with a muddy bottom (GeoSyntec 2002). In 1996 DWM conducted a synoptic survey of Mill Pond. No non-native aquatic or wetland plants were observed (Appendix C, Table C1).							
Old Oaken Bucket Pond (Herring Brook Pond), Scituate	MA94113	8	IMPAIRED (Non-native plants, total phosphorus)	NOT ASSESSED	IMPAIRED (Non-native plants)	IMPAIRED (Non-native plants)	IMPAIRED (Non-native plants)
Old Oaken Bucket Pond is a Class A public water supply for Scituate - WMA Permit # 9P442126402 (Appendix E, Table E5). No swimming or motorized watercraft are allowed. Old Oaken Bucket Pond is listed in Category 5 of the 2002 Integrated List of Waters due to impairment from noxious aquatic plants and turbidity (MassDEP 2003a). MassDEP conducted a baseline survey in the pond in 2001. Two non-native aquatic macrophyte species, *Cabomba caroliniana* and *Myriophyllum heterophyllum*, were documented by DWM biologists (MassDEP 2001a and Mattson and Haque 2004). While many of the *in-situ* data were censored, the concentrations of total phosphorus were moderate to high (ranging from 0.048 to 0.1 mg/L). Several species of blue-greens were qualitatively identified (*Mycrocystis* spp., *Aphanizomenon* sp., and *Anabeana* sp.) (Zoto 2006). Although low Secchi disk transparencies were reported (0.8 to 1.1m), these conditions may be attributable to the highly colored water, which are likely naturally occurring. The 1996 MassDEP synoptic survey found the waters slight turbidity, sheens over black muck on bottom, dense emergent plants encroaching and floating leaf plants covering about 20% of the pond including the non-native wetland species *Lythrum salicaria* (Appendix C, Table C1). The *Aquatic Life Use* is assessed as impaired because of the non-native plant infestation and elevated concentrations of total phosphorus. The *Recreational* and *Aesthetic* uses are also assessed as impaired because of the high biovolume of non-native macrophytes. A Surface Water Supply Protection Plan for this waterbody has recently been developed (CEI 2003 and Appendix F, Project 00-14/SWT). It should be noted that flow to the stream draining the cranberry bog south of Tack Factory Pond has been altered by a concrete flow control structure, which diverts flow to a tributary of Old Oaken Bucket Pond (DeCesare 2005).							

* Alert Status issues identified -- see details in text.

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Oldham Pond, Pembroke/Hanson	MA94114	232	IMPAIRED (Non-native plants)	NOT ASSESSED	SUPPORT	SUPPORT	NOT ASSESSED
This waterbody is a Class A public water supply (tributary to Furnace Pond MA94043). Oldham Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). A MA DCR Lakes & Ponds Program grant was awarded in FY 2000 to the Town of Pembroke for a study of the potential sources of phosphorous, recommendations for BMPs. This was an implementation action of the 1993 Diagnostic & Feasibility Study performed by Baystate Environmental Consultants (BEC 1993). The results of the investigation suggested high total phosphorus concentrations (CEI 2000). A second project was also implemented to remove sediment and other stormwater pollution (Appendix F, Project 01-19/319). The 1996 MassDEP synoptic survey found sparse surface plant cover throughout the pond that included the non-native wetland species *Lythrum salicaria* (Appendix C, Table C1). Historic records indicate the pond was infested with *M. spicatum* (BEC 1993) so the *Aquatic Life Use* is assessed as impaired. There were no closures/postings during the 2002 or 2003 bathing beach seasons at the town bathing beach and therefore the *Primary* and *Secondary Contact Recreational* uses are assessed as support (MDPH 2003 and MDPH 2004b). Camp Pembroke is authorized (MA0027006 issued in March1981) to discharge a flow of 0.004 MGD (average monthly) of treated sanitary wastewater to Oldham Pond. The permit requires discharge limits for BOD_5, TSS, settleable solids, chlorine, fecal and total coliform bacteria. EPA is currently investigating alternative wastewater treatment operations in place of a surface water discharge (Malone 2005).							
Pembroke Street South Pond, Kingston	MA94117	6	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED*
Pembroke Street South Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). The 1996 MassDEP synoptic survey found very dense floating leaf and submergent plants covering about 80% of the pond that included the non-native aquatic species *Cabomba caroliniana* (Appendix C, Table C1). White foam was also noted on the surface of the pond. During the non-point field inspection, there was trash and evidence of shoreline erosion observed (Geosyntec 2002). A shoreline cleanup was recommended. The *Aesthetics Use* is identified with an Alert Status because of the foam and trash.							
Pine Lake, Duxbury	MA94120	22	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Pine Lake is listed in Category 3 of the 2002 Integrated List of Waters since no use was assessed at that time (MassDEP 2003a). In 1996 DWM conducted a synoptic survey of Mill Pond, no non-native aquatic or wetland plants were observed (Appendix C, Table C1). No recent data are available and therefore all uses are not assessed.							
Pine Street Pond, Duxbury	MA94121	14	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Pine Street Pond is listed in Category 3 of the 2002 Integrated List of Waters since no use was assessed at that time (MassDEP 2003a). During the non-point source investigation, there was no trash or evidence of shoreline erosion (Geosyntec 2002). During the 1996 synoptic survey, the pond was approximately 75% covered with lilies (Appendix C, Table C1). The pond is hydrologically associated with cranberry bog operations (west side of pond). No recent data are available so all uses are not assessed.							
Reeds Millpond, Kingston	MA94126	6	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED*	NOT ASSESSED*	NOT ASSESSED*
Reeds Millpond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). During the non-point field inspection, there was no trash or evidence of shoreline erosion was observed (Geosyntec 2002). The 1996 MassDEP synoptic survey found very dense floating leaf and submergent plants covering more than 50% of the pond that included the non-native aquatic species *Cabomba caroliniana* (Appendix C, Table C1). The *Primary* and *Secondary Contact Recreational* and *Aesthetics* uses are not assessed but are identified with an Alert Status because of the amount of C. *caroliniana* observed during the 1996 synoptic survey.							
Reservoir, Pembroke	MA94127	17	NOT ASSESSED*	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
This water body is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from flow alteration (MassDEP 2003a). The 1996 MassDEP synoptic survey found the dike was blown out and the approximately 100 acres of formerly open water habitat was colonized mostly with terrestrial vegetation that included a few stands of emergents. It may be refilled on occasion for nearby cranberry bog operations. Although no recent data are available the *Aquatic Life Use* is identified with an Alert Status because of flow manipulation. All of the other uses are not assessed.							

* Alert Status issues identified -- see details in text.

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Round Pond, Duxbury	MA94131	7	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Round Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. The pond is hydrologically associated with an adjacent cranberry bog operation. In 1996 DWM conducted a synoptic survey of Mill Pond. No non-native aquatic or wetland plants were observed (Appendix C, Table C1). No recent data are available, so all uses are not assessed.							
Russell Millpond, Plymouth	MA94132	42	IMPAIRED (Fish barrier and excess algal growth)	NOT ASSESSED	IMPAIRED (Excess algal growth)	IMPAIRED (Excess algal growth)	IMPAIRED (Excess algal growth)
Russell Millpond is listed in Category 5 of the 2002 Integrated List of Waters due to impairment from noxious aquatic plants (MassDEP 2003a). The 1996 MassDEP synoptic survey found surface scum in some areas, algal blooms (green and blue-green clumps), and dense plant cover throughout the pond, including the non-native wetland species *Lythrum salicaria* (Appendix C, Table C1). Similar conditions were documented by CDM in September 1999 (ERWNTAC 2000 and Mercer and Monnelly 2000). Upstream from this sampling location, several currently inactive cranberry bogs that have been purchased by The Nature Conservancy and, with the assistance of a USDA grant, are being converted back to original stream conditions (Maloney 2005). Since approximately March 2004 the bogs have been flooded to preserve them until the restoration plan is put into effect. It should be noted here that flooded bogs are a known source of nitrogen and phosphorus leaching (DeMoranville and Howes 2005). The Gilbert Fish Hatchery, which is under the size limit to require an NPDES permit, is located upstream from the pond (ERWNTAC 2000) and is also a potential source of nutrients. There was a FERC-exempt hydropower project, # 6429-002 (Russell Mill Pond) that the dam owner is in the process of surrendering (US FERC 2004). The fish ladder for herring has not operated since 1996 (Coates 1996 and Neidermyer 2003). Because of the fish barrier and excess algal growth, the *Aquatic Life Use* is assessed as impaired. The known source of impairment is the hydrostructure impact on fish passage (52). The *Recreational* and *Aesthetic* uses are also assessed as impaired because of the excessive amount of filamentous algae.							
Russell Pond, Kingston	MA94133	11	NOT ASSESSED*	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Russell Pond is listed in Category 3 of the 2002 Integrated List of Waters since no use was assessed at that time (MassDEP 2003a). The 1996 MassDEP synoptic survey found large algal mats in clumps under the surface and dense plant cover, including the non-native wetland species *Lythrum salicaria* (Appendix C, Table C1). During the non-point field inspection, no trash was observed, but there was evidence of erosion and direct road runoff on the eastern shore (GeoSyntec 2002). Both the dam and the fishway at Russell Pond are badly deteriorated and must be completely replaced to improve conditions for herring spawning in the pond (Reback *et al.* 2004). The *Aquatic Life Use* is not assessed but is identified with an Alert Status because of the fish passage limitations.							
Savery Pond, Plymouth	MA94136	29	NOT ASSESSED	NOT ASSESSED	SUPPORT	SUPPORT	NOT ASSESSED
Savery Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. In 1996 DWM conducted a synoptic survey of Savery Pond, no non-native aquatic or wetland plants were observed (Appendix C, Table C1). There were no closures/postings reported at the beach at the Indian Head Campground during either the 2002 or 2003 bathing beach seasons (MDPH 2003 and MDPH 2004b), so the *Primary* and *Secondary Contact Recreational* uses are assessed as support.							
Shallow Pond, Plymouth	MA94140	19	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Shallow Pond is listed in Category 3 of the 2002 Integrated List of Waters since no use was assessed at that time (MassDEP 2003a). During the non-point field inspection, there was no trash but some evidence of shoreline erosion (Geosyntec 2002). The pond is hydrologically associated with an adjacent cranberry bog operation. In 1996 DWM conducted a synoptic survey of Shallow Pond. No non-native aquatic or wetland plants were observed (Appendix C, Table C1). No recent data are available, so all uses are not assessed.							

* Alert Status issues identified -- see details in text.

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Ship Pond, Plymouth	MA94142	11	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED*
Ship Pond is listed in Category 3 of the 2002 Integrated List of Waters since no use was assessed at that time (MassDEP 2003a). The 1996 MassDEP synoptic survey found moderate turbidity, oil-like sheen in places, sulfur smell and blackish sediment pulled from the bottom (Appendix C, Table C1). Because of these conditions the *Aesthetics Use* is identified with an Alert Status. Two non-native wetland plants, *Lythrum salicaria* and *Phragmites australis*, affecting about 75% of the shoreline were also observed (Appendix C, Table C1). During the non-point field inspection, there was no trash or evidence of shoreline erosion (Geosyntec 2002). The pond is hydrologically associated with an adjacent cranberry bog operation at the south end of the pond. The pond drains through a culvert on the northeast end to the ocean and, due to the elevation change as well as the vegetation present, it does not appear to be tidally influenced.							
Silver Lake, Pembroke/Plympton/Kingston	MA94143	617	IMPAIRED (Flow alteration)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Silver Lake, a Class A ORW, is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. Silver Lake Sanctuary is a 92-acre property that provides for walking, hiking and fishing and is the only public access to Silver Lake in the Town of Kingston. This sanctuary is located at the end of Bearse's Way on the south side of Route 27 just before the town line between Kinston and Pembroke (Kingston undated). Silver Lake is both the principal water supply source for the City of Brockton (in the Taunton River Watershed) and the headwaters of the Jones River. Because of periodic water shortages, the Massachusetts Legislature authorized diversions into Silver Lake from Monponsett Pond in the Taunton River Basin and from Furnace Pond in the North River subwatershed in 1964 (Teal Ltd. 2000). Since both of these waterbodies are more enriched, their influence on water quality in Silver Lake is of concern. The Brockton Water Commission operates a water treatment facility on the shores that is permitted (NPDES Permit MAG640029) to discharge filter backwash and supernatant into a lagoon to Silver Lake (Appendix E, Table E2). The WMA Registration (No. 42104401) authorizes an annual withdrawal of 11.11 MGD (Appendix E, Table E5.) In 1996 DWM conducted a synoptic survey of Silver Lake. No non-native aquatic or wetland plants were observed (Appendix C, Table C1). A MA DCR Lakes & Ponds Program grant was awarded in FY 2002 for the town of Kingston & Jones River Watershed Association to compile data on bathymetry, storage volume, and water quality (See Appendix F- Lake and Pond Grants.) Between 1997 and 2002 water levels in the lake dropped between 1 and 5.4 feet in the summer/fall months before being refilled during the winter/spring via interbasin transfer of water from Monponsett Pond (Taunton River Watershed) (JRWA 2002). The *Aquatic Life Use* is assessed as impaired because the lake is extremely affected by flow alteration associated with water withdrawals and diversions. The flow manipulations may affect two species of freshwater mussels noted as being species of special concern in Massachusetts, the tidewater mucket (*Leptodea ochracea*) and the eastern pondmussel (*Ligumia nasuta*) (Teal Ltd. 2000 and Zoto 2005).							
Smelt Pond, Kingston	MA94184	45	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Smelt Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). A DCR Lakes & Ponds grant was awarded in 1994 to identify, through monitoring, the potential sources of excessive nutrient (cranberry fertilization and septic system leachate), develop a management plan and recommend BMPs. (See Appendix F- Grant Awards.) The 1996 MassDEP synoptic survey found small patches of blue-green algae clumps and dense plant cover over about 50% of the pond that included the non-native aquatic species *Myriophyllum heterophyllum* (Appendix C, Table C1). During the non-point field inspection, there was trash and evidence of shoreline erosion observed. The southern end of the pond was shallow and had excessive floating vegetation (water lily, spatterdock, water shield). The remainder of the pond displayed excessive amounts of submerged non-native vegetation (C*abomba caroliniana* and *Myriophyllum heterophyllum)* (Geosyntec 2002). The pond is hydrologically associated with an adjacent cranberry bog operation. Camp Nekon is a 193-acre property in Kingston that contains many woods roads, a DCR fire tower, a parking area and a small beach on Smelt Pond (Kingston undated). No beach closure information was available and therefore the *Primary* and *Secondary Contact Recreational* uses are not assessed.							
South River Pond, Duxbury	MA94148	3	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
South River Pond is listed in Category 3 of the 2002 Integrated List of Waters since no use was assessed at that time (MassDEP 2003a). This waterbody In 1996 DWM conducted a synoptic survey of South River Pond, and no non-native aquatic or wetland plants were observed (Appendix C, Table C1). No recent data are available, so all uses are not assessed. This waterbody is within an ORW.							

* Alert Status issues identified -- see details in text.

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
South Triangle Pond, Plymouth	MA94149	17	NOT ASSESSED*	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
South Triangle Pond is listed in Category 3 of the 2002 Integrated List of Waters since no use was assessed at that time (MassDEP 2003a). During the non-point field inspection, there was no trash or evidence of shoreline erosion. Also, very little floating or excessive submergent vegetation was noted (Geosyntec 2002). The 1996 MassDEP synoptic survey found dense plant cover throughout the pond that may have included a non-native aquatic species, *Myriophyllum sp.* (Appendix C, Table C1), so the *Aquatic Life Use* is identified with an Alert Status. Identification needs to be confirmed when the flowering heads are evident. The pond is hydrologically associated with adjacent cranberry bog operations.							
Studleys Pond, Rockland	MA94151	25	NOT ASSESSED	NOT ASSESSED	IMPAIRED (Fecal coliform bacteria)	NOT ASSESSED	NOT ASSESSED
Studleys Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. The 1996 MassDEP synoptic survey found sparse surface plant cover throughout the pond that included the non-native wetland species *Lythrum salicaria* (Appendix C, Table C1). DWM conducted water quality sampling in French Stream up and downstream of Studleys Pond (stations FS103 and FS102) between June and October 2001. Fecal coliform bacteria counts ranged from 71 to 2,000 cfu/100 ml (Appendix A, Table A7). The *Primary Contact Recreational Use* is assessed as impaired for Studleys Pond because of elevated fecal coliform bacteria counts , but the source(s) is unknown. Although the bacteria counts were low enough to support the *Secondary Contact Recreational* Use, too limited data are available (e.g., lack of aquatic macrophyte/density and transparency) so these uses are not assessed.							
Tack Factory Pond, Scituate	MA94152	8	SUPPORT	NOT ASSESSED	SUPPORT	SUPPORT	SUPPORT
Tack Factory Pond is a Class A tributary to a public water supply (Old Oaken Bucket Pond). Tack Factory Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from turbidity and exotic species (MassDEP 2003a). [It should be noted here that the non-native plant infestation was actually in the downstream impoundment and not in Tack Factory Pond.] The 1996 MassDEP synoptic survey found the waters slightly turbid, with an estimated Secchi Disk reading of < 1.2 m, and sparse surface plant cover throughout the pond (Appendix C, Table C1). DWM conducted water quality sampling in the First Herring Brook subwatershed in 2001. Low dissolved oxygen and saturation and low pHs were documented (Appendix A, Table A6). Moderate total phosphorus concentrations were found. These conditions are considered to be naturally occurring as a result of wetland influence so the *Aquatic Life Use* is assessed as support. One of three bacteria counts exceeded 200 cfu/100 ml, although the geometric mean of the three samples was 104 (Appendix A, Table A7). No objectionable odors, oils or other conditions were noted by DWM field sampling crews (MassDEP 2001a). The *Primary* and *Secondary Contact Recreational* and *Aesthetic* uses are assessed as support. A Surface Water Supply Protection Plan for this waterbody has recently been developed (CEI 2003 and Appendix F, Project 00-14/SWT). It should be noted that flow to the stream draining the cranberry bog south of Tack Factory Pond has been altered by a concrete flow control structure which diverts flow to a tributary of Old Oaken Bucket Pond (DeCesare 2005).							
Torrey Pond, Norwell	MA94157	19	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Torrey Pond is listed in Category 5 of the 2002 Integrated List of Waters due to impairment from noxious aquatic plants, turbidity and exotic species (MassDEP 2003a). The 1996 MassDEP synoptic survey found dark tea stained water with an estimated Secchi Disk reading of < 1.2 m, very dense floating leaf plant cover over about 75% of the pond, and emergent encroachment consuming about 30% of the historic open water and including the non-native aquatic species *Cabomba caroliniana* (Appendix C, Table C1).							
Triangle Pond, Plymouth	MA94160	14	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Triangle Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. No objectionable conditions were noted during the DWM 1996 synoptic survey (Appendix C, Table C1). No recent data are available so all uses are not assessed.							

* Alert Status issues identified -- see details in text.

Table 3 continued. South Shore Coastal Watersheds Lake Assessments.

Lake, Location	WBID	Size (Acres)	Aquatic Life (Impairment Cause)	Fish Consumption (Impairment Cause)	Primary Contact (Impairment Cause)	Secondary Contact (Impairment Cause)	Aesthetics (Impairment Cause)
Upper Chandler Pond, Duxbury/Pembroke	MA94165	8	IMPAIRED (Non-native plants)	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Upper Chandler Pond is listed in Category 4c of the 2002 Integrated List of Waters due to impairment from exotic species (MassDEP 2003a). During the non-point field inspection, there was no trash, but there was evidence of shoreline erosion and the non-native aquatic species *Myriophyllum heterophyllum* was observed (GeoSyntec 2002). The 1996 MassDEP survey found dense plant cover throughout the pond, including the non-native aquatic species *M. heterophyllum* (Appendix C, Table C1). The pond is hydrologically associated with an adjacent cranberry bog operation.							
Wampatuck Pond, Hanson	MA94168	63	IMPAIRED (Total phosphorus) chlorophyll *a*, oxygen saturation, non-native plants, excess algal growth)	NOT ASSESSED	IMPAIRED (Excess algal growth, low Secchi disk transparency)	IMPAIRED (Excess algal growth, low Secchi disk transparency)	IMPAIRED (Excess algal growth, low Secchi disk transparency)
Wampatuck Pond is listed in Category 5 of the 2002 Integrated List of Waters due to impairment from noxious aquatic plants (MassDEP 2003a). The Town of Hanson manages a concrete pad ramp with parking for 3 trailers and 6 cars on Route 58 in Hanson for fisherman access (MA DFWELE 2003). A MA DCR Lakes & Ponds Program grant was awarded in FY 1998 for the Town of Hanson to control shoreline erosion by installing stormwater infiltration basins at the adjacent parking (See Appendix F- Grant Awards). The 1996 MassDEP synoptic survey took an estimated Secchi Disk reading of < 1.2 m and found a bright green algae bloom and sparse plant cover throughout the pond. During the non-point field inspection, there was no trash, but there was evidence of shoreline erosion (GeoSyntec 2002). In 2001 MassDEP surveyed the pond for the purpose of TMDL development. Wampatuck Pond is a highly colored, shallow waterbody fed by cranberry bogs and wetlands. The surface water discharge from the former County Hospital, noted on topographic maps as upstream from Wampatuck Pond, ceased over 15 years ago (Gould 2005b). In-lake total phosphorus and chlorophyll a concentrations were high and algal blooms were noted during each survey. Supersaturation occurred during two of the three surveys during the summer of 2001 (Appendix C, Table C2). The non-native aquatic macrophyte *Cabomba caroliniana* was also documented. Because of the presence of a non-native aquatic macrophytes, elevated total phosphorus and chlorophyll *a*, oxygen saturation and excess algal growth, the *Aquatic Life Use* is assessed as impaired. All of the four Secchi disk depth measurements violated the bathing beach guidance of four feet (Appendix C, Table C3). Because of the persistent and excessive algal blooms and poor transparency, the *Primary* and *Secondary Contact Recreational* and *Aesthetics* uses are assessed as impaired. Specialty crop production (i.e., cranberry bog operations) are considered to be the source of nutrient-related impairments.							
West Chandler Pond, Pembroke	MA94170	10	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
West Chandler Pond is listed in Category 2 of the 2002 Integrated List of Waters (MassDEP 2003a). This segment supported some uses (*Secondary Contact Recreation* and *Aesthetics*) and was not assessed for the others. In 1996 DWM conducted a synoptic survey of West Chandler Pond. No non-native aquatic or wetland plants were observed (Appendix C, Table C1). No recent data are available so all uses are not assessed.							
Winslow Cemetery Pond, Marshfield	MA94172	6	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Winslow Cemetery Pond is listed in Category 3 of the 2002 Integrated List of Waters since no use was assessed at that time (MassDEP 2003a). DWM conducted a synoptic survey of Winslow Cemetery Pond. No non-native aquatic or wetland plants were observed (Appendix C, Table C1). No recent data are available so all uses are not assessed.							
Wright Pond, Duxbury	MA94174	30	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED	NOT ASSESSED
Wright Pond is listed in Category 3 of the 2002 Integrated List of Waters since no use was assessed at that time (MassDEP 2003a). DWM conducted a synoptic survey of Wright Pond and no non-native aquatic or wetland plants were observed (Appendix C, Table C1). No recent data are available so all uses are not assessed. The pond is hydrologically associated with an adjacent cranberry bog operation.							

RECOMMENDATIONS – LAKES

Repairs should be made to the deteriorating portions of the lower fishways on the Herring (Monument) River. Additionally, a barrier dam should be installed at the Carter-Beale bypass on the Herring (Monument) River to prevent herring from entering (Reback *et al.* 2004).

Guidance to the consultant should be provided to improve reporting of water quality data generated as part of the Pinehills groundwater discharge permit, including quality assurance/control, and for documentation of data validation process. Implementation of this guidance is necessary to meet the stated goal of the permit (document changes associated with development) as well as to utilize data for 305(b)/303(d) reporting purposes.

Coordinate with MA DCR and/or other groups conducting lake surveys to generate quality-assured lake data. Conduct more intensive lake surveys to better determine the lake trophic and use support status and identify causes and sources of impairment. As sources are identified within lake watersheds they should be eliminated or, at least, minimized through the application of appropriate point or non-point source control techniques.

Implement recommendations identified in lake diagnostic/feasibility studies, including lake watershed surveys to identify sources of impairment.

Continue to review data from the “Beaches Bill” water quality testing (bacteria sampling at all formal bathing beaches) to assess the status of the recreational uses.

Quick action is necessary to manage non-native aquatic or wetland plant species that are isolated in one or a few location(s) in order to alleviate the need for costly and potentially fruitless efforts to do so in the future. Two courses of action should be pursued concurrently. More extensive surveys need to be conducted, particularly downstream from these recorded locations to determine the extent of the infestation. And, "spot" treatments (refer to the Final Generic Environmental Impact Report [GEIR] for Eutrophication and Aquatic Plant Management in Massachusetts [Mattson et *al*. 2004] for advantages and disadvantages of each) should be undertaken to control populations at these sites. These treatments include careful hand-pulling of individual plants in small areas. In larger areas other techniques, such as selective herbicide application, may be necessary. In either case the treatments should be undertaken prior to fruit formation and with a minimum of fragmentation of the individual plants. These actions will minimize the spreading of the populations. The Final GEIR for Eutrophication and Aquatic Plant Management in Massachusetts (Mattson et *al*. 2004) should be consulted prior to the development of any lake management plan to control non-native aquatic or wetland plant species.

Where non-native plant infestations are more widespread conduct additional monitoring to determine the extent of the problem. The Final GEIR for Eutrophication and Aquatic Plant Management in Massachusetts (Mattson et *al*. 2004) should be consulted prior to the development of any lake management plan to control non-native aquatic plant species. Plant control options can be selected from several techniques (e.g., bottom barriers, drawdown, herbicides, etc.) each of which has advantages and disadvantages that need to be addressed for the specific site. However, methods that result in fragmentation (such as cutting or raking) should not be used for many species because of the propensity for these invasive species to reproduce and spread vegetatively (from cuttings).

Continue to monitor for the presence of invasive non-native aquatic vegetation. Prevent spreading of invasive aquatic plants. Once the extent of the problem is determined and control practices are exercised, vigilant monitoring needs to be practiced to guard against infestations in unaffected areas and to ensure that managed areas stay in check. A key portion of the prevention program should be posting of boat access points with signs to educate and alert lake-users to the problem and responsibility of spreading these species.

Several BMPs were recommended in the *Cranberry Bog Phosphorous Dynamics TMDL Project* (DeMoranville 2001). Implementation of these recommended BMPs to reduce phosphorous loadings from cranberry bog operations include the following: don't apply fertilizer before flooding, harvest floods should be retained 1-3 days to allow settling and retention of >10 days should be avoided, barriers such

as booms or installation of tailwater recovery ponds (tailwater ponds could reduce TP export), winter flood withdrawal under ice is preferred to avoid anoxia, fertilizer rates should be no greater than 20 lb/acre on established beds, native cultivars on organic soils rates of 10-15 lb/acre should be sufficient unless tissue tests show nutrient deficiency, and fertilizer with ratios of $N:P_2O_5$ should be 2:1 or 1:1 (such as commercial formulations of 18-8-12 or 15-15-15). These recommended BMPs should be considered as a starting point to improve water quality in lakes downstream from cranberry bogs.

In light of the highly elevated mercury concentrations in Aaron River Reservoir fishes, additional monitoring of fish contaminant levels should be conducted in nearby waterbodies.

LITERATURE CITED

Ackerman, M.T. 1989. *Compilation of Lakes, Ponds, Reservoirs and Impoundments Relative to the Massachusetts Lake Classification Program.* Publication: #15901-171-50-4-89-c.r. Technical Services Branch, Massachusetts Division of Water Pollution Control, Department of Environmental Quality Engineering. Westborough, MA.

ACOE. 2003. *Update Report for Massachusetts* [Online]. US Army Corps of Engineers New England District, Concord, MA. Retrieved 31 July 2003 from http://www.nae.usace.army.mil/.

ACOE. 2004. *Musquashcut Pond Tidal Flooding Study Scituate Massachusetts.* US Army Corps of Engineers New England District. Concord, MA.

Alexander, J.F. 1999. Letter to Mr. Kevin McSweeney dated 1 December 1999. *NPDES Permit Renewal Application – Pilgrim Station*. Entergy Nuclear Generation Company, Pigrim Nuclear Power Station, Nuclear Assessment. Plymouth, MA.

Anderson R.D. 1987. *Marine Ecology Studies Related to Operation of Pilgrim Station Semi-annual Report No. 29, Report Period: January 1986 through December 1986, Date of Issue: April 30, 1987.* Boston Edison Company, Regulatory Affairs and Programs, Braintree, MA.

Armstrong, D.S., G.W. Parker and T.A. Richards. 2004. *Evaluation of Streamflow Requirements for Habitat Protection by Comparison to Streamflow Characteristics and Index Streamflow-Gaging Stations in Southern New England*. U.S. Geological Survey Water Resource Investigations Report 03-4332. USGS, Water Resources Division, Northborough, MA.

Beckett, G.E. 1982. Letter to Mr. Daniel Enos dated 6 July 1982. *Draft application exemption comments for the Russell Mill Pond hydroelectric project*. United States Department of the Interior, Fish and Wildlife Service, Ecological Services. Concord, NH.

Billings, D. 2005. Personal Communication. *Pond Street Water Treatment MAG640043*. Communication with Kathleen Keohane, Massachusetts Department of Environmental Protection, Division of Watershed Management, July 2005. Hanover Water Supervisor.

Brewers Marine. 2003. Personal communication September 11, 2003. *Location of Boat Pump Out Facilities*. Brewer's Plymouth Marine, Plymouth Massachusetts.

BEC. 1993. *Diagnostic/Feasibility Study for the Management of the Pembroke Ponds, Oldham Furnace, Little Sandy Bottom and Stetson, Pembroke Massachusetts.* Prepared by Baystate Environmental Consultants, Inc. for the town of Pembroke under M.G.L. Ch. 628 (Massachusetts Clean Lakes Program), East Longmeadow, MA.

Buckley, J. 2005. *Continuing to build the Nexus of NPS pollution control among municipal management, volunteer water quality stewardship, and public education.* Cohasset Center for Student Coastal Research Coastal Monitoring grant application dated 15 September 2005 and supporting documentation. Cohasset, MA.

Burns, D. 2006. Personal Communication. *The River Club groundwater discharge information*. Communication with Michael Ackerman, Massachusetts Department of Environmental Protection, Division of Watershed Management, 5 January 2006. Massachusetts Department of Environmental Protection, Southeast Regional Office, Lakeville, MA.

Burtner, J. 2003. Personal communication. *Location of Boat Pump Out Facilities*. Massachusetts Office of Coastal Zone Management, Boston, MA.

Callaghan, T. 2003. *Location of Boat Pump Out Facilities.* Massachusetts Office of Coastal Zone Management, Boston, MA. E-mail communication to Robert Quevillon at Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA, dated September 10, 2003.

Carlson, C. 2005. *South Coastal River Basin [Transmittal of data collected by CDM for Plymouth WWTP upgrade]*. Camp Dresser & McKee, Inc. Cambridge, MA. E-mail communication to Michael Ackerman at Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA, dated October 13, 2005.

Carlson, C.S., and Lyford, F.P. 2005. *Simulated ground-water flow for a pond-dominated aquifer system near Great Sandy Bottom Pond, Pembroke, Massachusetts*. U.S. Geological Survey Scientific Investigations Report 2004-5269.

Carvello, N. 2004. Personal Communication. *Plymouth WWTP operational status*. Communication with Richard Alden, Massachusetts Department of Environmental Protection, Division of Watershed Management, 1 December 2004. Plant Operator, Plymouth WWTP.

CDM. 1998. *Baseline Monitoring Program for the Eel River Watershed.* Camp Dresser & McKee Inc. Cambridge, MA.

CDM. 2001. *Nutrient Management Plan Town of Plymouth, Massachusetts.* Camp Dresser & McKee Inc. Cambridge, MA.

CDM. 2005. *Unpublished water quality and biological monitoring data (excel spreadsheets) for Eel River and unnamed tributary to Eel River sent to the Department via email in October 2005 associated with Plymouth WWTP operational monitoring program*. Camp Dresser & McKee Inc. Cambridge, MA.

CEI. 1998. Town of Scituate Storm Water and Other Nonpoint Source Pollution Plan. Comprehensive Environmental Inc. Dedham, MA

CEI. 2000. *Oldham Pond Pollution Source Investigation and MBP Identification Final Report for Town of Pembroke.* Comprehensive Environmental Inc. Dedham, MA

CEI. 2001. *Furnace Pond Pollution Source Investigation and MBP Identification Draft Report for Town of Pembroke.* Comprehensive Environmental Inc. Dedham, MA

CEI. 2003. *Surface Water Supply Protection Plan Old Oaken Bucket Pond, The Reservoir & Tack Factory Pond Scituate, Massachusetts (Project No 00-14/SWT).* Comprehensive Environmental Inc. Milford, MA.

CES. 2005. *Coastal Nonpoint Source Pollution Grant Program – ENV 06 CZM 02: James Brook Nonpoint Pollution Assessment and Remediation Analysis for Cohasset Board of Health and the Center for Student Coastal Research Town of Cohasset.* Coughlin Environmental Services, LLC. Stoneham, MA.

Chase, B.C. In preparation. *Rainbow Smelt (Osmerus mordax) Spawning Habitat on the Gulf of Maine Coast of Massachusetts.* Massachusetts Department of Fish and Game, Division of Marine Fisheries, Gloucester, MA.

Chase, B. 2005. *South Coastal Basin Report [comments].* Massachusetts Department of Fish and Game, Division of Marine Fisheries, Gloucester, MA. E-mail communication to Laurie Kennedy at Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA, dated December 6, 2005.

Churchill, N. 1994. *Sanitary Survey Report of Cohasset harbor in the Towns of Cohasset and Scituate MB:10 - August 31, 1994*. Massachusetts Department of Fish and Game, Division of Marine Fisheries, Poccaset, MA.

Churchill, N. 2000a. *Sanitary Survey Report of Scituate North and South Coastal in the Towns of Scituate MB4 and MB8 November 31, 2000*. Massachusetts Department of Fish and Game, Division of Marine Fisheries, Poccaset, MA.

Churchill, N. 2000b. *Sanitary Survey Report of Plymouth Harbor (CCB42) In the Towns of Duxbury, Kingston and Plymouth October 20, 2000*. Massachusetts Department of Fish and Game, Division of Marine Fisheries, Poccaset, MA.

Churchill, N. 2003a. *Triennial Report for Cohasset Harbor (MB10) In the Towns of Cohasset and Scituate. September 23, 2003*. Massachusetts Department of Fish and Game, Division of Marine Fisheries, Poccaset, MA.

Churchill, N. 2003b. *Triennial Report for North River (MB5) In the Towns of Marshfield and Scituate. November 28, 2003*. Massachusetts Department of Fish and Game, Division of Marine Fisheries, Poccaset, MA.

Churchill, N. 2003c. *Triennial Report for Bluefish River (CCB46) In the Town of Duxbury February 11, 2003*. Massachusetts Department of Fish and Game, Division of Marine Fisheries, Poccaset, MA.

Churchill, N. 2003d. *Triennial Report for Duxbury Bay (CCB45) In the Town of Duxbury and Plymouth January 5, 2003*. Massachusetts Department of Fish and Game, Division of Marine Fisheries, Poccaset, MA.

Churchill, N. 2003e. *Triennial Report for Plymouth Harbor (CCB42) In the Towns of Duxbury, Kingston and Plymouth October 20, 2003*. Massachusetts Department of Fish and Game, Division of Marine Fisheries, Poccaset, MA.

Churchill, N. 2003f. *Triennial Report for Plymouth North Coastal (CCB41) In the Town of Plymouth July 31, 2003*. Massachusetts Department of Fish and Game, Division of Marine Fisheries, Poccaset, MA.

Churchill, N. 2005a. *One More Question.* Massachusetts Department of Fish and Game, Division of Marine Fisheries, Poccaset, MA. E-mail communication to Gregory DeCesare at Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA, dated September 9, 2005.

Churchill, N. 2005b. *North River Shellfish Area Classification Status update information – June 2005*. Massachusetts Department of Fish and Game, Division of Marine Fisheries, Poccaset, MA. Personal Communication.

Churchill, N. 2005c. *South Coastal Assessment.* Massachusetts Department of Fish and Game, Division of Marine Fisheries, Poccaset, MA. E-mail communication to Gregory DeCesare at Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA, dated June 28, 2005.

Coates, P.G. 1996. Letter to Mr. Daniel Enos dated March 12, 1996 *Russell Mill Pond Fishway Repairs.* Massachusetts Department of Fisheries, Wildlife and Environmental Law Enforcement, Division of Marine Fisheries, Boston, MA.

Coles, J.C. 1998. Organochlorine Compounds in Fish Tissue from the Connecticut, Housatonic and Thames River Basins Study Unit, 1992-94. National Water-Quality Assessment Program. U.S. Geological Survey, Marlborough, MA.

Costello, C. 2003. Draft. *Mapping Eelgrass in Massachusetts, 1993-2003*. Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Boston, MA.

DeCesare, G. 2005. Personal Communication. *South Shore Coastal Watersheds observations*. Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Worcester, MA.

Delorenzo, D. 2001. Letter to Eleanor S. Beth, Town Manager of Plymouth dated 17 August 2001. *Groundwater Discharge Permit SE#0-677-DEP approval of the Town of Plymouth Nutrient Management Plan*. Massachusetts Department of Environmental Protection, Southeast Regional Office, Lakeville, MA.

DeMoranville, C. 2001. *Cranberry Bog Phosphorous Dynamics TMDL Project.* Prepared for Massachusetts Department of Environmental Protection as project 01-12/319. University of Massachusetts Cranberry Experiment Station, East Wareham, MA.

DeMoranville, C. and Howes, B. 2005. *Phosphorus dynamics in cranberry production systems: developing the information required for the TMDL process for 303d water bodies receiving cranberry bog discharge*. UMass Amherst Cranberry Station, East Wareham, MA and Coastal Systems Program School for Marine Science and Technology, UMass Dartmouth, New Bedford, MA.

Domizio, L. 2004. *Stormwater permitting information Phase II Communities*. Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA. Personal Communication.

Dudley, B. 2005. Personal Communication. *Status of The Pinehills Development.* Massachusetts Department of Environmental Protection, Southeast Regional Office, Lakeville, MA.

Duxbury. 1996. *Bluefish River & Snug Harbor Wastewater Collection & Disposal Systems Innovative Shared Septic Systems – A Model for Other Communities.* Recipient of a Massachusetts Municipal Association Innovation Award. Duxbury, MA.

Enrico, J. G. 2003. *Environmental Inspection Report Russell Mill Pond Project 6429-MA dated 23 April 2003.* Federal Energy Regulatory Commission, New York Regional Office, New York, NY.

ENSR. 2003. *Lily Pond Limnology and Water's Edge Study.* Document Number 10299-001. ENSR International, Westford, MA.

Environmental Law Reporter. 1988. *Clean Water Deskbook*. Environmental Law Institute. Washington, D.C.

Environmental Protection Group. 2005. *Marine Ecology Studies Pilgrim Nuclear Power Station Report No. 65, Report Period: January 2004 – December 2004, Date of Issue: April 30, 2005.* Entergy Nuclear – Pilgrim Station, Plymouth, MA.

Environment Canada. 1999. Canadian Environmental Quality Guidelines [Online]. Environment Canada. 04 November 1999. http://www.ec.gc.ca/ceqg-rcqe/English/ceqg/default.cfm. 28 September 1998.

EOEA. 2002. *Summary of Massachusetts Wetland Restoration Projects Completed in 2001* [Online]. Massachusetts Executive Office of Environmental Affairs, Boston, MA. Retrieved October 16, 2003 from http://www.mass.gov/envir/mwrp/MWRP2001ProgressReportPartB.pdf

EPA. 1990. *Sole Source Aquifer Designation for the Plymouth-Carver Aquifer, Massachusetts*. Federal Register Notice [FRL-3817-7] dated Tuesday, August 7, 1990. 55 FR 32137

EPA. 1997. Guidelines for Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports) and Electronic Updates: Supplement. United States Environmental Protection Agency, Office of Water, Oceans and Watersheds, Office of Wetlands, Assessment and Watershed Protection Division (4503F). Washington, DC.

EPA. 1999a. Federal Register Document [Online]. United States Environmental Protection Agency. Retrieved 19 November 1999a from http://www.epa.gov/fedrgstr/EPA-WATER/1998/December/Day-10/w30272.htm.

EPA. 1999b. *1999 Update of Ambient Water Quality Criteria for Ammonia*. United States Environmental Protection Agency, Office of Water and Office of Science and Technology, Washington, D.C. and Office of Research and Development, Duluth, MN.

EPA. 2001. *National Coastal Assessment Quality Assurance Project Plan 2001 – 2004.* EPA/620/R-01/002. United States Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division. Gulf Breeze, FL.

EPA. 2002. *Consolidated Assessment and Listing Methodology – toward a compendium of best practices*. United States Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds. Washington, DC.

EPA. 2003a. *Sediment toxicity test - Northeast Region 2000-2001.* Taken from: National Coastal Assessment Database [online database] updated April 21st, 2005. Available from: http://www.epa.gov/emap/nca/html/data/index.html. Accessed 2005 September 14.

EPA. 2003b. *Water quality measurements - Northeast Region 2000-2001.* Taken from: National Coastal Assessment Database [online database] updated April 21st, 2005. Available from: http://www.epa.gov/emap/nca/html/data/index.html. Accessed 2005 September 13.

EPA. 2005. *South Weymouth Naval Air Station Fact Sheet.* [Online]. Updated 6 April 2005. http://yosemite.epa.gov/r1/npl_pad.nsf/f52fa5c31fa8f5c885256adc0050b631/90F777815E5B7F468525691F0063F6F9?OpenDocument. Accessed 2005 April 11.

Ernst, P. 2004. Personal Communication. *Plymouth WWTP operational status*. Communication with Richard Alden, Massachusetts Department of Environmental Protection, Division of Watershed Management, 1 December 2004. Laboratory Technician, Plymouth WWTP.

ERWNTAC. 2000. *Evaluation of Nutrient Inputs and the Health of the Eel River System, Plymouth MA in Support of a Nutrient Management Plan.* Eel River Watershed Nutrient Technical Advisory Committee. Final Committee Report to Massachusetts Department of Environmental Protection in collaboration with the Massachusetts Executive Office of Environmental Affairs Watershed Basin Initiative.

FDA. 2003. *Guide for the Control of Molluscan Shellfish 2003 Revision*. [Online]. Updated 12 November 2004. United States Food and Drug Administration, Department of Health and Human Services, National Shellfish Sanitation Program. http://www.cfsan.fda.gov/~ear/nss2-toc.html. Accessed 2005 December 5.

FERC. 2004. *Notice of Application for surrender of exemption and soliciting comments, motions to intervene, and protests.* Federal Energy Regulatory Commission. Washington, D.C.

FERC. 2006. *Hydroelectric Projects Exempted from Licensing Requirements (Outstanding exemptions as of 07/08/2005)*. [Online]. Updated 16 November 2005. http://www.ferc.gov/industries/hydropower/gen-info/exemptions.xls. Accessed 2006 January 12.

FHBWI. undated. *Stream Survey and Action Plan Report I based on the First Herring Brook Watershed.* First Herring Brook Watershed Initiative (affiliated with the North and South Rivers Watershed Assocation). Scituate, MA.

FHBWI. 2004. *Welcome to FHBWI* [Online]. First Herring Brook Watershed Initiative, Scituate, MA. Retrieved 24 September 2004 from http://www.fhbwi.org/.

Fiorentino, J. 2005. Personal Communication. *DWM biologist review of benthic macroinvertebrate studies in the South Shore Coastal Watersheds.* Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA.

Fiorentino, J. 2006. Personal Communication. *DWM biologist field reconnaissance Eel River Subwatershed on 7 March 2006.* Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA.

Frizzell, G. 2004. Personal Communication. *Plymouth WWTP operational status*. Communication with Richard Alden, Massachusetts Department of Environmental Protection, Division of Watershed Management, 1 December 2004. Superintendent, Plymouth WWTP.

Fugro. 1995. *A limnological investion of Lower Chandler Mill Pond Pembroke/Duxbury, Massachusetts.* Fugro East, Inc. Northborough, MA.

Genello, L. 2005. *Cohasset Harbor 2005: Physical, Chemical, and Bacteriological Study Preliminary Report.* Center for Student Coastal Research, Cohasset, MA.

GeoSyntec. 2002. *Nonpoint Source Pollution Assessment for Plymouth, Kinston and Pembroke 2001-2002.* Prepared for the Massachusetts Department of Environmental Protection as project number 01-07/MWI. GeoSyntec Consultants, Boxborough MA

GeoSyntec. 2003. *South Coastal Watershed Regional Open Space Plan.* Funded by Massachusetts Executive Office of Environmental Affairs. GeoSyntec Consultants, Boxborough MA.

Germano, F. 2002. *Sanitary Survey Report for Kingston Bay [CCB:43] in the Towns of Duxbury and Kingston.* Massachusetts Department of Fish and Game, Division of Marine Fisheries, Pocasset, MA. August 2002.

Golden, C. (Claire.Golden@state.ma.us). 2003. *Re: Little Harbor TMDL and Cohasett WWTP nitrogen information.* Massachusetts Department of Environmental Protection, Northeast Regional Office, Wilmington, MA. Email to Andrea Langhauser, Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA dated 23 October 2003.

Gould, J. (Jeffrey.Gould@state.ma.us). 2005a. *Re: New WWTP? Type of discharge permit*. Massachusetts Department of Environmental Protection, Southeast Regional Office, Lakeville, MA. Email to Laurie Kennedy, Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA dated 1 July 2005.

Gould, J. 2005b. Personal Communication. *Status of sewage discharge – County Hospital*. Communication with Michael Ackerman, Massachusetts Department of Environmental Protection, Division of Watershed Management, 14 December 2005. Massachusetts Department of Environmental Protection, Southeast Regional Office, Lakeville, MA.

Grubbs, G.H. and R.H. Wayland III. 2000. Letter to Colleague dated 24 October 2000. *EPA recommendations on the use of fish and shellfish consumption advisories and certain shellfish growing area classifications in determining attainment of water quality standards and listing impaired waterbodies under section 303(d) of the Clean Water Act*. United States Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds. Washington, DC.

GZA. 2003. *Jones River Watershed Study Final Report.* GeoEnvironmental, Inc. Norwood, MA. [available online at (http://www.mass.gov/envir/water/publications/southCoastal/jonesRiverWatershedAssessment/index.html).]

Hansen, B.P. and W.W. Lapham. 1992. *Geohydrology and Simulated Ground-Water Flow, Plymouth-Carver Aquifer, Southeastern Massachusetts.* Water-Resources Investigations Report 90-4204. U.S. Geological Survey, Marlborough, MA.

Hartel, K.E., D.B. Halliwell, and A. E. Launer. 2002. *Inland Fishes of Massachusetts.* Massachusetts Audubon Society, Lincoln, MA.

Hartley, R.A. 2002. *Lakes Survey for TMDL Development*. Prepared for the Massachusetts Department of Environmental Protection as project 99-06/104 June 2002. Massachusetts Department of Fish and Game, Division of Fisheries and Wildlife, Boston MA.

Hobill, J. 2005. Personal Communication. *Fireworks Site Investigations*. Communication with Robert Maietta, Massachusetts Department of Environmental Protection, DWM, Worcester, MA. May to October 2005. Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup, Lakeville, MA.

Horsley & Witten. 2003. *2002 Annual Report for The Pinehills Groundwater Discharge Permit 0-680.* Horsley & Witten, Inc. Sandwich, MA.

Horsley & Witten. 2004. *2003 Annual Report for The Pinehills Groundwater Discharge Permit 0-680.* Horsley & Witten, Inc. Sandwich, MA.

Horsley & Witten. 2005. *2004 Annual Report for The Pinehills Groundwater Discharge Permit 0-680.* Horsley & Witten, Inc. Sandwich, MA.

Horsley Witten Group. 2004. *Final Report Stormwater Management Watershed Assessment for Tributary to the South River the Town of Marshfield, Massachusetts.* Horsley Witten Group, Sandwich, MA.

Howes, B.L., R. Samimy, and B. Dudley. 2003. *Massachusetts Estuaries Project Site-Specific Nitrogen Thresholds for Southeastern Massachusetts Embayments: Critical Indicators Interim Report Revised December 22, 2003*. University of Massachusetts Dartmouth, School of Marine Science and Technology (SMAST), Coastal Systems Laboratory. New Bedford, MA and Massachusetts Department of Environmental Protection, Lakeville, MA.

Howes, B. and R. Samimy. 2004. *Sampling and Analysis Plan South Coastal Basin Estuaries Monitoring (Final April 21, 2004)*. (MassDEP Project #2003-04/604). University of Massachusetts Dartmouth, School of Marine Science and Technology (SMAST), Coastal Systems Laboratory. New Bedford, MA.

Howes, B. and R. Samimy. 2005. *Summary of Water Quality Monitoring Program for the Plymouth, Kingston and Duxbury Harbor Embayment System (2003 – 2004) (Final August 12, 2005) [including electronically transmitted Appendix D file and stream water quality data file] South Coastal Basin Estuaries Monitoring 604(b) Grant*. (MassDEP Project #2003-04/604). University of Massachusetts Dartmouth, School of Marine Science and Technology (SMAST), Coastal Systems Laboratory. New Bedford, MA.

Hurwitz, E.J. 2004. *Devens RFTA Cleanup Complete* [Online]. US Army Environmental Center. Spring 2004 Environmental Update. Retrieved 2 June 2005 from http://aec.army.mil/usaec/publicaffairs/update/spr04/spr0406.html.

IEP. 1991. *Diagnostic/Feasibility Study of Inner Little Harbor, Cohasset, Final Report with Technical Appendices.* Prepared for the town of Cohasset by IEP, Sandwich, MA

JRWA. 2002. *A slide presentation for the Silver Lake Stewardship Forum June 6, 2002.* Jones River Watershed Association, Kingston, MA.

Kearns, M. (Margaret.Kearns@state.ma.us) 2005. *Re: Eel River RIFLS site*. Massachusetts Department of Fish and Game, Riverways Program, Boston, MA. Email to Laurie Kennedy, Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA dated 23 August 2005.

Kearns, M. (Margaret.Kearns@state.ma.us) 2006. *Re: Executive Summary South Shore WQAR* . Massachusetts Department of Fish and Game, Riverways Program, Boston, MA. Email to Laurie Kennedy, Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA dated 4 January 2006.

Kelly, V. 2004. Personal Communication. *Marshfield WWTP operational status*. Communication with Richard Alden, Massachusetts Department of Environmental Protection, 1 December 2004. Laboratory Technician, Marshfield WWTP.

Keohane, K. (Kathleen.Keohane@state.ma.us) 2005a. *Scituate Old Oaken Bucket*. Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA. Email to Laurie Kennedy, Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA dated 19 July 2005.

Keohane, K. (Kathleen.Keohane@state.ma.us) 2005b. *USCG Marshfield MA0090450*. Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA. Email to Laurie Kennedy, Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA dated 30 June 2005.

Kingston. undated. *Town of Kingston Open Space and Recreational Properties pamphlet.* Town of Kingston Open Space Committee and Conservation Commission. Kingston, MA.

Kotouch, R. 2004. Personal Communication. *Rockland WWTP operational status*. Communication with Richard Alden, Massachusetts Department of Environmental Protection, Division of Watershed Management, 1 December 2004. Assistant Chief Operator, Aquarion Operating Services for Rockland WWTP.

Lawton, R., P. Brady, C. Sheehan, S. Correia and M. Borgatti. 1990. *Final report on spawning sea-run rainbow smelt (Osmertus mordax) in the Jones River and impact assessment of Pilgrim Station on the population, 1979-1981*. Massachusetts Department of Fisheries, Wildlife and Environmental Law Enforcement, Division of Marine Fisheries, Sandwich, MA.

Lefebvre, C., D. Hellin, and C. Crawford. 2003. *Gulf River Estuary Natural Resources Inventory Final Report.* Urban Harbors Institute, University of Massachusetts. Boston, MA.

LeVangie, D. 2002. *Water Withdrawal Registration and Permit Information*. Water Management Act Database. Massachusetts Department of Environmental Protection, Division of Watershed Management, Boston, MA.

MA BAYS undated. *Bluefish River Septic System Remediation Project.* The Massachusetts Bays Program, Boston, MA.

MA CZM. 2005. *List of CPR Funded Projects- FY1996 – FY2005* [Online]. Massachusetts Office of Coastal Zone Management, Coastal Pollution Remediation Grant Program Boston, MA. Retrieved August 2003 from http://www.mass.gov/czm/cprgp.htm .

MA DCR. 2003a. *Areas of Critical Environmental Concern (ACEC) Listing and Index* [Online]. Massachusetts Department of Conservation and Recreation, ACEC Program, Boston, MA. Retrieved March 2003 from http://www.mass.gov/dcr/stewardship/acec/listACEC.pdf.

MA DCR. 2003b. *Ellisville Harbor State Park* [Online]. Massachusetts Department of Conservation and Recreation, Division of State Parks and Recreation, Boston, MA. Retrieved May 2003 from http://www.mass.gov/dcr/parks/southeast/ells.htm.

MA DCR. 2003c. *Pilgrim Memorial State Park* [Online]. Massachusetts Department of Conservation and Recreation, Division of State Parks and Recreation, Boston, MA. Retrieved May 2003 from http://www.mass.gov/dcr/parks/southeast/plgm.htm.

MA DEM. 1979. *Scenic and Recreational River Protective Order for the North River.* Recorded at the Plymouth Registry of Deeds in Book 4639 on Page 278. Signed by Commissioner Richard Kendall, Massachusetts Department of Environmental Management (now the Massachusetts Department of Conservation and Recreation), Boston, MA. March 22, 1979. [available online @ http://www.nsrwa.org/NRC/PO.pdf]

MA DFG. 2000. *Designated Shellfish Growing Areas Datalayer – July 2000.* Published by MassGIS in October 2000. Massachusetts Department of Fish and Game, Division of Marine Fisheries, Boston, MA.

MA DFG. 2003. *Public Access Board* [Online]. Massachusetts Department of Fish and Game, Division of Marine Fisheries, Boston MA. Retrieved 25 August 2003 from http://www.mass.gov/dfwele/pab/pab_table2.htm.

MA DFG. 2005. River Instream Flow Stewards (RIFLS Project) South Coastal Basin. [Online]. Massachusetts Department of Fish and Game, Riverways Program. Retrieved 12 August 2005 from http://rifls.bn-t.com/default.asp.

MA DFWELE. 2001. *Habitat assessments for South Coastal Watershed Fish Population sites.* Massachusetts Department of Fish, Wildlife and Environmental Law Enforcement (now the Department of Fish and Game), Division of Fisheries and Wildlife, Westborough, MA.

MA DFWELE. 2003. *Public Access to the Waters of Massachusetts* (Revised and Updated Edition). Massachusetts Department of Fish, Wildlife and Environmental Law Enforcement (now the Department of Fish and Game), Public Access Board, Boston, MA.

MA DMF. 2002a. *Shellfish Growing Area Management Plan Kingston Bay (CCB:43) in the Towns of Duxbury & Kingston.* Massachusetts Department of Fish and Game, Division of Marine Fisheries, Poccaset, MA, July 2002.

MA DMF. 2002b. *Memorandum of Understanding between the Commonwealth of Massachusetts, Department of Fisheries, Wildlife and Environmental Law Enforcement, Division of Marine Fisheries and the Towns of Duxbury & Kingston.* Massachusetts Department of Fish and Game, Division of Marine Fisheries, Boston, MA, September 2002.

MA DMF. 2003. *Clean Vessel Act Pumpout Stations*. [Online]. Massachusetts Department of Fish and Game, Division of Marine Fisheries, Boston MA. Retrieved 16 July 2003 from http://www.mass.gov/dfwele/dmf/programsandprojects/pumpout.htm

Maguire 2005. (Thomas.Maguire@state.ma.us) 2005. *Cohasset – James Brook*. Massachusetts Department of Environmental Protection, Regional Wetlands Coordinator, Boston, MA. Email to Andrea Langhauser, Massachusetts Department of Environmental Protection, Boston, MA dated 26 July 2005.

MassDEP. 1996 (Revision of 1995 Report). *Massachusetts Surface Water Quality Standards.* Massachusetts Department of Environmental Protection, Division of Water Pollution Control, Technical Services Branch, Westborough, MA (Revision of 314 CMR 4.00, effective June 23, 1996.)

MassDEP. 2001a. Open File. *Water quality monitoring fieldsheets.* Massachusetts Department of Environmental Protection, Division of Watershed Management. Worcester, MA.

MassDEP. 2001b. Open File. *Habitat assessment fieldsheets.* Massachusetts Department of Environmental Protection, Division of Watershed Management. Worcester, MA.

MassDEP. 2002. *Total Maximum Daily Loads of Bacteria for Little Harbor.* Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA. TMDL Report MA94-20-2002-22, Final February 4, 2002.

MassDEP. 2003a. *Final Massachusetts Year 2002 Integrated List of Waters.* Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA. Document CN 125, Final September 2003.

MassDEP. 2003b. *In the Matter of: Transportation Improvements in the Greenbush Line Corridor (Massachusetts Bay Transportation Authority) Wetland Variance Decision (310 CMR 10.00), Hingham (MassDEP File No. SE034-656) issued December 26, 2003*. Massachusetts Department of Environmental Protection, Wetlands and Waterways Program, Boston, MA.

MassDEP. 2003c. *Open WMA permit files*. Massachusetts Department of Environmental Protection, Division of Watershed Management, Boston and Lakeville, MA.

MassDEP. 2003d. *2003 DWM Environmental Monitoring Overview*. Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA.

MassDEP 2003e. *Source Water Assessment and Protection (SWAP) Report for Scituate Water Division.* [Online]. Massachusetts Department of Environmental Protection, Drinking Water Program, Boston, MA Retrieved 9 January 2006 from http://www.mass.gov/dep/water/drinking/4264000.pdf .

MassDEP. 2004a. *In the Matter of: Transportation Improvements in the Greenbush Line Corridor (Massachusetts Bay Transportation Authority) Wetland Variance Decision (310 CMR 10.00), Cohasset (MassDEP File No. NE013-0602) March 19, 2004*. Massachusetts Department of Environmental Protection, Wetlands and Waterways Program, Boston, MA.

MassDEP. 2004b. *In the Matter of: Transportation Improvements in the Greenbush Line Corridor (Massachusetts Bay Transportation Authority) Wetland Variance Decision (310 CMR 10.00), Scituate (MassDEP File No. SE068-1540) March 5, 2004*. Massachusetts Department of Environmental Protection, Wetlands and Waterways Program, Boston, MA.

MassDEP. 2004c. *Final Superseding Orders of Conditions for the Greenbush Commuter Rail Restoration Project - Weymouth Landing components - issued by the Department on July 27, 2004*. MassDEP File Numbers NE008-528 (Braintree) and 081-890 (Weymouth). Massachusetts Department of Environmental Protection/Northeast Regional Office, Boston, MA.

MassDEP. 2004d. *401 Water Quality Certification Variance: Transportation Improvements in the Greenbush Line Corridor (Massachusetts Bay Transportation Authority) issued July 16, 2004.* MassDEP Transmittal number W032647. Massachusetts Department of Environmental Protection, Wetlands and Waterways Program, Boston, MA

MassDEP. 2005a. *Open NPDES permit files*. Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA.

MassDEP. 2005b. Open File. *PALIS updates*. Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA.

MassGIS. 2002. *Hydrography - statewide 1:25,000.* MassGIS (MA Office of Geographic and Environmental Information), Executive Office of Environmental Affairs, Boston, MA.

Maietta, R. J. 1994. *1993 Public Request Fish Toxics Monitoring Surveys.* Massachusetts Department of Environmental Protection, Office of Watershed Management, Grafton, MA.

Malone, M. 2005. *Camp Pembroke NPDES permit*. US Environmental Protection Agency, Boston, MA. Personal Communication with Susan Connors, MassDEP, Division of Watershed Management, Worcester, MA on 27 January 2005.

Maloney, T. 2005. *Status of cranberry bogs upstream of Russell Mill Pond, Plymouth*. The Nature Conservancy, Plymouth, MA. Personal Communication with Michael Ackerman, MassDEP, Division of Watershed Management, Worcester, MA on 20 October 2005

Mass Audubon. 2002. *North River Wildlife Sanctuary* [Online]. Massachusetts Audubon Society, Lincoln, MA. Retrieved June 2003 from http://www.massaudubon.org/Nature_Connection/Sanctuaries/North_River/index.html.

Mattson, M. 2004. *TMDL development in lakes of the South Coastal Watershed*. Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA. Personal communication.

Mattson, M. and A. Haque. 2004. *Baseline Lake Survey 2001 Technical Memorandum (TMS-16).* Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA.

Mattson, M., P.J. Godfrey, R.A. Barletta and A. Aiello. 2004. E*utrophication and Aquatic Plant Management in Massachusetts. Final Generic Environmental Impact Report.* Edited by Kenneth J. Wagner. Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA and Massachusetts Department of Conservation and Recreation, Boston, MA.

MBP. 1996. *Massachusetts Bays 1996 Comprehensive Conservation& Management Plan - an evolving plan for action summary*. Massachusetts Bays Program, Boston, MA.

MBP. 2003. *Massachusetts Bays Comprehensive Conservation & Management Plan - an evolving plan for action 2003 revisions to the CCMP*. Massachusetts Bays Program, Boston, MA.

MBTA. 8 November 2002. *Old Colony Railroad Rehabilitation Project – Greenbush Line; Section 401 Water Quality Certification Application*. Massachusetts Bay Transportation Authority, Boston Massachusetts.

MDPH. 1969. Article 7 Regulation 10.2B of the State Sanitary Code. Massachusetts Department of Public Health, Boston, MA.

MDPH. 1994. *Public Health Interim Freshwater Fish Consumption Advisory.* Massachusetts Department of Public Health, Bureau of Environmental Health Assessment, Boston, MA.

MDPH. 2001. *Public Health Statewide Fish Consumption Advisory issued July 2001*. Massachusetts Department of Public Health, Bureau of Environmental Health Assessment, Boston, MA.

MDPH. 2002. *105 CMR 445.000: Minimum Standards For Bathing Beaches, State Sanitary Code, Chapter VII.* Massachusetts Department of Public Health, Division of Community Sanitation Regulations and Statues, Boston, MA.

MDPH. June 2003. *Marine and Freshwater Beach Testing in Massachusetts, 2002 Season.* Massachusetts Department of Public Health, Boston, MA.

MDPH. 2004a. *Freshwater Fish Consumption Advisory List – April 2004.* Massachusetts Department of Public Health, Boston, MA.

MDPH. July 2004b. *Marine and Freshwater Beach Testing in Massachusetts, 2003 Season.* Massachusetts Department of Public Health, Boston, MA.

Mercer, G. and A. Monnelly. 2000. Technical Memorandum to Sarah Bacon, MassDEP and Leigh Peck, Town of Plymouth. *Pond Macrophyte Assessment and Bathymetric Survey, Plymouth Massachusetts.* Camp Dresser & McKee, Inc. Cambridge, MA.

Monnelly, A. 1999. Technical Memorandum to Gary Mercer dated 4 August 1999. *Plymouth, MA Eel River Watershed Preliminary Biomonitoring Program Results*. Camp Dresser & McKee Inc. Cambridge, MA.

Murphy, L. 2003. US Environmental Protection Agency, Boston, MA. Letter to Mr. Jim Mulcahy, Plympton Highway Superintendent dated 16 May 2003.

Neidermyer, W.J. 2003. Letter to Mr. Hoosein Ildari FERC, DHAC in Washington, DC. *Ref: FERC No. 6429 Russell Mill Pond Project*. United States Department of the Interior, Fish and Wildlife Service, New England Field Office. Concord, NH.

NSRWA 2005a. History of the Fireworks Site [Online]. North and South Rivers Watershed Association. Retrieved 26 April 2005 from http://www.nsrwa.org/programs/fireworks_superfund_cleanup.asp.

NSRWA 2005b. River Watch Water Quality Testing Program [Online]. North and South Rivers Watershed Association. Retrieved 10 June 2005 from http://www.nsrwa.org/programs/river_watch_monitoring.asp.

Nye, R. 2004. Personal Communication. *Cohasset WWTP operational status*. Communication with Richard Alden, Massachusetts Department of Environmental Protection, Division of Watershed Management, 1 December 2004. Project Manager, Veolia Water North America for Cohasset WWTP.

Nye, R. 2005. Personal Communication. *Little Harbor sewering plan.* Communication with Michael Ackerman, Massachusetts Department of Environmental Protection, Division of Watershed Management, 25 July 2005. Chief Operator, Cohasset WWTP, Cohasset, MA.

O'Shea, L. (Leslie.Oshea@state.ma.us) 2002. *WMA/Cranberry Bog Conversion Factor*. Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Lakeville, MA. Email to Susan Connors, Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA dated 16 April 2002.

O'Shea, L. (Leslie.Oshea@state.ma.us) 2005. *Waverly Oaks and Crosswinds Status*. Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Lakeville, MA. Email to Laurie Kennedy and Michael Ackerman, Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA dated 3 November 2005.

Persaud, D., R. Jaagumagi, and A. Hayton. 1993. *Guidelines for the protection and management of aquatic sediment quality in Ontario*. Water Resources Branch, Ontario Ministry of the Environment. Queen's Printer for Ontario. Canada.

Pitt, B. 2001. Letter dated 8 August to Eddie Swindale, Battelle Duxbury Operations. Re: *Response to 5 January 2001 request.* NPDES Permits Team Leader, U.S. Environmental Protection Agency.

POP. 2001. *Preserve Our Pond Newsletter – January 11, 2001.* Preserve Our Pond, North Scituate, MA.

Price, L. 2004. *Water Quality Monitoring Efforts of the Six Ponds Organization.* Personal communication with Andrea Langhauser of the Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA on March 29, 2004.

Reback, K.E., P.D. Brady, K.D. McLaughlin, and C.G. Milliken. 2004. *A Survey of Anadromous Fish Passage in Coastal Massachusetts Part 3. South Shore.* Massachusetts Division of Marine Fisheries Technical Report TR-17. Massachusetts Division of Marine Fisheries, Southshore Field Station. Pocasset, MA.

Rhodes, L. 2004. *Transportation Improvements in the Greenbush Line Corridor (Massachusetts Bay Transportation Authority).* Wetland Variance Decisions, Cohasset and Scituate. Personal Communication with Andrea Langhauser of the Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA on May 12, 2004.

Richards, T. (Todd.Richards@state.ma.us). 2003. *South Coastal Watershed Fish Population Data*. Massachusetts Department of Fish and Game, Division of Fisheries and Wildlife, Westborough, MA. Email to Katie O'Brien, Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA dated 17 March 2003.

Rojko, A.M., W.A. Kimball, and A.J. Screpetis. 1995. *Designated Outstanding Resource Waters of Massachusetts 1995*. Massachusetts Department of Environmental Protection, Office of Watershed Management, Grafton, MA.

Rowland, R. 2004. Personal Communication. *Scituate WWTP operational status*. Communication with Richard Alden, Massachusetts Department of Environmental Protection, Division of Watershed Management, 1 December 2004. Supervisor, Scituate WWTP.

Rowland, R. 2005. Personal Communication. *Scituate DPW Sewer Expansion*. Communication with Michael Ackerman, Massachusetts Department of Environmental Protection, Division of Watershed Management, August 30, 2005. Supervisor, Scituate WWTP.

SaintOurs, F.H. 2000. *North River Tributaries Macroinvertebrate Survey 2000*. Massachusetts Riverways Program, Department of Fisheries, Wildlife, and Environmental Law Enforcement. Boston, MA

SaintOurs, F.H. 2005. *Conservation of Lotic Macroinvertebrates in a Coastal Massachusetts Watershed.* Thesis Submitted to University of Massachusetts Boston, Office of Graduate Studies, Boston, MA.

Scituate DPW and CEI undated. *Protection of First Herring Brook 1998 – 2001 (Project 98-08/319).* Town of Scituate Department of Public Works and Comprehensive Environmental, Inc, Dedham, MA.

Scituate Harbormaster Office. 2003. *Description of Boat Pump Out Facilities at Town Pier.* Scituate, Massachusetts. Personal communication with Andrea Langhauser of the Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA on September 11, 2003.

Scituate PWA. 2005. Personal Communication. *Musquashcut Pond midge control practices*. Communication with Michael Ackerman, Massachusetts Department of Environmental Protection, Division of Watershed Management, 25 July 2005. Public Works Administration, Scituate, MA.

Silva, K. 2004. Personal Communication. *Marshfield WWTP operational status*. Communication with Richard Alden, Massachusetts Department of Environmental Protection, Division of Watershed Management, 1 December 2004. Superintendent, Marshfield WWTP.

Socolow, R.S., C.R. Leighton, J.F. Whitely, and D.J. Venetuolo. 2002. Water Resources Data for Massachusetts and Rhode Island, Water Year 2001. U.S. Geological Survey Report MA-RI-01-1. Water Resources Division, Northborough, MA.

Socolow, R.S., L.Y. Comeau, and D. Murino Jr. 2005. Water Resources Data for Massachusetts and Rhode Island, Water Year 2004. U.S. Geological Survey Report MA-RI-04-1. Water Science Center, Northborough, MA.

Strobel, C.J. 2000. *Coastal 2000 Northeast Component Field Operations Manual.* U.S. Environmental Protection Agency, Office of Research and Development. Narragansett, RI.

Stone & Webster. 2004. *Phase II EBS Field Report NAS South Weymouth Spruce Street Extension.* Stone & Webster Environmental Technology & Services, Project 604291.75. Stoughton, MA.

Tatsutani, M. Editor. 1998. *Northeast States/Eastern Canadian Provinces Mercury Study A Framework for Action.* Northeast States for Coordinated Air Use Management (NESCAUM), Northeast Waste Management Official's Association (NEWMOA), New England Interstate Water Pollution Control Commission (NEIWPCC), and Canadian Ecological Monitoring and Assessment Network (EMAN).

Teal Ltd. 2000. *Silver Lake & Jones River Watershed Study*. Teal Ltd. Rochester, MA.

Tetra Tech. 2001. *Phase II Remedial Investigation Fire Fighting Training Area South Weymouth Naval Air Station, Weymouth Massachusetts*. Tetra Tech NUS, Inc. Contract Number N62472-90-D-1298 Contract Task Order 0310. Tetra Tech NUS, Inc. King of Prussia, PA.

TetraTech. 2003. *Fireworks I Site, Hanover, MA (RTN#4-0090 Tier IA Permit#100223) Information Summary.* Tetra Tech NUS, Inc. King of Prussia, PA.

Town of Plymouth. 2002. *Samoset Street Outfall Assessment and Conceptual Engineering Project.* Coastal Pollution Remediation Program Assessment Application FY 2003, Plymouth MA

Town of Plymouth. 2003. *Response to the FY 2004 Section 319 Nonpoint Source Pollution Grant Program*. MassDEP Request for Responses for #BRP 2003-02. Town of Plymouth Department of Public Works, Engineering Division, Plymouth MA May 2003.

UMass Amherst. 1999. *Land Use Datalayer - statewide 1:25000.* Published by MassGIS (MA Office of Geographic and Environmental Information), Executive Office of Environmental Affairs for the Resource Mapping Project at the University of Massachusetts Amherst, MA.

UMass. 2005. *UMass Cranberry Station – The Cranberry* [Online]. University of Massachusetts Cranberry Experiment Station, East Wareham MA. Retrieved 7 November 2005 from http://www.umass.edu/cranberry/cranberry/. Site last updated 23 March 2005.

US FERC. 2004. *Notice of Application for Surrender of Exemption and Soliciting Comments, Motions to Intervene and Protests regarding Russell Millpond located on the Eel River, Plymouth*. United States Federal Energy Regulatory Commission. January 13, 2004.

USGS. 2002. *Streamflow Statistics for Massachusetts* [Online]. United States Geological Survey, Northborough, MA. http://ststdmamrl.er.usgs.gov/streamstats/default.htm. Accessed 9 October 2002.

Vergara, O. 2004. Letter to Mr. Steve Warner dated 6 August 2004. *Re: NPDES No. MA0005797 (Golden Rooster Restaurant).* United States Environmental Protection Agency, Boston, MA.

Wayland III, R.H. 2001. Memorandum to EPA Regional Water Management Directors, EPA Regional Science and Technology Directors, and State, Territory and Authorized Tribe Water Quality Program Directors dated 19 November 2001. Re: *2002 Integrated Water Quality Monitoring and Assessment Report Guidance*. United States Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds. Washington, DC.

Wennemer, J. 2005. Personal Communication. *Green Harbor River tide gate operating information*. Communication with Michael Ackerman, Massachusetts Department of Environmental Protection, Division of Watershed Management, 11 July 2005. Conservation Agent, Marshfield, MA.

Zoto, G. (George.Zoto@state.ma.us). 2005. *Drawdown impacts on mussel habitat at Silver Lake*. Massachusetts Department of Environmental Protection, Boston, MA. Email to Laurie Kennedy, Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA dated 15 September 2005.

Zoto, G. 2006. Personal Communication. *Qualitative studies for algal composition - Old Oaken Bucket Pond.* Communication with Michael Ackerman, Massachusetts Department of Environmental Protection, Division of Watershed Management, 4 January 2006. MassDEP Division of Water Supply, Boston, MA.