

Marine and Freshwater  
Beach Testing in Massachusetts  
2002 Season



Prepared by  
Massachusetts Department of Public Health  
Bureau of Environmental Health Assessment  
Environmental Toxicology Program

In Collaboration with

Massachusetts Department of Public Health  
Bureau of Health Quality Management  
Division of Community Sanitation

June 2003

# I. TABLE OF CONTENTS

<b>INTRODUCTION</b> .....	<b>1</b>
A.    OVERVIEW .....	1
<b>II.    BACKGROUND INFORMATION ON BEACH WATER QUALITY</b> .....	<b>1</b>
A.    HEALTH EFFECTS FROM SWIMMING IN MARINE WATERS .....	1
B.    BEACH WATER QUALITY TESTING METHODS - MARINE .....	2
1. <i>Total Coliform Method</i> .....	3
2. <i>Fecal Coliform Method</i> .....	3
3. <i>Enterococcus Method</i> .....	3
C.    HISTORICAL AND CURRENT WATER QUALITY CRITERIA - MARINE .....	4
1. <i>Total Coliform</i> .....	4
2. <i>Fecal Coliform</i> .....	4
3. <i>Enterococcus</i> .....	5
D.    HEALTH EFFECTS FROM SWIMMING IN FRESHWATER .....	5
E.    BEACH WATER QUALITY TESTING METHODS – FRESHWATER .....	5
1. <i>E. coli Method</i> .....	6
F.    CURRENT WATER QUALITY CRITERIA – FRESHWATER .....	6
1. <i>E. coli</i> .....	6
2. <i>Enterococcus</i> .....	6
<b>III.   METHODS</b> .....	<b>6</b>
A.    DESCRIPTION.....	6
B.    LIMITATIONS .....	7
<b>IV.   RESULTS</b> .....	<b>8</b>
<b>V.    DISCUSSION</b> .....	<b>9</b>
A.    MARINE BEACHES .....	9
B.    FRESHWATER BEACHES.....	11
<b>VI.   FUTURE ACTIVITIES</b> .....	<b>13</b>
A.    ELECTRONIC REPORTING AND POSTING ON THE WORLD WIDE WEB .....	13
B.    GEOGRAPHIC INFORMATION SYSTEM (GIS) .....	13
C.    TIER SYSTEM FOR BEACH CLASSIFICATION .....	13
<b>VII.  SUMMARY</b> .....	<b>14</b>
<b>VIII.  ACKNOWLEDGMENTS</b> .....	<b>14</b>
<b>IX.   REFERENCES</b> .....	<b>15</b>
<b>X.    TABLES</b> .....	<b>19</b>
<b>XI.   FIGURES</b> .....	<b>19</b>
<b>XII.  APPENDICES</b> .....	<b>89</b>
A.    MASSACHUSETTS STATE REGULATIONS.....	103
B.    FEDERAL BEACH ACT .....	112

# **INTRODUCTION**

## **A. OVERVIEW**

Recreational use of water with microbial contamination can pose health risks to swimmers and others. As a result, beach water quality is regulated to protect public health. In Massachusetts, bathing beach water quality is regulated by M.G.L. C. 111, § 5S and regulations cited as 105 CMR 445.000: Minimum Standards for Bathing Beaches (State Sanitary Code, Chapter VII; Appendix A). Local boards of health (LBH), the Metropolitan District Commission (MDC), the Barnstable County Department of Health and the Environment, and the Massachusetts Department of Environmental Management (DEM) conduct the vast majority of beach water sampling in Massachusetts. Most of the samples are analyzed at private labs, while some are analyzed at municipal facilities.\*

In 2000, the U.S. Congress enacted the Beaches Environmental Assessment and Coastal Health (BEACH) Act that amended the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act, or CWA) to improve the quality of coastal recreational waters (Appendix B). The BEACH Act seeks to reduce the risk of disease to users of the Nation's marine recreational waters through the identification of high-risk beaches, identification and mitigation of sources of pollution, and notification/risk communication to the public. It also authorizes grants to eligible states to support these objectives.

In late 2001, the Massachusetts Department of Public Health (MDPH) was awarded funding from the United States Environmental Protection Agency (USEPA) that partially supports Department efforts to (1) develop an inventory of marine bathing beaches, (2) compile monitoring data, and (3) to conduct assessments of those beaches identified as high-risk. The MDPH Bureau of Health Quality Management, Division of Community Sanitation (DCS), conducted a survey of Massachusetts municipalities in order to establish an inventory of all public and semi-public marine and freshwater beaches. They also collected data from reporting local health departments and other agencies for the 2002 bathing season and provided these data to the Department's Bureau of Environmental Health Assessment Environmental (BEHA), Toxicology Program (ETP). While the data were incomplete, this report presents the results and analysis of the available 2002 data from Massachusetts marine and freshwater bathing beaches.

## **II. BACKGROUND INFORMATION ON BEACH WATER QUALITY**

### **A. HEALTH EFFECTS FROM SWIMMING IN MARINE WATERS**

Several prospective and retrospective epidemiological studies (Cabelli, 1983; USEPA 1986; Cabelli, 1989) have concluded that swimming in polluted marine water poses health risks to swimmers. This conclusion is based on the observation that there is an

---

\* There is currently no certification in Massachusetts for laboratories conducting these tests.

increased rate of adverse health effects among swimmers compared to non-swimmers in marine waters. Swimming in polluted marine water can lead to gastrointestinal symptoms (e.g., nausea, vomiting, diarrhea, abdominal pain), respiratory symptoms (e.g., sore throat, cough, chest cold, runny nose, sneezing), eye and ear symptoms (e.g., irritation, earache, itchiness), dermatological symptoms (e.g., skin rash, pruritis), and constitutional symptoms (e.g., fever, chills). The epidemiological studies suggest that swimmers may be exposed to pathogens (disease-causing microorganisms) while swimming. Pathogens in marine waters typically have a fecal source. Pathogens associated with human fecal matter (e.g., some strains of *Escherichia coli*) may be present in the water due to a variety of sources including but not limited to ocean disposal of sewage by boats, sewage treatment plant outfalls, illegal sewage hookups and combined sewer overflows. Pathogens may be ingested or absorbed while swimming, thereby causing an increased risk of disease among swimmers relative to non-swimmers (Cabelli *et al.*, 1982; Cabelli, 1983; Cabelli, 1989; Coye and Goldoft, 1989; CDC, 1990-1996; Corbett *et al.*, 1993).

## **B. BEACH WATER QUALITY TESTING METHODS - MARINE**

The pathogens that cause swimming-associated disease are very difficult to measure directly. Furthermore, because of the wide variety of different pathogens that might be present in marine waters, measuring all possible pathogens is not practical for routine testing programs. Therefore, public health officials typically estimate the potential for pathogens to be present in the water by testing the water for a microorganism or a group of microorganisms whose life cycle(s) mimics that of specific pathogens but which are easier to measure than the pathogens themselves. Because they indicate when pathogens are likely to be present, these microorganisms or groups of microorganisms are called “indicators” (Cabelli, 1983).

In the United States, concern about pathogens in marine waters typically has been related to pathogens associated with fecal contamination (Cabelli, 1983). As a result, methods commonly used in this country test for an indication of the degree of fecal contamination of the water. The most accurate indicators of fecal contamination are specific microorganisms (e.g., *Escherichia coli*, *Streptococcus faecalis*, or *Clostridium perfringens*) that are present predominantly in human and animal feces (Cabelli, 1983). Testing for a single indicator species, however, can fail to detect the presence of fecal pathogens if that indicator species does not survive in the natural environment for as long as the fecal pathogens themselves do (NAS, 1977). Therefore, methods that test for groups of microorganisms, such as total coliforms, fecal coliforms, or Enterococci, are frequently used instead (Cabelli, 1983). These tests are usually easier and faster to perform than those that test for specific indicator species. In the case of Enterococci, they also strongly correlate with swimming-associated disease (USEPA, 1986). One disadvantage of using groups of microorganisms as indicators is that these tests can falsely predict the presence of fecal contamination if organisms that are not associated with fecal contamination are detected by the method (NAS, 1977; Cabelli, 1983). For public health purposes however, it is prudent to respond to such indicators to prevent adverse health outcomes.

As of the year 2000, Enterococci are the required indicator organisms for determining levels of contamination at marine bathing beaches in Massachusetts. In the past, total coliforms and fecal coliforms were used as indicators for marine bathing beaches. Some beaches still do testing for total or fecal coliforms in addition to the mandated testing for Enterococci. Therefore, the methods for detecting and criteria set for total coliform, fecal coliform, and Enterococci are described below, even though Enterococci are the current indicator bacteria required by the Massachusetts State Sanitary Code.

### **1. Total Coliform Method**

The most general, but no longer recommended, testing method is the total coliform method. This method measures the number of bacteria in a water sample that will grow under certain laboratory conditions (Cabelli, 1983). A large number of different kinds of organisms are measured by this method, some of which are found exclusively in human and animal intestines (i.e., *Escherichia coli*) (Cabelli, 1983; USEPA, 1985). The advantages of this testing method are that it can be performed quickly and it is relatively sensitive to the presence of fecal contamination given the large number of species that it can detect. However, this method can falsely predict the presence of fecal pathogens because some of the species that are detected by the method (e.g., some species in the genus *Aeromonas*) are not found exclusively in human and animal feces (NAS, 1977; Cabelli, 1983). Furthermore, some waterborne pathogens (e.g., *Salmonella typhi*) and all viruses (e.g., Hepatitis A) are not detected by this method (NAS, 1977).

### **2. Fecal Coliform Method**

The fecal coliform test is similar to the total coliform test in that it measures the number of bacteria (including *Escherichia coli*) that can grow under certain laboratory conditions. However, the fecal coliform test only measures a subset of the species detected by the total coliform method. As a result, the fecal coliform test detects fewer organisms that are not associated with fecal contamination than the total coliform test, thereby reducing the chance of false-positive results. False positive results are still possible, however, because the fecal coliform method does detect some bacteria that have other sources besides human and animal feces (Cabelli, 1983). The fecal coliform method, like the total coliform method, can fail to detect waterborne pathogens in some cases because it does not detect all waterborne pathogens or viruses.

### **3. Enterococcus Method**

Similar to the total and fecal coliform methods, the Enterococcus method detects the number of bacteria that grow under certain laboratory conditions (USEPA, 1985). However, the Enterococcus method detects fewer total species than either the fecal or total coliform methods. The Enterococcus method measures the concentration of bacteria from a group of species within the *Streptococcus* genus, some of which (e.g., *Streptococcus faecalis*) are typically found in human and animal intestines (USEPA, 1985). Because some of the species that are detected by this method are not associated with fecal contamination (USEPA, 1985), this method can produce false-positive results,

like the total and fecal coliform methods. In addition, some bacterial pathogens and all viruses are not detected by this method.

In 1986, the USEPA (1986) recommended that *Enterococcus* be used as an indicator of water quality at marine bathing beaches. This recommendation was based on studies by Cabelli (1983) at three locations (New York, NY; Boston, MA; and Lake Pontchartrain, LA). In these studies, Cabelli (1983) found that gastrointestinal symptoms reported by swimmers were strongly correlated with *Enterococcus* levels, but not with levels of total or fecal coliforms. Additionally, in 1997 EPA approved and adopted *Method 1600: Membrane Filter Test Method for Enterococci in Water*. This method enabled faster turnaround time for testing of *Enterococcus* as an indicator of water contamination, thereby making the method practical for local use.

### **C. HISTORICAL AND CURRENT WATER QUALITY CRITERIA - MARINE**

Water quality criteria are guidance concentrations that are used by public health officials to make decisions regarding the health risks associated with swimming. These criteria are typically expressed as the concentration of an indicator in the water above which there is an unacceptable risk for adverse health effects resulting from swimming. The concentrations of a microorganism in water are usually reported as the number of colony forming units (CFU) of indicators per 100 milliliters (ml) of water. For any given measurement of the indicator species in water, the actual health risk from swimming in that water will depend on what pathogens are present in the water. Therefore, to make a decision as to the actual health risk related to a particular beach, other factors in addition to water quality criteria for indicator species should be considered, such as recent rainfall patterns and the number of people who use the beach.

#### **1. Total Coliform**

Formerly, the water quality criterion used by the Massachusetts Department of Public Health in the State Sanitary Code was based on the use of total coliforms. Specifically, the total coliform concentration could not exceed 1,000 CFU per 100 ml. After its establishment, this criterion was adopted by the Joint Committee of the American Public Health Association, the State Sanitary Engineers, and many states (Cabelli, 1983).

#### **2. Fecal Coliform**

In 1968, fecal coliform replaced total coliform as the recommended indicator species for marine water quality, however, as mentioned, fecal coliform is no longer recommended under state guidelines. At that time, the National Technical Advisory Council (NTAC) of the Federal Water Pollution Control Administration established criteria for the geometric mean of the fecal coliform count over a 30-day period (for a minimum of five samples) at 200 CFU per 100 ml with no more than 10% of the samples exceeding 400 CFU per 100 ml. These values correlated with a level of risk of no more than 19 cases of acute gastrointestinal illness per 1,000 swimmers in marine waters. USEPA adopted this standard in 1976. By 1978, the majority of states and territories had adopted this standard as well (Cabelli, 1983; USEPA, 1986).

### **3. Enterococcus**

In 1986, USEPA published *Ambient Water Quality for Bacteria – 1986*. In this document, USEPA recommended Enterococcus instead of fecal or total coliforms as the indicator of marine water quality and provided a scientific rationale for its use. Enterococcus is currently the mandated indicator organism dictated by the Massachusetts State Sanitary Code (Appendix A).

The recommended use of Enterococcus was based on studies by Cabelli (1983) that tested many different indicator organisms at several beaches in the United States to see which indicator organism correlated best with the incidence of acute gastrointestinal disease among swimmers. These studies showed that the concentration of Enterococcus in marine waters was more strongly correlated with the incidence of swimming-associated gastroenteritis than the concentrations of other indicators, including total and fecal coliforms. From these data, a relationship between the number of cases of swimming-associated disease and the Enterococcus concentration in the water was established. USEPA (1986) used this relationship to establish the criteria for Enterococcus in marine waters at 104 CFU per 100 ml for a single sample and 35 CFU per 100 ml for the geometric mean of at least five samples over a 30-day period. These criteria were set such that the expected incidence of gastrointestinal illness among swimmers would be the same as it had been for the previous USEPA water quality criteria for fecal coliform (i.e., 19 illnesses per 1000 swimmers at marine beaches). MDPH adopted this standard beginning with the 2000 bathing season.

#### **D. HEALTH EFFECTS FROM SWIMMING IN FRESHWATER**

Several studies conducted by the USEPA and others (Dufour, 1984; USEPA, 1986; Cabelli, 1989; CDC, 1991-1996) have observed gastrointestinal symptoms (e.g. nausea, vomiting, diarrhea, abdominal pain) as a result of swimming in fresh waters. The results of these studies have suggested that swimmers may be exposed to pathogens while swimming in fresh waters. Pathogens associated with human fecal matter may be present in fresh waters as a result of system failures in human sewage treatment facilities, or rainfall and resulting surface water runoff and other factors. Leachate from septic systems may be a potential source of microbiological contamination as well as animal wastes due to runoff that is exposed to domestic animal waste (e.g. wastes from dogs or farms). Swimmer-to-swimmer contamination is another potential source for microbiological contamination. Swimmers, bathers, waders, surfers, and others who come into full- or most-body contact with swimming water may all contribute to contamination (California 1997).

#### **E. BEACH WATER QUALITY TESTING METHODS – FRESHWATER**

As indicated in the Massachusetts State Sanitary Code, the indicator organisms for freshwater bathing beaches are *E. coli* and Enterococcus based on recommendations by USEPA (Dufour, 1984; USEPA, 1986). The Enterococcus method has already been discussed (see Section III.C.3).

### **1. *E. coli* Method**

*Escherichia coli* (*E. coli*) is a species of bacteria that is found exclusively in human and animal intestines (USEPA, 1985). Certain strains of this species are enteric (i.e., intestinal) pathogens (NAS, 1977). While both the total and fecal coliform methods can detect *E. coli* as part of a group of organisms, the *E. coli* method tests specifically for the presence or absence of this particular species. Because *E. coli* is exclusively found in human and animal intestines, this method is a very sensitive indicator of fecal contamination for freshwater beaches (USEPA, 1985).

## **F. CURRENT WATER QUALITY CRITERIA – FRESHWATER**

As noted in Section III. C., for any given measurement of the indicator species in water, the actual health risk from swimming in that water will depend on what pathogens are present in the water. Therefore, to make a decision regarding the health risk related to a particular beach, other factors must be considered in addition to water quality criteria for indicator species, such as recent rainfall patterns and the number people who use the beach.

### **1. *E. coli***

For freshwater, no single *E. coli* sample shall exceed 235 CFU per 100 ml and the geometric mean of the most recent five *E. coli* samples within the same bathing season shall not exceed 126 CFU per 100 ml. These are the criteria established by the Massachusetts State Sanitary Code (Appendix A).

### **2. *Enterococcus***

For freshwater, no single *Enterococcus* sample shall exceed 61 CFU per 100 ml and the geometric mean of the most recent five *Enterococcus* samples within the same bathing season shall not exceed 33 CFU per 100 ml. These are the criteria established by the Massachusetts State Sanitary Code (Appendix A).

Both *E. coli* and *enterococcus* standards are based on studies (Dufour, 1984; USEPA, 1986) that showed a strong correlation between levels of *E. coli* and *Enterococcus* and rates of swimmer-associated gastrointestinal disease in freshwaters. The values are set to a level of risk of no more than eight cases of acute gastrointestinal disease per 1,000 swimmers in freshwater beaches.

## **III. METHODS**

### **A. DESCRIPTION**

Local boards of health from the cities and towns in Massachusetts that have public and semi-public bathing beaches are required to submit to MDPH beach field data and lab results for bathing beaches under their jurisdiction. The data collected by each

community were based on a field data collection form from the MDPH Bureau of Health Quality Management, Division of Community Sanitation (DCS). Sample collection and testing were required to be in compliance with the *Standard Methods for the Examination of Water and Waste Water* of the American Public Health Association or as approved by the USEPA. Starting with the 2003 bathing season, contracted laboratories will be required to submit the data electronically via a secure internet connection. The information collected in 2002 varied from town to town, but the basic variables for each beach included:

- Name of beach
- Town where beach is located
- Geographic coordinate of each beach location
- Number of postings at each beach
- Beach designation, public, semi-public, or private
- Sample identification number
- Date of sample collection
- Time of sample collection
- Weather condition at time of sample collection
- Air temperature
- Wind direction
- Time of last high tide (if applicable)
- Amount of most recent rainfall
- Number of days from end of most recent rainfall to sample collection day
- Sampling agency (i.e., local board of health, MDC, DEM, outside lab, other)
- Known pollution sources (i.e., boats, wildlife, septic systems, outflow pipes, streams)
- Beach type (i.e., marine or freshwater)
- Bather density (i.e., number of people in the water)
- Water temperature
- Water clarity
- Water salinity
- Observations (i.e., trash, sludge deposits, oils, algae, fish die-off, jellyfish, birds)
- Indicator (i.e., Enterococcus for marine, Enterococcus or *E. Coli* for freshwater; note, some towns still use the fecal coliform and total coliform indicators which are not in compliance with the Massachusetts State Sanitation Code)
- Indicator level in colony forming units (CFU) of bacteria per 100 ml of water
- Exceedence (i.e., indicator levels equal to or greater than 104 CFU / 100 ml for Enterococcus in marine waters, 61 CFU / 100 ml for Enterococcus in fresh waters, or 235 CFU / 100 ml for *E. coli* in fresh waters)
- Comments

## **B. LIMITATIONS**

The beach inventory database and monitoring data are subject to certain limitations. First, the database is only as complete as the data received. For example, during the 2001 bathing season, each city/town used different monitoring techniques. Therefore, the comprehensiveness of the data varies from town to town. The development of the beach

inventory and GIS databases should help standardize data reporting across the state. In 2002, however, the monitoring techniques were more uniform, and more complete information has been gathered. However, there were still a number of gaps, for example, not all towns reported bather density or indicated whether or not there was a pollution source. The electronic reporting system being developed for the 2003 beach season will further improve data completeness for the 2003 bathing season. In addition, the GIS beach inventory is continually being updated, and will provide an atlas of bathing beaches in the state. It is probably worthwhile to also note that the accuracy of the data depends on proper sample collecting and testing techniques.

Another limitation related to the specificity of analytical methods, the data are indicator-, not pathogen-, specific. As a result, the data only suggest a potential for the presence of pathogens that can cause human disease. The presence or absence of specific pathogens is not assayed. The use of indicators implies that water meeting the criteria may harbor disease-causing microorganisms and also that water considered unsafe may not carry any disease-causing microorganisms (e.g., Polo *et al.*, 1998; Moore *et al.*, 2001; Prieto *et al.*, 2001; Schindler, 2001). This is an inherent limitation of using indicators as a test of water quality, in Massachusetts and elsewhere.

The criteria developed for each indicator are set at an acceptable level of risk of an adverse health effect, not at a no-risk level. Therefore, levels of indicators considered safe by the guidelines do not imply freedom from risk of adverse health effects for the total population at risk.

Finally, acceptable levels of risk are typically determined by the incidence of gastrointestinal symptoms among swimmers compared to that for non-swimmers. It should be noted, however, that pathogens found in marine and freshwater can cause other symptoms, including respiratory, dermatologic, ophthalmologic, and constitutional. These symptoms are generally not taken into account in determining criteria for the different indicator species.

#### **IV. RESULTS**

During the 2002 bathing season, the majority of Massachusetts cities/towns with public and semi-public marine and/or freshwater beaches sent water quality data to MDPH. These data were entered into tabular and Geographic Information System (GIS) databases in order to further the inventory of bathing beaches in Massachusetts and to allow for storage and analysis of field data and testing results. After the data were entered into the computer, the database was verified by someone other than the person who did the data entry. All of the records entered into the database were checked for quality assurance/quality control. Two percent of these records were found to have errors, which were subsequently corrected.

In total, MDPH received water quality data from 189 Massachusetts cities and towns, representing 1150 public and semi-public marine and freshwater beaches and 13,216

water samples. Private marine or private freshwater bathing beaches are not part of this report.

Summaries and analyses of the marine and freshwater bathing beach data are presented in Tables 1 – 18 and Figures 1 – 15. The data are divided by type of beach (marine vs. freshwater) to allow easy comparison to earlier reports that analyzed marine bathing beaches only (e.g., MDPH/BEHA/ETP 1997), to accommodate the different testing criteria for the two types of beaches (see Background section), and in order to integrate information with the federal marine beaches initiative. The data are analyzed according to type of beach, presence or absence of data, bather density, pollution source, bacterial indicator, frequency of testing, organization that performed testing, exceedences based on current Massachusetts criteria, and beach postings. Data are grouped either according to town/city, beach, or water sample, depending on ease of understanding and interpreting the results. For example, bather density at a given beach changes during the day and season, so it makes sense to express these data in terms of water sample (i.e., at times when samples were collected). Alternatively, testing frequency only makes sense in terms of a given beach for a particular indicator. The data are presented in tabular (Tables 1- 18), pie graph (Figures 1 – 11), and map (Figures 12 – 15) forms.

## **V. DISCUSSION**

### **A. MARINE BEACHES**

During the 2002 bathing season, all of the 59 Massachusetts coastal cities/towns with known public and semi-public marine bathing beaches submitted beach-monitoring data to MDPH. Analysis of these data is provided in Tables 1 - 18 and Figures 1 - 15.

Tables 1 – 3 and Figures 1 - 2 indicate the number of coastal cities/towns with and without public and semi-public marine bathing beaches. For those towns that have beaches, 100% reported data. It should be noted that 16% of coastal cities/towns do not have public or semi-public marine bathing beaches. Table 4 indicates the total number of coastal cities/towns (59), marine beaches (577), and water samples (6,743) included in the 2002 marine bathing beach database. Note that, in contrast to the 1997 Report (MDPH/BEHA/ETP 1997), the number of beaches that were not tested was not included here, as this number could not be determined from the data provided. The total number of marine beaches for which data were available for inclusion in the 1997 report was 325. In 2001 data was reported for 58 of 59 coastal cities/towns, 448 beaches, and 7,200 samples. More beaches reported data in 2002, partially due to the fact that separate sampling sites on large beaches were counted as separate beaches.

Table 5 and Figure 4 provide approximate bather density at public and semi-public marine bathing beaches at the time that samples were taken. It is important to note that about 33% (n=2,240) of the 6,743 samples were taken without noting bather density, making precise interpretation difficult. However, the available data indicate that about 85% (n=3,851) of the 4,503 samples marine water samples noting bather density occurred at a time when ten or fewer people were using the beach. This low bather density might

reflect typical beach usage, or may indicate that water sampling was not done during peak usage.

Tables 6 – 7 indicate open or obvious sources of pollution at times when samples were taken. Again, these data are largely incomplete, with 93% (n=6,262) of the 6,743 sampling reports not indicating whether a pollution source was present (i.e., 93% of respondents left this section blank rather than indicating “yes” or “no” with regard to a potential pollution source). Furthermore, for the 7% (n=480) of reports that indicated a pollution source, 52% (n=248) indicated an outflow pipe as a pollution source. The scant information available from the surveys indicates outflow pipes and wild life as the most frequently reported sources of pollution. For this reason methods to collect and report complete/accurate information on potential sources of pollution in the beach areas should be further explored. However, reporting of pollution sources was slightly improved over 2001, when less than one percent of reports indicated whether a pollution source was present.

Tables 8 – 9 and Figure 6 summarize bacterial indicator data. Table 8 reports the bacterial indicator for each of the 6,743 marine water samples collected in the 2002 bathing beach season, while Table 9 groups the bacterial indicator by beach. These data indicate that Enterococcus was the indicator used at about 99% (n=572) of 577 of public and semi-public marine bathing beaches that reported water quality data at some time during the 2002 bathing season. However, some of the water samples about 1% (n=5) were inappropriately analyzed for fecal coliform, not Enterococcus.

Table 10 and Figure 8 indicate testing frequency of public and semi-public marine bathing beaches in 2001, with the majority of the 577 beaches 94% (n=545) tested on a weekly or more frequent basis. Table 11 notes the testing agency that performed the water quality sampling, with the local health department 67% (n=4,506), MDC 9% (n=584), and outside laboratories 21% (n=1,380) performing the vast majority of the 6,743 marine water samples.

Tables 12 – 14 and Figure 10 provide data regarding water samples that exceeded the Massachusetts single-count criterion (104 CFU per 100 ml for Enterococcus). Table 12 groups the data by water sample, 3% (n=184), of the 6,743 water samples exceeded the single-count criterion, Table 13 shows the data by beach, 19% (n=110), of the 577 public and semi-public marine bathing beaches had at least one sample exceeding the single-count criterion, and Table 14 by indicator. This is down from 35% in 2001. The specific number of exceedences at each beach over several seasons will factor into a tier classification system for marine beaches currently being developed in a separate report. Just 15 of the 6,743 water samples reported an indicator that does not have current Massachusetts guidelines, and thus it is not possible to determine for these 15 samples what impact they may have on bathing beaches water quality.

Table 15 relates beach postings to exceedences. This table indicates that there are about half as many postings as compared to exceedences. Total postings may not equal total exceedences because some tests that resulted in exceedences may have occurred while

the beach was already closed, or multiple sampling locations on the same beach counted as separated beaches in this report may have been covered under one beach closing (e.g., five sampling locations with exceedences at the same beach may have resulted in one closing). This discrepancy could also have resulted from an incomplete database of beach postings due to a lack of reporting by beach communities, or from the possibility that many exceedences that did not result in postings. Clearly, the latter possibility highlights the need for tighter linkage between exceedences and beach postings. An electronic data reporting system has been developed that will link exceedences to beach closings through an algorithm, and is being deployed for the 2003 bathing beach season.

Table 16 lists the individual coastal cities/towns and beaches included in the database, with separate entries for each bacterial indicator used, as well as number of tests, exceedences, and non-exceedences for each. Table 18 lists all Massachusetts towns, indicating type of beach and presence or absence of data. Figures 12 and 14 provide data of city/town and exceedences, respectively, in map form.

## **B. FRESHWATER BEACHES**

During the 2002 bathing season, a total of 158 of the 194 Massachusetts cities and towns with public and semi-public freshwater bathing beaches submitted beach monitoring data to MDPH. Analysis of these data is provided in Tables 1 - 18 and Figures 1 - 15.

Tables 1 – 3 and Figures 1 and 3 indicate the number of cities/towns with and without public and semi-public freshwater bathing beaches. More than half of Massachusetts cities/towns have freshwater bathing beaches. Of these, 81% reported data. Table 4 indicates the total number of cities/towns that submitted freshwater data (158), the number of public and semi-public freshwater bathing beaches (573), and the number water samples (6,473) included in the 2002 freshwater bathing beach database.

Table 5 and Figure 5 provide approximate bather density at public and semi-public freshwater bathing beaches at the time that samples were taken. It is important to note that about 34% (n=2,175) of the 6,473 samples were taken without noting bather density, making interpretation difficult. However, the available data indicate that the majority of samples, 86% (n=3,713) of the 4,298 samples that did note bather density, were taken at times when fewer than 10 people were using the beach. Like that for marine beaches, this observation could reflect typical beach usage or that sampling usually occurred at times of non-peak usage.

Tables 6 – 7 indicate open or obvious sources of pollution at times when samples were taken. Again, these data are largely incomplete, with 93% (n=6,147) of the 6,473 samples not indicating whether or not a pollution source was present (i.e., 93% of respondents left this section blank rather than indicating “yes” or “no” with regard to a potential pollution source). Most reports of an open or obvious source of pollution indicated outflow pipes or wildlife as the pollution source. Better ways to collect and report information on potential sources of pollution in the beach areas are warranted.

Tables 8 – 9 and Figure 7 summarize bacterial indicator data. Table 8 reports the bacterial indicator for each of the 6,473 water samples collected in the 2002 bathing beach season, while Table 9 groups the bacterial indicator by beach. These data indicate that about 98.5% (n=6,375) of the freshwater beach samples were analyzed using Enterococcus or *E. coli*, as recommended by state guidelines. When considered from the point of view of beach rather than water sample (Table 9), 99% (n=572) of Massachusetts freshwater beaches used at least Enterococcus or *E. coli* at some point during the 2002 bathing season (some of these beaches may have used additional indicators as well).

Table 10 and Figure 9 indicate testing frequency of public and semi-public freshwater bathing beaches in 2002, with 95% (n=548) of the 573 beaches tested on a weekly or more frequent basis. Table 11 notes the testing agency that performed the water quality sampling, with the local health departments (44%), private labs (45%), and Department of Environmental Management (8%) performing the majority of sampling.

Tables 12 – 14 and Figure 11 provide data regarding water samples that exceeded Massachusetts single-count criteria (61 CFU per 100 ml for Enterococcus, 235 CFU per 100 ml for *E. coli*). Table 12 shows that 4% (n=264), of the 6,473 water samples exceeded the single-count criteria. Table 13 shows that 14% (n=83), of the 573 freshwater bathing beaches had at least one sample exceeding the single-count criteria. This is down from 30% in 2001.

Note that 1.5% (n=98), of the water samples reported an indicator that does not have current Massachusetts guidelines. These samples were placed in an indeterminant category.

Table 15 relates beach postings to exceedences. This table indicates that there are about half as many postings as compared to exceedences. Total postings may not equal total exceedences because some tests that resulted in exceedences may have occurred while the beach was already closed, or multiple sampling locations on the same beach counted as separated beaches in this report may have been covered under one beach closing (e.g., five sampling locations with exceedences at the same beach or water body may have resulted in one closing). This discrepancy could also have resulted from a lack of reporting by beach communities, or many exceedences that did not result in postings. Both of these possibilities warrant further evaluation.

Table 17 lists the individual Massachusetts cities/towns and beaches included in the database, with separate entries for each bacterial indicator used, as well as number of tests, exceedences, and non-exceedences for each. Table 18 lists all Massachusetts towns, indicating type of beach and presence or absence of data. Figures 13 and 15 provide data of city/town and exceedence, respectively, in map form.

## **VI. FUTURE ACTIVITIES**

### **A. ELECTRONIC REPORTING AND POSTING ON THE WORLD WIDE WEB**

In order to be able to effectively compare data from all beaches from year to year, it will be necessary for all Massachusetts cities and towns with public and semi-public bathing beaches to use a standard reporting form when submitting beach monitoring data to MDPH. The MDPH Bureau of Health Quality Management, Division of Community Sanitation, has developed a standard reporting form that is readily available on the web. All cities/towns with public and semi-public bathing beaches will use this form to submit beach-monitoring data to MDPH. For the 2003 bathing season an electronic data submission system is being developed for marine beaches by MDPH BEHA information technology staff in collaboration with Digital Health, Inc. that will make compiling and summarizing the data easier and more timely. In addition, postings for marine beaches will be determined by the electronic submission system and reported on the MDPH BEHA web site.

### **B. GEOGRAPHIC INFORMATION SYSTEM (GIS)**

A geographical information system (GIS) beach inventory database showing the location of all the public and semi-public bathing beaches in Massachusetts is currently being developed by MDPH/BEHA/ETP based on the beach inventory database, and input from local boards of health in collaboration with Applied Geographics, Inc. Each beach in the GIS will be assigned a unique identification number also used in the electronic data submission system and will facilitate linking data for each beach to the GIS beach inventory layer.

### **C. TIER SYSTEM FOR BEACH CLASSIFICATION**

Using data gathered from the local boards of health in cities/towns with public and semi-public bathing beaches, MDPH will set up a tier system for classifying beaches. Developing a tier system will help support variance requests under 105 CMR 445.000. The tier system is also a requirement specified by EPA in awarding funds under the BEACHES ACT.

The three tiered categories will be high, medium and low priority beaches assigned according to specific criteria which may include amount of rainfall in the area, number of known and potential pollution sources, bather density, occurrence of malfunctioning septic systems in the area, public comment, and history of exceedences for levels of indicator organisms.

A “high” priority beach will receive the most frequent water quality sampling and analysis. Such a beach might be one with high bather volume, high frequency or percentage of exceedences, problematic sources of pollution, or a combination of these factors. A “medium” priority beach will have less frequent sampling but will still be required to meet water quality standards. Beaches that are tiered “medium” will have any of the factors listed for “high” priority beaches but with less frequency or intensity of any

of the three criteria. A “low” priority beach will indicate that sources of pathogens are rare or that few people swim in the water. In this case, water quality monitoring might be limited to an annual survey or conducted only on public complaint, or the local health department might apply for a testing variance. Data from the 2002 bathing season will be analyzed to identify a tier for each beach and to determine if the tier classification system is effective.

## **VII. SUMMARY**

This report summarizes beach monitoring and testing data from Massachusetts public and semi-public marine and freshwater bathing beaches in the 2002 season. In total, 189 communities, 1,150 beaches, and 13,216 water samples were available for analysis. In general the bathing beach water quality had a marked improvement between the 2001 and 2002 seasons. The report highlights the need for a consistent sanitary survey protocol, electronic submission of data, use of appropriate bacterial indicators, and tighter links between exceedences and beach postings. An electronic data reporting system and posting system on the world wide web, as well a GIS inventory of beaches in Massachusetts are being developed for marine beaches first. Such a system may follow for freshwater beaches in future seasons.

## **VIII. ACKNOWLEDGMENTS**

This study would not have been possible without the efforts and cooperation of the local and county health departments in the Massachusetts cities and towns that are included here. MDPH also received much assistance from many local and regional organizations, including the MDC. Most recently, MDPH received technical support from Digital Health, Inc. and Applied Geographics, Inc. in order to make data reporting more accurate and efficient. Finally, we are grateful to the USEPA for providing financial support for this effort.

## IX. REFERENCES

- Baron RC, Murphy FD, *et al.*, 1982. Norwalk Gastrointestinal Illness. *American Journal of Epidemiology*. Volume 115 (2) pp. 163-172.
- Barrell RA, Hunter PR, Nichols G, 2000. Microbiological standards for water and their relationship to health risk. *Commun Dis Public Health*. March, Volume 3, pp. 8 – 13.
- Beaches Environmental Assessment and Coastal Health Act. *Federal Register* 2002 21 March, 67 (55) pp. 13140-13143.
- Cabelli VJ, Dufour AP *et al.*, 1979. Relationship of Microbial Indicators to Health Effects at Marine Bathing Beaches. *American Journal of Public Health*, Volume 69 (7) pp. 690-696
- Cabelli, VJ, Dufour, A., McCabe, L., and Levin, MA, 1982, Swimming-associated gastroenteritis and water quality, *American Journal of Epidemiology*, Volume 115 (4) pp. 606-616.
- Cabelli, VJ, 1983, Health Effects Criteria for Marine Recreational Waters, EPA Document Number EPA-600/1-80-031, Health Effects Research Laboratory, Office of Research and Development, United States Environmental Protection Agency, Research Triangle Park, North Carolina.
- Cabelli, VJ, 1989, Swimming-associated illness and recreational water quality criteria, *Water Science Technology*, Volume 21 (2) pp. 13-21.
- Calderon RL, Mood EW, Dufour AP, 1991. Health effects of swimmers and nonpoint sources of contaminated water. *International Journal of Environmental Health Research*, Volume 1, pp 21-31.
- California Academy of Sciences, 1989. Critical Problems Relating to the Quality of California's Coastal Zone. San Francisco, 1989.
- California Department of Health Services, 1997. Draft Guidance for Saltwater Recreational Areas: Assessing Microbiological Contamination and Taking Corrective Action.
- California Department of Health Services, 1997. Draft Guidance for Freshwater Recreational Areas: Assessing Microbiological Contamination and Taking Corrective Action.
- CDC, 1990, Waterborne disease outbreaks, 1986-1988, *Morbidity and Mortality Weekly Report*, Volume 39 (SS-1), Center for Disease Control and Prevention, pp. 1-13.

- CDC, 1991, Waterborne disease outbreaks, 1989-1990, *Morbidity and Mortality Weekly Report*, Volume 40 (SS-3), Center for Disease Control and Prevention, pp. 1-21.
- CDC, 1992, Cercarial dermatitis outbreak at a state park-Delaware, 1991, *Morbidity and Mortality Weekly Report*, April 10, 1992, Volume 41, Number 14, Center for Disease Control and Prevention, pp. 225-228.
- CDC, 1993, Surveillance for waterborne disease outbreaks-United States, 1991-2, *Morbidity and Mortality Weekly Report*, November 19, 1993, Volume 42 (SS-5), Center for Disease Control and Prevention, pp. 1-22.
- CDC, 1996, Surveillance for waterborne disease outbreaks-United States, 1993-4, *Morbidity and Mortality Weekly Report*, April 12, 1996, Volume 45 (SS-1), Center for Disease Control and Prevention, pp. 1-33.
- Connecticut Department of Health Services, 1992. Guidelines for Monitoring Bathing Waters and Closure Protocol.
- Corbett, SJ, Rubin, GL, Curry, GK, and Kleinbaum, DG, 1993, The health effects of swimming at Sydney beaches, *American Journal of Public Health*, Volume 83 (12) pp. 1701-1706.
- Coye, MJ, and Goldoft, MG, 1989, Microbiological contamination of the ocean and human health, *New Jersey Medicine*, Volume 86 (7) pp. 533-538.
- Dufour, AP, 1984, Health Effects Criteria for Fresh Recreational Waters, EPA Document Number EPA-600/1-84-004. Health Effects Research Laboratory, Office of Research and Development, USEPA, Research Triangle Park, NC.
- Haile R, 1996. A Health Effect Study of Swimmers in Santa Monica Bay. Santa Monica Bay Restoration Project, Monterey Park, CA.
- Koopman JS, Eckert EA *et al.*, 1982. Norwalk Virus Enteric Illness Acquired by Swimming Exposure. *American Journal of Epidemiology*, Volume 115 (2) pp. 173-177.
- Kramer MH, Herwaldt BL *et al.*, 1996. Surveillance for Waterborne-Disease Outbreaks – United States, 1993-1994. *Morbidity and Mortality Weekly Report*, Volume 45 (SS-1), pp. 1-23.
- Makintubee S, Mallonee J, Istre GR, 1987. Shigellosis Outbreak Associated with Swimming. *American Journal of Public Health*, Volume 77 (2), pp. 166-168.
- Massachusetts Department of Public Health Regulations, 105 CMR § 445.000, Minimum Standards for Bathing Beaches (State Sanitary Code Chapter VII).
- Massachusetts Department of Public Health, 1997. Marine Beach testing in Massachusetts. April 1997.

- MBP, 1995, Massachusetts Bays 1995 Comprehensive Conservation and Management Plan, Draft Final Plan, Massachusetts Bays Program, United States Environmental Protection Agency, Massachusetts Executive Office of Environmental Affairs, June 1995.
- MBP, 1995. Evaluation of Chemical contaminant Effects in the Massachusetts Bays; Executive Summary of the Final Report to the Massachusetts Bays Program. January 1995.
- Matayas BM, DeMaria A., Microbiologic Evaluation and Safety of Drinking Water (DRAFT) *The Reporter*.
- Moore AC, Herwaldt BL *et al.*, 1993. Surveillance for Waterborne Disease Outbreaks – United States, 1991-1992. *Morbidity and Mortality Weekly Report*. Volume 42 (SS-5), pp. 1-22.
- Moore JE, Caldwell PS, Millar BC, Murphy PG, 2001. Occurrence of *Campylobacter* spp. in water in Northern Ireland: implications for public health. *Ulster Med J*. Nov, Volume 70, pp. 102-7.
- Moore SL, Gregorio D *et al.*, 2000. Composition and distribution of beach debris in Orange County, California.
- NAS, 1977, Drinking Water and Health, Safe Drinking Water Committee, National Academy of Sciences, Washington, D.C., 1977.
- NRDC, 1995. Testing the Waters V; Politics and Pollution at U.S. Beaches. National Resources Defense Council, June 1995.
- Polo F, Figueras MJ, Inza I, Sala J, Fleisher JM, Guarro J, 1998. Relationship between presence of Salmonella and indicators of fecal pollution in aquatic habitats. *FEMS Microbiol Lett*. March 15, Volume 160, pp. 253-6.
- Pruess, A., 1998. Review of epidemiological studies on health effects from exposure to recreational water. *International Journal of Epidemiology*. Volume 27, pp. 1-9.
- Rex A and Coughlin K, 1995. Correlation between Fecal Coliform Counts and *Enterococcus* Counts in Boston Harbor and its Tributary Rivers: Variation with Rainfall. Massachusetts Water Resources Authority, Boston, MA, May 1995.
- Rose JB, Atlas RM, Gerba CP, Gilchrist MR, LeChevallier MW, Sobsey MD, Yates MV, Cassell GH, Tiedje JM, 1999. *Microbial Pollutants in Our Nation's Water: Environmental and Public Health Issues*. American Society for Microbiology, Washington, D.C.
- Schindler PR, 2001. Hygiene of Bathing Waters. *Gesundheitswesen*. Vol. 63, Suppl 2, pp. S142-50.

- Seyfried PL, Tobin RS *et al.*, 1985. A Prospective Study of Swimming-Related Illness, Swimming Associated Health Risk. *American Journal of Public Health*. Volume 75 (9) pp. 1068-1070.
- Sorvillo FJ, Fujioka K *et al.*, 1992. Swimming-Associated Cryptosporidiosis. *American Journal of Public Health*, Volume 82 (95) pp. 742-744.
- U.S. Congress, 2000. Public Law 106-284. Beaches Environmental Assessment and Coastal Health Act of 2000. October 10, 2000.
- USEPA, 1984. Health Effects Criteria for Fresh Recreational Waters, EPA document Number EPA 600/1-84-004, Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, Ohio, August 1984.
- USEPA, 1985. Test Methods for *Escherichia coli* and Enterococci in Water by the Membrane Filter Procedure, EPA Document Number EPA-600/4-85/076, Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio.
- USEPA, 1986. Ambient Water Quality Criteria for Bacteria - 1986, EPA Document Number EPA440/5-84-002, Office of Regulations and Standards, Criteria and Standards Division, United States Environmental Protection Agency, Washington, DC.
- USEPA, 1997. Method 1600: Membrane Filter Test Method for Enterococci in Water. EPA Document Number EPA-821-R-97-004, Office of Water, U.S. Environmental Protection Agency, Washington D.C., May 1997.
- USEPA, 1999. *Action Plan for Beaches and Recreational Waters*. EPA Document Number EPA-823-D-00-001, Office of Research and Development and Office of Water, Washington, DC.
- USEPA, 2002. *National Beach Guidance and Required Performance Criteria for Grants*. EPA Document Number EPA-823-B-02-004, Office of Water, Washington, D.C.
- Weiskel PK, Howes BL, Heufelder GR, 1996. Coliform Contamination of a Coastal Embayment: Sources and Transport Pathways. *Environmental Science and Technology*, Volume 30 (6), pp. 1872-1881.

## X. TABLES

**Table 1:** All Massachusetts cities and towns grouped by the presence and/or absence of marine and freshwater public and semi-public bathing beaches.

Type of city/town	Number (#)	Percentage (%)
Marine beach only	31	9
Freshwater beach only	166	47
Marine and freshwater beaches	28	8
No beaches	126	36
Total	351	100

**Table 2:** All Massachusetts cities and towns grouped according to the presence or absence of data for marine or freshwater public and semi-public bathing beaches.

Type of city/town	Number (#)	Percentage (%)
Marine or freshwater beach, with data <sup>1</sup>	189	54
Marine or freshwater beach, without data	36	10
No beaches	126	36
Total	351	100

1. The data included in this report were submitted from Massachusetts cities/towns through 12/31/02 for the 2002 bathing season.

**Table 3:** Water quality testing at marine and freshwater public and semi-public bathing beaches in Massachusetts, grouped by town, for the years 2002, 2001, 1996, and 1995.

<b>Coastal cities/towns</b>								
Type of city/town	2002		2001 <sup>1</sup>		1996		1995	
	#	%	#	%	#	%	#	%
Coastal cities/towns with marine bathing beaches	59	84	59	84	60	86	60	86
Coastal cities/towns with marine bathing beaches for which data were obtained	59	100	58	98	53	88	52	87
Coastal cities/towns with marine bathing beaches for which no data were obtained	0	0	1	2	7	12	8	13
Coastal cities/towns without marine bathing beaches	11	16	11	16	10	14	10	14
Total number of coastal cities/towns	70	100	70	100	70	100	70	100
<b>All cities/towns</b>								
Type of city/town	2002 <sup>2</sup>		2001		1996		1995	
	#	%	#	%	#	%	#	%
Cities/towns with freshwater bathing Beaches	194	55	175	50	N/A	N/A	N/A	N/A
Cities/towns with freshwater bathing beaches for which data were obtained	158	81	145	83	N/A	N/A	N/A	N/A
Cities/towns with freshwater bathing beaches for which no data were obtained	36	19	30	17	N/A	N/A	N/A	N/A
Cities/towns without freshwater bathing beaches	157	45	176	50	N/A	N/A	N/A	N/A
Total number of cities/towns	351	100	351	100	N/A	N/A	N/A	N/A

1. The number of towns with marine beaches was adjusted as the inventory became more complete over time.
2. The number of towns with freshwater beaches was adjusted as the inventory became more complete over time.

**Table 4:** Water quality testing at marine and freshwater public and semi-public bathing beaches in Massachusetts in 2002, grouped by city/town, beach, and sample.

Type of city/town	# cities/towns (total)	# cities/towns with data	# beaches <sup>1</sup>	# samples
Cities/towns with marine bathing beaches	59	59	577	6,743
Cities/towns with freshwater bathing beaches	194	158	573	6,473
Total	226 <sup>3</sup>	189 <sup>2,3</sup>	1150 <sup>2</sup>	13,216 <sup>2</sup>

1. Note that this table does not include the number of beaches that were not tested, as data were not compiled to accurately determine this number.
2. These numbers represent the total number of cities/towns, beaches, and samples, respectively, for which there are data in 2002.
3. The total number of cities/towns is less than the sum of the number of cities/towns with marine beaches and those with freshwater beaches because there are 28 towns that have both marine and freshwater bathing beaches (see Table 1).

**Table 5:** Bather density at marine and freshwater public and semi-public bathing beaches in Massachusetts in 2002, at times when samples were taken.

<b>Marine beaches</b>		
Bather Density (# people)	#	%
0-10	3,851	57
10-20	314	5
20-50	185	3
>50	153	2
Not indicated	2,240	33
Total	6,743	100
<b>Freshwater beaches</b>		
Bather Density (# people)	#	%
0-10	3,713	57
10-20	310	5
20-50	157	2
>50	118	2
Not indicated	2,175	34
Total	6,473	100

**Table 6:** Reported existence of open or obvious sources of pollution that might affect the water quality at marine and freshwater public and semi-public bathing beaches in Massachusetts in 2002.

<b>Marine beaches</b>		
Pollution source	#	%
Yes	480	7
No	0	0
Not indicated	6,262	93
Total	6,743	100
<b>Freshwater beaches</b>		
Pollution source	#	%
Yes	329	5
No	0	0
Not indicated	6,147	95
Total	6,473	100

**Table 7:** Reported sources of pollution for marine and freshwater public and semi-public bathing beaches in Massachusetts in 2002 for which a pollution source was specified.

<b>Marine beaches</b>		
Sources	#	%
Boat	89	18
Wildlife	128	27
Septic System	0	0
Outflow pipe	248	52
Stream	14	3
Other	1	0
Total	480	100
<b>Freshwater beaches</b>		
Sources	#	%
Boat	5	2
Wildlife	138	42
Septic System	0	0
Outflow pipe	138	42
Stream	46	14
Other	2	0
Total	329	100

**Table 8:** Water quality bacterial indicators used to test marine and freshwater public and semi-public bathing beaches in Massachusetts in 2002, grouped by sample.

<b>Marine beaches</b>		
Indicator <sup>1</sup>	#	%
Enterococcus	6,728	99.8
<i>E. coli</i>	0	0
Fecal coliform	15	0.2
Total coliform	0	0.0
Fecal streptococcus	0	0.0
Not indicated	0	0.0
Total	6,743	100
<b>Freshwater beaches</b>		
Indicator <sup>2</sup>	#	%
Enterococcus	1,081	16.7
<i>E. coli</i>	5,294	81.8
Fecal coliform	36	0.5
Total coliform	12	0.2
Fecal streptococcus	50	0.8
Not indicated	0	0
Total	6,473	100

1. Massachusetts state guidelines indicate that *Enterococcus* be used to test marine beaches for potential bacterial contamination.
2. Massachusetts state guidelines indicate that *Enterococcus* or *E. coli* be used to test freshwater beaches for potential bacterial contamination.

**Table 9:** Water quality bacterial indicators or combinations of indicators used to test marine and freshwater public and semi-public bathing beaches in Massachusetts in 2002, grouped by beach.

<b>Marine beaches</b>		
Indicator(s)	#	%
Enterococcus only	572	99.1
<i>E. coli</i> only	0	0
Fecal coliform only	5	0.9
Total coliform only	0	0
Enterococcus and <i>E. coli</i>	0	0
Enterococcus and Fecal coliform	0	0
Enterococcus and Total coliform	0	0
Enterococcus, Fecal coliform, and Total coliform	0	0
Not indicated	0	0
Total	577	100
<b>Freshwater beaches</b>		
Indicator(s)	#	%
Enterococcus only	89	15.6
<i>E. coli</i> only	477	83.2
Fecal coliform only	0	0
Total coliform only	1	0.2
Enterococcus and <i>E. coli</i>	1	0.2
Enterococcus and Fecal coliform	0	0
Enterococcus and Total coliform	0	0
<i>E. coli</i> and Fecal coliform	0	0
<i>E. coli</i> and Total coliform	2	0.4
<i>E. coli</i> and Fecal streptococcus	2	0.4
Fecal coliform and total coliform	0	0
Enterococcus, <i>E. coli</i> , and Fecal coliform	0	0
Enterococcus, <i>E. coli</i> , and Total coliform	0	0
<i>E. coli</i> , Fecal coliform, and Total coliform	0	0
<i>E. coli</i> , Fecal coliform, Total coliform, and Fecal streptococcus	0	0
Fecal coliform and Fecal streptococcus	1	0.2
Not indicated	0	0
Total	573	~100

1. Each of the rows in this table is independent of the others (e.g., the number of beaches tested for Enterococcus and *E. coli* together is not included in the number of beaches tested for Enterococcus only).
2. Beaches that use multiple indicators usually do not use them on a consistent basis (e.g., water samples on a given date are tested with one indicator, while those tested on a different date are tested with another indicator).

**Table 10:** Frequency of water quality testing at marine and freshwater public and semi-public bathing beaches in Massachusetts in 2002, grouped by beach and indicator.

<b>Marine beaches</b>		
Test frequency	#	%
Daily	0	0
Twice per week	6	1
Weekly	545	94.4
Twice per month	0	0
Monthly	17	3
Three times	0	0
Two times	1	0.2
One time	8	1.4
Total	577	100
<b>Freshwater beaches</b>		
Test frequency	#	%
Daily	0	0
Twice per week	11	2
Weekly	537	93
Twice per month	0	0
Monthly	14	2
Three times	0	0
Two times	7	1
One time	11	2
Total	573	100

**Table 11:** Groups, agencies, or individuals who performed water sampling at marine and freshwater public and semi-public bathing beaches in Massachusetts in 2002.

<b>Marine beaches</b>		
Testing organization	#	%
Local Health Department	4,506	67
Metropolitan District Commission (MDC)	584	9
Department of Environmental Management	63	1
Outside lab	1380	21
Other	210	2
Total	6,743	100
<b>Freshwater beaches</b>		
Testing organization	#	%
Local Health Department	2,826	44
Metropolitan District Commission (MDC)	110	2
Department of Environmental Management	514	8
Outside lab	2,928	45
Other	95	1
Total	6,473	100

**Table 12:** The number of samples in which the measured Enterococcus concentration (marine beaches) or Enterococcus or *E. coli* concentration (freshwater beaches) exceeded their respective water quality criteria at public and semi-public bathing beaches in Massachusetts in 2002.

<b>Marine beaches</b>		
Concentration	#	%
Exceedence <sup>1</sup>	184	3
Non-exceedence	6,544	97
Indeterminant <sup>1</sup>	15	0
Total	6,743	100
<b>Freshwater beaches</b>		
Concentration	#	%
Exceedence <sup>1</sup>	263	4
Non-exceedence	6,179	95
Indeterminant <sup>2</sup>	31	1
Total	6,473	100

1. For marine beaches, Enterococcus is the indicator species. A sample is said to be in exceedence if the number of colony forming units (CFU) / 100 ml is greater than 104 for a single sample or greater than 35 for the average of 5 samples over a 30-day period. For freshwater beaches, either Enterococcus or *E. coli* can be used as indicator species. For Enterococcus, a sample is said to be in exceedence if the number of CFU / 100 ml is greater than 61 for a single sample or greater than 33 for the average of 5 samples over a 30-day period. For *E. coli*, a sample is said to be in exceedence if the number of CFU / 100 ml is greater than 235 for a single sample or greater than 126 for the average of 5 samples over a 30-day period.

2. Indeterminant means that an indicator other than those recommended by current guidelines was used, no indicator was reported, or no level was reported.

**Table 13:** The number of beaches in which at least one measured Enterococcus concentration (marine beaches) or at least one Enterococcus or *E. coli* concentration (freshwater beaches) exceeded their respective water quality criteria at public bathing beaches in Massachusetts in 2002.

	# beaches with at least one exceedence	Total # beaches	%
<b>Marine beaches</b>	110	577	19
<b>Freshwater beaches</b>	83	573	14

**Table 14:** The number of exceedences at marine and freshwater public and semi-public bathing beaches in Massachusetts in 2002, grouped by indicator species.

<b>Marine beaches</b>			
Indicator	Total # Samples collected	Total # samples exceeding criterion	% samples exceeding criterion
Enterococcus	6,728	184	3
E. coli	0	N/A	N/A
Fecal coliform	15	N/A	N/A
Total coliform	0	N/A	N/A
Fecal streptococcus	0	N/A	N/A
Not indicated	0	N/A	N/A
Total	6,743	184	3
<b>Freshwater beaches</b>			
Indicator	Total # Samples collected	Total # samples exceeding criterion	% samples exceeding criterion
Enterococcus	1,081	116	11
E. coli	5,294	147	3
Fecal coliform	36	N/A	N/A
Total coliform	12	N/A	N/A
Fecal streptococcus	50	N/A	N/A
Not indicated	0	N/A	N/A
Total	6,473	263	4

**Table 15:** The number of exceedences and postings at marine and freshwater public and semi-public bathing beaches in Massachusetts in 2002.

<b>Marine beaches</b>	
Exceedences, total (Enterococcus)	184
Postings, total <sup>1</sup>	101
Postings, Enterococcus	73
Postings, Preemptive	1
Postings, Rainfall	27
<b>Freshwater beaches</b>	
Exceedences, total	263
Exceedences, Enterococcus	116
Exceedences, E. coli	147
Postings, total <sup>1</sup>	138
Postings, Enterococcus	68
Postings, E. coli	59
Postings, Preemptive	9
Postings, Rainfall	2

1. Total Postings does not necessarily equal total exceedences because some tests that resulted in exceedence may have occurred while the beach was closed, or beach closings covered multiple parts of a beach that were counted as separate beaches in this report.

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Aquinnah (See also Gay Head)	Lobsterville	Weekly	Enterococci	6	0	N/A	0--8	
Aquinnah (See also Gay Head)	Menemsha Pond	Weekly	Enterococci	6	0	N/A	0--20	
Aquinnah (See also Gay Head)	Philbin Beach	Weekly	Enterococci	6	0	N/A	0--14	
Barnstable	Bone Hill	Weekly	Enterococci	13	0	N/A	2--90	
Barnstable	Bridge Street	Weekly	Enterococci	12	0	N/A	2--8	
Barnstable	Cordwood	Weekly	Enterococci	13	0	N/A	2--4	
Barnstable	Cotuit Bay Shores Association	Weekly	Enterococci	13	0	N/A	2--30	
Barnstable	Covell's Beach	Weekly	Enterococci	13	0	N/A	2--28	
Barnstable	Craigville Beach	Weekly	Enterococci	13	0	N/A	2--28	
Barnstable	Crocker's Neck	Weekly	Enterococci	12	1	230	2--50	1
Barnstable	Cross Street	Weekly	Enterococci	14	0	N/A	2--6	
Barnstable	Dowses Beach	Weekly	Enterococci	13	0	N/A	2--8	
Barnstable	East (Town) Beach	Weekly	Enterococci	13	0	N/A	2--4	
Barnstable	Estey Avenue Beach	Weekly	Enterococci	13	0	N/A	2--18	
Barnstable	Indian Trail	Weekly	Enterococci	13	0	N/A	2--48	
Barnstable	Kalmus Ocean	Weekly	Enterococci	13	0	N/A	2--53	
Barnstable	Kalmus Yacht	Weekly	Enterococci	13	0	N/A	2--18	
Barnstable	Kennedy Memorial	Weekly	Enterococci	13	0	N/A	2--66	
Barnstable	Keyes Beach	Weekly	Enterococci	13	0	N/A	2--16	
Barnstable	Little River	Weekly	Enterococci	13	0	N/A	2--16	
Barnstable	Loops Beach	Weekly	Enterococci	13	0	N/A	2--26	
Barnstable	Millway	Weekly	Enterococci	13	0	N/A	2--36	
Barnstable	Oregon Beach	Weekly	Enterococci	13	0	N/A	2--2	
Barnstable	Oyster Harbors Club	Weekly	Enterococci	10	0	N/A	2--2	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Barnstable	Oyster Place Road	Weekly	Enterococci	13	0	N/A	2--28	
Barnstable	Prince Cove	Weekly	Enterococci	13	0	N/A	2--26	
Barnstable	Ropes Beach	Weekly	Enterococci	13	0	N/A	2--70	
Barnstable	Sandy Neck	Weekly	Enterococci	13	0	N/A	2--50	
Barnstable	Scudder Lane	Weekly	Enterococci	13	0	N/A	2--20	
Barnstable	Seaside Park Improvement Assoc.	Weekly	Enterococci	13	0	N/A	2--6	
Barnstable	Veterans Beach	Weekly	Enterococci	13	0	N/A	2--38	
Barnstable	Wianno Avenue	Weekly	Enterococci	9	0	N/A	2--6	
Barnstable	Wianno Club (salt)	Weekly	Enterococci	11	0	N/A	2--4	
Beverly	Brackenbury	Weekly	Enterococci	14	0	N/A	5--95	
Beverly	Dane Street Bathhouse	Weekly	Enterococci	15	1	210	5--65	1
Beverly	Dane Street Jetty	Weekly	Enterococci	14	0	N/A	5--55	
Beverly	Dane Street Outfall	Weekly	Enterococci	13	0	N/A	5--75	
Beverly	Goat Hill	Weekly	Enterococci	14	0	N/A	5--15	
Beverly	Independence	Weekly	Enterococci	15	1	300	5--25	1
Beverly	Lynch Park	Weekly	Enterococci	14	0	N/A	5--45	
Beverly	Mingo	Weekly	Enterococci	18	6	120--1145	5--85	4
Beverly	Ober Park	Weekly	Enterococci	14	0	N/A	5--15	
Beverly	Rice Beach	Weekly	Enterococci	12	0	N/A	5--15	
Beverly	Rice Outfall	Weekly	Enterococci	8	3	160 -- 4000	5 -- 60	
Beverly	Sandy Point	Weekly	Enterococci	13	1	155	2--25	1
Beverly	West	Weekly	Enterococci	14	0	N/A	5--90	
Beverly	Woodbury	Weekly	Enterococci	14	0	N/A	5--60	
Boston	Carson Beach at Bathhouse	Weekly	Enterococci	28	0	N/A	2--104	9
Boston	Carson Beach at I Street	Weekly	Enterococci	28	1	106	2--80	9

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Boston	City Point Beach @ Point	Weekly	Enterococci	28	1	128	2--40	
Boston	Constitution Beach @ Middle Site	Weekly	Enterococci	25	2	116--854	2--50	6
Boston	Constitution Beach @ Nahant Street	Weekly	Enterococci	2	0	N/A	2 -- 4	
Boston	Constitution Beach @ North Site	Weekly	Enterococci	24	4	110 -- 1600	2 -- 66	6
Boston	Constitution Beach @ Recreation Center	Weekly	Enterococci	28	2	122--908	2--88	6
Boston	Constitution Beach @ South Site	One Time	Enterococci	1	0	N/A	10	6
Boston	Lovell's Island	Monthly	Enterococci	5	0	N/A	2--2	
Boston	M Street Beach @ M Street	Weekly	Enterococci	28	0	N/A	2--88	3
Boston	Malibu Beach @ Bathouse	Weekly	Enterococci	20	3	182--410	2--62	
Boston	Pleasure Bay @ Broadway	Weekly	Enterococci	28	0	N/A	2--90	2
Boston	Savin Hill @ Bayside	Weekly	Enterococci	14	0	N/A	2--92	1
Boston	Savin Hill @ Right	One Time	Enterococci	1	0	N/A	1	1
Boston	Tenean Beach @ Middle Site	Weekly	Enterococci	21	2	1400--1600	2--96	4
Bourne	Barlow's Landing	Weekly	Enterococci	13	0	N/A	2--24	
Bourne	Briarwood	Weekly	Enterococci	6	0	N/A	2	
Bourne	Cape Cod Sea Camps (CC Bay-Marine)	Weekly	Enterococci	14	1	116	2--10	1
Bourne	Cataumet	Weekly	Enterococci	13	0	N/A	2--76	
Bourne	Cedar Point	Weekly	Enterococci	11	0	N/A	2--12	
Bourne	Electric Avenue	Weekly	Enterococci	13	0	N/A	2--32	
Bourne	Gray Gables	Weekly	Enterococci	7	0	N/A	2--16	
Bourne	Guilder Avenue	Weekly	Enterococci	6	0	N/A	2--8	
Bourne	Hideaway Village	Weekly	Enterococci	11	0	N/A	2--18	
Bourne	Monument - Briarwood	Two Times	Enterococci	2	0	N/A	8	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Bourne	Monument Beach	Weekly	Enterococci	13	0	N/A	2--32	
Bourne	North Beach	Weekly	Enterococci	12	0	N/A	2--6	
Bourne	Patiusset Beach	Weekly	Enterococci	13	1	340	2--60	1
Bourne	Pocasset Beach	Weekly	Enterococci	12	0	N/A	2--10	
Bourne	Sagamore Beach	Weekly	Enterococci	14	1	116	2--82	1
Bourne	Scenic Park	Weekly	Enterococci	8	0	N/A	2--4	
Bourne	Scraggy Neck	Weekly	Enterococci	12	0	N/A	2--22	
Bourne	South Beach	Weekly	Enterococci	16	0	N/A	2--38	
Bourne	Tahanto	Weekly	Enterococci	12	0	N/A	2--6	
Braintree	Fore River Smith Beach	Weekly	Enterococci	13	2	80--152	2--50	
Brewster	Breakwater	Weekly	Enterococci	10	0	N/A	2--10	
Brewster	Cape Cod Sea Camps Bay	Weekly	Enterococci	10	1	116	2 -- 10	
Brewster	Crosby	Weekly	Enterococci	15	2	156--400	2--88	2
Brewster	Ellis	Weekly	Enterococci	11	0	N/A	2--6	
Brewster	Linnel	Weekly	Enterococci	11	0	N/A	2--42	
Brewster	Paines Creek	Weekly	Enterococci	11	0	N/A	2--48	
Brewster	Point of Rocks	Weekly	Enterococci	11	0	N/A	2--88	
Brewster	Robbins Hill	Weekly	Enterococci	11	0	N/A	2--10	
Brewster	Saints	Weekly	Enterococci	11	0	N/A	2--24	
Chatham	Bucks Creek	Twice Per Week	Enterococci	23	0	N/A	2--75	
Chatham	Chatham Bars Inn	Weekly	Enterococci	10	0	N/A	0--5	
Chatham	Cockle Cove Beach	Weekly	Enterococci	12	0	N/A	2--20	1
Chatham	Cockle Cove at Parking Lot	Weekly	Enterococci	23	6	110--980	2--103	1 (for season)
Chatham	Cockle Cove Creek at Ridgevale Bridge	Weekly	Enterococci	21	4	110--380	2--25	1 (for season)

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Chatham	Forest Street Beach	Weekly	Enterococci	12	0	N/A	2--12	
Chatham	Hardings Beach East	Weekly	Enterococci	12	0	N/A	2--12	
Chatham	Hardings Beach West	Weekly	Enterococci	12	0	N/A	2--32	
Chatham	Jacknife Harbor Beach	Weekly	Enterococci	12	0	N/A	2--10	
Chatham	Lighthouse Beach	Weekly	Enterococci	12	0	N/A	2--25	
Chatham	Oyster Pond Beach	Weekly	Enterococci	13	0	N/A	2--9	1
Chatham	Pleasant Street Beach	Weekly	Enterococci	12	0	N/A	2--28	
Chatham	Ridgevale Beach	Weekly	Enterococci	12	0	N/A	2--13	
Chilmark	Lucy Vincent Beach - Chilmark Pond	Weekly	Enterococci	10	0	N/A	0--0	
Chilmark	Lucy Vincent Beach - Ocean	Weekly	Enterococci	10	0	N/A	0--0	
Chilmark	Menemsha Beach	Weekly	Enterococci	10	0	N/A	0--13	
Chilmark	Ocean at Squibnocket Beach	Weekly	Enterococci	10	0	N/A	0--22	
Cohasset	Black Rock Beach	Weekly	Enterococci	10	0	N/A	2--16	
Cohasset	Little Harbor	Weekly	Enterococci	9	0	N/A	2--14	
Cohasset	Sailing Club	Weekly	Enterococci	10	0	N/A	4--40	
Cohasset	Sandy Beach	Weekly	Enterococci	10	0	N/A	2--30	
Cohasset	Sandy Cove	Weekly	Enterococci	10	0	N/A	2--42	
Cohasset	Yacht Club	Weekly	Enterococci	10	0	N/A	2--88	
Danvers	Sandy Beach East	Weekly	Enterococci	13	1	1240	10--80	
Danvers	Sandy Beach West	Weekly	Enterococci	15	1	680	10--50	
Dartmouth	Anthony's	Weekly	Enterococci	12	0	N/A	2--30	
Dartmouth	Apponagansett Town Beach	Weekly	Enterococci	13	0	N/A	2--12	
Dartmouth	Barney's Joy	Weekly	Enterococci	9	0	N/A	2--26	
Dartmouth	Bayview	Weekly	Enterococci	12	1	176	2--6	1
Dartmouth	Demarest Lloyd	Weekly	Enterococci	11	0	N/A	2 -- 10	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Dartmouth	Hidden Bay	Weekly	Enterococci	9	1	196	2--14	1
Dartmouth	Jones Town Beach	Weekly	Enterococci	13	0	N/A	2--30	
Dartmouth	Little River	Weekly	Enterococci	11	0	N/A	2--40	
Dartmouth	Moses Creek	Weekly	Enterococci	13	1	180	2--88	1
Dartmouth	Nonquitt	Weekly	Enterococci	12	0	N/A	2--30	
Dartmouth	Oak Hill Shores	Weekly	Enterococci	10	0	N/A	2--18	
Dartmouth	Round Hill	Weekly	Enterococci	13	0	N/A	2--4	
Dartmouth	Salter's Point East	Weekly	Enterococci	11	0	N/A	2--14	
Dartmouth	Salter's Point South	Weekly	Enterococci	9	0	N/A	2--8	
Dennis	Bancroft	Weekly	Enterococci	2	0	N/A	2--2	
Dennis	Bayview	Weekly	Enterococci	11	0	N/A	2--28	
Dennis	Chapin Memorial Beach	Weekly	Enterococci	12	1	148	2--102	1
Dennis	Cold Storage	Weekly	Enterococci	11	0	N/A	2--12	
Dennis	Corporation	Weekly	Enterococci	11	0	N/A	2--22	
Dennis	Glendon Road	Weekly	Enterococci	10	0	N/A	2--8	
Dennis	Haigis	Weekly	Enterococci	11	0	N/A	2--32	
Dennis	Harborview	Weekly	Enterococci	11	0	N/A	2--16	
Dennis	Howes Street	Weekly	Enterococci	11	0	N/A	2--34	
Dennis	Inman	Weekly	Enterococci	11	0	N/A	2--36	
Dennis	Mayflower	Weekly	Enterococci	11	0	N/A	2--56	
Dennis	Raycroft	Weekly	Enterococci	9	0	N/A	2--22	
Dennis	Sea Street	Weekly	Enterococci	11	0	N/A	2--10	
Dennis	South Village	Weekly	Enterococci	11	0	N/A	2--16	
Dennis	Sullivan	Weekly	Enterococci	11	0	N/A	2--52	
Dennis	Trotting Park	Weekly	Enterococci	11	0	N/A	2--4	
Dennis	West Dennis-1st outhouse	Weekly	Enterococci	11	0	N/A	2--36	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Dennis	West Dennis-2nd outhouse	Weekly	Enterococci	11	0	N/A	0--25	
Dennis	West Dennis-swingset	Weekly	Enterococci	10	0	N/A	2--56	
Duxbury	Bath House	Weekly	Enterococci	12	0	N/A	2--14	
Duxbury	Hardin Hill	Weekly	Enterococci	11	0	N/A	2--96	
Duxbury	Howlands Landing	Weekly	Enterococci	13	1	990	2--36	
Duxbury	Island Creek	Weekly	Enterococci	11	0	N/A	2--80	
Duxbury	Landing Road	Weekly	Enterococci	11	0	N/A	2--52	
Duxbury	Residents Beach	Weekly	Enterococci	13	0	N/A	2--14	
Duxbury	Shipyard Lane	Weekly	Enterococci	12	0	N/A	2--96	
Duxbury	West End	Weekly	Enterococci	13	3	220--460	2--46	
Eastham	Boat Meadow	Weekly	Enterococci	13	1	400	2--54	
Eastham	Campground	Weekly	Enterococci	13	1	208	2--58	
Eastham	Coast Guard Beach 1	Weekly	Enterococci	12	0	N/A	2--50	
Eastham	Coast Guard Beach 2	Weekly	Enterococci	11	1	400	2--26	
Eastham	Cole Road	Weekly	Enterococci	13	1	400	2--18	
Eastham	Cook's Brook	Weekly	Enterococci	12	0	N/A	2--72	
Eastham	Dyer Prince	Weekly	Enterococci	12	0	N/A	2--12	
Eastham	First Encounter	Weekly	Enterococci	20	1	400	2--26	
Eastham	Kingsbury	Weekly	Enterococci	12	0	N/A	2--96	
Eastham	Nauset Light Beach 1	Weekly	Enterococci	11	0	N/A	2--12	
Eastham	Nauset Light Beach 2	Weekly	Enterococci	11	0	N/A	2--30	
Eastham	Nauset Light Beach 3	Weekly	Enterococci	10	0	N/A	2--4	
Eastham	Sunken Meadow	Weekly	Enterococci	12	1	324	2--10	
Eastham	Thumpertown	Weekly	Enterococci	12	0	N/A	2--70	
Eastham	Town Cove	Weekly	Enterococci	12	0	N/A	2--92	
Edgartown	Bend-in-the-Road Beach	Weekly	Enterococci	15	0	N/A	0--42	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Edgartown	Sepiessa Point	Weekly	Enterococci	14	0	N/A	0 -- 18	
Edgartown	South Beach State Park	Monthly	Enterococci	7	1	114	4--28	
Edgartown	South Beach State Park - Middle	Weekly	Enterococci	11	0	N/A	0--4	
Edgartown	South Beach State Park-Right Fork West	Weekly	Enterococci	17	0	N/A	0--4	
Essex	Clammer's Beach	Weekly	Enterococci	16	0	N/A	10--80	
Essex	Front Beach	Weekly	Enterococci	17	1	120	10--30	1
Fairhaven	Causeway West Island	Weekly	Enterococci	12	0	N/A	2--22	
Fairhaven	Fort Phoenix	Monthly	Enterococci	5	0	N/A	2--36	1
Fairhaven	Knollmere	Weekly	Enterococci	7	0	N/A	2--24	
Fairhaven	Manhattan Avenue	Weekly	Enterococci	11	0	N/A	2--22	
Fairhaven	Raymond Street	Weekly	Enterococci	13	1	170	2--66	1
Fairhaven	Towns Beach-West Island	Weekly	Enterococci	12	0	N/A	2--6	
Falmouth	Akapesket Improvement Association-Akapesket	Weekly	Enterococci	8	0	N/A	2--2	
Falmouth	Bay Shores Homeowners Association	Weekly	Enterococci	7	0	N/A	2--22	
Falmouth	Bristol 1	Weekly	Enterococci	12	0	N/A	2--2	
Falmouth	Bristol 2	Weekly	Enterococci	13	0	N/A	2--14	
Falmouth	Chapaquoit	Weekly	Enterococci	13	0	N/A	2--6	
Falmouth	Chapoquoit Associates-Front Beach	Weekly	Enterococci	8	0	N/A	2--2	
Falmouth	Chapoquoit Associates-Little Beach	Weekly	Enterococci	8	0	N/A	4--14	
Falmouth	Falmouth Associates-564 Surf Drive	Weekly	Enterococci	10	0	N/A	1--2	
Falmouth	Falmouth Heights 1	Weekly	Enterococci	14	0	N/A	2--28	
Falmouth	Falmouth Heights 2	Weekly	Enterococci	12	0	N/A	2--12	
Falmouth	Falmouth Yacht Club	Weekly	Enterococci	10	0	N/A	2--4	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Falmouth	Little Island Beach Preserve	Weekly	Enterococci	11	0	N/A	2--14	
Falmouth	Mariner's Beach Trust	Weekly	Enterococci	11	0	N/A	2--6	
Falmouth	Megansett	Weekly	Enterococci	13	0	N/A	2--28	
Falmouth	Menauhant 1	Weekly	Enterococci	13	0	N/A	2--18	
Falmouth	Menauhant 2	Weekly	Enterococci	13	0	N/A	2--18	
Falmouth	Mill Road	Weekly	Enterococci	12	0	N/A	2--15	
Falmouth	Nobska Beach Association	Weekly	Enterococci	6	0	N/A	2--4	
Falmouth	Old Silver 1	Weekly	Enterococci	13	0	N/A	2--30	
Falmouth	Old Silver 2	Weekly	Enterococci	13	0	N/A	2--20	
Falmouth	Old Silver Beach Estates	Weekly	Enterococci	9	0	N/A	2--24	
Falmouth	Saconnesset Hill Association	Weekly	Enterococci	10	0	N/A	2--28	
Falmouth	Seacoast Shores Association	Weekly	Enterococci	10	0	N/A	2--58	
Falmouth	Silver Beach Improvement Association-New Silver	Weekly	Enterococci	15	0	N/A	2--20	
Falmouth	Sippewissett Beach Trust	Weekly	Enterococci	10	0	N/A	2--34	
Falmouth	Stoney Beach	Weekly	Enterococci	13	0	N/A	2--30	
Falmouth	Surf Drive	Weekly	Enterococci	14	0	N/A	2--16	
Falmouth	Surf Drive Pool	Weekly	Enterococci	12	0	N/A	2--8	
Falmouth	Wood Neck	Weekly	Enterococci	13	0	N/A	2--52	
Falmouth	Wood Neck River	Weekly	Enterococci	14	0	N/A	2--58	
Gay Head (See also Aquinnah)	Lobsterville	Weekly	Enterococci	6	0	N/A	0--8	
Gay Head (See also Aquinnah)	Menemsha Pond	Weekly	Enterococci	6	0	N/A	0--20	
Gay Head (See also Aquinnah)	Philbin Beach	Weekly	Enterococci	6	0	N/A	0--14	
Gloucester	Cressy's	Weekly	Enterococci	9	0	N/A	10--30	
Gloucester	Good Harbor Creek Beach	Weekly	Enterococci	10	0	N/A	10--20	
Gloucester	Good Harbor Midway	Weekly	Enterococci	5	0	N/A	10--60	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Gloucester	Half Moon	Weekly	Enterococci	10	0	N/A	10--20	
Gloucester	Lighthouse	Weekly	Enterococci	4	0	N/A	10--60	
Gloucester	Niles	Weekly	Enterococci	10	0	N/A	10--20	
Gloucester	Pavillion	Weekly	Enterococci	10	0	N/A	10--10	
Gloucester	Plum Cove	Weekly	Enterococci	5	0	N/A	10--10	
Gloucester	Wingaersheek	Weekly	Enterococci	5	0	N/A	10--10	
Harwich	Allen Harbor	Weekly	Enterococci	12	0	N/A	2--98	
Harwich	Atlantic	Weekly	Enterococci	14	0	N/A	2--50	
Harwich	Bank Street	Weekly	Enterococci	13	0	N/A	2--20	
Harwich	Bayview	Weekly	Enterococci	3	0	N/A	2--30	
Harwich	Brooks Road	Weekly	Enterococci	13	0	N/A	2--34	
Harwich	Earl Road	Weekly	Enterococci	13	0	N/A	2--28	
Harwich	Grey Neck	Weekly	Enterococci	13	0	N/A	2--12	
Harwich	Merkel	Weekly	Enterococci	10	0	N/A	2--16	
Harwich	Neel Road	Weekly	Enterococci	13	0	N/A	2--10	
Harwich	Old Mill Pt.-Left of Jetty	Weekly	Enterococci	12	0	N/A	2--18	
Harwich	Old Mill Pt.-Right of Jetty	Weekly	Enterococci	12	0	N/A	2--18	
Harwich	Pleasant Bay	Weekly	Enterococci	15	0	N/A	2--82	
Harwich	Pleasant Road	Weekly	Enterococci	12	0	N/A	2--24	
Harwich	Red River-Deep Hole Road	Weekly	Enterococci	13	0	N/A	2--30	
Harwich	Red River-East	Weekly	Enterococci	10	0	N/A	2--8	
Harwich	Red River-Middle	Weekly	Enterococci	11	0	N/A	2--20	
Harwich	Riverside Harbor	Weekly	Enterococci	4	0	N/A	2--16	
Harwich	Round Cove	Weekly	Enterococci	15	2	130--364	2--20	
Harwich	The Belmont	Weekly	Enterococci	12	0	N/A	2--28	
Harwich	Wequassett Inn	Weekly	Enterococci	12	0	N/A	2--2	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Harwich	Wixon Dock	Weekly	Enterococci	6	0	N/A	2--32	
Harwich	Wyndmere	Weekly	Enterococci	7	0	N/A	2--2	
Harwich	Wyndmere/Seabreeze	Weekly	Enterococci	7	0	N/A	2--40	
Harwich	Zilpha	Weekly	Enterococci	11	0	N/A	2--10	
Hingham	Belair	Weekly	Enterococci	9	0	N/A	32	
Hingham	Cliff Road	Weekly	Enterococci	8	0	N/A	2--56	
Hingham	Kimball	Weekly	Enterococci	11	1	152	2--52	
Hingham	Melville	Weekly	Enterococci	11	1	970	2--54	
Hingham	North Beach	Weekly	Enterococci	11	1	165	2--42	
Hingham	Seal Cove	Weekly	Enterococci	11	0	N/A	2--70	
Hingham	Town Beach	Weekly	Enterococci	10	0	N/A	2--58	
Hingham	Wampatuck	Weekly	Enterococci	10	0	N/A	2--68	
Hingham	Yacht Club	Weekly	Enterococci	10	0	N/A	2--30	
Hull	A Street Bay	Weekly	Enterococci	12	0	N/A	2--65	
Hull	A Street Ocean	Weekly	Enterococci	11	0	N/A	2--8	
Hull	Darcy's	Weekly	Enterococci	12	0	N/A	2--32	
Hull	Edgewater	Weekly	Enterococci	12	0	N/A	2--38	
Hull	Gunrock	Weekly	Enterococci	12	0	N/A	2--86	
Hull	Helen Street	Weekly	Enterococci	12	0	N/A	2--75	
Hull	Kenberma	Weekly	Enterococci	12	0	N/A	2--42	
Hull	Nantasket Beach @ Bathouse	Weekly	Enterococci	11	0	N/A	2--16	
Hull	Nantasket Beach @ North Site	Weekly	Enterococci	11	0	N/A	2--28	
Hull	Nantasket Beach @ Park Street	Weekly	Enterococci	11	0	N/A	2--24	
Hull	Nantasket Beach @ Water Street	Weekly	Enterococci	11	0	N/A	2--22	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Hull	Newport	Weekly	Enterococci	12	0	N/A	2--75	
Hull	Spring Street	Weekly	Enterococci	12	0	N/A	2--42	
Hull	Whitehead	Weekly	Enterococci	12	0	N/A	2--42	
Hull	XYZ	Weekly	Enterococci	12	0	N/A	2--56	
Ipswich	Clark Beach	Weekly	Enterococci	15	0	N/A	10--40	
Ipswich	Cranes Beach-head lifeguard stand	Weekly	Enterococci	15	0	N/A	10--10	
Ipswich	Cranes Beach-Steep Hill Beach	Weekly	Enterococci	15	0	N/A	10--40	
Ipswich	Little Neck Beach	Weekly	Enterococci	15	0	N/A	10--40	
Ipswich	Pavillion Beach-greatest batherload	Weekly	Enterococci	15	0	N/A	10--40	
Ipswich	Pavillion Beach-outfall pipe	Weekly	Enterococci	15	0	N/A	10--20	
Kingston	Gray's Beach	Weekly	Enterococci	14	0	N/A	5--75	
Kingston	Rocky Nook	Weekly	Enterococci	14	0	N/A	5--75	
Lynn	King's Beach @ Kimball Road	Weekly	Enterococci	10	0	N/A	2--28	
Lynn	King's Beach @ Stacey Brook Outlet	Weekly	Enterococci	13	4	148--4000	2--70	
Manchester	Black Beach	Weekly	Enterococci	16	0	N/A	10 -- 40	
Manchester	Magnolia Beach	Weekly	Enterococci	16	0	N/A	10 -- 30	
Manchester	Magnolia Beach - right of bath & tennis	Weekly	Enterococci	16	0	N/A	10 -- 40	
Manchester	Singing Beach	Weekly	Enterococci	16	0	N/A	10 -- 30	
Manchester	Singing Beach - right of parking lot	Weekly	Enterococci	16	0	N/A	10 -- 60	
Manchester	Tucks Point Beach	Weekly	Enterococci	16	0	N/A	10 -- 40	
Manchester	West Manchester Beach	Weekly	Enterococci	16	0	N/A	10 -- 20	
Manchester	White Beach	Weekly	Enterococci	16	0	N/A	10 -- 30	
Marblehead	Crocker Park	Weekly	Enterococci	6	0	N/A	2 -- 12	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Marblehead	Devereux	Weekly	Enterococci	10	0	N/A	2 -- 24	
Marblehead	Gas House	Weekly	Enterococci	10	1	450	2 -- 34	
Marblehead	Grace Oliver	Weekly	Enterococci	10	1	490	2 -- 72	
Marblehead	Stramski	Weekly	Enterococci	11	0	N/A	1 -- 100	1
Marblehead	Sunset Road	Weekly	Enterococci	2	0	N/A	4 -- 18	
Marion	Beverly Yacht	Weekly	Enterococci	7	0	N/A	2 -- 18	
Marion	Camp Hadley	One Time	Enterococci	1	0	N/A	2	
Marion	Converse Point	Weekly	Enterococci	7	0	N/A	2 -- 8	
Marion	Dexter Beach	Weekly	Enterococci	7	0	N/A	2 -- 4	
Marion	Island Yacht	Weekly	Enterococci	7	0	N/A	2 -- 102	
Marion	Oakdale Ave	Weekly	Enterococci	7	0	N/A	2 -- 22	
Marion	Piney Point	Weekly	Enterococci	7	0	N/A	2	
Marion	Planting Island	Weekly	Enterococci	7	0	N/A	2	
Marion	River Road	Weekly	Enterococci	8	1	792	2 -- 6	
Marion	Silver Shell 1	Weekly	Enterococci	9	0	N/A	2 -- 10	
Marion	Silver Shell 2	Weekly	Enterococci	9	1	510	2 -- 10	
Marion	Tabor Acad. 1	Weekly	Enterococci	7	0	N/A	2 -- 10	
Marion	Tabor Acad. 2	Weekly	Enterococci	7	0	N/A	2 -- 28	
Marshfield	9th Road	Weekly	Enterococci	9	0	N/A	2 -- 26	
Marshfield	Brant Rock	Weekly	Enterococci	9	0	N/A	2 -- 36	
Marshfield	Fieldston	Weekly	Enterococci	9	0	N/A	2 -- 10	
Marshfield	Green Harbor	Weekly	Enterococci	9	0	N/A	2 -- 52	
Marshfield	Rexhame	Weekly	Enterococci	9	0	N/A	2 -- 16	
Mashpee	Hideaway Villiage Assoc.	One Time	Enterococci	1	0	N/A	6	
Mashpee	Mashpee Neck Rd Landing	Weekly	Enterococci	13	0	N/A	2 -- 48	
Mashpee	Pirate's Cove Assoc. -	Weekly	Enterococci	9	0	N/A	2 -- 14	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
	Pirates Cove							
Mashpee	Poponneset Beach	Weekly	Enterococci	13	0	N/A	2 -- 20	
Mashpee	Poponneset Spit	Weekly	Enterococci	13	0	N/A	2 -- 14	
Mashpee	Popponnesett Beach Assoc. - Popponnesett	Weekly	Enterococci	13	0	N/A	2 -- 12	
Mashpee	Seconsett Island Causeway	Weekly	Enterococci	13	0	N/A	2 -- 7	
Mashpee	South Cape (Center)	Weekly	Enterococci	16	1	394	2 -- 14	1
Mashpee	South Cape (Left)	Weekly	Enterococci	8	1	340	2 -- 54	1
Mashpee	South Cape (Right)	Weekly	Enterococci	7	0	N/A	2 -- 10	1
Mashpee	State Beach	One Time	Enterococci	1	0	N/A	2	
Mattapoisett	Antasawomak	Weekly	Enterococci	9	0	N/A	2 -- 8	
Mattapoisett	Brant Beach	Weekly	Enterococci	9	0	N/A	2 -- 10	
Mattapoisett	Cresent Beach	Weekly	Enterococci	9	0	N/A	2 -- 14	
Mattapoisett	Harbor 1	Weekly	Enterococci	9	0	N/A	2 -- 22	
Mattapoisett	Harbor 2	Weekly	Enterococci	5	0	N/A	2 -- 10	
Mattapoisett	Hollywoods 1	Weekly	Enterococci	5	0	N/A	2	
Mattapoisett	Hollywoods 2	Weekly	Enterococci	5	0	N/A	2 -- 12	
Mattapoisett	Lesiure Shores	Weekly	Enterococci	5	0	N/A	2 -- 16	
Mattapoisett	Mattapoisett Shores	Weekly	Enterococci	9	0	N/A	2 -- 14	
Mattapoisett	Peases Point	Weekly	Enterococci	9	0	N/A	2	
Mattapoisett	Pt. Connett	Weekly	Enterococci	9	0	N/A	2 -- 8	
Mattapoisett	Town Beach	Weekly	Enterococci	9	0	N/A	2 -- 36	
Nahant	Black Rock Beach	Weekly	Enterococci	14	0	N/A	0 -- 34	
Nahant	Canoe Beach	Weekly	Enterococci	14	0	N/A	0 -- 44	
Nahant	Nahant @ Bathhouse	Weekly	Enterococci	8	1	508	14--60	
Nahant	Nahant @ Flagpole	Weekly	Enterococci	11	0	N/A	2--80	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Nahant	Nahant @ Parking Lot Sec. 9	Weekly	Enterococci	12	1	260	2--90	
Nahant	Nahant @ South Site	Weekly	Enterococci	12	0	N/A	2--58	
Nahant	Short Beach	Weekly	Enterococci	14	0	N/A	0 -- 14	
Nahant	Tudor Beach	Weekly	Enterococci	15	1	107	0 -- 50	
Nantucket	40th Pole #1	Weekly	Enterococci	10	0	N/A	2 -- 8	
Nantucket	40th Pole #2	Weekly	Enterococci	10	0	N/A	2 -- 26	
Nantucket	Children's Beach	Weekly	Enterococci	10	0	N/A	2 -- 20	
Nantucket	Cisco	Weekly	Enterococci	10	0	N/A	2	
Nantucket	Cliffside	Weekly	Enterococci	10	1	400	2 -- 10	
Nantucket	Dionis	Weekly	Enterococci	10	0	N/A	2 -- 5	
Nantucket	Jettes	Weekly	Enterococci	10	0	N/A	2 -- 18	
Nantucket	Madaket	Weekly	Enterococci	10	1	110	2 -- 8	
Nantucket	Miacomet Beach	Weekly	Enterococci	10	0	N/A	2 -- 12	
Nantucket	Sconset #1	Weekly	Enterococci	9	0	N/A	2 -- 4	
Nantucket	Sconset #2	Weekly	Enterococci	10	0	N/A	2 -- 10	
Nantucket	Sewerbeds	Weekly	Enterococci	10	0	N/A	2 -- 14	
Nantucket	Surfside #1	Weekly	Enterococci	10	0	N/A	2 -- 16	
Nantucket	Surfside #2	Weekly	Enterococci	10	0	N/A	2 -- 8	
Nantucket	Warren's Landing	Weekly	Enterococci	10	0	100	2 -- 100	
Nantucket	Warren's Landing Sediment Mix	Weekly	Enterococci	10	1	110	2 -- 34	
Nantucket	Washington Street Beach	Weekly	Enterococci	9	0	N/A	2 -- 82	
New Bedford	Davy's Locker	Weekly	Enterococci	11	0	N/A	2 -- 4	
New Bedford	J. Beach	Weekly	Enterococci	11	0	N/A	2 -- 8	
New Bedford	Kid's Beach	Weekly	Enterococci	11	0	N/A	2 -- 10	
New Bedford	North 400	Weekly	Enterococci	13	2	244 -- 546	2 -- 8	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
New Bedford	O'Tools	Weekly	Enterococci	11	0	N/A	2	
New Bedford	South 400	Weekly	Enterococci	9	0	N/A	2 -- 4	
New Bedford	Squid Beach	Weekly	Enterococci	10	0	N/A	2 -- 8	
New Bedford	Taber Park North	One Time	Enterococci	1	0	N/A	12	
New Bedford	Taber Park South	Weekly	Enterococci	10	0	N/A	2 -- 80	
New Bedford	Tower 1	Weekly	Enterococci	11	0	N/A	2 -- 40	
New Bedford	Tower 3	One Time	Enterococci	1	0	N/A	2	
New Bedford	Tower 4	Weekly	Enterococci	10	0	N/A	2	
Newbury	Plum Island - Greatest Batherload	Weekly	Enterococci	15	0	N/A	10 -- 40	
Newburyport	Plum Island - 55th Street	Monthly	Fecal Coliform	3	N/A	N/A	7 -- 26	
Newburyport	Plum Island - End of Island 1	Monthly	Fecal Coliform	3	N/A	N/A	16 -- 68	
Newburyport	Plum Island - End of Island 2	Monthly	Fecal Coliform	3	N/A	N/A	12 -- 80	
Newburyport	Plum Island - Mouth of Basin	Monthly	Fecal Coliform	3	N/A	N/A	8 -- 92	
Newburyport	Plum Island - Out Fall Pipe	Monthly	Fecal Coliform	3	N/A	N/A	24 -- 133	
Oak Bluffs	Lagoon Pond Herring Run	Weekly	Enterococci	11	0	N/A	0 -- 63	
Oak Bluffs	Marinelli's Beach	Weekly	Enterococci	13	0	N/A	0 -- 36	
Oak Bluffs	Pay Beach	Weekly	Enterococci	13	0	N/A	0 -- 18	
Orleans	Kent's Point	Weekly	Enterococci	13	1	360	2 -- 4	1
Orleans	Little Inn at Pleasant Bay	Weekly	Enterococci	13	0	N/A	2 -- 4	
Orleans	Meeting House Pond	Weekly	Enterococci	12	0	N/A	2 -- 8	
Orleans	Nauset	Weekly	Enterococci	12	0	N/A	2 -- 12	
Orleans	Pah Wah Pond	Weekly	Enterococci	12	0	N/A	2 -- 23	
Orleans	Pleasant Bay	Weekly	Enterococci	12	0	N/A	2 -- 70	
Orleans	Priscilla's Landing	Weekly	Enterococci	12	0	N/A	2 -- 32	
Orleans	Quanset Harbor	Weekly	Enterococci	11	0	N/A	2 -- 16	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Orleans	Rock Harbor	Weekly	Enterococci	12	0	N/A	2 -- 42	
Orleans	Skaket Beach	Weekly	Enterococci	12	0	N/A	2 -- 26	
Orleans	Skaket Beach Condominiums	Weekly	Enterococci	9	0	N/A	2 -- 12	
Orleans	Town Cove	Weekly	Enterococci	12	0	N/A	2 -- 32	
Plymouth	Atlantic St.	Monthly	Enterococci	2	0	N/A	5 -- 10	
Plymouth	Boundary Lane	Monthly	Enterococci	2	0	N/A	5 -- 10	
Plymouth	Brewster St	Monthly	Enterococci	2	0	N/A	5 -- 30	
Plymouth	Harbor Master Float	Monthly	Enterococci	2	1	400	60	
Plymouth	Mamma Mia	Monthly	Enterococci	2	0	N/A	5 -- 100	
Plymouth	Mayflower Rest.	Monthly	Enterococci	2	1	190	5	
Plymouth	Nelson St. Beach	Monthly	Enterococci	2	1	130	5	
Plymouth	Plymouth Beach - #1	Weekly	Enterococci	14	0	N/A	5 -- 43	
Plymouth	Plymouth Beach - #2	Weekly	Enterococci	14	0	N/A	5 -- 35	
Plymouth	Plymouth Beach - #3	Weekly	Enterococci	14	0	N/A	5 -- 25	
Plymouth	Plymouth Beach - #4	Weekly	Enterococci	14	0	N/A	5 -- 30	
Plymouth	Plymouth Beach - #5	Weekly	Enterococci	14	0	N/A	5 -- 10	
Plymouth	Robbins Road	Monthly	Enterococci	2	0	N/A	5	
Plymouth	White Horse Beach - Full Sail	Weekly	Enterococci	14	0	N/A	5 -- 20	
Plymouth	White Horse Beach - Hill Top	Weekly	Enterococci	14	0	N/A	5 -- 10	
Provincetown	29 Commercial St	Weekly	Enterococci	13	0	N/A	2 -- 58	
Provincetown	333 Commercial St	Weekly	Enterococci	12	0	N/A	2 -- 50	
Provincetown	451 Commercial St	Weekly	Enterococci	14	1	286	2 -- 24	
Provincetown	593 Commercial St	Weekly	Enterococci	13	0	N/A	2 -- 54	
Provincetown	637 Commercial St	Weekly	Enterococci	12	0	N/A	2 -- 70	
Provincetown	Atkins Lane	Weekly	Enterococci	13	0	N/A	2 -- 32	
Provincetown	Atlantic Ave	Weekly	Enterococci	13	0	N/A	2 -- 48	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Provincetown	Court St	Weekly	Enterococci	14	0	N/A	2 -- 54	
Provincetown	Herring Cove Beach 1	Weekly	Enterococci	11	0	N/A	2--6	
Provincetown	Herring Cove Beach 2	Weekly	Enterococci	12	0	N/A	2--14	
Provincetown	Johnson Street	Weekly	Enterococci	13	0	N/A	2 -- 24	
Provincetown	Kendal Lane	Weekly	Enterococci	13	0	N/A	2 -- 35	
Provincetown	Provincetown Inn	Weekly	Enterococci	14	2	134 -- 186	2 -- 30	2
Provincetown	Race Point Beach 1	Weekly	Enterococci	11	0	N/A	2--50	
Provincetown	Race Point Beach 2	Weekly	Enterococci	11	0	N/A	2--20	
Provincetown	Race Point Beach 3	Weekly	Enterococci	11	0	N/A	2--42	
Provincetown	Ryder Street Beach Left	Weekly	Enterococci	14	1	106	2 -- 74	1
Provincetown	Ryder Street Beach Middle	Weekly	Enterococci	14	0	N/A	2 -- 48	1
Provincetown	Ryder Street Beach Right	Weekly	Enterococci	14	0	N/A	2 -- 68	1
Provincetown	TL West of Coast Guard	Weekly	Enterococci	13	0	N/A	2 -- 88	
Provincetown	TL1 - Breakwater	Weekly	Enterococci	13	1	112	2 -- 90	1
Provincetown	TL2 - Snail Road	Weekly	Enterococci	14	1	126	2 -- 84	1
Provincetown	West End Lot	Weekly	Enterococci	14	2	252-400	2 -- 86	2
Quincy	Avalon	Weekly	Enterococci	13	1	380	2 -- 55	1
Quincy	Baker	Weekly	Enterococci	13	1	710	2 -- 50	
Quincy	Chicatabot	Weekly	Enterococci	13	1	340	2 -- 100	1
Quincy	Edgewater	Weekly	Enterococci	15	3	170 -- 700	2 -- 90	2
Quincy	Heron	Weekly	Enterococci	13	1	860	4 -- 56	1
Quincy	Wollaston Beach @ Black's Creek	Twice Per Week	Enterococci	19	2	450--1530	2--100	
Quincy	Wollaston Beach @ Channing Street	Twice Per Week	Enterococci	26	5	122--2500	2--86	
Quincy	Wollaston Beach @ Milton Street	Twice Per Week	Enterococci	27	2	162--1200	2--100	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Quincy	Wollaston Beach @ Rice Road	Twice Per Week	Enterococci	26	1	1410	2--104	
Quincy	Wollaston Beach @ Sachem Street	Twice Per Week	Enterococci	26	1	850	2--90	
Quincy	Mound	Weekly	Enterococci	12	0	N/A	2 -- 78	
Quincy	Nickerson	Weekly	Enterococci	15	3	280 -- 930	2 -- 46	2
Quincy	Orchard	Weekly	Enterococci	12	0	N/A	2 -- 90	
Quincy	Parkhurst	Weekly	Enterococci	13	1	1900	2 -- 78	1
Quincy	Rhoda	Weekly	Enterococci	14	2	128 -- 320	2 -- 75	2
Revere	Revere @ Oak Island (Kelly's)	Weekly	Enterococci	11	0	N/A	2--56	
Revere	Revere @ Shirley Street	Weekly	Enterococci	11	0	N/A	2--54	
Revere	Revere @ State Police	Weekly	Enterococci	11	0	N/A	2--30	
Revere	Revere Beach @ Point of Pines	Weekly	Enterococci	11	0	N/A	4--54	
Revere/Winthrop	Short Beach	Weekly	Enterococci	11	0	N/A	2--22	
Rockport	Back Beach	Weekly	Enterococci	14	0	N/A	10 -- 40	
Rockport	Cape Hedge Beach	Weekly	Enterococci	14	0	N/A	10 -- 30	
Rockport	Front Beach	Weekly	Enterococci	14	0	N/A	10 -- 60	
Rockport	Long Beach - Gloucester	Weekly	Enterococci	14	0	N/A	10 -- 30	
Rockport	Long Beach - North	Weekly	Enterococci	14	0	N/A	10 -- 60	
Rockport	Old Garden Beach	Weekly	Enterococci	14	0	N/A	10 -- 30	
Rockport	Pebble Beach	Weekly	Enterococci	14	0	N/A	10	
Salem	Collins	Weekly	Enterococci	16	1	140	4 -- 30	
Salem	Dead Horse Beach	Weekly	Enterococci	15	1	110	4 -- 15	
Salem	Forest River Point	Weekly	Enterococci	8	0	N/A	4 -- 15	
Salem	Juniper Point	Weekly	Enterococci	14	0	N/A	4 -- 100	
Salem	Mackey	Weekly	Enterococci	14	0	N/A	4 -- 40	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Salem	Ocean Ave	Weekly	Enterococci	14	2	165 -- 565	4 -- 85	
Salem	Osgood	Weekly	Enterococci	15	1	195	4 -- 15	
Salem	Pickman	Weekly	Enterococci	14	1	195	4 -- 65	1
Salem	Pioneer	Weekly	Enterococci	15	1	135	4 -- 70	1
Salem	Steps	Weekly	Enterococci	15	1	1090	4 -- 75	1
Salem	Willow Ave	Weekly	Enterococci	15	3	350 -- 700	4 -- 35	
Salem	Willows Pier	Weekly	Enterococci	15	0	N/A	4 -- 35	
Salem	Winter Island	Weekly	Enterococci	15	0	N/A	4 -- 10	
Salisbury	Salisbury Main Beach	Weekly	Enterococci	15	0	N/A	2 -- 12	
Sandwich	East Sandwich Beach	Weekly	Enterococci	12	0	N/A	2 -- 4	
Sandwich	Scusset Beach	Weekly	Enterococci	11	0	N/A	2 -- 10	
Sandwich	Torrey Beach Community Assoc.	Weekly	Enterococci	13	0	N/A	2 -- 28	
Sandwich	Town Neck Beach (Boardwalk)	Weekly	Enterococci	12	0	N/A	1 -- 10	
Sandwich	Town Neck Beach (Horizons)	Weekly	Enterococci	12	0	N/A	2 -- 4	
Scituate	Egypt	Weekly	Enterococci	11	0	N/A	2 -- 8	
Scituate	Humarock	Weekly	Enterococci	11	0	N/A	2 -- 36	
Scituate	Minot	Weekly	Enterococci	12	1	212	2 -- 88	
Scituate	Peggotty	Weekly	Enterococci	11	0	N/A	2 -- 14	
Scituate	Sand Hills	Weekly	Enterococci	11	0	N/A	2 -- 26	
Somerset	Pierce Beach	Weekly	Enterococci	14	0	N/A	2 -- 80	
Swampscott	Eismans	Weekly	Enterococci	13	0	N/A	2 -- 10	
Swampscott	Fishermans	Weekly	Enterococci	13	0	N/A	2 -- 8	
Swampscott	Kings	Weekly	Enterococci	13	0	N/A	2 -- 24	
Swampscott	Phillips	Weekly	Enterococci	13	0	N/A	2 -- 4	
Swampscott	Preston	Weekly	Enterococci	13	0	N/A	2 -- 12	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Swampscott	Stacey	Weekly	Enterococci	13	0	N/A	2 -- 32	
Swampscott	Whales	Weekly	Enterococci	13	0	N/A	2 -- 26	
Tisbury	Lake Tashmoo - Inside	Weekly	Enterococci	11	0	N/A	1 -- 36	
Tisbury	Lake Tashmoo - Opening	Weekly	Enterococci	11	0	N/A	1 -- 2	
Tisbury	Long Point (ocean)	Weekly	Enterococci	9	0	N/A	0 -- 10	
Tisbury	Owen Little Way	Weekly	Enterococci	12	1	156	1 -- 62	
Tisbury	Owen Park	Weekly	Enterococci	13	2	230 -- 262	1 -- 80	
Truro	379 Shore Rd	Weekly	Enterococci	11	0	N/A	2 -- 42	
Truro	496 Shore Rd	Weekly	Enterococci	11	0	N/A	2 -- 12	
Truro	648 Shore Rd	Weekly	Enterococci	11	0	N/A	2 -- 14	
Truro	Ballston Beach	Weekly	Enterococci	11	0	N/A	2 -- 22	
Truro	Coast Guard	Weekly	Enterococci	11	0	N/A	2 -- 4	
Truro	Cold Storage/Pond Village	Weekly	Enterococci	11	0	N/A	2 -- 18	
Truro	Corn Hill	Weekly	Enterococci	11	0	N/A	2 -- 3	
Truro	Fisher	Weekly	Enterococci	11	0	N/A	2 -- 26	
Truro	Great Hollow	Weekly	Enterococci	11	0	N/A	2	
Truro	Head of the Meadow (National)	Weekly	Enterococci	11	0	N/A	2--14	
Truro	Head of the Meadow (Town)	Weekly	Enterococci	11	0	N/A	2 -- 4	
Truro	Long Nook	Weekly	Enterococci	11	0	N/A	2 -- 44	
Truro	Pamet Harbor	Weekly	Enterococci	11	0	N/A	2 -- 56	
Truro	Ryder Beach	Weekly	Enterococci	11	0	N/A	2	
Truro	TL 1 Noon's Landing	Weekly	Enterococci	11	0	N/A	2 -- 42	
Truro	TL 2 Beach Point	Weekly	Enterococci	11	0	N/A	2 -- 90	
Wareham	Bay St. Beach	Weekly	Enterococci	8	0	N/A	2 -- 44	
Wareham	Briarwood	Weekly	Enterococci	10	0	N/A	2 -- 46	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Wareham	Little Harbor	Weekly	Enterococci	11	0	N/A	2 -- 16	
Wareham	Minot Forest	Weekly	Enterococci	9	0	N/A	2 -- 36	
Wareham	Onset	Weekly	Enterococci	11	0	N/A	2 -- 74	
Wareham	Parkwood	Weekly	Enterococci	9	0	N/A	2	
Wareham	Pinehurst	Weekly	Enterococci	9	0	N/A	2 -- 10	
Wareham	Riverside	Weekly	Enterococci	11	0	N/A	2 -- 12	
Wareham	Shell Point	Weekly	Enterococci	10	0	N/A	2 -- 4	
Wareham	Swifts	Weekly	Enterococci	10	0	N/A	2 -- 56	
Wareham	Swifts Neck	Weekly	Enterococci	10	0	N/A	2 -- 40	
Wellfleet	Burton Baker	Weekly	Enterococci	12	0	N/A	2 -- 80	
Wellfleet	Cahoon Hollow	Weekly	Enterococci	12	0	N/A	2	
Wellfleet	Chequesset Yacht Club	Weekly	Enterococci	12	0	N/A	2 -- 4	
Wellfleet	Duck Harbor	Weekly	Enterococci	12	0	N/A	2 -- 6	
Wellfleet	Indian Neck	Weekly	Enterococci	12	0	N/A	2 -- 92	
Wellfleet	Maguires Landing	Weekly	Enterococci	12	0	N/A	2 -- 10	
Wellfleet	Marconi Beach 1	Weekly	Enterococci	11	0	N/A	2--66	
Wellfleet	Marconi Beach 2	Weekly	Enterococci	11	0	N/A	2--14	
Wellfleet	Marconi Beach 3	Weekly	Enterococci	11	0	N/A	2--2	
Wellfleet	Mayo Beach	Weekly	Enterococci	13	1	264	2 -- 8	1
Wellfleet	Newcomb Hollow	Weekly	Enterococci	12	0	N/A	2 -- 28	
Wellfleet	Omaha Road	Weekly	Enterococci	12	0	N/A	2 -- 68	
Wellfleet	Powers Landing	Weekly	Enterococci	12	0	N/A	2 -- 10	
Wellfleet	White Crest	Weekly	Enterococci	12	0	N/A	2 -- 10	
West Tisbury	Lambert's Cove Beach #1	Weekly	Enterococci	11	0	N/A	0 -- 26	
West Tisbury	Lambert's Cove Beach #2	Weekly	Enterococci	13	1	260	0 -- 22	
Westport	Adamsville Rd	Weekly	Enterococci	8	7	112 -- 200	44 -- 94	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Westport	Adamsville Rd - River Landing	Monthly	Enterococci	3	1	1170	30 -- 64	
Westport	Baker's Beach	Weekly	Enterococci	17	0	N/A	0 -- 2	
Westport	C & K Club	Weekly	Enterococci	15	0	N/A	0 -- 44	
Westport	Cherry & Webb	Weekly	Enterococci	16	0	N/A	0 -- 10	
Westport	East Beach	Weekly	Enterococci	18	0	N/A	0 -- 20	
Westport	Elephant Rock	Weekly	Enterococci	15	0	N/A	0 -- 2	
Westport	Horseneck Beach	Weekly	Enterococci	11	0	N/A	2 -- 4	
Westport	Howland Beach	Weekly	Enterococci	14	1	112	2 -- 40	
Westport	Spindle Rock	Weekly	Enterococci	15	0	N/A	0 -- 34	
Westport	Town Beach	Weekly	Enterococci	15	0	N/A	0 -- 8	
Westport	Yacht Club	Weekly	Enterococci	16	0	N/A	1 -- 6	
Weymouth	New Wessagussett Beach (George E. Lane)	Weekly	Enterococci	16	0	N/A	2 -- 70	
Weymouth	Old Wessagussett Beach	Weekly	Enterococci	16	0	N/A	2 -- 50	
Winthrop	Winthrop Beach	Weekly	Enterococci	14	0	N/A	2 -- 30	
Yarmouth	Bass River	Weekly	Enterococci	11	0	N/A	1 -- 58	
Yarmouth	Bay Road	Weekly	Enterococci	12	0	N/A	2 -- 36	
Yarmouth	Bay View St Beach	Weekly	Enterococci	12	0	N/A	2 -- 20	
Yarmouth	Berry Road	One Time	Enterococci	1	0	N/A	2	
Yarmouth	Colonial Acres Beach	Weekly	Enterococci	12	0	N/A	2 -- 28	
Yarmouth	Colonial Acres Bridge	Weekly	Enterococci	13	5	150 -- 400	2 -- 66	
Yarmouth	Colonial Acres Creek	Weekly	Enterococci	13	8	108 -- 608	4 -- 60	
Yarmouth	Columbus Ave	Weekly	Enterococci	13	1	400	2 -- 104	
Yarmouth	Englewood Beach	Weekly	Enterococci	13	0	N/A	2 -- 80	
Yarmouth	Follins Pond	Weekly	Enterococci	11	0	N/A	2 -- 50	
Yarmouth	Gray's Beach	Weekly	Enterococci	13	1	140	2 -- 56	

**Table 16:** Water quality data for marine public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Yarmouth	Great Island	Weekly	Enterococci	13	0	N/A	2 -- 4	
Yarmouth	Ocean Mist	Weekly	Enterococci	13	0	N/A	2 -- 32	
Yarmouth	Parker's River	Weekly	Enterococci	12	0	N/A	2 -- 42	
Yarmouth	Seagull Beach - Left	Weekly	Enterococci	13	0	N/A	2 -- 28	
Yarmouth	Seagull Beach - Middle	Weekly	Enterococci	12	0	N/A	2 -- 48	
Yarmouth	Seagull Beach - Right	Weekly	Enterococci	11	0	N/A	2 -- 34	
Yarmouth	Seaview Ave Beach	Weekly	Enterococci	12	0	N/A	2 -- 84	
Yarmouth	South Middle	Weekly	Enterococci	12	0	N/A	2 -- 54	
Yarmouth	Thatcher Town Park	Weekly	Enterococci	12	0	N/A	2 -- 22	
Yarmouth	Wilber Park	Weekly	Enterococci	12	0	N/A	2 -- 10	
Yarmouth	Windmill	Weekly	Enterococci	12	0	N/A	2 -- 80	

1. Postings for a beach were assumed to be for all parts of the beach with that name and were listed in that way

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Abington	Island Grove Beach	Weekly	Enterococci	9	0	N/A	2	
Acton	Nara Beach	Weekly	E.Coli.	21	6	268 - 600	2 -- 200	4
Amesbury	Camp Bauercrest	Weekly	E. Coli	8	0	N/A	10--30	
Amesbury	Camp Kent-greatest batherload	Weekly	E. Coli	12	1	130	10--100	
Amesbury	Glen Devin Condominiums	Weekly	E. Coli	13	2	460--630	10--90	
Amesbury	Lake Attitash-Alternative Location	Weekly	E. Coli	5	1	300	10--90	
Amesbury	Lake Attitash-Dam/Bathing area	Weekly	E. Coli	13	1	200	10--60	
Amesbury	Lake Gardner-Greatest batherload	Weekly	E. Coli	14	0	N/A	10--200	
Amesbury	Whitehall Lake Condominiums-Crowninshield Mgmt.	Weekly	E. Coli	13	0	N/A	10--50	
Andover	Pomps Pond - Left Side	Weekly	E. Coli	12	1	304	0--192	1
Andover	Pomps Pond - Right Side	Weekly	E. Coli	12	0	N/A	2--60	1
Andover	Thunderbridge	Weekly	E. Coli	14	2	N/A	40--180	
Arlington	Arlington Reservoir	Weekly	Total Coliform	10	0	N/A	10--60	
Ashburnham	Camp Collier	Weekly	E.Coli.	2	0	N/A	2	
Ashburnham	Camp Howe Beach	Weekly	E.Coli.	10	0	N/A	2 -- 48	
Ashburnham	Camp Wellville Beach - Ashburnham	Weekly	E.Coli.	9	0	N/A	2 -- 44	
Ashburnham	Camp Winnekeag Pond	Weekly	E.Coli.	10	0	N/A	2 -- 26	
Ashby	Camp Middlesex	Weekly	E.Coli.	5	0	N/A	20 -- 126	
Ashby	Damon Pond Beach	Weekly	Enterococci	23	2	116--120		1
Ashfield	Ashfield Lake Beach	Weekly	E. Coli	19	0	N/A	10--20	
Ashland	Ashland Reservoir-Main Beach	Weekly	Enterococci	16	3	64--88	2--52	2
Athol	Ellis Beach	Monthly	E. Coli	4	0	N/A	10--30	
Athol	Silver Lake	Monthly	E. Coli	5	4	80--220	10	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Auburn	Century Sportsmen	Weekly	E. Coli	4	0	N/A	10--20	
Ayer	Ayer Town Beach	Weekly	E.Coli.	9	0	N/A	16 -- 186	
Ayer	Mirror Lake	Weekly	E.Coli.	12	0	N/A	2 -- 210	
Barnstable	Bearse Pond	Weekly	E. Coli	14	1	452	4--48	
Barnstable	Garrett's Pond	Weekly	E. Coli	12	0	N/A	4--52	
Barnstable	Gooseberry Pond	Weekly	E. Coli	12	0	N/A	4--28	
Barnstable	Hamblin Pond	Weekly	E. Coli	13	0	N/A	4--52	
Barnstable	Hathaway Pond	Weekly	E. Coli	14	0	N/A	4--20	
Barnstable	Joshua's Pond	Weekly	E. Coli	12	0	N/A	4	
Barnstable	Long Pond	Weekly	E. Coli	13	1	116	4--36	
Barnstable	Long Pond Farms Association	Weekly	E. Coli	13	0	N/A	4--28	
Barnstable	Lovell's Pond	Weekly	E. Coli	13	0	N/A	4--38	
Barnstable	Micah's Pond	One Time	E. Coli	1	0	N/A	4	
Barnstable	Middle Pond	Weekly	E. Coli	13	0	N/A	4--24	
Barnstable	Mystic Lake Hills Civic Association	Weekly	E. Coli	9	0	N/A	4--20	
Barnstable	Mystic Lake Race Lane	Weekly	E. Coli	12	0	N/A	4--40	
Barnstable	Mystic Lake Sawmill	One Time	E.Coli.	1	0	N/A	4	
Barnstable	Mystic Lake Town Way	Monthly	E. Coli	5	0	N/A	4--44	
Barnstable	Regency Drive Owners Association	Weekly	E. Coli	13	0	N/A	4--8	
Barnstable	Sand Shores Association	Weekly	E. Coli	13	0	N/A	4--12	
Barnstable	Shallow Pond	Weekly	E. Coli	12	1	436	4--80	1
Barnstable	Shubael Pond	Weekly	E. Coli	13	0	N/A	4--16	
Barnstable	Wequaquet Lake Town	Weekly	E. Coli	14	1	276	4--8	
Barnstable	Wequaquet Lake Town	Weekly	E. Coli	13	0	N/A	4--12	
Barnstable	Wianno Club (Fresh-Crystal Lake)	Weekly	E. Coli	10	0	N/A	4--28	
Barre	Barre Dam - Swim Water	Weekly	E. Coli	13	0	N/A	10--40	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Barre	Cozy Cabin Beach	Weekly	E. Coli	2	0	N/A	20--30	
Becket	Becket Woods Beach	Weekly	E. Coli	8	0	N/A	10--110	
Becket	Becket Woods Dock	Weekly	E. Coli	8	0	N/A	10--90	
Becket	Camp Becket Iroquois Beach	Weekly	E. Coli	15	0	N/A	10	
Becket	Camp Becket Main Beach	Weekly	E. Coli	15	0	N/A	10	
Becket	Camp Greycocock Jr. Beach	Weekly	E. Coli	11	0	N/A	10--210	
Becket	Camp Greycocock Sr. Beach	Weekly	E. Coli	11	0	N/A	10--210	
Becket	Camp Watitoh Beach	Weekly	E. Coli	10	0	N/A	10--20	
Becket	Center Pond Assn. Beach	Weekly	E. Coli	10	0	N/A	10--70	
Becket	Center Pond Beach	Weekly	E. Coli	16	0	N/A	10--50	
Becket	Chimney Corners Beach	Weekly	E. Coli	16	0	N/A	10--220	
Becket	Crystal Pond Beach	Weekly	E. Coli	16	0	N/A	10--220	
Becket	Excalibur	Weekly	E. Coli	15	0	N/A	10--160	
Becket	Indian Lake Boat Dock	Weekly	E. Coli	7	0	N/A	10	
Becket	Indian Lake Boat Ramp	Weekly	E. Coli	9	0	N/A	10 --50	
Becket	Indian Lake Large Beach	Weekly	E. Coli	16	0	N/A	10--210	
Becket	Indian Lake Small Beach	Weekly	E. Coli	15	0	N/A	10--40	
Becket	Indian Lake Small Pond Beach	Weekly	E. Coli	12	0	N/A	10--190	
Becket	Lancelot Beach	Weekly	E. Coli	15	0	N/A	10--220	
Becket	Little Robin Beach	Weekly	E. Coli	15	0	N/A	10--210	
Becket	Mt. Grove Beach	Weekly	E. Coli	14	0	N/A	10--190	
Becket	Robin Hood #1	Weekly	E. Coli	15	0	N/A	10--220	
Becket	Robin Hood #2	Weekly	E. Coli	15	0	N/A	10--220	
Becket	Shawnee Shore Beach	Weekly	E. Coli	16	0	N/A	10--210	
Bedford	Springs Brook Park Bathing Beach	Twice per Week	Fecal Coliform	36	N/A	N/A	0--28	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Bedford	Springs Brook Park Bathing Beach	Twice per Week	Fecal Streptococcus	36	N/A	N/A	0--12	
Belchertown	Lake Arcadia	Weekly	E. Coli	8	0	N/A	20--50	
Bellingham	Arcand Park	Monthly	E. Coli	2	0	N/A	27--36	
Bellingham	Arcand Park	Monthly	Total Coliform	1	N/A	N/A	54	
Bellingham	Silver Lake	Monthly	E. Coli	2	0	N/A	81--140	
Bellingham	Silver Lake	Monthly	Total Coliform	1	N/A	N/A	250	
Billerica	Nutting Lake (North) - Micozzi Beach	Weekly	E.Coli.	17	3	250 -- 260	10 -- 230	
Billerica	Nutting Lake (South) - Micozzi Beach	Weekly	E.Coli.	17	1	510	1 -- 152	
Bolton	Bolton Town Beach	Weekly	E.Coli.	12	0	N/A	2 -- 32	
Bolton	Camp Virginia Beach	Weekly	E.Coli.	9	0	N/A	2 -- 50	
Bolton	Tom Denny Camp	Weekly	E.Coli.	6	0	N/A	10 -- 36	
Bourne	Blueberry Hills Property Owners Assoc.	Weekly	E. Coli	14	0	N/A	4--24	
Bourne	Camp Cod Sea Camps (Long Pond)	Weekly	E. Coli	10	0	N/A	4--6	
Bourne	Camp Favorite (Long Pond)	Weekly	E. Coli	10	0	N/A	4--20	
Bourne	Camp Starfish (Slough Pond)	Weekly	E. Coli	12	0	N/A	2--8	
Bourne	Picture Lake	Weekly	Enterococci	13	0	N/A	4--16	
Bourne	Queen Sewell Pond	Weekly	Enterococci	13	0	N/A	4--38	
Bourne	Robinwood Homeowners Association (Owl Pond)	Weekly	E. Coli	15	1	280	4--108	
Bourne	South Hill Realty Trust/Sheep Pond Beach Assoc.	Weekly	E. Coli	14	0	N/A	4--92	
Bourne	South Pond	Monthly	Enterococci	4	0	N/A	2	
Boxford	Camp Rotary - Greatest Batherload	Weekly	E.Coli.	8	0	N/A	10 -- 20	
Boxford	Camp Stepping Stone - Greatest Batherload	Weekly	E.Coli.	5	0	N/A	10 -- 160	
Boxford	Camp Wakanda - Greatest Batherload	Weekly	E.Coli.	6	0	N/A	10 -- 30	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Boxford	Stiles Pond - Greatest Batherload	Weekly	E.Coli.	15	0	N/A	10 -- 200	
Braintree	Sunset Lake	Weekly	E. Coli	12	0	N/A	10--105	1
Brewster	Beechwood	One Time	E. Coli	1	0	N/A	8	
Brewster	Blueberry Pond	Weekly	E. Coli	10	0	N/A	4--8	
Brewster	Cape Cod Sea Camps Pond	Weekly	E. Coli	6	0	N/A	4--12	1
Brewster	Cliff Pond	Weekly	Enterococci	10	0	N/A	2 -- 8	
Brewster	Flax Pond	Weekly	Enterococci	10	0	N/A	2 -- 6	
Brewster	Little Cliff Pond	Weekly	Enterococci	10	0	N/A	2 -- 4	
Brewster	Long Pond	Weekly	E. Coli	10	0	N/A	4	
Brewster	Long Pond at Camp Favorite	Weekly	E. Coli	7	0	N/A	4	
Brewster	Owl Pond	Weekly	E. Coli	10	0	N/A	4--280	
Brewster	Rafe Pond	Weekly	E. Coli	1	0	N/A	4	
Brewster	Seymore	Weekly	E. Coli	12	0	N/A	4	
Brewster	Sheep Pond	Weekly	E. Coli	10	0	N/A	4--16	
Brewster	Slough Pond	Weekly	E. Coli	19	0	N/A	4--8	
Brewster	Upper Mill	Weekly	E. Coli	12	0	N/A	4--12	
Brookfield	South Pond Beach	Weekly	E.Coli.	10	0	N/A	10 -- 30	
Carver	Cooper's Pond	Monthly	E.Coli.	5	0	N/A	10	
Carver	Crystal Lake	Monthly	E.Coli.	4	0	N/A	20 -- 30	
Carver	John's Pond	Monthly	E.Coli.	5	0	N/A	10 -- 30	
Carver	Sampson's Pond	Monthly	E.Coli.	5	0	N/A	10	
Carver	Wenham Pond	One Time	E.Coli.	1	0	N/A	10	
Charlemont	Cold River Pool	Weekly	Enterococci	18	5	90 -- 126	2 -- 46	
Chatham	Goose Pond	Weekly	Enterococci	10	0	N/A	1--28	
Chatham	Pilgrim Village	Weekly	Enterococci	7	1	64	1--17	
Chatham	Schoolhouse Pond	Weekly	Enterococci	12	0	N/A	1--24	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Chatham	White Pond	Weekly	Enterococci	14	1	65	1--38	
Chelmsford	Baptist Pond (Dock)	Weekly	E. Coli	10	0	N/A	0--170	
Chelmsford	Baptist Pond (Ramp)	Weekly	E. Coli	10	1	600	2--66	
Chelmsford	Freeman Lake (Dam)	Weekly	E. Coli	9	2	550--600	18--170	
Chelmsford	Freeman Lake (Dock)	Weekly	E. Coli	9	2	360--370	26--136	
Cheshire	Camp Mowhawk Beach	Weekly	E.Coli.	8	0	N/A	10 -- 140	
Chesterfield	Chesterfield Scout Reservation - BSA	Weekly	E.Coli.	9	0	N/A	10 -- 40	
Clarksburg	Mausert Pond - Day use area beach	Weekly	Enterococci	19	3	92 -- 600	2 -- 44	
Concord	Annursnac Hill Assoc.	Weekly	E.Coli.	14	0	N/A	1 -- 60	
Concord	Kennedy Pond	Weekly	E.Coli.	16	1	2000	1 -- 50	1
Concord	Silver Hill Assoc	Weekly	E.Coli.	13	0	N/A	1 -- 100	
Concord	Walden Pond - Main	Weekly	E.Coli.	15	0	N/A	1 -- 60	
Concord	Walden Pond - Red Cross	Weekly	E.Coli.	15	1	1080	1 -- 100	1
Concord	White Pond - SW Cove	Weekly	E.Coli.	7	0	N/A	1 -- 10	
Concord	White Pond Assoc	Weekly	E.Coli.	14	0	N/A	1 -- 30	
Conway	Conway Swimming Pool	Weekly	E.Coli.	6	0	N/A	2 -- 100	
Cummington	Shire Village Beach	Weekly	E.Coli.	7	0	N/A	10 -- 20	
Dartmouth	27 Lakewood	Weekly	Enterococci	11	1	260	2--60	
Dartmouth	38 Lakeside	Weekly	Enterococci	11	1	284	2--52	
Dartmouth	Allen Pond	Two Times	Enterococci	2	0	N/A	2--8	
Dartmouth	Deerfield North	Two Times	Enterococci	2	0	N/A	18--28	
Dartmouth	Lakesider	Two Times	Enterococci	2	0	N/A	14--38	
Dennis	Flax Pond	Weekly	E. Coli	11	0	N/A	4--4	
Dennis	Princess Beach-Scargo Lake	Weekly	E. Coli	12	1	462	4--10	1
Dennis	Scargo Lake	Weekly	E. Coli	11	0	N/A	4--16	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Douglas	Breezy Picnic Grounds	Weekly	E.Coli.	10	1	630	2 -- 60	1
Douglas	Lake Manchaug Camping	Weekly	E.Coli.	10	0	N/A	10 -- 20	
Douglas	Wallum Lake Terrace	Weekly	E.Coli.	11	0	N/A	2 -- 45	1
Dracut	Fleur de Lis	Weekly	E.Coli.	7	0	N/A	0 -- 20	
Dracut	Grove	Weekly	E.Coli.	7	0	N/A	0 -- 10	
Dracut	Hilltop	Weekly	E.Coli.	7	0	N/A	0 -- 20	
Dracut	Mascuppic	Weekly	E.Coli.	8	1	350	0 -- 40	
Dracut	Passaconaway	Weekly	E.Coli.	7	0	N/A	0 -- 120	
Dracut	Peter's Pond	Weekly	E.Coli.	7	0	N/A	0 -- 40	
Dracut	Richardson	Weekly	E.Coli.	7	0	N/A	0 -- 170	
Duxbury	Barrett Pond	Weekly	Enterococci	11	1	68	2 -- 28	
Duxbury	Charge Pond	Weekly	Enterococci	11	0	N/A	2 -- 4	
Duxbury	College Pond Day Use	Weekly	Enterococci	11	0	N/A	2 -- 54	
Duxbury	Curlew Pond	Weekly	Enterococci	11	0	N/A	2 -- 10	
Duxbury	Fearing Pond	Weekly	Enterococci	11	0	N/A	2 -- 4	
Eastham	Great Pond	Weekly	E. Coli	12	0	N/A	4--32	
Eastham	Herring Pond	Weekly	E. Coli	12	0	N/A	4--24	
Eastham	Long Pond	Weekly	E. Coli	11	0	N/A	4--40	
Eastham	Minister's Pond	Weekly	E. Coli	12	0		4--116	
Eastham	Nauset Haven Lakeside Condo (Minister)	Weekly	E. Coli	12	1	228	2--40	
Eastham	Whispering Pines Condo (Muddy Pond)	Weekly	E. Coli	13	0	N/A	4--76	
Eastham	Wiley Park	Weekly	E. Coli	12	0	N/A	4--16	
Egremont	Prospect Lake Park	Weekly	E.Coli.	16	0	N/A	10 -- 190	
Essex	Camp Menorah	Weekly	E. Coli	14	1	1850	20--170	1
Essex	Centennial Grove	Weekly	E. Coli	16	0	N/A	10--120	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Falmouth	Ashument Pond	Weekly	E. Coli	12	1	336	4--128	
Falmouth	Ashumet Pond Holly Sands	Weekly	E. Coli	4	0	N/A	4--76	
Falmouth	Ashumet Valley POA/Holly Sands	Weekly	E. Coli	5	0	N/A	4--16	
Falmouth	Crooked Pond	One Time	E. Coli	1	0	N/A	4	
Falmouth	Flax Pond	Two Times	E. Coli	2	0	N/A	4--8	
Falmouth	Grews Pond	Weekly	E. Coli	10	0	N/A	2--40	
Falmouth	Lochstead Association	Weekly	E. Coli	11	0	N/A	4--28	
Falmouth	Mares Pond	Weekly	E. Coli	10	0	N/A	4--140	
Falmouth	Mares Pond Association	One Time	E. Coli	1	0	N/A	4	
Falmouth	Sand Point Shores-Rock Hollow	Weekly	E. Coli	10	0	N/A	4--56	
Falmouth	Sand Point Shores-White Cap	Weekly	E. Coli	10	0	N/A	4--24	
Falmouth	Shady Lane HA-Crooked Pond	Weekly	E. Coli	9	0	N/A	4--7	
Falmouth	Water-by Estates Association-Flax Pond	Weekly	E. Coli	7	0	N/A	4--8	
Florida	Manice Education Center Beach	Weekly	E.Coli.	13	0	N/A	10 -- 190	
Franklin	Chilson Beach	Weekly	E.Coli.	12	0	N/A	10 -- 130	
Georgetown	American Legion Park	Weekly	E.Coli.	13	1	460	10--230	
Georgetown	Camp Leslie	Weekly	E.Coli.	12	1	280	10 -- 150	
Goshen	Camp Howe	Weekly	E.Coli.	12	0	N/A	10 -- 20	
Goshen	Hammond Acres	Weekly	E.Coli.	16	0	N/A	10 -- 220	
Goshen	Upper Highland Lake - Campers Beach	Weekly	Enterococci	17	2	174 -- 280	2 -- 14	
Goshen	Upper Highland Lake - Day use area beach	Weekly	Enterococci	18	3	68 -- 600	2 -- 30	
Grafton	Silver Lake Beach	Weekly	E.Coli.	4	0	N/A	10 -- 20	
Greenfield	Greenfield Municipal Pool	Weekly	E.Coli.	12	1	270	10 -- 150	
Groton	Baby Beach Lost Lake	Weekly	E.Coli.	3	0	N/A	4 -- 46	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Groton	Groton Town Beach	Weekly	E.Coli.	11	0	N/A	2 -- 232	
Groton	Grotonwood Camp	Weekly	E.Coli.	9	2	242 -- 554	6 -- 110	
Halifax	17 Lake Street	Weekly	E. Coli	12	5	244--3600	10--180	
Halifax	19 Lake Street	Weekly	E. Coli	13	1	360	5--172	
Halifax	93 Lake Street	Weekly	E. Coli	12	1	2400	5--112	
Halifax	Annawon Street	Weekly	E. Coli	13	0	N/A	5--15	
Halifax	Cooke's Beach	Weekly	E. Coli	13	0	N/A	5--132	
Halifax	Halifax Beach	Weekly	E. Coli	13	1	2400	5--30	
Halifax	Holmes Street	Weekly	E. Coli	13	0	N/A	5--172	
Halifax	Lingan Street	Weekly	E. Coli	13	0	N/A	5--45	
Halifax	Wamsutta	Weekly	E. Coli	13	0	N/A	5--100	
Hanson	Arlene	Weekly	E. Coli	7	1	500	5--116	
Hanson	Camp Kiwanee	Weekly	E. Coli	7	0	N/A	5--125	
Hanson	Cranberry	Weekly	E. Coli	7	0	N/A	5--50	
Hanson	Ocean Ave.	Weekly	E. Coli	7	0	N/A	5--160	
Hanson	Wilkey's	Weekly	E. Coli	7	0	N/A	5--60	
Harvard	Harvard Town Beach	Weekly	E.Coli.	13	0	N/A	2 -- 200	
Harwich	Buck's Pond	Twice per Week	E. Coli	27	0	N/A	4--16	
Harwich	Hawks Nest Pond	Weekly	E. Coli	2	0	N/A	4--4	
Harwich	Hinckley's Pond	Weekly	E. Coli	12	0	N/A	4--48	
Harwich	Joseph's Pond Lakeside	Weekly	E. Coli	12	0	N/A	4--4	
Harwich	Joseph's Pond Vacation	Weekly	E. Coli	14	0	N/A	4--8	
Harwich	Long Pond Rt. 124	Weekly	E. Coli	13	0	N/A	4--8	
Harwich	Long Pond-Calhoun	Weekly	E. Coli	13	0	N/A	4--12	
Harwich	Long Pond-Long Pond Drive	Weekly	E. Coli	13	0	N/A	4--44	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Harwich	Robbins Pond	Weekly	E. Coli	13	0	N/A	4--16	
Harwich	Sand Pond	Weekly	E. Coli	13	0	N/A	4--8	
Harwich	Seymore Pond	Weekly	E. Coli	13	0	N/A	4--8	
Harwich	Skinequit Pond	Weekly	E. Coli	13	0	N/A	4--48	
Haverhill	Plug's Pond	Weekly	E. Coli	8	0	N/A	1--10	
Hinsdale	Camp Asmere Beach	Weekly	E. Coli	13	0	N/A	10--220	
Hinsdale	Camp Emerson Beach	Weekly	E. Coli	9	0	N/A	10--180	
Hinsdale	Camp Emerson Marina	Weekly	E. Coli	7	0	N/A	10--50	
Hinsdale	Camp Taconic Beach	Weekly	E. Coli	11	0	N/A	10--220	
Hinsdale	Plunkett Lake Beach	Weekly	E. Coli	16	0	N/A	10--190	
Holden	Camp Kinneywood Beach	Weekly	E.Coli.	9	0	N/A	10 -- 70	
Holden	Eagle Lake	Weekly	E.Coli.	9	0	N/A	10 -- 130	
Holliston	Pleasure Point	Weekly	E. Coli	12	0	N/A	10--50	
Holliston	Stoddard	Weekly	E. Coli	13	1	N/A	10--210	1
Hopkinton	Hopkinton Reservoir-Main Beach	Weekly	Enterococci	16	2	96--132	2--42	
Hopkinton	Hopkinton Reservoir-Upper Beach	Weekly	Enterococci	15	2	74--96	2--32	
Hopkinton	Sandy Beach - Left	Weekly	E.Coli.	11	0	N/A	10 - 100	
Hopkinton	Sandy Beach - Middle	Weekly	E.Coli.	12	0	N/A	10 -- 110	
Hopkinton	Sandy Beach - Outlet Pipe	Weekly	E.Coli.	9	1	2000	10 -- 210	
Hopkinton	Sandy Beach - Right	Weekly	E.Coli.	11	0	N/A	10 -- 170	
Hubbardston	Comet Pond Beach - Left	Weekly	E.Coli.	9	0	N/A	0 -- 4	
Hubbardston	Comet Pond Beach - Middle	Weekly	E.Coli.	9	0	N/A	0 -- 2	
Hubbardston	Comet Pond Beach - Right	Weekly	E.Coli.	9	0	N/A	0 -- 5	
Hudson	Hudson Centennial Beach	Weekly	E.Coli.	14	1	324	5 -- 148	
Huntington	Westfield River Beach	Weekly	Enterococci	16	3	160 -- 300	2 -- 10	2
Ipswich	Hood Pond-boat ramp	Weekly	Enterococci	15	2	90--440	10--60	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Kingston	Camp Mishannock	Weekly	E. Coli	1	0	N/A	5	
Lakeville	Clark Shores 1	Weekly	Enterococci	7	1	112	2 -- 24	1
Lakeville	Clark Shores 2	Weekly	Enterococci	6	0	N/A	2 -- 44	
Lakeville	Clark Shores 3	Weekly	Enterococci	7	1	142	2 -- 30	
Lakeville	Clear Pond	Weekly	Enterococci	6	0	N/A	2 -- 16	
Lakeville	Ted Williams	Weekly	Enterococci	7	1	260	2	1
Lancaster	Camp Lowe Beach	Weekly	E.Coli.	10	0	N/A	2 -- 26	
Lancaster	Lancaster Town Beach	Weekly	E.Coli.	13	2	290 -- 600	2 -- 94	
Lanesborough	Camp Mohawk Beach	Weekly	E.Coli.	7	0	N/A	10 -- 140	
Lanesborough	Naraganset Beach	Weekly	E.Coli.	8	0	N/A	10 -- 80	
Lanesborough	Sunrise Beach	Weekly	E.Coli.	9	0	N/A	10 -- 20	
Lee	Goose Pond	Weekly	E.Coli.	12	0	N/A	0 -- 10	
Lee	Laurel Lake	Weekly	E.Coli.	15	0	N/A	0 -- 100	
Lee	Sandy Beach	One Time	E. Coli	1	0	N/A	1	
Lenox	Laurel Lake	Weekly	E.Coli.	15	0	N/A	0 -- 100	
Lexington	Old Reservoir Swim Area Left #1	Two Times	Enterococci	2	0	N/A	2--14	1
Lexington	Old Reservoir Swim Area Left #2	Monthly	Enterococci	4	0	N/A	2--10	1
Lexington	Old Reservoir Swim Area Right #1	Weekly	Enterococci	16	0	N/A	2--35	1
Lexington	Old Reservoir Swim Area Right #2	Weekly	Enterococci	13	1	95	2--38	1
Littleton	Littleton Town Beach	Weekly	E.Coli.	14	1	350	2 -- 212	
Lowell	Merrimac River - Boat House	Weekly	E.Coli.	8	0	N/A	0 -- 200	
Lunenburg	Lunenburg Town Beach	Weekly	E.Coli.	8	0	N/A	10 -- 206	
Lynn	Flax Pond - Railing	Weekly	E.Coli.	5	3	240 -- 1010	10 -- 147	
Lynn	Flax Pond - Rocks	Weekly	E.Coli.	5	1	2000	0 -- 200	
Lynn	Sluice Pond - Briarcliff Lodge	Weekly	E.Coli.	5	1	2000	40 -- 180	
Lynn	Sluice Pond - Four Winds	Weekly	E.Coli.	5	2	410 -- 580	86 -- 130	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Marlborough	Memorial - Left	Weekly	E.Coli.	10	0	N/A	5 -- 60	
Marlborough	Memorial - Middle	Weekly	E.Coli.	10	0	N/A	5 -- 55	
Marlborough	Memorial - Right	Weekly	E.Coli.	10	0	N/A	5 -- 50	
Mashpee	Attaquin	Weekly	E.Coli.	14	1	316	2 -- 226	
Mashpee	Camp Farley - Wakeby Pond	Weekly	E.Coli.	9	0	N/A	4 -- 52	
Mashpee	Fells Pond	Weekly	E.Coli.	13	0	N/A	4	
Mashpee	John's Pond (Briarwood)	Weekly	E.Coli.	13	0	N/A	4	
Mashpee	John's Pond (North)	Weekly	E.Coli.	13	0	N/A	4	
Mashpee	John's Pond (Public)	Weekly	E.Coli.	13	0	N/A	4 -- 16	
Mashpee	John's Pond Estate Assoc. - Sunset Beach	Weekly	E.Coli.	13	0	N/A	4 -- 200	
Mashpee	Santuit	Weekly	E.Coli.	13	0	N/A	4 -- 16	
Mashpee	Santuit Pond Estate Assoc. - Santuit Pond	Weekly	E.Coli.	12	0	N/A	4 -- 25	
Medford	Wrights Pond - Deep End	Weekly	E.Coli.	11	0	N/A	5 -- 164	
Medford	Wrights Pond - Shollow End	Weekly	E.Coli.	11	0	N/A	5 -- 140	
Medway	Choate Pond	Weekly	E.Coli.	13	3	280 -- 800	10 -- 180	3
Mendon	Town Beach	Weekly	E.Coli.	8	0	N/A	10 -- 140	
Merrimac	Indian Head Park - 25 feet out	Weekly	E.Coli.	8	0	N/A	2 -- 32	
Merrimac	Indian Head Park - 50 feet out	Weekly	E.Coli.	8	0	N/A	2 -- 30	
Methuen	Forest Lake - Center	Weekly	E.Coli.	10	0	N/A	11 -- 58	
Methuen	Forest Lake - Ramp	Weekly	E.Coli.	10	0	N/A	9 -- 68	
Methuen	Forest Lake - Right	Weekly	E.Coli.	10	0	N/A	13 -- 215	
Middleborough	Camp Avoda	Weekly	E.Coli.	8	0	N/A	4 -- 100	
Middleborough	Camp Vomechas	Weekly	E.Coli.	9	0	N/A	4 -- 104	
Milton	Houghton's Pond @ Bathouse	Weekly	Enterococci	22	2	74--162	2--32	
Monterey	Benedict Pond Beach	Weekly	Enterococci	16	1	110	2 -- 16	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Monterey	Camp Half Moon	Weekly	E.Coli.	10	0	N/A	10	
Monterey	Lake Garfield	Weekly	E.Coli.	16	0	N/A	10 -- 190	
Mt. Washington	Camp Hi Rock - Black Rock Beach	Monthly	E.Coli.	4	0	N/A	10	
Mt. Washington	Camp Hi Rock - Main Beach	Weekly	E.Coli.	14	0	N/A	10 -- 90	
Nantucket	Miacomet Pond	Weekly	E.Coli.	10	1	588	4 -- 168	
Nantucket	Sasachacha Pond	Weekly	E.Coli.	10	0	N/A	2 -- 30	
Nantucket	Washing Pond	Weekly	E.Coli.	3	1	400	2	
Nantucket	Water Tower Pond	Weekly	E.Coli.	2	0	N/A	2 -- 4	
Natick	Camp Arrowhead	Weekly	E.Coli.	10	0	N/A	5 -- 25	
Natick	Camp Nonesuch	Weekly	E.Coli.	10	0	N/A	5 -- 60	
Natick	Cochituate Lake Beach-Unguarded Beach	Weekly	Enterococci	14	3	66--600	2--30	
Natick	Cochituate Lake-North Beach	Weekly	Enterococci	15	1	170	2--40	
Natick	Cochituate Lake-South Beach	Weekly	Enterococci	6	3	78--100	2--22	1
Natick	Dug Pond - Diving	Weekly	E.Coli.	14	1	324	5 -- 180	
Natick	Dug Pond - Dock	Weekly	E.Coli.	13	0	N/A	5 -- 136	
Natick	Dug Pond - Kiddie	Weekly	E.Coli.	14	0	N/A	5 -- 168	
New Bedford	1398 Sassaquin Ave.	Weekly	Enterococci	11	4	64 -- 172	2 -- 26	
New Bedford	Cemetary	Weekly	Enterococci	11	4	92 -- 218	2 -- 28	2
New Bedford	Main Beach	Weekly	Enterococci	11	2	140 -- 294	2 -- 46	2
New Bedford	Pump Station	Weekly	Enterococci	11	2	146 -- 500	2 -- 28	2
New Marblehead	Camp Segowea	Weekly	E.Coli.	13	0	N/A	10 -- 80	
New Marblehead	The Seven Stones Beach	Weekly	E.Coli.	16	0	N/A	10 -- 110	
Newton	Crystal Lake	Weekly	E.Coli.	11	0	N/A	5 -- 140	
North Adams	Windsor Lake	Weekly	E.Coli.	7	0	N/A	10 -- 30	
North Andover	Berry Pond Beach	Weekly	Enterococci	16	1	158	2 -- 20	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
North Andover	Frye Pond Beach	Weekly	Enterococci	15	0	N/A	2 -- 24	
North Andover	Stevens Pond - Center	Weekly	E.Coli.	11	1	600	6 -- 52	1
North Andover	Stevens Pond - Left	Weekly	E.Coli.	11	0	N/A	10 -- 72	1
North Andover	Stevens Pond - Right	Weekly	E.Coli.	11	0	N/A	4 -- 48	1
North Attleboro	Falls Pond	Weekly	E.Coli.	14	2	270 -- 370	10 -- 90	
North Attleboro	Whitings Pond	Weekly	E.Coli.	20	6	340 -- 2000	30 -- 220	
Northampton	Clear Falls	Weekly	E.Coli.	11	1	235	0 -- 200	1
Northampton	Clear Falls	Weekly	Enterococci	4	0	N/A	19 -- 37	
Northampton	Musante Beach	Weekly	E.Coli.	14	0	N/A	2 -- 104	
Northbridge	Heritage Park	Weekly	E.Coli.	15	3	400 -- 680	10 -- 220	3
Northbridge	Hickory Hill - Girl Scouts	Weekly	E.Coli.	5	0	N/A	10 -- 50	
Northbridge	Memorial Beach	Weekly	E.Coli.	10	0	N/A	10 -- 100	
Oakham	Lake Dean - Dean Campground	Weekly	E.Coli.	9	0	N/A	20 -- 60	
Oakham	Lake Dean - Pine Acres Campground	Weekly	E.Coli.	13	0	N/A	20 -- 50	
Orange	Matawa Beach	Weekly	E.Coli.	11	0	N/A	10 -- 210	
Orleans	Baker's Pond	Weekly	E.Coli.	12	0	N/A	2 -- 4	
Orleans	Crystal Lake	Weekly	E.Coli.	12	0	N/A	4 -- 16	
Orleans	Pilgrim Lake	Weekly	E.Coli.	12	0	N/A	4 -- 64	
Otis	Camp Bonnie Brae	Weekly	E.Coli.	12	0	N/A	10 -- 40	
Otis	Camp Nawaka	Weekly	E.Coli.	14	0	N/A	10 -- 80	
Otis	Camp Overflow Beach	Weekly	E.Coli.	14	0	N/A	10 -- 210	
Otis	Otis Reservoir Beach	Weekly	Enterococci	14	0	N/A	2 -- 16	
Oxford	Carbunkle Pond	Twice per Week	E.Coli.	28	3	380 -- 800	10 -- 140	2
Pembroke	Finn Camp	Weekly	E.Coli.	12	0	N/A	5 -- 52	
Pembroke	Furnace Colony	Weekly	E.Coli.	12	0	N/A	5 -- 185	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Pembroke	Hobomoc Pond	Weekly	E.Coli.	12	0	N/A	5 -- 68	
Pembroke	Little Sandy	Weekly	E.Coli.	12	0	N/A	5 -- 216	
Pembroke	Oldham	Weekly	E.Coli.	12	1	268	5 -- 215	
Pembroke	Stetson	Weekly	E.Coli.	12	0	N/A	5 -- 132	
Peru	Camp Danbee	Weekly	E.Coli.	11	0	N/A	10 -- 180	
Pittsfield	Camp St. Michael	Weekly	E.Coli.	8	0	N/A	10 -- 210	
Pittsfield	Camp Witawentin	Weekly	E.Coli.	10	0	N/A	10 -- 220	
Pittsfield	Country Club of Pittsfield	Weekly	E.Coli.	11	0	N/A	10 -- 110	
Pittsfield	Lakeside Christian Camp	Weekly	E.Coli.	11	0	N/A	10	
Pittsfield	Lulu Pond Beach	Weekly	E.Coli.	16	3	64 -- 120	2 -- 58	1
Pittsfield	Onata Lake	Weekly	E.Coli.	11	0	N/A	10 -- 190	
Pittsfield	Pontoosuc Lake	Weekly	E.Coli.	11	0	N/A	10 -- 190	
Plymouth	Bloody Pond - Baird Center	Weekly	E.Coli.	12	0	N/A	5	
Plymouth	Blueberry Hill Camp - Curlew Pond	Weekly	E.Coli.	15	0	N/A	5 -- 10	
Plymouth	Camp Bournedale - Great Herring Pond	Weekly	E.Coli.	10	0	N/A	5	
Plymouth	Camp Clark YMCA - Hyles Pond	Weekly	E.Coli.	9	0	N/A	5 -- 80	
Plymouth	Camp Dennen - Hedges Pond	Weekly	E.Coli.	15	0	N/A	5 -- 45	
Plymouth	Camp Massasoit - Elbow Pond	Weekly	E.Coli.	14	0	N/A	5	
Plymouth	Ellis Haven - Ellis Pond	Weekly	E.Coli.	15	1	320	5 -- 60	
Plymouth	Ellis Haven - Swimming Hole	Weekly	E.Coli.	11	0	N/A	5 -- 20	1
Plymouth	Fresh Pond - End Pond	Weekly	E.Coli.	17	1	440	5 -- 130	
Plymouth	Fresh Pond - Mid Pond	Weekly	E.Coli.	19	0	N/A	5 -- 210	
Plymouth	Indian Head	Weekly	E.Coli.	12	0	N/A	5 -- 75	
Plymouth	Main Water Front - Cachalot	Weekly	E.Coli.	9	0	N/A	10 -- 200	
Plymouth	Main Water Front - Squanto	Weekly	E.Coli.	9	0	N/A	.027 -- 40	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Plymouth	Main Water Front - Wind-in-the-Pines Day Camp	Weekly	E.Coli.	7	0	N/A	10	
Plymouth	Main Water Front - Wind-in-the-Pines Resident	Weekly	E.Coli.	8	0	N/A	10 -- 20	
Plymouth	Morton Park - Boy's Swimming Hole	Weekly	E.Coli.	15	1	400	5 -- 20	
Plymouth	Morton Park - Left	Weekly	E.Coli.	14	0	N/A	5 -- 40	1
Plymouth	Morton Park - Middle	Weekly	E.Coli.	15	0	N/A	5 -- 165	1
Plymouth	Morton Park - Red Springs	Weekly	E.Coli.	14	0	N/A	5 -- 45	1
Plymouth	Morton Park - Right	Weekly	E.Coli.	15	1	355	5 -- 20	1
Plymouth	Pinewood Camp - Camphouse Beach	Weekly	E.Coli.	10	0	N/A	5 -- 10	
Plymouth	Pinewood Camp - Crew Dock	Weekly	E.Coli.	10	0	N/A	5	
Plymouth	Pinewood Camp - Pinecones Beach	Weekly	E.Coli.	10	0	N/A	5 -- 15	
Plymouth	Pinewood Lodge - Fresh Meadow	Weekly	E.Coli.	13	0	N/A	5 -- 40	
Plymouth	Sandy Pond	Weekly	E.Coli.	14	0	N/A	5	
Randolph	Ponkapoag Pond	Weekly	E.Coli.	11	0	N/A	5 -- 20	
Richmond	Camp Marion White	Weekly	E.Coli.	8	0	N/A	10 -- 90	
Richmond	Camp Russell	Weekly	E.Coli.	7	0	N/A	10 -- 220	
Richmond	Richmond Shores - East	Weekly	E.Coli.	11	0	N/A	10 -- 80	
Richmond	Richmond Shores - West	Weekly	E.Coli.	11	0	N/A	10 -- 40	
Richmond	Richmond Town Beach	Weekly	E.Coli.	11	0	N/A	10 -- 30	
Rochester	Perry's Camp	Weekly	Enterococci	9	0	N/A	2 -- 26	
Rochester	Snipituit Pond	Weekly	Enterococci	11	1	238	2 -- 20	
Rowe	Rowe Beach - Center	Weekly	E.Coli.	16	1	N/A	10 -- 220	
Rowe	Rowe Beach - Inlet	Weekly	E.Coli.	14	0	N/A	10 -- 210	
Rowe	Rowe Beach - Right	Weekly	E.Coli.	16	0	N/A	10 -- 230	
Royalston	St. Laurent Camp	Weekly	E.Coli.	4	0	N/A	0 -- 68	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Russell	Hamoses Beach	Weekly	E.Coli.	8	0	N/A	10 -- 100	
Rutland State Park	Whitehall Pond Beach	Weekly	Enterococci	15	0	2--30	2--30	
Sandisfield State Forest	York Lake Beach	Weekly	E.Coli.	15	0	N/A	2 -- 52	
Sandwich	Camp Good News	Weekly	E.Coli.	7	0	N/A	4 -- 8	
Sandwich	Hoxie Pond	Weekly	E.Coli.	12	0	N/A	4 -- 40	
Sandwich	Lakefield Farms	Weekly	E.Coli.	12	0	N/A	4 -- 20	
Sandwich	Lakewood Hills Property Owners Assoc.	Weekly	E.Coli.	12	0	N/A	4 -- 40	
Sandwich	Lawrence Pond	Weekly	E.Coli.	12	0	N/A	4 -- 12	
Sandwich	Lawrence Pond Mobile Home Park	Weekly	E.Coli.	13	0	N/A	4 --24	
Sandwich	Peter's Pond	Weekly	E.Coli.	12	0	N/A	4 -- 106	
Sandwich	Peter's Pond Park (boat ramp)	Weekly	E.Coli.	13	0	N/A	4 -- 180	
Sandwich	Peter's Pond Park (playground)	Weekly	E.Coli.	13	0	N/A	4 -- 88	
Sandwich	Pimlico Pond	Weekly	E.Coli.	12	0	N/A	4 -- 32	
Sandwich	Rolling Ridge Homeowners Assoc.- Lawrence Pond	Weekly	E.Coli.	10	0	N/A	4	
Sandwich	Snake Pond	Weekly	E.Coli.	12	0	N/A	4 -- 60	
Sandwich	Spectacle Pond	Weekly	E.Coli.	13	2	400 -- 406	4 -- 70	2
Sandwich	Triangle Pond	Weekly	E.Coli.	12	0	N/A	4	
Sandwich	Wakeby Pond	Weekly	E.Coli.	9	0	N/A	4 -- 12	
Saugus	Pearce Lake @ Breakheart	Weekly	Enterococci	18	0	2--38		
Saugus	Pecham Pond @ Camp Nihan	Weekly	Enterococci	16	1	118	2--50	1
Savoy	North Pond Beach	Weekly	Enterococci	17	2	90 -- 600	2 -- 24	2
Savoy	South Pond Beach	Weekly	Enterococci	16	1	84	2 -- 8	1
Sharon	Boat Landing Area	Twice per Week	E.Coli.	27	2	270 -- 340	0 -- 130	
Sharon	Camp Gannett Beach	Weekly	E.Coli.	12	1	260	1 -- 50	1

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Sharon	Camp Wonderland Beach	Weekly	E.Coli.	12	0	N/A	1 -- 41	
Sharon	Community Center Beach	Twice per Week	E.Coli.	27	4	500 -- 2500	0 -- 92	3
Sharon	Horizons for Youth Beach	Weekly	E.Coli.	11	0	N/A	1 -- 190	
Sharon	Town Beach - Boat Landing	Twice per Week	E.Coli.	27	1	470	1 -- 50	
Sharon	Town Beach - Concession	Twice per Week	E.Coli.	27	0	N/A	1 -- 180	
Sharon	Town Beach - Docks	Twice per Week	E.Coli.	27	1	470	0 -- 130	
Sheffield	Berkshire School Beach	Weekly	E.Coli.	9	0	N/A	10 -- 190	
Shirley	Lake Shirley Beach & Camp	Weekly	E.Coli.	7	0	N/A	2 -- 10	
Shrewsbury	Sunset Beach	Weekly	E.Coli.	11	0	N/A	50	
Southwick	South Pond Beach - North	Weekly	E.Coli.	12	2	236 -- 317	0 -- 89	
Southwick	South Pond Beach - South	Weekly	E.Coli.	9	0	N/A	2 -- 220	
Spencer	Camp Marshall - Thompson	Weekly	E.Coli.	12	1	340	10 -- 40	1
Spencer	Cranberry Meadow	Weekly	E.Coli.	10	0	N/A	10 -- 100	
Spencer	Howe Pond Beach	Weekly	Enterococci	17	7	96--600	2--46	
Spencer	Lake Whittenmore	Weekly	E.Coli.	12	0	N/A	10 -- 140	
Spencer	Stiles - Camp Larel Wood	Weekly	E.Coli.	10	0	N/A	10 -- 100	
Spencer	Sugden	Weekly	E.Coli.	11	1	840	0 -- 160	
Spencer	Thompson	Weekly	E.Coli.	10	0	N/A	10 -- 40	
Springfield	Camp Wilder - Left	Weekly	E.Coli.	4	0	N/A	7 -- 113	
Springfield	Camp Wilder - Right	Weekly	E.Coli.	4	0	N/A	8 -- 53	
Springfield	Five Mile Pond - Left	Weekly	E.Coli.	5	0	N/A	2 -- 150	
Springfield	Five Mile Pond - Right	Weekly	E.Coli.	5	1	450	23 -- 88	
Springfield	Jam's Beach - Left	Weekly	E.Coli.	5	0	N/A	6 -- 38	
Springfield	Jam's Beach - Right	Weekly	E.Coli.	5	0	N/A	9 -- 56	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Springfield	Knights of Columbus - Left	Weekly	E.Coli.	4	0	N/A	2 -- 68	
Springfield	Knights of Columbus - Right	Weekly	E.Coli.	4	0	N/A	1 -- 19	
Springfield	Paddle Club - Left	Weekly	E.Coli.	5	0	N/A	7 -- 74	
Springfield	Paddle Club - Right	Weekly	E.Coli.	5	0	N/A	2 -- 49	
Sterling	Lake Waushacum #1	Weekly	E.Coli.	16	0	N/A	0 -- 69	
Sterling	Lake Waushacum #2	Weekly	E.Coli.	15	0	N/A	2 -- 127	
Sterling	Lake Waushacum #3	Weekly	E.Coli.	15	1	415	2 -- 111	
Stockbridge	Beachwood Assoc. - Stockbridge Bowl	Weekly	E.Coli.	19	0	N/A	0 -- 128	
Stockbridge	Berkshire Country Day School	Weekly	E.Coli.	29	0	N/A	0 -- 190	
Stockbridge	Camp Mahkeenac	Weekly	E.Coli.	24	0	N/A	0 -- 180	
Stockbridge	Kripalu	Weekly	E.Coli.	13	0	N/A	0 -- 100	
Stockbridge	Mahkeenac Shores	Weekly	E.Coli.	12	0	N/A	0 -- 10	
Stockbridge	Sports School Day Camp	Weekly	E.Coli.	8	0	N/A	0 -- 60	
Stockbridge	Stockbridge Bowl	Weekly	E.Coli.	13	0	N/A	0 -- 100	
Stockbridge	Tanglewood	Weekly	E.Coli.	10	0	N/A	0 -- 44	
Stockbridge	White Pines	Weekly	E.Coli.	2	0	N/A	10 -- 100	
Stockbridge	White Pines Condos	Weekly	E.Coli.	13	0	N/A	0 -- 100	
Stoughton	Ames Pond	Weekly	E.Coli.	13	1	410	10 -- 160	
Sturbridge	Sturbridge Host Hotel	Weekly	E.Coli.	16	1	260	10 -- 210	1
Sturbridge	Sturbridge Recreation - Cedar Pond	Weekly	E.Coli.	12	1	300	10 -- 120	
Sutton	Camp Blanchard	Weekly	E.Coli.	9	0	N/A	10 -- 60	
Sutton	Camp Marion	Weekly	E.Coli.	9	0	N/A	10 -- 20	
Sutton	King's Campground	Weekly	E.Coli.	11	0	N/A	10 -- 140	
Sutton	Old Holbrook Campground	Weekly	E.Coli.	12	0	N/A	10 -- 50	
Sutton	Sutton Falls Camp	Weekly	E.Coli.	11	0	N/A	10 -- 110	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Sutton	Welsh's Campground	Weekly	E.Coli.	9	0	N/A	10 -- 180	
Taunton	Campers Beach / Middle Pond	Weekly	Enterococci	12	1	194	2 -- 54	
Taunton	Watsons Pond	Weekly	Enterococci	11	3	152 -- 354	2 -- 28	
Tisbury	Long Cove (fresh)	Weekly	Enterococci	9	0	N/A	0 -- 10	
Tisbury	Tisbury Great Pond	Weekly	Enterococci	9	0	N/A	0 -- 20	
Tolland	Camp Kinderland Beach	Weekly	E.Coli.	11	0	N/A	10 -- 40	
Tolland	Camp Timbertrails	Weekly	E.Coli.	13	0	N/A	10 -- 90	
Townsend	Pearl Hill Pond Beach	Weekly	Enterococci	15	1	200	2--34	1
Townsend	Townsend Town Beach	Weekly	E.Coli.	11	0	N/A	10 -- 220	
Tynesborough	Lake Mascuppic	Weekly	E.Coli.	13	3	350 -- 1125	0 -- 180	
Tyringham	Tyringham Park Beach	Weekly	E.Coli.	14	0	N/A	10 -- 220	
Upton	Pratt Pond	Weekly	E.Coli.	12	0	N/A	2 -- 70	
Upton	Taft Pond Beach	Weekly	E.Coli.	12	0	N/A	2 -- 44	
Upton	Wildwood Bond Beach	Weekly	E.Coli.	12	0	N/A	6 -- 224	
Uxbridge	Buffumville Lake	Weekly	E.Coli.	17	4	270 -- 610	10 -- 200	
Uxbridge	Fairwoods	Weekly	E.Coli.	13	2	300	10 -- 140	1
Uxbridge	Pout Pond	Weekly	E.Coli.	5	0	N/A	10 -- 50	
Uxbridge	Tully Lake - Campground	Weekly	E.Coli.	13	0	N/A	10 -- 60	
Uxbridge	West Hill Park	Weekly	E.Coli.	19	4	300 -- 2000	10 -- 180	
Walpole	Pond/Dock Area	Weekly	E.Coli.	9	0	N/A	1 -- 6	
Wareham	Glen Charlie	Weekly	E.Coli.	10	0	N/A	4 -- 48	
Wareham	Sunset	Weekly	E.Coli.	10	0	N/A	4 -- 6	
Warren	Comin's Pond	Weekly	E.Coli.	10	0	N/A	20 -- 40	
Wayland	Lake Cochituate - Left Buoy (deep)	Weekly	E.Coli.	13	1	300	2 -- 10	
Wayland	Lake Cochituate - Left Shallow	Weekly	E.Coli.	13	0	N/A	5 -- 220	
Wayland	Lake Cochituate - Middle	Weekly	E.Coli.	13	0	N/A	2 -- 230	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Wayland	Lake Cochituate - Right Shallow	Weekly	E.Coli.	13	0	N/A	5 -- 144	
Webster	Merino Pond	Weekly	E.Coli.	10	0	N/A	0 -- 20	
Wellesley	Green Beach - Deep	Weekly	E.Coli.	9	1	260	10 -- 170	
Wellesley	Green Beach - Shallow	Weekly	E.Coli.	9	1	270	10 -- 180	
Wellesley	Morses Beach - Deep	Weekly	E.Coli.	12	1	690	10 -- 230	
Wellesley	Morses Beach - Shallow	Weekly	E.Coli.	13	3	880 -- 1800	10 -- 210	
Wellfleet	Duck Pond	Weekly	E.Coli.	11	0	N/A	4	
Wellfleet	Dyer Pond	Weekly	E.Coli.	12	0	N/A	4	
Wellfleet	Great Pond	Weekly	E.Coli.	11	0	N/A	4	
Wellfleet	Gull Pond	Weekly	E.Coli.	12	0	N/A	4	
Wellfleet	Herring Pond	Weekly	E.Coli.	12	1	298	4 -- 16	1
Wellfleet	Higgins Pond	Weekly	E.Coli.	12	0	N/A	4	
Wellfleet	Long Pond	Weekly	E.Coli.	12	0	N/A	4 -- 12	
Wellfleet	Spectacle Pond	Weekly	E.Coli.	10	0	N/A	4 -- 12	
Wenham	Gull Pond	Weekly	E.Coli.	5	0	N/A	10 -- 40	1
West Stockbridge	Camp Kingsmont	Weekly	E.Coli.	13	0	N/A	10 -- 180	
West Stockbridge	Card Pond Beach	Weekly	E.Coli.	16	0	N/A	10 -- 220	
West Stockbridge	Crane Lake Camp	Weekly	E.Coli.	10	0	N/A	10 -- 140	
West Tisbury	Coca-Cola Brook @ Beach	Weekly	Enterococci	12	11	64 -- 296	0	
West Tisbury	Coca-Cola Brook @ Road	Weekly	Enterococci	12	9	68 -- 296	N/A	
West Tisbury	Pond	Weekly	Enterococci	4	1	70	0 -- 14	
West Tisbury	Seth's Pond #1	Weekly	Enterococci	17	1	84	0 -- 32	
West Tisbury	Seth's Pond #2	Weekly	Enterococci	17	1	68	0 -- 12	
West Tisbury	Seth's Pond Beach #1	Weekly	E.Coli.	14	0	N/A	0 -- 4	
West Tisbury	Seth's Pond Cove #2	Weekly	E.Coli.	14	0	N/A	0 -- 20	
Westborough	Lake Chauncy Beach #1	Weekly	E.Coli.	10	0	N/A	5 -- 15	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Westborough	Lake Chauncy Beach #2	Weekly	Enterococci	10	0	N/A	2 -- 10	
Westborough	Westborough State Hospital Beach	Weekly	E.Coli.	8	0	N/A	10 -- 30	
Westford	East Boston Camps - Boys Beach	Weekly	E.Coli.	15	0	N/A	2 -- 24	
Westford	East Boston Camps - Day Care	Weekly	E.Coli.	5	0	N/A	2 -- 4	
Westford	East Boston Camps - Girls Beach	Weekly	E.Coli.	15	0	N/A	2 -- 6	
Westford	Edwards Beach - Center	Weekly	E.Coli.	2	0	N/A	8 -- 10	
Westford	Edwards Beach - Left	Weekly	E.Coli.	7	0	N/A	2 -- 26	
Westford	Edwards Beach - Right	Weekly	E.Coli.	5	0	N/A	2 -- 84	
Westford	Edwards Town Beach	Weekly	E.Coli.	9	1	472	2 -- 150	
Westford	Forge Village Beach	Weekly	E.Coli.	15	0	N/A	2 -- 100	
Westford	Key's Pond - Center	One Time	E.Coli.	1	0	N/A	70	
Westford	Key's Pond - North East	One Time	E.Coli.	1	0	N/A	4	
Westford	Keys Pond - West	One Time	E.Coli.	1	0	N/A	182	
Westford	Lakeside Meadows	Weekly	E.Coli.	14	0	N/A	4 -- 124	
Westford	Marylou's Beach - NIA Beach	Weekly	E.Coli.	15	0	N/A	2 -- 72	
Westford	Nashoba Ski Area - Campers Beach	Weekly	E.Coli.	15	0	N/A	2 -- 6	
Westford	Nashoba Ski Area - Swim Club Beach	Weekly	E.Coli.	15	0	N/A	2 -- 110	
Westford	North Beach - NIA Beach	Weekly	E.Coli.	12	0	N/A	2 -- 34	
Westford	Sandy Beach - NIA Beach	Weekly	E.Coli.	15	0	N/A	2 -- 28	
Westford	Wymans Campers Beach	Weekly	E.Coli.	15	0	N/A	2 -- 64	
Westford	Wymans Main Beach - North	Weekly	E.Coli.	15	0	N/A	2 -- 154	
Westford	Wymans Main Beach - South	Weekly	E.Coli.	15	0	N/A	2 -- 160	
Westminster	Crow Hill Pond Beach	Weekly	Enterococci	15	2	74--96	2--32	
Westport	Davol Pond	Weekly	Enterococci	11	0	N/A	2 -- 28	
Westport	Rod & Gun (So. Watuppa)	Weekly	Enterococci	7	0	N/A	2 -- 60	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Westport	Sawdy Pond	Weekly	Enterococci	17	0	N/A	2 -- 80	
Westport	South WattuPPa Pond	Weekly	Enterococci	10	1	94	2 -- 10	
Westwood	Grossman Beach	Weekly	Enterococci	4	0	N/A	1 -- 26	
Westwood	Membership Beach	Weekly	Enterococci	13	0	N/A	1 -- 61	
Westwood	North Beach	Weekly	Enterococci	8	0	N/A	1 -- 26	
Westwood	Powissett	Weekly	Enterococci	8	1	64	1 -- 22	
Weymouth	Whitman's Pond	Weekly	E.Coli.	16	0	N/A	4 -- 168	
Williamstown	Margaret Lindley Park	Weekly	E.Coli.	10	0	N/A	10 -- 180	
Wilmington	Baby Beach	Weekly	E.Coli.	14	0	N/A	12 -- 156	
Wilmington	Silver Lake	Weekly	E.Coli.	14	2	360 -- 440	10 -- 222	
Winchester	Sandy Beach @ Upper Mystic	Twice per Week	Enterococci	26	4	92--7600	4--12	5
Winchester	Wedge Pond - North	Two Times	E. Coli	2	1	240	1	4
Winchester	Wedge Pond - North	Weekly	Fecal Streptococcus	7	N/A	N/A	0 -- 300	
Winchester	Wedge Pond - South	Two Times	E. Coli	2	0	N/A	30 -- 150	
Winchester	Wedge Pond - South	Weekly	Fecal Streptococcus	7	N/A	N/A	40 -- 580	
Windsor	Westfield River Beach	Weekly	Enterococci	17	2	70 -- 176	2 -- 52	2
Worcester	Bell Pond Beach	Weekly	E.Coli.	9	0	N/A	2 -- 77	
Worcester	Coes Pond Hillside	Weekly	E.Coli.	10	1	253	5 -- 218	1
Worcester	Coes Pond Mill St. Beach	Weekly	E.Coli.	14	5	263 -- 1480	10 -- 231	1
Worcester	Indian Lake Public Beach	Weekly	E.Coli.	9	0	N/A	5 -- 98	
Worcester	Indian Lake Shore Park	Weekly	E.Coli.	9	0	N/A	5 -- 102	
Worcester	Lake Quinsigamond-Lake Park Beach	Weekly	Enterococci	15	0	2--22		
Worcester	Lake Quinsigamond-Regatta Point Beach	Weekly	Enterococci	17	3	108--246	2--46	
Yarmouth	Camp Greenough - Boy Scouts	Weekly	E.Coli.	9	0	N/A	4	

**Table 17:** Water quality data for freshwater public and semi-public bathing beaches in Massachusetts in 2002.

Town	Beach Name	Testing Frequency	Indicator	# Tests	# Exceedences	Range of Exceedences	Range of Non-Exceedences	Number of Postings <sup>1</sup>
Yarmouth	Dennis Pond	Weekly	E.Coli.	12	0	N/A	4	
Yarmouth	Flax Pond	Weekly	E.Coli.	11	0	N/A	4 -- 92	
Yarmouth	Follins Pond	One Time	E.Coli.	1	0	N/A	2	
Yarmouth	Horse Pond - Halcyon Condos	Weekly	E.Coli.	13	0	N/A	4	
Yarmouth	Little Sandy Pond	Weekly	E.Coli.	12	0	N/A	4 -- 12	
Yarmouth	Long Pond - Indian	Weekly	E.Coli.	11	0	N/A	4 -- 36	
Yarmouth	Long Pond – Lyman	Weekly	E.Coli.	12	0	N/A	4 -- 24	

1. Postings for a beach were assumed to be for all parts of the beach with that name and were listed in that way

**Table 18:** Cities/towns in Massachusetts, indicating type of beach and the presence or absence of data in 2002.

City/town name	Marine beach	Marine beach with Data	Marine beach without Data	Freshwater Beach	Freshwater Beach with Data	Freshwater Beach without Data	No beach	Marine or Freshwater Beach	Marine and Freshwater Beach
AQUINNAH (SEE ALSO GAY HEAD)	x	x						x	
ABINGTON				x	x			x	
ACTON				x	x			x	
ACUSHNET				x		x		x	
ADAMS							x		
AGAWAM				x		x		x	
ALFORD							x		
AMESBURY				x	x			x	
AMHERST				x		x		x	
ANDOVER				x	x			x	
ARLINGTON				x	x			x	
ASHBURNHAM				x	x			x	
ASHBY				x	x			x	
ASHFIELD				x	x			x	
ASHLAND				x	x			x	
ATHOL				x	x			x	
ATTLEBORO							x		
AUBURN				x	x			x	
AVON							x		
AYER				x	x			x	
BARNSTABLE	x	x		x	x			x	x
BARRE				x	x			x	
BECKET				x	x			x	
BEDFORD				x	x			x	
BELCHERTOWN				x	x			x	
BELLINGHAM				x	x			x	
BELMONT							x		
BERKLEY							x		
BERLIN							x		
BERNARDSTON							x		
BEVERLY	x	x						x	
BILLERICA				x	x			x	
BLACKSTONE							x		

**Table 18:** Cities/towns in Massachusetts, indicating type of beach and the presence or absence of data in 2002.

City/town name	Marine beach	Marine beach with Data	Marine beach without Data	Freshwater Beach	Freshwater Beach with Data	Freshwater Beach without Data	No beach	Marine or Freshwater Beach	Marine and Freshwater Beach
BLANDFORD							x		
BOLTON				x	x			x	
BOSTON	x	x						x	
BOURNE	x	x		x	x			x	x
BOXBOROUGH							x		
BOXFORD				x	x			x	
BOYLSTON							x		
BRAINTREE	x	x		x	x			x	x
BREWSTER	x	x		x	x			x	x
BRIDGEWATER							x		
BRIMFIELD				x		x		x	
BROCKTON							x		
BROOKFIELD				x	x			x	
BROOKLINE							x		
BUCKLAND							x		
BURLINGTON							x		
CAMBRIDGE							x		
CANTON							x		
CARLISLE							x		
CARVER				x	x			x	
CHARLEMONT				x	x			x	
CHARLTON				x		x		x	
CHATHAM	x	x		x	x			x	x
CHELMSFORD				x	x			x	
CHELSEA							x		
CHESHIRE				x	x			x	
CHESTER							x		
CHESTERFIELD				x	x			x	
CHICOPEE				x		x		x	
CHILMARK	x	x						x	
CLARKSBURG				x	x			x	
CLINTON							x		
COHASSET	x	x						x	
COLRAIN							x		
CONCORD				x	x			x	

**Table 18:** Cities/towns in Massachusetts, indicating type of beach and the presence or absence of data in 2002.

City/town name	Marine beach	Marine beach with Data	Marine beach without Data	Freshwater Beach	Freshwater Beach with Data	Freshwater Beach without Data	No beach	Marine or Freshwater Beach	Marine and Freshwater Beach
CONWAY				x	x			x	
CUMMINGTON				x	x			x	
DALTON							x		
DANVERS	x	x						x	
DARTMOUTH	x	x		x	x			x	x
DEDHAM							x		
DEERFIELD							x		
DENNIS	x	x		x	x			x	x
DIGHTON							x		
DOUGLAS				x	x			x	
DOVER							x		
DRACUT				x	x			x	
DUDLEY				x		x		x	
DUNSTABLE							x		
DUXBURY	x	x		x	x			x	x
EAST BRIDGEWATER							x		
EAST BROOKFIELD				x		x		x	
EAST LONGMEADOW							x		
EASTHAM	x	x		x	x			x	x
EASTHAMPTON							x		
EASTON				x		x		x	
EDGARTOWN	x	x						x	
EGREMONT				x	x			x	
ERVING				x		x		x	
ESSEX	x	x		x	x			x	x
EVERETT							x		
FAIRHAVEN	x	x						x	
FALL RIVER							x		
FALMOUTH	x	x		x	x			x	x
FITCHBURG							x		
FLORIDA				x	x			x	
FOXBOROUGH							x		
FRAMINGHAM				x		x		x	

**Table 18:** Cities/towns in Massachusetts, indicating type of beach and the presence or absence of data in 2002.

City/town name	Marine beach	Marine beach with Data	Marine beach without Data	Freshwater Beach	Freshwater Beach with Data	Freshwater Beach without Data	No beach	Marine or Freshwater Beach	Marine and Freshwater Beach
FRANKLIN				x	x			x	
FREETOWN				x		x		x	
GARDNER				x		x		x	
GAY HEAD (SEE ALSO AQUINNAH)	x	x						x	
GEORGETOWN				x	x			x	
GILL							x		
GLOUCESTER	x	x						x	
GOSHEN				x	x			x	
GOSNOLD							x		
GRAFTON				x	x			x	
GRANBY							x		
GRANVILLE							x		
GREAT BARRINGTON				x		x		x	
GREENFIELD				x	x			x	
GROTON				x	x			x	
GROVELAND							x		
HADLEY							x		
HALIFAX				x	x			x	
HAMILTON							x		
HAMPDEN							x		
HANCOCK							x		
HANOVER							x		
HANSON				x	x			x	
HARDWICK							x		
HARVARD				x	x			x	
HARWICH	x	x		x	x			x	x
HATFIELD							x		
HAVERHILL				x	x			x	
HAWLEY							x		
HEATH							x		
HINGHAM	x	x						x	
HINSDALE				x	x			x	
HOLBROOK							x		
HOLDEN				x	x			x	

**Table 18:** Cities/towns in Massachusetts, indicating type of beach and the presence or absence of data in 2002.

City/town name	Marine beach	Marine beach with Data	Marine beach without Data	Freshwater Beach	Freshwater Beach with Data	Freshwater Beach without Data	No beach	Marine or Freshwater Beach	Marine and Freshwater Beach
HOLLAND							x		
HOLLISTON				x	x			x	
HOLYOKE							x		
HOPEDALE				x		x		x	
HOPKINTON				x	x			x	
HUBBARDSTON				x	x			x	
HUDSON				x	x			x	
HULL	x	x						x	
HUNTINGTON				x	x			x	
IPSWICH	x	x		x	x			x	x
KINGSTON	x	x		x	x			x	x
LAKEVILLE				x	x			x	
LANCASTER				x	x			x	
LANESBOROUGH				x	x			x	
LAWRENCE							x		
LEE				x	x			x	
LEICESTER							x		
LENOX				x	x			x	
LEOMINSTER				x		x		x	
LEVERETT							x		
LEXINGTON				x	x			x	
LEYDEN							x		
LINCOLN							x		
LITTLETON				x	x			x	
LONGMEADOW							x		
LOWELL				x	x			x	
LUDLOW				x		x		x	
LUNENBURG				x	x			x	
LYNN	x	x		x	x			x	x
LYNNFIELD							x		
MALDEN							x		
MANCHESTER	x	x						x	
MANSFIELD							x		
MARBLEHEAD	x	x						x	
MARION	x	x						x	

**Table 18:** Cities/towns in Massachusetts, indicating type of beach and the presence or absence of data in 2002.

City/town name	Marine beach	Marine beach with Data	Marine beach without Data	Freshwater Beach	Freshwater Beach with Data	Freshwater Beach without Data	No beach	Marine or Freshwater Beach	Marine and Freshwater Beach
MARLBOROUGH				x	x			x	
MARSHFIELD	x	x						x	
MASHPEE	x	x		x	x			x	x
MATTAPOISETT	x	x						x	
MAYNARD							x		
MEDFIELD				x		x		x	
MEDFORD				x	x			x	
MEDWAY				x	x			x	
MELROSE							x		
MENDON				x	x			x	
MERRIMAC				x	x			x	
METHUEN				x	x			x	
MIDDLEBOROUGH				x	x			x	
MIDDLEFIELD							x		
MIDDLETON				x		x		x	
MILFORD							x		
MILLBURY							x		
MILLIS							x		
MILLVILLE							x		
MILTON				x	x			x	
MONROE							x		
MONSON							x		
MONTAGUE							x		
MONTEREY				x	x			x	
MONTGOMERY							x		
MOUNT WASHINGTON				x	x			x	
NAHANT	x	x						x	
NANTUCKET	x	x		x	x			x	x
NATICK				x	x			x	
NEEDHAM							x		
NEW ASHFORD							x		
NEW BEDFORD	x	x		x	x			x	x
NEW BRAINTREE							x		
NEW MARLBOROUGH				x	x			x	

**Table 18:** Cities/towns in Massachusetts, indicating type of beach and the presence or absence of data in 2002.

City/town name	Marine beach	Marine beach with Data	Marine beach without Data	Freshwater Beach	Freshwater Beach with Data	Freshwater Beach without Data	No beach	Marine or Freshwater Beach	Marine and Freshwater Beach
NEW SALEM							x		
NEWBURY	x	x						x	
NEWBURYPORT	x	x						x	
NEWTON				x	x			x	
NORFOLK							x		
NORTH ADAMS				x	x			x	
NORTH ANDOVER				x	x			x	
NORTH ATTLEBOROUGH				x	x			x	
NORTH BROOKFIELD				x		x		x	
NORTH READING							x		
NORTHAMPTON				x	x			x	
NORTHBOROUGH							x		
NORTHBRIDGE				x	x			x	
NORTHFIELD							x		
NORTON				x		x		x	
NORWELL							x		
NORWOOD							x		
OAK BLUFFS	x	x						x	
OAKHAM				x	x			x	
ORANGE				x	x			x	
ORLEANS	x	x		x	x			x	x
OTIS				x	x			x	
OXFORD				x	x			x	
PALMER							x		
PAXTON							x		
PEABODY							x		
PELHAM							x		
PEMBROKE				x	x			x	
PEPPERELL							x		
PERU				x	x			x	
PETERSHAM							x		
PHILLIPSTON							x		
PITTSFIELD				x	x			x	
PLAINFIELD				x		x		x	

**Table 18:** Cities/towns in Massachusetts, indicating type of beach and the presence or absence of data in 2002.

City/town name	Marine beach	Marine beach with Data	Marine beach without Data	Freshwater Beach	Freshwater Beach with Data	Freshwater Beach without Data	No beach	Marine or Freshwater Beach	Marine and Freshwater Beach
PLAINVILLE							x		
PLYMOUTH	x	x		x	x			x	x
PLYMPTON							x		
PRINCETON							x		
PROVINCETOWN	x	x						x	
QUINCY	x	x						x	
RANDOLPH				x	x			x	
RAYNHAM							x		
READING							x		
REHOBOTH							x		
REVERE	x	x						x	
RICHMOND				x	x			x	
ROCHESTER				x	x			x	
ROCKLAND				x		x		x	
ROCKPORT	x	x						x	
ROWE				x	x			x	
ROWLEY							x		
ROYALSTON				x	x			x	
RUSSELL				x	x			x	
RUTLAND				x	x			x	
SALEM	x	x						x	
SALISBURY	x	x						x	
SANDISFIELD				x	x			x	
SANDWICH	x	x		x	x			x	x
SAUGUS				x	x			x	
SAVOY				x	x			x	
SCITUATE	x	x						x	
SEEKONK							x		
SHARON				x	x			x	
SHEFFIELD				x	x			x	
SHELBURNE							x		
SHERBORN				x		x		x	
SHIRLEY				x	x			x	
SHREWSBURY				x	x			x	
SHUTESBURY							x		

**Table 18:** Cities/towns in Massachusetts, indicating type of beach and the presence or absence of data in 2002.

City/town name	Marine beach	Marine beach with Data	Marine beach without Data	Freshwater Beach	Freshwater Beach with Data	Freshwater Beach without Data	No beach	Marine or Freshwater Beach	Marine and Freshwater Beach
SOMERSET	x	x						x	
SOMERVILLE							x		
SOUTH HADLEY							x		
SOUTHAMPTON							x		
SOUTHBOROUGH							x		
SOUTHBRIDGE							x		
SOUTHWICK				x	x			x	
SPENCER				x	x			x	
SPRINGFIELD				x	x			x	
STERLING				x	x			x	
STOCKBRIDGE				x	x			x	
STONEHAM							x		
STOUGHTON				x	x			x	
STOW				x		x		x	
STURBRIDGE				x	x			x	
SUDBURY							x		
SUNDERLAND							x		
SUTTON				x	x			x	
SWAMPSCOTT	x	x						x	
SWANSEA							x		
TAUNTON				x	x			x	
TEMPLETON				x		x		x	
TEWKSBURY							x		
TISBURY	x	x		x	x			x	x
TOLLAND				x	x			x	
TOPSFIELD				x		x		x	
TOWNSEND				x	x			x	
TRURO	x	x						x	
TYNGSBOROUGH				x	x			x	
TYRINGHAM				x	x			x	
UPTON				x	x			x	
UXBRIDGE				x	x			x	
WAKEFIELD				x		x		x	
WALES				x		x		x	
WALPOLE				x	x			x	

**Table 18:** Cities/towns in Massachusetts, indicating type of beach and the presence or absence of data in 2002.

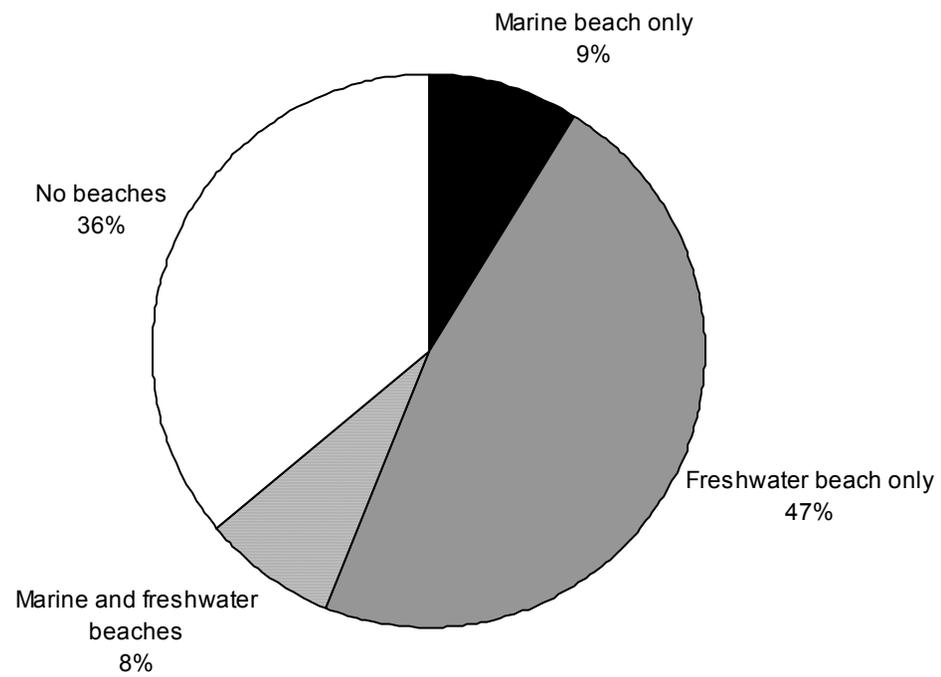
City/town name	Marine beach	Marine beach with Data	Marine beach without Data	Freshwater Beach	Freshwater Beach with Data	Freshwater Beach without Data	No beach	Marine or Freshwater Beach	Marine and Freshwater Beach
WALTHAM							x		
WARE							x		
WAREHAM	x	x		x	x			x	x
WARREN				x	x			x	
WARWICK							x		
WASHINGTON							x		
WATERTOWN							x		
WAYLAND				x	x			x	
WEBSTER				x	x			x	
WELLESLEY				x	x			x	
WELLFLEET	x	x		x	x			x	x
WENDELL				x		x		x	
WENHAM				x	x			x	
WEST BOYLSTON							x		
WEST BRIDGEWATER							x		
WEST BROOKFIELD				x		x		x	
WEST NEWBURY							x		
WEST SPRINGFIELD							x		
WEST STOCKBRIDGE				x	x			x	
WEST TISBURY	x	x		x	x			x	x
WESTBOROUGH				x	x			x	
WESTFIELD				x		x		x	
WESTFORD				x	x			x	
WESTHAMPTON				x		x		x	
WESTMINSTER				x	x			x	
WESTON							x		
WESTPORT	x	x		x	x			x	x
WESTWOOD				x	x			x	
WEYMOUTH	x	x		x	x			x	x
WHATELY							x		
WHITMAN							x		
WILBRAHAM				x		x		x	
WILLIAMSBURG							x		

**Table 18:** Cities/towns in Massachusetts, indicating type of beach and the presence or absence of data in 2002.

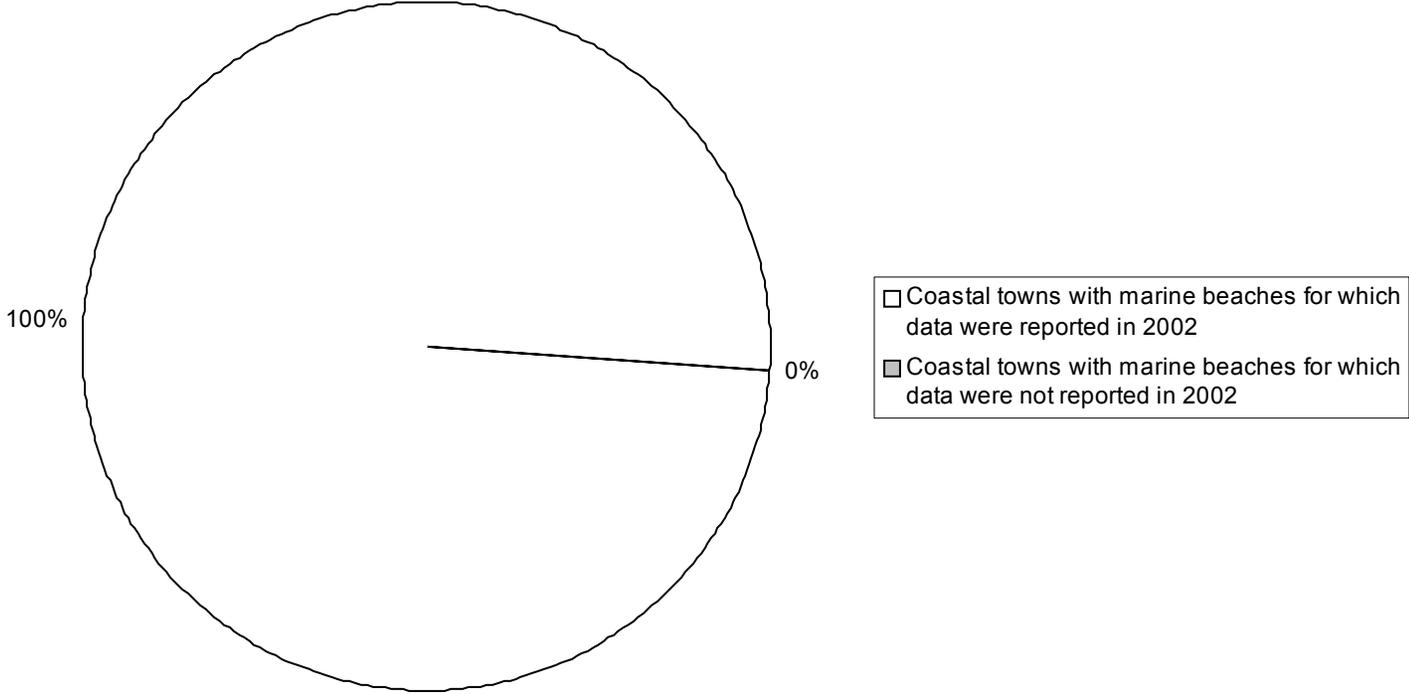
City/town name	Marine beach	Marine beach with Data	Marine beach without Data	Freshwater Beach	Freshwater Beach with Data	Freshwater Beach without Data	No beach	Marine or Freshwater Beach	Marine and Freshwater Beach
WILLIAMSTOWN				x	x			x	
WILMINGTON				x	x			x	
WINCHENDON				x		x		x	
WINCHESTER				x	x			x	
WINDSOR				x	x			x	
WINTHROP	x	x						x	
WOBURN							x		
WORCESTER				x	x			x	
WORTHINGTON							x		
WRENTHAM				x		x		x	
YARMOUTH	x	x		x	x			x	x
<b>Total</b>	<b>59</b>	<b>59</b>	<b>0</b>	<b>194</b>	<b>158</b>	<b>36</b>	<b>126</b>	<b>225</b>	<b>28</b>

## **XI. FIGURES**

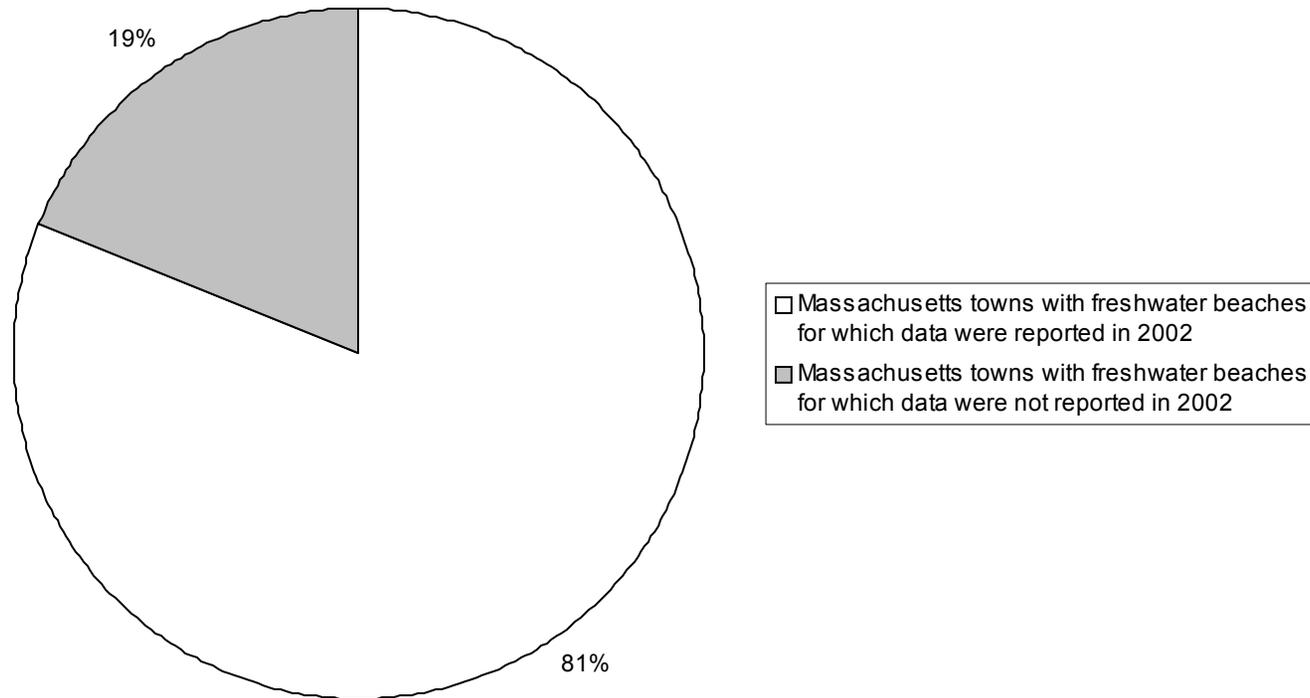
**Figure 1**  
**All Massachusetts cities/towns grouped by type of public/semi-public bathing beach**



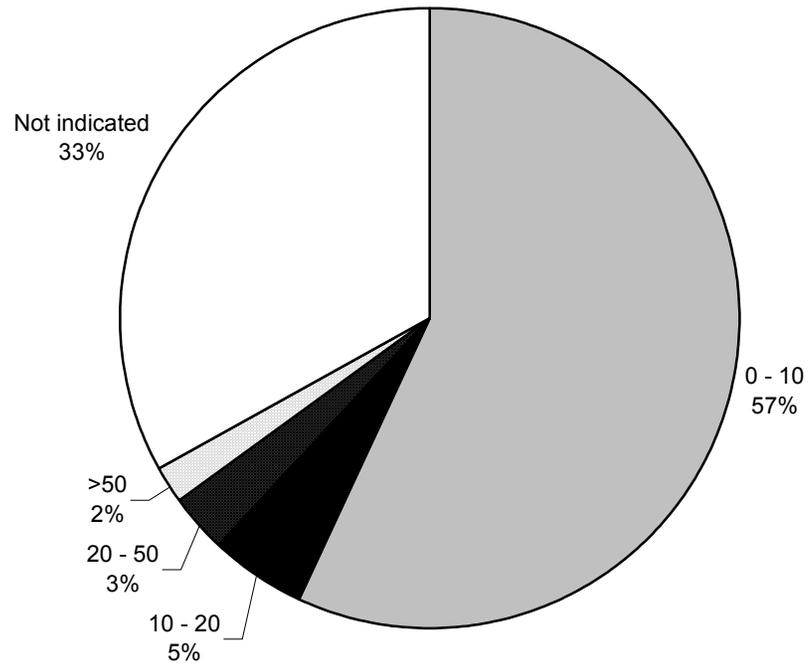
**Figure 2**  
**Coastal cities/towns in Massachusetts grouped by presence**  
**or absence of public/semi-public marine beaches and testing data**  
**2002**



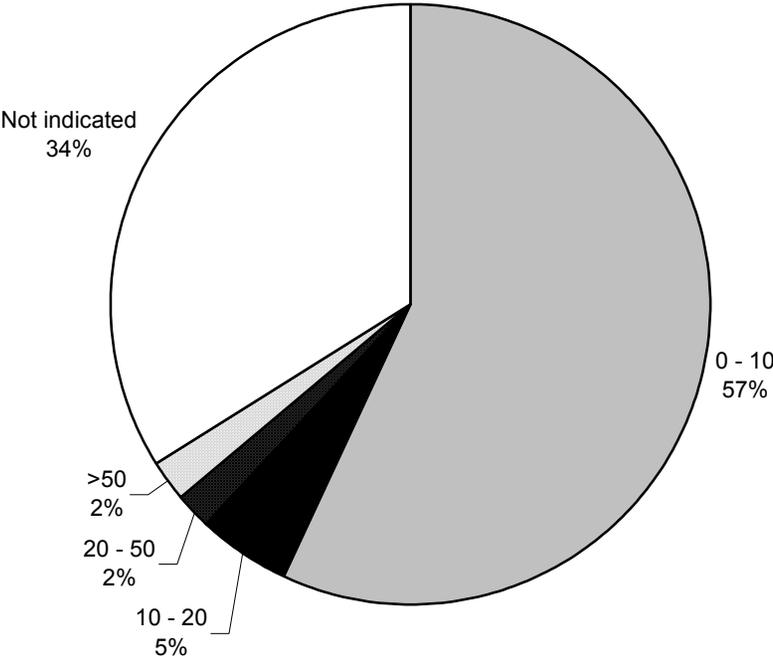
**Figure 3**  
**Cities/towns in Massachusetts grouped by presence or absence**  
**of public/semi-public freshwater bathing beaches and testing data**  
**2002**



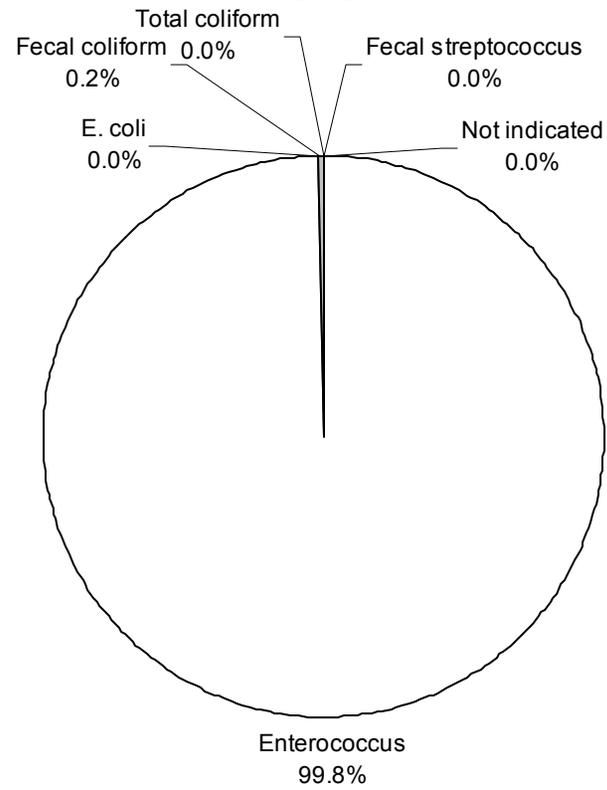
**Figure 4**  
**Bather density at public and semi-public marine bathing beaches at times of water sampling 2002**



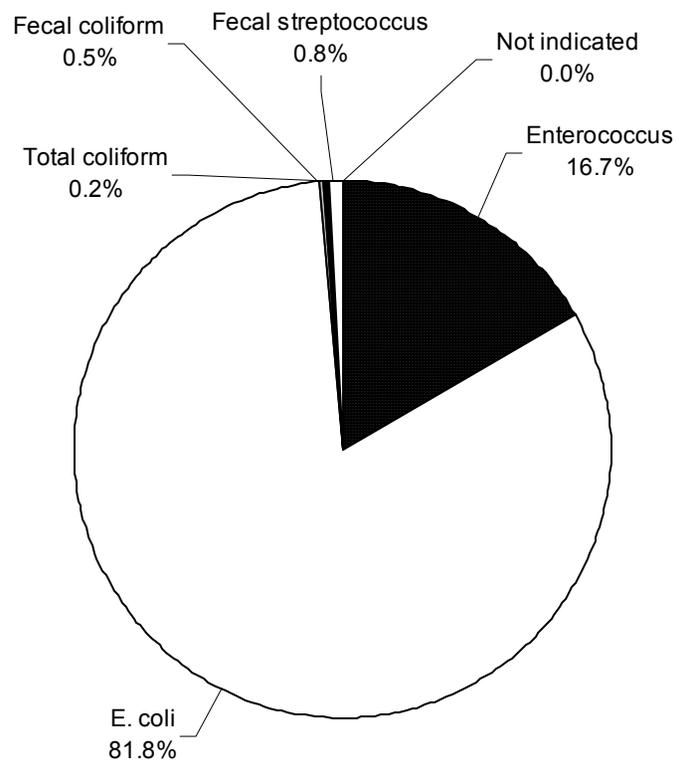
**Figure 5**  
**Bather density at public and semi-public freshwater**  
**bathing beaches at times of water sampling**  
**2002**



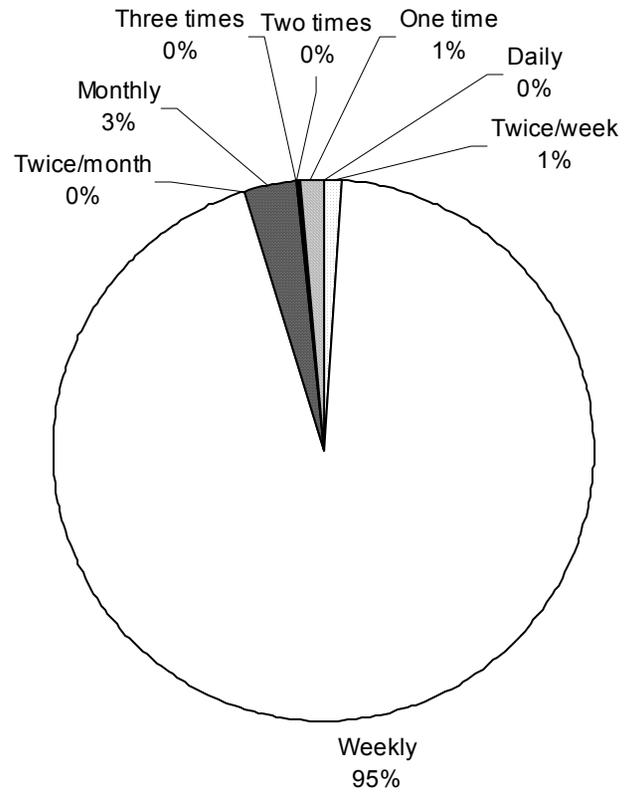
**Figure 6**  
**Water quality indicators used to test public and semi-public marine bathing beaches in Massachusetts 2002**



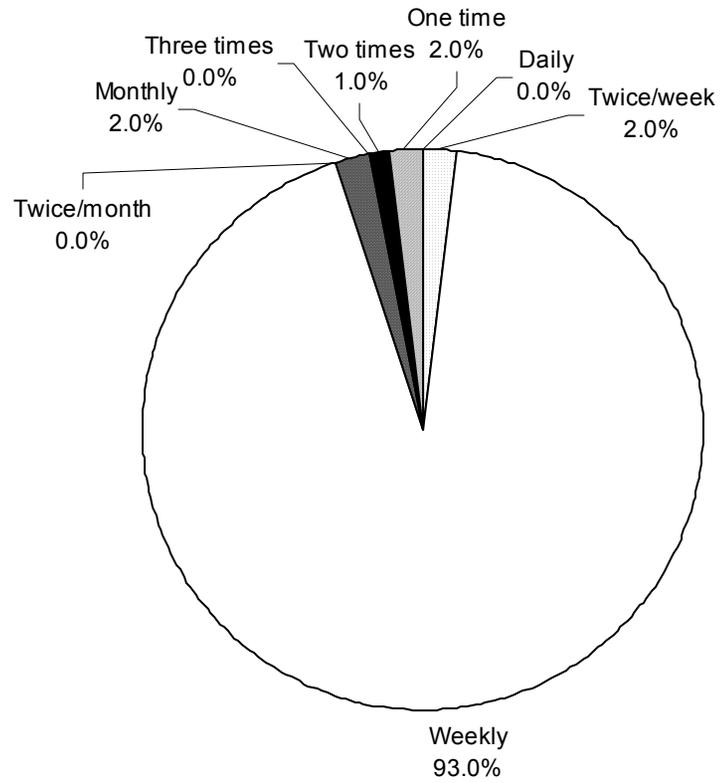
**Figure 7**  
**Water quality indicators used to test public and semi-public freshwater bathing beaches in Massachusetts 2002**



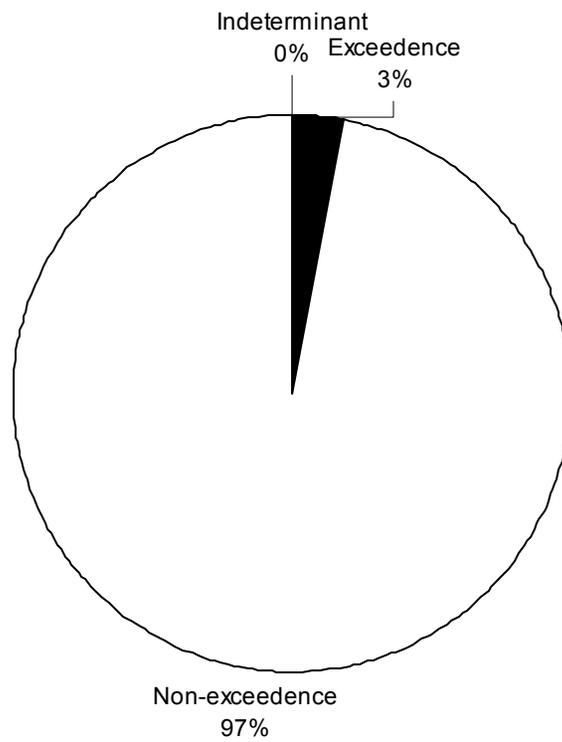
**Figure 8**  
**Frequency of water quality testing at public and semi-public marine beaches in Massachusetts 2002**



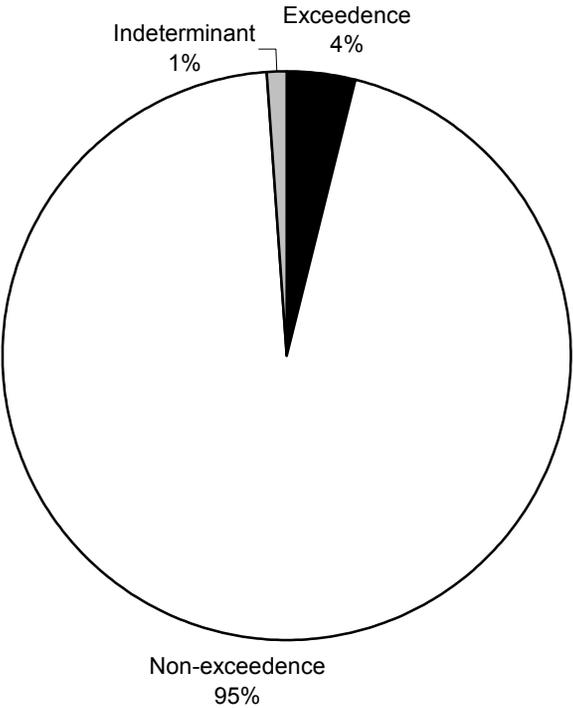
**Figure 9**  
**Frequency of water quality testing at public and semi-public freshwater bathing beaches in Massachusetts 2002**



**Figure 10**  
**Water quality at public and semi-public marine bathing beaches in Massachusetts**  
**2002**



**Figure 11**  
**Water quality at public and semi-public freshwater beaches in Massachusetts**  
**2002**



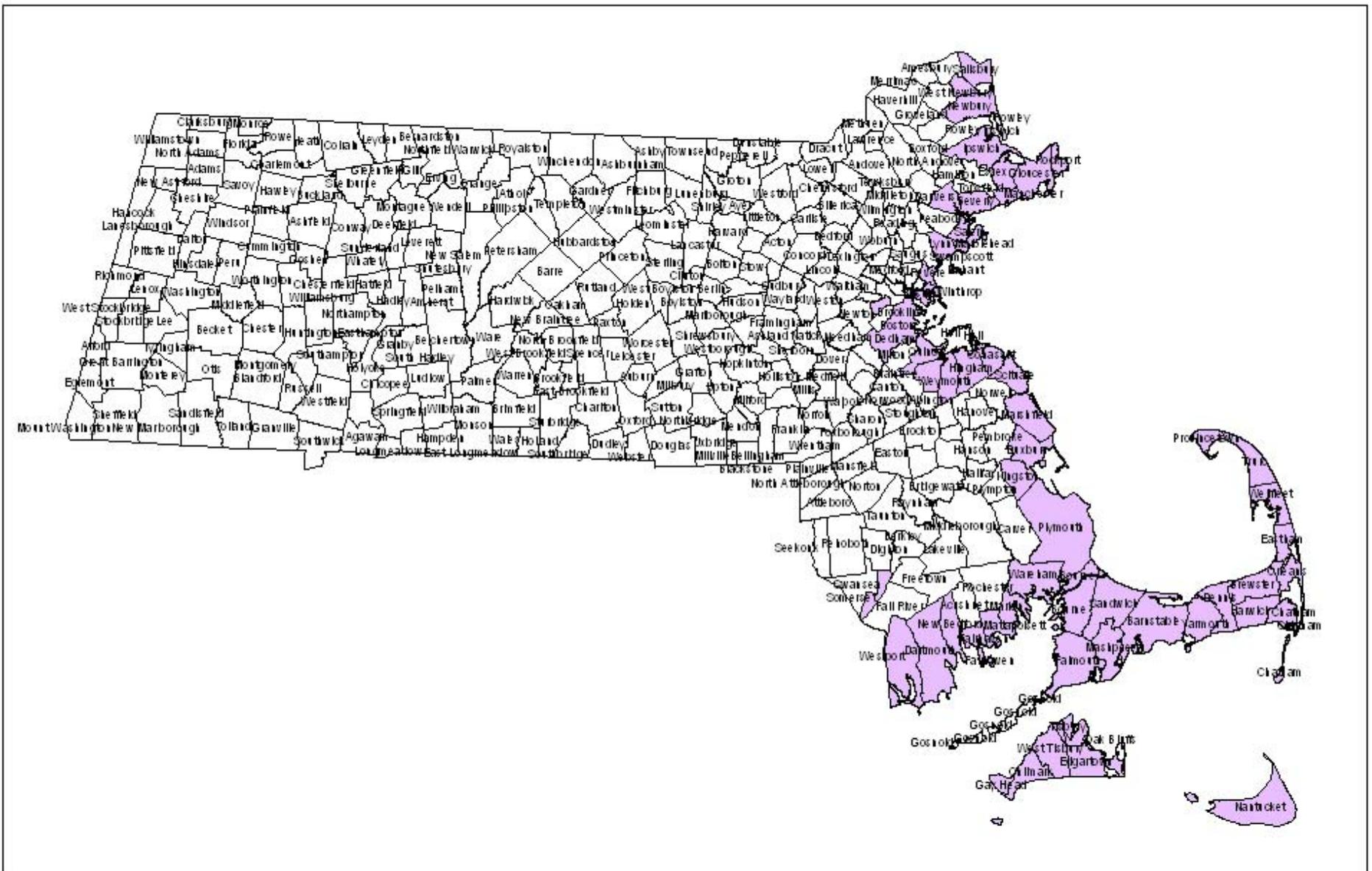
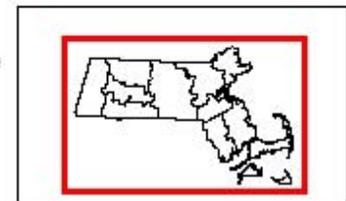


Figure 12. Marine Beach Towns that Reported Data in 2002

**Legend**

-  Massachusetts Towns
-  Marine Data 2002



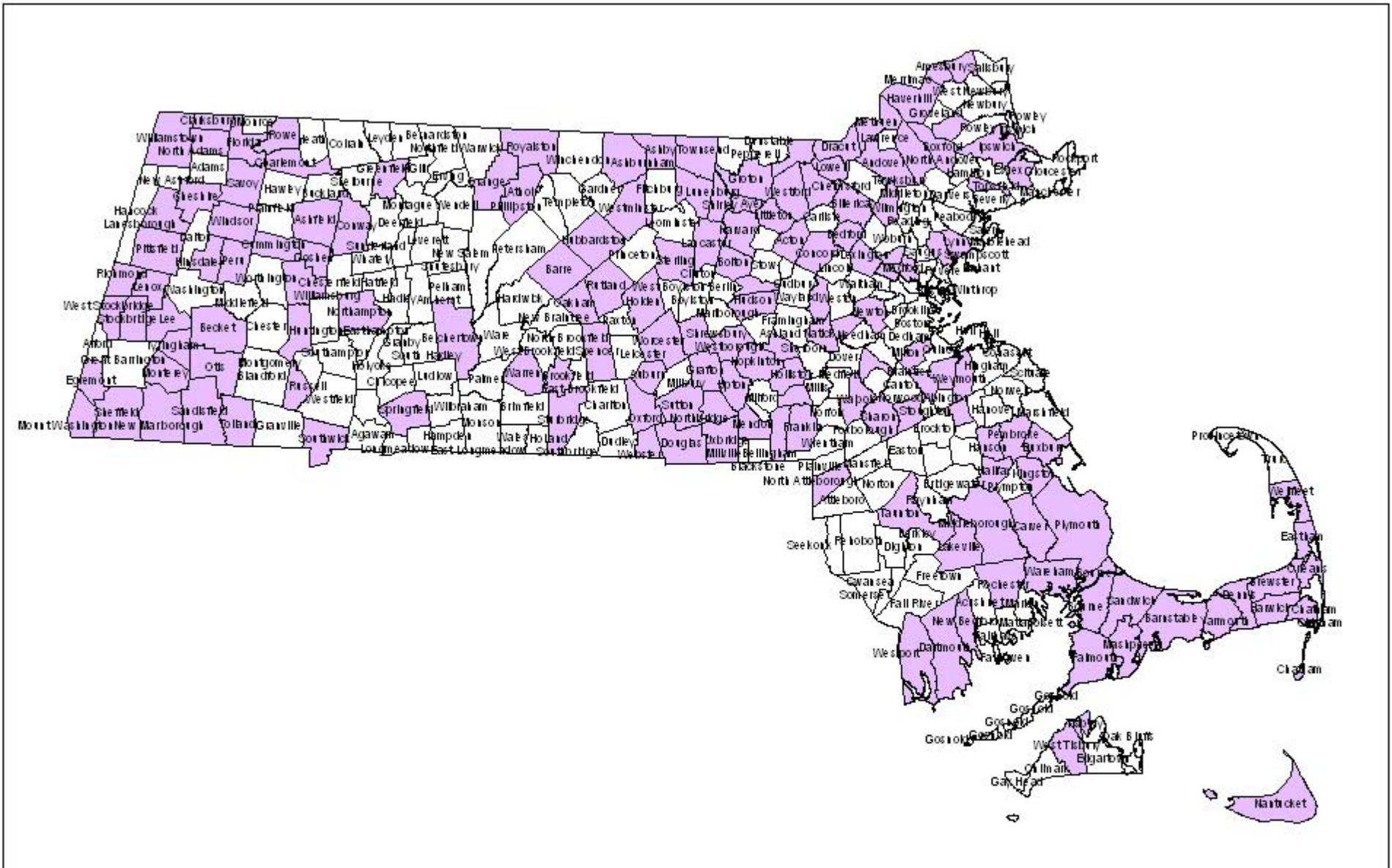
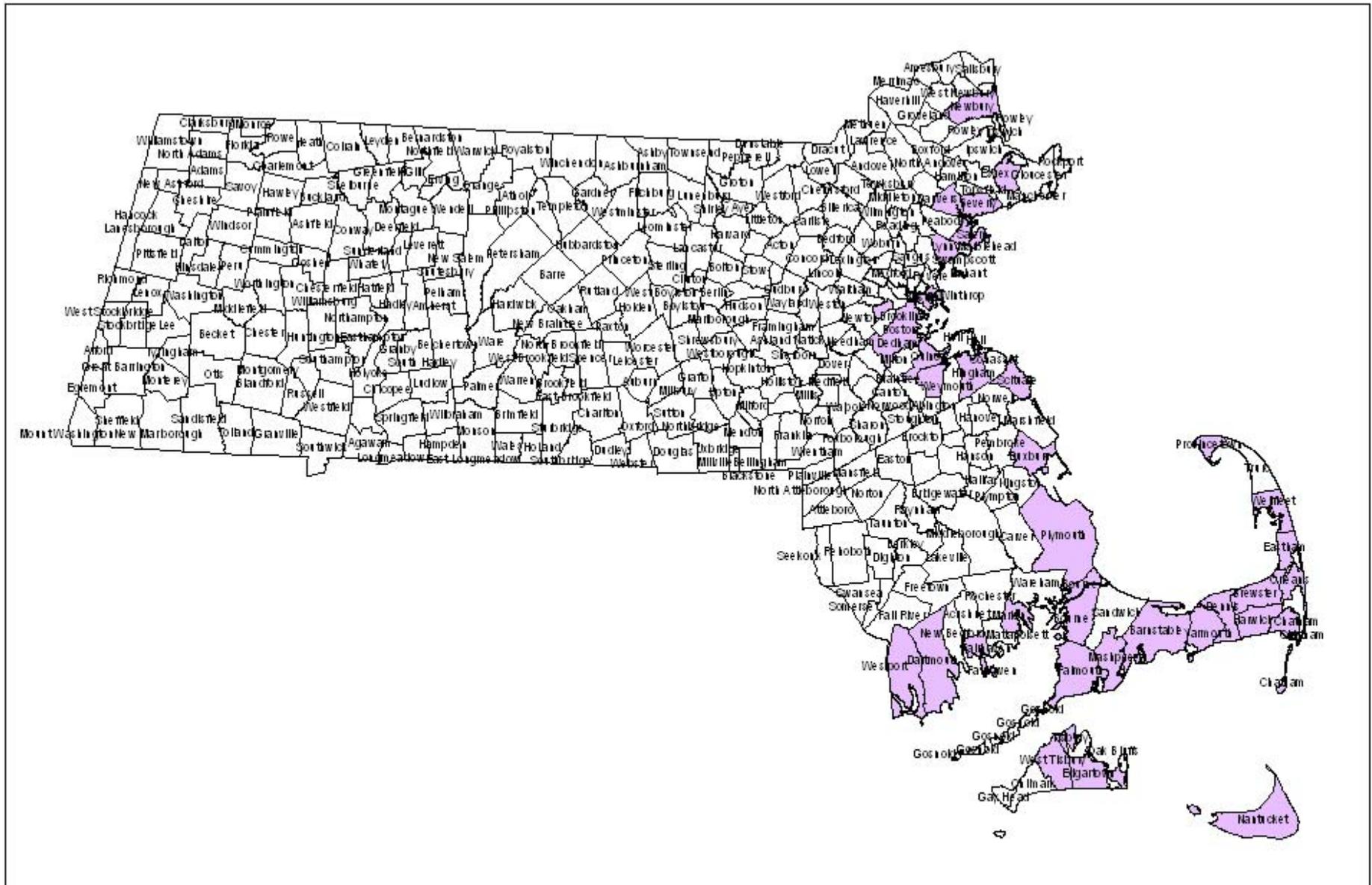


Figure 13. Freshwater Beach Towns that Reported Data in 2002

- Legend**
- Massachusetts Towns
  - Fresh Data 2002





100

Miles

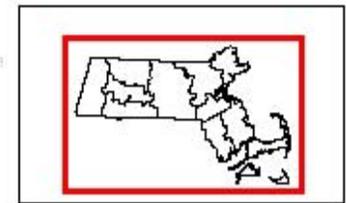
**Legend**

-  Massachusetts Towns
-  Marine Exceedences 2002

Figure 14. Marine Beach Towns with at Least One Water Sample Exceeding Criteria in 2002



Bureau of Environmental  
**BEHA**  
Health Assessment





## **XII. APPENDICES**

### **A. MASSACHUSETTS STATE REGULATIONS**

See following pages.

## **105 CMR 445.000**

### **MINIMUM STANDARDS FOR BATHING BEACHES STATE SANITARY CODE, CHAPTER VII**

#### **445.001: Purpose**

The purpose of 105 CMR 445.000 is to protect the health, safety and well-being of the users of bathing beaches, to establish acceptable standards for the operation of bathing water and to establish a procedure for informing the public of any bathing water closures.

#### **445.002: Authority**

105 CMR 445.000 is adopted under the authority of M.G.L. c. 111, ss. 3,5S and 127A.

#### **445.003: Citation**

105 CMR 445.000 shall be known and may be cited as 105 CMR445.000: Minimum Standards for Bathing Beaches (State Sanitary Code, Chapter VII).

#### **445.004: Scope**

These regulations shall apply to all public and semi-public bathing beaches.

#### **445.010: Definitions**

The words, terms or phrases listed below, for the purpose of 105 CMR 445.000, shall be defined and interpreted as follows:

**Bathing Beach** means the land where access to the bathing water is provided. It shall not mean a swimming pool as defined in 105 CMR 435.000: Minimum Standards for Swimming Pools (State Sanitary Code, Chapter V).

**Bathing Water** means fresh or salt water adjacent to any public bathing beach or semi- public bathing beach at the location where it is used for bathing and swimming purposes.

**Board of Health** means the appropriate and legally designated health authority of the city, town, or other legally constituted governmental unit within the Commonwealth having the usual powers and duties of the board of health of a city or town, or its authorized agent or representative.

Department means the Department of Public Health.

Operator means any person who

- (a) alone or jointly or severally with others has legal title to a bathing beach whether or not that person has legal title or control of the bathing water; or
- (b) has care, charge or control of such bathing beach as agent or lessee of the owner or an independent contractor.

Person means any individual or any partnership, corporation, firm, association or group, or the Commonwealth, or any of its agencies, authorities or departments or any political subdivisions of the Commonwealth, including municipalities or other legal entity.

Public Bathing Beach means any bathing beach open to the general public, whether or not any entry fee is charged, that permits access to bathing waters.

Semi-Public Bathing Beach means any bathing beach used in connection with a hotel, motel, a manufactured home park, campground, apartment house, condominium, country club, youth club, school, camp or other similar establishment where the primary purpose of the establishment is not the operation of the bathing beach, and where admission to the use of the bathing beach is included in the fee consideration paid or given for the primary use of the premises. Semi-Public Bathing Beach also means a bathing beach operated solely for the use of members and guests of an organization that maintains such a bathing beach.

Private Bathing Beach means any bathing beach not considered to be a public or semi-public bathing beach.

Sanitary Survey means a written report, conducted by a Massachusetts Registered Sanitary Engineer, Certified Health Officer or Registered Sanitarian, documenting an examination of the bathing water and contiguous land masses for the purpose of identifying actual or potential sources of microbiological or chemical contamination. The sanitary survey shall also include a description of the water circulation associated with the bathing area, the impact of bather load on the bathing beach area and any natural or artificial physical hazards.

#### 445.020: Operation

No operator shall allow bathing or swimming in bathing water whenever in the opinion of the Board of Health or the Department the bathing water is or may be hazardous or unsafe for bathing or swimming. Bathing and swimming at public and semi-public beaches shall be limited to water areas that meet the requirements of 105 CMR 445.030. Any operator of a public or semi-public bathing beach shall comply with the requirements of 105 CMR 445.000.

#### 445.030: Bathing Water Quality

Bathing or swimming shall not be permitted in any bathing water where the quality of the water does not meet the standards established in 105 CMR 445.030(A), 445.030(B), or 445.030(C), and no bathing or swimming shall be allowed when the bathing water is determined by the Board of Health or the Department to be unfit or so subject to contamination as to constitute a menace to health. Bathing or swimming shall not be permitted in bathing waters when:

##### (A) Physical Quality.

- (1) Sludge deposits, solid refuse, floating waste solids, oils, grease or scum are present; or
- (2) There are safety hazards including, but not limited to, fast currents, sharp drop-offs or an unstable bottom in the wading area(s) or lack of water clarity.

##### (B) Bacteriological Quality.

- (1) The results of a sanitary survey or other information indicates that sewage or other hazardous substances may be discharged into the bathing water to a degree considered by the Board of Health or the Department to be of public health significance; or
- (2) Epidemiological evidence discloses the prevalence of an infectious disease or other health condition which is considered to be related to the use of the bathing water and is considered by the Board of Health or the Department to be of public health significance; or
- (3) The bacteriological quality of the bathing water is unacceptable as determined by laboratory analysis for the appropriate indicator organisms specified in 105 CMR 445.031 and exceeds the standards established therein.

##### (C) Oil, Hazardous Materials, or Heavy Metals.

- (1) Oil, hazardous materials, or heavy metals are present in excess of surface water quality standards or guidelines established by the United States Environmental Protection Agency or the Massachusetts Department of Environmental Protection.

#### 445.031: Indicator Organisms

(A) For marine water, the indicator organism shall be Enterococci.

- (1) No single Enterococci sample shall exceed 104 colonies per 100 ml. and the geometric mean of the most recent five (5) Enterococci levels within the same bathing season shall not exceed 35 colonies per 100 ml.

- (B) For fresh water, the indicator organisms shall be E. Coli or Enterococci.
- (1) No single E. Coli sample shall exceed 235 colonies per 100 ml. and the geometric mean of the most recent five E. Coli samples within the same bathing season shall not exceed 126 colonies per 100 ml; or
  - (2) No single Enterococci sample shall exceed 61 colonies per 100 ml. and the geometric mean of the most recent five (5) Enterococci samples within the same bathing season shall not exceed 33 colonies per 100 ml.

#### 445.032 Collection of Bathing Water Samples

(A) Location. The Board of Health, for public and semi-public bathing beaches that are not operated by the Commonwealth, and the Department, for bathing beaches that are operated by the Commonwealth, shall approve sampling locations at each bathing beach in its jurisdiction. Samples of bathing water shall be taken at locations within areas of greatest bather load. Additional samples shall also be obtained at any critical location subject to contamination from business developments, dwellings, streams, sewer outfall pipes or other sources. All required samples shall be obtained from these designated locations.

(B) Sample Collection. Samples shall be obtained in accordance with the procedures recommended by the most recent edition of the Standard Methods for the Examination of Water and Waste Water of the American Public Health Association or as approved by the United States Environmental Protection Agency.

(C) Frequency.

- (1) The Board of Health, its agent, or any other authorized person shall collect the bacteriologic samples:
  - (a) Within five days of the opening of the bathing season; and
  - (b) At least weekly during the bathing season at a time and day approved by the Board of Health or the Department; and
  - (c) Prior to reopening a beach after closing for any reason.
- (2) Testing for oil, hazardous materials, or heavy metals shall only be required if the operator, the Board of Health, or the Department has information indicating possible contamination of the bathing beach or bathing waters from oil, hazardous materials or heavy metals.

(D) Field Data. Physical conditions noted at the time of sampling shall be recorded on a form provided by the Department.

(E) Personnel. Samples shall be taken by the Board of Health, the Department, their duly authorized representatives or other qualified persons as determined by the Board of Health or the Department.

445.033: Laboratory Analysis and Reporting

(A) Laboratory Analysis. -Laboratory analysis of bathing water as required by 105 CMR 445.000 shall be conducted in accordance with the most recent edition of the Standard Methods for Examination of Water and Waste Water of the American Public Health Association or as approved by the United States Environmental Protection Agency.

(B) Reporting.

(1) Routine Reporting by Operators. Any operator or authorized agent of a public bathing beach, except public bathing beaches operated by the Commonwealth, and any operator or authorized agent of a semi-public bathing beach shall report the certified results of all testing, monitoring and analysis of bathing water to the Board of Health with in five (5) days of receipt of the results from the laboratory.

(2) Reporting by Operators of Levels Exceeding the Established Standards. Any operator or authorized agent of a public or semi-public bathing beach shall immediately report to the Board of Health the results of all testing, monitoring and analysis of bathing water found to exceed the standards established in 105 CMR 445.030.

(3) Reporting by the Board of Health. The Board of Health or its authorized agent shall report the results of all testing, monitoring and analysis of bathing water to the Department no later than October 31 of each year.

445.034 Bathing Beaches Operated by the Commonwealth

State agencies that own or operate a bathing beach shall conduct or cause to be conducted all testing, monitoring, and analysis of bathing water at such bathing beach in accordance with these regulations. If the results of such testing, monitoring and analysis are found to exceed the standards established in 105 CMR 445.030, state agencies shall immediately, and in no event later than 24 hours, report the results of such testing, monitoring and analysis to the Department and the Board of Health in the city or town where the bathing beach is located. All other results shall be reported to the Department no later than October 31 of each year.

445.035: Sampling and Analysis at Semi-Public Beaches

(A) The operators of semi-public bathing beaches shall pay for the costs of testing, monitoring and analysis of bathing waters adjacent to such semi-public bathing beaches.

(B) Operators of semi-public bathing beaches may enter into contractual agreements with the Board of Health to have the testing, monitoring and analysis of bathing water conducted by the Board of Health, the Department or other qualified persons as determined by the Board of Health or the Department.

445.036: Public Request for Testing

Any person may request that the Board of Health, or in the case of a bathing beach operated by the Commonwealth, the state agency or the Department, conduct testing, monitoring, and analysis of public and semi-public bathing waters when there is reasonable basis to believe that an alleged violation of 105 CMR 445.000 has occurred. The Board of Health or the Department, as appropriate, shall promptly review such requests and determine whether any such testing, monitoring, and analysis is necessary to ensure the public health and safety of bathing waters.

445.040: Posting and Reopening Notifications

(A) Posting. Whenever the bathing water quality does not meet the requirements of 105 CMR 445.030 or after any significant rainstorm at a bathing beach where there has been a history of violations of the water quality requirements contained in 105 CMR 445.030, the Board of Health, its agent, or any other authorized person shall immediately, and in no event later than 24 hours, notify the Department, and post or cause to be posted, a sign, or signs, at the entrance to each parking lot and each entrance to the beach stating:

**WARNING! NO SWIMMING  
SWIMMING MAY CAUSE ILLNESS**

and a graphic depiction of a swimmer in a red circle with a diagonal hatch mark. The sign shall also contain the reason for the warning, the date of the posting and the name and telephone number of the board of health.

(B) Reopening. Prior to reopening bathing water posted due to a violation of the standards established in 105 CMR 445.030, the Board of Health, its agent, or any other authorized person shall verify that the certified results of the laboratory analysis are less than the standard specified in 105 CMR 445.031. The operator of any state operated bathing beach shall notify the Department and the Board of Health within 24 hours, or the next business day, of the reopening of the bathing water.

445.100: Variance

(A) The Board of Health may grant a variance from the provisions of 105 CMR 445.000 for any public or semi-public bathing beach not operated by the Commonwealth. The Department may grant a variance for any bathing beach operated by the Commonwealth. In granting a variance, the Board of Health and the Department shall review available epidemiological data and a written sanitary survey of the bathing beach, as provided by the operator. The survey shall include:

- (1) All possible sources of contamination, both bacterial and chemical on the watershed tributary to the bathing beach including the location and volume of:
  - (a) sewage and industrial waste water discharges;
  - (b) storm water overflows;
  - (c) bird and animal populations; and
  - (d) commercial and agricultural drainage.
- (2) The volume and quality of the diluting water, water depth, water surface area, tides and confluence of tributaries, water currents and prevailing winds.

(B) Any variance granted by the Board of Health shall specify the required bacteriological testing schedule, provided that the frequency of bacteriological testing shall not be less than once prior to the bathing season and at least every 30 days thereafter throughout the duration of the bathing season.

(C) Any variance granted by a Board of Health or the Department shall expire:

- (1) at any time as determined by the Board of Health, but in no instance greater than four years, at which time the operator may apply for an extension, or
- (2) at any time the results of bacterial test exceed the levels at 105 CMR 445.031.

(D) No variance from the requirement of weekly testing shall be granted until the applicant provides the Board of Health or the Department with water quality data collected for at least two complete and consecutive bathing seasons.

(E) In granting a variance, the Board of Health or the Department must determine that the enforcement of 105 CMR 445.000 would not serve a significant public health purpose and that the granting of the variance will not conflict with the intent and spirit of these minimum standards. Any variance or other modification authorized to be made by these regulations may be subject to such qualification, revocation, suspension, or other expiration as the Board of Health or the Department expresses in its grant. A variance or other modification authorized to be made by this regulation may otherwise be revoked, modified, or suspended in whole or in part, only after the holder thereof has been notified in writing and has been given the opportunity to be heard.

445.101: Variance to be in Writing

(A) Any variance granted by the Board of Health or the Department shall be in writing. Any denial for a variance shall also be in writing and shall contain a brief statement of the reasons for denial. A copy of each variance shall be conspicuously posted for 30 days following its issuance and shall, while it is in effect, be available to the public at all reasonable hours in the office of the clerk of the city or town, or in the office of the Board of Health and in the case of a variance by the Department, at the Department.

(B) The Board of Health shall submit to the Department a notice of the intent to grant a variance. The Department shall approve, disapprove, or modify the variance within 45 days from receipt thereof. If the Department fails to comment within 45 days, its approval shall be presumed. No alteration of any requirement in these regulations shall be made under any variance until the Department approves it or 45 days has elapsed without comment, unless the Board of Health certifies in writing to the Department that an emergency exists.

445.300: Severability

In the event that any section of 105 CMR 445.000 is found to be invalid or unconstitutional, the remaining sections shall not be affected and shall remain in full force and effect. To this end, the provisions of this regulation are hereby declared severable.

*Approved regs.doc*

**B. FEDERAL BEACH ACT**

See following pages.



## Overview

*On October 10, 2000, the Beaches Environmental Assessment and Coastal Health Act was signed into law. This new law authorizes a national grant program to assist state, tribal, and local governments in developing and implementing monitoring and public notification programs for their coastal recreation waters.*

*It also requires states to adopt improved water quality standards for pathogens and pathogen indicators and requires EPA to conduct studies and develop improved microbiological water quality criteria guidance. In addition, the law requires EPA to develop performance criteria for monitoring, notification, and public information databases and requires other federal agencies to establish certain programs.*



## Purpose and Title

This legislation amends the Federal Water Pollution Control Act (also known as the Clean Water Act, or CWA) to improve the quality of coastal recreation waters and attain other objectives. The following summary is provided for the convenience of the reader. It does not substitute for the statute. Grant applicants should consult the statute and applicable grant regulations prior to filing such applications.

### XIII. SECTION 1. SHORT TITLE

"Beaches Environmental Assessment and Coastal Health Act of 2000"

## Water Quality Standards and Criteria

### XIV. SECTION 2. ADOPTION OF COASTAL RECREATION WATER QUALITY CRITERIA AND STANDARDS BY STATES

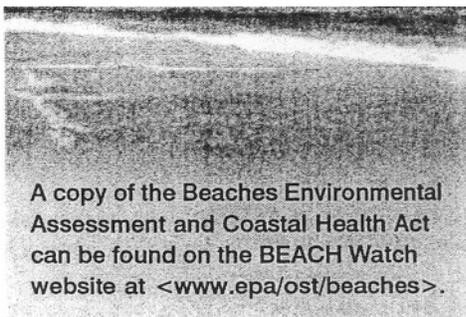
The provisions of this section amend section 303 of the CWA with respect to the following:

- **Initial Criteria and Standards:** [By April 10, 2004], states having coastal recreation waters are required to adopt water quality criteria and standards for pathogens and pathogen indicators for which the EPA Administrator has published criteria under the act. [This refers to EPA's 1986 Water Quality Criteria for Bacteria.]
- **New or Revised Criteria and Standards:** Requires states to adopt new or revised standards for coastal recreation waters not later than 36 months after the EPA Administrator publishes new or revised criteria guidance for pathogens and pathogen indicators.
- **Failure to Adopt:** If a state fails to adopt criteria and standards for pathogens and pathogen indicators that are "as protective of human health as EPA criteria [by April 10, 2004]," the EPA Administrator shall promptly propose regulations setting forth revised criteria and standards.

### XV. SECTION 3. REVISIONS TO WATER QUALITY CRITERIA

This section adds the following to section 104 of the CWA as "Studies Concerning Pathogen Indicators In Coastal Recreation Waters":

- **New Studies:** [By October 10, 2003], the EPA Administrator shall complete studies for use in developing: (1) an assessment of potential health risks from exposure to pathogens in coastal recreation waters; (2) appropriate and effective indicators and appropriate, accurate, and expeditious methods for detecting or predicting the presence of pathogens in coastal recreational waters; and (3) guidance for state application of EPA's criteria guidance for pathogens to account for the diversity of geographic and aquatic conditions.
- **Revised Criteria:** Requires the EPA Administrator to publish new or revised water quality criteria guidance for pathogens in such waters not later than October 10, 2005. Criteria is to be reviewed at least once every five years thereafter.



## Monitoring and Notification

### XVI. SECTION 4. COASTAL RECREATION WATER QUALITY MONITORING AND NOTIFICATION

The provisions of this section amend Title IV of the CWA to add section 406, "Coastal Recreation Water Quality Monitoring and Notification." This section includes the following provisions:

- **Monitoring and Notification Performance Criteria:** Directs the EPA Administrator, by April 10, 2002, to publish "performance criteria" for a monitoring and notification grants program. The criteria will address the following topics: (1) the monitoring and assessment of coastal recreation waters adjacent to beaches for attainment of water quality standards for pathogens, including methods for such monitoring and assessment; and (2) prompt notification of local governments, the public, and the EPA Administrator of exceedances, or the likelihood of exceedances, of standards for such waters so that public health and safety can be maintained.
- **Program Development and Implementation Grants:** Authorizes the EPA Administrator to make grants to states, tribes, and local governments to develop and implement monitoring and notification programs. To qualify for an implementation grant, a grantee would need to: (1) be consistent with EPA's performance criteria; (2) prioritize use of grant funds based on use of the water and risk to human health, and identify factors considered in setting priorities; (3) develop a list of waters not subject to the monitoring and notification program due to fiscal constraints; and (4) provide an opportunity for public comment. States may delegate responsibilities and provide funding to local governments to implement a program. Local agencies may also apply for a grant under certain circumstances.
- **Content of State, Tribal, and Local Programs:** As a condition of the grant, a state, tribe, or local government shall: (1) list coastal recreational waters adjacent to beaches used by the public; (2) identify the delegation process; (3) identify monitoring and assessment methods including frequency and location of monitoring; and (4) identify communication procedures and measures.
- **Federal Agency Programs:** Requires Federal agencies to develop programs for certain coastal recreation waters within three years. These programs should be designed to: (1) protect public health and safety; (2) meet EPA's performance criteria; and (3) address certain other matters required for state and local programs.
- **EPA Database and Technical Assistance:** Directs the EPA Administrator to: (1) establish a national coastal recreation water pollution occurrence database; and (2) provide technical assistance for development of assessment and monitoring procedures for floatable materials in those waters.
- **List of Waters:** EPA is required to maintain a publicly available "list of waters" that are subject to a monitoring and notification program, as well as those not subject to a program because of fiscal constraints.
- **EPA Implementation:** In states that do not have a program consistent with EPA's performance criteria, EPA is required to conduct such a program for listed priority waters using grant funds that otherwise would have been awarded to those states. This "backstop" would commence three years after EPA lists waters in such states.
- **Authorization of Appropriations:** Authorizes annual appropriations of \$30 million for fiscal years 2001 through 2005. *[Actual funding levels depend on specific appropriations enacted annually by Congress.]*

#### Other Provisions

### XVII. SECTION 5. DEFINITIONS

- **Defines "Coastal Recreation Waters":** This term includes: "(i) the Great Lakes and (ii) marine coastal waters (including coastal estuaries) that are designated under section 303(c) by a State for use for swimming, bathing, surfing, or similar water contact activities." The term does not include "(i) inland waters or (ii) waters upstream of the mouth of a river or stream having an unimpaired natural connection with the open sea."

### XVIII. SECTION 6. INDIAN TRIBES

- **Tribes Are Treated Like States:** Adds language which allows EPA to treat Indian tribes in a manner similar to states for purposes of section 406 of the act, which include coastal recreation water quality monitoring and notification programs and grants. EPA already had authority to treat tribes in a manner similar to states for purposes of section 303 of the act.

**XIX. SECTION 7. REPORT**

- **REPORTING SCHEDULE:** *REQUIRES THAT EPA REPORT TO CONGRESS EVERY FOUR YEARS.*

**XX. SECTION 8. AUTHORIZATION OF APPROPRIATIONS**

- ***Appropriation Authority:*** Authorizes appropriations to carry out the act

**PUBLIC LAW 106-284 - OCT. 10, 2000**

**BEACHES ENVIRONMENTAL ASSESSMENT  
AND COASTAL HEALTH ACT OF 2000**

**Public Law 106-284**  
**106th Congress**

**1. An Act**

- A.** To amend the Federal Water Pollution Control Act to improve the quality of coastal recreation waters, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

**SECTION I. SHORT TITLE.**

This Act may be cited as the "Beaches Environmental Assessment and Coastal Health Act of 2000".

**SEC. 2. ADOPTION OF COASTAL RECREATION WATER QUALITY CRITERIA AND**

**STANDARDS BY STATES.**

Section 303 of the Federal Water Pollution Control Act (33 U.S.C. 1313) is amended by adding at the end the following:

"(i) COASTAL RECREATION WATER QUALITY CRITERIA.-

"(1) ADOPTION BY STATES.-

"(A) INITIAL CRITERIA AND STANDARDS.-Not later than 42 months after the date of the enactment of this sub-section, each State having coastal recreation waters shall adopt and submit to the Administrator water quality criteria and standards for the coastal recreation waters of the State for those pathogens and pathogen indicators for which the Administrator has published criteria under section 304(a).

"(B) NEW OR REVISED CRITERIA AND STANDARDS.-Not later than 36 months after the date of publication by the Administrator of new or revised water quality criteria under section 304(a)(9), each State having coastal recreation waters shall adopt and submit to the Administrator new or revised water quality standards for the coastal recreation waters of the State for all pathogens and pathogen indicators to which the new or revised water quality criteria are applicable.

"(2) FAILURE OF STATES TO ADOPT.-

"(A) IN GENERAL.-If a State fails to adopt water quality criteria and standards in accordance with paragraph (1)(A) that are as protective of human health as the criteria for pathogens and pathogen indicators for coastal recreation waters published by the Administrator, the Administrator shall promptly propose regulations for the State setting forth revised or new water quality standards for pathogens and pathogen indicators described in paragraph (1)(A) for coastal recreation waters of the State.

"(B) EXCEPTION.-If the Administrator proposes regulations for a State described in subparagraph (A) under sub- section (c)(4)(B), the Administrator shall publish any revised or new standard under this subsection not later than 42 months after the date of the enactment of this subsection.

Publication.

**"(3) APPLICABILITY.-Except as expressly provided by this subsection, the requirements and procedures of subsection (c) apply to this subsection, including the requirement in sub- section (c)(2)(A) that the criteria protect public health and welfare."**

**SEC. 3. REVISIONS TO WATER QUALITY CRITERIA.**

(a) STUDIES CONCERNING PATHOGEN INDICATORS IN COASTAL RECREATION WATERS.-Section 104 of the Federal Water Pollution Control Act (33 U.S.C. 1254) is amended by adding at the end the following:

Deadlines.

"(v) STUDIES CONCERNING PATHOGEN INDICATORS IN COASTAL RECREATION WATERS.-Not later than 18 months after the date of the enactment of this subsection, after consultation and in cooperation with appropriate Federal, State, tribal, and local officials (including local health officials), the Administrator shall initiate, and, not later than 3 years after the date of the enactment of this subsection, shall complete, in cooperation with the heads of other Federal agencies, studies to provide additional information for use in developing-

"(1) an assessment of potential human health risks resulting from exposure to pathogens in coastal recreation waters, including nongastrointestinal effects;

"(2) appropriate and effective indicators for improving detection in a timely manner in coastal recreation waters of the presence of pathogens that are harmful to human health;

"(3) appropriate, accurate, expeditious, and cost-effective methods (including predictive models) for detecting in a timely manner in coastal recreation waters the presence of pathogens that are harmful to human health; and

"(4) guidance for State application of the criteria for pathogens and pathogen indicators to be published under section 304(a)(9) to account for the diversity of geographic and aquatic conditions."

(b) REVISED CRITERIA.-Section 304(a) of the Federal Water Pollution Control Act (33 U.S.C. 1314(a)) is amended by adding at the end the following:

"(9) REVISED CRITERIA FOR COASTAL RECREATION WATERS.-

Deadlines.  
Publication.

"(A) IN GENERAL.-Not later than 5 years after the date of the enactment of this paragraph, after consultation and in cooperation with appropriate Federal, State, tribal, and local officials (including local health officials), the Administrator shall publish new or revised water quality criteria for pathogens and pathogen indicators (including a revised list of testing methods, as appropriate), based on the results of the studies conducted under section 104(v), for the purpose of protecting human health in coastal recreation waters.

"(B) REVIEWS.-Not later than the date that is 5 years after the date of publication of water quality criteria under this paragraph, and at least once every 5 years thereafter,

the Administrator shall review and, as necessary , revise the water quality criteria."

**SEC. 4. COASTAL RECREATION WATER QUALITY MONITORING AND NOTIFICATION.**

Title IV of the Federal Water Pollution Control Act (33 U.S.C. 1341 et seq.) is amended by adding at the end the following:

33 USC 1346.

Deadline.  
Publication.

**406. COASTAL RECREATION WATER QUALITY MONITORING AND NOTIFICATION.**

"(a) MONITORING AND NOTIFICATION.-

"(1) IN GENERAL.-Not later than 18 months after the date of the enactment of this section, after consultation and in cooperation with appropriate Federal, State, tribal, and local officials (including local health officials), and after providing public notice and an opportunity for comment, the Administrator shall publish performance criteria for-

"(A) monitoring and assessment (including specifying available methods for monitoring) of coastal recreation waters adjacent to beaches or similar points of access that are used by the public for attainment of applicable water quality standards for pathogens and pathogen indicators; and

"(B) the prompt notification of the public, local governments, and the Administrator of any exceeding of or likelihood of exceeding applicable water quality standards for coastal recreation waters described in subparagraph (A).

"(2) LEVEL OF PROTECTION.-The performance criteria referred to in paragraph (1) shall provide that the activities described in subparagraphs (A) and (B) of that paragraph shall be carried out as necessary for the protection of public health and safety.

"(b) PROGRAM DEVELOPMENT AND IMPLEMENTATION GRANTS.-

"(1) IN GENERAL.-The Administrator may make grants to States and local governments to develop and implement programs for monitoring and notification for coastal recreation waters adjacent to beaches or similar points of access that are used by the public.

"(2) LIMITATIONS.-

"(A) IN GENERAL.-The Administrator may award a grant to a State or a local government to implement a monitoring and notification program if-

"(i) the program is consistent with the performance criteria published by the Administrator under sub- section (a);

"(ii) the State or local government prioritizes the use of grant funds for particular coastal recreation waters based on the use of the water and the risk to human health presented by pathogens or pathogen indicators;

"(iii) the State or local government makes available to the Administrator the factors used to prioritize the use of funds under clause (ii);

"(iv) the State or local government provides a list of discrete areas of coastal recreation waters that are subject to the program for monitoring and notification for which the grant is provided that specifies any coastal recreation waters for which fiscal constraints

will prevent consistency with the performance criteria under subsection (a); and

"(v) the public is provided an opportunity to review the program through a process that provides for public notice and an opportunity for comment.

"(B) GRANTS TO LOCAL GOVERNMENTS.-The Administrator may make a grant to a local government under this subsection for implementation of a monitoring and notification program only if, after the 1-year period beginning on the date of publication of performance criteria under subsection (a)(I), the Administrator determines that the State is not implementing a program that meets the requirements of this subsection, regardless of whether the State has received a grant under this subsection.

"(3) OTHER REQUIREMENTS.-

"(A) REPORT.-A State recipient of a grant under this subsection shall submit to the Administrator, in such form and at such intervals as the Administrator determines to be appropriate, a report that describes-

"(i) data collected as part of the program for monitoring and notification as described in subsection (c); and

"(ii) actions taken to notify the public when water quality standards are exceeded.

"(B) DELEGATION.-A State recipient of a grant under this subsection shall identify each local government to which the State has delegated or intends to delegate responsibility for implementing a monitoring and notification program consistent with the performance criteria published under subsection (a) (including any coastal recreation waters for which the authority to implement a monitoring and notification program would be subject to the delegation).

"(4) FEDERAL SHARE.-

"(A) IN GENERAL.-The Administrator, through grants awarded under this section, may pay up to 100 percent of the costs of developing and implementing a program for monitoring and notification under this subsection.

"(B) NON-FEDERAL SHARE.-The non-Federal share of the costs of developing and implementing a monitoring and notification program may be-

"(i) in an amount not to exceed 50 percent, as determined by the Administrator in consultation with State, tribal, and local government representatives; and

"(ii) provided in cash or in kind.

"(c) CONTENT OF STATE AND LOCAL GOVERNMENT PROGRAMS.-

As a condition of receipt of a grant under subsection (b), a State or local government program for monitoring and notification under this section shall identify-

"(1) lists of coastal recreation waters in the State, including coastal recreation waters adjacent to beaches or similar points of access that are used by the public;

"(2) in the case of a State program for monitoring and notification, the process by which the State may delegate to local governments responsibility for implementing the monitoring and notification program;

"(3) the frequency and location of monitoring and assessment of coastal recreation waters based on-

"(A) the periods of recreational use of the waters;

"(B) the nature and extent of use during certain periods;

"(C) the proximity of the waters to known point sources and nonpoint sources of pollution; and

"(D) any effect of storm events on the waters;

"(4)(A) the methods to be used for detecting levels of pathogens and pathogen indicators that are harmful to human health; and

"(B) the assessment procedures for identifying short-term increases in pathogens and pathogen indicators that are harmful to human health in coastal recreation waters (including increases in relation to storm events);

"(5) measures for prompt communication of the occurrence, nature, location, pollutants involved, and extent of any exceeding of, or likelihood of exceeding, applicable water quality standards for pathogens and pathogen indicators to--

"(A) the Administrator, in such form as the Administrator determines to be appropriate; and

"(B) a designated official of a local government having jurisdiction over land adjoining the coastal recreation waters for which the failure to meet applicable standards is identified;

"(6) measures for the posting of signs at beaches or similar points of access, or functionally equivalent communication measures that are sufficient to give notice to the public that the coastal recreation waters are not meeting or are not expected to meet applicable water quality standards for pathogens and pathogen indicators; and

"(7) measures that inform the public of the potential risks associated with water contact activities in the coastal recreation waters that do not meet applicable water quality standards.

Deadline.

"(d) FEDERAL AGENCY PROGRAMS.-Not later than 3 years after the date of the enactment of this section, each Federal agency that has jurisdiction over coastal recreation waters adjacent to beaches or similar points of access that are used by the public shall develop and implement, through a process that provides for public notice and an opportunity for comment, a monitoring and notification program for the coastal recreation waters that-

"(1) protects the public health and safety;

"(2) is consistent with the performance criteria published under subsection (a);

Reports.

"(3) includes a completed report on the information specified in subsection (b)(3)(A), to be submitted to the Administrator; and

"(4) addresses the matters specified in subsection (c) .

Public Information.

"(e) DATABASE.-The Administrator shall establish, maintain, and make available to the public by electronic and other means a national coastal recreation water pollution occurrence database that provides-

"(1) the data reported to the Administrator under subsections (b)(3)(A)(i) and (d)(3); and

"(2) other information concerning pathogens and pathogen indicators in coastal recreation waters that-

"(A) is made available to the Administrator by a State or local government, from a coastal water quality monitoring program of the State or local government; and

"(B) the Administrator determines should be included.

"(f) TECHNICAL ASSISTANCE FOR MONITORING FLOATABLE MATERIAL.-The Administrator shall provide technical assistance to States and local governments for the development of assessment and monitoring procedures for floatable material to protect public health and safety in coastal recreation waters.

"(g) LIST OF WATERS.-

"(1) IN GENERAL.-Beginning not later than 18 months after the date of publication of performance criteria under subsection (a), based on information made available to the Administrator, the Administrator shall identify, and maintain a list of, discrete coastal recreation waters adjacent to beaches or similar points of access that are used by the public that-

Deadline.

"(A) specifies any waters described in this paragraph that are subject to a monitoring and notification program consistent with the performance criteria established under subsection (a); and

"(B) specifies any waters described in this paragraph for which there is no monitoring and notification program (including waters for which fiscal constraints will prevent the State or the Administrator from performing monitoring and notification consistent with the performance criteria established under subsection (a)).

"(2) AVAILABILITY.-The Administrator shall make the list described in paragraph (1) available to the public through-

Public Information

"(A) publication in the Federal Register; and

"(B) electronic media.

Federal Register, Publication.

"(3) UPDATES.-The Administrator shall update the list described in paragraph (1) periodically as new information becomes available.

"(h) EPA IMPLEMENTATION.-In the case of a State that has no program for monitoring and notification that is consistent with the performance criteria published under subsection (a) after the last day of the 3-year period beginning on the date on which the Administrator lists waters in the State under subsection (g)(I)(B), the Administrator shall conduct a monitoring and notification program for the listed waters based on a priority ranking established by the Administrator using funds appropriated for grants under subsection (i)-

"(1) to conduct monitoring and notification; and

"(2) for related salaries, expenses, and travel.

"(i) AUTHORIZATION OF APPROPRIATIONS.- There is authorized to be appropriated for making grants under subsection (b), including implementation of monitoring and notification programs by the Administrator under subsection (h), \$30,000,000 for each of fiscal years 2001 through 2005."

**SEC. 5. DEFINITIONS.**

Section 502 of the Federal Water Pollution Control Act (33 U.S.C. 1362) is amended by adding at the end the following:

"(21) COASTAL RECREATION WATERS.-

"(A) IN GENERAL.-The term 'coastal recreation waters' means-

"(i) the Great Lakes; and

"(ii) marine coastal waters (including coastal estuaries) that are designated under section 303(c) by a State for use for swimming, bathing, surfing, or similar water contact activities.

"(B) EXCLUSIONS.- The term 'coastal recreation waters' does not include-

"(i) inland waters; or

"(ii) waters upstream of the mouth of a river or stream having an unimpaired natural connection with the open sea.

"(22) FLOATABLE MATERIAL.-

"(A) IN GENERAL.- The term 'floatable material' means any foreign matter that may float or remain suspended in the water column.

"(B) INCLUSIONS.-The term 'floatable material' includes-

"(i) plastic;

"(ii) aluminum cans;

"(iii) wood products;

"(iv) bottles; and

"(v) paper products.

"(23) PATHOGEN INDICATOR.-The term 'pathogen indicator' means a substance that indicates the potential for human infectious disease."

#### **SEC. 6. INDIAN TRIBES.**

Section 518(e) of the Federal Water Pollution Control Act (33 U.S.C. 1377(e)) is amended by striking "and 404" and inserting "404, and 406".

33 USC 1375a.  
Deadline.

#### **SEC. 7. REPORT.**

(a) IN GENERAL.-Not later than 4 years after the date of the enactment of this Act, and every 4 years thereafter, the Administrator of the Environmental Protection Agency shall submit to Congress a report that includes-

(1) recommendations concerning the need for additional water quality criteria for pathogens and pathogen indicators and other actions that should be taken to improve the quality of coastal recreation waters;

(2) an evaluation of Federal, State, and local efforts to implement this Act, including the amendments made by this Act; and

(3) recommendations on improvements to methodologies and techniques for monitoring of coastal recreation waters. (b) COORDINATION.-The Administrator of the Environmental Protection Agency may coordinate the report under this section with other reporting requirements under the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.).

**SEC. 8. AUTHORIZATION OF APPROPRIATIONS.**

There are authorized to be appropriated to carry out the provisions of this Act, including the amendments made by this Act, for which amounts are not otherwise specifically authorized to be appropriated, such sums as are necessary for each of fiscal years 2001 through 2005.

Approved October 10, 2000

---

**LEGISLATIVE HISTORY-H.R. 999 (S. 522):**

HOUSE REPORTS: No.106-98 (Comm. on Transportation and Infrastructure).

SENATE REPORTS: No.106-366 accompanying S. 522 (Comm. on Environment and Public Works).

**CONGRESSIONAL RECORD:**

Vol. 145 (1999): Apr. 22, considered and passed House.

Vol. 146 (2000): Sept. 21, considered and passed Senate, amended. Sept. 26, House concurred in Senate amendment.

**WEEKLY COMPILATION OF PRESENTIAL DOCUMENTS, Vol. 36 (2000):**

Oct. 10, Presidential statement.

O