

Executive Overview

NRDC's annual analysis of water quality and public notification data at coastal U.S. beaches found that the number of beach closing and advisory days in 2011 reached the third-highest level in the 22-year history of our report, totaling 23,481 days (a 3 percent decrease from 2010). More than two-thirds of closings and advisories were issued because bacteria levels in beachwater exceeded public health standards, potentially indicating the presence of human or animal waste in the water. The portion of all monitoring samples that exceeded national recommended health standards for designated beach areas remained stable at 8 percent in 2011, compared with 8 percent in 2010 and 7 percent for the four previous years. In addition, the number of beaches monitored in 2011 increased slightly (2 percent) from a five-year low in 2010. The largest known source of pollution was stormwater runoff (47 percent, compared with 36 percent last year). The 2011 results confirm that our nation's beaches continue to experience significant water pollution that puts swimmers and local economies at risk.

NRDC continues to push for improvements in beachwater quality standards and test methods. Most recently, the Environmental Protection Agency proposed an action that could leave the public inadequately protected if it is not strengthened—one establishing recommended standards for beach officials to use to keep people from being exposed to unsafe levels of disease-causing bacteria and viruses. While beachwater quality standards are critical, ultimately the most important long-term action is to adopt 21st-century solutions that address the sources of beachwater pollution, particularly stormwater runoff. The most important of these solutions remains incentivizing and implementing green infrastructure in our cities, such as green roofs, porous pavement, and street plantings, which stop rain where it falls. Green infrastructure effectively reduces the amount of runoff that makes its way into beachwater or triggers harmful sewage overflows, transforming potential beach pollution into a tremendous local water supply resource.

POLLUTED BEACHWATER MAKES SWIMMERS SICK AND HURTS COASTAL ECONOMIES

The Environmental Protection Agency (EPA) has estimated that up to 3.5 million people become ill from contact with raw sewage from sanitary sewer overflows each year.¹ Many public health experts believe that the number of illnesses caused by untreated sewage could be much higher than is currently recognized because people who get sick from swimming in polluted recreational waters are not always aware of the cause of their illness and do not report it to doctors or local health officials.

Illnesses associated with polluted beachwater include stomach flu, skin rashes, pinkeye, respiratory infections, meningitis, and hepatitis. Children are especially vulnerable, perhaps because they tend to submerge their heads more often than adults and are more likely to swallow water when swimming. The Centers for Disease Control and Prevention concluded that the incidence of infections associated with recreational water use has steadily increased over the past several decades:² one study found that swimmers at polluted beaches in the Great Lakes region were more likely to have gastrointestinal illnesses than nonswimmers;³ another study found that fecal contamination at Los Angeles and Orange County beaches caused between 627,800 and 1,479,200 excess gastrointestinal illnesses each year.⁴

Our coasts provide more than just local recreation—approximately 85 percent of all U.S. tourism revenue is received in coastal states. According to a 2009 report by the National Ocean Economics Program, the nation's shoreline-adjacent counties contributed an estimated \$6 trillion to the nation's gross domestic product and 47 million jobs.⁵ With respect to beaches specifically, economists estimate that a typical swimming day is worth approximately \$35 to each individual,⁶ so depending on the number of potential visitors to a beach, the “consumer surplus” loss on a day that the beach is closed or under advisory for water quality problems can be quite significant. For example, one study estimated that economic losses as a result of closing a Lake Michigan beach due to pollution could be as high as \$37,030 per day.⁷ Similarly, the Los Angeles/Orange County study mentioned above concluded that the public health cost of the excess gastrointestinal illnesses caused by poor water quality was \$21 million to \$51 million per year.⁸

CLOSINGS AND ADVISORIES FOR 2011

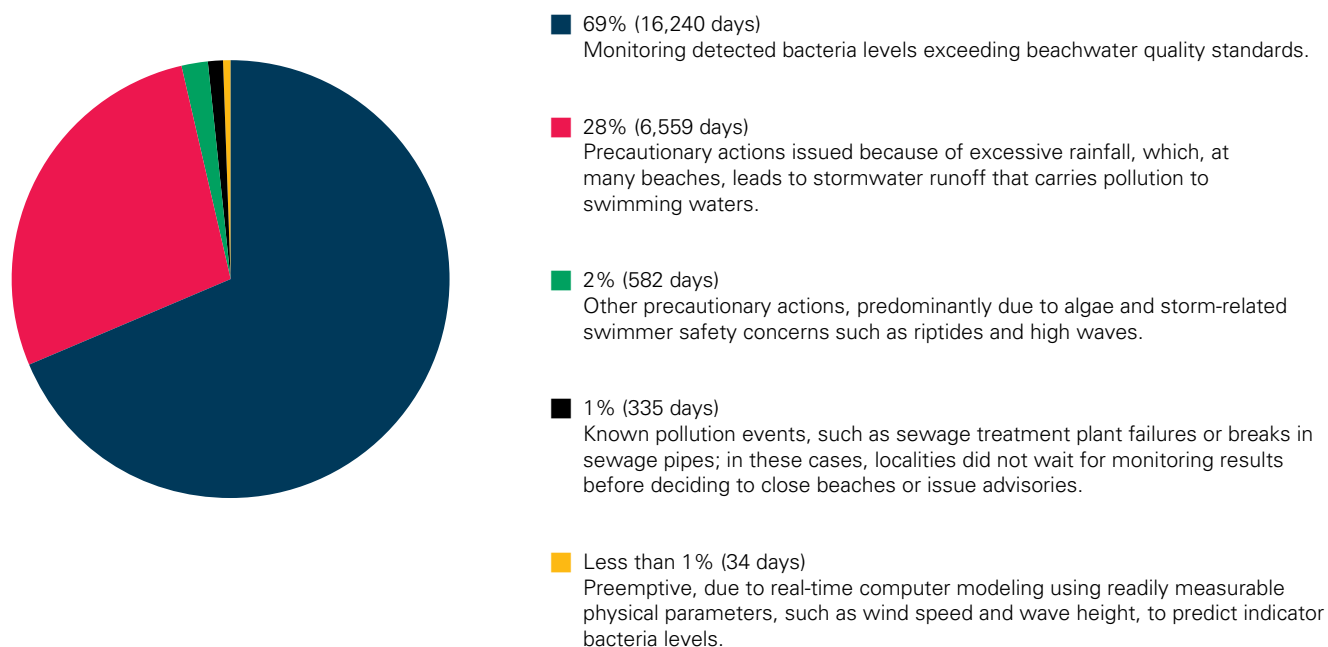
In 2011, the number of closing and advisory days at ocean, bay, and Great Lakes beaches reached its third-highest level since NRDC began tracking these events 22 years ago: 23,481 days nationwide. This is a decrease of 3% (610 days) from the previous year.

In addition, there were 56 closing and advisory events that lasted more than six but not more than 13 consecutive weeks (extended events), and 64 closing and advisory events that lasted more than 13 consecutive weeks (permanent events). Including closing and advisory days that occurred during extended events (3,440 days), the total number of beach closing and advisory days in 2011 comes to 26,921.

The BP oil disaster, which began with the April 20, 2010, explosion on the Deepwater Horizon rig and ended when the well was capped on July 15, 2010, continues to affect beaches along the Gulf of Mexico in Louisiana, Mississippi, Alabama, and Florida. Oil spill inspection and cleanup efforts continued throughout 2011 and into 2012, even at beaches whose oil spill closures, advisories, and notices were lifted. A total of 1,984 closing days at nine Louisiana beach segments and 360 oil spill notice days at two Florida beaches were issued due to the spill in 2011. Four beach segments in Louisiana were closed due to oil for a total of 528 days in the first part of 2012. Over the course of two years, the oil spill resulted in more than 10,000 beach closure, advisory, and notice days at 88 beaches and beach segments in four states. (NRDC includes all oil spill advisory, closure, and notice days at all beaches in its oil spill totals, including days at beaches that were not monitored for bacteria and days that occurred outside of the monitoring season.)

The continued high level of closings and advisories is an indication that serious water pollution persists at our nation's beaches. The most common reason officials cited for closing beaches or issuing advisories in 2011 was testing that revealed bacteria levels that exceeded beachwater quality standards, indicating the potential presence of human or animal waste in the beachwater. Advisories and closings issued as a precaution when poor water quality was suspected were the second-most common type of notification (see Figure EO-1: Reasons Officials Closed Beaches or Issued Advisories in 2011).

Figure EO-1: Reasons Officials Closed Beaches or Issued Advisories in 2011



Totals exceed 100 percent and the number of closing and advisory days discussed in this section because 11 events in New York State were both preemptive (because of rain/poor water clarity) and due to monitoring that revealed high bacteria levels.

POLLUTION SOURCES THAT CAUSED CLOSINGS AND ADVISORIES IN 2011

Most beach closings are issued because beachwater monitoring detects unsafe levels of bacteria. These unsafe levels indicate the presence of pathogens—microscopic organisms from human and animal waste that pose a threat to human health. The key reported contributors of these contaminants are (1) stormwater runoff, (2) sewage overflows and inadequately treated sewage, (3) agricultural runoff, and (4) other sources, such as beachgoers themselves, wildlife, septic systems, and boating waste.

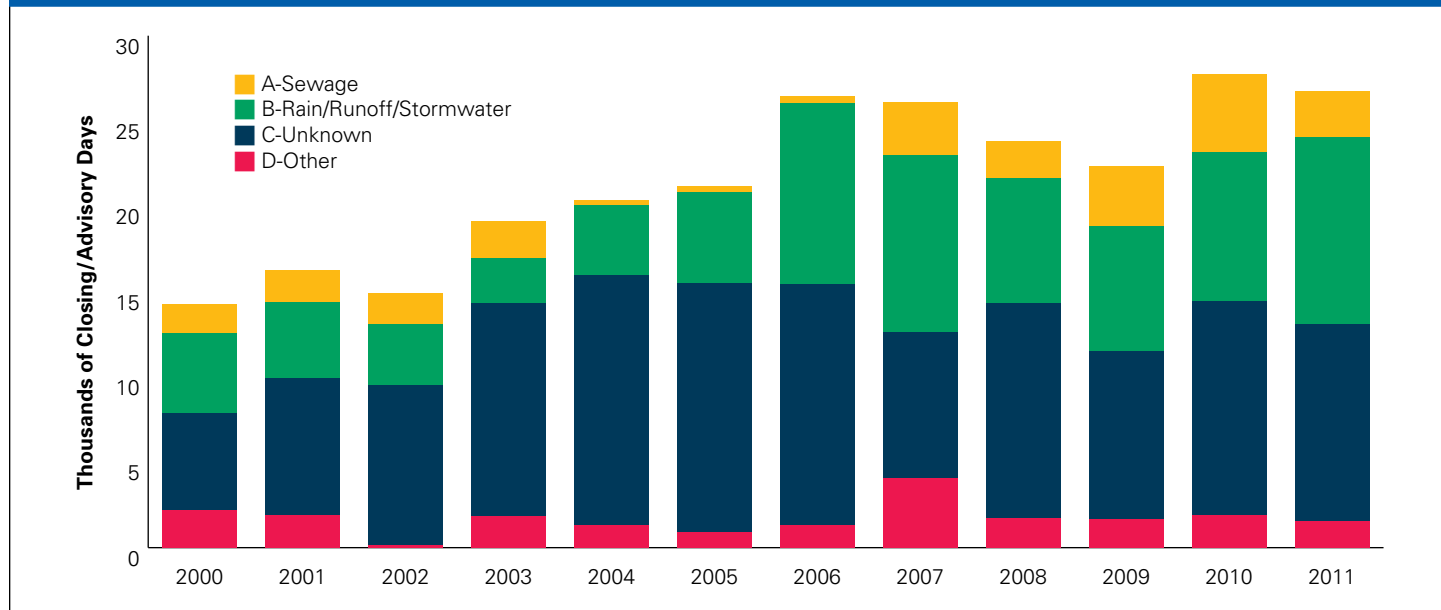
Advisories may also be issued as precautionary measures when a pollution event is expected to occur, for instance during rainstorms. (See also Figure EO-2: Sources of Pollution That Caused Closings/Advisories, 2000–2011.)

For advisory and closing days issued during events that lasted six weeks or less:

- 49 percent (11,588 closing/advisory days) were attributed to unknown sources of pollution.
- 47 percent (10,954 closing/advisory days) were attributed to polluted runoff and stormwater. In 2010, 36 percent of closing advisory/days were attributed to polluted runoff and stormwater.
- 12 percent (2,690 closing/advisory days) were attributed to miscellaneous pollution sources, such as boat discharges. Of those, 1,366 days were attributed to wildlife sources.
- 6 percent (1,541 closing/advisory days) were attributed to sewage spills and overflows. This category includes combined sewer overflows, sanitary sewer overflows, breaks or blockages in sewer lines, and faulty septic systems.

(Totals exceed total closing/advisory days and 100 percent because more than one contamination source was reported for some events.)

Figure EO-2: Sources of Pollution That Caused Closings/Advisories, 2000–2011



Total days shown are greater than annual totals because more than one pollution source may have contributed to each closing/advisory.

Key: (A) Sewage spills and overflows. (B) Polluted runoff, stormwater, or preemptive due to rain. (C) Unknown. (D) Other reasons (including closings/advisories with no source information provided).

BEACHWATER MONITORING FOR 2011

In 2011, the portion of all monitoring samples exceeding national recommended health standards for designated beach areas, indicating the potential presence of human or animal waste, remained steady at 8 percent, the same level as in 2010 (7 percent in 2009, 2008, 2007, and 2006). Louisiana, Ohio, Illinois, Indiana, Connecticut, and Wisconsin had the highest percentage of samples exceeding the EPA's recommended single-sample maximum for designated beach areas (see Table EO-1: Rank of States by Percentage of Beachwater Samples Received Exceeding the National Recommended Standard in 2011).⁹

Table EO-1: Rank of States by Percentage of Beachwater Samples Received Exceeding the National Recommended Standard in 2011

Rank	Percent Exceedance	State	2011 Total Samples	Beaches With Reported Monitoring Results
1	1%	Delaware	523	25
2	1%	New Hampshire	1,144	16
3	3%	North Carolina	6,762	240
4	3%	New Jersey	4,187	226
5	3%	Florida	13,288	306
6	4%	Virginia	901	47
7	4%	Hawaii	4,107	158
8	5%	Texas	7,267	66
9	5%	Georgia	1,023	27
10	6%	Washington	1,156	78
11	6%	Maryland	772	70
12	6%	Massachusetts	8,160	597
13	6%	Alabama	991	25
14	6%	Oregon	956	27
15	7%	Pennsylvania	1,005	10
16	7%	Rhode Island	1,752	70
17	8%	South Carolina	2,389	22
18	8%	Michigan	12,474	232
19	8%	Mississippi	1,136	22
20	9%	Maine	1,310	61
21	9%	California	24,659	497
22	9%	Minnesota	1,014	50
23	10%	Alaska	208	12
24	10%	New York	9,133	352
25	11%	Wisconsin	4,428	114
26	11%	Connecticut	2,322	72
27	11%	Indiana	2,976	31
28	12%	Illinois	4,056	51
29	22%	Ohio	2,937	62
30	29%	Louisiana	850	25

The percent exceedances shown in this table are rounded to the nearest whole number, but state ranks are based on percent exceedances to one or two decimal places.

Ways in Which NRDC's Report Differs From the EPA's Beach Report

Most years, the U.S. Environmental Protection Agency (EPA) also issues a beach report summarizing closing/advisory information (see water.epa.gov/type/oceb/beaches/upload/national_facsheet_2011.pdf). NRDC's report is much different from the EPA report.

1. NRDC includes an analysis of monitoring data and compares states and beaches using the available water quality data.
2. NRDC provides state-by-state reporting and analysis of individual beach programs.
3. With respect to closings and advisories, NRDC reports the total number of days and focuses its analysis on events lasting up to six consecutive weeks. Events lasting longer are grouped as either extended or permanent events. EPA reports the number of beaches with closings or advisories and the percentage of total "beach days" that were affected.
4. NRDC analyzes reported contamination sources associated with closings and advisories.
5. NRDC reports closings and advisories beyond monitored beaches. (In 2011, excluding Hawaii, there were 404 closing/advisory days at 19 non-monitored beaches in four states, plus 2 extended and 3 permanent events. Hawaii adds another 3,116 days at 209 beaches.)

Regionally, the Great Lakes had the highest exceedance rate (11 percent) in 2011, followed by western states (8 percent), New England (7 percent), the New York-New Jersey region (6 percent), the Gulf Coast (6 percent), the Delmarva region (4 percent), and the Southeast (3 percent).

For the sixth consecutive year, NRDC determined the number of beaches exceeding the national recommended daily standard more than 25 percent of the time. In 2011, this list included 159 beaches in 22 states, a decrease from 171 beaches in 22 states in 2010. Nineteen beach areas in 7 states (California, Illinois, Louisiana, New Jersey, New York, Ohio, and Wisconsin) made this list in each of the last five years, 2007 through 2011 (see Table EO-2: Repeat Offenders: Beaches With More Than 25 Percent of Samples Received Exceeding the EPA's Applicable Recommended Single-Sample Maximum Bacteria Standards for Designated Beach Areas, Each Year, 2007–2011). Chronically high bacteria counts indicate that the beachwater is probably contaminated with human or animal waste.

It is important to note that while a high percent exceedance rate is a clear indication of contaminated coastal recreational waters, it is not necessarily an indication that the state's beachwater quality monitoring program is deficient or fails to protect public health when beachwater quality is poor. For example, four of the five states with the highest exceedance rates always or almost always close a beach or issue an advisory when a sample exceeds the recommended standard. That is, they do not wait for the results of a resample or check other conditions first, as some other states do.

Table EO-2: Repeat Offenders: Beaches With More Than 25 Percent of Samples Received Exceeding the EPA's Applicable Single-Sample Maximum Bacteria Standards for Designated Beach Areas, Each Year, 2007–2011

State	County	Beach	Tier	Assigned Monitoring Frequency	Potential Pollution Sources (Reported by EPA)
California	Los Angeles	Avalon Beach 100 feet west of the Green Pleasure Pier	1	1/wk	unknown
California	Los Angeles	Avalon Beach 50 feet east of the Green Pleasure Pier	1	1/wk	unknown
California	Los Angeles	Avalon Beach 50 feet west of the Green Pleasure Pier	1	1/wk	unknown
California	Orange	Doheny State Beach, 1000' South Outfall	1	3/wk	unknown
California	Orange	Doheny State Beach, North of San Juan Creek	1	3/wk	unknown
California	Orange	Doheny State Beach, Surfzone at Outfall	1	3/wk	unknown
Illinois	Cook	Winnetka Elder Park Beach	1	Daily	unknown
Illinois	Lake	North Point Marina Beach	1	4/wk	unknown
Louisiana	Cameron	Constance Beach	2	1/wk	unknown
Louisiana	Cameron	Gulf Breeze	2	1/wk	unknown
Louisiana	Cameron	Little Florida	2	1/wk	unknown
Louisiana	Cameron	Long Beach	2	1/wk	unknown
Louisiana	Cameron	Rutherford Beach	2	1/wk	unknown
New Jersey	Ocean	Beachwood Beach West	1	1/wk	Stormwater, Wildlife
New York	Erie	Woodlawn Beach - Woodlawn Beach State Park	1	1/wk	stormwater, combined sewer overflow, sanitary sewer overflow, wastewater treatment plants, other
New York	Monroe	Ontario Beach	1	Daily	stormwater, agriculture, concentrated animal feeding operations, combined sewer overflow, sanitary sewer overflow, wildlife, other
Ohio	Cuyahoga	Euclid State Park	1	Daily	unknown
Ohio	Cuyahoga	Villa Angela State Park	1	Daily	unknown
Wisconsin	Milwaukee	South Shore Beach	1	3/wk	unknown

For 2011, the NRDC data set includes monitoring results for 123,886 samples at 3,325 beaches and beach segments (most state and local officials divide longer beaches into manageable sections for monitoring).¹⁰ Although more beaches were monitored in 2011 than in 2010, fewer samples were collected (131,389 samples were taken at 3,277 beaches and beach segments in 2010).

METHODS BEACH OFFICIALS USE TO SAMPLE, MONITOR, AND/OR PREDICT BEACHWATER QUALITY

Beach officials in all states continue to use traditional methods approved by the EPA that require about 24 hours to quantify bacterial indicator levels in beachwater samples. Because of this, swimmers do not know until the next day if the water they swam in was contaminated. Likewise, beaches may remain closed even after water quality meets standards. There is a great deal of interest in technologies that can provide same-day beachwater quality results. In 2010, pilot studies in Racine, Wisconsin, and in Orange County, California, made the first use of a rapid test method for issuing beachwater quality notifications at coastal beaches in the United States. Additional pilot projects using rapid test methods to issue notifications were conducted in 2011 in Los Angeles County, California; Ocean County, New Jersey; and Racine. All of these pilot studies were demonstrating quantitative polymerase chain reaction (qPCR), an analytical method that quantifies the presence of a targeted genetic sequence. Traditional methods were used to analyze the samples alongside qPCR analysis, and the qPCR results, either alone or in combination with culture method results, were used to determine whether warnings about beachwater quality would be issued and posted. Other states, including Ohio and Michigan, have conducted field research on rapid test methods but have not used them to issue notifications.

Beachwater quality generally depends on many complex factors, but for some beaches, predictions of water quality can be calculated fairly accurately on the basis of measurements of a few physical conditions. Some states have taken advantage of this by creating computer models that rely on data such as rainfall level, wind speed and direction, tides, wave height, and currents. These models rapidly prepare predictions of beachwater quality and allow officials to close beaches or place them under advisory on the day that bacterial levels are expected to be high, rather than 24 hours later. States using computer models to inform closing and advisory decisions for at least some of their beaches in 2011 were California, Illinois, Indiana, New York, Ohio, and Wisconsin. Other states, including Michigan, Minnesota, and Pennsylvania, were building predictive models to use at some of their beaches in the future.

Because the water quality at many beaches is adversely impacted by contaminated stormwater runoff, another means of protecting public health—less sophisticated but often effective—is to preemptively close beaches or issue advisories when indicator bacteria levels are expected to be high after rainfall events. Many states report that they have developed standards for issuing preemptive rainfall advisories based on rainfall intensity or some other rain-related factor for at least some of their beaches. California, Connecticut, Delaware, Florida, Hawaii, Maine, Massachusetts, Michigan, New Jersey, New York, Rhode Island, South Carolina, and Wisconsin all have quantitative rainfall standards at some of their beaches, and New Hampshire is developing them. Ten states reported preemptive rainfall closures or advisories at specific beaches in 2011: California, Connecticut, Hawaii, Illinois, Maine, Massachusetts, Michigan, New Jersey, New York, and Wisconsin.

Some states, including California, Maryland, Minnesota, Mississippi, North Carolina, Rhode Island, South Carolina, and Washington, issue standing advisories warning the public to avoid beachwater contact after heavy rainfall or when storm drains are running. (These standing advisories are not reported in the closing and advisory data that the states send to the EPA.) For example, in North Carolina standing rainfall advisories take the form of permanent signs posted on either side of storm drain outfalls stating that swimming between the signs is not recommended when there is water flowing through the drain.

FACTORS THAT CONFOUND INTERPRETATION OF THE RESULTS

Although it is understandable to expect a correlation between year-to-year changes in water quality and the number of closing/advisory days, there are confounding factors that make such correlations unlikely. While year-to-year change in the percentage of monitoring samples that exceed health standards is an objective assessment of water quality, a year-to-year change in the total number of closing/advisory days is subject to differences in programs and practices. For example, some states or localities:

- **Take multiple samples at each monitoring station.** When making closing/advisory decisions, beach officials might use the average value of all samples taken that day. Using this method, the average value might not exceed the standard even though one (or more) of the multiple samples does. In such a case, the beach would not be closed or put under advisory. Despite this variety of practices, NRDC includes the results of every reported sample when calculating the percent of all samples that exceed the standard in a given year.
- **Resample a beach after an exceedance before issuing a closing or advisory.** In some places, an exceedance triggers a resample, and if the resample does not exceed the standard, the beach is not put under closing or advisory.
- **Preemptively close a beach or issue an advisory without waiting for the results of beachwater monitoring.** In some places, officials may act without current monitoring information if they suspect that pollution has affected beachwater quality or if there are non-pollution reasons to close a beach or issue an advisory. The reasons for these preemptive actions may include heavy rainfall events, known sewage leaks, chemical spills, and high winds and waves.
- **Continue monitoring at beaches that are closed for more than six consecutive weeks during the reporting year.** NRDC does not include extended or permanent beach closings or advisories when comparing closing/advisory days from year to year, but the monitoring data collected at these beaches are included in the percent exceedance analysis.
- **Continue monitoring at beaches that have been closed for reasons other than pollution.** Some places collect monitoring data even at beaches that are closed due to factors such as budget cuts or low attendance. While routine samples continue to be collected and their results reported to the EPA, the beach closing days may not be reported, or they may occur during events that are classified as extended or permanent and excluded from NRDC's analysis.

Also, year-to-year changes in beach monitoring frequency could impact the total number of closing/advisory days but not the percentage of samples that exceed health standards. For example, increasing routine monitoring from once every two weeks to once a week could decrease the number of closing/advisory days for the same number of events because the duration of many events could go from two weeks to one.

RECOMMENDATIONS FOR IMPROVING BEACHWATER QUALITY

To improve beachwater quality nationwide, our leaders need to adopt policies that clean up the sources of beach pollution. There are numerous things that federal, state, and local officials can do to rein in the sources of beach contamination and to improve beachwater monitoring and public information. For example, the federal government can and should increase its contribution to the Clean Water State Revolving Fund, which provides critical assistance for projects that repair and rebuild failing water and wastewater infrastructure. However, there are two national actions that the Environmental Protection Agency (EPA) is undertaking that would have the most significant impact on efforts to make beaches cleaner and safer for swimming.

EPA is working on a pair of initiatives—one establishing recommended standards for beach officials to use to keep people from being exposed to unsafe levels of disease-causing bacteria and viruses, and one that will curb a principal source of contaminants flowing to the nation's waters and polluting our beaches. The agency will finalize its recreational water safety standards in October and will propose revisions to the national requirements for sources of polluted runoff in the next year.

Cleaning Up Polluted Runoff: Stormwater runoff is the most frequently identified source of beach closings and advisory days, and EPA estimates that more than 10 trillion gallons of untreated stormwater make their way into our surface waters each year.¹¹

Often, the best way of avoiding runoff-related pollution is to reduce the volume of stormwater flowing into the storm drains that carry it to nearby water bodies or, in some cases, to sewage treatment plants. Green infrastructure, which restores or mimics natural conditions, allows rainwater to infiltrate into the soil, thereby reducing the volume of runoff. Green infrastructure includes the use of porous pavement, green roofs, parks, roadside plantings, and rain barrels to stop rain where it falls, either storing it or letting it filter into the ground naturally. This keeps stormwater runoff from overloading sewage systems and triggering overflows or from carrying pollutants into natural bodies of water.

These smarter water practices on land not only prevent pollution at the beach but also beautify neighborhoods, cool and cleanse the air, reduce asthma and heat-related illnesses, save on heating and cooling energy costs, boost economies, and support American jobs. Many cities and states have embraced green infrastructure practices.

Consequently, EPA needs to make overdue changes to reform its water pollution regulations for stormwater sources. Strong stormwater retention requirements will help spur widespread implementation of green infrastructure and help keep urban and suburban runoff from reaching beaches. EPA's rules must require new and redeveloped impervious areas—wherever they are located—to infiltrate, evaporate, or reuse the rain that falls on such sites, and must ensure that existing sources of runoff pollution are similarly controlled to meet water quality goals.

Likewise, federal, state, and municipal leaders must use existing authorities—such as Clean Water Act permitting, development of sewage overflow control plans, and local planning responsibilities—to promote green infrastructure and reduce runoff-related contamination problems. NRDC's recent report *Rooftops to Rivers II*¹² spotlights how numerous cities around the country are embracing green infrastructure to address runoff pollution and improve the health of our communities. These leaders have demonstrated the feasibility of green infrastructure solutions and are paving the way for policies that advance green infrastructure nationally.

Standards to Protect Beachgoers: EPA is responsible for ensuring that recreational waters are safe for people. One element of this responsibility is establishing criteria—recommended standards—for contaminants in the water, which are supposed to be set at a level sufficient to protect public health. Unfortunately, EPA is proposing new allowable bacteria levels in recreational waters that miss a critical opportunity to better protect the public from the dangers of swimming in polluted water. In fact, in some respects the draft criteria are even less protective than the 25-year-old criteria they would replace. Sound science and good public policy demand better recreational water quality criteria than what EPA is proposing to finalize before October 15, 2012.

Most egregiously, the draft criteria are based on what EPA has determined is an acceptable gastrointestinal illness risk of 3.6 percent. That is, EPA believes it is acceptable for 1 in 28 swimmers to become ill with gastroenteritis from swimming in water that just meets its proposed water quality criteria. This risk is unacceptably high and is not protective of public health. Additionally, EPA does not adequately consider the risks of other health effects such as rashes and ear, eye, and sinus infections, all of which are commonly experienced by swimmers at U.S. beaches. EPA also fails to base the draft criteria on the most recent and best available science.

To address these flaws, EPA must revise the level of acceptable risk so that it is protective of public health. To do so, the latest and best scientific evidence needs to be utilized to determine appropriate water contamination “cut points,” above which the public is subject to unacceptable additional health risks on the order of 1 in 100 instead of 1 in 28. The criteria also must adequately address non-gastrointestinal illnesses, such as rash and ear infections. Other needed improvements are discussed in this report's policy recommendations section.

Notes

- 1 U.S. Environmental Protection Agency (EPA), "Notice of Proposed Rulemaking, NPDES Permit Requirements for Municipal Sanitary Sewer Collection Systems, Municipal Satellite Collection Systems, and Sanitary Sewer Overflows," January 4, 2001; withdrawn January 20, 2001.
- 2 Yoder, J.S., et al., "Surveillance for Waterborne Disease and Outbreaks Associated with Recreational Water Use and Other Aquatic Facility-Associated Health Events—United States, 2005–2006," Centers for Disease Control and Prevention, September 12, 2008/57(SS09) pp. 1-29, available at www.cdc.gov/mmwr/pdf/ss/ss5709.pdf.
- 3 Wade, T.J., et al., "Rapidly Measured Indicators of Recreational Water Quality Are Predictive of Swimming-Associated Gastrointestinal Illness," *Environmental Health Perspectives*, Vol. 114, No. 1, January 2006, pp. 24-28.
- 4 Given, S., et al., "Regional Public Health Cost Estimates of Contaminated Coastal Waters: A Case Study of Gastroenteritis at Southern California Beaches," *Environmental Science and Technology*, 40, 2006, p. 4,851.
- 5 National Ocean Economic Program, Market Data, Coastal Economy Data, Shore Adjacent Coastal Zone Counties, <http://noep.mbari.org/Market/coastal/coastalEcon.asp>.
- 6 Rabinovici, S.J., et al., "Economic and Health Risk Trade-Offs of Swim Closures at a Lake Michigan Beach," *Environmental Science and Technology*, Vol. 38, No. 10, 2004, pp. 2,742.
- 7 Id.
- 8 Given et al.
- 9 For the seventh consecutive year, NRDC used the BEACH Act's single-sample maximum standards for designated beach areas to compare water quality at U.S. beaches. For marine waters, the standard for enterococcus density is 104 cfu per 100 milliliters; for freshwater, the standard is 235 cfu *E. coli* per 100 milliliters.
- 10 For this year's report, NRDC began to count each managed beach segment of longer beaches in California as individual beaches themselves. This was prompted by California's update of the beach identification system it uses to report beach monitoring and notification data to EPA. For purposes of comparison with previous years, however, NRDC used the older beach identification/counting system.
- 11 EPA, "Report to Congress: Impacts and Control of CSOs and SSOs," April 26, 2004, EPA 833-R-04-001, pp. 4-29, available at cfpub.epa.gov/npdes/cso/cpolicy_report2004.cfm.
- 12 Natural Resources Defense Council, *Rooftops to Rivers II: Green Strategies for Controlling Stormwater and Combined Sewer Overflows* (November 2011), available at www.nrdc.org/water/pollution/rooftopsII/default.asp.

TESTING THE WATERS

22ND EDITION



Sources of Beachwater Pollution

Most beach closings and advisories are issued because beachwater monitoring has detected bacteria that indicate the presence of pathogens—microscopic organisms from human and animal wastes that pose a threat to human health. Key contributors of these contaminants include stormwater runoff, untreated or partially treated discharges from sewage treatment systems, discharges from sanitary sewers and septic systems, and wildlife.


STORMWATER RUNOFF

Stormwater runoff starts as rain or snowmelt. As it washes over roads, rooftops, parking lots, construction sites, and lawns, it becomes contaminated with oil and grease, pesticides, litter, and pollutants from vehicles. On its way to storm drains, it also can pick up fecal matter from dogs, cats, pigeons, other urban animals, and even humans. Human waste may also find its way into storm drain systems from adjacent sewage pipes that leak, or from businesses or residences that have illegally connected their sewage discharge to the storm drains. Illicit discharges also occur when people empty holding tanks from recreational vehicles and trailers into storm drains.

The amount of pollution present in urban runoff tends to correlate with the amount of impervious cover. Impervious cover is anything that stops water from soaking into the ground, such as roads, sidewalks, parking lots, and buildings. A study conducted in North Carolina found that a watershed that was 22 percent covered by impervious surfaces had an average fecal coliform count more than seven times higher than a watershed that was 7 percent covered by impervious surface.¹ However, even in less densely populated areas, uncontrolled runoff can foul beaches.



For more
information,
please
contact:

Jon Devine
jdevine@nrdc.org
(202) 289-6868
 [switchboard.nrdc.org/
blogs/jdevine](http://switchboard.nrdc.org/blogs/jdevine)

www.nrdc.org/policy
www.facebook.com/nrdc.org
www.twitter.com/nrdc

As the population along the U.S. coast grows, more land is converted to impervious surfaces that shed rather than absorb falling rain. Today, stormwater runoff from urban and suburban areas is posing a significant problem that is growing rapidly with rising populations and sprawling development. More than half of the people in the United States live in coastal counties, occupying only 17 percent of the nation's land mass (excluding Alaska). Between 1970 and 2010, the coastal population grew by 50.9 million, and it is projected to increase by another 14.9 million by 2020.² At the current rate, by 2025 more than a quarter of all of our coastal acreage will be developed.³

HUMAN SEWAGE FROM TREATMENT SYSTEMS

Sewage overflows from aging sanitary and combined sewer systems, leaking sewage pipes, and malfunctioning sewage treatment plants and pump stations have always been a major cause of pollution at ocean, bay, and Great Lakes beaches. As demonstrated at Miami-Dade County, Florida in October 2011, malfunctions at a wastewater plant can quickly spill millions of gallons of partially-treated sewage into coastal waters and result in no-swimming advisories along miles of beaches. For example, a generator failure caused one of at least 65 ruptures that spewed more than 47 million gallons of untreated human waste into Miami-Dade County waterways and streets from 2009-2011.⁴

Combined Sewer Overflows

Combined sewer systems, concentrated in the Great Lakes region and northeastern United States, carry both raw sewage from residences and industrial sites and stormwater runoff from streets to sewage treatment plants. Although treating stormwater before releasing it to surface waters is desirable, during periods of rainfall or snowmelt, the volume of the combined wastewater can become too great for the treatment plant to handle. In such circumstances, the excess flow is diverted to outfall points that discharge pollutants—including raw sewage; floatables such as trash, syringes, and tampon applicators; toxic industrial waste; and contaminated stormwater—into the nearest stream or coastal waterway. This is known as a combined sewer overflow, or CSO.

CSOs are a major cause of pathogen contamination in marine and Great Lakes waters near urban areas. As of 2002, CSOs discharged 850 billion gallons of raw sewage and stormwater annually, and 43,000 CSO events occurred per year nationwide. Although they are most prevalent in urban areas, CSOs affect 46 million people in 746 communities throughout 32 states.⁵

CSOs contaminate shellfish waters as well as recreational beaches. Shellfish harvesting has been restricted in the majority of the 659 shellfish beds located close to a CSO outfall.⁶ Although an EPA policy that aims to reduce these overflows has been in effect since 1994, virtually all combined sewer systems continue to overflow when it rains. A significant number of communities with CSOs still have not submitted plans for controlling them.

Sanitary Sewer Overflows and Discharges From Sewer-Line Breaks

Sanitary sewer systems carry human and industrial waste from buildings to sewage treatment plants where it is treated. These sewer systems can discharge untreated sewage when the treatment plants are overwhelmed or malfunction or when sewer lines break, posing a threat to bathing beach safety. Separate sanitary sewers serve approximately 164 million people nationwide.⁷

Although most of these systems were built more recently than the combined sewer systems, they are aging and deteriorating rapidly. A nationwide survey of 42 treatment plants found some system components that have been in use for as long as 117 years; the average is 33 years.⁸ As population and sewer load increases and rehabilitation and maintenance schedules lag, pipes can deteriorate and break, spilling sewage directly onto streets or into waterways.

The EPA has estimated that 23,000 to 75,000 sanitary sewer overflows (SSOs) occur annually, discharging a total of 3 billion to 10 billion gallons per year. Nearly 70 percent of sewage overflows from human waste sewage lines are due to obstructions such as tree roots or grease clogs, line breaks, and mechanical failures.⁹

Wet weather places demands on sanitary sewer systems even though these systems do not treat stormwater runoff. This is because even when there are no improper connections between stormwater and sanitary sewers, water seeps through manholes and into the sewer lines and also falls onto the surface of the treatment units during rain events. This can lead to the discharge of raw sewage from manholes, overflowing pipes, and treatment-plant bypasses. Although only 26 percent of sanitary sewer overflows nationwide were caused by wet weather events and related inflow and infiltration, these events accounted for nearly 75 percent of the total SSO volume discharged.¹⁰

In January 2001, the EPA proposed SSO regulations that would have required improved capacity, operation, and maintenance as well as public notification when overflows occur. The Bush administration shelved this initiative, but the Obama administration's EPA announced in June 2010 that it would consider a suite of actions to address SSOs. A series of public listening sessions were held where the vast majority of participants encouraged EPA to update the National Pollutant Discharge Elimination System (NPDES) regulations in respect to SSOs. However, staff and budget limitations kept the EPA from doing so after the sessions.¹¹

Inadequately Treated Sewage

Sewage plants near coastal waters tend to serve densely populated, rapidly growing urban areas. When too many homes and businesses are hooked up to a sewage treatment plant, the plant is prone to more frequent bypasses and inadequate treatment. Moreover, sewage treatment plants can and do malfunction as the result of human error, breakage of old equipment, or unusual conditions in the raw sewage. When that happens, raw or partially treated sewage may be discharged into coastal waterways and their tributaries.



Some sewage systems also bypass all or a portion of their treatment plants when flows exceed capacity during rain events. This practice can also put pathogens in waterways and should be prevented.

HUMAN SEWAGE FROM SEPTIC SYSTEMS AND BOATING WASTE

Septic Systems

About one-third of new construction and 23 percent of existing U.S. dwellings use some kind of septic tank or on-site waste disposal system.¹² If not sited, built, and maintained properly, septic systems near the coast can leach wastewater into coastal recreational waters, contaminating bathing beaches with fecal matter. Malfunctioning septic systems at just a few near-shore properties can result in beachwater contamination that is significant enough to trigger a beach closure. Runoff can also carry bacteria from failing inland septic systems into streams that empty into recreational waters. Unfortunately, homeowners often do not adequately maintain their septic systems. Studies reviewed by the EPA cited failure rates of 10 percent to 20 percent.¹³ Despite this, there is no federal regulatory program to control waste from septic systems, and local governments and states rarely inspect these systems sufficiently to prevent septic system failures.

Boating Waste

Marinas are generally located in areas that are naturally sheltered or where a breakwater has been constructed. This shelter results in reduced circulation of clean water around the docks, which allows boating waste to accumulate and pose a serious health threat. Waste may also be discharged improperly from boats that are in use, posing a health and aesthetic threat to bathing beaches.

Federal law requires boats with onboard toilets either to treat the waste with chemicals before discharging it or to hold the waste and later pump it out into a sewage treatment plant. Also, the federal Clean Vessel Act (CVA) of 1992 provides federal grant money to states for building pump-out and dump stations in marinas so boaters can dispose of human wastes in an environmentally sound manner. However, there is limited oversight of the adequacy of pump-out facilities in many areas.¹⁴

AGRICULTURAL DISCHARGES AND AGRICULTURAL RUNOFF

Agricultural pollution impacts nearly 40 percent of the country's polluted rivers and streams.¹⁵ The production of farm animals has increasingly shifted toward huge, industrial-scale operations where large numbers of animals are confined together. These concentrated animal feeding operations (CAFOs) can produce vast quantities of manure that far exceed the assimilation capacity of neighboring crops and pastures. Runoff from farms and animal feeding operations may contain high concentrations of pathogenic animal waste.

CLIMATE CHANGE AND ITS EFFECT ON DRY/WET WEATHER CONDITIONS

Beachwater quality is generally adversely affected by increased rainfall. Scientists agree that in many regions of the United States, climate change will increase the frequency and magnitude of rain and large storms; will cause more runoff, coastal flooding, and coastal erosion; and will bring warmer water and air temperatures. These changes will exacerbate existing causes of beachwater pollution that threaten public health. In fact, the Intergovernmental Panel on Climate Change found that "[w]aterborne diseases and degraded water quality are very likely to increase with more heavy precipitation."¹⁶

In particular, global climate change is predicted to increase the amount of rainfall in regions where combined sewer systems are concentrated. In the Great Lakes region, climate modeling predicts that the regional average annual CSO frequency between 2060 and 2099 will increase between 13 percent and 70 percent.¹⁷

Even in areas that have separate sewer systems, like much of the West, an increase in extreme rainfall events can still lead to more pollution in coastal waters via increased stormwater runoff. For instance, in California, warmer temperatures can mean more winter precipitation that falls as rain and less that falls as snow, leading to more winter runoff. More winter runoff over saturated soils will result in larger sediment flows and more bacteria in beachwaters.

In the Great Lakes region, warmer temperatures can lead to another source of pollution: algal blooms. *Cladophora*, a green alga that grows on the bottom of the Great Lakes, thrives in warmer temperatures.¹⁸ Filter-feeding invasive species, such as quagga mussels, also contribute to the proliferation of algae by clearing the normally murky waters of phytoplankton and other microorganisms. Sunlight, able to penetrate the lake floor, encourages the growth of large mats of algae.¹⁹ These foul-smelling algal mats can break free and eventually accumulate on beaches, becoming breeding grounds for *E. coli* and enterococci.²⁰ As temperatures increase, the Great Lakes states are seeing an abundance of algae growth and subsequent beach closings, earlier in the year.²¹

Nitrogen and phosphorus pollution from stormwater runoff, agricultural runoff, water treatment plants, and CSOs also spur the growth of algae. Large, harmful algal blooms (HAB), such as cyanobacterial (blue-green algae) blooms, produce toxins that are accumulated and a health threat to humans and wildlife.²² Acute exposure to the hepatotoxin microcystin can lead to skin irritation and gastrointestinal illness while chronic exposure can result in increased liver disease and even death.²³

BEACHGOERS

In the 2005 study “Outbreaks Associated With Recreational Water in the United States,” researchers found that bathers themselves are an important localized source of contamination leading to illness outbreaks.²⁴ All swimmers release fecal organisms when they enter the water in a process called bather shedding. Fecal accidents are also a

health risk, as are diaper-aged children if care isn’t taken to ensure that their wastes are kept from entering the water. The presence of *E. coli* and coliform bacteria has been shown to correlate with the number of visitors and periods of high recreational use (generally the summer and weekends).²⁵

WILDLIFE AND PET WASTE

Municipalities sometimes list waterfowl as the cause of beach closings or advisories. During migration season, large or excessive populations of waterfowl can gather at beaches or in suburban areas that drain into recreational waters.

Pet waste deposited on or near the beach also carries pathogens that can wind up in beachwater when pet owners do not pick up and properly dispose it. The fecal matter from these animals can overload the normal capacity of a beach to absorb wastes, degrading water quality, particularly if there is no vegetation around the waterway to absorb the waste.

Endnotes

- 1 Mallin, Michael A., “Wading in Waste,” *Scientific American*, June 2006, pp. 53–59.
- 2 NOAA-National Ocean Service, “Population Trends Along the Coastal United States: 1980–2008,” September 2004, pp. 1 & 6, <http://stateofthecoast.noaa.gov/population/welcome.html>.
- 3 Beach, Dana, “Coastal Sprawl—The Effects of Urban Design on Aquatic Ecosystems in the United States,” Pew Ocean Commission, 2002. http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Protecting_ocean_life/env_pew_oceans_sprawl.pdf
- 4 Rabin, Charles and Morgan, Curtis, “Miami-Dade’s leaky pipes: More than 47 million gallons of waste spilled in past two years,” *The Miami Herald*, May 14, 2012, <http://www.miamiherald.com/2012/05/14/2799249/miami-dades-leaky-pipes-more-than.html>
- 5 EPA, Report to Congress: Impacts and Control of CSOs and SSOs, pp. 4-13 to 4-19.
- 6 EPA, Report to Congress: Impacts and Control of CSOs and SSOs, p. 5-14.
- 7 EPA, Report to Congress: Impacts and Control of CSOs and SSOs, p. 4-22.
- 8 EPA, Report to Congress: Impacts and Control of CSOs and SSOs, p. 2-1.
- 9 EPA, Report to Congress: Impacts and Control of CSOs and SSOs, pp. 4-25 to 4-27.
- 10 EPA, Report to Congress: Impacts and Control of CSOs and SSOs, p. 4-27.
- 11 California Water Environment Association, “EPA SSO Workshop Planned for July,” <http://wp.cwea.org/?p=4047>
- 12 EPA, Onsite Wastewater Treatment Systems Manual, February 2002, EPA/625/R-00/008, at pp. 1-4 and 1-6, http://www.epa.gov/owm/septic/pubs/septic_2002_osdm_all.pdf.
- 13 EPA, Onsite Wastewater Treatment Systems Manual, op. cit.
- 14 U.S. General Accounting Office, “Water Quality: Program Enhancements Would Better Ensure Adequacy of Boat Pumpout Facilities in No-Discharge Zones,” GAO-04-613, May 2004. <http://www.gao.gov/assets/250/242582.pdf>
- 15 EPA, National Water Quality Inventory: Report to Congress, 2004 Reporting Cycle, EPA 841-R-08-001, January 2009, p. 12.
- 16 IPCC, Fourth Assessment Report, Working Group II Report, “Impacts, Adaptation and Vulnerability,” Ch. 14, <http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter14.pdf>.
- 17 EPA, “A Screening Assessment of the Potential Impacts of Climate Change on Combined Sewer Overflow (CSO) Mitigation in the Great Lakes and New England Regions,” EPA/600/R-07/033F, February 2008, p. 19.
- 18 Bienkowski, Brian. “Using spring temperatures to predict summer slime,” *Great Lakes Echo*, May 1, 2012. <http://greatlakesecho.org/2012/05/01/using-spring-temperatures-to-predict-summer-slime/>
- 19 Hinderer, Julie M. and Michael W. Murray (2011). “Feast and Famine in the Great Lakes: How Nutrients and Invasive Species Interact to Overwhelm the Coasts and Starve Offshore Waters,” *National Wildlife Federation*, <http://www.nwf.org/~media/PDFs/Regional/Great-Lakes/GreatLakes-Feast-and-Famine-Nutrient-Report.ashx>
- 20 USGS Great Lakes Science Center (2009). “Algal (*Cladophora*) Mats Harbor High Concentrations of Indicator Bacteria and Pathogens,” GLSC Fact Sheet 2009-1, <http://greatlakesbeaches.usgs.gov/publications/2009-1%20Cladophora.pdf>
- 21 Bienkowski, op. cit.
- 22 Erdner, Deana L, et al (2008) “Centers for Ocean and Human Health: a unified approach to the challenge of harmful algal blooms,” *Environmental Health*, 7 (Suppl 2):S2, <http://www.ehjournal.net/content/7/S2/S2>
- 23 Hinderer and Murray, op. cit.
- 24 Craun, Gunther F., Calderon, Rebecca L., and Craun, Michael F., “Outbreaks Associated With Recreational Water in the United States,” *International Journal of Environmental Health Research*, August 2005, Vol.15, No. 4, pp. 243–262.
- 25 McDonald, A.T., Chapman, P.J., and Fukasawa, K. “The Microbial Status of Natural Waters in a Protected Wilderness Area,” *Journal of Environmental Management*, Vol. 87, No. 4, June 2008, pp. 600–608.



TESTING THE WATERS

22ND EDITION



The Impacts of Beach Pollution

Polluted beachwater makes swimmers sick and hurts coastal economies. Illnesses associated with polluted beachwater include stomach flu, skin rashes, pinkeye, respiratory infections, meningitis, and hepatitis. In addition to the health risks from polluted beachwater, economists have estimated that a typical swimming day is worth approximately \$35 to each individual, so depending on the number of potential visitors to a beach, the “consumer surplus” loss on a day that a beach is closed or under advisory for water quality problems can be quite significant.

HEALTH RISKS

Diseases Caused by Pathogens in Bathing Waters

Polluted waters may contain disease-causing organisms called pathogens. The most common types of pathogens are those associated with human and animal waste, including bacteria, viruses, and protozoa. For instance, giardiasis is caused by the protozoan *Giardia lamblia*, North America's leading reported intestinal parasite.¹ Swimmers in sewage-polluted water can contract any illness that is spread by fecal contact, including stomach flu, respiratory infection, and ear and skin infections. Most swimming-related illnesses

last from a few days to several weeks, but in some cases pathogens may cause severe, long-term illness or even death. Sensitive populations such as children, the elderly, or those with a weakened immune system are particularly at risk for long-term effects. For example, research has shown that children under the age of 9 have more reports of diarrhea and vomiting from exposure to waterborne pathogens than any other age group, with at least a twofold increase occurring over the summer swimming months.² There is usually a delay of several days to two weeks between contact with contaminated water and expression of symptoms, and most people who get sick from swimming are not aware of the link.



For more
information,
please
contact:

Jon Devine
jdevine@nrdc.org
(202) 289-6868
 [switchboard.nrdc.org/
blogs/jdevine](http://switchboard.nrdc.org/blogs/jdevine)

www.nrdc.org/policy
www.facebook.com/nrdc.org
www.twitter.com/nrdc



On the basis of beach visitation rates and monitoring data, researchers have estimated that 689,000 to 4,003,000 instances of gastrointestinal illness and 693,000 instances of respiratory illness occurred each year between 2000 and 2004 at Southern California beaches.³ Beachgoers can even contract illness without going in the water. A 2009 study found a positive association between beach sand contact and the risk of gastrointestinal illness at beaches with a nearby sewage treatment plant outfall.⁴ While these estimates are subject to a great deal of uncertainty, they provide insight into the potential for underreporting of beach-related illnesses.

Contaminated Runoff and Incidence of Disease

Discharges of polluted urban runoff result in elevated bacteria levels and increased illness rates among swimmers, and the association between heavy precipitation (leading to increased runoff) and waterborne disease outbreaks is well documented.⁵ For instance, in a 2012 California study:

investigated surfers' risk of [gastrointestinal illness] during dry weather and post-storm conditions in the coastal waters of Southern California based on enterococcus (ENT) and fecal coliform (FC) concentrations in the water. ***[W]e found significant different health risk on the same beach using ENT or FC. We also found, using ENT, some beaches have significantly elevated health risks for surfers after a storm event.⁶

A large-scale 1995 epidemiological study, also in California, investigated possible adverse health effects associated with swimming in ocean waters contaminated by urban runoff.⁷ The study found an increase in risk of illness associated with swimming near flowing storm drain outlets in Santa Monica Bay, compared with swimming more than 400 yards away. For example, swimmers near storm drains were found to have a 57 percent greater incidence of fever than those swimming farther away.

Climate Change and Incidence of Disease

Climate change is expected to increase the incidence of diseases contracted by swimmers. This is because water is more likely to become contaminated with pathogens in areas where there are larger storm events with increased runoff and combined sewer overflows (CSOs), and also because warmer waters will allow pathogens to expand their range. Pathogens such as *Cryptosporidium parvum* and *Giardia lamblia*, which are associated with polluted runoff and CSOs,⁸ could increase in recreational waters in areas where climate change causes increased precipitation and runoff. An article in *Climate Research* notes that, although there are uncertainties, "a wetter climate in the [mid-Atlantic region] could lead to higher [*Cryptosporidium*] loads in water."⁹ A major cryptosporidium outbreak in Milwaukee in 1993, which killed 54 people and sickened more than 400,000, occurred after stormwater compromised the efficiency of a drinking water treatment plant.¹⁰

The bacterium *Vibrio cholerae*, which causes cholera, is an example of a pathogen that presents an increased threat to humans as a result of climate change. Extreme weather events and warmer waters can foster growth of the bacterium—one study found that *V. cholerae* was up to nearly 20 times as likely to occur at a temperature of 19°C or higher than at lower temperatures.¹¹ Increased freshwater runoff, high in nutrients and low in salinity, also may favor the growth of *V. cholerae*. As one study of Chesapeake Bay concluded, "increased climate variability, accompanied by higher stream flow rates and warmer temperatures, could favor conditions that increase the occurrence of *V. cholera* in Chesapeake Bay."¹²

Threats to Swimmers from Harmful Algal Blooms

Harmful algal blooms (HABs), often called red tides, are a growing problem in surface waters where nutrient-rich pollution can spur algal growth. Several species of phytoplankton produce potent toxins that can make people sick if they are exposed to contaminated water or if they eat contaminated fish or shellfish. These toxic organisms are a natural part of the phytoplankton community, but when conditions are right, they experience a rapid growth in numbers, resulting in a "bloom." HABs can last for days, weeks, or months and cause serious and potentially life-threatening human illnesses that have a slew of symptoms, including diarrhea, nausea, vomiting, abdominal cramping, chills, diminished temperature sensation, muscle aches, dizziness, anxiety, sweating, seizures, numbness and tingling of the mouth and digits, and paralysis, as well as cardiovascular and respiratory symptoms.¹³ Approximately 10 percent of all food-borne disease outbreaks in the United States are caused by eating seafood contaminated by algal toxins.¹⁴ Toxins produced by harmful algae can aerosolize and cause respiratory distress even in beach visitors who do not enter the water.¹⁵

The incidence of HABs has increased dramatically over the past 30 years.¹⁶ Indeed, analyzing data over nearly 50 years from the southwest coast of Florida, researchers at the University of Miami determined that *Karenia brevis* red tides are occurring with greater frequency, closer to shore,

and during more months of the year. They attribute this phenomenon to greater inputs of nutrients into coastal waters, due to increased agricultural runoff and sewage discharges in the watershed over that time period.¹⁷ In 2011, the Great Lakes suffered one of the worst algae blooms in decades—so large, in fact, that the slimy green cyanobacteria algae were visible from space.¹⁸

As is the case with pathogens, warmer waters may result in expanded ranges for some harmful algae species.¹⁹ According to a recent Chesapeake Bay Foundation report:

Climate change might be expanding the range of a few new toxic species of algae into the estuary, and causing others to bloom earlier, according to a 2008 report by a scientific advisory committee of the U.S. EPA Chesapeake Bay Program. For example, a toxic alga normally associated with Florida and the Gulf Coast, *Alexandrium monilatum*, in 2007 was believed to have been responsible for killing whelks (a species of sea snail) in the York River in Virginia. It was the first known bloom in this area, and it represented a potential shift northward, according to the EPA committee report. A large bloom of a toxic alga normally found in the Caribbean Sea, *Cochlodinium polykrikoides*, killed young fish and oysters in the lower Chesapeake Bay in August 2007.²⁰

Efforts to deal with red tides have focused on mitigating the effects of these events, primarily through improved systems to monitor for these blooms, educate and communicate the risks to the general population, and learn more about the causes of harmful algal blooms and how they affect humans and aquatic life. Techniques to prevent HABs involve restricting the movement of harmful algal species via the shellfish market and ship ballast water. For example, ballast water may be heated or chemically treated to prevent the introduction of invasive species, and trade may be restricted in shellfish from areas experiencing red tides. Strong efforts need to be made to control nitrogen and phosphorus pollution from sources such as sewage systems, urban and suburban stormwater, septic tanks, and agricultural runoff to reduce the number of red tide events.²¹

ECONOMIC IMPACTS

Beaches, rivers, and lakes constitute the top vacation destination in the United States. Americans take more than 900 million trips to coastal areas annually and spend approximately \$44 billion during these trips.²² Yet our coasts provide more than just recreation—in 2010, the nation's shoreline-adjacent counties contributed an estimated \$6 trillion toward the nation's gross domestic product and 47 million jobs.²³ Economic activity directly associated with the ocean contributed more than \$222 billion to the U.S. economy in 2009.²⁴

The ways in which polluted water puts these revenues at risk are many and varied. Polluted beaches result in a loss of utility for those who have planned to visit and swim in the water; that in turn impacts local economies in the form of lost tourist dollars and the jobs they support. Clean beaches, on the other hand, can help a community thrive.

Coastal tourism, attributable in part to clean beaches, generates substantial revenues for state and local government, as well as for businesses lining the coasts. Economists estimate that a typical swimming day is worth approximately \$35 to each individual.²⁵ Depending on the number of potential visitors to a beach, this “consumer surplus” loss can be quite significant. For example, one study estimated economic losses as a result of closing a Lake Michigan beach due to pollution could be as high as \$37,030 per day.²⁶ Similarly, a Southern California study concluded that each year fecal contamination at Los Angeles and Orange County beaches caused between 627,800 and 1,479,200 excess gastrointestinal illnesses with a public health cost of \$21 million to \$51 million.²⁷

Another example of the potential for economic harm from beach pollution is found in Florida. One analysis of southeast Florida estimated that there were more than 18 million “person-days” of visits to natural reefs in four counties, leading to \$2.7 billion in spending and more than 40,000 full- and part-time jobs.²⁸ Yet coral reefs are adversely impacted by a combination of rising temperatures, increasing nutrients, and pathogen pollution from sources such as untreated or inadequately treated sewage. Fecal contamination from sewage in the Florida Keys is thought to be a major source of disease in coral.²⁹

Investments in improving water quality result in greater economic returns. For instance, a 2007 Brookings Institution study concluded that the \$26 billion Great Lakes Regional Collaboration Strategy to clean and preserve the Great Lakes would result in present-value economic benefits of “[o]ver \$50 billion in long-term benefits; and between \$30 and \$50 billion in short-term multiplier benefits.”³⁰ A 2007 study by the National Oceanic and Atmospheric Administration found that an improvement in water quality in Long Beach, California, to the healthier standards of Huntington City Beach would create \$8.8 million in economic benefits over a 10-year period.³¹ A similar 2001 study compared the 1996 water quality of the Chesapeake Bay with the quality it would have had if legislation to clean the waters had never been passed. The study estimated that the water quality improvements increased annual boating, fishing, and swimming revenue by \$357.9 million to \$1.8 billion.³²

Some areas either do not monitor their beaches or do not close them when water quality fails to meet standards. This can result in lower short-term losses for businesses in the area, but it also means that those who get sick will incur medical costs and lost workdays as a result. According to the Centers for Disease Control and Prevention, hospitalizations for three common waterborne diseases—Legionnaires’ disease, cryptosporidiosis, and giardiasis—cost the health care system as much as \$539 million annually.³³ Cleaning up the sources of pollution so that beachwater does not pose a health risk is the optimal solution. In the meantime, protecting public health will require improved beachwater monitoring and closing beaches when contamination is detected or suspected, rather than allowing people to swim and get sick. Given the large number of people using beaches and the substantial income from coastal tourism, the cost of monitoring programs is reasonable.

Endnotes

- 1 Health Canada (2004), "Guidelines for Canadian Drinking Water Quality: Supporting Documentation—Protozoa: Giardia and Cryptosporidium," Water Quality and Health Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario, p. 11, www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/water-eau/protozoa/protozoa.pdf.
- 2 Centers for Disease Control and Prevention, "Giardiasis Surveillance—United States, 1998-2002," January 2005, www.cdc.gov/mmwr/preview/mmwrhtml/ss5401a2.htm.
- 3 Brinks, M.V., et al., "Health Risk of Bathing in Southern California Coastal Waters," *Archives of Environmental & Occupational Health*, Vol. 63, No. 3 (Fall 2008).
- 4 Heany et al., "Contact With Beach Sand Among Beachgoers and Risk of Illness," *American Journal of Epidemiology*, Vol. 170, No. 2 (May 2009), <http://aje.oxfordjournals.org/content/170/2/164.full.pdf+html>
- 5 Curriero et al., "The Association Between Extreme Precipitation and Waterborne Disease Outbreaks in the United States, 1949-1994," *American Journal of Public Health*, August 2001, www.ajph.org/cgi/reprint/91/8/1194.pdf.
- 6 Tseng, L.Y. and S.C. Jiang, "Comparison of surfing health risk in dry weather and post-storm conditions using quantitative microbial risk assessment (QMRA) for Southern California beaches," Department of Civil and Environmental Engineering, University of California, Irvine, May 2012, <http://water.epa.gov/type/oceb/beaches/upload/TsengLinda.pdf>
- 7 Haile, R., et al., "An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay," Santa Monica Bay Restoration Project (1996), cited in 64 Fed. Reg. 68,721 (December 8, 1999).
- 8 Hunter, P.R., "Climate Change and Waterborne and Vector-borne Diseases," *Journal of Applied Microbiology*, 2003, 94, 37S-46S, p. 40S, <http://ncsp.undp.org/sites/default/files/climatechangeandwaterborneandvector-borne-disease.pdf>.
- 9 Benson, Keith, Patricia Kocagil, and James Shortle, "Climate Change and Health in the Mid-Atlantic Region," *Clim. Res.*, 2000, Vol. 69, No. 5, pp. 245-253.
- 10 Curriero et al., "The Association Between Extreme Precipitation and Waterborne Disease Outbreaks in the United States, 1948-1994," *American Journal of Public Health*, August 2001, www.ajph.org/cgi/reprint/91/8/1194.pdf.
- 11 Louis, V.R., et al., "Predictability of *Vibrio Cholerae* in Chesapeake Bay," *Applied and Environmental Microbiology*, May 2003, Vol., 69, No. 5, pp. 2,773-2,785.
- 12 Ibid.
- 13 Woods Hole Oceanographic Institution, "The Harmful Algae Page," www.whoi.edu/redtide/.
- 14 Van Dolah, Frances M., "Marine Algal Toxins: Origins, Health Effects, and Their Increased Occurrence," *Environmental Health Perspectives Supplements*, Vol. 108, No. S1, March 2000.
- 15 National Oceanic and Atmospheric Administration Center of Excellence for Great Lakes and Human Health, Frequently Asked Questions: What are the dangers of Harmful Algal Blooms?, http://www.glerl.noaa.gov/res/Centers/HABS/faqs_dangers_habs.html.
- 16 Woods Hole Oceanographic Institution, "The Harmful Algae Page," www.whoi.edu/redtide/.
- 17 Brand, L.E., and A. Compton, "Long-Term Increase in *Karenia Brevis* Abundance Along the Southwest Florida Coast," *Harmful Algae*, Vol. 6, No. 2 (February 2007), pp. 232-252.
- 18 Praetorius, Dean. "Lake Erie's Toxic Algae Bloom Seen From Space: Green Scum Rampant In The Great Lakes," The Huffington Post, October 14, 2011, http://www.huffingtonpost.com/2011/10/14/lake-eris-toxic-algae-bloom_n_1010902.html
- 19 Moore, S.K., et al. (2008); Mortsch, L., et al., "Climate Change and Water Quality in the Great Lakes Region: Risks, Opportunities, and Responses," a report prepared for the Great Lakes Water Quality Board of the International Joint Commission (August 2003), p. 91.
- 20 Chesapeake Bay Foundation, "Bad Water 2009: The Impact on Human Health in the Chesapeake Bay Region," July 2009, p. 9 (citation omitted).
- 21 See generally Woods Hole Oceanographic Institution, "Prevention, Control and Mitigation of Harmful Algal Blooms: A Research Plan," September 2001, pp. 9-10, www.whoi.edu/science/B/redtide/pertinentinfo/PCM_HAB_Research_Plan.
- 22 U.S. Environmental Protection Agency, "Liquid Assets: A Summertime Perspective on the Importance of Clean Water to the Nation's Economy," EPA, 800-R-96-002, 1996, at 2.
- 23 National Ocean Economic Program, Market Data, Coastal Economy Data, Shore Adjacent Coastal Zone Counties, <http://noep.mbari.org/Market/coastal/coastalEcon.asp>
- 24 National Ocean Economic Program, Market Data, Coastal Economy Data, Shore Adjacent Coastal Zone Counties, <http://noep.mbari.org/Market/coastal/coastalEcon.asp>
- 25 Rabinovici, S.J., et al., "Economic and Health Risk Trade-Offs of Swim Closures at a Lake Michigan Beach," *Environmental Science and Technology*, Vol. 36, No. 10, 2004, p. 2,742.
- 26 Ibid.
- 27 Given., S., et al., "Regional Public Health Cost Estimates of Contaminated Coastal Waters: A Case Study of Gastroenteritis at Southern California Beaches," 40 *Environ. Sci. Technol.* 4851 (2006).
- 28 Johns, G.M., et al., "Socioeconomic Study of Reefs in Southeast Florida," Final Report October 19, 2001, as revised April 18, 2003, <http://coastalsocioeconomics.noaa.gov/core/reefs/02-01.pdf>.
- 29 "Sewage Casts Pox on Reefs," *Nature*, June 18, 2002.
- 30 Austin, J.C., et al., "Healthy Waters, Strong Economy: The Benefits of Restoring the Great Lakes Ecosystem" (The Brookings Institution, September 2007), at 2, 5, 10, www.brookings.edu/metro/pubs.20070904_gleiecosystem.pdf.
- 31 Leeworthy, V.R., and P.C. Wiley, "Southern California Beach Valuation Project: Economic Value and Impact of Water Quality Change for Long Beach in Southern California," NOAA, February 2007.
- 32 Morgan et al., "Benefits of Water Quality Policies: The Chesapeake Bay," *Ecological Economics*, Vol. 39, No. 2 (November 2001), pp. 271-284.
- 33 CDC Division of Media Relations. "Waterborne Diseases Could Cost over \$500 Million Annually in U.S." Centers for Disease Control and Prevention Newsroom, July 14, 2010, <http://www.cdc.gov/media/pressrel/2010/r100714.htm>

Great Lakes Supplement



Pictured Rocks National Lakeshore

Millions of years ago, retreating ice sheets carved giant basins into the North American landscape, filling them with glacial meltwater and leaving behind one of the continent's most valuable resources. The Great Lakes and its 5,500 miles of coastline are a life source to more than 40 million people.¹ Containing one-fifth of the world's fresh surface water, these five lakes not only provide drinking water to residents of the region but are also an economic and recreational asset.

Every summer, millions of people flock to the Great Lakes to enjoy its beaches for swimming, boating, fishing, and other outdoor activities. From the uppermost point of Minnesota, down to Michigan and east to New York, these beaches are a destination where generations of Americans have found relief from the summer heat and a place where many have built their lives.

However, the survival of the Great Lakes and our intimate relationship with its waters are under attack by forces outside and within the lakes. From their shores, increasingly violent weather overwhelms crumbling infrastructure, dumping tainted runoff into our precious waters. Under the water's surface, invasive species spread unchecked, decimating the food web and destabilizing the ecosystem, while algal blooms ooze onto beaches. Though efforts are being made to improve the Great Lakes' water quality, clean up their beaches, and slow the growth of invasive species, a lack of data about these pollution sources hinders the creation of a comprehensive action plan. Until these threats are properly addressed, beachgoers will continue to suffer the health risks of swimming in polluted waters, and residents of the Great Lakes region will continue to feel the environmental and economic impacts.

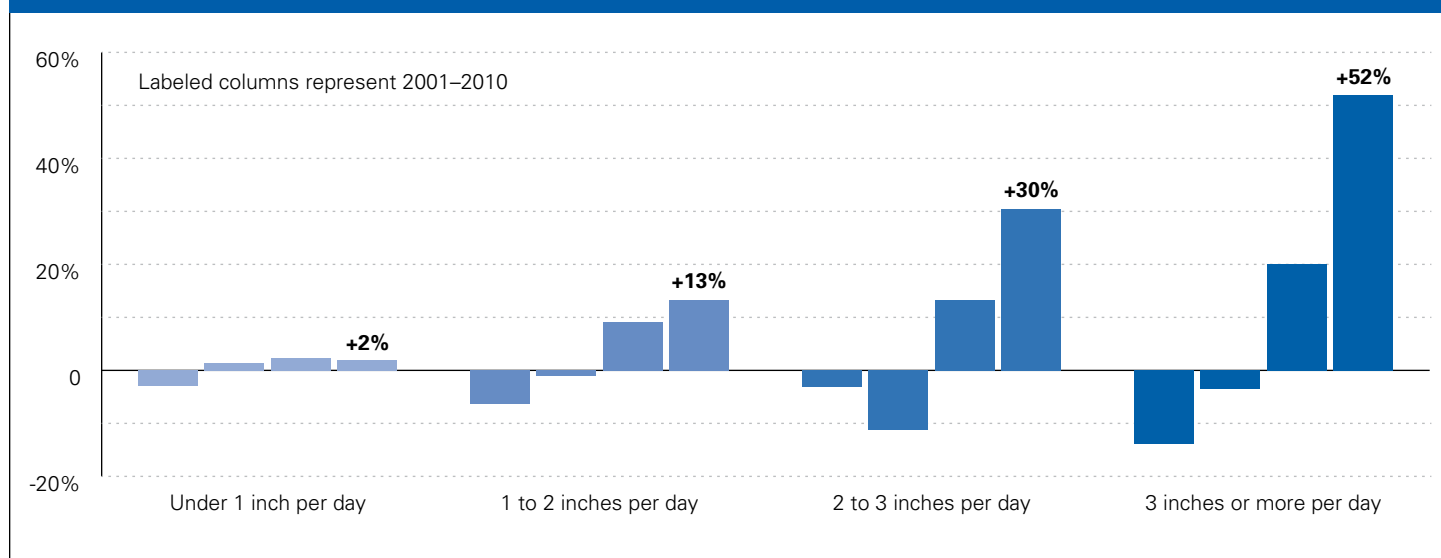
GREAT LAKES STRESSORS

Climate Change

Currently more than 70 percent of all combined sewers in the United States are located in the Great Lakes region.² Unlike separated sewer systems, combined sewers collect sanitary sewage and stormwater runoff within a single pipe system and route the mixture to sewage treatment plants. However, heavy rainfall and extreme weather can quickly overwhelm these systems. To prevent sewage from flooding homes and businesses, combined sewer systems send excess flow into local waterways, including the Great Lakes.³

Climate change models suggest that extreme storms and rainfall will become stronger and more frequent in the Great Lakes region.⁴ In fact, the annual frequency of three-inches-plus storms increased by 103 percent from 1961 through 2011. Storms of at least two inches but less than three inches in a day, the trend was an 81 percent increase; and storms of one to two inches, a 34 percent increase.⁵ The frequency of extreme storms has increased so much in recent years that the first 12 years of this century included seven of the nine top years (since 1961) for the most extreme storms in the Midwest.

**Figure GL-1: Frequency of Storms by Size in the Midwest
Changes by Decade, 1960s Through 2000s, Compared to 1961–1990**



The graph below illustrates the changes by decade in the annual frequencies of different-sized storms over the last five decades. Storms are grouped by days with less than 1 inch of precipitation, at least 1 inch but less than 2 inches, at least 2 but less than 3 inches, and 3 inches or more. In each group, the columns from left to right represent 1961–1970; 1971–1980; 1981–1990; 1991–2000; and 2001–2010.

In southern Wisconsin, extreme precipitation events are expected to become 10 to 40 percent stronger and are likely increase the frequency of CSOs into Lake Michigan by 50 to 120 percent by the end of this century.⁶

Failing Infrastructure

The American Society of Civil Engineers' 2009 Infrastructure Report Card gave the nation's aging wastewater system a grade of D-minus.⁷ In the eight Great Lakes states, \$71.84 billion in wastewater infrastructure investment is needed over the next 20 years to achieve a basic level of functionality.⁸ From 2008 through 2010, Gary, Indiana, alone discharged 6.8 billion gallons of raw and partially treated sewage into waterways that flow directly into Lake Michigan.⁹

In June 2011, the Metropolitan Water Reclamation District of Greater Chicago voted to disinfect wastewater dumped into the Chicago River from two of its treatment plants, finally bringing Chicago in line with other major U.S. cities, virtually all of which have been disinfecting for decades.¹⁰ This decision is a step toward strengthening the water infrastructure at a pivotal point on the Great Lakes coastline as well as improving water quality in the Chicago River. Nevertheless, the Chicago region's combined sewer systems continue to dump large volumes of untreated sewage into the river, reflecting the larger failure of wastewater infrastructure in the Great Lakes region and across the nation. The combination of failing infrastructure and more extreme weather events sets the stage for a bleak future in which CSOs continue to dump raw sewage into the Great Lakes and onto its beaches.

Runoff Pollution

In addition to point-source pollution—pollution that comes from a single location, such as a municipal wastewater treatment plant—the Great Lakes is also under siege by non-point-source (runoff) pollution, which comes from multiple and often diffuse sources and is much more difficult to identify. Stormwater and irrigation runoff from urban and agricultural areas carry sediment and fertilizers (which contain nitrogen and phosphorus) into the Great Lakes, adding to the already heavy load of nutrients being discharged by sewage treatment plants and other point sources.¹¹ Nitrogen and phosphorus serve as food for aquatic plants such as algae and catalyze their overproduction.¹² These algae are suffocating the Great Lakes by creating a condition called hypoxia, a depletion of oxygen levels in the water as they grow and later as they decompose.¹³ Similar to the “dead zone” in the Gulf of Mexico, the Great Lakes’ aquatic environment and beaches are slowly dying, unable to sustain the biological diversity they once had.

HEALTH IMPACTS

Despite the vast size of the Great Lakes, the discharge of billions of gallons of untreated sewage into its waters has a significant impact on human health. Untreated sewage can contain more than 120 viruses. Two of these viruses, *Giardia* and *cryptosporidium*, can cause intestinal illnesses and even death.¹⁴ Stormwater adds to this toxic soup as it runs over impervious surfaces such as roads, roofs, and parking lots, picking up fecal matter, pesticides, and other pollutants before flowing into sewers. These viruses and pollutants don't simply disappear under the lakes’ surface. A study in Door County, Wisconsin, demonstrated that at six out of eight Lake Michigan beaches, there was a significant association between rainfall and elevated concentrations of *E. coli* in the water.¹⁵

Despite the severity of these health risks, a new EPA proposal concerning U.S. beach pollution fails to address them. The EPA is required under the Beaches Environmental Assessment and Coastal Health (BEACH) Act of 2000 to issue recreational beach standards that are “necessary for the protection of public health and safety.” However, the agency has proposed recreational beach criteria at a level that would allow 1 in 28 people to get sick when they visit the beach.^{16,17}

E. coli

E. coli concentrations, as well as concentrations of enterococcus, are bacterial indicators of fecal contamination in water, which can make swimmers sick. Under the BEACH Act, seven of the eight Great Lakes states use a single-sample *E. coli* standard to determine beach closing and advisory decisions.¹⁸ Elevated concentrations of *E. coli* and enterococcus routinely force beach closures in the Great Lakes region. However, these closings cannot be attributed only to CSOs and stormwater runoff.

Algae

Nitrogen and phosphorus in stormwater runoff, sewage from CSOs and water treatment plants, and agricultural runoff spur the growth of large, harmful algal blooms (HABs). These blooms have grown so rampantly in the Great Lakes that they can be seen from space.¹⁹ HABs foul beaches and the taste of drinking water as well as produce toxins that are dangerous to humans and wildlife.

Acute exposure to the hepatotoxin microcystin, which is produced by cyanobacteria (blue-green algae), can lead to gastrointestinal illness, and chronic exposure can result in liver disease and damage and possible tumor promotion. In some parts of Lake Erie, explosive growth of cyanobacteria has made the water so toxic that people are warned not to let their pets drink it.²⁰ At an inland lake in Ohio, nine people became ill and at least three dogs died after coming in contact with the algae.²¹ Unfortunately, monitoring HABs and their toxins is difficult, and methods for doing so are still under development.²² Only a few emerging observation systems in marine and freshwater environments include HAB-specific instrumentation, and none of the Great Lakes states currently have HAB monitoring in place to protect swimmers.²³

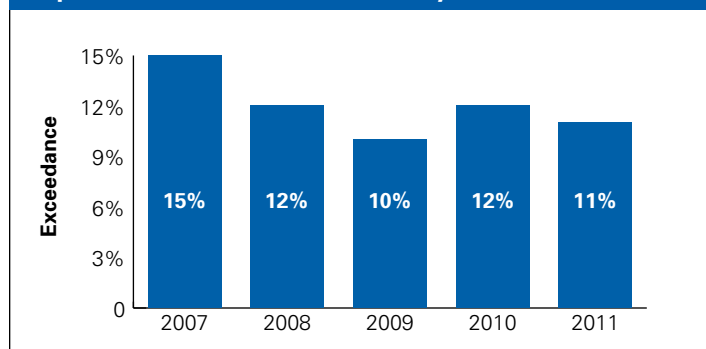
Temperature increases associated with climate change, including both rising overall temperatures and more extreme temperature fluctuations,²⁴ also contribute to nutrient-fueled algal growth in the Great Lakes. Cladophora, a green alga found in the Great Lakes, thrives in warmer temperatures. May 2011 to April 2012 was the warmest May-to-April period in the contiguous United States, with an average temperature 2.8°F higher than the 20th-century average.²⁵ Due to the abnormally mild winter, scientists have warned that there could be more beach closures due to the early proliferation of the smelly, slimy algae.²⁶ Clumps of cladophora can be breeding grounds for bacteria such as *E. coli* and enterococcus, creating high pathogen counts and triggering beach closures.²⁷

Invasive Species and Algal Mats

Another force abetting in the growth of algae is the decimating impact of invasive species, such as quagga and zebra mussels. Introduced into the Great Lakes ecosystem via ballast water from oceangoing freighters, these filter-feeders have significantly eliminated the abundance of phytoplankton and other microorganisms in the Great Lakes. One study found that fish biomass has decreased by about 95 percent in Lake Huron and significantly in Lake Michigan due to zebra and quagga mussels' filtering out plankton at the base of the food chain.²⁸ While increased water clarity may sound like an improvement, a cloudy lake is actually a healthy lake. Sunlight, able to penetrate the water, encourages the growth of large mats of green algae on the lake floor.²⁹ These mats can break free and eventually accumulate on beaches, fouling the coasts.³⁰

Unfortunately, the problem of invasive species and algae in the Great Lakes has the potential to worsen. If the tireless filter-feeding Asian carp is able to gain access to the lakes from waterways in and around Chicago, the effects could be devastating. The carp have the potential to clarify lake water to the point of an ecosystem collapse, leading not only to extreme environmental consequences but to high economic costs as well. A report commissioned and released by The Nature Conservancy estimates that the region is spending more than \$100 million annually to manage the effects of invasive species in the Great Lakes on businesses and consumers.³¹

Figure GL-2: Percent of samples exceeding the recommended single-sample maximum *E. coli* standard for designated beach areas for 426 beaches reported in the Great Lakes each year from 2007-2011



Bacteria in Great Lakes Beachwater

NRDC conducted a comparative analysis of water quality at beaches along the U.S. Great Lakes shoreline using publicly available monitoring data from all eight Great Lakes states. In 2011, 595 beaches were monitored on at least a weekly basis.

Eleven percent of all beachwater samples collected in 2011 exceeded the BEACH Act's single-sample maximum *E. coli* standard for designated freshwater beaches (a density of 235 cfu per 100 ml of water). These elevated levels indicate the potential presence of human or animal waste in the water that could make swimmers sick. Over the five-year period during which NRDC has conducted this analysis of Great Lakes beaches, 10 percent to 15 percent of samples at the 426 beaches that reported monitoring data for each year had indicator bacteria levels worse than national recommended standards for designated beach areas—a figure well above the national average.

Table GL-1: Great Lakes beaches with frequent exceedances of the national standard

State	County	Beach	Tier	Monitoring Frequency	Total Samples	Percent Exceedance Rate
MN	St Louis	Park Point 20th Street / Hearding Island Canal Beach	1	2/wk	63	63%
IL	Cook	Winnetka Elder Park Beach	1	Daily	82	54%
MI	Macomb	St. Clair Shores Blossom Heath Beach	1	2/wk	120	53%
OH	Erie	Edson Creek	1	4/wk	52	52%
OH	Lorain	Lakeview Beach	1	Daily	95	51%
OH	Cuyahoga	Edgecliff Beach	2	1/wk	16	50%
OH	Cuyahoga	Villa Angela State Park	1	Daily	111	50%
WI	Douglas	Wisconsin Point Beach 2	3	1/wk	43	49%
IN	Lake	Jeorse Park Beach I	2	5/wk	65	48%
OH	Cuyahoga	Moss Point Beach	2	1/wk	19	47%
OH	Cuyahoga	Sims Beach	2	1/wk	19	47%
OH	Cuyahoga	Arcadia Beach	2	1/wk	18	44%

Great Lakes Beach Closings/Advisories and Pollution Sources

- During 2011, U.S. Great Lakes beaches had 3,410 days of closings and advisories, along with 4 extended (248 days total) and 3 permanent (334 days total) closings and advisories. Extended closings and advisories last more than 6 but not more than 13 consecutive weeks, and permanent closings and advisories last more than 13 consecutive weeks. Including extended days, the total comes to 3,658 beach closing and advisory days.
- The number of beach closing and advisory days decreased 9 percent from 3,766 days in 2010.
- The continued high level of closings/advisories is an indication that frequent monitoring continues to reveal serious water pollution at our nation's Great Lakes beaches.

Major reasons for beach closings and advisories in 2011 were as follows: (Note: Because of inconsistencies in monitoring and closing/advisory practices among states and the different levels of data submission over time, it is difficult to make comparisons between states or to assess trends on the basis of closing/ advisory data.)

- 91 percent (3,098 days) were based on monitoring that detected bacteria levels exceeding beachwater quality standards, compared with 84 percent (3,176 days) in 2010;
- 5 percent (174 days) were precautionary due to rainfall runoff, compared with 7 percent (276 days) in 2010;
- 3 percent (101 days) were due to other, unspecified causes, compared with 3 percent (106 days) in 2010;
- 2 percent (6 days) were issued in response to known pollution events, such as sewage treatment plant failure or breaks in sewage pipes, compared with 4 percent (135 days) in 2010; and
- 1 percent (34 days) were preemptive due to real-time computer modeling that used readily measurable physical parameters such as wind speed and wave height to predict indicator bacterial levels, compared with 1 percent (33 days) in 2010.

Major pollution sources listed as responsible for 2011 beach closings and advisories included the following:

- Unknown sources of pollution caused 2,724 closing/advisory days (80 percent of the year's total), compared with 3,143 days (83 percent) in 2010;
- polluted runoff and stormwater caused or contributed to 528 closing/advisory days (15 percent of the year's total), compared with 351 days (9 percent) in 2010;
- sewage spills and overflows caused or contributed to 93 closing/advisory days (3 percent of the year's total), compared with 64 days (2 percent) in 2010; and
- elevated bacteria levels from miscellaneous sources (wildlife, boat discharges, etc.) accounted for 60 closing/advisory days (2 percent of the year's total), compared with 208 days (6 percent) in 2010.

Bacterial Standards

Seven of the eight Great Lakes states use the national recommended single-sample standard for designated beach areas to inform beach closing/advisory decisions. This standard is 235 cfu/100 ml of *E. coli*. Michigan's single-sample standard is 300 cfu/100 ml of *E. coli*.

Minnesota applies the national recommended geometric mean standard of 126 cfu/100 ml, and Michigan applies a geometric mean standard of 130 cfu/100 ml. Pennsylvania applies the national recommended geometric mean standard of 126 cfu/100 ml to swimming restrictions only, while Wisconsin may use the same standard to make closing/advisory decisions at high-priority beaches. Illinois, Indiana, and Ohio do not apply the geometric mean standard when making closing and advisory decisions. In New York, local beach authorities decide whether to apply the geometric mean when making closing and advisory decisions.

Economic Impacts

If the Great Lakes St. Lawrence River region (including the U.S. and Canada) were its own country, it would be the fourth-largest economy in the world.³² More than 1.5 million jobs in the U.S. are directly tied to the Great Lakes, with 200,000 jobs supported by recreation and tourism. Accordingly, the damage inflicted on the Great Lakes has not only severe environmental and human health impacts, but wide-reaching economic effects as well. Zebra and quagga mussels impact power plants, municipal water supplies, and other industries by clogging water intake pipes. Coastal communities and businesses that depend on native fish populations have also been hit hard by the rise in invasive species. In 2009 alone, chinook salmon fisheries brought more than \$32 million into Great Lakes communities. However, the Michigan Department of Natural Resources estimates that 10 ports in Michigan have lost more than \$19 million in economic activity since 2004 because of drops in the chinook salmon population due to invasive species.³³

Economic costs aren't limited to fishing, power plants, and municipal water supplies. While boating and spending days at the beach may sound like only fun and games, they have a significant impact on the economy of the region. In 2003, spending on boats and boating activities in the Great Lakes states totaled nearly \$16 billion and directly supported 107,000 jobs.³⁴ If the threats of failing infrastructure, invasive species, and algal blooms continue unaddressed, there will be severe repercussions for local economies. Closing all the beach sites on Lake Michigan could cause a loss as high as \$2.7 billion.³⁵ According to a 2006 study, the estimated loss in societal benefits because of invasive species alone may be a staggering \$200 million per year.³⁶

Recommendations for Great Lakes Communities

- Invasive species are a serious threat to the health of the Great Lakes. The most common pathway by which invasive species are introduced to the Great Lakes is the ballast water used to stabilize large commercial vessels. In 2012, after more than a decade of debate, the Coast Guard established the nation's first ballast water discharge standards, meant to prevent invasive species from slipping into American waters. Unfortunately, the standard is flawed. It is based on International Maritime Organization standards, which are not strict enough to ensure that invasive species are not introduced or spread throughout the nation's waters. It gives ships until 2021 to put ballast water controls in place, and it fails to articulate a more protective standard to drive the development of better treatment methods and technologies. Fortunately, the U.S. Environmental Protection Agency and the states still have an opportunity to put stronger standards in place under the Clean Water Act. EPA and the states should establish standards strong enough to fully protect our waters by preventing invasive species from being established in the first place.
- While ballast water is the most common source of invasive species, it is far from the only one. The imminent invasion of Asian carp, moving from the Mississippi River through the Chicago River system and into Lake Michigan, continues to require swift and coordinated action from an array of engaged authorities. The introduction of carp into the Great Lakes could exacerbate the damage already under way by further clarifying the water and eliminating native species, both of which allow proliferation of algae and organisms dangerous to human health. This is why NRDC continues to advocate for a physical separation of the Great Lakes Basin and Mississippi River system in the Chicago-area waterways that connect the two great ecosystems. It has become clear that the Army Corps of Engineers is incapable of developing solutions with the urgency needed to address this threat. The Senate's Stop Invasive Species Act of 2012, cosponsored by senators from across the Basin, with a companion House bill, will help to jump-start the development of real long-term solutions to the invasive species crisis.
- In 2008, the Great Lakes-St. Lawrence River Basin Water Resources Compact was signed into law, requiring the eight Great Lakes states, along with Ontario and Quebec through a companion agreement, to prevent the diversion of Great Lakes and St. Lawrence waters outside of the Basin, and to manage the withdrawal and use of water within the Basin efficiently. States must fully implement all provisions of the Compact by December 2013. Among other things, the Compact requires states to consider opportunities to integrate green infrastructure solutions into long-term planning. States must ensure they implement all of the key provisions of the Compact, including its recognition of the importance of tributary health to the health of the Great Lakes themselves.
- Full funding of Great Lakes restoration and collaboration initiatives will allow the EPA to continue to support research and habitat restoration in the region to help stem the impacts of invasive species and improve beach and lake water quality through support for beach monitoring, CSO improvements, and green infrastructure. In 2012, President Obama pledged to extend funding for the Great Lakes Restoration Initiative, an interagency program established in 2010 to improve the health and quality of the Great Lakes by providing grants to conservation groups in the region.³⁷
- Residents throughout the Great Lakes region have a critical role to play: adding water efficiency and green infrastructure features to their homes and workplaces. Rain gardens and rain barrels capture water where it falls, reducing the amount of flow to sewer systems. Planting trees and native plants, participating in beach cleanups, and practicing simple water conservation techniques—such as turning off the water while brushing one's teeth—all have significant impacts on the local water footprint and help avoid polluting our lakes and beaches.

Endnotes

- 1 Hinderer, Julie M., and Michael W. Murray, "Feast and Famine in the Great Lakes: How Nutrients and Invasive Species Interact to Overwhelm the Coasts and Starve Offshore Waters," National Wildlife Federation, 2011, www.nwf.org/~media/PDFs/Regional/Great-Lakes/GreatLakes-Feast-and-Famine-Nutrient-Report.ashx.
- 2 Great Lakes Commission, "The Federal Wastewater Infrastructure Deficit in the Great Lakes Region," 2010, www.glc.org/announce/10/pdf/CitiesInvest-20100212-Final.pdf.
- 3 Great Lakes Commission, op. cit.
- 4 Stephen Saunders et al (May 2012). "Doubled Trouble: More Midwestern Extreme Storms," Rocky Mountain Climate Organization and Natural Resources Defense Council, <http://rockymountainclimate.org/images/Doubled%20Trouble.pdf>.
- 5 Saunders et al, p. i.
- 6 Patz, Jonathan A., "Climate Change and Waterborne Disease Risk in the Great Lakes Region of the U.S." *American Journal of Preventative Medicine*: 35 (5), 2008, www.sage.wisc.edu/pubs/articles/M-Z/patz/patzetalAJPM08.pdf.
- 7 American Society of Civil Engineers, "Wastewater," Report Card for America's Infrastructure, 2009, www.infrastructurereportcard.org/fact-sheet/wastewater.
- 8 Great Lakes Commission, op. cit.
- 9 "Gary Sanitary District Dumped Billions of Gallons of Sewage," CBS Chicago, January 31, 2011, chicago.cbslocal.com/2011/01/31/gary-sanitary-district-dumped-billions-of-gallons-of-sewage/.
- 10 Lydersen, Kari, "MWRD Votes to Disinfect Chicago River Sewage," Chicago News Cooperative, June 7, 2011, www.chicagonewcoop.org/chicago-river-sewage-will-be-disinfected-after-landmark-vote/.
- 11 U.S. Environmental Protection Agency, "The Great Lakes," The Great Waters Program, 2011, www.epa.gov/oaqps001/gr8water/xbrochure/lakes.html.
- 12 Stern, Andrew, "Great Lakes Face Stresses from Run-Off Invaders," Reuters, October 4, 2011, www.reuters.com/article/2011/10/04/us-greatlakes-idUSTRE7937CY20111004.
- 13 Yeoman, Barry, "Lake Erie Deathwatch," *OnEarth*, August 31, 2011, www.onearth.org/article/lake-erie-death-watch.
- 14 "Turning the Tide: Investing in Wastewater Infrastructure to Create Jobs and Solve the Sewage Crisis in the Great Lakes," Healing Our Waters—Great Lakes Coalition, 2010, healthylakes.org/wp-content/uploads/2010/08/08-02-2010HOWSewageReportFINAL.pdf.
- 15 Kleinheinz, Gregory, et al., "Effects of Rainfall on E. coli Concentrations at Door County, Wisconsin Beaches," *International Journal of Microbiology*, Vol. 9, 2009.
- 16 U.S. EPA, Office of Water, "Beaches Environmental Assessment and Coastal Health Act of 2000," BEACH Act, 2000, water.epa.gov/lawsregs/lawsguidance/beachrules/act.cfm.
- 17 Fleischli, Steve, "EPA Proposal Allows 1 in 28 People to Get Sick at U.S. Beaches," NRDC Switchboard, January 30, 2012, switchboard.nrdc.org/blogs/sfleischli/epa_proposal_allows_1_in_28_pe.html.
- 18 U.S. EPA, Office of Water, "Bacterial Water Quality Standards for Recreational Waters (Freshwater and Marine Waters) Status Report," EPA-823-R-03-008, 2003, water.epa.gov/type/oceb/beaches/upload/2003_06_19_beaches_local_statrept.pdf.
- 19 Cmar, Thom, "NRDC Taking Legal Steps to Protect the Great Lakes from Toxic Algal Blooms," NRDC Switchboard, March 14, 2012, switchboard.nrdc.org/blogs/tcmar/nrdc_taking_legal_steps_to_pro.html.
- 20 Pollick, Steve, "Keep an Eye on Canine Pals Around Lake," *Toledo Blade*, October 9, 2010, www.toledoblade.com/StevePollick/2010/10/10/Keep-an-eye-on-canine-pals-around-lake.html.
- 21 Hunt, Spencer, "Algae May Be Killing Pets," *The Columbus Dispatch*, August 2, 2010, www.dispatch.com/content/stories/local/2010/07/30/algae-may-be-killing-pets.html.
- 22 Erdner, Deana L., et al., "Centers for Ocean and Human Health: A Unified Approach to the Challenge of Harmful Algal Blooms," *Environmental Health*, 7 (Suppl 2):S2, 2008, www.ehjournal.net/content/7/S2/S2.
- 23 Magnien, Robert, "Harmful Algal Blooms and Hypoxia in the Great Lakes Region," National Centers for Coastal Ocean Science, 2009, www.cop.noaa.gov/stressors/extremeevents/hab/habhrca/GL_fact_09.pdf.
- 24 Saunders, Stephen, et al., "Great Lakes National Parks in Peril: The Threats of Climate Disruption," Rocky Mountain Climate Organization and Natural Resources Defense Council, July 2011, rockymountainclimate.org/images/GreatLakesParksInPeril.pdf.
- 25 National Oceanic and Atmospheric Administration, "U.S. Temperatures for April Third Warmest on Record," April 2012, www.ncdc.noaa.gov/sotc/summary-info/national/2012/4.

- 26 Bienkowski, Brian, "Using Spring Temperatures to Predict Summer Slime," Great Lakes Echo, May 1, 2012, greatlakesecho.org/2012/05/01/using-spring-temperatures-to-predict-summer-slime/.
- 27 U.S. Geological Survey, Great Lakes Science Center, "Algal (Cladophora) Mats Harbor High Concentrations of Indicator Bacteria and Pathogens," GLSC Fact Sheet 2009-1, greatlakesbeaches.usgs.gov/publications/2009-1%20Cladophora.pdf.
- 28 Pelley, Janet, "Musseling Out Algae," *Chemical & Engineering News*, March 30, 2011.
- 29 Hinderer and Murray, op. cit.
- 30 Heuvel, Amy V., et al., "The Green Alga, *Cladophora*, Promotes *Escherichia coli* Growth and Contamination of Recreational Waters in Lake Michigan," *Journal of Environmental Quality*, Vol. 39, No. 1, 2009, p. 333-344, www.agronomy.org/publications/jeq/articles/39/1/333.
- 31 Anderson Economic Group LLC, "The Costs of Aquatic Invasive Species to Great Lakes States," The Nature Conservancy, 2012, www.nature.org/ourinitiatives/regions/northamerica/areas/greatlakes/ais-economic-report.pdf.
- 32 World Business Chicago, "Great Lakes and St. Lawrence Region," 2011, [www.worldbusinesschicago.com/files/data/GLSL_Economy_Update_2011%20\(2009%20data\)_1.pdf](http://www.worldbusinesschicago.com/files/data/GLSL_Economy_Update_2011%20(2009%20data)_1.pdf).
- 33 Hinderer and Murray, op. cit.
- 34 Great Lakes Commission, "Great Lakes Recreational Boating's Economic Punch," www.glc.org/recboat/pdf/rec-boating-final-small.pdf.
- 35 Song, Feng, Frank Lupi, and Michael Kaplowitz, "Valuing Great Lakes Beaches," prepared for presentation at the Agricultural and Applied Economics Association Joint Annual Meeting, July 2010, ageconsearch.umn.edu/bitstream/61791/2/BeachPaper-Submit-10May5.pdf.
- 36 Lodge, David, and David Finnoff, "Annual Losses to Great Lakes Region by Ship-borne Invasive Species at Least \$200 Million," Great Lakes United, 2006, www.glu.org/en/system/files/lodge_factsheet.pdf.
- 37 Great Lakes Restoration, glri.us/.

Taking Action to Protect Swimmers From Beach Pollution

To improve beachwater quality nationwide, our leaders need to adopt policies that clean up the sources of beach pollution. There are numerous things that federal, state, and local officials can do to rein in the sources of beach contamination and to improve beachwater monitoring and public information. For example, the federal government can and should increase its contribution to the Clean Water State Revolving Fund, which provides critical assistance for projects that repair and rebuild failing water and wastewater infrastructure. However, there are two national actions that the Environmental Protection Agency (EPA) is undertaking that would have the most significant impact on efforts to make beaches cleaner and safer for swimming.

EPA is working on a pair of initiatives—one establishing recommended standards for beach officials to use to keep people from being exposed to unsafe levels of disease-causing bacteria and viruses, and one that will curb a principal source of contaminants flowing to the nation's waters and polluting our beaches. The agency will finalize its recreational water safety standards in October and will propose revisions to the national requirements for sources of polluted runoff in the next year.

IMPROVING PUBLIC HEALTH PROTECTIONS THROUGH RECREATIONAL WATER QUALITY CRITERIA

EPA is the government agency responsible for ensuring that recreational waters are safe. Unfortunately, it is proposing new allowable bacteria levels—called “criteria” in the Clean Water Act—in recreational waters that miss a critical opportunity to better protect the public from the dangers of swimming in polluted water. In fact, in some respects the draft criteria are even less protective than the 25-year-old guidelines they would replace. Sound science and good public policy demand better recreational water quality criteria than what EPA is proposing to finalize before October 15, 2012.

Risk of Swimming in Polluted Waters

Illnesses associated with swimming or otherwise recreating in polluted water include conditions such as gastrointestinal upset, skin rashes, conjunctivitis, upper respiratory tract infections, meningitis, and hepatitis. Children are especially vulnerable, in part because they tend to submerge their heads more often than adults and are more likely to swallow water in large volumes when swimming. The most common health complaint is gastrointestinal illness, which typically involves symptoms such as vomiting, fever, stomach pain and diarrhea.

Recreational water quality criteria to protect public health have not been updated since 1986. In 2000, Congress approved the Beaches Environmental Assessment and Coastal Health Act (BEACH Act), requiring EPA to modernize standards for water quality that would protect beach users from illnesses caused by pathogens, such as viruses and bacteria.¹ The criteria are to be based on, among other things, the results of recent public health studies required by the BEACH Act.² The revisions offer an important opportunity to improve beachwater quality and to ensure public health protection after more than two decades. They may not be revisited again until years from now, so it is extremely important for EPA to develop standards that are protective of public health on a national level.

EPA released its proposed criteria in December 2011. Some aspects of EPA's proposed criteria, such as recommending criteria for all recreational waterways (not just the most popular beaches), are steps in the right direction. However, most provisions are not sufficiently protective of public health. For example, the proposed criteria:

Pose unacceptable health risks: The EPA has determined that a gastrointestinal illness risk rate of 3.6 percent is acceptable. In other words, EPA believes it is acceptable for 1 in 28 swimmers to become ill with gastroenteritis from swimming in water that just meets the EPA's proposed water quality criteria. This risk is unacceptably high and is not protective of public health. Additionally, EPA does not adequately consider the risks of other health effects, such as rashes and ear, eye, and sinus infections, all of which are commonly contracted by swimmers at U.S. beaches.

Fail to include the latest science: EPA has not based the draft criteria on the most recent and best available science. Numerous high-quality studies, including some conducted at Santa Monica Bay beaches and Doheny Beach in Southern California,³ have not been used to help develop the new beach criteria.

RECOMMENDATIONS

In order to properly protect public health while utilizing the best available science, EPA must make the following modifications prior to issuance of its final criteria:

- 1. Adequately protect public health.** EPA should revise the level of acceptable risk so that it is protective of public health. A health risk of 1 in 28 is not protective. EPA is asking the wrong question in concluding that 1 in 28 is acceptable. The question is not whether the 1986 standards (and their associated risk of 1 in 28) are still justified—which is what EPA has tried to answer in developing the new criteria—but rather what level of contamination is protective of public health. To answer this question, the latest and best scientific evidence must be utilized to determine appropriate water contamination “cut points,” above which the public is subject to unacceptable additional health risks on the order of 1 in 100 instead of 1 in 28. The criteria also must adequately address non-gastrointestinal illnesses, such as rash and ear infections.
- 2. Address significant pollution sources.** When health-based levels of pollution are exceeded, beaches are to be posted or closed to protect the public. However, EPA's draft criteria would allow polluters who may be causing contamination to avoid taking action unless more than 25 percent of the samples taken contain bacteria over acceptable limits. This means beaches could be polluted on 1 out of every 4 days sampled without any meaningful deterrent or cleanup. Instead, EPA should ensure that polluters take action to reduce beach pollution whenever the health-based levels that trigger beach posting or closure are exceeded.
- 3. Use better averaging.** In addition to using evidence of single-sample pollution exceedances to protect the public, most coastal and Great Lakes states consider a 30-day geometric mean (or weighted average) when determining whether to post or close a polluted beach. However, EPA proposes allowing the use of a seasonal geometric mean of up to 90 days. This 90-day averaging period might fail to reveal and address short-term pollution problems, thereby putting people's health at risk. People rarely swim on an exactly average day, and pollution spikes can occur because of sewage spills or contaminated runoff after a rainstorm. A more protective approach would be a shorter, 30-day-rolling geometric mean, which would identify pollution problems on a timelier basis and would be more likely to result in cleanup.
- 4. Require rapid testing methods.** Rapid test methods provide timely public notification of water quality conditions to beachgoers. The quicker the test results, the better the protection. The BEACH Act requires EPA to analyze rapid test methods that could reduce the time delay in obtaining information about polluted beaches from the current 18 to 24 hours to fewer than 4 hours, thus providing increased public health protection. The EPA's proposal does not recommend

that rapid methods be used by themselves; this means that duplicate, slower methods would also be required where rapid methods are used. The draft criteria also do not provide incentives for states to move forward with rapid methods, nor do the criteria push states to implement rapid methods by a certain date—even for the most contaminated and heavily used beaches in the country. Health-based rapid method criteria using the latest epidemiology data should be developed and required for use at popular beaches by 2015.

5. Make protections uniform. The same standards should apply no matter where in the country one swims or what the local source of pollution is. Nonetheless, EPA's proposal allows for site-specific criteria to be developed based on local studies of nonhuman sources of bacteria and the relative health risks to humans from those non-human sources. To help ensure proper use of these studies, EPA should include uniform procedures and implementation guidelines for states interested in pursuing this approach. Moreover, eligibility for modification of criteria based on such studies must be clearly articulated and allowed only in limited circumstances, such as at remote beaches with no known human sources of fecal indicator bacteria or at beaches with infrequent use (e.g., less than 10,000 visitors per year). All urban beaches should be ineligible for modified criteria because these beaches receive pollution from a wide variety of complex and variable sources including sewage spills, combined sewer overflows (CSOs), populations without adequate available restrooms, and polluted runoff that contains animal waste, leaked sewage, food waste, and other pollutants. This makes studies focused on risks from nonhuman sources inherently unreliable in urban settings.

CLEAN UP URBAN AND SUBURBAN RUNOFF POLLUTION AND SEWAGE OVERFLOWS

In urban and suburban settings, rainwater picks up bacteria in pet and wildlife waste and garbage as it runs from roads, buildings, and other impervious surfaces into storm sewers that dump the contaminated water into nearby waters, usually without treatment. In 2011, polluted runoff and stormwater caused or contributed to 10,954 closing/advisory days at coastal and Great Lakes beaches, making it the largest known source of contamination. In addition, many cities around the country have combined sewer systems, meaning that sewage flushed from homes and businesses is carried by the same pipes that receive runoff when it rains. These systems—of which there are more than 700 nationwide—were constructed many decades ago and were designed to allow the mix of raw sewage and runoff to overflow into surface waters at times of heavy rainfall. Sewage overflows are important contributors of human waste to our waters, and therefore to contamination at our beaches.

Often, the best way of avoiding runoff-related pollution and sewage overflows is to reduce the volume of stormwater going to the sewer systems that carry it to nearby water bodies. This can be done effectively using solutions that act to restore natural hydrologic conditions by increasing the amount of permeable, usually vegetated areas. These techniques are collectively known as green infrastructure.

Green infrastructure technologies retain and filter rainwater where it falls, letting it soak back into the ground rather than directing it into waterways. These approaches reduce pollutant flows and minimize the need for often more expensive traditional treatment by utilizing strategically placed rain gardens in yards, tree boxes along city sidewalks, green roofs that use absorbent vegetation on top of buildings, and permeable pavement. Green infrastructure also involves capturing and storing stormwater in rain barrels or cisterns and reusing it, most often for irrigation or other non-potable uses. Many green infrastructure strategies have the added benefits of augmenting the water supply, providing wildlife habitat, minimizing greenhouse gas generation, and enhancing community aesthetics and value.

Because green infrastructure addresses the cause of many pollution problems in urban and suburban areas and because of the multiple benefits it provides, community leaders and decision makers in Washington, D.C., have shown increasing interest in policies that promote it. As a result, there are several opportunities today to greatly improve how the nation handles runoff pollution and, consequently, to improve water quality at America's beaches and in waterways around the country.

REFORM NATIONAL CLEAN WATER REQUIREMENTS FOR STORMWATER SOURCES

Existing EPA regulations for sources of runoff pollution, designed more than 20 years ago, have not been implemented in a particularly rigorous way. Historically, the permitting process for stormwater systems has done a poor job of ensuring that discharges from those systems will not contribute to degraded water quality. In particular, municipal sewer systems and private developers frequently have not been required to meet quantitative limits on stormwater runoff volumes and associated pollution levels from sites undergoing development or redevelopment, and they have rarely been required to retrofit developed sites to reduce runoff pollution. Moreover, current requirements typically do not apply to rapidly developing areas outside of existing cities.

In view of these deficiencies, the EPA has initiated an effort to reform the minimum requirements applicable to urban and suburban runoff sources. This is a once-in-a-generation opportunity to improve the requirements that govern how stormwater sources are controlled to protect water quality. In response to litigation filed by NRDC and the Waterkeeper Alliance several years ago over EPA's failure to update its standards for pollution from construction and development activities, the agency is now working to update the requirements that apply to long-term runoff from developed sites. A proposed rule is expected in the coming year.

To adequately address water quality concerns posed by runoff pollution, the EPA's new rules must adopt objective performance requirements for control of runoff volume from new development and redeveloped sites, which will create strong incentives for the deployment of green infrastructure approaches. What might such a standard look like? The Energy Independence and Security Act of 2007 requires development and redevelopment projects "involving a Federal facility with a footprint that exceeds 5,000 square feet" to ensure that the property will "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow."⁴ EPA subsequently issued technical guidance to explain what "predevelopment hydrology" means in this context, and concluded that "retaining all storms up to and including the 95th percentile storm event is analogous to maintaining or restoring the predevelopment hydrology with respect to the volume, flow rate, duration, and temperature of the runoff for most sites."⁵ EPA should similarly require new development and redevelopment activities to achieve a very high degree of runoff retention, such that any affected site makes only minimal contributions to the water quality problems caused by stormwater.

In addition, the revised EPA rules should require retrofits in existing developed areas and as part of infrastructure reconstruction projects. Impervious areas that exist right now are responsible for major water quality problems already; in 2010, EPA estimated that urban stormwater nationwide "is the primary source of water quality impairment [for] 13% of all rivers and streams[,] 18% of all lakes [and] 32% of all estuaries."⁶ Accordingly, EPA's regulatory reforms must ensure that existing impervious areas stop contributing to water degradation by redesigning sites to retain runoff and thereby minimize their pollution.

Finally, the agency needs to ensure that significant runoff sources are covered wherever they are located. Rather than restricting pollution controls to urban areas, EPA's rules should require impervious sites that are important contributors to water quality problems, such as parking lots, to be designed and constructed in a way that prevents runoff from flowing off site and causing problems for nearby waterways. In addition, within municipalities, the EPA's new rules can and should address new development and redevelopment in both combined sewer and separately sewered areas. By requiring owners of sites that create runoff pollution to be responsible for curbing it, EPA's rules would ease the compliance obligations of municipalities that today are forced to deal with the consequences of increased urban runoff.

IMPROVE ENFORCEMENT OF AUTHORITY UNDER CURRENT LAW TO CONTROL POLLUTED RUNOFF

Even before the EPA reforms its rules, the agency and state pollution control officials should use their authority under current law to ensure that communities implement strong green infrastructure based plans that achieve critical quality goals for receiving waters. For instance, communities developing long-term control plans for CSOs increasingly rely on enforceable commitments to install green infrastructure as a major component of reducing overflows. NRDC strongly encourages this approach. In 2011, the Philadelphia Water Department and state environmental officials signed an ambitious agreement that commits the city to deploy, over 25 years, the most comprehensive network of green infrastructure found in any U.S. city; key performance metrics will also be incorporated into the city's Clean Water Act permits.⁷ Cleveland, Cincinnati, Kansas City, Missouri, and other cities have similar requirements, which are focused initially on near-term investments in green infrastructure, with opportunities to substitute more green in lieu of planned gray infrastructure in future years. These initiatives reflect the fact that the Clean Water Act's standards for reducing CSOs clearly require practicable steps like green infrastructure, and EPA should ensure that all future CSO permits and orders incorporate green infrastructure as part of an integrated approach; the same should apply to sanitary sewer overflows, wherever excessive inflow and infiltration are major contributors to overflows.

Likewise, because green infrastructure will commonly be a cost-effective strategy for reducing pollution from separate stormwater systems, EPA and its state counterparts should develop Clean Water Act permits for these systems that promote green infrastructure by requiring on-site retention of stormwater. These permits should also require green infrastructure directly, in the form of mandates to install specific practices throughout the service area. For example, under an EPA permit issued in October 2011, many development projects in the nation's capital will soon be subject to a strong retention standard. The Washington, D.C., MS4 permit requires that the first 1.2 inches of rainfall be retained on-site at all new development and redevelopment sites that disturb an area greater than 5,000 square feet.⁸ The permit also specifies that the District must install at least 350,000 square feet of green roofs on city properties and plant 4,150 or more trees per year.⁹

ENSURE THAT LONG-TERM PUBLIC AND PRIVATE FINANCING IS AVAILABLE FOR STORMWATER INFRASTRUCTURE IMPROVEMENTS

Congress should help states and local communities make the necessary investment in stormwater infrastructure by substantially increasing the federal resources available to meet clean water needs. Congress should increase its annual contribution to the Clean Water State Revolving Fund (SRF), which provides critical assistance for projects that repair and rebuild failing water and wastewater infrastructure but has been a target for cuts during recent federal budget debates. It should also address this issue for the long-term, through the creation of a trust fund or other dedicated source of clean water funding.

Cities and states must also do their part to ensure that adequate funding exists to support local stormwater management programs. States, which administer federal monies under the SRF, should ensure that no eligibility hurdles remain for municipalities to implement a range of green infrastructure projects with SRF funds. States can also establish their own dedicated sources of funding to support environmental improvements like green infrastructure. Moreover, states should ensure that cities are authorized to establish financing structures (such as stormwater utilities) that can both generate public revenues and stimulate private investment. Cities should use such authority—as hundreds already do—to charge private properties a stormwater fee based on the amount of impervious surface area on the property, with the proceeds applied toward the capital and operating expenses associated with publicly owned stormwater infrastructure. These fee systems often include a credit or discount component whereby customers pay smaller fees if they install qualifying green infrastructure practices on their properties that reduce runoff into the public storm sewer system. Particularly when coupled with innovative financing methods that have been used to spur investment in energy efficiency, such fee-and-credit systems can lure billions of dollars in private investment nationwide, which can offset a portion of the costs otherwise borne by public agencies.¹⁰

Notes

- 1 33 U.S.C. § 1314(a)(9).
- 2 33 U.S.C. § 1254(v).
- 3 See, e.g., Colford, J.M. Jr., K.C. Schiff, J.F. Griffith, V. Yau, B.F. Arnold, C.C. Wright, J.S. Gruber, T.J. Wade, S. Burns, J. Hayes, C. McGee, M. Gold, Y. Cao, R.T. Noble, R. Haugland, and S.B. Weisberg, "Using Rapid Indicators for Enterococcus to Assess the Risk of Illness After Exposure to Urban Runoff Contaminated Marine Water," *Water Res.* 2012 May 1;46(7):2176-86.
- 4 Energy Independence and Security Act of 2007, Pub. L. 110-140, sec. 438 (December 19, 2007).
- 5 U.S. Environmental Protection Agency (EPA), "Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects Under Section 438 of the Energy Independence and Security Act," at 12 (December 2009).
- 6 U.S. EPA, Office of Water, "Stormwater Rulemaking: Listening Sessions" web presentation (February 2010), available at www.epa.gov/npdes/outreach_files/webcast/feb020310/187267/final_sw_rulemaking.pdf.
- 7 Levine, Larry (2011). "Philadelphia Gains Approval of Landmark Green Infrastructure Plan, a Model for Smart Water Practices Nationwide," Switchboard: Natural Resources Defense Council (NRDC) Staff Blog, accessed at http://switchboard.nrdc.org/blogs/llevine/philadelphia_gains_state_appro.html.
- 8 See Draft Fact Sheet, National Pollutant Discharge Elimination System (NPDES), Municipal Separate Storm Sewer System (MS4) Draft Permit No. DC0000221, accessed at http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/DCMS4DraftFactSheet_04-19-10.pdf.
- 9 U.S. EPA Region III (2011), "EPA Approves New Performance Standards for D.C. Stormwater," accessed at <http://yosemite.epa.gov/opa/admpress.nsf/90829d899627a1d98525735900400c2b/ac714e4db1dd491c8525792000617a95!OpenDocument>.
- 10 NRDC, "Financing Stormwater Retrofits in Philadelphia and Beyond" (February 2012), www.nrdc.org/water/stormwater-financing.asp.

State-by-State Results

How to Understand the State Summaries: Beachwater Quality Monitoring Programs

Program elements

The BEACH Act authorizes the EPA to award grants to states for implementing programs to monitor coastal recreational waters adjacent to beaches used by the public for compliance with the standards for pathogen indicators. Grant funds are also used to notify the public promptly of any exceedances through posting or equivalent means. The allocations for Fiscal Years 2011 and 2012 are included in Table 4-1.

Many states and localities supplement their Beach Act funding so that they can achieve the objectives of their beachwater monitoring programs.

Testing the Waters: Alabama

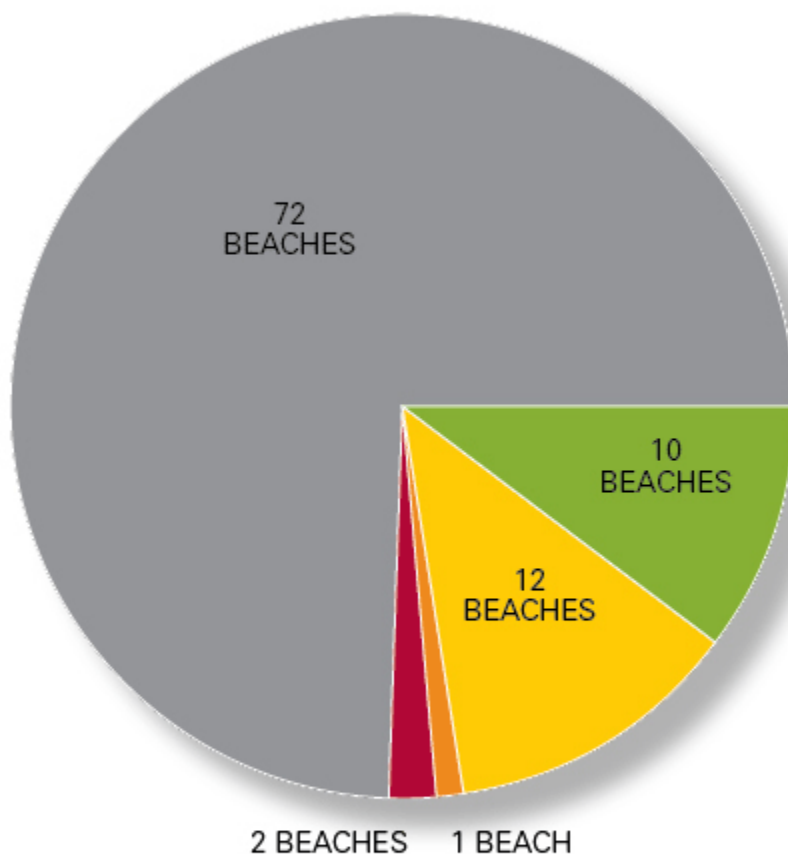
Ranked 13th in Beachwater Quality (out of 30 states)

6% of samples exceeded national standards for designated beach areas in 2011

In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Alabama

Alabama 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of advisory days)

- 25 (100%) unknown contamination sources

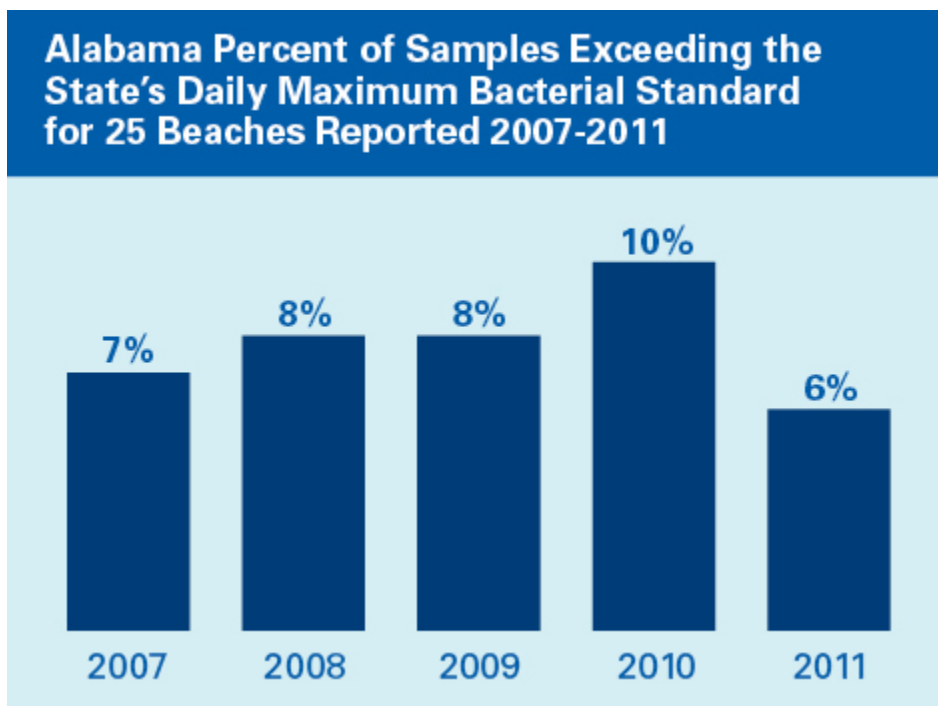
Alabama has 97 coastal beaches stretching along 50 miles of the Gulf of Mexico coast and 70 miles of bay and island shoreline. The Alabama Department of Environmental Management (ADEM) administers the state's beachwater quality monitoring program.

BP Oil Disaster Continued to Impact Alabama's Beaches in 2011

Alabama's beaches were impacted by the BP oil disaster of 2010. Although all oil spill advisories were lifted by the end of July 2010, Shoreline Contamination Assessment Teams continued to conduct cleanup activities on a daily basis, and warning signs were posted at all of Alabama's Gulf Coast beaches throughout 2011 and into 2012 because of the occasional presence of tar mats and tar balls from the spill.

What Does Beachwater Monitoring Show?

In 2011, Alabama reported 97 coastal beaches. Of these, 8 (8%) were assigned a monitoring frequency of more than once a week, 12 (12%) once a week, 5 (5%) every other week, and 72 (74%) were not assigned a monitoring frequency. In 2011, 6% of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Fairhope Public Beach in Baldwin County (25%), Dog River, Alba Club in Mobile County (23%), and Mary Ann Nelson Beach (18%) in Baldwin County. Beaches in Mobile County had the highest exceedance rate of the state standard in 2011 (8%), followed by Baldwin County (6%). NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Alabama's Sampling Practices?

Monitoring is conducted throughout the year, with more frequent monitoring from May to September.

ADEM, along with the Alabama Department of Public Health and U.S. EPA, determines sampling practices, locations, standards, and notification protocols and practices throughout the state. Samples are collected 6 to 12 inches below the surface, usually in knee-deep water. Whether a beach gets monitored and how frequently it is monitored is determined using a quantitative ranking scheme that weighs three factors: the amount of use, the potential for contamination from nearby sources, and the presence of other important factors such as high use by the elderly or the very young.

Once an exceedance is reported, samples are collected daily until the standard is met.¹ States that monitor more frequently after an exceedance is found will tend to have higher percent exceedance rates and lower total advisory days than they would if their sampling schedule did not increase after an exceedance was found.

How Many Beach Advisories Were Issued in 2011?

Total advisory days for 12 events lasting six consecutive weeks or less decreased 87% to 25 days in 2011 from 195 days in 2010. However, there were 159 advisory days in 2010 that were issued because of the Gulf oil spill. If the spill-related beach advisories in 2010 were not counted, the decrease in advisory days in 2011 would be 31%. In prior years, there were 34 advisory days in 2009, 14 days in 2008, 30 days in 2007, 44 days in 2006, and 27 days in 2005. There were no extended or permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. All advisory days in 2011 were due to monitoring that revealed elevated bacteria levels.

How Does Alabama Determine When to Warn Visitors About Swimming?

Alabama does not issue beach closings; the state's policy is to issue advisories only.¹ An enterococcus single-sample maximum of 104 cfu/100ml is the standard used to issue beach advisories in Alabama. No geometric mean standard is applied when making advisory decisions.

Beaches are given green status when sampling results meet the standard. When sample results exceed the standard, the status changes to yellow. Yellow status indicates that there may be an increased risk of illness associated with swimming in such water, and that the beach is being immediately retested. When a sample exceeds the standard, there are no overriding factors that can be taken into account before converting to yellow status. If a resample, taken the next day, also exceeds the standard, a public health advisory (red status) is issued. Red status indicates that resampling revealed enterococcus levels greater than the threshold.

There are no standards that mandate preemptive advisories in response to rainfall or sewage spills, but full-scale advisories for all sites have been issued by the county and state health departments after hurricanes and during the 2010 BP oil disaster.²

Alabama 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Baldwin	5th Street Access	no data	none	0	n/a	0	N/A
Baldwin	6th Street Access	no data	none	0	n/a	0	N/A
Baldwin	7th Street Access	no	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
		data					
Baldwin	10th Street Access	no data	none	0	n/a	0	N/A
Baldwin	13th Street Access	no data	none	0	n/a	0	N/A
Baldwin	Alabama Point (Gulf of Mexico)	2	once a week	31	0%	0	N/A
Baldwin	Alabama Point (Perdido Pass)	no data	none	0	n/a	0	N/A
Baldwin	Anderson Street	no data	none	0	n/a	0	N/A
Baldwin	Barklay Ave.	no data	none	0	n/a	0	N/A
Baldwin	Battles Rd	no data	none	0	n/a	0	N/A
Baldwin	Bay Ave.	no data	none	0	n/a	0	N/A
Baldwin	Bay Front Park (Daphne)	no data	none	0	n/a	0	N/A
Baldwin	Bay Side Drive	no data	none	0	n/a	0	N/A
Baldwin	Bayou Drive	no data	none	0	n/a	0	N/A
Baldwin	Bear Point Civic Association	3	twice a month	18	0%	0	N/A
Baldwin	Belrose Ave. Daphne	no data	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Baldwin	Bernard Court	no data	none	0	n/a	0	N/A
Baldwin	Boggy Point	1	none	0	n/a	0	N/A
Baldwin	Bon Secour National Wildlife Refuge	3	twice a month	18	0%	0	N/A
Baldwin	Boykin Street Access	no data	none	0	n/a	0	N/A
Baldwin	Buchanan Street Access	no data	none	0	n/a	0	N/A
Baldwin	Cabana Beach Association	no data	none	0	n/a	0	N/A
Baldwin	Camp Baldwin	no data	none	0	n/a	0	N/A
Baldwin	Camp Beckwith	1	twice a week	66	9%	0	N/A
Baldwin	Camp Dixie	1	twice a week	55	2%	0	N/A
Baldwin	Cedar St.	no data	none	0	n/a	0	N/A
Baldwin	Cedar St. E	no data	none	0	n/a	0	N/A
Baldwin	Choctaw Road North	no data	none	0	n/a	0	N/A
Baldwin	Cotton Bayou	1	twice a week	55	2%	0	N/A
Baldwin	Cypress Ave.	no data	none	0	n/a	0	N/A
Baldwin	Escambia Avenue	3	twice a month	20	10%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Baldwin	Fairhope Public Beach	1	twice a week	69	25%	13	N/A
Baldwin	Fish Trap Access	no data	none	0	n/a	0	N/A
Baldwin	Florida Point	1	twice a week	54	0%	0	N/A
Baldwin	Fort Morgan National Park	no data	none	0	n/a	0	N/A
Baldwin	Fort Morgan Public Beach	3	twice a month	19	0%	0	N/A
Baldwin	Gore Road	no data	none	0	n/a	0	N/A
Baldwin	Gulf Coast Remainder	no data	none	0	n/a	0	N/A
Baldwin	Gulf Shores Public Beach	1	twice a week	53	0%	0	N/A
Baldwin	Gulf State Park - Pavilion	1	twice a week	54	0%	0	N/A
Baldwin	Haupt Road	no data	none	0	n/a	0	N/A
Baldwin	Holly Ave.	no data	none	0	n/a	0	N/A
Baldwin	Josaphine Park	no data	none	0	n/a	0	N/A
Baldwin	Kee Avenue	2	once a week	58	7%	2	N/A
Baldwin	KOA Campground	2	none	0	n/a	0	N/A
Baldwin	Lafite Road	no data	none	0	n/a	0	N/A
Baldwin	Laine Court Park	no data	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Baldwin	Little Lagoon Pass Beach	2	once a week	30	0%	0	N/A
Baldwin	Live Oak	no data	none	0	n/a	0	N/A
Baldwin	Marjon Lane	no data	none	0	n/a	0	N/A
Baldwin	Mary Ann Nelson Beach	3	twice a month	22	18%	1	N/A
Baldwin	May Day Park	2	once a week	40	8%	0	N/A
Baldwin	Mcdonald Ave.	no data	none	0	n/a	0	N/A
Baldwin	Mobile Ave.	no data	none	0	n/a	0	N/A
Baldwin	Montgomery Ave.	no data	none	0	n/a	0	N/A
Baldwin	Morgantown Park	no data	none	0	n/a	0	N/A
Baldwin	Mullet Dr.	no data	none	0	n/a	0	N/A
Baldwin	Murphy Lane	no data	none	0	n/a	0	N/A
Baldwin	N. Mobile St/Perdido Ave.	no data	none	0	n/a	0	N/A
Baldwin	Navy Cove	no data	none	0	n/a	0	N/A
Baldwin	North Road	no data	none	0	n/a	0	N/A
Baldwin	Oak St. #91	no	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
		data					
Baldwin	Orange Beach Waterfront Park	2	once a week	35	6%	0	N/A
Baldwin	Orange Street Pier/Beach	2	once a week	36	8%	1	N/A
Baldwin	Our Road	no data	none	0	n/a	0	N/A
Baldwin	Palmetto Ave.	no data	none	0	n/a	0	N/A
Baldwin	Pellican Pt.	no data	none	0	n/a	0	N/A
Baldwin	Pensacola Ave.	no data	none	0	n/a	0	N/A
Baldwin	Perdido Bay Rec. Beach	no data	none	0	n/a	0	N/A
Baldwin	Pinewood Ave.	no data	none	0	n/a	0	N/A
Baldwin	Pirate's Cove	1	twice a week	57	4%	0	N/A
Baldwin	Ponce De Leon Annex	no data	none	0	n/a	0	N/A
Baldwin	Ponce De Leon Court Lot 35	no data	none	0	n/a	0	N/A
Baldwin	Ponce De Leon Court Lot 50	no data	none	0	n/a	0	N/A
Baldwin	Ponce De Leon Court Lot 51	no data	none	0	n/a	0	N/A
Baldwin	Ponce De Leon Dr Access East	no	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
		data					
Baldwin	Ponce De Leon Dr Public Access	no data	none	0	n/a	0	N/A
Baldwin	Randolf Rd.	no data	none	0	n/a	0	N/A
Baldwin	Rester St.	no data	none	0	n/a	0	N/A
Baldwin	Romar Beach	no data	none	0	n/a	0	N/A
Baldwin	Sea Cliff Dr.	no data	none	0	n/a	0	N/A
Baldwin	Seabright Ave.	no data	none	0	n/a	0	N/A
Baldwin	Sibley St/Steadmans Landing	no data	none	0	n/a	0	N/A
Baldwin	South Wilson Blvd	no data	none	0	n/a	0	N/A
Baldwin	Spanish Cove	2	once a week	33	9%	1	N/A
Baldwin	Sunset Dr.	no data	none	0	n/a	0	N/A
Baldwin	Village Pt. Foundation	no data	none	0	n/a	0	N/A
Baldwin	Volanta Avenue	2	once a week	32	0%	0	N/A
Baldwin	Wolf Bay Lodge	no data	none	0	n/a	0	N/A
Baldwin	Wydell St.	no	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
		data					
Baldwin	Yupon Ave.	no data	none	0	n/a	0	N/A
Baldwin	Zundall Lane	no data	none	0	n/a	0	N/A
Mobile	Bay Front Park	no data	none	0	n/a	0	N/A
Mobile	Dauphin Island East End	2	once a week	29	3%	0	N/A
Mobile	Dauphin Island Public Beach	2	once a week	29	0%	0	N/A
Mobile	Dog River, Alba Club	2	once a week	40	23%	7	N/A
Mobile	Fowl River @ HW 193	2	once a week	38	3%	0	N/A

Notes

1. Suzi Rice, senior environmental scientist, Alabama Department of Environmental Management, personal communication, January 2012.
2. Baldwin County Health Department, "Risk Based Beach Evaluation and Ranking," not dated.

Testing the Waters: Alaska

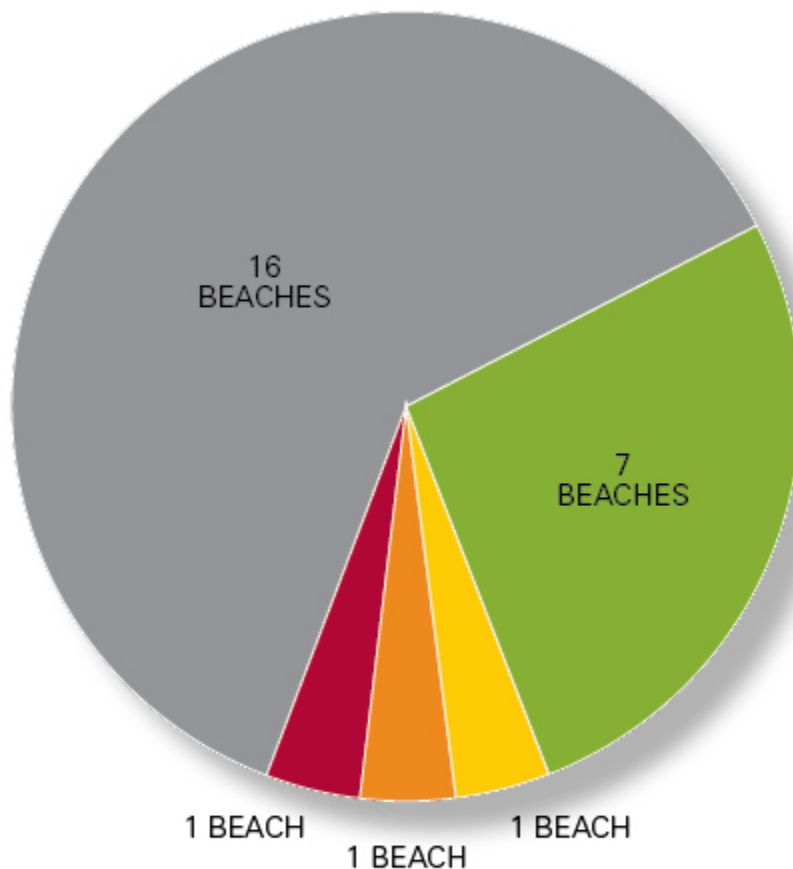
Ranked 23rd in Beachwater Quality (out of 30 states)

10% of samples exceeded national standards for designated beach areas in 2011

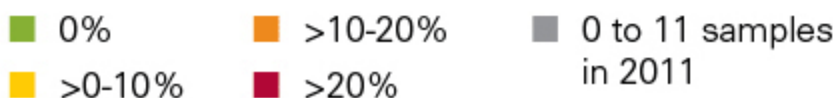
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Alaska

Alaska 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Alaska has nearly 44,000 miles of coastal shoreline. While low water temperatures discourage swimming, recreational shoreline activities do occur, and more than 200 recreational beaches have been identified. The Alaska Department of Environmental Conservation administers the state's beachwater quality program.

What Does Beachwater Monitoring Show?

In 2011, Alaska reported 26 coastal beaches. Of these, 5 (19%) were assigned a monitoring frequency of more than once a week, 12 (46%) a frequency of once a week, and 1 (4%) less than once a month; 8 (31%) were not assigned a monitoring frequency. In 2011, 9%¹ of all reported beach monitoring samples exceeded either the state's daily maximum enterococcus standard of 276 colonies/100 ml or the state's daily maximum fecal coliform standard of 200 cfu/100 ml, or both. The beaches with exceedances of the state standard in 2011 were South Kenai Beach (44%) and North Kenai Beach (16%) in Kenai and Portage Cove in Haines (8%). Kenai Peninsula Borough had the highest exceedance rate of the state standard in 2011 (12%), followed by Haines Borough (4%). There were no exceedances at beaches monitored in Juneau Borough. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.

One of the largest salmon runs in Alaska is at Kenai in mid-July. Elevated levels of fecal indicator bacteria at Kenai at this time of year are probably due to a larger-than-normal population of gulls and other birds that arrive to feed on decaying fish carcasses. A source tracking study was conducted at Kenai in 2011, but results from that study are not yet available.²

What Are Alaska's Sampling Practices?

Communities that choose to participate in the beachwater monitoring program are encouraged to sample for eight weeks during the summer season. In 2011, beaches in Haines were monitored between July 12 and September 1, beaches in Homer were monitored weekly between April 25 and August 24, beaches in Juneau were monitored from July 12 to September 14, and beaches in Kenai were sampled from July 6 to October 3.³

Sampling practices are uniform throughout the state. Samples are collected 12 inches below the surface in water that is 3 feet deep.⁵ Alaska has identified 14 recreational beaches in six communities that may be most at risk of contamination by fecal material. These high-priority beaches are the focus of Alaska's beach monitoring program. Ten of these high-priority beaches, in four of the six communities, participated in the beach monitoring program in 2011.³ If a monitored beach meets water quality standards for two consecutive years, it typically becomes ineligible for continued inclusion in the monitoring program.²

How Many Beach Advisories Were Issued in 2011?

There were no advisory days reported to U.S. EPA for any beaches in Alaska in 2011. However, a press release issued in July warned of elevated bacteria levels at South Kenai Beach, and an advisory sign was posted.²

How Does Alaska Determine When to Warn Visitors About Swimming?

Alaska's program recommends advisories based on water quality, not closings. Water quality standards for the monitoring program include standards for fecal coliform and enterococcus. In a 30-day period, the geometric mean of five samples may not exceed 100 cfu fecal coliform/100 ml, and not more than one sample, or more than 10% of the samples if there are more than 10 samples, may exceed 200 fecal coliform/100 mL. The enterococcus single-sample maximum is 276 cfu/100 ml, and there is also an enterococcus geometric mean standard for 5 samples collected within 30 days of 35 cfu/100 ml.⁵ The enterococcus standards match the EPA criteria for full-body-contact recreation in lightly used marine waters. Alaska does not have an *E. coli* standard, but the results from field-based analysis methods for quantifying *E. coli* can be used as a stand-in for fecal coliform densities in remote locations. If this were to occur, the fecal coliform standard would be applied to *E. coli* results.

If a sample exceeds standards, additional sampling is required to confirm that the exceedence is an on-going issue before officials consider whether to issue an advisory based on bacterial contamination.⁵ While the state encourages participating municipalities to issue an advisory when resampling confirms that bacteria levels exceed standards, the authority for issuing advisories is delegated to the local governments that choose to participate in the program, and these local governments do not necessarily issue advisories when follow-up sampling confirms exceedances.

Alaska has no preemptive standards for issuing beach advisories due to rainfall or known sewage spills.²

Alaska 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Bristol Bay	Kanakanak Beach in Dillingham	1	once a week	0	n/a	0	N/A
Bristol Bay	King Salmon Beach (No. Naknek)	1	four times a year	0	n/a	0	N/A
Bristol Bay	Naknek River	3	none	0	n/a	0	N/A
Bristol Bay	Scandinavian Beach	3	none	0	n/a	0	N/A
Bristol Bay	Snag Point	3	once a week	0	n/a	0	N/A
Haines	Letnikof Cove	3	none	0	n/a	0	N/A
Haines	Lutak Inlet in Haines	3	once a week	12	0%	0	N/A
Haines	Portage Cove in Haines	3	once a week	13	8%	0	N/A
Juneau	Ann Coleman Road Beach in Juneau	3	once a week	11	0%	0	N/A
Juneau	Auke Recreation Area Beach in Juneau	3	once a week	11	0%	0	N/A
Juneau	Harris and Aurora Harbors	3	none	0	n/a	0	N/A
Juneau	Lena Cove Beach in Juneau	3	once a week	12	0%	0	N/A
Juneau	Sandy Beach 5, Douglas	3	once a week	0	n/a	0	N/A
Kenai Peninsula	Anchor Point to Happy Valley Creek (Whiskey Gulch) in Homer	3	once a week	17	0%	0	N/A
Kenai Peninsula	Bishop's Beach in Homer	3	twice a week	33	0%	0	N/A
Kenai Peninsula	Homer Spit -- Land's End	3	once a week	14	0%	0	N/A
Kenai Peninsula	Homer Spit -- Mariner Park	3	once a week	14	0%	0	N/A
Kenai Peninsula	North Kasilof Beach	3	twice a week	0	n/a	0	N/A
Kenai Peninsula	North Kenai Beach	3	twice a week	25	16%	0	N/A
Kenai Peninsula	South Kenai Beach	3	twice a week	32	44%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kenai Peninsula	Warren Ames Bridge in Kenai	3	twice a week	14	0%	0	N/A
Kenai Peninsula	Whisky Bill Beach	3	none	0	n/a	0	N/A
No Data	Sandy Beach Park	3	once a week	0	n/a	0	N/A
Nome	West Beach	3	none	0	n/a	0	N/A
Wrangell	City Park	3	none	0	n/a	0	N/A
Wrangell	Petroglyph Beach	3	none	0	n/a	0	N/A

Notes

1. Why don't the 2011 percent exceedance values in this summary match? The value at the top of the first page (10%) reflects the proportion of samples exceeding the national single-sample maximum standard for designated beach areas. The value in the "What Does Beach Monitoring Show?" section (9%) reflects the proportion of samples exceeding the state standard, which in Alaska's case is less stringent than the designated beach area standard for enterococcus; however, Alaska has a fecal coliform standard that is not part of the national standard.
2. Brock Tabor, Alaska Department of Environmental Conservation, personal communication, March 2012.
3. Annual Performance Report for the Alaska Department of Environmental Conservation (ADEC), BEACH Monitoring Program, Phase VIII (Agreement #CU-96031601), Performance Period: 10/01/10-9/30/2011, not dated.
4. Alaska Department of Environmental Conservation, "Elevated Levels of Enterococci and Fecal Coliform Bacteria Found at the South Kenai River Beach" (press release), July 18, 2011, accessed at www.dec.alaska.gov/commish/press_releases/2011/2011_07_18_Kenai%20Beach%20Bacteria.pdf, March 2012.
5. Alaska Department of Environmental Conservation, "Beach Monitoring Handbook, Generic Version," August 2011, accessed at [dec.alaska.gov/water/wqsar/wqs/pdfs/Generic%20Beach%20Handbook%20\(Final%2020110630\).pdf](http://dec.alaska.gov/water/wqsar/wqs/pdfs/Generic%20Beach%20Handbook%20(Final%2020110630).pdf), March 2012.

Testing the Waters: California

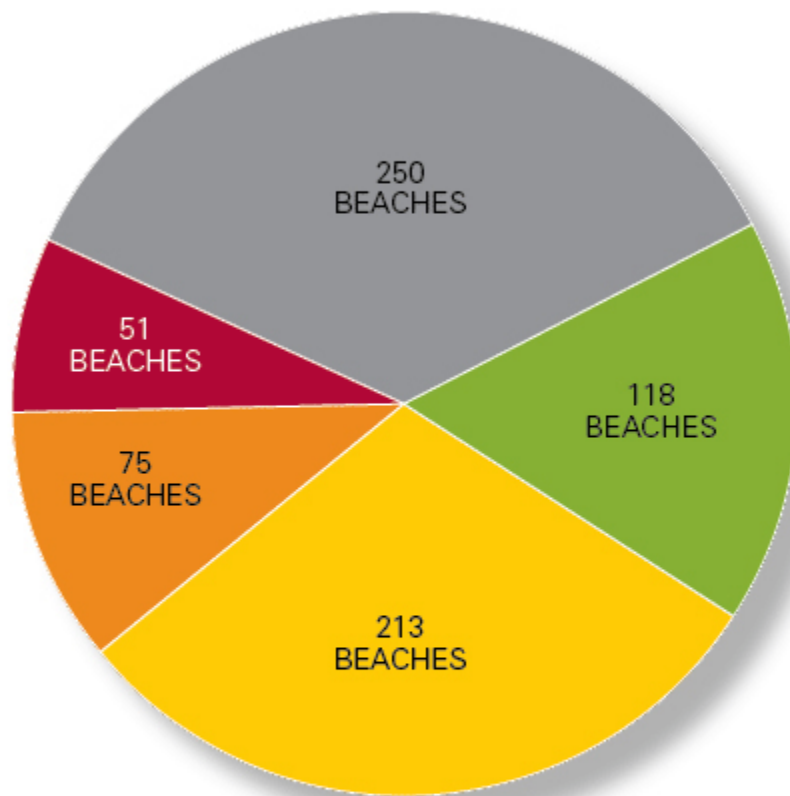
Ranked 21st in Beachwater Quality (out of 30 states)

9% of samples exceeded national standards for designated beach areas in 2011

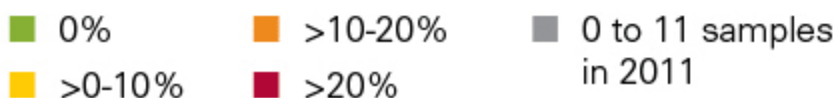
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in California

California 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination Statewide (number of closing/advisory days)

- 5,471 (94%) unknown contamination sources
- 219 (4%) sewage spills/leaks
- 104 (2%) stormwater runoff

California has more than 400 beaches along more than 500 miles of coastline on the Pacific Ocean and San Francisco Bay. In 2011 and continuing into 2012, the California Department of Health Services administered the BEACH Act grant. Starting in October 2012, the California State Water Resources Control Board will provide funding for the state contribution to the state's beach monitoring program and will administer the BEACH Act grant.

Curbing Pollution in Dry Weather Runoff

In urban areas during dry weather, runoff can occur as a result of landscape irrigation, the draining of swimming pools, car washing, and various commercial activities. Along the coast of California, where summers are dry, dry-weather runoff is the most common cause of advisories issued due to elevated bacteria levels.¹ For some parts of the Santa Monica Bay, sending dry-weather runoff to sewage treatment plants has improved beachwater quality. In this densely populated area, more than 20 low-flow diversion facilities have been constructed to route dry-weather runoff through sanitary sewage treatment after trash and debris have been screened out.² While the sanitary sewage treatment plants that serve this area are not able to treat the huge volume of runoff that is generated during storms, they do have the capacity to treat the relatively small volume of dry-weather runoff. Due to these diversion projects and other efforts, water quality has improved at the Santa Monica Canyon monitoring station at Santa Monica State Beach, though challenges remain. At this station, 37% of samples taken from 2006 to 2009 exceeded state standards, but exceedances dropped to 23% in 2010 and 22% in 2011.

Same-Day Notification Studies in California

Currently approved methods for determining levels of fecal indicator bacteria in beachwater depend on growth of bacteria colonies in cultures that take 18 to 96 hours to produce results. Because of this delay between sample collection and results, swimmers generally do not know until the at least the next day if the water they swam in was contaminated. The delay also means that beaches may remain closed or posted after water quality has improved.

Fortunately, new technologies that can provide same-day beachwater quality results are now available. During the summer of 2010, a rapid bacterial measurement demonstration project was conducted at nine locations at Huntington State Beach, Newport Beach, and Doheny State Beach, all in Orange County. This demonstration project used quantitative polymerase chain reaction (qPCR), a method that targets genetic sequences found in enterococcus bacteria, allowing public health officials to issue the nation's first-ever same-day warnings for poor beachwater quality by noon on the day water samples were collected.

The success of the Orange County demonstration project prompted the city of Los Angeles to undertake a similar project at several Los Angeles County beaches in the summer of 2011. This study was a cooperative effort among the city's Environmental Monitoring Division, the county's Department of Public Health and Department of Public Works, and the Southern California Coastal Water Research Project (SCCWRP). Eight sampling stations were included in the project: Inner Cabrillo Beach, Surfrider Beach, Topanga State Beach, Santa Monica Canyon at Santa Monica State Beach, Mothers' Beach, the Ballona Creek outfall at Dockweiler State Beach, Redondo Pier at Redondo Beach, and the Los Angeles River estuary boat launch just north of the Queensway Bridge (this location is not a beach).³ Samples were analyzed using a currently approved culture method as well as the qPCR method in order to determine whether the two methods produced similar results, as they had in Orange County.⁴

The lab was able to provide qPCR sample results to the county health department by noon on the same day samples were collected. However, results from qPCR and culture methods were not as well correlated as they

had been in Orange County, with 16% of qPCR results indicating that water quality standards had been exceeded when the culture method indicated they had not (false positives). Conversely, 8% of qPCR results indicated there had not been an exceedance when the culture method indicated there had (false negatives). At some locations, the qPCR test results were occasionally unreliable because of inhibiting constituents in the water that interfered with the analysis. Because of inhibition experienced at the Inner Cabrillo Beach sampling location, this site was dropped from the study partway through the summer.⁴

After reviewing the data from the 2011 Los Angeles County effort, the project team decided that additional studies need to be conducted before qPCR results can be used as the basis for same-day water quality notifications at Los Angeles County beaches. In particular, the reason for the disagreement between the qPCR and culture-based results needs to be better understood. More work should also be done to resolve the occasional problem of compounds in the water samples interfering with the qPCR assay. These additional studies are planned for the summer of 2012. If successful, they will be followed by a demonstration project in the summer of 2013 involving same-day notification to Los Angeles County beachgoers.⁴

Bacterial Pollution Reductions Required in Long Beach

In March 2012, total maximum daily loads (TMDLs)—which are cleanup blueprints for specified waters—were established for bacteria at beaches in Long Beach and in the Los Angeles River estuary, which meets the ocean in Long Beach. These TMDLs will reduce fecal contamination of beaches in Long Beach, protecting the health of tens of thousands of beachgoers each year. Once implemented, it is expected that the average number of days during the swimming season that beachwater exceeds fecal indicator bacteria standards will be reduced to zero.⁵ Those actions are critical because in 2011, more than 20% of samples taken at beaches in Long Beach exceeded the single-sample standard for enterococcus.

Beach Data Management in California

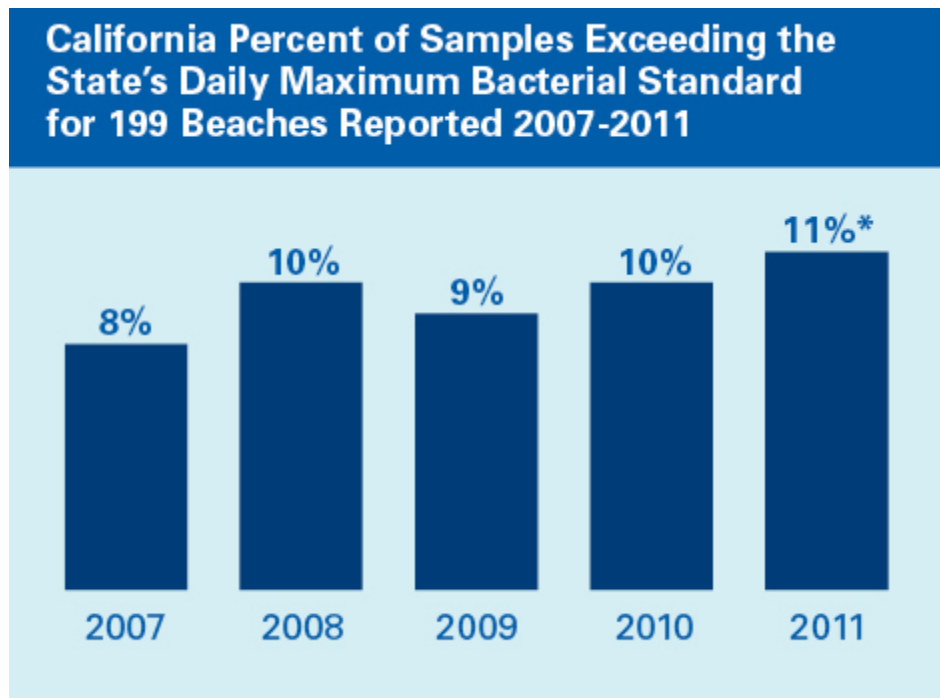
As of the 2011 beach season, the Southern California Coastal Water Research Project (SCCWRP) has taken over data management of California's beachwater monitoring and notification programs from the State Water Resources Control Board (SWRCB). Whereas the coastal counties used to electronically submit data to the state system, they now electronically submit data to SCCWRP's system. The transition initially resulted in inconsistencies between the key identifiers used for beaches and monitoring stations. This was partly due to incompatibilities between the two electronic reporting systems, but the transition also revealed incorrect beach identifiers and names that had been in the system historically. NRDC worked closely with SCCWRP to reconcile the identifiers and used the opportunity to more effectively identify managed beaches in California. Although some beach identifiers have not yet been fully reconciled (and SCCWRP, EPA, and NRDC continue to address those), NRDC's California summary for 2011 includes all of the beaches for which data have been submitted to EPA. This Herculean effort will make beachwater quality, as well as notification tracking and reporting, more reliable for California's coastal beaches from this point forward.

What Does Beachwater Monitoring Show?

In 2011, California reported 707 coastal beaches and beach segments. Of these, 33 (5%) were assigned a daily monitoring frequency, 38 (5%) a frequency of more than once a week, 464 (66%) once a week, 12 (2%) once a month, and 137 (19%) less than once a month. Two (<1%) were not assigned a monitoring frequency, and there was no monitoring information for 21 (3%) beaches. NRDC considered a sample on a given day at a given beach station to be an exceedance if any of California's bacterial standards was exceeded. Please note that even if all bacterial standards were exceeded on a given day at a given station, NRDC counted that as one exceedance. As with all states, when determining California's national beachwater quality ranking, NRDC analyzed results based on the national single-sample maximum standard for designated beach areas of 104 cfu/100 ml enterococcus.

In 2011, 10%¹⁶ of all reported beach monitoring samples exceeded the state's daily maximum bacterial standards of 104 colonies enterococcus/100 ml, 400 colonies fecal coliform/100 ml, and/or 10,000 colonies total coliform/100 ml. Fifty-four beaches and beach segments in California exceeded the standards more than

20% of the time. The beaches with the highest percent exceedance rates of the state standard in 2011 were Avalon Beach 50 feet west of the Green Pleasure Pier (72%) and Avalon Beach 100 feet west of the Green Pleasure Pier (63%) in Los Angeles County; Imperial Beach Municipal Beach, Cortez Avenue in San Diego County (59%); Poche County Beach (58%) and Doheny State Beach surf zone at outfall (57%) in Orange County; and Surfrider Beach, Malibu, at the breach or last known breach (55%) in Los Angeles County. Beaches in Contra Costa County had the highest exceedance rate of the state standard in 2011 (19%), followed by Los Angeles (18%), Santa Barbara (17%), Humboldt (15%), Monterey (13%), San Francisco (11%), San Mateo (10%), Santa Cruz (10%), Orange (8%), San Luis Obispo (7%), Alameda (6%), San Diego (6%), Marin (6%), Ventura (3%), Sonoma (3%), and Mendocino (3%) counties. No samples were collected at beaches in Del Norte County. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are California's Sampling Practices?

Beachwater quality monitoring in California occurs from no later than April 1 until October 31, with most beaches in Southern California and in Santa Cruz, San Mateo, and San Francisco counties monitored year-round.

Individual counties determine sampling locations, but sampling depth and minimum sampling frequency are determined by state law. Most counties sample at more locations and often more frequently than required by state law. Samples are taken in ankle-deep water. Monitoring locations in California are selected on the basis of the number of visitors, the location of storm drains, discharge permit requirements to sample at particular places, and legislative requirements (for instance, legislation requires the monitoring of all beaches on San Francisco Bay). Monitored beaches account for the vast majority of beach day use in California.

Samples are usually collected in the most likely areas of possible contamination. In Los Angeles County, for example, sampling points are located where creeks or storm drains enter the surf zone; these are usually permanently posted as being under advisory. Most other counties may permanently post outfalls and sample 25 yards up or down the coast from the outfall to predict further impacts to beach bathing areas. Immediate resampling is often conducted after a bacteria advisory (a posting) is issued in order to lift the posting as soon as possible. States that monitor more frequently after an exceedance is found will tend to have higher percent

exceedance rates and lower total closing/advisory days than they would if their sampling schedule did not increase after an exceedance was found.

How Many Beach Closings and Advisories Were Issued in 2011?

Total closing/advisory days for 1,228 events lasting six consecutive weeks or less increased 1% to 5,794 days in 2011 from 5,756 days in 2010. For prior years, there were 2,904 days in 2009, 4,133 days in 2008, 4,736 days in 2007, 4,644 days in 2006, and 5,199 days in 2005. In addition, there were 11 extended events (586 days total) and 6 permanent events (711 days total) in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 1,228 events lasting six consecutive weeks or less, 94% (5,455) of closing/advisory days in 2011 were due to monitoring that revealed elevated bacteria levels, 2% (120) were preemptive (i.e., without waiting for monitoring results) due to heavy rainfall, and 4% (219) were preemptive due to known sewage spills/leaks.

This analysis and the California table of monitoring results and closing and advisory days do not include days in county-wide rain advisory events. This includes 30 preemptive rain advisory days in Los Angeles County, excluding Long Beach (7 events), 50 in Monterey County (7 events), 7 64 in Orange County (12 events), 8 56 in San Diego County (13 events), and 6 in Ventura County (2 events). There were also at least 18 days of rain advisories at beaches in Long Beach.9

NRDC learned just prior to publication of the report that Los Angeles County's 2011 closing and advisory days were underreported. Eighteen of 69 beaches managed by the county were scrutinized and 25 missing closing and advisory days at four beaches were discovered. These days are included in the analysis in this summary and in the California table, but any additional errors in the remaining 51 beaches remain uncorrected.

How Does California Determine When to Warn Visitors About Swimming?

Local health agencies are responsible for issuing beachwater quality advisories and closures.8 There are four types of beachwater quality warnings issued: postings, closings, rain advisories, and permanent postings. Postings that warn swimmers about the potential for illness are issued when a water sample fails to meet bacterial standards. Rain advisories warn people to avoid swimming in ocean waters during a rain event and for three days after rainfall ceases. Permanent postings are made at sites where historic data show that the beachwater generally contains elevated bacteria levels.1 Beach closings are generally issued due to sewage spills or other serious health hazards, but local health officials may also decide to close a beach when more than one standard is exceeded or when exceedances are far in excess of the standards.7 This is rare, however, and closings are generally issued only when it is suspected that sewage is impacting a beach.

California employs a variety of bacterial standards:

- For total coliform, the single-sample standard is 1,000 cfu/100 ml if the ratio of fecal/total coliform bacteria exceeds 0.1. Otherwise, the single-sample standard for total coliform is 10,000 cfu/100 ml. The total coliform geometric mean standard is 1,000 cfu/100 ml, calculated from at least five equally spaced samples collected in a 30-day period.
- For fecal coliform, the single-sample standard is 400 cfu/100 ml and the standard for the geometric mean of at least five evenly spaced samples collected in a 30-day period is 200 cfu/100 ml. In some jurisdictions, *E. coli* is used as a surrogate for fecal coliform; the standard is the same as for fecal coliform.
- For enterococcus, the single-sample standard is 104 cfu/100 ml and the standard for the geometric mean of at least five equally spaced samples collected in a 30-day period is 35 cfu/100 ml.

Almost all counties monitor for all three organisms (total coliform, fecal coliform, and enterococcus). Some beach management entities, including Los Angeles and Orange counties and the city of Long Beach, post a beach when the single-sample standard of any one of these three indicators is exceeded. In Marin County, beaches are posted if either the enterococcus or fecal coliform standard is exceeded, but not when only the total coliform standard is exceeded.11 In San Francisco County, the single sample standard for total coliform is

10,000 cfu/100 ml regardless of what the fecal coliform to total coliform ratio is, and some beaches require confirmation, either from elevated results at nearby sites, from more than one standard being exceeded, or from resampling, before a beach is posted.¹² Geometric mean standards are sometimes used to keep a beach posted after the single-sample maximum has been exceeded but rarely trigger a posting by themselves.⁶ If geometric mean standards are exceeded, the state recommends that additional sanitary surveys, more frequent sampling, and additional related evaluations be conducted.¹³ Unless adjacent sampling stations exceed water quality standards, notifications are issued for the portion of the beach that extends 50 yards in either direction of the sampling location where an exceedance of water quality standards is found.⁶

After a posting is issued, samples must meet standards for two days before the beach can be reopened.

Since 2003, San Diego County has used a predictive model to trigger beach closings at three south county beaches near the outlet of the Tijuana River. These beaches are Imperial Beach, Coronado Beach, and Silver Strand State Beach. The model assesses the need for closures based on real-time information about ocean currents in addition to other parameters. Use of the model allows the San Diego County Department of Environmental Health to make more accurate and timely notifications to protect the health of beachgoers.¹⁰ At 25 of California's other beaches, researchers at Stanford University and Heal the Bay are developing statistical beachwater quality models that will make predictions of water quality based on the history of fecal indicator bacteria densities and oceanic and atmospheric data such as water temperature, current direction, and wind speed at each of the individual beaches.¹¹ At the beaches whose models provide an adequate assessment of water quality, swimmers will be notified of the beach's water quality status more rapidly than they would be if traditional techniques for measuring fecal bacteria were used. The models will also help to assess pollution trends and will identify the environmental variables with the greatest influence on bacteria concentrations.¹¹

In addition to advisories triggered by indicator exceedances, three-day-long preemptive rain advisories are automatically issued in five counties (Los Angeles, Monterey, Orange, San Diego, and Santa Cruz counties) when rainfall exceeds predetermined levels, regardless of whether bacterial monitoring samples have been collected and analyzed. These general advisories affect all beaches in the county. As a general rule, the Los Angeles County Recreational Waters Program issues a rain advisory when there is 0.1 inch or more of rainfall at the University of Southern California rain gauge, but this varies depending on factors such as how long it has been since the last rainfall, how sporadic the rainfall is, and where it is falling; according to the agency, much of the watershed that feeds storm drain flow is in the hills and mountains, which have rainfall levels different from those at the rain gauge. Orange County issues preemptive countywide rain advisories, warning of elevated bacteria levels in the ocean for a period of at least 72 hours after rain events of 0.2 inch or more. San Diego County issues preemptive rain advisories for a period of up to 72 hours after a rain event of 0.2 inch or more.

Preemptive advisories are also issued for reasons other than rain, such as excessive debris on a beach. Finally, preemptive closings are issued when there is a known sewage spill or when sewage is suspected of impacting a beach. Closings are issued immediately upon notification by the agency responsible for the spill.

California 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Alameda	Alameda Point Encinal Beach	no data	no data	83	7%	32	N/A
Alameda	Crown Beach, 2001 Shoreline Dr.	no	once a week	44	9%	14	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
		data					
Alameda	Crown Beach, Bath House	no data	once a week	43	9%	16	N/A
Alameda	Crown Beach, Bird Sanctuary	no data	once a week	42	7%	32	N/A
Alameda	Crown Beach, Sunset Rd.	no data	once a week	41	2%	29	N/A
Alameda	Crown Beach, Windsurfer Corner	no data	once a week	41	2%	1	N/A
Contra Costa	Keller Beach	no data	once a week	131	19%	42 (145)	N/A
Del Norte	Beachfront Park	1	four times a year	0	n/a	0	N/A
Del Norte	Clifford Kamph Memorial Park	1	four times a year	0	n/a	0	N/A
Del Norte	Crescent Beach	1	four times a year	0	n/a	0	N/A
Del Norte	Enderts Beach	1	four times a year	0	n/a	0	N/A
Del Norte	High Bluff Beach	1	four times a year	0	n/a	0	N/A
Del Norte	Kellogg Beach	1	four times a year	0	n/a	0	N/A
Del Norte	Lake Earl Wildlife Area Beaches	1	four times a year	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Del Norte	Pebble Beach	1	four times a year	0	n/a	0	N/A
Del Norte	Pelican Bay State Beach	1	four times a year	0	n/a	0	N/A
Del Norte	Point St. George	1	four times a year	0	n/a	0	N/A
Del Norte	South Beach	1	four times a year	0	n/a	0	N/A
Del Norte	Wilson Creek Beach	1	four times a year	0	n/a	0	N/A
Humboldt	Agate Beach	1	four times a year	0	n/a	0	N/A
Humboldt	Baker Beach	1	four times a year	0	n/a	0	N/A
Humboldt	Big Lagoon	1	four times a year	0	n/a	0	N/A
Humboldt	Black Sands Beach	1	four times a year	0	n/a	0	N/A
Humboldt	Carruthers Cove Beach	1	four times a year	0	n/a	0	N/A
Humboldt	Centerville Beach	1	four times a year	0	n/a	0	N/A
Humboldt	Clam Beach Co. Park, Clam Beach near Strawberry Creek	1	once a week	37	27%	25	N/A
Humboldt	College Cove	1	four times a year	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Humboldt	Crab Co. Park	1	four times a year	0	n/a	0	N/A
Humboldt	Dead Man's Beach	1	four times a year	0	n/a	0	N/A
Humboldt	Dry Lagoon	1	four times a year	0	n/a	0	N/A
Humboldt	Eel River State Wildlife Area	1	four times a year	0	n/a	0	N/A
Humboldt	Freshwater Lagoon	1	four times a year	0	n/a	0	N/A
Humboldt	Gold Bluffs Beach	1	four times a year	0	n/a	0	N/A
Humboldt	Hidden Beach	1	four times a year	0	n/a	0	N/A
Humboldt	Indian Beach	1	once a week	0	n/a	0	N/A
Humboldt	Little Black Sands Beach	1	four times a year	0	n/a	0	N/A
Humboldt	Little River State Beach	1	four times a year	0	n/a	0	N/A
Humboldt	Luffenholtz Beach near Luffenholtz Creek	1	once a week	36	17%	5	N/A
Humboldt	Mattole River Beach	1	four times a year	0	n/a	0	N/A
Humboldt	Moonstone Beach near Little River	1	once a week	33	12%	9	N/A
Humboldt	North Mad River Mouth, Clam Beach near Mad River	1	once a week	32	6%	2	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Humboldt	Redwood Creek Beach	1	four times a year	0	n/a	0	N/A
Humboldt	Samoa Dunes Rec. Area	1	four times a year	0	n/a	0	N/A
Humboldt	Shelter Cove	1	four times a year	0	n/a	0	N/A
Humboldt	South Spit	1	four times a year	0	n/a	0	N/A
Humboldt	Stone Lagoon	1	four times a year	0	n/a	0	N/A
Humboldt	Trinidad Beach near Mill Creek	1	once a week	33	9%	3	N/A
Los Angeles	26610 Latigo Shore Dr, Malibu in front of monitoring well discharge	1	once a week	54	20%	37	N/A
Los Angeles	26610 Latigo Shore Dr, Malibu in front of Trivola Bay Villa treatment plant	1	once a week	46	15%	16	N/A
Los Angeles	Abalone Cove, Rancho Palos Verdes	no data	once a week	52	0%	0	N/A
Los Angeles	Alamitos Bay Beach	1	once a week	0	n/a	12	N/A
Los Angeles	Armarillo Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Avalon Beach 50 feet east of the Green Pleasure Pier	1	once a week	31	42%	82 (155)	N/A
Los Angeles	Avalon Beach 50 feet west of the Green Pleasure Pier	1	once a week	32	72%	23	N/A
Los Angeles	Avalon Beach 100 feet east of the Green Pleasure Pier	1	once a week	32	22%	27	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Los Angeles	Avalon Beach 100 feet west of the Green Pleasure Pier	1	once a week	32	63%	112	N/A
Los Angeles	Avalon Beach East of the Casino Arch at the steps	1	once a week	30	37%	86 (44)	N/A
Los Angeles	Basin H	1	four times a year	0	n/a	0	N/A
Los Angeles	Big Rock Beach, Malibu in front of storm drain	1	once a week	52	13%	21	N/A
Los Angeles	Bluff Cove, Palos Verdes Estates	1	once a week	51	0%	0	N/A
Los Angeles	Broad Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Carbon Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Colorado Lagoon	1	once a week	0	n/a	0	N/A
Los Angeles	Coral Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Corral Creek, East end of Corral Beach (Puerco Beach?), Malibu	1	once a week	53	9%	12	N/A
Los Angeles	Dan Blocker County Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Dockweiler State Beach in front of Culver Blvd storm drain	1	once a week	48	4%	9	N/A
Los Angeles	Dockweiler State Beach in front of the Imperial Hwy storm drain	1	once a week	48	10%	21 (78)	N/A
Los Angeles	Dockweiler State Beach just south of Ballona Creek	1	once a week	220	21%	76	N/A
Los Angeles	Dockweiler State Beach, El Segundo 50 yards south of Grand Ave extended	1	once a week	49	6%	6	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Los Angeles	Dockweiler State Beach, El Segundo Grand Ave extended	1	once a week	51	12%	15	N/A
Los Angeles	Dockweiler State Beach, Playa del Rey in front of the Beaches and Harbors maintenance yard	1	once a week	51	8%	4	N/A
Los Angeles	Dockweiler State Beach, Playa del Rey opposite Hyperion Plant, at 1 mile marker	1	once a week	52	8%	4	N/A
Los Angeles	El Matador State Beach	1	once a week	0	n/a	0	N/A
Los Angeles	El Pescador State Beach	1	once a week	0	n/a	0	N/A
Los Angeles	El Segundo Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Escondido Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Hermosa Beach 26th St extended in front of storm drain	1	once a week	51	4%	8	N/A
Los Angeles	Hermosa Beach 50 yards south of the Herosa Beach Pier	1	once a week	48	8%	21	N/A
Los Angeles	Inner Cabrillo Beach	1	once a day	0	n/a	84	N/A
Los Angeles	Inner Cabrillo Beach, San Pedro in front of lifeguard tower	1	once a day	0	n/a	135	N/A
Los Angeles	La Costa Beach	1	once a week	0	n/a	0	N/A
Los Angeles	La Piedra State Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Las Flores Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Las Tunas County Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Leo Carillo State Beach, Malibu 50 yards east	1	once a week	48	38%	123	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	of Arroyo Sequit Creek						
Los Angeles	Leo Carillo State Beach, Malibu in front of Arroyo Sequit Creek	1	once a week	56	25%	33	N/A
Los Angeles	Long Beach, 2nd St Bridge & Bayshore	1	no data	0	n/a	4	N/A
Los Angeles	Long Beach, 5th Place Beach	1	once a week	58	17%	9	N/A
Los Angeles	Long Beach, 10th Place Beach	1	once a week	54	13%	5	N/A
Los Angeles	Long Beach, 55th Place Beach	1	once a week	53	11%	3	N/A
Los Angeles	Long Beach, 56th Place-On Bayside	1	no data	0	n/a	5	N/A
Los Angeles	Long Beach, 72nd Place-Beach	1	no data	0	n/a	4	N/A
Los Angeles	Long Beach, Colorado Lagoon-North	1	no data	0	n/a	4	N/A
Los Angeles	Long Beach, Colorado Lagoon-South	1	no data	0	n/a	10	N/A
Los Angeles	Long Beach, Coronado Ave Beach	1	once a week	54	13%	6	N/A
Los Angeles	Long Beach, Granada Ave Beach	1	once a week	52	10%	2	N/A
Los Angeles	Long Beach, Molino Ave Beach	1	once a week	51	12%	5	N/A
Los Angeles	Long Beach, Mothers' Beach	1	no data	0	n/a	6	N/A
Los Angeles	Long Beach, Prospect Ave Beach	1	once a week	54	13%	5	N/A
Los Angeles	Long Beach, West side of Belmont Pier	1	once a week	52	10%	3	N/A
Los Angeles	Long Point, Rancho Palos Verdes	no data	no data	53	2%	6	N/A
Los Angeles	Malaga Cove, Palos Verdes Estates	1	once a week	54	2%	4	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Los Angeles	Malibu Lagoon State Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Malibu Lagoon, Malibu in front of lifeguard tower	1	once a week	51	8%	6	N/A
Los Angeles	Malibu Pier, Malibu 50 yards east of the pier	1	once a week	62	44%	92	N/A
Los Angeles	Malibu Point	1	once a week	0	n/a	0	N/A
Los Angeles	Manhattan Beach 28th St extended in front of storm drain	1	once a week	56	21%	31	N/A
Los Angeles	Manhattan Beach 40th Street extended	1	once a week	48	4%	7	N/A
Los Angeles	Manhattan Beach 50 yards south of 28th St extended, in front of storm drain	1	once a week	49	12%	14	N/A
Los Angeles	Manhattan Beach 50 yards south of the Manhattan Beach Pier	1	once a week	48	2%	7	N/A
Los Angeles	Mother's Beach, Marina del Rey in front of lifeguard tower	1	once a week	245	15%	55	N/A
Los Angeles	Nicholas Canyon County Beach, Malibu 100 yards west of Nicholas Creek	1	once a week	48	10%	9	N/A
Los Angeles	Nicholas Canyon County Beach, Malibu in front of Nicholas Creek	1	once a week	50	8%	8	N/A
Los Angeles	No Name	1	once a week	0	n/a	0	N/A
Los Angeles	Outer Cabrillo Beach, San Pedro	1	once a week	54	2%	6	N/A
Los Angeles	Palos Verdes Estates Arroyo Circle extended (Torrance Beach)	1	once a week	0	n/a	21	N/A
Los Angeles	Paradise Cove, Malibu in front of Ramirez Creek	1	once a week	60	33%	60	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Los Angeles	Point Dume County Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Portuguese Bend, Rancho Palos Verdes	1	once a day	54	4%	4	N/A
Los Angeles	Puerco Beach, Malibu 50 yards east of creek	1	once a week	48	6%	14	N/A
Los Angeles	Redondo Beach 50 yards north of the Herondo storm drain	1	once a week	49	14%	30	N/A
Los Angeles	Redondo Beach 50 yards south of the Redondo Beach Pier	1	once a week	244	22%	70	N/A
Los Angeles	Redondo Beach at the Herondo storm drain	1	once a week	49	14%	32	N/A
Los Angeles	Redondo Beach Avenue I extended	1	once a week	48	2%	7	N/A
Los Angeles	Redondo Beach Topaz St extended, north side of jetty	1	once a week	52	13%	19	N/A
Los Angeles	Robert Meyer Memorial State Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Santa Monica State Beach 50 yards south of Montana storm drain	1	once a week	49	8%	0	N/A
Los Angeles	Santa Monica State Beach 50 yards south of Wilshire storm drain	1	once a week	49	12%	23	N/A
Los Angeles	Santa Monica State Beach at the Santa Monica Pier	1	once a week	245	22%	78	N/A
Los Angeles	Santa Monica State Beach in front of Ashland storm drain	1	once a week	245	6%	18	N/A
Los Angeles	Santa Monica State Beach in front of Montana storm drain	1	once a week	49	8%	0	N/A
Los Angeles	Santa Monica State Beach in front of Pico/Kenter storm drain	1	once a week	243	23%	68	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Los Angeles	Santa Monica State Beach in front of Santa Monica Canyon storm drain	1	once a week	245	22%	54	N/A
Los Angeles	Santa Monica State Beach in front of Wilshire storm drain	1	once a week	55	25%	35	N/A
Los Angeles	Santa Monica State Beach Strand St extended	1	once a week	51	8%	4	N/A
Los Angeles	South Topanga State Beach	1	once a week	0	n/a	0	N/A
Los Angeles	South Will Rogers State Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Surfrider Beach, Malibu at the breach or last known breach	1	once a week	243	55%	210	N/A
Los Angeles	Topanga County Beach in front of lifeguard headquarters	1	once a week	245	40%	164	N/A
Los Angeles	Topanga State Beach	1	once a week	0	n/a	0	N/A
Los Angeles	Trancas Beach (West Zuma Beach), Malibu 50 yards east of Trancas Bridge	1	once a week	0	n/a	7	N/A
Los Angeles	Trancas Beach (West Zuma Beach), Malibu in front of Trancas Bridge	1	once a week	48	4%	35	N/A
Los Angeles	Venice City Beach 50 yards south of Brooks Avenue storm drain	1	once a week	49	10%	14	N/A
Los Angeles	Venice City Beach 50 yards south of Venice Pier	1	once a week	50	8%	9	N/A
Los Angeles	Venice City Beach in front of Brooks Avenue storm drain	1	once a week	49	8%	0	N/A
Los Angeles	Venice City Beach in front of Windward storm drain	1	once a week	48	4%	28	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Los Angeles	Venice City Beach Topsail St extended	1	once a week	52	15%	13	N/A
Los Angeles	Westward Beach (East Zuma Beach), Malibu 50 yards east of Zuma Creek	1	once a week	48	10%	17	N/A
Los Angeles	Westward Beach (East Zuma Beach), Malibu in front of Zuma Creek	1	once a week	53	25%	58	N/A
Los Angeles	White Point, San Pedro	no data	once a day	55	5%	10	N/A
Los Angeles	Wilder Addition Park, San Pedro	1	once a week	53	2%	6	N/A
Los Angeles	Will Rogers State Beach 50 yards south of Temescal storm drain	1	once a week	49	10%	13	N/A
Los Angeles	Will Rogers State Beach in front of Temescal storm drain	1	once a week	51	12%	6	N/A
Los Angeles	Will Rogers State Beach, 17200 Pacific Coast Hwy, Pacific Palisades at staircase	1	once a week	49	4%	2	N/A
Los Angeles	Will Rogers State Beach, Bel Air Bay Club, Pacific Palisades 50 yards south of chain link fence	1	once a week	49	6%	0	N/A
Los Angeles	Will Rogers State Beach, Bel Air Bay Club, Pacific Palisades at chain link fence	1	once a week	49	8%	2	N/A
Los Angeles	Will Rogers State Beach, Pacific Palisades in front of Pulga storm drain	1	once a week	48	6%	16	N/A
Marin	Bolinas Beach	1	once a week	29	10%	37	N/A
Marin	Chicken Ranch Beach at Creek	1	once a week	23	4%	0	N/A
Marin	China Camp	1	once a week	29	7%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Marin	Dillon Beach	1	once a week	30	7%	14	N/A
Marin	Drake's Beach	1	once a week	30	3%	0	N/A
Marin	Drake's Estero	1	once a week	14	0%	0	N/A
Marin	Fort Baker, Horseshoe Cove-Northeast	1	once a week	29	10%	37	N/A
Marin	Fort Baker, Horseshoe Cove-Northwest	1	once a week	29	10%	65	N/A
Marin	Fort Baker, Horseshoe Cove-Southwest	1	once a week	29	7%	16	N/A
Marin	Golden Hinde	1	four times a year	0	n/a	0	N/A
Marin	Heart's Desire	1	once a week	29	7%	14	N/A
Marin	Kehoe Beach	no data	none	0	n/a	0	N/A
Marin	Lawson's Landing	1	once a week	29	10%	28	N/A
Marin	Limantour Beach	1	once a week	29	0%	0	N/A
Marin	Marshall Beach	1	four times a year	0	n/a	0	N/A
Marin	McClures Beach	no data	none	0	n/a	0	N/A
Marin	McNears Beach	1	once a week	0	n/a	0	N/A
Marin	Miller Point	1	once a week	30	13%	36	N/A
Marin	Millerton Point	1	once a week	28	11%	21	N/A
Marin	Muir Beach-Central	1	once a week	30	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Marin	Muir Beach-North	1	once a week	30	7%	36	N/A
Marin	Muir Beach-South	1	once a week	30	0%	0	N/A
Marin	Paradise Cove	1	once a week	0	n/a	0	N/A
Marin	Rodeo Beach (Chronkite)-Central	1	once a week	28	0%	0	N/A
Marin	Rodeo Beach (Chronkite)-North	1	once a week	28	0%	0	N/A
Marin	Rodeo Beach (Chronkite)-South	1	once a week	28	0%	0	N/A
Marin	Schoonmaker Beach	1	once a week	29	14%	28	N/A
Marin	Shell Beach	1	once a week	30	10%	25	N/A
Marin	Stinson Beach-Central	1	once a week	30	7%	13	N/A
Marin	Stinson Beach-North	1	once a week	30	0%	0	N/A
Marin	Stinson Beach-South	1	once a week	30	0%	0	N/A
Mendocino	Albion River	1	four times a year	0	n/a	0	N/A
Mendocino	Anchor Bay	1	four times a year	0	n/a	0	N/A
Mendocino	Arena Cove	1	four times a year	0	n/a	0	N/A
Mendocino	Big River-Mendocino Bay Headlands SP	1	once a week	27	0%	0	N/A
Mendocino	Casper Headlands	1	once a week	12	8%	0	N/A
Mendocino	Chadbourne Gulch	1	once a week	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Mendocino	Greenwood SB	1	once a week	0	n/a	0	N/A
Mendocino	Gualala River	1	four times a year	0	n/a	0	N/A
Mendocino	Hare Creek	1	once a week	11	9%	0	N/A
Mendocino	Irish Beach	1	four times a year	0	n/a	0	N/A
Mendocino	Jug Handle State Reserve	1	four times a year	0	n/a	0	N/A
Mendocino	MacKerricher State Park	1	once a week	1	0%	0	N/A
Mendocino	Manchester SB	1	four times a year	0	n/a	0	N/A
Mendocino	Navarro River Redwood SP	1	four times a year	0	n/a	0	N/A
Mendocino	Noyo River	1	four times a year	0	n/a	0	N/A
Mendocino	Pudding Creek Beach	1	once a week	29	0%	0	N/A
Mendocino	Russian Gulch SP	1	four times a year	0	n/a	0	N/A
Mendocino	Schooner Gulch	1	four times a year	0	n/a	0	N/A
Mendocino	Ten Mile River	1	four times a year	0	n/a	0	N/A
Mendocino	Van Damme SP	1	once a week	29	3%	0	N/A
Mendocino	Westport/Union Landing	1	four times a	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
			year				
Monterey	Andrew Molera State Beach	1	four times a year	0	n/a	0	N/A
Monterey	Asilomar State Beach, Sunset at Asilomar	1	once a week	36	6%	27	N/A
Monterey	Carmel River State Beach	1	once a week	0	n/a	0	N/A
Monterey	Fort Ord Dunes State Beach	1	four times a year	0	n/a	0	N/A
Monterey	Garrapata State Beach	1	four times a year	0	n/a	0	N/A
Monterey	Heritage Harbor	1	four times a year	0	n/a	0	N/A
Monterey	John Little State Beach	1	four times a year	0	n/a	0	N/A
Monterey	Julia Pfeiffer Burns State Beach	1	four times a year	0	n/a	0	N/A
Monterey	Limekiln	1	once a week	0	n/a	0	N/A
Monterey	Lovers Point	1	once a week	39	18%	41	N/A
Monterey	Maccabee Beach	1	four times a year	0	n/a	0	N/A
Monterey	Marina State Beach	1	four times a year	0	n/a	0	N/A
Monterey	Monastery Beach	1	four times a year	0	n/a	0	N/A
Monterey	Monterey State Beach	1	once a week	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Monterey	Moss Landing State Beach	1	four times a year	0	n/a	0	N/A
Monterey	Pacific Grove City Beaches	1	four times a year	0	n/a	0	N/A
Monterey	Point Lobos State Reserve State Beach	1	four times a year	0	n/a	0	N/A
Monterey	Point Sur SHP	1	four times a year	0	n/a	0	N/A
Monterey	Salinas River State Beach	1	four times a year	0	n/a	0	N/A
Monterey	San Carlos Beach	1	once a week	34	6%	0	N/A
Monterey	Seal Rock, Pebble Beach	1	four times a year	0	n/a	0	N/A
Monterey	Seaside Beach	1	four times a year	0	n/a	1	N/A
Monterey	Spanish Bay Beach	1	once a week	36	6%	2	N/A
Monterey	Stillwater Cove	1	once a week	37	30%	3 (51)	N/A
Monterey	Zmudowski State Beach	1	four times a year	0	n/a	0	N/A
Orange	Aliso Beach - 9th St/1000 Steps Beach	no data	no data	79	0%	0	N/A
Orange	Aliso Beach - Camel Point	no data	no data	79	0%	0	N/A
Orange	Aliso Beach - Middle	no data	no data	79	15%	25	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Orange	Aliso Beach - North	no data	no data	79	0%	0	N/A
Orange	Aliso Beach - South	no data	no data	79	5%	2	N/A
Orange	Aliso Beach - Table Rock	no data	no data	79	0%	0	N/A
Orange	Aliso Beach - Three Arch Bay	no data	no data	79	3%	7	N/A
Orange	Aliso Beach - Treasure Island Pier	no data	no data	79	0%	0	N/A
Orange	Aliso Beach - Treasure Island Sign	no data	no data	79	0%	0	N/A
Orange	Bolsa Chica Beach	1	once a day	207	1%	0	N/A
Orange	Bolsa Chica Reserve	1	once a day	208	3%	4	N/A
Orange	Capistrano Bay District	1	twice a week	0	n/a	0	N/A
Orange	Capistrano Beach, 5000' South Outfall	1	twice a week	66	11%	33	N/A
Orange	Capistrano Beach, 7500' South Outfall	1	twice a week	67	9%	8	N/A
Orange	Capistrano Beach, 10000' South Outfall	1	twice a week	66	11%	9	N/A
Orange	Crystal Cove State Park	1	once a day	202	2%	2	N/A
Orange	Crystal Cove State Park, Los Tancos	1	once a day	33	0%	0	N/A
Orange	Crystal Cove State Park, Muddy Creek Downcoast	1	once a day	27	0%	0	N/A
Orange	Crystal Cove State Park, Muddy Creek	1	once a day	12	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	Upcoast						
Orange	Crystal Cove State Park, Pelican Point Downcoast	1	once a day	25	0%	0	N/A
Orange	Crystal Cove State Park, Pelican Point Upcoast	1	once a day	11	0%	0	N/A
Orange	Dana Point Harbor, Baby Beach - Buoy Line	1	once a week	31	19%	29	N/A
Orange	Dana Point Harbor, Baby Beach - East End	1	once a week	27	11%	0	N/A
Orange	Dana Point Harbor, Baby Beach - Swim Area	1	once a week	33	12%	21	N/A
Orange	Dana Point Harbor, Baby Beach - West End	1	once a week	29	24%	39	N/A
Orange	Dana Point Harbor, Fuel Dock	1	once a week	24	8%	0	N/A
Orange	Dana Point Harbor, Guest Dock	1	once a week	24	0%	0	N/A
Orange	Dana Point Harbor, Harbor Entrance	1	once a week	65	5%	0	N/A
Orange	Dana Point Harbor, Harbor Patrol Dock	1	once a week	24	0%	0	N/A
Orange	Dana Point Harbor, M Dock (East Basin)	1	once a week	24	4%	0	N/A
Orange	Dana Point Harbor, North Beach Downcoast	1	once a week	36	44%	0	N/A
Orange	Dana Point Harbor, Pier	1	once a week	23	0%	0	N/A
Orange	Dana Point Harbor, Pilgrim Dock	1	once a week	24	13%	0	N/A
Orange	Dana Point Harbor, Youth Dock	1	once a week	24	0%	0	N/A
Orange	Dana Point, Dana Strands	1	four times a year	79	0%	0	N/A
Orange	Dana Point, MSI Beach	1	four times a	66	2%	2	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
			year				
Orange	Dana Point, Salt Creek Beach	1	four times a year	79	3%	0	N/A
Orange	Doheny State Beach, 1000' South Outfall	1	three times a week	69	42%	0	N/A
Orange	Doheny State Beach, 2000' South Outfall	1	three times a week	74	45%	11	N/A
Orange	Doheny State Beach, 3000' South Outfall	1	three times a week	70	30%	70	N/A
Orange	Doheny State Beach, 4000' South Outfall	1	three times a week	69	17%	2	N/A
Orange	Doheny State Beach, North Beach	1	three times a week	7	57%	0	N/A
Orange	Doheny State Beach, North of San Juan Creek	1	three times a week	70	43%	1	N/A
Orange	Doheny State Beach, San Juan Creek Mouth	1	three times a week	8	100%	0	N/A
Orange	Doheny State Beach, Surfzone at Outfall	1	three times a week	68	57%	0 (312)	N/A
Orange	Doheny State Beach, Upper San Juan Creek	1	three times a week	8	75%	0	N/A
Orange	Emerald Bay (drain)	1	four times a year	0	n/a	0	N/A
Orange	Huntington City Beach, 17th Street	1	once a day	207	4%	5	N/A
Orange	Huntington City Beach, Beach Hut	1	once a day	207	4%	2	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Orange	Huntington City Beach, Bluffs	1	once a day	207	5%	15	N/A
Orange	Huntington City Beach, Jack's Snack Bar	1	once a day	207	3%	2	N/A
Orange	Huntington Harbour, 11th Street	1	once a week	25	0%	0	N/A
Orange	Huntington Harbour, Admiralty Drive	1	once a week	25	0%	0	N/A
Orange	Huntington Harbour, Anaheim Bay - Gas Dock	1	once a week	25	0%	0	N/A
Orange	Huntington Harbour, Anderson Street Marina	1	once a week	26	8%	4	N/A
Orange	Huntington Harbour, Clubhouse Marina	1	once a week	25	4%	0	N/A
Orange	Huntington Harbour, Coral Cay Beach	1	once a week	27	7%	3	N/A
Orange	Huntington Harbour, Davenport Beach	1	once a week	25	0%	0	N/A
Orange	Huntington Harbour, Harbour Channel	1	once a week	26	12%	4	N/A
Orange	Huntington Harbour, Humboldt Beach	1	once a week	26	4%	2	N/A
Orange	Huntington Harbour, Mothers Beach	1	once a week	27	15%	6	N/A
Orange	Huntington Harbour, Sea Gate	1	once a week	25	0%	0	N/A
Orange	Huntington Harbour, Sunset Aquatic Park	1	once a week	25	4%	0	N/A
Orange	Huntington Harbour, Trinidad Lane Beach	1	once a week	25	0%	0	N/A
Orange	Huntington State Beach, 50' N of Santa Ana River	1	once a day	203	9%	17	N/A
Orange	Huntington State Beach, Brookhurst Street	1	once a day	204	5%	21	N/A
Orange	Huntington State Beach, Magnolia Street	1	once a day	204	6%	28	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Orange	Huntington State Beach, Santa Ana River - North	1	once a day	202	19%	17	N/A
Orange	Huntington State Beach, SCE Plant	1	once a day	207	3%	20	N/A
Orange	Laguna Beach, Blue Lagoon	1	twice a week	80	1%	2	N/A
Orange	Laguna Beach, Bluebird Canyon	1	twice a week	79	3%	1	N/A
Orange	Laguna Beach, Crescent Bay	1	twice a week	34	0%	0	N/A
Orange	Laguna Beach, Emerald Bay	1	twice a week	1	0%	0	N/A
Orange	Laguna Beach, Emerald Bay Downcoast	1	twice a week	33	0%	0	N/A
Orange	Laguna Beach, Emerald Bay Upcoast	1	twice a week	1	0%	0	N/A
Orange	Laguna Beach, Hotel Laguna	1	twice a week	79	5%	13	N/A
Orange	Laguna Beach, Laguna Main Bch Downcoast	1	twice a week	33	0%	0	N/A
Orange	Laguna Beach, Laguna Main Beach	1	twice a week	1	0%	20	N/A
Orange	Laguna Beach, Laguna Main Beach Upcoast	1	twice a week	8	0%	0	N/A
Orange	Laguna Beach, Victoria Beach	1	twice a week	79	0%	0	N/A
Orange	Monarch Beach	1	once a day	29	10%	35	N/A
Orange	Newport Bay, 10th Street	1	once a week	40	13%	2	N/A
Orange	Newport Bay, 15th Street	1	once a week	39	5%	0	N/A
Orange	Newport Bay, 19th Street	1	once a week	39	3%	2	N/A
Orange	Newport Bay, 33rd Street	1	once a week	41	15%	15	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Orange	Newport Bay, 38th Street	1	once a week	42	12%	5	N/A
Orange	Newport Bay, 43rd Street	1	once a week	42	14%	7	N/A
Orange	Newport Bay, Abalone Avenue	1	once a week	44	11%	2	N/A
Orange	Newport Bay, Alvarado/Bay Island	1	once a week	40	5%	2	N/A
Orange	Newport Bay, Back Bay Drive Drain Pipe	1	once a week	8	13%	0	N/A
Orange	Newport Bay, Bayshore Beach	1	once a week	41	10%	0	N/A
Orange	Newport Bay, Bayside Drive Beach	1	once a week	42	5%	6	N/A
Orange	Newport Bay, Big Canyon Creek	1	once a week	8	100%	0	N/A
Orange	Newport Bay, De Anza	1	once a week	41	10%	0	N/A
Orange	Newport Bay, Garnet Avenue	1	once a week	41	7%	2	N/A
Orange	Newport Bay, Grand Canal	1	once a week	39	0%	0	N/A
Orange	Newport Bay, Grant Street	1	once a week	25	4%	0	N/A
Orange	Newport Bay, Lancaster/62nd Street	1	once a week	26	4%	2	N/A
Orange	Newport Bay, Lido Yacht Club	1	once a week	42	10%	4	N/A
Orange	Newport Bay, N Street Beach	1	once a week	40	3%	0	N/A
Orange	Newport Bay, Newport Blvd Bridge	1	once a week	40	40%	0	N/A
Orange	Newport Bay, Newport Dunes East	1	once a week	45	20%	15	N/A
Orange	Newport Bay, Newport Dunes Middle	1	once a week	44	16%	4	N/A
Orange	Newport Bay, Newport Dunes North	1	once a week	42	14%	4	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Orange	Newport Bay, Newport Dunes West	1	once a week	43	14%	5	N/A
Orange	Newport Bay, North Star Beach	1	once a week	42	14%	7	N/A
Orange	Newport Bay, Onyx Avenue	1	once a week	40	3%	0	N/A
Orange	Newport Bay, Park Avenue	1	once a week	41	5%	2	N/A
Orange	Newport Bay, Promontory Point	1	once a week	41	5%	2	N/A
Orange	Newport Bay, Rhine Channel	1	once a week	41	5%	4	N/A
Orange	Newport Bay, Rocky Point	1	once a week	40	0%	0	N/A
Orange	Newport Bay, Ruby Avenue	1	once a week	41	7%	2	N/A
Orange	Newport Bay, San Diego Crk @ Campus Dr	1	once a week	8	63%	0	N/A
Orange	Newport Bay, Santa Ana Delhi Channel	1	once a week	8	75%	0	N/A
Orange	Newport Bay, Sapphire Avenue	1	once a week	41	7%	6	N/A
Orange	Newport Bay, Ski Zone	1	once a week	9	56%	0	N/A
Orange	Newport Bay, Vaughns Launch	1	once a week	15	47%	0	N/A
Orange	Newport Bay, Via Genoa	1	once a week	40	5%	0	N/A
Orange	Newport Beach, 15th/16th St.	1	once a day	202	2%	3	N/A
Orange	Newport Beach, 38th Street	1	once a day	203	2%	3	N/A
Orange	Newport Beach, 52nd/53rd Street	1	once a day	202	1%	0	N/A
Orange	Newport Beach, Balboa Pier	1	once a day	202	1%	3	N/A
Orange	Newport Beach, Corona Del Mar	1	once a day	202	2%	3	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Orange	Newport Beach, Little Corona	1	once a day	3	0%	19	N/A
Orange	Newport Beach, Little Corona Downcoast	1	once a day	27	11%	0	N/A
Orange	Newport Beach, Little Corona Upcoast	1	once a day	27	0%	0	N/A
Orange	Newport Beach, Orange Street	1	once a day	203	5%	3	N/A
Orange	Newport Beach, Santa Ana River - South	1	once a day	202	38%	0	N/A
Orange	Newport Beach, The Wedge	1	once a day	202	0%	0	N/A
Orange	Poche County Beach	1	twice a week	66	58%	121 (94)	N/A
Orange	Salt Creek Beach Park	no data	three times a week	0	n/a	0	N/A
Orange	San Clemente City Beach, 450' North of Pier	1	twice a week	66	5%	6	N/A
Orange	San Clemente City Beach, North Beach	1	twice a week	66	12%	12	N/A
Orange	San Clemente City Beach, T-Street Beach Downcoast	1	twice a week	32	3%	0	N/A
Orange	San Clemente City Beach, T-Street Beach Upcoast	1	twice a week	3	0%	0	N/A
Orange	San Clemente City Beach, Trafalgar Street Beach	1	twice a week	1	0%	1	N/A
Orange	San Clemente State Beach, Avenida Calafia	1	twice a week	65	5%	2	N/A
Orange	San Clemente State Beach, Las Palmeras	1	twice a week	63	3%	0	N/A
Orange	Seal Beach Surfside, 1st Street	1	once a week	43	12%	4	N/A
Orange	Seal Beach Surfside, 8th Street	1	once a week	42	5%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Orange	Seal Beach Surfside, 14th Street	1	once a week	42	2%	0	N/A
Orange	Seal Beach Surfside, 100 yds South of Pier	1	once a week	42	2%	2	N/A
Orange	Seal Beach Surfside, San Gab R @ 1st St Pk Lot	1	once a week	8	25%	0	N/A
Orange	Seal Beach Surfside, Sea Way	1	once a week	41	0%	0	N/A
Orange	South Laguna, Laguna Lido Apartment	1	twice a week	79	0%	0	N/A
Orange	Sunset Beach, Broadway	1	once a week	42	0%	0	N/A
San Diego	Agua Hedionda Lagoon	1	four times a year	0	n/a	0	N/A
San Diego	Baja California, Mexico, el Vigia	1	once a week	35	9%	0	N/A
San Diego	Baja California, Mexico, Playas Blanca	1	once a week	35	23%	0	N/A
San Diego	Baja California, Mexico, Playas De Tijuana	1	once a week	35	14%	0	N/A
San Diego	Bayside Park	no data	no data	0	n/a	0	N/A
San Diego	Bird Rock (NR)	1	four times a year	0	n/a	0	N/A
San Diego	Border Field State Park, Border Fence N side	1	once a week	40	13%	0	N/A
San Diego	Border Field State Park, Monument Rd.	1	once a week	42	21%	0	N/A
San Diego	Buccaneer Beach, 500'N. of Loma Alta outlet	1	four times a year	38	5%	0	N/A
San Diego	Buccaneer Beach, Loma Alta Creek outlet	1	four times a year	24	21%	22	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Diego	Cardiff State Beach, Cardiff/ San Elijo Lagoon	1	once a week	56	0%	7	N/A
San Diego	Cardiff State Beach, Charthouse parking	1	once a week	39	8%	0	N/A
San Diego	Cardiff State Beach, Las Olas (Georges)	1	once a week	38	0%	0	N/A
San Diego	Cardiff State Beach, Seaside State Park	1	once a week	38	0%	0	N/A
San Diego	Carlsbad City Beach, Buena Vista Lagoon outlet	1	once a week	11	0%	11	N/A
San Diego	Carlsbad Municipal Beach	1	once a week	0	n/a	0	N/A
San Diego	Carlsbad State Beach, Tamarack Av	1	once a week	27	0%	0	N/A
San Diego	Carlsbad State Beach, Warm Water Jetty	1	once a week	22	0%	0	N/A
San Diego	Coronado Cays (NR)	1	four times a year	0	n/a	0	N/A
San Diego	Coronado City beaches, Avd. del Sol	1	three times a week	38	0%	0	N/A
San Diego	Coronado, Central beach	1	twice a week	0	n/a	0	N/A
San Diego	Del Mar municipal beach other Sea Orbit Ln, 12th Street	1	once a week	2	0%	3	N/A
San Diego	Dog Beach O.B. S.D. San Diego River outlet	1	four times a year	0	n/a	3	N/A
San Diego	Fletcher Cove outlet	1	four times a year	42	2%	0	N/A
San Diego	Harbor Beach, San Luis Rey River outlet	1	four times a year	67	10%	68	N/A
San Diego	Imperial Beach municipal beach, Camp Surf	1	once a week	2	50%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	jetty						
San Diego	Imperial Beach municipal beach, Carnation Ave.	1	once a week	47	17%	16	N/A
San Diego	Imperial Beach municipal beach, Cortez Ave	1	once a week	17	59%	0	N/A
San Diego	Imperial Beach municipal beach, End of Seacoast Dr	1	once a week	48	21%	56	N/A
San Diego	Imperial Beach municipal beach, Imperial Beach Boulevard	1	once a week	10	70%	0	N/A
San Diego	Imperial Beach municipal beach, Imperial Beach Pier	1	once a week	37	27%	0	N/A
San Diego	Imperial Beach municipal beach, Palm Ave	1	once a week	8	75%	0	N/A
San Diego	La Jolla Community Beach	1	once a week	4	25%	0	N/A
San Diego	La Jolla Cove	1	once a week	15	0%	0	N/A
San Diego	La Jolla Shores Beach, Ave De La Playa	1	once a week	28	0%	0	N/A
San Diego	Leucadia	1	four times a year	0	n/a	0	N/A
San Diego	Marine Street Beach	1	four times a year	0	n/a	0	N/A
San Diego	Mission Bay, Bahia Point	1	once a week	26	8%	2	N/A
San Diego	Mission Bay, Campland On The Bay, Campland swimming beach	1	once a week	26	4%	0	N/A
San Diego	Mission Bay, Crown Point drain	1	four times a year	24	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Diego	Mission Bay, Crown Point Shores, Wildlife Refuge fence	1	once a week	24	0%	0	N/A
San Diego	Mission Bay, De Anza Cove, 1st drain east of swim area	1	once a week	26	4%	1	N/A
San Diego	Mission Bay, Fanuel Park	1	once a week	24	0%	0	N/A
San Diego	Mission Bay, Leisure Lagoon, comfort sta N of Leisure	1	once a week	26	4%	3	N/A
San Diego	Mission Bay, Leisure Lagoon, Leisure Lagoon swim area	1	once a week	24	4%	0	N/A
San Diego	Mission Bay, Mariners Basin, Bonita Cove eastern shore	1	once a week	27	4%	1	N/A
San Diego	Mission Bay, north pacific passage	1	once a week	0	n/a	0	N/A
San Diego	Mission Bay, Quivera Basin	1	four times a year	0	n/a	0	N/A
San Diego	Mission Bay, Riviera Shores	1	four times a year	0	n/a	0	N/A
San Diego	Mission Bay, Sail Bay, Whiting Ct Catamaran	1	once a week	1	0%	0	N/A
San Diego	Mission Bay, San Juan Cove	1	four times a year	0	n/a	0	N/A
San Diego	Mission Bay, Santa Barbara Cove	1	four times a year	0	n/a	0	N/A
San Diego	Mission Bay, Tecolote playground	1	four times a year	25	4%	0	N/A
San Diego	Mission Bay, Tecolote Shores swim area	1	four times a year	24	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Diego	Mission Bay, Vacation Isle, Mission Bay Vacation Isle North Cove	1	once a week	17	0%	0	N/A
San Diego	Mission Bay, Vacation Isle, S side Vacation Isle	1	once a week	7	0%	0	N/A
San Diego	Mission Bay, Vacation Isle, Ski Beach	1	once a week	23	9%	0	N/A
San Diego	Mission Bay, Ventura Cove	1	once a week	0	n/a	0	N/A
San Diego	Mission Bay, Visitor's Center, drain S of Visitor's Cntr	1	once a week	24	4%	2	N/A
San Diego	Mission Beach, Belmont Park	1	once a week	43	0%	0	N/A
San Diego	Moonlight Beach, Cottonwood Creek outlet	1	twice a week	53	2%	12	N/A
San Diego	North Imperial Beach	1	four times a year	0	n/a	0	N/A
San Diego	Ocean Beach	1	once a week	0	n/a	0	N/A
San Diego	Oceanside Harbor	1	once a week	0	n/a	0	N/A
San Diego	Oceanside municipal beach, Cassidy Street	1	once a week	38	3%	0	N/A
San Diego	Oceanside municipal beach, Forester Street	1	once a week	37	3%	0	N/A
San Diego	Oceanside municipal beach, St. Malo Beach	1	once a week	39	3%	0	N/A
San Diego	Oceanside municipal beach, Tyson Street	1	once a week	37	3%	0	N/A
San Diego	Oceanside Pier area	1	once a week	0	n/a	0	N/A
San Diego	Pacific Beach	1	once a week	0	n/a	0	N/A
San Diego	Powerhouse Park 15th Street	1	four times a year	30	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Diego	San Diego Bay Chula Vista Bayside Park (J Street)	1	once a week	0	n/a	5	N/A
San Diego	San Diego Bay Coronado Cays	1	four times a year	0	n/a	0	N/A
San Diego	San Diego Bay Glorietta Bay	1	once a week	21	0%	0	N/A
San Diego	San Diego Bay, Lawrence St. outlet	1	four times a year	19	0%	0	N/A
San Diego	San Diego Bay, Shelter Island Shoreline Park	1	once a week	0	n/a	1	N/A
San Diego	San Diego Bay, Silver Strand (bayside)	1	four times a year	7	14%	3	N/A
San Diego	San Diego Bay, Spanish Landing	1	four times a year	25	8%	1	N/A
San Diego	San Diego Bay, Sweetwater River (NR)	1	four times a year	1	0%	0	N/A
San Diego	San Diego Bay, Tidelands Park	1	four times a year	25	4%	4	N/A
San Diego	San Dieguito River Beach	1	twice a week	48	6%	0	N/A
San Diego	San Dieguito River Beach, Del Mar, San Dieguito River outlet	1	no data	0	n/a	1	N/A
San Diego	San Elijo State Beach, Pipes	1	once a week	37	0%	0	N/A
San Diego	San Elijo State Beach, stairs near main entrance	1	once a week	38	0%	0	N/A
San Diego	San Onofre State Beach	1	once a week	0	n/a	2	N/A
San Diego	San Onofre State Beach Old Man's north SO	no	no data	0	n/a	4	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
		data					
San Diego	Seascape Beach Park	1	once a week	27	4%	0	N/A
San Diego	Shell Beach, Bermuda Ave	1	once a week	43	0%	2	N/A
San Diego	Shell Beach, Newport Ave	1	once a week	43	0%	0	N/A
San Diego	Shell Beach, O.B. pier @ Narrangaset	1	once a week	43	0%	0	N/A
San Diego	Shell Beach, Stub Jetty south side	1	once a week	42	0%	0	N/A
San Diego	Silver Strand State Beach, Silver Strand N end (ocean)	1	once a week	37	3%	4	N/A
San Diego	Solana Beach City Beaches, Tide Beach center	1	once a week	38	0%	0	N/A
San Diego	South Carlsbad State Beach, Batiquitos Lagoon outlet	1	once a week	31	0%	2	N/A
San Diego	South Carlsbad State Beach, Cerezo Drive	1	once a week	38	0%	0	N/A
San Diego	South Carlsbad State Beach, Encina Creek outlet	1	once a week	38	0%	0	N/A
San Diego	South Carlsbad State Beach, Palomar Airport	1	once a week	38	0%	0	N/A
San Diego	South Carlsbad State Beach, Poinsettia Lane	1	once a week	38	0%	0	N/A
San Diego	South Carlsbad State Beach, Ponto Drive	1	once a week	38	0%	0	N/A
San Diego	South Casa Beach S.D.	1	four times a year	17	0%	0	N/A
San Diego	Spanish Landing Park	1	once a week	0	n/a	0	N/A
San Diego	Sunset Cliffs Park, Ladera Street	1	once a week	43	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Diego	Swami's Park, Swami's	1	once a week	24	0%	0	N/A
San Diego	Tecolote Shores	1	once a week	0	n/a	0	N/A
San Diego	Tide Beach Park	1	four times a year	0	n/a	0	N/A
San Diego	Tijuana River	1	once a week	0	n/a	0	N/A
San Diego	Tijuana Slough National Wildlife Refuge, 3/4 mi. N of TJ River	1	once a week	45	13%	0	N/A
San Diego	Tijuana Slough National Wildlife Refuge, Tijuana Estuary mouth	1	once a week	55	35%	56 (157)	N/A
San Diego	Torrey Pines City Beach	1	four times a year	0	n/a	0	N/A
San Diego	Torrey Pines State Beach, Black's Beach	1	once a week	4	0%	0	N/A
San Diego	Torrey Pines State Beach, Los Peasquitos Lagoon	1	once a week	53	8%	5	N/A
San Diego	Tourmaline Surfing Park	1	once a week	24	0%	0	N/A
San Diego	USMC Camp Pendleton	1	once a week	0	n/a	0	N/A
San Diego	Whispering Sands Nicholson Pt., Coast Blvd gazebo	1	four times a year	1	0%	0	N/A
San Diego	Whispering Sands Nicholson Pt., Ravina south	1	four times a year	19	11%	0	N/A
San Diego	WindanSea Beach, Playa Del Norte	1	once a week	25	0%	0	N/A
San Francisco	Aquatic Park, Hyde Street Pier	1	once a week	52	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Francisco	Aquatic Park, Mid-beach	1	once a week	63	17%	3	N/A
San Francisco	Baker Beach, Lobos Creek at Lower Parking Lot	1	once a week	63	10%	11	N/A
San Francisco	Baker Beach, Opposite Seacliff 2 Pumping Station	1	once a week	58	2%	6	N/A
San Francisco	Baker Beach, Upper Parking Lot	1	once a week	63	2%	6	N/A
San Francisco	Candlestick Point, Jack Rabbit Beach	1	once a week	68	24%	11	N/A
San Francisco	Candlestick Point, Sunnydale Cove	1	once a week	68	24%	13	N/A
San Francisco	Candlestick Point, Windsurfer Circle	1	once a week	71	27%	21	N/A
San Francisco	China Beach, China Beach	1	once a week	55	4%	3	N/A
San Francisco	Crissy Field West	1	once a week	55	5%	3	N/A
San Francisco	Crissy Field, New Beach	1	once a week	63	17%	9	N/A
San Francisco	Ocean Beach at Vicente St.	1	once a week	1	0%	2	N/A
San Francisco	Ocean Beach, at Balboa St.	1	once a week	53	0%	2	N/A
San Francisco	Ocean Beach, at Lincoln Ave.	1	once a week	53	0%	2	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Francisco	Ocean Beach, at Pacheco St.	1	once a week	1	0%	2	N/A
San Francisco	Ocean Beach, at Sloat Blvd.	1	once a week	54	2%	2	N/A
San Francisco	Ocean Beach, Fort Funston	1	once a week	4	50%	6	N/A
San Luis Obispo	Avila Beach - Halfway between San Luis Creek and pier	1	once a week	56	11%	0	N/A
San Luis Obispo	Avila Beach, 249 yds east of pier by last steps on rock wall	1	once a week	56	7%	1	N/A
San Luis Obispo	Cayucos Beach, Farthest swing set, near D street	1	once a week	52	10%	1	N/A
San Luis Obispo	Cayucos Beach, Half way between creek and pier	1	once a week	54	11%	2	N/A
San Luis Obispo	Cayucos Beach, Studio drive parking lot, south of Old Creek	1	once a week	50	2%	0	N/A
San Luis Obispo	Hearst Memorial State Beach, 100 feet east of the pier	1	four times a year	0	n/a	0	N/A
San Luis Obispo	Hearst Memorial State Beach, 100 feet west of the pier	1	four times a year	0	n/a	0	N/A
San Luis Obispo	Leffingwell Beach	1	four times a year	0	n/a	0	N/A
San Luis Obispo	Montana De Oro - Hazard Canyon	no data	once a week	51	0%	0	N/A
San Luis Obispo	Moonstone Beach	1	four times a year	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Luis Obispo	Morro Bay City Beach, 75 ft north of main parking lot	1	once a week	48	0%	0	N/A
San Luis Obispo	Morro Bay City Beach, Atascadero Ave	1	once a week	55	11%	3	N/A
San Luis Obispo	Morro Bay City Beach, Small parking lot south side of Morro Bay Creek	1	once a week	54	9%	3	N/A
San Luis Obispo	Morro Strand State Beach, Alva Paul-Beachcomber Dr & Luzon South	1	once a week	49	0%	0	N/A
San Luis Obispo	N Morro Strand State Beach	1	four times a year	0	n/a	0	N/A
San Luis Obispo	Oceano Dunes State Rec Area Post 4	1	four times a year	49	2%	0	N/A
San Luis Obispo	Oceano Dunes State Rec Area, 350 yds north of Pier Ave	1	four times a year	49	2%	0	N/A
San Luis Obispo	Oceano Dunes State Rec Area, 571 yds south of Pier Ave	1	four times a year	49	2%	0	N/A
San Luis Obispo	Oceano Dunes State Rec Area, Pier Ave	1	four times a year	50	2%	0	N/A
San Luis Obispo	Olde Port Beach-11	1	once a week	58	16%	0	N/A
San Luis Obispo	Olde Port Beach-12	1	once a week	58	16%	4	N/A
San Luis Obispo	Pismo State Beach, 40 ft south of pier	1	once a week	58	16%	5	N/A
San Luis Obispo	Pismo State Beach, 302 yds south of Pier-Sea Venture green roof-Ocean	1	once a week	54	9%	2	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Luis Obispo	Pismo State Beach, 338 yds north of pier-Edgewater Motel	1	once a week	51	4%	0	N/A
San Luis Obispo	Pismo State Beach, Oceano	1	once a week	0	n/a	0	N/A
San Luis Obispo	S Morro Strand State Beach	1	four times a year	0	n/a	0	N/A
San Luis Obispo	San Simeon Beach	1	once a week	51	4%	1	N/A
San Luis Obispo	Sewers, Silver Shoals Drive	1	once a week	51	4%	1	N/A
San Luis Obispo	Shell Beach	1	four times a year	0	n/a	0	N/A
San Luis Obispo	Spyglass Park	1	four times a year	0	n/a	0	N/A
San Mateo	Ano Nuevo State Refuge	1	four times a year	0	n/a	0	N/A
San Mateo	Aquatic Park	1	once a week	45	47%	90	N/A
San Mateo	Bean Hollow State Beach	1	once a week	30	0%	0	N/A
San Mateo	Capistrano Blvd. Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Coyote Point County Park	1	once a week	44	5%	15	N/A
San Mateo	Dunes State Beach	1	once a week	49	0%	0	N/A
San Mateo	El Grandada	1	four times a year	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Mateo	Elmar Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Fitzgerald Marine (Moss Beach)	1	once a week	49	16%	84	N/A
San Mateo	Francis State Beach	1	once a week	48	0%	7	N/A
San Mateo	Gazos Creek Access	1	once a week	30	0%	0	N/A
San Mateo	Gray Whale State Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Kiteboard Beach	no data	no data	32	22%	53	N/A
San Mateo	Lakeshore Park	1	four times a year	44	43%	97 (108)	N/A
San Mateo	Manor Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Martin's Beach	1	once a week	0	n/a	0	N/A
San Mateo	Maverick's Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Miramar Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Montara State Beach	1	once a week	49	0%	0	N/A
San Mateo	Mori Point	1	four times a year	0	n/a	0	N/A
San Mateo	Naples Beach	1	once a week	0	n/a	0	N/A
San Mateo	Oyster Point Marina	no data	once a week	0	n/a	91	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Mateo	Pacifica State Beach, Linda Mar Beach #5	1	once a week	49	6%	22	N/A
San Mateo	Pebble Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Pescadero State Beach	1	once a week	30	3%	7	N/A
San Mateo	Pigeon Point Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Pillar Point #7	1	once a week	50	34%	135 (61)	N/A
San Mateo	Pillar point #8	1	once a week	49	18%	91	N/A
San Mateo	Pomponio State Beach	1	once a week	30	0%	0	N/A
San Mateo	Poplar Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Redondo Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Rockaway Beach	1	once a week	47	0%	0	N/A
San Mateo	Roosevelt State Beach	1	once a week	49	0%	7	N/A
San Mateo	Ross's Cove	1	four times a year	0	n/a	0	N/A
San Mateo	San Gregorio State Beach	1	once a week	30	7%	13	N/A
San Mateo	Sand Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Sharp Park	1	once a week	76	1%	0	N/A
San Mateo	Surfers Beach	1	once a week	49	2%	16	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Mateo	Thornton State Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Tunitas Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Vallejo Beach	1	four times a year	0	n/a	0	N/A
San Mateo	Venice State Beach	1	once a week	49	0%	0	N/A
Santa Barbara	1000 Steps	1	once a week	0	n/a	0	N/A
Santa Barbara	Arroyo Burro	1	once a week	54	31%	50	N/A
Santa Barbara	Arroyo Quemado	1	four times a year	0	n/a	0	N/A
Santa Barbara	Butterfly Beach	1	once a week	45	16%	23	N/A
Santa Barbara	Campus Pt.	1	once a week	0	n/a	0	N/A
Santa Barbara	Carpinteria City	1	once a week	47	23%	0	N/A
Santa Barbara	Carpinteria State	1	once a week	0	n/a	42	N/A
Santa Barbara	Coal Oil Point	1	once a week	0	n/a	12	N/A
Santa Barbara	Depressions	1	once a week	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Santa Barbara	Devereaux	1	once a week	0	n/a	0	N/A
Santa Barbara	East Beach Sycamore Creek	1	once a week	44	7%	10	N/A
Santa Barbara	East Beach- Mission Creek	1	once a week	53	42%	88	N/A
Santa Barbara	El Capitan State Beach	1	once a week	44	11%	21	N/A
Santa Barbara	Ellwood	1	once a week	0	n/a	0	N/A
Santa Barbara	Gaviota State Beach	1	once a week	39	15%	47	N/A
Santa Barbara	Goleta Beach	1	once a week	46	13%	21	N/A
Santa Barbara	Guadalupe Dunes Beach	1	once a week	6	17%	6	N/A
Santa Barbara	Hammonds	1	once a week	43	5%	7	N/A
Santa Barbara	Haskell's	1	once a week	0	n/a	0	N/A
Santa Barbara	Hope Ranch Beach	1	once a week	45	20%	36	N/A
Santa Barbara	Isla Vista Beach	1	once a week	0	n/a	0	N/A
Santa Barbara	Jalama Beach	1	once a week	42	14%	48	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Santa Barbara	Leadbetter	1	once a week	44	7%	10	N/A
Santa Barbara	Loon Point	1	once a week	0	n/a	0	N/A
Santa Barbara	Mesa Lane	1	once a week	0	n/a	0	N/A
Santa Barbara	Miramar	1	once a week	0	n/a	0	N/A
Santa Barbara	Ocean Beach	1	once a week	0	n/a	0	N/A
Santa Barbara	Padaro Lane	1	once a week	0	n/a	0	N/A
Santa Barbara	Refugio State Beach	1	once a week	45	18%	35	N/A
Santa Barbara	Rincon at Bates Beach	1	once a week	0	n/a	0	N/A
Santa Barbara	Sands Beach at Coal Oil Point	1	once a week	0	n/a	0	N/A
Santa Barbara	Santa Claus Lane	1	once a week	0	n/a	0	N/A
Santa Barbara	Summerland Beach	1	once a week	43	2%	2	N/A
Santa Barbara	Surf Beach	1	once a week	0	n/a	0	N/A
Santa Barbara	West Beach	1	once a week	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Santa Cruz	Beercan Beach	1	four times a year	0	n/a	0	N/A
Santa Cruz	Capitola Beach east of Jetty	1	once a week	54	11%	0	N/A
Santa Cruz	Capitola Beach west of Jetty	1	once a week	58	22%	2	N/A
Santa Cruz	Corcoran Lagoon Beach	1	once a month	11	9%	0	N/A
Santa Cruz	Cowell Beach Stairs	1	once a week	52	2%	0	N/A
Santa Cruz	Cowell Beach west of Wharf	1	once a week	63	32%	26 (92)	N/A
Santa Cruz	Hidden Beach	1	once a month	12	0%	0	N/A
Santa Cruz	Hooper's Beach	1	four times a year	0	n/a	0	N/A
Santa Cruz	Lighthouse Beach	1	once a month	11	0%	0	N/A
Santa Cruz	Main Beach at Boardwalk	1	once a week	60	10%	12	N/A
Santa Cruz	Main Beach at San Lorenzo	1	once a week	55	9%	21	N/A
Santa Cruz	Manresa State Beach	1	once a month	12	0%	0	N/A
Santa Cruz	Mitchells Cove Beach	1	once a month	12	0%	0	N/A
Santa Cruz	Moran Lake Beach	1	once a month	11	9%	0	N/A
Santa Cruz	Natural Bridges State Beach	1	once a week	54	9%	0	N/A
Santa Cruz	Neary Lagoon mouth	1	once a week	0	n/a	0	N/A
Santa Cruz	New Brighton State Beach	1	once a week	52	12%	0	N/A
Santa Cruz	Pajaro Dunes State Beach	1	once a week	13	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Santa Cruz	Pleasure Point Beach	1	once a month	12	8%	0	N/A
Santa Cruz	Rio del Mar Beach	1	once a week	53	8%	2	N/A
Santa Cruz	San Vicente Beach	1	once a month	11	0%	0	N/A
Santa Cruz	Schwan Lake	1	once a week	0	n/a	0	N/A
Santa Cruz	Scott Creek Beach	1	once a month	12	8%	0	N/A
Santa Cruz	Seabright State Beach	1	once a week	52	2%	0	N/A
Santa Cruz	Seacliff State Beach	1	once a week	60	7%	2	N/A
Santa Cruz	Seascape Beach	1	four times a year	0	n/a	0	N/A
Santa Cruz	Sunny Cove Beach	1	once a month	12	8%	0	N/A
Santa Cruz	Sunset Beach	1	once a month	12	0%	0	N/A
Santa Cruz	Trestle Beach	1	four times a year	0	n/a	0	N/A
Santa Cruz	Twin Lakes State Beach	1	once a week	52	4%	0	N/A
Santa Cruz	Waddell Creek Beach	1	once a month	11	9%	0	N/A
Sonoma	Black Point Regional Park Beach	1	once a week	30	0%	0	N/A
Sonoma	Campbell Cove State Beach	1	once a week	35	11%	29	N/A
Sonoma	Doran Regional Park Beach	1	once a week	30	0%	0	N/A
Sonoma	Goat Rock State Beach	1	once a week	30	3%	5	N/A
Sonoma	Gualala Regional Park Beach	1	once a week	30	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Sonoma	Salmon Creek State Beach	1	once a week	34	0%	0	N/A
Sonoma	Stillwater Regional Park Beach	1	once a week	30	7%	5	N/A
Ventura	County Line Beach	1	once a week	26	0%	1	N/A
Ventura	Deer Creek Beach	1	once a week	0	n/a	0	N/A
Ventura	Emma Wood State Beach	1	once a week	48	4%	6	N/A
Ventura	Faria County Park	1	once a week	48	6%	6	N/A
Ventura	Hobie Beach	1	once a week	50	12%	17	N/A
Ventura	Hobson County Park	1	once a week	25	0%	0	N/A
Ventura	Hollywood Bch-La Crescen.	1	once a week	26	0%	0	N/A
Ventura	Hollywood Bch-Los Robles	1	once a week	50	2%	0	N/A
Ventura	Kiddie Beach	1	once a week	51	6%	0	N/A
Ventura	La Conchita Beach	1	once a week	0	n/a	0	N/A
Ventura	Mandos Cove Beach	1	once a week	25	0%	0	N/A
Ventura	Marina Park Beach	1	once a week	25	0%	0	N/A
Ventura	McGrath State Beach, station 2600	1	once a week	0	n/a	0	N/A
Ventura	McGrath State Beach, station 2700	1	once a week	0	n/a	0	N/A
Ventura	McGrath State Beach, station 2800	1	once a week	0	n/a	0	N/A
Ventura	Mussel Shoals Beach	1	once a week	25	0%	0	N/A
Ventura	Oil Piers Beach	1	once a week	49	4%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Ventura	Ormond Bch-Indust. Drain	1	once a week	43	0%	9	N/A
Ventura	Ormond Beach- J St.	1	once a week	51	8%	9	N/A
Ventura	Ormond Beach-Arnold Rd.	1	once a week	43	0%	9	N/A
Ventura	Oxnard Bch Pk-Falkirk Ave	1	once a week	35	3%	1	N/A
Ventura	Oxnard Bch Pk-Starfish Dr	1	once a week	34	0%	1	N/A
Ventura	Oxnard Bch-5th St.	1	once a week	26	0%	0	N/A
Ventura	Oxnard Bch-Outrigger Way	1	once a week	26	0%	0	N/A
Ventura	Peninsula Bch/Harbor Cove	1	once a week	25	4%	1	N/A
Ventura	Point Mugu Beach	1	once a week	26	0%	0	N/A
Ventura	Port Hueneme Beach Pk.	1	once a week	51	8%	9	N/A
Ventura	Promenade Pk-Calif. St.	1	once a week	25	0%	7	N/A
Ventura	Promenade Pk-Figueroa St.	1	once a week	49	8%	7	N/A
Ventura	Promenade Pk-Redwood Apts	1	once a week	22	0%	7	N/A
Ventura	Rincon Beach	1	once a week	51	8%	2	N/A
Ventura	Rincon Parkway North	1	once a week	0	n/a	0	N/A
Ventura	San Buenaventura State Beach, Dover Lane	1	once a week	25	0%	1	N/A
Ventura	San Buenaventura State Beach, Kalorama St.	1	once a week	25	0%	1	N/A
Ventura	San Buenaventura State Beach, San Jon Rd.	1	once a week	49	6%	1	N/A
Ventura	San Buenaventura State Beach, Weymouth	1	once a week	25	0%	1	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	Ln.						
Ventura	Seaside Wilderness Park Beach	1	once a week	0	n/a	0	N/A
Ventura	Silverstrand Beach, S. Paula	1	once a week	49	0%	21	N/A
Ventura	Silverstrand Beach, San Nic.	1	once a week	50	4%	6	N/A
Ventura	Silverstrand Beach, Sawtelle	1	once a week	51	2%	3	N/A
Ventura	Solimar Beach	1	once a week	49	6%	6	N/A
Ventura	South Jetty Beach	1	once a week	0	n/a	0	N/A
Ventura	Staircase Beach	1	once a week	26	0%	0	N/A
Ventura	Surfer's Knoll Beach	1	once a week	49	8%	6	N/A
Ventura	Surfer's Point at Seaside	1	once a week	50	4%	1	N/A
Ventura	Sycamore Cove Beach	1	once a week	26	0%	0	N/A
Ventura	Thornhill Broome Beach	1	once a week	26	0%	0	N/A
Ventura	Ventura River	1	once a week	0	n/a	0	N/A

Notes

1. California State Water Resources Control Board, "California Beach Water Quality Background Information," accessed at www.swrcb.ca.gov/water_issues/programs/beaches/beach_water_quality/background.shtml, December 2011.
2. Tam, W., "Infrastructure Improvements in the City of Los Angeles for Santa Monica Bay Beaches," National Beach Conference, Huntington Beach, California, April 2009.
3. John Griffith, Southern California Coastal Water Research Project, personal communication, March 2012.
4. Steve Weisberg, Southern California Coastal Water Research Project, personal communication, March 2012.

5. U.S. Environmental Protection Agency, "Long Beach City Beaches and Los Angeles River Estuary Total Maximum Daily Loads for Indicator Bacteria," March 26, 2012.
6. Michael Gjerde, California State Water Resources Control Board, personal communication, March 2012.
7. Becky Valenti, County of Los Angeles Department of Public Health, personal communication, June 2012.
8. Michael Fennessy, Orange County Environmental Health, personal communication, June 2012.
9. City of Long Beach Health and Human Services, "Water Quality Program Recreational Water Monitoring," accessed at http://www.longbeach.gov/health/eh/water/water_samples.asp, June 2012.
10. California State Water Resources Control Board, "Welcome to the California Beach Water Quality Information Page," accessed at www.swrcb.ca.gov/water_issues/programs/beaches/beach_water_quality, December 2011.
11. Robert Turner, Marin County Environmental Health Services, personal communication, June 2012.
12. San Francisco Public Utilities Commission, "Beach Water Quality Monitoring Program," accessed at <http://sfwater.org/index.aspx?page=87>, June 2012.
13. California Department of Public Health, "Draft Guidance for Salt Water Beaches, Last Update: April 10, 2006.
14. San Diego County Department of Environmental Health, "San Diego County 2004 Beach Closure & Advisory Report," May 2008.
15. Amanda Griesbach, Heal the Bay, personal communication, March 2012.
16. Why don't the 2011 percent exceedance values in this summary match? The value at the top of the first page reflects the proportion of samples exceeding the national single-sample maximum standard for designated beach areas. The values in the "What Does Beach Monitoring Show?" section reflects the proportion of samples exceeding the state standard, which in California's case is more stringent than the designated beach standard. Also, only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart. Because some beaches were not monitored in each of those years, the percent exceedance for this subset of beaches did not have the same value as the percent exceedance for all of the beaches monitored in 2011.

Testing the Waters: Delaware

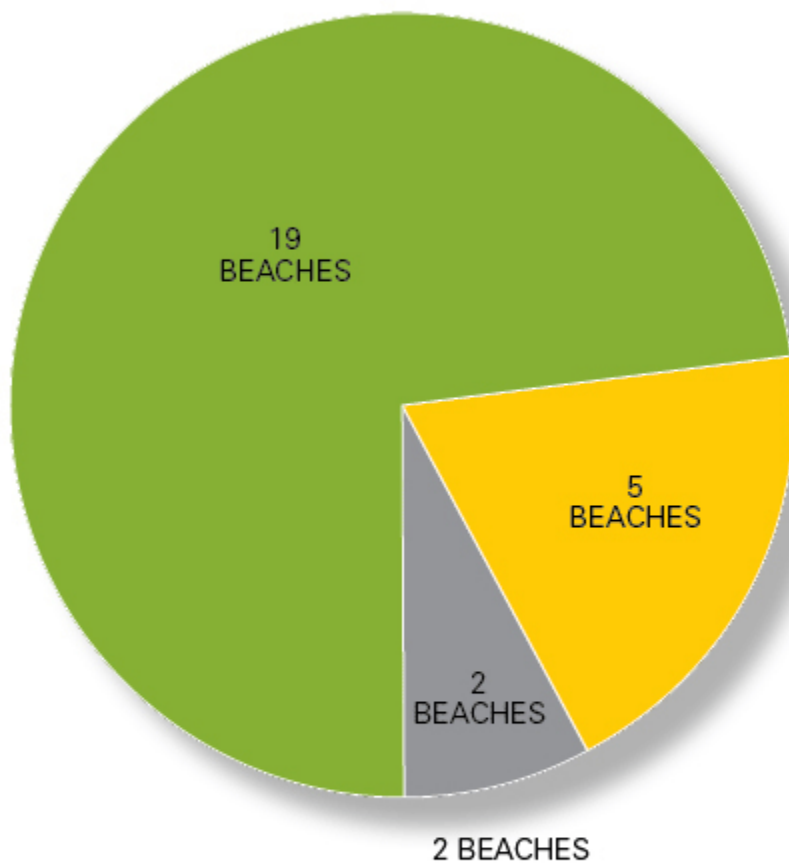
Ranked 1st in Beachwater Quality (out of 30 states)

1% of samples exceeded national standards for designated beach areas in 2011

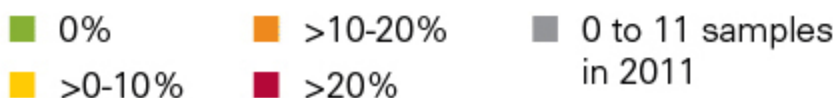
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA's estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Delaware

Delaware 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



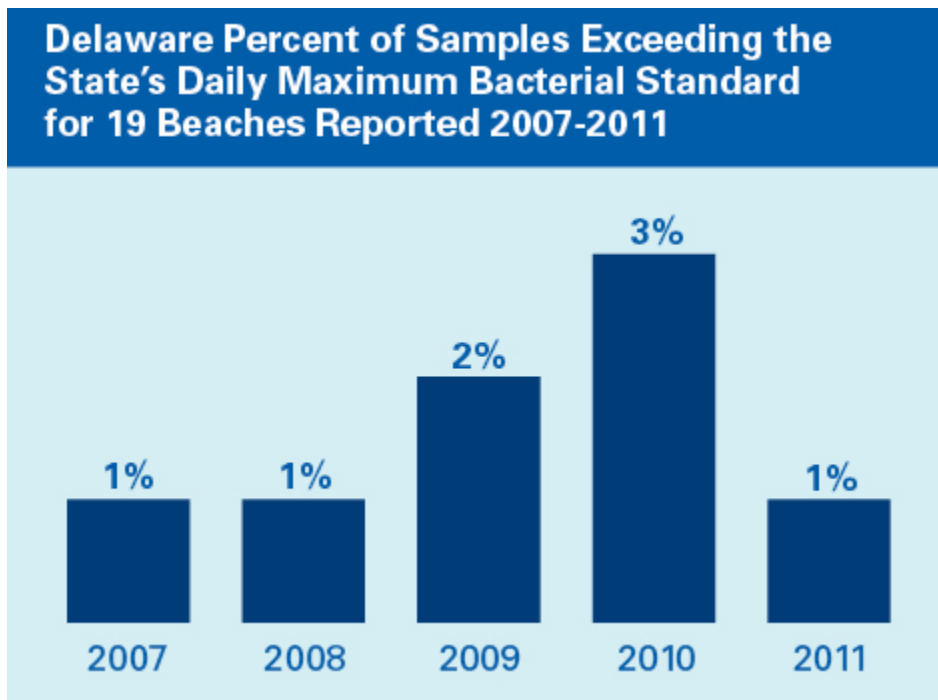
Reported Sources of Beachwater Contamination (number of closing/advisory days)

- 6 (100%) unknown contamination sources

Delaware has 50 miles of Delaware Bay coastline, 25 miles of Atlantic Ocean coastline, and 115 miles of inland bay shoreline along Rehoboth Bay, Indian River Bay, and Little Assawoman Bay. The state's marine beachwater monitoring program is administered by the Delaware Department of Natural Resources and Environmental Control (DNREC).

What Does Beachwater Monitoring Show?

In 2011, Delaware reported 26 coastal beaches, all in Sussex County and all assigned a monitoring frequency of once a week. In 2011, 1% of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. Beaches with exceedances of the state standard in 2011 were Broadkill Beach (10%), Prime Hook Beach (6%), Slaughter Beach (5%), Delaware Seashore State Park, Tower Road Ocean Site (5%), and Fenwick Island State Park Beach (3%), all in Sussex County. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Delaware's Sampling Practices?

In 2011, the monitoring season extended from May 2 to September 28.¹ The state's Floatables and Debris Program has a vessel in the water year-round in all weather to monitor floating debris as well as oil spills, harmful algae blooms, sewage treatment discharges, nutrient runoff, and industrial discharges.¹

DNREC determines sampling practices, locations, standards, and notification protocols and procedures throughout the state.² Samples are taken in knee-deep water.¹ Monitoring frequency and locations are determined on the basis of how many months of the year the beaches are used recreationally, what kind of use and how much use they get, their proximity to potential sources of contamination, and whether the beaches have the potential to be impacted by stormwater runoff. All of Delaware's open-ocean beaches are monitored, as are beaches along the southern half of the Delaware Bay coast and public-access swimming beaches in the inland bays.³

Once an advisory or closing is issued, resampling to confirm the exceedance is conducted immediately and the beach is monitored more frequently until the advisory can be lifted.² States that monitor more frequently after an exceedance is found will tend to have higher percent exceedance rates and lower total closing/advisory days than they would if their sampling frequency did not increase after an exceedance was found.

DNREC samples water and/or shellfish for harmful algal bloom species (*Karenia brevis* and *K. papilionacea*) and toxins and issues harmful algal bloom swimming advisories at freshwater beaches.² A researcher at the University of Delaware has developed a means of determining the abundance of these two species with a sensitivity of about 10 cells per liter. In 2011, *Karenia* species were quantified along the mid-Atlantic coastline, and *K. papilionacea* was found north of Delaware and in the coastal bays of New Jersey.¹

How Many Beach Closings and Advisories Were Issued in 2011?

Total closing/advisory days for 3 events lasting six consecutive weeks or less decreased 93% to 6 days in 2011 from 86 days in 2010. For prior years, there were 94 days in 2009, 11 days in 2008, 10 days in 2007, 0 days in 2006, and 0 days in 2005. There were no extended or permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. All closing/advisory days in 2011 were due to monitoring that revealed elevated bacteria levels.

Because of concerns about water quality, there is a permanent caution regarding swimming in Rehoboth Bay, Indian River Bay, and Little Assawoman Bay. This permanent caution includes Tower Road Bayside in Rehoboth Bay and Holts Landing Beach in Indian River Bay. Contaminants in these bays come from many sources in the watershed, including failing septic systems, farm and lawn fertilizers, wildlife, and runoff from poultry operations. In addition, the sewage treatment plants in Lewes and Rehoboth discharge treated effluent into the Lewes and Rehoboth Canal, which feeds into the bays. Poor flushing of the shallow waters in these bays allows pollutants to linger; it takes more than two months for water to move out of the inland bays.² Signs are posted at popular access points around Rehoboth Bay, Indian River Bay, and Little Assawoman Bay to warn potential swimmers of the risks associated with swimming in these bodies of water, particularly after a heavy rain.¹ NRDC does not include this permanent caution in its analysis of closing and advisory days.

How Does Delaware Determine When to Warn Visitors About Swimming?

Delaware standards for marine beachwater quality are an enterococcus single-sample maximum of 104 cfu/100 ml and a geometric mean standard for the most recent five samples within 30 days of 35 cfu/100 ml. DNA analyses to track the source of bacteria at Slaughter Beach and Prime Hook Beach have shown that nonhuman sources contribute to indicator bacteria counts at these beaches. Monitoring results at these beaches are adjusted downwards to account for nonhuman sources at these beaches before the water quality standard is applied. (Monitoring data are reported before this adjustment is made, and NRDC uses the unadjusted values in its analysis of exceedances.) For Slaughter Beach, the correction factor is 0.49 multiplied by the raw count. This was calculated based on a microbial source tracking study at this beach that found that 77% of fecal bacteria came from wildlife sources, with a 26% margin of error. At Prime Hook, microbial source tracking found that 70% of fecal bacteria came from wildlife, with a 24% margin of error, resulting in a correction factor of 0.54 for this beach.⁴

State policy is to issue advisories when fecal bacteria counts exceed either the single-sample or geometric mean standard.¹ There are limited overriding factors, such as leaking sampling containers or excessive sediment in samples, that officials can take into account before issuing an advisory when a sample exceeds standards, but these are rare exceptions. Circumstances that would trigger an imminent health threat result in a closing rather than an advisory.

Delaware has a standard for issuing preemptive rainfall advisories. For marine waters, DNREC has determined that 3.5 inches of rainfall within 24 hours or 3 inches within 12 hours may trigger a closing.² Preemptive closings are issued in the case of a known sewage spill.²

Delaware 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Sussex	3 R's	1	once a week	16	0%	0	N/A
Sussex	Atlantic Beach Near Gordons Pond	1	once a week	17	0%	0	N/A
Sussex	Bethany Beach	2	once a week	35	0%	0	N/A
Sussex	Broadkill Beach	2	once a week	20	10%	2	N/A
Sussex	Cape Henlopen Beach	1	once a week	38	0%	0	N/A
Sussex	Cape Henlopen State Park - Herring Point	2	once a week	21	0%	0	N/A
Sussex	Conquest Rd.	1	once a week	16	0%	0	N/A
Sussex	Deauville Beach	1	once a week	16	0%	0	N/A
Sussex	Delaware Seashore State Park, Tower Road Bayside	2	once a week	12	0%	0	N/A
Sussex	Delaware Seashore State Park, Tower Road Ocean Site	1	once a week	21	5%	0	N/A
Sussex	Delaware/Maryland Line Beach	2	once a week	23	0%	0	N/A
Sussex	Dewey Beach	1	once a week	35	0%	0	N/A
Sussex	Fenwick Island State Park Beach	2	once a week	32	3%	0	N/A
Sussex	Holts Landing Beach	2	once a week	1	0%	0	N/A
Sussex	Key Box	1	once a week	15	0%	0	N/A
Sussex	Lewes Beach North	1	once a week	20	0%	0	N/A
Sussex	Lewes Beach South	1	once a week	19	0%	0	N/A
Sussex	North Indian River Inlet Beach, Delaware Seashore State Park	1	once a week	18	0%	0	N/A
Sussex	Prime Hook Beach	2	once a week	18	6%	2	N/A
Sussex	Rehoboth-Queen St Beach	1	once a week	24	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Sussex	Rehoboth-Rehoboth Ave Beach	1	twice a week	32	0%	0	N/A
Sussex	Rehoboth-Virginia Ave Beach	1	once a week	18	0%	0	N/A
Sussex	Slaughter Beach	2	once a week	20	5%	2	N/A
Sussex	South Bethany Beach	1	once a week	19	0%	0	N/A
Sussex	South Indian River Inlet Beach	1	once a week	17	0%	0	N/A
Sussex	State Line Beach, Fenwick Island - Town	1	once a week	0	n/a	0	N/A

Notes

1. Delaware Department of Natural Resources and Environmental Control, "2011 Recreational Water Year-End Report," not dated.
2. Debbie Rouse, Delaware Department of Natural Resources and Environmental Control, personal communication, January 2012.
3. Delaware Department of Natural Resources and Environmental Control, BEACH Act Implementation Grant, Work Plan Summary (for 2012), not dated.
4. Michael Bott, Delaware Department of Natural Resources and Environmental Control, personal communication, July 2009.

Testing the Waters: Florida

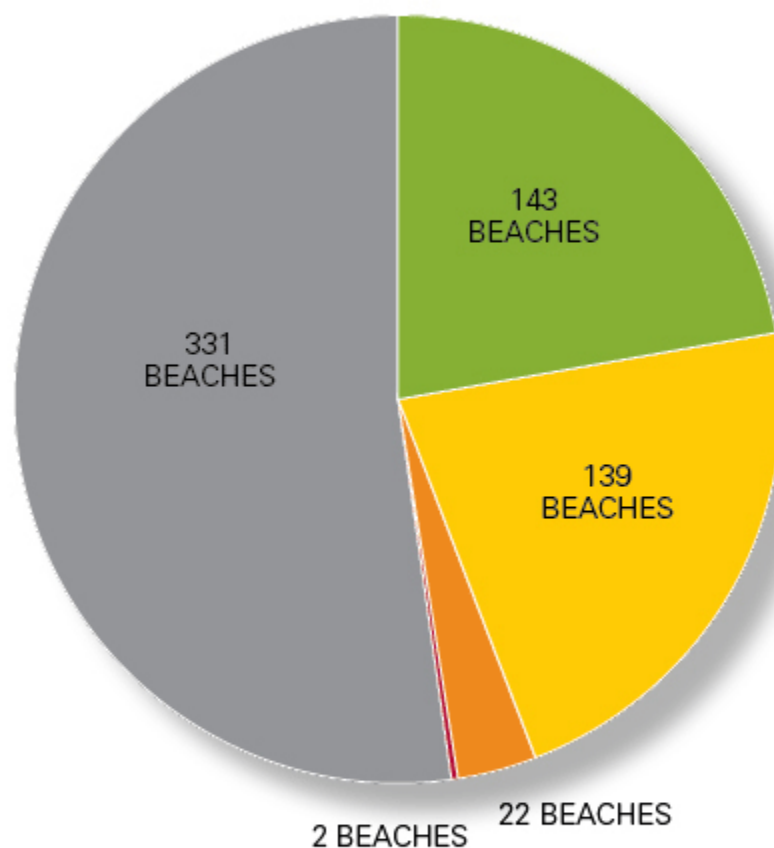
Ranked 5th in Beachwater Quality (out of 30 states)

3% of samples exceeded national standards for designated beach areas in 2011

In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Florida

Florida 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of advisory days)

- 1,399 (73%) stormwater runoff
- 1,310 (68%) wildlife
- 1,039 (54%) other contamination sources
- 797 (42%) sewage spills/leaks
- 371 (19%) unknown contamination sources

With its year-round swim season and more than 1,000 miles of coastline, Florida has the most coastal swimmers in the nation.¹ The state has more than 600 public coastal beaches stretching along its Atlantic and Gulf of Mexico shores.

Oil from the BP Oil Disaster Continues to Impact Some of Florida's Beaches

Many of Florida's coastal beaches in the panhandle part of the state were impacted by the BP oil disaster, which began with the April 20, 2010, explosion on the Deepwater Horizon rig. Oil flowed from the damaged well for three months, until the well was capped on July 15, 2010. Two beaches in Escambia County, Fort Pickens and Johnson Beach, were under notice due to the oil spill at the time last year's *Testing the Waters* was being prepared.² These two beaches remained under notice for about 180 days each in 2011.³ (NRDC includes oil spill advisory and notice days at all beaches in its oil spill totals, including advisory and notice days at beaches that were not monitored for bacteria in 2011.) Cleanup crews were conducting inspection and cleanup activities at some Florida beach segments throughout 2011 and into 2012.

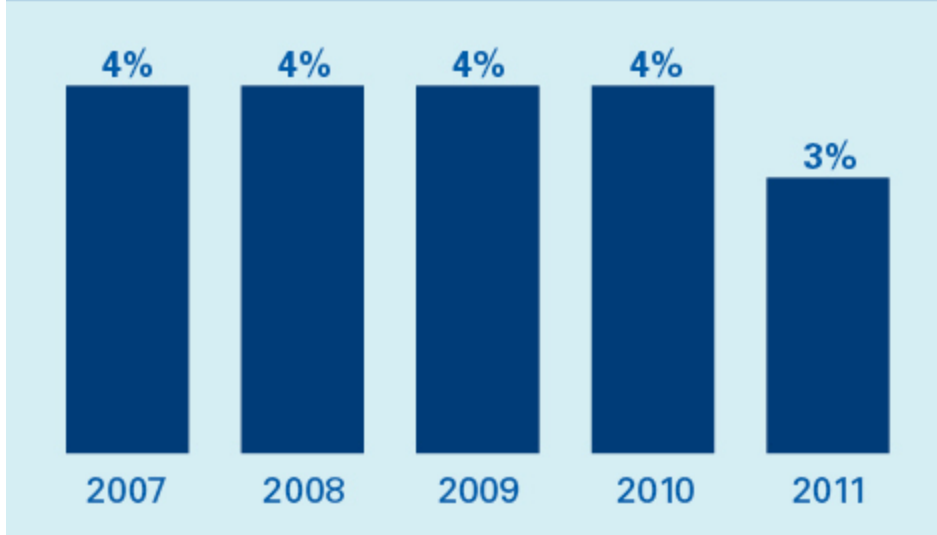
What Does Beachwater Monitoring Show?

In 2011, Florida reported 636 coastal beaches. Of these, 13 (2%) were assigned a monitoring frequency of more than once a week, 81 (13%) once a week, 162 (25%) every other week, and 5 (1%) once a month. A total of 375 (59%) were not assigned a monitoring frequency, and there was no monitoring assignment information for 1 (<1%) beach. In 2011, 3% of all reported beach monitoring samples exceeded either the state's daily maximum enterococcus standard of 104 colonies/100 ml or the fecal coliform standard of 400 colonies/100 ml, or both. The beaches with the highest percent exceedance rates of the state standards in 2011 were Garniers in Okaloosa County (31%), Ben T. Davis North in Hillsborough County (21%), Phil Foster Park in Palm Beach County (19%), Rocky Bayou (Fred Gannon State Park) in Okaloosa County (19%), Beach Drive in Bay County (18%), and Bayou Chico in Escambia County (18%).

Beaches in Dixie County had the highest exceedance rate of the state standard in 2011(13%), followed by Citrus (11%), Okaloosa (10%), Hernando (10%), Bay (9%), Hillsborough (9%), Gulf (8%), Taylor (7%), Pinellas (5%), Charlotte (4%), Sarasota (4%), Escambia (4%), Pasco (3%), Palm Beach (3%), Levy (3%), Miami-Dade (3%), Santa Rosa (3%), Walton (3%), Lee (3%), Monroe (3%), Manatee (2%), Broward (2%), Indian River (1%), St. Lucie (1%), Brevard (1%), Martin (1%), Nassau (1%), and Volusia (1%) counties. There were no exceedances at beaches monitored in Collier, Duval, Flagler, Franklin, St. Johns, and Wakulla counties. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.

Beginning in July 2011, state funding for beachwater quality monitoring in Florida was eliminated. As a result, monitoring at two federal beach sites and at dozens of other beaches was eliminated. Also, beginning in September, many beaches began monitoring every other week instead of weekly. Some counties are subsidizing beachwater monitoring in order to monitor more frequently than every other week and/or to monitor beaches whose monitoring is not paid for through BEACH Act funds. However, about half the counties are conducting less monitoring at a smaller number of beaches for fewer fecal indicator bacteria organisms because of the elimination of state funding.⁴

Florida Percent of Samples Exceeding the State's Daily Maximum Bacterial Standard for 298 Beaches Reported 2007-2011



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Florida's Sampling Practices?

Monitoring occurs year-round, but the peak season is from April to mid-September. Because of the elimination of state funding for beachwater quality monitoring that occurred during 2011, beaches in 15 northern counties are no longer sampled as part of the statewide program between November 1 and March 1. In some of these counties, some locally funded winter sampling is conducted.

The beachwater quality monitoring program is administered by the Florida Department of Health, which determines sampling practices, locations, standards, and notification protocols and practices throughout the state.⁴ Samples are collected 18 inches below the surface in water that is approximately 36 inches deep, usually in the morning. Beaches are prioritized for monitoring on a county-by-county basis. Priority for monitoring is given to beaches that are more heavily used, that have potential pollution sources nearby, and that are impacted by stormwater runoff. While this ensures that the most critical beaches in each county are monitored, there are a wide variety of beach characteristics in Florida, and beaches chosen for monitoring in one county may not be as important as beaches left unmonitored in another county.

Sampling frequency does not increase after an advisory is issued.

How Many Notices or Advisories Were Issued in 2011?

Total advisory days for 204 events lasting six consecutive weeks or less decreased 37% to 1,915 days in 2011 from 3,052 days in 2010. In previous years there were 2,201 days in 2009, 2,067 days in 2008, 3,139 days in 2007, 2,686 days in 2006, and 2,991 days in 2005. In addition, in 2011 there were 9 extended events (490 days total) and 4 permanent events (587 days total; most of these were oil spill notice days). Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 204 events lasting six consecutive weeks or less, all advisory days were due to monitoring that revealed elevated bacteria levels.

How Does Florida Determine When to Warn Visitors About Swimming?

The Department of Health does not have the authority to close Florida beaches; instead, advisories are issued. Florida applies the U.S. EPA's marine designated beach area criteria for enterococcus: a single-sample maximum of 104 cfu/100 ml and, for beaches that are sampled at least weekly, a 5-week geometric mean of 35 cfu/100 ml. Partway through 2011, many monitored beaches began to be sampled less than once a week due to the elimination of state funding for beachwater quality monitoring, and the geometric mean standard was not applied to these beaches. In the past, Florida also applied a fecal coliform single-sample maximum standard of 400 cfu/100 ml. However, the state stopped using the fecal coliform standard when state funding was eliminated in July 2011. Some counties are subsidizing their beach monitoring and are continuing to monitor for fecal coliform and to apply the 400 cfu/100 ml standard.

In most coastal counties, officials issue an advisory if a standard is exceeded. However, if a sample exceeds a standard and the county can conduct follow-up sampling within the same week, the beach may be resampled before an advisory is issued. If the resample confirms an exceedance, an advisory is issued.

Pinellas County has a preemptive rainfall standard for two of its marine beaches: Maximo and North Shore. Maximo Beach's standard is 0.8 inch within a 24-hour period, and North Shore Beach's standard is 1 inch within a 24-hour period.⁴ Monroe County also issues preemptive rainfall advisories, and Martin County has a preemptive standard based on turbidity. Most counties will warn against swimming after a sewage spill until sampling results are satisfactory. After a hurricane or tropical storm makes landfall, precautionary advisories are issued.

Florida 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Bay	8th Street, Mexico Beach	1	none	0	n/a	0	N/A
Bay	Bahama Beach	no data	none	0	n/a	0	N/A
Bay	Bay County Public Beach	no data	none	0	n/a	0	N/A
Bay	Beach Drive	1	none	39	18%	98	N/A
Bay	Beckrich Road (Edgewater Gulf Beach)	1	twice a month	39	10%	35	N/A
Bay	Belaire Beach	no data	none	0	n/a	0	N/A
Bay	Bid-A-Wee Beach	1	twice a month	39	5%	14	N/A
Bay	Carl Gray Park	1	twice a	39	13%	42	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
			month				
Bay	Delwood Beach	1	twice a month	39	10%	56 (49)	N/A
Bay	Dupont Bridge	1	twice a month	39	10%	28	N/A
Bay	East County Line (Mexico Beach)	1	none	35	6%	21	N/A
Bay	El Centro Beach	no data	none	0	n/a	0	N/A
Bay	Florida Beach	no data	none	0	n/a	0	N/A
Bay	Gulf Lagoon Beach	no data	none	0	n/a	0	N/A
Bay	Gulf Resort Beach	no data	none	0	n/a	0	N/A
Bay	Hollywood Beach	no data	none	0	n/a	0	N/A
Bay	Laguna Beach	1	twice a month	39	8%	21	N/A
Bay	Long Beach	no data	none	0	n/a	0	N/A
Bay	Lullwater Beach	no data	none	0	n/a	0	N/A
Bay	Magnolia Beach	no data	none	0	n/a	0	N/A
Bay	Miramar Heights Beach	no	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
		data					
Bay	Open Sands Beach	no data	none	0	n/a	0	N/A
Bay	Panama City Beach Pier (Edgewater Beach)	1	twice a month	39	15%	21 (49)	N/A
Bay	Rivera Beach	no data	none	0	n/a	0	N/A
Bay	Santa Monica Beach	no data	none	0	n/a	0	N/A
Bay	Seltzer Park (Silver Sands Beach)	1	twice a month	39	3%	14	N/A
Bay	Shell Island Beach	1	none	0	n/a	0	N/A
Bay	Spy Glass Drive (Biltmore Beach)	1	twice a month	39	3%	7	N/A
Bay	St. Andrews State Park Beach	no data	none	0	n/a	0	N/A
Bay	Sunnyside Beach	no data	none	0	n/a	0	N/A
Bay	Sunset Park	1	none	35	14%	49	N/A
Bay	Suntime Beach	no data	none	0	n/a	0	N/A
Bay	Tyndall Beach	1	none	0	n/a	0	N/A
Bay	West County Line (Carrilon Beach)	1	none	35	9%	14	N/A
Brevard	Aquarina Beach	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Brevard	Bicentennial Beach Park	1	none	0	n/a	0	N/A
Brevard	Bonsteel Park	1	none	0	n/a	0	N/A
Brevard	Canaveral National Seashore/Playalinda Beach	1	none	0	n/a	0	N/A
Brevard	Canova Beach Park	1	none	0	n/a	0	N/A
Brevard	Cherrie Down Park	1	none	0	n/a	0	N/A
Brevard	Cocoa Beach Minuteman Causeway	1	twice a month	39	0%	0	N/A
Brevard	Cocoa Beach Pier	1	twice a month	41	5%	0	N/A
Brevard	Coconut Point Park	1	none	0	n/a	0	N/A
Brevard	Fischer Park	1	none	0	n/a	0	N/A
Brevard	Hightower Beach Park	1	none	0	n/a	0	N/A
Brevard	Indialantic Boardwalk	1	twice a month	39	0%	0	N/A
Brevard	Jetty Park (Cape Canaveral)	1	twice a month	40	3%	0	N/A
Brevard	Lori Wilson Park	1	none	0	n/a	0	N/A
Brevard	Main Entrance Beach (PAFB)	1	none	0	n/a	0	N/A
Brevard	NCO Club Beach (PAFB)	1	none	0	n/a	0	N/A
Brevard	North Area Beach (PAFB)	1	none	0	n/a	0	N/A
Brevard	Ocean Park	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Brevard	Officers Club Beach (PAFB)	1	none	0	n/a	0	N/A
Brevard	Paradise Beach	1	twice a month	39	0%	0	N/A
Brevard	Patrick Air Force Base (PAFB) North	1	none	26	0%	0	N/A
Brevard	Pelican Beach Park	1	twice a month	39	0%	0	N/A
Brevard	Robert P. Murkshe Memorial Park	1	none	0	n/a	0	N/A
Brevard	Seagull Park (PAFB)	1	none	0	n/a	0	N/A
Brevard	Sebastian Inlet North	1	twice a month	39	0%	0	N/A
Brevard	Shepard Park	1	none	0	n/a	0	N/A
Brevard	Spessard Holland Beach Park (North)	1	twice a month	39	0%	0	N/A
Broward	Bahia Mar	1	twice a month	44	0%	0	N/A
Broward	Birch State Park	1	twice a month	45	2%	0	N/A
Broward	Commercial Blvd	1	twice a month	46	4%	0	N/A
Broward	Custer Street	1	twice a month	46	4%	0	N/A
Broward	Dania Beach	1	twice a month	45	2%	0	N/A
Broward	Deerfield Beach	1	twice a	44	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
			month				
Broward	Deerfield Beach SE 10th Street	1	none	35	0%	0	N/A
Broward	George English Park	1	none	0	n/a	0	N/A
Broward	Hallandale Beach Blvd	1	twice a month	45	2%	0	N/A
Broward	Harrison Street	1	twice a month	45	2%	0	N/A
Broward	Hillsboro Inlet	1	none	0	n/a	0	N/A
Broward	John Lloyd State Park	1	twice a month	44	0%	0	N/A
Broward	Minnesota Street	1	twice a month	46	4%	0	N/A
Broward	NE 16 Street, Pompano	1	twice a month	46	4%	0	N/A
Broward	North Beach Park Intercoastal	1	none	0	n/a	0	N/A
Broward	Oakland Park Boulevard	1	none	35	0%	0	N/A
Broward	Pompano Beach	1	twice a month	44	0%	0	N/A
Broward	Sebastian Street	1	twice a month	45	2%	0	N/A
Broward	Van Buren Street	1	none	0	n/a	0	N/A
Charlotte	Boca Grande	1	once a week	53	4%	7	N/A
Charlotte	Dotzler Beach	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Charlotte	Englewood Mid Beach	1	once a week	54	7%	7	N/A
Charlotte	Englewood North	1	once a week	54	6%	7	N/A
Charlotte	Englewood South	1	once a week	53	6%	7	N/A
Charlotte	Palm Island North	1	once a week	53	4%	7	N/A
Charlotte	Palm Island South	1	once a week	53	4%	7	N/A
Charlotte	Ponce De Leon Beach	no data	none	0	n/a	0	N/A
Charlotte	Port Charlotte Beach	1	none	0	n/a	0	N/A
Charlotte	Port Charlotte Beach East	1	once a week	53	4%	5	N/A
Charlotte	Port Charlotte Beach West	1	once a week	53	2%	0	N/A
Citrus	Fort Island Gulf Beach	1	none	35	11%	7 (84)	N/A
Collier	1st Avenue North Beach	1	none	0	n/a	0	N/A
Collier	1st Avenue South Beach	1	none	0	n/a	0	N/A
Collier	2nd Avenue North Beach	1	none	0	n/a	0	N/A
Collier	2nd Avenue South Beach	1	none	0	n/a	0	N/A
Collier	3rd Avenue North Beach	1	none	0	n/a	0	N/A
Collier	3rd Avenue South Beach	1	none	0	n/a	0	N/A
Collier	4th Avenue North Beach	1	none	0	n/a	0	N/A
Collier	4th Avenue South Beach	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Collier	5th Avenue South Beach	1	none	0	n/a	0	N/A
Collier	6th Avenue South Beach	1	none	0	n/a	0	N/A
Collier	7th Avenue South Beach	1	none	0	n/a	0	N/A
Collier	8th Avenue South Beach	1	none	0	n/a	0	N/A
Collier	10 Thousand Island	1	none	0	n/a	0	N/A
Collier	10th Avenue South Beach	1	none	0	n/a	0	N/A
Collier	11th Avenue South Beach	1	none	0	n/a	0	N/A
Collier	13th Avenue South Beach	1	none	0	n/a	0	N/A
Collier	14th Avenue South Beach	1	none	0	n/a	0	N/A
Collier	15th Avenue South Beach	1	none	0	n/a	0	N/A
Collier	16th Avenue South Beach	1	none	0	n/a	0	N/A
Collier	17th Avenue South Beach	1	none	0	n/a	0	N/A
Collier	18th Avenue South Beach	1	none	0	n/a	0	N/A
Collier	32nd Avenue Beach	1	none	0	n/a	0	N/A
Collier	Admiralty & Shores Beach	1	none	0	n/a	0	N/A
Collier	Barefoot Beach State Reserve	1	none	35	0%	0	N/A
Collier	Broad Avenue Beach	1	none	0	n/a	0	N/A
Collier	Caxambas Park	1	none	0	n/a	0	N/A
Collier	Central Avenue	1	none	35	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Collier	Clam Pass	1	twice a month	40	0%	0	N/A
Collier	Clam Pass Park North	1	none	0	n/a	0	N/A
Collier	Clam Pass Park South	1	none	0	n/a	0	N/A
Collier	Cutlass Cove Beach & Club	1	none	0	n/a	0	N/A
Collier	Denor-Wiggins State Recreation Area	1	twice a month	43	0%	0	N/A
Collier	Doctor's Pass	1	twice a month	43	0%	0	N/A
Collier	Gordon Pass Beach	1	none	0	n/a	0	N/A
Collier	Hideaway Beach	1	none	35	0%	0	N/A
Collier	Horizon Way Beach (AKA Parkshore Beach)	1	twice a month	43	0%	0	N/A
Collier	Keewaydin Island	1	none	0	n/a	0	N/A
Collier	Lely Barefoot Beach	1	none	0	n/a	0	N/A
Collier	Lowdermilk Park	1	twice a month	43	0%	0	N/A
Collier	Naples Beach Club	1	none	0	n/a	0	N/A
Collier	Naples Lake Beach	1	none	0	n/a	0	N/A
Collier	Naples Pier	1	twice a month	43	0%	0	N/A
Collier	Pelican Bay Beach North	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Collier	Pelican Bay Beach South	1	none	0	n/a	0	N/A
Collier	Pelican Bay Restaurant and Club	1	none	35	0%	0	N/A
Collier	Port Royal Beach & Club	1	none	0	n/a	0	N/A
Collier	Residence Beach	1	twice a month	43	0%	0	N/A
Collier	Shore Drive Beach	1	none	0	n/a	0	N/A
Collier	South Marco Beach (AKA. Smb Access)	1	twice a month	43	0%	0	N/A
Collier	The Moorings	1	none	0	n/a	0	N/A
Collier	Tigertail Beach	1	twice a month	43	0%	0	N/A
Collier	Vanderbilt Beach	1	twice a month	43	0%	0	N/A
Collier	Vedado Way Beach	1	none	0	n/a	0	N/A
Collier	Villa Mare Ln Beach	1	none	0	n/a	0	N/A
Collier	Wiggins Pass North	1	none	0	n/a	0	N/A
Collier	Wiggins Pass State Park	1	none	0	n/a	0	N/A
Dixie	Shired Island	1	none	24	13%	21	N/A
Duval	15th Street Access	1	twice a month	37	0%	0	N/A
Duval	19th Street Access	1	twice a month	37	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Duval	30th Avenue Access	1	twice a month	37	0%	0	N/A
Duval	Atlantic Blvd Access	1	twice a month	37	0%	0	N/A
Duval	Beach Blvd Access	1	twice a month	37	0%	0	N/A
Duval	Hanna Park	1	twice a month	37	0%	0	N/A
Duval	Hopkins Street Access	1	twice a month	37	0%	0	N/A
Duval	Huguenot Park	1	twice a month	37	0%	0	N/A
Duval	North Little Talbot Island	1	twice a month	37	0%	0	N/A
Duval	South Little Talbot Island	1	twice a month	37	0%	0	N/A
Escambia	Bayou Chico	1	twice a month	39	18%	42 (63)	N/A
Escambia	Bayview Park	1	once a week	51	14%	74	N/A
Escambia	Big Lagoon State Park	1	twice a month	39	0%	0	N/A
Escambia	County Park East	1	twice a month	39	0%	0	N/A
Escambia	County Park West	1	twice a month	39	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Escambia	Fort Mcree Area	1	none	0	n/a	0	N/A
Escambia	Fort Pickens	1	none	0	n/a	0 (180)	N/A
Escambia	Johnson Beach	1	none	35	0%	0 (180)	N/A
Escambia	Johnson Beach Sound Side	1	none	35	0%	0	N/A
Escambia	Navy Point (Bayou Grande)	1	twice a month	39	0%	0	N/A
Escambia	Navy Point South	no data	none	0	n/a	0	N/A
Escambia	Opal Beach	1	none	0	n/a	0	N/A
Escambia	Pensacola (Casino) Beach	1	twice a month	39	0%	0	N/A
Escambia	Perdido Key State Park	1	twice a month	39	0%	0	N/A
Escambia	Quietwater Beach (Santa Rosa Sound)	1	none	40	3%	0	N/A
Escambia	Quietwater Beach Picnic Area	1	none	0	n/a	0	N/A
Escambia	Sabine Yacht and Racket	1	none	0	n/a	0	N/A
Escambia	Sanders Beach	1	once a week	54	6%	0	N/A
Escambia	Santa Rosa Island	1	none	0	n/a	0	N/A
Flagler	Gamble Rogers State Park	1	twice a month	39	0%	0	N/A
Flagler	Hammock	1	none	0	n/a	0	N/A
Flagler	Marineland	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Flagler	North Flagler Pier	1	twice a month	39	0%	0	N/A
Flagler	Picknickers (Beverly Beach)	1	twice a month	39	0%	0	N/A
Flagler	South Beach	1	none	0	n/a	0	N/A
Flagler	South Flagler Pier	1	twice a month	39	0%	0	N/A
Flagler	Varn Park	1	twice a month	39	0%	0	N/A
Flagler	Washington Oaks State Park	1	twice a month	39	0%	0	N/A
Franklin	Alligator Point	1	twice a month	37	0%	0	N/A
Franklin	Carrabelle Beach	1	twice a month	37	0%	0	N/A
Franklin	Peninsular Point Beach	no data	none	0	n/a	0	N/A
Franklin	St. George Island 11th Street East	1	twice a month	37	0%	0	N/A
Franklin	St. George Island 11th Street West	1	twice a month	37	0%	0	N/A
Franklin	St. George Island Franklin Street	1	twice a month	37	0%	0	N/A
Franklin	St. George Island State Park	1	twice a month	37	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Gulf	Beacon Hill Beach	1	twice a month	39	15%	31	N/A
Gulf	Cape San Blas	1	twice a month	39	5%	7	N/A
Gulf	Dixie Belle Beach	1	twice a month	37	8%	13	N/A
Gulf	Highway 98 Beach	1	none	0	n/a	0	N/A
Gulf	Lookout Beach	1	twice a month	37	3%	0	N/A
Gulf	Monument Beach	1	twice a month	41	15%	32	N/A
Gulf	St. Joe Beach	1	twice a month	38	3%	0	N/A
Hernando	Pine Island	1	none	40	10%	7 (49)	N/A
Hillsborough	Apollo Beach	no data	none	0	n/a	0	N/A
Hillsborough	Bahia Beach	1	once a week	57	11%	6	N/A
Hillsborough	Ben T. Davis North	1	once a week	56	21%	47	N/A
Hillsborough	Ben T. Davis South	1	once a week	58	14%	28	N/A
Hillsborough	Cypress Point North	1	once a week	53	2%	0	N/A
Hillsborough	Cypress Point South	1	once a week	53	2%	0	N/A
Hillsborough	Davis Island	1	once a week	55	7%	0	N/A
Hillsborough	Mcdill Air Force Base Beaches	no	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
		data					
Hillsborough	Picnic Island North	1	once a week	56	9%	22 (56)	N/A
Hillsborough	Picnic Island South	1	once a week	56	13%	25 (56)	N/A
Hillsborough	Simmons Park	1	once a week	54	6%	0	N/A
Indian River	Amber Sands Beach	1	none	0	n/a	0	N/A
Indian River	Coconut Point Sebastian Inlet	1	once a week	54	4%	0	N/A
Indian River	Conn Beach	1	none	0	n/a	0	N/A
Indian River	Flame Vine Beach	1	none	0	n/a	0	N/A
Indian River	Golden Sands Beach Park	1	none	0	n/a	0	N/A
Indian River	Humiston Beach	1	once a week	52	0%	0	N/A
Indian River	Jaycee Beach Park	1	none	0	n/a	0	N/A
Indian River	Riomar Beach	1	none	0	n/a	0	N/A
Indian River	Round Island Beach Park	1	once a week	52	0%	0	N/A
Indian River	Seagrape Beach	1	none	0	n/a	0	N/A
Indian River	Seahorse Beach	no data	none	0	n/a	0	N/A
Indian River	Sebastian Inlet South Side	no data	none	0	n/a	0	N/A
Indian River	Sexton Plaza	1	once a week	53	2%	2	N/A
Indian River	South Beach Park	1	once a week	52	2%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Indian River	Tracking Station Beach Park	1	none	0	n/a	0	N/A
Indian River	Treasure Shores Beach Park	1	none	0	n/a	0	N/A
Indian River	Turtle Trail Beach	1	none	0	n/a	0	N/A
Indian River	Wabasso Beach Park	1	once a week	51	0%	0	N/A
Lee	Boca Grande Light House/Seagrape Beach	1	once a week	52	0%	0	N/A
Lee	Bonita Beach Park	1	once a week	53	4%	5	N/A
Lee	Bowditch Point Beach	1	once a week	54	6%	7	N/A
Lee	Bowman's Beach	1	once a week	52	0%	0	N/A
Lee	Cape Coral Yacht Club	1	once a week	57	9%	2	N/A
Lee	Cayo Costa State Park	no data	none	0	n/a	0	N/A
Lee	Fulgar St Beach Access - Sanibel	1	none	0	n/a	0	N/A
Lee	Holiday Inn Public Beach Access Ft Myers Beach	1	none	0	n/a	0	N/A
Lee	Little Hickory Beach Park	1	once a week	53	2%	0	N/A
Lee	Lovers Key State Park	1	once a week	54	4%	0	N/A
Lee	Lynn Hall Memorial Park	1	once a week	53	4%	5	N/A
Lee	North Captiva Island	no data	none	0	n/a	0	N/A
Lee	Public Access #34 - Ft Myers Beach	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Lee	Public Beach Access #17 - Ft Myers Beach	1	none	0	n/a	0	N/A
Lee	Public Beach Access #23 - Ft Myers Beach	1	none	0	n/a	0	N/A
Lee	Sanibel Beach Access #4	no data	none	0	n/a	0	N/A
Lee	Sanibel Causeway Beach	1	once a week	53	2%	0	N/A
Lee	Sanibel Lighthouse Park Beach	1	once a week	53	2%	0	N/A
Lee	South Seas Captiva	no data	none	0	n/a	0	N/A
Lee	South Seas Plantation Captiva - Redfish Pass	1	once a week	52	0%	0	N/A
Lee	Southern Tip Access Fort Myers Beach	1	none	0	n/a	0	N/A
Lee	Tarpon Bay Road Beach	1	once a week	53	2%	0	N/A
Lee	Turner Beach/Blind Pass Beach	1	once a week	53	2%	0	N/A
Levy	Cedar Key Beach	1	none	33	3%	7	N/A
Levy	Yankeetown Beach	1	none	0	n/a	0	N/A
Manatee	Bay Front Park North	1	twice a month	45	2%	0	N/A
Manatee	Bay Front Park South	1	none	35	0%	0	N/A
Manatee	Bradenton Beach	1	twice a month	43	0%	0	N/A
Manatee	City of Anna Maria Access (Anna Maria Island)	1	none	0	n/a	0	N/A
Manatee	Coquina Beach North	1	twice a	43	2%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
			month				
Manatee	Coquina Beach South	1	twice a month	43	0%	0	N/A
Manatee	Emerson Point	no data	none	0	n/a	0	N/A
Manatee	Longboat Key	no data	none	0	n/a	0	N/A
Manatee	Manatee Public Beach North	1	twice a month	45	4%	0	N/A
Manatee	Manatee Public Beach South	1	none	34	0%	0	N/A
Manatee	Palma Sola North	1	none	36	6%	0	N/A
Manatee	Palma Sola South	1	twice a month	47	9%	0	N/A
Manatee	Whitney Beach	1	twice a month	43	0%	0	N/A
Martin	Alex's Beach	1	none	0	n/a	0	N/A
Martin	Bathtub Beach	1	twice a month	43	0%	0	N/A
Martin	Bathtub Reef	1	none	0	n/a	0	N/A
Martin	Blowing Rocks	no data	none	0	n/a	0	N/A
Martin	Bob Graham Beach	1	none	36	0%	0	N/A
Martin	Bryan Mawr	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Martin	Chastain Beach	1	none	0	n/a	0	N/A
Martin	Fletcher Beach	1	none	0	n/a	0	N/A
Martin	Glasscock	1	none	0	n/a	0	N/A
Martin	Hobe Sound Public Beach	1	twice a month	43	0%	0	N/A
Martin	Hobe Sound Wildlife Refuge	1	twice a month	43	0%	0	N/A
Martin	House of Refuge	1	none	0	n/a	0	N/A
Martin	Jensen Beach Causeway	1	none	0	n/a	0	N/A
Martin	Jensen Beach Causeway East	1	twice a month	43	0%	0	N/A
Martin	Jensen Public Beach	1	twice a month	43	0%	0	N/A
Martin	Roosevelt Bridge	1	twice a month	44	2%	0	N/A
Martin	Saint Lucie Inlet State Park	no data	none	0	n/a	0	N/A
Martin	Sandsprint Park	1	none	0	n/a	0	N/A
Martin	Stokes	1	none	0	n/a	0	N/A
Martin	Stuart Beach	1	twice a month	43	0%	0	N/A
Martin	Stuart Causeway	1	twice a month	45	4%	1	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Martin	Tiger Shores Beach	1	none	0	n/a	0	N/A
Martin	Virginia Forest	1	none	0	n/a	0	N/A
Miami-Dade	53rd Street - Miami Beach	1	once a week	55	5%	0	N/A
Miami-Dade	Cape Florida Park	1	once a week	52	0%	0	N/A
Miami-Dade	Collins Park-21st Street	1	once a week	53	2%	0	N/A
Miami-Dade	Crandon Park - South	1	once a week	56	7%	5	N/A
Miami-Dade	Crandon Park-Key Biscayne	1	once a week	53	2%	0	N/A
Miami-Dade	Golden Beach	1	once a week	52	0%	0	N/A
Miami-Dade	Haulover Beach	1	once a week	53	2%	0	N/A
Miami-Dade	Haulover Beach - North	1	once a week	53	2%	0	N/A
Miami-Dade	Hobie Beach (AKA. Dog Beach)	1	once a week	59	10%	6	N/A
Miami-Dade	Homestead Bay Front Park	no data	none	0	n/a	0	N/A
Miami-Dade	Key Biscayne Beach	1	none	53	2%	0	N/A
Miami-Dade	Matheson Hammock	1	none	35	0%	0	N/A
Miami-Dade	North Shore Ocean Terrace	1	once a week	55	5%	1	N/A
Miami-Dade	Oleta State Park	1	once a week	53	2%	0	N/A
Miami-Dade	South Beach Park	1	once a week	53	2%	0	N/A
Miami-Dade	Sunny Isles Beach - Samson Park	1	once a week	56	7%	2	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Miami-Dade	Sunny Isles Beach-Pier Park	1	none	0	n/a	0	N/A
Miami-Dade	Surfside Beach - 93rd Street	1	once a week	52	0%	0	N/A
Miami-Dade	Virginia Beach	1	once a week	52	0%	0	N/A
Miami-Dade	Windsurfer Beach	1	none	0	n/a	0	N/A
Monroe	18 Mile Stretch	no data	none	0	n/a	0	N/A
Monroe	Anne's Beach	1	twice a month	34	0%	0	N/A
Monroe	Atlanta Shores	1	none	0	n/a	0	N/A
Monroe	Bahia Honda Bayside	1	twice a month	42	0%	0	N/A
Monroe	Bahia Honda Oceanside	1	twice a month	42	0%	0	N/A
Monroe	Bahia Honda Sandspur	1	twice a month	42	0%	0	N/A
Monroe	Banana Bay Resort - Marathon	1	none	0	n/a	0	N/A
Monroe	Buccaneer	1	none	0	n/a	0	N/A
Monroe	Casa Clara	1	none	0	n/a	0	N/A
Monroe	Casa Marina	1	none	0	n/a	0	N/A
Monroe	Cheeca Lodge Beach	1	none	0	n/a	0	N/A
Monroe	Coco Plum Beach	1	twice a month	34	6%	28	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Monroe	Craig Key Roadside	no data	none	0	n/a	0	N/A
Monroe	Curry Hammock	1	twice a month	34	0%	0	N/A
Monroe	Dog Beach	1	none	0	n/a	0	N/A
Monroe	Dolphin Research Center	1	none	0	n/a	0	N/A
Monroe	Fiesta Key Campground	1	none	0	n/a	0	N/A
Monroe	Founder's Park Beach	1	twice a month	42	2%	14	N/A
Monroe	Ft. Zachary Taylor	1	twice a month	43	2%	9	N/A
Monroe	Harry Harris County Park	1	twice a month	42	2%	14	N/A
Monroe	Hawks Cay Resort	no data	none	0	n/a	0	N/A
Monroe	Higgs Beach	1	twice a month	42	5%	21	N/A
Monroe	Holiday Inn Beachside	1	none	0	n/a	0	N/A
Monroe	Islamorada Public Library	1	twice a month	34	6%	14	N/A
Monroe	John Pennecamp State Park Far Beach	1	twice a month	0	n/a	0	N/A
Monroe	John Pennekamp State Park Cannon Beach	1	none	42	0%	0	N/A
Monroe	Kennedy Dr & N Roosevelt	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Monroe	Key West Beach Club	1	none	0	n/a	0	N/A
Monroe	Long Key State Park	no data	none	0	n/a	0	N/A
Monroe	Monroe County Beach	no data	none	0	n/a	0	N/A
Monroe	N Roosevelt/Cow Key	1	none	0	n/a	0	N/A
Monroe	Reach Resort	1	none	0	n/a	0	N/A
Monroe	Rest Beach	1	none	0	n/a	0	N/A
Monroe	Sea Oats Beach	1	none	0	n/a	0	N/A
Monroe	Simonton Beach	1	none	34	6%	14	N/A
Monroe	Smathers Beach	1	twice a month	42	5%	35	N/A
Monroe	Smathers Beach East	1	none	0	n/a	0	N/A
Monroe	Sombrero Beach	1	twice a month	42	2%	14	N/A
Monroe	South Beach	1	twice a month	42	10%	21 (42)	N/A
Monroe	Sunset Park	1	none	0	n/a	0	N/A
Monroe	The Islander Beach Resort	1	none	0	n/a	0	N/A
Monroe	The Moorings	1	none	0	n/a	0	N/A
Monroe	Valhalla Beach Resort	1	none	0	n/a	0	N/A
Monroe	Veteran's Beach	1	none	34	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Monroe	Westin Beach	no data	none	0	n/a	0	N/A
Nassau	Alachua Beach Access	1	none	0	n/a	0	N/A
Nassau	Allen Beach Access	1	none	0	n/a	0	N/A
Nassau	Amelia Island Plantation (Aip) Beach Club	1	twice a month	37	0%	0	N/A
Nassau	American Beach	1	twice a month	37	0%	0	N/A
Nassau	Bill Melton Beach Access	1	none	0	n/a	0	N/A
Nassau	Burney Park Beach Front	1	none	0	n/a	0	N/A
Nassau	Fort Clinch Beach	1	twice a month	36	0%	0	N/A
Nassau	Fort Clinch Riverside	1	none	0	n/a	0	N/A
Nassau	Hutchins Beach Access	1	none	0	n/a	0	N/A
Nassau	Jasmine Street	1	twice a month	37	3%	7	N/A
Nassau	John Robas Beach Access	1	none	0	n/a	0	N/A
Nassau	Kissimmee Beach Access	1	none	0	n/a	0	N/A
Nassau	Main Beach	1	twice a month	38	0%	0	N/A
Nassau	Manatee Beach Access	1	none	0	n/a	0	N/A
Nassau	Mizell Beach Access	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Nassau	N. Casino Beach Access	1	none	0	n/a	0	N/A
Nassau	New York Beach Access	no data	none	0	n/a	0	N/A
Nassau	North Beach Park	1	none	0	n/a	0	N/A
Nassau	Ocean Street	1	twice a month	36	0%	0	N/A
Nassau	Ozello Beach Access	1	none	0	n/a	0	N/A
Nassau	Peter's Point	1	twice a month	38	0%	0	N/A
Nassau	Piper Dunes (Aip Beach)	1	twice a month	38	3%	7	N/A
Nassau	S. Casino Beach Access	1	none	0	n/a	0	N/A
Nassau	Sadler Road	1	twice a month	36	0%	0	N/A
Nassau	Scott Road Beach Access	1	none	0	n/a	0	N/A
Nassau	Simmons Road	1	twice a month	38	0%	0	N/A
Nassau	South End	1	none	34	3%	0	N/A
Nassau	South End Bridge	1	none	0	n/a	0	N/A
Nassau	Summer Beach	1	none	0	n/a	0	N/A
Nassau	Suwannee Beach Access	1	none	0	n/a	0	N/A
Okaloosa	Bay Drive	no data	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Okaloosa	Beasley State Park	no data	none	0	n/a	0	N/A
Okaloosa	Bluewater Beach	no data	none	0	n/a	0	N/A
Okaloosa	Brackin Wayside	1	once a week	52	4%	15	N/A
Okaloosa	Camp Timpoochee	1	once a week	52	6%	27	N/A
Okaloosa	Cinco Food	no data	none	0	n/a	0	N/A
Okaloosa	Clement-Taylor	no data	none	0	n/a	0	N/A
Okaloosa	Dana Point	no data	none	0	n/a	0	N/A
Okaloosa	East Pass	1	once a week	52	12%	41	N/A
Okaloosa	El Matador	1	none	0	n/a	0	N/A
Okaloosa	Eldridge Park	no data	none	0	n/a	0	N/A
Okaloosa	Florida Park	1	none	0	n/a	0	N/A
Okaloosa	Garniers	1	once a week	52	31%	19 (227)	N/A
Okaloosa	Gulf Island National Seashore	1	once a week	52	12%	43	N/A
Okaloosa	Henderson State Park Beach	1	once a week	53	6%	20	N/A
Okaloosa	Holiday Isle Aegean	1	none	0	n/a	0	N/A
Okaloosa	Hurlburt Campground	no data	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Okaloosa	Hurlburt Marina	no data	none	0	n/a	0	N/A
Okaloosa	James Lee Park Beach	1	once a week	52	6%	27	N/A
Okaloosa	Joes Bayou	no data	none	0	n/a	0	N/A
Okaloosa	Laguana Park	no data	none	0	n/a	0	N/A
Okaloosa	Landing	no data	none	0	n/a	0	N/A
Okaloosa	Lincoln Park	1	once a week	52	15%	96	N/A
Okaloosa	Lions Park	no data	none	0	n/a	0	N/A
Okaloosa	Liza Jackson Park	1	once a week	52	10%	68	N/A
Okaloosa	Longwood Park	no data	none	0	n/a	0	N/A
Okaloosa	Marlers Park	1	once a week	52	4%	14	N/A
Okaloosa	Maxwell-Gunter	no data	none	0	n/a	0	N/A
Okaloosa	Meigs Park	no data	none	0	n/a	0	N/A
Okaloosa	NCO Beach	1	none	0	n/a	0	N/A
Okaloosa	Norreigo Point	no data	none	0	n/a	0	N/A
Okaloosa	Okaloosa Island Beach Access #1	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Okaloosa	Okaloosa Island Beach Access #2	1	none	0	n/a	0	N/A
Okaloosa	Okaloosa Island Beach Access #3	1	none	0	n/a	0	N/A
Okaloosa	Okaloosa Island Beach Access #4	1	none	0	n/a	0	N/A
Okaloosa	Okaloosa Island Beach Access #5	1	none	0	n/a	0	N/A
Okaloosa	Okaloosa Island Beach Access #6	1	none	0	n/a	0	N/A
Okaloosa	Okaloosa Island Beach Access #7	1	none	0	n/a	0	N/A
Okaloosa	Parrish Point	no data	none	0	n/a	0	N/A
Okaloosa	Pocahantas Drive	no data	none	0	n/a	0	N/A
Okaloosa	Poquito Park	1	once a week	52	2%	5	N/A
Okaloosa	Postal Point	no data	none	0	n/a	0	N/A
Okaloosa	Rickey Avenue	no data	none	0	n/a	0	N/A
Okaloosa	Rocky Bayou (Fred Gannon State Park)	1	once a week	52	19%	70 (42)	N/A
Okaloosa	Rocky Creek Campground	1	none	0	n/a	0	N/A
Okaloosa	Seashore Beachwalk	no data	none	0	n/a	0	N/A
Okaloosa	Seaview	no data	none	0	n/a	0	N/A
Okaloosa	Star Drive	no data	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Okaloosa	US Army Rec Center	no data	none	0	n/a	0	N/A
Okaloosa	Valparaiso Blvd	1	none	0	n/a	0	N/A
Okaloosa	Walk Edge	no data	none	0	n/a	0	N/A
Okaloosa	Weekley Bayou	1	none	0	n/a	0	N/A
Okaloosa	White Point	no data	none	0	n/a	0	N/A
Palm Beach	Boynton Beach Municipal	1	twice a week	43	0%	0	N/A
Palm Beach	Carlin Park	1	twice a week	43	2%	0	N/A
Palm Beach	Coral Cove	1	none	0	n/a	0	N/A
Palm Beach	Delray Beach (AKA Sandoway Park)	1	twice a week	44	2%	0	N/A
Palm Beach	Dubois Park	1	twice a week	45	7%	2	N/A
Palm Beach	Gulfstream Park	1	none	35	0%	0	N/A
Palm Beach	John D. Mcarthur	1	none	0	n/a	0	N/A
Palm Beach	Juno Beach Park	1	none	0	n/a	0	N/A
Palm Beach	Jupiter Beach Park	1	twice a week	42	0%	0	N/A
Palm Beach	Lake Worth (AKA Kreusler)	1	twice a week	43	0%	0	N/A
Palm Beach	Lantana Municipal	1	twice a week	45	4%	2	N/A
Palm Beach	Loggerhead Park	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Palm Beach	Ocean Inlet Park	1	twice a week	44	2%	0	N/A
Palm Beach	Ocean Reef Park	1	none	0	n/a	0	N/A
Palm Beach	Palm Beach	1	twice a week	43	0%	0	N/A
Palm Beach	Palm Beach Shores	1	none	0	n/a	0	N/A
Palm Beach	Peanut Island	1	none	0	n/a	0	N/A
Palm Beach	Phil Foster Park	1	twice a week	62	19%	37	N/A
Palm Beach	Phipps	1	none	0	n/a	0	N/A
Palm Beach	Red Reef Park	1	none	0	n/a	0	N/A
Palm Beach	Riviera Beach	1	twice a week	43	0%	0	N/A
Palm Beach	South Beach	1	none	0	n/a	0	N/A
Palm Beach	South Inlet Park	1	twice a week	43	0%	0	N/A
Palm Beach	Spanish River	1	twice a week	43	0%	0	N/A
Pasco	Anclothe River Park Beach	1	twice a month	39	0%	0	N/A
Pasco	Brasher Park Beach	1	twice a month	39	3%	14	N/A
Pasco	Energy and Marine Center	1	none	35	3%	38	N/A
Pasco	Gulf Harbors Beach	1	twice a month	39	0%	0	N/A
Pasco	Oelsner Park Beach	1	none	35	9%	34	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pasco	Robert J. Strickland	1	twice a month	39	10%	42	N/A
Pasco	Robert K. Rees Park Beach	1	twice a month	38	0%	13	N/A
Pinellas	Bay Vista Park	no data	none	0	n/a	0	N/A
Pinellas	Belleair Beach - Morgan Drive	1	none	0	n/a	0	N/A
Pinellas	Belleair Causeway-Intercoastal	1	none	0	n/a	0	N/A
Pinellas	Bermuda Bay Beach	no data	none	0	n/a	0	N/A
Pinellas	Clearwater Beach (3rd St)	1	none	0	n/a	0	N/A
Pinellas	Clearwater Beach - Carlouel Park	1	none	0	n/a	0	N/A
Pinellas	Clearwater Beach - Rockaway	1	none	0	n/a	0	N/A
Pinellas	Courtney Campbell Causeway	1	twice a month	47	11%	3	N/A
Pinellas	Crystal Beach	1	none	0	n/a	0	N/A
Pinellas	Dunedin Marina Beach	1	none	0	n/a	0	N/A
Pinellas	Fort Desoto 1/2 Way B/N Fort & N. Beach	1	none	0	n/a	0	N/A
Pinellas	Fort Desoto - East Beach	1	none	0	n/a	0	N/A
Pinellas	Fort Desoto North Beach	1	none	43	0%	0	N/A
Pinellas	Fred Howard Beach	1	none	0	n/a	0	N/A
Pinellas	Ft Desoto Park - Pier/Fort	1	twice a	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
			month				
Pinellas	Gandy Boulevard	1	none	38	8%	0	N/A
Pinellas	Gulfport - East Beach	1	none	0	n/a	0	N/A
Pinellas	Gulfport - Osgood Beach	1	none	0	n/a	0	N/A
Pinellas	Gulfport - West Beach	1	none	0	n/a	0	N/A
Pinellas	Honeymoon Island Beach	1	twice a month	45	4%	0	N/A
Pinellas	Honeymoon Island Causeway (South)	1	none	0	n/a	0	N/A
Pinellas	Indian Rocks Beach	1	twice a month	44	2%	0	N/A
Pinellas	Indian Rocks Beach - Central Ave	1	none	0	n/a	0	N/A
Pinellas	Indian Shores Beach	1	none	35	0%	0	N/A
Pinellas	Lassing Park - 19th Ave SE	no data	none	0	n/a	0	N/A
Pinellas	Madeira Beach	1	twice a month	44	2%	0	N/A
Pinellas	Madeira Beach - 129th Ave	1	none	0	n/a	0	N/A
Pinellas	Maximo Park - East Beach	no data	none	0	n/a	0	N/A
Pinellas	Maximo Park - West Beach	no data	none	0	n/a	0	N/A
Pinellas	Mobbly Bayou Preserve	1	none	37	3%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pinellas	North Redington Beach - 169th Ave	1	none	0	n/a	0	N/A
Pinellas	North Shore - North Beach	1	none	0	n/a	0	N/A
Pinellas	North Shore Beach	1	none	36	6%	0	N/A
Pinellas	Pass-A-Grille - 19th Ave	no data	none	0	n/a	0	N/A
Pinellas	Pass-A-Grille Beach	1	twice a month	44	2%	0	N/A
Pinellas	R.E. Olds Park	1	none	0	n/a	0	N/A
Pinellas	Redington Beach - 158th Ave	1	none	0	n/a	0	N/A
Pinellas	Redington Shores - 175th Ave	1	none	0	n/a	0	N/A
Pinellas	Redington Shores - 182nd Ave	1	twice a month	46	9%	5	N/A
Pinellas	Safety Harbor Pier	1	none	0	n/a	0	N/A
Pinellas	Sand Key	1	twice a month	45	4%	0	N/A
Pinellas	St Pete Beach - 34th Ave (The Don)	1	none	0	n/a	0	N/A
Pinellas	St Pete Beach - 46th Ave (Park)	1	none	0	n/a	0	N/A
Pinellas	Sunset Beach (TI) - 82nd Ave	1	none	0	n/a	0	N/A
Pinellas	Sunset Beach (TI) - 89th Ave	1	none	0	n/a	0	N/A
Pinellas	Sunset Beach - Tarpon Springs	1	twice a month	46	7%	14	N/A
Pinellas	Treasure Island - 103rd Ave	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pinellas	Treasure Island Beach	1	twice a month	45	4%	0	N/A
Santa Rosa	Floridatown Park	1	none	0	n/a	0	N/A
Santa Rosa	Garcon Point Location 3	1	none	0	n/a	0	N/A
Santa Rosa	Homeport	1	none	35	0%	0	N/A
Santa Rosa	Juana's Beach	1	once a month	39	0%	0	N/A
Santa Rosa	Navarre Beach Pier	1	once a month	39	0%	0	N/A
Santa Rosa	Navarre Beach West	1	once a month	39	0%	0	N/A
Santa Rosa	Navarre Park	1	once a month	43	12%	5	N/A
Santa Rosa	Redfish Point	1	none	0	n/a	0	N/A
Santa Rosa	Shoreline Park	1	once a month	41	5%	0	N/A
Santa Rosa	Woodlawn Beach	1	none	36	3%	0	N/A
Sarasota	Avenida Del Mare Access #11	1	none	0	n/a	0	N/A
Sarasota	Avenida Messina Access #2	1	none	0	n/a	0	N/A
Sarasota	Avenida Navarra Access #14	1	none	0	n/a	0	N/A
Sarasota	Blackburn Point Park	1	none	0	n/a	0	N/A
Sarasota	Blind Pass Beach	1	once a week	53	2%	0	N/A
Sarasota	Brohard Beach	1	once a week	53	2%	0	N/A
Sarasota	Calle De La Siesta, Access #7	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Sarasota	Calle Del Inverno Access #10	1	none	0	n/a	0	N/A
Sarasota	Caspersen Public Beach	1	once a week	53	4%	0	N/A
Sarasota	Lido Casino Beach	1	once a week	54	4%	0	N/A
Sarasota	Longboat Access #1	1	none	0	n/a	0	N/A
Sarasota	Longboat Access #2	1	none	0	n/a	0	N/A
Sarasota	Longboat Access #3	1	none	0	n/a	0	N/A
Sarasota	Longboat Key Access	1	once a week	53	2%	0	N/A
Sarasota	Manasota Beach	1	once a week	52	4%	0	N/A
Sarasota	Nokomis Public Beach	1	once a week	52	0%	0	N/A
Sarasota	North Jetty Park Beach	1	once a week	52	0%	0	N/A
Sarasota	North Lido Beach	1	once a week	52	2%	0	N/A
Sarasota	Ocean Blvd Access #5	1	none	0	n/a	0	N/A
Sarasota	Palmer Point Beach	1	none	0	n/a	0	N/A
Sarasota	Plaza De Las Palmas 1, Access #8	1	none	0	n/a	0	N/A
Sarasota	Plaza De Las Palmas #9	1	none	0	n/a	0	N/A
Sarasota	Point O' Rocks	1	none	0	n/a	0	N/A
Sarasota	Quick Point	no data	none	0	n/a	0	N/A
Sarasota	Ringling Causeway	1	once a week	54	4%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Sarasota	Service Club Park	1	once a week	52	0%	0	N/A
Sarasota	Shell Road Access #1	1	none	0	n/a	0	N/A
Sarasota	Siesta Key Public Beach	1	once a week	56	7%	0	N/A
Sarasota	South Jetty Beach	1	none	0	n/a	0	N/A
Sarasota	South Lido Beach	1	once a week	54	4%	0	N/A
Sarasota	Stickney Point Access #12	1	none	0	n/a	0	N/A
Sarasota	Turtle Beach	1	once a week	57	11%	7	N/A
Sarasota	Venice Fishing Pier	1	once a week	54	4%	0	N/A
Sarasota	Venice Public Beach	1	once a week	60	17%	27	N/A
St Johns	Anastasia State Park (St. Augustine Beach)	1	twice a month	39	0%	0	N/A
St Johns	Crescent Beach	1	twice a month	39	0%	0	N/A
St Johns	Matanzas Inlet	1	none	35	0%	0	N/A
St Johns	Mickler's Landing	1	twice a month	39	0%	0	N/A
St Johns	Solano (Ponte Vedra Beach)	1	none	35	0%	0	N/A
St Johns	St. Augustine Beach A Street	1	twice a month	39	0%	0	N/A
St Johns	St. Augustine Beach Ocean Trace	1	twice a month	39	0%	0	N/A
St Johns	Vilano Beach	1	twice a	39	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
			month				
St Lucie	Avalon Park	1	none	0	n/a	0	N/A
St Lucie	Blind Creek	1	none	0	n/a	0	N/A
St Lucie	Blind Creek Park	1	none	0	n/a	0	N/A
St Lucie	Blue Heron Blvd Access	1	none	0	n/a	0	N/A
St Lucie	Coconut Drive Access	1	none	0	n/a	0	N/A
St Lucie	F Douglass Memorial Park	1	twice a month	43	0%	0	N/A
St Lucie	Fort Pierce Inlet/North Jetty Park	1	none	44	5%	0	N/A
St Lucie	Gulfstream Beach	1	none	0	n/a	0	N/A
St Lucie	Hermans Bay	1	none	0	n/a	0	N/A
St Lucie	Inlet State Park @ Ocean	1	none	0	n/a	0	N/A
St Lucie	Inlet State Park @ River	1	none	0	n/a	0	N/A
St Lucie	Jaycee Park	1	none	0	n/a	0	N/A
St Lucie	John Brooks Park	1	none	0	n/a	0	N/A
St Lucie	K Bergalis Memorial Park	1	none	0	n/a	0	N/A
St Lucie	Little Jim Bridge	1	none	0	n/a	0	N/A
St Lucie	Middle Cove	1	none	0	n/a	0	N/A
St Lucie	Normandy Beach	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
St Lucie	Pepper Park	1	twice a month	43	0%	0	N/A
St Lucie	Porpoise Beach	1	none	0	n/a	0	N/A
St Lucie	South Beach Boardwalk	1	none	0	n/a	0	N/A
St Lucie	South Causeway At Boat Ramp	1	none	0	n/a	0	N/A
St Lucie	South Jetty Park Beach	1	twice a month	0	n/a	2	N/A
St Lucie	Surfside Park	1	none	0	n/a	0	N/A
St Lucie	Walton Rocks Beach	1	twice a month	43	0%	0	N/A
St Lucie	Waveland Beach	1	none	0	n/a	0	N/A
Taylor	Cedar Island	1	none	0	n/a	0	N/A
Taylor	Dark Island	1	none	0	n/a	0	N/A
Taylor	Dekle Beach	1	none	23	9%	35	N/A
Taylor	Hagen's Cove	1	none	23	4%	17	N/A
Taylor	Keaton Beach	1	none	23	9%	28	N/A
Volusia	27th Street, New Smyrna Beach	1	twice a month	42	0%	0	N/A
Volusia	Beach Street	1	none	0	n/a	0	N/A
Volusia	Bicentennial Park, Ormond Beach	1	twice a month	43	0%	0	N/A
Volusia	Dunlawton, Daytona Beach Shores	1	twice a	48	2%	7	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
			month				
Volusia	Flagler Avenue, New Smyrna Beach	1	none	34	0%	0	N/A
Volusia	Florida Shores Blvd	1	twice a month	49	2%	28	N/A
Volusia	Granada, Ormond Beach	1	twice a month	43	0%	0	N/A
Volusia	International Speedway, Daytona Beach	1	twice a month	47	0%	7	N/A
Volusia	Main, Daytona Beach	1	twice a month	47	0%	0	N/A
Volusia	North Jetty, Ponce Inlet	1	twice a month	39	0%	0	N/A
Volusia	Oceanview Way, Ponce Inlet	1	twice a month	44	2%	0	N/A
Volusia	Seabreeze, Daytona Beach	1	twice a month	46	0%	0	N/A
Volusia	Silver Beach, Daytona Beach	1	twice a month	47	2%	28	N/A
Volusia	South Jetty, New Smyrna Beach	1	twice a month	42	0%	0	N/A
Volusia	Torinita, Wilbur by the Sea	1	twice a month	47	0%	0	N/A
Volusia	Villa Way	1	none	34	0%	0	N/A
Wakulla	Mash Island	1	twice a month	36	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Wakulla	Shell Point Beach	1	twice a month	37	0%	0	N/A
Walton	Blue Mountain Beach Access	1	twice a month	41	5%	0	N/A
Walton	Cessna Park (Class II)	no data	none	0	n/a	0	N/A
Walton	Choctaw Beach County Park	1	none	39	8%	0	N/A
Walton	County Park	1	twice a month	40	3%	0	N/A
Walton	Dune Allen Beach Access	1	twice a month	40	3%	0	N/A
Walton	Eastern Lake Beach Access	1	twice a month	39	0%	0	N/A
Walton	Eastern Lake Outfall	1	none	0	n/a	0	N/A
Walton	Grayton Beach Access	1	twice a month	39	0%	0	N/A
Walton	Grayton Beach State Recreation Area	1	none	0	n/a	0	N/A
Walton	Holly Street Beach Access	1	twice a month	39	0%	0	N/A
Walton	Inlet Beach Access (TDC Beach Access)	1	twice a month	39	0%	0	N/A
Walton	Legion Park (Class II)	no data	none	0	n/a	0	N/A
Walton	Rosemary Beach	no data	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Walton	Santa Rosa Beach Access	no data	none	0	n/a	0	N/A
Walton	South Wall Street Beach	1	none	0	n/a	0	N/A
Walton	Western Lake Outfall	no data	none	0	n/a	0	N/A
Walton	Wheeler Point	1	none	37	8%	5	N/A

Notes

1. National Oceanic and Atmospheric Administration, "Current Participation Patterns in Marine Recreation," November 2001.
2. Patti Anderson, Florida Department of Health, personal communication, June 2011.
3. Frank Powell, Gulf Islands National Seashore, personal communication, May 2012.
4. David Polk, Florida Department of Health, personal communication, May 2012.
5. David Polk, Florida Department of Health, personal communication, May 2012.

Testing the Waters: Georgia

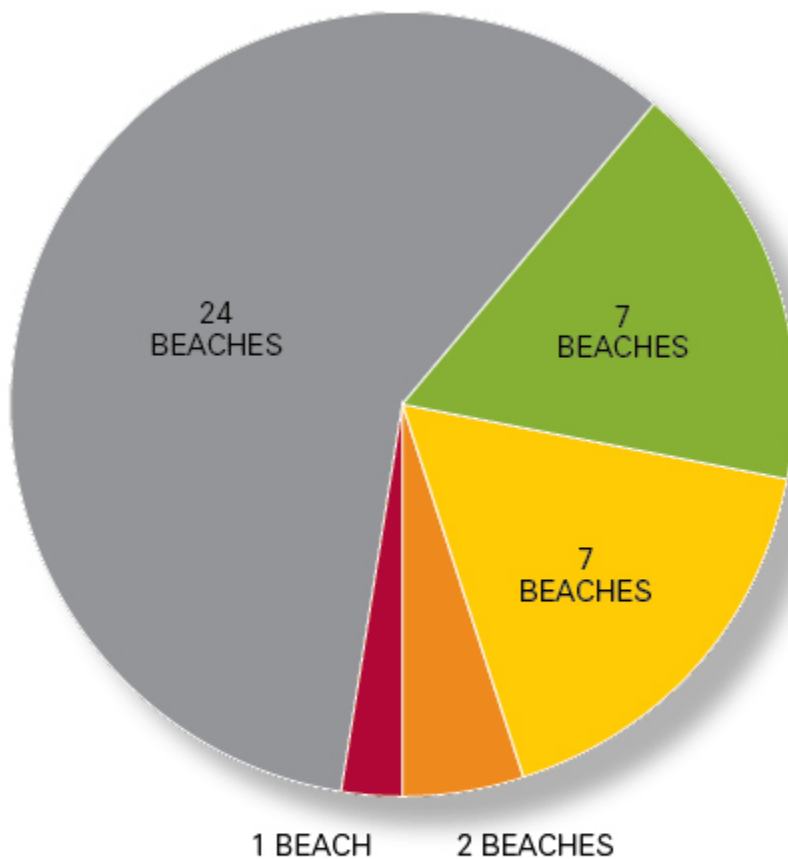
Ranked 9th in Beachwater Quality (out of 30 states)

5% of samples exceeded national standards for designated beach areas in 2011

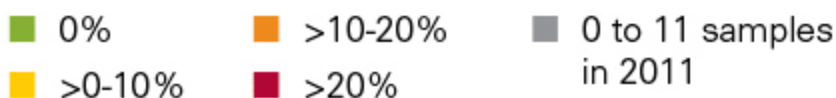
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Georgia

Georgia 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of advisory days)

- 248 (100%) unknown contamination sources

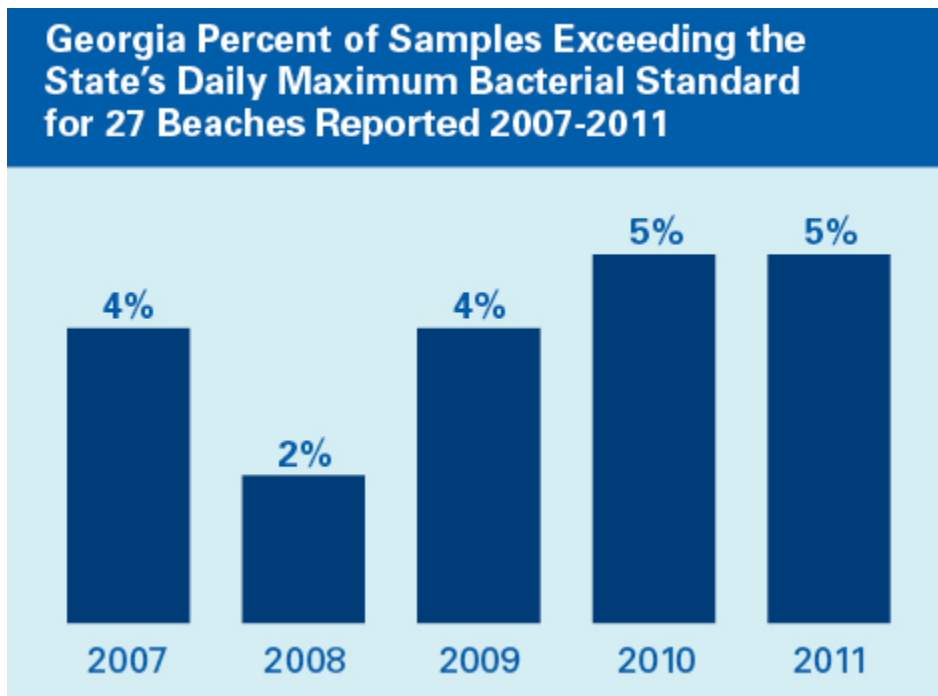
Georgia has 41 public beaches along 118 miles of Atlantic coast and barrier island shores. The Coastal Resources Division of the Georgia Department of Natural Resources administers Georgia's beach monitoring and notification program.

Georgia Drought

The coast of Georgia experienced moderate to severe drought conditions throughout 2011, and midsummer was a time of exceptional drought.¹ Beachwater quality tends to be better during times of drought, because the flow of contaminated runoff is reduced.

What Does Beachwater Monitoring Show?

In 2011, Georgia reported 41 coastal beaches. Of these, 17 (41%) were assigned a monitoring frequency of once a week and 9 (22%) a frequency of once a month; 15 (37%) were not assigned a monitoring frequency. In 2011, 5% of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Jekyll Clam Creek (23%) and St. Andrews Picnic Area (Jekyll) (19%) in Glynn County, and Tybee Island Polk St. in Chatham County (11%). Beaches in McIntosh County had the highest exceedance of the state standard (7%) in 2011, followed by Glynn (6%) and Chatham (4%) counties. No beaches in Camden or Liberty counties were monitored. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Georgia's Sampling Practices?

Most monitored beaches are sampled year-round. In 2011, beaches that were monitored, but not year-round, were sampled from April through October.

The Coastal Resources Division determines sampling practices, locations, standards, and notification protocols and practices throughout the state. Samples are taken in about 3 feet of water (from wave top) at a depth of 15 to 30 centimeters. Beaches that have large populations nearby, have tourist accommodations, are easily accessible, and have the most amenities are monitored the most frequently.

The monitoring frequency for a beach increases when an exceedance occurs. States that monitor more frequently after an exceedance is found will tend to have higher percent exceedance rates and fewer advisory days than they would if their sampling frequency did not increase after an exceedance was found.

How Many Beach Advisories Were Issued in 2011?

Total advisory days for 33 events lasting six consecutive weeks or less increased 14% to 248 days in 2011 from 217 days in 2010. For prior years, there were 209 days in 2009, 72 days in 2008, 181 days in 2007, 203 days in 2006, and 528 days in 2005. In addition, there were 4 extended events (211 days total) and 1 permanent event (365 days) in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. All advisory days in 2011 were due to monitoring that revealed elevated bacteria levels.

How Does Georgia Determine When to Warn Visitors About Swimming? Georgia's beachwater monitoring program issues advisories, not closings. Georgia applies the EPA standard for enterococcus of a single-sample maximum of 104 cfu/100 ml and a 30-day, five-sample geometric mean of 35 cfu/100 ml.

When either the single-sample or geometric mean standard is exceeded, the Coastal Resources Division notifies the Georgia Department of Health and the local beach management entity. Upon receiving this notification, the local entity issues an advisory. There is no protocol for forgoing an advisory when an exceedance is found, and resampling to confirm an exceedance is not done before an advisory is issued.

The state has concluded that its beachwater quality does not appear to correlate strongly with any measured environmental parameters, including rainfall.² Thus, Georgia has no preemptive rainfall advisory standards and does not make use of predictive models for issuing beach advisories. However, permanent advisories are issued for beaches that have ongoing water quality issues. For example, Kings Ferry has been under permanent advisory since 2006.² The health department can issue a closing in the case of an immediate threat to public health, such as a sewage spill.

A volunteer network monitors phytoplankton in Georgia's estuaries, providing information necessary in the event of a harmful algal bloom.

Georgia 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Camden	Cumberland	3	none	0	n/a	0	N/A
Camden	Little Cumberland	3	none	0	n/a	0	N/A
Chatham	Bradley (Ossabaw)	2	once a month	7	0%	0	N/A
Chatham	Kings Ferry	2	four times a year	4	50%	0 (365)	N/A
Chatham	Little Tybee Island	3	none	0	n/a	0	N/A
Chatham	Middle Ossabaw	3	none	0	n/a	0	N/A
Chatham	Skidaway Narrows	2	once a month	7	0%	0	N/A
Chatham	South Ossabaw	2	once a month	7	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Chatham	Tybee Island Middle	1	once a week	52	0%	0	N/A
Chatham	Tybee Island North	1	once a week	53	2%	3	N/A
Chatham	Tybee Island Polk St.	1	once a week	65	11%	81	N/A
Chatham	Tybee Island South	1	once a week	52	0%	0	N/A
Chatham	Tybee Island Strand	1	once a week	53	2%	3	N/A
Chatham	Wassaw Island	3	none	0	n/a	0	N/A
Chatham	Williamson Island	3	none	0	n/a	0	N/A
Glynn	4h Camp (Jekyll)	1	once a week	52	0%	0	N/A
Glynn	5th St. Crossover (SSI)	1	once a week	53	2%	2	N/A
Glynn	12 St. Goulds Inlet (SSI)	1	once a week	54	4%	4	N/A
Glynn	Blythe Island Regional Park Sandbar	2	once a month	8	13%	7	N/A
Glynn	Capt. Wyllly (Jekyll) Near Beachview	1	once a week	52	0%	0	N/A
Glynn	Convention Center (Jekyll)	1	once a week	52	0%	0	N/A
Glynn	East Beach Old Coast Guard (SSI)	1	once a week	53	2%	2	N/A
Glynn	Jekyll Clam Creek	1	once a week	71	23%	73 (65)	N/A
Glynn	Jekyll North At Dexter Lane	1	once a week	53	0%	2	N/A
Glynn	Little St. Simons	3	none	0	n/a	0	N/A
Glynn	Massengale (SSI)	1	once a week	52	0%	0	N/A
Glynn	Pelican Spit (Off Sea Island)	3	none	0	n/a	0	N/A
Glynn	Rainbow Bar (Little SSI)	3	none	0	n/a	0	N/A
Glynn	Reimolds Pasture (Little SSI)	2	once a month	7	0%	0	N/A
Glynn	Sea Island North	2	once a month	7	0%	0	N/A
Glynn	Sea Island South	2	once a month	7	0%	0	N/A
Glynn	South Dunes (Jekyll)	1	once a week	53	2%	2	N/A
Glynn	St. Andrews Picnic Area (Jekyll)	1	once a week	78	19%	47 (146)	N/A
Glynn	St. Simons Island Lighthouse	1	once a week	56	9%	14	N/A
Liberty	St. Catherines Island	3	none	0	n/a	0	N/A
Mcintosh	Blackbeard Island	3	none	0	n/a	0	N/A
Mcintosh	Cabretta (Sapelo)	3	none	0	n/a	0	N/A
Mcintosh	Contentment Bluff Sandbar	2	once a month	7	0%	0	N/A
Mcintosh	Dallas Bluff Sandbar	2	once a month	8	13%	8	N/A
Mcintosh	Nanny Goat (Sapelo)	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Mcintosh	Wolf Island	3	none	0	n/a	0	N/A

Notes

1. U.S. Drought Monitor, "Drought Monitor Archives," accessed at droughtmonitor.unl.edu/archive.html, January 2012.
2. Elizabeth Cheney, Beach Water Quality Manager, Georgia Department of Natural Resources, personal communication, January 2012.
3. Reported advisory days are for events lasting six consecutive weeks or less. Days in parentheses are for events lasting more than six consecutive weeks.

Testing the Waters: Hawaii

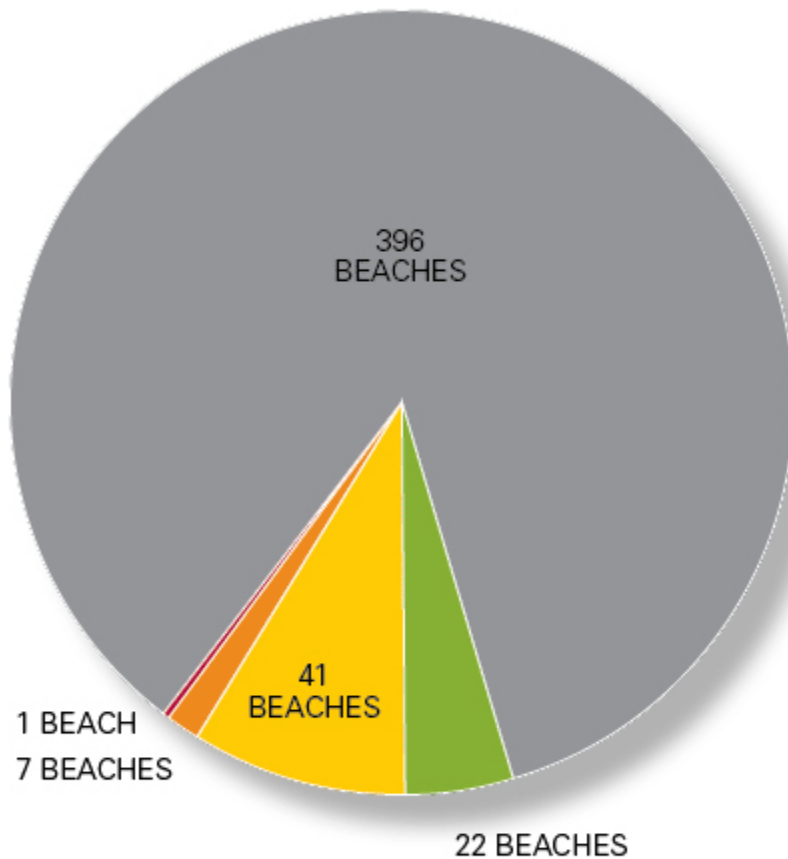
Ranked 7th in Beachwater Quality (out of 30 states)

4% of samples exceeded national standards for designated beach areas in 2011

In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Hawaii

Hawaii 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of warning/advisory days)

- 4,691 (100%) stormwater runoff
- 5 (<1%) sewage spills/leaks

Hawaii has almost 400 public beaches stretching along nearly 300 miles of Pacific Ocean coastline. Its beachwater monitoring program is administered by the Clean Water Branch of the Hawaii Department of Health (DOH).

Identifying Sources of Contamination in Nawiliwili Bay and Hanalei Bay

In 2012, DOH will work with Stanford University and the U.S. Geological Survey to identify the sources of fecal indicator bacteria in the waters of Nawiliwili Bay. In addition to using a genetic technique called quantitative polymerase chain reaction (qPCR) to identify the species responsible for bacteria found in bay waters, water samples will be analyzed for two human pharmaceuticals, carbamazepine (an anticonvulsant) and sulfamethoxazole (an antibiotic). These pharmaceuticals are present in wastewater but are not destroyed during wastewater treatment, so detecting them indicates the presence of wastewater effluent. As part of this project, the Kauai chapter of the Surfrider Foundation will assist with bimonthly water sampling for nutrients and weekly sampling for fecal indicator bacteria in the Hanalei Bay watershed. This organization has been collecting samples from nine sites in the watershed, and its data will be used to complement the pharmaceutical data and the information gathered about the species responsible for fecal indicator bacteria in the bay.¹

Correcting Water Quality Problems Around Mokauea Island

Several homes on Mokauea Island, located in Ke'ehi Lagoon, were directly discharging sewage into the ocean. All of the homes that are currently occupied now have a dry compost system, and beachwater sampling around the island has verified that these systems are working properly. Hawaii does not list the beach on this island as a BEACH Act beach because of accessibility constraints.¹

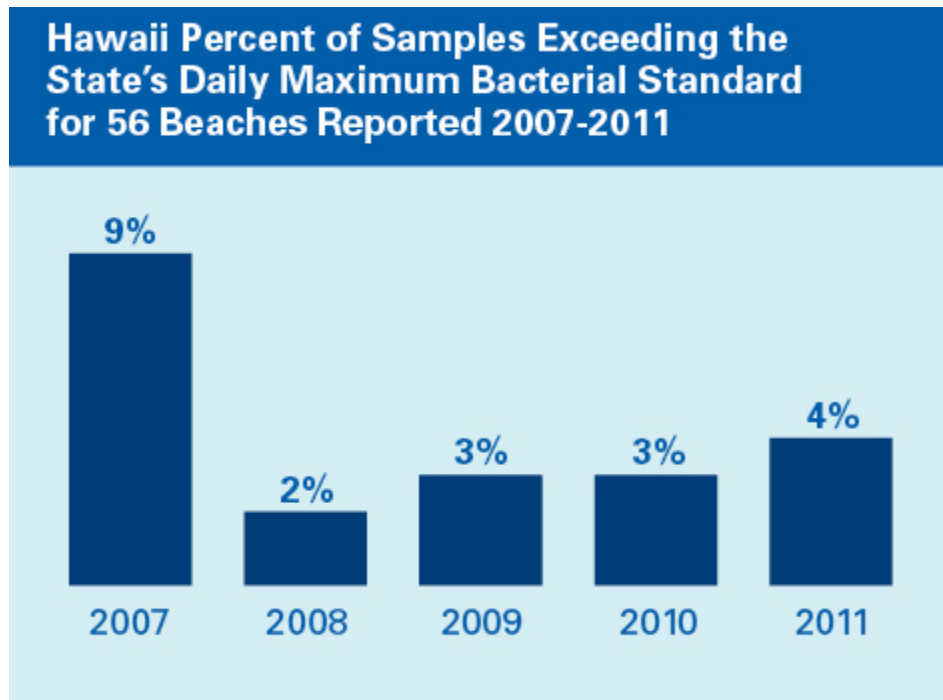
Investigating Wastewater Disposal in Injection Wells as a Suspected Source of Contamination in Maui Waters

The Lahaina Wastewater Reclamation Facility, operated by Maui County, uses injection wells to dispose of sewage that has been through secondary treatment. Solids, dissolved organic matter, and residual suspended matter are removed from this treated wastewater, but the water is not disinfected. It is suspected that the wastewater injected into these wells is making its way to the ocean through underwater seeps. In January 2012, the Clean Water Branch and the University of Hawaii began gathering monthly water samples at these underwater seeps. Samples are analyzed for nutrients, metals, volatile organic compounds, bacteria, chlorine residuals, and turbidity. Samples have also been collected for qPCR analysis in order to detect the species responsible for fecal indicator bacteria in the water and to detect pharmaceuticals that signal the presence of human waste. In addition to samples collected at the underwater seeps, samples are collected at ocean sites near the seeps for comparison with the water from the seeps. The results of this project so far indicate that there is a hydrologic connection between the Lahaina Wastewater Reclamation Facility injection wells and the ocean seeps, and that wastewater being injected into the wells is finding its way to the ocean.¹

What Does Beachwater Monitoring Show?

In 2011, Hawaii reported 467 coastal beaches and beach segments. Of these, 51 (11%) were assigned a monitoring frequency of more than once a week, 16 (3%) a frequency of once a week, 82 (18%) every other week, 8 (2%) once a month, and 4 (1%) less than once a month; 296 (63%) were not assigned a monitoring frequency, and there was no monitoring assignment information for 10 (2%) beaches. In 2011, 4% of all

reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Hanalei Beach Park (22%), Kalihiwai Bay (20%), and Ke'e Beach (18%) in Kauai County; Honoli'i Beach Park (16%) and Pelekane Bay (13%) in Hawaii County; and Nawiliwili Harbor (13%) and Lumaha'i Beach in Kauai County (13%). Beaches in Kauai County had the highest exceedance rate of the state standard in 2011 (9%), followed by Hawaii (4%), Honolulu (2%), and Maui (2%) counties. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Hawaii's Sampling Practices?

The monitoring season in this tropical state is year-round.

Sampling practices, locations, standards, and notification protocols and practices are uniform throughout the state. Samples are taken 1 foot below the surface in water that is knee to waist deep. Hawaii's beach monitoring program prioritizes sampling efforts based on the risk of illness to swimmers and the frequency of use. Tier 1 beaches are Hawaii's important and threatened beaches; all (except those on Oahu) were monitored two times a week in 2011. Tier 2 beaches are moderate-use beaches and were sampled once or twice a week for 6 months at a time. If a Tier 2 beach shows periodic elevated counts for no obvious reason, it is sampled once or twice a week for another 6 months or is elevated to Tier 1 status. If a beach is unlikely to be contaminated and has consistently low fecal indicator counts, then it is assigned Tier 3 status and is sampled at least once every 6 months. Circumstances such as inaccessibility, sampler illness or vacation, or lab closure may prevent these frequencies from being maintained. For instance, because of reductions in budget and manpower, the beaches on Oahu were not sampled at these frequencies in 2011. Instead, Oahu's Tier 1 beaches were sampled at least once a week, and Tier 2 and 3 beaches were unmonitored.²

If a warning is issued, daily monitoring is performed until bacteria levels no longer exceed action levels, after which the beach is reopened. States that monitor more frequently after an exceedance is found will tend to have higher percent exceedance rates and lower total warning/advisory days than they would if their sampling frequency did not increase after an exceedance was found.

How Many Beach Warnings and Advisories Were Issued in 2011?

Total warning/advisory days for 741 events lasting six consecutive weeks or less increased 11% to 4,696 days in 2011 from 4,215 days in 2010. For prior years, there were 2,352 days in 2009, 2,766 days in 2008, 4,134 days in 2007, 6,507 days in 2006, and 2,228 days in 2005. There were no permanent or extended events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 741 events lasting six consecutive weeks or less, almost all (4,691) were preemptive due to heavy rainfall; less than 1% (5) were preemptive to due known sewage spills or leaks.

How Does Hawaii Determine When to Warn Visitors About Swimming?

Hawaii's Department of Health does not have the authority to close beaches. Instead, it issues warnings (for bacterial exceedances), sewage advisories (for known and suspected sewage spills), and stormwater advisories. In 2009, Hawaii began using a single-sample maximum standard of 104 cfu/100ml (for beaches that are not sampled at least five times a month) and a 30-day geometric mean standard of 35 cfu/100ml (for beaches that are sampled at least five times a month).¹ Hawaii also uses quantitative information about the presence of *Clostridium perfringens* (a tracer for human sewage) when making beach warning decisions.¹

At beaches that are monitored at least five times a month, a warning is posted on the Internet when enterococcus exceeds the geometric mean standard and the *Clostridium perfringens* count surpasses its level of action.¹ When these two things occur, the rule is absolute: No overriding factors can be taken into account before a warning is issued. At beaches that are monitored less frequently than five times a month, as with all beaches, an exceedance of the single sample standard is noted on the program's website as soon as sampling results are available, whether or not a warning is issued.¹ By themselves, exceedances of the single sample standard (including repeat exceedances of the single sample standard) rarely result in a warning.

Preemptive rainfall advisories (brown water advisories) are issued when the National Weather Service issues a flash flood warning and the beach monitoring program determines that stormwater will cause water quality problems.¹ When there is a storm event that does not generate a flood warning but creates turbid waters with debris and possibly dead animals in near-shore waters, a preemptive rainfall advisory may be issued.¹ Brown water advisories can be issued statewide, island-wide, or for specific areas of one island.

If a sewage spill is suspected or if there are indications of human fecal contamination, a sign is posted at the beach immediately and a sample is taken.¹

Hawaii 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Hawaii	2nd Beach (Next to Mahaiula)	2	twice a month	7	0%	5	N/A
Hawaii	Anaeho'omalu Bay	1	twice a week	80	1%	5	N/A
Hawaii	Analani Pond (Puala'a)	1	twice a week	77	3%	5	N/A
Hawaii	Apua	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Hawaii	Banyan's Surfing Area	2	twice a week	11	0%	5	N/A
Hawaii	Cape Kumukahi	3	none	0	n/a	0	N/A
Hawaii	Coconut Island Park	2	twice a month	36	6%	11	N/A
Hawaii	Green Sand Beach	3	none	0	n/a	0	N/A
Hawaii	Hakalau Co. Pk.	2	twice a month	7	0%	5	N/A
Hawaii	Halape Shelter	3	none	0	n/a	0	N/A
Hawaii	Hapuna Beach St. Rec. Area	2	twice a month	17	0%	5	N/A
Hawaii	Hawaiian Beaches Co. Park	3	none	0	n/a	0	N/A
Hawaii	Hawaiian Paradise Co. Pk.	3	none	0	n/a	0	N/A
Hawaii	Heeia	2	none	0	n/a	5	N/A
Hawaii	Hilo Bay (Boat Landing)	no data	no data	10	10%	0	N/A
Hawaii	Hilo Bayfront	1	twice a week	100	8%	12	N/A
Hawaii	Ho'okena	3	none	12	8%	5	N/A
Hawaii	Holoholokai Beach	3	twice a month	12	8%	5	N/A
Hawaii	Honaunau Bay	2	twice a month	11	0%	5	N/A
Hawaii	Honokane Iki	3	none	0	n/a	0	N/A
Hawaii	Honokane Nui	3	none	0	n/a	0	N/A
Hawaii	Honokea	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Hawaii	Honokohau Beach	3	twice a month	0	n/a	5	N/A
Hawaii	Honoli'i Beach Co. Park	1	twice a week	77	16%	11	N/A
Hawaii	Honolulu Landing	3	none	0	n/a	0	N/A
Hawaii	Honomalino Bay	3	three times a week	0	n/a	5	N/A
Hawaii	Honopue	3	none	0	n/a	0	N/A
Hawaii	Ice Pond (single point)	2	twice a month	37	8%	11	N/A
Hawaii	Isaac Hale Beach Co. Pk.	2	none	0	n/a	5	N/A
Hawaii	James Kealoha Park	1	twice a week	77	5%	5	N/A
Hawaii	Ka Lae (South Point)	2	twice a month	1	0%	5	N/A
Hawaii	Ka'alu'alu Bay	3	none	0	n/a	0	N/A
Hawaii	Ka'iliki'i	2	none	0	n/a	0	N/A
Hawaii	Ka'upulehu	2	twice a month	0	n/a	5	N/A
Hawaii	Kahalu'u Beach Co. Pk.	1	twice a week	80	1%	5	N/A
Hawaii	Kahuwai Bay	2	none	0	n/a	0	N/A
Hawaii	Kailua Bay	1	twice a week	89	3%	5	N/A
Hawaii	Kalahiki Beach	2	twice a month	0	n/a	5	N/A
Hawaii	Kalapana Beach (new) (Harry K. Brown Beach Co. Pk.)	2	twice a month	3	0%	5	N/A
Hawaii	Kalu'e Pt.	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Hawaii	Kaluhika'a Beach	3	none	0	n/a	0	N/A
Hawaii	Kamakaokahonu	1	twice a week	81	2%	5	N/A
Hawaii	Kamehame Hill	3	none	0	n/a	0	N/A
Hawaii	Kamoa Pt.	3	three times a week	0	n/a	5	N/A
Hawaii	Kapa'a Beach Co. Pk.	3	none	0	n/a	5	N/A
Hawaii	Kapoho Bay	2	none	41	12%	5	N/A
Hawaii	Kapoho Beach Lots	no data	no data	3	0%	0	N/A
Hawaii	Kapoho Tidepools (Vacationland)	3	twice a month	40	0%	5	N/A
Hawaii	Kapu'a Bay	2	twice a month	0	n/a	5	N/A
Hawaii	Kauhako Bay - Hookena	no data	no data	0	n/a	0	N/A
Hawaii	Kauna'oa Beach	2	none	11	0%	5	N/A
Hawaii	Kawa Bay	2	twice a week	0	n/a	5	N/A
Hawaii	Kawaihae Harbor	2	twice a month	11	0%	5	N/A
Hawaii	Ke'ei	3	none	0	n/a	5	N/A
Hawaii	Kea'au	3	none	0	n/a	0	N/A
Hawaii	Keahou Bay (Kona)	2	none	14	0%	5	N/A
Hawaii	Kealakekua Bay	no data	no data	12	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Hawaii	Kealia Beach	3	twice a month	0	n/a	5	N/A
Hawaii	Keaukaha Beach Park	3	none	39	0%	11	N/A
Hawaii	Keawaiki	2	twice a month	0	n/a	5	N/A
Hawaii	Kehena	2	twice a month	3	0%	5	N/A
Hawaii	Keokea Beach Co. Pk.	2	twice a week	1	0%	5	N/A
Hawaii	Keone'ele Cove	3	none	0	n/a	5	N/A
Hawaii	Kiholo Bay	2	twice a month	0	n/a	5	N/A
Hawaii	Kolekole Beach Co. Park	3	none	7	14%	5	N/A
Hawaii	Kuki'o	3	none	0	n/a	5	N/A
Hawaii	Lapakahi St. Hist. Park	2	twice a month	0	n/a	5	N/A
Hawaii	Laupahoehoe Beach Co. Park	2	twice a month	7	0%	5	N/A
Hawaii	Lehia Beach Co. Pk.	3	three times a week	10	0%	5	N/A
Hawaii	Leleiwi Beach Co. Pk.	2	twice a week	123	4%	5	N/A
Hawaii	MacKenzie State Rec. Area	3	none	0	n/a	0	N/A
Hawaii	Mahai'ula Bay	3	none	0	n/a	5	N/A
Hawaii	Mahukona Beach Co. Pk.	2	none	0	n/a	5	N/A
Hawaii	Makalawena	3	none	0	n/a	5	N/A
Hawaii	Makole'a Beach	3	none	0	n/a	5	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Hawaii	Manini Point Co. Pk.	3	twice a month	1	0%	5	N/A
Hawaii	Manini'owali	2	none	20	5%	5	N/A
Hawaii	Manuka Bay	2	none	0	n/a	5	N/A
Hawaii	Mau'umae Beach	3	none	0	n/a	5	N/A
Hawaii	Mauna Lani (Kalahuipua'a)	3	none	12	8%	5	N/A
Hawaii	Miloli'i Beach	2	none	11	0%	5	N/A
Hawaii	Nanawale Co. Park	3	none	0	n/a	0	N/A
Hawaii	Napo'apo'o Beach Co. Pk.	3	twice a month	0	n/a	5	N/A
Hawaii	Ninole	2	none	3	0%	5	N/A
Hawaii	Ohai'ula Beach	2	none	0	n/a	5	N/A
Hawaii	Old Kona Airport (Pawai)	2	none	0	n/a	0	N/A
Hawaii	Old Kona Airport St. Rec. Area	2	three times a week	3	0%	5	N/A
Hawaii	Onekahakaha Beach Co. Pk.	1	twice a week	114	4%	11	N/A
Hawaii	Onomea	3	none	0	n/a	0	N/A
Hawaii	Pahoehoe Beach Co. Pk.	3	twice a month	0	n/a	5	N/A
Hawaii	Paiahaa	3	none	0	n/a	0	N/A
Hawaii	Papa'i (King's Landing)	3	none	0	n/a	0	N/A
Hawaii	Pelekane Bay	3	twice a month	15	13%	5	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Hawaii	Pine Trees	3	twice a month	8	0%	5	N/A
Hawaii	Pohoiki Beach	3	none	22	0%	5	N/A
Hawaii	Pohue Bay	2	none	0	n/a	5	N/A
Hawaii	Pololu Valley	2	twice a week	1	0%	5	N/A
Hawaii	Pu'u Hou	3	none	0	n/a	0	N/A
Hawaii	Pu'uhonua Pt. (Pu'u o Honaunau)	3	twice a month	0	n/a	5	N/A
Hawaii	Puako	1	twice a week	85	2%	5	N/A
Hawaii	Pueo Bay	2	none	0	n/a	5	N/A
Hawaii	Punalu'u	3	twice a month	3	0%	5	N/A
Hawaii	Radio Bay	3	none	9	0%	11	N/A
Hawaii	Reeds Bay Park	3	twice a month	0	n/a	11	N/A
Hawaii	Road to the Sea	3	none	0	n/a	0	N/A
Hawaii	Spencer Beach Co. Pk.	3	none	10	0%	5	N/A
Hawaii	Wai'ahukini	3	none	0	n/a	5	N/A
Hawaii	Waialea Bay	3	twice a month	0	n/a	5	N/A
Hawaii	Waimanu Bay	3	none	0	n/a	0	N/A
Hawaii	Waipi'o Bay	2	twice a month	0	n/a	5	N/A
Hawaii	Waiulaula	3	none	15	0%	5	N/A
Hawaii	Wawaloli Beach	2	twice a month	0	n/a	5	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Hawaii	White Sands Beach Co. Pk. (Magic Sands)	2	twice a month	32	0%	5	N/A
Hawaii	Whittington Beach Co. Pk.	2	twice a month	3	0%	5	N/A
Honolulu	Ala Moana Beach Co. Park	1	twice a week	126	3%	8	N/A
Honolulu	Aukai Beach Co. Park	3	none	0	n/a	22	N/A
Honolulu	Banzai	3	none	0	n/a	25	N/A
Honolulu	Barbers Point Beach Co. Pk.	3	none	0	n/a	8	N/A
Honolulu	Bellows Field Beach Co. Pk.	3	once a month	0	n/a	0	N/A
Honolulu	Camp Harold Erdman	2	once a week	0	n/a	0	N/A
Honolulu	Chun's Reef	1	twice a week	5	0%	20	N/A
Honolulu	Diamond Head	2	none	0	n/a	8	N/A
Honolulu	Diving area east of Reef Runway	no data	none	0	n/a	0	N/A
Honolulu	Ehukai Beach Co. Pk.	3	none	0	n/a	25	N/A
Honolulu	Ewa Beach	3	once a week	0	n/a	8	N/A
Honolulu	Ewa Beach Co. Park	2	twice a week	3	0%	0	N/A
Honolulu	Ewa Plantation Beach	3	none	0	n/a	0	N/A
Honolulu	Fort DeRussy Beach	2	once a week	0	n/a	8	N/A
Honolulu	Fort DeRussy Beach Park	2	none	0	n/a	8	N/A
Honolulu	Fort Hase Beach	3	none	0	n/a	8	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Honolulu	Fort Kamehameha Beach	3	none	0	n/a	8	N/A
Honolulu	Gray's Beach	2	none	0	n/a	8	N/A
Honolulu	Hale'iwa Ali'i Beach Co. Pk.	3	none	0	n/a	20	N/A
Honolulu	Hale'iwa Beach Co. Pk.	3	none	0	n/a	20	N/A
Honolulu	Halona Blowhole	2	none	0	n/a	8	N/A
Honolulu	Hanaka'ilio Beach	3	none	0	n/a	22	N/A
Honolulu	Hanauma Bay	1	twice a week	57	2%	8	N/A
Honolulu	Hau'ula Beach Co. Park	2	none	0	n/a	22	N/A
Honolulu	Hawaiian Electric Beach Park	3	none	0	n/a	11	N/A
Honolulu	He'eia	2	once a week	0	n/a	0	N/A
Honolulu	Hickam Harbor Beach	2	none	0	n/a	0	N/A
Honolulu	Ihilani Honu	3	none	1	0%	11	N/A
Honolulu	Ihilani Kohola	3	none	1	0%	11	N/A
Honolulu	Ihilani Naia	3	none	1	0%	11	N/A
Honolulu	Ihilani Ulua	3	none	1	0%	11	N/A
Honolulu	Iroquois Pt.	3	none	0	n/a	8	N/A
Honolulu	Ka'a'awa Beach Co. Park	2	none	0	n/a	22	N/A
Honolulu	Ka'alawai Beach	2	none	0	n/a	8	N/A
Honolulu	Ka'ena Pt.	3	none	0	n/a	11	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Honolulu	Kahala	2	once a week	0	n/a	0	N/A
Honolulu	Kahala Hilton Beach	2	once a month	0	n/a	0	N/A
Honolulu	Kahana Bay	3	none	0	n/a	22	N/A
Honolulu	Kahanamoku Beach	1	twice a week	63	3%	8	N/A
Honolulu	Kahanamoku Lagoon	no data	no data	0	n/a	0	N/A
Honolulu	Kahe Pt. Beach Co. Pk.	2	none	0	n/a	11	N/A
Honolulu	Kahuku Golf Course	3	none	0	n/a	22	N/A
Honolulu	Kaiaka	3	none	0	n/a	11	N/A
Honolulu	Kaihalulu Beach	3	none	0	n/a	11	N/A
Honolulu	Kailua Beach	2	none	0	n/a	0	N/A
Honolulu	Kailua Beach Middle	3	none	0	n/a	8	N/A
Honolulu	Kailua Beach Pk.	2	twice a week	54	6%	0	N/A
Honolulu	Kaiona Beach Co. Park	3	none	0	n/a	8	N/A
Honolulu	Kaipapa'u Beach	2	none	0	n/a	22	N/A
Honolulu	Kakaako Waterfront	3	once a week	0	n/a	8	N/A
Honolulu	Kalae'o'io Beach Co. Park	3	none	0	n/a	22	N/A
Honolulu	Kalama Beach	2	once a month	0	n/a	0	N/A
Honolulu	Kalaniana'ole Beach	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Honolulu	Kaloko (Queens) Beach	3	none	0	n/a	8	N/A
Honolulu	Kaluahole Beach	3	none	0	n/a	8	N/A
Honolulu	Kaluanui Beach	2	none	0	n/a	22	N/A
Honolulu	Kane'ohe Bay	3	none	0	n/a	22	N/A
Honolulu	Kananelu Beach	3	none	0	n/a	22	N/A
Honolulu	Kapaeloa Beach	2	four times a year	0	n/a	0	N/A
Honolulu	Kapi'olani Park	2	none	0	n/a	8	N/A
Honolulu	Kaunala Beach	3	none	0	n/a	25	N/A
Honolulu	Kaupo Beach Co. Park	3	none	0	n/a	8	N/A
Honolulu	Kawaiku'i Beach Park	2	once a month	0	n/a	0	N/A
Honolulu	Kawailoa Beach	3	none	0	n/a	20	N/A
Honolulu	Kawela Bay	2	none	0	n/a	25	N/A
Honolulu	Ke'ehi Lagoon	3	none	0	n/a	8	N/A
Honolulu	Kea'au Beach Co. Park	2	none	0	n/a	11	N/A
Honolulu	Kealia Beach	2	once a week	0	n/a	0	N/A
Honolulu	Koke'e Beach Park	2	once a week	0	n/a	0	N/A
Honolulu	Koko Kai Beach Park	2	once a week	0	n/a	0	N/A
Honolulu	Kokololio Beach	2	none	0	n/a	22	N/A
Honolulu	Kualoa Co. Regional Park	1	four times a	6	0%	22	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
			week				
Honolulu	Kualoa Sugar Mill Beach	3	none	0	n/a	22	N/A
Honolulu	Kuhio Beach Park	1	twice a week	62	8%	8	N/A
Honolulu	Kuilei Cliffs Beach Park	3	none	0	n/a	8	N/A
Honolulu	Kuilima Cove	3	none	0	n/a	25	N/A
Honolulu	Kuli'ou'ou	2	once a week	0	n/a	0	N/A
Honolulu	Laenani Beach Co. Park	2	none	0	n/a	8	N/A
Honolulu	Laie Beach Co. Park	3	none	0	n/a	22	N/A
Honolulu	Laniakea Beach	2	four times a year	0	n/a	0	N/A
Honolulu	Lanikai	2	none	0	n/a	8	N/A
Honolulu	Laniloa Peninsula (Beach)	3	none	0	n/a	22	N/A
Honolulu	Laukinui Beach	3	none	0	n/a	11	N/A
Honolulu	Lualualei Beach Co. Park	2	none	0	n/a	11	N/A
Honolulu	Ma'ili Beach Co. Park	1	none	0	n/a	11	N/A
Honolulu	Magic Island Beach	1	twice a week	62	0%	8	N/A
Honolulu	Magic Island East	3	none	0	n/a	0	N/A
Honolulu	Maipalaoa Beach	3	none	0	n/a	11	N/A
Honolulu	Makaha Beach Co. Park	1	none	3	0%	11	N/A
Honolulu	Makao Beach	3	none	0	n/a	22	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Honolulu	Makapu'u Beach Co. Park	1	twice a week	57	0%	8	N/A
Honolulu	Makaua Beach Co. Park	3	none	0	n/a	22	N/A
Honolulu	Makua Beach	3	none	0	n/a	11	N/A
Honolulu	Malaekahana Bay	1	four times a week	6	17%	22	N/A
Honolulu	Manner's Beach	3	none	0	n/a	11	N/A
Honolulu	Mauna Lahilahi Beach Co. Pk.	3	none	0	n/a	11	N/A
Honolulu	Maunalua Bay	3	none	0	n/a	8	N/A
Honolulu	Maunalua Bay Beach Park	2	once a week	0	n/a	0	N/A
Honolulu	Mokule'ia Beach	3	none	0	n/a	11	N/A
Honolulu	Mokule'ia Beach Park	2	four times a year	0	n/a	0	N/A
Honolulu	Nanaikapono Beach	3	none	0	n/a	11	N/A
Honolulu	Nanakuli Beach Co. Pk.	1	none	3	0%	11	N/A
Honolulu	Nimitz Beach	3	none	0	n/a	8	N/A
Honolulu	Niu	2	once a week	0	n/a	0	N/A
Honolulu	North Beach	3	none	0	n/a	8	N/A
Honolulu	Ohikilolo Beach(Barking Sands)	3	none	0	n/a	11	N/A
Honolulu	One'ula Beach Co. Park	3	none	0	n/a	8	N/A
Honolulu	Oneawa Beach	2	once a month	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Honolulu	Outrigger Canoe Club Beach	2	none	0	n/a	8	N/A
Honolulu	Pahipahi'alua Beach	2	none	0	n/a	11	N/A
Honolulu	Paiko Lagoon	2	once a week	0	n/a	0	N/A
Honolulu	Papa'iloa Beach	2	none	0	n/a	11	N/A
Honolulu	Papaoneone Beach	3	none	0	n/a	11	N/A
Honolulu	Pearl Harbor - Middle Loch	3	none	0	n/a	0	N/A
Honolulu	Piliokahe Beach	no data	no data	0	n/a	0	N/A
Honolulu	Pipeline, The	2	once a week	0	n/a	0	N/A
Honolulu	Point Panic Beach Park	3	none	0	n/a	8	N/A
Honolulu	Poka'i Bay Beach Co. Pk.	1	none	3	0%	11	N/A
Honolulu	Pounders Beach	3	none	0	n/a	22	N/A
Honolulu	Pu'uiki	2	none	0	n/a	11	N/A
Honolulu	Pu'uohulu Beach	3	none	0	n/a	11	N/A
Honolulu	Punalu'u Beach Co. Park	3	none	0	n/a	22	N/A
Honolulu	Pupukea Beach Co. Pk.	3	none	0	n/a	25	N/A
Honolulu	Queen's Surf Beach Park	1	twice a week	62	0%	8	N/A
Honolulu	Royal-Moana Beach	1	twice a week	63	2%	8	N/A
Honolulu	Sand Island	3	none	0	n/a	8	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Honolulu	Sandy Beach Co. Park	1	twice a week	57	0%	8	N/A
Honolulu	Sans Souci St. Rec. Area	1	twice a week	62	0%	8	N/A
Honolulu	Sunset Beach	1	once a month	6	17%	25	N/A
Honolulu	Swanzy Beach Co. Park	3	none	0	n/a	22	N/A
Honolulu	Tongg's Beach	2	none	0	n/a	8	N/A
Honolulu	Turtle Bay	3	none	0	n/a	25	N/A
Honolulu	Ulehawa Beach Co. Park	2	none	0	n/a	11	N/A
Honolulu	Wai'alae Beach Co. Park	1	twice a week	0	n/a	0	N/A
Honolulu	Wai'anae Kai Military Reservation Beach	2	none	0	n/a	11	N/A
Honolulu	Wai'anae Regional Park	3	none	0	n/a	11	N/A
Honolulu	Waiahole Beach Co. Park	2	four times a year	0	n/a	0	N/A
Honolulu	Waiale'e	3	none	0	n/a	25	N/A
Honolulu	Waikiki Beach Center	2	none	0	n/a	8	N/A
Honolulu	Wailupe Beach Park	2	once a month	0	n/a	0	N/A
Honolulu	Waimanalo Bay St. Rec. Area	2	once a week	0	n/a	0	N/A
Honolulu	Waimanalo Beach	3	once a week	0	n/a	0	N/A
Honolulu	Waimanalo Beach Co. Park	1	twice a week	56	2%	8	N/A
Honolulu	Waimea Bay Beach Co. Pk.	1	once a month	6	17%	11	N/A
Honolulu	War Memorial Natatorium	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Honolulu	Wawamalu Beach Park	3	none	0	n/a	8	N/A
Honolulu	White Plains Beach	1	none	3	0%	8	N/A
Honolulu	Yokohama Bay	3	none	0	n/a	11	N/A
Kauai	(Honopuwaiakua) Honopu Valley	2	none	0	n/a	0	N/A
Kauai	Ahukini Rec. Pier St. Pk.	2	none	0	n/a	0	N/A
Kauai	Aliomanu Beach	3	none	0	n/a	26	N/A
Kauai	Anahola Beach	3	none	0	n/a	26	N/A
Kauai	Anahola Beach Co. Park	3	none	21	5%	26	N/A
Kauai	Anini Beach	2	twice a month	26	8%	30	N/A
Kauai	Anini Beach Park	3	none	0	n/a	30	N/A
Kauai	Barking Sands	2	twice a month	0	n/a	0	N/A
Kauai	Beach House Beach	2	twice a month	0	n/a	18	N/A
Kauai	Black Pot Beach Park	3	none	0	n/a	30	N/A
Kauai	Brennecke Beach	3	none	22	0%	18	N/A
Kauai	Donkey Park	3	none	0	n/a	26	N/A
Kauai	Gillin's Beach	3	none	0	n/a	18	N/A
Kauai	Glass Beach	3	none	2	50%	18	N/A
Kauai	Ha'ena Beach Co. Park	2	twice a month	22	0%	26	N/A
Kauai	Hanakapi'ai Beach	2	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kauai	Hanalei Beach Co. Park	1	twice a week	184	22%	30	N/A
Kauai	Hanama'ulu Beach Co. Park	2	twice a month	0	n/a	26	N/A
Kauai	Hanapepe Bay	no data	no data	2	50%	0	N/A
Kauai	Haula Beach	3	none	0	n/a	18	N/A
Kauai	Kahili Beach	3	none	0	n/a	26	N/A
Kauai	Kalalau Beach	2	none	0	n/a	0	N/A
Kauai	Kalapaki Beach	1	twice a week	81	9%	26	N/A
Kauai	Kalihiwai Bay	2	twice a month	25	20%	30	N/A
Kauai	Kapa'a Beach Co. Park	3	none	21	5%	26	N/A
Kauai	Kaupea Beach (Secret Beach)	3	none	0	n/a	30	N/A
Kauai	Kawailoa Beach	3	none	0	n/a	18	N/A
Kauai	Ke'e Beach	2	twice a month	22	18%	24	N/A
Kauai	Kealia	2	twice a month	19	0%	26	N/A
Kauai	Kekaha Beach Co. Pk.	3	none	6	0%	18	N/A
Kauai	Kepuhi Beach	3	none	0	n/a	26	N/A
Kauai	Kikiaola Beach	3	none	2	0%	24	N/A
Kauai	Kilauea Pt. Nat. Wildlife Ref.	3	none	0	n/a	24	N/A
Kauai	Kipu Kai	3	none	0	n/a	18	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kauai	Koloa Landing	3	none	20	10%	18	N/A
Kauai	Kukui'ula Bay	3	none	0	n/a	18	N/A
Kauai	Larsens Beach	3	none	0	n/a	26	N/A
Kauai	Lawa'i Kai	3	none	0	n/a	18	N/A
Kauai	Lucy Wright Beach Co. Park	3	none	2	100%	18	N/A
Kauai	Lumaha'i Beach	3	none	23	13%	26	N/A
Kauai	Lydgate State Park	1	twice a week	82	2%	26	N/A
Kauai	Maha'ulepu Beach	2	none	0	n/a	0	N/A
Kauai	Miloli'I	2	none	0	n/a	0	N/A
Kauai	Moloa'a Bay	3	none	0	n/a	26	N/A
Kauai	Na Pali Coast State Park	3	none	0	n/a	24	N/A
Kauai	Nawiliwili Harbor	no data	no data	15	13%	0	N/A
Kauai	Nawiwili Harbor-Coast Guard Pier	no data	no data	6	0%	0	N/A
Kauai	Ninini Pt.	2	none	0	n/a	0	N/A
Kauai	Niumalu Beach Park	3	none	0	n/a	18	N/A
Kauai	Nu'alolo	2	none	0	n/a	0	N/A
Kauai	Nukoli'I Beach Park	3	none	0	n/a	26	N/A
Kauai	Pacific Missile Range Facility	3	none	3	0%	18	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kauai	Pakala (Makaweli)	3	none	0	n/a	18	N/A
Kauai	Palama Beach (Nomilu)	3	none	0	n/a	18	N/A
Kauai	Papa'a Bay	3	none	0	n/a	26	N/A
Kauai	Pila'a Beach	3	none	0	n/a	26	N/A
Kauai	Po'ipu Beach Co. Park	1	twice a week	81	1%	18	N/A
Kauai	Polihale State Park	2	twice a month	3	0%	24	N/A
Kauai	Port Allen	3	none	0	n/a	18	N/A
Kauai	Prince Kuhio Park	3	none	0	n/a	18	N/A
Kauai	Princeville	3	none	0	n/a	30	N/A
Kauai	Salt Pond Beach Co. Park	1	twice a week	81	0%	18	N/A
Kauai	Sheraton Beach	3	none	1	0%	18	N/A
Kauai	Shipwreck Beach	2	twice a month	20	0%	18	N/A
Kauai	Spouting Horn Beach Co. Park	3	none	0	n/a	18	N/A
Kauai	Tunnels Beach	3	none	0	n/a	26	N/A
Kauai	Wahiawa Bay	3	none	0	n/a	18	N/A
Kauai	Wai'ohai Beach	3	none	1	0%	18	N/A
Kauai	Wai'oli Beach Park	2	none	48	2%	30	N/A
Kauai	Waiakalua Iki Beach	3	none	0	n/a	26	N/A
Kauai	Waiakalua Nui Beach	3	twice a month	0	n/a	26	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kauai	Waikoko Bay	3	none	0	n/a	30	N/A
Kauai	Wailua Beach	3	none	0	n/a	26	N/A
Kauai	Waimea Rec. Pier St. Pk.	3	none	3	67%	18	N/A
Kauai	Wainiha Bay	3	none	0	n/a	26	N/A
Kauai	Waipouli	3	none	19	0%	26	N/A
Maui	Ahihi-kina'u Natural Area Reserve	3	none	0	n/a	16	N/A
Maui	Alaeloa Beach	3	none	0	n/a	16	N/A
Maui	Awahua Beach	3	none	0	n/a	0	N/A
Maui	Awalua Beach	3	none	0	n/a	16	N/A
Maui	Fagans Beach	3	none	0	n/a	0	N/A
Maui	Father Jules Papa	3	none	0	n/a	13	N/A
Maui	Fleming Beach North	2	twice a month	2	0%	16	N/A
Maui	H-Poko Papa	3	none	0	n/a	16	N/A
Maui	H.P. Baldwin Beach Co. Pk.	2	twice a month	2	0%	13	N/A
Maui	Halawa Beach Park	3	none	0	n/a	0	N/A
Maui	Halena Beach	3	none	0	n/a	0	N/A
Maui	Halepalaoa Beach	3	none	0	n/a	0	N/A
Maui	Hamoā	3	none	0	n/a	13	N/A
Maui	Hana Bay	2	none	0	n/a	16	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Maui	Hanaka'o'o Beach Co. Pk.	1	twice a week	66	3%	16	N/A
Maui	Hata's	2	twice a month	2	0%	16	N/A
Maui	Ho'okipa Beach Co. Pk.	2	twice a month	2	0%	13	N/A
Maui	Honokeana Bay	3	none	0	n/a	13	N/A
Maui	Honokohau Bay	3	none	0	n/a	16	N/A
Maui	Honokowai Beach Co. Pk.	2	twice a month	17	6%	13	N/A
Maui	Honolua Bay	2	twice a month	2	50%	16	N/A
Maui	Honomanu Bay	2	none	0	n/a	16	N/A
Maui	Honouli Malo'o	3	none	0	n/a	0	N/A
Maui	Honouli Wai	3	none	0	n/a	0	N/A
Maui	Huakini Bay	2	none	0	n/a	13	N/A
Maui	Hulopo'e Beach Park	3	none	0	n/a	0	N/A
Maui	Iliopi'i Beach	3	none	0	n/a	0	N/A
Maui	Ka'anapali	2	twice a month	45	0%	13	N/A
Maui	Ka'ili'ili Beach	3	none	0	n/a	16	N/A
Maui	Kahalepohaku Beach	3	none	0	n/a	0	N/A
Maui	Kahalui Harbor	1	twice a week	68	4%	13	N/A
Maui	Kahana	2	twice a month	4	0%	13	N/A
Maui	Kahemano Beach	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Maui	Kaihalulu Bay	3	none	0	n/a	13	N/A
Maui	Kakahai'a Beach Park	3	none	0	n/a	0	N/A
Maui	Kalae, South Point	no data	no data	0	n/a	0	N/A
Maui	Kalama Beach Co. Park	2	twice a month	32	3%	21	N/A
Maui	Kalepolepo Beach	2	twice a month	1	0%	21	N/A
Maui	Kama'ole Beach 1	1	twice a week	81	0%	16	N/A
Maui	Kama'ole Beach 2 (Ili'iiliholo Beach)	2	twice a month	2	0%	13	N/A
Maui	Kama'ole Beach 3	1	twice a week	68	1%	13	N/A
Maui	Kamaka'ipo Beach	3	none	0	n/a	0	N/A
Maui	Kanaha Beach Co. Park	1	twice a week	71	1%	13	N/A
Maui	Kanaio Beach	3	none	0	n/a	13	N/A
Maui	Kanalukaha Beach	3	none	0	n/a	0	N/A
Maui	Kapalua (Fleming's) Beach	2	none	2	0%	16	N/A
Maui	Kapoli Beach Co. Park	3	none	0	n/a	16	N/A
Maui	Kapukahehu Beach	3	none	0	n/a	0	N/A
Maui	Kapukuwahine Beach	3	none	0	n/a	0	N/A
Maui	Kaunala Beach	3	none	0	n/a	0	N/A
Maui	Kaunolu Bay	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Maui	Kaupoa Beach	3	none	0	n/a	0	N/A
Maui	Kawa'aloa Bay	3	none	0	n/a	0	N/A
Maui	Kawakiu Bay (Nui)	3	none	0	n/a	0	N/A
Maui	Ke'anae	3	none	0	n/a	16	N/A
Maui	Kea'a Beach	3	none	0	n/a	13	N/A
Maui	Keawakapu Beach	2	twice a month	4	0%	13	N/A
Maui	Keomuku Beach	3	none	0	n/a	0	N/A
Maui	Keonenui Beach	3	none	0	n/a	13	N/A
Maui	Kepuhi Beach	3	none	0	n/a	0	N/A
Maui	Kiowea Park (Kamehameha Coconut Grove)	3	none	0	n/a	0	N/A
Maui	Koki Beach Park (VFW)	3	none	0	n/a	13	N/A
Maui	Kolo Wharf	3	none	0	n/a	0	N/A
Maui	Ku'au Bay	2	twice a month	2	0%	17	N/A
Maui	Kuiaha Bay	3	none	0	n/a	13	N/A
Maui	La Perouse Bay	3	none	0	n/a	16	N/A
Maui	Lahaina Beach	2	twice a month	3	0%	16	N/A
Maui	Launiupoko St. Wayside	1	twice a week	64	2%	13	N/A
Maui	Leho'ula Beach	3	none	0	n/a	13	N/A
Maui	Lighthouse Beach	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Maui	Lopa Beach	3	none	0	n/a	0	N/A
Maui	Lower Pa'ia	2	twice a month	2	0%	13	N/A
Maui	Ma'alaea Beach	1	twice a week	70	4%	20	N/A
Maui	Mai Poina Oe Iau Beach Co. Pk.	2	twice a month	6	0%	18	N/A
Maui	Maka'alae Pt.	3	none	0	n/a	16	N/A
Maui	Makena Landing Beach	2	twice a month	3	0%	13	N/A
Maui	Maliko Bay	2	twice a month	2	0%	16	N/A
Maui	Malu'aka Beach	2	twice a month	3	0%	16	N/A
Maui	Manele Bay	3	none	0	n/a	0	N/A
Maui	Mantokuji Bay	3	none	0	n/a	13	N/A
Maui	McGregor Pt.	3	none	0	n/a	16	N/A
Maui	Mo'omomi Beach	3	none	0	n/a	0	N/A
Maui	Mokapu Beach Park	2	twice a month	2	0%	16	N/A
Maui	Mokulau	3	none	0	n/a	16	N/A
Maui	Mokule'ia Beach	2	twice a month	2	0%	13	N/A
Maui	Murphy Beach Park	3	none	0	n/a	0	N/A
Maui	Naha Beach	3	none	0	n/a	0	N/A
Maui	Nahiku	3	none	0	n/a	13	N/A
Maui	Napili Bay	2	twice a month	2	0%	13	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Maui	Nu'u Bay	3	none	0	n/a	16	N/A
Maui	Olowalu	2	twice a month	6	0%	16	N/A
Maui	Oneali'I Beach Park	3	none	0	n/a	0	N/A
Maui	Oneloa Bay Beach	2	twice a month	2	0%	16	N/A
Maui	Oneloa Beach (Big Beach)	2	twice a month	3	0%	13	N/A
Maui	Oneuli Beach	2	twice a month	3	0%	13	N/A
Maui	Palauea Beach Park	2	twice a month	3	0%	13	N/A
Maui	Papalaua	2	twice a month	3	0%	13	N/A
Maui	Papaloa Beach	3	none	0	n/a	0	N/A
Maui	Papohaku Beach	3	none	0	n/a	0	N/A
Maui	Paukukalo Beach	3	none	0	n/a	16	N/A
Maui	Pelekunu	3	none	0	n/a	0	N/A
Maui	Pepeiaolepo Bay	3	none	0	n/a	13	N/A
Maui	Po'olau Beach	3	none	0	n/a	0	N/A
Maui	Po'olenalena Beach	2	twice a month	3	0%	13	N/A
Maui	Po'olenalena Beach Park	2	none	0	n/a	0	N/A
Maui	Pohaku Mauiuli Beach	3	none	0	n/a	0	N/A
Maui	Polihua Beach	3	none	0	n/a	0	N/A
Maui	Polo Beach Park	2	twice a month	3	0%	16	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Maui	Pu'u ola'i (Small Beach)	2	twice a month	3	0%	16	N/A
Maui	Pu'u Pehe Cove	3	none	0	n/a	0	N/A
Maui	Pu'unoa Beach	2	twice a month	3	0%	16	N/A
Maui	Puamana Beach Co. Park	2	twice a month	3	0%	16	N/A
Maui	Puko'o	3	none	0	n/a	0	N/A
Maui	Punalau	3	none	0	n/a	13	N/A
Maui	Sandy Beach	3	none	0	n/a	0	N/A
Maui	Shipwreck Beach	3	none	0	n/a	0	N/A
Maui	Spreckelsville	1	twice a week	70	0%	13	N/A
Maui	St. Theresa's	1	twice a week	81	6%	16	N/A
Maui	Ukumehame Beach Co. Pk.	2	twice a month	3	0%	13	N/A
Maui	Ulua Beach Park	2	twice a month	3	0%	16	N/A
Maui	Wahikuli State Wayside Park	2	twice a month	3	0%	13	N/A
Maui	Wai'anapanapa State Park	2	none	0	n/a	16	N/A
Maui	Waiehu Beach Co. Park	2	none	4	0%	13	N/A
Maui	Waihe'e Beach Co. Park	2	none	2	0%	13	N/A
Maui	Waikoloa Beach	3	none	0	n/a	16	N/A
Maui	Wailau	3	none	0	n/a	0	N/A
Maui	Wailea Beach Park	1	twice a week	66	2%	16	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Maui	Waimaha'ihai Beach	3	none	0	n/a	21	N/A
Maui	Waipulani	2	twice a month	2	0%	16	N/A

Notes

1. Watson Okubo, Hawaii Department of Health, personal communication, May 2012.
2. Hawaii Department of Health. "Beaches Environmental Assessment and Coastal Health Act: 2011 Notification Report to EPA," not dated.

Testing the Waters: Illinois

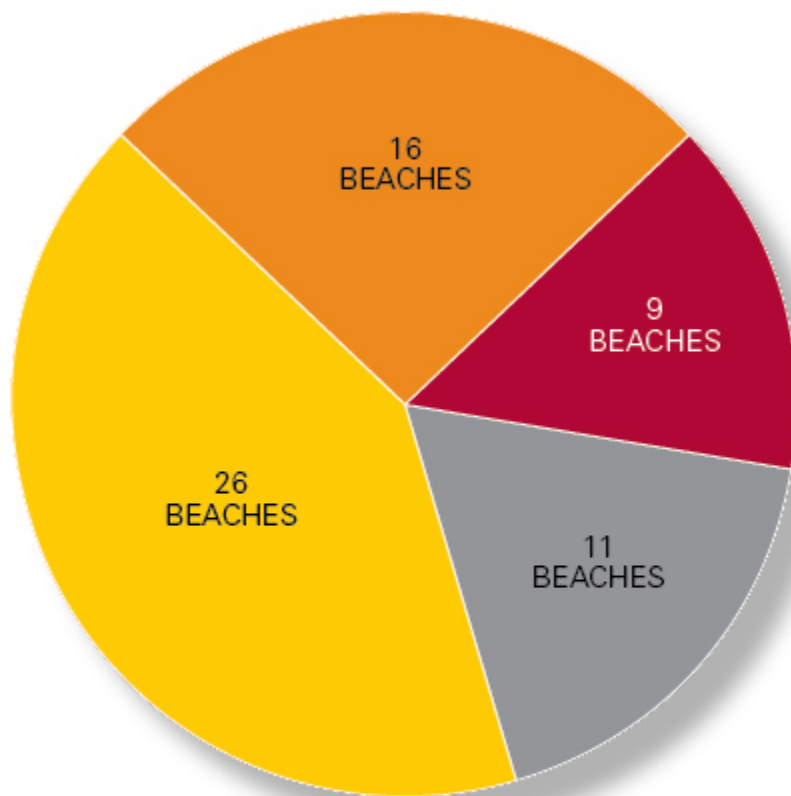
Ranked 28th in Beachwater Quality (out of 30 states)

12% of samples exceeded national standards for designated beach areas in 2011

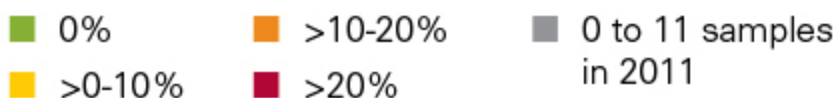
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Illinois

Illinois 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of swim ban/advisory days)

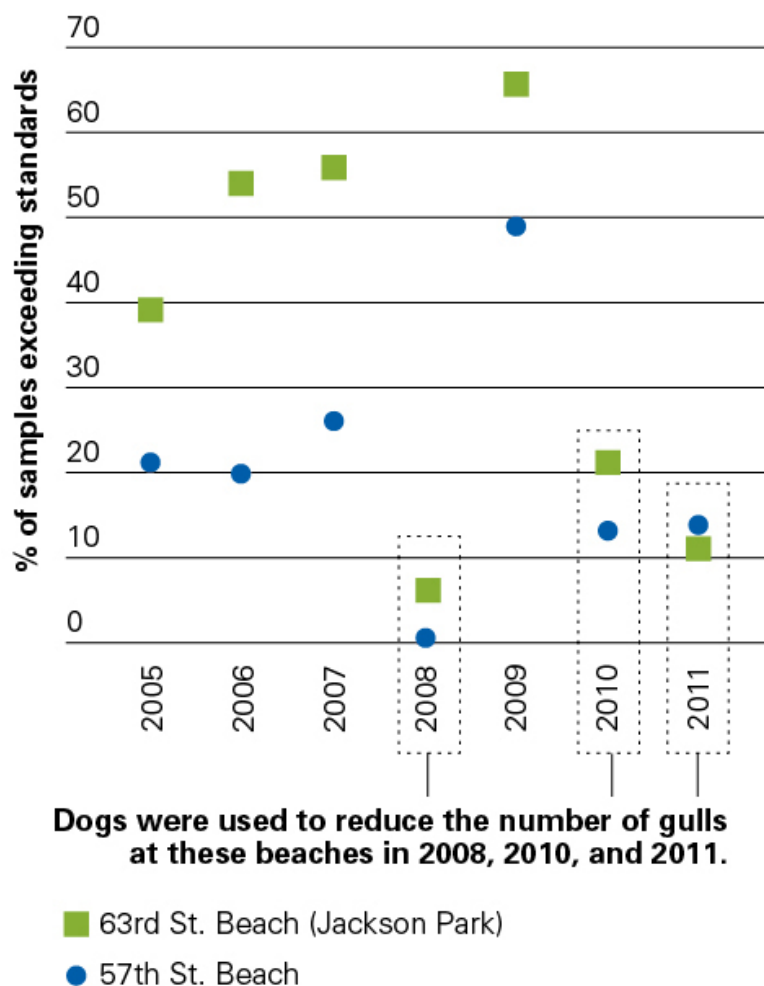
- 313 (66%) unknown contamination sources
- 60 (12%) sewage spills/leaks
- 87 (18%) stormwater runoff
- 13 (3%) other contamination sources
- 3 (1%) wildlife

Illinois has 52 public Great Lakes swimming beaches along approximately 60 miles of Lake Michigan shoreline. The Illinois Department of Public Health (IDPH) administers the state's coastal beach monitoring program.

Working to Improve Water Quality at North Point Marina Beach

Beachwater quality at North Point Marina Beach in Lake County has consistently been poor; yearly percent exceedance rates from 2005 to 2011 ranged from 34% to 83%. The Lake County Health Department received Great Lakes Restoration Initiative funding to plant native vegetation, restore the dunes, and remove invasive species. This project is expected to improve water quality and reduce the number of swimming bans at this beach by reducing the seagull population.¹ Work began in spring of this year and is scheduled to be completed by fall of 2013.²

Dogs Put to Work Improving Beachwater Quality in Chicago

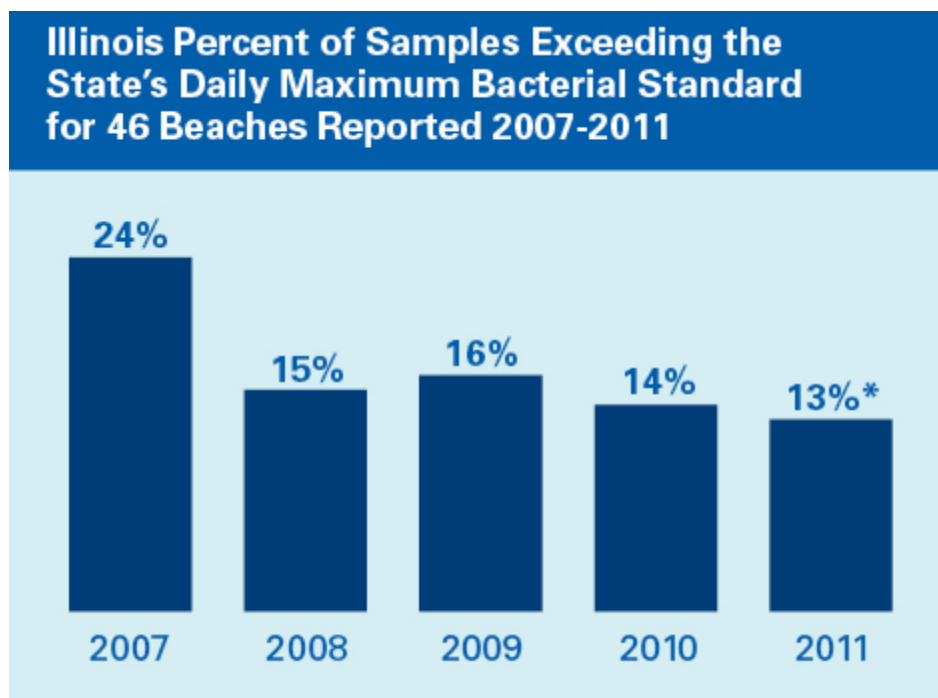


Two beaches in Chicago, 63rd Street Beach (Jackson Park) and 57th Street Beach, have routinely exceeded water quality standards in the past. Fecal contamination at these beaches is known to be caused at least in part by large numbers of seagulls. Using border collies during the beach season to harass gulls every day from dawn to dusk³ has proved to be an effective means of improving water quality at these beaches. Gull harassment was implemented in 2008, 2010, and 2011, and the percentage of beachwater samples that exceeded standards in those years was far lower than in years with no gull harassment.

What Does Beachwater Monitoring Show?

In 2011, Illinois reported 62 coastal beaches and beach segments. Of these, 19 (31%) were assigned a monitoring frequency of once a day, 28 (45%) more than once a week, 3 (5%) once a week, and 12 (19%) were not assigned a monitoring frequency.

In 2011, 12%⁴ of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 235 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Winnetka Elder Park Beach in Cook County (54%), North Point Marina Beach in Lake County (34%), Winnetka Centennial Dog Beach in Cook County (29%), Highland Park Moraine Park Dog Beach in Lake County (29%), and Wilmette Gillson Park Dog Beach (29%), Glencoe Park Beach (28%), Rainbow Beach (24%), Montrose Beach (23%), and South Shore (22%) in Cook County. Beaches in Lake County had the highest exceedance rate of the state standard in 2011 (13%), followed by Cook County (12%). NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Illinois' Sampling Practices?

The monitoring season extends from Memorial Day to Labor Day.

Samples are taken in water that is knee to waist deep. It is up to the managing entity for each beach to issue swim bans and advisories, depending on EPA guidance and the beach managers' own policies.⁵

Many coastal swimming beaches in Illinois are sampled seven days a week, as Illinois believes daily monitoring is most protective of public health. Areas of shoreline that are not used for swimming because they

are rocky or otherwise unsuitable are not monitored.⁶ Monitoring on a daily basis is conducted when a swim ban or advisory is issued.

How Many Swim Bans and Advisories Were Issued in 2011?

Total swim ban/advisory days for 325 events lasting six consecutive weeks or less decreased 6% to 476 days in 2011 from 508 days in 2010. For prior years, there were 576 days in 2009, 534 days in 2008, 793 days in 2007, 591 days in 2006, and 585 days in 2005. There were no extended or permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 325 events lasting six consecutive weeks or less, 95% (450) of swim ban/advisory days were due to monitoring that revealed elevated bacteria levels, 1% (4) were preemptive due to heavy rainfall, and 5% (22) were preemptive to due known sewage spills or leaks.

How Does Illinois Determine When to Warn Visitors About Swimming?

Depending on the managing authority for coastal beaches, both advisories and swim bans are issued. The water quality standard in Illinois is an *E. coli* single-sample maximum of 235 cfu/100 ml. No geometric mean standard is applied when making swim ban and advisory decisions.

In most jurisdictions, either a swim ban or an advisory is issued if one sample exceeds the single-sample standard.⁶ The only exceptions are beaches managed by the Wilmette Health Department (the Gillson Park beaches and Langdon Beach) and the Winnetka Park District (Tower, Maple, and Elder beaches). Two samples are taken daily at these beaches, and if one sample exceeds the standard, a resample is taken before a swim ban is issued. If both samples exceed the standard, a swim ban is issued without resampling. In 2011, the Chicago Park District posted an advisory at its beaches when sample results were between 235 cfu/100 ml and 1,000 cfu/100 ml, and a ban when sample results exceeded 1,000 cfu/100ml. Beginning in 2012, the Chicago Park District is posting advisories when sample results exceed 235 cfu/100 ml and bans when there is a sewage spill.⁷

Beach managers may preemptively issue swim bans or advisories because of rain or other factors.

The managers of Waukegan South Beach, Forest Park Beach in Lake Forest, and Rosewood Beach in Highland Park in Lake County use a predictive model called SwimCast to make swim ban and advisory decisions. At a minimum, predictions are generally made at 9 a.m. and 1 p.m. and whenever hydrometeorological conditions change. For each beach where the SwimCast system exists, similar but slightly different predictive models are utilized. These models predict beachwater conditions on a real-time basis, in contrast to standard culture methods for quantifying bacteria. When culture methods are used as the basis for issuing swim bans and advisories, health warnings are not issued until at least 24 hours after samples are taken due to the time required to process and read the samples. In a sense, using culture methods to issue swim bans and advisories is akin to using yesterday's bacteria density to predict today's bacteria density. Studies have shown that SwimCast provides a more accurate assessment of current beachwater quality than does the prior day's bacterial density.⁶

SwimCast models produce a 99% confidence interval—that is, a lower and upper bound of bacterial concentrations between which the actual bacteria concentration is expected, with 99% confidence, to lie. At all beaches where the SwimCast model is used, the determination of swim bans and risk advisories is the same:

1. A swim ban occurs when the lower bound of the 99% confidence interval prediction is above 235 cfu/100 ml. Under a ban, the beach is posted with a red flag. This is the highest-risk condition.
2. When the average prediction and upper bound of the 99% confidence interval prediction are above 235 cfu/100 ml but the lower bound is below 235 cfu/100 ml, this is considered to be a moderate- to high-risk condition and is posted as an advisory at the beach.
3. When the upper bound of the 99% confidence interval prediction is above 235 cfu/100 ml but the average prediction and the lower bound of the 99% confidence interval prediction are below 235 cfu/100 ml, this is considered to be a moderate-risk condition and is posted as an advisory at the beach.

4. When the upper bound of the 99% confidence interval prediction is below 235 cfu/100 ml, this is considered to be a low-risk condition and is posted with a green flag.

In the Chicago Park District, intensive data collection began in 2011 for model development at five additional beaches: Foster, Montrose, Oak Street, 63rd Street, and Calumet. The District is using models at several of these beaches to make swim ban and advisory decisions in 2012.⁷

Illinois 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Cook	12th Street	1	five times a week	73	15%	12	N/A
Cook	31st Street Beach	1	five times a week	72	17%	12	N/A
Cook	57th Street Beach	1	five times a week	72	14%	11	N/A
Cook	Calumet South Beach	1	five times a week	74	16%	15	N/A
Cook	Chase Ave Park And Beach	3	none	0	n/a	0	N/A
Cook	Evanston Church Dog Beach	3	once a day	84	2%	0	N/A
Cook	Evanston Clark Beach	1	once a day	84	5%	4	N/A
Cook	Evanston Greenwood Beach	1	once a day	84	5%	1	N/A
Cook	Evanston Lee Beach	1	once a day	84	5%	3	N/A
Cook	Evanston Lighthouse Beach	1	once a day	84	11%	6	N/A
Cook	Evanston South Beach	1	once a day	84	13%	6	N/A
Cook	Foster Avenue Beach	1	five times a week	72	4%	3	N/A
Cook	Fullerton (Theater On The Lake)	3	none	0	n/a	0	N/A
Cook	Glencoe Park Beach	1	once a day	61	28%	21	N/A
Cook	Glenlake Ave. Park & Beach	3	none	0	n/a	0	N/A
Cook	Hartigan Beach	1	five times a week	72	3%	3	N/A
Cook	Howard Street Park Beach	1	five times a week	73	7%	5	N/A
Cook	Jackson Park Beach (63rd/64th St Beach)	no data	five times a week	71	11%	8	N/A
Cook	Jarvis Avenue Park Beach	1	five times a week	71	6%	4	N/A
Cook	Juneway Terrace Park Beach	1	five times a week	70	6%	5	N/A
Cook	Kathy Osterman Beach	1	five times a week	73	11%	9	N/A
Cook	Kenilworth Beach	1	once a day	88	6%	4	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Cook	Leone Beach	1	five times a week	74	7%	6	N/A
Cook	Loyola Ave. Beach	3	none	72	7%	0	N/A
Cook	Montrose Beach	1	five times a week	75	23%	17	N/A
Cook	Munson Beach	3	none	0	n/a	0	N/A
Cook	North Avenue Beach	1	five times a week	75	8%	7	N/A
Cook	Northwestern University Beach	1	once a day	54	17%	5	N/A
Cook	Oak Street Beach	1	five times a week	73	5%	5	N/A
Cook	Oakwood Beach	1	five times a week	72	4%	4	N/A
Cook	Ohio Street Beach	1	five times a week	77	14%	12	N/A
Cook	Rainbow Beach	1	five times a week	74	24%	18	N/A
Cook	Rogers Avenue Park Beach	1	five times a week	72	6%	5	N/A
Cook	Sherwin Ave. Park & Beach	3	none	0	n/a	0	N/A
Cook	South Shore	1	five times a week	73	22%	16	N/A
Cook	Wilmette Gillson Park Beach	1	once a day	386	12%	12	N/A
Cook	Wilmette Gillson Park Dog Beach	1	once a week	21	29%	5	N/A
Cook	Wilmette Langdon Beach	1	once a day	91	9%	10	N/A
Cook	Winnetka Centennial Dog Beach	2	once a day	80	29%	23	N/A
Cook	Winnetka Elder Park Beach	1	once a day	82	54%	32	N/A
Cook	Winnetka Lloyd Park Beach	1	once a day	80	6%	5	N/A
Cook	Winnetka Maple Park Beach	1	once a day	81	7%	6	N/A
Cook	Winnetka Tower Beach	1	once a day	80	9%	8	N/A
Lake	Fort Sheridan North Beach	3	none	0	n/a	0	N/A
Lake	Fort Sheridan South Beach	3	none	0	n/a	0	N/A
Lake	Great Lakes Navel Nunn Beach	1	three times a week	43	9%	0	N/A
Lake	Highland Park Avenue Boating Beach	1	four times a week	53	13%	13	N/A
Lake	Highland Park Moraine Park Dog Beach	2	once a week	14	29%	22	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Lake	Highland Park Rosewood Beach	1	once a day	129	9%	15	N/A
Lake	Illinois Beach State Park Camp Logan Beach	3	none	0	n/a	0	N/A
Lake	Illinois Beach State Park North Beach	1	four times a week	109	11%	14	N/A
Lake	Illinois Beach State Park Resort Beach	1	four times a week	71	18%	16	N/A
Lake	Illinois Beach State Park Sailing Beach	3	none	0	n/a	0	N/A
Lake	Illinois Beach State Park South Beach	1	four times a week	70	14%	9	N/A
Lake	Lake Bluff Dog Beach	2	once a week	13	8%	0	N/A
Lake	Lake Bluff Sunrise Beach	1	four times a week	51	4%	1	N/A
Lake	Lake Forest Forest Park Beach	1	once a day	94	7%	12	N/A
Lake	North Chicago Foss Park Beach	3	none	0	n/a	0	N/A
Lake	North Point Marina Beach	1	four times a week	114	34%	34	N/A
Lake	Waukegan North Beach	1	four times a week	57	4%	1	N/A
Lake	Waukegan South Beach	1	once a day	100	12%	11	N/A
Lake	Zion Hosah Park Beach	1	none	0	n/a	0	N/A

Notes

1. Great Lakes Restoration Initiative, EPA 2011 Grants, accessed at www.glri.us/2011epagrants.html in April 2012.
2. Mike Adam, Lake County Health Department, personal communication, April 2012.
3. Hartmann, J.W., S.F. Beckerman, T.W. Seamans, R.M. Engeman, S. Abu-Absi, "Report to the City of Chicago on Conflicts with Ring-billed Gulls and the 2009 Integrated Ring-billed Gull Damage Management Project," March 25, 2010.
4. Why don't the 2011 percent exceedance values in this summary match? Only samples from a common set of beaches monitored each year from 2007–2011 are included in the bar chart. Because some beaches were not monitored in each of those years, the percent exceedance for this subset of beaches (13%) did not have the same value as the percent exceedance for all of the beaches monitored in 2011 (12%).
5. United States Environmental Protection Agency, "Implementing the BEACH Act of 2000" (report to Congress), October 2006.
6. Justin DeWitt, Illinois Department of Health, personal communication, April 2012.
7. Cathy Breitenbach, Chicago Park District, personal communication, June 2012.

Testing the Waters: Indiana

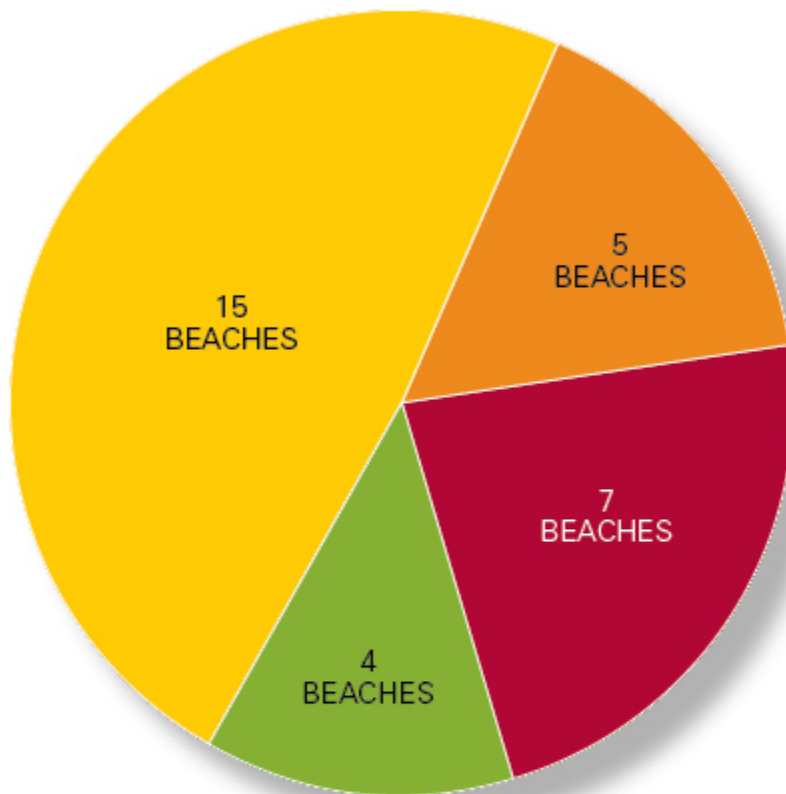
Ranked 27th in Beachwater Quality (out of 30 states)

11% of samples exceeded national standards for designated beach areas in 2011

In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Indiana

Indiana 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of closing/advisory days)

- 363 (96%) unknown contamination sources
- 11 (3%) sewage spills/leaks
- 4 (1%) wildlife
- 1 (<1%) stormwater runoff

Indiana has 31 Great Lakes beaches stretching along 45 miles of Lake Michigan shoreline in three counties. The Indiana Department of Environmental Management (IDEM) administers the state's beach monitoring and notification program.

Improving Water Quality at Washington Park Beach

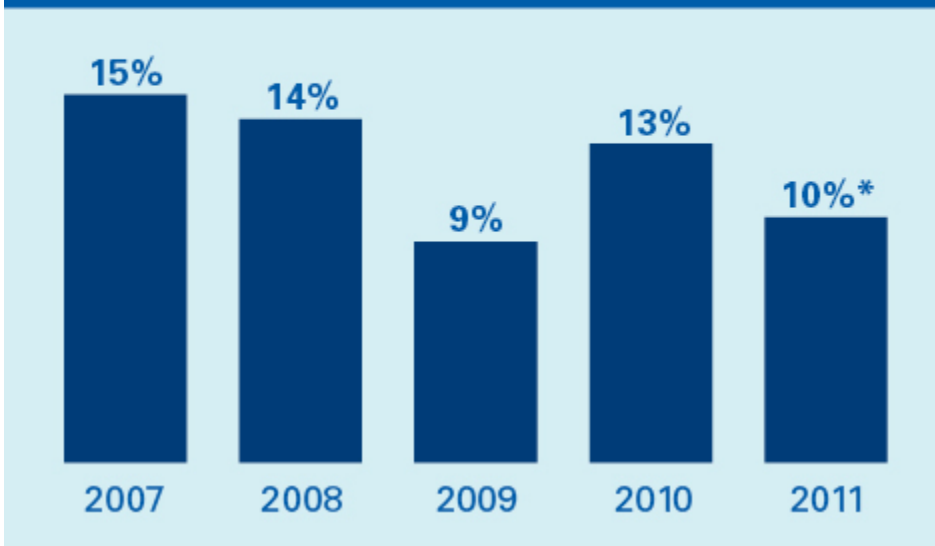
The Michigan City Parks and Recreation Department has implemented a variety of best management practices at its Washington Park and Sheridan beaches that have resulted in better water quality results and fewer advisories and closures. Many of these strategies are aimed at reducing the number of birds at the beach, including passing an ordinance to prohibit the feeding of wildlife, covering trash receptacles, and imposing fines for littering on the beach. There is also a goose eradication program that includes loud fireworks, rubber coyote decoys throughout Washington Park, a plastic alligator head floating in the marina, and the planting of native grasses to deter geese from accessing the beaches.¹ In addition, the city revised its beach grooming techniques so that sand is left soft and furrowed instead of compacted and smooth (bacteria are more likely to thrive in the latter).² The Michigan City Parks Department also partners with many different organizations to host multiple "Adopt-a-Beach" clean-ups at Washington Park Beach and Sheridan Beach throughout the year.¹

Water quality at Washington Park Beach has improved dramatically. From 2005 to 2007, 33% of samples taken at this beach exceeded water quality standards. The percent exceedance rate was in the high teens every year from 2008 to 2010 and dropped to 9% in 2011. Beachwater quality at Sheridan Beach has also improved.

What Does Beachwater Monitoring Show?

In 2011, Indiana reported 31 coastal beaches. Of these, 10 (32%) were assigned a daily monitoring frequency, 14 (45%) more than once a week, and 7 (23%) once a week. In 2011, 11%³ of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 235 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Jeorse Park Beach I (48%), Jeorse Park Beach II (35%), and Hammond Marina East Beach (27%) in Lake County; Indiana Dunes State Park East Beach (24%) and Indiana Dunes National Lakeshore-Porter Beach (24%) in Porter County; Indiana Dunes National Lakeshore-Dunbar Beach (21%) in La Porte County; and Ogden Dunes Beach (21%) in Porter County. Beaches in Lake County had the highest exceedance rate of the state standard in 2011 (15%), followed by Porter (14%) and La Porte (5%) counties. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.

Indiana Percent of Samples Exceeding the State's Daily Maximum Bacterial Standard for 25 Beaches Reported 2007-2011



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Indiana's Sampling Practices?

Generally, the monitoring season is from late May through the first week of September, but at some beaches sampling may begin and end a week earlier or later.

Sampling practices, locations, standards, and notification protocols are set by the state or in consultation with the state. Specific monitoring locations are used each year to ensure consistency and representativeness of data. Samples are taken in knee-deep water. Monitoring frequency is based on a prioritized ranking of beaches, with higher-priority beaches receiving more frequent sampling. The rankings are based on many variables, which include (but are not limited to) bather use, proximity to known point and non-point sources, and likely effects from heavy rainfall events. The seven Indiana Dunes National Lakeshore beach sites (Kemil, Lake View, Mount Baldy, Dunbar, West, Central, and Porter) are monitored weekly and voluntarily post monitoring and notification data to the Indiana BeachGuard web site, even though they are not eligible for BEACH Act funding and are not included in the state program.¹

Some beaches are routinely sampled seven days a week, and their monitoring schedules do not change when they are closed or under advisory. At some of the beaches that are not sampled seven days a week, additional samples may be collected during a closing or advisory; at other beaches, the monitoring frequency is not changed.

How Many Beach Closings or Advisories Were Issued in 2011?

Total closing/advisory days for 204 events lasting six consecutive weeks or less decreased 7% to 379 days in 2011 from 406 days in 2010. For previous years, there were 387 days in 2009, 333 days in 2008, 213 days in 2007, 111 days in 2006, and 131 days in 2005. There were no extended or permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 204 events lasting six consecutive weeks or less, 98% (371) of closing/advisory days were due to monitoring that revealed elevated bacteria levels, and 2% (8) were preemptive to due known sewage spills or leaks.

How Does Indiana Determine When to Warn Visitors About Swimming?

Both closures and advisories are issued in Indiana. Individual beach managers determine which action to issue. Swimmers are advised of poor water quality during advisories and swimming is not permitted at beaches that are closed.³ The state has an *E. coli* single-sample maximum standard of 235 cfu/100 ml. No geometric mean standard is applied when making closure and advisory decisions.

Beach managers generally issue an advisory or closure if monitoring results indicate the presence of *E. coli* in concentrations greater than 235 cfu/100 ml. At Indiana Dunes National Lakeshore, an advisory is always issued when monitoring results exceed 235 cfu/100 ml.⁴

A predictive beachwater quality model developed by the U.S. Geological Survey was utilized in 2011 at Ogden Dunes Beach. This model relies on measurements of turbidity to predict beachwater quality. Routine *E. coli* monitoring was conducted five days a week in conjunction with the predictive model, and the beach manager was required to post an advisory or closure if either the predictive model or sample results exceeded Indiana's single-sample standard. Over the 2011 season, the model successfully predicted 59% of the confirmed water quality exceedances. IDEM plans to refine the accuracy of the Ogden Dunes predictive model during the 2012 beach season.¹

Beach managers have the discretion to preemptively issue advisories or closures if conditions exist that may result in elevated *E. coli* levels, such as heavy rainfall or combined sewer overflow events.¹ La Porte County issues an advisory if excessive debris, such as oil globules or algae, is found in the lake or on the beach. Beach managers can also close a beach for weather and current conditions, such as a rip current.

Indiana 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
La Porte	Duneland Beach - Stop 31, Shoreland Hills Beach	3	three times a week	40	5%	5	N/A
La Porte	Duneland Beach - Stop 34	3	three times a week	40	3%	1	N/A
La Porte	Indiana Dunes National Lakeshore - Central Avenue Beach	2	once a week	15	0%	0	N/A
La Porte	Indiana Dunes National Lakeshore - Dunbar Beach	3	once a week	19	21%	5	N/A
La Porte	Indiana Dunes National Lakeshore - Mount Baldy	1	once a week	15	0%	0	N/A
La Porte	Indiana Dunes National Lakeshore - State Park Road/Kemil Avenue Beach	2	once a week	15	0%	0	N/A
La Porte	Long Beach Stop 20	3	three times a week	41	7%	7	N/A
La Porte	Long Beach Stop 24	3	three times a week	42	2%	4	N/A
La Porte	Michiana Shores Stop 37	3	three times a week	41	12%	10	N/A
La Porte	Sheridan Beach Stop 2	2	three times a week	325	1%	5	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
La Porte	Sheridan Beach Stop 7	3	three times a week	106	2%	2	N/A
La Porte	Washington Park Beach	1	once a day	322	9%	24	N/A
Lake	Buffington Harbor Beach	2	five times a week	66	17%	20	N/A
Lake	Hammond Marina East Beach	2	once a day	100	27%	27	N/A
Lake	Hammond Marina West Beach	2	once a day	102	18%	17	N/A
Lake	Jeorse Park Beach I	2	five times a week	65	48%	52	N/A
Lake	Jeorse Park Beach II	2	five times a week	65	35%	43	N/A
Lake	Lake Street Beach	2	five times a week	155	7%	13	N/A
Lake	Marquette Park Beach	2	five times a week	309	6%	13	N/A
Lake	Wells Street Beach	2	five times a week	78	4%	5	N/A
Lake	Whihala Beach East	1	once a day	102	10%	10	N/A
Lake	Whihala Beach West	1	once a day	102	16%	16	N/A
Porter	Broadway Beach	2	once a day	102	7%	11	N/A
Porter	Drexwood Beach	2	once a day	102	2%	4	N/A
Porter	Indiana Dunes National Lakeshore - Lakeview Beach	2	once a week	15	0%	0	N/A
Porter	Indiana Dunes National Lakeshore - Porter Beach	2	once a week	21	24%	6	N/A
Porter	Indiana Dunes National Lakeshore - West Beach	1	once a week	16	6%	1	N/A
Porter	Indiana Dunes State Park East Beach	1	once a day	104	24%	23	N/A
Porter	Indiana Dunes State Park West Beach	1	once a day	104	13%	14	N/A
Porter	Ogden Dunes Beach	3	five times a week	245	21%	33	N/A
Porter	Shore Avenue Beach	2	once a day	102	6%	8	N/A

Notes

1. Michelle Caldwell, Indiana Department of Environmental Management, personal communication, April 2012.
2. Michelle Caldwell, Indiana Department of Environmental Management, personal communication, May 2012.
3. Why don't the 2011 percent exceedance values in this summary match? Only samples from a common set of beaches monitored each year from 2007–2011 are included in the bar chart. Because some beaches were not monitored in each of those years, the percent exceedance for this subset of beaches (10%) did not have the same value as the percent exceedance for all of the beaches monitored in 2011 (11%).
4. Charlie Morris, Indiana Dunes National Lakeshore, personal communication, June 2012.

Testing the Waters: Louisiana

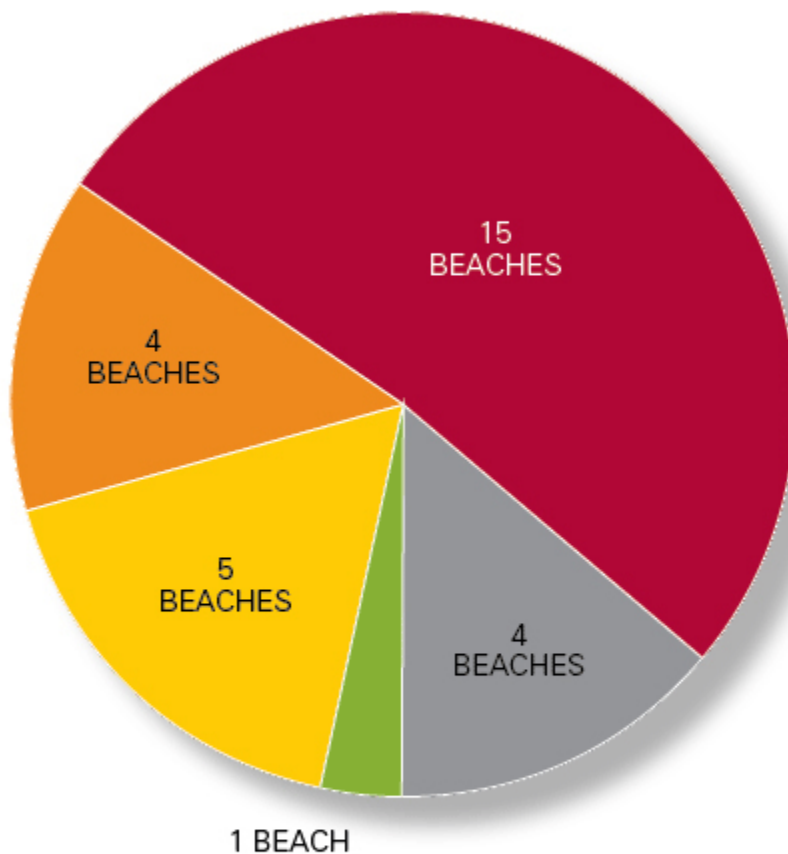
Ranked 30th in Beachwater Quality (out of 30 states)

29% of samples exceeded national standards for designated beach areas in 2011

In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA's estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Louisiana

Louisiana 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination

(number of closing/advisory days; does not include extended or permanent days)

- 516 (97%) unknown contamination sources
- 15 (3%) Gulf oil spill

Most of Louisiana's coastline consists of wetlands. However, there are at least 19 coastal beaches lining nearly 30 miles of Gulf of Mexico and estuarine shoreline, including beaches on the barrier island Grand Isle as well as some near the Texas border and on the shore of the Lake Pontchartrain estuary. The state's coastal monitoring program is administered by the Louisiana Department of Health and Hospitals (LDHH).

Oil from the BP Oil Disaster Continues to Impact Some of Louisiana's Beaches

Most of Louisiana's coastal beaches in the eastern half of the state were impacted by the BP oil disaster, which began with the April 20, 2010, explosion on the Deepwater Horizon rig. Oil flowed from the damaged well for nearly three months, until it was capped on July 15, 2010. A total of 1,984 closing days at 9 Louisiana beach segments were issued due to the spill in 2011. One segment of Grand Isle Beach was closed for part of January, and all four beach segments at Grand Isle State Park were closed into May due to the presence of oil.¹² Fourchon Beach was hit the hardest by the spill; all four Fourchon Beach segments were closed throughout 2011 and remained closed until mid-May of 2012, at least in part because of continuing oil contamination.³⁴⁵ In 2010, there were 2,232 closing days at 11 Louisiana beach segments due to the spill. (NRDC includes all oil spill closure days at all beaches in its oil spill totals, including closure days at beaches that were not monitored weekly for bacteria in 2011 and closure days that occurred outside the monitoring season.)

Oil spill closures at one beach, Elmer's Island, are not included here because this beach did not appear on Louisiana's beach list until the 2012 season. Elmer's Island was closed because of the spill through early 2011.

Oil spill inspection and cleanup efforts were conducted throughout 2011 and into 2012, even at beaches whose oil spill closures had been lifted. Into 2011, these cleanup efforts were sometimes intense. For example, after Tropical Storm Lee in September 2011, BP added 75 to 85 people to its 15-person Fourchon Beach cleanup crew. The crew worked seven days a week for a month to clean up oil that appeared along six to eight miles of beach.⁶⁷

What Does Beachwater Monitoring Show?

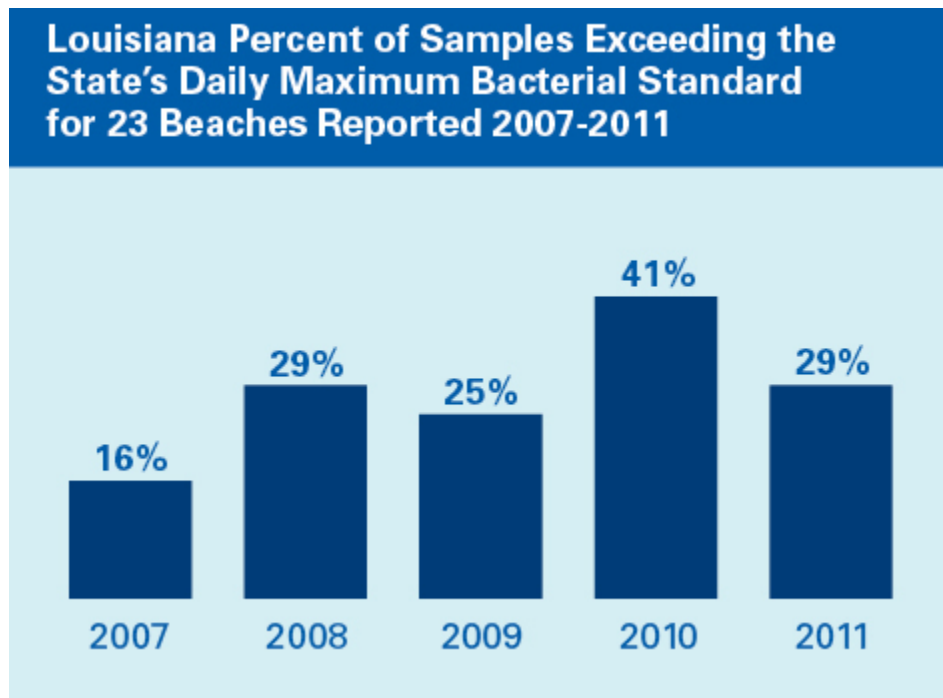
In 2011, Louisiana reported 29 coastal beaches and beach segments. Of these, 28 (97%) were assigned a monitoring frequency of once a week, and 1 (3%) was not assigned a monitoring frequency. In 2011, 29% of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. Samples at more than half of the monitored beaches in Louisiana exceeded the standard more than 20% of the time. The beaches with the highest percent exceedance rates of the state standard in 2011 were Rutherford Beach (53%), Holly Beach 6 (53%), Little Florida (52%), Holly Beach 4 (48%), Gulf Breeze (47%), Holly Beach 3 (47%), and Holly Beach 2 (46%), all in Cameron Parish. Beaches in St. Mary's Parish had the highest exceedance rate of the state standard in 2011 (45%), followed by Cameron (45%), Calcasieu (29%), St. Tammany (18%), Orleans (12%), and Jefferson (9%) parishes. There were no exceedances at beaches monitored in Lafourche Parish. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.

As mentioned above, oil spill closures and ongoing cleanup and inspection activities to remove oil contamination from the 2010 BP oil disaster affected access to Fourchon Beach in 2011. Even without the oil spill closures, an ownership dispute over portions of Fourchon Beach would have restricted public access to the beach during 2011. Because the public was not allowed to use Fourchon Beach in 2011, stations 2 through 4 at this beach were not monitored. Even if the ownership dispute is settled and the oil spill closure is lifted,

Fourchon Beach is expected to remain closed to the public during 2012 because of a beach enrichment construction project, and stations 2 through 4 will not be monitored in 2012.⁸ This project, parts of which began in late 2011, will extend from Belle Pass to Elmer's Island and will rebuild seashore that has eroded in recent years, restore marshes, and create a dune for storm surge protection.⁹¹⁰

Hackberry Beach remained inaccessible in 2011 due to road damage caused by Hurricanes Katrina, Rita, Gustav, and Ike.⁸ Beachwater quality at Elmer's Island will be monitored for the first time in 2012. The public road used to access the beach on this island was reopened in 2009 and has been improved since then, and the beach experienced moderate to high use in 2011.⁸

Pontchartrain Beach on Lake Pontchartrain is monitored by LDHH as part of an ongoing reexamination of the swim advisory on that portion of the lake, and Fontainebleau State Park on Lake Pontchartrain has been regularly monitored by the state since the inception of the beachwater quality monitoring program.⁸ In addition to the monitoring of beaches by LDHH under the BEACH Act, the Lake Pontchartrain Basin Foundation (LPBF), a nonprofit, membership-based citizens' organization, has been monitoring other beaches and sites around Lake Pontchartrain for fecal coliform.¹¹ Enterococcus in recreational waters is widely accepted by the scientific community as being more closely associated with human illness than fecal coliform, and Louisiana's state-monitored beachwaters are much more likely to exceed the enterococcus standards than the fecal coliform standard. Therefore, beachwater quality measures available from LPBF cannot be compared with those available from the state program, and LPBF data are not included in the analysis in this summary.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Louisiana's Sampling Practices?

Monitoring is conducted from the beginning of April through the end of October.

LDHH determines sampling practices, locations, standards, and notification protocols and practices at Louisiana beaches monitored through the BEACH Act. Samples are collected 12 inches below the surface in water approximately 3 feet deep. Levels of beach use and perceptions of water quality determine monitoring priorities. Monitoring frequency does not increase after a beach is placed under advisory unless the contamination source has been identified and corrected, in which case more intensive sampling may be conducted.

How Many Beach Closings and Advisories Were Issued in 2011?

Total closing/advisory days for 40 events lasting six consecutive weeks or less increased more than fivefold to 531 days in 2011 from 91 days in 2010. For prior years, there were 472 days in 2009, 221 days in 2008, 459 days in 2007, 5 days in 2006, and 406 days in 2005. In addition, there were 4 extended events (237 days total) and 22 permanent events (3,640 days total) in 2011. Nearly 2,000 of the days in the extended and permanent events were due to the Gulf oil spill. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 40 events lasting six consecutive weeks or less in 2011, 97% (516) were due to monitoring that revealed elevated bacteria levels, and 3% (15) were due to the Gulf oil spill.

How Does Louisiana Determine When to Warn Visitors About Swimming?

LDHH issues beach advisories based on water quality but does not have the authority to issue beach closings under the beach monitoring program. Local governments, however, can issue closings. Water quality standards are not met if any of the following are exceeded: an enterococcus single-sample maximum standard of 104 mpn/100 ml, an enterococcus geometric mean of 35 mpn/100 ml for samples taken over a 30-day period, or a fecal coliform geometric mean of 200 mpn/100 ml for samples taken over a 30-day period.⁸ Multiple samples are sometimes taken during a sampling event, and when they are, the results are averaged before comparison to the standard.⁸ An exceedance of any of these three standards can trigger an advisory, but the fecal coliform standard is rarely exceeded.⁸ Water quality advisories are not issued at Tier 3 beaches, which are assigned the lowest priority for monitoring and are not monitored weekly.

Other than taking a resample to verify exceedances when results are in doubt—which rarely happens—there is no protocol for forgoing an advisory when an exceedance is found. It is noteworthy that the majority of advisories in Louisiana result from an exceedance of the enterococcus geometric mean criterion. If Louisiana issued beach advisories based only on the enterococcus single-sample maximum criterion, as many states do, 47% of the observed exceedances during 2011 would not have resulted in an advisory.⁸

Preemptive rainfall advisories are not issued in Louisiana. The BEACH Act program has examined data collected over many years to assess the relationship between indicator organism densities and environmental conditions (including water temperature, salinity, tides, weather, and wind direction and speed) at its beaches. According to LDHH, the models that have been developed for each beach explain only a small fraction of the total variability in indicator organism density and cannot be used to issue precautionary advisories.⁸

Louisiana 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Calcasieu	North Beach - Lake Charles	1	once a week	34	21%	7 (73)	N/A
Calcasieu	South Beach & Rabbit Island	1	once a week	36	36%	14 (101)	N/A
Cameron	Constance Beach	2	once a week	33	42%	28 (119)	N/A
Cameron	Gulf Breeze	2	once a week	36	47%	0 (171)	N/A
Cameron	Hackberry Beach	2	none	0	n/a	0	N/A
Cameron	Holly Beach 1	1	once a week	35	31%	0 (112)	N/A
Cameron	Holly Beach 2	1	once a week	35	46%	31 (112)	N/A
Cameron	Holly Beach 3	1	once a week	34	47%	10 (119)	N/A
Cameron	Holly Beach 4	1	once a week	33	48%	10 (119)	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Cameron	Holly Beach 5	1	once a week	34	44%	7 (126)	N/A
Cameron	Holly Beach 6	1	once a week	34	53%	14 (126)	N/A
Cameron	Little Florida	2	once a week	31	52%	31 (119)	N/A
Cameron	Long Beach	2	once a week	33	36%	0 (119)	N/A
Cameron	Martin Beach	2	once a week	32	41%	0 (112)	N/A
Cameron	Rutherford Beach	2	once a week	32	53%	17 (133)	N/A
Jefferson	Grand Isle Beach 1	2	once a week	32	9%	44	N/A
Jefferson	Grand Isle Beach 2	2	once a week	36	8%	28	N/A
Jefferson	Grand Isle Beach 3	2	once a week	38	11%	49	N/A
Jefferson	Grand Isle State Park 1	1	once a week	35	9%	0 (202)	N/A
Jefferson	Grand Isle State Park 2	1	once a week	34	9%	64 (123)	N/A
Jefferson	Grand Isle State Park 3	1	once a week	34	18%	84 (123)	N/A
Jefferson	Grand Isle State Park 4	1	once a week	35	3%	0 (123)	N/A
Lafourche	Fourchon 1	1	once a week	34	0%	0 (365)	N/A
Lafourche	Fourchon 2	1	once a week	0	n/a	0 (365)	N/A
Lafourche	Fourchon 3	1	once a week	0	n/a	0 (365)	N/A
Lafourche	Fourchon 4	3	once a week	0	n/a	0 (365)	N/A
Orleans	Pontchartrain Beach	0	once a week	34	12%	0	N/A
St Mary	Cypremort Point State Park	1	once a week	33	45%	15 (136)	N/A
St Tammany	Fontainebleau State Park	1	once a week	33	18%	78 (49)	N/A

Notes

1. State of Louisiana, "Portion of Grand Isle State Park Beach Reopens" (press release), May 2011.
2. Sharon Broussard, Grand Isle State Park, personal communication, May 2011.
3. Greater Lafourche Port Commission, "Recreation Beaches," accessed at www.portfourchon.com/explore.cfm/beaches/, April 2012.
4. Eric Benoit, Lafourche Parish Government Office of Homeland Security and Emergency Preparedness, personal communication, April 2012.
5. Eric Benoit, Lafourche Parish Government Office of Homeland Security and Emergency Preparedness, personal communication, May 2012.
6. "Cleanup Crews Back on Fourchon Beach," *The Lafourche Gazette*, September 14, 2011, accessed at www.thelafourchegazette.com/article.php?id=N5524, April 2012.

7. "At Last, Praise for BP Cleanup Effort," Courthouse News Service, September 22, 2011, accessed at www.courthousenews.com/2011/09/22/39979.htm, April 2012.
8. Louisiana Department of Health and Hospitals, "Louisiana BEACH Grant Report: 2011 Swimming Season," March 2012.
9. "Fourchon Beach Remains Closed," *The Lafourche Gazette*, July 24, 2011, accessed at www.thelafourchegazette.com/article.php?id=N5278, April 2012.
10. Greater Lafourche Port Commission, "Shell Makes Investment to Fourchon Beach Repair Project" (press release), March 14, 2012, accessed at www.portfourchon.com/explore.cfm/20120414shell500k/, April 2012.
11. Lake Pontchartrain Basin Foundation, "Weekly Report," Save Our Lake (website), accessed at www.saveourlake.org/weekly-report.php, May 2012.
12. Reported closing or advisory days are for events lasting six consecutive weeks or less. Days in parentheses are for events lasting more than six consecutive weeks.

Testing the Waters: Maine

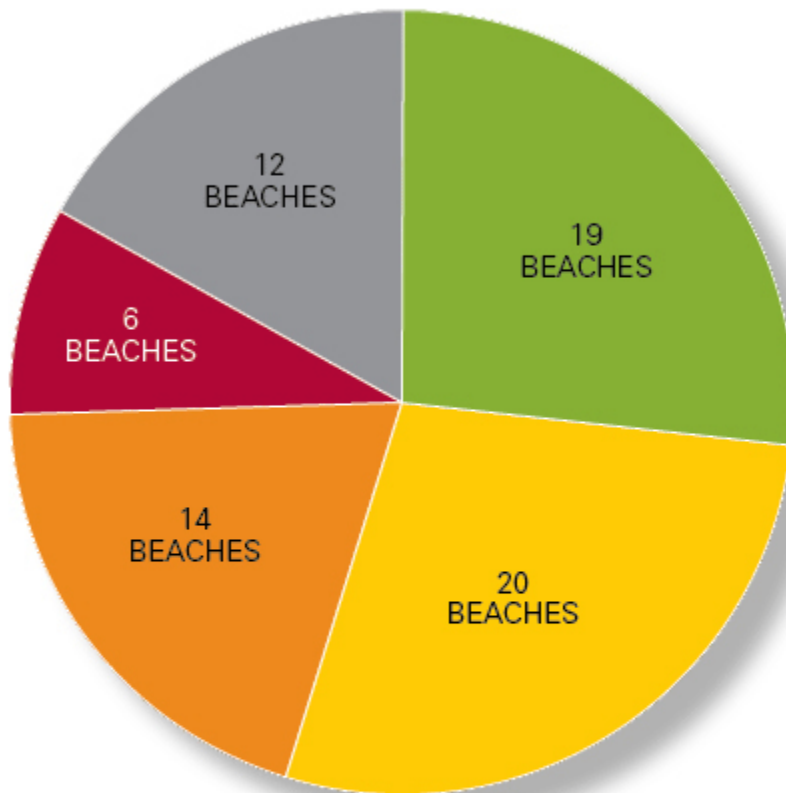
Ranked 20th in Beachwater Quality (out of 30 states)

9% of samples exceeded national standards for designated beach areas in 2011

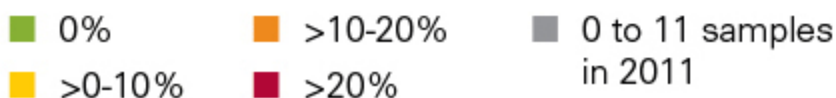
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Maine

Maine 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of advisory days)

- 100% (112) unknown contamination sources

There are more than 30 miles of public-access beaches stretching along Maine's Atlantic waters, including bays, sounds, and estuaries. The coastal beachwater quality monitoring program, Maine Healthy Beaches (MHB), is managed by the Maine Department of Environmental Protection (DEP) and coordinated by the University of Maine Cooperative Extension.

Identifying and Correcting Sources of Contamination at Beaches in Maine

In 2011, MHB continued a multiyear enhanced monitoring study of Cape Neddick River aimed at identifying sources of beachwater contamination at Cape Neddick Beach.¹ Mapping the monitoring results for fecal indicator bacteria and optical brighteners (an ingredient in many laundry detergents that, when found with fecal indicator bacteria, can indicate human sewage) along with watershed characteristics helped prioritize the river's subwatersheds for further investigation. So far, the study has identified malfunctioning septic systems, pet waste, and wildlife as possible sources of contamination at this beach, and as a result, the town of York has developed a detailed work plan for the Cape Neddick River that includes surveying properties for malfunctioning septic systems and enforcing the local septic pumping ordinance. Permitting issues have already been discovered because of these surveys. In June 2011, the York Board of Selectmen approved \$35,000 in funding to help restore water quality at Cape Neddick Beach.

MHB also continued enhanced monitoring at Goosefare Brook in 2011.¹ This brook impacts the water quality at Kinney Shores Beach in Saco and Ocean Park Beach in Old Orchard Beach. The brook was tested for fecal indicator bacteria, optical brighteners, urobilin (a compound excreted in the urine and feces of many mammals), pharmaceuticals, and pharmaceutical metabolites. Like optical brighteners, the presence of pharmaceuticals and/or their metabolites is an indicator of human sewage rather than pet or wildlife waste. The pharmaceuticals and pharmaceutical metabolites that were tested for included 1,7-dimethylxanthine (a stimulant and a metabolite of caffeine), acetaminophen (a pain reliever), atenolol (a blood pressure medication), caffeine, carbamazepine (an anticonvulsant and mood-stabilizing drug used primarily in the treatment of epilepsy and bipolar disorder), cotinine (a metabolite of nicotine), and sulfamethazine (an antibiotic). While the analysis of the study results has yet to be completed, both Saco and Old Orchard Beach are conducting illicit-discharge detection and elimination studies, including video camera surveillance of sewer and stormwater infrastructure, so that cross-connections between wastewater systems and stormwater systems, leaky pipes, and other sewer-to-surface water issues can be found and eliminated. Also, Old Orchard Beach has plans to upgrade 20,000 feet of sewer pipe over the next five years.

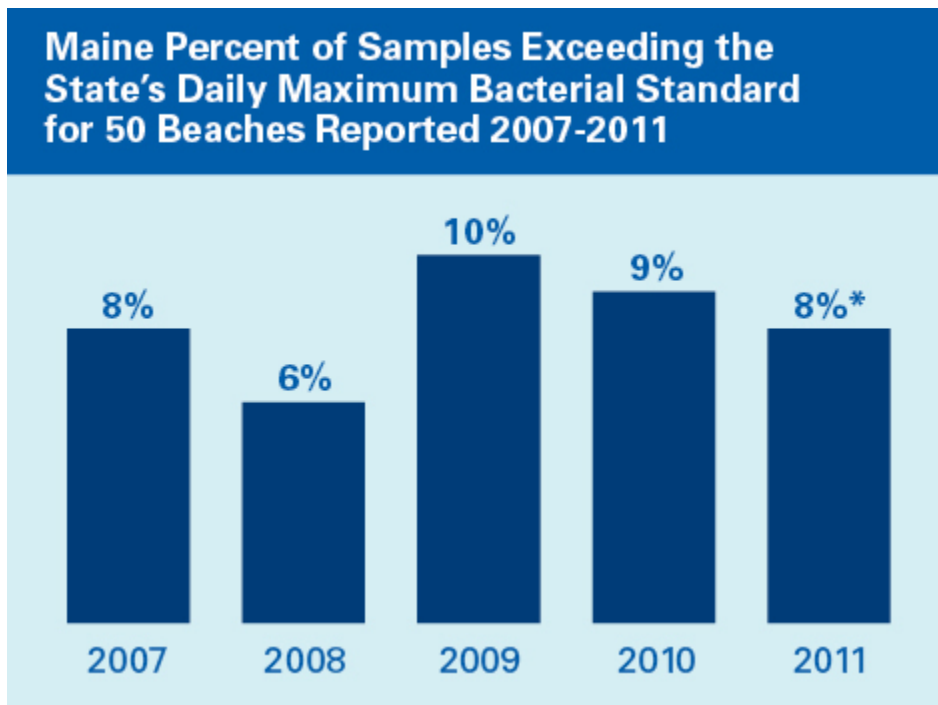
In 2012, MHB plans to continue supporting enhanced monitoring and source tracking efforts in the Cape Neddick River, Kennebunk River, Goosefare Brook, Rockport Harbor, and at Lincolnville. These studies will include monitoring for bacteria and optical brighteners and, in partnership with U.S. EPA, source tracking of nutrients and pharmaceuticals.¹

In 2011, samples from freshwater inputs to three beaches in York (Cape Neddick, Long Sands, and Short Sands) were tested for specific sequences of genetic material from human polyomavirus (HPyV), human-associated *Bacteroidales* (HBact), and all *Bacteroidales* (GBact) using quantitative polymerase chain reaction (qPCR).¹ The results of this study will help to identify sources of contamination at these beaches.

What Does Beachwater Monitoring Show?

In 2011, Maine reported 71 coastal beaches, 1 (1%) of which was assigned a monitoring frequency of more than once a week, 57 (80%) a frequency of once a week, 2 (3%) every other week, and 1 (1%) once a month. Ten (14%) were not assigned a monitoring frequency. In 2011, 9%² of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Laite Beach in Knox County (41%), Wells Harbor in York County (28%); Goodies Beach in Knox County (26%); and Riverside (Ogunquit) (26%), Gooch's Beach

(24%), and Cape Neddick Beach (24%) in York County. Beaches in Knox County had the highest exceedance rate of the state standard in 2011 (28%), followed by Waldo (18%), York (9%), Hancock (8%), Lincoln (7%), Cumberland (5%), and Sagadahoc (2%) counties. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Maine's Sampling Practices?

The monitoring season lasts approximately three months, from Memorial Day through Labor Day. Monitoring is extended to include spring wet-weather monitoring and special studies for targeted areas.¹

MHB is a voluntary program, and in order to participate, a beach must have a management entity that can meet the program's protocols and conditions. Beaches are assigned to Tier 3 and are not monitored if they do not meet the criteria for program participation.³ Monitoring coastal water quality for swimming and other water contact usage is the responsibility of local jurisdictions, municipalities, or state parks and is not mandated by state law. Samples are taken in 2 to 3 feet of water.

Monitoring sites at each beach are selected based on where people swim, at sources of freshwater inputs to the beach, and near other high-risk features including sewage treatment plant outfalls and wildlife.⁴ Once a beach is closed or placed under advisory, MHB recommends that the monitoring frequency increase until the beach is reopened. However, some localities do not have the ability to conduct increased monitoring, and the beaches in these towns cannot be reopened until the next routine sample is analyzed.¹

For areas experiencing chronic bacterial pollution, additional monitoring sites are added throughout the watershed, and/or wet-weather monitoring is conducted to help determine the source(s) of pollution.⁴ As noted above, monitoring for special studies conducted by MHB often includes analysis of optical brighteners. When the concentration of optical brighteners is greater than 200 µg/L in water with elevated fecal indicator bacteria levels, human sources of fecal contamination are suspected.⁴

How Many Beach Closings and Advisories Were Issued in 2011?

No closings were issued in 2011.³ Total advisory days for 51 events lasting six consecutive weeks or less decreased 46% to 112 days in 2011 from 207 days in 2010. For prior years, there were 250 closing and advisory days in 2009, 170 days in 2008, 176 days in 2007, 134 days in 2006, and 92 days in 2005. There were no extended or permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 51 events lasting six consecutive weeks or less, 98% (110) of advisory days were due to monitoring that revealed elevated bacteria levels, and 2% (2) were preemptive due to Hurricane Irene's heavy rainfall.

How Does Maine Determine When to Warn Visitors About Swimming?

Both closings and advisories can be issued in Maine, but closings are rare and occur only when beaches experience chronic high bacteria levels or known threats to safety or public health, and in municipalities where closing ordinances are in place.¹ When determining whether to recommend issuing a beach advisory, MHB applies a single-sample standard for enterococcus of 104 mpn/100 ml. A geometric mean standard is considered but not strictly applied when determining whether a beachwater sample exceeds bacterial standards.

Results of all monitoring samples are transmitted to the MHB database, and automatic e-mail alerts are issued to beach managers, local officials, and other entities as soon as an exceedance is found. Advisories are not issued solely on the basis of monitoring results. The decision to post a beach is made by the local beach manager (in partnership with MHB staff) based on factors including bacteria levels, environmental conditions, risk of pollution, and history of high bacteria levels.⁴ Each decision is made on a case-by-case basis. Depending on the conditions, MHB will recommend an advisory or closing when the standards are exceeded, and the decision to post an advisory or closing for a beach is the responsibility of the town or state park.¹ In areas with historically good water quality and a low risk of pollution, an advisory may not be posted until resample results are available, while in areas with historically poor water quality and a high risk of pollution, beaches are posted following an exceedance. Whether to resample before issuing an advisory also depends on the magnitude of the exceedance and on whether there is a known pollution event. MHB staff follow up after each exceedance to ensure that state protocols were followed correctly and in a timely manner.

The program recommends that precautionary rainfall advisories be posted at beaches with a history of elevated bacteria levels and stormwater issues. There are a few communities in Maine that, depending on conditions, may post an advisory after a specified amount of rainfall.¹ Local officials are notified when there is a known sewage spill.

Maine 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Cumberland	Crescent Beach	1	once a week	27	4%	0	N/A
Cumberland	East End Beach	1	three times a week	39	8%	9	N/A
Cumberland	Ferry Beach (Scarborough)	1	once a week	16	13%	0	N/A
Cumberland	Higgins Beach	1	once a week	46	9%	6	N/A
Cumberland	Kettle Cove Beach	1	once a week	14	7%	0	N/A
Cumberland	Pine Point	1	once a week	14	0%	0	N/A
Cumberland	Scarborough Beach	1	once a week	42	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Cumberland	Willard Beach	3	none	0	n/a	0	N/A
Cumberland	Winslow Park	2	twice a month	6	0%	0	N/A
Hancock	Emery Cove Beach	3	none	0	n/a	0	N/A
Hancock	Hadley Point	1	once a week	15	7%	0	N/A
Hancock	Hulls Cove	1	once a week	16	13%	0	N/A
Hancock	Lamoine (Lamoine State Park)	3	none	0	n/a	0	N/A
Hancock	Sand Beach	1	once a week	14	0%	0	N/A
Hancock	Seal Harbor	1	once a week	16	13%	0	N/A
Hancock	Town Beach	1	once a week	46	9%	0	N/A
Knox	Clam Cove	3	none	0	n/a	0	N/A
Knox	Goodies Beach	1	once a week	19	26%	12	N/A
Knox	Laite Beach	1	once a week	22	41%	17	N/A
Knox	Sandy Beach	1	once a week	16	13%	6	N/A
Lincoln	Pemaquid Beach	2	twice a month	14	7%	0	N/A
Sagadahoc	East Beach	3	none	0	n/a	0	N/A
Sagadahoc	Half Mile Beach	2	once a month	6	0%	0	N/A
Sagadahoc	Lagoon Beach	1	once a week	14	7%	2	N/A
Sagadahoc	Mile Beach	1	once a week	26	0%	0	N/A
Sagadahoc	Popham - Center Beach	1	once a week	13	8%	0	N/A
Sagadahoc	Popham - East Beach	1	once a week	26	0%	0	N/A
Sagadahoc	Popham - West Beach-Morse River	1	once a week	32	0%	0	N/A
Waldo	Ducktrap River	3	none	0	n/a	0	N/A
Waldo	Lincolnvile Beach	1	once a week	17	18%	5	N/A
Waldo	Lincolnvile Beach (Ferry Terminal)	3	none	0	n/a	0	N/A
Washington	Roque Bluffs (Roque Bluffs State Park)	3	none	0	n/a	0	N/A
York	Bay View	1	once a week	14	0%	0	N/A
York	Biddeford Pool (Ocean-Side)	3	none	0	n/a	0	N/A
York	Cape Neddick Beach	1	once a week	17	24%	6	N/A
York	Casino Square	1	once a week	14	0%	0	N/A
York	Colony Beach	1	once a week	14	0%	0	N/A
York	Crescent Beach (Kittery)	1	once a week	16	19%	6	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
York	Crescent Beach (Wells)	1	once a week	14	0%	0	N/A
York	Drakes Isl Beach	1	once a week	28	0%	0	N/A
York	Ferry Beach (Saco)	1	once a week	14	0%	0	N/A
York	Footbridge (Ogunquit)	1	once a week	15	13%	0	N/A
York	Fort Foster - Horn Point	1	once a week	14	7%	2	N/A
York	Fort Foster - Pier Beach	1	once a week	14	7%	0	N/A
York	Fort Foster - Scuba Beach	1	once a week	13	0%	0	N/A
York	Fortunes Rocks Beach	1	once a week	13	0%	0	N/A
York	Gil Bouche Park-Biddeford Pool	1	once a week	13	0%	0	N/A
York	Goochs Beach	1	once a week	38	24%	4	N/A
York	Goose Rocks	1	once a week	62	10%	6	N/A
York	Hills Beach	1	once a week	14	7%	0	N/A
York	Kinney Shores	1	once a week	16	13%	4	N/A
York	Laudholm Beach	1	once a week	29	3%	0	N/A
York	Libby Cove Beach	1	once a week	15	7%	0	N/A
York	Little Beach	1	once a week	17	18%	6	N/A
York	Long Sands Beach - North	1	once a week	66	14%	9	N/A
York	Long Sands Beach - South	1	once a week	26	12%	2	N/A
York	Main (Ogunquit)	1	once a week	16	13%	0	N/A
York	Middle Beach (Biddeford)	1	once a week	13	0%	0	N/A
York	Middle Beach (Kennebunk)	1	once a week	14	0%	0	N/A
York	Moody (Ogunquit)	1	once a week	14	7%	0	N/A
York	Mothers Beach	1	once a week	15	7%	0	N/A
York	OOB - Central	1	once a week	42	2%	0	N/A
York	OOB - North End	1	once a week	14	7%	0	N/A
York	OOB - Ocean Park	1	once a week	28	0%	0	N/A
York	Parson's Beach	3	none	0	n/a	0	N/A
York	Riverside (Ogunquit)	1	once a week	38	26%	6	N/A
York	Sea Point Beach	1	once a week	13	0%	0	N/A
York	Short Sands Beach	1	once a week	16	19%	4	N/A
York	Wells Beach	1	once a week	43	2%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
York	Wells Harbor	1	once a week	18	28%	0	N/A
York	York Harbor Beach	1	once a week	14	14%	0	N/A

Notes

1. Keri Lindberg, University of Maine Cooperative Extension and Sea Grant, personal communication, February 2012.
2. 222 Why don't the 2011 percent exceedance values in this summary match? Only samples from a common set of beaches monitored each year from 2007–2011 are included in the bar chart. Because some beaches were not monitored in each of those years, the percent exceedance for this subset of beaches (8%) did not have the same value as the percent exceedance for all of the beaches monitored in 2011 (9%).
3. Keri Lindberg, University of Maine Cooperative Extension and Sea Grant, personal communication, May 2012.
4. Maine Healthy Beaches Program, 2010 Report to U.S. EPA, April 2011.

Testing the Waters: Maryland

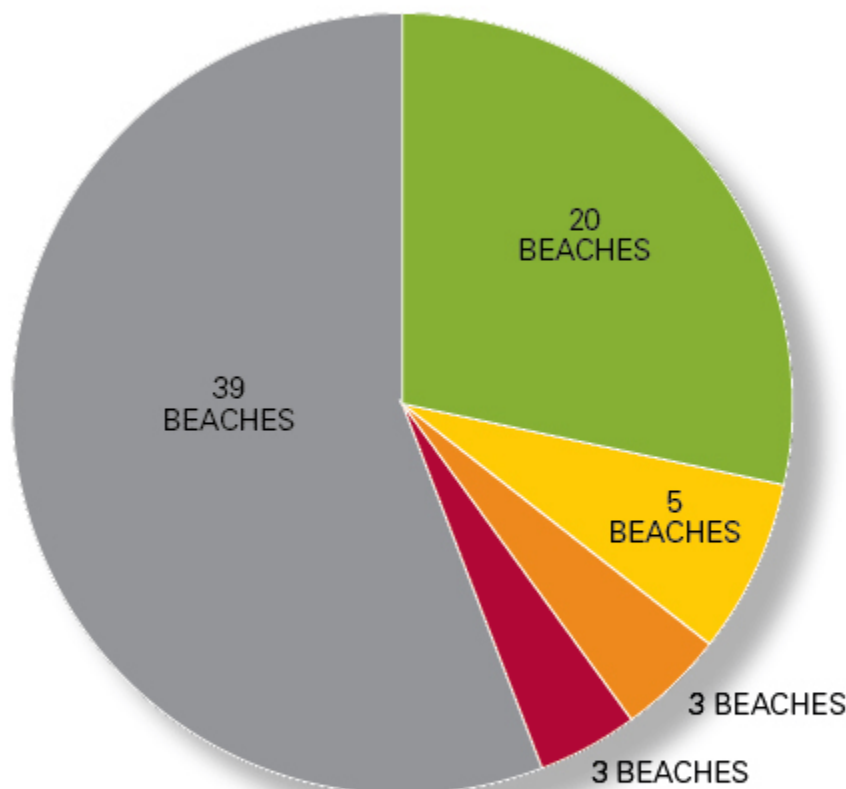
Ranked 11th in Beachwater Quality (out of 30 states)

6% of samples exceeded national standards for designated beach areas in 2011

In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA's estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Maryland

Maryland 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of closing/advisory days)

- 183 (97%) unknown sources of contamination
- 6 (3%) sanitary sewer overflow

There are 70 coastal beaches in Maryland lining 20 miles of the Atlantic Ocean and the Chesapeake Bay. Beachwater quality is monitored in a program administered by the Maryland Department of the Environment (MDE).

Enterococcus in Beach Sand, Beachwater, and Ocean Sediment

Enterococcus is a fecal indicator bacterium used to determine whether fecal contamination of beachwater may have occurred. Beach managers throughout the country have wondered if enterococcus is growing in beach sand and in ocean sediments and making its way into beachwater at some locations. If so, enterococcus levels may not be reliable indicators of fecal contamination. In 2010, Maryland took part in a study to investigate the relationship among enterococcus levels in beach sand, ocean sediment, and beachwater. Researchers determined that the concentration of enterococcus in beach sand and in ocean sediment was not related to the concentration of enterococcus in beachwater, and that while enterococcus can survive in beach sand and sediment, regrowth of enterococci did not occur under laboratory conditions in either sand or sediment from these beaches.¹ The preliminary conclusion is that at least for the beaches involved in the research, enterococcus is not replicating itself in the beach sand and ocean sediment and contaminating the beachwater.

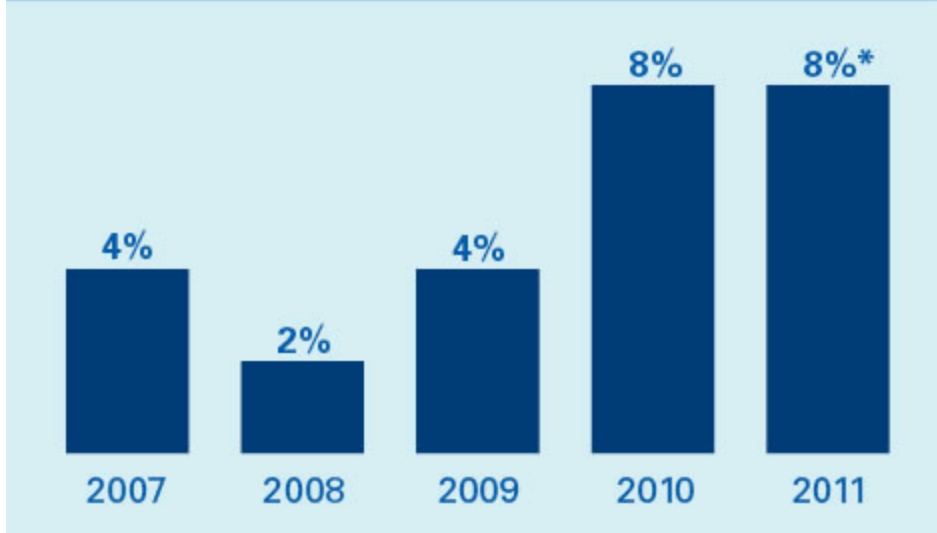
What Does Beachwater Monitoring Show?

In 2011, Maryland reported 70 coastal beaches. Of these, 6 (9%) were assigned a monitoring frequency of more than once a week, 19 (27%) once a week, 29 (41%) every other week, and 16 (23%) once a month. (Maryland also collects water samples at Assateague Island National Seashore in Virginia, but the data for that beach are reported in the Virginia state summary.) In 2011, 5%² of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml at Tier 1 and Tier 2 beaches or 158/100ml at Tier 3 beaches.

The beaches with the highest percent exceedance rates of the state standards in 2011 were North Beach in Calvert County (44%), Tolchester Marina and Beach in Kent County (31%), Elk Neck State Park North East River in Cecil County (31%), YMCA Camp Tockwogh (Youth Camp) (20%), and Tolchester Estates Beach (15%) in Kent County, and Gunpowder State Park Hammerman in Baltimore County (15%). Rose Haven in Anne Arundel County and Red Point Beach and Crystal Beach Manor in Cecil County also had high exceedance rates, but fewer than 12 samples were taken at these beaches in 2011, so they are not included in the above list. Beaches in Cecil County had the highest exceedance rate of the state standards (18%) in 2011, followed by Kent (16%), Calvert (9%), St Mary's (4%), Baltimore (4%), Anne Arundel (3%), and Queen Anne's (3%) counties. There were no exceedances at beaches in Somerset and Worcester counties.

NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.

Maryland Percent of Samples Exceeding the State's Daily Maximum Bacterial Standard for 63 Beaches Reported 2007-2011



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Maryland's Sampling Practices?

The monitoring season runs from Memorial Day to Labor Day. Sampling and notification activities are delegated to local health departments. Current guidance and regulation at this time is consistent across the board and applies to all coastal beaches in Maryland. Samples are taken in knee-deep water, one foot below the water's surface. Priority for monitoring Maryland's coastal beaches is based on the level of bather use, historical water quality, proximity of potential or actual pollution sources, human and animal fecal contamination sources, beach structure, ecological factors, and any other factors that may contribute to beachwater quality.¹ Tier 1 beaches (the highest-priority beaches) are assigned a monitoring frequency of once a week, medium-priority beaches (Tier 2) are assigned a monitoring frequency of twice a month, and the lowest-priority beaches (Tier 3) once a month. The Worcester County Health District has opted to monitor Ocean City beaches (6 locations) twice a week.³ Beaches in Maryland are defined in part by use; those that are not used are not considered to be beaches and are removed from the beach list.

Maryland's beach monitoring program recommends that local health departments sample the following day when a beach is closed or placed under advisory, but limited staffing and resources at some beaches sometimes prevents this.⁴ States that monitor more frequently after an exceedance is found will tend to have higher percent exceedance rates and lower total closing/advisory days than they would if their sampling schedule did not increase after an exceedance was found.

How Many Beach Closings and Advisories Were Issued in 2011?

Total closing/advisory days for 19 events lasting six consecutive weeks or less decreased by 36%, to 189 days in 2011 from 330 days in 2010. In prior years, there were 133 days in 2009, 61 days in 2008, 243 days in 2007, 317 days in 2006, and 209 days in 2005. In addition, there was one extended advisory and no permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks.

For the 19 events lasting six consecutive weeks or fewer, 97% (183) of closing/advisory days were due to monitoring that revealed elevated bacteria levels, and 3% (6) were preemptive due to known sewage spills or leaks.

How Does Maryland Determine When to Warn Visitors About Swimming?

In Maryland, closings are issued for known pollution events or other unsafe conditions, and advisories are issued when bacteria standards are exceeded and no known pollution source is present. At its coastal beaches, Maryland applies a 30-day geometric mean standard of 35 cfu/100 ml and a daily maximum standard for enterococcus of 104 cfu/100 ml at Tier 1 and Tier 2 beaches. The daily maximum standard at Tier 3 beaches is 158 cfu/100 ml. Three samples are taken per sampling event, and the average of the sampling results is used to determine whether the daily standard is being met.⁴ The average of three samples taken per sampling event is used to find five evenly spaced values over a 30-day period that are used to calculate the geometric mean.

If the local health department determines that sampling results indicating an exceedance of either the single-sample maximum or geometric mean standards are valid, a notification can be issued without resampling.¹ If the validity of the sample is in doubt, local health departments may resample before issuing an advisory, but this is not common.¹

Maryland does not have preemptive rainfall advisory standards, but rainfall information for each beach is provided on the Maryland Healthy Beaches website. The public is generally advised to avoid swimming after a significant rain event because polluted stormwater runoff can carry disease-causing organisms to the beach.³

If a known pollution source exists (e.g., a combined sewer overflow, failing sewer infrastructure, or wastewater treatment discharge), the county must close the beach.³ Maryland is one of the few states that require sewage treatment plants to report all sewage spills in a timely manner to local health departments and MDE.² The local health department or MDE may also issue an immediate closing if there is any other type of dangerous contaminant or condition.⁵

Maryland 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Anne Arundel	Annapolis Sailing	1	once a week	15	7%	0	N/A
Anne Arundel	Arundel on the Bay	2	twice a month	7	0%	0	N/A
Anne Arundel	Atlantic Marina Resort	2	twice a month	7	0%	0	N/A
Anne Arundel	Bay Ridge at Bay Dr.	1	once a week	14	7%	0	N/A
Anne Arundel	Bay Ridge at River Dr.	1	once a week	14	0%	0	N/A
Anne Arundel	Bayside Beach	3	once a month	8	0%	0	N/A
Anne Arundel	Beverly Beach	2	twice a month	9	11%	0	N/A
Anne Arundel	Cape Anne	3	once a month	4	0%	0	N/A
Anne Arundel	Cape St. Claire at Persimmon Point	2	twice a month	9	11%	0	N/A
Anne Arundel	Cedarhurst	2	twice a month	6	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Anne Arundel	Fairhaven	2	twice a month	7	14%	0	N/A
Anne Arundel	Fort Smallwood at Pond Drive	3	once a month	4	0%	0	N/A
Anne Arundel	Fort Smallwood Park	3	once a month	4	0%	0	N/A
Anne Arundel	Franklin Manor	2	twice a month	7	14%	0	N/A
Anne Arundel	Highland Beach	2	twice a month	7	0%	0	N/A
Anne Arundel	Idlewilde on the Bay	3	once a month	4	0%	0	N/A
Anne Arundel	Mason's Beach	3	once a month	4	0%	0	N/A
Anne Arundel	Mayo Beach Park	1	once a week	9	0%	0	N/A
Anne Arundel	Mountain Point at Gibson Island	2	twice a month	8	0%	0	N/A
Anne Arundel	Oyster Harbor	2	twice a month	7	0%	0	N/A
Anne Arundel	Rose Haven	2	twice a month	8	25%	0	N/A
Anne Arundel	Round Bay Main Beach	1	once a week	14	0%	0	N/A
Anne Arundel	Sandy Point State Park East Beach	1	once a week	16	0%	0	N/A
Anne Arundel	Sandy Point State Park South Beach	1	once a week	17	0%	0	N/A
Anne Arundel	Saunders Point	2	twice a month	7	0%	0	N/A
Anne Arundel	Town Point at Arkhaven	3	once a month	4	0%	0	N/A
Anne Arundel	Turkey Point at Cloud Beach	2	twice a month	7	0%	0	N/A
Anne Arundel	Venice on the Bay	2	twice a month	8	0%	0	N/A
Baltimore	GunPowder State Park Hammerman	2	twice a month	13	15%	11	N/A
Baltimore	Hart Miller Island	2	twice a month	12	0%	0	N/A
Baltimore	Miami Beach	2	twice a month	11	0%	0	N/A
Baltimore	Rocky Point Park	2	twice a month	12	0%	1	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Calvert	Breezy Point	1	once a week	14	0%	0	N/A
Calvert	Brownie's Beach	1	once a week	13	0%	0	N/A
Calvert	Chesapeake Station	2	twice a month	7	0%	0	N/A
Calvert	Driftwood	2	twice a month	8	0%	0	N/A
Calvert	Flag Harbor	2	twice a month	6	0%	0	N/A
Calvert	Flag Ponds	2	twice a month	6	0%	0	N/A
Calvert	North Beach	1	once a week	18	44%	31	N/A
Calvert	Scientists Cliffs	3	once a month	4	0%	0	N/A
Calvert	Seahorse	2	twice a month	9	0%	0	N/A
Calvert	Windward Keys	2	twice a month	8	0%	0	N/A
Cecil	Crystal Beach Manor	2	twice a month	10	20%	13	N/A
Cecil	Elk Neck State Park North East River	1	once a week	13	31%	27	N/A
Cecil	Grove Point Camp	3	once a month	5	0%	0	N/A
Cecil	Red Point Beach	3	once a month	5	20%	6	N/A
Cecil	West View Shores	3	once a month	5	0%	0	N/A
Kent	Boy Scout Beach (Eliason)	2	twice a month	2	0%	0	N/A
Kent	Echo Hill Camp (Youth Camp)	2	twice a month	8	13%	2	N/A
Kent	Ferry Park	1	once a week	14	0%	4	N/A
Kent	Tolchester Estates Beach	2	twice a month	13	15%	34	N/A
Kent	Tolchester Marina and Beach	2	twice a month	16	31%	57	N/A
Kent	YMCA Camp Tockwogh (Youth Camp)	3	once a month	15	20%	0 (55)	N/A
Queen Anne's	Camp Wright	3	once a month	15	0%	0	N/A
Queen Anne's	Matapeake	3	once a month	15	7%	0	N/A
Somerset	Janes Island	3	once a month	5	0%	0	N/A
Somerset	Wellington	3	once a month	5	0%	0	N/A
St Mary's	Cedar Cove Community Beach	1	once a week	16	6%	0	N/A
St Mary's	Elm's Beach - Public Beach	1	once a week	15	7%	3	N/A
St Mary's	Point Lookout State Park	1	once a week	15	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Worcester	Assateague State Park	1	once a week	15	0%	0	N/A
Worcester	North Beach Site #1 (State Park Boundary)	1	once a week	15	0%	0	N/A
Worcester	North Beach Site #2 (Ranger Station)	1	once a week	15	0%	0	N/A
Worcester	Ocean City Beach 1	1	twice a week	27	0%	0	N/A
Worcester	Ocean City Beach 2	1	twice a week	27	0%	0	N/A
Worcester	Ocean City Beach 3	1	twice a week	27	0%	0	N/A
Worcester	Ocean City Beach 4	1	twice a week	9	0%	0	N/A
Worcester	Ocean City Beach 5	1	twice a week	27	0%	0	N/A
Worcester	Ocean City Beach 6	1	twice a week	27	0%	0	N/A
Worcester	Oceanside #3	1	once a week	15	0%	0	N/A

Notes

1. Heather Merritt, Maryland Department of the Environment, personal communication, February 2012.
2. Why don't the 2011 percent exceedance values in this summary match? The value in the summary heading (6%) reflects the proportion of samples exceeding the national single-sample maximum standard for designated beach areas. The value in the "What Does Beachwater Monitoring Show?" section (5%) reflects the proportion of samples exceeding the state standard, which in Maryland's case is less stringent than the designated beach area standard. Also, only samples from a common set of beaches monitored each year from 2007–2011 are included in the bar chart. Because some beaches were not monitored in each of those years, the percent exceedance for this subset of beaches (8%) was different from the percent exceedance for all of the beaches monitored in 2011 (5%).
3. Heather Merritt, Maryland Department of the Environment, personal communication, April 2012.
4. Maryland Department of the Environment, Beach Season 2011 Annual Report, December 2011.
5. Code of Maryland, subtitle 09 Water Pollution, 26.08.09 Public Bathing Beaches.
6. Reported closing or advisory days are for events lasting six consecutive weeks or less. Number of days in parentheses are for events lasting more than six consecutive weeks.

Testing the Waters: Massachusetts

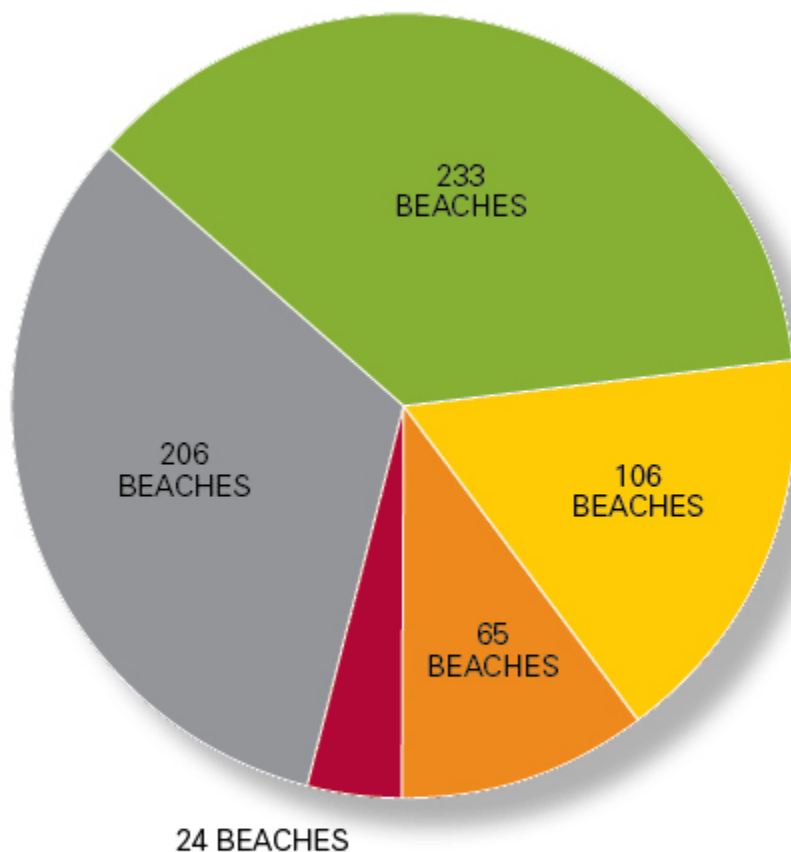
Ranked 12th in Beachwater Quality (out of 30 states)

6% of samples exceeded national standards for designated beach areas in 2011

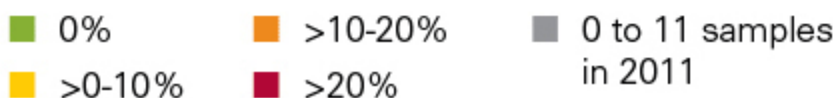
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA's estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Massachusetts

Massachusetts 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination

(number of closing/advisory days; includes reported advisories and closures that were issued for non-contamination-related reasons)

- 1,273 (100%) unknown contamination sources

Massachusetts has more than 500 public and semipublic marine beaches along 204 miles of sandy shore that line Atlantic waters. The monitoring program is a collaborative effort between the local boards of health and the Massachusetts Department of Public Health (MDPH) and is administered by MDPH.

Converting Septic to Sewer Cleans Up Silver Beach

Malfunctioning septic tanks are often implicated in beachwater contamination. The town of Falmouth completed a sewer extension in July 2009 that converted many homes from septic tanks to municipal wastewater treatment. This has improved water quality at New Silver Beach. From 2006 to 2008, 6% of samples at this beach exceeded water quality standards, but in 2009, 2010, and 2011 there were no exceedances.

No-Discharge Zones in Massachusetts

No-discharge zones are designated by the U.S. EPA and prohibit boats from discharging both treated and untreated sewage, which can contaminate beachwater. Within no-discharge zone boundaries, boat operators are required to retain their sewage onboard for disposal at sea (beyond three miles from shore) or onshore at a pump-out facility. In August 2011, a no-discharge zone was designated by the U.S. EPA in the coastal waters off the towns of Chatham, Orleans, Eastham, Wellfleet, Truro, and Provincetown. With the addition of these waters, two-thirds of Massachusetts's coastal waters are now no-discharge zones.

Reducing Combined Sewer Overflows Improves Beachwater Quality

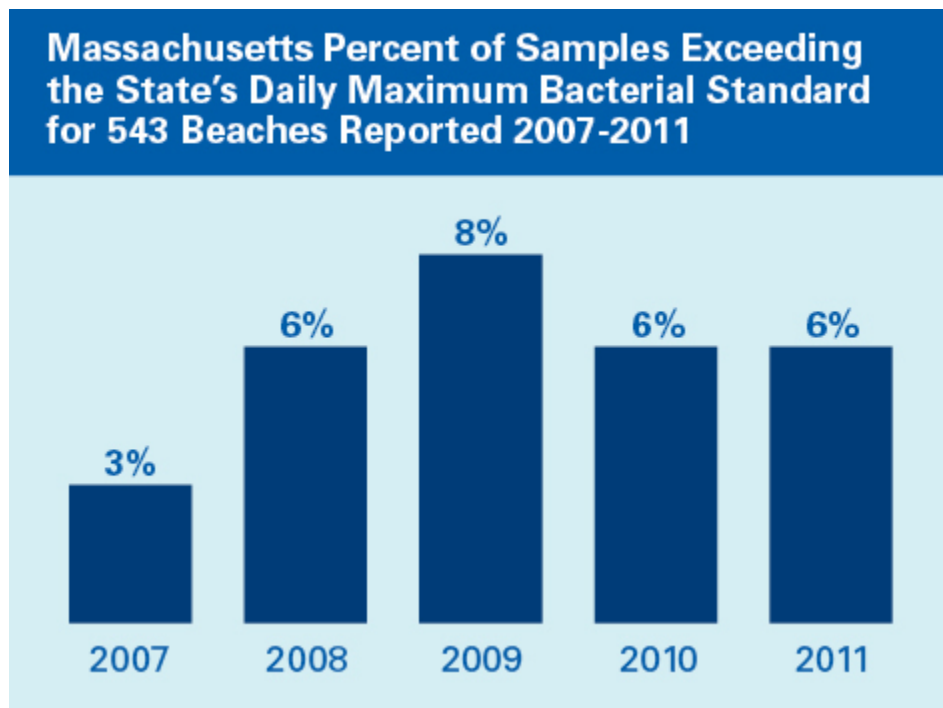
Many urban areas along the coast of Massachusetts are served by combined sewer systems that treat both stormwater runoff and sewage before discharging it to surface waters. These systems can be overwhelmed by the volume of stormwater and sewage they receive during heavy storms, resulting in discharges of raw or partially treated sewage. The Massachusetts Water Resources Authority North Dorchester Bay CSO Storage Tunnel, a 17-foot-diameter combined-sewer overflow tunnel in South Boston, began operating on June 1, 2011. In addition to holding combined-sewer overflows for later treatment, this tunnel stores stormwater flows during all but the largest rainstorms and pumps both stormwater and combined-sewer overflow for treatment as capacity allows, thus preventing a large source of bacteria from reaching the beaches of South Boston. Despite exceptionally heavy rains during the summer of 2011, beachwater quality improved that year at these beaches, with just 4 exceedances of water quality found in 2011 compared with 19 in 2010.²

What Does Beachwater Monitoring Show?

In 2011, Massachusetts reported 634 coastal beaches and beach segments. Of these, 12 (2%) were assigned a monitoring frequency of once a day, 566 (89%) a frequency of once a week, 7 (1%) every other week, and 49 (8%) once a month. In 2011, 6% of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. Samples taken at 31 beaches in Massachusetts exceeded this standard at least 20% of the time. The beaches with the highest percent exceedance rates of the state standard in 2011 were Cockle Cove Creek?Parking Lot in Barnstable County (67%), Kings at Stacy Brook (67%) and Donovans (45%) in Suffolk County, and West Manchester (44%) and Woodbury (39%) in Essex County. Some of those high-exceedance locations are segments of larger beaches whose water quality is not adequately represented by the beaches on this list. Beaches in Norfolk County had the highest exceedance rate of the state standard in 2011 (12%), followed by Essex (10%), Bristol (8%), Nantucket (8%), Dukes (7%), Suffolk (7%), Barnstable (4%), and Plymouth (3%) counties. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.

Note that in some counties, such as Nantucket County, most of the beaches have a sampling variance. Under Massachusetts regulations, a variance allows for less-frequent sampling at beaches that have no potential sources of contamination and that have gone two years without an exceedance.¹ In these counties, the exceedance rate may be higher in part because the cleanest beaches in the county are not sampled as frequently as other beaches.

In addition to Tropical Storm Irene, there was above-normal rainfall in Massachusetts during the summer of 2011. Close to 5 inches of rain fell in June (half again as much as the historical monthly average), and almost 8 inches fell in August in the Boston area (nearly 2.5 times the historical monthly average).² Increased rainfall is generally associated with a decline in beachwater quality because of rain-related sewer overflows as well as stormwater runoff, which can pick up bacteria from roads and other surfaces and carry it to ocean waters. However, Massachusetts did not experience a higher rate of exceedances of the state standard in 2011, a signal that the state is taking effective steps to clean up its beachwater.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Massachusetts's Sampling Practices?

The monitoring season starts as early as Memorial Day at some beaches and lasts through Labor Day for most.

MDPH coordinates the efforts of a range of collaborators including local boards of health, the Barnstable County Department of Health and the Environment, and the Massachusetts Department of Conservation and Recreation. MDPH determines sampling practices, locations, standards, and notification protocols and practices throughout the state. Samples are collected in 3 feet of water, 1 foot below the surface.¹ State water quality regulations require that all public and semipublic freshwater and marine bathing beaches in Massachusetts be monitored during the bathing season for bacterial contamination.¹ (Semipublic beaches are not open to the general public but more than a single owner is allowed use.) The sampling frequency for Massachusetts's beaches is based on use and the potential for pollution problems. As noted above, if a beach has been monitored weekly for the two most recent consecutive years with no exceedance of standards being found, and if a sanitary survey conducted by a registered sanitarian reveals no potential sources of pollution at that beach, the beach managing entity may be allowed to sample less frequently.¹

Beachwater quality samples must be taken in the areas of greatest bather load. However, beach operators are encouraged also to sample where outfalls and other sources of contamination are present.² When an exceedance is found, sampling is generally conducted every day until the standards are met, after which the beach is reopened.² Also, beaches that issue preemptive rainfall advisories generally sample on the day of rainfall or the day after.² States that monitor more frequently after an exceedance is found or after rainfall will tend to have higher percent exceedance rates and lower total closing/advisory days than they would if their sampling frequency did not increase after an exceedance or a rain event.

How Many Beach Closings and Advisories Were Issued in 2011?

Total closing/advisory days for 479 events lasting six consecutive weeks or less increased 1% to 1,273 days in 2011 from 1,256 days in 2010. For prior years, there were 1,478 days in 2009, 1,102 days in 2008, 567 days in 2007, 1,092 days in 2006, and 680 days in 2005. In addition, there were 4 extended events (283 days total) and no permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 479 events lasting six consecutive weeks or less, 78% (994) of closing/advisory days were due to monitoring that revealed elevated bacteria levels, 12% (151) were preemptive due to tropical storm riptides and related conditions, and 10% (128) were preemptive due to heavy rainfall.

How Does Massachusetts Determine When to Warn Visitors About Swimming?

Beaches are closed to swimming when either the single-sample maximum or the geometric mean standard is exceeded. Whether beach action days are reported to the EPA as closings or advisories, restrictions and notifications are the same. For marine beaches, the standard is a single-sample maximum of enterococcus of 104 cfu/100 ml, or the geometric mean of the 5 most recent samples within the current bathing season of 35 cfu/100 ml. There is no requirement that the geometric mean be calculated on the basis of samples taken over a 30-day period.¹

In addition to fecal indicator bacteria monitoring, beaches must also be tested for oil, hazardous materials, and heavy metals if there is information indicating possible contamination.¹

Preemptive rainfall standards are in use at several beaches on Boston Harbor, and preemptive rainfall closings are issued after any significant rainstorm at a bathing beach where there has been a history of violations of water quality standards. In addition to preemptive rainfall closings and closings due to bacterial exceedances, the local board of health and/or MDPH can close a beach if they determine there is a threat to human health for any other reason, such as an oil spill.² Beaches can be closed if there is a red tide (a bloom of the harmful algal bacterium Alexandrium) that decreases visibility in the water to such an extent that the beach operator considers it a rescue safety hazard.² Local boards of health can also preemptively close beaches that have consistently elevated bacterial indicator levels.

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	29 Commercial Street	2	once a week	15	7%	1	N/A
Barnstable	333 Commercial Street	2	once a week	16	6%	1	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	451 Commercial Street	2	once a week	15	0%	0	N/A
Barnstable	593 Commercial Street	2	once a week	18	11%	4	N/A
Barnstable	637 Commercial Street	2	once a week	14	0%	0	N/A
Barnstable	Acapesket Improvement Association	2	once a week	13	0%	0	N/A
Barnstable	Allen Harbor	2	once a week	13	0%	0	N/A
Barnstable	Andrew Harding Lane Beach	2	once a week	12	0%	0 (76)	N/A
Barnstable	Atkins Lane	2	once a week	14	0%	0	N/A
Barnstable	Atlantic Avenue in Harwich	3	once a week	4	0%	0	N/A
Barnstable	Atlantic Avenue in Provincetown	2	once a week	14	0%	0	N/A
Barnstable	Ballston	3	once a month	4	0%	0	N/A
Barnstable	Bank Street - Bayview Rd	3	once a week	4	0%	0	N/A
Barnstable	Barlows Landing	2	once a week	4	0%	0	N/A
Barnstable	Bass River - East	2	once a week	15	0%	0	N/A
Barnstable	Bass River - West	2	once a week	15	0%	0	N/A
Barnstable	Baxter Avenue	2	once a week	15	0%	0	N/A
Barnstable	Bay Road	2	once a week	17	12%	2	N/A
Barnstable	Bayview	2	once a week	17	24%	2	N/A
Barnstable	Bayview Street	2	once a week	15	0%	0	N/A
Barnstable	Bikepath Beach (Trunk River) East	2	once a week	14	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Bikepath Beach (Trunk River) West	2	once a week	14	0%	0	N/A
Barnstable	Boat Meadow	2	once a week	14	0%	0	N/A
Barnstable	Bone Hill	2	once a week	0	n/a	0	N/A
Barnstable	Bowerman Beach Club	2	once a week	13	0%	0	N/A
Barnstable	Breakwater Landing	2	once a week	15	7%	0	N/A
Barnstable	Brewster Dunes	2	once a week	13	0%	0	N/A
Barnstable	Briarwood Marine and Science	2	once a week	13	0%	0	N/A
Barnstable	Bridge Street	2	once a week	0	n/a	0	N/A
Barnstable	Bristol - East	2	once a week	15	7%	1	N/A
Barnstable	Bristol - West	2	once a week	14	0%	0	N/A
Barnstable	Brooks	3	once a week	4	0%	0	N/A
Barnstable	Bucks Creek	2	once a month	12	0%	0	N/A
Barnstable	Burton Baker	3	once a month	16	13%	2	N/A
Barnstable	Cahoon Hollow	3	once a month	4	0%	0	N/A
Barnstable	Callies Beach	3	once a week	4	0%	0	N/A
Barnstable	Campground	2	once a week	14	0%	0	N/A
Barnstable	Cape Cod Sea Camps (Bay)	2	once a week	13	0%	0	N/A
Barnstable	Cataumet Harbor	2	once a week	16	13%	4	N/A
Barnstable	Cedar Point Association	2	once a week	13	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Chapin Memorial	2	once a week	13	0%	0	N/A
Barnstable	Chapoquoit	2	once a week	14	0%	0	N/A
Barnstable	Chapoquoit Associates - Front Beach	2	once a week	13	0%	0	N/A
Barnstable	Chapoquoit Associates - Little Beach	2	once a week	13	0%	0	N/A
Barnstable	Chatham Bars Inn	2	once a week	11	0%	0	N/A
Barnstable	Chequesset Yacht and Country Club	2	once a week	13	0%	0	N/A
Barnstable	Clipper Lane	2	once a week	17	35%	8	N/A
Barnstable	Coast Guard - 1	2	once a week	11	0%	0	N/A
Barnstable	Coast Guard - 2	2	once a month	11	0%	0	N/A
Barnstable	Coast Guard Town	3	once a week	4	0%	0	N/A
Barnstable	Cockle Cove	2	once a week	12	8%	3	N/A
Barnstable	Cockle Cove Creek - Parking Lot	2	once a week	12	67%	0 (76)	N/A
Barnstable	Cockle Cove Creek - Ridgevale	2	once a week	12	25%	0 (76)	N/A
Barnstable	Cold Storage	2	once a week	13	0%	0	N/A
Barnstable	Cold Storage/Pond Village	2	once a week	14	0%	0	N/A
Barnstable	Cole Road	2	once a week	14	0%	0	N/A
Barnstable	Colonial Acres	2	once a week	19	21%	4	N/A
Barnstable	Colonial Acres - East	2	once a week	17	12%	2	N/A
Barnstable	Columbus Avenue	2	once a week	15	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Cook's Brook	2	once a month	14	0%	0	N/A
Barnstable	Cordwood Road	2	once a week	0	n/a	0	N/A
Barnstable	Corn Hill	3	once a week	4	0%	0	N/A
Barnstable	Corporation	2	once a week	15	0%	0	N/A
Barnstable	Cotuit Bay Shores Association	2	once a week	13	0%	0	N/A
Barnstable	Court Street	2	once a week	15	7%	1	N/A
Barnstable	Covell's	2	once a week	14	0%	0	N/A
Barnstable	Craigville	2	once a week	14	0%	0	N/A
Barnstable	Craigville Beach Club	2	once a week	15	0%	0	N/A
Barnstable	Cranberry Hill	2	once a week	8	0%	0	N/A
Barnstable	Crocker's Neck	2	once a week	0	n/a	0	N/A
Barnstable	Crosby Landing	2	once a week	16	13%	1	N/A
Barnstable	Cross Street	2	once a week	0	n/a	0	N/A
Barnstable	Crow's Nest (496 Shore Rd)	2	once a week	14	7%	1	N/A
Barnstable	Dowses	2	once a month	14	0%	0	N/A
Barnstable	Duck Harbor	3	once a week	4	0%	0	N/A
Barnstable	Dune's Colony (648 Shore Rd)	2	once a week	14	7%	1	N/A
Barnstable	Dyer Prince	2	once a week	14	0%	0	N/A
Barnstable	Earle Road	2	once a week	13	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	East (Town) Beach	2	once a week	14	21%	3	N/A
Barnstable	East Sandwich	2	once a week	14	0%	0	N/A
Barnstable	Electric Avenue	2	once a week	4	0%	0	N/A
Barnstable	Ellis Landing	2	once a week	14	0%	0	N/A
Barnstable	Ellis Landing Park Condominiums	2	once a week	13	0%	0	N/A
Barnstable	Englewood	2	once a week	15	0%	0	N/A
Barnstable	Estey Avenue	2	once a week	0	n/a	0	N/A
Barnstable	Falmouth Associates - 564 Surf Drive	2	once a week	12	0%	0	N/A
Barnstable	Falmouth Heights - East	2	once a week	15	7%	1	N/A
Barnstable	Falmouth Heights - West	2	once a week	14	0%	0	N/A
Barnstable	Falmouth Yacht Club	2	once a week	13	0%	0	N/A
Barnstable	Fifth Ave (boat launch)	2	once a week	0	n/a	0	N/A
Barnstable	First Encounter - Beach	2	once a week	15	7%	1	N/A
Barnstable	First Encounter - Spit River	2	once a month	14	0%	0	N/A
Barnstable	Fisher	3	once a week	4	0%	0	N/A
Barnstable	Follins Pond in Dennis	2	once a week	14	7%	1	N/A
Barnstable	Follins Pond in Yarmouth	2	once a week	17	12%	3	N/A
Barnstable	Forest Street Beach	2	once a week	13	8%	2	N/A
Barnstable	Glendon Road (MA998571)	2	once a week	13	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Glendon Road - West	2	once a week	13	0%	0	N/A
Barnstable	Gray Gables	2	once a week	13	0%	0	N/A
Barnstable	Gray's Beach	2	once a month	16	6%	9	N/A
Barnstable	Great Hollow	3	once a week	4	0%	0	N/A
Barnstable	Grey Neck	3	once a week	4	0%	0	N/A
Barnstable	Haigis	2	once a week	13	0%	0	N/A
Barnstable	Halliday Acres	2	once a week	13	0%	0	N/A
Barnstable	Harborview	2	once a week	13	0%	0	N/A
Barnstable	Hardings - East	2	once a week	13	8%	2	N/A
Barnstable	Hardings - West	2	once a week	13	8%	2	N/A
Barnstable	Hawthorne	2	once a week	11	0%	0	N/A
Barnstable	Head of the Meadow (National)	2	once a month	10	0%	0	N/A
Barnstable	Head of the Meadow (Town)	3	once a week	5	0%	0	N/A
Barnstable	Herring Cove (National)	2	once a week	11	0%	0	N/A
Barnstable	Hideaway Village Association	2	once a week	13	0%	0	N/A
Barnstable	Howes Street	2	once a month	13	0%	0	N/A
Barnstable	Indian Neck	3	once a week	4	0%	0	N/A
Barnstable	Indian Trail	2	once a week	0	n/a	0	N/A
Barnstable	Inman Road	2	once a week	13	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Jacknife Harbor	2	once a week	12	0%	0	N/A
Barnstable	Jetty Lane	2	once a week	11	0%	0	N/A
Barnstable	Johnson Street	2	once a week	15	7%	1	N/A
Barnstable	Kalmus Ocean	2	once a week	15	7%	1	N/A
Barnstable	Kalmus Yacht	2	once a week	13	0%	0	N/A
Barnstable	Kellers Corner	3	once a month	0	n/a	0	N/A
Barnstable	Kendal Lane	2	once a week	14	0%	0	N/A
Barnstable	Kennedy Memorial	2	once a week	14	0%	0	N/A
Barnstable	Kent's Point	3	once a week	8	0%	0	N/A
Barnstable	Keyes Beach	2	once a week	16	13%	2	N/A
Barnstable	Kingsbury	2	once a week	14	0%	0	N/A
Barnstable	Lighthouse	2	once a month	12	0%	0	N/A
Barnstable	Linnell Landing	3	once a week	4	0%	0	N/A
Barnstable	Little Inn at Pleasant Bay	2	once a week	13	0%	0	N/A
Barnstable	Little Island Beach Preserve	2	once a month	12	0%	0	N/A
Barnstable	Little River Road	2	once a week	0	n/a	0	N/A
Barnstable	Longnook	3	once a week	4	0%	0	N/A
Barnstable	Lookout Bluff	2	once a week	13	0%	0	N/A
Barnstable	Loops	2	once a month	13	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Maguires Landing	3	once a week	4	0%	0	N/A
Barnstable	Malfa Road	2	once a week	15	0%	0	N/A
Barnstable	Mants	2	once a week	14	0%	0	N/A
Barnstable	Marconi (National Seashore) - Sampling Point 1	2	once a week	11	0%	0	N/A
Barnstable	Marconi (National Seashore) - Sampling Point 3	2	once a week	0	n/a	0	N/A
Barnstable	Mashpee Neck Road (Town Landing)	2	once a week	15	7%	4	N/A
Barnstable	Maushup Village	2	once a week	13	0%	0	N/A
Barnstable	Mayflower	2	once a week	15	0%	0	N/A
Barnstable	Mayo	2	once a week	14	0%	0	N/A
Barnstable	Meeting House Pond	3	once a week	14	0%	0	N/A
Barnstable	Megansett (MA360119)	2	once a week	15	7%	1	N/A
Barnstable	Megansett - North	2	once a week	14	0%	0	N/A
Barnstable	Megansett Yacht Club	2	once a week	9	0%	0	N/A
Barnstable	Menauhant - East	2	once a week	14	0%	0	N/A
Barnstable	Menauhant - West	2	once a week	14	0%	0	N/A
Barnstable	Merkel Beach (Snow Inn Road)	3	once a week	4	0%	0	N/A
Barnstable	Mill Road	2	once a week	14	0%	0	N/A
Barnstable	Millway	2	once a week	14	7%	1	N/A
Barnstable	Monument	2	once a month	4	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Nauset	2	once a week	14	0%	0	N/A
Barnstable	Nauset Light (National Seashore) - Sampling Point 1	2	once a week	11	0%	0	N/A
Barnstable	Nauset Light (National Seashore) - Sampling Point 3	2	once a week	0	n/a	0	N/A
Barnstable	Neel Road	3	once a week	4	0%	0	N/A
Barnstable	New Seabury Inn	2	once a week	13	0%	0	N/A
Barnstable	New Silver (Silver Beach Improvement Association)	2	once a month	14	7%	1	N/A
Barnstable	Newcomb Hollow	3	once a week	4	0%	0	N/A
Barnstable	Nobska Beach Association	2	once a week	11	0%	0	N/A
Barnstable	Noon's Landing	2	once a week	15	7%	1	N/A
Barnstable	Ocean Edge	2	once a week	13	0%	0	N/A
Barnstable	Ocean Edge - 1	2	once a week	0	n/a	0	N/A
Barnstable	Old Mill Point Association - left of Jetty	2	once a week	13	0%	0	N/A
Barnstable	Old Mill Point Association - Right of Jetty	2	once a week	0	n/a	0	N/A
Barnstable	Old Silver 1 - Central	2	once a week	14	0%	0	N/A
Barnstable	Old Silver 2 - North	2	once a week	14	0%	0	N/A
Barnstable	Old Silver 2 - South	2	once a week	14	0%	0	N/A
Barnstable	Old Silver Beach Estates Assoc.	2	once a month	13	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Omaha Road	3	once a week	4	0%	0	N/A
Barnstable	Oregon	2	once a week	0	n/a	0	N/A
Barnstable	Oyster Harbors Club	2	once a week	13	0%	0	N/A
Barnstable	Oyster Place	2	once a week	0	n/a	0	N/A
Barnstable	Oyster Pond	2	once a week	12	0%	0	N/A
Barnstable	Paines Creek	2	once a week	16	13%	0	N/A
Barnstable	Pamet Harbor	2	once a week	15	7%	1	N/A
Barnstable	Parkers River East	2	once a week	15	7%	1	N/A
Barnstable	Parkers River West	2	once a week	15	0%	0	N/A
Barnstable	Patiusset Beach	2	once a week	13	0%	0	N/A
Barnstable	Paw Wah Pond	3	once a week	7	0%	0	N/A
Barnstable	Pilgrim Pine Acres	2	once a week	10	0%	0	N/A
Barnstable	Pinelands Park	2	once a week	0	n/a	0	N/A
Barnstable	Pleasant Bay in Harwich	3	once a week	13	0%	0	N/A
Barnstable	Pleasant Bay in Orleans	2	once a week	15	7%	1	N/A
Barnstable	Pleasant Road	3	once a month	4	0%	0	N/A
Barnstable	Pleasant Street	2	once a week	12	0%	2	N/A
Barnstable	Pocasset Beach Improvement Association	2	once a week	13	0%	0	N/A
Barnstable	Point of Rocks	2	once a week	13	15%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Popponesset	2	once a week	13	0%	0	N/A
Barnstable	Popponesset Beach Association	2	once a week	0	n/a	0	N/A
Barnstable	Popponesset Spit	2	once a week	13	0%	0	N/A
Barnstable	Powers Landing	3	once a week	4	0%	0	N/A
Barnstable	Priscilla's Landing	2	once a week	14	0%	0	N/A
Barnstable	Provincetown Inn Rotary	2	once a month	14	0%	0	N/A
Barnstable	Quanset Harbor Club Association	2	once a week	13	0%	0	N/A
Barnstable	Quisset Beach Association	2	once a week	10	0%	0	N/A
Barnstable	Race Point (National Seashore)	2	once a week	11	0%	0	N/A
Barnstable	Race Point (National Seashore), Point 3	2	once a week	0	n/a	0	N/A
Barnstable	Racing Beach Association	2	once a week	12	0%	0	N/A
Barnstable	Raycroft	2	once a week	13	0%	0	N/A
Barnstable	Red River - East	2	once a week	13	0%	0	N/A
Barnstable	Red River - Middle	2	once a week	13	0%	0	N/A
Barnstable	Red River - West	2	once a week	13	0%	0	N/A
Barnstable	Ridgevale	2	once a week	12	0%	2	N/A
Barnstable	Robbins Hill	2	once a week	15	7%	0	N/A
Barnstable	Rock Harbor	2	once a week	16	13%	2	N/A
Barnstable	Ropes	2	once a week	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Ryder	3	once a week	4	0%	0	N/A
Barnstable	Ryder Street - Left	2	once a week	26	23%	41	N/A
Barnstable	Ryder Street - Middle	2	once a month	16	13%	2	N/A
Barnstable	Ryder Street - Right	2	once a week	16	13%	2	N/A
Barnstable	S. Sunken Meadow	2	once a week	14	0%	0	N/A
Barnstable	Saconessett Hills Association	2	once a week	12	0%	0	N/A
Barnstable	Sagamore	2	once a week	13	0%	0	N/A
Barnstable	Salt Pond	2	once a week	6	0%	0	N/A
Barnstable	Sandy Neck	2	once a week	14	0%	0	N/A
Barnstable	Scatteree Town Landing	2	once a week	0	n/a	0	N/A
Barnstable	Scraggy Neck Recreation Association	2	once a week	12	0%	0	N/A
Barnstable	Scudder Lane	2	once a week	0	n/a	0	N/A
Barnstable	Scusset (DCR - DSPR)	2	once a week	14	0%	11	N/A
Barnstable	Sea Pines	2	once a week	13	0%	0	N/A
Barnstable	Sea Street (Dennisport)	3	once a week	13	0%	0	N/A
Barnstable	Sea Street (East Dennis)	2	once a week	13	0%	0	N/A
Barnstable	Seabreeze	3	once a week	4	0%	0	N/A
Barnstable	Seacoast Shores Associates, Inc.	2	once a week	12	8%	1	N/A
Barnstable	Seacrest Resort	2	once a week	13	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Seagull (Center)	2	once a week	15	0%	0	N/A
Barnstable	Seagull (Left)	2	once a week	15	7%	1	N/A
Barnstable	Seagull (Right)	2	once a week	16	6%	1	N/A
Barnstable	Seaside Park Improvement Association	2	once a week	13	0%	0	N/A
Barnstable	Seaview Ave. Beach	2	once a week	15	0%	0	N/A
Barnstable	Seconsett Island Causeway	2	once a week	14	0%	0	N/A
Barnstable	Shorewood Beach Association	2	once a week	0	n/a	0	N/A
Barnstable	Silver Springs Association	2	once a week	13	0%	0	N/A
Barnstable	Sippewissett Highlands Trust	2	once a week	13	0%	0	N/A
Barnstable	Skaket Beach	3	once a week	14	7%	1	N/A
Barnstable	Skaket Beach Condominiums	2	once a week	14	7%	1	N/A
Barnstable	South Cape Beach (DCR - DSPR)	2	once a week	15	0%	4	N/A
Barnstable	South Cape Civic Association	2	once a week	0	n/a	0	N/A
Barnstable	South Middle	2	once a week	15	0%	0	N/A
Barnstable	South Village	2	once a week	13	0%	0	N/A
Barnstable	Stone Horse Yacht Club	2	once a week	13	0%	0	N/A
Barnstable	Stoney Beach (MBL)	2	once a week	15	7%	2	N/A
Barnstable	Sullivan (Depot St.)	2	once a week	13	0%	0	N/A
Barnstable	Sunset	2	once a week	13	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Sunset Village (379 Shore Rd)	2	once a week	13	0%	0	N/A
Barnstable	Surf Drive - 1	2	once a week	14	0%	0	N/A
Barnstable	Surf Drive - East	2	once a week	14	0%	0	N/A
Barnstable	Surf Drive - Pool	2	once a week	14	0%	0	N/A
Barnstable	Tahanto Associates, Inc.	2	once a week	13	0%	0	N/A
Barnstable	Thatcher Town Park	2	once a week	15	0%	0	N/A
Barnstable	The Belmont	2	once a week	13	0%	0	N/A
Barnstable	The Gut (Great Island)	2	once a week	14	0%	0	N/A
Barnstable	Thumpertown	2	once a week	14	0%	0	N/A
Barnstable	Tides Hotel - Falmouth	2	once a week	13	0%	0	N/A
Barnstable	Torrey Beach Community Association	2	once a week	0	n/a	0	N/A
Barnstable	Town Cove in Eastham	2	once a week	15	7%	3	N/A
Barnstable	Town Cove in Orleans	2	once a week	17	18%	5	N/A
Barnstable	Town Landing - Breakwater	2	once a week	18	11%	2	N/A
Barnstable	Town Landing - Snail Road	2	once a week	18	11%	2	N/A
Barnstable	Town Landing Beach Point	2	once a week	15	7%	1	N/A
Barnstable	Town Landing West of Coast Guard	2	once a week	14	0%	0	N/A
Barnstable	Town Neck (Horizons)	3	once a week	14	0%	0	N/A
Barnstable	Town Neck-End of Boardwalk	2	once a week	14	0%	3	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Town Neck-Mill Creek	2	once a week	20	30%	7	N/A
Barnstable	Trotting Park	2	once a week	14	7%	0	N/A
Barnstable	Vernon St.	2	once a week	15	0%	0	N/A
Barnstable	Veterans	2	once a week	0	n/a	0	N/A
Barnstable	Wah Wah Taysee Road	3	once a week	4	0%	0	N/A
Barnstable	Wequasset Inn Resort	2	once a week	13	0%	0	N/A
Barnstable	West Dennis - Residential	2	once a week	16	6%	1	N/A
Barnstable	West Dennis - Snack Bar	2	once a week	15	0%	0	N/A
Barnstable	West Dennis - West	2	once a week	14	0%	0	N/A
Barnstable	West End Lot	2	once a week	21	14%	31	N/A
Barnstable	White Crest	3	once a week	4	0%	0	N/A
Barnstable	Wianno Avenue	2	once a week	0	n/a	0	N/A
Barnstable	Wianno Club (Salt-107 Seaview)	2	once a week	12	0%	0	N/A
Barnstable	Wilbur Park	2	once a week	15	0%	0	N/A
Barnstable	Wild Harbour Estates	2	once a week	10	0%	0	N/A
Barnstable	Windmill	2	once a month	15	0%	0	N/A
Barnstable	Wings Neck Trust Association (North Beach)	2	once a week	13	0%	0	N/A
Barnstable	Wings Neck Trust Association (South Beach)	2	once a week	13	0%	0	N/A
Barnstable	Winston Ave	2	once a week	22	27%	31	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Barnstable	Wood Neck Beach	2	once a week	14	0%	0	N/A
Barnstable	Wood Neck River	2	once a week	14	0%	0	N/A
Barnstable	Wychemere Beach Club	2	once a week	13	0%	0	N/A
Barnstable	Zylpha	3	once a week	4	0%	0	N/A
Bristol	400 North	2	once a week	20	15%	6	N/A
Bristol	400 South	2	once a week	20	20%	6	N/A
Bristol	Anthony's	2	once a week	12	0%	0	N/A
Bristol	Apponagansett Town Beach	2	once a week	12	0%	0	N/A
Bristol	Baker's Beach	3	once a week	3	0%	0	N/A
Bristol	Bayview	2	once a week	12	0%	0	N/A
Bristol	C & K Club	2	once a week	11	0%	0	N/A
Bristol	Cedar Cove	2	once a week	5	0%	0	N/A
Bristol	Cherry & Webb	3	once a month	3	0%	0	N/A
Bristol	Coles River Club off Harbor Rd	2	once a week	14	7%	0	N/A
Bristol	Davy's Locker	2	once a week	19	11%	4	N/A
Bristol	Demarest Lloyd (DCR - DSPR)	2	once a week	15	0%	5	N/A
Bristol	East Beach	3	once a month	3	0%	0	N/A
Bristol	Elephant Rock	2	once a week	12	0%	0	N/A
Bristol	Fort Phoenix (DCR - DSPR)	2	once a week	15	0%	4	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Bristol	Fort Phoenix - Town Beach	2	once a week	12	8%	0	N/A
Bristol	Hidden Bay	2	once a week	12	0%	0	N/A
Bristol	Horseneck (DCR - DSPR)	2	once a week	15	0%	4	N/A
Bristol	J. Beach	2	once a week	20	15%	6	N/A
Bristol	Jones Town Beach	2	once a week	12	0%	0	N/A
Bristol	Kids Beach	2	once a week	20	15%	6	N/A
Bristol	Knollmere (Weeden Road)	2	once a week	12	0%	0	N/A
Bristol	Leeside	2	once a week	12	8%	0	N/A
Bristol	Manhattan Avenue	2	once a week	12	0%	0	N/A
Bristol	Moses Smith Creek	2	once a week	12	17%	13	N/A
Bristol	Nonquitt	2	once a week	12	0%	0	N/A
Bristol	O'Tools	2	once a week	19	5%	4	N/A
Bristol	Oak Hill Shores	2	once a week	12	0%	0	N/A
Bristol	Pearse	2	once a week	16	25%	6	N/A
Bristol	Raymond Street	2	once a week	12	0%	0	N/A
Bristol	Round Hill	3	twice a month	8	13%	1	N/A
Bristol	Salter's Point East	2	once a week	12	0%	0	N/A
Bristol	Salter's Point South	2	once a week	13	8%	1	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Bristol	Sandy Beach	2	once a week	16	13%	37	N/A
Bristol	Seaview	2	once a week	12	0%	0	N/A
Bristol	Spindle Rock	2	once a week	6	0%	0	N/A
Bristol	Squid	2	once a week	20	20%	6	N/A
Bristol	Tabor Park South	2	once a week	20	20%	6	N/A
Bristol	Tower 1	2	once a week	19	5%	4	N/A
Bristol	Tower 4	2	once a week	19	16%	4	N/A
Bristol	Town Beach in Swansea	2	once a week	17	18%	3	N/A
Bristol	Town Beach in Westport	2	once a week	3	0%	0	N/A
Bristol	West Island Causeway	3	once a week	3	0%	0	N/A
Bristol	West Island Town Beach	3	once a month	3	0%	0	N/A
Dukes	Bend in the Road	3	once a week	3	0%	0	N/A
Dukes	Chappy Beach Club	2	once a week	3	0%	0	N/A
Dukes	Chappy Point Beach	3	once a week	6	0%	0	N/A
Dukes	East Beach (Chappy)	3	once a week	3	0%	0	N/A
Dukes	Eastville Town Beach - Drawbridge	2	once a week	15	20%	5	N/A
Dukes	Eastville Town Beach - Harbor	2	once a week	3	0%	0	N/A
Dukes	Fuller Street	2	once a week	3	0%	0	N/A
Dukes	Great Pond at Long Point	2	once a week	5	40%	1	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Dukes	Great Rock Bight	3	once a month	4	0%	0	N/A
Dukes	Hilman's Point	2	once a week	4	0%	0	N/A
Dukes	Joseph Sylvia State Beach	3	once a week	3	0%	0	N/A
Dukes	Joseph Sylvia State Beach - Little Bridge	2	once a week	3	0%	0	N/A
Dukes	Joseph Sylvia State Beach - Sound	2	once a week	3	0%	0	N/A
Dukes	Katama Point	2	once a week	0	n/a	0	N/A
Dukes	Lambert's Cove Beach - North	2	once a week	19	21%	8	N/A
Dukes	Lambert's Cove Beach - South	2	once a week	19	5%	4	N/A
Dukes	Lobsterville	3	once a month	3	0%	0	N/A
Dukes	Madera Cove	2	once a week	16	19%	6	N/A
Dukes	Makonikey Roads and Beach Trust	2	once a week	8	0%	0	N/A
Dukes	Marinelli (Jetty) Beach	2	once a week	3	0%	0	N/A
Dukes	Menemsha	3	once a week	4	0%	0	N/A
Dukes	Mink Meadows	2	once a week	13	0%	0	N/A
Dukes	Moshup Beach	3	once a month	5	0%	0	N/A
Dukes	Naushon Beach (Makonikey Roads and Beach)	2	once a week	8	0%	0	N/A
Dukes	Norton Point Beach	2	once a week	3	0%	0	N/A
Dukes	Ocean at Chilmark Pond Preserve	2	once a week	8	13%	1	N/A
Dukes	Ocean at Edgartown Great Pond	3	once a week	3	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Dukes	Ocean at Long Point - East	2	once a week	17	6%	6	N/A
Dukes	Ocean at Long Point - West	2	once a week	0	n/a	0	N/A
Dukes	Ocean at Lucy Vincent Beach	2	once a week	15	0%	0	N/A
Dukes	Ocean at Squibnocket Beach	2	once a week	16	13%	2	N/A
Dukes	Owen Little Way	2	once a week	13	0%	0	N/A
Dukes	Owen Park	2	once a week	4	0%	0	N/A
Dukes	Pay Beach	2	once a week	15	7%	5	N/A
Dukes	Pay Beach - Inkwell	2	once a week	15	7%	5	N/A
Dukes	Pecoy Point Preserve Beach	2	once a week	0	n/a	0	N/A
Dukes	Philbin Beach	2	once a week	13	0%	0	N/A
Dukes	Pond at Lucy Vincent Beach	2	once a week	18	33%	32	N/A
Dukes	Ramble Trail Preserve Beach	2	once a week	0	n/a	0	N/A
Dukes	Red Beach	3	once a week	3	0%	0	N/A
Dukes	Sepiessa Point	3	once a week	0	n/a	0	N/A
Dukes	Seven Gates Beach (MA689705)	2	once a week	9	0%	9	N/A
Dukes	Seven Gates Beach (MA856169)	2	once a month	8	13%	0	N/A
Dukes	Sound at Wilfred's Pond Reserve	2	once a week	4	0%	0	N/A
Dukes	South Beach State Park	3	once a week	3	0%	0	N/A
Dukes	South Beach State Park - Middle	3	once a week	3	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Dukes	South Beach State Park - West	3	once a week	3	0%	0	N/A
Dukes	Tashmoo Beach	2	once a week	3	0%	0	N/A
Dukes	Tashmoo Cut	2	once a week	9	0%	0	N/A
Dukes	Tisbury Great Pond	2	once a week	4	0%	1	N/A
Dukes	Vineyard Harbor Motel	2	once a week	13	0%	1	N/A
Dukes	Wasque Swim Beach	2	once a week	3	0%	0	N/A
Essex	Back	3	once a month	3	0%	1	N/A
Essex	Black	2	once a week	17	12%	2	N/A
Essex	Black Rock	2	once a week	13	8%	9	N/A
Essex	Brackenbury	2	once a week	16	25%	4	N/A
Essex	Camp Naumkeag	2	once a week	11	0%	8	N/A
Essex	Canoe	2	once a week	12	0%	0	N/A
Essex	Cape Hedge	3	once a month	3	0%	0	N/A
Essex	Children's Island - Back	2	once a week	10	0%	0	N/A
Essex	Children's Island - Dock	2	once a week	10	0%	0	N/A
Essex	Children's Island - Wally	2	once a week	10	0%	0	N/A
Essex	Clammer's Beach	2	once a week	4	0%	0	N/A
Essex	Clark	2	once a week	16	6%	2	N/A
Essex	Collins Cove	2	once a week	12	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Essex	Crane	3	once a month	4	0%	0	N/A
Essex	Cressy's	3	once a month	3	0%	0	N/A
Essex	Crocker Park	2	once a week	16	6%	2	N/A
Essex	Dane Street (MA424085)	2	once a week	0	n/a	0	N/A
Essex	Dane Street - Bathhouse	2	once a week	12	0%	0	N/A
Essex	Dead Horse	2	once a week	12	0%	0	N/A
Essex	Devereux	2	once a week	15	0%	0	N/A
Essex	Eisman's	2	once a week	13	8%	1	N/A
Essex	Fisherman's	2	once a week	13	8%	1	N/A
Essex	Forest River Point	2	once a week	12	0%	0	N/A
Essex	Front Beach in Essex	3	once a week	4	0%	0	N/A
Essex	Front Beach in Rockport	2	once a week	3	0%	0	N/A
Essex	Gas House	2	once a week	16	6%	2	N/A
Essex	Goat Hill	2	once a week	12	0%	0	N/A
Essex	Good Harbor	2	once a week	16	0%	0	N/A
Essex	Good Harbor Creek	2	once a week	16	0%	0	N/A
Essex	Grace Oliver	2	once a week	16	6%	2	N/A
Essex	Half Moon	3	once a month	3	0%	0	N/A
Essex	Independence Park	2	once a week	14	14%	2	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Essex	Juniper Point	2	once a week	14	21%	9	N/A
Essex	Kings	2	once a week	15	20%	3	N/A
Essex	Kings (DCR - DUPR)	2	once a week	35	29%	40	N/A
Essex	Kings at Kimball	2	once a week	35	17%	42	N/A
Essex	Kings at Stacy Brook	2	once a week	33	67%	45	N/A
Essex	Little Neck	2	once a week	16	6%	2	N/A
Essex	Long - Gloucester	3	once a month	3	0%	0	N/A
Essex	Long - North	3	once a month	3	0%	0	N/A
Essex	Lynch Park	2	once a week	12	0%	0	N/A
Essex	Mackey	2	once a week	0	n/a	0	N/A
Essex	Magnolia	2	once a week	16	6%	1	N/A
Essex	Magnolia - Right of bath & Tennis	2	once a week	16	6%	1	N/A
Essex	Mingo	2	once a week	17	18%	11	N/A
Essex	Nahant Beach - Flagpole	2	once a week	17	6%	6	N/A
Essex	Nahant Beach - N. of Bathhouse	2	once a week	17	12%	6	N/A
Essex	Nahant Beach - Parking Section 9	2	once a week	17	12%	6	N/A
Essex	Nahant Beach - South	2	once a week	17	6%	6	N/A
Essex	Niles	3	once a month	3	0%	0	N/A
Essex	Obear Park	2	once a week	12	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Essex	Ocean Avenue	2	once a week	12	17%	16	N/A
Essex	Old Garden	2	once a week	3	0%	0	N/A
Essex	Osgood	2	once a week	12	8%	6	N/A
Essex	Pavillion	3	once a week	4	0%	0	N/A
Essex	Pavillion Beach	3	once a month	3	0%	1	N/A
Essex	Pebble	3	once a month	3	0%	0	N/A
Essex	Phillips	3	twice a month	13	8%	1	N/A
Essex	Pioneer	2	once a week	12	8%	8	N/A
Essex	Plum Cove	2	once a week	14	14%	2	N/A
Essex	Plum Island	3	once a month	4	0%	0	N/A
Essex	Plum Island - End of Island 1	3	twice a month	13	8%	1	N/A
Essex	Plum Island - End of Island 2	3	twice a month	13	8%	1	N/A
Essex	Plum Island at 55th St	3	twice a month	17	6%	1	N/A
Essex	Plum Island at Point	3	twice a month	13	8%	1	N/A
Essex	Preston	2	once a week	14	14%	2	N/A
Essex	Rice (MA530831)	2	once a week	0	n/a	0	N/A
Essex	Rice in Beverly	2	once a week	12	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Essex	Salisbury (DCR - DSPR)	2	once a week	15	0%	3	N/A
Essex	Salisbury - North Beach	2	once a week	15	0%	3	N/A
Essex	Sandy Beach	2	once a week	15	27%	29	N/A
Essex	Sandy Point	2	once a week	12	0%	0	N/A
Essex	Short	2	once a week	13	8%	2	N/A
Essex	Singing - 1	2	once a week	15	0%	0	N/A
Essex	Singing - Right of Parking	2	once a week	15	0%	0	N/A
Essex	Steep Hill	2	once a week	15	0%	0	N/A
Essex	Steps	2	once a week	12	0%	0	N/A
Essex	Stramski	2	once a week	16	13%	16	N/A
Essex	Sunset Road	2	once a week	16	6%	2	N/A
Essex	Tuck's Point	2	once a week	18	11%	3	N/A
Essex	Tudor	2	once a week	12	0%	0	N/A
Essex	Village Street	2	once a week	16	6%	2	N/A
Essex	West	2	once a week	12	0%	0	N/A
Essex	West Manchester	2	once a week	18	44%	21 (55)	N/A
Essex	Whales	2	once a week	12	0%	0	N/A
Essex	White	2	once a week	16	6%	1	N/A
Essex	Willow Avenue	2	once a week	12	8%	8	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Essex	Willows Pier	2	once a week	12	0%	0	N/A
Essex	Wingearsheek	2	once a week	16	0%	0	N/A
Essex	Winter Island (Waikiki)	2	once a week	12	0%	0	N/A
Essex	Woodbury	2	once a week	18	39%	16	N/A
Nantucket	40th Pole 1	2	once a week	11	0%	0	N/A
Nantucket	Children's	2	once a week	12	8%	0	N/A
Nantucket	Cisco	3	once a month	3	0%	0	N/A
Nantucket	Cliffside	3	once a month	4	0%	0	N/A
Nantucket	Cliffside Motel	2	once a week	9	11%	0	N/A
Nantucket	Dionis	2	once a week	13	15%	5	N/A
Nantucket	Jetties	2	once a week	11	0%	0	N/A
Nantucket	Madaket	3	once a month	12	8%	0	N/A
Nantucket	Miacomet	3	once a month	4	25%	1	N/A
Nantucket	Sconset 1	2	once a week	3	0%	0	N/A
Nantucket	Sewerbeds	3	once a month	12	8%	0	N/A
Nantucket	Surfside 1	3	once a month	3	0%	0	N/A
Nantucket	Surfside 2	3	once a month	3	0%	0	N/A
Nantucket	Warren's Landing	3	once a month	12	33%	18	N/A
Nantucket	Washing Pond	2	once a week	11	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Nantucket	Washington Street	2	once a week	11	0%	0	N/A
Nantucket	Wauwinet Bayside	2	once a week	9	0%	0	N/A
Nantucket	Wauwinet Oceanside	2	once a week	9	11%	0	N/A
Norfolk	Avalon	2	once a week	15	20%	3	N/A
Norfolk	Bassing's (Sailing Club)	2	once a week	12	17%	9	N/A
Norfolk	Black Rock	2	once a week	12	8%	4	N/A
Norfolk	Broady (Baker)	2	once a week	12	0%	0	N/A
Norfolk	Chikatawbot	2	once a week	14	14%	2	N/A
Norfolk	Delano Ave.	2	once a week	13	8%	1	N/A
Norfolk	Edgewater	2	once a week	14	21%	12	N/A
Norfolk	George E. Lane	2	once a week	13	0%	0	N/A
Norfolk	Germantown Firestation	2	once a week	12	0%	0	N/A
Norfolk	Heron	2	once a week	13	8%	1	N/A
Norfolk	Merrymount	2	once a week	13	8%	1	N/A
Norfolk	Mound	2	once a week	13	8%	1	N/A
Norfolk	Nickerson	2	once a week	14	14%	2	N/A
Norfolk	Orchard Street	2	once a week	13	8%	1	N/A
Norfolk	Parkhurst	2	once a week	14	14%	2	N/A
Norfolk	Rhoda	2	once a week	15	20%	3	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Norfolk	Sandy	2	once a week	14	14%	3	N/A
Norfolk	Sandy Cove	2	once a week	7	14%	0	N/A
Norfolk	Smith Beach	2	once a week	14	14%	6	N/A
Norfolk	Wessagusett (Old Wessagussett)	3	twice a month	9	0%	0	N/A
Norfolk	Wollaston at Channing	1	once a day	82	13%	25	N/A
Norfolk	Wollaston at Milton	1	once a day	82	15%	25	N/A
Norfolk	Wollaston at Rice	1	once a day	82	7%	21	N/A
Norfolk	Wollaston at Sachem	1	once a day	82	15%	26	N/A
Norfolk	Yacht Club	2	once a week	7	0%	0	N/A
Plymouth	A Street Bay Side	2	once a week	13	8%	1	N/A
Plymouth	A Street Ocean	2	once a week	12	0%	0	N/A
Plymouth	Antasawomak - 1	2	once a week	10	0%	0	N/A
Plymouth	Antasawomak - 2	2	once a week	10	0%	0	N/A
Plymouth	Aucoot	2	once a week	12	8%	1	N/A
Plymouth	Belair	2	once a week	12	8%	2	N/A
Plymouth	Beverly Yacht	2	once a week	11	0%	0	N/A
Plymouth	Brant Beach	2	once a week	10	0%	0	N/A
Plymouth	Brant Rock	2	once a week	13	8%	2	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Plymouth	Briarwood	2	once a week	15	0%	0	N/A
Plymouth	Center Hill Road	2	once a week	0	n/a	0	N/A
Plymouth	Converse Point	2	once a week	11	0%	0	N/A
Plymouth	Crescent	2	once a week	11	9%	1	N/A
Plymouth	Darcy's	2	once a week	12	0%	0	N/A
Plymouth	Dexter Lane	2	once a week	11	0%	0	N/A
Plymouth	Duxbury Beach at Bath House	2	once a week	13	0%	0	N/A
Plymouth	East Boulevard	2	once a week	15	0%	0	N/A
Plymouth	Edgewater	2	once a week	12	0%	0	N/A
Plymouth	Egypt	2	once a week	12	8%	1	N/A
Plymouth	Fieldston - Hartford Rd	2	once a week	12	0%	0	N/A
Plymouth	Fieldston - Sunrise	2	once a week	12	0%	0	N/A
Plymouth	Forbes	2	once a week	15	7%	7	N/A
Plymouth	Gray's	2	once a week	13	15%	0	N/A
Plymouth	Green Harbor	2	once a week	12	0%	0	N/A
Plymouth	Gunrock	2	once a week	12	0%	0	N/A
Plymouth	Hamilton Beach	2	once a week	15	0%	0	N/A
Plymouth	Harbor 1	2	once a week	10	0%	0	N/A
Plymouth	Harbor 2	2	once a week	10	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Plymouth	Hollywoods - 1	2	once a week	10	0%	0	N/A
Plymouth	Hollywoods - 2	2	once a week	10	0%	0	N/A
Plymouth	Humarock	2	once a week	11	0%	0	N/A
Plymouth	Indian Mound Beach	2	once a week	15	0%	0	N/A
Plymouth	Island Wharf	2	once a week	11	0%	0	N/A
Plymouth	James Ave.	2	once a week	12	0%	0	N/A
Plymouth	Kenburma	2	once a week	6	0%	0	N/A
Plymouth	Kimball	2	once a week	14	21%	5	N/A
Plymouth	Land Trust Reservation	2	once a week	13	15%	2	N/A
Plymouth	Landing Road	2	once a week	13	0%	0	N/A
Plymouth	Leisure Shores	2	once a week	11	9%	1	N/A
Plymouth	Little Harbor	2	once a week	15	7%	6	N/A
Plymouth	Martin's Cove	2	once a week	0	n/a	0	N/A
Plymouth	Mattapoisett Shores Association	2	once a week	10	0%	0	N/A
Plymouth	Minot	2	once a week	12	8%	1	N/A
Plymouth	Nantasket at bathhouse	2	once a week	16	0%	3	N/A
Plymouth	Nantasket at North Site	2	once a week	16	0%	3	N/A
Plymouth	Nantasket at Park St.	2	once a week	16	0%	3	N/A
Plymouth	Nantasket at Water St.	2	once a week	16	0%	3	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Plymouth	Ned's Point	2	once a month	11	0%	0	N/A
Plymouth	Nelson Street	2	once a week	0	n/a	0	N/A
Plymouth	Newport	2	once a week	12	0%	0	N/A
Plymouth	North	2	once a week	12	8%	2	N/A
Plymouth	North Boulevard	2	once a week	15	0%	0	N/A
Plymouth	Oakdale Avenue	2	once a week	11	0%	0	N/A
Plymouth	Onset	2	once a week	15	0%	0	N/A
Plymouth	Otis	2	once a week	0	n/a	0	N/A
Plymouth	Parkwood	2	once a week	15	0%	0	N/A
Plymouth	Peases Point	2	once a week	10	0%	0	N/A
Plymouth	Peases Point (West)	2	once a week	10	0%	0	N/A
Plymouth	Peggotty	2	once a week	11	0%	0	N/A
Plymouth	Pinehurst	2	once a week	15	0%	0	N/A
Plymouth	Piney Point	2	once a week	11	0%	0	N/A
Plymouth	Planting Island	2	once a week	11	0%	0	N/A
Plymouth	Plymouth (MA552169)	2	once a week	13	0%	0	N/A
Plymouth	Plymouth (MA786288)	2	once a week	14	14%	1	N/A
Plymouth	Plymouth (MA819257)	2	once a week	13	0%	0	N/A
Plymouth	Point Connett	2	once a week	10	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Plymouth	Point Independence	2	once a week	8	0%	0	N/A
Plymouth	Residents Beach (Duxbury Beach)	2	once a week	13	0%	0	N/A
Plymouth	Rexhame	2	once a week	14	0%	0	N/A
Plymouth	Riverside Avenue	3	once a week	8	0%	0	N/A
Plymouth	Rocky Nook	2	once a week	10	0%	0	N/A
Plymouth	Sand Hills	2	once a week	22	32%	18	N/A
Plymouth	Scituate Lighthouse	2	once a week	12	8%	1	N/A
Plymouth	Seal Cove	2	once a week	11	0%	0	N/A
Plymouth	Shell Point	3	once a week	8	0%	0	N/A
Plymouth	Shipyard Lane	2	once a week	15	13%	16	N/A
Plymouth	Silver Shell	2	once a week	11	0%	0	N/A
Plymouth	Silver Shell - South Jetty	2	once a week	11	0%	0	N/A
Plymouth	Standish Shores	2	once a week	0	n/a	0	N/A
Plymouth	Swift's	2	once a week	15	0%	0	N/A
Plymouth	Swift's Neck	2	once a week	15	0%	0	N/A
Plymouth	Tabor Academy	2	once a week	11	9%	13	N/A
Plymouth	Tabor Academy - 1	2	once a week	11	0%	0	N/A
Plymouth	Town Beach in Hingham	2	once a week	11	0%	0	N/A
Plymouth	Town Beach in Mattapoisett	2	once a week	13	15%	2	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Plymouth	Wampatuck	2	once a week	12	8%	2	N/A
Plymouth	West End	2	once a week	13	0%	0	N/A
Plymouth	White Horse - Full Sail	2	once a week	13	0%	0	N/A
Plymouth	White Horse - Hill Top	2	once a week	13	0%	0	N/A
Plymouth	XYZ	2	once a week	12	0%	0	N/A
Plymouth	Yacht Club	2	once a week	11	0%	0	N/A
Suffolk	Carson Beach (DCR - DUPR)	1	once a day	81	2%	6	N/A
Suffolk	Carson Beach at Bath House (DCR - DUPR)	1	once a day	81	1%	6	N/A
Suffolk	City Point Beach (DCR)	1	once a day	80	1%	4	N/A
Suffolk	Constitution - Middle	1	once a day	79	9%	13	N/A
Suffolk	Constitution - North	1	once a day	79	9%	13	N/A
Suffolk	Constitution - Rec. Center	1	once a day	78	8%	13	N/A
Suffolk	Donovans	2	once a week	20	45%	35	N/A
Suffolk	Grandview	2	once a week	19	5%	7	N/A
Suffolk	Halford	2	once a week	20	15%	7	N/A
Suffolk	Lovell's Island (DCR - DUPR)	2	once a week	9	0%	3	N/A
Suffolk	M Street Beach at M Street (DCR - DUPR)	1	once a day	80	1%	4	N/A
Suffolk	Malibu (DCR - DUPR)	2	once a week	16	6%	5	N/A
Suffolk	Pico	2	once a week	19	5%	7	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Suffolk	Pleasure Bay at Broadway (DCR - DUPR)	2	once a week	79	5%	7	N/A
Suffolk	Revere Beach - Oak Island	2	once a week	18	17%	4	N/A
Suffolk	Revere Beach - Point of Pines	2	once a week	18	6%	4	N/A
Suffolk	Revere Beach - Shirley St.	2	once a week	18	6%	4	N/A
Suffolk	Revere Beach at State Police	2	once a week	18	6%	4	N/A
Suffolk	Savin Hill (DCR - DUPR)	2	once a week	16	6%	5	N/A
Suffolk	Short (DCR - DUPR)	2	once a week	16	19%	9	N/A
Suffolk	Spectacle Island	2	once a week	9	0%	3	N/A
Suffolk	Tenean (DCR - DUPR)	1	once a day	82	15%	28	N/A
Suffolk	Winthrop (DCR - DUPR)	2	once a week	17	12%	5	N/A
Suffolk	Yerrill	2	once a week	19	0%	0	N/A

Notes

1. Massachusetts Department of Public Health, "Marine and Freshwater Beach Testing in Massachusetts—Annual Report: 2010 Season," October 2011.
2. Chris Huskey, Massachusetts Department of Public Health, personal communication, April 2012.
3. Reported closing or advisory days are for events lasting six consecutive weeks or less. Days in parentheses are for events lasting more than six consecutive weeks.

Testing the Waters: Michigan

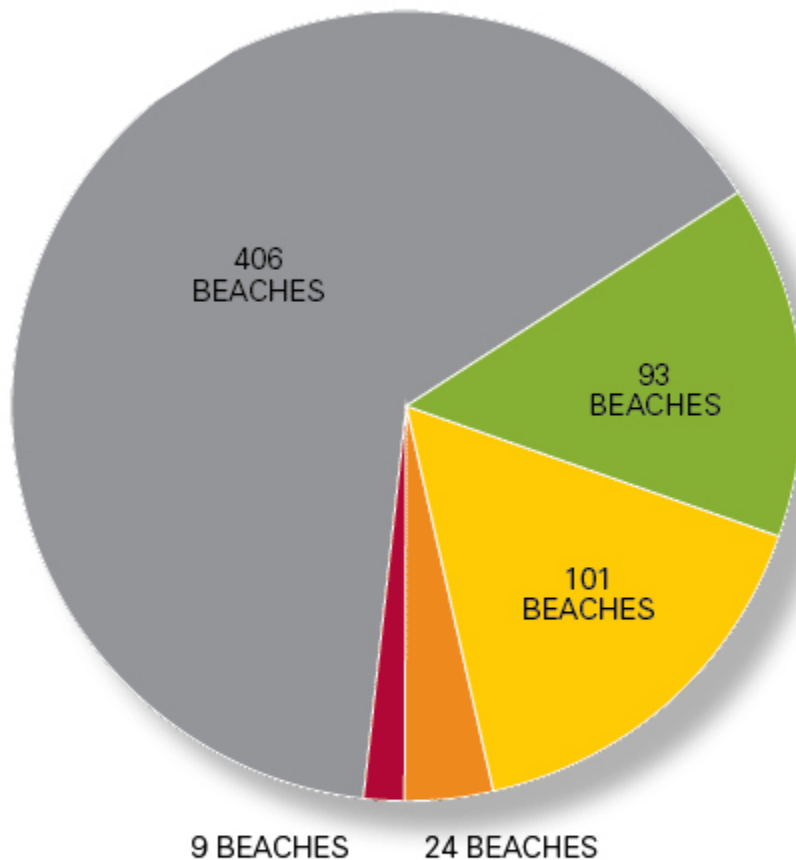
Ranked 18th in Beachwater Quality (out of 30 states)

8% of samples exceeded national standards for designated beach areas in 2011

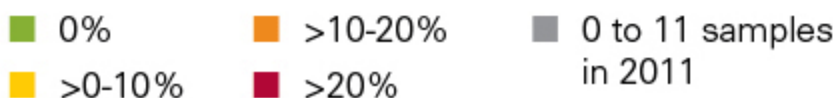
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Michigan

Michigan 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of closing/advisory days)

- 302 (75%) unknown contamination sources
- 70 (17%) stormwater runoff
- 15 (4%) sewage spills/leaks
- 15 (4%) other contamination sources
- 2 (<1%) wildlife

Michigan has more than 600 public beaches stretching along more than 600 miles of Great Lakes coastline. The Michigan Department of Environmental Quality (DEQ) administers the state's BEACH Act grant.

Preparing for Rapid Test Methods

Current approved methods for determining fecal indicator bacteria counts in beachwater depend on growth of cultures and take at least 24 hours to complete. Because of this, swimmers do not know until the next day if the water they swam in was contaminated. There is a great deal of interest in technologies that can provide same-day beachwater quality results, and in 2011 several counties in Michigan field-tested two such methods: quantitative polymerase chain reaction (qPCR), which identifies genetic sequences in order to enumerate bacteria, and immunomagnetic separation/adenosine triphosphate (IMS/ATP), a cell surface detection technology that relies on antibodies that bind to targeted cell surfaces. Beaches involved in this study included Bay City State Recreation Area in Bay County; Sherman Park in Chippewa County; Grand Haven City Beach and Grand Haven State Park in Ottawa County; and H.C.M.A. - Metropolitan Beach Metropark, St. Clair Shores Memorial Park Beach, and New Baltimore Park Beach in Macomb County. Beaches in Marquette, Grand Traverse, Emmett, Antrim, and Charlevoix counties also participated. For 2011, the beaches in the study were tested to see if rapid methods could be used to reliably issue notifications; all actual notifications were based on traditional culture results.¹

Statewide Implementation of Sanitary Surveys in 2012

Sanitary surveys are systematic investigations that are used to identify potential sources of human sewage pollution. In 2012 at beaches throughout Michigan, brief, routine surveys are being conducted when samples are collected, and in-depth sanitary surveys are being done annually. This effort, funded by the Great Lakes Restoration Initiative, is critical in identifying sources of beachwater contamination, especially during rain events.¹

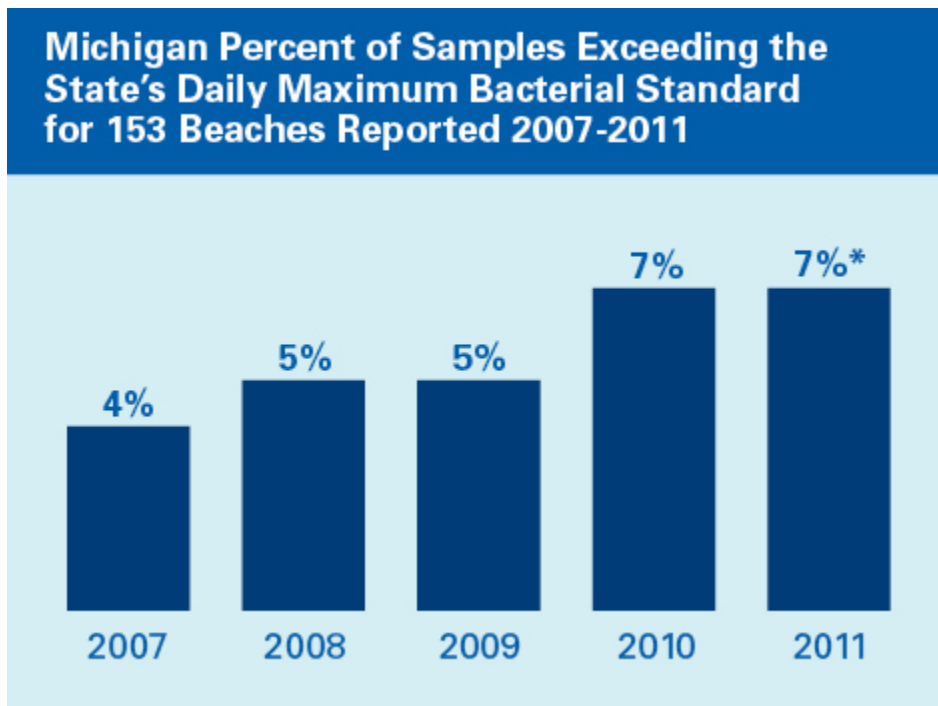
What Does Beachwater Monitoring Show?

In 2011, Michigan reported 633 coastal beaches. Of these, 30 (5%) were assigned a monitoring frequency of more than once a week, 212 (33%) a frequency of once a week, and 1 (<1%) once a month; 368 (58%) were not assigned a monitoring frequency, and there was no monitoring frequency assignment information for 22 (3%) beaches. In 2011, 6%² of all reported beach monitoring samples exceeded the state's daily bacterial standard of 300 cfu/100 ml. Nine beaches in Michigan exceeded this standard at least 20% of the time. The beaches with the highest percent exceedance rates of the state standard in 2011 were St. Clair Shores Blossom Heath Beach in Macomb County (47%), Singing Bridge Beach in Arenac County (39%), Pere Marquette Park in Muskegon County (33%), and Brimley State Park in Chippewa County (25%).

Beaches in Macomb County had the highest exceedance rate of the state standard in 2011 (21%), followed by Arenac (15%), Baraga (13%), Wayne (11%), Schoolcraft (10%), Chippewa (10%), Grand Traverse (9%), St. Clair (8%), Alpena (8%), Berrien (7%), Muskegon (7%), Mackinac (7%), Ottawa (7%), Menominee (5%), Marquette (5%), Van Buren (5%), Bay (5%), Monroe (5%), Cheboygan (4%), Huron (4%), Manistee (4%), Leelanau (4%), Iosco (3%), Oceana (3%), Houghton (2%), Charlevoix (2%), Emmet (2%), Allegan (2%), Sanilac (1%), Benzie (1%), and Alcona (1%) counties. There were no exceedances at beaches monitored in Alger, Antrim, Delta, Keweenaw, Mason, Ontonagon, and Presque Isle counties. No beaches in Gogebic, Luce, Montmorency, or Tuscola counties were monitored. NRDC considers all reported samples individually

(without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.

With the state's help, NRDC is hoping to include data for Michigan's federally owned beaches in the future. These beaches are precluded from BEACH Act funding, and their information is not collected and disseminated the way information for non-federal coastal beaches is.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Michigan's Sampling Practices?

The monitoring season runs from April to October.

Sampling practices, locations, standards, and notification protocols and practices are uniform throughout the state.¹ Samples are taken 1 foot below the surface in water that is 3 to 6 feet deep. Beaches are selected for monitoring based on location, with priority given to more frequently used beaches, those with a history of bacterial contamination, and those in close proximity to a known bacterial contamination source.³

Depending on the local health department, the monitoring frequency of a beach that has been closed or placed under advisory can be increased. In most cases, resampling is conducted the day a beach is closed or placed under advisory. States that monitor more frequently after an advisory is issued will tend to have higher percent exceedance rates and lower total closing/advisory days than they would if their sampling frequency did not increase after an advisory or closing was issued.

How Many Beach Closings and Advisories Were Issued in 2011?

Total closing/advisory days for 125 events lasting six consecutive weeks or less increased 11% to 404 days in 2011, from 363 days in 2010. For previous years, there were 342 days in 2009, 265 days in 2008, 198 days in 2007, 124 days in 2006, and 234 days in 2005. In addition, 1 extended event (83 days) and 2 permanent events (267 days) occurred in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 125 events lasting six consecutive weeks or less, 95% (382) of closing/advisory days were due to monitoring that revealed elevated bacteria levels and 5% (22) were preemptive due to heavy rainfall.

How Does Michigan Determine When to Warn Visitors About Swimming?

Both advisories and closings are issued. The standards in use in Michigan are for *E. coli* and consist of a geometric mean standard of 130 cfu/100 ml for all the individual samples taken during five or more sampling events representatively spread over a 30-day period, and a daily sampling event standard of 300 cfu/100 ml.³ At each sampling event, three or more samples are taken and the geometric mean of the sampling results is compared with the daily standard.³ Resamples to confirm an exceedance are sometimes conducted at Michigan's Great Lakes beaches before an advisory or closing is issued.

Some health departments issue preemptive rainfall advisories, with standards based on rainfall amount.¹ Beach advisories and closures may be issued for riptides, spills, harmful algal blooms, and other potential threats to public health.³

In 2011, several counties tested models that predict beachwater quality at some of their beaches. Such models are not useful for predicting beachwater quality at all beaches, but when they are effective, they provide a cost-effective means of issuing notifications based on current water quality conditions rather than water quality conditions the day the last sample was collected. The models are constructed using historical data about conditions such as wave height, tide, temperature, and wind speed combined with monitoring data. Beaches included in this effort include Bay City State Recreation Area in Bay County, Sherman Park in Chippewa County, Grand Haven City Beach in Ottawa County, and H.C.M.A. - Metropolitan Beach Metropark in Macomb County. The procedure for determining whether to issue an advisory or a closure based on predicted water quality results at these beaches is undergoing further testing and refinement during the 2012 beach season. In 2011, notifications at the beaches testing models were based on traditional culture techniques, not predicted water quality.¹

Michigan 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Alcona	Black River Public Access	3	once a week	42	5%	0	N/A
Alcona	Greenbush Township	3	once a week	53	0%	0	N/A
Alcona	Harrisville Public Access	3	none	0	n/a	0	N/A
Alcona	Harrisville State Park	1	once a week	45	0%	0	N/A
Alcona	Negwegon State Park	3	once a week	42	0%	0	N/A
Alcona	Sturgeon Point State Park	3	once a week	42	0%	0	N/A
Alcona	Trask Lake Road Beach	3	once a week	45	0%	0	N/A
Alger	Au Train Beach	3	once a week	48	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Alger	Bay Furnace Recreation Area Beach	3	once a week	47	0%	0	N/A
Alger	Christmas Beach	3	none	0	n/a	0	N/A
Alger	Grand Marais Harbor Beach	3	none	0	n/a	0	N/A
Alger	Grand Marais Township Beach	3	none	0	n/a	0	N/A
Alger	Grand Portal Point-Public Shoreline	no data	no data	0	n/a	0	N/A
Alger	Munising Beach	3	none	0	n/a	0	N/A
Alger	Pictured Rocks National Lakeshore-Chapel Beach	no data	none	0	n/a	0	N/A
Alger	Pictured Rocks National Lakeshore-Hurricane Campground Beach	no data	no data	0	n/a	0	N/A
Alger	Pictured Rocks National Lakeshore-Miners Beach	no data	none	0	n/a	0	N/A
Alger	Pictured Rocks National Lakeshore-Mosquito Beach	no data	none	0	n/a	0	N/A
Alger	Pictured Rocks National Lakeshore-Sand Point	no data	none	0	n/a	0	N/A
Alger	Pictured Rocks National Lakeshore-Twelvemile Beach	no data	once a week	0	n/a	0	N/A
Alger	Public Shoreline Beach-Au Train Bay	3	none	0	n/a	0	N/A
Alger	Public Shoreline Beach-Au Train to Five Mile Pts	3	none	0	n/a	0	N/A
Alger	Public Shoreline Beach-East County Border area	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Alger	Public Shoreline Beach-Grand Sable Dunes	3	none	0	n/a	0	N/A
Alger	Rathfoot Park Beach	3	none	0	n/a	0	N/A
Alger	Roadside Park	3	none	0	n/a	0	N/A
Alger	Sand Point to Miners Castle Point-Public Shoreline	no data	no data	0	n/a	0	N/A
Alger	Sullivans Landing	3	none	0	n/a	0	N/A
Allegan	Castle Park	3	none	0	n/a	0	N/A
Allegan	Douglas Beach	1	once a week	45	0%	0	N/A
Allegan	Oval Beach	1	once a week	45	2%	0	N/A
Allegan	Pier Cove Beach	1	once a week	45	2%	0	N/A
Allegan	Saugatuck Dunes State Park Shoreline Beach	3	once a week	45	0%	0	N/A
Allegan	West Side County Park Beach	1	once a week	51	4%	3	N/A
Alpena	Bay View Park	3	none	0	n/a	0	N/A
Alpena	Blair Street Park	1	once a week	14	14%	3	N/A
Alpena	Elcajon Bay	3	none	0	n/a	0	N/A
Alpena	Issineke Hardwood Point	3	none	0	n/a	0	N/A
Alpena	Michekewis Beach	1	once a week	40	13%	1	N/A
Alpena	Negwegon State Park-Ossineke South Point	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Alpena	Ossineke Beach	1	once a week	31	0%	0	N/A
Alpena	Ossineke Campground	3	none	0	n/a	0	N/A
Alpena	Ossineke State Park	3	none	0	n/a	0	N/A
Alpena	Partridge Point	3	none	0	n/a	0	N/A
Alpena	Rock Port Beach	3	none	0	n/a	0	N/A
Alpena	Starlite Beach	1	once a week	13	8%	2	N/A
Alpena	Thompson Park	1	once a week	13	8%	1	N/A
Alpena	Whitefish Bay	3	none	0	n/a	0	N/A
Antrim	Antrim County Day Park North	3	once a week	0	n/a	0	N/A
Antrim	Antrim County Day Park South	1	once a week	50	0%	0	N/A
Antrim	Antrim Creek Natural Area	3	none	0	n/a	0	N/A
Antrim	Banks Township. Park	1	once a week	48	0%	0	N/A
Antrim	Barnes Park	1	once a week	52	0%	0	N/A
Antrim	Elk Rapids	1	once a week	51	0%	0	N/A
Antrim	Elk Rapids Park	3	none	0	n/a	0	N/A
Antrim	Erickson Road	3	none	0	n/a	0	N/A
Antrim	Lore Road End Beach	3	none	0	n/a	0	N/A
Antrim	Michigan Trail	3	none	0	n/a	0	N/A
Antrim	Nature Preserve	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Antrim	North Bay Shore (Conservancy)	3	none	0	n/a	0	N/A
Antrim	O'Dell Road	3	none	0	n/a	0	N/A
Antrim	Petobego Pond Area	3	none	0	n/a	0	N/A
Antrim	Road Crossing near Winters Road	3	none	0	n/a	0	N/A
Antrim	Veterans Memorial Park	1	once a week	51	0%	0	N/A
Arenac	Arenac County Park	1	once a week	36	19%	10	N/A
Arenac	Au Sable State Forest- Greens Point	3	none	0	n/a	0	N/A
Arenac	Augres Township Park Beach	3	none	0	n/a	0	N/A
Arenac	Bessinger Road Beach	1	once a week	36	14%	0 (83)	N/A
Arenac	Booth Road Beach	3	none	0	n/a	0	N/A
Arenac	City of Augres Public Access	3	none	0	n/a	0	N/A
Arenac	Dyer Road Beach	1	once a week	39	0%	0	N/A
Arenac	Foster Road Beach	1	once a week	36	8%	7	N/A
Arenac	Gordon Road Beach	3	none	0	n/a	0	N/A
Arenac	Hammel Beach Road Access	1	once a week	36	8%	7	N/A
Arenac	Pump Station	3	none	0	n/a	0	N/A
Arenac	Singing Bridge Beach	1	once a week	57	39%	6 (109)	N/A
Arenac	Terrace Road	3	none	0	n/a	0	N/A
Arenac	Twining Road Beach	1	once a week	42	10%	14	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Arenac	Whites Beach	1	once a week	24	4%	0	N/A
Baraga	Arvon Township Park	3	none	0	n/a	0	N/A
Baraga	Baraga State Park	3	none	0	n/a	0	N/A
Baraga	First Sand Beach	3	none	0	n/a	0	N/A
Baraga	Keweenaw Bay Village Public Roadside Park	3	none	0	n/a	0	N/A
Baraga	L'Anse Township Park	3	none	0	n/a	0	N/A
Baraga	L'Anse Waterfront Park	1	once a week	24	13%	0	N/A
Baraga	Mouth of the Huron River	3	none	0	n/a	0	N/A
Baraga	Public Shoreline Beach-Cooper Country Huron Bay	3	none	0	n/a	0	N/A
Baraga	Public Shoreline Beach-Northwest Abbaye Peninsula	3	none	0	n/a	0	N/A
Baraga	Public Shoreline Beach-Point Abbaye	3	none	0	n/a	0	N/A
Baraga	Public Shoreline Beach-Sand Point	3	none	0	n/a	0	N/A
Baraga	Public Shoreline Beach-SE End of Huron Bay	3	none	0	n/a	0	N/A
Baraga	Second Sands Beach	3	none	0	n/a	0	N/A
Bay	Bay City State Recreation Area	1	once a week	181	2%	0	N/A
Bay	Brissette Beach Township Park	1	once a week	179	6%	6	N/A
Bay	Nayanquing Point Wildlife Area	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Bay	North Linwood Beach	3	none	0	n/a	0	N/A
Bay	North Pinconning Beach	3	none	0	n/a	0	N/A
Bay	Pinconning Park	1	once a week	178	9%	8	N/A
Bay	South Linwood Beach Township Park	1	once a week	177	5%	10	N/A
Bay	South Pinconning Beach	3	none	0	n/a	0	N/A
Bay	Wenona Beach	1	once a week	177	3%	5	N/A
Benzie	Alberta Village Beach & Bluffs	3	none	0	n/a	0	N/A
Benzie	County Road # 669	3	none	0	n/a	0	N/A
Benzie	Esch Road/Otter Creek	3	none	0	n/a	0	N/A
Benzie	Frankfort: Anchor Road Beach	1	once a week	86	1%	0	N/A
Benzie	Platte River Point	3	none	0	n/a	0	N/A
Benzie	Point Betsie Lighthouse Beach	3	none	0	n/a	0	N/A
Benzie	Zettenberg Preserve	3	none	0	n/a	0	N/A
Berrien	Bethany Beach area	3	none	0	n/a	0	N/A
Berrien	Cherry Beach	1	once a week	45	7%	0	N/A
Berrien	Galien River Park	3	none	0	n/a	0	N/A
Berrien	Gordon Beach	3	none	0	n/a	0	N/A
Berrien	Grand Beach	1	once a week	51	16%	1	N/A
Berrien	Grand Mere State Park- Rosemary	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	Beach						
Berrien	Grand Mere State Park- Shoreline Beach	3	none	0	n/a	0	N/A
Berrien	Grand Mere State Park- Waverland Beach	3	none	0	n/a	0	N/A
Berrien	Hagar Township Park	1	once a week	42	7%	1	N/A
Berrien	Harbert Beach	1	once a week	6	0%	0	N/A
Berrien	Jean Klock Park	1	once a week	39	8%	0	N/A
Berrien	Lincoln Township Park	1	once a week	42	0%	0	N/A
Berrien	Lions Park	1	once a week	42	12%	1	N/A
Berrien	Michiana Village	1	once a week	48	8%	0	N/A
Berrien	Mizpah Park	3	none	0	n/a	0	N/A
Berrien	New Buffalo City	1	once a week	45	9%	0	N/A
Berrien	Rocky Gap	1	once a week	39	0%	0	N/A
Berrien	Silver Beach	1	once a week	45	4%	1	N/A
Berrien	Tiscornia Park	1	once a week	42	0%	0	N/A
Berrien	Warren Dunes Beach	1	once a week	48	13%	0	N/A
Berrien	Warren Dunes State Park North	3	none	0	n/a	0	N/A
Berrien	Weko Beach	1	once a week	45	11%	1	N/A
Charlevoix	Beaver Island Public Beach	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Charlevoix	Bill Wagner Memorial Campground Beach	3	none	0	n/a	0	N/A
Charlevoix	Depot Beach	1	once a week	49	0%	0	N/A
Charlevoix	Donegal Bay	1	none	0	n/a	0	N/A
Charlevoix	East Jordan Tourist Park	1	once a week	51	2%	0	N/A
Charlevoix	Elm Point Beach	1	once a week	49	0%	0	N/A
Charlevoix	Ferry Beach	1	once a week	49	2%	0	N/A
Charlevoix	Fisherman's Island State Park	1	once a week	52	8%	1	N/A
Charlevoix	Glenwood Beach	2	once a week	49	0%	0	N/A
Charlevoix	Harbor Beach	1	none	0	n/a	0	N/A
Charlevoix	Hayes Township Park	1	once a week	52	0%	0	N/A
Charlevoix	Iron Ore Bay Beach	1	none	0	n/a	0	N/A
Charlevoix	Lake Michigan Beach	1	once a week	56	0%	0	N/A
Charlevoix	Mt. McSaubia Beach	3	none	0	n/a	0	N/A
Charlevoix	Norwood Park	1	once a week	48	4%	0	N/A
Charlevoix	Peninsula Beach	1	once a week	51	0%	0	N/A
Charlevoix	Tannery Park	1	once a week	51	6%	1	N/A
Charlevoix	Washington Street Beach	2	none	49	0%	0	N/A
Charlevoix	Whiting Park Beach	1	once a week	48	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Charlevoix	Young State Park Beach	1	once a week	54	6%	3	N/A
Cheboygan	Alexander Henry Park	3	none	0	n/a	0	N/A
Cheboygan	Cheboygan City Park	1	once a week	11	0%	0	N/A
Cheboygan	Cheboygan State Park Duncan Bay	1	once a week	13	15%	4	N/A
Cheboygan	Cheboygen State Park- Lighthouse Point	3	none	0	n/a	0	N/A
Cheboygan	Ditta Park	3	none	0	n/a	0	N/A
Cheboygan	Huron Street Beach	3	none	0	n/a	0	N/A
Cheboygan	Mackinaw City Beach	3	none	0	n/a	0	N/A
Cheboygan	Mackinaw City Lighthouse Park	1	once a week	11	0%	0	N/A
Cheboygan	Mill Creek Public Access	3	none	0	n/a	0	N/A
Cheboygan	Pinewood Circle Road End Beach	3	none	0	n/a	0	N/A
Cheboygan	Roadside Park MDOT, US-23	3	none	0	n/a	0	N/A
Cheboygan	Stoney Point Road End Beach	3	none	0	n/a	0	N/A
Cheboygan	Wawatam City Park	1	once a week	11	0%	0	N/A
Chippewa	Bass Cove Beach-Drummond Island	3	none	0	n/a	0	N/A
Chippewa	Bayview Campground	1	three times a week	69	0%	0	N/A
Chippewa	Betsey Seaman Memorial Park- Drummond Island	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Chippewa	Big Pines Beach	1	three times a week	72	4%	1	N/A
Chippewa	Big Shoal Cove Beach	3	once a week	36	0%	0	N/A
Chippewa	Brimley State Park	1	four times a week	102	25%	35	N/A
Chippewa	De Tour State Park Shoreline Beach	3	none	0	n/a	0	N/A
Chippewa	Detour Albany Beach	3	once a week	35	3%	0	N/A
Chippewa	Drummond Island Township Park	3	once a week	39	5%	1	N/A
Chippewa	Dunbar Park	3	none	39	10%	1	N/A
Chippewa	Four Mile Beach	1	four times a week	93	4%	1	N/A
Chippewa	Hiawatha National Forest- Nodoway Point Area	no data	no data	0	n/a	0	N/A
Chippewa	Hiawatha National Forest- North of Big Pine Picnic	no data	no data	0	n/a	0	N/A
Chippewa	Hiawatha National Forest- North Pond	no data	no data	0	n/a	0	N/A
Chippewa	Hiawatha National Forest- Pendills Bay	no data	no data	0	n/a	0	N/A
Chippewa	Hiawatha National Forest- Pendills Lake	no data	no data	0	n/a	0	N/A
Chippewa	Hiawatha National Forest- Point Iroquois Light	no data	no data	0	n/a	0	N/A
Chippewa	Hiawatha National Forest-	no	no data	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	Tahquamenon Bay	data					
Chippewa	Hiawatha National Forest- Waiska Bay	no data	no data	0	n/a	0	N/A
Chippewa	Hiawatha National Forest- West of Salt Point	no data	no data	0	n/a	0	N/A
Chippewa	Hiawatha National Forest-Government Island	no data	no data	0	n/a	0	N/A
Chippewa	Lake Superior State Forest- Munuscong Lake	3	none	0	n/a	0	N/A
Chippewa	Public Shoreline Beach-Browns Creek Area	3	none	0	n/a	0	N/A
Chippewa	Public Shoreline Beach-Brush Point	3	none	0	n/a	0	N/A
Chippewa	Public Shoreline Beach-Marsh Lake Area	3	none	0	n/a	0	N/A
Chippewa	Public Shoreline Beach-Northwest of Two Mile Lake	3	none	0	n/a	0	N/A
Chippewa	Public Shoreline Beach-Point Aux Frenes	3	none	0	n/a	0	N/A
Chippewa	Public Shoreline Beach-Raber Bay stretch	3	none	0	n/a	0	N/A
Chippewa	Public Shoreline Beach-Weatherhog Lake East Area	3	none	0	n/a	0	N/A
Chippewa	Public Shoreline Beach-Weatherhog Lake West	3	none	0	n/a	0	N/A
Chippewa	Public Shoreline Beach-West of	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	Whitefish Point						
Chippewa	Sand Bay Beach-Drummond Island	3	none	0	n/a	0	N/A
Chippewa	Sherman Park	1	three times a week	103	17%	7	N/A
Chippewa	Sugar Island Township Park	1	four times a week	96	8%	8	N/A
Chippewa	Tahquamenon Falls State Park-River Mouth Unit	3	none	0	n/a	0	N/A
Chippewa	Whitefish Point	3	none	0	n/a	0	N/A
Chippewa	Wilderness Beach	3	none	0	n/a	0	N/A
Delta	Big Bay De Noc/ Fishdam River Public Access	3	none	0	n/a	0	N/A
Delta	Camp Harstad	3	none	0	n/a	0	N/A
Delta	Escanaba Bathing Beach	3	once a week	52	0%	0	N/A
Delta	Fayette State Park	3	none	0	n/a	0	N/A
Delta	Fuller Park	3	none	0	n/a	0	N/A
Delta	Gladstone Bathing Beach/Van Cleve Park	3	once a week	52	0%	0	N/A
Delta	Little Bay De Noc Public Beach Access	3	none	0	n/a	0	N/A
Delta	Portage Bay Forest Campground	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-Charboneau Point	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Delta	Public Shoreline Beach-County Road 481	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-East Wilsey Bay	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-Fishdam River	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-Gilnet Haven	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-Indian Point	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-Indian Town Lake USFS	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-Jacks Bluff	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-Martin Bay	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-Nahma	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-North End of Kregg Bay	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-North of Stonington	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-Ogontz Bay	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-Peninsula Point	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-Point Detour	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-Portage Bay	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-Portage Peninsula	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-St. Vital's Island	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Delta	Public Shoreline Beach-USFS West Wilsey Bay	3	none	0	n/a	0	N/A
Delta	Public Shoreline Beach-West Side of Kregg Bay	3	none	0	n/a	0	N/A
Delta	Sac Bay County Park MI354139	3	none	0	n/a	0	N/A
Delta	Sac Bay County Park MI405957	3	none	0	n/a	0	N/A
Delta	Twin Springs Campground and Bathing Beach	3	none	0	n/a	0	N/A
Emmet	Bliss Township Beach	3	none	0	n/a	0	N/A
Emmet	Church Beach	3	none	0	n/a	0	N/A
Emmet	Colonial Michilimamackinac State Park	3	none	0	n/a	0	N/A
Emmet	Cross Village Beach	1	once a week	0	n/a	0	N/A
Emmet	Forest Beach	3	none	0	n/a	0	N/A
Emmet	Mackinaw City Beach #1	1	once a week	55	9%	1	N/A
Emmet	Mackinaw City Beach #2	1	once a week	49	0%	0	N/A
Emmet	Magnus Park	1	once a week	54	6%	1	N/A
Emmet	Middle Village Park	1	once a week	51	0%	0	N/A
Emmet	Petoskey Harbor	3	none	0	n/a	0	N/A
Emmet	Petoskey State Park	1	once a week	52	2%	2	N/A
Emmet	Readmond Township Beach	1	once a week	50	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Emmet	Sturgeon Bay Township Beach	2	once a week	54	0%	0	N/A
Emmet	The Headlands County Park	3	none	0	n/a	0	N/A
Emmet	Thorne Swift Preserve	3	none	0	n/a	0	N/A
Emmet	Wilderness State Park	1	once a week	50	0%	0	N/A
Emmet	Wilderness State Park-East of the Beach	3	none	0	n/a	0	N/A
Emmet	Wilderness State Park-Sturgeon Bay	3	none	0	n/a	0	N/A
Emmet	Wilderness State Park-West of Beach	3	none	0	n/a	0	N/A
Emmet	Zoll Street Beach	1	once a week	52	0%	0	N/A
Emmet	Zorn Park - Harbor Springs	1	once a week	48	0%	0	N/A
Gogebic	Black River Harbor Beach	3	none	0	n/a	0	N/A
Gogebic	Little Girls Point Park	3	none	0	n/a	0	N/A
Gogebic	Mouth of the Montreal River	3	none	0	n/a	0	N/A
Gogebic	Porcupine Mountain State Park-North	3	none	0	n/a	0	N/A
Gogebic	Presque Isle Beach	3	none	0	n/a	0	N/A
Gogebic	Presque Isle State Campground	3	none	0	n/a	0	N/A
Gogebic	Public Shoreline Beach-West of Black River	3	none	0	n/a	0	N/A
Grand Traverse	Acme Roadside Park & Beach MDOT	3	none	0	n/a	0	N/A
Grand	Acme Roadside Park (DNR)	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Traverse							
Grand Traverse	Archie Park	3	none	0	n/a	0	N/A
Grand Traverse	Bayside Acme Township Park	3	none	0	n/a	0	N/A
Grand Traverse	Bowers Harbor Public Access	3	none	0	n/a	0	N/A
Grand Traverse	Bryant Park Beach	1	twice a week	117	8%	2	N/A
Grand Traverse	Clinch Park	1	twice a week	90	1%	0	N/A
Grand Traverse	Deep Water Point	3	none	0	n/a	0	N/A
Grand Traverse	DNR Launch/Beach Center Road	3	none	0	n/a	0	N/A
Grand Traverse	East Bay Park (Milliken Park)	1	twice a week	123	22%	7	N/A
Grand Traverse	East Bay Township Four Mile Road	3	none	0	n/a	0	N/A
Grand Traverse	Haserot Beach	3	none	0	n/a	0	N/A
Grand Traverse	Kroupa Road Access M-22 South of Crain Hill Road	3	none	0	n/a	0	N/A
Grand Traverse	Leffingwell Point Beach	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Grand Traverse	Mouth of Boardman	3	none	0	n/a	0	N/A
Grand Traverse	Old Mission - Center Road Natural Area	3	none	0	n/a	0	N/A
Grand Traverse	Old Mission - MDOT Right of Way-South of M-37	3	none	0	n/a	0	N/A
Grand Traverse	Old Mission - Old Mission Point State Park	3	none	0	n/a	0	N/A
Grand Traverse	Old Mission Lighthouse	3	none	0	n/a	0	N/A
Grand Traverse	Old Mission Peninsula Twp Park-East of Light House	3	none	0	n/a	0	N/A
Grand Traverse	Old Mission Peninsula Twp Park-West of Light House	3	none	0	n/a	0	N/A
Grand Traverse	Old Mission Road	3	none	0	n/a	0	N/A
Grand Traverse	Peninsula Volunteer Fire Station Point #2	3	none	0	n/a	0	N/A
Grand Traverse	Power Island Bay Park	3	none	0	n/a	0	N/A
Grand Traverse	Rose Street Access at Peninsula Drive	3	none	0	n/a	0	N/A
Grand Traverse	Sayler Park	3	none	0	n/a	0	N/A
Grand Traverse	Senior Center	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Grand Traverse	Sunset Park	3	none	0	n/a	0	N/A
Grand Traverse	Swaney Road	3	none	0	n/a	0	N/A
Grand Traverse	Traverse City State Park	1	twice a week	93	5%	1	N/A
Grand Traverse	West End Beach	1	twice a week	93	3%	1	N/A
Grand Traverse	Yuba Beach	3	none	0	n/a	0	N/A
Houghton	Agate Beach	1	once a week	21	0%	0	N/A
Houghton	Calument Waterworks Beach	3	none	0	n/a	0	N/A
Houghton	Chassell Beach	1	once a week	21	14%	0	N/A
Houghton	Hancock City Beach	1	once a week	21	0%	0	N/A
Houghton	Houghton City Beach	1	once a week	21	0%	0	N/A
Houghton	Hubbell Park	3	none	0	n/a	0	N/A
Houghton	Lake Linden Campground Beach	1	once a week	21	0%	0	N/A
Houghton	McLain State Park Beach	1	once a week	24	0%	0	N/A
Houghton	Mink Farm	3	none	0	n/a	0	N/A
Houghton	Public Shoreline Beach-Le Chance Creek	3	none	0	n/a	0	N/A
Houghton	Public Shoreline Beach-Mc Lain State Park	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Houghton	Public Shoreline Beach-S. of Portage Entry	3	none	0	n/a	0	N/A
Houghton	Public Shoreline Beach-Southwest County Border	3	none	0	n/a	0	N/A
Houghton	Sandy Bottom Beach/ Dollar Bay	1	once a week	21	0%	0	N/A
Houghton	White City	3	none	0	n/a	0	N/A
Huron	Bird Creek County Park	1	once a week	48	2%	0	N/A
Huron	Caseville County Park	1	once a week	55	2%	0	N/A
Huron	County Road End	3	none	0	n/a	0	N/A
Huron	Geiger Road Public Access	3	none	0	n/a	0	N/A
Huron	Grindstone Public Access	3	none	0	n/a	0	N/A
Huron	Harbor Beach City Park	1	once a week	54	4%	0	N/A
Huron	Harbor Beach Marina	3	none	0	n/a	0	N/A
Huron	Helena Road End	3	none	0	n/a	0	N/A
Huron	Jenks County Park	1	once a week	48	0%	0	N/A
Huron	Kinch Road End	3	none	0	n/a	0	N/A
Huron	Larned Road End	3	none	0	n/a	0	N/A
Huron	Lighthouse County Park	1	once a week	57	23%	23	N/A
Huron	Lighthouse County Park-South	3	none	0	n/a	0	N/A
Huron	McGraw County Park	1	once a week	48	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Huron	Mud Creek Public Access	3	none	0	n/a	0	N/A
Huron	Oak Beach County Park	1	once a week	42	2%	0	N/A
Huron	Philp County Park	1	once a week	51	6%	2	N/A
Huron	Port Crescent State Park - Camping Area	1	once a week	48	0%	0	N/A
Huron	Port Crescent State Park - Day Use	1	once a week	48	0%	0	N/A
Huron	Sleeper State Park	1	once a week	0	n/a	0	N/A
Huron	Stafford County Park	3	none	0	n/a	0	N/A
Huron	Thompson Park	1	once a week	48	2%	0	N/A
Huron	Veterans Park	3	once a week	48	2%	0	N/A
Huron	Wagener County Park	3	none	0	n/a	0	N/A
Iosco	Alabaster Township	1	once a week	45	4%	0	N/A
Iosco	Au Sable Point Beach	3	none	0	n/a	0	N/A
Iosco	Au Sable Township Park	1	once a week	54	0%	0	N/A
Iosco	County Road End.	3	once a week	45	4%	0	N/A
Iosco	East Tawas City Park	1	once a week	60	5%	1	N/A
Iosco	Gateway Park	3	once a week	48	8%	2	N/A
Iosco	Huron National Forest North-Public Shoreline Beach	no data	no data	0	n/a	0	N/A
Iosco	Huron National Forest South-Public	no	no data	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	Shoreline Beach	data					
Iosco	Lake To Lake Road	3	once a week	54	0%	0	N/A
Iosco	MDOT Roadside Park	1	once a week	45	0%	0	N/A
Iosco	NRDC-Alabaster Township Douglas Drive Beach Use Area	no data	once a week	0	n/a	0	N/A
Iosco	Oscoda Township Beach	1	once a week	45	0%	0	N/A
Iosco	Tawas City Park	1	once a week	60	12%	2	N/A
Iosco	Tawas Point State Park Campground	1	once a week	42	0%	0	N/A
Iosco	Tawas Point State Park-Central	3	none	0	n/a	0	N/A
Iosco	Tawas Point State Park-Day Use area	1	once a week	42	0%	0	N/A
Iosco	Tawas Point State Park-North	3	none	0	n/a	0	N/A
Keweenaw	Bete de Gris Beach	3	none	0	n/a	0	N/A
Keweenaw	Brunette Park	3	none	0	n/a	0	N/A
Keweenaw	Cat Harbor Beach	3	none	0	n/a	0	N/A
Keweenaw	Cooper Harbor Lighthouse Complex	3	none	0	n/a	0	N/A
Keweenaw	Eagle Harbor Beach	1	once a week	21	0%	0	N/A
Keweenaw	Eagle River Beach	3	none	0	n/a	0	N/A
Keweenaw	Fort Wilkins State Park	3	none	0	n/a	0	N/A
Keweenaw	Fort Wilkins State Park-East	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Keweenaw	Fort Wilkins State Park-West	3	none	0	n/a	0	N/A
Keweenaw	Great Sands Bay Beach	3	none	0	n/a	0	N/A
Keweenaw	Mouth of the Gratiot River Beach	3	none	0	n/a	0	N/A
Keweenaw	Point Isabelle Beach	3	none	0	n/a	0	N/A
Keweenaw	Public Shoreline Beach-Big Traverse Bay	3	none	0	n/a	0	N/A
Keweenaw	Public Shoreline Beach-Gay Park	3	none	0	n/a	0	N/A
Leelanau	Bay Front Park	3	none	0	n/a	0	N/A
Leelanau	Boughy Park & Beach	3	none	0	n/a	0	N/A
Leelanau	Cathead Bay, Leelanau State Park	3	none	0	n/a	0	N/A
Leelanau	Cedar Street Beach	3	none	0	n/a	0	N/A
Leelanau	Christmas Cove	3	none	0	n/a	0	N/A
Leelanau	Elmwood/Greilikville Park & Beach	3	twice a week	93	4%	1	N/A
Leelanau	Empire Municipal Beach	1	twice a week	90	0%	0	N/A
Leelanau	G. Marsten Dame Marina	3	none	0	n/a	0	N/A
Leelanau	Gils Pier	3	none	0	n/a	0	N/A
Leelanau	Glen Arbor/Manitou Boulevard Beach	3	none	0	n/a	0	N/A
Leelanau	Graham Green Park	3	none	0	n/a	0	N/A
Leelanau	Hendryx County Roadside Park	3	none	0	n/a	0	N/A
Leelanau	Lake Street Beach, Glen Arbor	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Leelanau	Leelanau State Park, Lighthouse	3	none	0	n/a	0	N/A
Leelanau	Leland Harbor	3	none	0	n/a	0	N/A
Leelanau	M-22 at M-72 Public Access	3	none	0	n/a	0	N/A
Leelanau	MDOT Roadside Park & Beach	3	none	0	n/a	0	N/A
Leelanau	MDOT Roadside Park & Beach M-22 N of Cherry Bend D	3	none	0	n/a	0	N/A
Leelanau	North Bar	3	none	0	n/a	0	N/A
Leelanau	North Street Beach	3	none	0	n/a	0	N/A
Leelanau	Northport 4th Street Beach	3	none	0	n/a	0	N/A
Leelanau	Northport 5th Street Beach	3	none	0	n/a	0	N/A
Leelanau	Northport 7th Street Beach	3	none	0	n/a	0	N/A
Leelanau	Northport Bay Marina	1	twice a week	93	6%	0	N/A
Leelanau	Northport Haserot Beach, Rose Street	3	none	0	n/a	0	N/A
Leelanau	Omena Beach & Park	3	none	0	n/a	0	N/A
Leelanau	Peterson Park	3	none	0	n/a	0	N/A
Leelanau	Reynolds Street Beach	3	none	0	n/a	0	N/A
Leelanau	Sleeping Bear Dunes-CR 651 Good Harbor Bay	3	once a week	0	n/a	0	N/A
Leelanau	Sleeping Bear Dunes-CR 669 Good Harbor Bay	3	once a week	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Leelanau	Sleeping Bear Dunes-DH Day Campground	3	once a week	0	n/a	0	N/A
Leelanau	Sleeping Bear Dunes-Esch Road Beach	no data	no data	0	n/a	0	N/A
Leelanau	Sleeping Bear Dunes-Glen Haven Beach	3	once a week	0	n/a	0	N/A
Leelanau	Sleeping Bear Dunes-North Bar Lake MI Beach	no data	no data	0	n/a	0	N/A
Leelanau	Sleeping Bear Dunes-Peterson Road Beach	no data	no data	0	n/a	0	N/A
Leelanau	Sleeping Bear Dunes-Platte Point Bay	3	once a week	0	n/a	0	N/A
Leelanau	Smith Street Beach Northport	3	none	0	n/a	0	N/A
Leelanau	Stoney Point County Roadside Park	3	none	0	n/a	0	N/A
Leelanau	Suttons Bay Marina Park & Beach South	3	twice a week	24	4%	0	N/A
Leelanau	Suttons Bay Park	1	twice a week	92	3%	1	N/A
Leelanau	Suttons Bay Public Launch and Beach	3	none	0	n/a	0	N/A
Leelanau	Suttons Bay South Shore Park	3	none	0	n/a	0	N/A
Leelanau	Thompson Stree Beach	3	none	0	n/a	0	N/A
Luce	Blind Sucker River # 1	3	none	0	n/a	0	N/A
Luce	Blind Sucker River # 2	3	none	0	n/a	0	N/A
Luce	Crisp Point Light House	3	none	0	n/a	0	N/A
Luce	Lake Superior Campground Beach	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Luce	Mouth of the Two Hearted River Campground	3	none	0	n/a	0	N/A
Luce	Muskallonge Lake State Park Beach	3	none	0	n/a	0	N/A
Luce	Public Shoreline Beach-Blind Sucker Flooding Area	3	none	0	n/a	0	N/A
Luce	Public Shoreline Beach-Coast Guard Line Road	3	none	0	n/a	0	N/A
Luce	Public Shoreline Beach-County Rd 407	3	none	0	n/a	0	N/A
Luce	Public Shoreline Beach-County Rd 412 and Crisp Pt	3	none	0	n/a	0	N/A
Luce	Public Shoreline Beach-Little Sucker/Two Hearted R	3	none	0	n/a	0	N/A
Luce	Public Shoreline Beach-Three Mile Creek Area	3	none	0	n/a	0	N/A
Luce	Public Shoreline Beach-West County Border Beach	3	none	0	n/a	0	N/A
Luce	Unnamed Road End #1	3	none	0	n/a	0	N/A
Luce	Unnamed Road End #2	3	none	0	n/a	0	N/A
Luce	Unnamed Road End #3	3	none	0	n/a	0	N/A
Mackinac	American Legion Memorial Park	3	once a week	42	7%	0	N/A
Mackinac	Antoine Road End	3	none	0	n/a	0	N/A
Mackinac	Best Western Lakefront	3	none	0	n/a	0	N/A
Mackinac	Big Knob State Forest Campground	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Mackinac	Black River State Forest Campground	3	none	0	n/a	0	N/A
Mackinac	Boot Island	3	none	0	n/a	0	N/A
Mackinac	Coast Guard Pier Boat Launch and City Park	3	none	0	n/a	0	N/A
Mackinac	Epoufette Bay Campground	3	none	0	n/a	0	N/A
Mackinac	Foley Creek Campground	3	none	0	n/a	0	N/A
Mackinac	Harbour Light	3	none	0	n/a	0	N/A
Mackinac	Hazelton Road End	3	none	0	n/a	0	N/A
Mackinac	Hiawatha National Forest- Carp River Access	no data	no data	0	n/a	0	N/A
Mackinac	Hog Island Campground	3	none	0	n/a	0	N/A
Mackinac	Horseshoe Bay Wilderness-North	3	none	0	n/a	0	N/A
Mackinac	Horseshoe Bay Wilderness-South	3	none	0	n/a	0	N/A
Mackinac	K Royale	3	none	0	n/a	0	N/A
Mackinac	Kewadin Inn	3	none	0	n/a	0	N/A
Mackinac	Kiwanis Beach	1	once a week	42	7%	0	N/A
Mackinac	MDOT Overlook	3	none	0	n/a	0	N/A
Mackinac	MDOT Roadside Park on US 2	3	none	0	n/a	0	N/A
Mackinac	Miller's Hog Island Subdivision Beach	3	none	0	n/a	0	N/A
Mackinac	Mouth of Cut River Roadside Beach	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Mackinac	Naubinway Bay Access	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach #2-Little Hog Island area	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach #2-Manitou Paymen Highbanks	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach #3-Little Hog Island area	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach #4-Little Hog Island area	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach #5-Little Hog Island area	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach-Epoufette Bay	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach-Fox Point Area	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach-Little Hog Island area	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach-Manitou Paymen Highbanks	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach-MDNR Matrix Point Area	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach-Morean Township, Section 25	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach-Naubinway Area	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach-Pointe Aux Chenes Bay	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Mackinac	Public Shoreline Beach-Seiners Point	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach-South of Brevort River	3	none	0	n/a	0	N/A
Mackinac	Public Shoreline Beach-State Forest Matrix Point	3	none	0	n/a	0	N/A
Mackinac	Sand Point	3	once a week	49	14%	4	N/A
Mackinac	State Roadside Park Beach	3	none	0	n/a	0	N/A
Mackinac	State Street Road End	3	none	0	n/a	0	N/A
Mackinac	Straits State Park	3	once a week	42	2%	0	N/A
Mackinac	US 2 Roadside East of Brevort	1	once a week	39	0%	0	N/A
Mackinac	US 2 Roadside/Campground	3	once a week	42	10%	3	N/A
Mackinac	Wetland Shoreline-St. Martin Point	3	none	0	n/a	0	N/A
Macomb	H.C.M.A. - Metropolitan Beach Metropark	1	twice a week	414	19%	22	N/A
Macomb	H.C.M.A.-Huron Point	3	none	0	n/a	0	N/A
Macomb	New Baltimore Park Beach	1	twice a week	195	6%	9	N/A
Macomb	St. Clair Shores Blossom Heath Beach	1	twice a week	120	47%	0 (158)	N/A
Macomb	St. Clair Shores Memorial Park Beach	1	twice a week	201	24%	67	N/A
Manistee	Arcadia Park	1	once a week	36	8%	0	N/A
Manistee	Bar Lake Outlet	1	once a week	33	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Manistee	Fifth Avenue Beach	1	once a week	36	11%	1	N/A
Manistee	First Street Beach	1	once a week	33	3%	0	N/A
Manistee	Magoon Creek	1	once a week	33	0%	0	N/A
Manistee	Onekama Township Beach	1	once a week	33	0%	0	N/A
Manistee	Orchard Beach State Park	1	once a week	36	6%	0	N/A
Manistee	Pierport Township Beach	1	once a week	33	0%	0	N/A
Manistee	Portage Park	3	none	0	n/a	0	N/A
Manistee	Sundling Park	1	once a week	33	3%	0	N/A
Marquette	Marquette South Beach	1	three times a week	112	6%	0	N/A
Marquette	McCarty's Cove	1	three times a week	111	3%	0	N/A
Marquette	North Beach	1	three times a week	115	6%	0	N/A
Marquette	North of Picnic Rocks	1	three times a week	108	4%	0	N/A
Marquette	Picnic Rocks	1	three times a week	103	7%	0	N/A
Marquette	Public Shoreline Beach-Big Huron River	3	three times a week	0	n/a	0	N/A
Marquette	Public Shoreline Beach-Little Presque Isle	3	none	0	n/a	0	N/A
Mason	Bass Lake Outlet Beach	1	once a week	33	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Mason	Buttersville Park Beach	1	once a week	33	0%	0	N/A
Mason	Ludington State Park Campground Beach	1	once a week	33	0%	0	N/A
Mason	Ludington State Park Public Shoreline Beach North	3	none	0	n/a	0	N/A
Mason	Ludington State Park Public Shoreline Beach South	3	none	0	n/a	0	N/A
Mason	Manistee National Forest Campground Beach	no data	no data	0	n/a	0	N/A
Mason	Manistee National Forest-Public Shoreline Beach N	no data	no data	0	n/a	0	N/A
Mason	Manistee National Forest-Public Shoreline Beach S	no data	no data	0	n/a	0	N/A
Mason	Pere Marquette Harbor	3	none	0	n/a	0	N/A
Mason	South Pier Beach	1	once a week	33	0%	0	N/A
Mason	South Summit Beach - Sunset Boulevard Beach	1	once a week	33	0%	0	N/A
Mason	Stearns Park Beach	1	once a week	33	0%	0	N/A
Mason	Summit Township Beach	1	once a week	33	0%	0	N/A
Menominee	Airport Park	3	none	0	n/a	0	N/A
Menominee	Fox Park	3	none	0	n/a	0	N/A
Menominee	Henes Park	1	three times a week	127	5%	6	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Menominee	Klienke Park	3	none	0	n/a	0	N/A
Menominee	Memorial Beach	1	three times a week	126	6%	6	N/A
Menominee	Public Shoreline Beach-Cedar River	3	none	0	n/a	0	N/A
Menominee	Public Shoreline Beach-Fox village	3	none	0	n/a	0	N/A
Menominee	Wells State Park	3	none	0	n/a	0	N/A
Monroe	Avalon Beach	3	none	0	n/a	0	N/A
Monroe	Bolles Harbor	3	none	0	n/a	0	N/A
Monroe	Detroit Beach	3	none	0	n/a	0	N/A
Monroe	Estral Beach	1	once a week	48	6%	0	N/A
Monroe	LaSalle Township-Toledo Beach	3	none	0	n/a	0	N/A
Monroe	Lost Peninsula	3	none	0	n/a	0	N/A
Monroe	Luna Pier City Beach	2	once a week	48	6%	0	N/A
Monroe	North Cape Yacht Club	3	once a week	0	n/a	0	N/A
Monroe	Point Aux Peaux	3	none	0	n/a	0	N/A
Monroe	Sterling State Park	2	once a week	48	0%	0	N/A
Monroe	Stoney Point	3	none	0	n/a	0	N/A
Monroe	Woodland Beach	2	once a week	51	6%	7	N/A
Montmorency	East Twin Beach/Albert Township Park	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Muskegon	Bronson/Kruse Park	1	once a week	18	17%	0	N/A
Muskegon	Duck Lake Channel Beach	1	once a week	27	0%	0	N/A
Muskegon	Lake Harbor Park	1	once a week	21	0%	0	N/A
Muskegon	Lighthouse/Sylvan Beach	1	once a week	19	0%	0	N/A
Muskegon	Medbury Park Beach	1	once a week	23	0%	0	N/A
Muskegon	Meinert County Park	1	once a week	18	17%	1	N/A
Muskegon	Muskegon State Park	1	once a week	23	9%	0	N/A
Muskegon	Muskegon State Park-Shoreline Beach North	3	none	15	0%	0	N/A
Muskegon	Old Channel Beach	1	once a week	15	0%	0	N/A
Muskegon	P.J. Hoffmaster State Park - Campground	1	once a week	23	13%	0	N/A
Muskegon	P.J. Hoffmaster State Park - Public Beach Area	1	once a week	15	0%	0	N/A
Muskegon	Pere Marquette Park	1	once a week	21	33%	0	N/A
Muskegon	Pioneer County Park	1	once a week	15	0%	0	N/A
Oceana	Cedar Point County Park	2	none	0	n/a	0	N/A
Oceana	Claybanks Township Park	1	once a week	36	6%	1	N/A
Oceana	Lighthouse Beach at Silver Lake State Park	1	once a week	36	8%	1	N/A
Oceana	Mears State Park	1	once a week	33	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Oceana	Silver Creek Channel	1	none	0	n/a	0	N/A
Oceana	Silver Lake State Park	3	none	0	n/a	0	N/A
Oceana	Stony Lake Channel	1	once a week	33	0%	0	N/A
Oceana	Whiskey Creek	1	once a week	33	0%	0	N/A
Ontonagon	Green Park	3	none	0	n/a	0	N/A
Ontonagon	Gull Point Beach	3	none	0	n/a	0	N/A
Ontonagon	Mouth of the Big Iron River Beach	3	none	0	n/a	0	N/A
Ontonagon	Ontonagon Township Park and Campground	1	once a week	21	0%	0	N/A
Ontonagon	Porcupine Mountain State Park	3	none	0	n/a	0	N/A
Ontonagon	Porcupine Mountains State Park- Union Bay	1	once a week	21	0%	0	N/A
Ontonagon	Porcupine Mountains Wilderness State Park-West	3	none	0	n/a	0	N/A
Ontonagon	Public Shoreline Beach-Misery Bay	3	none	0	n/a	0	N/A
Ontonagon	Public Shoreline Beach-Sleeping Bay	3	none	0	n/a	0	N/A
Ontonagon	Public Shoreline Beach-Wolf Point	3	none	0	n/a	0	N/A
Ontonagon	Union Bay Beach	3	none	0	n/a	0	N/A
Ottawa	Grand Haven City Beach	1	four times a week	183	9%	0	N/A
Ottawa	Grand Haven State Park	1	four times a week	183	11%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Ottawa	Holland State Park-Lake Michigan Beach	1	once a week	42	2%	0	N/A
Ottawa	Kirk Park	1	once a week	45	0%	0	N/A
Ottawa	Kouw Park	1	once a week	42	5%	0	N/A
Ottawa	Mountain Beach	3	none	0	n/a	0	N/A
Ottawa	North Beach Park	1	once a week	42	7%	0	N/A
Ottawa	P.J. Hoffmaster State Park- Shoreline Beach	3	none	0	n/a	0	N/A
Ottawa	Rosy Mound Recreation Area	1	once a month	45	2%	0	N/A
Ottawa	Tunnel Park	1	once a week	42	2%	0	N/A
Ottawa	Windsnest Park	1	once a week	42	2%	0	N/A
Presque Isle	40 Mile Point Park	3	none	0	n/a	0	N/A
Presque Isle	Ball Diamond Park	3	none	0	n/a	0	N/A
Presque Isle	Bell Bay	3	none	0	n/a	0	N/A
Presque Isle	Evergreen Beach	3	none	0	n/a	0	N/A
Presque Isle	Golden Beach	3	none	0	n/a	0	N/A
Presque Isle	Grace Access Site	3	none	0	n/a	0	N/A
Presque Isle	Hammond Bay Access Site	3	none	0	n/a	0	N/A
Presque Isle	Hammond Bay Harbor	3	none	0	n/a	0	N/A
Presque Isle	Hoeft State Park-North	3	once a week	5	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Presque Isle	Hoeft State Park-South	1	none	0	n/a	0	N/A
Presque Isle	Lakeside Park Beach	3	none	0	n/a	0	N/A
Presque Isle	Lakeside Park in Rogers City	1	once a week	13	0%	0	N/A
Presque Isle	Lakeview Park Beach	3	none	0	n/a	0	N/A
Presque Isle	Manitou Beach	3	none	0	n/a	0	N/A
Presque Isle	New Lighthouse Park	3	none	0	n/a	0	N/A
Presque Isle	Presque Isle Harbor	3	none	0	n/a	0	N/A
Presque Isle	Presque Isle Harbor Beach	1	once a week	14	0%	0	N/A
Presque Isle	Public Shoreline Beach-False Presque Isle Harbor	3	none	0	n/a	0	N/A
Presque Isle	Seagull Point Park	3	none	0	n/a	0	N/A
Presque Isle	Thompson's Harbor State Park	3	none	0	n/a	0	N/A
Presque Isle	US 23 Hammond Bay	3	none	0	n/a	0	N/A
Presque Isle	US 23 Roger City	3	none	0	n/a	0	N/A
Sanilac	Birch Beach	3	none	0	n/a	0	N/A
Sanilac	Birch Beach Middle #2	3	none	0	n/a	0	N/A
Sanilac	Birch Beach North #3	3	none	0	n/a	0	N/A
Sanilac	Delaware Park	3	none	0	n/a	0	N/A
Sanilac	Forester County Park	1	once a week	51	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Sanilac	Forestville Beach	3	once a week	51	6%	7	N/A
Sanilac	Great Lakes Beach	3	none	0	n/a	0	N/A
Sanilac	Lexington Beach	1	once a week	51	0%	0	N/A
Sanilac	Lexington County Park	1	once a week	48	0%	0	N/A
Sanilac	Port Sanilac Park	1	once a week	48	0%	0	N/A
Sanilac	Sanilac County Park #4	3	none	0	n/a	0	N/A
Sanilac	Sanilac County Roadside Park #1	3	none	0	n/a	0	N/A
Schoolcraft	Doyle Township Park	3	none	0	n/a	0	N/A
Schoolcraft	Lakeview Park	3	once a week	0	n/a	0	N/A
Schoolcraft	Manistique Township Park	3	once a week	51	10%	7	N/A
Schoolcraft	Public Shoreline Beach-Goudreau's Harbor	3	none	0	n/a	0	N/A
Schoolcraft	Public Shoreline Beach-S. of McDonald Lake	3	none	0	n/a	0	N/A
Schoolcraft	Public Shoreline Beach-Thompson	3	once a week	57	9%	5	N/A
Schoolcraft	Public Shoreline Beach-Thompson Village	3	once a week	0	n/a	0	N/A
Schoolcraft	Roadside Park Beach	1	once a week	54	7%	1	N/A
Schoolcraft	Rogers Beach	1	once a week	57	14%	5	N/A
St Clair	Burtchville Township Park	1	once a week	48	2%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
St Clair	Chrysler Park Beach	1	once a week	48	10%	1	N/A
St Clair	Conger-Lighthouse Beach	1	once a week	60	20%	5	N/A
St Clair	Fort Gratiot County Park	1	once a week	48	2%	0	N/A
St Clair	Holland Road Beach	1	once a week	60	22%	5	N/A
St Clair	Jeddo Road Beach	1	once a week	48	2%	0	N/A
St Clair	Keewadhin Road Beach	1	once a week	60	20%	4	N/A
St Clair	Krafft Road Beach	1	once a week	45	9%	1	N/A
St Clair	Lakeport State Campground	1	once a week	48	0%	0	N/A
St Clair	Lakeport State Park	1	once a week	48	0%	0	N/A
St Clair	Lakeside Beach	1	once a week	57	21%	4	N/A
St Clair	Marine City Beach	1	once a week	45	0%	0	N/A
St Clair	Marine City Diving Area	1	once a week	45	2%	0	N/A
St Clair	Metcalf Road Beach	1	once a week	49	2%	0	N/A
St Clair	Washington Street Park	1	once a week	48	0%	0	N/A
Tuscola	Tuscola County Shoreline	3	none	0	n/a	0	N/A
Van Buren	Covert Township Park Beach	1	once a week	30	3%	0	N/A
Van Buren	South Haven North Beach	1	once a week	30	3%	0	N/A
Van Buren	South Haven South Beach	1	once a week	30	3%	0	N/A
Van Buren	Van Buren State Park Beach	1	once a week	33	9%	1	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Wayne	Belle Isle Beach	1	once a week	70	6%	0	N/A
Wayne	Crescent Sail Yacht Club	1	none	0	n/a	0	N/A
Wayne	Elizabeth Park	3	none	0	n/a	0	N/A
Wayne	Pier Park	1	once a week	56	18%	32	N/A
Wayne	Southern Wayne County Border	3	none	0	n/a	0	N/A

Notes

1. Shannon Briggs, Michigan Department of Natural Resources and the Environment, personal communication, May 2012.
2. Why don't the 2011 percent exceedance values in this summary match? The value at the top of the first page (8%) reflects the proportion of samples exceeding the national single-sample maximum standard for designated beach areas. The value in the "What Does Beach Monitoring Show?" section (6%) reflects the proportion of samples exceeding the state standard, which in Michigan's case is less stringent than the designated beach area standard. Also, only samples from a common set of beaches monitored each year from 2007–2011 are included in the bar chart. Because some beaches were not monitored in each of those years, the percent exceedance for this subset of beaches (7%) did not have the same value as the percent exceedance for all of the beaches monitored in 2011 (6%).
3. Michigan Department of Environmental Quality, "Michigan Beach Monitoring Year 2010 Annual Report," February 2011.
4. Reported closing or advisory days are for events lasting six consecutive weeks or less. Days in parentheses are for events lasting more than six consecutive weeks.

Testing the Waters: Minnesota

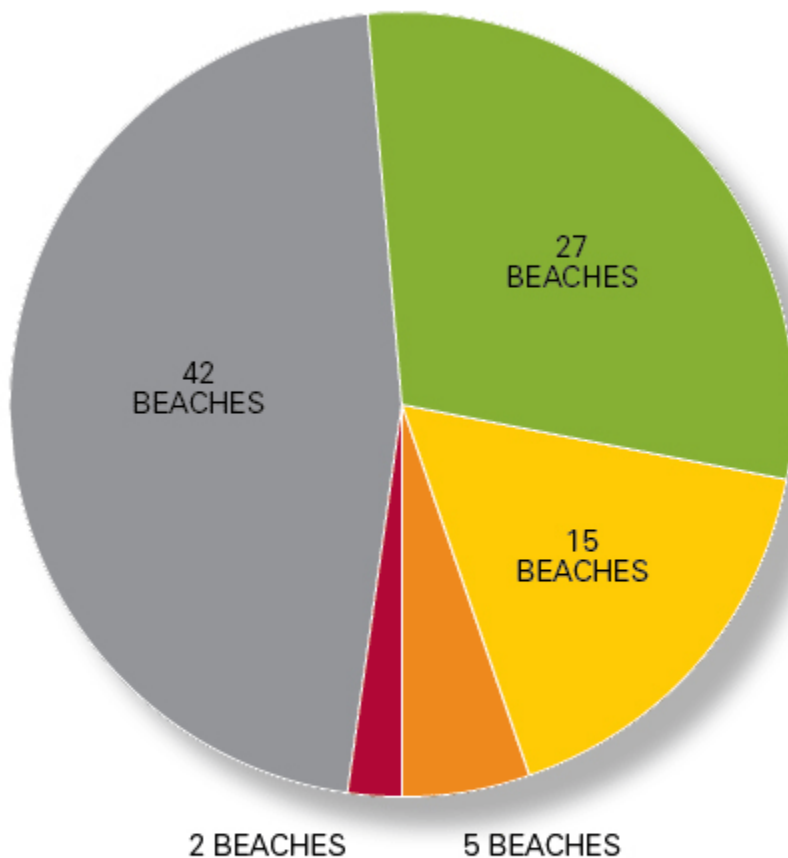
Ranked 22nd in Beachwater Quality (out of 30 states)

9% of samples exceeded national standards for designated beach areas in 2011

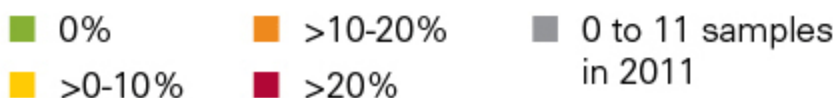
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Minnesota

Minnesota 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of warning/advisory days)

- 123 (100%) unknown contamination sources

Minnesota has 79 public beaches along about 58 miles of Lake Superior coastline. There are also a number of Lake Superior beaches that belong to the Grand Portage Tribe, which was the first tribe in the country to have a beachwater quality monitoring program.¹ The Minnesota Lake Superior Beach Monitoring Program is fully administered by the Minnesota Department of Health (prior to April 2011, it was administered by the Minnesota Pollution Control Agency). A state government shutdown during the summer of 2011 resulted in an almost four-week gap in state beachwater monitoring activities. This shutdown did not impact monitoring at the 12 Grand Portage Tribe beaches.

Identifying Sources of Fecal Contamination at Park Point Southworth Marsh Beach

The Park Point Southworth Marsh Beach is not monitored for fecal indicator bacteria every year, but when it is monitored, high bacteria levels are frequently found. Exceedances of the single-sample maximum water quality standard occurred in 22% of samples in 2005, 41% of samples in 2006, and 31% of samples in 2008. Many species of birds, including mallards, common mergansers, and Canada geese, shelter in the marsh. *E. coli* from water samples at this beach and at the Blatnik Fishing Pier Beach were collected in 2006 and analyzed using the horizontal, fluorophore enhanced, repetitive-element polymerase chain reaction (HFERP) DNA fingerprinting method in order to identify the species responsible for contamination. The abundance of various bird species was also measured as part of the study. The majority of *E. coli* whose source could be identified at both of these beaches originated from waterfowl. Although ring-billed gulls were up to five times as abundant as Canada geese at these locations, more of the *E. coli* was from Canada geese than from ring-billed gulls.²

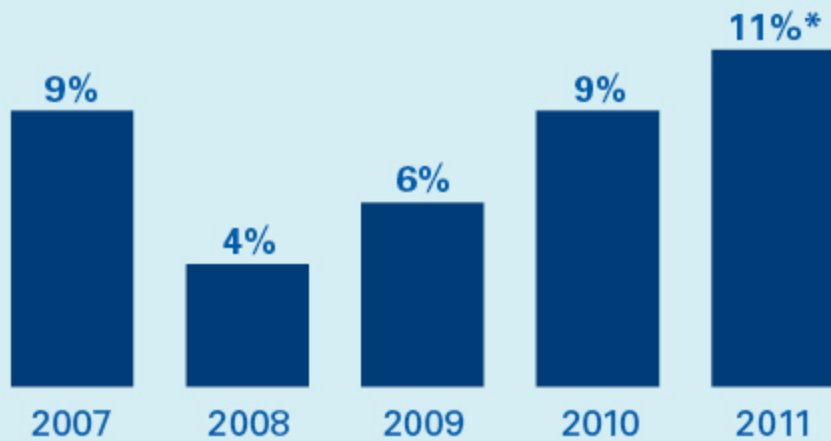
Reducing Discharges of Raw and Partially Treated Sewage to Lake Superior Beachwater

The city of Duluth received financial assistance for wastewater treatment upgrades through the American Reinvestment and Recovery Act. These projects will reduce discharges of raw or partially treated sewage to Lake Superior. One installation, an 8-million-gallon sanitary sewer overflow storage facility that eliminates two overflow points along the East Interceptor, became operational on January 24, 2012. This wastewater storage facility holds stormwater during storms for later treatment so that the treatment plant is not overwhelmed during heavy rains.³

What Does Beachwater Monitoring Show?

In 2011, Minnesota reported 91 coastal beaches (including 12 beaches on the Grand Portage Reservation). Of these, 7 (8%) were assigned a monitoring frequency of more than once a week, 44 (48%) once a week, and 40 (44%) were not assigned a monitoring frequency. In 2011, 9%⁴ of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 235 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Park Point 20th Street/Harding Island Canal Beach (63%) and Park Point New Duluth Boat Club/14th Street Beach (34%) in St. Louis County, Twin Points Public Access Beach in Lake County (17%), and Clyde Avenue Boat Landing Beach (15%) and Lakewalk Beach (15%) in St. Louis County. Beaches in St. Louis County had the highest exceedance rate of the state standard (16%) in 2011, followed by Lake (3%) and Cook (2%) counties. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.

Minnesota Percent of Samples Exceeding the State's Daily Maximum Bacterial Standard for 36 Beaches Reported 2007-2011



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Minnesota's Sampling Practices?

In 2011, the Minnesota Department of Health (MDH) monitored beaches from the week before Memorial Day to the end of September, with some beaches not monitored until June due to cold weather. Grand Portage beaches were monitored from June through September. On July 1, 2011, the Minnesota state government shut down, and normal operations did not resume until July 21. As a result of the shutdown, beachwater sampling conducted by the state (but not sampling at beaches belonging to the Grand Portage Tribe) was suspended from June 29 to July 25.⁴

The state determines sampling practices, locations, standards, and notification protocols and practices at the beaches monitored under the program. Water quality at beaches in the Grand Portage Reservation, located on the north shore of Lake Superior near the Canadian border, is monitored in a program separate from the state's Lake Superior Beach Monitoring Program.

MDH samples are collected at a depth of 6 to 12 inches in water that is knee deep, while samples in Grand Portage are collected in water that is 2.5 feet deep. Beaches monitored by the state program are assigned high, medium, or low priority, based on the potential for impacts from stormwater runoff, bather loads, and waterfowl populations as well as proximity to concentrated animal feeding operations and wastewater treatment discharges.⁴

Two beaches that meet the state program's criteria for monitoring were not monitored in 2011: Agate Bay Beach and Knife River Marina Beach, both in Lake County. Agate Bay was not monitored because of access restrictions due to construction in the area. Construction activities are due to be completed by 2012, in which case monitoring will resume in 2012. Knife River Marina Beach was not monitored in 2011 due to a request by the local government.⁴ The Grand Portage Tribe added a beach monitoring location in 2011 (Grand Portage Bay Monitoring Location 2.5).¹

When an MDH beach is placed under advisory, monitoring occurs daily (Monday through Thursday) until the site meets water quality standards. States that monitor more frequently after an exceedance is found will tend to have higher percent exceedance rates and lower total closing/advisory days than they would if their sampling schedule did not increase after an exceedance was found.

How Many Beach Closings and Advisories Were Issued in 2011?

Total advisory days for 30 events lasting six consecutive weeks or less doubled to 121 days in 2011 from 61 days in 2010. This increase in closing and advisory days is due in part to increased monitoring of non-Grand Portage Tribe beaches in 2011 (these beaches were monitored only from August 18 to September 15 in 2010). For prior years, there were 99 days in 2009, 257 days in 2008, 195 days in 2007, 73 days in 2006, and 143 days in 2005. In addition, there was one extended event (67 days) and no permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For 30 events lasting six consecutive weeks or less, all closing/advisory days in 2011 were due to monitoring that revealed elevated bacteria levels. Heavy rains along with high winds and waves are suspected causes of the elevated bacteria levels that resulted in the six-day posting at Twin Points Landing in Lake County in June 2011.⁵

How Does Minnesota Determine When to Warn Visitors About Swimming?

The Lake Superior Beach Monitoring Program does not issue beach closings; its policy is to issue advisories only³ (the Grand Portage Tribe, however, does issue closings). Minnesota applies a single-sample maximum *E. coli* standard of 235 cfu/100ml and a geometric mean *E. coli* standard of 126 cfu/100ml for the most recent five samples collected during a 30-day period. When a sample exceeds either the single-sample or geometric mean bacteria standard, an advisory is issued. There is no protocol for delaying or forgoing an advisory when a sample exceeds standards.⁴ The Grand Portage Tribe applies the same water quality standards as the state.¹

Because traditional processes for determining bacteria levels in beachwater take a day to complete, swimmers don't know if the water they are swimming in meets water quality standards until the following day. There is a great deal of interest in techniques that will allow for faster notification of water quality issues. Virtual Beach is a software package that can be used to develop beach-specific models for predicting fecal indicator bacteria levels in real-time based on easily measurable beach conditions such as wind, current, and waves. Previously collected data on beach conditions and bacteria counts are fed into the software, which helps the user create a model that predicts beachwater quality based on the most important variables. When version 2.2 of Virtual Beach becomes available, water quality models for some of the southernmost beaches in the Duluth-Superior Harbor will be developed. If early results are definitive, these tools may be used for predicting exceedances and issuing notifications as early as the 2013 swim season.³ The Grand Portage Tribe is planning on using predictive models at Grand Portage Bay locations 1, 2, and 2.5.¹

Minnesota has no preemptive rainfall standards but does post advisories after known sewage overflows or other events that are considered likely to result in high bacteria levels. In addition, the public is advised to wait 24 hours before going swimming after rainfall in urban areas.⁶

Minnesota 2011 Monitoring Results and Closing and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Cook	Butterworth Cliffs Beach	3	none	0	n/a	0	N/A
Cook	Cascade State Park Campground Beach	3	none	0	n/a	0	N/A
Cook	Cascade State Park West Beach	3	none	0	n/a	0	N/A
Cook	Chicago Bay Boat Launch Beach	2	once a week	15	0%	0	N/A
Cook	Coville Creek Beach	3	none	0	n/a	0	N/A
Cook	Croftville Beach	3	none	0	n/a	0	N/A
Cook	Cutface Creek Wayside Rest Beach	2	once a week	14	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Cook	Durfee Creek Area Beach	2	once a week	15	0%	0	N/A
Cook	Grand Marais Campground Beach	2	once a week	16	0%	0	N/A
Cook	Grand Marais Downtown Beach	2	once a week	15	7%	2	N/A
Cook	Grand Portage Bay Monitoring Location 1	1	once a week	18	6%	0	N/A
Cook	Grand Portage Bay Monitoring Location 2	1	once a week	18	6%	0	N/A
Cook	Grand Portage Bay Monitoring Location 2.5	1	once a week	14	0%	0	N/A
Cook	Grand Portage Bay Monitoring Location 3	1	once a week	18	6%	0	N/A
Cook	Grand Portage Bay Monitoring Location 4	1	once a week	18	0%	0	N/A
Cook	Grand Portage Bay Monitoring Location 5	1	once a week	18	0%	0	N/A
Cook	Grand Portage Bay Monitoring Location 6	1	once a week	18	0%	0	N/A
Cook	Grand Portage Bay Monitoring Location 7	1	once a week	18	0%	0	N/A
Cook	Grand Portage Bay Monitoring Location 8	1	once a week	18	0%	0	N/A
Cook	Hollow Rock Resort Beach	1	once a week	18	6%	0	N/A
Cook	Horseshoe Bay Boat Launch Beach	3	none	0	n/a	0	N/A
Cook	Judge C.R. Magney State Park East Beach	3	none	0	n/a	0	N/A
Cook	Judge C.R. Magney State Park West Beach	3	none	0	n/a	0	N/A
Cook	Kadunce Creek Beach	2	once a week	14	0%	0	N/A
Cook	Old Shore Road Beach Area	2	once a week	14	0%	0	N/A
Cook	Paradise Beach	2	once a week	14	0%	0	N/A
Cook	Ray Berglund Wayside Rest Beach	3	none	0	n/a	0	N/A
Cook	Red Cliff Beach	3	none	0	n/a	0	N/A
Cook	Red Rock Beach	1	once a week	18	6%	0	N/A
Cook	Reservation River beach	1	once a week	18	6%	0	N/A
Cook	Schroeder Town Park Beach	2	once a week	15	7%	2	N/A
Cook	Sugarloaf Cove Beach	2	once a week	13	0%	0	N/A
Cook	Temperance River State Park Beach	2	once a week	18	0%	0	N/A
Cook	Temperance River State Park East Beach	3	none	0	n/a	0	N/A
Lake	Agate Bay Beach	2	once a week	1	0%	0	N/A
Lake	Blueberry Hill Beach	3	none	0	n/a	0	N/A
Lake	Burlington Bay Beach	2	once a week	14	0%	0	N/A
Lake	Flood Bay Beach	2	once a week	13	0%	0	N/A
Lake	Gooseberry Falls State Park Beach	2	once a week	14	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Lake	Knife River Marina Beach	2	once a week	0	n/a	0	N/A
Lake	Manitou River Beach	3	none	0	n/a	0	N/A
Lake	Palisade Beach	3	none	0	n/a	0	N/A
Lake	Silver Bay Marina Beach	2	once a week	15	0%	0	N/A
Lake	Silver Cliff Beach	3	none	0	n/a	0	N/A
Lake	Silver Creek Beach	3	none	0	n/a	0	N/A
Lake	Split Rock Lighthouse State Park / Corundum Point Beach	3	none	0	n/a	0	N/A
Lake	Split Rock Lighthouse State Park / Crazy Bay Beach	3	none	0	n/a	0	N/A
Lake	Split Rock Lighthouse State Park / Gold Rock Point Beach	3	none	0	n/a	0	N/A
Lake	Split Rock Lighthouse State Park / Split Rock Point Beach	3	none	0	n/a	0	N/A
Lake	Split Rock Lighthouse State Park Beach	2	once a week	24	0%	0	N/A
Lake	Split Rock River Beach	2	once a week	15	0%	0	N/A
Lake	Stewart River Beach	2	once a week	14	0%	0	N/A
Lake	Tettegouche State Park / Baptism River Beach	3	none	0	n/a	0	N/A
Lake	Tettegouche State Park / Crystal Bay Beach	3	none	0	n/a	0	N/A
Lake	Tettegouche State Park Beach	2	once a week	17	6%	3	N/A
Lake	Twin Points Public Access Beach	2	once a week	18	17%	6	N/A
Lake	Two Harbors City Park Beach	3	none	0	n/a	0	N/A
St Louis	42nd Avenue East Beach	2	once a week	14	0%	0	N/A
St Louis	Bayfront Park Beach	3	none	0	n/a	0	N/A
St Louis	Blatnik Fishing Pier Beach	3	none	0	n/a	0	N/A
St Louis	Bluebird Landing Beach	2	once a week	15	7%	2	N/A
St Louis	Boy Scout Landing Beach	2	once a week	21	14%	13	N/A
St Louis	Brighton Beach	1	twice a week	54	9%	6	N/A
St Louis	Clyde Avenue Boat Landing Beach	2	once a week	20	15%	9	N/A
St	French River Beach	2	once a week	14	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Louis							
St Louis	Glensheen Cemetary Beach	3	none	0	n/a	0	N/A
St Louis	Indian Point Campground Beach	3	none	0	n/a	0	N/A
St Louis	Lakewalk Beach	1	twice a week	34	15%	7	N/A
St Louis	Lakewalk East / 16th Avenue East Beach	2	once a week	16	6%	2	N/A
St Louis	Lakewalk East / 26th Avenue East Beach	3	none	0	n/a	0	N/A
St Louis	Lakewood Pump Station Beach	3	none	0	n/a	0	N/A
St Louis	Leif Erikson Park Beach	2	once a week	19	11%	4	N/A
St Louis	Lester River Beach	2	once a week	14	0%	0	N/A
St Louis	McQuade Road Safe Harbor Beach	3	none	0	n/a	0	N/A
St Louis	Minnesota Point Harbor Beach	3	none	0	n/a	0	N/A
St Louis	Morgan Park Beach	3	none	0	n/a	0	N/A
St Louis	North Shore Drive Wayside Rest / 72nd Avenue East Beach	3	none	0	n/a	0	N/A
St Louis	North Shore Drive Wayside Rest / Cant Road Beach	3	none	0	n/a	0	N/A
St Louis	Park Point 20th Street / Hearing Island Canal Beach	1	twice a week	63	63%	18 (67)	N/A
St Louis	Park Point Beach House	1	twice a week	31	0%	0	N/A
St Louis	Park Point Franklin Park / 13th Street South Beach	1	twice a week	56	2%	2	N/A
St Louis	Park Point Lafayette Community Club Beach	1	twice a week	31	3%	2	N/A
St Louis	Park Point New Duluth Boat Club / 14th Street Beach	1	twice a week	47	34%	39	N/A
St Louis	Park Point Sky Harbor Parking Lot Beach	1	once a week	32	6%	4	N/A
St Louis	Park Point Southworth Marsh Beach	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
St Louis	Smithville Park Beach	3	none	0	n/a	0	N/A
St Louis	Stony Point Beach	2	once a week	13	0%	0	N/A
St Louis	Stony Point Wayside Rest Beach	3	none	0	n/a	0	N/A
St Louis	Waterfront Trail / Interlake Beach	3	none	0	n/a	0	N/A
St Louis	Waterfront Trail / Radio Towers Beach	3	none	0	n/a	0	N/A
St Louis	Waterfront Trail / Riverside Beach	3	none	0	n/a	0	N/A

Notes

1. Margaret Watkins, Grand Portage Environmental Department, personal communication, February 2012.
2. Hansen, D.L., S Ishii, M.J. Sadowsky, R.E. Hicks, "Waterfowl Abundance Does Not Predict the Dominant Avian Source of Beach *Escherichia coli*," *Journal of Environmental Quality*, vol. 40, November–December 2011.
3. Cynthia Hakala, Minnesota Pollution Control Agency, personal communication, February 2012.
4. Why don't the 2011 percent exceedance values in this summary match? Only samples from a common set of beaches monitored each year from 2007–2011 are included in the bar chart. Because some beaches were not monitored in each of those years, the percent exceedance for this subset of beaches (11%) did not have the same value as the percent exceedance for all of the beaches monitored in 2011 (9%).
5. Minnesota Department of Health, "Minnesota Lake Superior Beach Monitoring and Notification Program Annual Report," November 2011.
6. "Minnesota Lake Superior Beach Monitoring Program: Minimizing Risk," accessed at www.mnbeaches.org/advice/risk.html, January 2012.

Testing the Waters: Mississippi

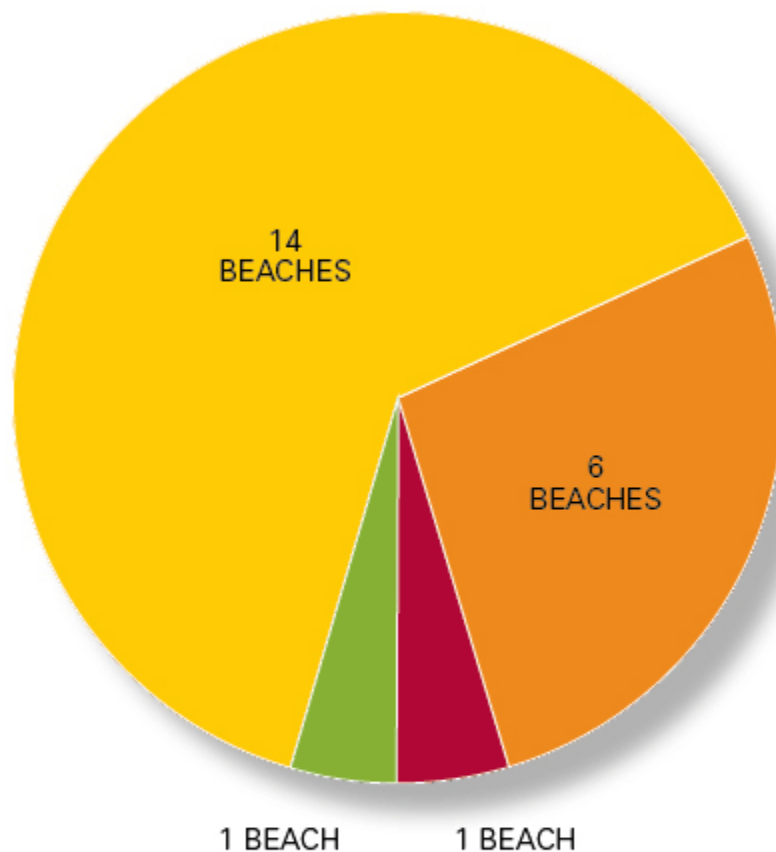
Ranked 19th in Beachwater Quality (out of 30 states)

8% of samples exceeded national standards for designated beach areas in 2011

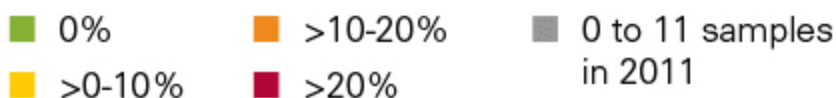
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Mississippi

Mississippi 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of closing/advisory days)

- 43 (47%) unknown contamination sources
- 42 (46%) other contamination sources
- 6 (7%) sewage spills/leaks

Mississippi has 22 beaches stretching along 43 miles of Gulf of Mexico waters. The Mississippi Department of Environmental Quality (MDEQ) conducts Mississippi's beachwater quality monitoring program in conjunction with the State Beach Monitoring Task Force.

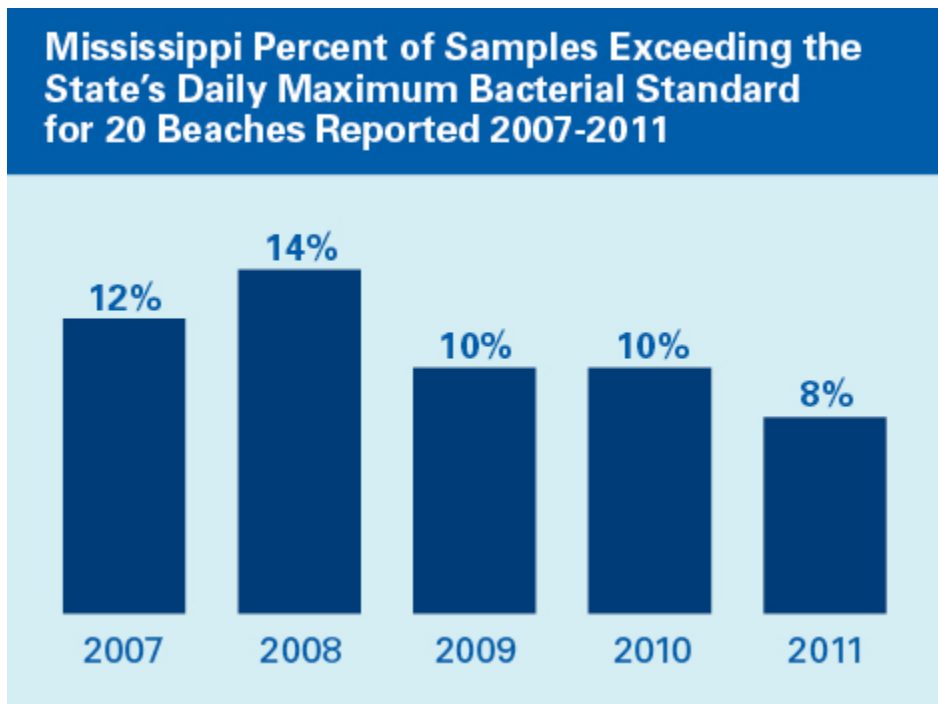
BP Oil Disaster Continued to Impact Mississippi's Beaches in 2011

Mississippi's beaches were impacted by the BP oil disaster of 2010. Although all oil spill advisories were lifted in November of that year, crews continued to conduct inspection and cleanup activities on a daily basis on some mainland and barrier island beach segments throughout 2011 and into 2012.¹

What Does Beachwater Monitoring Show?

In 2011, Mississippi reported 22 coastal beaches, all of which were monitored once a week. In 2011, 8% of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Gulfport Central Beach (21%), Courthouse Road Beach (16%), and Biloxi Porter Avenue Beach (14%) in Harrison County; St. Andrews Beach in Jackson County (14%); Gulfport East Beach (13%) and Pass Christian West Beach (13%) in Harrison County; and Waveland Beach (12%) in Hancock County.

Beaches in Harrison County had the highest exceedance of the state standard (9%) in 2011, followed by Hancock (7%) and Jackson (6%) counties. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Mississippi's Sampling Practices?

Mississippi's beaches are monitored weekly, year-round.¹ MDEQ determines sampling practices, locations, standards, and notification protocols and practices throughout the state. Samples are taken in mid water column at wading depth (approximately 0.5 meter).



Beachgoers disregard a swim advisory sign at Long Beach in Mississippi (Laurel Lockamy).

Once a beach is placed under advisory, the monitoring frequency is increased until two consecutive samples meet standards; the beach is then reopened.¹ States that monitor more frequently after an exceedance is found will tend to have higher percent exceedance rates and lower total closing/advisory days than they would if their sampling schedule did not increase after an exceedance was found.

How Many Beach Closings and Advisories Were Issued in 2011?

Total closing/advisory days for 19 events lasting six consecutive weeks or less increased 3% in 2011 to 91 days from 88 days in 2010. For prior years, there were 331 days in 2009, 187 days in 2008, 249 days in 2007, 0 days in 2006, and 41 days in 2005. There were no extended or permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks.

All closing/advisory days in 2011 were due to monitoring that revealed elevated bacteria levels.

How Does Mississippi Determine When to Warn Visitors About Swimming?

In Mississippi, notifications issued because of bacterial exceedances or anticipated bacterial exceedances caused by rainfall are called advisories; all other notifications are generally called closings. To issue contamination advisories, Mississippi applies an enterococcus single-sample maximum standard of 104 cfu/100 ml. No geometric mean standard is applied when determining whether a beachwater sample exceeds bacterial standards.

When a sample indicates an exceedance, a resample is required. When two consecutive samples indicate exceedances, Mississippi issues an advisory.

In addition to bacteria samples, MDEQ collects monthly nutrient and chlorophyll data. This additional information is not used to inform issuance of beach advisories or closings, but it is used along with the bacteria data to assess the quality of coastal waters along the Mississippi Gulf Coast.¹

Mississippi has a standing preemptive rainfall advisory that warns against swimming at beaches for 24 hours following significant rainfall (characterized by noticeable runoff). Bathers are particularly advised to avoid swimming near storm drains, which are present at nearly all of Mississippi's Gulf Coast beaches. This type of standing advisory is not included in the closing and advisory data reported to the EPA or included in this report. Beaches are preemptively closed if there is a known sewage spill or when events such as hurricanes or beach recovery projects make conditions unsafe for swimming. These types of advisories are reported to the EPA and included in NRDC data.

Mississippi 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Hancock	Bay St. Louis Beach	1	once a week	51	8%	0	N/A
Hancock	Buccaneer State Park Beach	2	once a week	49	6%	6	N/A
Hancock	Lakeshore	1	once a week	48	2%	0	N/A
Hancock	Waveland Beach	2	once a week	52	12%	5	N/A
Harrison	Biloxi East Beach	1	once a week	48	2%	0	N/A
Harrison	Biloxi Porter Ave Beach	1	once a week	56	14%	6	N/A
Harrison	Biloxi West Central Beach	1	once a week	51	8%	0	N/A
Harrison	Courthouse Road Beach	1	once a week	57	16%	11	N/A
Harrison	Edgewater Beach	1	once a week	49	4%	0	N/A
Harrison	Gulfport Central Beach	1	once a week	63	21%	19	N/A
Harrison	Gulfport East Beach	1	once a week	54	13%	9	N/A
Harrison	Gulfport Harbor Beach	1	once a week	52	6%	2	N/A
Harrison	Gulfport West Beach	1	once a week	47	0%	0	N/A
Harrison	Long Beach	1	once a week	47	2%	0	N/A
Harrison	Pass Christian Central Beach	2	once a week	50	4%	2	N/A
Harrison	Pass Christian East Beach	1	once a week	53	9%	7	N/A
Harrison	Pass Christian West Beach	2	once a week	54	13%	12	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Jackson	Front Beach	1	once a week	49	2%	0	N/A
Jackson	Pascagoula Beach East	1	once a week	47	2%	0	N/A
Jackson	Pascagoula Beach West	1	once a week	52	6%	4	N/A
Jackson	Shearwater Beach	1	once a week	51	6%	0	N/A
Jackson	St. Andrews Beach	2	once a week	56	14%	8	N/A

Notes

1. Emily Cotton, Mississippi Department of Environmental Quality, personal communication, January 2012.

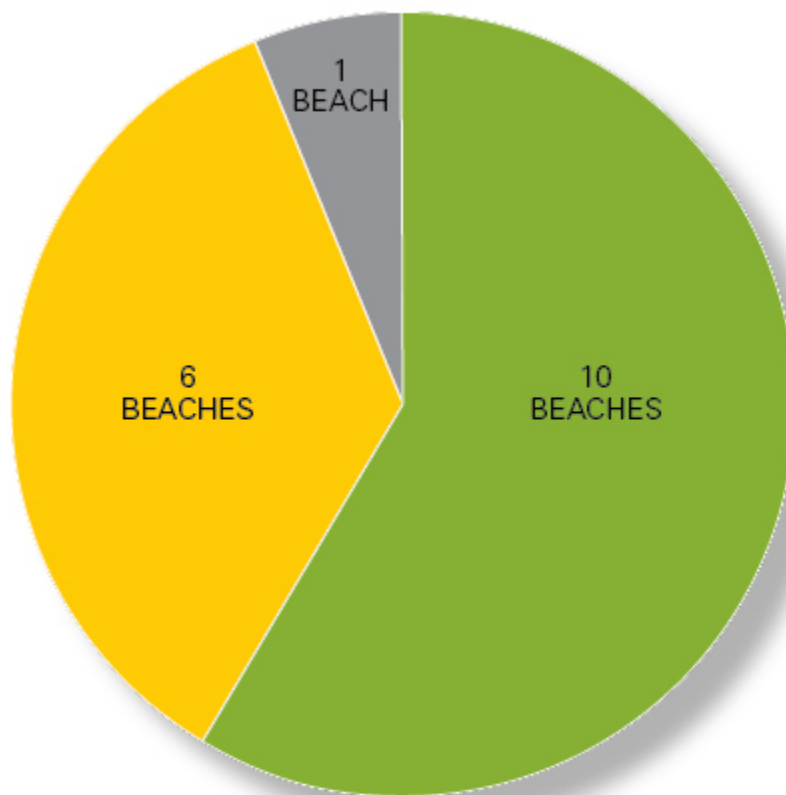
Testing the Waters: New Hampshire

Ranked 2nd in Beachwater Quality (out of 30 states)

1% of samples exceeded national standards for designated beach areas in 2011

In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

New Hampshire 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination
(number of closing/advisory days)

- 9 (100%) unknown contamination sources

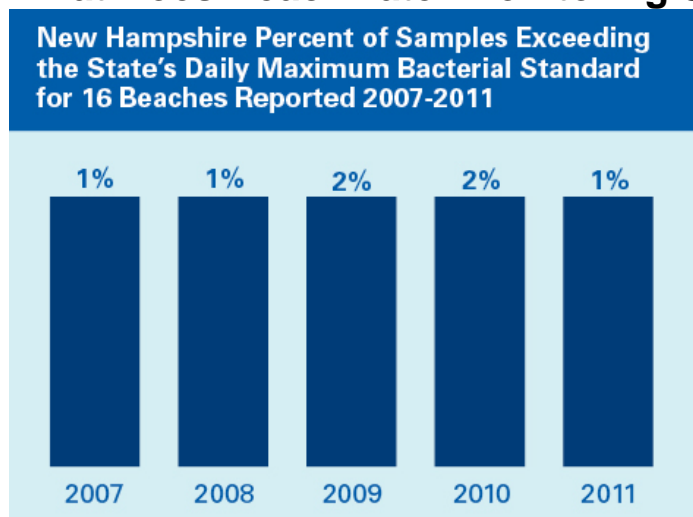
New Hampshire has 17 public coastal and estuarine beaches lining 18 miles of Atlantic waters. The state's beachwater quality monitoring program is administered by the New Hampshire Department of Environmental Services (DES).

Identifying and Addressing Sources of Beachwater Pollution at North Hampton State Beach and Wallis Sands Beach at Wallis Road

In 2011, FB Environmental Associates, Inc., in cooperation with the town of Rye and DES, completed a coastal bacteria source identification project for the Little River watershed (which affects water quality at North Hampton State Beach) and for the Parsons Creek watershed (which affects water quality at Wallis Sands Beach at Wallis Road). For these projects, the amount of fecal indicator bacteria entering each watershed in runoff from developed areas was estimated by combining information about the bacterial counts in runoff with the amount of runoff. Bacteria from septic systems was determined by estimating the number of people served by failing systems and multiplying that number by the expected bacterial load per person. Previous microbial source tracking studies and other wildlife research data were used to identify the dominant species of wildlife that contribute fecal indicator bacteria to the watersheds, and these indicator bacteria quantities were calculated by multiplying estimates of the animal population by bacterial load per animal. Bacteria contributed by farm animals was estimated based on the number of each type of animal; the bacterial loading rate for each type of animal, the amount of time the animals spend in barnyards, pastures, and streams; manure removal practices; and stormwater runoff rates.^{1,2}

The studies found that runoff from developed areas is the largest source of bacterial loading in the Little River watershed, with failing septic systems and wildlife making significant contributions. There was little contribution from farm animals. Runoff from developed areas and failing septic systems were the largest contributors of fecal indicator bacteria in the Parsons Creek watershed, with wildlife and farm animals contributing less significantly. The watershed-based plans for reducing fecal contamination call for action to reduce leaks from septic tanks and to discourage wildlife from congregating near surface waters. The plans also call for green infrastructure techniques to reduce bacterial loading in runoff from developed areas, including the installation of buffers, rain gardens, and constructed wetlands. Other techniques to reduce bacterial loading in runoff from developed areas include plans to better manage pet waste, to remove portable toilets from streamside locations, and to ensure that public toilets in sensitive areas are functioning properly.^{1,2} The town of North Hampton has received funding to reduce the bacterial load to North Hampton State Beach from the Little River, including funds for more intensified source tracking efforts.³

What Does Beachwater Monitoring Show?



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

In 2011, New Hampshire reported 17 coastal beaches, all located in Rockingham County. Of these, 10 (59%) were assigned a monitoring frequency of more than once a week, 4 (24%) once a week, and 2 (12%) every other week; 1 (6%) was not assigned a monitoring frequency.

In 2011, 1% of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. The beaches that had water quality exceedances of the state standard in 2011 were State Beach, North Hampton (8% of samples exceeded standards), Seabrook Harbor Beach (4%), North Beach (2%), Foss Beach (2%), Seabrook Town Beach (1%), and Hampton Beach State Park (1%). In this analysis, all reported samples were used to calculate the 2011 percent exceedance rates, including duplicate samples and samples taken outside the official beach season, if any.

What Are New Hampshire's Sampling Practices?

The monitoring season in New Hampshire runs from Memorial Day to Labor Day. Star Island, a conference center, cannot be sampled without a boat³ and has not been sampled since the 2009 swim season. This location will be inactivated from New Hampshire's list of public beaches beginning in 2012.⁴

DES determines sampling and notification practices, locations, standards, and protocols at all of its public coastal beaches. Samples are taken in knee-deep water. Sampling frequencies at beaches in New Hampshire are based on beachwater quality history, the presence of suspected sources of microbial pathogens, and beach use. The number of samples collected at each beach is determined by beach length, with two samples taken at beaches less than 100 feet in length and more samples taken at longer beaches.

When an elevated bacteria result is found, a follow-up sample is taken within 24 hours.⁴ Beach advisories remain in effect until subsequent beach sampling reflects results below the state standard. Samples may also be collected at known and suspected discharge sources at New Hampshire's beaches, and extra wet-weather sampling may be conducted at beaches when stormwater runoff has the potential to impact water quality.³ States that monitor more frequently after an exceedance is found or after rainfall events will tend to have higher percent exceedance rates and lower total closing/advisory days than they would if their sampling frequency did not increase after an exceedance was found.

Were Beach Closings or Advisories Issued in 2011?

Total closing/advisory days for 4 events lasting six consecutive weeks or less decreased by 44%, to 9 days in 2011 from 16 days in 2010. For prior years, there were 12 days in 2009, 13 days in 2008, 2 days in 2007, 23 days in 2006, and 1 day in 2005. There were no extended or permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 4 events lasting six consecutive weeks or less, 100% (9) of closing/advisory days were due to monitoring that revealed elevated bacteria levels.

How Does New Hampshire Determine When to Warn Visitors About Swimming?

State policy is to issue advisories and not closings at beaches, but towns can close beaches within their jurisdiction. New Hampshire applies an enterococcus single-sample maximum of 104 cfu/100 ml. If two or more samples collected at a beach exceed the standard or if one sample exceeds 174 cfu/100 ml, a beach advisory is issued.³ There is no protocol for forgoing or delaying an advisory when these conditions are met. The state standard for the geometric mean of at least three samples collected over a 60-day period is 35 cfu/100 ml⁵, but the geometric mean standard is not typically used to issue beach advisories.

The potential for issuing preemptive rain advisories at beaches in Rye and North Hampton is currently being studied, but to date such advisories have not been issued at coastal beaches in New Hampshire.³

A preemptive advisory would be issued if a public beach area were threatened by a suspected sewage spill or leak. Members of the public are encouraged to report if they fall ill after visiting one of New Hampshire's public beaches, and illness complaints can potentially initiate further investigation of beachwater quality.³

New Hampshire 2012 Monitoring Results and Closing or Advisory days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Rockingham	Bass Beach	1	twice a week	58	0%	0	N/A
Rockingham	Foss Beach	2	once a week	60	2%	0	N/A
Rockingham	Hampton Beach SP	1	twice a week	157	1%	2	N/A
Rockingham	Hampton Harbor Beach	3	twice a month	21	0%	0	N/A
Rockingham	Jenness Beach At Cable Road	1	twice a week	87	0%	0	N/A
Rockingham	Jenness Beach SP	1	twice a week	98	0%	0	N/A
Rockingham	New Castle TB	1	twice a week	98	0%	0	N/A
Rockingham	North Beach	2	once a week	81	2%	0	N/A
Rockingham	Northside Park	3	twice a month	24	0%	0	N/A
Rockingham	Sawyer Beach	1	twice a week	86	0%	0	N/A
Rockingham	Seabrook Harbor Beach	1	twice a week	45	4%	2	N/A
Rockingham	Seabrook TB	1	twice a week	84	1%	0	N/A
Rockingham	Star Island Beach, Rye	3	none	0	n/a	0	N/A
Rockingham	State Beach, North Hampton	1	twice a week	85	8%	5	N/A
Rockingham	Sun Valley Beach	2	once a week	30	0%	0	N/A
Rockingham	Wallis Sands Beach At Wallis Road	1	twice a week	82	0%	0	N/A
Rockingham	Wallis Sands SP	2	once a week	48	0%	0	N/A

Notes

1. FB Environmental Associates, Inc., Little River Watershed Based Plan, May 2011.
2. FB Environmental Associates, Inc., Parsons Creek Watershed Based Plan, May 2011.
3. Sonya Carlson, Water Division, New Hampshire Department of Environmental Services, January 2012.
4. Sonya Carlson, Water Division, New Hampshire Department of Environmental Services, February 2012.
5. New Hampshire Department of Environmental Services, Beach Inspection Program, Sample Analyses, accessed at des.nh.gov/organization/divisions/water/wmb/beaches/samples.htm, January 2012.

Testing the Waters: New Jersey

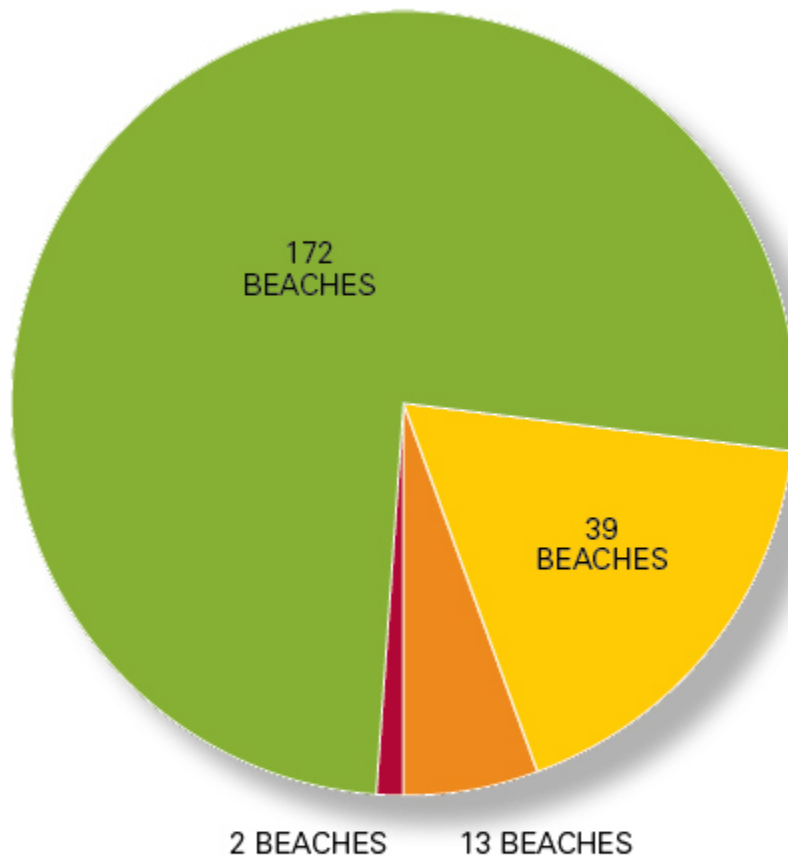
Ranked 4th in Beachwater Quality (out of 30 states)

3% of samples exceeded national standards for designated beach areas in 2011

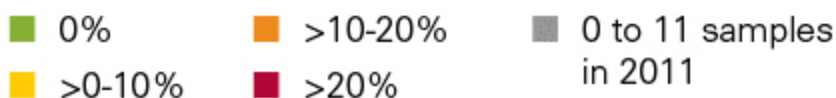
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in New Jersey

New Jersey 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of closing/advisory days)

- 103 (79%) stormwater runoff
- 22 (17%) unknown contamination sources
- 6 (5%) sewage spills/leaks

New Jersey has 700 public coastal beaches lining 127 miles of Atlantic waters. Coastal water quality monitoring is conducted through the Cooperative Coastal Monitoring Program (CCMP), which is administered by the New Jersey Department of Environmental Protection (NJDEP).

Reducing Trash Wash-Up on New Jersey's Beaches

New Jersey participates in a number of efforts to improve water quality at its beaches. Sewer systems in and around New York?New Jersey Harbor are designed so that during periods of wet weather, excess flows are discharged to harbor waters. These excess flows contain floating debris made up of litter and toilet waste such as hygiene products. When discharged to the New York?New Jersey Harbor Complex, the floating debris tends to collect into slicks that can exit the harbor and wash up on beaches.² The multi-agency Floatables Action Plan, which has been in place since 1989,¹ involves several means of controlling floating debris, such as helicopter surveillance to locate slicks, skimmer vessels fitted with nets that collect debris, floating booms that trap debris near sewer-system discharge points for later collection, and sewer-system improvements intended to maximize the ability to retain floating debris. These methods have prevented tons of floating debris from reaching the harbor and New Jersey beaches. In addition, NJDEP's Clean Shores Program, in which state inmates collect floatable debris from the shorelines of the Hudson, Raritan, and Delaware estuaries and barrier island bays, removes thousands of tons of trash and debris from New Jersey shorelines each year.³

Cleaning Up Beachwater Around the Wreck Pond Outfall

NJDEP is working with local stakeholders to address elevated levels of fecal indicator bacteria that are discharged to the ocean from Wreck Pond's outfall during rain events. Source tracking efforts at Wreck Pond, a tidal pond in Monmouth County, have shown that sources of pollution include stormwater runoff and failing sewage infrastructure in the community surrounding the pond. In 2006, NJDEP completed a 300-foot extension to the Wreck Pond ocean discharge outfall pipe in order to carry contaminated stormwater farther out into the ocean. This outfall extension has been effective in reducing bacteria densities at beaches near the outfall: The percentage of samples that exceeded the daily water quality standard at Brown South, York Avenue, The Terrace, and Beacon Boulevard beaches (all near the Wreck Pond outfall) has fallen from 7% in 2006 to an average of 3% over the past three years.

Extending the outfall does not eliminate the source of pollution, however. In order to reduce bacterial loading in the outfall, the towns of Spring Lake and Sea Girt intend to map their entire sanitary and storm sewer systems and use video camera technology to assess the condition of the equipment so that leaks can be identified and corrected. NJDEP has also partnered with the Freehold Soil Conservation District to prioritize stream-bank restoration areas in the pond's watershed in order to reduce the flow of stormwater during rain events, and with the U.S. Army Corps of Engineers to assess possible modifications to the outfall structure and to restore natural flows and tidal exchange in and around the pond.³

Using Rapid Test Methods to Issue Beachwater Quality Advisories

Current approved methods for determining fecal indicator bacteria counts in beachwater depend on growth of cultures in samples and take at least 24 hours to complete. Because of this, swimmers do not know until the next day if the water they swam in was contaminated. There is a great deal of interest in technologies that can provide same-day beachwater quality results, and NJDEP has been field-testing one such method, the quantitative polymerase chain reaction (qPCR) rapid test method, since 2007. This method identifies genetic sequences in order to enumerate bacteria. In 2011, a rapid beach advisory demonstration project was conducted at four bay beaches in Ocean County (Windward Beach in Brick Township, Avon Road in Pine

Beach Borough, Beachwood Beach in Beachwood Borough, and Anglesea in Ocean Gate Borough).⁴ Samples were collected on Mondays and analyzed using qPCR. Swimming advisories were issued on the basis of the qPCR results, and these results were compared with the standard membrane filtration results when they became available the following day.³ Preliminary review of the test results shows that the traditional culture method and the rapid test are in agreement a little more than 80% of the time.¹

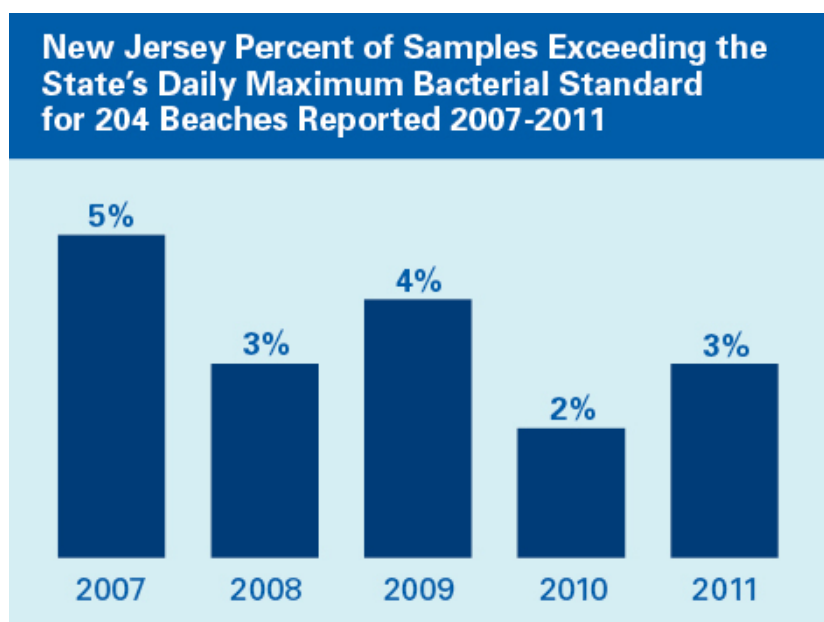
Identifying the Source of Pollution at Beaches in Pine Beach and Beachwood

More than 25% of the water quality samples at Beachwood Beach West have exceeded the standard for designated beaches each year since the 2005 swim season, when NRDC began tracking water quality monitoring data. In 2011, students at the Marine Academy of Technology and Environmental Science, a magnet public high school in Ocean County, participated in a beachwater quality monitoring study. Their work indicated that bacteria levels at beaches in Pine Beach and Beachwood are impacted by rainfall. NJDEP is using the information generated by the students as it attempts to identify possible sources of contamination at Beachwood Beach West.³

What Does Beachwater Monitoring Show?

In 2011, there were 700 lifeguarded recreational ocean and bay beaches in New Jersey. Currently, NRDC's report contains information on 226 monitored recreational beach sites, each of which is assigned a monitoring frequency of once a week. The remaining, unmonitored beaches are not in EPA's beach database and are not listed in this report. According to NJDEP, the lifeguarded recreational beaches that are not monitored do not have sources of pollution, such as storm drains, so the nearest monitoring station is considered representative of the water quality at these beaches.¹

In 2011, 3% of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Beachwood Beach West (Beachwood) in Ocean County (31%), Rec Center (Highlands) (28%) and L Street Beach (Belmar) (20%) in Monmouth County, and Windward Beach (Brick) (20%) and Maxon Avenue (Point Pleasant) (19%) in Ocean County. Beaches in Ocean County had the highest exceedance rate of the state standard in 2011 (5%), followed by Monmouth (4%), Atlantic (1%), and Cape May (1%) counties. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are New Jersey's Sampling Practices?

The sampling season runs from mid-May to mid-September. In addition to regular beachwater monitoring for bacteria concentrations, NJDEP conducts aerial surveillance of near-shore coastal waters six days a week during the summer and routinely inspects the 17 wastewater treatment facilities that discharge to the ocean.

NJDEP determines sampling practices, standards, and notification protocols and practices at coastal beaches throughout the state. Samples are taken 12 to 18 inches below the surface in water that is between knee and chest deep. Locations for monitoring stations are selected by local or county health departments and are chosen on the basis of proximity to a potential pollution source. If there is no pollution source nearby, ocean sampling locations are chosen to represent water quality at several nearby beaches. Every recreational bay beach is sampled.³

Once an exceedance of bacterial standards is found, daily monitoring is conducted until the beachwater meets standards. States that monitor more frequently after an exceedance is found will tend to have higher percent exceedance rates and lower total closing/advisory days than they would if their sampling frequency did not increase after an exceedance was found.

How Many Beach Closings or Advisories Were Issued in 2011?

Total closing/advisory days increased 20% to 131 days in 2011 from 109 days in 2010. The increased number of closings in 2011 can be attributed to a relatively wet summer, leading to an increase in precautionary "rain provisional" closings at beaches with established rainfall thresholds.³ For prior years, there were 181 days in 2009, 209 days in 2008 (120 of which were caused by a criminal dumping event), 142 days in 2007, 134 days in 2006, and 79 days in 2005. There were no extended or permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 131 1-day events, 17% (22) of closing/advisory days were due to monitoring that revealed elevated bacteria levels, 79% (103) were preemptive due to heavy rainfall, and 5% (6) were preemptive to due known sewage spills or leaks.

Only those beach closings ordered by local health officials are included here because these are the only closings that are recorded by CCMP. Data are not available for closings issued because of conditions not directly related to contamination, such as rough seas, beach maintenance projects, shark sightings, and fish and clam wash-ups.³ Some beaches were closed due to damage from Hurricane Irene,³ but these closures are not included in data available to NRDC; no beaches in New Jersey were closed due to water quality exceedances caused by Hurricane Irene.³

How Does New Jersey Determine When to Warn Visitors About Swimming?

New Jersey's policy is to issue closings when bacteria levels exceed standards. New Jersey's standard for marine beachwater quality is a single-sample maximum for enterococcus of 104 cfu/100 ml. A geometric mean standard is not applied when making beach closing decisions.

In 2011, if bacteria levels exceeded the single-sample standard, the beach was resampled immediately. If the second sample exceeded the standard, the beach was closed. Resampling is conducted in conjunction with a sanitary survey of the beach. County and local health departments are allowed, at their discretion, to issue swimming advisories after one exceedance of the bathing standard. In 2011, Monmouth County was the only county to issue swimming advisories when routine monitoring revealed that standards were exceeded.³ In 2012, advisories will be issued at all beaches in New Jersey when bacteria levels are found to exceed the single-sample standard, and these advisories will convert to closings if resampling confirms the exceedance.¹

If high bacteria concentrations are found at an ocean or bay station, sampling is conducted linearly along the beach to determine the extent of the affected area. This "bracket sampling" can result in an extension of a beach closing to contiguous lifeguarded beaches.³

Four Monmouth County ocean beaches around the Wreck Pond outfall (Brown South and York Avenue beaches in Spring Lake and The Terrace and Beacon Boulevard beaches in Sea Girt) are automatically closed for 24 hours after the end of all rainfall events that exceed 0.1 inch or cause an increased flow in storm drains, and for 48 hours from the end of all rainfalls greater than 2.8 inches within a 24-hour period. Lifeguards prohibit swimming near any parts of these beaches where the stormwater plume is observed to be mixing with water within the swimming area.³ Two bay beaches in Monmouth County also have preemptive rainfall standards: L Street Bay Beach in Belmar (more than 0.1 inch in 24 hours) and the Shark River Beach and Yacht Club (more than 1 inch in 24 hours).¹

Beaches in New Jersey are closed if there is a known sewage spill that is suspected of contaminating beachwater.¹ Health and enforcement agencies in New Jersey can close a beach to protect public health at any time.³

Algae samples are collected when remote sensing data indicate an increase in chlorophyll levels in a specific area. If a harmful algal bloom is identified, county and local health officials are notified, closing information is posted on the DEP web page and phone line, and local beach managers close beaches as necessary. There were increased reports of jellyfish on New Jersey beaches in 2011, especially in Barnegat Bay.¹

New Jersey 2011 Monitoring Results and Notice and Advisory

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Atlantic	4th St. North (Brigantine)	1	once a week	17	0%	0	N/A
Atlantic	10th St. South (Brigantine)	1	once a week	17	0%	0	N/A
Atlantic	11th St North (Brigantine)	1	once a week	17	0%	0	N/A
Atlantic	11th St. (Longport)	1	once a week	17	0%	0	N/A
Atlantic	15th St South (Brigantine)	1	once a week	17	0%	0	N/A
Atlantic	19th St. (Longport)	1	once a week	17	0%	0	N/A
Atlantic	26th St (Brigantine)	1	once a week	17	6%	0	N/A
Atlantic	26th St. (Longport)	1	once a week	17	0%	0	N/A
Atlantic	26th St. South (Brigantine)	1	once a week	17	0%	0	N/A
Atlantic	33rd St. (Longport)	1	once a week	17	0%	0	N/A
Atlantic	33rd St. South (Brigantine)	1	once a week	17	0%	0	N/A
Atlantic	43rd St. South (Brigantine)	1	once a week	17	0%	0	N/A
Atlantic	Annapolis (Atlantic City)	1	once a week	20	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Atlantic	Arkansas (Atlantic City)	1	once a week	22	9%	0	N/A
Atlantic	Bartram (Atlantic City)	1	once a week	20	0%	0	N/A
Atlantic	Brant (Brigatine)	1	once a week	17	0%	0	N/A
Atlantic	Caspian (Atlantic City)	1	once a week	20	0%	0	N/A
Atlantic	Chelsea (Atlantic City)	1	once a week	20	0%	0	N/A
Atlantic	Dorset (Ventnor)	1	once a week	17	0%	0	N/A
Atlantic	Georgia (Atlantic City)	1	once a week	21	5%	0	N/A
Atlantic	Granville (Margate)	1	once a week	17	0%	0	N/A
Atlantic	Illinois (Atlantic City)	1	once a week	22	5%	0	N/A
Atlantic	Iowa (Atlantic City)	1	once a week	21	5%	0	N/A
Atlantic	Jackson (Atlantic City)	1	once a week	20	0%	0	N/A
Atlantic	Kentucky (Atlantic City)	1	once a week	22	0%	0	N/A
Atlantic	Lincoln (Atlantic City)	1	once a week	20	0%	0	N/A
Atlantic	Michigan (Atlantic City)	1	once a week	22	5%	0	N/A
Atlantic	Missouri (Atlantic City)	1	once a week	22	0%	0	N/A
Atlantic	New Hampshire (Atlantic City)	1	once a week	20	0%	0	N/A
Atlantic	New Haven (Ventnor)	1	once a week	17	0%	0	N/A
Atlantic	New Jersey Ave. (Somers Point)	1	once a week	18	6%	0	N/A
Atlantic	North Carolina (Atlantic City)	1	once a week	21	5%	0	N/A
Atlantic	Oakland (Ventnor)	1	once a week	17	0%	0	N/A
Atlantic	Osborne (Margate)	1	once a week	17	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Atlantic	Pennsylvania (Atlantic City)	1	once a week	21	0%	0	N/A
Atlantic	Providence (Atlantic City)	1	once a week	20	0%	0	N/A
Atlantic	Seaside (Brigantine)	1	once a week	17	0%	0	N/A
Atlantic	South Beach (Brigantine)	1	once a week	17	0%	0	N/A
Atlantic	South Carolina (Atlantic City)	1	once a week	21	0%	0	N/A
Atlantic	St. James (Atlantic City)	1	once a week	20	0%	0	N/A
Atlantic	States (Atlantic City)	1	once a week	19	0%	0	N/A
Atlantic	Texas (Atlantic City)	1	once a week	22	9%	0	N/A
Atlantic	Washington (Margate)	1	once a week	17	0%	0	N/A
Atlantic	Washington (Ventnor)	1	once a week	17	0%	0	N/A
Cape May	2nd & JFK (North Wildwood)	1	once a week	17	0%	0	N/A
Cape May	2nd (Cape May City)	1	once a week	17	0%	0	N/A
Cape May	9th (Avalon)	1	once a week	17	0%	0	N/A
Cape May	9th St (Ocean City)	1	once a week	17	0%	0	N/A
Cape May	10th & JFK (North Wildwood)	1	once a week	17	0%	0	N/A
Cape May	15th (Avalon)	1	once a week	17	0%	0	N/A
Cape May	16th (Ocean City)	1	once a week	17	0%	0	N/A
Cape May	18th (North Wildwood)	1	once a week	17	0%	0	N/A
Cape May	21st St (Avalon)	1	once a week	16	0%	0	N/A
Cape May	24th (North Wildwood)	1	once a week	18	6%	0	N/A
Cape May	24th (Ocean City)	1	once a week	17	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Cape May	28th (Ocean City)	1	once a week	17	0%	0	N/A
Cape May	29th (Sea Isle City)	1	once a week	17	0%	0	N/A
Cape May	30th (Avalon)	1	once a week	17	0%	0	N/A
Cape May	34th St (Ocean City)	1	once a week	17	0%	0	N/A
Cape May	34th St (Sea Isle City)	1	once a week	17	0%	0	N/A
Cape May	40th St (Avalon)	1	once a week	17	0%	0	N/A
Cape May	40th St (Sea Isle City)	1	once a week	17	0%	0	N/A
Cape May	48th (Ocean City)	1	once a week	17	0%	0	N/A
Cape May	49th (Sea Isle City)	1	once a week	17	0%	0	N/A
Cape May	50th (Avalon)	1	once a week	17	0%	0	N/A
Cape May	55th (Ocean City)	1	once a week	17	0%	0	N/A
Cape May	57th (Avalon)	1	once a week	17	0%	0	N/A
Cape May	59th (Sea Isle City)	1	once a week	17	0%	0	N/A
Cape May	65th (Avalon)	1	once a week	17	0%	0	N/A
Cape May	65th (Sea Isle City)	1	once a week	17	0%	0	N/A
Cape May	76th (Avalon)	1	once a week	17	0%	0	N/A
Cape May	77th (Sea Isle City)	1	once a week	17	0%	0	N/A
Cape May	83rd St (Stone Harbor)	1	once a week	17	0%	0	N/A
Cape May	85th (Sea Isle City)	1	once a week	17	0%	0	N/A
Cape May	90th (Stone Harbor)	1	once a week	16	0%	0	N/A
Cape May	90th (Yacht Club) (Stone Harbor)	1	once a week	18	6%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Cape May	96th (Stone Harbor)	1	once a week	17	0%	0	N/A
Cape May	103rd (Stone Harbor)	1	once a week	17	0%	0	N/A
Cape May	108th (Stone Harbor)	1	once a week	17	0%	0	N/A
Cape May	119th (Stone Harbor)	1	once a week	16	0%	0	N/A
Cape May	Beesley's Point (Upper Twp)	1	once a week	18	6%	0	N/A
Cape May	Bennett (Wildwood)	1	once a week	18	6%	0	N/A
Cape May	Brainard (Cape May Point)	1	once a week	17	0%	0	N/A
Cape May	Broadway (Cape May City)	1	once a week	17	0%	0	N/A
Cape May	Congress (Cape May City)	1	once a week	17	0%	0	N/A
Cape May	Corinthian YC (Cape May City)	1	once a week	17	0%	0	N/A
Cape May	Forgetmenot (Wildwood Crest)	1	once a week	17	0%	0	N/A
Cape May	Grant (Cape May City)	1	once a week	17	0%	0	N/A
Cape May	Hollywood (Wildwood Crest)	1	once a week	17	0%	0	N/A
Cape May	Jefferson (Wildwood Crest)	1	once a week	17	0%	0	N/A
Cape May	Lavendar (Wildwood Crest)	1	once a week	17	0%	0	N/A
Cape May	Maple (Wildwood)	1	once a week	18	6%	0	N/A
Cape May	Miami (Wildwood Crest)	1	once a week	17	0%	0	N/A
Cape May	Montgomery (Wildwood)	1	once a week	17	0%	0	N/A
Cape May	North (Ocean City)	1	once a week	17	0%	0	N/A
Cape May	Ocean (Cape May Point)	1	once a week	17	0%	0	N/A
Cape May	Ocean Ave. (Cape May City)	1	once a week	17	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Cape May	Ocean City Yacht Club (Ocean City)	1	once a week	17	0%	0	N/A
Cape May	Orchid (Wildwood Crest)	1	once a week	17	0%	0	N/A
Cape May	Park (Ocean City)	1	once a week	17	0%	0	N/A
Cape May	Philadelphia (Cape May City)	1	once a week	17	0%	0	N/A
Cape May	Poverty (Cape May City)	1	once a week	17	0%	0	N/A
Cape May	Queen North (Cape May City)	1	once a week	17	0%	0	N/A
Cape May	Richmond Ave (Lower Township)	1	once a week	17	0%	0	N/A
Cape May	Schellenger (Wildwood)	1	once a week	18	6%	0	N/A
Cape May	SIC Yacht Club (Sea Isle City)	1	once a week	17	0%	0	N/A
Cape May	Surf (Ocean City)	1	once a week	17	0%	0	N/A
Cape May	Webster (Upper Twp)	1	once a week	17	0%	0	N/A
Cape May	Whildin (Cape May Point)	1	once a week	17	0%	0	N/A
Cape May	Williard (Upper Twp)	1	once a week	18	6%	0	N/A
Cape May	WW Crest Yacht Club (Wildwood Crest)	1	once a week	18	6%	0	N/A
Cape May	WW Gables Yacht Club (Wildwood Crest)	1	once a week	18	6%	0	N/A
Cape May	Yacht Club (Avalon)	1	once a week	17	0%	0	N/A
Monmouth	1st Avenue (Asbury Park)	1	once a week	17	0%	2	N/A
Monmouth	3rd (Asbury Park)	1	once a week	19	0%	0	N/A
Monmouth	7th (Asbury Park)	1	once a week	17	0%	0	N/A
Monmouth	7th Avenue (Belmar)	1	once a week	19	0%	0	N/A
Monmouth	12th (Belmar)	1	once a week	17	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Monmouth	20th Avenue (Belmar)	1	once a week	19	0%	0	N/A
Monmouth	Area C - Surf Beach (Sandy Hook)	1	once a week	18	6%	0	N/A
Monmouth	Area E - Visitor Center (Sandy Hook)	1	once a week	17	0%	0	N/A
Monmouth	Army Rec. Beach (Sandy Hook)	1	once a week	17	0%	0	N/A
Monmouth	Baltimore (Sea Girt)	1	once a week	19	0%	0	N/A
Monmouth	Beacon (Sea Girt)	1	once a week	20	5%	21	N/A
Monmouth	Broadway (Ocean Grove)	1	once a week	19	0%	0	N/A
Monmouth	Brown South (Spring Lake)	1	once a week	19	5%	22	N/A
Monmouth	Cedar (Allenhurst)	1	once a week	20	5%	1	N/A
Monmouth	Deal Casino (Deal)	1	once a week	23	9%	4	N/A
Monmouth	East Main (Manasquan)	1	once a week	17	0%	0	N/A
Monmouth	Elberon Beach Club (Long Branch)	1	once a week	19	5%	1	N/A
Monmouth	Essex (Spring Lake)	1	once a week	19	0%	0	N/A
Monmouth	Evergreen South (Bradley Beach)	1	once a week	18	0%	0	N/A
Monmouth	Fort Hancock (Sandy Hook)	1	once a week	16	0%	0	N/A
Monmouth	Ideal Beach (Middletown)	1	once a week	20	5%	1	N/A
Monmouth	Imperial House (Long Branch City)	1	once a week	19	0%	0	N/A
Monmouth	Inlet Surfing Beach, Riverside Dr. (Manasquan)	1	once a week	19	0%	0	N/A
Monmouth	Joline (Long Branch)	1	once a week	19	0%	0	N/A
Monmouth	L Jetty, Washington Ave (Avon-by-the-Sea Boro)	1	once a week	19	0%	0	N/A
Monmouth	L Street Beach (Belmar)	1	once a week	25	20%	13	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Monmouth	Laird (Long Branch)	1	once a week	17	0%	0	N/A
Monmouth	Main (Ocean Grove)	1	once a week	19	0%	0	N/A
Monmouth	Miller Beach (Highlands)	1	once a week	23	17%	0	N/A
Monmouth	Monmouth Beach Club (Monmouth Beach)	1	once a week	19	0%	0	N/A
Monmouth	Neptune (Sea Girt)	1	once a week	17	0%	0	N/A
Monmouth	New York (Sea Girt)	1	once a week	17	0%	0	N/A
Monmouth	North Bath (Long Branch)	1	once a week	17	0%	0	N/A
Monmouth	Ocean Beach Club (Long Branch)	1	once a week	18	6%	1	N/A
Monmouth	Ocean Park (Bradley Beach)	1	once a week	18	0%	0	N/A
Monmouth	Public Beach (Sea Bright)	1	once a week	19	0%	0	N/A
Monmouth	Rec Center (Highlands)	1	once a week	25	28%	0	N/A
Monmouth	Seven President's Park (Monmouth Beach)	1	once a week	19	0%	0	N/A
Monmouth	Shark River Beach & Yacht Club (Neptune Twp)	1	once a week	22	14%	9	N/A
Monmouth	South Bath (Long Branch City)	1	once a week	19	0%	0	N/A
Monmouth	Spray Ave. (Neptune Twp)	1	once a week	19	0%	2	N/A
Monmouth	Sylvania (Avon)	1	once a week	20	5%	1	N/A
Monmouth	The Terrace (Sea Girt)	1	once a week	19	0%	21	N/A
Monmouth	Thompson (Leonardo)	1	once a week	23	17%	1	N/A
Monmouth	Union (Spring Lake)	1	once a week	20	0%	0	N/A
Monmouth	Village Beach Club (Loch Arbour Village)	1	once a week	18	6%	1	N/A
Monmouth	Washington (Spring Lake)	1	once a week	19	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Monmouth	Worthington (Spring Lake)	1	once a week	20	5%	1	N/A
Monmouth	York Avenue (Spring Lake)	1	once a week	21	5%	21	N/A
Ocean	4th (Dover)	1	once a week	16	0%	0	N/A
Ocean	5th (Seaside Park)	1	once a week	18	6%	0	N/A
Ocean	7th (Brick)	1	once a week	18	0%	0	N/A
Ocean	10th (Barnegat Light)	1	once a week	18	0%	0	N/A
Ocean	12th (Seaside Park)	1	once a week	16	0%	0	N/A
Ocean	14th (Ship Bottom), bay	1	once a week	18	0%	0	N/A
Ocean	14th (Ship Bottom), ocean	1	once a week	18	0%	0	N/A
Ocean	16th (Surf City)	1	once a week	17	0%	0	N/A
Ocean	23rd (South Seaside)	1	once a week	16	0%	0	N/A
Ocean	23rd (Surf City)	1	once a week	18	0%	0	N/A
Ocean	24th (Barnegat Light)	1	once a week	18	0%	0	N/A
Ocean	25th (Barnegat Light)	1	once a week	21	14%	0	N/A
Ocean	75th (Harvey Cedars), bay	1	once a week	19	5%	0	N/A
Ocean	75th (Harvey Cedars), ocean	1	once a week	18	0%	0	N/A
Ocean	Anglesea Avenue (Ocean Gate)	1	once a week	30	10%	0	N/A
Ocean	Bay Beach (Barnegat)	1	once a week	16	0%	0	N/A
Ocean	Beachwood Beach West (Beachwood)	1	once a week	39	31%	1	N/A
Ocean	Bergen (Harvey Cedars)	1	once a week	18	0%	0	N/A
Ocean	Berkeley Island (Berkeley)	1	once a week	17	6%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Ocean	Brick Beach (Brick)	1	once a week	18	0%	0	N/A
Ocean	Brighton (Seaside Park)	1	once a week	16	0%	0	N/A
Ocean	Broadway (Pt Pleasant Beach)	1	once a week	17	0%	0	N/A
Ocean	Brooklyn Ave (Lavallette), bay	1	once a week	19	5%	0	N/A
Ocean	Brooklyn Ave (Lavallette), ocean	1	once a week	16	0%	0	N/A
Ocean	Bryn Mawr (Lavallette)	1	once a week	16	0%	0	N/A
Ocean	Central (Pt Pleasant Beach)	1	once a week	17	0%	0	N/A
Ocean	East Beach (Pine Beach)	1	once a week	29	10%	0	N/A
Ocean	East Tuna Way (Chadwick)	1	once a week	15	0%	0	N/A
Ocean	Fielder (Dover)	1	once a week	16	0%	0	N/A
Ocean	Guyer (Lavallette)	1	once a week	16	0%	0	N/A
Ocean	Hancock (Seaside Heights)	1	once a week	20	15%	0	N/A
Ocean	Island Beach State Park 1 (Island Beach)	1	once a week	17	0%	0	N/A
Ocean	Island Beach State Park 2 (Berkeley Twp)	1	once a week	17	0%	0	N/A
Ocean	Jennifer (Stafford)	1	once a week	16	0%	0	N/A
Ocean	Jersey City (Lavallette)	1	once a week	16	0%	0	N/A
Ocean	Joan (Long Beach)	1	once a week	18	0%	0	N/A
Ocean	Johnson (Bay Head)	1	once a week	16	0%	0	N/A
Ocean	Leeward (Beach Haven)	1	once a week	18	0%	0	N/A
Ocean	Lincoln (Seaside Heights)	1	once a week	17	0%	0	N/A
Ocean	Loveladies (Lovelades)	1	once a week	18	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Ocean	Lyman (Mantoloking)	1	once a week	15	0%	0	N/A
Ocean	Maryland (Pt Pleasant Beach)	1	once a week	17	0%	0	N/A
Ocean	Maxon Avenue (Pt Pleasant)	1	once a week	37	19%	2	N/A
Ocean	Mount (Bay Head)	1	once a week	15	0%	0	N/A
Ocean	New Jersey Avenue (Beach Haven Terrace), Long Beach Twp, bay	1	once a week	20	15%	1	N/A
Ocean	New Jersey Avenue (Beach Haven Terrace), Long Beach Twp, ocean	1	once a week	18	0%	0	N/A
Ocean	North 10th (Surf City)	1	once a week	18	0%	0	N/A
Ocean	North Beach (Dover)	1	once a week	14	0%	0	N/A
Ocean	O St (Seaside Park)	1	once a week	16	0%	0	N/A
Ocean	Parkertown (Little Egg Harbor)	1	once a week	17	6%	0	N/A
Ocean	Princeton (Mantoloking)	1	once a week	15	0%	0	N/A
Ocean	Reese (Lavallette)	1	once a week	20	15%	0	N/A
Ocean	River Avenue (Pt Pleasant)	1	once a week	35	17%	2	N/A
Ocean	Shelter Island (Dover)	1	once a week	17	0%	0	N/A
Ocean	Sheridan (Seaside Heights)	1	once a week	17	0%	0	N/A
Ocean	South 3rd (Ship Bottom)	1	once a week	18	0%	0	N/A
Ocean	Stockton (Beach Haven Crest)	1	once a week	19	11%	0	N/A
Ocean	Stockton (Brant Beach)	1	once a week	18	0%	0	N/A
Ocean	Summit (Island Heights)	1	once a week	29	7%	0	N/A
Ocean	Taylor (Beach Haven)	1	once a week	18	0%	0	N/A
Ocean	Trenton (Lavallette)	1	once a week	16	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Ocean	West Beach (Pine Beach)	1	once a week	32	13%	0	N/A
Ocean	Wildwood Avenue (Ocean Gate)	1	once a week	29	3%	0	N/A
Ocean	Windward Beach (Brick)	1	once a week	35	20%	2	N/A

Notes

Virginia Loftin, New Jersey Department of Environmental Protection, personal communication, April 2012.

U.S. EPA, "Floatables Action Plan" (web site), accessed at www.epa.gov/region02/water/action_plan, April 2012.

New Jersey Department of Environmental Protection, "Cooperative Coastal Monitoring Program Summary Report for 2011," March 2012.

New Jersey Department of Environmental Protection, "Rapid Methods Demonstration Project" (web site), accessed at www.njbeaches.org/qpcr.htm, April 2012.

Testing the Waters: New York

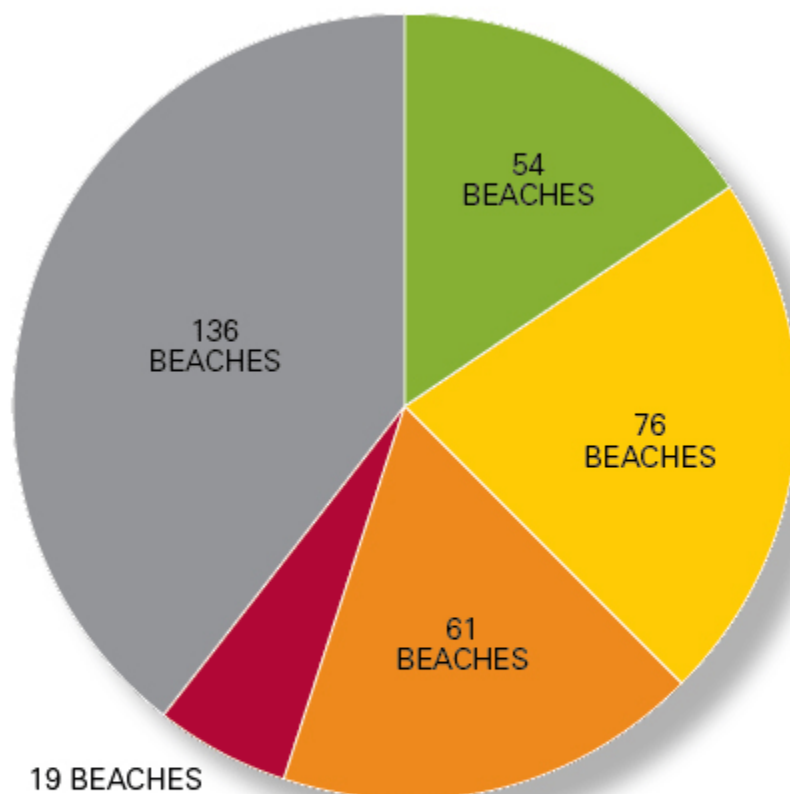
Ranked 24th in Beachwater Quality (out of 30 states)

10% of samples exceeded national standards for designated beach areas in 2011

In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in New York

New York 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination

(number of closing/advisory days; includes reported sources of advisories and closures that were issued for non-contamination-related reasons, if any)

- 1,612 (88%) stormwater runoff
- 294 (16%) sewage spills/leaks
- 159 (9%) unknown contamination sources
- 33 (2%) other contamination sources
- 15 (1%) wildlife

Totals exceed total days and 100% because more than one contamination source was reported for some events.

New York is the only state in the nation with both marine and Great Lakes coastline. There are 127 miles of Atlantic Ocean coastline, 231 miles of shorefront on Long Island Sound, 548 miles of Long Island bayfront, and 83 miles of shorefront on islands off the Long Island coast. In addition to these marine coastlines, there are at least 200 miles of freshwater shoreline on Lake Erie and Lake Ontario. Nearly all of the state's coastal beaches are on Atlantic waters. The coastal beach monitoring program in New York is administered by the New York State Department of Health.

Green Infrastructure in New York City



Photo courtesy of NYC Environmental Protection An enhanced tree pit on Autumn Avenue in Brooklyn helps keep runoff from going down the drain.

More than 70% of New York City's 7,400 miles of sewers are combined sewers that carry sanitary sewage and stormwater runoff in the same pipes. When overwhelmed by the volume of wastewater needing treatment during and immediately after precipitation events, combined sewer systems discharge a mixture of rainfall runoff and raw sewage into area waterways (called combined sewer overflows, or CSOs). These CSOs contain fecal material that compromises the water quality in New York Harbor. Reducing the amount of stormwater runoff that reaches sewage treatment plants is one means of reducing the volume and frequency of these overflows and improving water quality. Green infrastructure is a strategy that reduces runoff by mimicking natural conditions that allow rainwater to infiltrate into the soil. Green infrastructure techniques include the use of porous pavement, green roofs, rain gardens, roadside plantings, and rain barrels that stop rain where it falls, either storing it for later beneficial use or letting it filter into the ground naturally.

In March 2012, the city Department of Environmental Protection (NYCDEP) and New York State reached an agreement to modify an existing enforcement order governing the city's CSO reduction plan, which would alter existing "gray" infrastructure requirements and add new requirements to implement key aspects of the city's Green Infrastructure Plan.² The order eliminates some planned gray projects and substitutes certain others, which are projected to achieve comparable CSO volume reductions on a citywide basis, for a net savings of \$1.4 billion. It also defers until 2017 any decisions on two potential CSO detention tunnels, estimated to cost \$2 billion, to give the city an opportunity to develop green alternatives that could substitute for, or allow the downsizing of, those projects.³ Much of the savings on gray investments will be reinvested to meet the order's

new green infrastructure requirements, which include capturing the first inch of runoff from at least 10 percent of the impervious surfaces in city's combined sewer areas.

In addition to the construction projects being pursued city-wide, the city has been investing significantly in pilot projects to quantify the effectiveness of various green infrastructure technologies in reducing stormwater runoff and to assess long-term operation and maintenance needs.¹

Preventing Floatables from Washing Up on New York City Beaches

CSOs discharged from New York City contain not only fecal material and other pollutants, but floating debris made up of street litter and toilet waste such as hygiene products. When discharged to the New York/New Jersey Harbor Complex, the floating debris tends to collect into slicks that can wash up on beaches. The multi-agency Floatables Action Plan employs several means of controlling floating debris, such as helicopter surveillance to locate slicks, catch basins to reduce the discharge of street litter to sewers, increased street cleaning in some neighborhoods, skimmer vessels fitted with nets that collect floating debris, floating booms that trap debris near sewer-system discharge points for later collection, and sewer-system improvements intended to maximize the ability to retain floating debris.

The NYCDEP also maintains 24 floatables containment facilities that capture floatables from approximately 60,000 acres of the city before they enter the ocean. In addition, NYCDEP has a shoreline dumping prevention program to monitor for evidence of recent illegal disposal activities. Findings are reported to the Department of Sanitation police for follow-up and apprehension of illegal dumpers.⁴

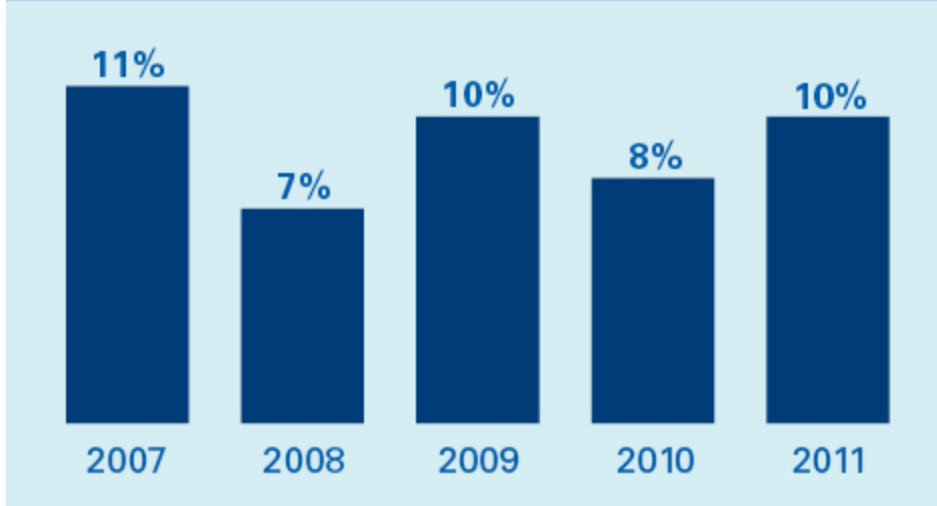
These methods have prevented tons of floating debris from reaching area beaches each year.

What Does Beachwater Monitoring Show?

In 2011, New York reported 346 coastal swimming beaches and beach segments. Of these, 2 (1%) were assigned a daily monitoring frequency, 88 (25%) more than once a week, and 256 (74%) once a week. In New York, swimming is prohibited at beaches that are not open. Twenty-six beaches on New York's beach list were not open in 2011. These beaches (indicated on the beach list with a † symbol) were not included in New York's beach count because they were not bathing beaches in 2011.⁵ Some of the beaches that were closed all year were monitored as part of water quality investigations even though swimming was not allowed, and their sample results are included in NRDC's analysis. In 2011, 10% of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml for marine beaches and 235 colonies/100 ml for Great Lakes beaches.

The beaches with the highest percent exceedance rates of the state standard in 2011 were Douglaston Homeowners Association in Queens County (42%), Krull Park in Niagara County (41%), Woodlawn Beach—Woodlawn Beach State Park in Erie County (32%), and Shore Acres Club in Westchester County (32%). Beaches in Niagara County had the highest exceedance rate of the state standards in 2011 (31%), followed by Monroe (25%), Chautauqua (20%), Erie (16%), Queens (15%), Jefferson (14%), Bronx (11%), Westchester (11%), Nassau (8%), Suffolk (7%), Richmond (7%), Kings (7%), and Oswego (1%) counties. There were no exceedances in Cayuga and Wayne counties. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.

New York Percent of Samples Exceeding the State's Daily Maximum Bacterial Standard for 309 Beaches Reported 2007-2011



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are New York's Sampling Practices?

The monitoring season generally extends from May to September. Sampling practices, locations, and notification protocols for coastal beaches in the state have been established by each of the administering agency's 11 contractors in accordance with U.S. EPA guidance criteria for the requirements of the BEACH Act grant. Water samples are collected at knee depth in water that is approximately three feet deep. Monitoring locations and sampling frequency depend on a variety of factors, including (but not limited to) potential pollution sources, historical water quality, and physical characteristics of the beach property.

Samples taken as part of sanitary surveys and special studies may be taken at outfalls and other sources.⁶ Some jurisdictions sample more frequently once an exceedance of standards is found.

How Many Beach Closings and Advisories Were Issued in 2011?

Total closing/advisory days for 856 events lasting six consecutive weeks or less increased 93% to 1,841 days in 2011 from 956 days in 2010. For prior years, there were 1,775 days in 2009, 1,610 days in 2008, 1,547 days in 2007, 1,280 days in 2006, and 827 days in 2005. (Note that while New York City treats the six segments at Coney Island Beach as one beach for notification purposes and the eight segments at Rockaway Beach as one beach for notification purposes, there are multiple monitoring locations at each beach, and NRDC has chosen to report the water quality results for each of these monitoring stations separately. While New York City's records for Coney Island Beach, for example, would show 5 advisory days in 2011 at this beach, NRDC reports 5 days for each segment for a total of 30 advisory days at this beach.) In addition, there were 2 extended events (105 days total) and one permanent event (101 days) in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 856 events lasting six consecutive weeks or less, 26% (481) of closing/advisory days were due to monitoring that revealed elevated bacteria levels, 11% (211) were preemptive due to other reasons, 65% (1,204) were preemptive due to heavy rainfall, and 2% (28) were preemptive due to known sewage spills or leaks. Totals exceed total days and 100% because 11 events, predominantly in Monroe County, were preemptive due to rain and poor water clarity as well as monitoring that revealed high bacteria levels.

During the 2011 swim season, beaches in New York City were impacted by a nearly 200-million-gallon sewage spill into the Hudson River, record-breaking storms, and Hurricane Irene. During the sewage spill, which

occurred after a fire on July 20 in the engine room of the North River Treatment plant, the city monitored results of samples collected throughout the harbor and used the Regional Bypass Model to predict the movement and flow of the plume of sewage. Many beaches were closed and/or placed under advisory due to the spill. Hurricane Irene and a separate storm that carried the highest recorded rainfall in a single day (7.72 inches) in mid-August contributed to the wettest August on record for New York City, with Central Park experiencing 18.95 inches of rainfall, besting the previous August record of 16.85 inches, set in 1882. These storms produced localized flooding and resulted in advisories and closures at beaches in the area.⁷

How Does New York Determine When to Warn Visitors About Swimming?

Both closings and advisories are issued for beaches in the state. For marine beaches, New York uses an enterococcus single-sample maximum of 104 cfu/100 ml. For freshwater beaches, New York uses an E. coli single-sample maximum of 235 cfu/100 ml or 61 cfu/100 ml for enterococcus. Whether or not geometric mean standards are applied when making closing and advisory decisions depends on the local beach authority.⁶ In addition to the single-sample maximum standard for marine beaches, New York City applies a geometric mean standard for enterococcus of 35 cfu/100 ml for a series of five or more samples collected during a 30-day period.⁷

When water quality monitoring reveals an exceedance of bacterial standards, the local beach authority either notifies the public or resamples if there is reason to doubt the validity of the original sample result. Resampling is performed no more than 24 hours after the routine monitoring results indicated an exceedance. If the resample exceeds the water quality standard, a closing or advisory is issued. At New York City beaches that are found to have elevated bacteria levels, the department either conducts immediate resampling, issues a pollution advisory and conducts resampling; or closes the beach and conducts resampling.⁴

All of the counties with marine beaches and most of the counties with Great Lakes beaches issue preemptive advisories based on rainfall amounts or other conditions. A sanitation and safety survey or investigation that reveals the presence of floatable debris, medical/infectious waste, toxic contaminants, petroleum products, and/or other contamination on the beach or evidence of sewage and wastewater discharge can trigger an advisory or closing.

Several of New York's beachwater quality contracting entities have developed models of various designs and complexity for their beaches. For example, Monroe County uses a model based on amount of rainfall, the flow rate of the Genesee River, turbidity, algae, and other organic debris. The Interstate Environmental Commission initiated the development of an extensive hydrodynamic loading model (the Regional Bypass Model), which is integrated into the beach monitoring and notification programs of the New York City Department of Health and Mental Hygiene and the Westchester County Health Department. Erie and Monroe counties and the New York State Office of Parks, Recreation and Historic Preservation are working with the United States Geological Survey to examine predictive models using EPA's Virtual Beach Software. Chautauqua County has also developed models using Virtual Beach.⁸

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Bronx	American Turners	1	once a week	66	18%	27	N/A
Bronx	Danish American Beach Club	1	once a week	63	5%	16	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Bronx	Golden Beach Club†	3	none	0	n/a	0	N/A
Bronx	Locust Point Yacht Club	1	once a week	60	10%	21	N/A
Bronx	Manhem Beach Club	1	once a week	63	13%	23	N/A
Bronx	Morris Yacht and Beach Club	1	once a week	60	12%	16	N/A
Bronx	Orchard Beach	1	once a week	60	2%	5	N/A
Bronx	Schuyler Hill Civic Association	1	once a week	66	6%	19	N/A
Bronx	Trinity Danish Young People's Society	1	once a week	66	23%	28	N/A
Bronx	West Fordham Street Association	1	once a week	66	5%	17	N/A
Bronx	White Cross Fishing Club	1	once a week	63	19%	25	N/A
Cayuga	Fair Haven Beach State Park	1	once a week	39	0%	0	N/A
Chautauqua	Blue Water Beach	3	once a week	28	7%	2	N/A
Chautauqua	Lake Erie State Park Beach†	1	none	0	n/a	0	N/A
Chautauqua	Main Street Beach†	1	none	16	31%	0	N/A
Chautauqua	Point Gratiot Beach - East	2	once a week	18	17%	10	N/A
Chautauqua	Point Gratiot Beach - West	2	once a week	17	29%	25	N/A
Chautauqua	Sheridan Bay Park†	3	none	13	8%	0	N/A
Chautauqua	Sunset Bay Beach Club	3	once a week	17	18%	4	N/A
Chautauqua	Town of Hanover Beach	3	once a week	18	22%	6	N/A
Chautauqua	Wright Park - East†	1	none	16	31%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Chautauqua	Wright Park - West	1	once a week	18	22%	25	N/A
Erie	Bennett Beach	1	twice a week	89	12%	8	N/A
Erie	Evangola State Park Beach	1	once a week	15	7%	0	N/A
Erie	Evans Town Park	1	twice a week	90	12%	13	N/A
Erie	Hamburg Bathing Beach	1	twice a week	88	23%	23	N/A
Erie	Lake Erie Beach	1	twice a week	90	18%	18	N/A
Erie	Pioneer Camp	2	twice a week	66	11%	7	N/A
Erie	Point Breeze Camp†	3	none	4	0%	0	N/A
Erie	St. Vincent Depaul Beach	2	twice a week	71	18%	9	N/A
Erie	Wendt Beach	1	twice a week	89	8%	9	N/A
Erie	Woodlawn Beach - Woodlawn Beach State Park	1	once a week	81	32%	26	N/A
Jefferson	Southwick Beach State Park	2	once a week	22	14%	0	N/A
Jefferson	Westcott Beach - Main	2	once a week	21	14%	0	N/A
Jefferson	Westcott Beach State Park - Camps†	2	none	0	n/a	0	N/A
Kings	Coney Island - W. 8th St. to Pier	2	once a week	25	4%	5	N/A
Kings	Coney Island Beach - Brighton 6th - Ocean Parkway	2	once a week	25	0%	5	N/A
Kings	Coney Island Beach - Brighton 15th - 6th	2	once a week	20	5%	5	N/A
Kings	Coney Island Beach - Ocean Parkway - W. 8th	2	once a week	20	0%	5	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kings	Coney Island Beach - W. 16th - 27th	2	once a week	20	0%	5	N/A
Kings	Coney Island Beach - W. 28th - W. 37th	2	once a week	25	0%	5	N/A
Kings	Gerritsen/Kiddie Beach	1	once a week	66	18%	35	N/A
Kings	Kingsborough Community College	1	once a week	63	5%	8	N/A
Kings	Manhattan Beach	1	once a week	63	6%	7	N/A
Kings	Seagate Beach - 38th Street	2	once a week	63	10%	12	N/A
Kings	Seagate Beach - 42nd Street	2	once a week	84	7%	12	N/A
Monroe	Durand Beach	1	once a day	84	20%	28	N/A
Monroe	Hamlin Beach - Area 4	1	once a week	94	18%	3	N/A
Monroe	Hamlin Beach State Park - Area 3	1	once a week	93	23%	9	N/A
Monroe	Ontario Beach	1	once a day	270	30%	38	N/A
Nassau	Atlantic Beach Club	3	twice a month	13	0%	0	N/A
Nassau	Atlantic Beach Estates	3	twice a month	18	0%	1	N/A
Nassau	Bar Beach	1	once a week	42	19%	11	N/A
Nassau	Beekman Beach	3	twice a month	54	26%	0	N/A
Nassau	Biltmore Beach	1	once a week	133	14%	13	N/A
Nassau	Catalina Beach	3	twice a month	10	0%	1	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Nassau	Centre Island Bay Beach	2	once a week	54	6%	0	N/A
Nassau	Centre Island Sound Beach	2	once a week	56	2%	8	N/A
Nassau	Clearwater Cabana Beach	3	twice a month	13	0%	0	N/A
Nassau	Crescent Beach	2	once a week	135	24%	0 (101)	N/A
Nassau	Dutchess Boulevard Beach	3	twice a month	15	0%	1	N/A
Nassau	East Atlantic Beach	3	twice a month	19	0%	0	N/A
Nassau	Eldorado Beach	3	twice a month	10	0%	1	N/A
Nassau	Genessee Boulevard Beach	3	twice a month	13	0%	1	N/A
Nassau	Harbor Isle Beach	2	once a week	23	13%	0	N/A
Nassau	Hempstead Harbor Beach Park	1	once a week	38	13%	0	N/A
Nassau	Hewlett Beach	1	once a week	40	10%	8	N/A
Nassau	Inc. Village of Laurel Hollow	1	once a week	59	24%	27	N/A
Nassau	Inwood Beach Club	3	twice a month	10	0%	0	N/A
Nassau	Island Park Beach	1	once a week	38	8%	8	N/A
Nassau	Jefferson Boulevard Beach	3	twice a month	10	0%	1	N/A
Nassau	Jones Beach - West†	2	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Nassau	Jones Beach - Zach's Bay	1	twice a week	21	5%	0	N/A
Nassau	Jones Beach State Park-Central	2	once a week	48	0%	0	N/A
Nassau	Lattington Beach	2	once a week	55	15%	8	N/A
Nassau	Lawrence Beach	3	twice a month	10	0%	0	N/A
Nassau	Lido Beach - Towers Condo	3	twice a month	10	0%	0	N/A
Nassau	Lido Beach Park District	3	twice a month	32	0%	0	N/A
Nassau	Lido Beach West	3	twice a month	18	0%	0	N/A
Nassau	Long Beach City	3	twice a month	59	0%	0	N/A
Nassau	Manor Haven Beach	2	once a week	21	5%	0	N/A
Nassau	Merrick Estates Civic Association	1	once a week	32	16%	7	N/A
Nassau	Montgomery Boulevard Beach	2	once a week	14	0%	1	N/A
Nassau	Morgan Memorial Beach	3	twice a month	57	23%	13	N/A
Nassau	Nassau Beach Central Terrace	3	twice a month	18	0%	0	N/A
Nassau	Nassau Beach East Terrace	3	twice a month	10	0%	0	N/A
Nassau	Nassau Beach West Terrace	3	twice a month	10	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Nassau	Ocean Club Beach	3	twice a month	10	0%	0	N/A
Nassau	Pebble Cove Homeowners' Association	3	twice a month	10	0%	0	N/A
Nassau	Phillip Healey	1	once a week	44	9%	8	N/A
Nassau	Piping Rock Beach	2	once a week	62	16%	16	N/A
Nassau	Plaza Beach	3	twice a month	10	0%	0	N/A
Nassau	Plaza Beach Club	3	twice a month	11	0%	0	N/A
Nassau	Plaza West	3	twice a month	10	0%	0	N/A
Nassau	Point Lookout Park District	3	twice a month	19	0%	0	N/A
Nassau	Prybil Beach	2	once a week	53	4%	8	N/A
Nassau	Putnam Beach	3	twice a month	14	0%	1	N/A
Nassau	Ransom Beach	2	once a week	56	9%	8	N/A
Nassau	Sands At Atlantic	3	twice a month	14	0%	0	N/A
Nassau	Seacliff Beach	1	once a week	40	8%	13	N/A
Nassau	Silver Point Beach Club	3	twice a month	18	0%	0	N/A
Nassau	Soundside Beach	2	once a week	54	2%	8	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Nassau	Stehli Beach	2	once a week	59	14%	8	N/A
Nassau	Sun and Surf Beach	3	twice a month	14	0%	0	N/A
Nassau	Sunny Atlantic Beach	3	twice a month	10	0%	0	N/A
Nassau	Tappan Beach	1	once a week	39	5%	8	N/A
Nassau	The Creek Beach	2	once a week	55	5%	10	N/A
Nassau	Theodore Roosevelt Beach	1	once a week	57	9%	8	N/A
Nassau	Tobay Beach - Bay	1	once a week	27	0%	0	N/A
Nassau	Tobay Beach - Marina	3	twice a month	28	0%	0	N/A
Nassau	Tobay Beach - Ocean	2	once a week	28	0%	0	N/A
Nassau	Town House Apartments at Lido	3	twice a month	13	0%	0	N/A
Nassau	Town Park - Area D Sands/Lido/Anchor	3	twice a month	18	0%	0	N/A
Nassau	Town Park Camp Anchor	3	twice a month	10	0%	0	N/A
Nassau	Town Park Point Lookout	3	twice a month	50	0%	0	N/A
Nassau	Vernon Avenue Beach	3	twice a month	18	0%	0	N/A
Nassau	Village Club At Sands Point	3	twice a month	21	10%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Nassau	West Harbor Memorial Beach	2	once a week	54	2%	0	N/A
Nassau	Westbury Beach Club	3	twice a month	10	0%	0	N/A
Niagara	Krull Park	1	once a week	34	41%	23	N/A
Niagara	Wilson - Tuscarora State Park Beach	1	once a week	11	0%	0	N/A
Oswego	Brennan's Beach	2	twice a month	13	0%	0	N/A
Oswego	Chedmardo	2	twice a month	13	0%	0	N/A
Oswego	Dowie Dale	2	twice a month	13	0%	0	N/A
Oswego	Mexico Point State Park (Town)	2	twice a month	17	6%	12	N/A
Oswego	Rainbow Shores	2	twice a month	13	0%	0	N/A
Oswego	Sandy Island Beach	1	once a week	14	0%	0	N/A
Oswego	Selkirk Shores State Park Beach†	1	none	0	n/a	0	N/A
Queens	Breezy Point - 219th Street	3	twice a month	22	23%	10	N/A
Queens	Breezy Point - Reid Ave.	3	twice a month	15	0%	4	N/A
Queens	Douglaston Homeowners Association	1	once a week	69	42%	0 (105)	N/A
Queens	Rockaway Beach - 9th - 13 th	3	twice a month	11	0%	4	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Queens	Rockaway Beach - 15th - 22nd	3	twice a month	11	0%	4	N/A
Queens	Rockaway Beach - 23rd - 59th	3	twice a month	11	0%	4	N/A
Queens	Rockaway Beach - 59th - 80th	3	twice a month	11	0%	4	N/A
Queens	Rockaway Beach - 80th - 95th	3	twice a month	11	0%	4	N/A
Queens	Rockaway Beach - 95th - 116th	3	twice a month	11	0%	4	N/A
Queens	Rockaway Beach - 116th St. to 126th	3	twice a month	11	0%	4	N/A
Queens	Rockaway Beach - 126th - 149th	3	twice a month	11	0%	4	N/A
Queens	Whitestone Booster Civic Association	1	once a week	66	8%	24	N/A
Richmond	Cedar Grove	2	once a week	89	3%	16	N/A
Richmond	Midland Beach	2	once a week	90	4%	15	N/A
Richmond	South Beach	2	once a week	96	13%	19	N/A
Richmond	Wolfe's Pond Park	1	once a week	69	9%	7	N/A
Suffolk	Alberts Landing Beach	3	once a month	3	0%	3	N/A
Suffolk	Amagansett Beach Association	3	once a month	4	0%	0	N/A
Suffolk	Amityville Beach	1	twice a week	38	11%	7	N/A
Suffolk	Asharoken Beach	2	once a week	39	10%	7	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Suffolk	Atlantic Avenue Beach	3	once a month	4	0%	0	N/A
Suffolk	Atlantique Beach - Bay	2	once a week	9	0%	3	N/A
Suffolk	Atlantique Beach - Ocean	3	once a month	3	0%	0	N/A
Suffolk	Bath and Tennis Hotel	3	once a month	3	0%	0	N/A
Suffolk	Bathing Corp of Southampton	3	once a month	3	0%	0	N/A
Suffolk	Bay Hills POA	2	once a week	28	0%	7	N/A
Suffolk	Bayberry Beach and Tennis Club	2	once a week	40	5%	7	N/A
Suffolk	Bayberry Cove Beach	2	once a week	9	11%	9	N/A
Suffolk	Baycrest Association Beach	2	once a week	28	0%	7	N/A
Suffolk	Bayport Beach	1	twice a week	38	11%	7	N/A
Suffolk	Bayview Beach	2	once a week	8	13%	9	N/A
Suffolk	Beech Road Beach	1	twice a week	31	10%	9	N/A
Suffolk	Belle Terre Beach	2	once a week	20	5%	4	N/A
Suffolk	Bellport Beach	3	once a month	3	0%	0	N/A
Suffolk	Benjamins Beach	1	twice a week	41	17%	8	N/A
Suffolk	Boys and Girls Harbort	3	none	0	n/a	0	N/A
Suffolk	Bridgehampton Club	3	once a month	3	0%	0	N/A
Suffolk	Bridgehampton Tennis and Surf	3	once a month	3	0%	0	N/A
Suffolk	Brightwaters Beach	2	once a week	38	3%	7	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Suffolk	Broadway Beach	1	twice a week	28	7%	11	N/A
Suffolk	Brookhaven Bathing Association†	3	none	0	n/a	0	N/A
Suffolk	Callahan's Beach	2	once a week	35	0%	6	N/A
Suffolk	Camp Alvernia†	3	none	0	n/a	0	N/A
Suffolk	Camp Baiting Hollow	3	once a month	10	10%	3	N/A
Suffolk	Camp Blue Bay	2	once a week	3	0%	3	N/A
Suffolk	Camp Dewolfe	3	once a month	10	0%	3	N/A
Suffolk	Camp Quinipet	3	once a month	10	10%	3	N/A
Suffolk	Camp Tekakwitha†	3	none	0	n/a	0	N/A
Suffolk	Cedar Beach	3	once a month	5	0%	0	N/A
Suffolk	Cedar Beach - East (Mt. Sinai)	2	once a week	27	4%	4	N/A
Suffolk	Cedar Beach - West	2	once a week	27	0%	4	N/A
Suffolk	Centerport Beach	2	once a week	35	9%	7	N/A
Suffolk	Centerport Yacht Club†	1	none	35	14%	0	N/A
Suffolk	Clearwater Beach	3	once a month	3	0%	3	N/A
Suffolk	Club At Point O'woods - Ocean	3	once a month	2	0%	0	N/A
Suffolk	Cold Spring Harbor Beach Club	1	twice a week	54	19%	7	N/A
Suffolk	Coopers Neck Beach	3	once a month	3	0%	0	N/A
Suffolk	Copiague Harbor	2	once a week	36	14%	10	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Suffolk	Corey Creek Beach	2	once a week	38	8%	7	N/A
Suffolk	Cornell Co-Operative Extension Marine Center	3	once a month	10	0%	3	N/A
Suffolk	Crab Meadow Beach	2	once a week	34	3%	6	N/A
Suffolk	Crescent Beach - Shelter Island	3	twice a month	9	0%	3	N/A
Suffolk	Crescent Beach - Suffolk	2	once a week	28	0%	7	N/A
Suffolk	Culloden Shores	3	once a month	4	0%	3	N/A
Suffolk	Cupsogue County Park	3	once a month	3	0%	0	N/A
Suffolk	Davis Park Beach	3	once a month	3	0%	0	N/A
Suffolk	Devon Yacht Club, Inc.	3	once a month	3	0%	3	N/A
Suffolk	Ditch Plains Beach	3	once a month	4	0%	0	N/A
Suffolk	Dorothy P. Flint Camp	3	once a month	9	0%	3	N/A
Suffolk	Dune Deck Hotel	3	once a month	3	0%	0	N/A
Suffolk	Dunewood Beach	3	once a month	3	0%	0	N/A
Suffolk	Dunewood Poa Beach - Bay	2	once a week	9	0%	3	N/A
Suffolk	Eagle Dock Community Beach	1	twice a week	54	15%	8	N/A
Suffolk	East Islip Beach	2	once a week	35	3%	7	N/A
Suffolk	East Lake Drive Beach	3	once a month	4	0%	3	N/A
Suffolk	Fair Harbor - Ocean	3	once a month	3	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Suffolk	Fair Harbor Community Association - Bay	2	once a week	9	0%	3	N/A
Suffolk	Fiddlers Green Association	3	once a month	29	7%	3	N/A
Suffolk	Fifth Street Park Beach	2	once a week	11	0%	3	N/A
Suffolk	Fisher's Island Country Club	3	once a month	1	0%	0	N/A
Suffolk	Fleets Cove Beach	1	twice a week	57	9%	9	N/A
Suffolk	Fleets Neck Beach	3	once a month	11	9%	3	N/A
Suffolk	Flying Point	3	once a month	3	0%	0	N/A
Suffolk	Foster Memorial	3	once a month	6	0%	3	N/A
Suffolk	Founder's Landing	2	once a week	11	9%	3	N/A
Suffolk	Friendship Drive Beach	2	once a week	29	10%	11	N/A
Suffolk	Georgica Beach	3	once a month	3	0%	0	N/A
Suffolk	Gilgo Beach	3	once a month	5	0%	0	N/A
Suffolk	Gold Star Battalion Beach	1	twice a week	55	13%	7	N/A
Suffolk	Goose Creek	2	once a week	11	0%	3	N/A
Suffolk	Grantland Beach	1	twice a week	8	0%	9	N/A
Suffolk	Great Gun Beach	3	once a month	3	0%	0	N/A
Suffolk	Gurney's Inn Resort and Spa	3	once a month	4	0%	0	N/A
Suffolk	Haven's Beach	2	once a week	17	6%	7	N/A
Suffolk	Hay Harbor Club	3	once a month	1	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Suffolk	Head of the Bay Club	2	once a week	29	7%	7	N/A
Suffolk	Heckscher - Overlook Beach	2	once a week	32	0%	0	N/A
Suffolk	Heckscher State Park - West Beach	2	once a week	38	29%	15	N/A
Suffolk	Hermitage At Napeague†	3	none	0	n/a	0	N/A
Suffolk	Hither Hills State Park Beach	2	once a week	17	0%	0	N/A
Suffolk	Hobart Beach - Bay	2	once a week	35	6%	7	N/A
Suffolk	Hobart Beach - Inlet	2	once a week	35	0%	7	N/A
Suffolk	Holiday Beach	1	twice a week	5	0%	6	N/A
Suffolk	Huntington Beach Community Assoc.	1	twice a week	59	15%	12	N/A
Suffolk	Indian Field Beach	2	once a week	7	0%	9	N/A
Suffolk	Indian Wells Beach	3	once a month	4	0%	0	N/A
Suffolk	Iron Pier Beach	3	once a month	11	9%	3	N/A
Suffolk	Island People's Project	3	once a month	1	0%	0	N/A
Suffolk	Islip Beach	2	once a week	44	14%	11	N/A
Suffolk	Kenny's Beach	3	once a month	10	0%	3	N/A
Suffolk	Kirk Park Beach	3	once a month	4	0%	0	N/A
Suffolk	Kismet Beach - Ocean	3	once a month	3	0%	0	N/A
Suffolk	Knollwood Beach	1	twice a week	59	10%	7	N/A
Suffolk	Laronde Beach Club, Inc.	3	once a month	3	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Suffolk	Lashley Pavillion	3	once a month	3	0%	0	N/A
Suffolk	Little Bay Beach	2	once a week	10	10%	9	N/A
Suffolk	Lloyd Harbor Estates	3	once a month	28	0%	3	N/A
Suffolk	Lloyd Harbor Village Park	2	once a week	31	13%	7	N/A
Suffolk	Lloyd Neck Bath Club	2	once a week	31	3%	3	N/A
Suffolk	Long Beach	2	once a week	24	8%	6	N/A
Suffolk	Maidstone Beach	3	once a month	3	0%	0	N/A
Suffolk	Maidstone Club, Inc.	3	once a month	3	0%	3	N/A
Suffolk	Main Beach	3	once a month	3	0%	0	N/A
Suffolk	Mattituck Breakwater Beach	2	once a week	10	0%	3	N/A
Suffolk	Mccabe's Beach	3	once a month	10	0%	3	N/A
Suffolk	Mecox Beach	3	once a month	3	0%	0	N/A
Suffolk	Meschutt Beach	3	once a month	6	0%	3	N/A
Suffolk	Miller Beach Surf Club	2	once a week	28	4%	4	N/A
Suffolk	Miller Place Park Beach	2	once a week	28	11%	9	N/A
Suffolk	Minasseroke Beach†	1	none	0	n/a	0	N/A
Suffolk	Nassau Point Causeway	3	once a month	11	0%	3	N/A
Suffolk	Nathan Hale Beach Club	2	once a week	29	3%	7	N/A
Suffolk	New Suffolk Beach	3	once a month	11	9%	3	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Suffolk	Newport Beach Poa†	3	none	0	n/a	0	N/A
Suffolk	Nick's Beach	3	once a month	4	0%	0	N/A
Suffolk	Nissequogue Point Beach	2	once a week	19	11%	6	N/A
Suffolk	Norman Klipp Park	3	once a month	11	0%	3	N/A
Suffolk	Ocean Beach - Bay	2	once a week	9	0%	3	N/A
Suffolk	Ocean Beach - Ocean	3	once a month	3	0%	0	N/A
Suffolk	Ocean Colony & Tennis Club†	3	none	0	n/a	0	N/A
Suffolk	Old Field Club	2	once a week	24	17%	3	N/A
Suffolk	Orient Beach State Park	2	once a week	16	0%	0	N/A
Suffolk	Overlook Beach	3	once a month	5	0%	0	N/A
Suffolk	Patchogue Village Pool and Beach Club	2	once a week	33	3%	7	N/A
Suffolk	Peconic Dunes Camp - Sound	3	once a month	11	0%	3	N/A
Suffolk	Perlman Music Camp	3	once a month	9	0%	3	N/A
Suffolk	Pickwick Beach†	3	none	0	n/a	0	N/A
Suffolk	Pikes Beach	3	once a month	3	0%	0	N/A
Suffolk	Point O'Woods Association - Bay	2	once a week	8	13%	3	N/A
Suffolk	Ponquogue Beach	3	once a month	3	0%	0	N/A
Suffolk	Port Jefferson Beach - East	2	once a week	18	0%	4	N/A
Suffolk	Port Jefferson Beach - West	2	once a week	21	0%	4	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Suffolk	Prices Bend Beach	2	once a week	35	11%	8	N/A
Suffolk	Pridwin Hotel	3	once a month	10	10%	3	N/A
Suffolk	Quantuck Beach Club	3	once a month	3	0%	0	N/A
Suffolk	Quogue Beach Club	3	once a month	3	0%	0	N/A
Suffolk	Quogue Village Beach	3	once a month	3	0%	0	N/A
Suffolk	Reeves Beach	3	once a month	10	0%	3	N/A
Suffolk	Robert Moses State Park Beach - Suffolk County	2	once a week	64	6%	0	N/A
Suffolk	Rogers Pavillion	3	once a month	3	0%	0	N/A
Suffolk	Sagg Main Beach	3	once a month	3	0%	0	N/A
Suffolk	Saltaire Beach - Bay	2	once a week	9	0%	3	N/A
Suffolk	Saltaire Beach - Ocean	3	once a month	3	0%	0	N/A
Suffolk	Sandspit Beach†	2	none	36	8%	0	N/A
Suffolk	Sayville Beach	1	twice a week	46	17%	16	N/A
Suffolk	Sayville Marina Park	1	twice a week	40	13%	7	N/A
Suffolk	Schubert Beach	2	once a week	24	13%	6	N/A
Suffolk	Scotts Beach	2	once a week	29	14%	12	N/A
Suffolk	Seaview - Ocean	3	once a month	3	0%	0	N/A
Suffolk	Seaview Beach Association - Bay	2	once a week	9	0%	3	N/A
Suffolk	Shelter Island Heights Beach Club	2	once a week	9	0%	3	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Suffolk	Shirley Beach	2	once a week	10	0%	7	N/A
Suffolk	Shoreham Beach	2	once a week	3	0%	8	N/A
Suffolk	Shoreham Shore Club	2	once a week	28	7%	8	N/A
Suffolk	Shoreham Village Beach	2	once a week	28	4%	8	N/A
Suffolk	Short Beach	2	once a week	22	14%	6	N/A
Suffolk	Silver Sands Motel	2	once a week	11	9%	3	N/A
Suffolk	Smith Point County Park	3	once a month	5	0%	0	N/A
Suffolk	Sound Beach Poa - East†	1	none	0	n/a	0	N/A
Suffolk	Sound Beach Poa - West	1	twice a week	25	4%	9	N/A
Suffolk	Sound View Beach Association	2	once a week	21	5%	9	N/A
Suffolk	South Jamesport Beach	3	once a month	10	0%	3	N/A
Suffolk	South Lake Drive Beach†	3	none	0	n/a	0	N/A
Suffolk	Southampton Bath and Tennis	3	once a month	3	0%	0	N/A
Suffolk	Southampton Peconic Beach and Tennis Club	3	once a month	6	0%	3	N/A
Suffolk	Southold Beach	3	once a month	11	9%	3	N/A
Suffolk	Steers Beach	2	once a week	41	12%	15	N/A
Suffolk	Stony Brook Beach	2	once a week	21	0%	9	N/A
Suffolk	Stony Brook Yacht Club	1	twice a week	22	5%	9	N/A
Suffolk	Sunken Meadow State Park Beach	2	once a week	32	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Suffolk	Surf Club of Quogue	3	once a month	4	25%	0	N/A
Suffolk	Swordfish Club	3	once a month	3	0%	0	N/A
Suffolk	Tanner Park	1	twice a week	47	17%	40	N/A
Suffolk	Terraces On the Sound	1	twice a week	16	0%	9	N/A
Suffolk	Tiana Beach	3	once a month	3	0%	0	N/A
Suffolk	Tiana Shores Association	2	once a week	6	0%	3	N/A
Suffolk	Tides Property Owners Association	1	twice a week	27	7%	9	N/A
Suffolk	Two-Mile Hollow Beach	3	once a month	3	0%	0	N/A
Suffolk	Valley Grove Beach	1	twice a week	39	23%	17	N/A
Suffolk	Vanderbilt Beach†	1	none	0	n/a	0	N/A
Suffolk	Venetian Shores	1	twice a week	38	8%	7	N/A
Suffolk	Veteran's Memorial Park	3	once a month	12	8%	3	N/A
Suffolk	W. Scott Cameron	3	once a month	3	0%	0	N/A
Suffolk	Wades Beach	3	once a month	9	0%	3	N/A
Suffolk	Wading River Beach	3	once a month	11	9%	3	N/A
Suffolk	Water Mill Beach Club	3	once a month	3	0%	0	N/A
Suffolk	West Islip Beach	1	twice a week	37	0%	7	N/A
Suffolk	West Meadow Beach	2	once a week	24	17%	3	N/A
Suffolk	West Neck Beach	2	once a week	30	7%	3	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Suffolk	West Oaks Recreation Club	2	once a week	37	0%	7	N/A
Suffolk	Westhampton House	3	once a month	3	0%	0	N/A
Suffolk	Wildwood State Park Beach	2	once a week	22	9%	2	N/A
Suffolk	Wincoma Beach	2	once a week	28	14%	7	N/A
Suffolk	Woodcliff Park Poa	3	once a month	10	0%	3	N/A
Suffolk	Woodhull Landing	2	once a week	29	10%	9	N/A
Suffolk	Yardarm Condominium South	3	once a month	3	0%	0	N/A
Wayne	Pultneyville Mariners Beach†	3	none	0	n/a	0	N/A
Wayne	Sodus Point - Bayside	2	twice a month	7	0%	0	N/A
Wayne	Sodus Point - Lake Side	2	twice a month	7	0%	0	N/A
Westchester	American Yacht Club	2	once a week	17	6%	0	N/A
Westchester	Beach Point Club	1	once a week	19	5%	14	N/A
Westchester	Beckwithe Pointe	1	once a week	18	11%	2	N/A
Westchester	Coveleigh Beach Club	2	once a week	17	12%	13	N/A
Westchester	Davenport Club	2	once a week	18	17%	13	N/A
Westchester	Echo Bay Yacht Club	1	once a week	14	0%	13	N/A
Westchester	Glen Island Park	1	once a week	17	6%	2	N/A
Westchester	Greentree Club	1	once a week	18	17%	13	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Westchester	Harbor Island Beach	1	once a week	52	17%	14	N/A
Westchester	Hudson Park	1	once a week	37	14%	13	N/A
Westchester	Isle of San Soceci†	3	none	0	n/a	0	N/A
Westchester	Larchmont Manor Park	1	once a week	16	6%	0	N/A
Westchester	Larchmont Shore Club	1	once a week	17	6%	0	N/A
Westchester	Mamaroneck Beach and Cabana Club	1	once a week	21	14%	14	N/A
Westchester	Manunsing Island Club	2	once a week	16	6%	0	N/A
Westchester	Marinas Edge†	3	none	0	n/a	0	N/A
Westchester	New Rochelle Rowing Club	3	once a week	16	6%	0	N/A
Westchester	Orienta Beach Club	1	once a week	20	5%	14	N/A
Westchester	Rye Playland Beach	1	once a week	17	6%	0	N/A
Westchester	Rye Town Park - Oakland Beach	1	once a week	16	0%	0	N/A
Westchester	Shenorock Shore Club	2	once a week	18	11%	0	N/A
Westchester	Shore Acres Club	1	once a week	19	32%	13	N/A
Westchester	Surf Club	1	once a week	18	11%	0	N/A
Westchester	VIP Club	2	once a week	19	11%	2	N/A
Westchester	Westchester Country Club Beach	1	once a week	17	6%	0	N/A

† These beaches were not open in 2011. In New York, swimming is prohibited at beaches that are not open, so they were not swimming beaches in 2011. Swim advisories and closings are not issued at beaches that are not open.

* Reported closing or advisory days are for events lasting six consecutive weeks or less. Number of days in parentheses are for events lasting more than six consecutive weeks.

Notes

1. Angela O'Haire, NYC Department of Health and Mental Hygiene, personal communication, May 2012.
2. New York State Department of Environmental Protection, "New York City CSO," accessed at www.dec.ny.gov/chemical/77733.html, June 2012.
3. Natural Resources Defense Council, "A Case Study of How Green Infrastructure Is Helping Manage Urban Stormwater Challenges," accessed at www.nrdc.org/water/pollution/rooftopsII/files/RooftopstoRivers_NewYork.pdf, June 2012.
4. Lily Huang, NYC Department of Health and Mental Hygiene, personal communication, January 2012.
5. Eric Wiegert, New York State Department of Health, personal communication, May 2012.
6. Eric Wiegert. New York State Department of Health, personal communication, April 2012.
7. NYC Department of Health and Mental Hygiene, "New York City Beach 2011 Surveillance and Monitoring Program," not dated, accessed at www.nyc.gov/html/doh/downloads/pdf/beach/beach-report-2011.pdf, April 2012.
8. Eric Wiegert, New York State Department of Health, personal communication, June 2012.

Testing the Waters: North Carolina

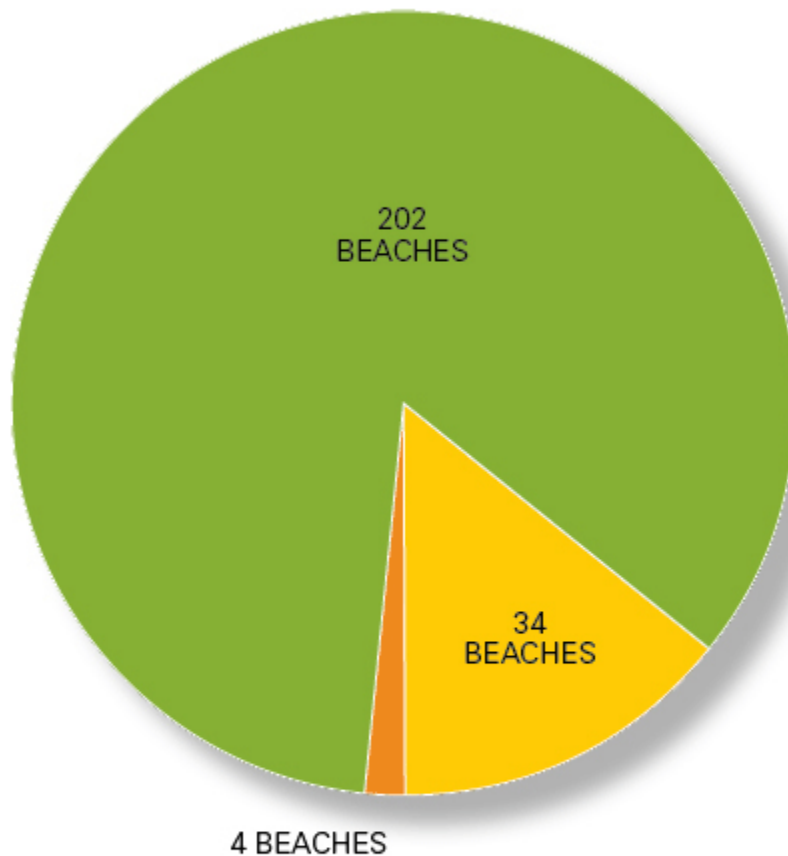
Ranked 3rd in Beachwater Quality (out of 30 states)

3% of samples exceeded national standards for designated beach areas in 2011

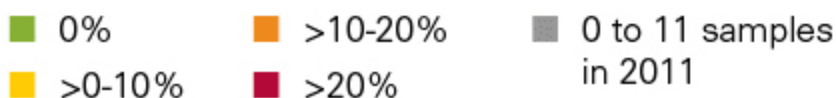
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA's estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in North Carolina

North Carolina 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of closing/advisory days)

- 105 (83%) stormwater runoff
- 26 (21%) wildlife
- 14 (11%) unknown contamination sources

(Totals exceed total days and 100% because more than one contamination source was reported for some events.)

Most of North Carolina's 240 public coastal beaches, which stretch along 320 miles of Atlantic waters, are located on barrier islands. The North Carolina Department of Environment and Natural Resources (NCDENR) administers the state's BEACH Act grant.

Investigating the Use of Rapid Test Methods in Carteret County

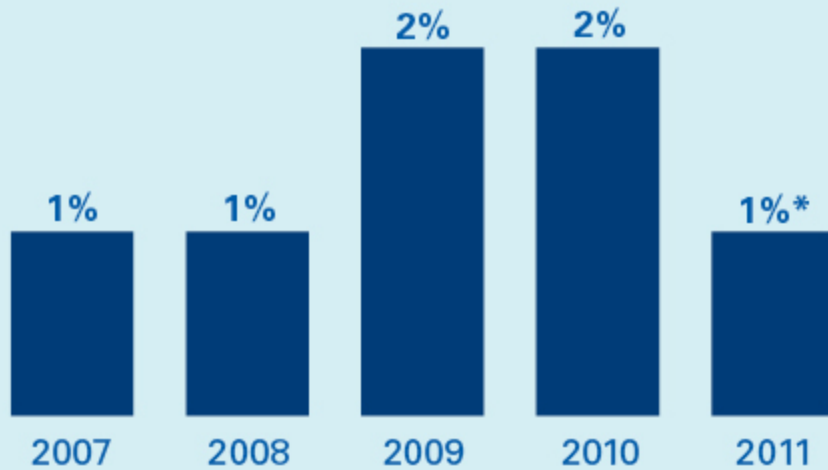
In 2012, several beaches in Carteret County are being monitored using quantitative polymerase chain reaction (qPCR), a DNA detection technique that has been used to get same-day results and issue beachwater quality notifications for pilot projects in California, Wisconsin, and New Jersey. Current approved methods for determining fecal indicator bacteria counts in beachwater depend on growth of cultures in samples and take at least 24 hours to complete, and there is a great deal of interest in technologies that can provide same-day beachwater quality results. If the Carteret County project is implemented, qPCR results will be compared with culture results in order to verify correlations between qPCR and culture methods at these locations.1

What Does Beachwater Monitoring Show?

In 2011, North Carolina reported 240 coastal beaches. Of these, 114 (48%) were assigned a monitoring frequency of once a week, and 126 (52%) every other week. In 2011, 1%2 of all reported beach monitoring samples exceeded the state's daily maximum bacterial standards of 104 colonies/100 ml for Tier 1 beaches, 276 colonies/100 ml for Tier 2 beaches, and 500 colonies/100 ml for Tier 3 beaches. The beaches with the highest percent exceedance rates of the state standards in 2011 were Park on Fish Factory Road in Southport (17%) and Waterway Park (14%) in Brunswick County; Sound Access at the intersection of E. Main Street and Tooley Street in Belhaven in Beaufort County (11%); North Side Mouth of Town Creek in Beaufort in Carteret County (11%); Intracoastal Waterway, beach area between marker #28 and marker #29 (10%), and Oak Island Wildlife ramp off Fish Factory Road (10%) in Brunswick County; Carolina Beach Inlet, north end of Carolina Beach in New Hanover County (10%); and Neuse River/Union Point in Craven County (10%).

Beaches in Pasquotank County had the highest exceedance rate of the state standard in 2011 (5%), followed by Pamlico (3%), New Hanover (2%), Beaufort (2%), Craven (2%), Carteret (2%), Brunswick (2%), and Pender (1%) counties. There were no exceedances in Bertie, Camden, Chowan, Currituck, Dare, Hyde, Onslow, Perquimans, and Tyrell counties. In this analysis, all reported samples were used to calculate the 2011 percent exceedance rates, including duplicate samples and samples taken outside the official beach season, if any.

North Carolina Percent of Samples Exceeding the State's Daily Maximum Bacterial Standard for 205 Beaches Reported 2007-2011



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are North Carolina's Sampling Practices?

North Carolina's swim season is from April 1 to October 31. Monitoring occurs year-round but is less frequent during the off-season, and alerts and advisories are not issued during the off-season.³ Monitoring is conducted in the off-season because it can allow the beach program to find and correct bacteriological problems before the swim season begins.¹

NCDENR conducts sampling and notification activities throughout the coastal waters of the state; these duties are not delegated to local authorities. Samples are collected in a variety of ways. Samples in the ocean surf are taken 16 feet from the sampler's body using a telescopic golf ball retriever in knee-deep water, 6 to 12 inches below the surface of the water. Approximately half of the samples are collected by boat, and these samples are taken in water that is 3 feet deep, 12 inches below the surface. Samples taken from piers must be taken in the most-used area, 6 to 12 inches below the water's surface.

North Carolina prioritizes its beaches for sampling on the basis of usage.¹ Tier 1 beaches are adjacent to resort areas, public accesses, and sailing camps and are used on a daily basis. All ocean beaches are considered Tier 1. Tier 2 beaches are those in such areas as the intracoastal waterway, tidal creeks, and exposed shoals. People frequent Tier 2 sites mostly on weekends and usually access them by watercraft. Tier 3 beaches are used an average of four times per month, or less frequently but intensively for special events such as triathlons. North Carolina regularly monitors all of its beaches, including its Tier 3 beaches.

Beaches with storm drains that extend to the water's edge are sampled 10 feet on either side of the drain when practical. Beaches with storm drains that do not extend to the water's edge are sampled where the water flowing back down the beach from the previous wave meets the next incoming wave.³ States that deliberately sample near potential sources of pollution, such as storm drains, tend to have higher percent exceedance rates than states that don't. Lateral sampling to determine the extent of the bacteria plume from discharging storm drains after a storm is done in Dare County. Lateral sampling is also done at some sites when the running monthly geometric mean water quality standard is exceeded in order to determine the extent of the contaminated area.³ NCDENR samples after storm events, sewage spills, dredge disposal, and floodwater pumping to confirm safe bacteria levels before lifting preemptive advisories.¹ States that monitor more frequently after exceedances are found and after storm or pollution events will tend to have higher percent

exceedance rates and fewer total closing/advisory days than they would if their sampling frequency did not increase after storm or pollution events.

North Carolina also monitors for *Karenia brevis*, a marine algae responsible for causing "red tide," a type of harmful algal bloom. Once a *K. brevis* bloom is detected off the east coast of Florida, satellite imagery is used to locate the Gulf Stream. When the Gulf Stream comes near the North Carolina coast, sampling for *K. brevis* begins.¹ If nearshore *K. brevis* levels present a health concern, beach advisories will be issued, but as yet, such advisories have not been warranted.¹

How Many Beach Advisories Were Issued in 2011?

Total advisory days for 22 events lasting six consecutive weeks or less decreased 75% to 126 days in 2011 from 496 days in 2010. For prior years, there were 233 days in 2009, 168 days in 2008, 123 days in 2007, 346 days in 2006, and 197 days in 2005. There was 1 extended event (47 days) and no permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. All advisory days in 2011 were due to monitoring that revealed elevated bacteria levels.

On August 28, 2011, NCDENR issued a press release saying that there was an increased chance that beaches impacted by the rainfall and flooding from Hurricane Irene were contaminated with elevated levels of pollutants, and that anyone swimming at those beaches had an increased chance of becoming ill.⁴ The press release mentioned sewer overflows and floodwater pumping from coastal towns as potential sources of contamination during and after the storm. Two days later, NCDENR announced that water samples at New Hanover and Carteret county beaches had been tested and were meeting water quality standards for swimming.⁵ On September 1 it was announced that beaches in Brunswick, Pender, Onslow, and Currituck counties were meeting water quality standards, as were Dare County beaches from Kitty Hawk to the Oregon Inlet. At that time, Dare County beaches between the Oregon Inlet and Ocracoke couldn't be tested because of damage caused by Hurricane Irene.⁶ NCDENR does not report this type of blanket advisory to the EPA, so advisory days in this state summary do not include days associated with Hurricane Irene.

How Does North Carolina Determine When to Warn Visitors About Swimming?

NCDENR does not have the authority to close beaches; it issues alerts and advisories only. However, the state and county health directors do have the authority to close any body of water if necessary for the protection of public health.¹ The public is notified of alerts and advisories through avenues that include the Internet and press releases, but signs are posted at the beach only for advisories. Also, advisory days are reported to EPA and included in this state summary, but alerts are not.

North Carolina uses the Enterolert® method for analysis instead of the membrane filtration method. Enterolert® produces bacterial counts in terms of most probable number (mpn) rather than colony forming units (cfu), but both of these values are intended to represent the number of viable organisms in a sample. From May 1 to September 30, North Carolina's water quality standards at its Tier 1 beaches are a single-sample maximum of 104 mpn/100 ml water and a geometric mean of at least 5 of the most recent regularly spaced samples within a 30-day period of 35 mpn/100 ml.¹ This matches the EPA's criterion for designated beach areas. At Tier 2 beaches, the standard is a single-sample maximum of 276 mpn/100 ml, and at Tier 3 beaches, the standard is a single-sample maximum of 500 mpn/100 ml.⁷ North Carolina's single-sample maximum standard for Tier 2 beaches matches EPA's single-sample criterion for moderately used full-body-contact marine beachwater, and its standard for Tier 3 beaches matches EPA's single-sample criterion for lightly used full-body-contact marine beachwater.⁸ The geometric mean standard is not applied to Tier 2 and Tier 3 beaches. During April and October, the standard for Tier 1 beaches is generally the same as the standard for Tier 2 beaches.² However, NCDENR generally opts to apply Tier 1 standards during those months if temperatures are warm enough for high recreational use.¹

North Carolina has an elaborate process for determining when to issue a notification, based on its three tiers.

- Tier 1 beaches whose water quality exceeds standards more than just occasionally are sampled in triplicate, while other Tier 1 beaches have one sample taken per sampling event. For Tier 1 beaches that are sampled in triplicate, an advisory is issued without resampling when two out of three simultaneous samples exceed 104 mpn/100 ml. Between May 1 and September 30 at Tier 1 beaches that are not sampled in triplicate, an alert is issued for beaches when enterococcus levels are between 104 and 500 mpn/100 ml. A second sample is collected immediately when an alert is issued, and if levels in the resample exceed 104 mpn/100 ml, the alert converts to an advisory. It is rare for an alert at a Tier 1 beach to convert to an advisory, in part because alerts are rarely issued at these beaches, which have a history of good water quality. Resamples taken after an alert is issued almost never exceed standards. Alerts do not apply to beaches that are sampled in triplicate. An advisory is issued without a resample at Tier 1 beaches if a single sample is greater than 500 mpn/100 ml or if the geometric mean of at least five of the most recent regularly spaced samples taken over the space of 30 days exceeds 35 mpn/100 ml.
- For Tier 2 beaches, an alert is issued if a sample is between 276 and 500 mpn/100 ml, and a resample is conducted. This alert converts to an advisory if the resample level exceeds 276 mpn/100 ml. An advisory is issued without a resample at Tier 2 beaches if a single sample is greater than 500 mpn/100 ml.
- Alerts are not issued at Tier 3 beaches. Instead, Tier 3 beaches are resampled if fecal indicator bacteria levels are higher than 500 mpn/100 ml, and if the second sample is above that level, an advisory is issued.³

NCDENR observes fecal coliform results from the state's shellfish-growing waters in order to get an indication of water quality at nearby recreational sites, but fecal coliform results are not used to issue advisories or alerts.

During extreme rain events such as tropical storms and hurricanes, NCDENR sometimes issues blanket advisories that cover large regions or all of coastal North Carolina.¹ This type of advisory is not reported to the EPA and does not appear in NRDC's data analysis. In addition, permanent signs are posted on either side of storm drain outfalls stating that swimming between the signs is not recommended and that waters may be contaminated by discharge from the pipe (NRDC data do not include this type of standing advisory).¹ Otherwise, preemptive rainfall advisories (advisories issued after rain before monitoring results are available) are not issued, because according to the state, the beachwater quality monitoring data indicate that water quality at ocean beaches is not affected by rainfall except near storm drains. Preemptive advisories are issued after known sewage spills, when pumping of floodwaters between the primary dune and the ocean beaches occurs, or when dredge material from closed shellfishing waters is placed on ocean beaches.³

North Carolina 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Beaufort	E Shore of Blounts Bay- Pamlico River	2	twice a month	19	0%	0	N/A
Beaufort	Pamlico River- City Park	3	twice a month	20	5%	0	N/A
Beaufort	Pamlico River- Junction of Upper Goose Creek and Dinah's Landing	2	twice a month	19	0%	0	N/A
Beaufort	Pamlico River- Maul's Point	3	twice a	19	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
			month				
Beaufort	Pamlico River- Ragged Point Swim Area	1	once a week	32	0%	0	N/A
Beaufort	Pamlico River- Tripp Point Recreational Area	3	twice a month	19	0%	0	N/A
Beaufort	Pamlico River- Washington- Railroad Trestle	3	twice a month	20	0%	0	N/A
Beaufort	SE of Austin Pt- Pamlico River	2	twice a month	20	0%	0	N/A
Beaufort	Sound access at the intersection of E. Main St. and Tooley St. Belhaven	1	once a week	35	11%	0 (47)	N/A
Beaufort	W of Hills Point- Pamlico River	2	twice a month	19	0%	0	N/A
Bertie	Boat ramp at the intersection of SR 1500 and Vincent St.	3	twice a month	19	0%	0	N/A
Brunswick	Beach access between Bald Head Harbor entrance & Bald Head Cr.	1	once a week	27	0%	0	N/A
Brunswick	Beach Access near Capt. Jack's on Holden Beach	1	once a week	33	0%	0	N/A
Brunswick	Cape Fear River, beach area adjacent to Southport municipal pier	2	twice a month	20	5%	1	N/A
Brunswick	Caswell Beach public Access off Caswell Beach Rd.	1	once a week	33	0%	0	N/A
Brunswick	East Beach area- Beach access #42	1	once a week	27	0%	0	N/A
Brunswick	Ferry Road public access	1	once a week	33	0%	0	N/A
Brunswick	Greensboro St. emergency vehicle access/	1	once a week	33	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	Stormwater outfall pipe						
Brunswick	ICW, marker #59 near Holden Beach	2	twice a month	19	0%	0	N/A
Brunswick	ICW, soundside access at E. end of ocean Isle Bch.	2	twice a month	19	0%	0	N/A
Brunswick	Intracoastal Waterway, beach area adjacent to Howells Pt Wildlife boat ramp	2	twice a month	20	5%	1	N/A
Brunswick	Intracoastal Waterway, beach area between marker #28 & marker #29	3	twice a month	21	10%	0	N/A
Brunswick	Intracoastal Waterway, marker#67 near Holden Beach	3	twice a month	19	0%	0	N/A
Brunswick	Intracoastal Waterway, shoreline adjacent to Ocean isle Wildlife boat ramp	3	twice a month	19	0%	0	N/A
Brunswick	Intracoastal Waterway, waterfront park at end of NE 52nd St	3	twice a month	20	5%	0	N/A
Brunswick	Lighthouse Park; Ed Zaleskiway Way - Oak Island	1	once a week	35	3%	14	N/A
Brunswick	Middleton Public Access - Oak Island	1	once a week	33	0%	0	N/A
Brunswick	Oak Island Wildlife ramp off Fish Factory Rd	3	twice a month	21	10%	0	N/A
Brunswick	Ocean pier at 30th Place West and Beach Dr.	1	once a week	33	0%	0	N/A
Brunswick	Ocean Pier at Causeway and First St.	1	once a week	33	0%	0	N/A
Brunswick	Ocean pier at Main St. and Sunset Blvd.	1	once a week	33	0%	0	N/A
Brunswick	Ocean pier at Ocean Blvd. And Durham St.	1	once a week	33	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Brunswick	Ocean pier between 14th and 15th Place East and Beach Dr.	1	once a week	33	0%	0	N/A
Brunswick	Park on Fish Factory Road in Southport	2	twice a month	23	17%	2	N/A
Brunswick	Public access at 40th and Main St.	1	once a week	33	0%	0	N/A
Brunswick	Public access at Dawson Street - Ocean Isle Beach	1	once a week	33	0%	0	N/A
Brunswick	Public access at Dolphin Street Holden Beach	1	once a week	33	0%	0	N/A
Brunswick	Public access at Driftwood Street - Ocean Isle Beach	1	once a week	33	0%	0	N/A
Brunswick	Public access at First and Chadbourn St.	1	once a week	33	0%	0	N/A
Brunswick	Public access at Ocean Dr. and Keziah St.	1	once a week	33	0%	0	N/A
Brunswick	Public access just west of Mile marker #1	1	once a week	33	0%	0	N/A
Brunswick	Public Access, 46th St/SE and E. Beach Drive - Oak Island	1	once a week	33	0%	0	N/A
Brunswick	Public Access, 58th St/SE and E. Beach Drive - Oak Island	1	once a week	33	0%	0	N/A
Brunswick	Public Access, east end Holden Beach	1	once a week	34	3%	0	N/A
Brunswick	Public access, east end Sunset beach	1	once a week	33	0%	0	N/A
Brunswick	Public Access, west end of Oak Island Drive - Oak Island	3	twice a month	19	0%	0	N/A
Brunswick	South Beach area- Beach access # 17	1	once a week	27	0%	0	N/A
Brunswick	SW side, Holden Beach Bridge	3	twice a	19	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
			month				
Brunswick	Waterway Park	3	twice a month	21	14%	0	N/A
Brunswick	Wildlife Ramp east of Sunset Beach Bridge	2	twice a month	19	5%	0	N/A
Camden	Canal boat ramp on SR 1153	3	twice a month	19	0%	0	N/A
Camden	Sound access on SR 1153	3	twice a month	19	0%	0	N/A
Carteret	1/2 mile W of mile marker 10, oceanside	1	once a week	34	0%	7	N/A
Carteret	1/4 mile W of 20 1/2 mile marker, oceanside	1	once a week	33	0%	0	N/A
Carteret	2 1/4 miles north of Cape Pt near Barden Inlet	1	once a week	76	0%	0	N/A
Carteret	50 yards east of NC Marine Fisheries Dock	2	twice a month	19	0%	0	N/A
Carteret	100 yds. NE Gallant's Channel Bridge by Shore	3	twice a month	19	0%	0	N/A
Carteret	400 yds SE of Bean Island off Core Banks	3	twice a month	19	0%	0	N/A
Carteret	Adams Creek off Silver Dollar Rd	2	twice a month	20	5%	1	N/A
Carteret	AO- Public Beach Access, Inlet Rd., West side junction of Coast Guard and Inlet Dr.	1	once a week	33	0%	0	N/A
Carteret	Bogue Inlet mouth of Coast Guard Channel	2	twice a month	19	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Carteret	Bogue Sd.- Archer Point	3	twice a month	19	0%	0	N/A
Carteret	Bogue Sound- Boat Landing Tourist Center	2	twice a month	19	0%	0	N/A
Carteret	Bogue Sound- Canal Leading to Moonlite Bay	3	twice a month	19	0%	0	N/A
Carteret	Bogue Sound- E side of Mouth of Gales Creek	2	twice a month	19	0%	0	N/A
Carteret	Bogue Sound- Goose Creek, off campground	2	twice a month	19	0%	0	N/A
Carteret	Bouge Sound- W Salter Path, ~200 yds off of Wam Squam Ln	2	twice a month	19	0%	0	N/A
Carteret	Cape Lookout Coast Guard Dock	2	twice a month	19	0%	0	N/A
Carteret	Cedar Is - Bch area SE of Wildlife Ramp adjacent to Ferry Landing	2	twice a month	19	0%	0	N/A
Carteret	Core Sd.- Shell point off Harkers Island	2	twice a month	19	0%	0	N/A
Carteret	Core Sound White Point,	2	twice a month	19	0%	0	N/A
Carteret	Deer Crk - Public access end of Bogue Sound Dr	2	twice a month	19	0%	0	N/A
Carteret	Fort Macon, Park Access	1	once a week	33	0%	0	N/A
Carteret	Harker's Island bridge at swimming area	2	twice a month	19	0%	0	N/A
Carteret	Headen Ln. Salter Path- Soundside ~200	2	twice a	19	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	yds. off shore		month				
Carteret	ICW, marker #44	3	twice a month	19	0%	0	N/A
Carteret	ICW, Ski Beach, channel to Bogue Inlet	2	twice a month	19	0%	0	N/A
Carteret	Indian Beach - Public Beach Access @ mile marker 12	1	once a week	33	0%	0	N/A
Carteret	Knob Island- N side	2	twice a month	19	0%	0	N/A
Carteret	Lennoxville Boat Ramp	3	twice a month	19	0%	0	N/A
Carteret	Mile marker 7 1/2, oceanside	1	once a week	33	0%	0	N/A
Carteret	Mile marker 15, oceanside	1	once a week	34	3%	0	N/A
Carteret	Mile post 4 1/2, oceanside of Pelican Dr.	1	once a week	33	0%	0	N/A
Carteret	Mile post 19 1/2, oceanside	1	once a week	39	0%	0	N/A
Carteret	Morehead City - Drain Pipe at 16th street	2	twice a month	19	0%	0	N/A
Carteret	Mouth of Back Creek - Left Side by Beach	3	twice a month	20	0%	0	N/A
Carteret	N end of Old Ferry Rd., soundside	2	twice a month	19	0%	0	N/A
Carteret	Newport River- Public access NW of Bridge	2	twice a month	19	0%	0	N/A
Carteret	North River- at hwy 70 bridge	2	twice a month	19	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Carteret	North side mouth of Town Creek in Beaufort	1	once a week	108	11%	35	N/A
Carteret	Ocean end of Central Dr., Atlantic Ocean	1	once a week	25	0%	0	N/A
Carteret	Ocean end of Henderson Blvd., AO	1	once a week	34	3%	0	N/A
Carteret	Ocean end of New Bern St., AO	1	once a week	33	0%	0	N/A
Carteret	Off Brown's Island	2	twice a month	19	0%	0	N/A
Carteret	Park Service Dock	1	once a week	77	4%	0	N/A
Carteret	Pine Knoll Shores - Just east of mile marker 8 1/2 - Hwy 58 east	1	once a week	35	6%	0	N/A
Carteret	Public Access near Fawn Drive in Emerald Isle	1	once a week	33	0%	0	N/A
Carteret	Radio Island Public Beach Access	1	once a week	111	5%	29	N/A
Carteret	Shackelford Banks- by restrooms	2	twice a month	19	0%	0	N/A
Carteret	Shackelford Banks- nun buoy #2	2	twice a month	19	0%	0	N/A
Carteret	Spoils Island off Salty Shores	3	twice a month	19	0%	0	N/A
Carteret	Taylor's Creek at post office dock	3	twice a month	20	0%	0	N/A
Carteret	W side of mouth of South River	2	twice a month	19	0%	0	N/A
Carteret	West end of Sugarloaf Island, Morehead City	2	twice a month	19	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Carteret	Western tip of Bird Shoals on Rachel Carson Reserve	2	twice a month	19	0%	0	N/A
Chowan	Chowan River Wildlife Ramp, east side of Bridge	3	twice a month	19	0%	0	N/A
Craven	Hancock Creek Dock At Wildlife Ramp	3	twice a month	19	0%	0	N/A
Craven	Mouth of Slocum Creek,north Side Beach	3	twice a month	19	0%	0	N/A
Craven	Neuse River- 200 yds. N of mouth of North West Creek	3	twice a month	19	0%	0	N/A
Craven	Neuse River- Flanner's Beach	2	twice a month	19	0%	0	N/A
Craven	Neuse River- Great Neck Point	2	twice a month	19	0%	0	N/A
Craven	Neuse River- Green Spring Swim Area	2	twice a month	20	5%	1	N/A
Craven	Neuse River- Pine Cliff Recreation Area	2	twice a month	19	0%	0	N/A
Craven	Neuse River- Union Point	3	twice a month	20	10%	0	N/A
Currituck	100 yds offshore in sound near intersection of hwy 12 and Albacore St. Corolla	2	twice a month	19	0%	0	N/A
Currituck	AO- 2.8 miles N of Corolla Ramp	1	once a week	33	0%	0	N/A
Currituck	Corolla Lighthouse Beach Access	1	once a week	33	0%	0	N/A
Currituck	Corolla Ramp, end of paved Rd.	1	once a week	33	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Currituck	Corolla, Albacore St. Beach Access	1	once a week	33	0%	0	N/A
Currituck	Currituck S Beach Access at Pine island	1	once a week	33	0%	0	N/A
Currituck	Park on Woodhouse Dr. Grandy, NC	3	twice a month	20	5%	0	N/A
Currituck	Sound Park off Caratoke Hwy in Point Harbor	2	twice a month	19	0%	0	N/A
Currituck	Swimming area at end of SR 1142	3	twice a month	16	0%	0	N/A
Dare	1 1/2 Mi SW of RO Plant	2	twice a month	17	0%	0	N/A
Dare	1/4 Mi E of EMS Station	1	once a week	28	0%	0	N/A
Dare	2Mi SW of Frisco Vol Fire Dept	3	twice a month	17	0%	0	N/A
Dare	3/4 miles N. of sound access across from ramp #29	2	twice a month	17	0%	0	N/A
Dare	100 FT- North of Jennettes Pier	1	once a week	33	0%	0	N/A
Dare	100 yrds ENE of Little Bridge, Causeway, Nags Head	2	twice a month	19	0%	0	N/A
Dare	100 yrds offshore at Island Creek Ct. - Avon, NC	2	twice a month	17	0%	0	N/A
Dare	100 yrds offshore at North Holiday Rd. - Rodanthe	2	twice a month	17	0%	0	N/A
Dare	100 yrds offshore at Sunset Strip Dr. - Frisco, NC	2	twice a month	17	0%	0	N/A
Dare	100 yrds. offshore of 7517 S. Va. Dare Trail,	2	twice a	19	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	Nags Head		month				
Dare	500 yds. Offshore, 100 yds. S of E. side of Wright Memorial Bridge	2	twice a month	19	0%	0	N/A
Dare	500 yds off Sandyridge Rd.- Currituck Sd.	2	twice a month	19	0%	0	N/A
Dare	500 yds off Spy Glass Rd.- Currituck Sd.	2	twice a month	19	0%	0	N/A
Dare	750 yds off Ocean Bay Blvd.- Currituck Sd.	2	twice a month	19	0%	0	N/A
Dare	800 yds off SR 1425	2	twice a month	19	0%	0	N/A
Dare	Bath House at Ocean Bay Dr	1	once a week	33	0%	0	N/A
Dare	Bath House on SR 1206	1	once a week	33	0%	0	N/A
Dare	Beach access 1 1/2 Mile N of Kitty Hawk Pier	1	once a week	33	0%	0	N/A
Dare	Beach access at 3rd St	1	once a week	33	0%	0	N/A
Dare	Beach Access at Sportsman Dr.	1	once a week	33	0%	0	N/A
Dare	Beach access at Sprigtail Dr.	1	once a week	31	0%	0	N/A
Dare	Beach access S of Refuge offices	1	once a week	28	0%	0	N/A
Dare	Beach at Cape Hatteras Lighthouse	1	once a week	28	0%	0	N/A
Dare	Canadian Hole	2	twice a month	17	0%	0	N/A
Dare	Colington Harbour swimming beach	1	once a week	81	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Dare	Conch St beach access	1	once a week	33	0%	0	N/A
Dare	Drain Pipe at Hollowell St	1	once a week	33	0%	0	N/A
Dare	Drain Pipe at Lake Dr beach access	1	once a week	33	0%	0	N/A
Dare	Drain Pipe at Martin Street	1	once a week	33	3%	0	N/A
Dare	Drain Pipe at MP 8 3/4	1	once a week	33	3%	0	N/A
Dare	Drain Pipe at MP 10.5	1	once a week	33	0%	0	N/A
Dare	Drain Pipe at MP 12.5	1	once a week	33	0%	0	N/A
Dare	Drain Pipe at Oregon St	1	once a week	33	0%	0	N/A
Dare	Drain Pipe at S Nags Head/Federal Park Border	1	once a week	33	0%	0	N/A
Dare	Federal Campground	1	once a week	28	0%	0	N/A
Dare	Frisco Bath House	1	once a week	28	0%	0	N/A
Dare	Hillcrest Dr. access	1	once a week	33	0%	0	N/A
Dare	Jockey's Ridge Soundside Access	1	once a week	102	5%	8	N/A
Dare	Kitty Hawk Bay Wildlife Ramp In Jet Ski Riding Area	2	twice a month	19	0%	0	N/A
Dare	Nags Head Bath House	1	once a week	33	0%	0	N/A
Dare	New Inlet Sound Access	3	twice a month	17	0%	0	N/A
Dare	Northernmost beach access	1	once a week	15	0%	0	N/A
Dare	Ocean Ramp #30	1	once a week	28	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Dare	Oregon Inlet Coastguard Station	3	twice a month	19	0%	0	N/A
Dare	Oregon Inlet Federal Campground	1	once a week	31	0%	0	N/A
Dare	Ramp #23 and access	1	once a week	28	0%	0	N/A
Dare	Ramp #34 and access	1	once a week	28	0%	0	N/A
Dare	Ramp #38 and access	1	once a week	28	0%	0	N/A
Dare	Ramp #55 and Access	1	once a week	28	0%	0	N/A
Dare	Roanoke Sound, Dunube St D/P South Nags Head	2	twice a month	19	0%	0	N/A
Dare	S-turns' just N of Rodanthe	1	once a week	28	0%	0	N/A
Dare	Shallowbag Bay - Swim Platform Manteo Bridge	2	twice a month	19	0%	0	N/A
Dare	Sound access across from ramp #29	2	twice a month	17	0%	0	N/A
Dare	Southeast side of Mann's Harbor Bridge	3	twice a month	19	0%	0	N/A
Dare	The Swimming Hole	2	twice a month	20	0%	0	N/A
Dare	Wanchese Seafood Industrial Park	3	twice a month	19	0%	0	N/A
Dare	Washington Baum Bridge boat ramp	2	twice a month	19	0%	0	N/A
Hyde	AO- 5 miles SW of Ocracoke state ferry	1	once a week	28	0%	0	N/A
Hyde	Beach access by Airport Ramp	1	once a week	28	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Hyde	Federal Campground- Ocracoke	1	once a week	28	0%	0	N/A
Hyde	Ocracoke- 1st public access SW of State Ferry	1	once a week	28	0%	0	N/A
Hyde	Swanquarter Bay- end of docks on SR 1136	3	twice a month	19	0%	0	N/A
New Hanover	Area behind the northern end of Masonboro Island	2	twice a month	19	0%	0	N/A
New Hanover	Banks Channel - Waynick Blvd. - Between Snyder and Seashore Streets	1	once a week	105	7%	2	N/A
New Hanover	Banks Channel - Waynick Blvd. - Between Taylor and Bellamy Streets	1	once a week	102	4%	1	N/A
New Hanover	Banks Channel - Waynick blvd. Approx. 150 yds N of Lula St.	1	once a week	99	0%	0	N/A
New Hanover	Banks Channel, swimming beach south of Coast Guard station	1	once a week	34	3%	0	N/A
New Hanover	Beach Access at Periwinkle Lane in Carolina Beach	1	once a week	33	0%	0	N/A
New Hanover	Cama Access, corner of Waynick Blvd. and Sunset Ave (WB)	1	once a week	102	5%	1	N/A
New Hanover	Cape Fear River, W. end of Snows Cut	3	twice a month	19	0%	0	N/A
New Hanover	Carolina Beach Inlet- N. end of Carolina Beach	3	twice a month	21	10%	0	N/A
New Hanover	Fort Fisher Beach State Park access off Loggerhead Rd.	1	once a week	34	3%	1	N/A
New	Fort Fisher- Beach Adjacent to NCWRC	2	twice a	20	5%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Hanover	Ramp		month				
New Hanover	N. end of Wrightsville Beach at public access #2 off Lumina Dr.	1	once a week	33	0%	0	N/A
New Hanover	Ocean Pier at K. Ave.	1	once a week	33	0%	0	N/A
New Hanover	Ocean pier at Nathan St. and s. Lumina Dr.	1	once a week	33	0%	0	N/A
New Hanover	Ocean pier at Salisbury St. public access	1	once a week	33	0%	0	N/A
New Hanover	Public access at the Hanby Beach Storm Drain	1	once a week	33	0%	0	N/A
New Hanover	Public Bch on Masonboro Sd - end of Florida Ave in Carolina Beach	2	twice a month	20	0%	1	N/A
New Hanover	Public beach access at Hemlet Ave.	1	once a week	33	0%	0	N/A
New Hanover	Stone Street Public Access - Ocean side Wrightsville Beach	1	once a week	33	0%	0	N/A
New Hanover	Trails End Public Access on Masonboro Loop	3	twice a month	19	0%	0	N/A
New Hanover	Vehicle Access, 600 yds. N. Carolina Beach Pier at Dune Mark	1	once a week	33	0%	0	N/A
Onslow	AO- ~1 mile S of Bogue Inlet	1	once a week	33	0%	0	N/A
Onslow	AO- ~2miles S of Brown's Inlet	1	once a week	33	0%	0	N/A
Onslow	Bogue Sd.- 1/2 mile S of Bear Inlet, soundside	2	twice a month	19	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Onslow	N. Topsail Bridge - Wildlife Ramp	3	twice a month	19	0%	0	N/A
Onslow	N. Topsail, Emergency Vehicle Access	1	once a week	33	0%	0	N/A
Onslow	New River at mouth of Southwest Creek	3	twice a month	19	5%	0	N/A
Onslow	New River, Wilson Park	3	twice a month	19	0%	0	N/A
Onslow	Onslow Beach - Public access ~1/4 mile south of Onslow Beach Bridge	2	twice a month	19	0%	0	N/A
Onslow	Public Access, mouth of NE Creek - New River	3	twice a month	19	0%	0	N/A
Onslow	Public Access, North Topsail	1	once a week	33	0%	0	N/A
Onslow	Regional public access at mile marker 12 on New River Inlet Rd.	1	once a week	33	0%	0	N/A
Onslow	Regional public access at mile marker 17 on New River Inlet Rd.	1	once a week	33	0%	0	N/A
Onslow	Sanders Creek at Bear Creek	2	twice a month	19	0%	0	N/A
Onslow	Sound side Bear Island	3	twice a month	19	0%	0	N/A
Onslow	Wards Shore- Bogue Sound	3	twice a month	19	0%	0	N/A
Pamlico	Dawson Crk., 100 yds N of bridge	2	twice a month	19	0%	0	N/A
Pamlico	Just E of the Mouth of Beard Ck	2	twice a month	19	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pamlico	Just E of Wilkinson Pt	2	twice a month	19	0%	0	N/A
Pamlico	Kennals Beach	2	twice a month	19	0%	0	N/A
Pamlico	Near mouth of Gatlin Crk	2	twice a month	19	0%	0	N/A
Pamlico	Neuse River- end of state Rd 1310	2	twice a month	19	0%	0	N/A
Pamlico	Public Beach S side of Dawson Crk Bridge	1	once a week	102	7%	13	N/A
Pamlico	Public Beach SW Mouth of Whittaker Creek N of Marker #3	2	twice a month	19	0%	0	N/A
Pamlico	Vandemere Creek	2	twice a month	20	5%	1	N/A
Pasquotank	Pasquotank River- E.C. Coast Guard Station Beach	3	twice a month	19	5%	0	N/A
Pender	ICW, Hwy. 210 bridge at Surf City	3	twice a month	19	0%	0	N/A
Pender	Public access #O-3 at mile marker 3	1	once a week	33	0%	0	N/A
Pender	Public access #O-10 at Ocean Blvd and Crews Ave.	1	once a week	33	0%	0	N/A
Pender	Public access #S-1 at end of Shoreline Dr. (soundside station)	1	once a week	34	3%	7	N/A
Pender	Public Access at Broadway St. & N. Shore Dr.	1	once a week	33	0%	0	N/A
Pender	Public access at S. Shore Dr. and Kinston Ave.	1	once a week	35	6%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pender	Stump Sound just east of Dixon Point	2	twice a month	19	0%	0	N/A
Perquimans	Albemarle Sd. At end of Holiday Lane Rd.	3	twice a month	19	0%	0	N/A
Tyrell	Albemarle Sd. - Bull Bay Swimming Area 4H Camp	3	twice a month	19	0%	0	N/A

Notes

1. Why don't the 2011 percent exceedance values in this summary match? The value at the top of the first page (3%) reflects the proportion of samples exceeding the national single-sample maximum standard for designated beach areas. North Carolina applies this standard at its high-use Tier 1 beaches but applies EPA standards that are not as strict at its moderately and lightly used beaches (Tier 2 and Tier 3 beaches, which are generally accessible only by boat). The value in the "What Does Beach Monitoring Show?" section (1%) reflects the proportion of samples exceeding the state standards.
2. J.D. Potts, North Carolina Department of Environment and Natural Resources, personal communication, February 2012.
3. North Carolina Department of Environment and Natural Resources, North Carolina Beach Monitoring Project Quality Assurance Project Plan, revised July 28, 2009
4. North Carolina Department of Environment and Natural Resources, "Coastal Swimming Waters May Be Affected by Excessive Rains, Flooding from Hurricane Irene" (press release), August 28, 2011.
5. N.C. Department of Environment and Natural Resources, Bacteria Testing at New Hanover and Carteret Ocean Beaches Meet Swimming Standards (press release). August 30, 2011.
6. N.C. Department of Environment and Natural Resources, Bacteria Levels at Most Ocean Beaches Meet Swimming Standards (press release). September 1, 2011.
7. North Carolina Department of Environmental and Natural Resources. Coastal recreational waters monitoring, evaluation, and notification. 15A NCAC 18A .3400. Accessed at www.deh.enr.state.nc.us/shellfish/Water_Monitoring/RWQweb/images/15ANCAC8A3400Rules.pdf, January 2012.
8. US EPA. Ambient Water Quality Criteria for Bacteria - 1986. January 1986.
9. Reported closing or advisory days are for events lasting six consecutive weeks or less. Days in parentheses are for events lasting more than six consecutive weeks.

Testing the Waters: Ohio

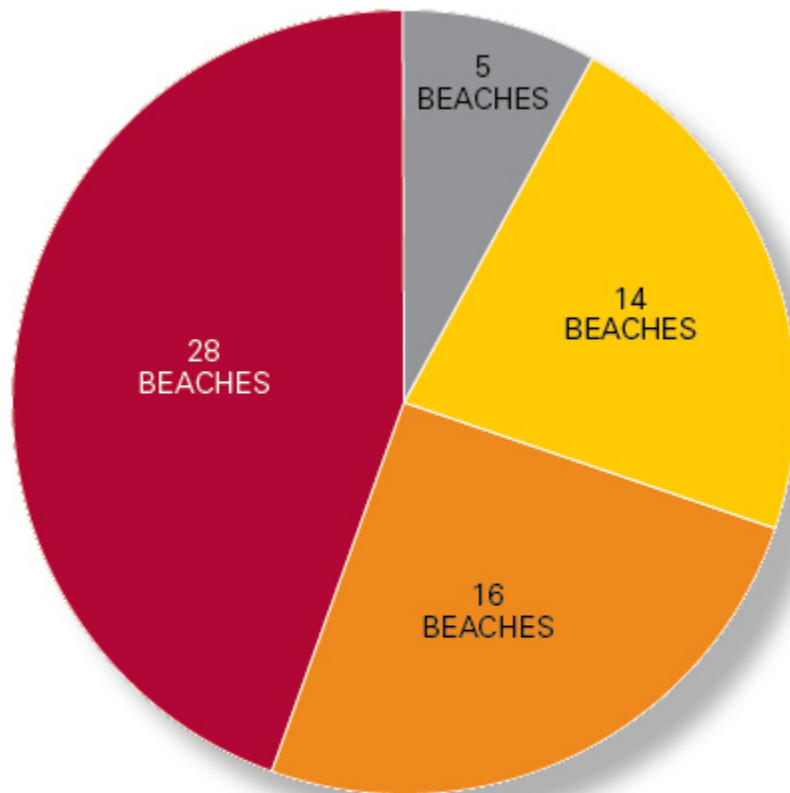
Ranked 29th in Beachwater Quality (out of 30 states)

22% of samples exceeded national standards for designated beach areas in 2011

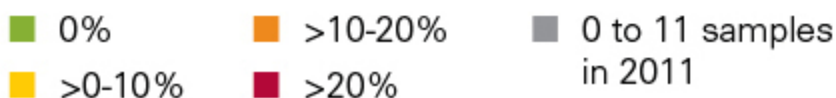
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Ohio

Ohio 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of advisory days)

- 1,294 (99%) unknown contamination sources
- 7 (1%) sewage spills/leaks

Ohio monitors 63 public and semipublic beaches along 7.3 miles of Lake Erie shoreline. The state's beachwater quality monitoring program is administered by the Ohio Department of Health (ODH).

Tracking the 2011 Harmful Algal Bloom in Lake Erie

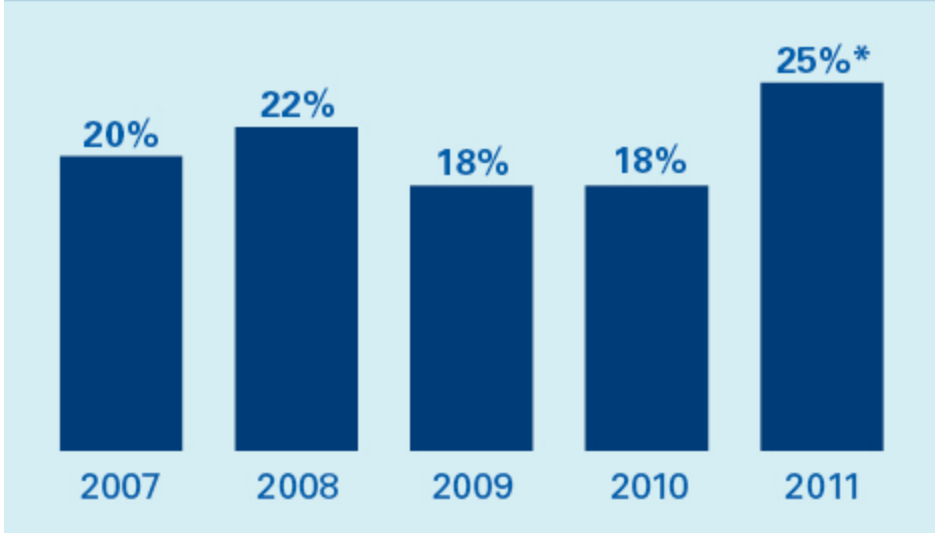
The western part of Lake Erie sometimes experiences blooms of *Microcystis*, a type of cyanobacteria. When close to shore, these blooms foul the beaches, producing a rotten smell. More important, some forms of *Microcystis* produce liver toxins; although these usually cause nothing more than skin and intestinal problems in humans, they have in some cases caused death in pets, wildlife, and livestock. These blooms can also contribute to the Lake Erie dead zone, an area of depleted oxygen that threatens the lake's billion-dollar fishery.

The *Microcystis* bloom that developed in Lake Erie in 2011 was by far the largest one in recent years.¹ Serendipitously, 2011 was the year that NOAA began testing a bulletin that provided a weekly forecast for *Microcystis* blooms in western Lake Erie based on satellite imagery. The bulletin depicted the current location of the bloom, predicted its future movement, and categorized its intensity.² The NOAA bulletin archives³ show that a suspected bloom was beginning to develop on July 22, 2011. A high concentration of algal toxins in the vicinity of Toledo Light #2 confirmed this bloom by July 28. By late summer, the western portion of the lake and part of the central portion were covered by this bloom, which at one point extended more than 12 miles from shore and was more than 60 feet deep.⁴ The bloom continued to spread until September 8, when it stretched along the Ohio coast of Lake Erie from Maumee Bay to Catawba Island and along the Michigan coast from Northern Maumee Bay to the mouth of the Detroit River. The easternmost portion of the bloom was observed past Point Pelee and to the northeast in Rondeau Provincial Park in Ontario. Although it persisted around the Bass Islands, Pelee Island, and Kelleys Island to Cleveland, the bloom began dying because of falling water temperatures by October 20. By the following week only the coast off Lorain, Ohio, still showed signs of a bloom.³ In Ohio, the bloom resulted in 203 days of beach advisories at Kelleys Island State Park in Ottawa County, Maumee Bay State Park (Erie) in Lucas County, and Lion's Park and Battery Park in Erie County.

What Does Beachwater Monitoring Show?

In 2011, Ohio reported 63 coastal beaches. Of these, 9 (14%) were assigned a monitoring frequency of daily, 34 (54%) a frequency of more than once a week, and 18 (29%) once a week. There was no information for 2 beaches (3%). In 2011, 22%⁵ of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 235 colonies/100 ml. Samples taken at 29 of Ohio's beaches exceeded the standard at least 20% of the time. The beaches with the highest percent exceedance rates of the state standard in 2011 were Edson Creek in Erie County (52%); Lakeview Beach in Lorain County (51%); and Villa Angela State Park (50%), Edgecliff Beach (50%), Moss Point Beach (47%), and Sims Beach (47%) in Cuyahoga County. Beaches in Cuyahoga County had the highest exceedance rate of the state standard in 2011 (33%), followed by Lorain (33%), Erie (18%), Ashtabula (16%), Lucas (16%), Ottawa (16%), and Lake (15%) counties. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.

Ohio Percent of Samples Exceeding the State's Daily Maximum Bacterial Standard for 20 Beaches Reported 2007-2011



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Ohio's Sampling Practices?

In 2011, for the first time, all sampling activities in Ohio were conducted by local entities and ODH did not itself directly monitor any beaches. The monitoring season varies from location to location, depending on which entity is conducting the monitoring, but generally runs from Memorial Day through Labor Day.

Ohio is a "home rule" state, and the state can only recommend sampling practices, standards, and notification protocols and procedures to local entities that participate in the beachwater quality monitoring program. Guidance recommends that samples be taken in water that is 3 feet deep, 1 foot below the surface. For the most part, monitoring is conducted at the area of the beach used most by the public. Beaches are prioritized for monitoring based on visitor use and water quality history, so beaches visited the most frequently and/or having a potential for contamination (Tier 1) are sampled the most frequently. ODH states that all of the Lake Erie beaches identified by the Ohio Department of Natural Resources are monitored at least weekly, with the majority sampled at least four times a week.⁴

Many of the beaches in the program are already sampled daily or as frequently as laboratory availability will allow. The monitoring frequency of these beaches does not increase after a bacterial exceedance has been found, but if an exceedance is discovered at a beach that is monitored only once a week, resampling may be conducted on the next business day.

How Many Beach Advisories Were Issued in 2011?

Total advisory days for approximately 579 events lasting six consecutive weeks or less increased 3% to 1,301 days in 2011 from 1,259 days in 2010. For prior years, there were 1,012 days in 2009, 783 days in 2008, 657 days in 2007, 629 days in 2006, and 182 days in 2005. In addition, there were 3 extended events (165 days total), all due to the algal bloom, and no permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks.

For the 579 events lasting six consecutive weeks or less, 93% (1,208) of advisory days were due to monitoring that revealed elevated bacteria levels, 4% (51) were preemptive based on the results of computer modeling,

3% (38) were preemptive for other reasons (algal bloom), and <1% (4) were preemptive due to known sewage spills or leaks.

How Does Ohio Determine When to Warn Visitors About Swimming?

Local jurisdictions have the authority to close beaches and to issue advisories. Beaches are rarely closed because of elevated bacterial counts alone.⁴ Ohio uses an *E. coli* single-sample maximum standard of 235 cfu/100 ml for beach advisory decisions. No geometric mean standard is applied when making advisory decisions.⁴

The state recommends that local authorities issue advisories when the bacterial standard is exceeded. In Cuyahoga County, resamples are taken to confirm an exceedance before an advisory is issued.⁴

Ohio uses a predictive model called Nowcast at three of its Lake Erie beaches: Huntington Beach and Edgewater State Park in Cuyahoga County and Maumee Bay State Park in Lucas County. The model relies on environmental factors including rainfall, turbidity, and/or wave height to predict *E. coli* levels. It is continuously under improvement and can be tailored to provide predictions that are appropriate for a particular beach and even a particular portion of the swimming season for a particular beach. Predictive models are useful because they allow advisories to be issued the day that bacteria levels are suspected to be high. In contrast, when advisories are issued on the basis of *E. coli* counts determined by culture methods, they are issued the day after standards are exceeded because it generally takes 24 hours for culture results to be available. Many times, the culture results of samples taken on the day a beach is placed under advisory reveal that the water quality was actually acceptable on the day of the advisory.

Bacterial monitoring at Huntington and Edgewater State Park beaches has shown that Nowcast-based decisions about notifications are more protective of public health than decisions based on bacterial monitoring.⁶ The beach at Maumee Bay State Park began using Nowcast to issue advisories for the first time during the 2011 swim season. The model did not perform as well as the models at Huntington and Edgewater Beach and will probably be adjusted for the 2012 season in order to improve its accuracy.⁴

Work is under way to expand the number of beaches where predictive modeling is used to issue advisories. During 2011, Century Beach and Lakeview Beach, both in Lorain, were monitored seven days a week in order to develop a Nowcast model that will predict water quality at these beaches.⁴

There are no preemptive rainfall standards at beaches in Ohio, but beach managers may issue preemptive rainfall advisories if they feel that rain has compromised water quality.⁷ Beach managers may also restrict beach access because of sewage or other pollution spills, or because of any other threat to public health.

Ohio 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Ashtabula	Conneaut Township Park	1	four times a week	53	9%	14	N/A
Ashtabula	Geneva State Park	1	four times a week	54	13%	13	N/A
Ashtabula	Lakeshore Park	1	four times a week	55	33%	38	N/A
Ashtabula	Walnut Beach	1	four times a week	55	9%	10	N/A
Cuyahoga	Arcadia Beach	2	once a week	18	44%	34	N/A
Cuyahoga	Bay Park Beach	2	once a week	15	20%	13	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Cuyahoga	Clarkwood Beach	2	once a week	17	35%	36	N/A
Cuyahoga	Clifton Beach	2	twice a week	27	26%	24	N/A
Cuyahoga	Columbia Park Beach	2	once a week	15	13%	16	N/A
Cuyahoga	Edgecliff Beach	2	once a week	16	50%	46	N/A
Cuyahoga	Edgewater State Park	1	once a day	112	26%	30	N/A
Cuyahoga	Euclid State Park	1	once a day	111	43%	47	N/A
Cuyahoga	Huntington Beach	1	once a day	106	12%	13	N/A
Cuyahoga	Moss Point Beach	2	once a week	19	47%	35	N/A
Cuyahoga	Noble Beach	2	once a week	19	42%	33	N/A
Cuyahoga	Parklawn Beach	2	once a week	18	28%	19	N/A
Cuyahoga	Royal Acres Beach	2	once a week	16	31%	29	N/A
Cuyahoga	Shoreby Club Beach	2	once a week	17	35%	29	N/A
Cuyahoga	Shorehaven Beach	2	once a week	0	n/a	0	N/A
Cuyahoga	Sims Beach	2	once a week	19	47%	34	N/A
Cuyahoga	Utopia Beach	2	once a week	18	28%	22	N/A
Cuyahoga	Villa Angela State Park	1	once a day	111	50%	57	N/A
Cuyahoga	Wagar Beach	2	once a week	17	18%	9	N/A
Erie	Battery Park	1	four times a week	53	4%	5 (61)	N/A
Erie	Bay View East	1	four times a week	54	11%	8	N/A
Erie	Bay View West	1	four times a week	52	40%	37	N/A
Erie	Cedar Point Chausee	1	four times a week	52	12%	18	N/A
Erie	Chappel Creek	1	four times a week	53	25%	23	N/A
Erie	Cranberry Creek	1	four times a week	50	10%	5	N/A
Erie	Crystal Rock	1	four times a week	52	10%	11	N/A
Erie	Darby Creek	1	four times a week	51	31%	31	N/A
Erie	Edson Creek	1	four times a week	52	52%	48	N/A
Erie	Fichtel Creek	1	four times a week	51	16%	14	N/A
Erie	Hoffman Ditch	1	four times a week	52	4%	5	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Erie	Huron River East	1	four times a week	57	12%	13	N/A
Erie	Huron River West	1	four times a week	51	25%	41	N/A
Erie	Kiwanis	1	four times a week	53	8%	7	N/A
Erie	Lion's Park	1	four times a week	52	12%	19 (61)	N/A
Erie	Old Womans Creek East	1	four times a week	49	8%	7	N/A
Erie	Old Womans Creek West	1	four times a week	53	4%	2	N/A
Erie	Pickarel Creek	1	four times a week	53	9%	18	N/A
Erie	Sawmill Creek	1	four times a week	49	10%	5	N/A
Erie	Sherod Creek	1	four times a week	53	38%	36	N/A
Erie	Showse Park	1	four times a week	52	15%	22	N/A
Erie	Sugar Creek	1	four times a week	54	30%	28	N/A
Erie	Vermilion River East	1	four times a week	53	21%	20	N/A
Erie	Vermilion River West	1	four times a week	55	24%	26	N/A
Erie	Whites Landing	1	four times a week	54	22%	17	N/A
Lake	Fairport Harbor	1	once a day	98	18%	18	N/A
Lake	Headlands State Park (E)	1	once a day	98	12%	11	N/A
Lake	Headlands State Park (W)	1	once a day	99	15%	15	N/A
Lorain	Century Beach	1	once a day	96	19%	18	N/A
Lorain	Lakeview Beach	1	once a day	95	51%	50	N/A
Lorain	Miller Beach	no data	no data	7	0%	0	N/A
Lorain	Veteran's Beach	no data	no data	7	29%	0	N/A
Lucas	Maumee Bay State Park (Erie)	1	four times a week	45	16%	16 (43)	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Ottawa	Camp Perry	1	once a week	16	38%	16	N/A
Ottawa	Catawba Island State Park	1	once a week	12	8%	3	N/A
Ottawa	East Harbor State Park	1	four times a week	42	10%	8	N/A
Ottawa	Kelleys Island State Park	1	once a week	11	0%	38	N/A
Ottawa	Lakeside Beach	1	four times a week	41	5%	5	N/A
Ottawa	Port Clinton (Deep/Lakeview)	1	four times a week	41	34%	36	N/A
Ottawa	South Bass Island State Park	1	once a week	11	0%	0	N/A

Notes

1. Thomas Bridgeman, "Harmful Algal Blooms in Western Lake Erie," presented October 12, 2011, accessed at www.glc.org/announce/11/pdf/Bridgeman-UToledo.pdf, March 2012.
2. National Oceanic and Atmospheric Administration (NOAA), "Harmful Algal Blooms in Lake Erie- Experimental HAB Bulletin," accessed at www.glerl.noaa.gov/res/Centers/HABS/lake_erie_hab/lake_erie_hab.html, March 2012.
3. NOAA, "Harmful Algal Blooms in Lake Erie—Experimental HAB Bulletin Archive," accessed at www.glerl.noaa.gov/res/Centers/HABS/lake_erie_hab/lake_erie_hab_archive.html, March 2012.
4. Ohio Department of Health, "2011 Bathing Beach Monitoring and Notification Program Results," not dated.
5. Why don't the 2011 percent exceedance values in this summary match? Only samples from a common set of beaches monitored each year from 2007–2011 are included in the bar chart. Because some beaches were not monitored in each of those years, the percent exceedance for this subset of beaches (25%) did not have the same value as the percent exceedance for all of the beaches monitored in 2011 (22%).
6. Ohio Nowcast, "How Did the Nowcast System Perform in Past Years?" accessed at www.ohionowcast.info/nowcast_perform.asp, March 2012.
7. Mary Clifton, Ohio Department of Health, personal communication, May 2012.
8. Reported advisory days are for events lasting six consecutive weeks or less. Days in parentheses are for events lasting more than six consecutive weeks.

Testing the Waters: Oregon

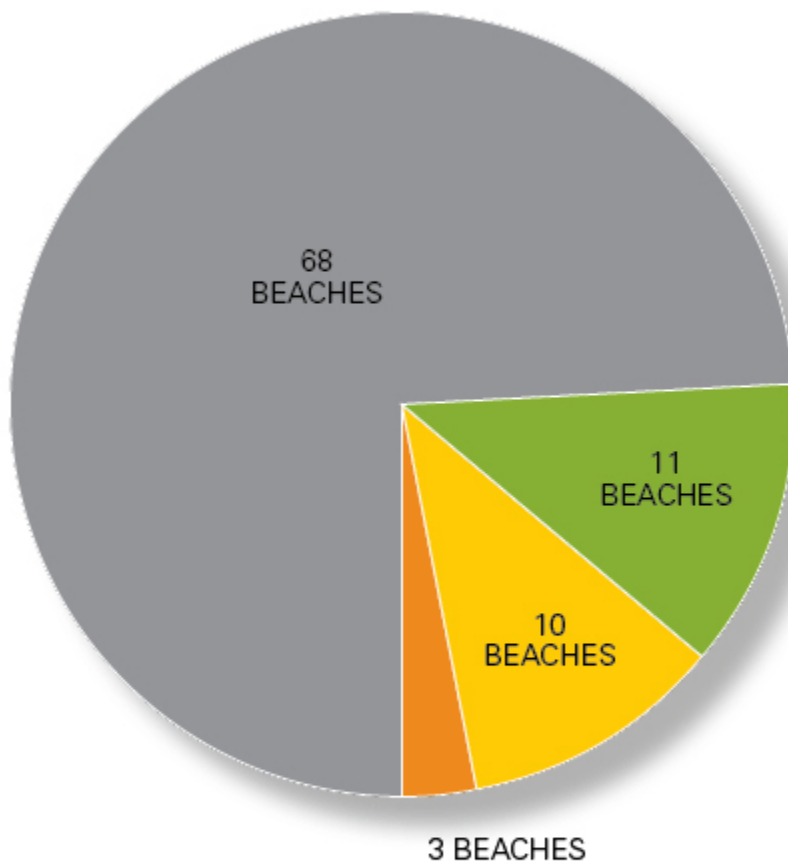
Ranked 14th in Beachwater Quality (out of 30 states)

6% of samples exceeded national standards for designated beach areas in 2011

In order to protect beach goers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Oregon

Oregon 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of closing/advisory days)

- 13 (59%) stormwater runoff
- 6 (27%) unknown contamination sources
- 3 (14%) wildlife

Oregon has 92 beaches lining 197 miles of Pacific Ocean coastline. The state's beachwater quality monitoring program is administered by the Oregon Health Authority (OHA).

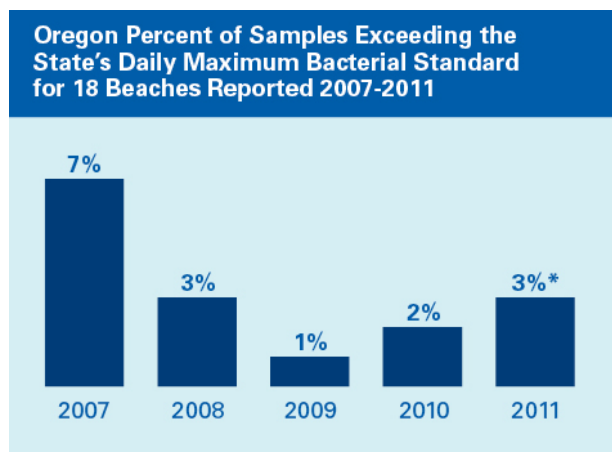
Improvements at Cannon Beach

The Ecola Court stormwater outfall, which flows in a stream across Cannon Beach in Clatsop County before emptying into the ocean, has a history of elevated fecal indicator bacteria levels. Children often play in the stream, and adults often use the water in the stream to wash the sand off their feet when they leave the beach.¹ The city of Cannon Beach is taking steps to reduce fecal indicator bacteria in the Ecola Court outfall. The city learned that Shelton, Washington, has successfully reduced the fecal indicator bacteria in a stream flowing into its oyster bed farm by installing bags containing mycelium, a fungus that feeds on bacteria.² Filter bags containing mycelium were placed in the Ecola Court outfall pipe ahead of the tide gate in the fall of 2011.³ These bags cost less than \$1,000 but will have to be replaced at least once a year.⁴ The city has also taken steps to better warn the public about the potential health concern of contacting the water in the outfall. Beginning in 2011, signs facing every direction were placed on the banks of the outfall during the busy tourist season. All year long there is a small sign on the headwall of the tide gate and another at the seawall facing visitors as they approach the beach.⁴

What Does Beachwater Monitoring Show?

In 2011, Oregon reported 92 coastal beaches. Of these, 6 (7%) were assigned a monitoring frequency of once a week, 20 (22%) twice a month, and 66 (71%) were not assigned a monitoring frequency. In 2011, 4%⁵ of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 158 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Heceta Beach in Lane County (15%), Harris Beach State Park in Curry County (13%), Nye Beach in Lincoln County (11%), and Crissey Field State Recreation Site in Curry County (10%).

Beaches in Lane County had the highest exceedance rate of the state standard in 2011 (9%), followed by Coos (5%), Clatsop (4%), Lincoln (4%), Curry (4%), and Tillamook (1%) counties. There were no exceedances in Douglas County. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Oregon's Sampling Practices?

In 2011, sampling occurred from March to September, with more monitoring occurring during the peak season from Memorial Day to Labor Day. Of the beaches that were sampled, some were sampled only during the spring non-peak-use season (from March to May), when they are frequented by surfers and wet weather is expected to compromise water quality; some were sampled only during the peak-use season (Memorial Day to Labor Day); and some were sampled from March to September.⁶ Beginning with the fall of 2011, sanitary surveys have taken the place of the non-peak monitoring that was conducted in previous years.⁸ Sanitary surveys are systematic investigations used to identify potential sources of human sewage pollution. OHA and its partners at the Oregon Department of Environmental Quality (DEQ) are developing a beach sanitary survey tool to explore and accurately characterize potential sources of beachwater pollution at beaches whose waters are considered to be impaired by bacteria. Simply examining the beach or the area adjacent to it may not identify all of the potential sources of contamination affecting the beach. Further sanitary survey work will include additional monitoring of freshwater inputs and efforts such as property surveys and septic system inspections within the watershed draining to the beach.⁷

OHA, together with DEQ, determines sampling practices, locations, standards, and notification protocols and practices throughout the state. Samples are collected and processed by a DEQ employee who travels the coastline in a mobile lab.⁶ Assistance with sample collection was provided by OHA staff in 2011.⁷ Samples are collected at ankle to knee depth in the middle of typical bathing areas.⁸ Beaches are prioritized for sampling on the basis of the number of people who enter the water, previous water quality data, known and suspected point and non-point pollution sources, and public comments.⁶

Water samples are taken near known or potential pollution sources.⁶ For example, Oregon chooses to sample freshwater inputs (creeks that flow across the beach) at many of its beaches, and these freshwater inputs are in many cases more likely to exceed water quality standards than the beachwater itself.⁷ There are typically three beachwater sampling stations per beach in addition to creek sampling stations, if any.⁷ Following an advisory during the peak season, an additional sample is collected within 96 hours, if resources are available. The program also conducts follow-up monitoring after known sewage spills and major pollution events.⁶ States that monitor more frequently after an exceedance is found and after pollution events will tend to have higher percent exceedance rates and lower total closing/advisory days than they would if their sampling frequency did not increase after an exceedance or a pollution event.

How Many Beach Advisories Were Issued in 2011?

Total advisory days for 8 events lasting six consecutive weeks or less decreased 67% to 22 days in 2011 from 67 days in 2010. For prior years, there were 106 days in 2009, 86 days in 2008, 101 days in 2007, 66 days in 2006, and 117 days in 2005. In addition, there were no extended or permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks.

All advisory days in 2011 were due to monitoring that revealed elevated bacteria levels.

How Does Oregon Determine When to Warn Visitors About Swimming?

In Oregon, the public is guaranteed free and uninterrupted use of all beaches along the coastline. Therefore, beach advisories are issued, but not closings. Oregon uses a single-sample maximum enterococcus standard of 158 cfu/100 ml for beach advisory decisions in marine waters.⁶ This standard corresponds to the EPA's moderate full body contact recreation standard. OHA says its use of a standard that is less strict than the EPA's designated beach area standard of 104 cfu/100 ml is protective of public health, given the water temperature and frequency and duration of use by swimmers and other recreational users of coastal waters in Oregon.⁸ The geometric mean of sampling results is calculated for tracking trends only, not for issuing advisories.⁸

Typically, there are three beachwater sampling stations per beach, and if one sample exceeds the water quality standard, an advisory is posted (sample results are not averaged before comparing to the standard).⁷ Resampling, in lieu of issuing public notification, is acceptable if there is reason to doubt the accuracy or certainty of the first sample, but to date, there have been no exceedances attributed to sampling or laboratory error that required resampling prior to the issuance of an advisory.⁸

The state does not have preemptive standards for rainfall but does issue preemptive advisories after a known sewage spill or major pollution event where the potential exists for bacteria indicator levels to exceed the state standard.⁶

Oregon 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Clatsop	Arcadia State Park Beach	1	none	0	n/a	0	N/A
Clatsop	Cannon Beach	1	once a week	81	5%	3	N/A
Clatsop	Del Rey Beach State Recreation Site	1	none	0	n/a	0	N/A
Clatsop	Fort Stevens State Park Beach	1	none	0	n/a	0	N/A
Clatsop	Hug Point State Park Beach	1	once a week	33	0%	0	N/A
Clatsop	Indian Beach at Ecola State Park	1	once a week	40	3%	3	N/A
Clatsop	Seaside Beach	1	once a week	59	3%	7	N/A
Clatsop	Sunset Beach State Rec Site	1	none	0	n/a	0	N/A
Clatsop	Tolovana State Park Beach	1	once a week	52	8%	0	N/A
Coos	Bandon South Jetty County Park	1	twice a month	0	n/a	0	N/A
Coos	Bandon State Natural Area	1	none	0	n/a	0	N/A
Coos	Bastendorf Beach	1	twice a month	45	4%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Coos	Cape Arago State Park - North Cove	1	none	0	n/a	0	N/A
Coos	Cape Arago State Park - South Cove	1	none	0	n/a	0	N/A
Coos	Seven Devils State Recreation Site	1	none	0	n/a	0	N/A
Coos	Sunset Bay State Park Beach	1	twice a month	51	6%	2	N/A
Coos	Whiskey Run Beach	1	none	0	n/a	0	N/A
Curry	Arizona Beach State Recreation Site	1	none	0	n/a	0	N/A
Curry	Battle Rock State Park Beach	1	twice a month	9	0%	0	N/A
Curry	Buena Vista Ocean Wayside State Park	1	none	0	n/a	0	N/A
Curry	Bullards Beach	1	none	0	n/a	0	N/A
Curry	Cape Blanco State Park-Sixes River Beach	1	none	0	n/a	0	N/A
Curry	Crissey Field State Recreation Site	1	twice a month	21	10%	0	N/A
Curry	Face Rock State Scenic Viewpoint	1	twice a month	8	0%	0	N/A
Curry	Gold Beach	1	none	15	0%	0	N/A
Curry	Harris Beach State Park	1	twice a month	23	13%	1	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Curry	Hubbard Creek Beach	1	twice a month	36	0%	0	N/A
Curry	Humbug Mountain State Park	1	none	0	n/a	0	N/A
Curry	Hunter Creek Beach	1	none	0	n/a	0	N/A
Curry	Mcvay Rock State Recreation Site	1	none	0	n/a	0	N/A
Curry	Meyers Beach	1	none	0	n/a	0	N/A
Curry	Mill Beach	1	none	0	n/a	0	N/A
Curry	Nesika Beach	1	none	0	n/a	0	N/A
Curry	Ophir Beach	1	none	0	n/a	0	N/A
Curry	Otter Point State Recreation Site	1	none	0	n/a	0	N/A
Curry	Paradise Point State Recreation Site	1	none	0	n/a	0	N/A
Curry	Pistol River State Scenic Viewpoint	1	none	0	n/a	0	N/A
Curry	Port Point Beach	1	none	0	n/a	0	N/A
Curry	Samuel H. Boardman State Scenic Corridor - China Beach	1	none	0	n/a	0	N/A
Curry	Samuel H. Boardman State Scenic Corridor - Lone Ranch Beach	1	none	0	n/a	0	N/A
Curry	Samuel H. Boardman State	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	Scenic Corridor - Whaleshead Beach						
Curry	Sporthaven Beach	1	twice a month	12	0%	0	N/A
Douglas	Umpqua Beach	1	twice a month	15	0%	0	N/A
Lane	Baker Beach	1	none	0	n/a	0	N/A
Lane	Carl G. Washburne Memorial State Park	1	none	0	n/a	0	N/A
Lane	Devils Elbow State Park	1	none	0	n/a	0	N/A
Lane	Florence North Jetty Beach	1	none	18	0%	0	N/A
Lane	Heceta Beach	1	twice a month	26	15%	1	N/A
Lane	Muriel O. Ponsler Memorial State Scenic Viewpoint	1	none	0	n/a	0	N/A
Lane	Neptune Beach	1	none	0	n/a	0	N/A
Lane	Oregon Dunes National Rec Area - Horsfall Beach	1	none	0	n/a	0	N/A
Lane	Oregon Dunes National Rec Area - South Jetty	1	none	0	n/a	0	N/A
Lane	Oregon Dunes National Rec Area - Umpqua Dunes	1	none	0	n/a	0	N/A
Lane	Rock Creek Campground - Roosevelt Beach	1	none	0	n/a	0	N/A
Lane	Stonefield Beach State	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	Recreation Site						
Lincoln	Agate Beach	1	twice a month	39	0%	0	N/A
Lincoln	Alsea River Recreation Area Beach	1	none	0	n/a	0	N/A
Lincoln	Beachside State Park Beach	1	none	0	n/a	0	N/A
Lincoln	Beverly Beach	1	none	0	n/a	0	N/A
Lincoln	D River Beach	1	twice a month	62	0%	0	N/A
Lincoln	Devils Punch Bowl State Natural Area	1	none	0	n/a	0	N/A
Lincoln	Driftwood Beach State Recreation Site	1	none	0	n/a	0	N/A
Lincoln	Fogarty Creek Beach	1	none	0	n/a	0	N/A
Lincoln	Gleneden Beach	1	none	0	n/a	0	N/A
Lincoln	Governor Patterson State Park Beach	1	none	0	n/a	0	N/A
Lincoln	Lost Creek State Recreation Site	1	none	0	n/a	0	N/A
Lincoln	Moolack Beach	1	none	0	n/a	0	N/A
Lincoln	Nelscott Beach	1	none	0	n/a	0	N/A
Lincoln	Nye Beach	1	twice a month	72	11%	5	N/A
Lincoln	Ona Beach	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Lincoln	Otter Rock Beach	1	twice a month	22	0%	0	N/A
Lincoln	Roads End Beach	1	none	0	n/a	0	N/A
Lincoln	Seal Rock State Recreation Site	1	none	0	n/a	0	N/A
Lincoln	Siletz Bay Beach	1	none	0	n/a	0	N/A
Lincoln	Smelt Sands State Recreation Site	1	none	0	n/a	0	N/A
Lincoln	South Beach	1	none	0	n/a	0	N/A
Lincoln	Tillicum Beach	1	none	0	n/a	0	N/A
Lincoln	Yachats Wayside Beach	1	none	0	n/a	0	N/A
Lincoln	Yaquina Bay State Park Beach	1	none	0	n/a	0	N/A
Tillamook	Barview County Park Beach	1	none	0	n/a	0	N/A
Tillamook	Bob Straub State Park Beach	1	none	0	n/a	0	N/A
Tillamook	Cape Kiwanda State Park Beach	1	twice a month	38	3%	0	N/A
Tillamook	Cape Lookout State Park Beach	1	none	0	n/a	0	N/A
Tillamook	Cape Mears Beach	1	none	0	n/a	0	N/A
Tillamook	Manhattan Beach State Park	1	none	0	n/a	0	N/A
Tillamook	Manzanita Beach	1	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Tillamook	Nehalem Bay State Park Beach	1	none	0	n/a	0	N/A
Tillamook	Neskowin Beach	1	twice a month	18	0%	0	N/A
Tillamook	Oceanside Beach State Wayside	1	twice a month	9	0%	0	N/A
Tillamook	Rockaway Beach	1	twice a month	30	3%	0	N/A
Tillamook	Short Sand Beach	1	once a week	110	1%	0	N/A
Tillamook	Twin Rocks Beach	1	twice a month	12	0%	0	N/A

Notes

1. "Cannon Beach Urged to Find Source of Contamination," *The Daily Astorian*, August 16, 2011, accessed at www.surfrider.org/coastal-blog/entry/looking-for-answers-to-pollution-in-cannon-beach-oregon in March 2012.
2. City of Cannon Beach, Minutes of the Cannon Beach City Council Work Session, August 9, 2011, accessed at ci.cannon-beach.or.us/docs/Minutes/Council/2011CityCouncilMinutes.pdf in March 2012.
3. City of Cannon Beach, Minutes of the Public Works Committee, September 20, 2011, accessed at ci.cannon-beach.or.us/docs/Minutes/Public%20Works/2011PWMinutes.pdf in March 2012.
4. Mark See, public works director, City of Cannon Beach, personal communication, March 2012.
5. Why don't the 2011 percent exceedance values in this summary match? The value at the top of the first page (6%) reflects the proportion of samples exceeding the national single-sample maximum standard for designated beach areas of 104 colonies enterococcus/100 ml. The value in the "What Does Beach Monitoring Show?" section (4%) reflects the proportion of samples exceeding the state standard of 158 colonies enterococcus/100 ml, which in Oregon's case is less stringent than the national designated beach area standard. Also, only samples from a common set of beaches monitored each year from 2007–2011 are included in the bar chart. Because some beaches were not monitored in each of those years, the percent exceedance for this subset of beaches (3%) did not have the same value as the percent exceedance for all of the beaches monitored in 2011 (4%).
6. Oregon Department of Human Services, Annual Performance Report for the Oregon Health Authority BEACH Monitoring Program (Agreement #CU96031701), Activity Period October 1, 2010, through September 30, 2011. Not dated.
7. Curtis Cude, Oregon Health Authority, personal communication, April 2012.
8. Curtis Cude, Oregon Health Authority, personal communication, February 2012.

Testing the Waters: Pennsylvania

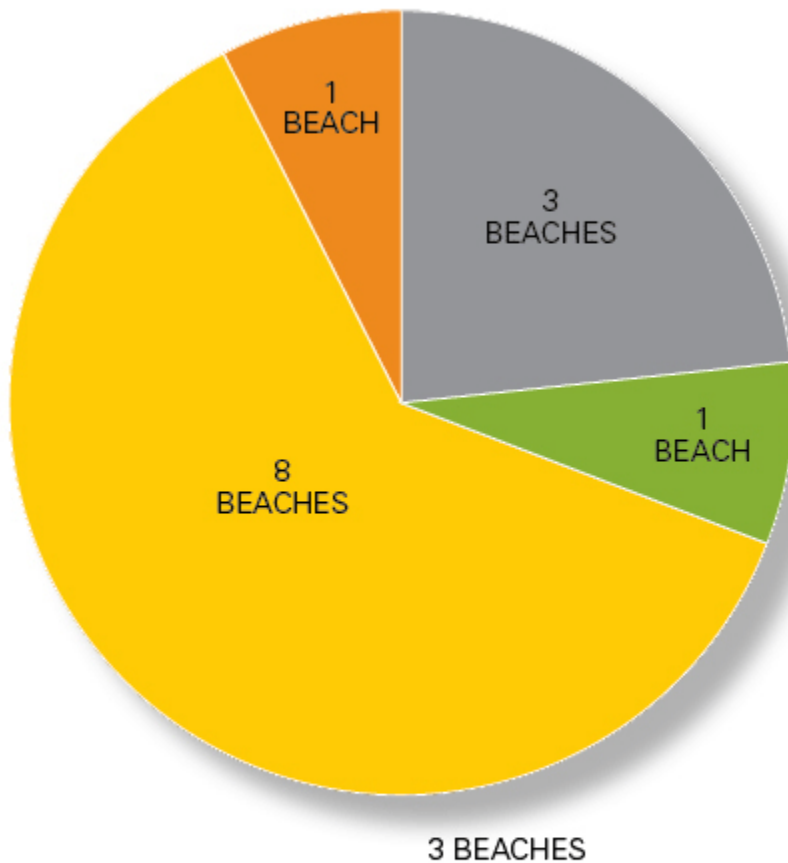
Ranked 15th in Beachwater Quality (out of 30 states)

7% of samples exceeded national standards for designated beach areas in 2011

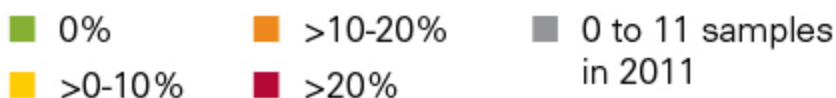
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Pennsylvania

Pennsylvania 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



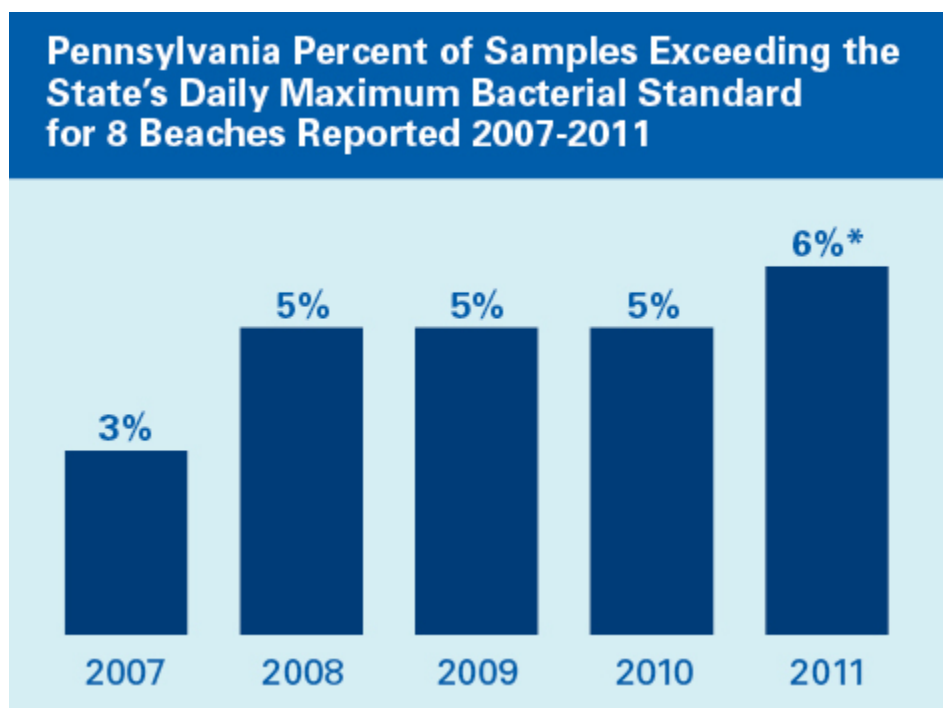
Reported Sources of Beachwater Contamination (number of restriction/advisory days)

- 18 (100%) stormwater runoff

Pennsylvania has 40 miles of Lake Erie coastline, eight miles of which are permitted public bathing beaches. The coastal beach monitoring program is administered by the Erie County Department of Health (ECDH).

What Does Beachwater Monitoring Show?

In 2011, Pennsylvania reported 13 Lake Erie beaches in Erie County. Of these, 9 (69%) were assigned a monitoring frequency of twice a week, 1 (8%) a frequency of once a week, and 3 (23%) were not assigned a monitoring frequency. In 2011, 7%¹ of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 235 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Beach 1 East (11%), Beach 9 (Pine Tree Beach) (9%), Beach 11 (8%), and Mill Road Beaches (8%), all in Erie County. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Pennsylvania's Sampling Practices?

Beachwater quality monitoring activities are conducted from Memorial Day to Labor Day.

Practices are regulated by the state, with permit holders allowed to monitor more frequently than the state requires if they desire. Samples are collected in water that is approximately 30 inches deep, midway between the surface and the bottom. By regulation, at least three samples of water are taken from each beach at least once a week. Two samples are taken approximately 50 feet from each end of the beach and the third sample is taken in the center. Presque Isle State Park has established a protocol that requires two sampling events each week.

When a sample is found to exceed bacterial standards, beaches are resampled for three consecutive days in order to lift advisories and/or restrictions as soon as possible.² States that monitor more frequently after an

exceedance is found will tend to have higher percent exceedances and lower total advisory days than they would if their sampling frequency did not increase after an exceedance was found.

How Many Beach Restrictions and Advisories Were Issued in 2011?

Total restriction/advisory days for 17 events lasting six consecutive weeks or less increased 29% to 18 days in 2011 from 14 days in 2010. For prior years, there were 34 days in 2009, 45 days in 2008, 6 days in 2007, 53 days in 2006, and 39 days in 2005. There were no extended and 3 permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 17 events lasting six consecutive weeks or fewer, all restriction/advisory days in 2011 were due to monitoring that revealed elevated bacteria levels.

Swimming was prohibited at Beach 1 West, Beach 1 West Extension, and Beach 2 in 2011 because budget shortfalls precluded the hiring of lifeguards there.³

How Does Pennsylvania Determine When to Warn Visitors About Swimming?

Swimming advisories and restrictions are issued at Pennsylvania's Lake Erie beaches, rather than beach closings. If a single-sample *E. coli* count is between 235 and 1,000 cfu/100 ml, a swimming advisory is issued. While swimming is permitted, the public is informed that the *E. coli* level exceeds standards, and potential swimmers are advised about what precautions to take should they enter the water. If a single-sample count is 1,000 cfu/100 ml or greater, a swimming restriction is posted and swimming is prohibited. Three samples are taken per sampling event, and the results are averaged before comparing them with the standards.³ Pennsylvania also uses a 5-sample, 30-day geometric mean standard for *E. coli* of 126 cfu/100 ml to post restrictions.³ There is no protocol for delaying or forgoing an advisory or restriction when bacterial standards are exceeded.

If rainfall exceeds 0.5 inch in a 24-hour period, Presque Isle State Park officials conduct a visual analysis of the beaches, monitor conditions such as winds and current direction, and determine whether a preemptive rain advisory should be issued.⁴ Beaches are also preemptively posted with restrictions when there is a known sewage spill and when high waves and strong winds out of the west are present.³

In 2004, ECDH started developing a predictive beachwater quality model for Presque Isle State Park based on weather, known sewage discharges, storm events, and water currents. A stream gauge on a major tributary to Lake Erie that influences the water quality of the beaches informs the development of this predictive water quality model. In 2008, a buoy that retrieves water quality data in real time was deployed off Presque Isle; a second buoy was deployed in 2011.

Pennsylvania 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Erie	Barracks Beach	1	twice a week	96	7%	0	N/A
Erie	Beach 1 East	1	twice a week	123	11%	2	N/A
Erie	Beach 1 West	1	none	0	n/a	0 (365)	N/A
Erie	Beach 1 West Extension	1	none	0	n/a	0 (365)	N/A
Erie	Beach 2	1	none	0	n/a	0 (365)	N/A
Erie	Beach 6	1	twice a week	105	6%	3	N/A
Erie	Beach 7 (Water Works Beach)	1	twice a week	111	6%	3	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Erie	Beach 8 (Pettinato Beach)	1	twice a week	114	7%	3	N/A
Erie	Beach 9 (Pine Tree Beach)	1	twice a week	111	9%	2	N/A
Erie	Beach 11	1	twice a week	99	8%	2	N/A
Erie	Bundy Beach	1	twice a week	90	0%	0	N/A
Erie	Freeport Beach	1	once a week	51	6%	1	N/A
Erie	Mill Road Beaches	1	twice a week	105	8%	2	N/A

Notes

1. Why don't the 2011 percent exceedance values in this summary match? Only samples from a common set of beaches monitored each year from 2007–2011 are included in the bar chart. Because some beaches were not monitored in each of those years, the percent exceedance for this subset of beaches (6%) did not have the same value as the percent exceedance for all of the beaches monitored in 2011 (7%).
2. Erie County Department of Health, "Beach Sampling Information," accessed at ecdh.org/water-quality.php/Beach-Sampling/40/2144/446/1420, January 2012.
3. Karen Tobin, Erie County Department of Health, personal communication, March 2012.
4. Karen Tobin, Erie County Department of Health, personal communication, April 2012.
5. Reported restriction and advisory days are for events lasting six consecutive weeks or less. Days in parentheses are for events lasting more than six consecutive weeks.

Testing the Waters: Rhode Island

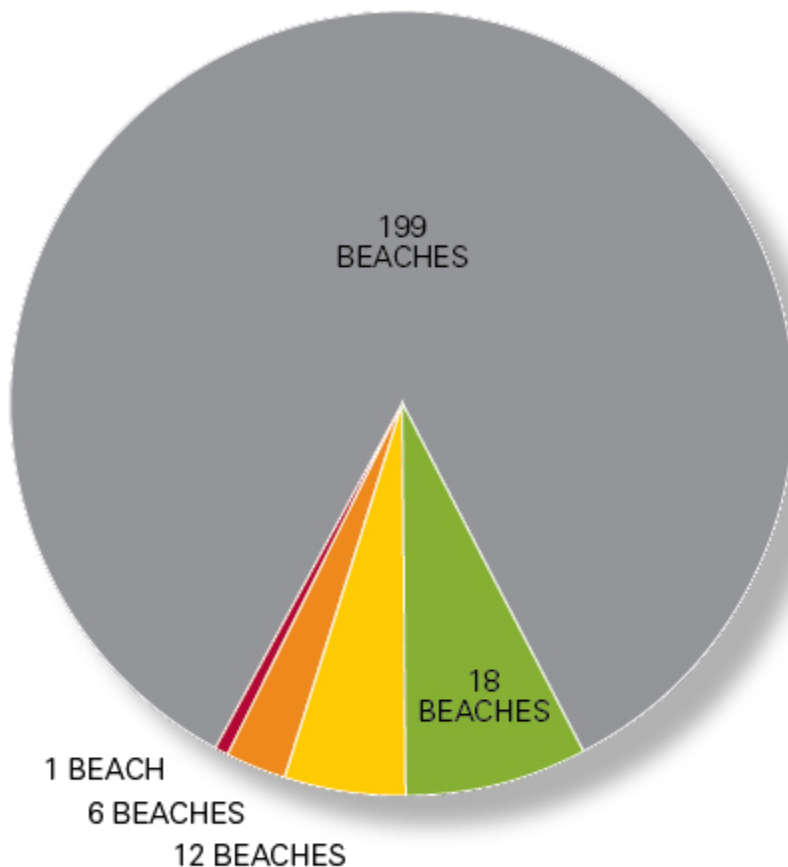
Ranked 16th in Beachwater Quality (out of 30 states)

7% of samples exceeded national standards for designated beach areas in 2011

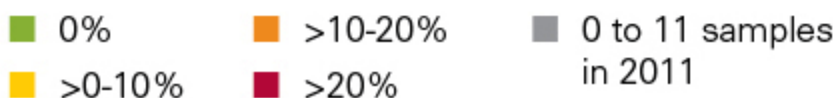
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA's estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Rhode Island

Rhode Island 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of closing/advisory days)

- 74 (100%) unknown contamination sources

Rhode Island has identified 236 public beach access points along about 400 miles of Atlantic Ocean and Narragansett Bay waters. The Rhode Island Department of Health is responsible for beachwater monitoring and water quality notifications.

Seaweed Harvesting and Ultraviolet Stormwater Treatment at Easton's Beach

In the summer of 2009, Easton's Beach in Newport County began using a seaweed harvester to remove excess seaweed from the beach in an effort to improve beach aesthetics and beachwater quality. In 2011, 800 tons of seaweed were removed.¹ Beachwater quality did improve after seaweed harvesting began. In 2008, despite low precipitation, 32% of samples taken at this beach exceeded water quality standards for fecal indicator bacteria. There was more rain in 2009 than in 2008, yet the percentage of samples exceeding standards dropped to 20%. (Note that while piles of seaweed on the beach can contribute to poor beachwater quality, these piles may have a role to play in the terrestrial and aquatic ecosystems at the beach, and their removal can have detrimental effects on local flora and fauna. Removal of seaweed from Easton's Beach went through a rigorous permitting process from the Coastal Resource Management Council, an entity whose primary responsibility is the preservation, protection, development, and, where possible, the restoration of the state's coastal areas.²)

Another undertaking to improve beachwater quality at Easton's Beach was the installation of a \$6 million ultraviolet treatment system for destroying bacteria in stormwater discharges to the beach from Easton's Moat. The ultraviolet device began operation before the 2011 beach season; as part of the overall project, a storm drain was also relocated, but this did not occur until August 2011. The treatment system is activated when there is more than 0.25 inch of rain in a 24-hour period. In 2011, all samples of stormwater entering the treatment system exceeded water quality standards, and all samples of effluent from the system met standards. However, water quality testing downstream of the ultraviolet system revealed that another source of bacterial contamination between the treatment device and the outfall to the ocean is impacting Easton's Beach, and further work is being conducted to find and eliminate sources of contamination there.¹

Green Infrastructure and Sewage Overflow Reductions at Bristol Town Beach

Bristol Town Beach in Colt State Park has implemented a number of changes to improve beachwater quality, most of which make use of green infrastructure techniques that allow stormwater to filter into the ground instead of running off into the ocean. Six catch basins connected to bioswales have been installed to intercept runoff from the park before it reaches the beach. Rainwater is filtered mechanically in the catch basins, then further filtered by vegetation in the bioswales. The bioswales also significantly slow down the flow of rainwater, preventing surges of stormwater that may carry bacteria and other contamination to the beach. Also, the storm drain whose outfall is at the beach has been opened and restored so that when there is stormwater flow from urban areas upstream of the beach, it follows a slow and winding path. This helps clean the water carried to the ocean and allows time for some infiltration into the soil. The park's parking lot has been resurfaced with permeable pavers, and bioretention swales and specialized vegetation have been installed around the parking lot to absorb and filter any stormwater that does run off. In addition, there are plans to upgrade the sewage treatment plant near this beach and install underground tanks that will store rainwater during heavy storms. Currently, the sewage treatment plant is overwhelmed during heavy rainfall, resulting in overflows of untreated or partially treated sewage. With the modifications, rainwater will be stored and released slowly to the sewage treatment plant when rainfall is not heavy.¹



The parking lot at Bristol Town Beach in Colt State Park exemplifies green infrastructure. (Walter Burke)

Urban Beach Initiative

All of the beaches north of Conimicut Point in Warwick and Nayatt Point in Barrington have been unlicensed since 1999 because of ongoing water quality issues.¹ Closures and advisories are never issued at these beaches because only licensed beaches are considered to be "open." However, the state specifically discourages swimming and other full-body water-contact activities north of Conimicut Point and urges people to refrain from any contact with water north of Conimicut Point for at least three days after heavy rainfall.³

The Urban Beach Initiative was launched in 2010 in part to determine if there are areas in the upper Narragansett Bay that are safe for swimming. The state health department collected water samples at three locations in this area in 2011 as part of the initiative, and Save the Bay collected water samples at two additional locations. More than 20% of samples exceeded water quality standards at all five locations.¹

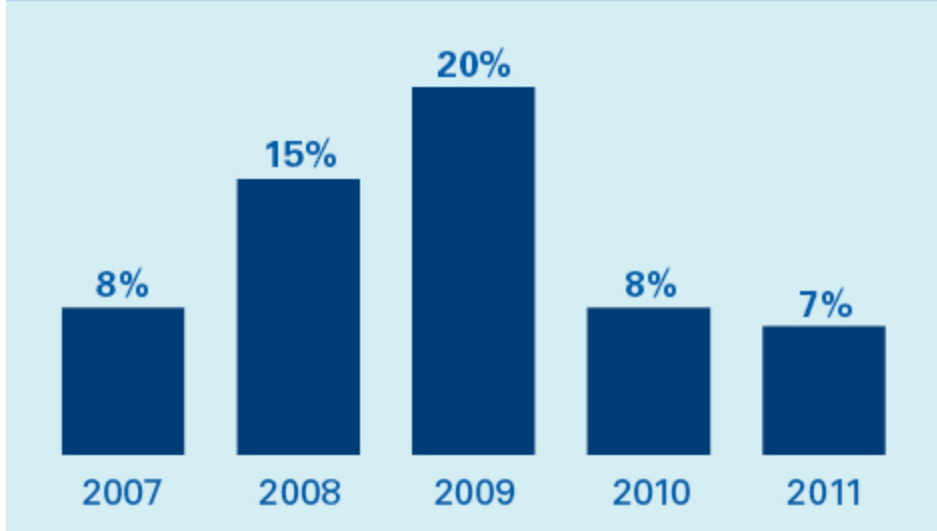
The Urban Beach Initiative and the partnership with Save the Bay have continued into the 2012 beach season. These efforts include working with EPA to provide dive specialists to survey underwater hazards and conditions.¹ Now that the Providence Tunnel Project is complete and combined-sewer overflows are reduced, the state hopes that future testing will show that water quality has improved and can support swimming.⁴

What Does Beachwater Monitoring Show?

In 2011, Rhode Island reported 236 coastal beaches. Of these, 17 (7%) were assigned a monitoring frequency of more than once a week, 2 (<1%) a frequency of once a week, 1 (<1%) three times a month, 11 (5%) every other week, and 42 (18%) once a month; 163 (69%) were not assigned a monitoring frequency.

In 2011, 7% of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Conimicut Point Beach (23%), Oakland Beach (17%), and Goddard Memorial State Park (16%) in Kent County; and Easton's Beach (14%) and Atlantic Beach Club (14%) in Newport County. Beaches in Kent County had the highest exceedance rate of the state standard in 2011 (16%), followed by Bristol (8%), Newport (8%), and Washington (3%) counties. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any. Locations monitored as part of the Urban Beach Initiative are not included in NRDC's analysis, as they are not considered to be bathing beaches.

Rhode Island Percent of Samples Exceeding the State's Daily Maximum Bacterial Standard for 65 Beaches Reported 2007-2011



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Rhode Island's Sampling Practices?

The regular monitoring season runs from Memorial Day through Labor Day. In 2011, the city of Newport again teamed with a local Aquidneck Island volunteer organization, Clean Ocean Access, to continue sampling Easton's Beach during the off-season when surfers utilize the beach area. Clean Ocean Access volunteers collect samples year-round, and the city of Newport pays for analysis.¹ Other volunteer groups, including the Surfrider Foundation, assist with sampling efforts throughout the year as well.⁴

The Rhode Island Department of Environmental Management and/or Department of Health determine sampling practices, locations, standards, and notification protocols and practices throughout the state. Samples are collected just below the surface in water that is approximately 3 feet deep. The water quality at all licensed marine beaches in the state is monitored. High priority for more frequent monitoring is given to beaches with direct known sources of pollution (stormwater outfalls, septic/sewer connections, population density, nearby sewer plants) and high usage, and to facilities that have exhibited poor water quality in the past.

Monitors focus on areas of greatest concern and aim to collect samples when high bacteria counts are most likely to be present. The number of samples collected on a beach depends on the length of coastline and the presence of physical barriers to circulation (jetties, groins, etc.) that can trap bacterial contaminants near the shore. If a beach is closed or placed under advisory, sampling is conducted daily until the water quality meets standards and the beach is reopened. Extensive wet-weather sampling is conducted to determine the reopening schedule for beaches under preemptive rainfall advisories. States that monitor more frequently after an exceedance is found or after heavy rainfall will tend to have higher percent exceedance rates and lower total closing/advisory days than they would if their sampling schedule did not increase after an exceedance was found or after heavy rainfall.

How Many Beach Closings and Advisories Were Issued in 2011?

Total closing/advisory days for 37 events lasting six consecutive weeks or less increased 4% to 74 days in 2011 from 71 days in 2010. For prior years, there were 178 days in 2009, 124 days in 2008, 86 days in 2007, 256 days in 2006, and 57 days in 2005. There were no extended or permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are

in effect for more than 13 consecutive weeks. All closing and advisory days for events lasting six weeks or less in 2011 were due to monitoring that revealed elevated bacteria levels.

Because of elevated fecal indicator bacteria levels, King Park Beach in Newport was closed to swimming from 2006 to 2010. After Newport made improvements to the combined sewage overflow system located at Wellington Avenue, water quality analysis confirmed the park was suitable for swimming, and King Park Beach was relicensed for the 2011 beach season.¹

How Does Rhode Island Determine When to Warn Visitors About Swimming?

Rhode Island issues both beach closings (for bacterial contamination) and advisories (due to rain). The state's coastal bathing water standard is a single-sample maximum of 104 cfu/100 ml of enterococcus. No geometric mean standard is applied when determining whether to issue a beach closing.

Typically, if sampling results exceed the standard, a beach is closed. However, the state health department considers several environmental factors before deciding whether to close a beach because of bacterial contamination, including the presence of wildlife, seaweed, the number of tides since the sample was collected, the history of sample results for that beach, and rainfall.⁴ On rare occasions, if environmental factors do not suggest that fecal contamination is likely, the beach may remain open while it is resampled.

If a known sewage discharge occurs in close proximity to a beach, officials immediately close the beach without waiting for sampling results to confirm contamination. Scarborough Beach and Easton's Beach have preemptive rainfall standards and are closed when there is more than 1 inch of rainfall in a 24-hour period. Easton's Beach reopens within 12 hours of cessation of heavy rain. These preemptive closure protocols are proving to be effective, and the beach program is developing additional closure evaluations based on rainfall.¹ The beach monitoring program generally recommends no water contact for three days after heavy rainfall.⁴

Rhode Island 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Bristol	Annawamscutt Beach	3	none	0	n/a	0	N/A
Bristol	Baia Beach	3	none	0	n/a	0	N/A
Bristol	Barrington Beach	1	twice a week	96	5%	1	N/A
Bristol	Barrington Unnamed #1	3	none	0	n/a	0	N/A
Bristol	Barrington Unnamed #2	3	none	0	n/a	0	N/A
Bristol	Barrington Unnamed #3	3	none	0	n/a	0	N/A
Bristol	Barrington Unnamed #4	3	none	0	n/a	0	N/A
Bristol	Bristol Town Beach	1	twice a week	60	13%	4	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Bristol	Bristol Unnamed #1	3	none	0	n/a	0	N/A
Bristol	Bristol Unnamed #2	3	none	0	n/a	0	N/A
Bristol	Camp Crosby	3	none	0	n/a	0	N/A
Bristol	Camp St. Dorothy	1	once a week	7	0%	0	N/A
Bristol	Hopeworth Beach	3	none	0	n/a	0	N/A
Bristol	Juniper Beach	3	none	0	n/a	0	N/A
Bristol	Latham Park	3	none	0	n/a	0	N/A
Bristol	Rumstick Point	3	none	0	n/a	0	N/A
Bristol	Touisset Beach	3	none	0	n/a	0	N/A
Bristol	Warren Town Beach	1	twice a week	31	6%	1	N/A
Bristol	Warren Unnamed #1	3	none	0	n/a	0	N/A
Bristol	Warren Unnamed #2	3	none	0	n/a	0	N/A
Kent	Buttonwoods Beach	3	none	0	n/a	0	N/A
Kent	Cedar Tree Point	3	none	0	n/a	0	N/A
Kent	Chepiwanoxet	3	none	0	n/a	0	N/A
Kent	City Park Beach	1	twice a week	26	0%	0	N/A
Kent	Cole Farm Beach	3	none	0	n/a	0	N/A
Kent	Conimicut Point Beach	1	twice a week	57	23%	13	N/A
Kent	Gaspee Point	3	none	0	n/a	0	N/A
Kent	Goddard Memorial State	1	twice a week	141	16%	6	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	Park						
Kent	Longmeadow	3	none	0	n/a	0	N/A
Kent	Mill Cove Beach	3	none	0	n/a	0	N/A
Kent	Oakland Beach	1	twice a week	84	17%	14	N/A
Kent	Potowomut	3	none	0	n/a	0	N/A
Kent	Rocky Point	3	none	0	n/a	0	N/A
Kent	Warwick Unnamed #1	3	none	0	n/a	0	N/A
Kent	Warwick Unnamed #2	3	none	0	n/a	0	N/A
Newport	Atlantic Beach Club	1	twice a week	37	14%	8	N/A
Newport	Briggs Beach	3	once a month	12	8%	0	N/A
Newport	Collins Beach	3	none	0	n/a	0	N/A
Newport	Easton's Beach	1	twice a week	127	14%	2	N/A
Newport	Easton's Point	3	none	0	n/a	0	N/A
Newport	Elm Street Pier	3	none	0	n/a	0	N/A
Newport	Fogland Beach	2	twice a month	30	0%	0	N/A
Newport	Fort Adams State Park	1	twice a week	41	2%	1	N/A
Newport	Fort Getty	3	none	0	n/a	0	N/A
Newport	Fort Weatherill	3	none	0	n/a	0	N/A
Newport	Gooseberry Beach	3	once a month	13	0%	0	N/A
Newport	Goosewing Beach	3	once a month	10	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Newport	Grinells Beach	3	twice a month	20	0%	0	N/A
Newport	Hazard's Beach	3	once a month	10	0%	0	N/A
Newport	Island Park	3	none	0	n/a	0	N/A
Newport	Jamestown Unnamed #1	3	none	0	n/a	0	N/A
Newport	Jamestown Unnamed #2	3	none	0	n/a	0	N/A
Newport	Jamestown Unnamed #3	3	none	0	n/a	0	N/A
Newport	Jamestown Unnamed #4	3	none	0	n/a	0	N/A
Newport	King Park Main Beach	3	twice a week	62	10%	1	N/A
Newport	Kings Beach	3	none	0	n/a	0	N/A
Newport	Little Compton Unnamed #1	3	none	0	n/a	0	N/A
Newport	Little Compton Unnamed #2	3	none	0	n/a	0	N/A
Newport	Little Compton Unnamed #3	3	none	0	n/a	0	N/A
Newport	Little Compton Unnamed #4	3	none	0	n/a	0	N/A
Newport	Little Compton Unnamed #5	3	none	0	n/a	0	N/A
Newport	Little Compton Unnamed #6	3	none	0	n/a	0	N/A
Newport	Little Compton Unnamed #7	3	none	0	n/a	0	N/A
Newport	Little Compton Unnamed #8	3	none	0	n/a	0	N/A
Newport	Little Compton Unnamed #9	3	none	0	n/a	0	N/A
Newport	Little Compton Unnamed #10	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Newport	Little Compton Unnamed #11	3	none	0	n/a	0	N/A
Newport	Mackerel Cove Beach	2	once a month	16	6%	1	N/A
Newport	Marine Avenue Beach	3	none	0	n/a	0	N/A
Newport	Mccorrie Point	3	none	0	n/a	0	N/A
Newport	Middletown Unnamed #1	3	none	0	n/a	0	N/A
Newport	Middletown Unnamed #2	3	none	0	n/a	0	N/A
Newport	Newport Unnamed #1	3	none	0	n/a	0	N/A
Newport	Newport Unnamed #2	3	none	0	n/a	0	N/A
Newport	Ochre Point (Ruggles)	3	none	0	n/a	0	N/A
Newport	Patience Island Unnamed #1	3	twice a month	0	n/a	0	N/A
Newport	Peabodys Beach	2	twice a week	28	4%	3	N/A
Newport	Portsmouth Unnamed #1	3	none	0	n/a	0	N/A
Newport	Portsmouth Unnamed #2	3	none	0	n/a	0	N/A
Newport	Portsmouth Unnamed #3	3	none	0	n/a	0	N/A
Newport	Portsmouth Unnamed #4	3	none	0	n/a	0	N/A
Newport	Portsmouth Unnamed #5	3	none	0	n/a	0	N/A
Newport	Portsmouth Unnamed #6	3	none	0	n/a	0	N/A
Newport	Portsmouth Unnamed #7	3	none	0	n/a	0	N/A
Newport	Portsmouth Unnamed #8	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Newport	Portsmouth Unnamed #9	3	none	0	n/a	0	N/A
Newport	Portsmouth Unnamed #10	3	none	0	n/a	0	N/A
Newport	Portsmouth Unnamed #11	3	none	0	n/a	0	N/A
Newport	Portsmouth Unnamed #12	3	none	0	n/a	0	N/A
Newport	Portsmouth Unnamed #13	3	none	0	n/a	0	N/A
Newport	Portsmouth Unnamed #14	3	none	0	n/a	0	N/A
Newport	Prudence Island Unnamed #1	3	none	0	n/a	0	N/A
Newport	Prudence Island Unnamed #2	3	none	0	n/a	0	N/A
Newport	Prudence Island Unnamed #3	3	none	0	n/a	0	N/A
Newport	Prudence Island Unnamed #4	3	none	0	n/a	0	N/A
Newport	Prudence Island Unnamed #5	3	none	0	n/a	0	N/A
Newport	Prudence Island Unnamed #6	3	none	0	n/a	0	N/A
Newport	Prudence Island Unnamed #7	3	none	0	n/a	0	N/A
Newport	Prudence Island Unnamed #8	3	none	0	n/a	0	N/A
Newport	Prudence Island Unnamed #9	3	none	0	n/a	0	N/A
Newport	Prudence Island Unnamed	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	#10						
Newport	Prudence Island Unnamed #11	3	none	0	n/a	0	N/A
Newport	Rocky Beach	3	none	0	n/a	0	N/A
Newport	Sachuest Beach	2	twice a month	35	0%	0	N/A
Newport	Sandy Point Beach	3	twice a month	20	10%	1	N/A
Newport	Sapowet Beach	3	none	0	n/a	0	N/A
Newport	Seaside Beach	3	none	0	n/a	0	N/A
Newport	South Shore Beach	3	once a month	10	0%	0	N/A
Newport	Spouting Rock Beach Association	3	once a month	18	0%	0	N/A
Newport	Teddys Beach	3	none	0	n/a	0	N/A
Newport	Third Beach	1	twice a week	76	12%	8	N/A
Newport	Tiverton Unnamed #1	3	none	0	n/a	0	N/A
Newport	Tiverton Unnamed #2	3	none	0	n/a	0	N/A
Newport	Tiverton Unnamed #3	3	none	0	n/a	0	N/A
Newport	Tiverton Unnamed #4	3	none	0	n/a	0	N/A
Newport	Tiverton Unnamed #5	3	none	0	n/a	0	N/A
Newport	Tiverton Unnamed #6	3	none	0	n/a	0	N/A
Newport	Tiverton Unnamed #7	3	none	0	n/a	0	N/A
Newport	Tiverton Unnamed #8	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Newport	Tiverton Unnamed #9	3	none	0	n/a	0	N/A
Newport	Tiverton Unnamed #10	3	none	0	n/a	0	N/A
Newport	Tiverton Unnamed #11	3	none	0	n/a	0	N/A
Newport	Tiverton Unnamed #12	3	none	0	n/a	0	N/A
Newport	Vanzandt Pier	3	none	0	n/a	0	N/A
Newport	Warrens Point Beach Club	3	once a month	5	0%	0	N/A
Newport	West Beach	3	none	0	n/a	0	N/A
Providence	Bold Point	3	none	0	n/a	0	N/A
Providence	Bullocks Neck	3	none	0	n/a	0	N/A
Providence	Cranston Unnamed #1	3	none	0	n/a	0	N/A
Providence	Cranston Unnamed #2	3	none	0	n/a	0	N/A
Providence	Crescent Beach	3	none	0	n/a	0	N/A
Providence	East Providence Unnamed #1	3	none	0	n/a	0	N/A
Providence	East Providence Unnamed #2	3	none	0	n/a	0	N/A
Providence	Sabins Point	3	none	0	n/a	0	N/A
Washington	Alfies	3	once a month	6	0%	0	N/A
Washington	Andrea Hotel	3	once a month	6	0%	0	N/A
Washington	Atlantic Beach Casino Resort	3	once a month	6	0%	0	N/A
Washington	Atlantic Beach Park	3	once a month	6	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Washington	Atlantic Pizza and Grill	3	once a month	6	0%	0	N/A
Washington	Ballards Inn	3	once a month	0	n/a	0	N/A
Washington	Block Island Unnamed #1	3	none	0	n/a	0	N/A
Washington	Block Island Unnamed #2	3	none	0	n/a	0	N/A
Washington	Block Island Unnamed #3	3	none	0	n/a	0	N/A
Washington	Block Island Unnamed #4	3	none	0	n/a	0	N/A
Washington	Block Island Unnamed #5	3	none	0	n/a	0	N/A
Washington	Block Island Unnamed #6	3	none	0	n/a	0	N/A
Washington	Block Island Unnamed #7	3	none	0	n/a	0	N/A
Washington	Block Island Unnamed #8	3	none	0	n/a	0	N/A
Washington	Block Island Unnamed #9	3	none	0	n/a	0	N/A
Washington	Block Island Unnamed #10	3	none	0	n/a	0	N/A
Washington	Block Island Unnamed #11	3	none	0	n/a	0	N/A
Washington	Block Island Unnamed #12	3	none	0	n/a	0	N/A
Washington	Blue Shutters Beach	3	once a month	12	0%	0	N/A
Washington	Bonnet Shores Beach Club	2	twice a month	30	0%	0	N/A
Washington	Breezeway Inn	2	once a month	3	0%	0	N/A
Washington	Cafe Pasture Beach	3	none	0	n/a	0	N/A
Washington	Camp Fuller-YMCA Beach	2	twice a month	9	11%	2	N/A
Washington	Camp Grosvenor	1	twice a week	31	6%	4	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Washington	Capt Roger Wheeler	1	once a week	56	0%	0	N/A
Washington	Charlestown Beach	3	none	0	n/a	0	N/A
Washington	Charlestown Breachway	3	once a month	8	13%	0	N/A
Washington	Charlestown Town Beach	2	once a month	11	0%	0	N/A
Washington	Charlestown Unnamed #1	3	none	0	n/a	0	N/A
Washington	Charlestown Unnamed #2	3	none	0	n/a	0	N/A
Washington	Deep Hole Beach	3	none	0	n/a	0	N/A
Washington	Dunes Club	3	twice a month	25	0%	0	N/A
Washington	Dunes Park	3	once a month	7	0%	0	N/A
Washington	East Beach	3	once a month	11	0%	0	N/A
Washington	East Matunuck State Beach	3	once a month	9	0%	0	N/A
Washington	Fred Benson Town Beach	3	once a month	12	0%	0	N/A
Washington	Galilee Beach Club Associat	3	once a month	4	0%	0	N/A
Washington	Greenhill	3	once a month	7	0%	0	N/A
Washington	Jims Trailer Park	2	once a month	6	0%	0	N/A
Washington	Kelly Beach	3	none	0	n/a	0	N/A
Washington	Matunuck Town Beach	3	once a month	21	0%	0	N/A
Washington	Misquamicut Club	3	once a month	9	0%	0	N/A
Washington	Misquamicut Fire District Beach	3	once a month	18	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Washington	Misquamicut State Beach	1	twice a month	21	5%	0	N/A
Washington	Moonstone Beach	3	none	0	n/a	0	N/A
Washington	Napa Tree Point Beach	3	none	0	n/a	0	N/A
Washington	Narragansett Town Beach	1	three times a month	27	0%	0	N/A
Washington	Narragansett Unnamed #1	3	none	0	n/a	0	N/A
Washington	Narragansett Unnamed #3	3	none	0	n/a	0	N/A
Washington	Narragansett Unnamed #4	3	none	0	n/a	0	N/A
Washington	Narragansett Unnamed #5	3	none	0	n/a	0	N/A
Washington	Narragansett Unnamed #6	3	none	0	n/a	0	N/A
Washington	Narragansett Unnamed #7	3	none	0	n/a	0	N/A
Washington	Narragansett Unnamed #8	3	none	0	n/a	0	N/A
Washington	Narragansett Unnamed #9	3	none	0	n/a	0	N/A
Washington	Narragansett Unnamed #10	3	none	0	n/a	0	N/A
Washington	Narragansett Unnamed #11	3	none	0	n/a	0	N/A
Washington	Narragnasett Unnamed #2	3	none	0	n/a	0	N/A
Washington	North Kingstown Town Beach	1	twice a week	29	0%	0	N/A
Washington	North Kingstown Unnamed #1	3	none	0	n/a	0	N/A
Washington	North Kingstown Unnamed #2	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Washington	North Kingstown Unnamed #3	3	none	0	n/a	0	N/A
Washington	North Kingstown Unnamed #4	3	none	0	n/a	0	N/A
Washington	North Kingstown Unnamed #5	3	none	0	n/a	0	N/A
Washington	North Kingstown Unnamed #6	3	none	0	n/a	0	N/A
Washington	North Kingstown Unnamed #7	3	none	0	n/a	0	N/A
Washington	North Kingstown Unnamed #8	3	none	0	n/a	0	N/A
Washington	North Kingstown Unnamed #9	3	none	0	n/a	0	N/A
Washington	North Kingstown Unnamed #10	3	none	0	n/a	0	N/A
Washington	North Kingstown Unnamed #11	3	none	0	n/a	0	N/A
Washington	North Kingstown Unnamed #12	3	none	0	n/a	0	N/A
Washington	North Kingstown Unnamed #13	3	none	0	n/a	0	N/A
Washington	Ocean House	3	once a month	6	0%	0	N/A
Washington	Paddy's Beach	3	once a month	7	0%	0	N/A
Washington	Pleasant View Inn	3	once a month	6	0%	0	N/A
Washington	Plum Beach Club	2	twice a month	10	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Washington	Quonochotaug Beach	3	none	0	n/a	0	N/A
Washington	Roy Carpenter's Beach	3	once a month	6	0%	0	N/A
Washington	Salty Brine Beach	3	once a month	3	33%	0	N/A
Washington	Sam's Beach	3	once a month	6	0%	0	N/A
Washington	Sandy Shore Motel	3	once a month	6	0%	0	N/A
Washington	Saunderstown Yacht Club	2	twice a month	9	0%	0	N/A
Washington	Scarborough State Beach North	1	twice a week	93	10%	2	N/A
Washington	Scarborough State Beach South	1	twice a week	62	3%	2	N/A
Washington	Seaside Beach Club	3	once a month	5	0%	0	N/A
Washington	South Kingstown Unnamed #1	3	none	0	n/a	0	N/A
Washington	South Kingstown Unnamed #2	3	none	0	n/a	0	N/A
Washington	South Kingstown Unnamed #3	3	none	0	n/a	0	N/A
Washington	South Kingstown Unnamed #4	3	none	0	n/a	0	N/A
Washington	South Kingstown Unnamed #5	3	none	0	n/a	0	N/A
Washington	Surf Hotel	3	once a month	0	n/a	0	N/A
Washington	Trustom Beach	3	none	0	n/a	0	N/A
Washington	Watch Hill Carousel	2	once a month	7	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Washington	Weekapaug Fire District	3	once a month	24	0%	0	N/A
Washington	Westerly Town Beach-New	3	once a month	7	0%	0	N/A
Washington	Westerly Town Beach-Old	3	once a month	14	0%	0	N/A
Washington	Westerly Unamed # 1	3	none	0	n/a	0	N/A
Washington	Westerly Unamed # 2	3	none	0	n/a	0	N/A
Washington	Westerly Unamed # 3	3	none	0	n/a	0	N/A
Washington	Westerly Unamed # 4	3	none	0	n/a	0	N/A
Washington	Westquage Beach	3	none	0	n/a	0	N/A
Washington	Willow Dell Beach Club	3	once a month	13	0%	0	N/A

Notes

1. Rhode Island Department of Health, "Beach Program 2011 Season Report," March 2012, accessed at files.gegov.com/Filesystem/51/pdf/lib/2011%20Season%20Report.pdf, June 2012.
2. Amie Parris, Rhode Island Department of Health, personal communication, May 2012.
3. Rhode Island Department of Health website, "Beach Closures and Advisories," accessed at www.ribeaches.org/closures.cfm, May 2012.
4. Amie Parris, Rhode Island Department of Health, personal communication, April 2012.

Testing the Waters: South Carolina

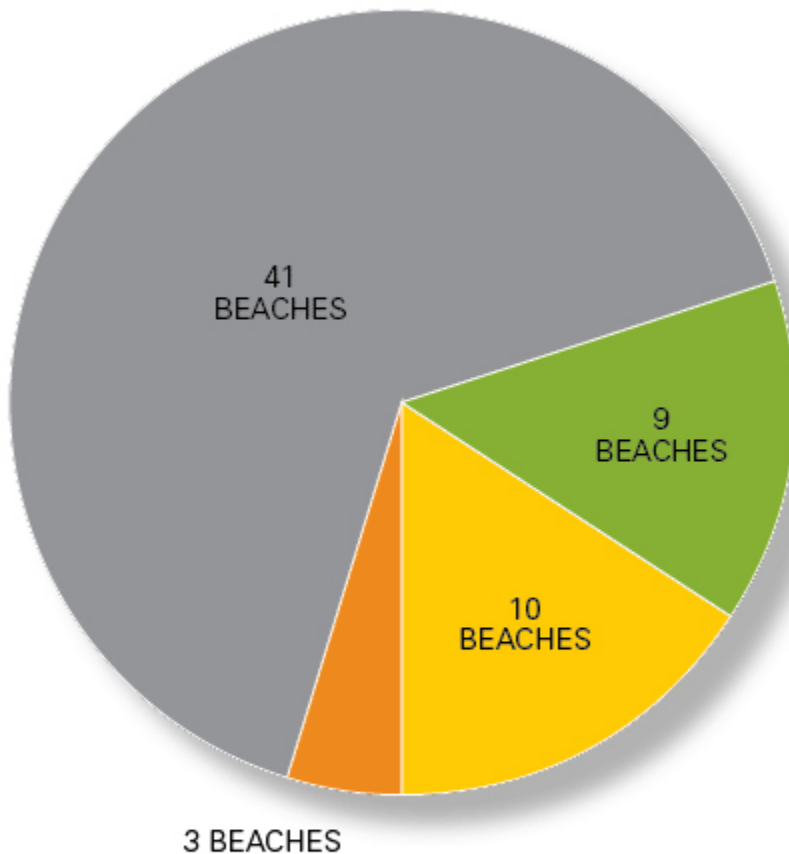
Ranked 17th in Beachwater Quality (out of 30 states)

8% of samples exceeded national standards for designated beach areas in 2011

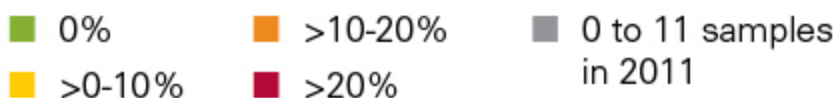
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in South Carolina

South Carolina 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of advisory days)

- 10 (100%) stormwater

There are 63 beaches in South Carolina lining 180 miles of Atlantic coastline (102 miles on the mainland coast and 78 miles on islands without bridges from the mainland barrier islands or on sandbars). The state's beachwater quality monitoring program is administered by the Department of Health and Environmental Control (DHEC).

Using Deep Ocean Outfalls to Protect Swimmers in the Grand Strand

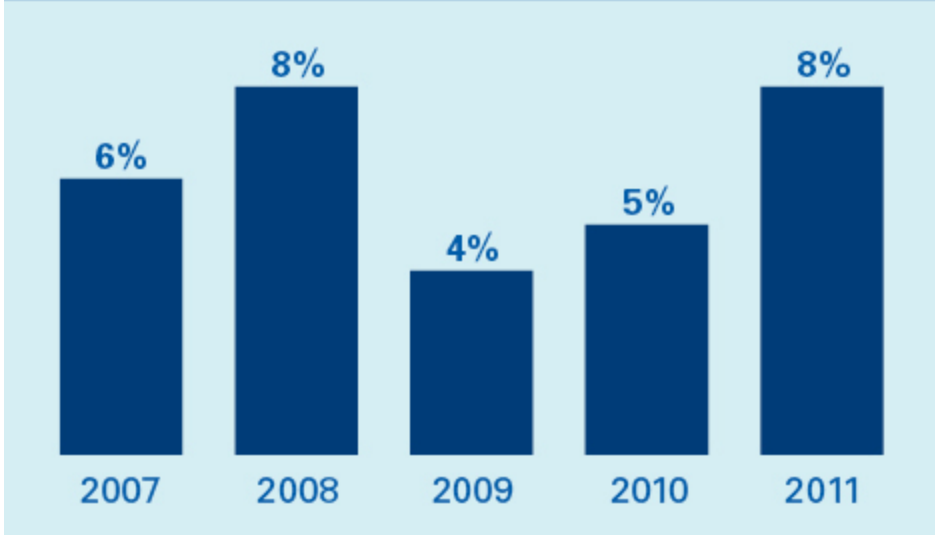
The Grand Strand is a stretch of beaches between Little River and Georgetown, South Carolina. Some of the Grand Strand communities have constructed stormwater outfalls that discharge deep in the ocean instead of at the beach in order to reduce beach erosion and reduce localized pollution concentrations for swimmers. These projects, which cost millions of dollars per ocean outfall, have created significant reductions in the amount of fecal indicator bacteria found in beachwater where they have been implemented (7th Avenue South in North Myrtle Beach and Deep Head Swash in Myrtle Beach). In 2011, Myrtle Beach completed construction of the latest ocean outfall, located at 4th Avenue North. This project combined nine existing stormwater drainage pipes that used to discharge at the beach into one pipe that runs underneath the seabed and discharges into the Atlantic Ocean more than 1,000 feet from shore.¹

NRDC encourages coastal communities to explore solutions that prevent stormwater runoff before it occurs. The high cost of deep-ocean outfalls as a solution to beach erosion and beachwater quality problems illustrates the importance of reducing stormwater runoff by implementing green infrastructure wherever possible. In addition to improving beachwater quality, green infrastructure does not transfer pollution to the ocean and has significant other benefits.

What Does Beachwater Monitoring Show?

In 2011, South Carolina reported 63 coastal beaches. Of these, 1 (2%) was monitored more than once a week, 6 (10%) were assigned a monitoring frequency of once a week, 16 (25%) every other week, and 40 (63%) were not assigned a monitoring frequency. In 2011, 8% of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Springmaid Beach (18%), Briarcliffe Acres Beach (13%), Myrtle Beach (13%), Myrtle Beach State Park and Campgrounds (10%), and Garden City Beach (9%), all in Horry County. Beaches in Horry County had the highest exceedance rate of the state standard in 2011 (11%), followed by Colleton (4%), Charleston (3%), Georgetown (1%), and Beaufort (<1%) counties. There were no exceedances in Beaufort County. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.

South Carolina Percent of Samples Exceeding the State's Daily Maximum Bacterial Standard for 22 Beaches Reported 2007-2011



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are South Carolina's Sampling Practices?

The monitoring season in South Carolina is from May 15 to October 15. DHEC determines monitoring locations, sampling practices, standards, and notification protocols, which are uniform throughout the state. Samples are taken in water that is 20 to 40 inches deep, 12 inches below the surface. A sanitary survey (a systematic investigation that is used to identify potential sources of human sewage pollution) is conducted every time a beach is sampled. In South Carolina, beaches are prioritized for inclusion in the monitoring program based on level of use, water quality history, and other applicable factors. Most of the highest-priority (Tier 1) beaches have stormwater outfalls.¹

Sampling is deliberately conducted at swashes and outfalls, where water quality is expected to be at its poorest. Portions of beaches whose water quality has fallen below standards are sampled daily. States that monitor more frequently after an exceedance is found will tend to have higher percent exceedance rates and lower total advisory days than they would if their sampling schedule did not increase after an exceedance was found or after heavy rainfall.

In addition to DHEC monitoring, the city of Myrtle Beach uses Coastal Carolina University to conduct year-round sampling at monitoring sites in Myrtle Beach. Thus, during the state's monitoring season, these sites are monitored twice a week. Also, during the monitoring season, the county park on Isle of Palms samples twice per month in addition to DHEC's twice-a-month monitoring schedule, so one of the nine monitoring stations at this beach is monitored four times per month.

How Many Beach Advisories Were Issued in 2011?

Total advisory days for 7 events lasting six consecutive weeks or less increased to 10 days in 2011 from 4 days in 2010. For prior years, there were 48 days in 2009, 36 days in 2008, 108 days in 2007, 684 days in 2006, and 592 days in 2005. In addition, there were no extended or permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 7 events lasting six consecutive weeks or less, 100% (10) of advisory days in 2011 were due to monitoring that revealed elevated bacteria levels.

How Does South Carolina Determine When to Warn Visitors About Swimming?

The beachwater quality monitoring program has the authority to issue advisories but not closings; in South Carolina, only elected officials can close a beach. South Carolina applies a single-sample maximum standard for enterococcus of 104 cfu/100 ml. No geometric mean standard is applied when determining whether to issue a beach advisory.

DHEC issues an advisory immediately when the enterococcus bacteria level is 500 cfu/100 ml or higher. If the bacteria level is above 104 cfu/100 ml but below 500 cfu/100 ml, an additional sample is collected. If the second sample is also above 104 cfu/100 ml, the department issues an advisory. Advisories include the area of the beach that is within 200 feet on either side of the monitoring station where the exceedance occurred.

A rain model is used for posting preemptive advisories for Horry County's Tier 1 beaches. Sampling results indicated that use of the model might be leading to the issuance of advisories that were not necessary, and work to improve the accuracy of the model was under way in 2011.² Most pipe outfalls and swashes in Horry County are under permanent rainfall advisory, with permanent signs advising the public against swimming in the area of the stormwater outfall. These types of standing advisories are not reported to EPA and are not included in NRDC's analysis.

South Carolina 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Beaufort	Bay Pointe - north end	3	none	0	n/a	0	N/A
Beaufort	Bay Pointe - south end	3	none	0	n/a	0	N/A
Beaufort	Beaufort River Sandbar	3	none	0	n/a	0	N/A
Beaufort	Dafuskie Island - north east end of island	3	none	0	n/a	0	N/A
Beaufort	Fripp Island	2	twice a month	50	0%	0	N/A
Beaufort	Harbor Island	2	twice a month	30	0%	0	N/A
Beaufort	Hilton Head Island	2	twice a month	151	1%	0	N/A
Beaufort	Hunting Island	2	twice a month	50	0%	0	N/A
Beaufort	Hunting Island and Fripp Island Sandbar	3	none	0	n/a	0	N/A
Beaufort	Lands End - north end	3	none	0	n/a	0	N/A
Beaufort	Lands End - south end	3	none	0	n/a	0	N/A
Beaufort	May River Sandbar	3	none	0	n/a	0	N/A
Beaufort	The Sands at Port Royal - across from landing	3	none	0	n/a	0	N/A
Beaufort	The Sands at Port Royal - beach area	3	none	0	n/a	0	N/A
Beaufort	Trenchards Inlet (Bull Point)	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Charleston	Bird Key	3	none	0	n/a	0	N/A
Charleston	Botany Bay	3	none	0	n/a	0	N/A
Charleston	Cape Romain - Key Inlet	3	none	0	n/a	0	N/A
Charleston	Capers Inlet - north end Dewees Island	3	none	0	n/a	0	N/A
Charleston	Capers Inlet - south end Capers Island	3	none	0	n/a	0	N/A
Charleston	Capers Island - north end	3	none	0	n/a	0	N/A
Charleston	Deveaux Banks - north side	3	none	0	n/a	0	N/A
Charleston	Dewees Inlet - north end of Isle of Palms	3	none	0	n/a	0	N/A
Charleston	Dewees Island - south end	3	none	0	n/a	0	N/A
Charleston	Folly Beach	2	twice a month	90	6%	0	N/A
Charleston	Isle of Palms	2	twice a month	110	0%	0	N/A
Charleston	Kiawah - north end	3	none	0	n/a	0	N/A
Charleston	Kiawah Island	2	twice a month	55	0%	0	N/A
Charleston	Lighthouse Inlet - Morris Island south end	3	none	0	n/a	0	N/A
Charleston	Morris Island - sandbar on north end	3	none	0	n/a	0	N/A
Charleston	Prices Inlet	3	none	0	n/a	0	N/A
Charleston	Privateer Point	3	none	0	n/a	0	N/A
Charleston	Raccoon Key	3	none	0	n/a	0	N/A
Charleston	Seabrook Island	2	twice a month	22	0%	0	N/A
Charleston	Stono River - Limehouse sandbar	3	none	0	n/a	0	N/A
Charleston	Stono River - Wolf Island	3	none	0	n/a	0	N/A
Charleston	Sullivans Island	2	twice a month	36	8%	1	N/A
Colleton	Edisto Island	2	twice a month	148	4%	1	N/A
Colleton	Otter Island	3	none	0	n/a	0	N/A
Georgetown	Debordieu Beach	2	twice a month	20	0%	0	N/A
Georgetown	Debordieu - south end	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Georgetown	Garden City Beach	2	twice a month	0	n/a	1	N/A
Georgetown	Huntington Beach State Park	2	twice a month	20	0%	0	N/A
Georgetown	Litchfield Beach	2	twice a month	30	0%	0	N/A
Georgetown	Murrells Inlet - north side	3	none	0	n/a	0	N/A
Georgetown	Murrells Inlet - south side	3	none	0	n/a	0	N/A
Georgetown	North Island - north end	3	none	0	n/a	0	N/A
Georgetown	North Island - south end	3	none	0	n/a	0	N/A
Georgetown	North Santee River - south end of South Island	3	none	0	n/a	0	N/A
Georgetown	Pawleys Island Beach	2	twice a month	31	3%	0	N/A
Georgetown	Sandbar off shore of south end of Cedar Island	3	none	0	n/a	0	N/A
Georgetown	South Island - north end	3	none	0	n/a	0	N/A
Georgetown	South Santee River - south end of Cedar Island	3	none	0	n/a	0	N/A
Horry	Arcadia Beach	1	once a week	112	5%	0	N/A
Horry	Briarcliffe Acres Beach	1	once a week	45	13%	3	N/A
Horry	Garden City Beach	2	twice a month	47	9%	2	N/A
Horry	Little River Inlet - north side	3	none	0	n/a	0	N/A
Horry	Little River Inlet - south side	3	none	0	n/a	0	N/A
Horry	Myrtle Beach	1	twice a week	781	13%	0	N/A
Horry	Myrtle Beach State Park and Campgrounds	1	once a week	88	10%	0	N/A
Horry	North Myrtle Beach	1	once a week	297	8%	2	N/A
Horry	Springmaid Beach	1	once a week	22	18%	0	N/A
Horry	Surfside Beach	1	once a week	154	8%	0	N/A

Notes

1. South Carolina Department of Health and Environmental Control, "2010 Ocean Water Quality Sampling and Advisory Data Report for U.S. EPA Region IV," November 2010.
2. Jim Hess, South Carolina Department of Health and Environmental Control, personal communication, May 2012.

3. Why don't the 2011 percent exceedance values in this summary match? Only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart. Because some beaches were not monitored in each of these years, the percent exceedance for this subset of beaches (7%) did not have the the same value as the percent exceedance for all of the beaches monitored in 2011 (8%).

Testing the Waters: Texas

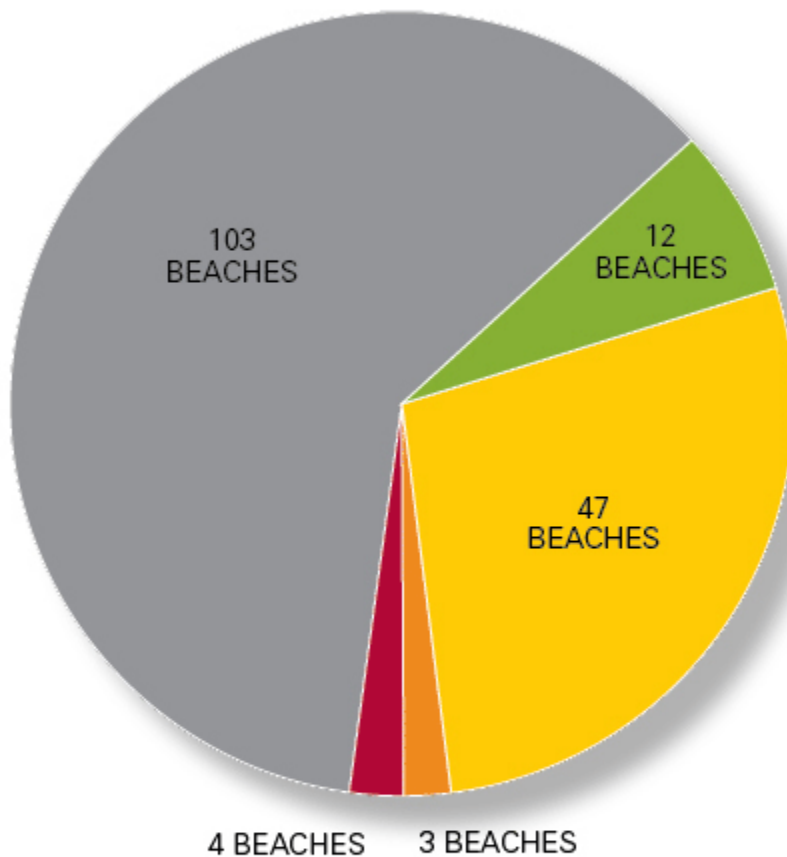
Ranked 8th in Beachwater Quality (out of 30 states)

5% of samples exceeded national standards for designated beach areas in 2011

In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Texas

Texas 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of closing/advisory days)

- 92% (354) unknown contamination sources
- 7% (27) stormwater runoff
- 1% (3) wildlife
- <1% (1) other

Texas has 169 public beaches. Out of approximately 2,500 miles of coastal, bay, and estuarine shoreline in Texas, 336 miles are subject to the BEACH Act. The Texas General Land Office (GLO) administers the Texas Beach Watch Program.

Texas Drought

Federal scientists indicate that Texas had its driest year on record in 2011. The statewide average rainfall for the year was 14.88 inches, drier than the previous low of 14.99 inches, set in 1917. During the past century, Texas averaged 27.92 inches of rain per year.¹ Beachwater quality tends to improve when conditions are dry because less rain results in less pollution reaching the ocean in stormwater runoff.

Source Identification Projects Under Way in Texas

In October 2010, the Texas A&M University-Corpus Christi began conducting a multiyear bacteria sampling project along Corpus Christi Bay at Cole Park, Emerald Beach, McGee Beach, Poenisch Park, and Ropes Park. Researchers are identifying potential sources of bacteria at these beaches and documenting conditions. As part of the project, samples are being collected in various beach locations, including beach sands and water, over two to three years during both dry and wet weather. The goals of the project are to determine the best management strategies for protecting these resources and to support the public's enjoyment of recreating in these waters by improving water quality. Throughout the project, the city of Corpus Christi, the Nueces River Authority, the Coastal Bend Bays Foundation, the Coastal Bend Bays and Estuaries Program, and other stakeholders and communities that use and impact these public beaches are being engaged in developing strategies to improve water quality.³

In another project, which began late last year, Texas A&M–Corpus Christi is developing a tool that will make it easier to conduct useful sanitary surveys at beaches in Texas. These surveys are conducted in order to reveal sources of beachwater contamination. Students will be trained to conduct sanitary surveys at each of the 52 Coastal Bend beaches in Nueces, Aransas, and San Patricio counties that are monitored through the Texas Beach Watch Program. The sanitary surveys will include measurements at the beaches, photographs of all features, and observations of any potential sources of contamination as well as additional watershed characteristics (such as land use). After the Coastal Bend beaches are surveyed, the sanitary survey tool will be reviewed and any necessary modifications will be made.³

What Does Beachwater Monitoring Show?

In 2011, Texas reported 169 coastal beaches. Of these, 66 (39%) were assigned a monitoring frequency of once a week and 103 (61%) were not assigned a monitoring frequency. In 2011, 5% of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. The beaches with the highest percent exceedance rates in 2011 were Poenisch Park in Nueces County (34%), Palacios Pavilion in Matagorda County (30%), and Cole Park (22%), Ropes Park (22%), and JFK Causeway–SW (20%) in Nueces County.

Beaches in Matagorda County had the highest exceedance rate of the state standard in 2011 (11%), followed by Kleberg (9%), Harris (9%), Nueces (9%), Aransas (8%), Galveston (3%), Brazoria (2%), and Cameron (1%) counties. There were no exceedances in Jefferson and San Patricio counties. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.

What Are Texas's Sampling Practices?

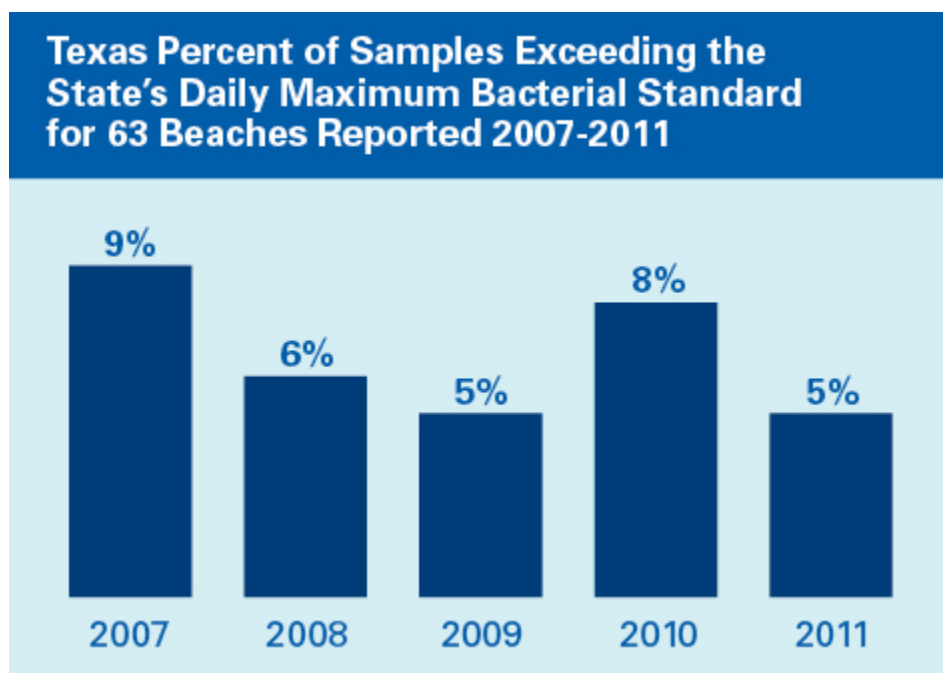
Beaches are monitored year-round, with weekly monitoring from May to September for all monitored beaches and during the month of March at some beaches to coincide with spring break.²

The GLO determines sampling practices and locations and recommends that local government and health departments issue beach advisories when the bacterial standard is exceeded. Samples are generally collected about 1 foot below the surface in knee-deep water (2 feet deep) in an area where people are engaging in recreational activity. If the majority of recreational activity occurs at a depth significantly different from 2 feet, samples can be collected at the location of greatest swimmer activity. In addition, if the 2-foot sampling depth is more than 50 meters from shore, samples can be collected at the location of greatest swimmer activity. Recreational beach segments used most frequently by the public and where health risks are the greatest are given priority for monitoring.

Texas relies primarily on federal BEACH ACT funding for its beachwater monitoring and notification program, but federal funds are periodically insufficient for meeting the goals of the program, and these funds are supplemented with funding from the state. Because of funding shortfalls over a period of years, monitoring of beaches in Kleberg County (all four of which were either Tier 2 or Tier 3) was discontinued beginning in September 2011.³

If a sample exceeds standards, monitoring is conducted daily until standards are met. States that monitor more frequently after an exceedance is found will tend to have higher percent exceedance rates and lower total closing/advisory days than they would if their sampling schedule did not increase after an exceedance was found.

Were Beach Closings or Advisories Issued in 2011?



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

Total closing/advisory days for 327 events lasting six consecutive weeks or less decreased by 45%, to 385 days in 2011 from 704 days in 2010. For prior years, there were 231 days in 2009, 318 days in 2008, 532 days in 2007, 473 days in 2006, and 420 days in 2005. In addition, there were no extended or permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 327 events lasting six consecutive weeks or less, all closing/advisory days in 2011 were due to monitoring that revealed elevated bacteria levels.

How Does Texas Determine When to Warn Visitors About Swimming?

There are three levels of advisories in Texas. The lowest level occurs when enterococcus densities are below 35 cfu/100 ml. A medium-level advisory occurs when enterococcus densities are between 35 cfu/100 ml and 104 cfu/100 ml, and a high-level advisory is issued, with swimming not recommended, when the enterococcus density is greater than 104 cfu/100 ml.⁴ The public is notified of all advisory levels on the Internet, but signs are posted on the beach only for high-level advisories. Only high-level advisory days are reported to EPA and included in this summary. Beginning in 2011, one sample per station was collected at each sampling event (prior to 2011, two samples were collected per sampling event and the results were averaged before comparing with the standard).³ No geometric mean standard for five samples taken over a 30-day period is applied.

Texas does not have preemptive rainfall standards. In the case of a known sewage spill, the decision to issue a preemptive closing or advisory would be made by local government.³

Texas 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Aransas	12th Street	3	none	0	n/a	0	N/A
Aransas	Copano Bay Bridge	3	none	0	n/a	0	N/A
Aransas	Copano Bay State Fishing Pier	3	none	0	n/a	0	N/A
Aransas	Copano Causeway - North	3	none	0	n/a	0	N/A
Aransas	Copano Causeway - South	3	none	0	n/a	0	N/A
Aransas	Goose Island State Park	2	none	0	n/a	0	N/A
Aransas	Highway 188 @ Port Bay North	3	none	0	n/a	0	N/A
Aransas	Highway 188 @ Port Bay South	3	none	0	n/a	0	N/A
Aransas	Rockport Beach Park	1	once a week	173	8%	13	N/A
Brazoria	Bryan Beach	1	once a week	47	4%	2	N/A
Brazoria	County Road 257A	2	none	0	n/a	0	N/A
Brazoria	Follets Island	1	once a week	206	2%	5	N/A
Brazoria	Peach Point WMA	2	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Brazoria	Quintana	1	once a week	93	4%	3	N/A
Brazoria	San Luis Park	2	none	0	n/a	0	N/A
Brazoria	Seidler's Landing	3	none	0	n/a	0	N/A
Brazoria	Southwest Brazoria	2	none	0	n/a	0	N/A
Brazoria	Surfside	1	once a week	333	1%	5	N/A
Brazoria	Swan Lake	3	none	0	n/a	0	N/A
Calhoun	Bauer Road	3	none	0	n/a	0	N/A
Calhoun	Bayfront Park	2	none	0	n/a	0	N/A
Calhoun	Boggy Bayou ROW	3	none	0	n/a	0	N/A
Calhoun	Indianola Beach	2	none	0	n/a	0	N/A
Calhoun	King Fisher Park	2	none	0	n/a	0	N/A
Calhoun	Lighthouse Beach & Bird Sanctuary	2	none	0	n/a	0	N/A
Calhoun	Magnolia Beach Park	2	none	0	n/a	0	N/A
Calhoun	Matagorda Island State Park - Backside 1	3	none	0	n/a	0	N/A
Calhoun	Matagorda Island State Park - Backside 2	3	none	0	n/a	0	N/A
Calhoun	Matagorda Island State Park - Backside 3	3	none	0	n/a	0	N/A
Calhoun	Matagorda Island State Park - Backside 4	3	none	0	n/a	0	N/A
Calhoun	Matagorda Island State Park - Gulf	2	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Calhoun	Olivia Haterius Park	3	none	0	n/a	0	N/A
Calhoun	Point Comfort City Park	3	none	0	n/a	0	N/A
Calhoun	Port Alto Public Park	2	none	0	n/a	0	N/A
Calhoun	Six Mile Road	2	none	0	n/a	0	N/A
Calhoun	State Highway 35	3	none	0	n/a	0	N/A
Calhoun	Swan Point Park	3	none	0	n/a	0	N/A
Cameron	Access Point #3	1	once a week	47	2%	2	N/A
Cameron	Access Point #4	1	once a week	39	3%	2	N/A
Cameron	Andy Bowie Park	1	once a week	86	1%	2	N/A
Cameron	Atwood Park	1	once a week	84	2%	4	N/A
Cameron	Boca Chica State Park	1	once a week	251	0%	1	N/A
Cameron	Isla Blanca Park	1	once a week	84	4%	5	N/A
Cameron	N Cameron County - Bayside	3	none	0	n/a	0	N/A
Cameron	Park Road 100 Bay Access #1	2	none	0	n/a	0	N/A
Cameron	Park Road 100 Bay Access #2	1	once a week	46	2%	1	N/A
Cameron	South Padre Island (Town of South Padre Island)	1	once a week	376	1%	4	N/A
Cameron	South Padre Island -North	2	none	0	n/a	0	N/A
Cameron	South Padre Island Access Point #6	1	once a week	84	1%	2	N/A
Chambers	Chambers County	2	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Chambers	McCollum Park	2	none	0	n/a	0	N/A
Galveston	25th St.	1	once a week	196	3%	5	N/A
Galveston	45th St.	1	once a week	232	3%	6	N/A
Galveston	61st St.	1	once a week	162	5%	6	N/A
Galveston	Appfel Park	1	once a week	76	0%	0	N/A
Galveston	Caplen	2	none	0	n/a	0	N/A
Galveston	Caplen/Crystal Beach	2	none	0	n/a	0	N/A
Galveston	Clara St.	1	once a week	156	3%	4	N/A
Galveston	Crystal Beach - O'Neill Road	1	once a week	38	0%	0	N/A
Galveston	Dellanera Park	1	once a week	82	5%	4	N/A
Galveston	East Beach	2	none	0	n/a	0	N/A
Galveston	Erman Pilsner Boat Ramp	3	none	0	n/a	0	N/A
Galveston	Frank Carmona Beach	2	none	0	n/a	0	N/A
Galveston	Galveston Island State Park	1	once a week	81	4%	3	N/A
Galveston	Galveston Island State Park Backside	1	once a week	42	10%	3	N/A
Galveston	Gilchrist East	2	none	0	n/a	0	N/A
Galveston	Gilchrist West	2	none	0	n/a	0	N/A
Galveston	Gulf Shores	1	once a week	78	3%	2	N/A
Galveston	Haney Park	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Galveston	High Island East	3	none	0	n/a	0	N/A
Galveston	High Island West	3	none	0	n/a	0	N/A
Galveston	Holiday	2	none	0	n/a	0	N/A
Galveston	Indian Beach	1	once a week	39	0%	0	N/A
Galveston	Pirates Beach	1	once a week	197	3%	4	N/A
Galveston	Port Bolivar - Rettilon Road	1	once a week	38	0%	0	N/A
Galveston	Rollover Pass East	1	once a week	158	4%	5	N/A
Galveston	Rollover Pass West	1	once a week	40	5%	2	N/A
Galveston	San Luis Pass	1	once a week	81	4%	3	N/A
Galveston	Seadrift	1	once a week	38	0%	0	N/A
Galveston	Skyline Drive	3	none	0	n/a	0	N/A
Galveston	Skyline Park	3	none	0	n/a	0	N/A
Galveston	Spanish Grant/Bermuda Beach	1	once a week	121	3%	4	N/A
Galveston	Stewart Beach	1	once a week	118	3%	4	N/A
Galveston	Texas City Dike	1	once a week	40	5%	2	N/A
Galveston	West End	1	once a week	114	0%	0	N/A
Galveston	West End Galveston - Jamaica Beach	1	once a week	41	5%	2	N/A
Galveston	West End Galveston - Sea Isle	1	once a week	83	6%	5	N/A
Harris	Bayland Park	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Harris	Clear Lake Park	2	none	0	n/a	0	N/A
Harris	Evergreen Road	3	none	0	n/a	0	N/A
Harris	Lynchburg ROW	3	none	0	n/a	0	N/A
Harris	Miramar Street	3	none	0	n/a	0	N/A
Harris	Pine Gully Park	3	none	0	n/a	0	N/A
Harris	River Terrace Park	3	none	0	n/a	0	N/A
Harris	Sylvan Beach Park	1	once a week	79	9%	7	N/A
Jefferson	McFaddin NWR	1	once a week	207	0%	0	N/A
Jefferson	Sea Rim State Park	1	once a week	142	0%	0	N/A
Kleberg	CR 1140 North	3	none	0	n/a	0	N/A
Kleberg	CR 1140 South	3	none	0	n/a	0	N/A
Kleberg	Kaufer-Hubert #1	2	once a week	31	10%	3	N/A
Kleberg	Kaufer-Hubert #2	2	once a week	37	8%	3	N/A
Kleberg	Kaufer-Hubert #3	2	once a week	34	9%	2	N/A
Kleberg	North Padre Island	2	none	0	n/a	0	N/A
Kleberg	Riviera Beach Pier	3	once a week	32	9%	2	N/A
Matagorda	East Bay	3	none	0	n/a	0	N/A
Matagorda	East Matagorda Peninsula	2	none	0	n/a	0	N/A
Matagorda	East Sargent Beach	2	none	0	n/a	0	N/A
Matagorda	FM 1095	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Matagorda	Foley Reserve Park	3	none	0	n/a	0	N/A
Matagorda	Jenson's Point	3	none	0	n/a	0	N/A
Matagorda	Jetty Park	1	once a week	175	1%	2	N/A
Matagorda	Lookout Point	3	none	0	n/a	0	N/A
Matagorda	Oyster Lake Road	3	none	0	n/a	0	N/A
Matagorda	Palacios - Palacios Pavillion	1	once a week	125	30%	51	N/A
Matagorda	Sargent Beach	1	once a week	142	6%	7	N/A
Matagorda	South Bay Boat Ramp	3	none	0	n/a	0	N/A
Nueces	Cole Park	1	once a week	193	22%	48	N/A
Nueces	Corpus Christi Beach - Main	1	once a week	166	3%	5	N/A
Nueces	Corpus Christi Beach - North	2	none	0	n/a	0	N/A
Nueces	Corpus Christi Beach - South	2	none	0	n/a	0	N/A
Nueces	Corpus Christi Marina	1	once a week	126	12%	15	N/A
Nueces	Doddridge Park	3	none	0	n/a	0	N/A
Nueces	Emerald Beach	1	once a week	47	13%	6	N/A
Nueces	Hans & Pat Sutter Wildlife Refuge	3	none	0	n/a	0	N/A
Nueces	JFK Causeway - NE	2	none	0	n/a	0	N/A
Nueces	JFK Causeway - NW	2	none	0	n/a	0	N/A
Nueces	JFK Causeway - SE	2	none	0	n/a	0	N/A
Nueces	JFK Causeway - SW	1	once a week	49	20%	10	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Nueces	JP Luby Park	1	once a week	177	7%	10	N/A
Nueces	Laguna Shores	1	once a week	42	10%	4	N/A
Nueces	Lighthouse Lakes Kayak Trail #1	1	once a week	30	3%	1	N/A
Nueces	McGee Beach	1	once a week	80	6%	6	N/A
Nueces	Mustang Island	1	once a week	43	0%	0	N/A
Nueces	Mustang Island State Park	1	once a week	219	1%	3	N/A
Nueces	Mustang Island State Park - Backside	3	none	0	n/a	0	N/A
Nueces	Ocean Drive - East	3	none	0	n/a	0	N/A
Nueces	Ocean Drive - West	3	none	0	n/a	0	N/A
Nueces	Packery Channel Park	1	once a week	40	0%	0	N/A
Nueces	Padre Bali Park	1	once a week	368	7%	23	N/A
Nueces	Palmetto Park	3	none	0	n/a	0	N/A
Nueces	Philip Dimitt Municipal Fishing Pier	3	none	0	n/a	0	N/A
Nueces	Poenisch Park	1	once a week	56	34%	29	N/A
Nueces	Port Aransas - Jetty	2	none	0	n/a	0	N/A
Nueces	Port Aransas - South	1	once a week	87	3%	3	N/A
Nueces	Port Aransas Park	1	once a week	168	1%	8	N/A
Nueces	Port Street	3	none	0	n/a	0	N/A
Nueces	Redhead Pond WMA	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Nueces	Roberts Point Park	3	none	0	n/a	0	N/A
Nueces	Ropes Park	1	once a week	93	22%	20	N/A
Nueces	SH 361 ROW - NE	3	none	0	n/a	0	N/A
Nueces	SH 361 ROW - NW	3	none	0	n/a	0	N/A
Nueces	SH 361 ROW - SE	3	none	0	n/a	0	N/A
Nueces	SH 361 ROW - SW	3	none	0	n/a	0	N/A
Nueces	SPI Drive - NE	3	none	0	n/a	0	N/A
Nueces	SPI Drive - NW	3	none	0	n/a	0	N/A
Nueces	SPI Drive - SE	3	none	0	n/a	0	N/A
Nueces	SPI Drive - SW	3	none	0	n/a	0	N/A
Nueces	Swantner Park	3	none	0	n/a	0	N/A
Nueces	University Beach	1	once a week	40	8%	2	N/A
Refugio	TPWD Boat Ramp - Refugio	3	none	0	n/a	0	N/A
San Patricio	Highway 1069 ROW	3	none	0	n/a	0	N/A
San Patricio	Indian Point Park	3	none	0	n/a	0	N/A
San Patricio	Nueces Bay Causeway #1	3	none	0	n/a	0	N/A
San Patricio	Nueces Bay Causeway #2	3	none	0	n/a	0	N/A
San	Nueces Bay Causeway #3	3	once a week	39	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Patricio							
San Patricio	Nueces Bay Causeway #4	3	none	0	n/a	0	N/A
Willacy	Fred Stone Park	3	none	0	n/a	0	N/A
Willacy	Mansfield Cut/County Line	2	none	0	n/a	0	N/A
Willacy	Placement Area #8	3	none	0	n/a	0	N/A

Notes

1. "Texas Had Its Driest Year on Record in 2011," *Houston Chronicle*, January 27, 2012.
2. Craig Davis, Texas General Land Office, personal communication, February 2012.
3. Craig Davis, Texas General Land Office, personal communication, March 2012.
4. Texas Beach Watch, accessed at texasbeachwatch.com/ in March 2012.

Testing the Waters: Virginia

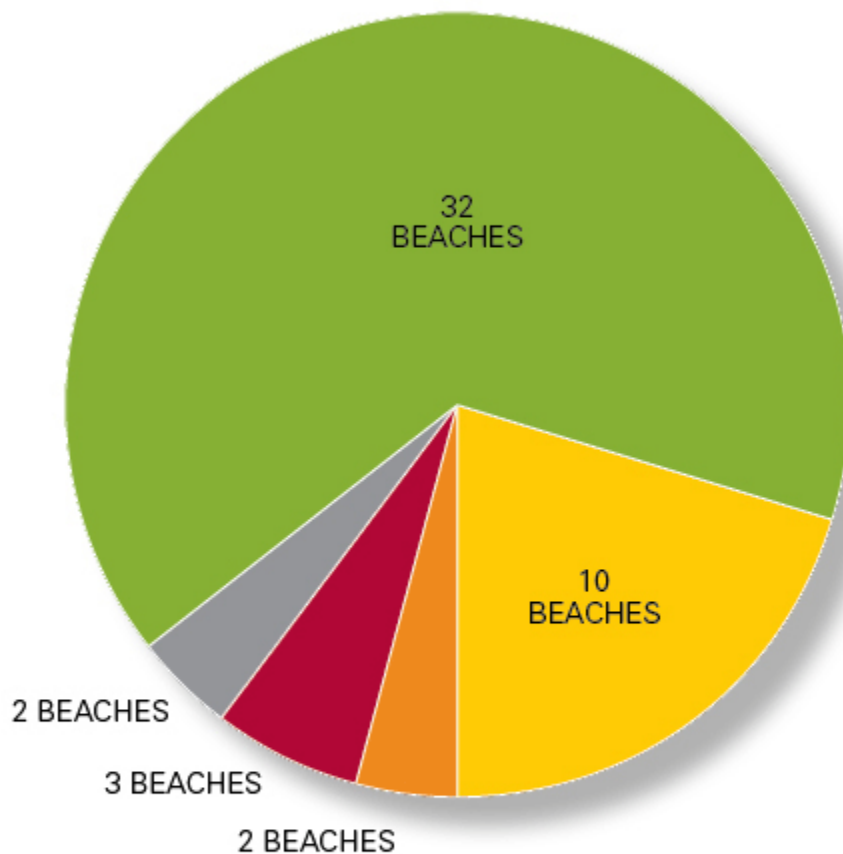
Ranked 6th in Beachwater Quality (out of 30 states)

4% of samples exceeded national standards for designated beach areas in 2011

In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA’s estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Virginia

Virginia 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



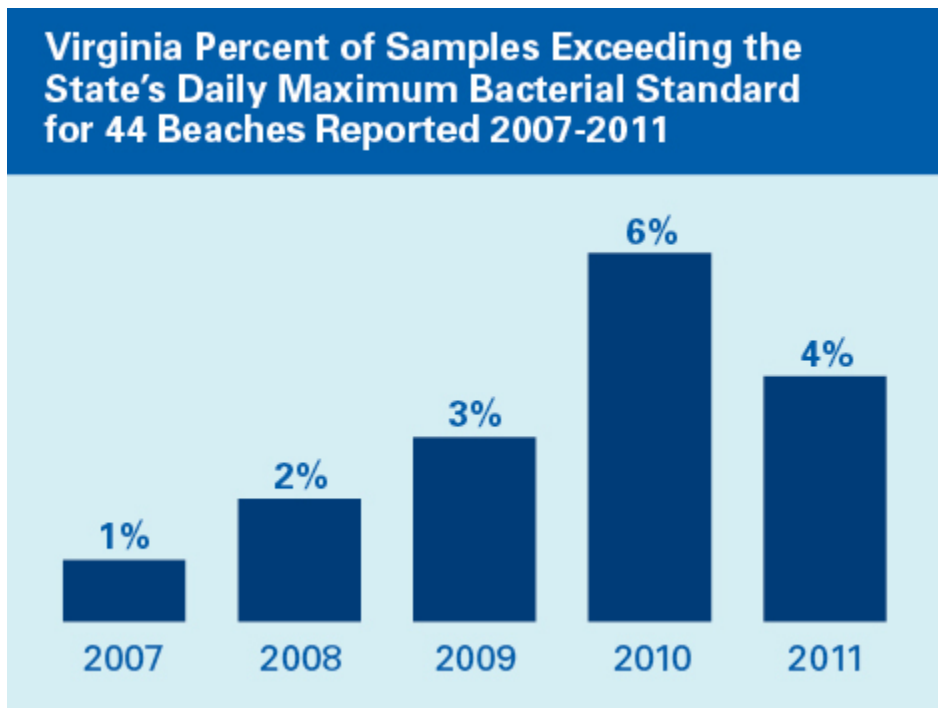
Reported Sources of Beachwater Contamination (number of closing/advisory days)

- 69 (100%) unknown contamination sources

Virginia has 49 public beaches stretching along 70 miles of Atlantic and Chesapeake Bay waters. The state's beachwater quality monitoring program is administered by the Virginia Department of Health (VDH).

What Does Beachwater Monitoring Show?

In 2011, Virginia reported 48 coastal beaches. Of these, 46 (96%) were assigned a monitoring frequency of once a week, and 2 (4%) were not assigned a monitoring frequency. An additional beach, Assateague Island National Seashore, is monitored once a week by the state of Maryland (this beach straddles Accomack County in Virginia and Worcester County in Maryland; the monitored location is in Virginia). Results for Assateague Island National Seashore are included in this analysis for the state of Virginia. In 2011, 4% of all reported beach monitoring samples exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Fairview Beach in King George County (33%) and Hilton Beach (30%), Huntington Beach (25%), and Anderson's Beach (20%) in the independent city of Newport News. Beaches in King George County had the highest exceedance rate of the state standard in 2011 (33%), followed by beaches in the independent cities of Newport News (22%), Norfolk (4%), Hampton (2%), and Virginia Beach (1%). There were no exceedances in Accomack, Gloucester, Mathews, Northampton, and York counties. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Virginia's Sampling Practices?

The monitoring season runs from mid-May through Labor Day, with some sites sampled through mid-September. VDH determines sampling practices, locations, standards, and notification protocols and practices throughout the state. Samples are collected in water 0.5 meters deep, 0.3 meters from the surface.¹

Priority for monitoring is given to sampling sites that are in close proximity to wastewater outfalls, that have high bather load, and where there is easy access to the beach.² If a beach is placed under advisory or closed, the water is resampled immediately (with a duplicate sample sent for microbial source tracking analysis) and the monitoring frequency is increased until the water meets water quality standards and the beach is reopened.² States that monitor more frequently after an exceedance is found will tend to have higher percent exceedance rates and lower total closing/advisory days than they would if their sampling frequency did not increase after an exceedance was found.

The Virginia Department of Environmental Quality and VDH, including the Virginia Division of Shellfish Sanitation, work together to regularly monitor the water, including shellfish-growing areas, for the presence of harmful algal blooms and to conduct surveillance for human health effects.³

How Many Beach Closings or Advisories Were Issued in 2011?

Total closing/advisory days for 28 events lasting six consecutive weeks or less decreased 15% to 69 days in 2011 from 81 days in 2010. For prior years, there were 51 days in 2009, 29 days in 2008, 50 days in 2007, 43 days in 2006, and 42 days in 2005. In addition, there were no extended or permanent events in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. All closing and advisory days in 2011 were due to monitoring that revealed elevated bacteria levels.

How Does Virginia Determine When to Warn Visitors About Swimming?

The VDH has the authority to issue advisories and close beaches. Virginia's water quality standard is a single-sample maximum of 104 cfu/100 ml. No geometric mean standard is applied when making closing and advisory decisions. If more than one sampling site at a beach exists, the average of the results for all sampling sites is used to make closing and advisory decisions for that beach.² If a sample (or average of samples) exceeds the standard, an advisory is issued.² There is no protocol for delaying or forgoing an advisory or closing when an exceedance of the single-sample maximum standard is found.

There are no preemptive rainfall standards, but closings and advisories may be considered on the basis of events such as a harmful algal blooms, fish kills, oil spills, or sewage spills.¹

Virginia 2011 Monitoring Results and Notice and Advisory Days

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Accomack	Assateague Island National Seashore	1	once a week	15	0%	0	N/A
Accomack	Guard Shore	1	once a week	17	0%	0	N/A
Gloucester	Gloucester Point Beach	1	once a week	15	0%	0	N/A
Hampton	Buckroe Beach	1	once a week	18	6%	1	N/A
Hampton	Fort Monroe	1	once a week	17	0%	0	N/A
Hampton	Salt Ponds	1	once a week	17	0%	0	N/A
King George	Fairview Beach	1	once a week	18	33%	22	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Mathews	Festival Beach	1	once a week	15	0%	0	N/A
Newport News	Anderson's Beach	1	once a week	20	20%	4	N/A
Newport News	Hilton Beach	1	once a week	20	30%	14	N/A
Newport News	Huntington Beach	1	once a week	20	25%	9	N/A
Newport News	King/Lincoln Park	1	once a week	18	11%	2	N/A
Norfolk	5th Bay St., North End	1	once a week	23	4%	2	N/A
Norfolk	10th View, Behind Quality Inn,1010 W Ocean View Ave	1	once a week	22	5%	2	N/A
Norfolk	13th View, North End	1	once a week	23	9%	2	N/A
Norfolk	21st Bay St., North End Behind Ships Captain Restaurant	1	once a week	22	0%	0	N/A
Norfolk	Capeview Ave., North End	1	once a week	22	5%	3	N/A
Norfolk	Captains Quarters	1	once a week	13	8%	2	N/A
Norfolk	East Community Beach, End of East Ocean View Ave.	1	once a week	22	0%	0	N/A
Norfolk	North Community Beach	1	once a week	22	0%	1	N/A
Norfolk	Ocean View Park, East Side of Parking Lot	1	once a week	23	4%	0	N/A
Norfolk	Sara Constance Park, East End	1	once a week	24	8%	2	N/A
Northampton	Kiptopeke State Park	1	once a week	17	0%	0	N/A
Northampton	Town of Cape Charles Public Beach	1	once a week	17	0%	0	N/A
Virginia Beach	15th Street	1	once a week	20	0%	0	N/A
Virginia Beach	28th Street	1	once a week	20	0%	0	N/A
Virginia Beach	45th Street	1	once a week	20	0%	0	N/A
Virginia Beach	63rd Street	1	once a week	20	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Virginia Beach	78th Street	1	once a week	20	0%	0	N/A
Virginia Beach	Back Bay Beach	1	once a week	20	0%	0	N/A
Virginia Beach	Camp Pendleton	1	once a week	20	0%	0	N/A
Virginia Beach	Cape Henry Light House	1	none	0	n/a	0	N/A
Virginia Beach	Chesapeake Beach	1	once a week	21	5%	1	N/A
Virginia Beach	Chick's Beach	1	once a week	22	9%	2	N/A
Virginia Beach	Croatan	1	once a week	20	0%	0	N/A
Virginia Beach	Dam Neck Middle	1	once a week	14	0%	0	N/A
Virginia Beach	Dam Neck North	1	once a week	14	0%	0	N/A
Virginia Beach	Dam Neck South	1	once a week	14	0%	0	N/A
Virginia Beach	First Landing State Park	1	once a week	20	0%	0	N/A
Virginia Beach	Fort Story East	1	none	0	n/a	0	N/A
Virginia Beach	Fort Story South	1	once a week	20	0%	0	N/A
Virginia Beach	Fort Story West	1	once a week	20	0%	0	N/A
Virginia Beach	Lesner Bridge East	1	once a week	20	0%	0	N/A
Virginia Beach	Little Island Beach North	1	once a week	20	0%	0	N/A
Virginia Beach	Little Island Beach South	1	once a week	20	0%	0	N/A
Virginia Beach	Sandbridge North	1	once a week	20	0%	0	N/A
Virginia Beach	Sandbridge South	1	once a week	20	0%	0	N/A
Virginia Beach	Sea Gate	1	once a week	20	0%	0	N/A
York	Yorktown Beach	1	once a week	16	0%	0	N/A

Notes

1. Rebecca LePrell, Virginia Department of Health, personal communication, April 2012.
2. Virginia Department of Health, Virginia Beaches Environmental Assessment and Coastal Health (BEACH) Program, Final Report on 2001?2011 EPA Beach Monitoring Grant CU-98389607-0, February 28, 2012.
3. Virginia Department of Health, "Harmful Algal Blooms and Other Organisms of Concern in Coastal Waters," undated brochure.

Testing the Waters: Washington

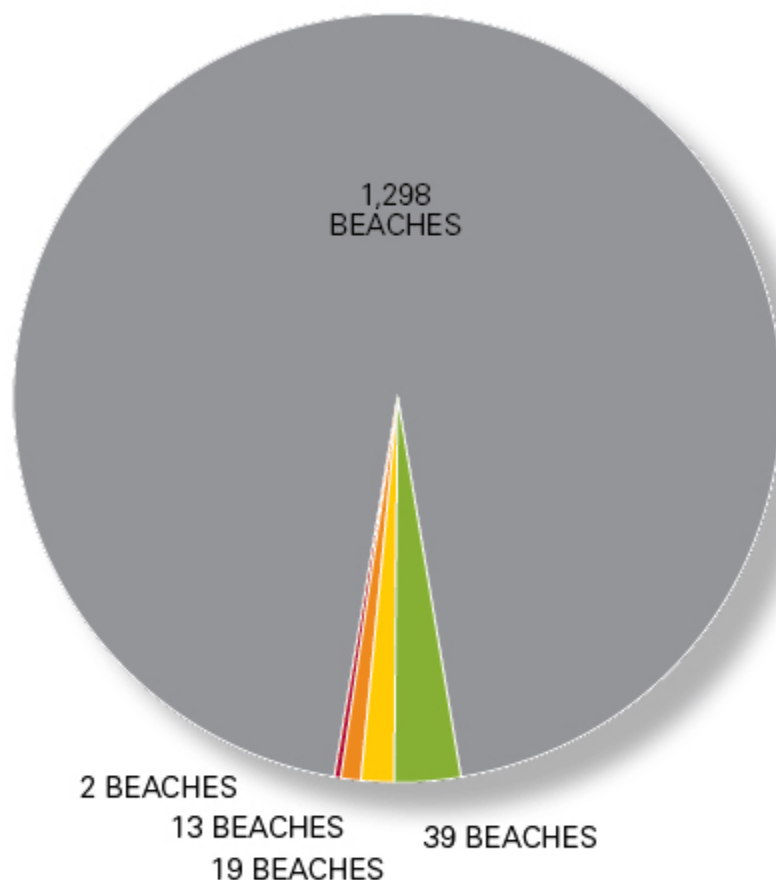
Ranked 10th in Beachwater Quality (out of 30 states)

6% of samples exceeded national standards for designated beach areas in 2011

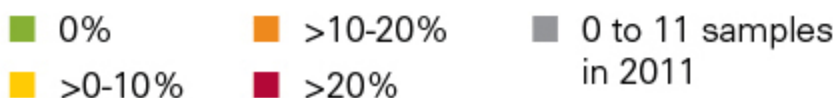
In order to protect beachgoers from waterborne illnesses, we need strong policies to identify unsafe beach water quality and to clean up the major sources of beach pollution. EPA is revising the safety standards that are designed to protect swimmers from getting sick, but the agency needs to strengthen its proposed standards, which—based on EPA's estimates of illness risks—would make it acceptable for 1 in 28 swimmers to become ill. In addition, because polluted runoff is the biggest known source of pollution that causes swimming advisories or beach closings, EPA needs to reform the national requirements that govern sources of polluted stormwater, and the states and EPA need to rigorously enforce existing requirements to ensure that runoff is controlled using innovative solutions known as green infrastructure that enable communities to naturally absorb or use runoff before it causes problems.

Key Findings in Washington

Washington 2011 Beachwater Quality Summary



Percent of samples exceeding state standards:



Reported Sources of Beachwater Contamination (number of closing/advisory days)

- 37 (58%) sewage spills/leaks
- 27 (42%) unknown contamination sources

Washington State has more than 1,300 publicly accessible beaches along the Pacific Ocean and Puget Sound. The state's beach monitoring program is administered by the Washington State Department of Ecology and Washington State Department of Health's BEACH Program.

Identifying Sources of Contamination at Wildcat Cove in Larrabee State Park

Larrabee State Park in Whatcom County is a popular park and beach used by local residents and tourists. Enterococcus levels in water samples at Wildcat Cove, a beach within this state park, have been a concern for years. On June 8, 2011, the Whatcom County Health Department issued a permanent swimming advisory for Wildcat Cove.

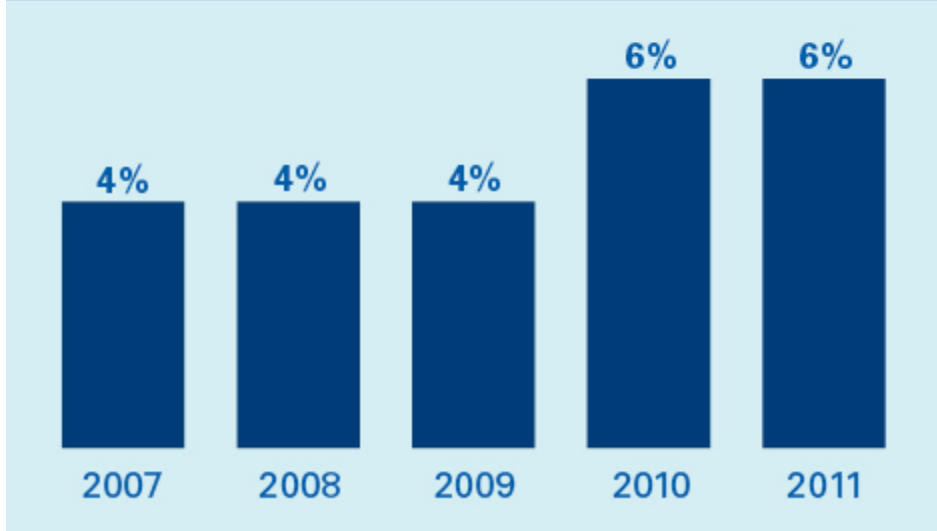
Efforts have been under way since 2010 to pinpoint the sources of contamination at Wildcat Cove. In 2011, the BEACH Program received additional funding through EPA's national estuary program to allow further source identification work. Two streams flowing into the cove were found to have high levels of enterococcus, and a "hot spot" for bacteria was discovered near a wetland area at the campground bathroom facility. Park staff reported that their wastewater system had been recently updated, and the septic systems at four nearby residences were dye-tested and found to be functioning properly. The source of fecal indicator bacterial contamination at this beach is presumed to be wildlife, as numerous raccoon feces have been observed in the wetland that drains into the two enterococcus-laden streams that flow into the cove.

What Does Beachwater Monitoring Show?

Due to limited funding, Washington's BEACH program sampled only 49 beaches in 2010. This was a decrease from 73 beaches in 2009. In 2011, the program was able to increase the number of beaches sampled to 76 with BEACH Act funding supplemented by support from EPA's National Estuary Program.¹ Cape Disappointment State Park in Pacific County has not been monitored since 2009 because of state park budget cuts.²

In 2011, Washington reported 1,371 coastal beaches. Of these, 1 (<1%) was assigned a monitoring frequency of more than once a week, 74 (5%) a frequency of once a week, 1 (<1%) every other week, and 3 (<1%) variable; 1,292 (94%) were not assigned a monitoring frequency. In 2011, 6% of all reported beach monitoring samples (1,156 samples) exceeded the state's daily maximum bacterial standard of 104 colonies/100 ml. The beaches with the highest percent exceedance rates of the state standard in 2011 were Oak Harbor City Beach Park in Island County (42%); Larrabee State Park, Wildcat Cove in Whatcom County (35%); Indianola Dock (20%), Arness County Park (20%), and Pomeroy Park?Manchester Beach (19%) in Kitsap County; and Mukilteo Lighthouse Park in Snohomish County (19%). Beaches in Skagit County had the highest exceedance rate of the state standard in 2011 (29%), followed by Island (21%), Whatcom (15%), Kitsap (11%), Thurston (7%), Snohomish (5%), Jefferson (4%), Mason (3%), King (2%), Pierce (2%), and Clallam (1%) counties. There were no exceedances at beaches in Grays Harbor County, and no beaches in Pacific or San Juan counties were monitored. NRDC considers all reported samples individually (without averaging) when calculating the percent exceedance rates in this analysis. This includes duplicate samples and samples taken outside the official beach season, if any.

Washington Percent of Samples Exceeding the State's Daily Maximum Bacterial Standard for 40 Beaches Reported 2007-2011



* Please note that only samples from a common set of beaches monitored each year from 2007-2011 are included in the bar chart.

What Are Washington's Sampling Practices?

The regular sampling season runs from a week before Memorial Day to Labor Day. Monitoring was extended through October 5, 2011, for three surfing beaches in Grays Harbor County.¹

The BEACH Program and an interagency committee developed sampling procedures and selected monitoring locations throughout the state. This group also selected which EPA water quality criteria to apply throughout the state, developed a protocol for determining when to recommend to local jurisdictions that a notification be issued, and established practices to be observed when a notification is issued. Samples are taken in knee-deep water. Beaches are chosen for monitoring based on use and risk from nearby fecal pollution sources such as sewage treatment plants, septic tanks, pet waste, livestock waste, marine mammals, and shorebirds.²

Local jurisdictions and volunteers make an effort to monitor locations near freshwater and stormwater discharges that transport bacteria into beachwater.² If a beach is closed or placed under advisory, the monitoring frequency is increased until the beach is reopened. States that monitor more frequently after an advisory is issued will tend to have higher percent exceedance rates and lower total closing/advisory days than they would if their sampling frequency did not increase after an exceedance was found.

How Many Beach Closings and Advisories Were Issued in 2011?

Total closing/advisory days for 9 events lasting six consecutive weeks or less decreased 52% to 64 days in 2011 from 131 days in 2010. In prior years, there were 48 days in 2009, 120 days in 2008, 19 days in 2007, 294 days in 2006, and 216 days in 2005. In addition, there was one extended event (73 days) and 6 permanent events (1,795 days total) in 2011. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks. For the 9 events lasting six consecutive weeks or less, 42% (27) of closing/advisory days were due to monitoring that revealed elevated bacteria levels, and 58% (37) were preemptive to due known sewage spills or leaks.

Wildcat Cove at Larrabee State Park in Whatcom County, Walker County Park in Mason County, Edmonds Marina Beach South Dog Park in Snohomish County, Freeland County Park/Holmes Harbor in Island County, Priest Point Park in Thurston County, and Oak Harbor City Beach/Windjammer Park in Island County are under permanent advisory in 2012 because of elevated seasonal geometric means in 2011 or historical

bacteria issues. The BEACH Program also recommended permanent advisories for Little Squalicum Park in Whatcom County and Pomeroy Park-Manchester Beach in Kitsap County because of elevated seasonal geometric means in 2011, but as of this writing these beaches have not been placed under permanent advisory.²

How Does Washington Determine When to Warn Visitors About Swimming?

The authority to close beaches and issue advisories (cautions) rests with local health jurisdictions, and whether a notification is issued when the BEACH Program recommends a notification varies from county to county. The BEACH Program applies the single-sample maximum enterococcus standard of 104 cfu/100 ml to determine whether to make an advisory recommendation. The state also recommends that a permanent advisory be posted if a beach's seasonal geometric mean exceeds 35 cfu/100 ml or when monitoring results indicate a chronic problem. Samples are taken from three locations at each beach, and the bacterial count for the simultaneous samples is averaged before comparison with the standard.

The state recommends that a closing be issued without resampling if a sampling event reveals enterococcus levels greater than 276 cfu/100 ml. If enterococcus levels are greater than 104 cfu/100 ml but below 276 cfu/100 ml, the state recommends that the beach be resampled, and if the resample reveals enterococcus levels between 104 cfu/100 ml and 276 cfu/100 ml, the state recommends that an advisory be issued. If the resample reveals enterococcus levels above 276 cfu/100 ml, the state recommends a closure. The state recommends that beaches be posted immediately upon notice of a sewage spill that poses a threat to the beach.²

Washington has no preemptive rainfall advisory standards but advises the public to avoid water contact for 48 hours after heavy rains.

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Clallam	Agate Bay, Beach 420	3	none	0	n/a	0	N/A
Clallam	Agate Bay, Beach 421	3	none	0	n/a	0	N/A
Clallam	Brandt Point	3	none	0	n/a	0	N/A
Clallam	Cape Flattery	3	none	0	n/a	0	N/A
Clallam	Cape Flattery Trail Lookout	3	none	0	n/a	0	N/A
Clallam	City Pier	3	none	0	n/a	0	N/A
Clallam	Clallam Bay Marina	3	none	0	n/a	0	N/A
Clallam	Clallam Bay State Park	3	none	0	n/a	0	N/A
Clallam	Clallam County Parcel	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Clallam	Cline Spit	3	none	0	n/a	0	N/A
Clallam	Cline Spit County Park	1	once a week	15	0%	0	N/A
Clallam	Crescent Beach	3	none	0	n/a	0	N/A
Clallam	Diamond Point, Beach 410	3	none	0	n/a	0	N/A
Clallam	Dry Creek, Beach 414	3	none	0	n/a	0	N/A
Clallam	Dungeness Bay Boat Launch	3	none	0	n/a	0	N/A
Clallam	Dungeness National Wildlife Refuge	3	none	0	n/a	0	N/A
Clallam	Dungeness Recreation Area	3	none	0	n/a	0	N/A
Clallam	Ediz Hook Park	no data	none	0	n/a	0	N/A
Clallam	First Beach, Neah Bay	3	none	0	n/a	0	N/A
Clallam	Freshwater Bay Boat Launch	3	none	0	n/a	0	N/A
Clallam	Freshwater Bay, Beach 416	2	none	0	n/a	0	N/A
Clallam	Freshwater Bay, Beach 417	3	none	0	n/a	0	N/A
Clallam	Front Street Beach, East	3	once a week	30	0%	0	N/A
Clallam	Gibson Spit, Beach 411	3	none	0	n/a	0	N/A
Clallam	Hoko River, Beach 428	3	none	0	n/a	0	N/A
Clallam	Hollywood Beach	2	once a week	15	0%	7	N/A
Clallam	James Island, La Push	3	none	0	n/a	0	N/A
Clallam	Jamestown Beach	2	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Clallam	Jim Creek , Silver King Resort	3	none	0	n/a	0	N/A
Clallam	John Wayne Marina	3	none	0	n/a	0	N/A
Clallam	La Push First Beach	no data	none	0	n/a	0	N/A
Clallam	La Push Marina #1	3	none	0	n/a	0	N/A
Clallam	La Push Second Beach, Olympic National Park	2	none	0	n/a	0	N/A
Clallam	Lees Creek	3	none	0	n/a	0	N/A
Clallam	Low Point Community Beach	3	none	0	n/a	0	N/A
Clallam	Lyre River Campground	3	none	0	n/a	0	N/A
Clallam	Mains Farm	3	none	0	n/a	0	N/A
Clallam	Makah Marina	no data	none	0	n/a	0	N/A
Clallam	Mcdonnel Creek	3	none	0	n/a	0	N/A
Clallam	Miller Peninsula State Park	3	none	0	n/a	0	N/A
Clallam	Monterra Scenic Overlook	3	none	0	n/a	0	N/A
Clallam	Mouth Of Elwha River	2	none	0	n/a	0	N/A
Clallam	N Sequim Bay Sp	3	none	0	n/a	0	N/A
Clallam	Neah Bay Waterfront, East (Dakwas Park Beach)	no data	once a week	35	0%	0	N/A
Clallam	North Olympic National Park	3	none	0	n/a	0	N/A
Clallam	Old Town	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Clallam	Olsen's Marina	3	none	0	n/a	0	N/A
Clallam	Ozette Beach Access, Olympic National Park	3	none	0	n/a	0	N/A
Clallam	Ozette Indian Reservation	3	none	0	n/a	0	N/A
Clallam	Ozette Island	3	none	0	n/a	0	N/A
Clallam	Panorama Vista County Park	3	none	0	n/a	0	N/A
Clallam	Paridise Cove	3	none	0	n/a	0	N/A
Clallam	Pillar Point County Park	3	none	0	n/a	0	N/A
Clallam	Pillar Point, Beach 424	3	none	0	n/a	0	N/A
Clallam	Pillar Point, Beach 425	3	none	0	n/a	0	N/A
Clallam	Pioneer Memorial Park	3	none	0	n/a	0	N/A
Clallam	Pitship Point	3	none	0	n/a	0	N/A
Clallam	Point Of Arches, Olympic National Park	3	none	0	n/a	0	N/A
Clallam	Port Angeles Boat Haven	3	none	0	n/a	0	N/A
Clallam	Port Angeles Ferry And Waterfront	3	none	0	n/a	0	N/A
Clallam	Port Williams Boat Launch	2	once a week	15	7%	0	N/A
Clallam	Port Williams Tidelands	3	none	0	n/a	0	N/A
Clallam	Quillayute River Shoreline	3	none	0	n/a	0	N/A
Clallam	Rialto Beach, Olympic National Park	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Clallam	S Pitship Point	3	none	0	n/a	0	N/A
Clallam	Sail & Paddle Park	3	once a week	15	0%	0	N/A
Clallam	Salt Creek Recreation Area	1	once a week	15	0%	0	N/A
Clallam	Second Beach, Neah Bay	3	none	0	n/a	0	N/A
Clallam	Sekiu Point, Beach 427	3	none	0	n/a	0	N/A
Clallam	Sekiu River Access	3	none	0	n/a	0	N/A
Clallam	Sekiu River, Beach 429a	3	none	0	n/a	0	N/A
Clallam	Sequim Bay State Park	3	none	0	n/a	0	N/A
Clallam	Shi Shi Beach, Olympic National Park	3	none	0	n/a	0	N/A
Clallam	Shipwreck Point Natural Resource Conservation Area	3	none	0	n/a	0	N/A
Clallam	Shipwreck Point, Beach 429	3	none	0	n/a	0	N/A
Clallam	Slip Point, Beach 426	3	none	0	n/a	0	N/A
Clallam	Snow Creek Boat Launch	3	none	0	n/a	0	N/A
Clallam	South Diamond Point	3	none	0	n/a	0	N/A
Clallam	South Sooes	3	none	0	n/a	0	N/A
Clallam	Sunny Shores Beach	3	none	0	n/a	0	N/A
Clallam	Travis Spit, Beach 411a	3	none	0	n/a	0	N/A
Clallam	Twin Rivers, Beach 422	3	none	0	n/a	0	N/A
Clallam	Twin Rivers, Beach 423	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Clallam	Twin Rivers, Beach 423a	3	none	0	n/a	0	N/A
Clallam	W Kydaka Point	3	none	0	n/a	0	N/A
Clallam	Waadah Island	3	none	0	n/a	0	N/A
Clallam	West DNR 414	3	none	0	n/a	0	N/A
Clallam	West Green Point	3	none	0	n/a	0	N/A
Clallam	West Old Town	3	none	0	n/a	0	N/A
Clallam	Whiskey Creek Campground	3	none	0	n/a	0	N/A
Grays Harbor	9th Street Landing And Rayonier Point	3	none	0	n/a	0	N/A
Grays Harbor	28th Street Boat Launch	3	none	0	n/a	0	N/A
Grays Harbor	Bonge Road Beach Access	3	none	0	n/a	0	N/A
Grays Harbor	Bottle Beach State Park	3	none	0	n/a	0	N/A
Grays Harbor	Bottle Beach Tidelands	3	none	0	n/a	0	N/A
Grays Harbor	Bowerman Basin	3	none	0	n/a	0	N/A
Grays Harbor	Cascade Land Conservancy	3	none	0	n/a	0	N/A
Grays Harbor	Cascade Land Conservancy - Aberdeen	3	none	0	n/a	0	N/A
Grays Harbor	Chance A La Mer / Ocean Shores Main Entrance	2	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Grays Harbor	City Of Hoquiam, Moon Island Road, Airport Way	3	none	0	n/a	0	N/A
Grays Harbor	Copalis Beach	3	none	0	n/a	0	N/A
Grays Harbor	Damon Point State Park, Protection Island	3	none	0	n/a	0	N/A
Grays Harbor	Grayland Beach	3	none	0	n/a	0	N/A
Grays Harbor	Grayland Beach Access	3	none	0	n/a	0	N/A
Grays Harbor	Grays Harbor Audubon Society, Raft River	3	none	0	n/a	0	N/A
Grays Harbor	Grays Harbor Audubon, Humptulips, Chenois Creek	3	none	0	n/a	0	N/A
Grays Harbor	Grays Harbor City	3	none	0	n/a	0	N/A
Grays Harbor	Grenville Bay	3	none	0	n/a	0	N/A
Grays Harbor	Griffith-Priday State Park	3	none	0	n/a	0	N/A
Grays Harbor	Halfmoon Bay - City Of Westport	3	none	0	n/a	0	N/A
Grays Harbor	Harms Field	3	none	0	n/a	0	N/A
Grays Harbor	Hogsboack And Little Hogsback	3	none	0	n/a	0	N/A
Grays	Iron Springs	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Harbor							
Grays Harbor	Johns River Bridge	3	none	0	n/a	0	N/A
Grays Harbor	Johns River, Wra Boatlaunch	3	none	0	n/a	0	N/A
Grays Harbor	Moclips, Sunset Beach, Pacific Beach	3	none	0	n/a	0	N/A
Grays Harbor	N Cape Elizabeth	3	none	0	n/a	0	N/A
Grays Harbor	Ocean City Beach Access	3	none	0	n/a	0	N/A
Grays Harbor	Ocean City State Park	2	none	0	n/a	0	N/A
Grays Harbor	Ocean Lake Way Beach Access	3	none	0	n/a	0	N/A
Grays Harbor	Ocean Shores	3	none	0	n/a	0	N/A
Grays Harbor	Ocean Shores Bulkhead	3	none	0	n/a	0	N/A
Grays Harbor	Ocean Shores Marina	3	none	0	n/a	0	N/A
Grays Harbor	Ocean Shores, Marina View Drive Beach Access	2	none	0	n/a	0	N/A
Grays Harbor	Ocean Shores, North Jetty	3	none	0	n/a	0	N/A
Grays Harbor	Oyhut And Illahee Beach Access	2	variable	8	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Grays Harbor	Oyhut And Illahee Beach North	3	none	0	n/a	0	N/A
Grays Harbor	Oyhut State Wildlife Area	3	none	0	n/a	0	N/A
Grays Harbor	Pacific Beach State Park	3	none	0	n/a	0	N/A
Grays Harbor	Pacific Beach, Ocean Groove, Roosevelt Beach	3	none	0	n/a	0	N/A
Grays Harbor	Pacific Blvd Ocean Shores	3	none	0	n/a	0	N/A
Grays Harbor	Point Grenville	3	none	0	n/a	0	N/A
Grays Harbor	Point Grenville Islands	3	none	0	n/a	0	N/A
Grays Harbor	Port Of Grays Harbor	3	none	0	n/a	0	N/A
Grays Harbor	Raft River	3	none	0	n/a	0	N/A
Grays Harbor	Roosevelt Beach Access	3	none	0	n/a	0	N/A
Grays Harbor	S Cape Elizabeth	3	none	0	n/a	0	N/A
Grays Harbor	Sampson	3	none	0	n/a	0	N/A
Grays Harbor	South Bay Bridge	3	none	0	n/a	0	N/A
Grays	South Oyhut And Illahee	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Harbor	Beach						
Grays Harbor	South Queets River, North Raft River	3	none	0	n/a	0	N/A
Grays Harbor	South Raft River	3	none	0	n/a	0	N/A
Grays Harbor	Taholah, North Point Grenville	3	none	0	n/a	0	N/A
Grays Harbor	Taholah, Quinault River Mouth	3	none	0	n/a	0	N/A
Grays Harbor	Taurus Blvd Beach Access	3	none	0	n/a	0	N/A
Grays Harbor	Tunnel Island	3	none	0	n/a	0	N/A
Grays Harbor	Twin Harbors State Park	3	none	0	n/a	0	N/A
Grays Harbor	Unknown (BIDN 990013)	3	none	0	n/a	0	N/A
Grays Harbor	Unknown (BIDN 990014)	3	none	0	n/a	0	N/A
Grays Harbor	Unknown (BIDN 990015)	3	none	0	n/a	0	N/A
Grays Harbor	Unknown (BIDN 990016)	3	none	0	n/a	0	N/A
Grays Harbor	Unknown (BIDN 990019)	3	none	0	n/a	0	N/A
Grays Harbor	Westhaven State Park, Half Moon Bay	2	once a week	17	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Grays Harbor	Westhaven State Park, South Jetty	2	once a week	18	0%	0	N/A
Grays Harbor	Westport - The Groynes	2	once a week	18	0%	0	N/A
Grays Harbor	Westport Airport	3	none	0	n/a	0	N/A
Grays Harbor	Westport Beaches	3	none	0	n/a	0	N/A
Grays Harbor	Westport Light State Park	2	none	0	n/a	0	N/A
Grays Harbor	Westport Marina, Westhaven Cove	3	none	0	n/a	0	N/A
Island	Ala Spit County Park	3	none	0	n/a	0	N/A
Island	Baby Island	3	none	0	n/a	0	N/A
Island	Beachcombers Community Club Beach	3	none	0	n/a	0	N/A
Island	Blowers Bluff	3	none	0	n/a	0	N/A
Island	Borgman Road End	3	none	0	n/a	0	N/A
Island	Bush Point - Sandpiper Rd End	no data	none	0	n/a	0	N/A
Island	Bush Point Boat Launch	3	none	0	n/a	0	N/A
Island	Bush Point, Beach 101	3	none	0	n/a	0	N/A
Island	Cama Beach State Park	3	none	0	n/a	0	N/A
Island	Camano Island State Park	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Island	Cavalero Beach County Park	2	none	0	n/a	0	N/A
Island	Clinton Ferry Terminal	3	none	0	n/a	0	N/A
Island	Cornet Bay County Dock	3	none	0	n/a	0	N/A
Island	Cornet Bay Marina	3	none	0	n/a	0	N/A
Island	Coupeville	no data	none	0	n/a	0	N/A
Island	Coupeville Wharf	3	none	0	n/a	0	N/A
Island	Dave Mackie Memorial County Park	2	none	0	n/a	0	N/A
Island	Deception Pass State Park (island)	3	none	0	n/a	0	N/A
Island	Deer Lagoon	no data	none	0	n/a	0	N/A
Island	Double Bluff Park	3	none	0	n/a	0	N/A
Island	Driftwood Beach	3	none	0	n/a	0	N/A
Island	Driftwood County Park	3	none	0	n/a	0	N/A
Island	Dugwalla Bay Dike Access	3	none	0	n/a	0	N/A
Island	Dugwalla Bay, DNR-145	3	none	0	n/a	0	N/A
Island	Dugwalla Park	3	none	0	n/a	0	N/A
Island	E East Point	3	none	0	n/a	0	N/A
Island	East San De Fuca	3	none	0	n/a	0	N/A
Island	Ebey's Landing National	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	Historical Reserve						
Island	English Boom Park & Preserve	3	none	0	n/a	0	N/A
Island	Flintstone Park	3	none	0	n/a	0	N/A
Island	Fn Camano Head	3	none	0	n/a	0	N/A
Island	FN Onamac Point	3	none	0	n/a	0	N/A
Island	Fort Casey State Park	3	none	0	n/a	0	N/A
Island	Fort Casey State Park Tidelands	3	none	0	n/a	0	N/A
Island	Fort Ebey State Park (dnr-140)	2	none	0	n/a	0	N/A
Island	Fox Trot Way Road End	no data	none	0	n/a	0	N/A
Island	Freeland County Park / Holmes Harbor	1	once a week	13	15%	0 (365)	N/A
Island	FS Mabana	3	none	0	n/a	0	N/A
Island	Glendale Road End	3	none	0	n/a	0	N/A
Island	Glendale, DNR-100	3	none	0	n/a	0	N/A
Island	Glendale, DNRr-99	3	none	0	n/a	0	N/A
Island	Grasser's Lagoon	3	none	0	n/a	0	N/A
Island	Hastie Lake Road Boat Launch	3	none	0	n/a	0	N/A
Island	Hidden Beach	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Island	High Road End	3	none	0	n/a	0	N/A
Island	Holmes Harbor Private Beach	no data	none	0	n/a	0	N/A
Island	Indian Beach	3	none	0	n/a	0	N/A
Island	Joseph Whidbey State Park	3	none	0	n/a	0	N/A
Island	Keystone Ferry Terminal	3	none	0	n/a	0	N/A
Island	Keystone Spit State Park	3	none	0	n/a	0	N/A
Island	Lagoon Point North (Westcliff Drive)	3	none	0	n/a	0	N/A
Island	Lagoon Point South	3	none	0	n/a	0	N/A
Island	Langley Boat Harbor & Fishing Pier	3	none	0	n/a	0	N/A
Island	Langley Seawall Park	3	none	0	n/a	0	N/A
Island	Langley Waterfront Park, The Inn At Langley	3	none	0	n/a	0	N/A
Island	Ledgewood Beach Access / Admiralty Bay Beach	3	none	0	n/a	0	N/A
Island	Libbey Beach County Park	3	none	0	n/a	0	N/A
Island	Limpet Lane Road End	no data	none	0	n/a	0	N/A
Island	Livingston Bay Beach Tidelands	3	none	0	n/a	0	N/A
Island	Long Point Beach	3	none	0	n/a	0	N/A
Island	Mabana	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Island	Mabana Port District Beach Access	no data	none	0	n/a	0	N/A
Island	Madrona Beach, Camano Island	2	none	0	n/a	0	N/A
Island	Maple Grove Boat Launch	3	none	0	n/a	0	N/A
Island	Mariner's Cove Boat Launch	3	none	0	n/a	0	N/A
Island	Monroe Landing, East	2	none	0	n/a	0	N/A
Island	Monroe Landing, West	3	none	0	n/a	0	N/A
Island	Moran's Beach	3	none	0	n/a	0	N/A
Island	Mutiny Bay Boat Launch (Road End)	3	none	0	n/a	0	N/A
Island	Mutiny Bay Vista	no data	none	0	n/a	0	N/A
Island	N Bush Point	no data	none	0	n/a	0	N/A
Island	N Onamac Point	3	none	0	n/a	0	N/A
Island	N Point Partridge	3	none	0	n/a	0	N/A
Island	NE Cultus Bay	3	none	0	n/a	0	N/A
Island	North Penn Cove	3	none	0	n/a	0	N/A
Island	Oak Harbor (Windjammer) Lagoon	1	once a week	13	8%	0	N/A
Island	Oak Harbor City Beach (Windjammer) Park	1	once a week	12	42%	0 (365)	N/A
Island	Oak Harbor City Marina	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Island	Oak Harbor City Park Tidelands	3	none	0	n/a	0	N/A
Island	Penn Cove / Madrona	3	none	0	n/a	0	N/A
Island	Penn Cove Park	3	none	0	n/a	0	N/A
Island	Pioneer Way East	no data	none	0	n/a	0	N/A
Island	Possession Point Park	3	none	0	n/a	0	N/A
Island	Possession Point State Park	3	none	0	n/a	0	N/A
Island	S Point Susan	3	none	0	n/a	0	N/A
Island	S Rocky Point	3	none	0	n/a	0	N/A
Island	S Sandy Point	3	none	0	n/a	0	N/A
Island	S Strawberry Point	3	none	0	n/a	0	N/A
Island	S Useless Bay	3	none	0	n/a	0	N/A
Island	San De Fuca	3	none	0	n/a	0	N/A
Island	Saratoga Pass Tidelands	3	none	0	n/a	0	N/A
Island	Scatchet Head / Cultus Bay	3	none	0	n/a	0	N/A
Island	Snatelum Point	3	none	0	n/a	0	N/A
Island	South Ebey's Landing	3	none	0	n/a	0	N/A
Island	South Whidbey State Park	3	none	0	n/a	0	N/A
Island	Strawberry Point North, DNR 142	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Island	Strawberry Point, DNRr-142	3	none	0	n/a	0	N/A
Island	Sunlight Beach Road End, East	no data	none	0	n/a	0	N/A
Island	Sunlight Beach Road End, West	3	none	0	n/a	0	N/A
Island	Sunlight County Parcels	3	none	0	n/a	0	N/A
Island	Sunrise Beach	3	none	0	n/a	0	N/A
Island	Sunset Beach Public Access Point	3	none	0	n/a	0	N/A
Island	Tillicum Beach	3	none	0	n/a	0	N/A
Island	Tillicum Boat Launch	3	none	0	n/a	0	N/A
Island	Town Boat Launch	3	none	0	n/a	0	N/A
Island	Unknown (BIDN 260134)	3	none	0	n/a	0	N/A
Island	Useless Bay Tidelands	3	none	0	n/a	0	N/A
Island	Utsalady County Park	2	none	0	n/a	0	N/A
Island	W Beach Rd Public Beach Access	3	none	0	n/a	0	N/A
Island	W Elgar Bay	3	none	0	n/a	0	N/A
Island	W Penn Cove	3	none	0	n/a	0	N/A
Island	W Penn Cove Beach	3	none	0	n/a	0	N/A
Island	Whidbey Island Naval Air Station	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Island	Winas-Maylor Point - West	3	none	0	n/a	0	N/A
Jefferson	Adelma Beach	3	none	0	n/a	0	N/A
Jefferson	Admirals Row Association Parcel	3	none	0	n/a	0	N/A
Jefferson	Admiralty Condo's	3	none	0	n/a	0	N/A
Jefferson	Bay Vista Condo's	3	none	0	n/a	0	N/A
Jefferson	Bayview At Chevy Chase	3	none	0	n/a	0	N/A
Jefferson	Beach 1, Olympic National Park	3	none	0	n/a	0	N/A
Jefferson	Beach 2, Olympic National Park	3	none	0	n/a	0	N/A
Jefferson	Beach 3, Olympic National Park	3	none	0	n/a	0	N/A
Jefferson	Beach 4, Olympic National Park	3	none	0	n/a	0	N/A
Jefferson	Beach 5, Olympic National Park	3	none	0	n/a	0	N/A
Jefferson	Beach 6, Olympic National Park	3	none	0	n/a	0	N/A
Jefferson	Beach 7, Olympic National Park	3	none	0	n/a	0	N/A
Jefferson	Beckett Point Fishermen's Club	3	none	0	n/a	0	N/A
Jefferson	Bolton Peninsula, Beach 56	3	none	0	n/a	0	N/A
Jefferson	Bridgehaven Community	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Jefferson	Brinnon Tidelands	3	none	0	n/a	0	N/A
Jefferson	Brinnonwold	3	none	0	n/a	0	N/A
Jefferson	Broad Spit	3	none	0	n/a	0	N/A
Jefferson	Broad Spit, Coast	3	none	0	n/a	0	N/A
Jefferson	Brown Point, Beach 57b	3	none	0	n/a	0	N/A
Jefferson	Camp Parsons Boy Scout Brinnon Camp	2	once a week	13	15%	0	N/A
Jefferson	Cape George Colony Club	3	none	0	n/a	0	N/A
Jefferson	Cape George, Beach 407	3	none	0	n/a	0	N/A
Jefferson	Cape George, DNRr-409	3	none	0	n/a	0	N/A
Jefferson	Central Olympic National Park	3	none	0	n/a	0	N/A
Jefferson	Chetzeomka Park	3	none	0	n/a	0	N/A
Jefferson	Chimacum Creek Park	2	none	0	n/a	0	N/A
Jefferson	Coast Dabob East	3	none	0	n/a	0	N/A
Jefferson	Dabob Cove Community	3	none	0	n/a	0	N/A
Jefferson	Discovery Bay Camp	3	none	0	n/a	0	N/A
Jefferson	Dosewallips State Park	3	none	0	n/a	0	N/A
Jefferson	Downtown Port Townsend Business District	3	none	0	n/a	0	N/A
Jefferson	Duckabush	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Jefferson	Duckabush Tidelands	3	none	0	n/a	0	N/A
Jefferson	East Beach County Park	3	none	0	n/a	0	N/A
Jefferson	East Beach County Park, Mystery Bay	3	none	0	n/a	0	N/A
Jefferson	Edgewater Condo's	3	none	0	n/a	0	N/A
Jefferson	Fisherman's Point	3	none	0	n/a	0	N/A
Jefferson	Fort Flagler State Park	3	once a week	14	0%	0	N/A
Jefferson	Fort Worden State Park	1	once a week	14	0%	0	N/A
Jefferson	Gardiner Public Boat Launch	3	none	0	n/a	0	N/A
Jefferson	Hadlock Boat Launch	3	none	0	n/a	0	N/A
Jefferson	Hadlock Lions Park	3	none	0	n/a	0	N/A
Jefferson	Herb Beck Marina	2	once a week	14	0%	0	N/A
Jefferson	Hicks County Park	3	none	0	n/a	0	N/A
Jefferson	Hoh Indian Reservation	3	none	0	n/a	0	N/A
Jefferson	Home Port Marina	3	none	0	n/a	0	N/A
Jefferson	J.B. Pope Marina Park	3	none	0	n/a	0	N/A
Jefferson	Jackson Cove, Beach 55	3	none	0	n/a	0	N/A
Jefferson	Kala Point Beach Community	3	none	0	n/a	0	N/A
Jefferson	Kalaloch Beach & Campground, Olympic National Park	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Jefferson	Kinney Point, Beach 404a	3	none	0	n/a	0	N/A
Jefferson	La Push Third Beach, Olympic National Park	3	none	0	n/a	0	N/A
Jefferson	Ludlow Bay Village Parcels	3	none	0	n/a	0	N/A
Jefferson	Ludlow Beach Community	3	none	0	n/a	0	N/A
Jefferson	Ludlow Beach Tracts #1	3	none	0	n/a	0	N/A
Jefferson	Marshall Add Community Club	3	none	0	n/a	0	N/A
Jefferson	Mats Mats Bay Boat Launch	3	none	0	n/a	0	N/A
Jefferson	Meydenbauer Bay Yacht Club	3	none	0	n/a	0	N/A
Jefferson	Mystery Bay State Park	3	once a week	14	7%	5	N/A
Jefferson	N Tabook Point	3	none	0	n/a	0	N/A
Jefferson	Norland Community Beach	3	none	0	n/a	0	N/A
Jefferson	North Beach County Park	3	none	0	n/a	0	N/A
Jefferson	North Chetzeomka	3	none	0	n/a	0	N/A
Jefferson	North Mcdaniel Cove	3	none	0	n/a	0	N/A
Jefferson	North Quilcene Bay Tidelands	3	none	0	n/a	0	N/A
Jefferson	North Quilcene Harbor	3	none	0	n/a	0	N/A
Jefferson	North Squamish Harbor	3	none	0	n/a	0	N/A
Jefferson	North Triton Cove	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Jefferson	North Triton Cove Access	3	none	0	n/a	0	N/A
Jefferson	Northeast Quilcene Bay Tidelands Access	3	none	0	n/a	0	N/A
Jefferson	Northwest Maritime Center	3	none	0	n/a	0	N/A
Jefferson	Northwest School Of Wooden Boat Builders	3	none	0	n/a	0	N/A
Jefferson	Oak Bay	3	none	0	n/a	0	N/A
Jefferson	Oak Bay County Park	2	none	0	n/a	0	N/A
Jefferson	Ocean Grove	3	none	0	n/a	0	N/A
Jefferson	Old Fort Townsend State Park	3	none	0	n/a	0	N/A
Jefferson	Pleasant Harbor Marina	3	none	0	n/a	0	N/A
Jefferson	Pleasant Harbor Park	3	none	0	n/a	0	N/A
Jefferson	Pleasant Harbor State Marine Park	3	none	0	n/a	0	N/A
Jefferson	Pleasant Tides	3	none	0	n/a	0	N/A
Jefferson	Point Hudson Marina	3	none	0	n/a	0	N/A
Jefferson	Point Whitney Tidelands	3	once a week	14	0%	0	N/A
Jefferson	Port Hadlock Yacht Club	3	none	0	n/a	0	N/A
Jefferson	Port Ludlow Associates Parcels	3	none	0	n/a	0	N/A
Jefferson	Port Ludlow Condos	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Jefferson	Port Ludlow Marina	3	none	0	n/a	0	N/A
Jefferson	Port Of Port Townsend	3	none	0	n/a	0	N/A
Jefferson	Port Townsend Boat Haven	3	none	0	n/a	0	N/A
Jefferson	Port Townsend Ferry Docks	3	none	0	n/a	0	N/A
Jefferson	Port Townsend Railroad	3	none	0	n/a	0	N/A
Jefferson	Port Townsned Plaza	3	none	0	n/a	0	N/A
Jefferson	Queets River Mouth	3	none	0	n/a	0	N/A
Jefferson	Quilcene Bay Tidelands	3	none	0	n/a	0	N/A
Jefferson	Quilcene Bay Tidelands Access	3	none	0	n/a	0	N/A
Jefferson	Right Smart Cove State Park	3	none	0	n/a	0	N/A
Jefferson	Ruby Beach, Olympic National Park	3	none	0	n/a	0	N/A
Jefferson	Scow Bay	no data	none	0	n/a	0	N/A
Jefferson	Se Dabob Bay	3	none	0	n/a	0	N/A
Jefferson	Seal Rock Campground	3	none	0	n/a	0	N/A
Jefferson	Seamount Estates Community Club	3	none	0	n/a	0	N/A
Jefferson	Seven Sisters Beach, Point Hannon	3	none	0	n/a	0	N/A
Jefferson	Shine Tidelands	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Jefferson	Snake And Colvos Rocks	3	none	0	n/a	0	N/A
Jefferson	South Bay Community Association Parcels	3	none	0	n/a	0	N/A
Jefferson	South Bay Master Association Parcels	3	none	0	n/a	0	N/A
Jefferson	South Beach, Olympic National Park	3	none	0	n/a	0	N/A
Jefferson	South Indian Island County Park	3	none	0	n/a	0	N/A
Jefferson	South Mcdaniel Cove	3	none	0	n/a	0	N/A
Jefferson	South Old Port Townsend State Park	3	none	0	n/a	0	N/A
Jefferson	South Tala Point Public Access	3	none	0	n/a	0	N/A
Jefferson	Squamish Harbor, Beach 59	3	none	0	n/a	0	N/A
Jefferson	Tabook Point, Beach 57	3	none	0	n/a	0	N/A
Jefferson	Tala Shore	3	none	0	n/a	0	N/A
Jefferson	The Landing Condo's	3	none	0	n/a	0	N/A
Jefferson	Toandos Tidelands State Park	3	none	0	n/a	0	N/A
Jefferson	Triton Cove State Park	3	none	0	n/a	0	N/A
Jefferson	W Quilcene Bay	3	none	0	n/a	0	N/A
Jefferson	West Bay, Port Ludlow Associates	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Jefferson	West Fort Flagler Bridge	3	none	0	n/a	0	N/A
Jefferson	West Hood Canal Bridge	3	none	0	n/a	0	N/A
Jefferson	Wolfe Property State Park	3	none	0	n/a	0	N/A
King	1st Avenue South Bridge Boat Launch	3	none	0	n/a	0	N/A
King	16th Avenue West Access	3	none	0	n/a	0	N/A
King	20th Place Sw Road End	3	none	0	n/a	0	N/A
King	101 Avenue Sw Road End	3	none	0	n/a	0	N/A
King	146th Avenue Sw Road End	3	none	0	n/a	0	N/A
King	Alki Beach Park	1	once a week	15	0%	0	N/A
King	Alki Point Light Station	2	none	0	n/a	0	N/A
King	Anthony's Home Port Public Access	3	none	0	n/a	0	N/A
King	Arroyos Natural Area	3	none	0	n/a	0	N/A
King	Ballard Elks Public Access	3	none	0	n/a	0	N/A
King	Bell Harbor Marina	3	none	0	n/a	0	N/A
King	Burton Acres Church Camp	3	none	0	n/a	0	N/A
King	Burton Acres County Park	2	none	0	n/a	0	N/A
King	Camp Kilworth	3	none	0	n/a	0	N/A
King	Camp Sealth	3	none	0	n/a	0	N/A
King	Camp Sealth South	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
King	Carkeek Beach South	3	none	0	n/a	0	N/A
King	Carkeek Park	1	once a week	16	6%	0	N/A
King	Colman Dock (Seattle Main Terminal)	3	none	0	n/a	0	N/A
King	Cormorant Cove	3	none	0	n/a	0	N/A
King	Dash Point State Park	1	once a week	15	0%	0	N/A
King	Des Moines Fishing Pier	3	none	0	n/a	0	N/A
King	Des Moines Marina	3	none	0	n/a	0	N/A
King	Des Moines Marina City Beach Park	3	none	0	n/a	0	N/A
King	Diagonal St South Pacific Access	3	none	0	n/a	0	N/A
King	Discovery Park	2	none	0	n/a	0	N/A
King	DNR - Seattle Art Museum	3	none	0	n/a	0	N/A
King	Dockton County Park	2	none	0	n/a	0	N/A
King	Don Armeni Park	3	none	0	n/a	0	N/A
King	Dumas Bay Park Wildlife Sanctuary	3	none	0	n/a	0	N/A
King	Duwamish Public Access, Terminal 105	3	none	0	n/a	0	N/A
King	Duwamish Waterway Park	3	none	0	n/a	0	N/A
King	East Vashon Island, Beach 85	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
King	Elliot Bay Marina	3	none	0	n/a	0	N/A
King	Elliot Bay Park	3	none	0	n/a	0	N/A
King	Emma Schmitz Me-kwa Mooks Park	3	none	0	n/a	0	N/A
King	Fauntleroy Ferry Dock	3	none	0	n/a	0	N/A
King	Fern Cove Park	3	none	0	n/a	0	N/A
King	Gilman Ave W End	no data	none	0	n/a	0	N/A
King	Golden Gardens	1	once a week	15	0%	0	N/A
King	Harbor Island Marina	3	none	0	n/a	0	N/A
King	Harbor Marina Corporate Center	3	none	0	n/a	0	N/A
King	Herrings House Park / Terminal 107 Park	3	none	0	n/a	0	N/A
King	Hiram M. Chittendon Locks	3	none	0	n/a	0	N/A
King	Jack Block Park	3	none	0	n/a	0	N/A
King	Jack Perry Memorial Viewpoint	3	none	0	n/a	0	N/A
King	Lincoln Park	1	once a week	15	0%	0	N/A
King	Lisabuela Park	3	none	0	n/a	0	N/A
King	Lost Lake Park	3	none	0	n/a	0	N/A
King	Lowman Beach	2	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
King	Magnolia Park	3	none	0	n/a	0	N/A
King	Magnolia Tidelands Park	3	none	0	n/a	0	N/A
King	Maury Island Marine Park	3	none	0	n/a	0	N/A
King	Maury Island, Beach 83	3	none	0	n/a	0	N/A
King	Myrtle Edwards Park	2	none	0	n/a	0	N/A
King	Normandy Beach Park/Marine View Park	3	none	0	n/a	0	N/A
King	Northeast Vashon County Park	3	none	0	n/a	0	N/A
King	Pier 66, Seattle Bell Street Pier	3	none	0	n/a	0	N/A
King	Pier 69, Seattle	3	none	0	n/a	0	N/A
King	Pier 69, Seattle Waterfront	3	none	0	n/a	0	N/A
King	Piers 62 And 63	3	none	0	n/a	0	N/A
King	Point Heyer 'Kvi' Beach	3	none	0	n/a	0	N/A
King	Point Robinson County Park	3	none	0	n/a	0	N/A
King	Poverty Bay County Park	3	none	0	n/a	0	N/A
King	Quartermaster Marina	3	none	0	n/a	0	N/A
King	Quartermaster Yacht Club	3	none	0	n/a	0	N/A
King	Redondo City Beach	3	none	0	n/a	0	N/A
King	Redondo County Park	1	once a week	15	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
King	Richey Viewpoint	1	once a week	15	0%	0	N/A
King	Richmond Beach Saltwater Park	1	once a week	15	7%	0	N/A
King	Saltwater State Park	1	once a week	15	7%	0	N/A
King	Seacrest Park	2	once a week	15	7%	0	N/A
King	Seahurst County Park	1	once a week	16	0%	14	N/A
King	Seattle Aquarium	3	none	0	n/a	0	N/A
King	Seattle Waterfront Park	3	none	0	n/a	0	N/A
King	Shilshole Bay Marina	3	none	0	n/a	0	N/A
King	Smith Cove Park	3	none	0	n/a	0	N/A
King	Southeast Vashon Island, Beach 79	3	none	0	n/a	0	N/A
King	Southworth Ferry Dock, Vashon Island	3	none	0	n/a	0	N/A
King	Spring Beach County Park	3	none	0	n/a	0	N/A
King	SW 98th St End	no data	none	0	n/a	0	N/A
King	SW Andover St End	no data	none	0	n/a	0	N/A
King	SW Bronson Way End	no data	none	0	n/a	0	N/A
King	SW Carroll St End	3	none	0	n/a	0	N/A
King	SW Lander St End	no data	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
King	SW Spokane St A End	no data	none	0	n/a	0	N/A
King	SW Spokane St B End	no data	none	0	n/a	0	N/A
King	SW Spokane St C End	no data	none	0	n/a	0	N/A
King	Terminal 18 Public Access Park	3	none	0	n/a	0	N/A
King	Terminal 115 Viewpoint	3	none	0	n/a	0	N/A
King	Three Tree Point	3	none	0	n/a	0	N/A
King	Three Tree Street Road End	3	none	0	n/a	0	N/A
King	Tramp Harbor	3	none	0	n/a	0	N/A
King	Tramp Harbor Fishing Pier	3	none	0	n/a	0	N/A
King	W Sheridan St End	no data	none	0	n/a	0	N/A
King	Washington Street Boat Access	3	none	0	n/a	0	N/A
King	West Vashon Island, Beach 77	3	none	0	n/a	0	N/A
King	West Vashon Island, Beach 78	3	none	0	n/a	0	N/A
King	West Vashon Land Trust	3	none	0	n/a	0	N/A
Kitsap	American Legion Park	3	none	0	n/a	0	N/A
Kitsap	Anderson Landing Reserve	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kitsap	Anderson Point County Park	3	none	0	n/a	0	N/A
Kitsap	Anna Smith Park	3	none	0	n/a	0	N/A
Kitsap	Annapolis Public Access Area	3	none	0	n/a	0	N/A
Kitsap	Arness County Park	1	once a week	15	20%	0	N/A
Kitsap	Aroydy Thai Cuisine	3	none	0	n/a	0	N/A
Kitsap	Bachmann Park	3	none	0	n/a	0	N/A
Kitsap	Bainbridge Condominiums	3	none	0	n/a	0	N/A
Kitsap	Bainbridge Island Land Trust	3	none	0	n/a	0	N/A
Kitsap	Blake Island State Park	2	none	0	n/a	0	N/A
Kitsap	Blakely Harbor Park	3	none	0	n/a	0	N/A
Kitsap	Bloedel Reserve	3	none	0	n/a	0	N/A
Kitsap	Bremerton Ferry Terminal	3	none	0	n/a	0	N/A
Kitsap	Bremerton Waterfront Condos	3	none	0	n/a	0	N/A
Kitsap	Bremerton Yacht Club	3	none	0	n/a	0	N/A
Kitsap	Broom St Road End	no data	none	0	n/a	0	N/A
Kitsap	Brownsville	3	none	0	n/a	0	N/A
Kitsap	Brownsville Elementary School	3	none	0	n/a	0	N/A
Kitsap	Brownsville Elementary	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	School North Parcel						
Kitsap	Camp Indianola	2	none	0	n/a	0	N/A
Kitsap	Chico Boat Launch	3	none	0	n/a	0	N/A
Kitsap	Clearwater Creek Trail	no data	none	0	n/a	0	N/A
Kitsap	Country Club Of Seattle	3	none	0	n/a	0	N/A
Kitsap	Curley Creek	3	none	0	n/a	0	N/A
Kitsap	Dock St Road End	no data	none	0	n/a	0	N/A
Kitsap	Dockside Sales And Service	3	none	0	n/a	0	N/A
Kitsap	Driftwood Cove Beach	3	none	0	n/a	0	N/A
Kitsap	Dyes Inlet Tidelands	3	none	0	n/a	0	N/A
Kitsap	Eagle Harbor Condos	3	none	0	n/a	0	N/A
Kitsap	Eagle Harbor Marina	3	none	0	n/a	0	N/A
Kitsap	Eagle Harbor Waterfront Park	1	once a week	14	7%	0	N/A
Kitsap	East Anderson Cove	3	none	0	n/a	0	N/A
Kitsap	East Dyes Inlet County Tideland Parcel	3	none	0	n/a	0	N/A
Kitsap	East Hood Canal Bridge	3	none	0	n/a	0	N/A
Kitsap	East Indianola	3	none	0	n/a	0	N/A
Kitsap	Eglon Boat Launch	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kitsap	Evergreen Park	1	once a week	15	7%	0	N/A
Kitsap	Fairy Dell Park	no data	none	0	n/a	0	N/A
Kitsap	Fay Bainbridge State Park	2	once a week	15	13%	0	N/A
Kitsap	Ferncliff	3	none	0	n/a	0	N/A
Kitsap	Fort Ward State Park	2	none	0	n/a	0	N/A
Kitsap	Foulweather Bluff, Beach 64	3	none	0	n/a	0	N/A
Kitsap	Foulweather Reserve	3	none	0	n/a	0	N/A
Kitsap	Front Street Dock	3	none	0	n/a	0	N/A
Kitsap	Gilberton Tidelands	3	none	0	n/a	0	N/A
Kitsap	Gordon Dr Road End	no data	none	0	n/a	0	N/A
Kitsap	Gowen Pl Road End	no data	none	0	n/a	0	N/A
Kitsap	Grotle Dr Road End	no data	none	0	n/a	0	N/A
Kitsap	Guillemot Cove Preserve	3	none	0	n/a	0	N/A
Kitsap	Hansville, Beach 69	3	none	0	n/a	0	N/A
Kitsap	Harborview Drive Trail	no data	none	0	n/a	0	N/A
Kitsap	Harbour Marina	3	none	0	n/a	0	N/A
Kitsap	Harper County Park	2	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kitsap	Harper Public Fishing Pier	3	none	0	n/a	0	N/A
Kitsap	Hawley Cove Park	no data	none	0	n/a	0	N/A
Kitsap	Hidden Cove Road End	no data	none	0	n/a	0	N/A
Kitsap	Illahee Pier	3	none	0	n/a	0	N/A
Kitsap	Illahee Road Bridge	3	none	0	n/a	0	N/A
Kitsap	Illahee State Park	1	once a week	14	0%	0	N/A
Kitsap	Indianola Dock	1	once a week	15	20%	0	N/A
Kitsap	Island Seniors Community	3	none	0	n/a	0	N/A
Kitsap	Joel Pritchard Park	no data	none	0	n/a	0	N/A
Kitsap	Keyport Boat Launch	3	none	0	n/a	0	N/A
Kitsap	Keyport County Park	3	none	0	n/a	0	N/A
Kitsap	Keyport Marina	3	none	0	n/a	0	N/A
Kitsap	Kingston Ferry Terminal	3	none	0	n/a	0	N/A
Kitsap	Kingston Marina	3	none	0	n/a	0	N/A
Kitsap	Kitsap County Colsolidated Housing Authority	3	none	0	n/a	0	N/A
Kitsap	Kitsap County Fair Grounds	3	none	0	n/a	0	N/A
Kitsap	Kitsap Marina & Suldans Boatworks	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kitsap	Kitsap Memorial State Park	2	once a week	10	10%	0	N/A
Kitsap	Kitsap Memorial State Park Tidelands	3	none	0	n/a	0	N/A
Kitsap	Lafayette Ave Road End	no data	none	0	n/a	0	N/A
Kitsap	Lala Cove Country Club	3	none	0	n/a	0	N/A
Kitsap	Lents Landing	3	none	0	n/a	0	N/A
Kitsap	Leslie Landing - Winslow Way	3	none	0	n/a	0	N/A
Kitsap	Liberty Bay Marina	3	none	0	n/a	0	N/A
Kitsap	Liberty Bay Park	3	none	0	n/a	0	N/A
Kitsap	Liberty Bay Tidelands	3	none	0	n/a	0	N/A
Kitsap	Lions Field	1	once a week	12	8%	0	N/A
Kitsap	Little Norway Boardwalk	3	none	0	n/a	0	N/A
Kitsap	Lovell Avenue Road End	no data	none	0	n/a	0	N/A
Kitsap	Lytle Road End - Community Park	2	once a week	15	7%	0	N/A
Kitsap	Madrona Heights	3	none	0	n/a	0	N/A
Kitsap	Manchester State Park	2	once a week	14	14%	0	N/A
Kitsap	Manette Bridge	3	none	0	n/a	0	N/A
Kitsap	Manzanita Bay	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kitsap	Marine View Estates	3	none	0	n/a	0	N/A
Kitsap	Miller Bay Boat Launch	3	none	0	n/a	0	N/A
Kitsap	Miller Bay Tidelands	3	none	0	n/a	0	N/A
Kitsap	Misery Point Boat Launch	3	none	0	n/a	0	N/A
Kitsap	Murden Cove, Blue Heron Hill Homeowners	3	none	0	n/a	0	N/A
Kitsap	N Fletcher Bay	3	none	0	n/a	0	N/A
Kitsap	Nad Marine Park	3	none	0	n/a	0	N/A
Kitsap	Nelson Park	3	none	0	n/a	0	N/A
Kitsap	Nesika Bay	3	none	0	n/a	0	N/A
Kitsap	Net Shed Park	3	none	0	n/a	0	N/A
Kitsap	North Dyes Community	3	none	0	n/a	0	N/A
Kitsap	North Lebo	3	none	0	n/a	0	N/A
Kitsap	North Murden Cove (State)	3	none	0	n/a	0	N/A
Kitsap	North Skiff Point	3	none	0	n/a	0	N/A
Kitsap	North Wing Point	3	none	0	n/a	0	N/A
Kitsap	Northwest Point White	3	none	0	n/a	0	N/A
Kitsap	Ocean Drive Road End	no data	none	0	n/a	0	N/A
Kitsap	Olalla Bay Tidelands	3	none	0	n/a	0	N/A
Kitsap	Olalla Beach	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kitsap	Olalla Boat Launch	3	none	0	n/a	0	N/A
Kitsap	Old Man House Park	3	none	0	n/a	0	N/A
Kitsap	Olympic Terrace Water Association Tidelands	no data	none	0	n/a	0	N/A
Kitsap	Oyster Bay	3	none	0	n/a	0	N/A
Kitsap	Oyster Bay Plaza	3	none	0	n/a	0	N/A
Kitsap	Oyster Plant Park	2	none	0	n/a	0	N/A
Kitsap	Pebble Beach Rd End	3	none	0	n/a	0	N/A
Kitsap	Point No Point County Park, DNR-68	3	none	0	n/a	0	N/A
Kitsap	Point No Point Lighthouse Park	3	once a week	15	13%	0	N/A
Kitsap	Point White	3	none	0	n/a	0	N/A
Kitsap	Point White Dock	3	none	0	n/a	0	N/A
Kitsap	Pomeroy Park - Manchester Beach	1	once a week	16	19%	9	N/A
Kitsap	Port Madison Water Company Open Space	no data	none	0	n/a	0	N/A
Kitsap	Port Madison Yacht Club	3	none	0	n/a	0	N/A
Kitsap	Port Of Brownsville Marine Park And Marina	3	none	0	n/a	0	N/A
Kitsap	Port Of Waterman Beach	3	none	0	n/a	0	N/A
Kitsap	Port Orchard Boat Launch	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kitsap	Port Orchard Marina	3	none	0	n/a	0	N/A
Kitsap	Port Orchard Pier	3	none	0	n/a	0	N/A
Kitsap	Port Orchard Waterfront Businesses	3	none	0	n/a	0	N/A
Kitsap	Port Orchard Waterfront Park	3	none	0	n/a	0	N/A
Kitsap	Port Orchard Yacht Club	3	none	0	n/a	0	N/A
Kitsap	Port Washington Marina	3	none	0	n/a	0	N/A
Kitsap	Poulsbo Boat Launch And Marina	3	none	0	n/a	0	N/A
Kitsap	Poulsbo Yacht Club	3	none	0	n/a	0	N/A
Kitsap	President Point Beach	3	none	0	n/a	0	N/A
Kitsap	Prospect Point Beach	3	none	0	n/a	0	N/A
Kitsap	Queen City Yacht Club	3	none	0	n/a	0	N/A
Kitsap	Rich Passage Estates	3	none	0	n/a	0	N/A
Kitsap	Richcove Beach	3	none	0	n/a	0	N/A
Kitsap	Rockaway Beach Park	3	none	0	n/a	0	N/A
Kitsap	Rolling Bay	3	none	0	n/a	0	N/A
Kitsap	Roosevelt Field	3	none	0	n/a	0	N/A
Kitsap	Ross Point Tidelands	3	none	0	n/a	0	N/A
Kitsap	S Agate Pass	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kitsap	S Driftwood Cove	3	none	0	n/a	0	N/A
Kitsap	Salisbury Point County Park	3	none	0	n/a	0	N/A
Kitsap	Salisbury Point County Park Tidelands	3	none	0	n/a	0	N/A
Kitsap	Sanwick Road End	no data	none	0	n/a	0	N/A
Kitsap	Scenic Beach State Park	2	once a week	14	7%	0	N/A
Kitsap	Schel-chelb Estuary	3	none	0	n/a	0	N/A
Kitsap	Seabeck Christian Conference Center	3	once a week	14	7%	0	N/A
Kitsap	Seabeck Conference Center Beach	2	none	0	n/a	0	N/A
Kitsap	Seabeck Land Trust	3	none	0	n/a	0	N/A
Kitsap	Seabold Road End	no data	none	0	n/a	0	N/A
Kitsap	Seabold Tidelands	3	none	0	n/a	0	N/A
Kitsap	Seattle Yacht Club	3	none	0	n/a	0	N/A
Kitsap	Seaview Terrace Homeowners	3	none	0	n/a	0	N/A
Kitsap	Silverdale Waterfront Park	1	twice a week	21	10%	0	N/A
Kitsap	Sinclair Inlet Wildlife Viewing Area	3	none	0	n/a	0	N/A
Kitsap	Skogen Lane Road End	no data	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kitsap	South Beach Condominiums	3	none	0	n/a	0	N/A
Kitsap	South Brownsville	3	none	0	n/a	0	N/A
Kitsap	South Eagle Harbor Tidelands	3	none	0	n/a	0	N/A
Kitsap	South Fay Bainbridge	3	none	0	n/a	0	N/A
Kitsap	South Murden Cove	3	none	0	n/a	0	N/A
Kitsap	South Point Southworth	3	none	0	n/a	0	N/A
Kitsap	South Skiff Point	3	none	0	n/a	0	N/A
Kitsap	South Tekiu, DNR-40	3	none	0	n/a	0	N/A
Kitsap	South Warren Bridge	3	none	0	n/a	0	N/A
Kitsap	South Waterman Point	3	none	0	n/a	0	N/A
Kitsap	Southeast Port Washington Narrows	3	none	0	n/a	0	N/A
Kitsap	Southworth-Vashon Ferry	3	none	0	n/a	0	N/A
Kitsap	Stavis Bay Beach	3	none	0	n/a	0	N/A
Kitsap	Sun Day Cove	3	none	0	n/a	0	N/A
Kitsap	Sunny Cove Community Club	3	none	0	n/a	0	N/A
Kitsap	Suquamish (Old Man House)	3	none	0	n/a	0	N/A
Kitsap	T'chookwop Park	3	none	0	n/a	0	N/A
Kitsap	Tacoma Christian	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kitsap	Taylor Ave Road End	no data	none	0	n/a	0	N/A
Kitsap	Tekiu Point	3	none	0	n/a	0	N/A
Kitsap	Thorpe Road	3	none	0	n/a	0	N/A
Kitsap	Tracyton Boat Launch	3	none	0	n/a	0	N/A
Kitsap	Tyee Yacht Club	3	none	0	n/a	0	N/A
Kitsap	Waterman Public Pier	3	none	0	n/a	0	N/A
Kitsap	West Dyes Inlet	3	none	0	n/a	0	N/A
Kitsap	West Point Jefferson	3	none	0	n/a	0	N/A
Kitsap	West Port Madison Park Nature Preserve	no data	none	0	n/a	0	N/A
Kitsap	West Wing Point	3	none	0	n/a	0	N/A
Kitsap	Wharf St Road End	no data	none	0	n/a	0	N/A
Kitsap	Wilson Creek	3	none	0	n/a	0	N/A
Kitsap	Winslow Ferry Terminal	3	none	0	n/a	0	N/A
Kitsap	Winslow Wharf Marina	3	none	0	n/a	0	N/A
Kitsap	Woodland Drive Road End	no data	none	0	n/a	0	N/A
Kitsap	Wyndown Acres Community Beach	3	none	0	n/a	0	N/A
Kitsap	Wynn-Jones County Park	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Kitsap	Yacht Club Broiler Tidelands	3	none	0	n/a	0	N/A
Mason	Alderbrook Resort	3	none	0	n/a	0	N/A
Mason	Allyn Waterfront Park	3	once a week	14	0%	0	N/A
Mason	Allyn Waterfront Park Tidelands	3	none	0	n/a	0	N/A
Mason	Arcadia Boat Launch	3	none	0	n/a	0	N/A
Mason	Belfair State Park	2	once a week	12	0%	0	N/A
Mason	Dewatto Bay, Beach 44a	3	none	0	n/a	0	N/A
Mason	Eagle Creek Recreational Tidelands	3	none	0	n/a	0	N/A
Mason	End Of Twanoh State Park	3	none	0	n/a	0	N/A
Mason	Fudge Point	3	none	0	n/a	0	N/A
Mason	Grapeview	3	none	0	n/a	0	N/A
Mason	Grapeview Boat Launch	3	none	0	n/a	0	N/A
Mason	Grapeview Harbor Marina	3	none	0	n/a	0	N/A
Mason	Hartstene Bridge Boat Launch	3	none	0	n/a	0	N/A
Mason	Hartstene Island Bridge	3	none	0	n/a	0	N/A
Mason	Hartstene Island, Beach 33	3	none	0	n/a	0	N/A
Mason	Hartstene Pointe	3	none	0	n/a	0	N/A
Mason	Hood Canal Girl Scout Camp	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Mason	Hood Canal Saltwater Park	3	none	0	n/a	0	N/A
Mason	Hood Canal, Beach 46	3	none	0	n/a	0	N/A
Mason	Hood Canal, Beach 47	3	none	0	n/a	0	N/A
Mason	Hood Canal, Beach 48	3	none	0	n/a	0	N/A
Mason	Hoodsport Hatchery	3	none	0	n/a	0	N/A
Mason	Hoodsport Marina	3	none	0	n/a	0	N/A
Mason	Hoodsport, Beach 43 (N Hoodsport Hatchery)	3	none	0	n/a	0	N/A
Mason	Hope Island (Mason Co.)	3	none	0	n/a	0	N/A
Mason	Jarrell Cove State Park	3	none	0	n/a	0	N/A
Mason	Jarrell Cove, Beach 34	3	none	0	n/a	0	N/A
Mason	Jorstad Creek Resort	3	none	0	n/a	0	N/A
Mason	Kennedy Creek Tidelands	3	none	0	n/a	0	N/A
Mason	Lilliwaup Tidelands State Park	2	none	0	n/a	0	N/A
Mason	Little Skookum	3	none	0	n/a	0	N/A
Mason	Lynch Cove / Hood Canal Land Trust	3	none	0	n/a	0	N/A
Mason	Main St Rd End	3	none	0	n/a	0	N/A
Mason	Manke Lumber Company Access	3	none	0	n/a	0	N/A
Mason	Mcmicken Island State Park	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Mason	N Case Inlet	3	none	0	n/a	0	N/A
Mason	North Bay Kayak Park	3	none	0	n/a	0	N/A
Mason	North Bay Res Access	3	none	0	n/a	0	N/A
Mason	North Bay Res Tidelands	3	none	0	n/a	0	N/A
Mason	North Jorstad Creek	3	none	0	n/a	0	N/A
Mason	North Oakland Bay	3	none	0	n/a	0	N/A
Mason	Northeast Case Inlet Tidelands	3	none	0	n/a	0	N/A
Mason	Northwest Case Inlet Tidelands	3	none	0	n/a	0	N/A
Mason	Oakland Bay & Chapman Cove Exclusive	no data	none	0	n/a	0	N/A
Mason	Oakland Bay Recreational Tidelands	3	none	0	n/a	0	N/A
Mason	Oakland Bay Tidelands	3	none	0	n/a	0	N/A
Mason	Olympia Yacht Club - Pickering Passgae	3	none	0	n/a	0	N/A
Mason	Olympic Beach Club	3	none	0	n/a	0	N/A
Mason	Pirates Cove Country Club	3	none	0	n/a	0	N/A
Mason	Port Of Allyn Public Boat Launch	3	none	0	n/a	0	N/A
Mason	Port Of Allyn Public Dock	3	none	0	n/a	0	N/A
Mason	Potlatch State Park	1	once a week	14	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Mason	Potlatch State Park Tidelands	3	none	0	n/a	0	N/A
Mason	Reach Island Bridge	3	none	0	n/a	0	N/A
Mason	Rendsland Creek	3	none	0	n/a	0	N/A
Mason	Seabrook Community Beach	3	none	0	n/a	0	N/A
Mason	Shelton Boat Launch And Marina	3	none	0	n/a	0	N/A
Mason	Shorecrest (Jacoby) County Park	3	none	0	n/a	0	N/A
Mason	South Graham Point	3	none	0	n/a	0	N/A
Mason	South Jorsted Creek	3	none	0	n/a	0	N/A
Mason	South Of Lilliwaup Tidelands State Park	3	none	0	n/a	0	N/A
Mason	Stretch Island Bridge	3	none	0	n/a	0	N/A
Mason	Stretch Island, Beach 20	3	none	0	n/a	0	N/A
Mason	Stretch Point State Park	3	none	0	n/a	0	N/A
Mason	Summer Tide Resort And Marina	3	none	0	n/a	0	N/A
Mason	Timberlake Community Beach	3	none	0	n/a	0	N/A
Mason	Twanoh State Park	1	once a week	15	13%	6	N/A
Mason	Union Public Boat Launch	3	none	0	n/a	0	N/A
Mason	Union River Wildlife Area (Theler Area)	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Mason	Walker County Park	1	once a week	14	0%	0 (365)	N/A
Pacific	10th Street Access	3	none	0	n/a	0	N/A
Pacific	Bay Avenue / Ocean Park Beach	3	none	0	n/a	0	N/A
Pacific	Bay Center Boat Channel	3	none	0	n/a	0	N/A
Pacific	Bolstead Beach Access	3	none	0	n/a	0	N/A
Pacific	Bone River	3	none	0	n/a	0	N/A
Pacific	Bruceport County Park	3	none	0	n/a	0	N/A
Pacific	Bush Pioneer Park	3	none	0	n/a	0	N/A
Pacific	Cape Disappointment Coast Guard Station	3	none	0	n/a	0	N/A
Pacific	Cape Disappointment State Park	2	none	0	n/a	0	N/A
Pacific	Cape Shoalwater	3	none	0	n/a	0	N/A
Pacific	City Of South Bend Boat Haven	3	none	0	n/a	0	N/A
Pacific	Cranberry Road Beach Access	3	none	0	n/a	0	N/A
Pacific	Grayland Beach State Park	3	none	0	n/a	0	N/A
Pacific	Hawks Point	3	none	0	n/a	0	N/A
Pacific	Highway 101 Bridge, South Willipa	3	none	0	n/a	0	N/A
Pacific	Hines	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pacific	Holman	3	none	0	n/a	0	N/A
Pacific	Klipsan Beach Access	3	none	0	n/a	0	N/A
Pacific	Leadbetter Point State Park Beach	3	none	0	n/a	0	N/A
Pacific	Lewis Unit, Willapa NWR	3	none	0	n/a	0	N/A
Pacific	Long Beach	3	none	0	n/a	0	N/A
Pacific	Long Beach Boardwalk	3	none	0	n/a	0	N/A
Pacific	Long Island Unit, Willapa Nwr	3	none	0	n/a	0	N/A
Pacific	Loomis	3	none	0	n/a	0	N/A
Pacific	Loomis Lake	3	none	0	n/a	0	N/A
Pacific	Midway Beach Access	3	none	0	n/a	0	N/A
Pacific	Nahcotta Small Boat Basin	3	none	0	n/a	0	N/A
Pacific	Nemah	3	none	0	n/a	0	N/A
Pacific	Nemah Li	3	none	0	n/a	0	N/A
Pacific	Nemah River	3	none	0	n/a	0	N/A
Pacific	North Cove	3	none	0	n/a	0	N/A
Pacific	North Cove Beach Access	3	none	0	n/a	0	N/A
Pacific	North Klipsan	3	none	0	n/a	0	N/A
Pacific	North River Public Fishing Access	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pacific	North Willapa Bay - Cascade Land Conservancy	3	none	0	n/a	0	N/A
Pacific	North Willapa National Wildlife Refuge	3	none	0	n/a	0	N/A
Pacific	Ocean Park	3	none	0	n/a	0	N/A
Pacific	Ocean Park North	3	none	0	n/a	0	N/A
Pacific	Old Highway 105 Beach Access	3	none	0	n/a	0	N/A
Pacific	Oysterville Beach Access	3	none	0	n/a	0	N/A
Pacific	Pacific Beach	3	none	0	n/a	0	N/A
Pacific	Pacific Pines State Park	3	none	0	n/a	0	N/A
Pacific	Palix River Boat Launch	3	none	0	n/a	0	N/A
Pacific	Rhodesia Beach	3	none	0	n/a	0	N/A
Pacific	Riekkola Unit, Willapa NWR	3	none	0	n/a	0	N/A
Pacific	Sandy Point	3	none	0	n/a	0	N/A
Pacific	Seaview	3	none	0	n/a	0	N/A
Pacific	Seaview Beach Access	3	none	0	n/a	0	N/A
Pacific	South Bend Fishing Access And Boat Launch	3	none	0	n/a	0	N/A
Pacific	South Bend State Dock	3	none	0	n/a	0	N/A
Pacific	South Grayland Beach	3	none	0	n/a	0	N/A
Pacific	South Naselle River - State	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pacific	South Nemah River - State	3	none	0	n/a	0	N/A
Pacific	Southeast Wilson Point	3	none	0	n/a	0	N/A
Pacific	Tokeland Marina	3	none	0	n/a	0	N/A
Pacific	Tokeland Marina Tidelands	3	none	0	n/a	0	N/A
Pacific	Warrenton Cannery Road Beach Access	3	none	0	n/a	0	N/A
Pacific	Willapa Harbor Airport	3	none	0	n/a	0	N/A
Pacific	Willapa National Wildlife Refuge Boat Launch	3	none	0	n/a	0	N/A
Pierce	36th Street NW Road End Boat Launch	3	none	0	n/a	0	N/A
Pierce	182nd Avenue KPN Road End	3	none	0	n/a	0	N/A
Pierce	All Saints Camp	3	none	0	n/a	0	N/A
Pierce	Amsterdam Bay	3	none	0	n/a	0	N/A
Pierce	Anderson Island Ferry Dock	3	none	0	n/a	0	N/A
Pierce	Anderson Island, Beach 8	3	none	0	n/a	0	N/A
Pierce	Andrew Anderson's Marine Park, North	3	none	0	n/a	0	N/A
Pierce	Andrew Anderson's Marine Park, South	3	none	0	n/a	0	N/A
Pierce	Arrbella's Marina	3	none	0	n/a	0	N/A
Pierce	Berg Drive Road End Boat Launch	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pierce	Browns Point Lighthouse Park	2	once a week	14	0%	0	N/A
Pierce	Camp Coleman	3	none	0	n/a	0	N/A
Pierce	Camp Gallagher	3	none	0	n/a	0	N/A
Pierce	Camp Seymour	2	none	0	n/a	0	N/A
Pierce	Cedrona Cove Marina	3	none	0	n/a	0	N/A
Pierce	Chambers Creek Properties	1	once a week	14	0%	0	N/A
Pierce	Commencement Bay North	no data	none	0	n/a	0	N/A
Pierce	Cromwell	3	none	0	n/a	0	N/A
Pierce	Cutts Island State Park	3	none	0	n/a	0	N/A
Pierce	Dash Point County Park	2	once a week	14	0%	0	N/A
Pierce	Devils Head	3	none	0	n/a	0	N/A
Pierce	Devils Head, Beach 13	3	none	0	n/a	0	N/A
Pierce	Dickman Mill Park	3	none	0	n/a	0	N/A
Pierce	Eagle Island State Park	3	none	0	n/a	0	N/A
Pierce	East Devils Point	3	none	0	n/a	0	N/A
Pierce	East Ketron Island	3	none	0	n/a	0	N/A
Pierce	Fire Department # 5 Park	3	none	0	n/a	0	N/A
Pierce	Fort Lewis	3	none	0	n/a	0	N/A
Pierce	Fox Island Bridge	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pierce	Fox Island Bridge Boat Launch	3	none	0	n/a	0	N/A
Pierce	Fox Island Fishing Pier	3	none	0	n/a	0	N/A
Pierce	Fox Island Yacht Club-Cedrona Cove	3	none	0	n/a	0	N/A
Pierce	Gig Harbor City Park	3	none	0	n/a	0	N/A
Pierce	Gig Harbor Marina	3	none	0	n/a	0	N/A
Pierce	Gig Harbor Private Marina	3	none	0	n/a	0	N/A
Pierce	Gig Harbor Waterfront	3	none	0	n/a	0	N/A
Pierce	Green Point	3	none	0	n/a	0	N/A
Pierce	Haley State Park	3	none	0	n/a	0	N/A
Pierce	Hall Road End Boat Launch	3	none	0	n/a	0	N/A
Pierce	Hamilton Park	3	none	0	n/a	0	N/A
Pierce	Harbor Lights Restaurant	3	none	0	n/a	0	N/A
Pierce	Harborview Drive Road End Viewpoint	3	none	0	n/a	0	N/A
Pierce	Herron Ferry Terminal -Main Land	3	none	0	n/a	0	N/A
Pierce	Herron Island Ferry Dock	3	none	0	n/a	0	N/A
Pierce	Home Boat Launch	3	none	0	n/a	0	N/A
Pierce	Hylebos Marina	3	none	0	n/a	0	N/A
Pierce	Jack Hyde Park	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pierce	Jerisich Park And City Dock	3	none	0	n/a	0	N/A
Pierce	Joemma State Park	3	none	0	n/a	0	N/A
Pierce	Johnnys Dock & Marina	3	none	0	n/a	0	N/A
Pierce	Johnson South Sound Preserve	3	none	0	n/a	0	N/A
Pierce	Kamas Drive Road End	3	none	0	n/a	0	N/A
Pierce	Katie Downs Tavern	3	none	0	n/a	0	N/A
Pierce	Ketron Island Ferry Terminal/dock	3	none	0	n/a	0	N/A
Pierce	Kopachuck State Park	2	once a week	14	0%	0	N/A
Pierce	Kpn Olman Vaugh Bay Sandspit, Beach 18	3	none	0	n/a	0	N/A
Pierce	Lakebay School	3	none	0	n/a	0	N/A
Pierce	Longbranch Boat Launch	3	none	0	n/a	0	N/A
Pierce	Longbranch Dock	3	none	0	n/a	0	N/A
Pierce	Luciano's Italian Restaurant	3	none	0	n/a	0	N/A
Pierce	Maple Hollow Recreation Site	3	none	0	n/a	0	N/A
Pierce	Murphy's Landing Marina	3	none	0	n/a	0	N/A
Pierce	N Amsterdam Bay	3	none	0	n/a	0	N/A
Pierce	N Fort Lewis	3	none	0	n/a	0	N/A
Pierce	N Fox Point	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pierce	N Green Point	3	none	0	n/a	0	N/A
Pierce	Narrows Park	3	none	0	n/a	0	N/A
Pierce	Narrows/Day Island Marina	3	none	0	n/a	0	N/A
Pierce	North Beach Dock, Herron Island	3	none	0	n/a	0	N/A
Pierce	North Beach, Herron Island	3	none	0	n/a	0	N/A
Pierce	North Pitt Pass	3	none	0	n/a	0	N/A
Pierce	North Steilacoom Beach	3	none	0	n/a	0	N/A
Pierce	North Sunrise Beach	3	none	0	n/a	0	N/A
Pierce	North Taylor Bay	3	none	0	n/a	0	N/A
Pierce	Northeast Narrows	3	none	0	n/a	0	N/A
Pierce	Northwest Gig Harbor	3	none	0	n/a	0	N/A
Pierce	Northwest Narrows	3	none	0	n/a	0	N/A
Pierce	Ocean Fish Co - Johnny's Seafood	3	none	0	n/a	0	N/A
Pierce	Old Fox Island Ferry Terminal	3	none	0	n/a	0	N/A
Pierce	Old Fox Island Ferry Terminal South	3	none	0	n/a	0	N/A
Pierce	Old Town Dock	3	none	0	n/a	0	N/A
Pierce	Ole & Charlie's Marina	3	none	0	n/a	0	N/A
Pierce	Oro Bay / Young Life Beach	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pierce	Owens Beach / Point Defiance Park	1	once a week	14	7%	0	N/A
Pierce	Penrose Point State Park	2	once a week	14	0%	0	N/A
Pierce	Pitt Passage, Beach 6	3	none	0	n/a	0	N/A
Pierce	Point Evans, Beach 36	3	none	0	n/a	0	N/A
Pierce	Point Fosdick, Beach 1	3	none	0	n/a	0	N/A
Pierce	Point Fosdick, Beach 1a	3	none	0	n/a	0	N/A
Pierce	Puget Creek Beach	3	none	0	n/a	0	N/A
Pierce	Purdy Sandspit County Park	1	once a week	14	0%	0	N/A
Pierce	Ram American Grill & Fishhouse	3	none	0	n/a	0	N/A
Pierce	Randall Drive Boat Launch	3	none	0	n/a	0	N/A
Pierce	Ruston Way Waterfront Park	3	none	0	n/a	0	N/A
Pierce	S Eagle Island, Anderson Island	3	none	0	n/a	0	N/A
Pierce	Salt Point / South Gordon Point	3	none	0	n/a	0	N/A
Pierce	Saltars Point Beach	2	none	0	n/a	0	N/A
Pierce	Shenanigan's Restaurant	3	none	0	n/a	0	N/A
Pierce	Silver Cloud Inn/tacoma	3	none	0	n/a	0	N/A
Pierce	Solo Point Boat Launch	2	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pierce	Soundview Camp	3	none	0	n/a	0	N/A
Pierce	South Anderson Island	3	none	0	n/a	0	N/A
Pierce	South Beach, Herron Island	3	none	0	n/a	0	N/A
Pierce	South Filucy Bay	3	none	0	n/a	0	N/A
Pierce	South Hale Passage	3	none	0	n/a	0	N/A
Pierce	South Maple Hollow	3	none	0	n/a	0	N/A
Pierce	South Nearn's Point	3	none	0	n/a	0	N/A
Pierce	South Oro Bay	3	none	0	n/a	0	N/A
Pierce	South Otso Point	3	none	0	n/a	0	N/A
Pierce	Southeast Narrows	3	none	0	n/a	0	N/A
Pierce	Southwest Anderson Island	3	none	0	n/a	0	N/A
Pierce	Steilacoom Boat Launch	3	none	0	n/a	0	N/A
Pierce	Steilacoom Ferry Docks	3	none	0	n/a	0	N/A
Pierce	Steilacoom Marina	3	none	0	n/a	0	N/A
Pierce	Sunnyside Beach North	3	none	0	n/a	0	N/A
Pierce	Sunnyside Beach Park	1	once a week	14	7%	0	N/A
Pierce	Sunrise Beach Park	3	none	0	n/a	0	N/A
Pierce	Tacoma Demolay Boys Camp	3	once a week	14	0%	0	N/A
Pierce	Taylor Bay	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Pierce	Taylor Bay, Beach 16	3	none	0	n/a	0	N/A
Pierce	Thea Foss City Marina	3	none	0	n/a	0	N/A
Pierce	Thea Foss Waterway	3	none	0	n/a	0	N/A
Pierce	Thea's Park	3	none	0	n/a	0	N/A
Pierce	Titlow Park	1	once a week	14	7%	0	N/A
Pierce	Totem Marina	3	none	0	n/a	0	N/A
Pierce	Treble Point	3	none	0	n/a	0	N/A
Pierce	Tyee Marina	3	none	0	n/a	0	N/A
Pierce	Waterfront Dock / Ruston Way	1	once a week	14	0%	0	N/A
Pierce	Wauna Boat Launch	3	none	0	n/a	0	N/A
Pierce	Wauna, Beach 35	2	none	0	n/a	0	N/A
Pierce	Wauna, Beach 35a	3	none	0	n/a	0	N/A
Pierce	West Gig Harbor	3	none	0	n/a	0	N/A
Pierce	West Ketron Island	3	none	0	n/a	0	N/A
Pierce	West Oro Bay Beach	3	none	0	n/a	0	N/A
Pierce	Westshore Marina	3	none	0	n/a	0	N/A
Pierce	Windy Bluff	3	none	0	n/a	0	N/A
Pierce	Wollochet Bay - Tacoma Yacht Club	3	none	0	n/a	0	N/A
Pierce	Wollochet Bay Boat Launch	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Juan	4th Of July Beach, DNR 326	3	none	0	n/a	0	N/A
San Juan	Agate Beach County Park	3	none	0	n/a	0	N/A
San Juan	Albert Jensen And Sons Marine Repair	3	none	0	n/a	0	N/A
San Juan	Aleck Bay, Dnr-308	3	none	0	n/a	0	N/A
San Juan	American Camp	3	none	0	n/a	0	N/A
San Juan	Andrews Bay	3	none	0	n/a	0	N/A
San Juan	Armitage Island, Beach 290	3	none	0	n/a	0	N/A
San Juan	Bartwood Lodge	3	none	0	n/a	0	N/A
San Juan	Bay Head Yacht Basin And Condominiums	3	none	0	n/a	0	N/A
San Juan	Bazalgette Point	3	none	0	n/a	0	N/A
San Juan	Beach Haven, Beach 238	3	none	0	n/a	0	N/A
San Juan	Blakely Island Marina	3	none	0	n/a	0	N/A
San Juan	Blakely Island, Beach 290	3	none	0	n/a	0	N/A
San Juan	Blakely Island, Beach 292	3	none	0	n/a	0	N/A
San Juan	Blakely Island, Beach 292a	3	none	0	n/a	0	N/A
San Juan	Blind Bay DNR-260d	3	none	0	n/a	0	N/A
San Juan	Blind Island State Park	3	none	0	n/a	0	N/A
San Juan	Broken Point, Beach 260a	3	none	0	n/a	0	N/A
San Juan	Cactus Islands, Beach 353a	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Juan	Cactus Islands, Beach 353b	3	none	0	n/a	0	N/A
San Juan	Camp Orkila	3	none	0	n/a	0	N/A
San Juan	Canoe Island, Beach 296a	3	none	0	n/a	0	N/A
San Juan	Cape St. Mary, Dnr-311	3	none	0	n/a	0	N/A
San Juan	Cattle Point	3	none	0	n/a	0	N/A
San Juan	Cattle Point Lighthouse Recreation Site	3	none	0	n/a	0	N/A
San Juan	Cattle Point, Beach 326a	3	none	0	n/a	0	N/A
San Juan	Cayou Quay Marina	3	none	0	n/a	0	N/A
San Juan	Center Island Recreation Site	3	none	0	n/a	0	N/A
San Juan	Center Island, Beach 324a	3	none	0	n/a	0	N/A
San Juan	Channel Vista Shore Access	3	none	0	n/a	0	N/A
San Juan	Clark Island State Park	3	none	0	n/a	0	N/A
San Juan	Coon Island, Beach 245a	3	none	0	n/a	0	N/A
San Juan	Crane Island, Beach 250a	3	none	0	n/a	0	N/A
San Juan	Crane Island, Beach 250b	3	none	0	n/a	0	N/A
San Juan	Decatur Island, Beach 319a	3	none	0	n/a	0	N/A
San Juan	Decatur Island, Beach 323	3	none	0	n/a	0	N/A
San Juan	Decatur Island, Beach 324	3	none	0	n/a	0	N/A
San Juan	Decatur Island, Beach 325a	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Juan	Decatur Shores Community	3	none	0	n/a	0	N/A
San Juan	Decatur Shores Community Dock	3	none	0	n/a	0	N/A
San Juan	Deer Harbor, Beach 240b	3	none	0	n/a	0	N/A
San Juan	Deer Harbor, Crane Island	3	none	0	n/a	0	N/A
San Juan	Deer Point, Beach 277	3	none	0	n/a	0	N/A
San Juan	Diamond Point, Beach 265	3	none	0	n/a	0	N/A
San Juan	DNR-321	3	none	0	n/a	0	N/A
San Juan	DNRr-299	3	none	0	n/a	0	N/A
San Juan	Doe Bay, Beach 281a	3	none	0	n/a	0	N/A
San Juan	Doe Island State Park	3	none	0	n/a	0	N/A
San Juan	Double Island, Beach 251	3	none	0	n/a	0	N/A
San Juan	Double Island, Beach 251a	3	none	0	n/a	0	N/A
San Juan	Eagle Cove	3	none	0	n/a	0	N/A
San Juan	Eagle Cove County Park	3	none	0	n/a	0	N/A
San Juan	East Sound, Beach 266	3	none	0	n/a	0	N/A
San Juan	East Sound, Beach 267	3	none	0	n/a	0	N/A
San Juan	East Sound, Beach 270	3	none	0	n/a	0	N/A
San Juan	East Sound, Beach 274	3	none	0	n/a	0	N/A
San Juan	East Sound, Beach 275	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Juan	Edwards Point Community	3	none	0	n/a	0	N/A
San Juan	English Camp Historic Park	3	none	0	n/a	0	N/A
San Juan	Ewing Island, Beach 367a	3	none	0	n/a	0	N/A
San Juan	Fish Creek Public Access	3	none	0	n/a	0	N/A
San Juan	Fisherman Bay	3	none	0	n/a	0	N/A
San Juan	Fishery Point, Beach 363	3	none	0	n/a	0	N/A
San Juan	Fishing Bay Public Dock	3	none	0	n/a	0	N/A
San Juan	Fishing Bay Waterfront Park	3	none	0	n/a	0	N/A
San Juan	Flat Point, Beach 295	3	none	0	n/a	0	N/A
San Juan	Flower Isle, Beach 266b	3	none	0	n/a	0	N/A
San Juan	Freeman Island State Park	3	none	0	n/a	0	N/A
San Juan	Friday Harbor Ferry Landing	3	none	0	n/a	0	N/A
San Juan	Friday Harbor Labs	3	none	0	n/a	0	N/A
San Juan	Frost Island, Beach 318	3	none	0	n/a	0	N/A
San Juan	Gibson's North Beach Inn	3	none	0	n/a	0	N/A
San Juan	Griffin Bay Recreation Site	3	none	0	n/a	0	N/A
San Juan	Hankin Point, Beach 264	3	none	0	n/a	0	N/A
San Juan	Harney Channel, Beach 262	3	none	0	n/a	0	N/A
San Juan	Henry Island, Beach 339a	3	none	0	n/a	0	N/A
San Juan	Hunter Bay County Dock	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Juan	Hunter Bay, Beach 313	3	none	0	n/a	0	N/A
San Juan	Hunter Bay, Beach 313a	3	none	0	n/a	0	N/A
San Juan	Hunter Bay, Beach 314	3	none	0	n/a	0	N/A
San Juan	Iceberg Island	3	none	0	n/a	0	N/A
San Juan	Indian Island, Beach 270a	3	none	0	n/a	0	N/A
San Juan	Island Marine Center	3	none	0	n/a	0	N/A
San Juan	Jackson Beach County Park	3	none	0	n/a	0	N/A
San Juan	James Island State Park	3	none	0	n/a	0	N/A
San Juan	Johns Island Lighthouse Reserve	3	none	0	n/a	0	N/A
San Juan	Johns Island, DNR 356	3	none	0	n/a	0	N/A
San Juan	Johns Point, Beach 307	3	none	0	n/a	0	N/A
San Juan	Jones Island State Park	3	none	0	n/a	0	N/A
San Juan	Justice Island	3	none	0	n/a	0	N/A
San Juan	Justice Island, DNR-367c	3	none	0	n/a	0	N/A
San Juan	Kellett Bluff, Beach 341	3	none	0	n/a	0	N/A
San Juan	Lime Kiln Point State Park	3	none	0	n/a	0	N/A
San Juan	Lindsey Memorial Park	3	none	0	n/a	0	N/A
San Juan	Little Patos Island, Beach 366a	3	none	0	n/a	0	N/A
San Juan	Little Sucia	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Juan	Lopez Ferry Terminal	3	none	0	n/a	0	N/A
San Juan	Lopez Island Marina	3	none	0	n/a	0	N/A
San Juan	Lopez Island, Beach 305	3	none	0	n/a	0	N/A
San Juan	Lopez Pass, Beach 312a	3	none	0	n/a	0	N/A
San Juan	Lopez Rd End	3	none	0	n/a	0	N/A
San Juan	Lopez Sound, Beach 315	3	none	0	n/a	0	N/A
San Juan	Lopez Sound, Beach 317	3	none	0	n/a	0	N/A
San Juan	Lover's Cove, Beach 239	3	none	0	n/a	0	N/A
San Juan	Mackaye Harbor Boat Launch	3	none	0	n/a	0	N/A
San Juan	Matia Island State Park	3	none	0	n/a	0	N/A
San Juan	Mcardle Bay, Dnr-309	3	none	0	n/a	0	N/A
San Juan	Mcconnell Island, Beach 245	3	none	0	n/a	0	N/A
San Juan	Mccracken Point, Beach 340	3	none	0	n/a	0	N/A
San Juan	Mckaye Harbor, Beach 306	3	none	0	n/a	0	N/A
San Juan	Moran State Park	3	none	0	n/a	0	N/A
San Juan	Mosquito Pass, DNR 344	3	none	0	n/a	0	N/A
San Juan	Mt. Shadows Homeowners Beach	3	none	0	n/a	0	N/A
San Juan	Mud Bay Dock Road End	3	none	0	n/a	0	N/A
San Juan	Mud Bay Tidelands	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Juan	Mud Bay, Beach P1	3	none	0	n/a	0	N/A
San Juan	N Blakely Island	3	none	0	n/a	0	N/A
San Juan	N Spencer Spit	3	none	0	n/a	0	N/A
San Juan	Neck Point, Beach 259a	3	none	0	n/a	0	N/A
San Juan	North Beach Road End	3	none	0	n/a	0	N/A
San Juan	North Finger Island, Beach 367b	3	none	0	n/a	0	N/A
San Juan	Northeast Stuart Island, Beach 356	3	none	0	n/a	0	N/A
San Juan	Northwest Decatur Island	3	none	0	n/a	0	N/A
San Juan	Northwest Mcconnell Island Rock	3	none	0	n/a	0	N/A
San Juan	Oak Island, Beach 257a	3	none	0	n/a	0	N/A
San Juan	Obstruction Island Park	3	none	0	n/a	0	N/A
San Juan	Obstruction Pass Boat Launch	3	none	0	n/a	0	N/A
San Juan	Obstruction Pass County Park	3	none	0	n/a	0	N/A
San Juan	Obstruction Pass Recreation Site	3	none	0	n/a	0	N/A
San Juan	Obstruction Pass, Beach 276	3	none	0	n/a	0	N/A
San Juan	Odlin County Park	3	none	0	n/a	0	N/A
San Juan	Olga County Park	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Juan	Olga Marine State Park	3	none	0	n/a	0	N/A
San Juan	Orcas Island Ferry Terminal Picnic Area	3	none	0	n/a	0	N/A
San Juan	Orcas Island Yacht Club	3	none	0	n/a	0	N/A
San Juan	Orcas Island, Beach 266b	3	none	0	n/a	0	N/A
San Juan	Orcas Island, Beach 279	3	none	0	n/a	0	N/A
San Juan	Orcas Island, Beach 282	3	none	0	n/a	0	N/A
San Juan	Orcas Island, Beach 283	3	none	0	n/a	0	N/A
San Juan	Otis Perkins Day Park	3	none	0	n/a	0	N/A
San Juan	Patos Island State Park	3	none	0	n/a	0	N/A
San Juan	Pear Point, Beach 332	3	none	0	n/a	0	N/A
San Juan	Point Colville	3	none	0	n/a	0	N/A
San Juan	Point Doughty Recreation Site	3	none	0	n/a	0	N/A
San Juan	Point Doughty, Beach 236	3	none	0	n/a	0	N/A
San Juan	Point Hammond, Beach 362	3	none	0	n/a	0	N/A
San Juan	Point Lawrence Recreation Site	3	none	0	n/a	0	N/A
San Juan	Point Lawrence Tidelands	3	none	0	n/a	0	N/A
San Juan	Point Thompson, Beach 234	3	none	0	n/a	0	N/A
San Juan	Pointer Island	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Juan	Port Of Friday Harbor	3	none	0	n/a	0	N/A
San Juan	Posey Island State Park	3	none	0	n/a	0	N/A
San Juan	President's Channel, Beach 240	3	none	0	n/a	0	N/A
San Juan	Raccoon Point, Beach 233	3	none	0	n/a	0	N/A
San Juan	Ram Island, Dnr-312b	3	none	0	n/a	0	N/A
San Juan	Reads Bay, Beach 319	3	none	0	n/a	0	N/A
San Juan	Reads Bay, Beach 325	3	none	0	n/a	0	N/A
San Juan	Resort At Deer Harbor	3	none	0	n/a	0	N/A
San Juan	Reuben Tarte County Park	3	none	0	n/a	0	N/A
San Juan	Roche Harbor Marina	3	none	0	n/a	0	N/A
San Juan	Roche Harbor Resort	3	none	0	n/a	0	N/A
San Juan	Rock Point, Beach 303	3	none	0	n/a	0	N/A
San Juan	Rocky Bay, Beach 336	3	none	0	n/a	0	N/A
San Juan	Rosario Resort	3	none	0	n/a	0	N/A
San Juan	Rosario, Beach 272	3	none	0	n/a	0	N/A
San Juan	San Juan Channel, Beach 298	3	none	0	n/a	0	N/A
San Juan	San Juan Channel, Beach 334	3	none	0	n/a	0	N/A
San Juan	San Juan County Park	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Juan	San Juan Island, Beach 330	3	none	0	n/a	0	N/A
San Juan	San Juan Preservation Trust, Henry Island	3	none	0	n/a	0	N/A
San Juan	San Juan Preservation Trust, Stuart Island	3	none	0	n/a	0	N/A
San Juan	San Juan Preservation Trust, Waldron Island	3	none	0	n/a	0	N/A
San Juan	Sandy Point, Beach 364	3	none	0	n/a	0	N/A
San Juan	Satellite Island, Beach 358	3	none	0	n/a	0	N/A
San Juan	Shark Reef County Park	3	none	0	n/a	0	N/A
San Juan	Shark Reef, Beach 304	3	none	0	n/a	0	N/A
San Juan	Shaw Island County Park / Indian Cove	3	none	0	n/a	0	N/A
San Juan	Shaw Island County Park Tidelands (DNRr-296)	3	none	0	n/a	0	N/A
San Juan	Shaw Island, Beach 258	3	none	0	n/a	0	N/A
San Juan	Shaw Island, Beach 260c	3	none	0	n/a	0	N/A
San Juan	Shaw Island, DNR-260	3	none	0	n/a	0	N/A
San Juan	Sheep Island, Beach 255a	3	none	0	n/a	0	N/A
San Juan	Ship Bay Beach	3	none	0	n/a	0	N/A
San Juan	Skull Island State Park	3	none	0	n/a	0	N/A
San Juan	Smugglers Cove And Sunset Point Community	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Juan	Smugglers Cove Marina	3	none	0	n/a	0	N/A
San Juan	Snug Harbor Resort And Marina	3	none	0	n/a	0	N/A
San Juan	South Finger Island, Beach 367c	3	none	0	n/a	0	N/A
San Juan	Southeast Stuart Island, Beach 356b	3	none	0	n/a	0	N/A
San Juan	Spencer Spit State Park	3	none	0	n/a	0	N/A
San Juan	Sperry Road Access To Mud Bay	3	none	0	n/a	0	N/A
San Juan	Spieden Bluff, Beach 353	3	none	0	n/a	0	N/A
San Juan	Spieden Island, Beach 352	3	none	0	n/a	0	N/A
San Juan	Spieden Island, Beach 352a	3	none	0	n/a	0	N/A
San Juan	Spring Passage, Beach 240a	3	none	0	n/a	0	N/A
San Juan	Stuart Island State Park	3	none	0	n/a	0	N/A
San Juan	Stuart Island, Beach 359	3	none	0	n/a	0	N/A
San Juan	Sucia Island State Park	2	none	0	n/a	0	N/A
San Juan	Swirl Island	3	none	0	n/a	0	N/A
San Juan	Thatcher Pass, Beach 291	3	none	0	n/a	0	N/A
San Juan	Thatcher Pass, Beach 322	3	none	0	n/a	0	N/A
San Juan	Three Coves Community Beach	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
San Juan	Trump Island, Beach 320	3	none	0	n/a	0	N/A
San Juan	Turn Island State Park	3	none	0	n/a	0	N/A
San Juan	Turn Point Lighthouse	3	none	0	n/a	0	N/A
San Juan	Twin Rocks State Park	3	none	0	n/a	0	N/A
San Juan	Upright Channel Recreation Site	3	none	0	n/a	0	N/A
San Juan	Upright Head, Beach 294	3	none	0	n/a	0	N/A
San Juan	Victim Island, Beach 251b	3	none	0	n/a	0	N/A
San Juan	Waldron Island Boat Launch, DNR-361a	3	none	0	n/a	0	N/A
San Juan	Waldron Island Preserve	3	none	0	n/a	0	N/A
San Juan	Waldron Island, Beach 361	3	none	0	n/a	0	N/A
San Juan	Waldron Island, Beach 361a	3	none	0	n/a	0	N/A
San Juan	Wasp Passage, Beach 259	3	none	0	n/a	0	N/A
San Juan	Weeks Point Way Access	3	none	0	n/a	0	N/A
San Juan	West Beach Resort	3	none	0	n/a	0	N/A
San Juan	West Sound Marina	3	none	0	n/a	0	N/A
San Juan	Yellow Island	3	none	0	n/a	0	N/A
Skagit	Alexander / Delmar	3	none	0	n/a	0	N/A
Skagit	Anacortes Ferry Terminal Beach	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Skagit	Bayview Boat Launch	3	variable	7	14%	0	N/A
Skagit	Bayview State Park	1	variable	10	40%	7	N/A
Skagit	Boat Harbor, East Guemes Island	3	none	0	n/a	0	N/A
Skagit	Burrows Bay, Far North	3	none	0	n/a	0	N/A
Skagit	Burrows Island East	3	none	0	n/a	0	N/A
Skagit	Burrows Island North	3	none	0	n/a	0	N/A
Skagit	Burrows Island State Park	3	none	0	n/a	0	N/A
Skagit	Burrows Island, Southeast	3	none	0	n/a	0	N/A
Skagit	Camp Kirby	3	none	0	n/a	0	N/A
Skagit	Cap Sante Marina	3	none	0	n/a	0	N/A
Skagit	Cap Sante Park	3	none	0	n/a	0	N/A
Skagit	Clark Point, North Guemes Island	3	none	0	n/a	0	N/A
Skagit	Community Of Christ Church Camp	3	none	0	n/a	0	N/A
Skagit	Cone Islands State Park	3	none	0	n/a	0	N/A
Skagit	Cypress Head Recreation Site	3	none	0	n/a	0	N/A
Skagit	Cypress Head, Beach 209	3	none	0	n/a	0	N/A
Skagit	Cypress Head, Beach 210	3	none	0	n/a	0	N/A
Skagit	Cypress Head, Beach 211	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Skagit	Deception Pass State Park (Skagit)	2	none	0	n/a	0	N/A
Skagit	Deception Pass State Park Tidelands (Skagit)	3	none	0	n/a	0	N/A
Skagit	Dewey Beach	2	none	0	n/a	0	N/A
Skagit	Eagle Cliff, Beach 286	3	none	0	n/a	0	N/A
Skagit	Eagle Harbor, Beach 212a	3	none	0	n/a	0	N/A
Skagit	Fidalgo Bay	3	none	0	n/a	0	N/A
Skagit	Goat Island	3	none	0	n/a	0	N/A
Skagit	Guemes Island, Peach Reserve	3	none	0	n/a	0	N/A
Skagit	Guemes Island, South	3	none	0	n/a	0	N/A
Skagit	Hope Island (Skagit County)	3	none	0	n/a	0	N/A
Skagit	Huckleberry Island	3	none	0	n/a	0	N/A
Skagit	Jensen Access	3	none	0	n/a	0	N/A
Skagit	La Conner Marina	3	none	0	n/a	0	N/A
Skagit	Larrabee State Park, Clayton Beach	3	none	0	n/a	0	N/A
Skagit	Lower Cap Sante Park	3	none	0	n/a	0	N/A
Skagit	March Point Recreational Beach	no data	none	0	n/a	0	N/A
Skagit	Milltown Access	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Skagit	North Beach, Guemes Island	2	none	0	n/a	0	N/A
Skagit	North Fork Access	3	none	0	n/a	0	N/A
Skagit	Northwest Island Marine Park	3	none	0	n/a	0	N/A
Skagit	Padilla Bay Dike Top Trail	no data	none	0	n/a	0	N/A
Skagit	Padilla Bay National Estuarine Research Reserve	3	none	0	n/a	0	N/A
Skagit	Pelican Beach Recreation Site	3	none	0	n/a	0	N/A
Skagit	Pioneer Park	3	none	0	n/a	0	N/A
Skagit	Quaker Cove Camp & Retreat Center	3	none	0	n/a	0	N/A
Skagit	Rosario Beach	3	none	0	n/a	0	N/A
Skagit	Saddlebag Island State Park	3	none	0	n/a	0	N/A
Skagit	Salmon Beach	3	none	0	n/a	0	N/A
Skagit	Samish Island Recreation Area	2	twice a month	0	n/a	0	N/A
Skagit	Seafarer Park	2	none	0	n/a	0	N/A
Skagit	Sharpe County Park	3	none	0	n/a	0	N/A
Skagit	Similk Beach	3	none	0	n/a	0	N/A
Skagit	Sinclair Island Dock	3	none	0	n/a	0	N/A
Skagit	Sinclair Island, Beach 213	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Skagit	Sinclair Island, Beach 213a, North	3	none	0	n/a	0	N/A
Skagit	Sinclair Island, Beach 213a, South	3	none	0	n/a	0	N/A
Skagit	Skagit Island State Park	3	none	0	n/a	0	N/A
Skagit	Skyline Marina	3	none	0	n/a	0	N/A
Skagit	South Shore Drive Road End	3	none	0	n/a	0	N/A
Skagit	Strawberry Bay, Beach 287	3	none	0	n/a	0	N/A
Skagit	Strawberry Island Recreation Site	3	none	0	n/a	0	N/A
Skagit	Swinomish Channel Boat Launch	3	none	0	n/a	0	N/A
Skagit	Vendovi Island, Beach 214	3	none	0	n/a	0	N/A
Skagit	Washington Park	3	none	0	n/a	0	N/A
Skagit	Young County Park North Beach	3	none	0	n/a	0	N/A
Snohomish	10th St Marine Park & Boat Launch	3	none	0	n/a	0	N/A
Snohomish	Brown Bay Rail	3	none	0	n/a	0	N/A
Snohomish	Darlington Beach And Tidelands	3	none	0	n/a	0	N/A
Snohomish	Darlington Beach North, Rail	3	none	0	n/a	0	N/A
Snohomish	Edmonds Marina	3	none	0	n/a	0	N/A
Snohomish	Edmonds Underwater Park	1	once a week	15	0%	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Snohomish	Forest Park	3	none	0	n/a	0	N/A
Snohomish	Howarth Park	1	once a week	15	7%	0	N/A
Snohomish	Howarth Park South	3	none	0	n/a	0	N/A
Snohomish	Jetty Island	1	once a week	8	0%	0	N/A
Snohomish	Kayak Point County Park	1	once a week	14	0%	0	N/A
Snohomish	Leque Island	3	none	0	n/a	0	N/A
Snohomish	Marina Beach Park, Edmonds (No Dogs)	1	once a week	15	0%	0	N/A
Snohomish	Marina Beach, Edmonds (Dog Park)	1	none	0	n/a	0 (365)	N/A
Snohomish	Meadowdale County Park	3	none	0	n/a	0	N/A
Snohomish	Mission Beach Park	3	none	0	n/a	0	N/A
Snohomish	Mukilteo Fishing Pier	3	none	0	n/a	0	N/A
Snohomish	Mukilteo Lighthouse Park	3	once a week	16	19%	0	N/A
Snohomish	Mukilteo Park South, Rail	3	none	0	n/a	0	N/A
Snohomish	Nakeeta Beach South, Rail	3	none	0	n/a	0	N/A
Snohomish	Nakeeta Beach Tidelands	3	none	0	n/a	0	N/A
Snohomish	North Marine View Park	3	none	0	n/a	0	N/A
Snohomish	Olympic Beach Park	3	none	0	n/a	0	N/A
Snohomish	Olympic View Rail	3	none	0	n/a	0	N/A
Snohomish	Park Avenue Street End	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Snohomish	Picnic Point County Park	1	once a week	15	7%	0	N/A
Snohomish	Picnic Point North, Rail	3	none	0	n/a	0	N/A
Snohomish	Picnic Point South, Rail	3	none	0	n/a	0	N/A
Snohomish	Port Of Everett Marina	3	none	0	n/a	0	N/A
Snohomish	Port Susan Bay Preserve	3	none	0	n/a	0	N/A
Snohomish	Silver Cloud Pier	3	none	0	n/a	0	N/A
Snohomish	Skagit Wildlife Recreation Area	3	none	0	n/a	0	N/A
Snohomish	Soundview Drive Nw Road End	3	none	0	n/a	0	N/A
Snohomish	South Marine View Park	3	none	0	n/a	0	N/A
Snohomish	South Mulkiteo Park	3	none	0	n/a	0	N/A
Snohomish	Spencer Island County Park	3	none	0	n/a	0	N/A
Snohomish	Tulalip Bay Marina	3	none	0	n/a	0	N/A
Snohomish	Warm Beach	3	none	0	n/a	0	N/A
Snohomish	Warm Beach Church Camp	3	none	0	n/a	0	N/A
Snohomish	Wells Point North	3	none	0	n/a	0	N/A
Snohomish	West Pass Access	3	none	0	n/a	0	N/A
Snohomish	West Pass Bridge	3	none	0	n/a	0	N/A
Thurston	4th Ave Bridge	3	none	0	n/a	0	N/A
Thurston	Bayview Market Public	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
	Access						
Thurston	Beachcrest Community	3	none	0	n/a	0	N/A
Thurston	Boston Harbor Boat Ramp	3	none	0	n/a	0	N/A
Thurston	Boston Harbor Marina	3	none	0	n/a	0	N/A
Thurston	Burfoot County Park	1	once a week	14	0%	0	N/A
Thurston	Buzz's Tavern	3	none	0	n/a	0	N/A
Thurston	Capitol Land Trust, South Eld Inlet	3	none	0	n/a	0	N/A
Thurston	Carlyon Beach Country Club	3	none	0	n/a	0	N/A
Thurston	Evergreen State College Beach	3	none	0	n/a	0	N/A
Thurston	Fiddlehead Marina	2	none	0	n/a	0	N/A
Thurston	Forest Bay Acres Community	3	none	0	n/a	0	N/A
Thurston	Frye Cove County Park	2	none	0	n/a	0	N/A
Thurston	Green Park Community Club	3	none	0	n/a	0	N/A
Thurston	Hawks Prairie Estate	3	none	0	n/a	0	N/A
Thurston	Heritage Trail	no data	none	0	n/a	0	N/A
Thurston	Highway 101 Bridge, Mud Bay	3	none	0	n/a	0	N/A
Thurston	Highway 101 Bridge, Oyster Bay	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Thurston	Hogam Bay Land Trust	3	none	0	n/a	0	N/A
Thurston	Martin Marina	3	none	0	n/a	0	N/A
Thurston	Mud Bay Bridge	3	none	0	n/a	0	N/A
Thurston	Nisqually Habitat Management Area	3	none	0	n/a	0	N/A
Thurston	Nisqually National Wildlife Refuge	3	none	0	n/a	0	N/A
Thurston	North Point Landing	no data	none	0	n/a	0	N/A
Thurston	Old Olympic Highway Bridge, Oyster Bay	3	none	0	n/a	0	N/A
Thurston	Olympia Country & Golf Club	3	none	0	n/a	0	N/A
Thurston	Percival Landing North	3	none	0	n/a	0	N/A
Thurston	Port Plaza / Visitor Morage	3	none	0	n/a	0	N/A
Thurston	Priest Point Park	2	none	0	n/a	8 (128)	N/A
Thurston	Snug Harbor Community Beach	3	none	0	n/a	0	N/A
Thurston	South Budd Inlet Waterfront	3	none	0	n/a	0	N/A
Thurston	Southeast Budd Inlet	3	none	0	n/a	0	N/A
Thurston	Steamboat Island Bridge	3	none	0	n/a	0	N/A
Thurston	Swantown Marina	2	none	0	n/a	0	N/A
Thurston	Tamoshan Homeowners Park	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Thurston	Thurston County Parcel (Indian Rd)	2	none	0	n/a	0	N/A
Thurston	Tolmie State Park	2	none	0	n/a	0	N/A
Thurston	West Bay Park	3	once a week	14	14%	8 (73)	N/A
Thurston	Westbay Marina	3	none	0	n/a	0	N/A
Thurston	Woodard Bay Natural Area	3	none	0	n/a	0	N/A
Thurston	Zittel's Marina	3	none	0	n/a	0	N/A
Whatcom	Birch Bay Beach & Tidelands Access	1	once a week	17	12%	0	N/A
Whatcom	Birch Bay Near Terrell Creek	2	none	0	n/a	0	N/A
Whatcom	Birch Bay State Park	2	none	0	n/a	0	N/A
Whatcom	Birch Bay Village	3	none	0	n/a	0	N/A
Whatcom	Birch Point, Beach 372	3	none	0	n/a	0	N/A
Whatcom	Blaine Harbor And Boat Launch	3	none	0	n/a	0	N/A
Whatcom	Blaine Rd. Bridge	3	none	0	n/a	0	N/A
Whatcom	Boulevard Park / Bayview Marine Park	2	none	0	n/a	0	N/A
Whatcom	Bumstead Spit South, Beach 223a	3	none	0	n/a	0	N/A
Whatcom	Bumstead Spit, Beach 223	3	none	0	n/a	0	N/A
Whatcom	Carter Point	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Whatcom	Chuckanut Community Beach	3	none	0	n/a	0	N/A
Whatcom	Chuckanut Island	3	none	0	n/a	0	N/A
Whatcom	Chuckanut Point	3	none	0	n/a	0	N/A
Whatcom	Clarks Point	3	none	0	n/a	0	N/A
Whatcom	Cottonwood Beach County Park	2	none	0	n/a	0	N/A
Whatcom	Devils Slide, Beach 220a	3	none	0	n/a	0	N/A
Whatcom	Drayton Harbor	3	none	0	n/a	0	N/A
Whatcom	Drayton Harbor Park	3	none	0	n/a	0	N/A
Whatcom	Drayton Harbor/whatcom Land Trust	3	none	0	n/a	0	N/A
Whatcom	Eliza Island	3	none	0	n/a	0	N/A
Whatcom	Larrabee State Park, Wildcat Cove	2	once a week	20	35%	0 (207)	N/A
Whatcom	Lighthouse Marine County Park	3	none	0	n/a	0	N/A
Whatcom	Lily Point Marine Reserve	3	none	0	n/a	0	N/A
Whatcom	Little Squalicum Park	3	once a week	17	18%	0	N/A
Whatcom	Lummi Island Recreation Site	3	none	0	n/a	0	N/A
Whatcom	Lummi Island, Beach 220	3	none	0	n/a	0	N/A
Whatcom	Lummi Island, Beach 223b	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Whatcom	Lummi Island, Beach 224	3	none	0	n/a	0	N/A
Whatcom	Lummi Island, Beach 283	3	none	0	n/a	0	N/A
Whatcom	Lummi Rocks	3	none	0	n/a	0	N/A
Whatcom	Maple Beach	2	none	0	n/a	0	N/A
Whatcom	Marine Drive Park	3	none	0	n/a	0	N/A
Whatcom	Marine Park, Bellingham	2	once a week	15	0%	0	N/A
Whatcom	Monument Park	3	none	0	n/a	0	N/A
Whatcom	Mud Bay, Chuckanut	3	none	0	n/a	0	N/A
Whatcom	Padden Creek Lagoon	3	none	0	n/a	0	N/A
Whatcom	Point Roberts Marina And Resort	3	none	0	n/a	0	N/A
Whatcom	Point Whitehorn	3	none	0	n/a	0	N/A
Whatcom	Semiahmoo County Park	3	once a week	13	0%	0	N/A
Whatcom	Semiahmoo Resort & Marina	3	none	0	n/a	0	N/A
Whatcom	Smugglers Cove North, Beach 221a	3	none	0	n/a	0	N/A
Whatcom	Smugglers Cove Point, Beach 221	3	none	0	n/a	0	N/A
Whatcom	South Birch Point	3	none	0	n/a	0	N/A
Whatcom	South Drayton Harbor	3	none	0	n/a	0	N/A
Whatcom	South Semiahmoo Bay	3	none	0	n/a	0	N/A

County	Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of samples exceeding state standards	Closing or Advisory days	View
Whatcom	Squalicum Harbor	3	none	0	n/a	0	N/A
Whatcom	Teddy Bear Cove	3	none	0	n/a	0	N/A
Whatcom	Wildcat Cove Tidelands	3	none	0	n/a	0	N/A
Whatcom	Zuanich Park	3	none	0	n/a	0	N/A

Notes

1. Washington State Department of Ecology and Health, Calendar Year January-December 2011, Federal Fiscal Year 10 (October 1, 2010-September 30, 2011), EPA Grant Agreement Number: CU-96029301-5, Annual Report for Washington State BEACH Program, not dated.
2. Julie Lowe, Washington Department of Ecology and Health, personal communication, April 2012.

Guide to Finding a Clean Beach

How to find out whether state and local authorities test for beach pollution, and what they do if they find it.

Wondering how clean the water is at your favorite vacation spot? Finding an answer can be tricky. There is no national protocol for protecting the public from unsafe swimming water, so beach testing and closing/health advisory practices vary from beach to beach and state to state. Some localities regularly test the water quality at their beaches, while others don't. Even when states and localities perform tests, they don't always notify the public or close beaches when bacteria levels in the water exceed health standards.

Finding Help Online

Here's how you can try to check the safety of your favorite beach before you head out for a swim:

To find out if an ocean, bay or Great Lakes beach is monitored regularly for pollution, start with [Testing the Waters 2012](#). The NRDC report will give you the details on beachwater monitoring practices and standards—and tell you how often those standards were exceeded in 2011. It also reports on whether local authorities notify the public when they discover beachwater pollution.

[Click here](#) for a list of 200 popular U.S. beaches that rates their water quality and their monitoring and notification practices.

The Environmental Protection Agency's [Beaches website](#) is also full of useful information, including a database of testing and beach closures and advisories. [The agency's beach Dos and Don'ts](#) also offers tips about how you can help to improve water quality at the beach.



photo: Jake Rome

In 2011, there were 23,481 days of closings and advisories at U.S. beaches.

Finding Help at the Local or State Health Department

In most cases, staff members at your town or county health department will be able to answer your questions about local beachwater monitoring. You also can contact a state's health or environmental protection agency.

When you contact local or state health officials, ask:

- What are the sources of pollution affecting the waters where I swim?
- What sort of water quality monitoring for swimmer safety is performed at these beaches?
- Are beaches always closed or the public notified when monitoring shows that the bacterial standard is exceeded?
- What is the current status of these waters (are they closed or open), and what warning signs should you look for if there are water pollution problems?

Avoiding Polluted Beaches

In some cases, beachwater quality test results may be announced on local radio and TV, printed in the newspaper or posted on a website. Also, be on the lookout for posted signs at the beach before you swim.

Whenever possible, swim at beaches that your research shows have the cleanest water, are carefully monitored and have strict closure and advisory procedures. If your beach is not monitored regularly, there are some things you can do to avoid swimming in polluted water:

- If possible, choose beaches that are next to open waters or away from urban areas. They typically pose less of a health risk than beaches in developed areas or in enclosed bays and harbors with little water circulation.
- Look for pipes along the beach that drain stormwater runoff from the streets, and don't swim near them. Avoid swimming in beachwater that is cloudy or smells bad.
- Keep your head out of the water.
- Avoid swimming for at least 24 hours after heavy rains (which can wash pollution into the water).
- Contact local health officials if you suspect beachwater contamination so that others can be protected from exposure.

Frequently Asked Questions

1. [How widespread is beach pollution?](#)
2. [What are the major causes of beach pollution?](#)
3. [Could I get sick from swimming in contaminated beachwater?](#)
4. [Could I get sick from swimming in animal waste?](#)
5. [Who is most at risk?](#)
6. [How many Americans get sick from swimming in contaminated beachwater?](#)
7. [How can I protect myself from getting sick?](#)
8. [Aren't beaches tested to make sure that they are safe?](#)
9. [Why isn't beachwater testing sufficient?](#)
10. [If states close beaches, won't they damage coastal economies?](#)
11. [What can be done to make swimming at our beaches safer?](#)
12. [What are red tides and are they dangerous to swim in?](#)
13. [How could climate change affect the health of the water at my beach?](#)

1. How widespread is beach pollution?

Every coastal state has a beach with pollution problems. In 2011, beach pollution prompted 23,481 closing and swimming advisory days at ocean, bay and Great Lakes beaches. That's the third-highest number of closing and advisory days since NRDC began issuing its annual Testing the Waters report 22 years ago.

According to the most recent data available, 56 percent of reported beaches are monitored, and 45 percent are monitored at least once a week. Increased monitoring continues to highlight the extensive problem of beachwater pollution.

2. What are the major causes of beach pollution?

The most frequently identified pollution source is stormwater, which led to 10,954 closing and health advisory days in 2011, followed by miscellaneous sources such as wildlife and boat discharges which accounted for 2,690 closing/advisory days, and sewage spills and overflows, which accounted for 1,541 closing and advisory days.

Rain is often a contributing factor to beachwater pollution. Heavy rain can overwhelm sewage systems, forcing raw sewage directly into coastal waters, bypassing treatment plants. And as rainwater washes over land, it picks up pollutants and carries them directly to coastal waters. Pollutants found in stormwater include trash, motor oil, pet waste, pesticides, fertilizer, animal droppings, and anything else that washes off developed land when it rains.

But in many cases, communities simply haven't tracked down the sources of beachwater pollution. Nearly 70% of closing and advisory days in 2011 were issued because monitoring revealed the presence of bacteria associated with fecal contamination. But officials often could not identify the source of this contamination. Local and state agencies should step up efforts to investigate such pollution.

3. Could I get sick from swimming in contaminated beachwater?

Yes. Exposure to bacteria, viruses and parasites in contaminated beachwater can cause a wide range of diseases, including ear, nose and eye infections, stomach flu, hepatitis, encephalitis, skin rashes, and respiratory illnesses. Most waterborne disease outbreaks in the United States occur during the summer, when Americans are most likely to be exposed to contaminated beachwater.

4. Could I get sick from swimming in animal waste?

Yes. Although some pathogens in animal waste, do not transfer to humans, others (such as E coli 0157) can make humans very ill. Considerable research still needs to be done to determine the extent of the risk posed to humans by exposure to pathogens from animal waste. But until scientific research demonstrates otherwise, it is best to assume that it's not safe to swim in beachwater that contains excessive levels of human or animal waste.

5. Who is most at risk?

Small children, elderly people, pregnant women, cancer patients and others with weakened immune systems are most likely to get sick from swimming in contaminated beachwater. They also are the most likely to be hospitalized or die from exposure to waterborne illnesses. For instance, according to the Centers for Disease Control and Prevention, children under the age of 9 had more reports of diarrhea and vomiting from exposure to waterborne parasites than any other age group.

6. How many Americans get sick from swimming in contaminated beachwater?

We do not have good national data on recreational waterborne disease outbreaks because most people treat the symptoms of their illness (for example, fever, headache, diarrhea and vomiting) without ever finding out what caused them.

7. How can I protect myself from getting sick?

Beachgoers can lessen their chances of getting sick by swimming only at beaches where authorities test the water frequently and close the beach or issue an advisory when it is polluted, staying out of the water when there are closings or advisories, avoiding swimming at beaches with nearby discharge pipes or at urban beaches after a heavy rainfall, staying out of murky or foul-smelling water, staying out of the water when they have an open wound or infection, and swimming without putting their heads under water.

If you believe that you have been exposed to contaminated water, rinse off well with soap and water. Especially clean any skin abrasions. Use a mouthwash or clean water to gargle and spit out. Dry out your ears. Take a shower and wash swimsuits and towels (and other clothing that might have gotten wet) as soon as possible. If you start to feel sick, go to a doctor or your healthcare provider. Tell your doctor that you think you were exposed to contaminated water. Contact your county health department to report your illness.

8. Aren't beaches tested to make sure that they are safe?

State and local health and environmental officials are responsible for monitoring water quality at our nation's beaches. When they find contaminated water, they may post warnings or close the beach.

Coastal beach monitoring has significantly improved in recent years due to passage of the Beaches Environmental Assessment and Coastal Health Act of 2000 (BEACH Act), which provides assistance to state and local governments to develop monitoring programs. According to NRDC's annual beach report, Testing the Waters, 45 percent of beaches that reported to the EPA and NRDC were monitored at least once a week in 2011. But many beaches still are not monitored regularly, in part

because Congress has never fully funded the BEACH Act. Even worse, the Obama administration has proposed to eliminate BEACH Act funding for states for the upcoming fiscal year. If adopted, this proposal would undoubtedly mean less monitoring and poorer notification of beach conditions.

9. Why isn't current beachwater testing sufficient?

Even beachwater that is regularly monitored for pollution is not necessarily safe on any given day. The tests take 24 hours to produce results, and many beaches wait to re-test rather than close or issue an advisory. The tests also are not designed to protect the public against the full range of waterborne illnesses or to protect sensitive populations.

Unfortunately, EPA is proposing new allowable bacteria levels in recreational waters (called "criteria") that miss a critical opportunity to better protect the public from the dangers of swimming in polluted water. In fact, in some respects the draft criteria are even less protective than the 25-year-old criteria they would replace. Most egregiously, the draft criteria are based on what EPA has determined is an acceptable gastrointestinal illness risk of 3.6%. That is, EPA believes it is acceptable for 1 in 28 swimmers to become ill with gastroenteritis from swimming in water that just meets its proposed water quality criteria.

10. If states close beaches, won't they damage coastal economies?

The primary purpose of beach closings is to protect public health. Although there may be short-term impacts to local economies from beach closings, public confidence is enhanced by the knowledge that effective beach protection and cleanup programs are in place. Ultimately, coastal economies will be bolstered if beachwater pollution sources are cleaned up. One study estimated that the annual health costs associated with gastroenteritis, also known as the stomach flu, come to between \$21 million and \$51 million for Los Angeles and Orange county beaches alone.

11. What can be done to make swimming at our beaches safer?

Our beaches would be safer for swimming if they were cleaner. Federal, state and local governments should make beachwater pollution prevention a priority by requiring better controls on stormwater and sewage. Stormwater is the largest known source of pollution causing beach advisories or closings. One of the best ways to curb stormwater pollution is by implementing green infrastructure techniques in communities to retain and filter rainwater where it falls and let it soak back into the ground, rather than allowing it to overflow into waterways. This includes strategically placed rain gardens in yards, tree boxes along city sidewalks, green roofs, and permeable pavement. By capturing and storing stormwater in rain barrels or cisterns, we can also reuse it for irrigation or other non-potable uses.

The Environmental Protection Agency is presently planning a major reform of its regulations governing urban and suburban runoff pollution. These rule changes represent a once-in-a-generation opportunity to advance communities' ability to retain stormwater rather than discharge it.

Individuals can also help control water pollution by taking simple actions such as picking up pet waste, putting swim diapers with plastic covers on babies and keeping trash off the beach.

12. What are red tides and are they dangerous to swim in?

Red tides are massive blooms of certain species of microscopic algae that produce toxins dangerous to humans and marine life. Inhaling, swallowing or coming into skin contact with these toxins can result in serious and potentially life-threatening human illnesses. Symptoms include diarrhea, nausea, vomiting, abdominal cramping and chills, among many others. Red tides have killed dolphins and manatees in Florida and also are a suspected cause of sea turtle and whale deaths.

Red tides in Florida and elsewhere in the Gulf of Mexico are becoming more common. The tides can occur for a variety of reasons, but they appear to be made worse by an overload of nutrients in the water, brought on by inadequately treated sewage, farm waste and fertilizer runoff.

13. How could climate change affect the health of the water at my beach?

Climate change will make beachwater pollution worse. In some communities, it will lead to more frequent and intense rainstorms, temperature increases, flooding, and sea level rise, as well as increased stormwater pollution and sewer overflows—leading to more contamination and pathogens in your beachwater. Climate change is also expected to increase pathogen populations that cause stomach flu and other, potentially life-threatening diseases in coastal waters.

Ratings of Popular Beaches



[Click to view the slideshow](#)

NRDC issued star ratings to 200 popular beaches around the country. The star system awards up to five stars to each popular beach for exceptionally low violation rates and strong testing and safety practices. Criteria include testing more than once a week, notifying the public promptly when tests reveal bacteria levels violating health standards, and posting closings and advisories both online and at the beach. Last year, twelve beaches last received a 5-star rating.

5-STAR BEACHES

- **Alabama:** [Gulf Shores Public Beach](#)
- **Alabama:** [Gulf State Park Pavilion](#)
- **California:** [Bolsa Chica Beach](#)
- **California:** [Huntington State Beach, Brookhurst Street](#)
- **California:** [Newport Beach, 38th Street, 52nd/53rd Street](#)
- **Delaware:** [Dewey Beach](#)
- **Delaware:** [Rehoboth Beach - Rehoboth Ave.](#)
- **Maryland:** [Ocean City at Beach 6](#)
- **Minnesota:** [Park Point Franklin Park / 13th Street South Beach](#)
- **Minnesota:** [Park Point Lafayette Community Club Beach](#)
- **New Hampshire:** [Hampton Beach State Park](#)
- **New Hampshire:** [Wallis Sands Beach at Wallis Road](#)
- **Texas:** [South Padre Island \(Town of South Padre Island\)](#)

NRDC Ratings for a Selection of U. S. Popular Beaches

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
Alabama								
Baldwin	Gulf Shores Public Beach (3)	★★★★★	0.0%	0.0%	0.0%	twice a week	yes	yes
Baldwin	Gulf State Park Pavilion (3)	★★★★★	0.0%	0.0%	0.0%	twice a week	yes	yes
Baldwin	Little Lagoon Pass Beach (3)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	yes
Mobile	Dauphin Island Public Beach (3)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	yes
California								
Los Angeles	Dockweiler - Monitoring stations at this beach:							
	Dockweiler State Beach In Front Of Culver Blvd Storm Drain	★★★★☆	4.2%	2.1%	2.0%	once a week	yes	yes
	Dockweiler State Beach In Front Of The Imperial Hwy Storm Drain	★★★☆☆	8.3%	1.3%	2.0%	once a week	yes	yes
	Dockweiler State Beach Just South Of Ballona Creek	★★★★☆	15.0%	17.4%	19.5%	four times a week	yes	yes
	Dockweiler State Beach, Playa Del Rey In Front Of The Beaches And Harbors Maintenance Yard	★★★☆☆	7.8%	14.3%	6.4%	once a week	yes	yes
	Dockweiler State Beach, Playa Del Rey Opposite Hyperion Plant, At 1 Mile Marker	★★★☆☆	7.7%	10.2%	4.3%	once a week	yes	yes
Los Angeles	Hermosa Beach - Monitoring stations at this beach:							
	Hermosa Beach 26th St Extended In Front Of Storm Drain	★★★★☆	3.9%	10.2%	4.3%	once a week	yes	yes

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
	<u>Hermosa Beach 50 Yards South Of The Hermosa Beach Pier</u>	★★★★☆	8.3%	0.4%	4.0%	once a week	yes	yes
Los Angeles	Long Beach - Monitoring stations at this beach:							
	<u>Long Beach, 5th Place Beach</u>	★★★★☆	12.1%	23.6%	16.9%	once a week	yes	yes
	<u>Long Beach, 10th Place Beach</u>	★★★★☆	11.1%	23.2%	11.3%	once a week	yes	yes
	<u>Long Beach, 55th Place Beach</u>	★★★★☆	9.4%	19.2%	6.3%	once a week	yes	yes
	<u>Long Beach, Coronado Ave Beach</u>	★★★★☆	11.1%	26.3%	14.8%	once a week	yes	yes
	<u>Long Beach, Granada Ave Beach</u>	★★★★☆	9.6%	21.2%	4.1%	once a week	yes	yes
	<u>Long Beach, Molino Ave Beach</u>	★★★★☆	9.8%	24.6%	14.8%	once a week	yes	yes
	<u>Long Beach, Prospect Ave Beach</u>	★★★★☆	9.3%	19.6%	7.8%	once a week	yes	yes
	<u>Long Beach, West Side Of Belmont Pier</u>	★★★★☆	9.6%	25.0%	17.9%	once a week	yes	yes
Los Angeles	Manhattan Beach - Monitoring stations at this beach:							
	<u>Manhattan Beach 40th Street Extended</u>	★★★★☆	4.2%	0.8%	2.0%	once a week	yes	yes
	<u>Manhattan Beach 50 Yards South Of The Manhattan Beach Pier</u>	★★★★☆	2.1%	1.3%	4.0%	once a week	yes	yes
Los Angeles	Redondo Beach - Monitoring stations at this beach:							
	<u>Redondo Beach 50 Yards South Of The Redondo Beach Pier</u>	★★★★☆	13.9%	20.3%	15.9%	five times a week	yes	no
	<u>Redondo Beach Topaz St Extended, North Side Of</u>	★★★★☆	13.5%	13.5%	19.2%	once a week	yes	yes

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
	<u>Jetty</u>							
	<u>Redondo Beach-Avenue I Extended</u>	★★★★☆	2.1%	3.3%	2.0%	once a week	yes	yes
Los Angeles	Santa Monica State Beach - Monitoring stations at this beach:							
	<u>Santa Monica State Beach At The Santa Monica Pier</u>	★★★★☆	13.1%	15.4%	13.1%	five times a week	yes	yes
	<u>Santa Monica State Beach In Front Of Ashland Storm Drain</u>	★★★★☆	5.7%	10.4%	6.0%	five times a week	yes	yes
	<u>Santa Monica State Beach In Front Of Pico/Kenter Storm Drain</u>	★★★☆☆	22.6%	18.3%	20.2%	five times a week	yes	no
	<u>Santa Monica State Beach In Front Of Santa Monica Canyon Storm Drain</u>	★★★★☆	21.6%	21.2%	39.3%	five times a week	yes	yes
	<u>Santa Monica State Beach Strand St Extended</u>	★★★★☆	7.8%	10.4%	8.3%	once a week	yes	yes
Los Angeles	Surfrider's/Malibu Lagoon - Monitoring stations at this beach:							
	<u>Malibu Lagoon, Malibu In Front Of Lifeguard Tower</u>	★★★★☆	7.8%	10.2%	9.4%	once a week	yes	yes
	<u>Malibu Pier, Malibu 50 Yards East Of The Pier</u>	★★★★☆	41.9%	20.4%	21.8%	once a week	yes	yes
	<u>Surfrider Beach, Malibu At The Breech Or Last Known Breech</u>	★★★★☆	44.4%	31.7%	32.5%	five times a week	yes	no
Los Angeles	Venice City Beach - Monitoring stations at this beach:							
	<u>Venice City Beach 50 Yards South Of Venice Pier</u>	★★★★☆	8.0%	10.2%	8.3%	once a week	yes	yes
	<u>Venice City Beach In Front Of Windward Storm</u>	★★★★☆	4.2%	2.9%	0.0%	once a week	yes	yes

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
	Drain							
	Venice City Beach Topsail St Extended	★☆☆☆☆	15.4%	13.7%	4.2%	once a week	yes	no
Los Angeles	Will Rogers State Beach - Monitoring stations at this beach:							
	Will Rogers State Beach, 17200 Pacific Coast Hwy, Pacific Palisades At Staircase	★★★★☆	4.1%	12.0%	6.3%	once a week	yes	yes
	Will Rogers State Beach, Pacific Palisades In Front Of Pulga Storm Drain	★★★★☆	4.2%	1.7%	3.9%	once a week	yes	yes
Los Angeles	Zuma Beach - Monitoring stations at this beach:							
	Trancas Beach (West Zuma Beach), Malibu In Front Of Trancas Bridge	★★★★☆	4.2%	14.3%	4.3%	once a week	yes	yes
Marin	Stinson Beach - Monitoring stations at this beach:							
	Stinson Beach- Central	★★★★☆	6.7%	0.0%	3.0%	once a week	yes	yes
	Stinson Beach- North	★★★★☆	0.0%	3.3%	3.0%	once a week	yes	yes
	Stinson Beach- South	★★★★☆	0.0%	0.0%	3.0%	once a week	yes	yes
Orange	Bolsa Chica State Beach - Monitoring stations at this beach:							
	Bolsa Chica Beach	★★★★★	1.0%	2.7%	0.0%	five times a week	yes	yes
	Bolsa Chica Reserve	★★★★☆	3.4%	6.8%	3.4%	five times a week	yes	yes
Orange	Dana Point, Salt Creek Beach	★★★★☆	2.5%	6.7%	4.2%	twice a week	yes	yes

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
Orange	Doheny State Beach - Monitoring stations at this beach:							
	Doheny State Beach, 1000' South Outfall	★★★★☆	42.0%	38.5%	22.9%	twice a week	yes	yes
	Doheny State Beach, 2000' South Outfall	★★★★☆	44.6%	35.5%	24.5%	twice a week	yes	yes
	Doheny State Beach, 3000' South Outfall	★★★★☆	30.0%	24.0%	25.5%	twice a week	yes	yes
	Doheny State Beach, 4000' South Outfall	★★★★☆	17.4%	12.0%	24.5%	twice a week	yes	yes
	Doheny State Beach, North Of San Juan Creek	★★★★☆	42.9%	42.3%	37.3%	twice a week	yes	yes
	Doheny State Beach, Surfzone At Outfall	★★★★☆	57.4%	48.1%	38.0%	twice a week	yes	yes
Orange	Huntington City Beach - Monitoring stations at this beach:							
	Huntington City Beach, 17th Street	★★★★☆	4.3%	6.8%	3.4%	five times a week	yes	yes
	Huntington City Beach, Beach Hut	★★★★☆	3.9%	5.4%	2.0%	five times a week	yes	yes
	Huntington City Beach, Bluffs	★★★★☆	4.8%	9.5%	4.7%	five times a week	yes	yes
	Huntington City Beach, Jack's Snack Bar	★★★★☆	2.4%	6.8%	0.0%	five times a week	yes	yes
Orange	Huntington State Beach - Monitoring stations at this beach:							
	Huntington State Beach, Brookhurst Street	★★★★★	4.9%	2.7%	4.1%	five times a week	yes	yes
	Huntington State Beach, Magnolia Street	★★★★☆	5.4%	1.4%	4.7%	five times a	yes	yes

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
						week		
	Huntington State Beach, Sce Plant	★★★★☆	2.9%	6.8%	3.4%	five times a week	yes	yes
Orange	Laguna Beach - Monitoring stations at this beach:							
	Laguna Beach, Hotel Laguna	★★★★☆	5.1%	19.4%	3.4%	twice a week	yes	yes
Orange	Newport Beach - Monitoring stations at this beach:							
	Newport Beach, 38th Street	★★★★★	2.0%	0.0%	2.0%	five times a week	yes	yes
	Newport Beach, 52nd/53rd Street	★★★★★	1.5%	2.7%	1.3%	five times a week	yes	yes
	Newport Beach, Orange Street	★★★★☆	4.4%	1.4%	3.4%	five times a week	yes	no
Orange	San Clemente State Beach - Monitoring stations at this beach:							
	San Clemente State Beach- Avenida Calafia	★★★★☆	4.6%	0.0%	10.6%	twice a week	yes	yes
	San Clemente State Beach-Las Palmeras	★★★★☆	3.2%	0.0%	6.4%	twice a week	yes	yes
San Diego	Coronado City Beaches, Avd. Del Sol	★★★★☆	0.0%	1.0%	0.7%	once a week	yes	no
San Diego	Imperial Beach - Monitoring stations at this beach:							
	Imperial Beach Municipal Beach, Carnation Ave.	★★★☆☆	14.9%	11.5%	12.1%	once a week	yes	no
	Imperial Beach Municipal Beach, Imperial Beach Pier	★★★☆☆	18.9%	5.3%	6.1%	once a week	yes	no

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
San Diego	<u>La Jolla Shores Beach, Ave De La Playa</u>	★★★★☆	0.0%	7.1%	0.0%	once a week	yes	no
San Diego	<u>Mission Beach-Belmont Park</u>	★★★★☆	0.0%	2.0%	1.8%	once a week	yes	no
San Diego	<u>Moonlight Beach, Cottonwood Creek Outlet</u>	★★★★★	1.9%	4.3%	3.3%	twice a week	yes	no
San Diego	Oceanside Beach - Monitoring stations at this beach:							
	<u>Oceanside Municipal Beach, Cassidy Street</u>	★★★★☆	2.6%	6.7%	2.1%	once a week	yes	no
	<u>Oceanside Municipal Beach, Forester Street</u>	★★★★☆	2.7%	4.4%	0.0%	once a week	yes	no
	<u>Oceanside Municipal Beach, St. Malo Beach</u>	★★★★☆	2.6%	4.4%	2.1%	once a week	yes	no
	<u>Oceanside Municipal Beach, Tyson Street</u>	★★★★☆	2.7%	4.4%	2.0%	once a week	yes	no
	<u>Oceanside, Harbor Beach, San Luis Rey River Outlet</u>	★★★★☆	10.4%	11.4%	5.8%	twice a week	yes	no
San Diego	<u>San Dieguito River Beach</u>	★★★★☆	6.3%	3.0%	6.3%	twice a week	yes	no
San Diego	<u>Tourmaline Surfing Park</u>	★★★★☆	0.0%	1.7%	10.6%	once a week	yes	no
San Francisco	Baker Beach - Monitoring stations at this beach:							
	<u>Baker Beach, Lobos Creek At Lower Parking Lot</u>	★★★★☆	7.9%	26.2%	31.8%	once a week	yes	yes
	<u>Baker Beach, Opposite Seacliff 2 Pumping Station</u>	★★★★☆	1.7%	6.7%	3.6%	once a week	yes	no
	<u>Baker Beach, Upper Parking Lot</u>	★★★★☆	1.6%	6.0%	8.0%	once a week	yes	no
San Francisco	Ocean Beach - Monitoring stations at this beach:							
	<u>Ocean Beach, At Balboa St.</u>	★★★★☆	0.0%	8.5%	5.3%	once a week	yes	no

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
	<u>Ocean Beach, At Lincoln Ave.</u>	★★★★☆	0.0%	15.6%	3.5%	once a week	yes	no
	<u>Ocean Beach, At Sloat Blvd.</u>	★★★★☆	1.9%	11.3%	5.3%	once a week	yes	no
Delaware								
Sussex	<u>Dewey Beach</u>	★★★★★	0.0%	0.0%	0.0%	twice a week	yes	yes
Sussex	<u>Rehoboth Beach- Rehoboth Ave Beach</u>	★★★★★	0.0%	0.0%	0.0%	twice a week	yes	yes
Florida								
Bay	<u>Laguna Beach (2)</u>	★★★★☆	7.7%	1.9%	0.0%	once a week	yes	yes
Bay	<u>Panama City Beach Pier (Edgewater Beach) (2)</u>	★★★★☆	12.8%	1.9%	0.0%	once a week	yes	yes
Bay	<u>Seltzer Park (Silver Sands Beach) (2)</u>	★★★★☆	2.6%	0.0%	0.0%	once a week	yes	yes
Brevard	Cocoa Beach (All Combined) - Monitoring stations at this beach:							
	<u>Cocoa Beach At Minuteman Causeway (2)</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
	<u>Cocoa Beach At Pier (2)</u>	★★★★☆	4.9%	12.5%	3.5%	once a week	yes	no
Brevard	<u>Pelican Beach Park/Satellite Beach (2)</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
Broward	<u>John Lloyd State Park (2)</u>	★★★★☆	0.0%	1.9%	0.0%	once a week	yes	no
Dade	<u>Collins Park-21st Street (2)</u>	★★★★☆	1.9%	7.0%	8.8%	once a week	yes	no
Dade	<u>South Beach Park, First Street Beach (2)</u>	★★★★☆	1.9%	1.9%	3.6%	once a week	yes	no
Escambia	<u>Pensacola (Casino) Beach (2, 3)</u>	★★★★☆	0.0%	0.0%	1.9%	once a week	yes	no

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
Escambia	Quietwater Beach (Santa Rosa Sound) (2)	★★★★☆	2.5%	0.0%	3.8%	once a week	yes	no
Franklin	St. George Island Franklin Street (2)	★★★★★	0.0%	0.0%	4.0%	once a week	yes	yes
Gulf	St. Joe Beach - Monitoring stations at this beach:							
	Dixie Belle Beach (2)	★★★★☆	8.1%	3.8%	5.9%	once a week	yes	no
	Monument Beach (2)	★★★★☆	12.2%	22.0%	17.3%	once a week	yes	no
	St. Joe Beach (2)	★★★★☆	2.6%	3.7%	3.8%	once a week	yes	no
Hillsborough	Gulf Beaches Of Tampa Bay - Monitoring stations at this beach:							
	At Simmons Park (2)	★★★★☆	5.6%	1.9%	7.1%	once a week	yes	no
	Bahia Beach (2)	★★★★☆	10.5%	5.6%	9.1%	once a week	yes	no
	Ben T. Davis North (2)	★★★★☆	19.6%	13.3%	3.7%	once a week	yes	no
	Ben T. Davis South (2)	★★★★☆	12.1%	12.3%	12.3%	once a week	yes	no
	Cypress Point North (2)	★★★★☆	1.9%	3.7%	3.6%	once a week	yes	no
	Cypress Point South (2)	★★★★☆	1.9%	8.8%	1.9%	once a week	yes	no
	Davis Island (2)	★★★★☆	7.3%	8.8%	1.9%	once a week	yes	no
	Picnic Island North (2)	★★★★☆	7.1%	8.6%	5.6%	once a week	yes	no
	Picnic Island South (2)	★★★★☆	12.5%	3.8%	7.3%	once a week	yes	no
Lee	Bowman's Beach (2)	★★★★☆	0.0%	0.0%	1.9%	once a week	yes	no

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
Lee	Lovers Key State Park (2)	★★★★☆	3.7%	0.0%	0.0%	once a week	yes	no
Lee	Sanibel Lighthouse Park Beach (2)	★★★★☆	1.9%	5.6%	1.9%	once a week	yes	no
Manatee	Coquina Beach - Monitoring stations at this beach:							
	Coquina Beach North (2)	★★★★☆	2.3%	7.7%	0.0%	once a week	yes	no
	Coquina Beach South (2)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
Monroe	Bahia Honda Oceanside (2)	★★★★☆	0.0%	11.5%	13.5%	once a week	yes	yes
Monroe	John Pennekamp State Park Cannon Beach (2)	★★★★☆	0.0%	0.0%	1.9%	once a week	yes	yes
Okaloosa	Brackin Wayside (2, 3)	★★★★☆	0.0%	0.0%	1.9%	once a week	yes	no
Okaloosa	Henderson State Park Beach (2, 3)	★★★★☆	1.9%	0.0%	0.0%	once a week	yes	no
Pinellas	Fort Desoto North Beach (2)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
Pinellas	Honeymoon Island Beach (2)	★★★★☆	2.2%	1.9%	1.9%	once a week	yes	no
Pinellas	Madeira Beach (2)	★★★★☆	2.3%	0.0%	0.0%	once a week	yes	no
Pinellas	Pass-A-Grille Beach (2)	★★★★☆	2.3%	0.0%	1.9%	once a week	yes	no
Pinellas	Sand Key/Indian Rocks Beach - Monitoring stations at this beach:							
	Indian Rocks Beach (2)	★★★★☆	2.3%	3.6%	0.0%	once a week	yes	no
	Sand Key (2)	★★★★☆	4.4%	1.8%	0.0%	once a week	yes	no
Pinellas	Treasure Island Beach (2)	★★★★☆	4.4%	3.7%	7.3%	once a week	yes	no

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
Santa Rosa	Navarre Beach - Monitoring stations at this beach:							
	Navarre Beach Pier (2)	★★★★☆☆	0.0%	0.0%	3.9%	once a week	yes	no
	Navarre Beach West (2)	★★★★☆☆	0.0%	0.0%	0.0%	once a week	yes	no
	Navarre Park (2)	★★☆☆☆☆	11.6%	1.9%	5.7%	once a week	yes	no
Sarasota	Lido Beach - Monitoring stations at this beach:							
	Lido Casino Beach (2)	★★★★☆☆	1.9%	3.9%	3.6%	once a week	yes	no
	North Lido Beach (2)	★★★★☆☆	1.9%	0.0%	1.9%	once a week	yes	no
	South Lido Beach (2)	★★★★☆☆	3.7%	2.0%	0.0%	once a week	yes	no
Sarasota	Siesta Key Public Beach (2)	★★☆☆☆☆	7.1%	3.8%	1.9%	once a week	yes	no
Sarasota	Venice Beach - Monitoring stations at this beach:							
	Venice Fishing Pier (2)	★★★★☆☆	1.9%	2.0%	0.0%	once a week	yes	no
	Venice Public Beach (2)	★★☆☆☆☆	16.7%	3.9%	0.0%	once a week	yes	no
Volusia	Daytona Beach, Main (2)	★★★★★★	0.0%	0.0%	1.9%	once a week	yes	yes
Volusia	Villa Way (2)	★★★★★★	0.0%	0.0%	0.0%	once a week	yes	yes
Walton	Dune Allen Beach Access (2, 3)	★★★★☆☆	2.5%	0.0%	1.9%	once a week	yes	no
Walton	Eastern Lake Beach Access (2, 3)	★★★★☆☆	0.0%	0.0%	0.0%	once a week	yes	no
Walton	Grayton Beach Access (2, 3)	★★★★☆☆	0.0%	0.0%	0.0%	once a week	yes	no

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
Walton	Holly Street Beach Access (2, 3)	★★★★☆	0.0%	1.9%	0.0%	once a week	yes	no
Georgia								
Chatham	Tybee Island North	★★★★☆	1.9%	0.0%	1.9%	once a week	yes	yes
Chatham	Tybee Island Strand	★★★★☆	1.9%	0.0%	0.0%	once a week	yes	yes
Glynn	East Beach Old Coast Guard (St. Simons Island)	★★★★☆	1.9%	3.8%	3.7%	once a week	yes	yes
Hawaii								
Big Island	Anaeho'omalu Bay	★★★★☆	1.3%	1.3%	0.0%	twice a week	no	yes
Big Island	Hapuna Beach St. Rec. Area	★★★☆☆	0.0%	0.0%	0.0%	once a month	no	no
Honolulu	Ala Moana Beach Co. Park	★★★★☆	3.2%	5.5%	5.4%	undefined a week	no	yes
Honolulu	Royal-Moana Beach	★★★★☆	1.6%	1.8%	1.8%	undefined a week	no	yes
Kauai	Hanalei Beach Co. Park-Hanalei Bay Pavilion	★★★★☆	2.3%	0.0%	5.7%	twice a week	no	yes
Kauai	Po'ipu Beach Co. Park	★★★★☆	1.2%	1.3%	0.6%	twice a week	no	yes
Maui	Wailea Beach Park	★★★★☆	1.5%	0.0%	1.4%	once a week	no	yes
Oahu	Hanauma Bay	★★★★☆	1.8%	0.0%	1.8%	undefined a week	no	yes
Illinois								
Cook	Montrose Beach	★★★★☆	22.7%	21.4%	31.0%	five times a	yes	yes

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
						week		
Cook	North Avenue Beach	★★★★☆	8.0%	2.8%	9.7%	five times a week	yes	yes
Cook	Oak Street Beach	★★★★☆	5.5%	11.1%	4.2%	five times a week	yes	yes
Lake	Il Beach State Park - Monitoring stations at this beach:							
	Il Beach State Park North Beach	★★★★☆	11.0%	7.8%	10.8%	four times a week	yes	yes
	Il Beach State Park North Point Marina North	★★★★☆	34.2%	49.1%	54.8%	four times a week	yes	yes
	Il Beach State Park Resort	★★★★☆	18.3%	17.9%	20.7%	twice a week	yes	yes
	Il Beach State Park South Beach	★★★★☆	14.3%	19.6%	17.6%	twice a week	yes	yes
Indiana								
La Porte	Indiana Dunes National Lakeshore - Monitoring stations at this beach:							
	Indiana Dunes National Lakeshore - Central Avenue Beach	★★★☆☆	0.0%	17.6%	6.3%	once a week	no	yes
	Indiana Dunes National Lakeshore - Dunbar Beach	★★★☆☆	21.1%	12.5%	6.3%	once a week	no	yes
	Indiana Dunes National Lakeshore - Mount Baldy	★★★★☆	0.0%	31.6%	6.3%	once a week	no	yes
	Indiana Dunes National Lakeshore - State Park Road/Kemil Avenue Beach	★★★☆☆	0.0%	12.5%	6.3%	once a week	no	yes

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
La Porte	Washington Park Beach	★☆☆☆☆	8.7%	16.2%	18.6%	once a day	yes	no
Lake	Marquette Park Beach	★☆☆☆☆	5.5%	11.3%	3.4%	five times a week	yes	no
	Indiana Dunes National Lakeshore - Lakeview Beach	★☆☆☆☆	0.0%	26.3%	0.0%	once a week	no	yes
	Indiana Dunes National Lakeshore - Porter Beach	★☆☆☆☆	23.8%	6.7%	6.3%	once a week	no	yes
	Indiana Dunes National Lakeshore -West	★☆☆☆☆	6.3%	6.7%	0.0%	once a week	no	yes
Porter	Indiana Dunes State Park - Monitoring stations at this beach:							
	Indiana Dunes State Park East	★☆☆☆☆	24.0%	20.8%	13.4%	once a day	yes	no
	Indiana Dunes State Park West	★☆☆☆☆	13.5%	18.9%	15.2%	once a day	yes	no
Louisiana								
Jefferson	Grand Isle State Park - Monitoring stations at this beach:							
	Grand Isle State Park 1 (3)	★☆☆☆☆	8.6%	7.4%	16.7%	once a week	yes	no
	Grand Isle State Park 2 (3)	★☆☆☆☆	8.8%	11.1%	12.5%	once a week	yes	yes
	Grand Isle State Park 3 (3)	★☆☆☆☆	17.6%	7.1%	16.7%	once a week	yes	yes
	Grand Isle State Park 4 (3)	★★★★☆	2.9%	3.6%	29.6%	once a week	yes	yes
Calcasieu	North Beach - Lake Charles	★☆☆☆☆	20.6%	13.3%	36.1%	once a week	yes	yes
Maine								
York	Main (Ogunquit)	★☆☆☆☆	12.5%	0.0%	11.8%	once a week	yes	no

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
York	Old Orchard Beach - Monitoring stations at this beach:							
	Old Orchard Beach - Central	★★★★☆	2.4%	0.0%	6.7%	once a week	yes	no
	Old Orchard Beach - North End	★★★☆☆	7.1%	0.0%	6.5%	once a week	yes	no
	Old Orchard Beach - Ocean Park	★★★★☆	0.0%	6.5%	12.9%	once a week	yes	no
Maryland								
Anne Arundel	Sandy Point State Park - Monitoring stations at this beach:							
	Sandy Point State Park- East Beach	★★★★☆	0.0%	5.3%	0.0%	once a week	yes	yes
	Sandy Point State Park- South Beach	★★★★☆	0.0%	0.0%	1.2%	once a week	yes	yes
Baltimore	Gun Powder Falls State Park -- Hammerman	★★★☆☆	15.4%	7.1%	6.7%	three times a month	yes	yes
Cecil	Elk Neck State Park North East River	★★★☆☆	30.8%	35.7%	0.0%	three times a month	yes	yes
St Mary's	Point Lookout State Park	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	yes
Worcester	Assateague State Park	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	yes
Worcester	Ocean City At Beach 6	★★★★★	0.0%	3.4%	3.4%	twice a week	yes	yes
Massachusetts								
Barnstable	Corporation	★★★★☆	0.0%	0.0%	5.9%	once a week	yes	yes
Barnstable	Old Silver Beach - Monitoring stations at this beach:							

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
	<u>Old Silver 1 - Central</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	yes
	<u>Old Silver 2 - North</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	yes
	<u>Old Silver 2 - South</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	yes
Essex	<u>Devereux</u>	★★★★☆	0.0%	0.0%	11.1%	once a week	yes	yes
Essex	<u>Good Harbor</u>	★★★★☆	0.0%	5.9%	7.7%	once a week	yes	yes
Essex	<u>Singing</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	yes
Essex	<u>Wingearsheek</u>	★★★★☆	0.0%	5.9%	0.0%	once a week	yes	yes
Suffolk	<u>Carson Beach At Bathhouse</u>	★★★★☆	1.2%	10.7%	13.4%	once a day	yes	yes
Michigan								
Berrien	<u>Silver Beach</u>	★☆☆☆☆	6.7%	2.6%	2.2%	once a week	yes	no
Berrien	<u>Warren Dunes Beach</u>	★☆☆☆☆	18.8%	33.3%	18.8%	once a week	yes	no
Grand Traverse	<u>Clinch Park</u>	★★★★☆	2.2%	6.7%	11.9%	twice a week	yes	no
Muskegon	<u>Pere Marquette Park</u>	★☆☆☆☆	38.1%	40.0%	32.3%	once a week	yes	no
Ottawa	<u>North Beach Park</u>	★☆☆☆☆	7.1%	6.7%	2.4%	once a week	yes	no
Minnesota								
St Louis	<u>Park Point At Beach House</u>	★★★★☆	0.0%	0.0%	7.7%	twice a week	yes	yes
St Louis	<u>Park Point Franklin Park / 13th Street South Beach</u>	★★★★★	1.8%	0.0%	0.0%	twice a week	yes	yes

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
St Louis	<u>Park Point Lafayette Community Club Beach</u>	★★★★★	3.2%	0.0%	0.0%	twice a week	yes	yes
Mississippi								
Harrison	<u>Courthouse Road Beach (3)</u>	★☆☆☆☆	15.8%	20.5%	19.7%	once a week	yes	no
Harrison	<u>Edgewater Beach (3)</u>	★☆☆☆☆	4.1%	10.5%	8.1%	once a week	yes	no
Jackson	<u>Front Beach</u>	★☆☆☆☆	2.0%	20.3%	9.1%	once a week	yes	no
New Hampshire								
Rockingham	<u>Hampton Beach State Park</u>	★★★★★	0.6%	0.0%	0.0%	twice a week	yes	yes
Rockingham	<u>Wallis Sands Beach At Wallis Road</u>	★★★★★	0.0%	1.0%	0.8%	twice a week	yes	yes
Rockingham	<u>Wallis Sands Sp</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	yes
New Jersey								
Atlantic	<u>15th St South (Brigantine) (1)</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
Atlantic	Atlantic City Beaches - Monitoring stations at this beach:							
	<u>Bartram (Atlantic City) (1)</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
	<u>Chelsea (Atlantic City) (1)</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
	<u>Illinois (Atlantic City) (1)</u>	★★★★☆	4.5%	0.0%	4.5%	once a week	yes	no
	<u>Kentucky (Atlantic City) (1)</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
	<u>Lincoln (Atlantic City) (1)</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
	Michigan (Atlantic City) (1)	★★★★☆	4.5%	0.0%	0.0%	once a week	yes	no
	Missouri (Atlantic City) (1)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
	New Hampshire (Atlantic City) (1)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
	North Carolina (Atlantic City) (1)	★★★★☆	4.8%	0.0%	0.0%	once a week	yes	no
	South Carolina (Atlantic City) (1)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
	States (Atlantic City) (1)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
Atlantic	Washington (Margate) (1)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
Cape May	9th (Avalon) (1)	★★★☆☆	0.0%	5.6%	0.0%	once a week	yes	no
Cape May	40th St. (Avalon) (1)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
Cape May	40th St. (Sea Isle City) (1)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
Cape May	Ocean Ave. (Cape May Point) (1)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
Cape May	Stone Harbor At 96th St (1)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
Cape May	Upper Township At Webster Rd. (1)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
Cape May	Wildwood Beaches - Monitoring stations at this beach:							
	North Wildwood At 10th Ave. (1)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
	Wildwood At Maple (1)	★★★☆☆	5.6%	0.0%	0.0%	once a week	yes	no
	Wildwood Crest At Orchid (1)	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
Monmouth	<u>7th Ave. (Belmar)</u>	★★★★★	0.0%	0.0%	0.0%	once a week	yes	yes
Monmouth	<u>Sylvania (Avon)</u>	★★★☆☆	5.0%	5.6%	0.0%	once a week	yes	yes
Ocean	<u>Lincoln (Seaside Heights) (1)</u>	★★★☆☆	0.0%	5.0%	0.0%	once a week	yes	no
Ocean	Point Pleasant Beach - Monitoring stations at this beach:							
	<u>Broadway (Pt Pleasant Beach) (1)</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
	<u>Central (Pt Pleasant Beach) (1)</u>	★★★☆☆	0.0%	5.6%	0.0%	once a week	yes	no
	<u>Maryland (Pt Pleasant Beach) (1)</u>	★★★☆☆	0.0%	5.6%	0.0%	once a week	yes	no
New York								
Bronx	<u>Orchard Beach</u>	★★★☆☆	1.7%	4.8%	11.7%	once a week	yes	no
Cayuga	<u>Fairhaven State Park</u>	★★★☆☆	0.0%	5.7%	4.7%	once a week	no	no
Kings	Coney Island Beach - Monitoring stations at this beach:							
	<u>Brighton 6th - Ocean Parkway</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
	<u>Brighton 15th - 6th</u>	★★★☆☆	5.0%	9.1%	5.3%	once a week	yes	no
	<u>Ocean Parkway - W. 8th</u>	★★★★☆	0.0%	4.3%	0.0%	once a week	yes	no
	<u>W. 8th St. To Pier</u>	★★★☆☆	4.0%	0.0%	5.3%	once a week	yes	no
	<u>W. 16th-27th</u>	★★★☆☆	0.0%	8.7%	0.0%	once a week	yes	no
	<u>W. 28th - W. 37th</u>	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
Monroe	Hamlin Beach State Park-Area 3	★★★★★	22.6%	6.7%	27.5%	four times a week	no	no
Nassau	Jones Beach State Park - Monitoring stations at this beach:							
	Jones Beach State Park At Central	★★★★★	0.0%	0.0%	0.0%	once a week	no	no
	Jones Beach State Park At Zach's Bay	★★★★★	4.8%	12.9%	9.5%	once a week	no	no
Nassau	Long Beach City	★★★★★	0.0%	0.0%	0.0%	once a week	yes	no
North Carolina								
Brunswick	Ocean Pier At Causeway And First St.	★★★★★	0.0%	3.0%	0.0%	once a week	no	yes
Brunswick	Ocean Pier At Main St. And Sunset Blvd.	★★★★★	0.0%	0.0%	0.0%	once a week	no	yes
Carteret	Mile Post 19 1/2, Ocean Side	★★★★★	0.0%	0.0%	3.9%	once a week	no	yes
Carteret	Ocean End Of Central Dr., Atlantic Ocean	★★★★★	0.0%	0.0%	0.0%	once a week	no	yes
Currituck	Corolla Lighthouse Beach Access	★★★★★	0.0%	5.6%	0.0%	once a week	no	yes
Currituck	Currituck S Beach Access At Pine Island (471 Ocean Trail)	★★★★★	0.0%	0.0%	0.0%	once a week	no	yes
Dare	Beach At Cape Hatteras Lighthouse	★★★★★	0.0%	0.0%	0.0%	once a week	no	yes
Dare	Nags Head - Monitoring stations at this beach:							
	100 Ft. North Of Jennett's Pier	★★★★★	0.0%	0.0%	2.9%	once a week	no	yes
	Nags Head Bath House	★★★★★	0.0%	0.0%	0.0%	once a week	no	yes

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
New Hanover	Ocean Pier At K. Avenue In Kure Beach	★★★★☆	0.0%	5.9%	0.0%	once a week	no	yes
New Hanover	Ocean Pier At Salisbury Street In Wrightsville Beach	★★★★☆	0.0%	0.0%	0.0%	once a week	no	yes
Pender	Ocean Pier At Ocean Blvd And Crews Avenue In Topsail Beach	★★★★☆	0.0%	0.0%	0.0%	once a week	no	yes
Pender	Public Access At S. Shore Dr. And Kinston Ave.	★★★★☆	5.7%	0.0%	0.0%	once a week	no	yes
Ohio								
Cuyahoga	Edgewater State Park	★★★★☆	25.9%	12.7%	26.4%	once a day	yes	yes
Lake	Fairport Harbor	★★★★☆	18.4%	10.8%	13.5%	once a day	yes	yes
Lake	Headlands State Park - Monitoring stations at this beach:							
	Headlands State Park (E)	★★★★☆	12.2%	14.7%	8.1%	once a day	yes	yes
	Headlands State Park (W)	★★★★☆	15.2%	15.7%	6.3%	once a day	yes	yes
Lucas	Maumee Bay State Park (Erie)	★★★★☆	15.6%	15.8%	19.6%	four times a week	yes	yes
Oregon								
Clatsop	Cannon Beach	★★★★☆	12.3%	0.0%	0.0%	once a week	yes	yes
Clatsop	Indian Beach	★★★★☆	2.5%	0.0%	0.0%	once a week	yes	yes
Clatsop	Seaside Beach	★★★★☆	6.8%	1.5%	1.5%	once a week	yes	yes
Lincoln	D River Beach	★★★★☆	4.8%	14.5%	7.0%	twice a month	yes	yes

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
Tillamook	Short Sand Beach	★★★★☆	2.7%	0.0%	0.0%	once a week	yes	yes
Pennsylvania								
Erie	Beach 6	★★★★☆	5.7%	6.1%	3.7%	twice a week	yes	yes
Rhode Island								
Washington	Misquamicut State Beach	★★★★☆	4.8%	0.0%	0.0%	twice a month	yes	no
Washington	Narragansett Town Beach	★★★☆☆	0.0%	0.0%	10.0%	three times a month	yes	no
Washington	Scarborough State Beach - Monitoring stations at this beach:							
	Scarborough State Beach North	★★★☆☆	9.7%	9.8%	37.6%	twice a week	yes	no
	Scarborough State Beach South	★★★★☆	3.2%	11.3%	33.3%	twice a week	yes	no
South Carolina								
Beaufort	Fripp	★★★★☆	0.0%	0.0%	0.0%	twice a month	yes	no
Beaufort	Hilton Head Island	★★★★☆	0.7%	2.1%	0.0%	twice a month	yes	no
Charleston	Isle Of Palms	★★★★☆	0.0%	0.0%	0.0%	twice a month	yes	no
Colleton	Edisto Island	★★★☆☆	4.1%	5.4%	0.7%	twice a month	yes	no
Georgetown	Huntington Beach State Park	★★★★☆	0.0%	0.0%	0.0%	twice a month	yes	no
Horry	Arcadia Beach	★★★☆☆	5.4%	3.3%	1.2%	once a week	yes	no
Horry	Myrtle Beach	★★★☆☆	13.1%	7.8%	7.0%	twice a week	yes	no

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
Horry	Myrtle Beach State Park And Campgrounds	★☆☆☆☆	10.2%	15.2%	14.9%	once a week	yes	no
Horry	North Myrtle Beach	★☆☆☆☆	7.7%	0.9%	0.5%	twice a week	yes	no
Horry	Surfside Beach	★☆☆☆☆	7.8%	11.1%	10.2%	once a week	yes	no
Texas								
Brazoria	Surfside	★★★★★	1.2%	3.1%	1.4%	once a week	yes	yes
Cameron	South Padre Island (Town Of South Padre Island)	★★★★★	0.5%	2.2%	0.4%	twice a week	yes	yes
Galveston	Appfel Park	★★★★☆	0.0%	5.0%	6.4%	once a week	yes	yes
Galveston	Stewart Beach Park	★★★★☆	3.4%	7.7%	8.0%	once a week	yes	yes
Matagorda	Jetty Park	★★★★☆	1.1%	10.4%	3.1%	once a week	yes	yes
Nueces	Padre Bali Park	★★★★☆	7.1%	4.5%	1.1%	once a week	yes	yes
Nueces	Port Aransas South	★★★★★	3.4%	2.4%	4.8%	once a week	yes	yes
Virginia								
Newport News	Anderson's Beach	★★★★☆	20.0%	12.5%	0.0%	once a week	yes	yes
Newport News	Hilton Beach	★★★★☆	30.0%	31.8%	14.3%	once a week	yes	yes
Newport News	Huntington Beach	★★★★☆	25.0%	11.8%	0.0%	once a week	yes	yes
Newport	King/Lincoln Park	★★★★☆	11.1%	27.8%	0.0%	once a week	yes	yes

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
News								
Virginia Beach	Virginia Beach - Monitoring stations at this beach:							
	Virginia Beach At 15th Street	★★★★☆	0.0%	4.8%	0.0%	once a week	yes	yes
	Virginia Beach At 28th Street	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	yes
Virginia Beach	Virginia Beach - Little Island Beach (All False Cape State Park) - Monitoring stations at this beach:							
	Virginia Beach - Little Island Beach North	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	yes
	Virginia Beach - Little Island Beach South	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	yes
Washington								
Grays Harbor	Westhaven State Park, South Jetty	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
King	Alki Beach Park	★★★★☆	0.0%	0.0%	0.0%	once a week	yes	no
King	Golden Gardens Park	★★★★☆	0.0%	3.8%	3.5%	once a week	yes	no
Pierce	Owens Beach/Point Defiance Park	★★★☆☆	7.1%	7.3%	0.0%	once a week	yes	no
Wisconsin								
Door	Baileys Harbor Ridges Park Beach	★★★★☆	3.6%	1.7%	10.7%	four times a week	yes	yes
Milwaukee	Bradford Beach	★★★★☆	14.0%	23.6%	12.5%	three times a week	yes	yes

County	Beach Name	Stars	% of samples exceeding national standards			Monitoring frequency	Posts closings/ advisories online and at beach	Closings/advisories issued promptly
			2011	2010	2009			
Milwaukee	Grant Park Beach	★★★★☆	14.5%	22.4%	12.8%	five times a week	yes	yes
Milwaukee	Mckinley Beach	★★★☆☆	16.7%	30.8%	15.0%	once a week	yes	no
Ozaukee	Harrington State Park Beach North	★★★★☆	2.0%	5.8%	8.9%	four times a week	yes	yes
Racine	North Beach	★★★★☆	6.4%	2.3%	3.7%	five times a week	yes	yes
Sheboygan	Blue Harbor Beach	★★★☆☆	12.7%	16.4%	14.0%	four times a week	yes	no

Notes

1. Beginning in 2012, all NJ beaches notify promptly.
2. Many beaches in Florida have a reduced monitoring frequency in 2012 compared to 2011.
3. Lingering impacts from the 2010 BP oil disaster aren't considered in the beach ratings.