

MAINE

16th in beachwater quality (6% of samples exceeded national standards)

Maine has beautiful coastal beaches with public access stretching along more than 30 miles of Atlantic waters, including bays, sounds, and estuaries. Maine is currently in the process of preparing an inventory of beaches. All counties with coastline have beaches that are accessible to the public. Relatively little swimming takes place in the cold waters of the easternmost part of the state, but beaches in the mid-coast and southern regions have intense recreational usage during the beach season.

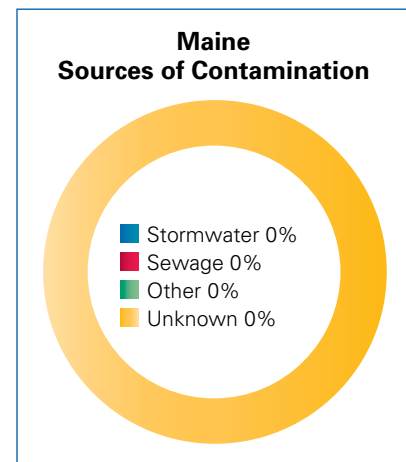
The Maine Healthy Beaches program, which was managed by the Maine State Planning Office Coastal Program in 2008 and coordinated by the University of Maine Cooperative Extension/Sea Grant,¹ implements the state's coastal beachwater quality monitoring program. As of January 1, 2009, management of the program was transferred from the State Planning Office to the Maine Department of Environmental Protection.¹ 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.

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

In some cases during 2008, local beach managers physically posted the beach with a sign, but had difficulty entering the beach status online in a timely manner.² In 2008, Maine added the Ducktrap River beach management area at the mouth of the Ducktrap River to its program. This area has a history of elevated bacteria levels with special study monitoring and sanitary survey work planned for the area.² Also, Kinney Shores and Bay View beaches in Saco historically have good water quality, but posted week-long advisories following heavy rainfall in August. The cause of the contamination is most likely from the neighboring Goosefare Brook.²

Maine Healthy Beaches is involved in several source-tracking efforts. For areas experiencing chronic bacterial pollution, additional monitoring sites are added throughout the watershed to help determine the source(s) of pollution.¹ Remediation and monitoring efforts at Lincolnville Beach and Ogunquit are ongoing. The program collected additional water samples in the Spurwink and Saco Rivers and Goosefare Brook to help assess their impact on beachwater quality. Intensive bacteria monitoring was conducted in the Ducktrap, Kennebunk, Ogunquit and Cape Neddick Rivers and Short Sands Brook throughout the 2008 monitoring season. The program partnered with EPA staff to conduct discrete and flow-through fluorometry analysis and monitoring of additional parameters in the Kennebunk, Ogunquit and Cape Neddick Rivers and Short Sands Brook. Optical brightener results from the Kennebunk River watershed indicate a number of "hot-spots" in the river (optical brighteners are a common ingredient in laundry detergents and their presence suggests sewage contamination). The results of optical brightener analyses in Ducktrap River were inconclusive.² When source tracking reveals a general source of contamination, it is followed up with property surveys that usually focus on finding malfunctioning septic systems.

Goose Rocks Beach in Kennebunkport, a beach with historically poor water quality, experienced fewer problems in 2008 compared to previous years. There were only nine beach action days in 2008 compared to 39 days in 2007. Similarly, Goochs Beach in Kennebunk experienced only six notification days in 2008 compared to 18 days in 2007. Maine Healthy Beaches has been working on pollution source identification and remediation in both of these watersheds for several years.² Many Maine beaches are experiencing improved water quality due to efforts including special studies and sanitary surveys conducted by the Maine Healthy Beaches program, actions taken at the local level, and the assistance of state agency partners. In addition to Goose Rocks Beach and Goochs Beach, these beaches include Lincolnville Beach in Waldo County, Higgins, East End, and Willard Beaches in Cumberland County, and Riverside (Ogunquit) Beach in York County. In general, the biggest improvements resulted from addressing malfunctioning subsurface wastewater disposal systems (usually septic systems) and improvements to stormwater systems.¹



The Maine Healthy Beaches program routinely cooperates with a number of agencies. Beach location data developed through the Maine Healthy Beaches program is available through the Maine State Planning Office Coastal Program. The Maine Department of Marine Resources uses Maine Healthy Beaches data to inform the monitoring of their shellfish growing areas, and vice versa, and shares results of sanitary surveys. Monitoring results are also used by the public health agencies who track swimming-related illnesses.³ Other data users include Surfrider Foundation and various watershed associations. The data are also used to determine what areas need special studies and sanitary surveys.¹ The data have been used by the Maine Geological Survey in conjunction with Acoustic Doppler Profiling to determine the fate and transport of contaminants in priority areas. In 2008, the program participated in the Maine coastal TMDL process by sharing special study monitoring data, reports, and success stories with program partners.²

Maine Healthy Beaches conducts outreach to inform the public about actions it can take to protect beachwater quality. Maine Healthy Beaches participates in the meetings of other agencies and local groups as requested to coordinate and encourage pollution prevention activities that improve beachwater quality.³ A line of materials called “Think Healthy and Swim Healthy – Best Practices at the Beach” and “Healthy Boating Equals Healthy Beaches” are also distributed to the public. In addition, the Maine Healthy Beaches website has pet waste fact sheets and other educational information.¹

Maine considers its monitoring program for harmful algal blooms to be one of the most rigorous and effective biotoxin monitoring programs in the world. An observer network of volunteers monitors for algae cells in the water column as an early warning indication system. Also, the Marine Biotoxin Monitoring Program collects data and makes closing decisions. This program is for sites affecting marine resources and in particular shellfish, and the Department of Marine Resources maintains a database for both the voluntary and the regulatory programs. Beach advisories in Maine are not issued based on harmful algal bloom data.¹

Maine received a \$252,220 federal BEACH Act grant in 2008 and was eligible for a \$255,000 grant in 2009. The state supports portions of staff salaries, and the University of Maine Cooperative Extension provides a matching contribution for nine months of the program coordinator’s salary.⁴

Standards

Indicator Organism: Enterococcus

Standards: When determining whether to recommend issuing a beach advisory, the Maine Healthy Beaches Program applies a single-sample standard for enterococcus of 104 cfu/100 ml and a geometric mean standard of 35 cfu/100 ml.¹

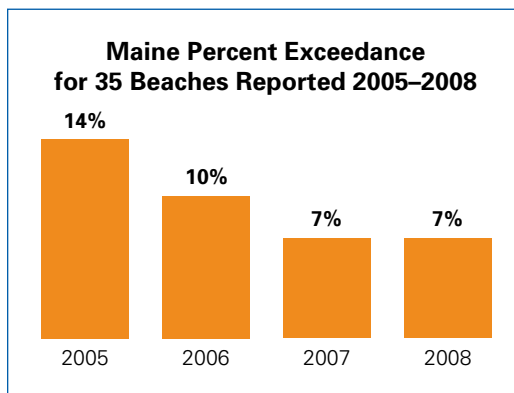
There are a few communities in Maine that, depending on conditions, may post an advisory after a specified amount of rainfall.¹ Local officials are notified when there is a known sewage spill.

Monitoring

Determination of Monitoring Locations and Frequency: Monitoring sites for each beach are selected where swimmers are found, at sources of freshwater inputs to the beach including storm drains, and at sites dependent on local knowledge of any conditions affecting water quality at that beach.³ For small beach management areas, the monitoring site is located in the center of the beach. The frequency is increased for targeted areas and in response to emerging bacteria issues. For example, wet weather monitoring was conducted for priority areas with chronic bacteria issues.¹

Practice: Samples are taken in approximately three feet of water. Routine monitoring occurs in the morning, typically before 10 am. Resampling efforts may occur morning or afternoon. In addition to sampling for indicator bacteria, information about air and water temperature, salinity, tidal stage, rainfall and weather conditions, plus field observations of conditions that might affect beachwater quality are collected. Between 26 and 30 hours generally go by before monitoring results are known. Routine monitoring occurs Monday through Thursday, but resampling and special study monitoring may extend into Friday and the weekend.¹

Results: In 2008, Maine reported 60 coastal beaches, 3 (5%) of which were monitored more than once a week, 54 (90%) once a week, 1 (2%) every other week, and 2 (3%) once a month. For the fourth consecutive year, NRDC looked at the percent of monitoring samples that exceeded the state’s daily maximum bacterial standards (all reported samples were used to calculate the 2008 percent exceedance values, including duplicate samples and samples taken outside the official beach season, if any). In 2008, 6 percent of all reported beach monitoring samples exceeded the state’s daily maximum bacterial standards. The beaches with the highest percent exceedance rate in 2008 were Laite Beach in Knox County (42%), Ducktrap River in Waldo County (32%), Camden Yacht Club in Knox County (24%), Lincolnville Beach Area in Waldo County (24%), Cape Neddick Beach (21%), Bay View (20%), Kinney Shores (20%), Laudholm Beach (19%), and Wells Harbor (19%) in York County, Ferry Beach (Scarborough) in Cumberland County (14%), and Crescent Beach (Kittery) (14%) in York County.



Waldo County had the highest exceedance rate (29%) followed by Knox (26%), Lincoln (6%), Cumberland (6%), and York (5%). There were no exceedances at beaches in Hancock and Sagadahoc Counties.

Comparing percent exceedance values to previous years, NRDC includes only those beaches monitored and reported each year between 2005 and 2008. For this consistent set of 35 beaches, the percent of samples exceeding the standard remained steady at 7 percent in 2008 and 2007—a decrease from 10 and 14 percent in 2006 and 2005, respectively.

2008 Maine Monitoring Frequency and Results by Beach					
County	Beach	Tier	Monitoring Frequency	Total Samples	Percent Exceedance
Cumberland	Ferry Beach (Scarborough)	1	1/wk	14	14%
Cumberland	Kettle Cove Beach	1	1/wk	15	13%
Cumberland	Pine Point	1	1/wk	13	8%
Cumberland	East End Beach	1	3/wk	40	8%
Cumberland	Willard Beach	1	2/wk	84	7%
Cumberland	Crescent Beach State Park	1	1/wk	28	4%
Cumberland	Scarborough Beach	1	1/wk	39	0%
Cumberland	Winslow Park	1	1/wk	7	0%
Cumberland	Higgins Beach	1	1/wk	26	0%
Hancock	Emery Cove Beach	1	1/wk	2	0%
Hancock	Town Beach	1	1/wk	11	0%
Hancock	Sand Beach	1	1/wk	26	0%
Hancock	Hadley Point	1	1/wk	9	0%
Hancock	Hulls Cove	1	1/wk	9	0%
Knox	Laite Beach	1	1/wk	19	42%
Knox	Camden Yacht Club	1	1/wk	17	24%
Knox	Sandy Beach	1	1/wk	11	0%
Lincoln	Pemaquid Beach	2	2/mo	16	6%
Sagadahoc	Reid-East Beach	2	1/mo	3	0%
Sagadahoc	Mile Beach	1	1/wk	24	0%

Testing the Waters 2009

County	Beach	Tier	Monitoring Frequency	Total Samples	Percent Exceedance
Sagadahoc	Lagoon Beach	1	1/wk	12	0%
Sagadahoc	Popham-East Beach	1	1/wk	26	0%
Sagadahoc	Popham-Center Beach	1	1/wk	12	0%
Sagadahoc	Popham-West Beach/Morse River	1	1/wk	12	0%
Sagadahoc	Half Mile Beach	2	1/mo	10	0%
Waldo	Ducktrap River	1	2/wk	31	32%
Waldo	Lincolnvile Beach Area	1	1/wk	17	24%
York	Cape Neddick Beach	1	1/wk	19	21%
York	Kinney Shores	1	1/wk	15	20%
York	Bay View	1	1/wk	15	20%
York	Laudholm Beach	1	1/wk	31	19%
York	Wells Harbor	1	1/wk	16	19%
York	Crescent Beach (Kittery)	1	1/wk	14	14%
York	Libby Cove Beach	1	1/wk	15	13%
York	Short Sands Beach	1	1/wk	15	13%
York	Little Beach	1	1/wk	9	11%
York	Gooches Beach	1	1/wk	30	10%
York	Goose Rocks	1	1/wk	56	9%
York	Crescent Beach (Wells)	1	1/wk	14	7%
York	Moody (Ogunquit)	1	1/wk	14	7%
York	Riverside (Ogunquit)	1	1/wk	15	7%
York	Hills Beach	1	1/wk	27	4%
York	Ferry Beach (Saco)	1	1/wk	38	3%
York	Long Sands Beach	1	1/wk	78	3%
York	Sea Point Beach	1	1/wk	13	0%
York	Old Orchard Beach-Central	1	1/wk	52	0%
York	Middle Beach	1	1/wk	13	0%
York	York Harbor Beach	1	1/wk	13	0%
York	Drakes Isl. Beach	1	1/wk	28	0%
York	Wells Beach	1	1/wk	40	0%
York	Kennebunk Beach	1	1/wk	13	0%
York	Main (Ogunquit)	1	1/wk	14	0%
York	Fort Foster	1	1/wk	39	0%
York	Casino Square	1	1/wk	13	0%
York	Fortunes Rocks Beach	1	1/wk	13	0%
York	Middle Beach	1	1/wk	26	0%
York	Old Orchard Beach-Ocean Park	1	1/wk	26	0%
York	Colony Beach	1	1/wk	13	0%
York	Old Orchard Beach-North End	1	1/wk	26	0%
York	Footbridge (Ogunquit)	1	1/wk	13	0%

N/A: Not applicable

Closings and Advisories

Closing and Advisory Issuance: Both closings and advisories are issued in Maine, but closings are rare and occur only in municipalities where closing ordinances are in place.¹ Both the geometric mean standard and the single sample standard are considered when making advisory decisions.¹ Results of all monitoring samples are transmitted to the Maine Health Beaches database, and automatic e-mail alerts are issued to beach managers, local officials and other entities as soon as an exceedance is found. However, advisories are not issued based solely on monitoring results; other factors that are taken into account include the number of bathers, time of last rainfall, area characteristics, environmental conditions, and history of known problems. Each decision is made on a case-by-case basis. Depending on the conditions, the Maine Healthy Beaches program will recommend an advisory or closing when the standards are exceeded, and the decision to post a beach is the responsibility of the town or state park.¹ The only beach managers that automatically post an advisory or closing after one sample exceeds standards are the state park beach managers (state park beaches are Scarborough, Popham, Ferry-Saco, Kettle Cove, Crescent State Park, Reid-East, Lagoon, and Half Mile Beaches). For areas with historically good water quality and a low risk of pollution, an advisory may not be posted until resample results are available. This also depends on the magnitude of the exceedance and if there is a known pollution event. Program staff follow up with each exceedance to ensure that state protocols were followed correctly and in a timely manner. Resampling to confirm an exceedance may be conducted if a sample exceeds 100 cfu/100 ml, but resampling before issuing an advisory is not conducted in every situation, particularly at beaches with chronic bacteria problems.¹

The public is notified of closings and advisories via signs at beach access points and a website. All exceedances and notifications are accessible via the public interface of the website. Signs are green for monitored beaches that are not closed or under advisory, orange for beaches under advisory, and red for closed beaches. Several communities have a beach hotline and/or post closing and advisory information on the town website as well.¹ For some larger beaches, sections of a beach instead of a whole beach can be closed or placed under advisory.¹

Reopening Procedures: Once a beach is closed or placed under advisory, Maine Healthy Beaches recommends that the monitoring frequency increase until the beach is reopened. However, not all localities have the ability to conduct increased monitoring, and as a result the beaches in these towns cannot be reopened until the next routine sample is analyzed.¹ Collection of a sample after a precautionary rainfall advisory to determine water quality conditions is also recommended.¹

Number of Closings and Advisories: Maine had 34 closing/advisory events in 2008. Total closing/advisory days for 34 events lasting six consecutive weeks or less decreased 3 percent to 170 days in 2008 from 176 days in 2007, 134 days in 2006, and 92 days in 2005. In addition, there were no extended or permanent events in 2008 or 2007. Extended events are those in effect more than 6 consecutive weeks but less than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks.

Causes of Closings and Advisories: All closing and advisory days in 2008 were due to monitoring that revealed elevated bacteria levels from unknown sources of contamination.

2008 Maine Beach Closings and Advisories						
County	Beach	Start Date	End Date	Reason	Source	
Cumberland	Crescent Beach State Park	7/2/08	7/5/08	Bacteria	Unknown	
Cumberland	East End Beach	8/5/08	8/6/08	Bacteria	Unknown	
Cumberland	East End Beach	8/9/08	8/12/08	Bacteria	Unknown	
Cumberland	East End Beach	8/12/08	8/14/08	Bacteria	Unknown	
Cumberland	Ferry Beach (Scarborough)	8/6/08	8/12/08	Bacteria	Unknown	
Cumberland	Kettle Cove Beach	7/2/08	7/5/08	Bacteria	Unknown	
Cumberland	Kettle Cove Beach	8/13/08	8/14/08	Bacteria	Unknown	

Testing the Waters 2009

County	Beach	Start Date	End Date	Reason	Source
Cumberland	Pine Point	8/6/08	8/8/08	Bacteria	Unknown
Cumberland	Willard Beach	7/22/08	7/23/08	Bacteria	Unknown
Cumberland	Willard Beach	8/19/08	8/20/08	Bacteria	Unknown
Knox	Camden Yacht Club	6/18/08	6/20/08	Bacteria	Unknown
Knox	Camden Yacht Club	8/13/08	8/22/08	Bacteria	Unknown
Knox	Laite Beach	6/18/08	6/20/08	Bacteria	Unknown
Knox	Laite Beach	7/2/08	7/9/08	Bacteria	Unknown
Knox	Laite Beach	8/1/08	8/7/08	Bacteria	Unknown
Knox	Laite Beach	8/13/08	8/22/08	Bacteria	Unknown
Waldo	Ducktrap River	6/18/08	6/20/08	Bacteria	Unknown
Waldo	Ducktrap River	7/9/08	8/6/08	Bacteria	Unknown
Waldo	Lincolville Beach Area	6/18/08	6/26/08	Bacteria	Unknown
York	Bay View	8/6/08	8/13/08	Bacteria	Unknown
York	Cape Neddick Beach	6/7/08	6/10/08	Bacteria	Unknown
York	Cape Neddick Beach	6/27/08	6/28/08	Bacteria	Unknown
York	Crescent Beach (Kittery)	7/3/08	7/12/08	Bacteria	Unknown
York	Gooches Beach	8/6/08	8/12/08	Bacteria	Unknown
York	Goose Rocks	7/2/08	7/9/08	Bacteria	Unknown
York	Goose Rocks	8/20/08	8/22/08	Bacteria	Unknown
York	Kinney Shores	8/6/08	8/13/08	Bacteria	Unknown
York	Laudholm Beach	8/6/08	8/12/08	Bacteria	Unknown
York	Libby Cove Beach	8/6/08	8/12/08	Bacteria	Unknown
York	Little Beach	7/3/08	7/10/08	Bacteria	Unknown
York	Riverside (Ogunquit)	6/26/08	6/28/08	Bacteria	Unknown
York	Short Sands Beach	6/7/08	6/10/08	Bacteria	Unknown
York	Wells Harbor	8/6/08	8/12/08	Bacteria	Unknown
York	Wells Harbor	8/20/08	8/22/08	Bacteria	Unknown

Notes

- 1 Keri Lindberg, University of Maine Cooperative Extension and Sea Grant, personal communication, May 2009.
- 2 Maine Healthy Beaches Program. 2008 EPA Report. Not dated.
- 3 Maine Healthy Beaches Program. 2007 EPA Report. Not dated.
- 4 Maine Healthy Beaches Program. 2006 EPA Report. Not dated.