

What is the status of swimming beach monitoring in Casco Bay?

CBEP Goal: Open and protect swimming areas impacted by water quality.

Why Is Beach Monitoring Important?

Monitoring the water at recreational beaches regularly is necessary because the risk of exposure to pathogens changes with weather conditions and source inputs. For example, a rainstorm can wash pathogens from land and carry them into recreational waters, temporarily degrading the water quality, and increasing the risk of eye and ear infections, sore throats, and gastric illness. By monitoring for the indicator bacterium *Enterococcus* during the summer beach season, managers can identify periods when the risk of illness exceeds acceptable levels. Beach monitoring is a voluntary activity in Maine, and the decision to monitor or to issue swimming beach advisories or closures based on monitoring results is left to the discretion of local and municipal beach managers, or to state park officials.

Status of Casco Bay's Beach Monitoring Program

The Maine Healthy Beaches (MHB) Program is a US EPA-funded partnership started in 2003 to ensure that local beaches are safe and clean. Municipalities, the University of Maine Cooperative Extension/Sea Grant, state agencies, and nonprofits participate in beach monitoring, data analysis and public outreach.

Welcome!
This beach is part of the Maine Healthy Beaches Program.



Think Healthy. Act Healthy. Swim Healthy.

MHB Program signs notify swimmers of beach status using color coding. An orange overlay indicates swimming is not advised and red indicates the beach is closed to swimming.

MHB currently monitors 60 coastal beach management areas, including three beaches in Casco Bay considered high-priority due to volume of use and potential risk of contamination. (Many swimming spots around Casco Bay are not monitored.) Local beach managers take water samples and record weather conditions from Memorial Day to Labor Day three times a week at Portland's East End Beach, twice weekly at South Portland's Willard Beach and, since 2008, once a week at Winslow Park in Freeport, tides permitting. Using *Enterococcus*

bacteria counts, the beach's history, bather numbers, and recent rainfall to assess health risks, the managers post beach status online. They also use color-coded signs and flags at the beaches themselves. (For more information, see www.mainehealthybeaches.org.)



Selfnoise

Trends

When seawater samples collected by the MHB Program contain 104 MPN (Most Probable Number) or more *Enterococci* per 100 milliliters of beach water, water quality is considered degraded. High levels of those indicator bacteria are often observed on Willard and East End beaches during and immediately following heavy rainfall, suggesting that stormwater runoff is a key contributor to beach water quality at those urban beaches.

Total Beach Action Days* per Year at Casco Bay Beaches

	Willard Beach, South Portland	East End Beach, Portland	Winslow Park, Freeport
2003	0	0	
2004	7	6	
2005	11	1	
2006	11	0	
2007	3	4	
2008	3	6	0
2009	23	24	0

The high number of advisories and closures in 2009 can be attributed to the 24.79 inches of rain reported in Portland during the beach season (approximately 2.5 times above average).

Source: Keri Lindberg, Maine Healthy Beaches, personal communication.

*The numbers are based on data provided by the Maine Healthy Beaches Program. An Action Day refers to the number of days a beach is posted with an advisory against swimming or a closure where 1 day ≤ 24hrs; 2 days > 24hrs but ≤ 48hrs; 3 days > 48hrs but ≤ 72hrs.

CASCO BAY NO DISCHARGE AREA AND PUMPOUT FACILITIES

Sewage discharge from boats can be a significant source of pathogen pollution to coastal waters. With strong state and local support, the US EPA designated Casco Bay as Maine's first No Discharge Area (NDA) in 2006. In Casco Bay, discharge of both treated and untreated vessel sewage is prohibited in all waters between Two Lights in Cape Elizabeth and Small Point in Phippsburg, including the navigable reaches of the Fore, Presumpscot, Royal, Cousins, Haraseeket and New Meadows Rivers. Maine has also enacted legislation that controls the discharges of combined sewage and gray water (sink and shower water) from large commercial passenger vessels. That legislation is unique to Maine and, in combination with the NDA, results in coastal waters that receive the highest regulatory protection from vessel discharges in the United States (Maine DEP 2010).

Federal NDA designation under the Clean Water Act requires that boaters have access to an adequate number of pumpout facilities. In Casco Bay there are 21 commercial shoreside facilities, and one mobile pumpout, the Friends of Casco Bay Vessel Pumpout Boat. That mobile pump-out service offers boaters a convenient, legal way to empty their vessel's holding tanks, by pumping out the tanks at



FOCB

docks or moorings. FOCB's Pumpout staff also helps boat owners locate and operate shoreside facilities. Since 1995, the services of the pumpout boat have prevented more than 100,000 gallons of raw sewage from entering Casco Bay's waters. (For more information, see <http://friendsof-cascobay.org/pumpoutprogram.aspx>)

Solutions and Actions

The MHB Program is working with communities statewide on public education campaigns, special monitoring and circulation studies, mapping and "hot spot" analysis, and sanitary shoreline surveys to identify pollution sources.

For example, a 2006 sanitary shoreline survey at Willard Beach in South Portland identified five storm drain outfalls discharging directly into the water. Those outfalls could be moved into deeper water to reduce their near-shore impacts (Mosley 2006). Littering (which attracts gulls), poor sanitary practices by bathers, and failure to remove dog waste also increase pathogen loading to the beach. Continuing public education is helping to address those human impacts. In addition, discharge of wastes from boats anchored at a mooring field offshore of Willard Beach has been illegal since the 2006 Casco Bay No Discharge designation (see sidebar). The Maine Healthy Beaches' boater education program has further reduced illicit and accidental discharges.

The *Maine Statewide Bacterial Total Maximum Daily Load* (TMDL) report, completed in 2009, should also help to reduce pathogen inputs. The TMDL sets targets for allowable levels of bacteria in state waters. The maximum levels

provide pollutant targets under the federal Clean Water Act, constraining permitting, funding and other actions. The report provides documentation and maps of impaired areas, and information on pollutant sources. It also offers tools to help communities and other stakeholders implement bacterial control strategies. One of the case studies in the report is a shoreline survey training program for municipal employees in Casco Bay communities, which CBEP helped to sponsor in partnership with the Maine Department of Marine Resources and the Maine Department of Environmental Protection.

References

- Maine Department of Environmental Protection. 2009. *Statewide Bacterial Total Maximum Daily Load*. (<http://www.maine.gov/dep/blwq/docmonitoring/TMDL/2009/report.pdf>)
- Maine Department of Environmental Protection. 2010. *No Discharge Areas* (<http://maine.gov/dep/blwq/topic/vessel/nda>)
- Mosley, Sarah. 2006. *Willard Beach Sanitary Shoreline Survey*. Maine Healthy Beaches Program.