

Save the Harbor/Save the Bay

2019 Metropolitan Beaches Water Quality Report Card

Beach	6 Year Average	2018	2017	2016	2015	2014	2013
M Street Beach - South Boston	100%	100%	100%	100%	100%	100%	99%
City Point Beach - South Boston	99%	97%	94%	100%	100%	100%	100%
Pleasure Bay - South Boston	99%	100%	100%	98%	100%	100%	96%
Nantasket Beach - Hull	99%	100%	98%	100%	100%	98%	100%
Carson Beach - South Boston	98%	93%	100%	100%	97%	100%	99%
Nahant Beach - Nahant	98%	100%	100%	97%	98%	100%	91%
Revere Beach - Revere	97%	98%	98%	98%	92%	100%	94%
Winthrop Beach - Winthrop	97%	100%	94%	100%	100%	94%	94%
Savin Hill Beach - Dorchester	96%	100%	94%	100%	94%	87%	100%
Constitution Beach - East Boston	95%	94%	95%	96%	89%	96%	97%
Wollaston Beach - Quincy	91%	93%	92%	93%	86%	94%	88%
Short Beach - Revere	91%	100%	80%	88%	84%	100%	94%
Malibu Beach - Dorchester	89%	91%	91%	97%	87%	93%	76%
King's Beach - Lynn (& Swampscott)	83%	75%	92%	83%	76%	88%	83%
Tenean Beach - Dorchester	80%	78%	81%	92%	71%	95%	63%
All Beaches	94%	95%	94%	96%	92%	96%	92%

EXECUTIVE SUMMARY

In 2018, weekly water quality testing at Boston's regional beaches began May 24th. Supplemental daily testing of Constitution Beach, King's Beach, Malibu Beach, Tenean Beach, and Wollaston Beach began on June 7th, 2018. Testing concluded on Labor Day weekend, September 3, 2018.

These scores reflect the percent of samples that complied with the Massachusetts Department of Public Health's single sample limit for bacteria which is the most straightforward way of evaluating beach water quality and potential impacts on human health.

In 2018, the overall water quality safety rating for Boston Harbor's regional beaches was 95%, a slight improvement over last year's score of 94%.

M Street Beach in South Boston topped the list again this year, while Tenean Beach in Dorchester and King's Beach in Lynn and Swampscott were the lowest-scoring beaches in the region again in 2018.

It is important to note that the Boston Water and Sewer Commission continues to identify and address illicit connections that contribute to the problems at Tenean Beach in Dorchester, while both Lynn and Swampscott have planned improvements to their sewer and storm water systems, which we expect will result in improvement in water quality on King's Beach upon completion.

Though 2018 was the wettest year on record for Massachusetts, with 61 inches of rain - more than 16 inches above the 20th-century average - the total rainfall during the 2018 sampling season was very similar to 2017, though more than double than in 2016.

There were several large rain events during the 2018 swimming season, three of which were greater than 1 inch - they were 1.16, 2.68, and 1.38 inches respectively. While the average daily rainfall for the summer was 0.12 inches, more than 42% of the rain came in just three

storms. This may indicate that the distribution, frequency, and intensity of summer storms that seemed somewhat atypical, may be increasingly common in the future.

Changes in the intensity and frequency of summer storms often explains the variations we see on our beaches from year to year. These seasonal variations are why Save the Harbor/Save the Bay is reluctant to draw conclusions from a single year's sampling results, preferring to rely on the six-year average we have included in this report.

One critical weakness of our beach posting and flagging program, where bacteria testing triggers advisories, is that postings are always a day late because beach managers must wait 24 to 36 hours after a sample is collected to obtain test results. Beach water quality may have already changed significantly during this period, and the prior day's test does not necessarily reflect current conditions.

Instead of relying on postings and flags, we urge beach goers to rely on common sense and the six-year average for their beach, though we understand why it's interesting to see where water quality improved or declined versus the previous year.

BEACH WATER QUALITY EVALUATION METHODS AND METRICS

Save the Harbor uses quantitative metrics for assessing beach water quality and management at the Boston Harbor region beaches. *Enterococcus* is the current microbial indicator of GI illness used in marine waters, as established by EPA guidelines. To assess and compare the water quality and conditions on each beach, we looked at the percentage of test samples exceeding the state swimming standard of 104 colony forming units (cfu) of *Enterococcus* in 100 milliliters (mL) of water.

Another indicator of water quality is the geometric mean (GM). The GM indicates the central tendency of a set of numbers from the product of their values, and is a useful measure when values can increase exponentially, like bacteria counts. Massachusetts Department of Health requires DCR to calculate the GM based on bacterial exceedance values from the previous five days without rain. A GM of 35 cfu/100 ml or greater is the threshold used to indicate increased public health risk by EPA, and will cause a beach to be flagged with a swimming advisory.

Beaches have varying number of sampling locations, depending on beach size; some have only one location whereas others have as many as four. The frequency that beaches are sampled and tested for bacteria also varies by beach, with some tested weekly and others tested daily during the swimming season. These variations in testing frequency and number of sampling sites affect how beach safety is calculated.

The "Primary Beach Safety" measure provided in this report calculates the percent of samples at each beach that comply with the single sample bacteria limit for swimming. It provides a straightforward method to compare water quality at Boston Harbor beaches. However, this measure does not always correspond directly with the percent of time that a beach is actually posted with swimming advisory due to precautionary postings after rain events, or failure to comply with the multi-day geometric mean limit described above.

Using water quality data from the 2018 season and the previous six years, Save the Harbor/Save the Bay has compiled this report to help the region's residents and visitors make informed decisions about where and when to swim.

ACKNOWLEDGEMENTS

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Thanks as well to Metropolitan Beaches Commission Co-Chairs Senator Brendan Crighton of Lynn and Rep. RoseLee Vincent of Revere and each of the legislative and community members of the Commission for their commitment to clean water and the region's public beaches from Nahant to Nantasket.

For more information on Save the Harbor/Save the Bay's Beaches Report Card, contact Bruce Berman on his cell at 617-293-6243 or email bruce@bostonharbor.com

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Individual Beach Summaries - From Nahant to Nantasket

Nahant Beach

Nahant Beach is located in Nahant, MA and has four sampling locations that were tested weekly for bacterial counts in 2018. In 2018, Nahant again received a Primary Beach Safety score of 100%, maintaining its perfect score from 2016 and 2017. There were 0 bacterial exceedances in the 60 samples taken in 2018.

Nahant Beach Safety 2018	
Total Samples	60
Total Bacterial Exceedances	0
Testing Frequency	Weekly
Primary Beach Safety	100%

At Nahant Beach, a red flag is posted when there is a bacterial exceedance of 104 cfu/100 mL *Enterococcus* at two or more of its sampling locations. In 2018, Nahant had no red flag postings. As previously stated, the metrics on flagging accuracy cannot be computed for beaches with weekly bacterial testing.

King's Beach

King's Beach is located on the Lynn and Swampscott town line. It has three sampling locations that were tested daily for bacterial counts in 2018. In 2018, King's received a Primary Beach Safety score of 75%, which is markedly lower than last year's score of 92.2%. There were 67 bacterial exceedances in the 270 total samples taken in 2018.

King's Beach Safety 2018	
Total Samples	270
Total Bacterial Exceedances	67
Test Frequency	Daily
Primary Beach Safety	75%

Revere Beach

Revere Beach is located in Revere, MA and has four sampling locations that were tested weekly for bacterial counts in 2018. In 2018, Revere received a Primary Beach Safety score of 98.3%, maintaining its score from 2016 and 2017. There was one bacterial exceedance in the 60 samples taken in 2018.

Revere Beach Safety 2018	
Total Samples	60
Total Bacterial Exceedances	1
Test Frequency	Weekly
Primary Beach Safety	98.3%

At Revere Beach, a red flag is posted when there is a bacterial exceedance at two or more of its sampling locations. In 2018, Revere had no red flag postings. Since Revere Beach is tested on a weekly basis, beach management metrics are not computed.

Short Beach

Short Beach is located in Revere, MA and has one sampling location that was tested weekly for bacterial counts in 2018. In 2018, Short Beach water quality increased markedly relative to prior years, with an increase in compliance from 88% in 2016 and 80% in 2017, to a full 100% compliance in 2018.

Short Beach Safety 2018	
Total Samples	15
Total Bacterial Exceedances	0
Test Frequency	Weekly
Primary Beach Safety	100%

Winthrop Beach

Winthrop Beach is located in Winthrop, MA and has one sampling location that was tested weekly for bacterial counts in 2018. In 2018, Winthrop scored even higher than 2017's Primary Beach Safety rating of 93.5% compliance by scoring a perfect a 100%. There were no bacterial exceedances in the 15 samples taken in 2018.

Winthrop Beach Safety 2018	
Total Samples	15
Total Bacterial Exceedances	0
Test Frequency	Weekly
Primary Beach Safety	100%

Constitution Beach

Constitution Beach is located in East Boston and has three sampling locations that were tested daily for bacterial counts in 2018. In 2018, Constitution received a Primary Beach Safety score of 94%, which was on par for the previous two years' scores of 94.5% in 2017 and 96% in 2016. There were 16 bacterial exceedances in the 273 samples taken in 2018.

Constitution Beach Safety 2018	
Total Samples	273
Total Bacterial Exceedances	16
Test Frequency	Daily
Primary Beach Safety	94.0%

Pleasure Bay

Pleasure Bay is located in South Boston and has three sampling locations that were tested daily for bacterial counts in 2018. In 2018, Pleasure Bay received a Primary Beach Safety score of 100%, which was the same as the previous year's score. There were no bacterial exceedances in the 48 samples taken in 2018.

Pleasure Bay Safety 2018	
Total Samples	48
Total Bacterial Exceedances	0
Test Frequency	Weekly
Primary Beach Safety	100%

Pleasure Bay posts a red flag when there is a bacterial exceedance at two or more of its sampling locations. In 2018, there were no red flags posted on Pleasure Bay Beach.

M Street Beach

M Street beach is located in South Boston and has one sampling location that was tested daily for bacterial counts in 2018. In 2018, M Street received a Primary Beach Safety score of 100%, a score it has maintained since 2014. There were no bacterial exceedances in the 16 samples taken in 2018.

M Street Safety 2018	
Total Samples	16
Total Bacterial Exceedances	0
Test Frequency	Weekly
Primary Beach Safety	100%

Carson Beach

Carson Beach is located in South Boston and has two sampling locations that were tested daily for bacterial counts in 2018. In 2018, Carson received a Primary Beach Safety score of 93%, dipping slightly from last year's perfect score. There were 2 bacterial exceedances in the 35 samples taken in 2018. Carson posts a red flag when there is a bacterial exceedance at one or more of its sampling locations. In 2018, there were two red flags posted on Carson Beach.

Carson Safety 2018	
Total Samples	35
Total Bacterial Exceedances	2
Test Frequency	Weekly
Primary Beach Safety	93%

City Point Beach

City Point is located in South Boston and has one sampling location that was tested daily for bacterial counts in 2018. In 2018, City Point received a Primary Beach Safety score of 97%, an increase from the 2017 score of 94%.

City Point Safety 2018	
Total Samples	16
Total Bacterial Exceedances	1
Test Frequency	Weekly
Primary Beach Safety	97%

Tenean Beach

Tenean Beach is located in Dorchester and has one sampling location that was tested daily for bacterial counts in 2018. In 2018, Tenean received a Primary Beach Safety score of 78% which was slightly lower than the previous year's score of 80.5%. There were a total of 20 bacterial exceedances in the 93 samples taken in 2018

Tenean Beach Safety 2018	
Total Samples	93
Total Bacterial Exceedances	20
Test Frequency	Daily
Primary Beach Safety	78%

Malibu Beach

Malibu Beach is located in Dorchester and has one sampling location that was tested weekly for bacterial counts in 2018. In 2018, Malibu received a Primary Beach Safety score of 91%, which was similar to the previous year's score of 90.7%. There were a total of 8 bacterial exceedances in the 91 samples taken in 2018.

Malibu Beach Safety 2017	
Total Samples	91
Total Bacterial Exceedances	8
Test Frequency	Daily
Primary Beach Safety	91%

Savin Hill Beach

Savin Hill Beach is located in Dorchester and has one sampling location that was tested weekly for bacterial counts in 2018. In 2018, Savin Hill received a Primary Beach Safety score of 100%, a great improvement from the previous year's score of 93.8%. There were no bacterial exceedances in the 15 samples taken in 2018.

Savin Hill Beach Safety 2017	
Total Samples	15
Total Bacterial Exceedances	0
Test Frequency	Weekly
Primary Beach Safety	100%

Savin Hill posts a red flag when there is a bacterial count greater than 104 cfu/100 mL *Enterococcus*. In 2018, there were no red flag postings on Savin Hill Beach. Since Savin Hill Beach is tested on a weekly basis, beach management metrics are not computed.

Wollaston Beach

Wollaston Beach is located in Quincy, MA and has four sampling locations that were tested daily for bacterial counts in 2018. In 2018, Wollaston Beach received a Primary Beach Safety score of 93%, which is slightly better than last year's score of 91.7%. There were a total of 26 bacterial exceedances in the 369 samples taken in 2018.

Wollaston Beach Safety 2018	
Total Samples	369
Total Bacterial Exceedances	26
Test Frequency	Daily
Primary Beach Safety	93%

Nantasket Beach

Nantasket Beach is located in Hull, MA and has four sampling locations that were tested weekly for bacterial counts in 2018. In 2018, Nantasket received a Primary Beach Safety score of 100%, topping last year's score of 98.3%. There were no bacterial exceedances in the 60 samples taken in 2018.

Nantasket Beach Safety 2018	
Total Samples	60
Total Bacterial Exceedances	0
Test Frequency	Weekly
Primary Beach Safety	100%