

# Beach Monitoring

## Background

Water quality monitoring at New Jersey's recreational beaches has been performed since 1974 through the Cooperative Coastal Monitoring Program (CCMP). The program is administered by the New Jersey Department of Environmental Protection (DEP) with the participation of the New Jersey Department of Health and local environmental health authorities. The program assesses nearshore coastal water quality, investigates sources of water pollution, and enables the DEP and local health authorities to respond and alert the public to immediate health concerns arising from pollution in coastal recreational areas. Most funding for the CCMP comes from the United States Environmental Protection Agency (EPA) Beaches Environmental Assessment and Coastal Health (BEACH) Act grants. DEP-certified laboratories conduct all water quality analysis and make results available to the public within 24 hours of sampling.

The sampling season starts in mid-May and continues until the beach closes for the season. Beach waters are tested weekly for *Enterococcus* on Mondays. Fecal waste from humans and animals may contain microorganisms that can cause illnesses if accidentally ingested during swimming or other water sport activities. Samples are analyzed for enterococcus because it is an indicator of fecal waste in marine waters and has a greater correlation with swimming-associated gastrointestinal illnesses than other bacterial indicator organisms. The presence of enterococci does not by itself indicate that disease-causing organisms are present. The New Jersey State Sanitary Code primary recreation standard is 104 colonies of *Enterococci* per 100 milliliters of sample. Samples that are above this standard indicate an increased risk of illness.

New Jersey consists of more than 600 public coastal recreational lifeguarded bathing beaches. In 2022, the CCMP collected 3,745 samples from 192 primary ocean beaches, 21 bay beaches and seven river beaches. Ocean sampling stations are located close to potential pollution sources, such as stormwater outfalls and coastal lake discharges. If there are no potential sources, the station represents adjacent beaches. All recreational and bay and river beaches are monitored individually.



Casino Pier, Seaside Heights (photo by Richard Opiekun, NJDOH)

## Advisories

Since 2014, when a sample exceeds the *Enterococci* standard the county must issue a swimming advisory for that beach. "Swimming Advisory" signs are posted at the beach to warn the public of potentially unhealthy water conditions. The day after an initial exceedance, resamples of the primary station and a bracket station on each side of the primary station are conducted daily until water quality results meet the primary contact recreation standard. In addition, after every exceedance certified health inspectors perform sanitary surveys to identify possible pollution sources and observe water and shoreline conditions.

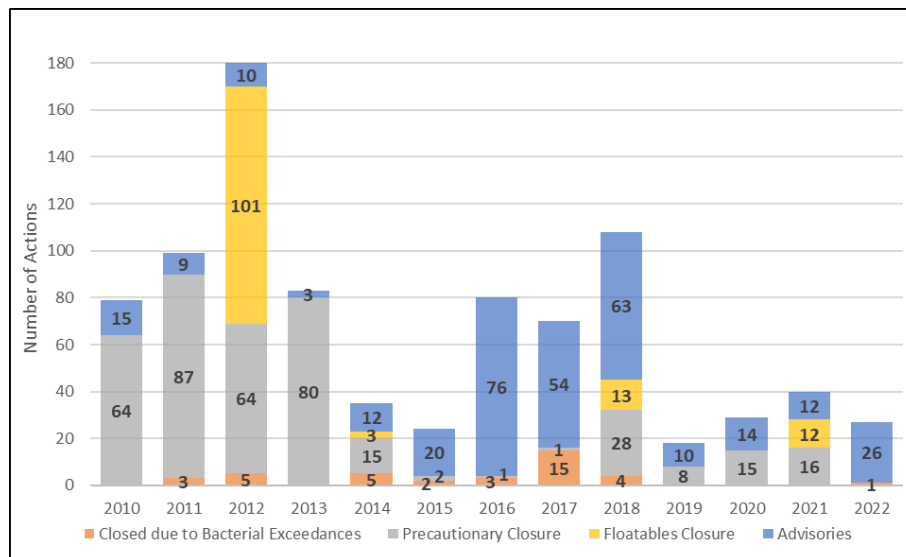
## Bacteria Exceedance Closings

Beaches are closed for swimming if two consecutive samples exceed the primary contact recreation standard. During beach closings, a "No Swimming" sign must be posted at the beach. Beach closings remain in effect until subsequent sampling at primary and bracket stations indicate bacteria levels are within the primary contact recreation standard, and the swimming ban is lifted.

## Status and Trends

From 2010 through 2022, a total of 52,440 recreational beach water quality samples were collected from ocean, bay and river sites, with 97% percent of all samples within the primary contact recreation standard. During this period, 43,360 samples were from ocean beaches, with 99% of results within the primary contact standard. The remaining 9,080 samples were from bay and river beaches, where 90% of the results were within the primary contact recreation standard.

Figure 1 indicates the total number of beach actions at ocean beaches from 2010-2022. Beach actions include advisories, precautionary closures, closures due to floatables, and bacterial closures due to exceedance of the primary contact recreation standard. Note that in addition to exceedance closures, a beach may be closed as a precaution or because of a floatable washup. Most precautionary closings were a result of beaches with known stormwater pollution problems automatically closing after rain events.



**Figure 1: Ocean beach actions taken from 2010 to 2022**

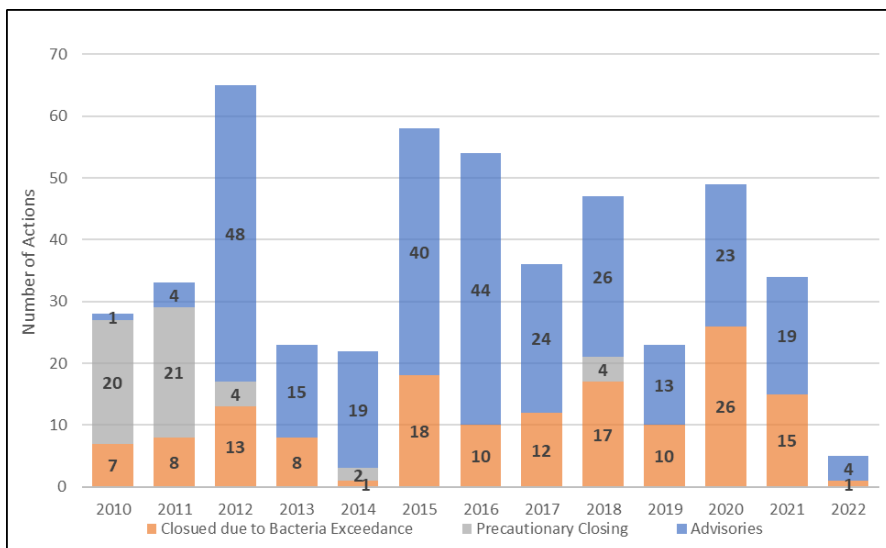
The majority of NJ beach closings are related to the impacts of stormwater. Typically, beach seasons with greater rainfall amounts correlate to more advisories

and bacterial exceedances. While ocean beaches are usually impacted by stormwater for less than 24 hours, it is not advised to swim near a stormwater outfall pipe or coastal lake outfall pipe during this period.

Detailed beach closing information, including the specific beaches that are closed and reasons for the closings, can be found in the [CCMP Annual Report](#). Data from the 1980's show much higher yearly rates of beach closings. For example, in 1988, ocean beaches were closed over 800 times, most frequently due to bacteria exceedances. Improvements and upgrades to sewage treatment plants discharging into the ocean have significantly reduced the number of closures over time.

Floatable debris has continued to cause occasional but significant beach closings in New Jersey. Floatable events are typically a result of Combined Sewer Overflows (CSOs) and consist of floating debris such as trash and plastics including bottles, bags, straws, home selfcare diabetic syringes, and grease balls that wash up onto the beach. Floatable events are known to occur after heavy rainfall in the New York/New Jersey metropolitan area. In 2019 and 2020, no beaches were closed due to floatables, but in 2021 a total of 12 beaches were closed because of four separate floatable debris washup events. Again in 2022, no beaches were closed due to floatables which could be attributed to the lack of rainfall. As a result of climate change causing more frequent and intense rainstorms, New Jersey could see an increase in floatable washup events in the future. For more information you can visit DEP's Division of Water Quality, Bureau of Surface Water and Pretreatment Permitting's [CSO webpage](#).

Figure 2 indicates the total number of beach actions (advisories, precautionary closures, and bacterial closures due to exceedances of the primary contact recreation standard) at bay and river beaches from 2010 to 2022. It is believed that the majority of bay and river beach closings were due to nonpoint source stormwater impacts. Bay and river beaches tend to have beach actions because stormwater impacts last longer at these locations. Stormwater can impact a bay or river beach for greater than 24 hours depending on the tide, wind, current and geographical features of the beach which can all lead to a longer residence time meaning that it takes longer for the water to be exchanged with ocean water. The DEP has committed to implement a pollution source track down strategy in partnership with the Division of Water Monitoring, Standards and Pesticide Control's [Bureau of Marine Water Monitoring](#), the Department of Health, local health authority and local government at recreational beaches that DEP identifies with persistent water quality problems.



**Figure 2: Bay and river beach actions taken from 2010 to 2022**

In addition to CCMP, in 2020 the DEP implemented a new supplemental program to monitor water quality in areas where primary recreation occurs but is not regulated by the New Jersey State Sanitary Code as a Public Recreational Bathing Beach. A total of 33 sites are sampled under this program and results are available to the public at the [Environmental Coastal Monitoring website](#). In addition, each monitoring location has posted a sign to make the public aware that routine sampling occurs at these locations and directing them to the website for the water quality results.

## Outlook and Implications

The DEP will continue to monitor New Jersey's beaches through the CCMP, aerial surveillance, and environmental coastal monitoring to ensure this valuable resource is preserved for all to enjoy. On top of the monitoring efforts, current programs such as the Clean Shores Program, "Adopt-a-Beach" under New Jersey Clean Communities, Clean Vessel Act, and the DEP "Clean Marina" are in place to continually maintain and improve the water quality at New Jersey beaches. Additionally, the reduction of non-point source pollution through the State rules and guidance for stormwater management are expected to provide increasing improvements to New Jersey's waterways.

## More Information

If you are interested in learning more about the Cooperative Coastal Monitoring Program or the water quality at your favorite beach, please visit the DEP's beach information web page at [njbeaches.org](http://njbeaches.org) where beach conditions, advisories, closings, and the reasons for beach closings are posted daily during beach season. For more information on source tracking visit: [nj.gov/dep/bmw/pollutiontracking.html](http://nj.gov/dep/bmw/pollutiontracking.html). The sampling information is also used as part of the recreational use assessment in the DEP's [Integrated Water Quality Assessment Report](#).

## References

- <sup>1</sup> Beaches Environmental Assessment and Coastal Health (BEACH) Act, October 10, 2000 (which amended the Clean Water Act).
- <sup>2</sup> NJDEP. 2021. Cooperative Coastal Monitoring Program – 2020 Summary Report. Division of Water Monitoring & Standards. The report is available at [https://njbeaches.org/njdep\\_public\\_files/2020%20Annual%20Report%20Final.pdf?msclkid=0ecf61b1b68411ec9142e9987ffe7453](https://njbeaches.org/njdep_public_files/2020%20Annual%20Report%20Final.pdf?msclkid=0ecf61b1b68411ec9142e9987ffe7453)
- <sup>3</sup> NJDEP, Clean Shores Program. 2022. <https://nj.gov/dep/wms/bears/cleanhores.html>, Accessed 4/7/2022.
- <sup>4</sup> New Jersey Clean Communities. 2022. <https://www.njclean.org/our-programs/adopt-a-beach/overview>, Accessed 4/7/2022.
- <sup>5</sup> New Jersey Clean Vessel Act. 1992. (P.L. 102-587, Subtitle F) N.J.S.A. 23:2B-3; 23:2B-6, 23:2B-7
- <sup>6</sup> NJDEP. 2019. State of New Jersey Clean Marina Program. <https://nj.gov/dep/njcleanmarina/>, Accessed 4/7/2022.
- <sup>7</sup> NJDEP. 2021. NJ Stormwater.org: <https://nj.gov/dep/stormwater/>, Accessed 4/7/2022.
- <sup>8</sup> NJDEP. 2022. 2018/2020 New Jersey Integrated Water Quality Assessment Report. Division of Water Monitoring, Standards and Pesticide Control. <https://www.state.nj.us/dep/wms/bears/assessment-report20182020.html>, Accessed 4/7/2022.