NJ Department of Environmental Protection
Water Monitoring and Standards
Bureau of Marine Water Monitoring

COOPERATIVE COASTAL MONITORING PROGRAM

2015 Summary Report

May 2016

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New Jersey Department of Environmental Protection

Water Resource Management

Division of Water Monitoring and Standards

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Cooperative Coastal Monitoring Program

Bureau of Marine Water Monitoring

Cover Photo – New Jersey Coastline (photo by Steve Jacobus, NJDEP)

Introduction

The Cooperative Coastal Monitoring Program (CCMP) is coordinated by the New Jersey Department of Environmental Protection's Bureau of Marine Water Monitoring. The CCMP assesses coastal water quality and investigates sources of water pollution. The information collected under the CCMP assists the DEP in responding to immediate public health concerns arising from contamination in coastal recreational bathing areas. Agencies that participate in the CCMP perform sanitary surveys of beach areas and monitor concentrations of bacteria in nearshore ocean and estuarine waters to assess the acceptability of these waters for recreational bathing. These activities and the resulting data are used to respond to immediate public health concerns associated with recreational water quality and to eliminate the sources of fecal contamination that impact coastal waters. Funding for the CCMP comes from the NJ Coastal Protection Trust Fund and the United States Environmental Protection Agency (EPA) Beaches Environmental Assessment and Coastal Health (BEACH) Act grants. BEACH Development and Implementation grants were awarded in the years 2001 through 2015. DEP designs the beach sampling and administers the communication, notification and response portion of the CCMP. The majority of the BEACH grant funds are passed through to the four county health departments participating in the CCMP who perform the weekly sample collection and analysis. The participating agencies are:

Atlantic County Health Department
Cape May County Health Department
Monmouth County Health Department
Ocean County Health Department

Additional assistance is provided by the following agencies:

Atlantic City Health Department
Long Beach Island Health Department
Long Branch Health Department
Middletown Health Department
Monmouth County Regional Health Commission
New Jersey Department of Health

As part of this program, DEP routinely inspects the 17 wastewater treatment facilities that discharge to the ocean (Appendix 1). DEP also performs aerial surveillance of New Jersey nearshore coastal waters and the Hudson-Raritan estuaries six days a week (May to September) to observe changing coastal water quality conditions and potential pollution sources.

CCMP Procedures

Chapter IX of the State Sanitary Code N.J.A.C. 8:26 and the DEP *Field Sampling Procedures Manual* prescribe the sampling techniques and beach opening and closing procedures the agencies use for the CCMP. The agencies perform routine sampling from mid-May through mid-September on Mondays. Samples are analyzed for enterococci concentrations by DEP-certified laboratories using EPA approved methods; analyses provide results within 24 hours of sampling. Counties submit water monitoring data to DEP in electronic format after each sampling event through the use of DEP's web-based Beach Monitoring System. In 2008, DEP began transferring monitoring and beach closing notification data to EPA via the WQX data system.

The CCMP included water quality monitoring at 185 ocean and 31 bay stations in 2015. Station locations coincided with recreational swimming beaches. Recreational stations are sampled to assess trends and to protect recreational bathers from elevated levels of bacteria. Most ocean beach monitoring stations are selected because of their proximity to other similar recreational beaches and the lack of specific pollution sources. The sample results from these beaches are intended to evaluate the water quality at several lifeguarded beaches in an area rather than just one lifeguarded beach. Other ocean beaches are assigned monitoring stations when

effects from potential pollution sources are possible. A monitoring station is assigned at each recreational bay beach because of their noncontiguous locations.

Recreational beaches, both ocean and bay, are subject to opening and closing procedures of the State Sanitary Code and therefore, must be resampled when during routine sampling, bacteria concentrations exceed the primary contact standard. In the years prior to 2004, the primary contact standard was 200 fecal coliforms per 100 mL of sample. Studies performed by EPA determined that enterococci bacteria have a greater correlation with swimming-associated gastrointestinal illness in marine waters than fecal coliform bacteria. In 2004, the State Sanitary Code was amended to require monitoring for enterococci bacteria with a new primary contact standard of 104 colony forming units per 100 mL of sample. Consecutive samples that exceed the standard require the closing of the beach until a sample is obtained that is within the standard. When high bacteria concentrations are recorded at an ocean station, the sampling is extended linearly along the beach to determine the extent of the problem and the pollution source. This "bracket sampling" can result in an extension of the beach closing to contiguous lifeguarded beaches. Sampling is always performed in conjunction with a sanitary survey, which includes identifying possible pollution sources and observing water and shoreline conditions.

Health or enforcement agencies may close beaches at any time at their discretion to protect the public's health and safety. Swimming advisories are issued at a beach when initial sample results exceed the bathing standard.

2015 Beach Actions

The participating health agencies closed 2 ocean beaches and 18 bay and river beaches in the 2015 summer season for bacteria exceeding the standard. Two ocean beaches were also closed as a precaution due to a possible sewage overflow that may have reached a storm drain. Subsequent monitoring found that water quality samples did not exceed the bacteria standard and the beaches were reopened the next day.

Beaches may be closed when bacteria levels exceed the standard or as a precautionary measure in response to an environmental condition, i.e., a heavy rain event or floatables washup. Health agencies also issue advisories to the public on an initial exceedance of the bacteria standard. As of 2014, all four coastal counties participating in the CCMP issued bathing advisories at beaches when initial sample results exceed the water quality standard. Beach conditions, advisories and beach closings, and the reasons for beach closings were posted on the DEP web page (www.njbeaches.org) each day. Additionally, when beach closings were necessary, the county or local health agency posted "No Swimming" signs at the beach. Signs remained posted until the swimming ban was lifted. Detailed beach closing and advisory information for 2015, including the specific beaches closed and reasons for the closings for this period can be found under the "Data" tab on the www.njbeaches.org website. Table 1 below presents the numbers of closings and advisories for the last ten years, from 2006 through 2015.

Table 1: Numbers of Ocean and Bay Beach Actions

Ocean	2006	2007	2008[2]	2009	2010	2011	2012	2013	2014	2015
closed for bacteria	18	0	1	6	0	3	3	0	5	2
precautionary closing	79	85	45	111	64	84	67	80	15	2
# Rainfall Provisional Beaches	3	4	4	4	4	4	4	4	0	0
closed for floatables	0	4	120 [1]	0	0	0	103[3]	0	3	0
Advisories[2]	n/a	n/a	n/a	7	17	15	10	3	12	20
Total ocean beach actions	97	89	158	117	81	102	183	83	35	24
Bay & River	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
closings for bacteria	27	35	30	32	7	8	13	8	1	18
precautionary closing	10	18	13	24	20	21	4	0	2	0
# Rainfall Provisional Beaches	1	1	2	2	2	2	2	2	2	1
closed for floatables	0	0	0	0	0	0	0	0	0	0
Advisories[2]	n/a	n/a	n/a	0	1	3	48	15	19	40
Total bay beach actions	37	53	43	56	27	30	65	23	22	58

Note: Precautionary rainfall-related beach closing policy implemented for two Spring Lake beaches in 2002. Two additional ocean and two bay beaches added to policy in subsequent years. All ocean beaches removed the policy in 2014.

[1] A criminal medical waste dumping event was responsible for 120 ocean beach closings

[2] Monmouth County health agencies added swimming advisory policies late in the 2009 bathing season. In 2012, Ocean County also began issuing bathing advisories.

[3] An unusually heavy rain event in the New York Harbor area the previous week caused combined sewers in New York and northern New Jersey to overflow into shared waters. Trash and debris from this event is the probable cause of the washup on Long Beach Island.

Closings include those required for consecutive high enterococci concentrations and by health agency discretion due to public health concerns. The vast majority of the closings prior to 2014 were precautionary due to concerns of nonpoint pollution transported by stormwater during a rain event. Source trackdown and other investigative work performed around the Wreck Pond outfall in Spring Lake and Sea Girt in recent years (see below) allowed the towns, health departments and NJDEP to agree that the policy was no longer required. Currently, there is one river beach that continues to implement the rain-provisional policy.

Beach closings due to wash ups of floatable debris have been fairly uncommon. In 1990, floatable debris was responsible for a total of 10 separate beach closings. In the following 12 years, no closings were due to floatables; however, in 2003, 13 separate closings and, in 2007, four closings were due to reported wash ups of trash and debris. In 2008, a criminal medical waste dumping event was responsible for 120 ocean beach closings. In 2012, approximately 50 syringes along with other floatable debris washed onto beaches on Long Beach Island closing 12 miles of beaches for one day. In 2014, three ocean beaches were closed on one day due to a reported wash-up of trash. Bay beaches are rarely affected by washups of floatable debris.

The CCMP does not record closings related to rough seas, beach maintenance projects, shark sitings, and fish and clam wash ups. The CCMP also does not include those closings that are briefly in effect during the

assessment of water conditions by local officials. Only those beach closings ordered by local health officials are included.

In 2002, a precautionary beach closing plan was implemented in Spring Lake Borough, Monmouth County. It required that the two beaches north of the Wreck Pond outfall, Brown Avenue and York Avenue, close for a specified time period following a rain event. The bathing areas of these two beaches were automatically closed for 24 hours after the end of all rainfalls greater than 0.1 inch or that caused 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. In addition, lifeguards (or staff as designated by Spring Lake Borough) could prohibit swimming near any parts of these beaches where the stormwater plume was observed to be mixing within the swimming area. In 2005, the Terrace beach and, in 2007, Beacon Boulevard beach, both beaches in Sea Girt just south of the Wreck Pond outfall, were added to the precautionary beach closing plan. Precautionary beach closings after significant rainfall at these locations were considered more protective of public health since there was no need to wait for laboratory results from water quality sampling. The bathing public was protected from exposure to potentially contaminated stormwater by this approach. Beginning in 2002, a total of four ocean beaches and two bay beaches in Monmouth County were identified as rain provisional beaches, which accounts for the increase in beach closing numbers at ocean and bay beaches.

Intensive trackdown has identified that sources of pollution to Wreck Pond include stormwater discharges directly to the pond and suspected failing infrastructure in the community surrounding the pond. These factors contributed to the elevated levels of enterococcus bacteria discharged to the ocean during rain events. The Department is continuing to move ahead with steps to alleviate these sources of contamination. In 2006, DEP completed a 300-foot extension to the Wreck Pond ocean discharge outfall pipe in order to carry contaminated stormwater further out into the ocean and reduce the impact to bathing beaches. The total numbers of beach closings related to bacteria (Figure 1) have been lower since the outfall extension, but the total number of beach closings at the four "rain provisional" beaches varies (Figure 2). These rain closing numbers were dependent on the amount of rainfall in any given summer season. DEP reinstated wet-weather monitoring at the four Wreck Pond beaches during the 2012 beach season and continued sampling in the off season and during the 2013 and 2014 beach seasons. DEP, Spring Lake, Sea Girt, Monmouth County Health Department, Monmouth County Regional Health Commission and Clean Ocean Action have reevaluated the provisional rainfall closure policy at Wreck Pond. It has been determined that the data does not support the rainfall closure policy. From 2006 through 2013, the precautionary rainfall policy at the four Wreck Pond beaches required 591 beach day closings in Spring Lake and Sea Girt; however, in this same time period only one beach was closed due to an actual exceedance of the bacteria standard (Beacon Blvd. beach in 2009). Infrastructure improvements and analysis of water quality data supported the decision to remove the rain closing policy for the 2014 beach season. In 2014, two large storm events required Spring Lake to open the emergency spillway between Wreck Pond and the ocean, resulting in 12 precautionary beach closings and 5 closings due to an exceedance of the bacteria standard. In 2014, there were no other closings at the four beaches surrounding the Wreck Pond outfall which, since 2002, had accounted for the majority of NJ's ocean beach closings. No beach closings were required in 2015 at any of the beaches surrounding the outfall.

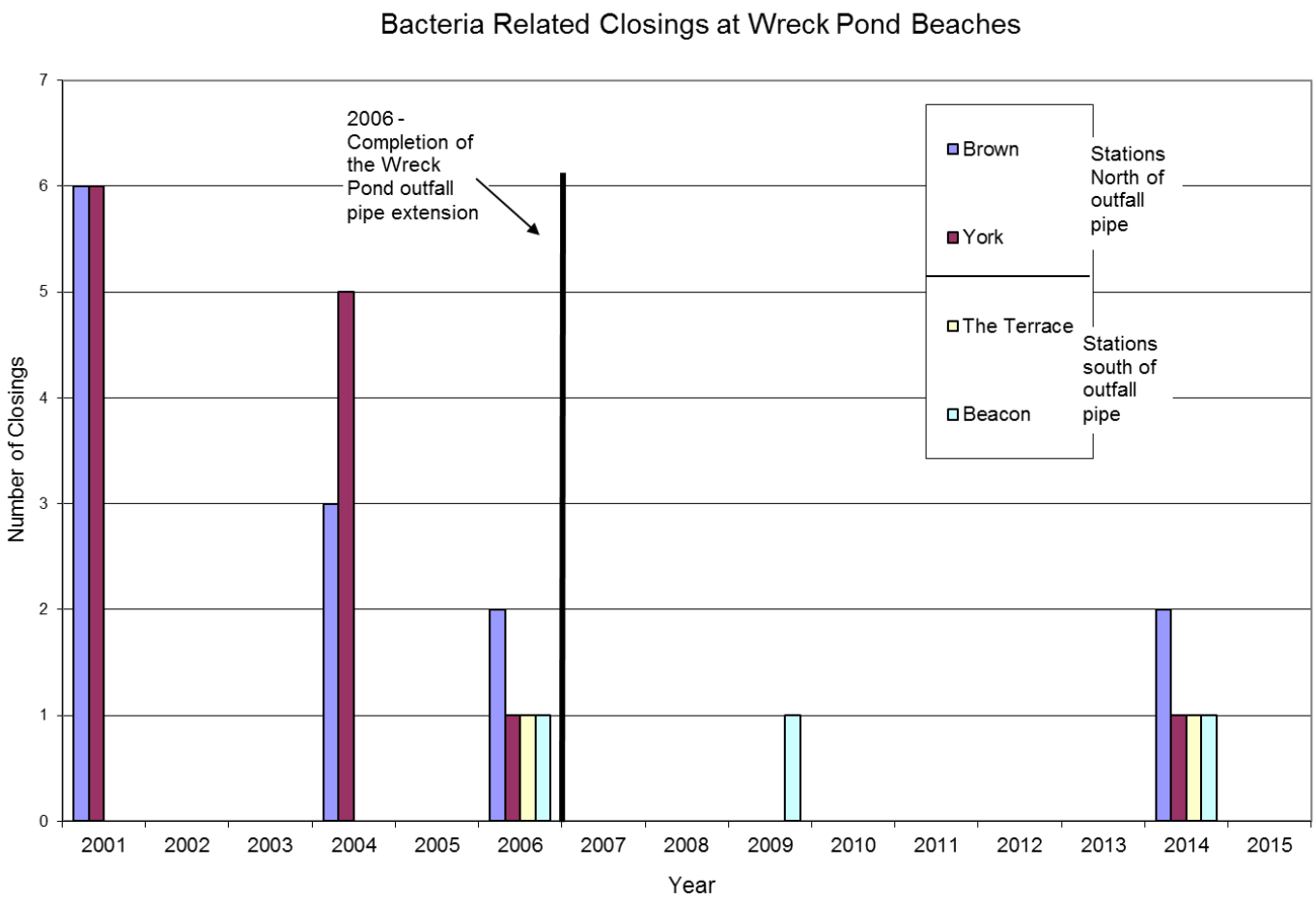


Figure 1. Beach closings caused by bacteria exceeding the standard at the four beaches surrounding the Wreck Pond outfall in the years 2001 - 2015. In 2014, two extreme storm events required opening a spillway between Wreck Pond and the ocean.

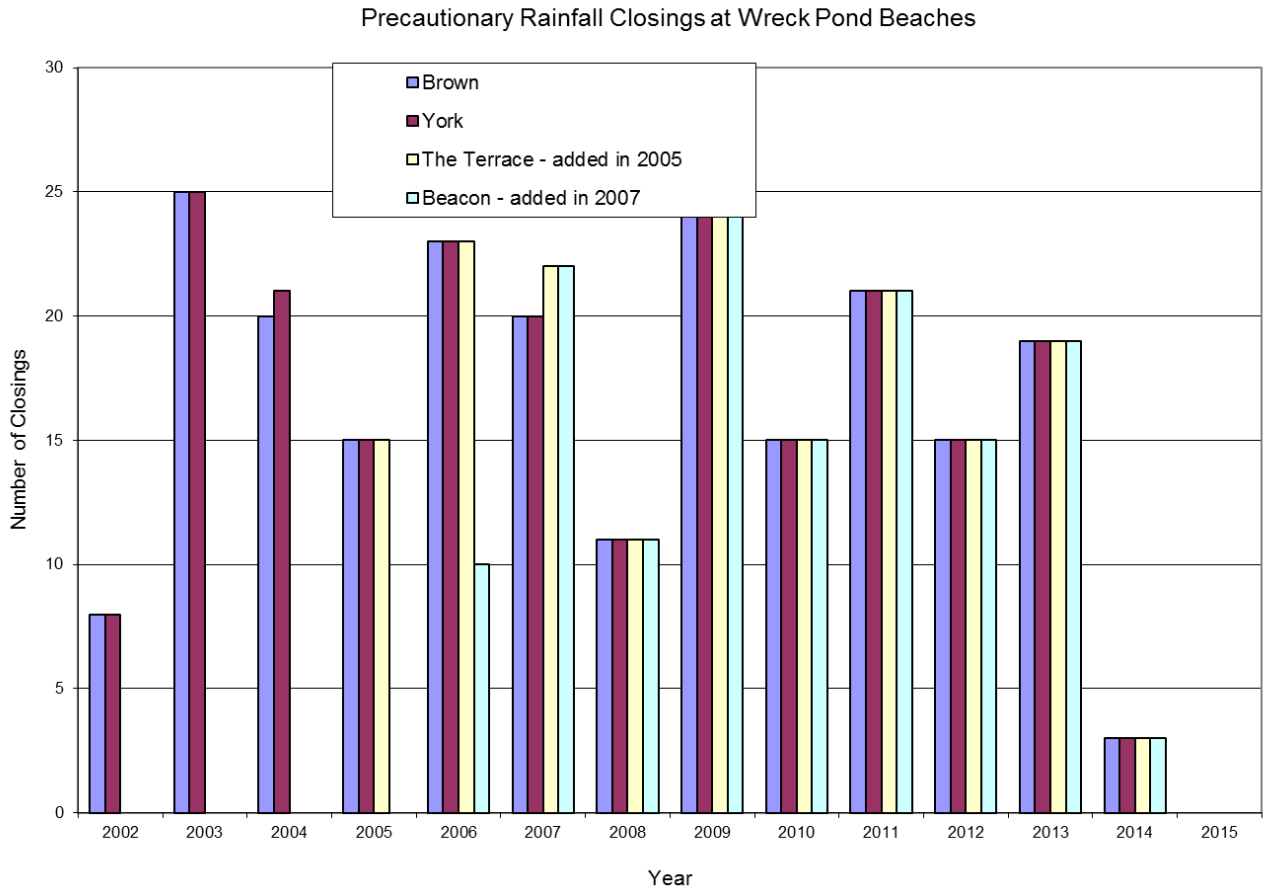


Figure 2. Beach closings at the four "rain provisional" beaches surrounding the Wreck Pond outfall in the years 2002 - 2015. The rainfall closing policy went into effect in 2002. Beacon Beach had rain provisional closings in 2006 but was not officially added to the policy until 2007. The policy was eliminated for the 2014 beach season but the beaches were closed as a precaution following two extreme weather events. There were no required closings in 2015.

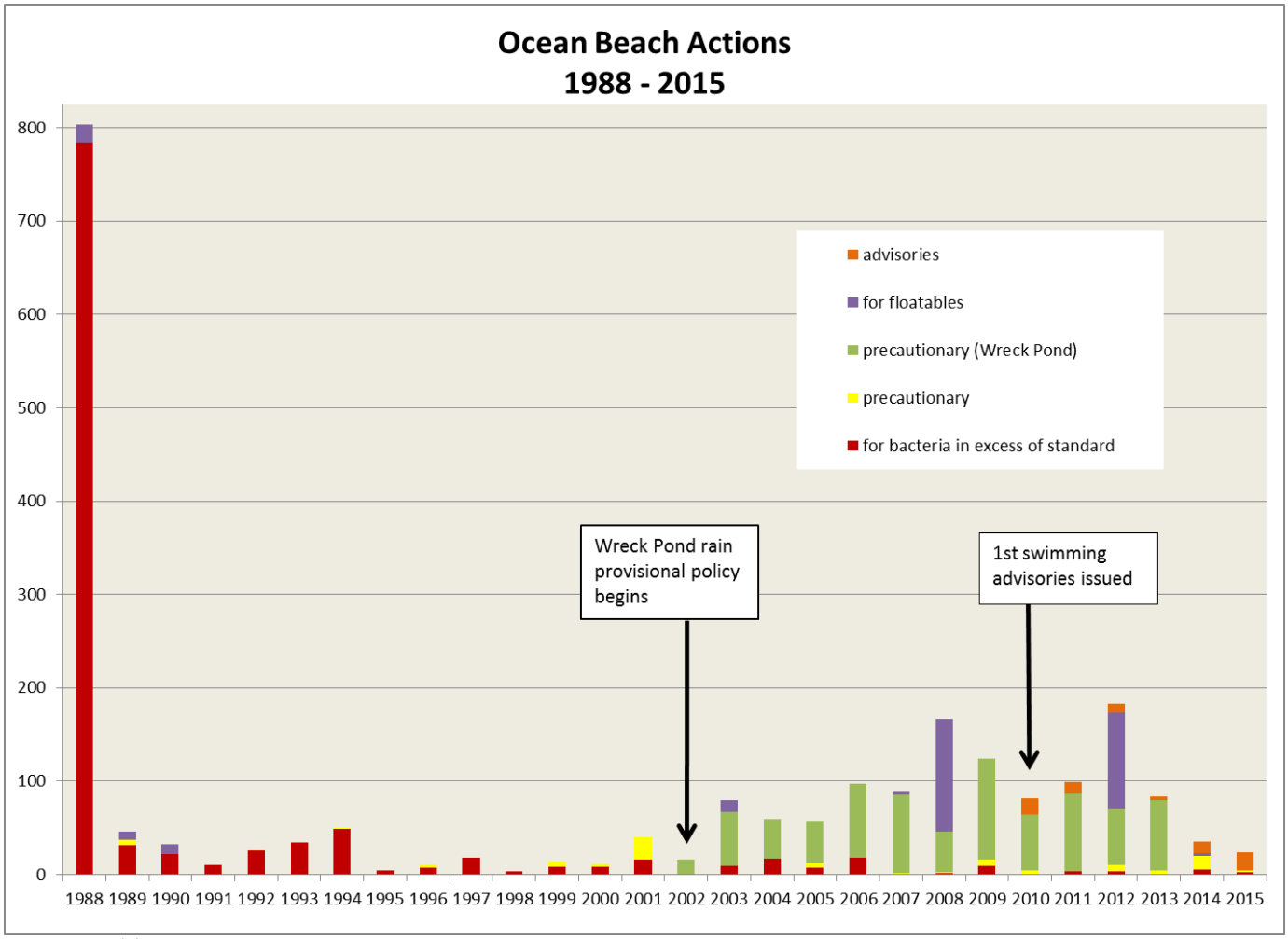


Figure 3. Trend in NJ ocean beach actions.

Figure 3 shows that closures at New Jersey's ocean beaches due to exceedances of the water quality standard are low. However, in the years prior to 2014, the overall number of closures was up at ocean beaches primarily due to: a. precautionary closures since 2000, b. the criminal medical waste dumping event in 2008 and c. the one-day floatable wash-up in 2012. These precautionary closures represent an enhanced level of public health protection that has been implemented by county and local health officials with the support of DEP. Even with these additional precautionary closures, New Jersey beaches were open to bathing over 99.9% of the time in 2015 (Figure 8). The national average was 95% in 2012[1], the most recent year for which data is available. With more than 650 ocean and bay beaches (Figure 4), New Jersey has more recreational beaches than any other state on the east coast.

[1] United States Environmental Protection Agency, EPA's Beach Report 2012 Swimming Season June 2013, EPA 820-F-13—014, http://water.epa.gov/type/oceb/beaches/upload/national_facsheet_2012.pdf

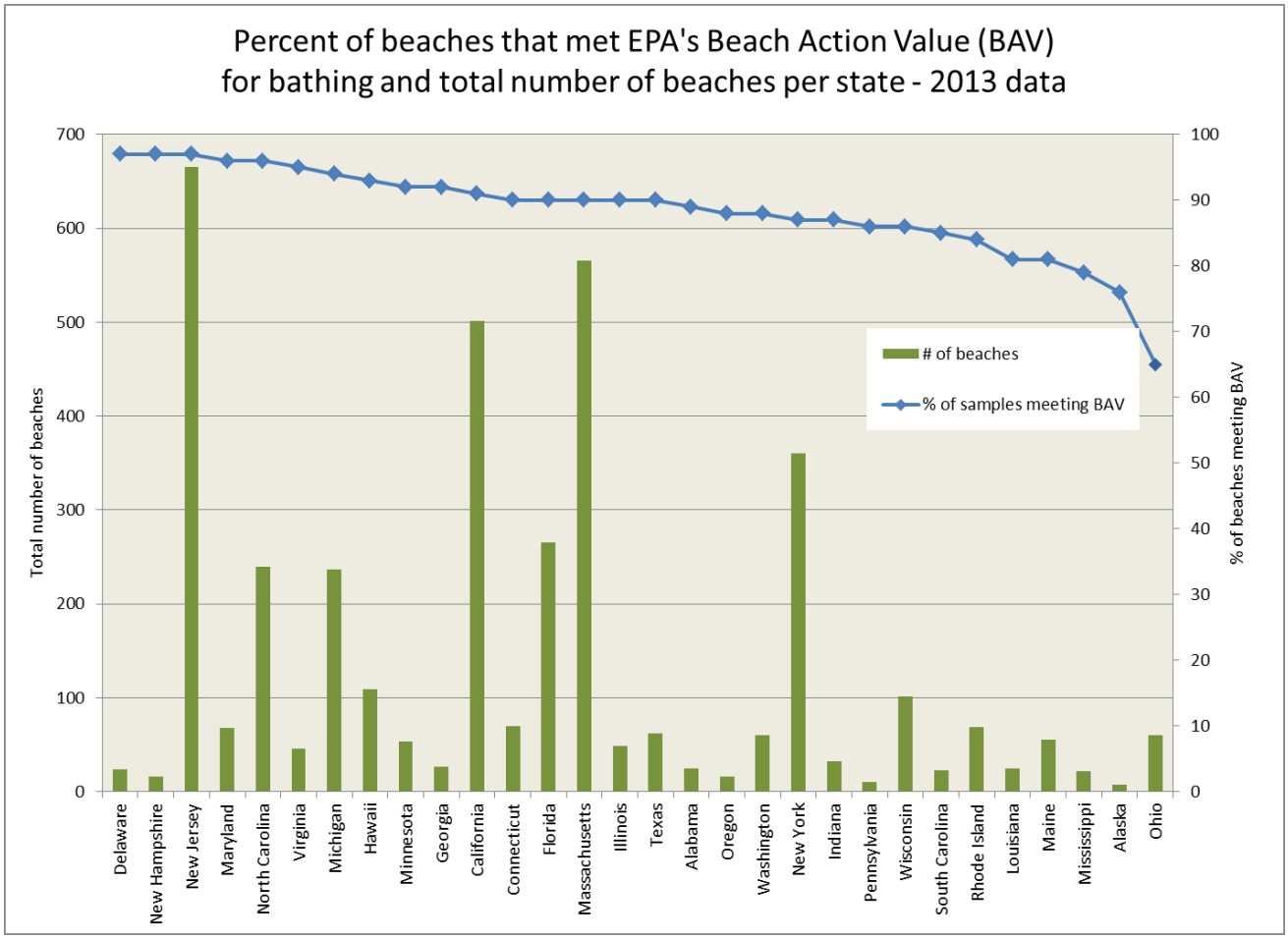


Figure 4. Ranking of states based on percentage of beach water quality samples meeting EPA's Beach Action Value (BAV) [2].

[2] National Resources Defense Council: Testing the Waters 2014, A Guide to Water Quality at Vacation Beaches

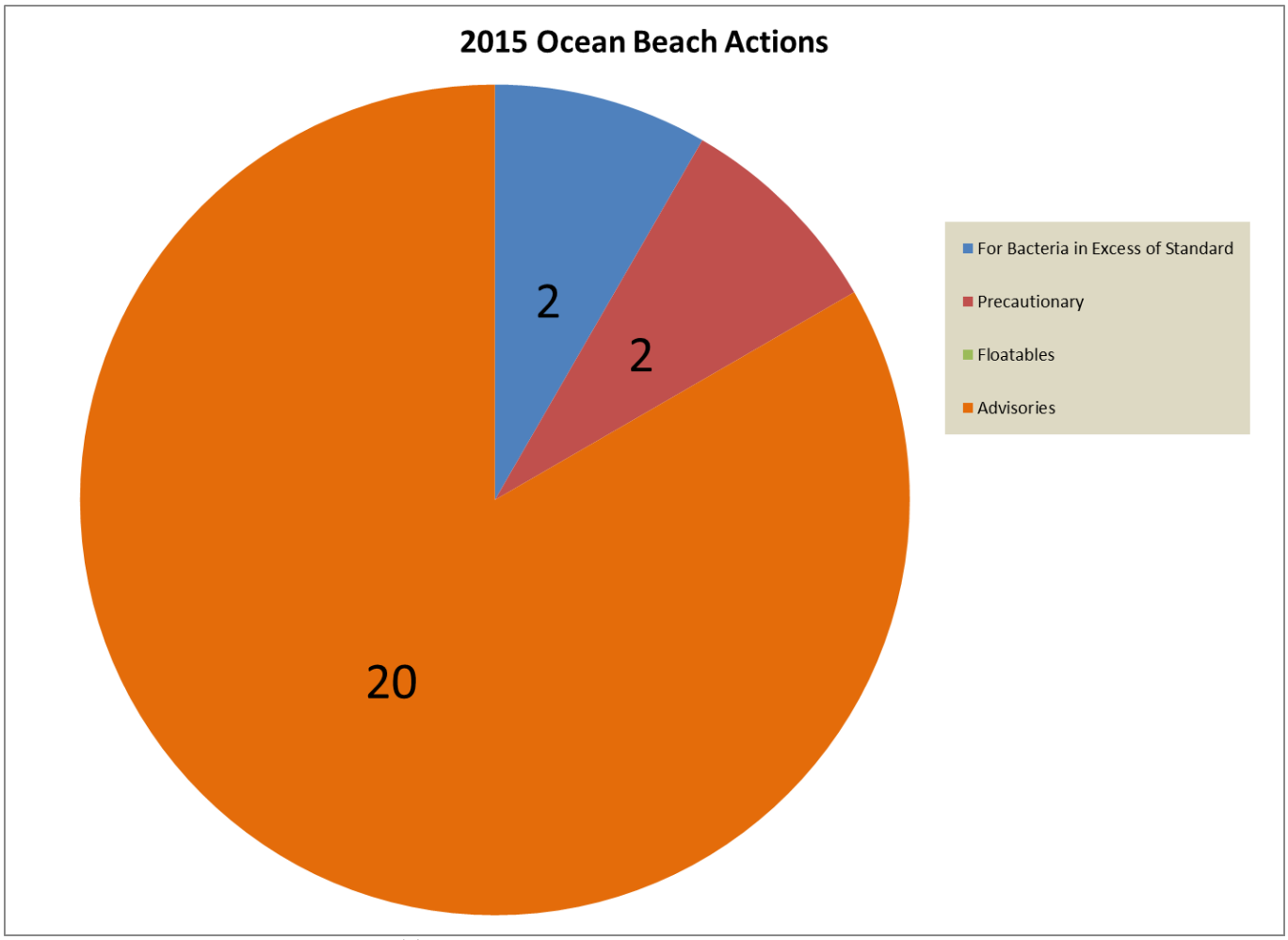


Figure 5. 2015 Ocean beach actions: Total number of actions and reason for action.

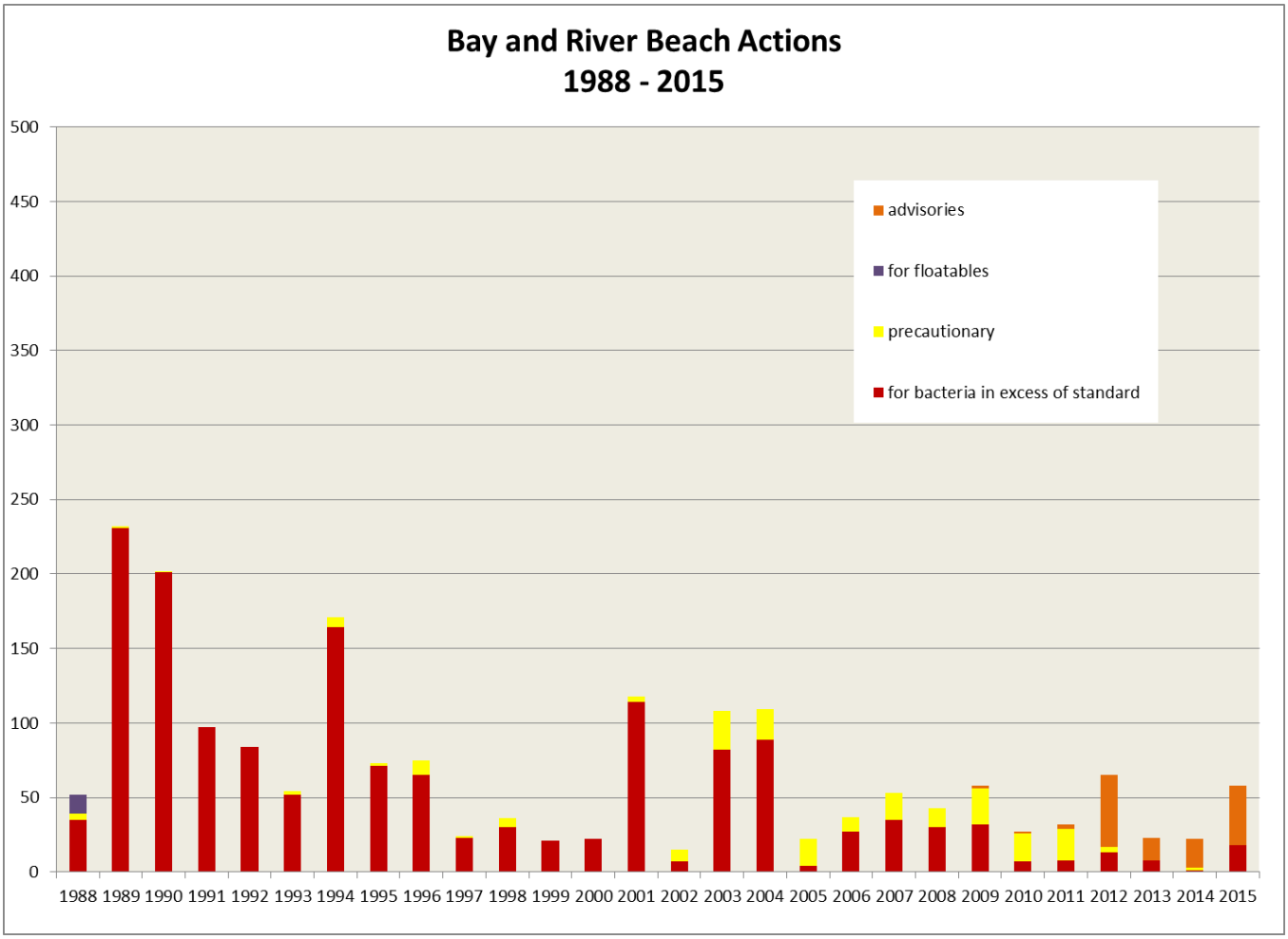


Figure 6. Trend in NJ bay beach actions.

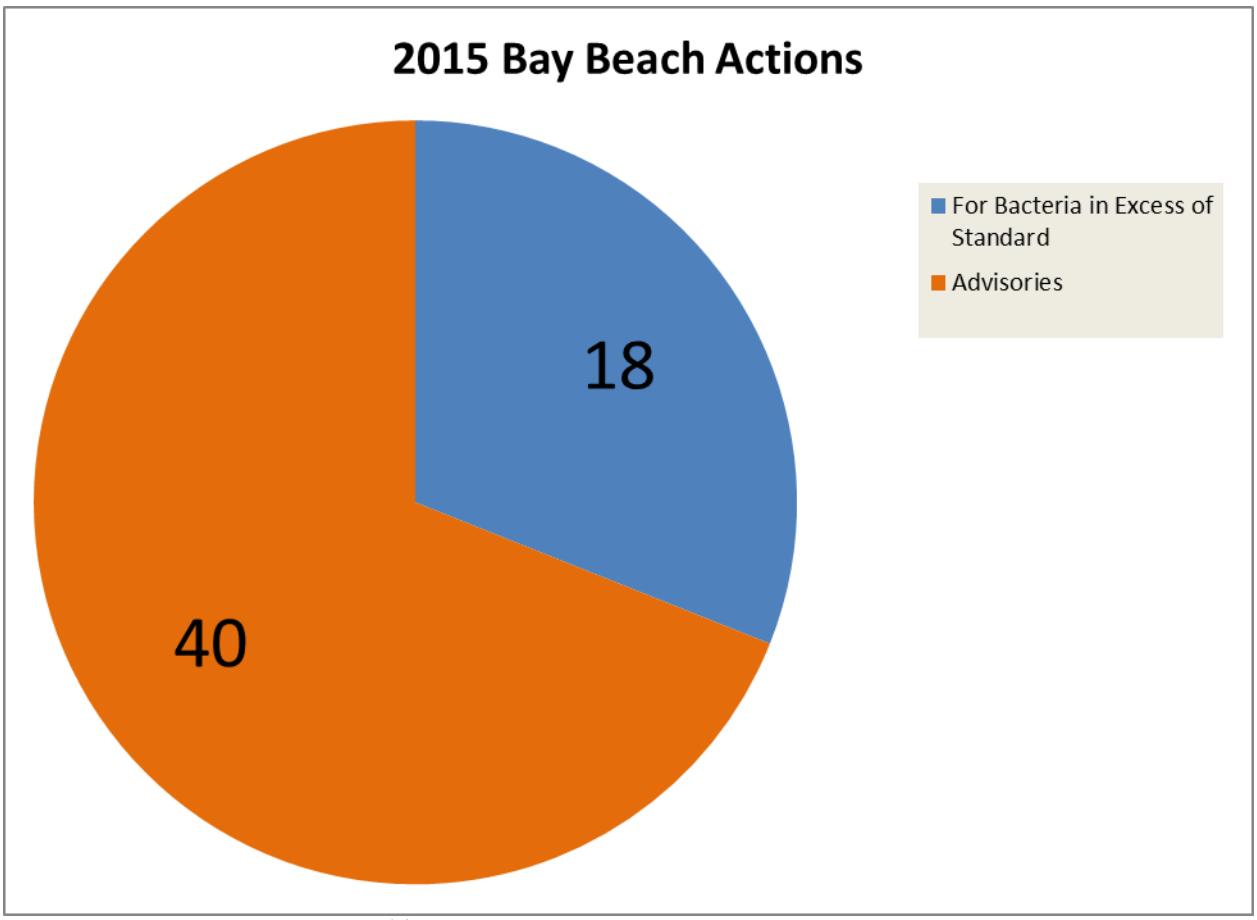


Figure 7. 2015 Bay beach actions: Total number of actions and reason for action.

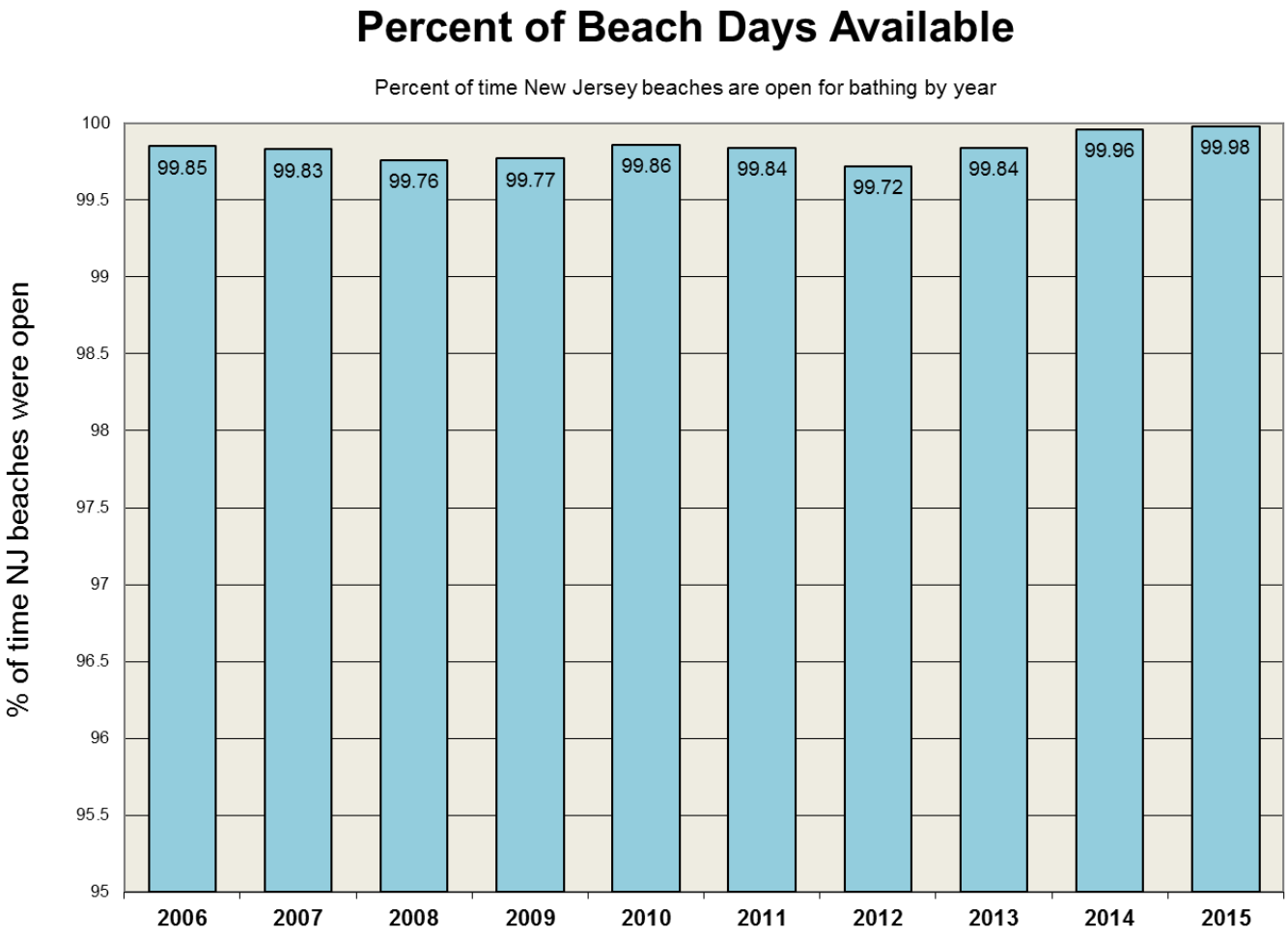


Figure 8. Percent of time NJ ocean and bay beaches are open for bathing by year

Enhancements to CCMP

DEP has joined with the EPA and others in the private and public sectors to identify and address sources of pollution impacting the State's beaches. This approach will accelerate improvements in the quality of our beaches and coastal waters as a result of the increased coordination and leveraging of resources.

Wreck Pond

From 2002-2013, the beaches surrounding the Wreck Pond outfall experienced significant numbers of precautionary beach closings due to potential contamination from the pond reaching bathing beaches after rainfall. For years, NJDEP worked with local stakeholders to look at sources of contamination to the pond, flooding around the pond, and options for addressing these problems. In 2011, NJDEP developed the Wreck Pond Restoration Action Plan to focus efforts to remediate sources of bacteria and reduce flooding. After years of collecting extensive data, several restoration projects and infrastructure assessment and repair work, the provisional rainfall closure policy was lifted before the 2014 beach season. The result of improved water quality is evident with zero exceedances of the water quality standard and no beach closings for the latest

beach season, 2015. For more information, reports and monitoring data on Wreck Pond and the progress of restoration, go to: http://www.nj.gov/dep/wreckpond/. Restoration projects include:

- In 2009, Monmouth County Department of Public Works and Engineering installed 14 stormwater manufactured treatment devices in the Wreck Pond watershed using a Corporate Business Tax and 1985 Wastewater Treatment grant. The funding also supported the NJDEP approved Wreck Pond Watershed Restoration Implementation Plan, a Conceptual Design and Feasibility Study for a Living Shoreline and Berm at Wreck Pond, the Manufactured Treatment Device Post Installation Review and an Anadromous Fish Study conducted in the spring and fall of 2014.
- In 2013, a Hurricane Irene FEMA grant was used to install a sluice gate on the existing outfall pipe and reconstruct a berm to inhibit a coastal storm surge.
- The Borough of Spring Lake used an EPA grant to conduct an infrastructure assessment in 2013. The assessment revealed an illicit connection that was immediately terminated. They also received an Environmental Infrastructure Trust principal forgiveness loan to conduct needed repairs revealed during the assessment. Improvements were completed in May 2015.
- Monmouth County has conducted four phases of spot dredging at Wreck Pond removing about 43,000 cubic yards of sediment, and will remove an additional 12,000 cubic yards in fall 2016.
- The US Fish & Wildlife Service received a Department of Interior Hurricane Sandy grant to improve aquatic conductivity in Wreck Pond. The Borough of Spring Lake also received a Corporate Business tax grant to improve water quality in Wreck Pond, and received a US Department of Housing and Urban Development, Community Development Block Grant-Disaster Recovery Program, Flood Hazard Risk Reduction and Resiliency Grant (CDBG) to reduce flood risk. Together these grants are funding the construction of a second outfall at Wreck Pond that will be a 5.5 foot by 8 foot by 600 foot concrete culvert with knife gate. The new pipe will more than double the capacity of water discharging from Wreck Pond during flood conditions minimizing flood risk to the surrounding community; improve water quality by increasing natural tidal flow resulting in increased tidal flushing; and improve aquatic conductivity with natural lighted vents. The outfall is 75% constructed and will be completed and operational by the end of 2016.
- The Borough of Spring Lake was also awarded a DOI/NFWF Hurricane Sandy grant to create 900 linear feet pilot living shoreline and vegetated berm project that will be completed in fall 2016. The following year, an additional 9000 linear feet of living shoreline and vegetated berm will be constructed around the northern shoreline of Wreck Pond, Black Creek and a small portion in Sea Girt. A maritime forest will also be constructed in the back beach dune areas to create stabilization. Funding for this project is part of the above mentioned CDBG. The living shoreline and vegetated berm will increase the storage capacity of Wreck Pond, improve water quality by filtering pollutants, impede erosion and create aquatic and riparian habitat.

Beachwood

In order to address repeated exceedances of the water quality standard, identify upstream sources of pollution in the Toms River and create and implement meaningful, comprehensive solutions at Beachwood bathing beach, NJDEP has been working closely with partners at NJ Department of Transportation (NJDOT), Ocean County Health, Engineering, Roads and Planning Departments as well as Beachwood Borough and Barnegat Bay Partnership.

From 2009 through 2012, Ocean County Health Department conducted wet weather monitoring at Beachwood Beach, and five additional river beaches along the Toms River. Later in 2012, NJDEP analyzed the monitoring results and found that even during dry conditions, there was still a 23% chance of exceeding the bacterial water quality standard.

In 2012, NJDEP responded to a complaint in the upstream township of South Toms River. Further investigation and sanitary surveys identified a community of live-aboard vessels at an upstream marina that lacked proper wastewater pump out facilities. NJDEP, South Toms River Township, Ocean County Health Department and Barnegat Bay Partnership worked together to relocate residents and remediate the facility. While this source was identified and eliminated, additional monitoring indicated that this source had little impact at the bathing beach due to proximity and dilution rates.

From 2013 through 2015, NJDEP intensified source tracking efforts by conducting extensive monitoring studies of the Toms River including 3 ebb tide ambient studies, 3 flood tide ambient studies, and 5 storm studies. Results indicated that wildlife in a localized area was a source of bacteria. Additionally, Ocean County Health Department conducted testing to confirm nearby bathrooms did not have any illicit connections. Ocean County and NJDOT cleaned and conducted video surveillance of all county, borough and State storm sewers in Beachwood to ensure there were no illicit connections or damaged infrastructure that could be impacting the beach. Two blockages in the sewer system were discovered, both due to root infiltration of old terra cotta pipe. One of the blockages discharged to an outfall in close proximity of the beach; subsequently Ocean County Engineering Department replaced about 200 feet of storm sewer prior to the 2014 beach season.

Observable water quality improvements were detected in the monitoring studies directly following infrastructure cleaning. As a result Ocean County Roads Department has cleaned the storm sewers before and during each bathing season, and will continue this annually.

The next best course of remedial action determined by the partners was to combine and relocate the two outfalls that were in close proximity to the bathing beach and redirect them away from the swimming area. Beachwood Borough was awarded an Environmental Infrastructure Trust loan to complete the project. NJDEP partnered with the Federal Food and Drug Administration to perform a hydrographic dye study to assess the effects of the existing and proposed new outfall on Beachwood Beach and neighboring Pine Beach by tracking the plume and calculating dilution rates and concentrations. Studies confirmed that the proposed new outfall location would direct the discharge to the channel current faster and stormwater would dissipate and flush out within hours of a storm. Depending on tides and wind, if the discharge does eventually end up at Beachwood or neighboring Pine Beach bathing beaches, the dilution rate is so great that concentrations will be within the water quality standard for recreational bathing. Construction of the outfall relocation project was completed prior to the 2015 beach season. The Ocean County Engineering Department also installed six Stormwater Manufactured Treatment Devices in 2015, four of which were in Beachwood, one in Pine Beach and one in South Toms River.

As a result of the significant source-tracking and infrastructure maintenance conducted at Beachwood Beach, as well as the removal of the live-aboard community prior to the 2014 beach season, water quality improved. Monitoring samples exceeded the federal standard only 14% of the time, with no closures and just five advisories. For comparison, over the last decade, 27% to 60% of samples had exceeded the water quality standard and there were up to 13 days of beach closures. Seasonal rainfall in 2014 was on par with the average rainfall amounts for the last 10 years. Since the largest of the remedial actions at Beachwood Beach took place prior to the 2015 beach season, expectations for improved water quality were high. Unfortunately, 2015 was an exceptionally wet year with over 3 inches more rainfall than the average for the last 10 years resulting in 3 advisories and 8 closures. However, 34 of the 35 exceedances were associated with just 3 storm events, two of which had 4.5 inches of rain each. Due to the heavily urbanized location with a high percentage of impervious surfaces, nonpoint source pollution via stormwater runoff continues to affect Beachwood Beach. The 2015 sample results indicate improved water quality during dry weather and storm events with a half inch of rain or less. Therefore, NJDEP along with their partners are continuing maintenance, effectiveness monitoring and adaptive management at Beachwood Beach. In addition, NJDEP has expanded source tracking efforts to nearby municipalities along the entire Toms River.

Coastal Incidents of Note

The following incidents received public, DEP, and local health agency attention in 2015, although the incidents did not always require beach closings:

On June 9, a Brick Township police officer witnessed a private citizen dumping an overfilled 80-gallon RV holding tank into the Barnegat Bay in a portion of the Edwin B. Forsythe National Wildlife Refuge. The dumper was arrested and charged with illegal dumping. There are no recreational bathing beaches in that area.

On July 9, a cyanobacteria (or blue-green algae) bloom was identified at the eastern end of Deal Lake. Cyanobacteria blooms are excessive growth of algae which are most often found in freshwater lakes and streams but can also occur in marine waters. These blooms occur under suitable environmental conditions of light, temperature, nutrients and calm water and can be either toxic or non-toxic. The County Health Department identified the toxic species *Microcystis* and *Anabena*, in the bloom, which persisted for several days. The bloom did not affect nearby bathing beaches; therefore no beach closings occurred as a result of the bloom.

On July 16, a fish kill was reported in Raritan Bay in the areas of Ideal Beach in Middletown and Port Monmouth. Dissolved oxygen was measured in the area and results were well above any level of concern. The source of the dead fish may have been from nearby fishing operations.

On July 30, two ocean swimming beaches and one surfing beach were closed as a precaution due to an approximate 35-gallon sewage spill to a storm drain that leads to the ocean. It was not clear if any of the sewage discharged to the ocean. Water quality samples were collected and no increased levels of bacteria were found. The beaches were reopened the following day.

Relative Status of New Jersey Beach Water Quality

According to data from the most recently published assessment report of the nation's beaches, New Jersey's beach water quality at more than 650 public recreational bathing beaches is among the best in the country.[3] In 2013, the most recent year for which data is available, New Jersey ranked 3rd in the nation for beach water quality (Figure 4).

This good water quality is also reflected in the number of days New Jersey beaches were open to the public in 2015. With 665 lifeguarded marine beaches in New Jersey and 16 weeks to the bathing season in 2015, New Jersey had a total of 74,480 beach days available. There were a total of 20 beach closings in 2015 representing 0.02% of available beach days. In other words, when the public in New Jersey went to the beach in 2015, they found the beach was open for bathing more than 99.9 percent of the time (Figure 8).

Related Program:

Clean Shores

Non-recreational shorelines that have been left unattended serve as reservoirs for floatable debris and trash that can be refloated during coastal storms and extreme high tides. This trash and debris can wash up on recreational beaches, become floating hazards to navigation, or impact marine life. DEP has a unique program that uses state correctional facility inmates to remove floatable debris from the shorelines of the Hudson, Raritan, and Delaware

[3] National Resources Defense Council: Testing the Waters 2014, A Guide to Water Quality at Vacation Beaches

estuaries, tidal shorelines and barrier island bays. The Clean Shores Program conducts these shoreline cleanups year-round. The program is entirely funded by the sale of the "Shore to Please" license plates. In 2015, 1.88 million pounds of debris was removed from 139.7 miles of shoreline (Figure 9). The mileage cleaned and total number of pounds of debris removed changes each year depending on the number and severity of coastal storms and their impact on tidal shorelines.

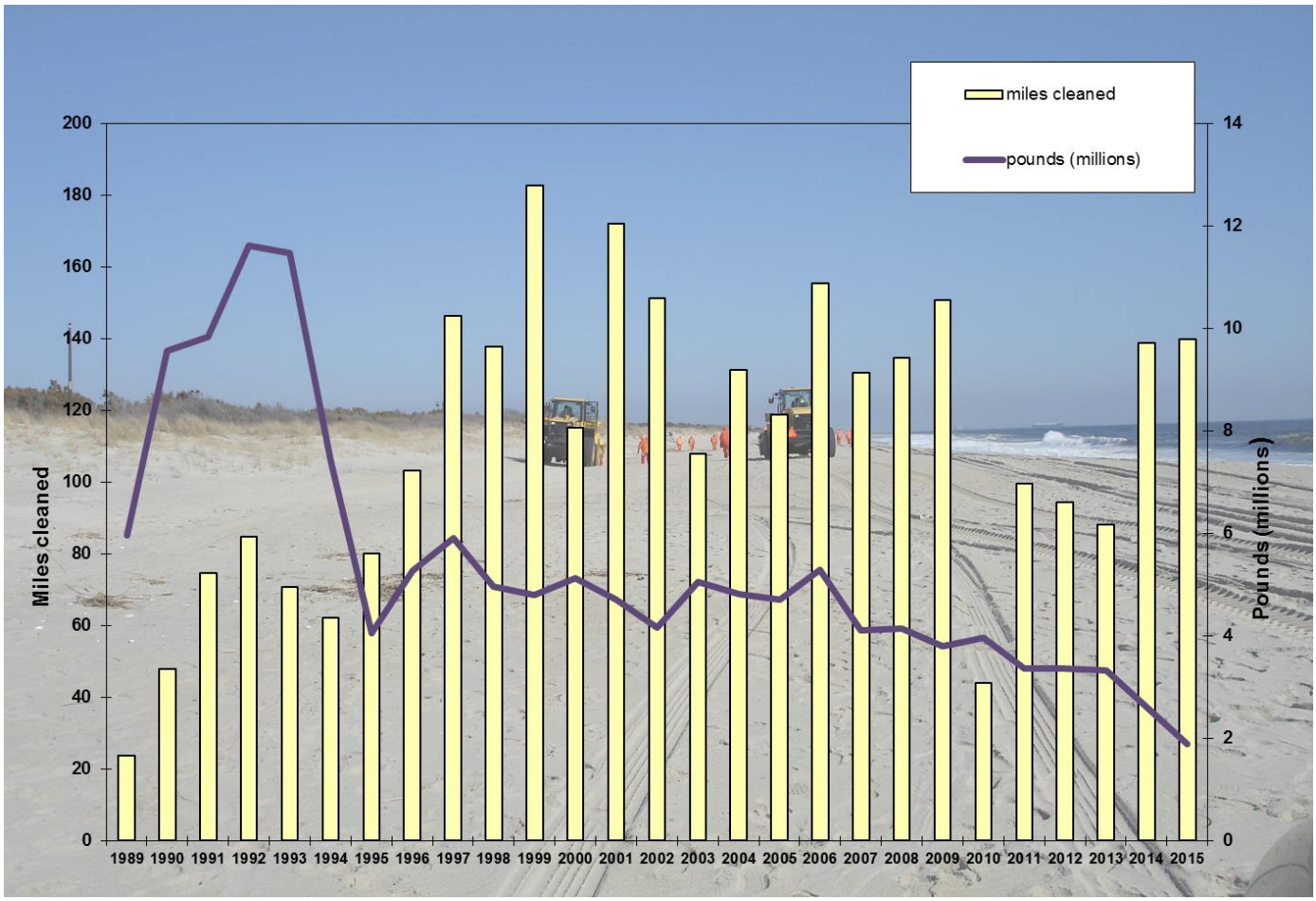
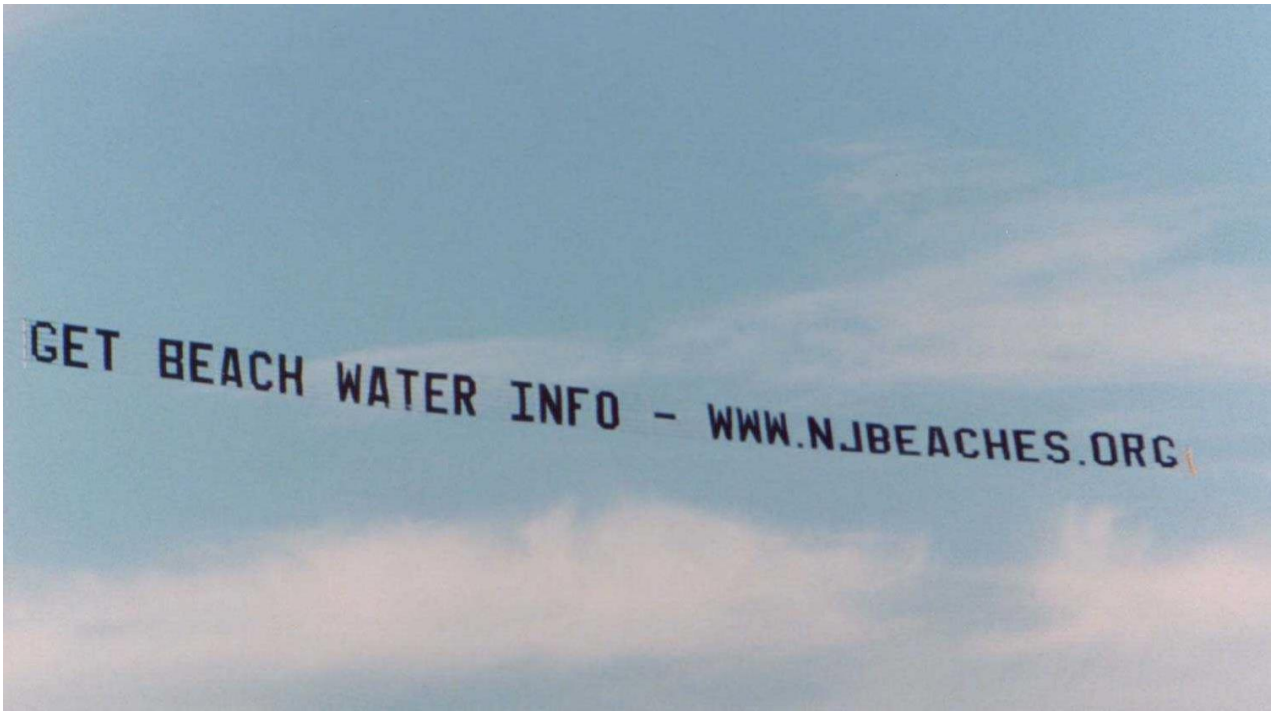


Figure 9: Total amount of debris removed by Clean Shores Program since start of program.

Additional Information

For additional information about the CCMP, the Clean Shores Program or New Jersey's beach monitoring in general, contact Virginia Loftin at 609-984-5599 or Virginia.Loftin@dep.nj.gov or visit the Program's website at www.njbeaches.org.


GET BEACH WATER INFO - WWW.NJBEACHES.ORG

Appendix 1

Wastewater Treatment Facilities Discharging to the Nearshore Coastal Waters

1 Monmouth County Bayshore Regional Sewage Authority
2 Township of Middletown Sewage Authority
3 Northeast Monmouth Regional Sewerage Authority
4 Long Branch Sewerage Authority
5 Township of Ocean Sewerage Authority
6 Asbury Park Sewerage Authority
7 Township of Neptune Sewerage Authority
8 South Monmouth Regional Sewerage Authority
9 Ocean County Utilities Authority, Northern
10 Ocean County Utilities Authority, Central
11 Ocean County Utilities Authority, Southern
12 Atlantic County Utilities Authority
13 Cape May County Municipal Utilities Authority, Ocean City
14 Cape May County Municipal Utilities Authority, Seven Mile Middle
15 Cape May County Municipal Utilities Authority, Wildwood
16 Cape May County Municipal Utilities Authority, Cape May Point
17 Lower Township Municipal Utilities Authority