# Healthy Harbor Report Card

September 2012

## Working together for a swimmable, fishable Harbor!

Whether it's cleaning up litter from a vacant lot, picking up after our pets, or using rain barrels and rain gardens to reduce the amount of water running off our properties, we all have a role to play in keeping our streams and Harbor clean. Cleaning and greening neighborhoods in Baltimore City and Baltimore County is the only way Baltimore Harbor will ever be safe for swimming and fishing because storm drains and streams in our neighborhoods connect us all to the Harbor and the Chesapeake Bay.

*Volunteers pick up trash from the Fort McHenry wetlands during a National Aquarium field day. Photo credit: National Aquarium.*

## The good news for the Harbor

There are more people and organizations working together on water pollution issues in Baltimore today than ever before. Citizens are volunteering their time and energy to clean up trash from streets, streams, and the Harbor at events like the Mayor's spring and fall cleanups and the National Aquarium's Fort McHenry field days. Communities are planting trees with the help of Blue Water Baltimore and adopting vacant lots with the help of Baltimore's Power in Dirt program. With the support of local government and advocacy from area businesses and nonprofits, the Maryland state legislature has recently passed new laws that will help reduce water pollution and establish designated funding for projects that decrease polluted stormwater runoff. To help steer all of this activity, Waterfront Partnership of Baltimore has published the Healthy Harbor Plan, which details the steps that need to be taken by citizens, government, and businesses to make the Harbor swimmable and fishable by 2020 (available at HealthyHarborBaltimore.org).

As an example of the great partnerships being formed, on a chilly November morning, a group of 80 volunteers rolled up their sleeves, got down in the dirt and planted over 350 trees in Baltimore's Hillsdale Park. The event was coordinate by Blue Water Baltimore and Waterfront Partnership, the volunteers were from Baltimore-based Constellation Energy, and the City's TreeBaltimore program provided the saplings. Trees help improve water quality by reducing the amount of runoff, which transports harmful pollutants into storm drains and the Harbor.

*Mayor Rawlings-Blake speaks at the release of the Healthy Harbor Plan. Photo credit: Waterfront Partnership of Baltimore.*


*Fish kill at Baltimore Harbor. Photo credit: Waterfront Partnership of Baltimore.*

## The bad news for the Harbor

Even though a lot is being done, we still have a long way to go. Baltimore Harbor is listed as impaired by trash under the Federal Clean Water Act and litter from Baltimore City and Southwestern Baltimore County continues to be a major source of trash in the Harbor. Bacteria from pet waste, sewer overflows, and old leaking sewer pipes also continues to flow into our streams and Harbor. In 2011, the Maryland Department of the Environment reported that 5.7 million gallons of sewage overflowed from Baltimore's sewer system into streams and the Harbor, compared to 1.1 million gallons in 2010. These overflows were mainly caused by large storm events, during which rainwater infiltrates into broken sewer pipes. Large storms also transport polluted stormwater runoff into the Harbor resulting in algae blooms, dead zones, and fish kills.

# Has water quality in the Harbor improved?

Water quality in Baltimore Harbor did not improve in 2011. Compared to the 2010 report card (available at **HealthyHarborBaltimore.org**), dissolved oxygen and water clarity scored better, but chlorophyll *a* worsened. When compared to other Chesapeake Bay rivers, Baltimore Harbor has the lowest levels of dissolved oxygen in the region. The Patapsco/Back River reporting region, which includes Baltimore Harbor, received a D- on the 2011 Chesapeake Bay Report Card.

**2011 Water Quality Grades**

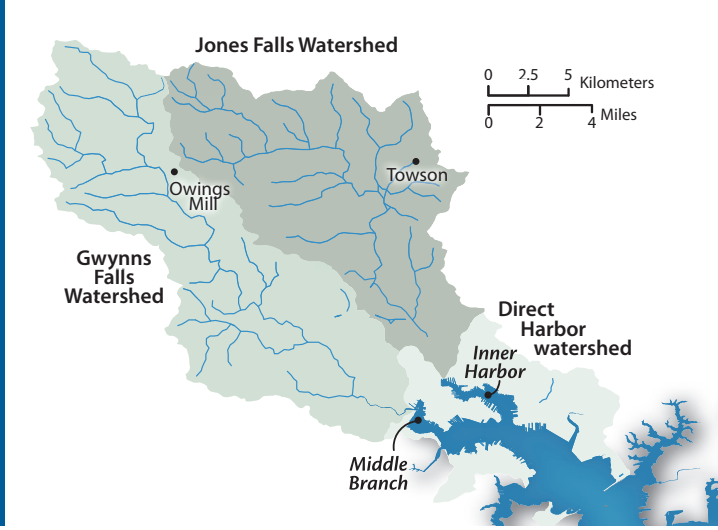
| Indicator | 2011 Grade | 2010 Grade |
|---|---|---|
| Dissolved oxygen | C | D |
| Chlorophyll *a* | D+ | C- |
| Water clarity | C+ | C- |
| Nutrients* | n/a | F |
| **2011 data not available* | | |

Water quality is closely linked to weather events. Rain and snow can transport pollutants into storm drains and streams and degrades water quality, but large rainfall events can also flush pollutants out of the Harbor leading to temporary improvements in water quality.

In 2011, there was a lot of rainfall in the springtime, followed by a hot, dry summer. Nutrients and sediments found in stormwater runoff flowed into the Harbor in the spring and, combined with the warm summer temperatures, resulted in poor water quality conditions. In the fall, Hurricane Irene and Tropical Storm Lee initially helped the Harbor by diluting pollutants in the water column and flushing them out to the Chesapeake Bay. However, they also provided new pollution that helped re-start the cycle of poor water quality conditions later in the fall. The mild winter of 2011-2012 means that the lingering effects of Tropical Storm Lee impacted water quality well into the spring of 2012.

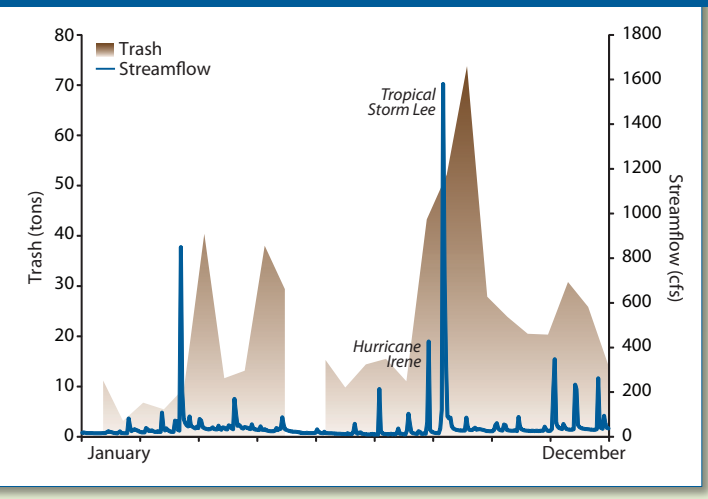
*Top: Residents of Baltimore's Fells Point neighborhood fill sand bags in preparation for Hurricane Irene.*
*Photo Credit: Waterfront Partnership of Baltimore.*

*Bottom: Trash captured by the Jones Falls trash boom near the Inner Harbor.*
*Photo credit: Waterfront Partnership of Baltimore.*




*Right: This map shows the Baltimore Harbor watershed. A watershed is an area of land that all drains to the same location. Baltimore Harbor has three main watersheds–The Gwynns Falls, Jones Falls, and Direct Harbor watersheds.*

# Storm drains transport trash from City streets into streams and the Harbor




*This chart shows the relationship between storm events (streamflow) and trash collected from Baltimore Harbor by City trash boats.*

Unfortunately, because people continue to litter, trash continues to flow into Baltimore Harbor. Trash in the Harbor comes from throughout the Harbor's watershed. The amount of trash in the Harbor is directly related to amount of rain falling on the Baltimore region. The accompanying graph shows the relationship between storms and the amount of trash collected by City trash boats in the Inner Harbor. In spring and after Tropical Storm Lee, when flows were highest, there was the greatest amount of trash entering the Harbor.

## Storm drain murals help communities connect streets and streams

Beginning in 2010, youth from 901 Arts designed and painted sidewalk murals around storm drains in Baltimore's Better Waverly neighborhood. In 2011, their artwork inspired other communities around the city to take action on their neighborhood storm drains. With the help of Blue Water Baltimore's Clean Water Community Initiative and Baltimore City's Department of Public Works, 18 storm drains were painted in 2011 in neighborhoods around Baltimore City!

To learn about painting storm drains in your neighborhood, please contact Lauren Poor at lpoor@bluewaterbaltimore.org.

## Baltimore Harbor gets first "trash free" zone

Students from the Crossroads School's *iCOMETS* program have been working with the Living Classroom Foundation in downtown Baltimore to learn about the Healthy Harbor movement. Students have studied how to take water quality samples, learned how to design devices that remove trash from the water, and even produced Public Service Announcements and a Healthy Harbor documentary, which have aired on local TV. Working with the Baltimore City Department of Public Works, Living Classrooms students have designated a "trash free" zone in the canal next to their school on S. Caroline Street. The City has installed booms to capture trash at outfalls and pledged to spend more time cleaning trash from the area with City trash boats, which already clean the Harbor daily.

*Storm drain mural in Better Waverly. Photo credit: 901 Arts.*

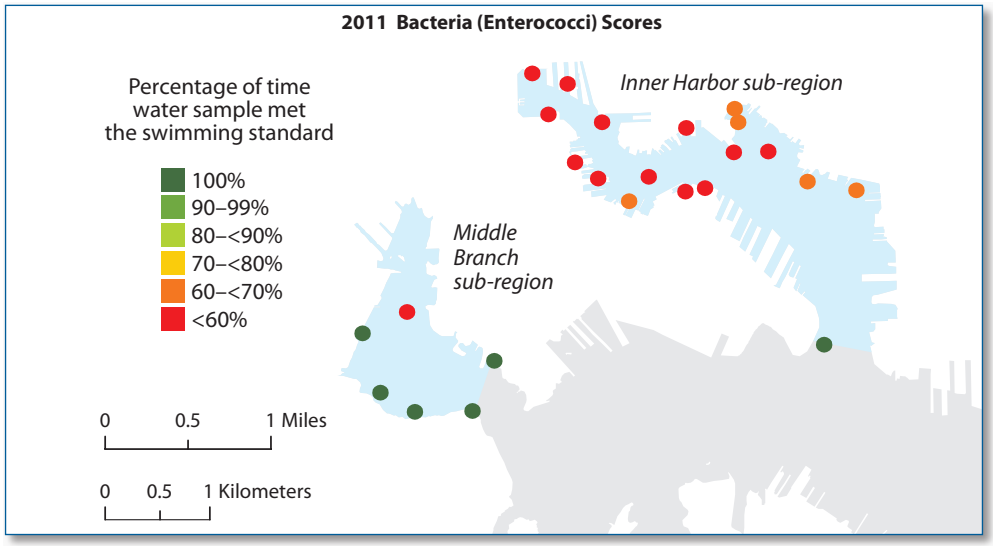
*Sarah Tooley and youth from 901 Arts painting a storm drain mural in Better Waverly. Photo credit: 901 Arts.*

*Living Classrooms students clean litter and debris from the "trash free" zone in the canal near their school. Photo credit: Waterfront Partnership of Baltimore.*

## 2011 trash reduction actions

- 18 storm drain murals painted in Baltimore City (source: Blue Water Baltimore)
- 10 Clean Water Communities engaged – Blue Water Baltimore is leading the Clean Water Community initiative, which assists communities in developing plans for cleaning and greening their neighborhoods as well as reducing litter and stormwater runoff. The goal is to engage 10 new communities each year. (source: Blue Water Baltimore)
- 74,048 miles of streets swept, almost 10,000 more miles than in 2010. (source: Baltimore City)
- 7,161 tons of litter collected. (source: Baltimore City)
- 294 new Adopt-a-lot licenses issued – In September 2011, the City launched its Power in Dirt program, which streamlines the process for adopting vacant lots. This more than doubled the number of vacant lots adopted in 2011 compared to 2010. (source: Baltimore City)
- 513 storm drain markers installed. (source: Blue Water Baltimore)
- 86 storm drains stenciled (source: Patterson Park Audubon Center)

# Bacteria from pets and overflowing sewers continues to plague the Harbor




** The U.S. Environmental Protection Agency's frequent full-body recreational contact (swimming standard) is 104 Most Probable Number of bacteria colonies per 100 ml of water. Average percent passing for each station for the swimming season (Memorial to Labor Day) presented in map.*

The annual risk of coming into contact with bacteria in Baltimore Harbor remains high, though much higher in the Inner Harbor sub-region than in Middle Branch. Bacteria, viruses, and other microorganisms that cause disease can be found in our streams and Harbor. The best way to reduce and eliminate these pathogens is to stop the flow of bacteria entering the Harbor from sewer system overflows, sewer leaks, and animal waste. Wet weather conditions exacerbate these issues, meaning that the possibility always exists for increased bacteria levels during and after significant rainfalls.

*The Center for Watershed Protection works with Blue Water Baltimore and Baltimore City to check storm drains for evidence of sewage discharges. Photo credit: Waterfront Partnership of Baltimore.*

Blue Water Baltimore monitors bacteria indicators to inform the community about the risk of illness from coming into contact with the water in Baltimore Harbor and to highlight areas where bacteria are often found at high levels. The map above shows that several areas, particularly in the Inner Harbor, rarely met the standard for safe swimming, indicating a high risk of contracting waterborne illnesses a majority of the time. Stations in the Middle Branch region met the swimming standard more frequently, indicating a lower risk of contracting waterborne illnesses.

In Baltimore City, the largest sewage overflow in 2011 occurred on March 10th and was the result of rainwater seeping into sewer pipes and causing them to overflow during a large storm. This single event resulted in nearly 4.7 million gallons of sewage overflowing into the Jones Falls – more than all sewage overflows from the previous two years combined. The lower level of the Penn Station parking garage was flooded with sewage, inundating parked cars and overflowing onto the Jones Falls Expressway.

## Blue Water Baltimore launches new bacteria monitoring website

For the first time ever, the public can get timely information on bacteria levels at 30 different locations around Baltimore Harbor. Blue Water Baltimore's innovative bacteria data-mapping website displays pollution levels on an easy to use interactive map along with information about water contact safety.

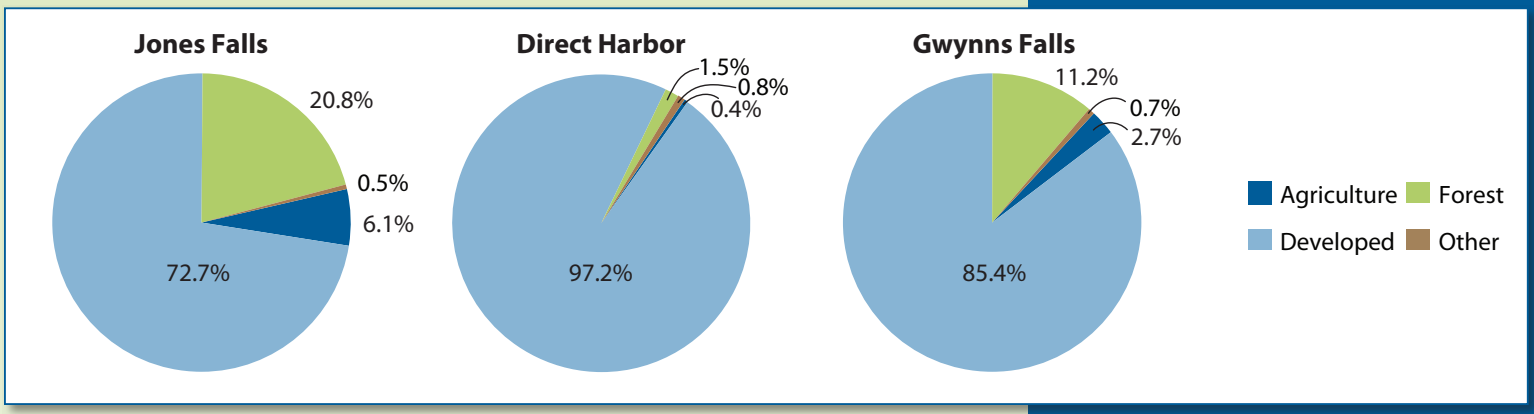
Blue Water Baltimore's bacteria monitoring website can be found at http://bacteria.bluewaterbaltimore.org


*Blue Water Baltimore staff collect water samples from Baltimore Harbor. Photo credit: Blue Water Baltimore.*

## 2011 bacteria reduction actions

- In 2011, Blue Water Baltimore monitored 30 sampling stations in the Northwest and Middle Branch of the Harbor for *Enterococcus*, an indicator of bacteria. Results are available at http://bacteria.bluewaterbaltimore.org. (source: Blue Water Baltimore)
- In 2010, the most recent data available, Baltimore City conducted weekly ammonia screenings at 32 locations in the Baltimore Harbor, Jones and Gwynns Falls watersheds. Ammonia is an indicator of sewage and when it is detected the City conducts an investigation to determine the source. In 2010, 109 investigations were conducted by the City, an increase of 42 from 2009. (source: Baltimore City)

# Polluted stormwater sends nutrients and sediment into the Harbor




The amount of polluted stormwater runoff flowing into Baltimore Harbor is directly related to the percent of developed land draining to the Harbor. This area of land is known as a watershed and the Harbor's watershed is made up of 156 square miles, extending north from the Harbor all the way to Reisterstown in Baltimore County. As we replace forest and farm land with development like houses, stores, and parking lots, we cover ground that used to soak up water with surfaces designed to move water as quickly as possible into streams and storm drains.

The above pie charts show that the Baltimore Harbor watershed is highly developed, which leads to an increase in stormwater runoff. Luckily, there are actions we can take, like installing rain gardens and rain barrels, to help reduce stormwater runoff. A rain garden is a landscaped area that is recessed into the ground. The shape of the garden allows water to "pond" and then seep slowly into the soil and is an effective way to reduce stormwater runoff from rooftops, driveways, and lawns. Rain barrels also reduce polluted stormwater runoff by capturing water that flows off of a roof and storing it so it can be used to water gardens and indoor plants.

## Schoolyard Greening

In 2011, Blue Water Baltimore removed a total of 34,675 square feet of impervious surface from three City school grounds. The largest impervious surface removal project in 2011 took place at the Academy for College & Career Exploration in Baltimore's Hampden neighborhood. The event engaged an estimated 300 people including rock bands and roadies from the Vans Warped Tour who volunteered their day off to dig up the paved back lot of the school and replace it with conservation landscaping. Afterwards, newly greened sites were converted to a combination of trails, turf, native landscapes and vegetable gardens.

Blue Water Baltimore also installed practices that capture stormwater runoff from approximately 56,500 square feet of school properties, treating or fully removing over 1.5 million gallons of stormwater runoff per year. These practices also provide valuable outdoor education opportunities for students, in addition to healthier outdoor recreation space.

The majority of urban school grounds have opportunities for greening and stormwater reduction. With the new state Environmental Literacy requirement for students, in addition to increasing interest in the Maryland Green School and Green Ribbon School certifications, demand for such practices is on the rise.

*Volunteers from the Vans Warped Tour pitch in to remove asphalt at a school in Baltimore's Hampden neighborhood. Photo credit: Blue Water Baltimore.*

## 2011 stormwater reduction actions

- 74 downspouts disconnected resulting in the redirection of 29,424 square feet of rooftop drainage away from the storm drain system. (source: Blue Water Baltimore)
- 173 rain barrels sold and installed. (source: Blue Water Baltimore)
- 1,668 square feet of rain gardens installed for bioretention. (source: Blue Water Baltimore)
- 34,675 square feet of impervious surface removed from schools. (source: Blue Water Baltimore)
- $2,701 distributed in community grants for stormwater pollution reduction projects. (source: Blue Water Baltimore)
- 6,000 square feet of impervious surface removed to create new tree pits. (source: Parks & People)
- 6,424 trees planted. (source: Baltimore City, TreeBaltimore)
- 13,255 linear feet of stream restoration projects completed. (source: Baltimore City)

# What is the Healthy Harbor Report Card?

Healthy Harbor is a movement to make the Baltimore Harbor swimmable and fishable by 2020. The Healthy Harbor Report Card is a tool to help us communicate this goal and track our progress. This report card is the product of a partnership between Waterfront Partnership of Baltimore and Blue Water Baltimore, two local nonprofits working to make Baltimore's streams and Harbor clean, safe, and accessible to everyone. EcoCheck, publishers of the Chesapeake Bay Report Card, provided scientific expertise and data analysis. For more information please visit **HealthyHarborBaltimore.org** and **BlueWaterBaltimore.org.**

# How can you help clean up Baltimore Harbor?

### If you see something unusual, let the appropriate people know

**Baltimore City** has set up 311, a system for the public to request City services including street and alley cleaning, street corner can collection, and issuing citations for trash on private properties. When you report an issue to the City you will receive a Service Request Number, which can be used to check the status of your request. You can also submit 311 requests through Baltimore City's website (http://www.baltimorecity.gov) or through the City's free 311 smart phone app, which allows users to submit photos along with service requests.

**Baltimore County** has different hotlines depending on the type of pollution you are observing. For general environmental concerns call 410-887-3733; for sanitary sewer concerns call 410-887-7415; and for erosion and sediment control issues call 410-887-3226.

**Blue Water Baltimore** has a pollution hotline and will make contact with your local environmental agency on your behalf. You can report pollution by visiting BlueWaterBaltimore.org and clicking on Report Pollution or by contacting David Flores at dflores@bluewaterbaltimore.org or 443-908-0696.

### Get involved with volunteer opportunities

There are many great volunteer opportunities offered by local organizations and Baltimore City. Whether you want to wade through a stream, pick up trash, plant a tree, or canoe in the Harbor, there's a volunteer activity for you!

- Blue Water Baltimore – http://www.bluewaterbaltimore.org
- Parks & People Foundation – http://parksandpeople.org
- Fort McHenry Field Days, National Aquairum– http://www.aqua.org/contribute/volunteer
- Canoe & Scoop, Baltimore City Department of Recreation and Parks– Contact Molly Gallant at Molly.Gallant@Baltimorecity.gov or 443-984-4058.

### Help spread the word to family and friends

Many people don't realize that pollution on our streets and in our yards is transported by rainwater into Baltimore Harbor and the Chesapeake Bay. It's important to get the word out and tell others what they can do to help. Here are some suggestions:

- Use a tight fitting lid on both trash and recycling containers
- Clean up after pets
- Don't put oils and grease down your sink.
- Reduce your use of fertilizer, especially before rainy weather and during wet months.
- Install a rain barrel or a rain garden
- Convert your garden to native landscaping
- Don't litter!
- Plant a tree!

HealthyHarbor

*A cleaner, greener future for our neighborhoods, streams, harbor and Bay.*

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# Legislative Update

In 2011, both Waterfront Partnership and Blue Water Baltimore were instrumental in building momentum for new legislation to protect and restore waterways in our City and around the State. The resulting 2012 legislative session, detailed below, represents a significant victory for clean water advocates and the people of Maryland.

### Stormwater Management (House Bill 987)

This bill requires Maryland's nine largest counties and Baltimore City to levy fees to fund polluted stormwater runoff reduction projects. Municipalities can set their own fees based on the amount of their impervious land cover, though property used for public purposes and owned by the state, a county, a municipality, or a regularly organized volunteer fire department may not be charged the fee.

### Sustainable Growth and Agricultural Preservation Act of 2012 (Senate Bill 236)

This bill requires counties to develop land-use plans to encourage growth in existing communities, aiming to reduce pollution through a tiered system to limit new housing developments on septic systems, especially in areas with high concentrations of farm and forest land. The bill was altered to limit state regulatory requirements on local jurisdictions, which will instead be required to hold public hearings when their growth plans differ from the state framework.

### Bay Restoration Fund (House Bill 446)

This bill doubles fees for users of wastewater facilities, onsite sewage disposal systems, and sewage holding tanks to fund upgrades for sewage treatment plants and other Bay restoration activities. The bill also: **1)** allows for some areas in Maryland to maintain fees if they do not discharge into or are not located within the Chesapeake Bay Watershed or the Coastal Bays Watershed; **2)** establishes a hardship program; **3)** determines use and disposition of Bay Restoration Funds, including upgrades to Best Available Technology, cover crop activities, etc.