

Effects of Heavy Rain and Sanitary Sewer Overflows into Jones Falls Captured by Continuous Monitor at Masonville Cove

On September 30th, 2010, the Baltimore City Department of Public Works reported three sanitary sewer overflows discharging into the Jones Falls. The first two, in the 400 block of E. Eager Street and the 1800 block of Falls Road (Figure 1), were reported at 8:30am and spilled approximately 50 gallons per minute during the event. The third overflow, located at 1501 N. Charles Street (Figure 1), spilled approximately 500 gallons per minute during the event. Heavy rains which overwhelmed the sanitary lines were the most likely causes of these events. Full details of these overflows can be found through the Maryland Department of the Environment Reported Sewer Overflow Database

(<http://www.mde.state.md.us/programs/Water/OverFlow/Pages/ReportedSewerOverflow.aspx>)

and the Baltimore City Department of Public Works website

(<http://www.baltimorecity.gov/Government/AgenciesDepartments/PublicWorks.aspx>).

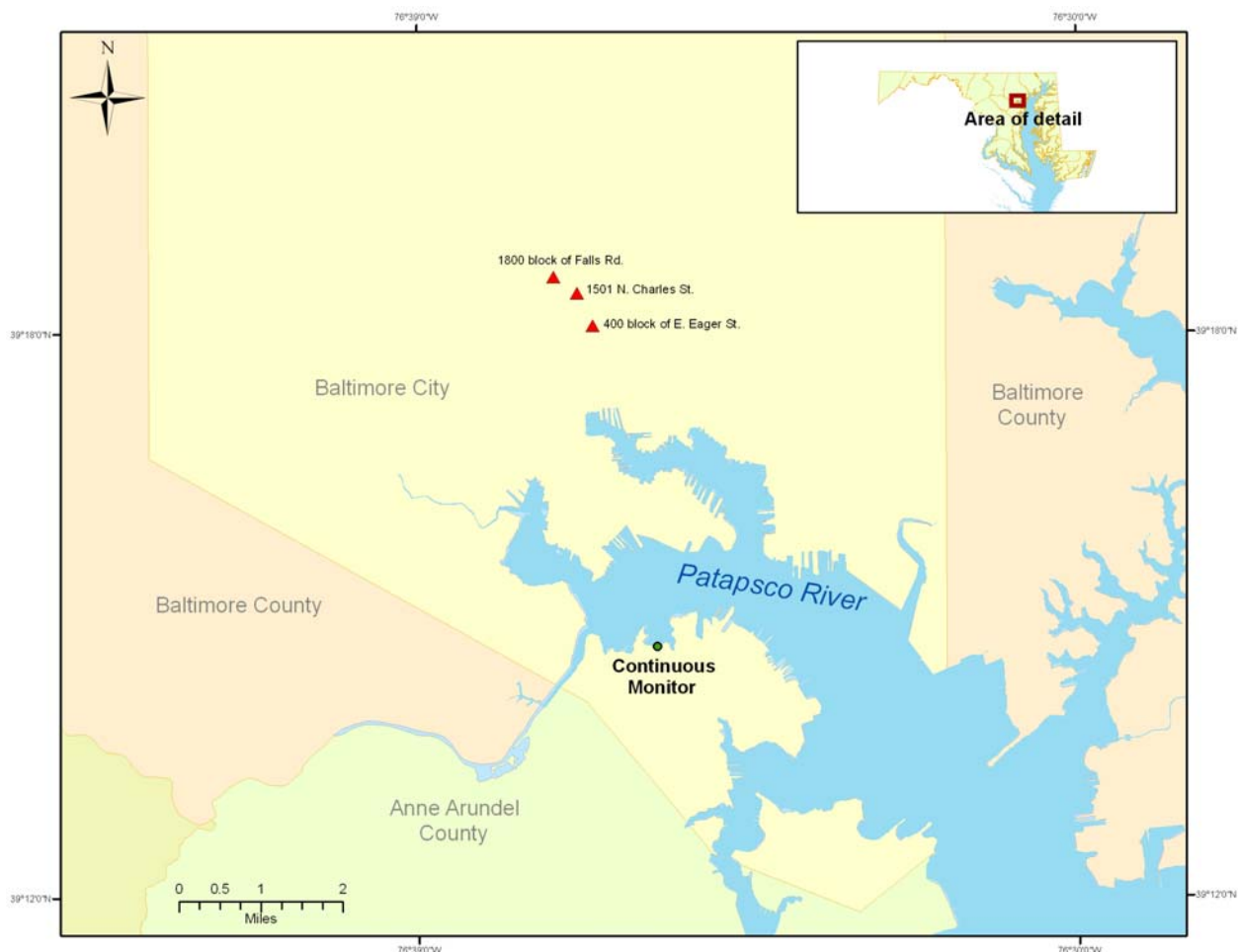


Figure 1. Map of the Patapsco River showing the location of the three reported sanitary sewer overflows on September 30th, and Maryland DNR's Continuous Monitor in Masonville Cove.

The Jones Falls empties into the Patapsco River near the Baltimore Inner Harbor. The river then flows past the communities of Curtis Bay, Dundalk, and Orchard Beach, before reaching the Chesapeake Bay at Fort Smallwood Park. For the second consecutive year, Maryland DNR is maintaining a Continuous Monitoring site on the Patapsco River in Masonville Cove near Curtis Bay (Figure 1). The Continuous Monitoring Program consists of a series of sites throughout Maryland's tidal waters, which collect water quality readings every 15 minutes around the clock during the spring and summer. Data collected include water temperature, dissolved oxygen, salinity, turbidity (water clarity), and chlorophyll levels.

Observations from Masonville Cove show an influx of freshwater beginning on the evening of September 30th and lasting until the morning of October 2nd (Figure 2a). Turbidity readings, which measure how cloudy or clear the water is, also spiked during this time (Figure 2b), indicating the influx of water brought high concentrations of particles and sediment.

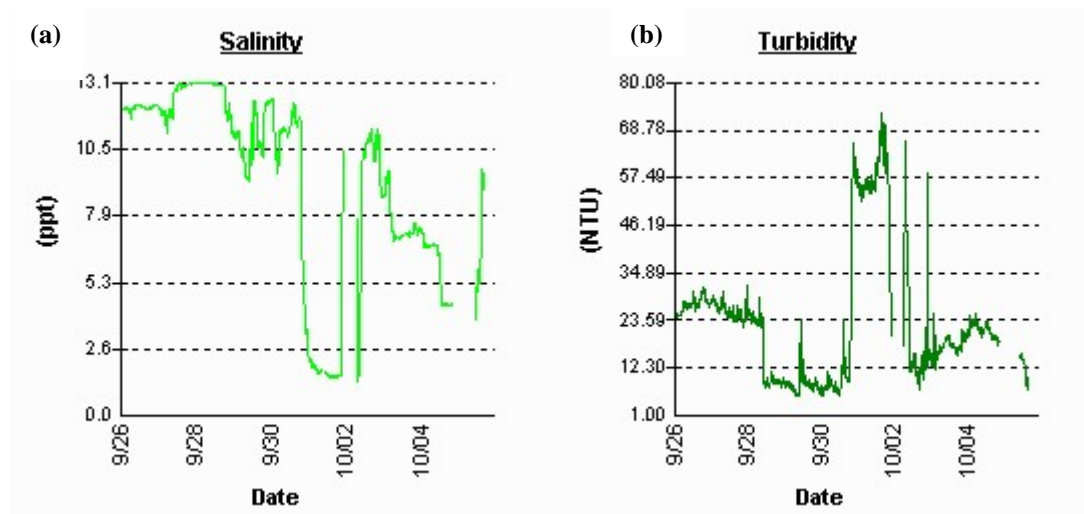


Figure 2. Salinity (a) and turbidity levels (b) recorded between September 26th and October 5th, 2010 at the Maryland DNR Continuous Monitoring site in Masonville Cove on the Patapsco River.

The graphs in Figure 2 indicate that the initial effects of the September 30th storm and sanitary sewer spills into the Patapsco were short-lived. However, longer-term effects may not be readily apparent. Excessive nutrients, particularly nitrogen and phosphorus, flow into waterways with sewer overflows and have the potential to fuel algae blooms. These blooms can cloud the water for long periods of time and can depress the growth of underwater vegetation and decrease the health of fish by increasing stress levels and decreasing their ability to extract oxygen from the water. The death and decomposition of large algae blooms can also reduce oxygen levels in waterways to the point where fish and other aquatic animals cannot survive in affected areas. Thus, Maryland DNR will continue to actively monitor and report on the condition of the Patapsco River and the Chesapeake Bay. For the most recent Water Quality data for waterways throughout Maryland, please visit www.eyesonthebay.net.