

Low Dissolved Oxygen Levels in the Magothy River Leads to Fish Kill at Lake Waterford

On March 23rd, 2010, a fish kill of approximately 500 fish, including gizzard shad, sunfish, and stocked rainbow trout, was reported by the Maryland Department of the Environment (MDE) in Lake Waterford. Lake Waterford, which is located in Pasadena, Maryland (39.11373°, -76.561124°), is formed by a dam near the headwaters of the Magothy River (Figure 1). MDE investigated the fish kill and found that oxygen levels within the lake were below 1 milligram per liter (mg/l). These levels are considered severely low and most aquatic organisms cannot survive in such conditions for more than a few hours.

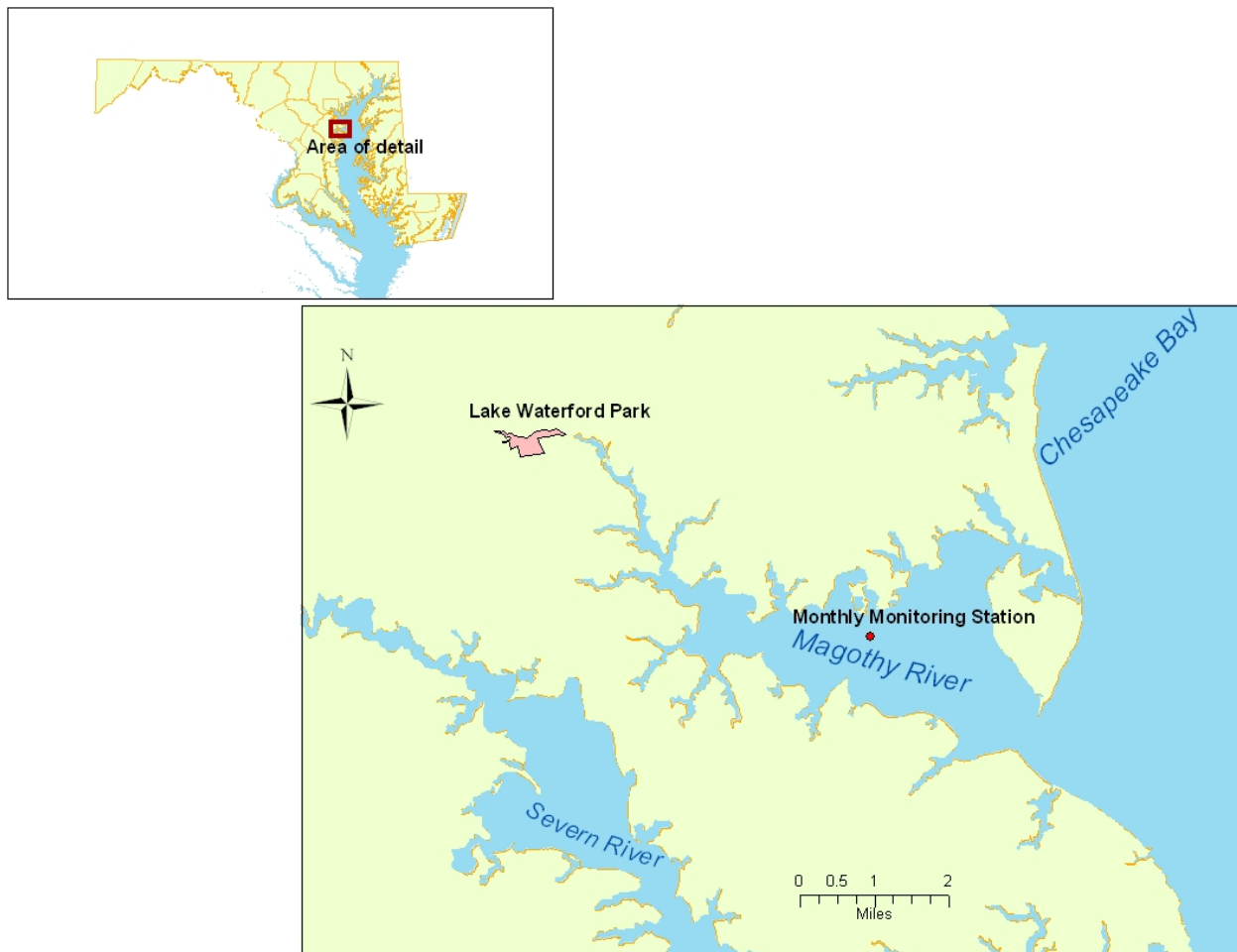


Figure 1. Map of the Magothy River showing Lake Waterford Park and Maryland DNR’s Fixed Monthly Monitoring Station.

Water Quality data collected two days later on March 25th at Maryland DNR’s Fixed Monthly Monitoring Station downstream from Lake Waterford on the Magothy (see Figure 1) showed that dissolved oxygen levels in the river remained severely low at 0.80 mg/l (Figure 2).

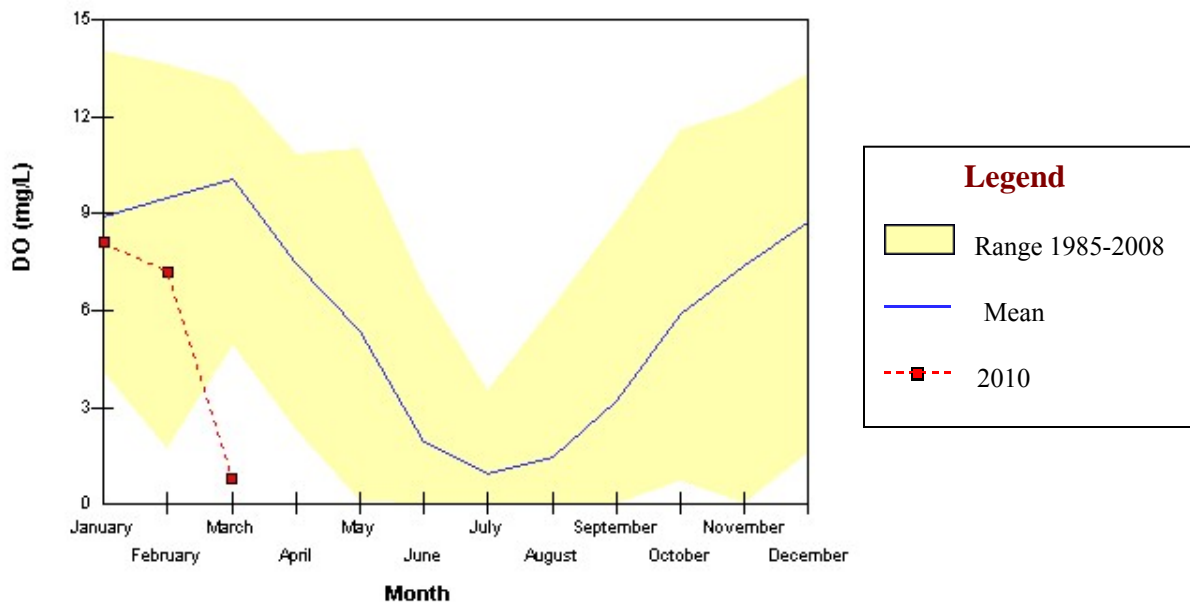


Figure 2. Dissolved oxygen data collected at Maryland DNR’s Magothy River Fixed Monthly Monitoring Station (39.0751°, -76.4747°). The Yellow shaded area indicates the range of values collected from 1985-2008, the blue line represents the mean of those values, and the red dots represent values collected in 2010.

Severely low dissolved oxygen levels often occur when large algae blooms die-off and the decomposition process consumes significant amounts of oxygen in the water. Algae blooms are fueled by excessive nitrogen and phosphorus that flow into waterways with stormwater runoff from land and wastewater from treatment plants. Heavy rains and rapid snowmelt in mid-March (see the Monitoring Story – Heavy March rains and snowmelt affect Chesapeake Bay health: <http://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/March2010RunoffEvent.pdf>) may therefore, have played a role in washing excessive nutrients into the Magothy River, leading to the abnormally low oxygen levels.

Maryland DNR will continue to actively monitor the condition of the Magothy River. For the most recent Water Quality data for waterways throughout Maryland, please visit www.eyesonthebay.net. To report a fish kill, please call Maryland’s Chesapeake Bay Safety and Environmental Hotline at (877) 224-7229, option 2.