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## ***E. coli* in Milton Remains a Problem for the Town's Rivers and Streams**

Milton continues to make critical investments in investigating its sewer systems and stormwater infrastructure to improve stream and river health. The need for this investment is clear: Bacteria concentrations at all ten sampling sites along streams or rivers in or bordering the Town of Milton failed to meet the Massachusetts Department of Environmental Protection *Escherichia coli* (*E. coli*) standards. Elevated *E. coli* concentrations provide evidence of fecal contamination that could make people sick if they contact the water during recreation. Some types of *E. coli* are harmful, and the presence of *E. coli* also serves as a warning that other dangerous pathogens associated with feces could be in the water. "The Town of Milton has been a great partner in helping reduce the *E. coli* levels by reducing runoff from entering these streams. An unfortunate reality is that it often takes substantial work before you start to see the positive impacts of these projects years down the line," says Executive Director Ian Cooke of the Neponset River Watershed Association (NepRWA).

"Because of how developed Milton is, rain that falls on streets, roofs, and parking lots in many cases runs off into the nearest stream and carries a lot of pollutants, including *E. coli*," explains Marina Fernandes, Town Engineer. "The Town is continuing to expand our 'Stormwater Best Management Practices', which help the runoff into areas where it can infiltrate the ground and reduce the pollutant load, rather than running off directly into surface waters," adds Fernandes. Over the last decade, Milton has been constructing numerous infiltration basins, rain gardens, and other devices on town-owned property to help with this stormwater issue.

Recently completed projects include a rain garden at the Police Station and tree filter boxes at Wendell Park. "We are looking into ways to reduce pollution into Unquity Brook at Adams St., just before it enters the Neponset River Estuary," says Chase Berkeley, Director of Public Works for Milton. "Because wildlife like rainbow smelt spawn in Gulliver Creek, reducing pollutants here will have a large impact on wildlife and recreation in the Neponset estuary," Chase adds. The Town also has an ongoing program to detect and eliminate illicit discharges into the stormwater systems that may be partially contributing to high bacteria levels.

Stormwater runoff carries high levels of *E. coli* when polluted with pet waste or other contaminants. Community members can help reduce these levels by cleaning up dog waste properly and disposing of it in the trash rather than leaving it on sidewalks, roadways, or lawns. Some pet owners mistakenly dispose of pet waste bags in the stormdrains along roadways, thinking that these lead to wastewater

treatment areas. However, in Milton and throughout the Neponset River Watershed, these drains lead directly to the nearest stream with no treatment. Dog waste was found in every sample collected during a 2016 study by NepRWA using DNA-based methods. People can also create opportunities for runoff to infiltrate into the ground by planting rain gardens, installing rain barrels, or designing bioswales.

The report also describes water quality parameters that are important for wildlife, including phosphorus and dissolved oxygen. Total phosphorus levels were similar to previous years, and lower than the high values seen in 2020. However, two sites on Unquity Brook had seasonal average phosphorus values at the threshold for flowing waters. In comparison to last year, Pine Tree Brook had reduced phosphorus levels and was below the threshold when considered across the whole season. High phosphorus levels can cause aquatic plants and algae to overgrow. In addition to the unappealing sights and smells, cyanobacteria and other harmful forms of algae can produce toxins that harm wildlife, pets, and humans. Cyanobacteria is an increasing problem and has been found throughout the Neponset River Watershed.

“Phosphorus is necessary for plant growth, but naturally is found in very low concentrations. Because of this, it is often the ‘limiting’ resource in the freshwater environment. We tend to see algal growth when phosphorus concentrations increase – because all the other required nutrients are likely already there,” explains Dr. Sean McCanty, NepRWA’s River Restoration Director. “Aside from the aesthetic factor, the real problem is that when these extra plants and algae eventually die, they get eaten by bacteria. This process consumes oxygen - in extreme circumstances the dissolved oxygen levels get so low that fish and other animals die”, he adds. However, this doesn’t seem to be the case in Milton, where only three sites experienced dissolved oxygen declines, which were not those with elevated phosphorus.

The water quality monitoring program that collects this data is part of a larger watershed restoration effort. Throughout the Neponset River Watershed, efforts to improve water quality, restore river and salt marsh habitat, and reconnect the streams to allow fish passage are all underway. “All of these issues are connected,” says McCanty. “Removing old dams helps prepare our communities for climate change, improves fish passage and dissolved oxygen levels, and can limit the amount of algae overgrowth. Replanting along the riverbank helps filter storm runoff and stabilize the banks, improving water quality for fishing, boating, and swimming.,” McCanty adds.

The Neponset River Watershed Association is a local environmental non-profit that publishes an annual report on the health of the local streams and Neponset River in Milton and neighboring towns that drain into the Neponset River. The water quality data used in the report is collected as part of the Association’s volunteer-based “Community Water Monitoring Network” program, that collects water samples monthly from May to October to test for constituents that impact safety for recreation and wildlife.

For the full water quality report visit NepRWA’s website: <https://www.neponset.org/town-water-quality-reports>.

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