



April 15, 2022 Back River statement

What You Need to Know

The Maryland Environmental Service, as directed by the Maryland Department of the Environment (MDE), has begun to take steps toward improving operations at the Back River Wastewater Treatment Plant. Despite MDE taking action every step of the way since June of last year to see that conditions improved at the plant, when the directive was issued March 27 plant operations were in a state of precipitous decline. MDE's expectation is for operations to improve under the Maryland Environmental Service's temporary operation of the facility. MES will stay in place as long as necessary, working with Baltimore City, to achieve our objective to bring this plant into compliance.

MDE is aware of concerns about solid materials observed in Back River earlier this week. When there were reports of floating clumps of material last month our finding was that there were floating mats of filamentous algae in the Back River. That finding was supported by an examination of a sample we obtained then. We examined a sample of the material observed this week. MDE's analysis indicates this is NOT raw sewage.

The sample of solid material obtained this week appears similar to the sample MDE received from Blue Water Baltimore three weeks ago. While the Department's microscopic analysis of the recent sample indicates that it could be connected to discharges from past operations and current maintenance activities at the Back River Wastewater Treatment Plant (WWTP), the analysis indicates that the material is NOT raw sewage. As also observed with the microscopic analysis of the March 23 sample, analysis of the recent sample shows no life visible (i.e., bacteria, fungi, protozoan, rotifers, and nematodes) in the sample and there are no undigested byproducts visible supporting that the sample is not raw sewage. The strong odor in both samples is similar to nutrient rich oxygen-depleted marsh mud.

In the recent sample, the analysis confirmed the presence of several non-living shelled amoeba, which is prevalent in literature as being present in a sewage treatment process. Presumably the shells do not break down when the amoeba dies, and they pass through the treatment system. The presence of this amoeba implies that some of the materials in the sample may have originated from the WWTP discharge after passing through the treatment system.

Based on these observations, the Department suspects the substance can be produced through either (1) an accumulation of excessive suspended solids, NOT raw sewage, intermittently escaping from the failing treatment works and being discharged, (2) bottom muck brought to



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the surface by low tide, wind, and agitation from the sewage discharge or (3) a combination of both. However, at this point, there is no clear-cut evidence to confirm either scenario.

With warming temperatures combined with elevated nutrient discharges from the WWTP, the biological activity in the nutrient and organic-rich sediment can be expected to increase and the microorganisms living in anoxic sediment environment may generate gas through anaerobic reaction. This may likely result in more bubbling and increase the buoyancy for sediment solids to float to the surface. Again, our examination indicates that this material is NOT raw sewage, and an increase in this activity does not mean that improvements at the WWTP are not working.

The Department is continuing to closely track the progress that the WWTP is making to be in compliance with its permit. The Department is planning to conduct a field study, collect more sediment samples in the river and compare them to the material in the WWTP to better understand and determine the source of the issue.

The Department is also aware of reports that sampling of water from Back River showed elevated levels of bacteria.

- The Department is seeking to review those sample results.
- While water quality issues can be caused by a range of factors, the Department's review of WWTP discharge monitoring records show some recent elevated levels of bacteria and solids in recent days. However, they do NOT appear to be at levels that would explain the reported levels for the river. The Department notes that intense and increased maintenance activities at the plant could lead to temporary or sporadic increases in solids in its discharge.
- Any findings for bacteria levels in the waters do not affect the Department's findings relating to the solid materials observed in the river.

More detail:

The Department is seeking to review the sample results reported by the Back River Restoration Committee. Water quality can deteriorate due to pollution caused by runoff after storm events, trash, debris, or sewage, including sewage overflows. Other sources that may cause poor water quality include failing septic systems, boat waste discharges, and wastes originating from pets, wildlife and farm animals that may runoff into the waters after storm events.



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The Department's review of records for the discharge from the Back River WWTP shows some elevated levels of bacteria and solids in recent days, including following a rain event on April 6, but they do NOT appear to be at levels that would explain the reported levels for the river. Solids levels may fluctuate due to the increased maintenance activities at the plant, but the Department's expectation is that over time the discharge will improve as operations improve. The Department plans to start its own monitoring of the plant discharge and in the river upstream and downstream of the plant for bacteria in the next two weeks.

Recreating in natural waters is not without risk. Maryland's most recent water quality assessment [report](#) describes historic water quality concerns for Back River, for such issues as suspended solids, low dissolved oxygen, pesticide and PCBs in Back River.

The Department oversees a program in which beaches across the state are monitored for water quality during the summer swimming season and advisories are made public when needed. The Department also provides [tips for swimmers](#). Those tips, such as the caution to avoid water contact if you have open cuts or sores, could also be applied to other forms of water recreation, such as boating and fishing.

MDE also provides [fish consumption advisories](#), based on potential long term effects of PCBs and mercury, for waterways the state, including Back River. Bacteria levels are used to gauge whether waters are safe for the harvesting of shellfish, including oysters, because shellfish are often eaten raw or partially cooked. Those restrictions do not apply to fish or crabs.

More information on the Back River Wastewater Treatment Plant is available on [MDE's website](#).