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UNDERSTANDING CCOM'S WATER QUALITY REPORTS

PART I: ENTERO ESSENTIALS

Water quality reports explained! Walk through the details of our reports, in our new mid-month letter, *Science Explained* with staff scientist Rebecca Holloway (5 minute read).

Why check water quality reports?

Water quality is critical for both public health and recreation. Water quality reports are like a health report on our water systems, providing information on key water health metrics crucial for assessing the safety of recreational waters. One of these key metrics, which we measure at CCOM, is our water's level of enterococcus bacteria.

Enterococcus (you might also see this word in its plural form, enterococci) is a type of bacteria known as an "indicator organism" for water quality. It is used to reveal potential contamination from human or wildlife waste. Enterococci are found at high levels in feces. Enterococcus is also used by scientists and public health experts as an

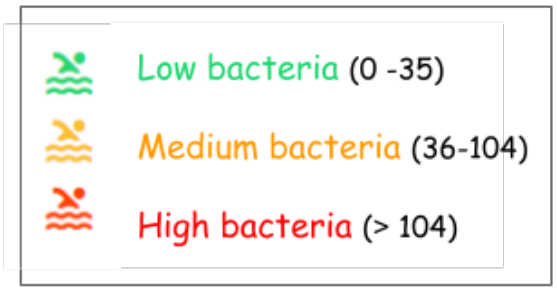
indicator for potentially harmful pathogens that are common culprits of gastrointestinal illnesses. While the bacteria is naturally found in GI tracts, they act like a highlighter in the water, showing us where other dangerous pathogens hang out.

Scientists pick enterococcus, in particular, as a marker for water contamination because the bacteria survives well in the watery environments we are concerned about, and its presence highly correlates with the likelihood of other fecal-derived pathogens being present. Harmful pathogens that can potentially be present when our water's enterococcus levels are high include *Escherichia coli* (*E. coli*), *Salmonella*, *Campylobacter*, norovirus, *Giardia* and *Cryptosporidium*.

CCOM is dedicated to safeguarding the East End community we serve. Unfortunately, the choice to be mindful of CCOM's water quality reports before recreating can mean the difference between you and your family's safety, and serious illness.

This example story, featuring our partner, local chapter Surfrider Foundation Eastern Long Island, shows in plain view the importance of regular water testing work. This is the story of teenager Ava Inglett, who, earlier this year on a Memorial Day Weekend holiday, "along with 22 other people, developed an *E. coli* infection after recreating in Lake Ana in Virginia."

Ava's infection led to kidney failure , "yet there was no timely warning provided to the public that the water was polluted because the state was only testing this beach monthly going into the holiday weekend" (Surfrider). At the end of the video, Ava's parents urge others to be aware of the dangers of poor water quality levels.



Understanding our reports and what numbers mean safe to swim

The New York State Department of Health has established safety cutoffs for Enterococcus levels: to recreate safely, their established threshold is 35 (MPN/100mL). Health risk then increases with higher bacteria levels. We report **Medium bacteria** when levels are between 36-104, and **High bacteria** when levels are any number above 104. Higher levels can regularly result from factors including heavy rainfall, which washes pollutants into waterways, or from direct discharges of waste (EPA, 2023).

What do these numbers really mean?

The numbers we report have standard units used for estimating the amount of bacteria in a set amount of water. MPN stands for Most Probable Number, and we get this number by measuring statistical growth of the bacteria. There is also a second commonly used unit you might see with water quality reports, CFU (Colony Forming Units).

Even though these are two different units, they report the same numbers. The difference between the two units is just the method, or way, that scientists choose to sample water: When CFU is used, it means the bacteria was estimated by directly counting the visible colonies of bacterial growth. When we use MPN at CCOM, it means we got bacteria numbers by referring to a statistical chart that estimates the bacteria amount based on the growth patterns in a series of water samples. Both methods are used commonly and compliant with federal standards.

Water Quality FAQ

When can I return to swimming?

A question we're commonly asked is "OK. The levels are bad in the CCOM water quality report this week. When can I return to the water? If levels are bad today, will they clear up by this weekend?"

Although we want to get back in the water too, unfortunately it's not a simple one-size-fits-all answer. We see that water quality levels can improve in from as little as 48 hours to as long as many weeks.

In the Suffolk County Department of Health Services (SCDHS) monitoring of Suffolk County beaches, working in the context of EPA recommendations and requirements

of the New York State Sanitary Code, when beach closures occur they do not allow recreation until additional samples are taken and results are safe and meeting the requirements of the NYS Sanitary Code.

Why is it hard to say when water will improve? Water quality changes because it is affected by many different complex factors including weather, such as temperature, humidity, wind, rainfall, and changing tides, and physical pollution sources, such as industrial and sewage discharges and spills.

It can get complicated, but a clear water quality indicator we can certainly highlight is **rain events**. Our water quality is strongly impacted by stormwater runoff during rain events, and we have been seeing an increase in frequency and intensity of rain this summer!

The SCDHS also issues precautionary rainfall-related advisories, before seeing poor water quality results, and these are issued typically with a rain event resulting in over 1 inch of rainfall. In these cases, the SCDHS recommends that water contact be suspended in affected areas until 24 hours post-rain event, when the waters have been flushed by two successive tidal cycles.

When it rains, contaminants, including fecal matter that builds up on the ground surface, are washed straight into our watersheds and beaches. You can often observe poor water quality after storms by eye when water bodies are very cloudy and look brown or green.

Outside of fecal contamination, simple plants called cyanobacteria can also explode following rain events due to stormwater runoff that favors their growth, and thereby creating **Harmful Algal Blooms (HABs)**. Keep an eye out for this letter's Part II to dive into HABs—what they are, why we care, and how we measure them, in our next *Science Explained!*

Thanks for exploring with us,

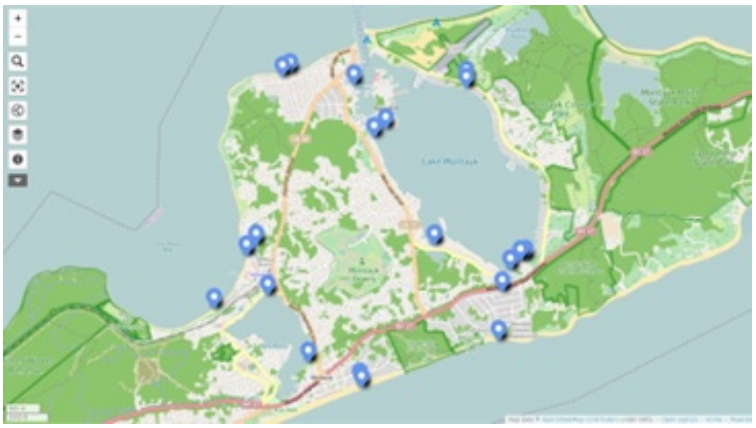
R Holloway

Call for Volunteers!

We are looking for volunteers

to join our community water quality monitoring team!

Does picking up water samples around Montauk sound like something you're interested in? Commitment ranges from 2-4 days/ month. We sample Monday mornings. Locations might be right in your backyard! Call us at (631)238-5720, or email Rebecca.



See our complete site list and map in our interactive map here. Click over on each site to be redirected to Blue Water Task Force's database with more information about each location and its most up-to-date measurements that CCOM works to provide! You can dive in and be part of this work, too!

CCOM, Peconic Baykeeper and Surfrider staff and community volunteers make up the East End's Blue Water Task Force (BWTF).

SITE	Latitude	Longitude
MONTAUK		
Lake Montauk: Harbor*	41.071473	-71.938811
Lake Montauk: Causeway South*	41.064869	-71.935405
Lake Montauk: Little Reed Pond Creek*	41.071983	-71.919729
Lake Montauk: Nature Preserve Beach*	41.071044	-71.919754
Lake Montauk: East Creek*	41.049397	-71.909733
Lake Montauk: South Beach*	41.04935	-71.910614
Lake Montauk: West Creek	41.04813	-71.912278
Lake Montauk: Stepping Stones*	41.051362	-71.925133
Lake Montauk: Benson Dr. Culvert	41.045416	-71.913694
Ditch Plains: East of Jetty	41.039292	-71.914292
Surfside Place: Ocean Beach	41.033358	-71.937565
Surfside Place: Outfall Pipe*	41.033939	-71.937811
Fort Pond: Industrial*	41.04499	-71.953427
Fort Pond: Ramp*	41.036574	-71.946582
Tuthill Pond	41.051318	-71.955382
LI Sound: Fort Pond Bay, Tuthill Rd.	41.049995	-71.957016
LI Sound: Fort Pond Bay, Navy Rd.	41.043298	-71.962525
LI Sound: Soundview Drive Beach	41.072854	-71.949627
LI Sound: Soundview Drive Culvert	41.072524	-71.950957
AMAGANSETT		
Napeague Harbor: East	41.006667	-72.035278
Napeague Harbor: West	41.003498	-72.059321
Fresh Pond: Beach*	40.995604	-72.110803
Fresh Pond: Creek*	40.99585	-72.112166
EAST HAMPTON		
Accabonac Harbor: Louse Point Beach	41.019391	-72.135912
Accabonac Harbor: Shipyard Ramp*	41.02133	-72.151845
Accabonac Harbor: Landing Lane	41.021023	-72.154445
Three Mile Harbor: Folkstone Drive	41.032282	-72.18127
Three Mile Harbor: Head of the Harbor*	41.000312	-72.182184
Three Mile Harbor: Settler's Landing	41.018746	-72.201869
Northwest Creek: Ramp	41.010114	-72.247353
Northwest Creek: Culvert	41.00313	-72.243719

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CCOM is a 501(c)(3) not-for-profit environmental organization. Thanks to our donors, we have been protecting Montauk's unique environment since 1970. Please consider making a 100% tax-deductible donation today.

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