



Connecticut River Conservancy

Bacteria Monitoring

2020 Summary

What is *E. coli*?

Escheria coli, typically shortened to *E. coli*, is a type of fecal coliform bacteria. *E. coli* is found in the digestive tracts of all warm-blooded animals, including humans. Most *E. coli* are harmless and are part of a healthy digestive system. However, sometimes *E. coli* can cause illness.

The presence of *E. coli* in rivers indicates that human or animal waste is or has been present in water. This can be from human, pet, or wildlife feces, diapers, malfunctioning septic systems, storm water runoff, or sewage treatment overflows. *E. coli* acts as an indicator organism. It is relatively easy to test for and its presence in high numbers means that it is more likely for other sources of waterborne illness to be found alongside it.

Because runoff from rainstorms often carries bacteria from the land and can trigger combined sewer overflows, it is recommended to wait 24-48 hours after rainfall to resume swimming.

Methods

Volunteers collected samples at 13 sites in Massachusetts and 5 sites in Connecticut (orange dots, left) from July through October. Each sample is collected in a sterile, 100 mL bottle. Volunteers also record air and water temperatures, as well as visual, olfactory, and weather observations. Massachusetts samples are processed at the CRC lab in Greenfield, and Connecticut samples are processed at the United States Geological Survey (USGS) lab in Hartford.



E. coli under a microscope



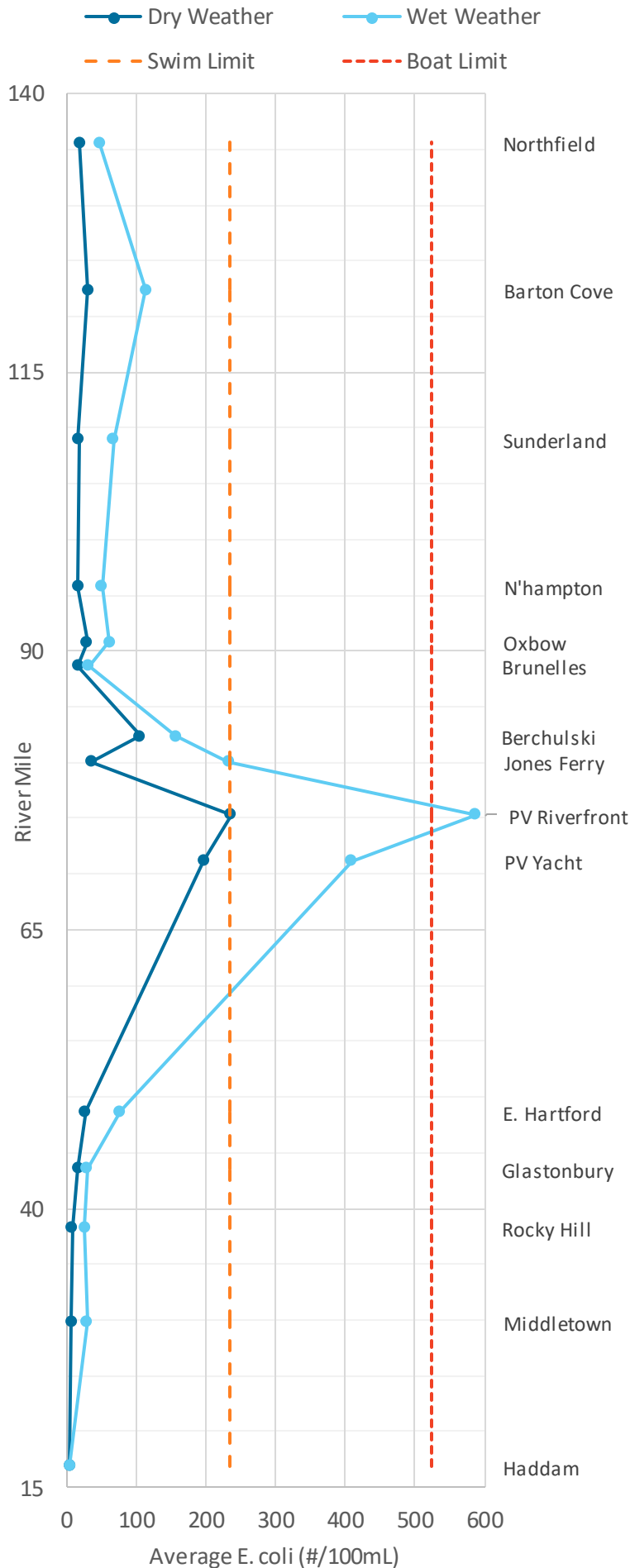
Storm runoff carrying bacteria



Sample in collection bottle.



Connecticut River 2020



Results

Results are posted online 24 hours after sample collection at [Is It Clean?/¿Está Limpio?](#) This year's averages for each site are depicted in the graphs to the left and below and are compared to the recommended bacteria levels for swimming and boating. Since significant rainfall 24-48 hours before sampling often results in elevated bacteria levels, the averages are split between wet and dry weather sampling days.

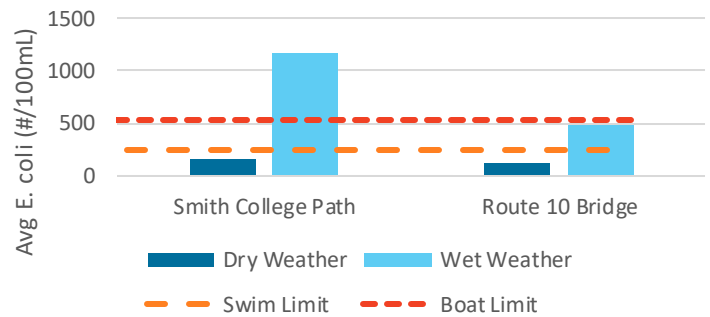
Connecticut River

Nearly all sites on the mainstem of the Connecticut River have dry weather averages below the recommended level for swimming. A few other average above that level during wet weather with only one site (Pioneer Valley Rowing) averaging above the recommended level for boating during wet weather.

Mill River

In addition to sites on the mainstem, CRC also monitors the Mill River (Northampton), a tributary to the Connecticut River. We have monitored the site off the Smith College path for many years and it periodically has very high results, especially after rain. We added a second site downstream at the Route 10 bridge which generally had slightly lower results in both wet and dry weather.

Mill River 2020



Quality Control

In order to ensure that the results presented here and on [Is It Clean?/¿Está Limpio?](#) are accurate, volunteers collect additional quality control samples. These are either duplicate samples, a second sample collected at the same site, or blank samples, sterile water is transferred to a new sample bottle outside at a site. Duplicate values are expected to come out within 30% of each other and blanks to come out at 0. All blanks and duplicates collected in 2020 met the quality control goals set in our Quality Assurance Project Plan.