

2017 Bacterial Testing in Chester Creek and Pattaconk Brook

SUMMARY

History: CHMC bacterial monitoring began in Pattaconk Brook and Chester Creek in 2007. Samples are usually taken twice each year in the months of July and September provided funding is available. Inclement weather has occasionally caused sampling dates to change. There were no bacterial samples taken in July of 2008 or in years : 2009, 2010, 2011, 2014, 2015 or 2016. Samples were taken in July 2007, Nov 2007, Sep 2008, Aug 2012, Oct 2012, Jul 2013, Sep 2013 and Jul 2017.

Sampling: All samples are taken at the conclusion of three dry days so that rain run-off will not affect bacterial counts. All samples are taken toward the end of an outgoing tide, and before the tide begins flowing into Chester Creek. Samples are taken in new clean sampling bottles at the end of an extendable sampling pole in accord with the standard method for such sampling. To the best of my knowledge, David Campbell of N. L. Jacobson Associates, 86 Main Street, Chester, CT. has always conducted the sampling.

Sample site locations: The attached aerial photo shows the four sampling sites located at: C1, C2, C3 and C4 constituting the waterway between the Main St. bridge and the intersection of Chester Creek with the CT River.

Pattaconk Brook and Chester Creek Classifications: The state of Connecticut's DEEP is responsible for setting bacterial standards for water including "surface waters" such as Pattaconk Brook and Chester Creek. Attached is a copy of the 2011 Connecticut Water Quality Standards, Appendix B, which remains the standard. Pattaconk Brook and Chester Creek fall under the "All Other Recreational Uses" category in the "Designated Use" column. Note that C1 and C2 are located in DEEP class A,B (B/A on photo) and require Indicator: Escherichia coli (e-coli). C3 and C4 are located in DEEP class SA,SB (SB/SA on photo) and require Indicator: Enterococci. The CT River is in DEEP class SB. See Jacobson Assoc's attached report and graphs. Shellfishing and Drinking Water Supply are not designated uses in Chester Creek or Pattaconk Brook below the Main St. bridge; therefore, Total coliform and Fecal coliform are not required samples for this study. They have been included because we have a history on them. They could become useful if shellfish culture or domestic wells were proposed for, or in close proximity to the subject waterway.

2017 Results: It is important to remember that the data we have represents snap-shots of bacterial counts at a specific time. Bacterial counts, if taken the day before or day after these samplings may have yielded different results depending on climatic conditions. When compared with the July 2013 results below, it is clearly demonstrated that snap-shot data is not designed to determine trending. Trending requires much more sampling over a longer period of time.

Escherichia Coli, Indicator for All Other Recreational Uses in Class A, B

At C1 the Escherichia Coli were 35.3% of the count in July 2013 (74 vs. 210) and were substantially below the CT state standard maximum of 576/100 ml. (See black line on graph)
At C2 the Escherichia Coli were 216% of the count in July 2013 (108 vs. 50) and were also substantially below the CT state standard maximum of 576/100 ml. (See graph)

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Escherichia Coli, cont'd

Although not in Class A,B, Escherichia Coli at C3 (Class SA,SB) were 284.3% of the count in July 2013 (199 vs 70) and were substantially below the CT state standard maximum of 576/100 ml (See graph).

Although not in Class A, B, Escherichia Coli at C4 (Class SA, SB) were the same as the count in July 2013 (160 vs 160) and were substantially below the CT state standard maximum of 576/100 ml (See graph).

Enterococci Bacteria, Indicator for All Other Recreational Uses in Class SA, SB

At C3 the Enterococci were 310% of the count in July 2013 (31 vs.10). The 2017 C3 sample was substantially below the CT state standard maximum of 500/100 ml. (See black line on graph)

At C4 the Enterococci were the same as the count in July 2013 (10 vs.10). The 2017 C4 sample was substantially below the CT state standard maximum of 500/100 ml. (See graph)

Although not in Class SA,SB, Enterococci at C1 (Class A,B) were 12.4% of the count in July 2013 (41 vs 330) and were substantially below the CT state standard maximum of 500/100 ml (See graph).

Although not in Class SA, SB, Enterococci at C2 (Class A,B) were 19.7% of the count in July 2013 (69 vs 350) and were substantially below the CT state standard maximum of 500/100 ml (See graph).

Conclusion:

Because they do not pertain to Chester Creek and Pattaconk Brook below the Main St. bridge, we should put aside the results for Total Coliform and Fecal Coliform and inform the Chester Town Sanitarian. These counts may relate to surface waters in class A or AA in Pattaconk Brook or other water sources above the Main St. bridge.

All bacterial Indicator counts in Chester Creek and Pattaconk Brook below the Main St. Bridge are well below the CT state standard maximums for these areas and their Designated uses. It is particularly gratifying to see the low (74) 2017 Escherichia coli results at C1, just below the Main St. bridge, where "bird spikes" were installed after recent bridge reconstruction. As mentioned before, this is a snap-shot in time, but the July low bacterial results are encouraging.