

*French River
Connection*



2019 *E. Coli* Report

January 20, 2020

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Introduction

In the spring of 2019 the French River Connection received a grant from DEP for the purchase of equipment to analyze for *E. coli*. As part of the grant we are required to sample under an approved QAPP and operate the analysis equipment under an approved SOP. The objective of this sampling was twofold. One, to obtain data to assess seven river segments in the French River Watershed for Primary and Secondary Recreational Use and second, to obtain data for entry into the State data portal. Ten sites were monitored weekly June through September. This report presents the data and assesses river segments for Primary and Secondary Recreational Use.

E. Coli Water Quality Standards for Class B and Class C Waters

Class B: These waters are designated as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be suitable as a source of public water supply with appropriate treatment (“Treated Water Supply”). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value.

Bacteria (E. Coli for fresh water): At bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: where *E. coli* is the chosen indicator, the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 126 colonies per 100 ml and no single sample taken during the bathing season shall exceed 235 colonies per 100 ml. For other waters and, during the non-bathing season, for waters at bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010: the geometric mean of all *E. coli* samples taken within the most recent six months shall not exceed 126 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 235 colonies per 100 ml.

Class C: These waters are designated as a habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for secondary contact recreation. These waters shall be suitable for the irrigation of crops used for consumption after cooking and for compatible industrial cooling and process uses. These waters shall have good aesthetic value.

Bacteria (E. Coli for fresh water): The geometric mean of all *E. Coli* samples taken within the most recent six months shall not exceed 630 colonies per 100 ml typically based on a minimum of five samples, and 10% of such samples shall not exceed 1260 colonies per 100 ml. This criterion may be applied on a seasonal basis at the discretion of the Department.

In the tables presented in this report all *E. Coli* values above 235 colonies per 100 ml have been highlighted.

Volunteers

The following volunteers made this project possible and we thank them:

Our samplers:

Devon Avery
Dusti-lee Provencher
Jay Wade
Carolyn Josti
Charles Perzanoski

Antony Bradford
Michaela Bradford
Jack Josti
Nick Buehler

Special thanks to our President Ed Bazinet and our Treasurer Tim Bell for their administrative support. A very special thanks is in order to Devon Avery for his effort in setting up and running the French River Connection Lab. We could not have done it without him.

We would like to thank both Therese Beaudoin and Suzanne Flint of the MassDEP for their invaluable assistance.

Sample Locations

A description of each sample location, photo, E. Coli data, and weather information for each site is presented below. E. Coli values above Class B & C standards are highlighted and the site's geometric mean calculated.

Site 1 State Line, Webster 42.024370 -71.883948

River Segment MA42-06 (Webster-Dudley WWTP to CT State Line)

Stateline (boundary): this is a measure of water quality, below the Webster WWTP, as the main stem leaves the state. This site is chosen because it is on the state line. It is reached by parking where the P&W active rail line crosses Perryville Road in Webster and walking along the path on the north side of Perryville Road toward the river, then under the bridge to the sample location approximately fifty feet diagonally downstream of the bridge



Class C standards for *E. Coli* met for Secondary Recreational Use

Date	E. Coli	Current Weather	Previous 24 Hours
6/1/2019	52.9	Sunny	Sunny
6/4/2019	42.0	Sunny	Sunny
6/13/2019	98.8	Rain	Sunny, Rain over night
6/21/2019	95.9	Cloudy, light rain	Rain
6/29/2019	166.4	42.0	Sunny
7/2/2019	85.5	Cloudy	Sunny
7/11/2019	90.5	Cloudy	Sunny
7/18/2019	816.4	Cloudy	Heavy Rain
7/27/2019	101.2	Sunny	Sunny
7/31/2019	184.2	Sunny	Sunny
8/9/2019	178.9	Sunny	Sunny, Heavy rain 8/7
8/15/2019	72.7	Sunny	Cloudy
8/24/2019	63.1	Sunny	Light Rain in PM
8/29/2019	770.1	Sunny	Heavy Rain
9/6/2019	28.8	Sunny	Sunny
9/12/2019	191.8	Cloudy	Rain
9/16/2019	51.2	Sunny	Sunny
9/21/2019	42.6	Sunny	Sunny
	106.6	Geometric Mean	

Site 4 Brandon Road, Dudley 42.042582 -71.887444

River Segment RMA42-05 (Dam at North Village to Webster/Dudley WWTP)

Brandon Road (reference): At this location we can take data upstream of the Webster Wastewater Treatment Plant. Drive into the Ethan Allen Mill Complex north of the office and proceed directly to the river, just downstream from the Hill Street bridge



Class C standards for *E. Coli* met for Secondary Recreational Use

Date	E. Coli	Current Weather	Previous 24 hours
6/1/2019	76.7	Sunny	Sunny
6/4/2019	45.0	Sunny	Sunny
6/13/2019	686.7	Rain	Sunny, Rain overnight
6/21/2019	90.9	Cloudy, intermittent rain	Rain
6/29/2019	126.7	Cloudy	Sunny
7/2/2019	88.0	Cloudy	Sunny
7/11/2019	344.8	Cloudy	Sunny
7/18/2019	461.1	Cloudy	Heavy Rain
7/27/2019	73.3	Sunny	Sunny
7/31/2019	105.0	Sunny	Sunny
8/9/2019	95.9	Sunny	Sunny, Heavy rain 8/7
8/15/2019	54.8	Sunny	Cloudy
8/24/2019	90.8	Sunny	Light Rain in PM
8/29/2019	235.9	Sunny	Heavy Rain
9/6/2019	37.3	Sunny	Sunny
9/12/2019	98.5	Cloudy	Rain
9/16/2019	45.7	Sunny	Sunny
9/21/2019	44.1	Sunny	Sunny
	105.1	Geometric Mean	

Site 7 Mill Brook at Bigelow Road, Webster 42.066887 -71.875485

River segment MA42 10 (Mill Brook)

Mill Brook at Bigelow Road (impact): As the outflow from Webster Lake, carries a significant volume of water. This station is downstream from a former stump grinding operation, which operated on raw material of unknown origin and character, and added chemicals to its product, and may have affected the chemistry of Mill Brook. Park near the bridge over Mill Brook on Bigelow Road, and monitor on the east side of the bridge.



Beaver activity at this site maybe the cause of high readings

Date	E. Coli	Current Weather	Previous 24 hours
6/1/2019	25.9	Sunny	Sunny
6/4/2019	19.9	Sunny	Sunny
6/13/2019	686.7	Rain	Sunny, Rain overnight
6/21/2019	104.6	Cloudy, light rain	Rain
6/29/2019	73.8	Cloudy	Sunny
7/2/2019	86.0	Cloudy	Sunny
7/11/2019	139.1	Cloudy	Sunny
7/18/2019	1413.6	Cloudy	Heavy Rain
7/27/2019	178.9	Sunny	Sunny
7/31/2019	129.6	Sunny	Sunny
8/9/2019	488.6	Sunny	Sunny, Heavy rain 8/7
8/15/2019	272.3	Sunny	Cloudy
8/24/2019	183.4	Sunny	Light Rain in PM
8/29/2019	1299.7	Sunny	Heavy Rain
9/6/2019	9.8	Sunny	Sunny
9/12/2019	88.4	Cloudy	Rain
9/16/2019	35.0	Sunny	Sunny
9/21/2019	62.4	Sunny	Sunny
	126.0	Geometric Mean	

Site 8 Mill Brook at Mill Brook Plaza, Webster 42.062538 -71.863994

River segment MA42-10 (Mill Brook)

Mill Brook at Mill Brook Plaza on Route 12 (reference): measures the quality of water leaving Webster Lake, and serves as a reference point above the former stump grinding operation. Park in the Mill Brook Plaza parking lot and monitor on the west side of the bridge.



Class B standards for *E. Coli* met for Primary and Secondary Recreational Use

Date	E. Coli	Current Weather	Previous 24 hours
6/1/2019	6.2	Sunny	Sunny
6/4/2019	2.0	Sunny	Sunny
6/13/2019	33.6	Rain	Sunny, Rain overnight
6/21/2019	12	Cloudy, light rain	Rain
6/29/2019	2.0	Cloudy	Sunny
7/2/2019	7.5	Cloudy	Sunny
7/11/2019	15.6	Cloudy	Sunny
7/18/2019	48.0	Cloudy	Heavy Rain
7/27/2019	28.2	Sunny	Sunny
7/31/2019	8.6	Sunny	Sunny
8/9/2019	*	Sunny	Sunny, Heavy rain 8/7
8/15/2019	10.1	Sunny	Cloudy
8/24/2019	85.7	Sunny	Light Rain in PM
8/29/2019	25.6	Sunny	Heavy Rain
9/6/2019	#	Sunny	Sunny
9/12/2019	2.0	Cloudy	Rain
9/16/2019	9.6	Sunny	Sunny
9/21/2019	3.0	Sunny	Sunny
	10.4	Geometric Mean	

* water too low to Sample

sample spilled in lab

Site 11 Lowe's Brook, Oxford 42.104027 -71.866313

River Segment MA42-19 (Lowe's Brook)

Lowe's Brook (reference): This site measures the quality of water leaving Lowe's Pond. Park at the Southside Convenience Store at 182 Main St, (Route 12) and walk South on State Street. Monitor on the west side of the bridge.



Class C standards for *E. Coli* met for Secondary Recreational Use

Date	E. Coli	Current Weather	Previous 24 hours
6/1/2019	73.8	Sunny	Sunny
6/4/2019	23.3	Sunny	Sunny
6/13/2019	344.8	Rain	Sunny, Rain overnight
6/21/2019	59.4	Cloudy, light rain	Rain
6/29/2019	53.0	Cloudy	Sunny
7/2/2019	95.9	Cloudy	Sunny
7/11/2019	47.1	Cloudy	Sunny
7/18/2019	36.9	Cloudy	Heavy Rain
7/27/2019	19.9	Sunny	Sunny
7/31/2019	21.8	Sunny	Sunny
8/9/2019	123.3	Sunny	Sunny, Heavy rain 8/7
8/15/2019	28.5	Sunny	Cloudy
8/24/2019	62.4	Sunny	Light Rain in PM
8/29/2019	57.6	Sunny	Heavy Rain
9/6/2019	56.7	Sunny	Sunny
9/12/2019	93.3	Cloudy	Rain
9/16/2019	78.0	Sunny	Sunny
9/21/2019	31.8	Sunny	Sunny
	55.1	Geometric Mean	

Site 12 Clara Barton Road, Oxford 42.154835 -71.882514

River Segment MA42-04 (North Oxford Dam upstream of Clara Barton Road to Dam at North Village)

Clara Barton Road (reference): This site is upstream of gravel pit operations in the area. Take Clara Barton Road off Route 12 in North Oxford and park at the stone bridge. Make your way down to the water upstream of the bridge and monitor from the rock outcropping.



Class C standards for *E. Coli* met for Secondary Recreational Use

Date	E. Coli	Current Weather	Previous 24 hours
6/1/2019	35.5	Sunny	Sunny
6/4/2019	35.5	Sunny	Sunny
6/13/2019	261.3	Rain	Sunny, Rain overnight
6/21/2019	185.0	Cloudy, light rain	Rain
6/29/2019	38.9	Cloudy	Sunny
7/2/2019	209.8	Cloudy	Sunny
7/11/2019	49.6	Cloudy	Sunny
7/18/2019	142.1	Cloudy	Heavy Rain
7/27/2019	51.2	Sunny	Sunny
7/31/2019	86.0	Sunny	Sunny
8/9/2019	547.5	Sunny	Sunny, Heavy rain 8/7
8/15/2019	65.7	Sunny	Cloudy
8/24/2019	45.0	Sunny	Light Rain in PM
8/29/2019	249.6	Sunny	Heavy Rain
9/6/2019	33.1	Sunny	Sunny
9/12/2019	143.9	Cloudy	Rain
9/16/2019	78.0	Sunny	Sunny
9/21/2019	30.5	Sunny	Sunny
	86.3	Geometric Mean	

Site 13 Little River, Oxford 42.110470 -71.883447

River Segment MA42-14 Little River

The Little River (impact): this site is the largest inflow of water into the French River; it is the outflow from Buffumville Lake. Between Buffumville Lake and its confluence with the French River there are several industrial areas right on the river. Where Dudley Road crosses over the French River park at the Leovich Landing boat launch site. Park here and walked down the old Boston & Albany railbed about ¼ mile and monitor the river when reached



Class B standards for *E.Coli* met for Primary and Secondary Recreational Use

Date	E. Coli	Current Weather	Previous 24 hours
6/1/2019	35.5	Sunny	Sunny
6/4/2019	35.5	Sunny	Sunny
6/13/2019	139.6	Rain	Sunny, Rain overnight
6/21/2019	185.0	Cloudy, light rain	Rain
6/29/2019	38.9	Cloudy	Sunny
7/2/2019	209.8	Cloudy	Sunny
7/11/2019	49.6	Cloudy	Sunny
7/18/2019	142.1	Cloudy	Heavy Rain
7/27/2019	51.2	Sunny	Sunny
7/31/2019	86.0	Sunny	Sunny
8/9/2019	151.5	Sunny	Sunny, Heavy rain 8/7
8/15/2019	65.7	Sunny	Cloudy
8/24/2019	45.0	Sunny	Light Rain in PM
8/29/2019	135.9	Sunny	Heavy Rain
9/6/2019	33.1	Sunny	Sunny
9/12/2019	143.9	Cloudy	Rain
9/16/2019	78.0	Sunny	Sunny
9/21/2019	30.5	Sunny	Sunny
	86.3	Geometric Mean	

Site 14 Dudley Road, Oxford 42.107183 -71.883204

River Segment MA42-04 (North Oxford Dam upstream of Clara Barton Road to Dam at North Village)

Dudley Road (reference): This site is above Lowe's Brook and is monitored as a baseline to see how much influence Lowe's Brook has on the French River. Park in the same location as for Little River and sample at boat landing.



Class C standards for *E. Coli* met for Secondary Recreational Use

Date	E. Coli	Current Weather	Previous 24 hours
6/1/2019	45.5	Sunny	Sunny
6/4/2019	33.2	Sunny	Sunny
6/13/2019	365.4	Rain	Sunny, Rain overnight
6/21/2019	105.0	Cloudy, light rain	Rain
6/29/2019	122.3	Cloudy	Sunny
7/2/2019	85.7	Cloudy	Sunny
7/11/2019	40.8	Cloudy	Sunny
7/18/2019	52.1	Cloudy	Heavy Rain
7/27/2019	42.8	Sunny	Sunny
7/31/2019	58.3	Sunny	Sunny
8/9/2019	161.6	Sunny	Sunny, Heavy rain 8/7
8/15/2019	60.9	Sunny	Cloudy
8/24/2019	35.3	Sunny	Light Rain in PM
8/29/2019	238.2	Sunny	Heavy Rain
9/6/2019	25.6	Sunny	Sunny
9/12/2019	90.8	Cloudy	Rain
9/16/2019	32.3	Sunny	Sunny
9/21/2019	39.3	Sunny	Sunny
	67.2	Geometric Mean	

Site 15 Harwood Street, Oxford 42.091509 -71880146

River Segment MA42-04 (North Oxford Dam upstream of Clara Barton Road to Dam at North Village

Harwood Street (reference): This site is below Lowe’s Brook and combined with Dudley Road should give us a clear picture of any impact Lowe’s has on the French. Monitoring here also gives us a good flow measurement above North Village dam to compare with flow below as measured by the USGS gauge in Webster. There is a pull off next to the bridge where Harwood Street crosses over the French River. Park here and sample downstream on the east side of the bridge



Class C standards for *E.Coli* met for Secondary Recreational Use

Date	E. Coli	Current Weather	Previous 24 hours
6/1/2019	101.9	Sunny	Sunny
6/4/2019	46.4	Sunny	Sunny
6/13/2019	325.5	Rain	Sunny, Rain overnight
6/21/2019	146.7	Cloudy, light rain	Rain
6/29/2019	123.6	Cloudy	Sunny
7/2/2019	68.3	Cloudy	Sunny
7/11/2019	37.4	Cloudy	Sunny
7/18/2019	137.6	Cloudy	Heavy Rain
7/27/2019	83.6	Sunny	Sunny
7/31/2019	48.0	Sunny	Sunny
8/9/2019	275.5	Sunny	Sunny, Heavy rain 8/7
8/15/2019	54.8	Sunny	Cloudy
8/24/2019	65.7	Sunny	Light Rain in PM
8/29/2019	344.8	Sunny	Heavy Rain
9/6/2019	49.5	Sunny	Sunny
9/12/2019	185.0	Sunny	Rain
9/16/2019	69.7	Sunny	Sunny
9/21/2019	56.5	sunny	Sunny
	96.1	Geometric Mean	

Site 16 Route 56, Oxford 42.162652 - 71.887219

River Segment MA42-03 (Outlet of Greenville Pond to North Oxford Dam upstream of Clara Barton Road)

Route 56 (reference): This is the furthest upstream site that we will be monitoring and gives us a baseline for all downstream monitoring. Take Route 56 off Route 12 in North Oxford and park at the bridge. Make your way down to the water upstream of the bridge and monitor from the riprap.



Date	E. Coli	Current Weather	Previous 24 hours
6/1/2019	40.4	Sunny	Sunny
6/4/2019	6.3	Sunny	Sunny
6/13/2019	44.1	Rain	Sunny, Rain overnight
6/21/2019	79.4	Cloudy, light rain	Rain
6/29/2019	5.1	Cloudy	Sunny
7/2/2019	17.1	Cloudy	Sunny
7/11/2019	9.7	Cloudy	Sunny
7/18/2019	19.9	Cloudy	Heavy Rain
7/27/2019	10.1	Sunny	Sunny
7/31/2019	18.9	Sunny	Sunny
8/9/2019	344.8	Sunny	Sunny, Heavy rain 8/7
8/15/2019	12.0	Sunny	Cloudy
8/24/2019	46.5	Sunny	Light Rain in PM
8/29/2019	>2419.6	Sunny	Heavy Rain
9/6/2019	96.0	Sunny	Sunny
9/12/2019	71.7	Cloudy	Rain
9/16/2019	63.1	Sunny	Sunny
9/21/2019	25.6	Sunny	Sunny
	28.7	Geometric Mean	

Results

Field measurement data and laboratory data, including that for quality control samples are shown below: The table below provides sample collection dates/times, analysis dates/times, sample ID numbers, accuracy analysis, holding time calculations, calculated RPD on raw data, and calculated RPD log 10 transformed data.

Results and QC Table

Site #	Site Name	Date	Time Sample Taken	Time Sample Delivered to Lab	Sample Temperature at Time Delivered to Lab	E. Coli Colonies 100/ml	Accuracy Pass/Fail	RPD (%) calculated on raw data	RPD % calculated on log 10 transformed data	P/F	Hold time calc	Hold time P/F
1	State Line	6/1/2019	8:40	12:36	11.5	52.9					3:56	Pass
4	Brandon Road	6/1/2019	9:06	12:36	14	76.7					3:30	Pass
7	Mill Brook Bigelow	6/1/2019	9:20	12:36	16.1	25.9					3:16	Pass
8	Mill Brook Nursery	6/1/2019	9:28	12:36	16.5	6.2					3:08	Pass
11	Lowe's Brook	6/1/2019	10:07	12:36	17.5	73.8					2:29	Pass
12	Clara Barton Road	6/1/2019	10:32	12:36	19.4	35.5					2:04	Pass
13	Little River	6/1/2019	10:56	12:36	21	24.3					1:40	Pass
14	Dudley Road	6/1/2019	11:09	12:36	20.4	45.5					1:27	Pass
15	Harwood Street	6/1/2019	11:16	12:36	20.4	101.9					1:20	Pass
16	Route 56	6/1/2019	10:22	12:36	17.7	40.4					2:14	Pass
Blank	Harwood Street	6/1/2019	11:26	12:36	21.6	<1	Pass				1:10	Pass
DUP	Brandon Road	6/1/2019	9:06	12:36	13.4	47.3		47.4	11.8	Pass	3:30	Pass
Lab Blank						<1	Pass					
QC	All cells positive						Pass					
	6/1 samples flagged for transit temperature											
1	State Line	6/4/2019	10:40	16:38	6.5	42					5:58	Pass
4	Brandon Road	6/4/2019	10:52	16:38	4.6	45					5:46	Pass
7	Mill Brook Bigelow	6/4/2019	11:03	16:38	5.4	19.9					5:35	Pass
8	Mill Brook Nursery	6/4/2019	11:12	16:38	8.3	2					5:26	Pass
11	Lowe's Brook	6/4/2019	11:21	16:38	8.3	23.3					5:17	Pass
12	Clara Barton Road	6/4/2019	12:37	16:38	6.5	35.5					4:01	Pass

13	Little River	6/4/2019	11:43	16:38	6.5	35.9				4:55	Pass	
14	Dudley Road	6/4/2019	11:32	16:38	6.5	33.2				5:06	Pass	
15	Harwood Street	6/4/2019	12:00	16:38	7.7	46.4				4:38	Pass	
16	Route 56	6/4/2019	12:46	16:38	5.9	63				3:52	Pass	
Blank	Brandon Road	6/4/2019	10:49	16:38	5.6	<1	Pass			5:49	Pass	
DUP	Dudley Road	6/4/2019	11:32	16:38	6.5	39.3		16.8	4.7	Pass	5:06	Pass
Lab Blank		6/4/2019				<1	Pass					
QC*	Harwood Street	6/4/2019	12:00	14:55	14.9	59.4		24.6	6.2	Pass	2:55	Pass
	Sample analyzed by Microbac Lab											
1	State Line	6/13/2019	13:37	16:41	5.6	98.8					3:04	Pass
4	Brandon Road	6/13/2019	13:54	16:41	7.6	686.7					2:47	Pass
7	Mill Brook Bigelow	6/13/2019	14:08	16:41	7.2	686.7					2:33	Pass
8	Mill Brook Nursery	6/13/2019	14:17	16:41	7.1	33.6					2:24	Pass
11	Lowe's Brook	6/13/2019	14:29	16:41	5.6	344.8					2:12	Pass
12	Clara Barton Road	6/13/2019	14:55	16:41	10.4	261.3					1:46	Pass
13	Little River	6/13/2019	15:20	16:41	11.4	139.6					1:21	Pass
14	Dudley Road	6/13/2019	15:11	16:41	10.4	365.4					1:30	Pass
15	Harwood Street	6/13/2019	16:05	16:41	12.7	325.5					0:36	Pass
16	Route 56	6/13/2019	14:44	16:41	7.1	44.1					1:57	Pass
Blank	State Line	6/13/2019	13:37	16:41	8.8	<1					3:04	Pass
DUP	Harwood Street	6/13/2019	16:05	16:41	12.5	325.5		0.0	0.0	Pass	0:36	Pass
Lab Split	State Line	6/13/2019	13:37	16:41	5.6	104.3		5.4	1.2	Pass	3:04	Pass
Lab Blank						<1	Pass					
QC	Monthly											
1	State Line	6/21/2019	10:12	16:03	5.9	95.9					5:51	Pass
4	Brandon Road	6/21/2019	10:24	16:03	5.4	90.9					5:39	Pass
7	Mill Brook Bigelow	6/21/2019	10:35	16:03	5.6	104.6					5:28	Pass
8	Mill Brook Nursery	6/21/2019	10:50	16:03	5.6	12					5:13	Pass
11	Lowe's Brook	6/21/2019	11:03	16:03	5.9	59.4					5:00	Pass
12	Clara Barton Road	6/21/2019	11:33	16:03	6.8	185					4:30	Pass
13	Little River	6/21/2019	11:57	16:03	6.2	86.7					4:06	Pass
14	Dudley Road	6/21/2019	11:51	16:03	6.5	105					4:12	Pass
15	Harwood Street	6/21/2019	12:20	16:03	6.8	146.7					3:43	Pass
16	Route 56	6/21/2019	11:23	16:03	5.6	79.4					4:40	Pass

Blank	Mill Brook Nursery	6/21/2019	10:50	16:03	6.5	<1				5:13	Pass	
DUP	Dudley Road	6/21/2019	11:51	16:03	6.8	107.6		2.4	0.5	Pass	4:12	Pass
	Mill Brook Nursery							79.1		Fail (but on very low counts)		
Lab Split		6/21/2019	10:50	16:03	5.6	5.2			40.5		5:13	Pass
Lab Blank						<1	Pass					
QC	Monthly											
1	State Line	6/29/2019	8:20	12:37	6.2	166.4					4:17	Pass
4	Brandon Road	6/29/2019	8:52	12:37	8	126.7					3:45	Pass
7	Mill Brook Bigelow	6/29/2019	9:46	12:37	7.7	73.8					2:51	Pass
8	Mill Brook Nursery	6/29/2019	9:58	12:37	6.5	2					2:39	Pass
11	Lowe's Brook	6/29/2019	10:34	12:37	6.2	53					2:03	Pass
12	Clara Barton Road	6/29/2019	11:08	12:37	6.5	38.9					1:29	Pass
13	Little River	6/29/2019	11:45	12:37	6.5	48.7					0:52	Pass
14	Dudley Road	6/29/2019	11:33	12:37	7.1	122.3					1:04	Pass
15	Harwood Street	6/29/2019	12:09	12:37	6.2	123.9					0:28	Pass
16	Route 56	6/29/2019	10:54	12:37	7.7	5.1					1:43	Pass
Blank	Dudley Road	6/29/2019	11:33	12:37	7.7	<1					1:04	Pass
DUP	Harwood Street	6/29/2019	12:09	12:37	8	105		16.5	3.5	Pass	0:28	Pass
Lab Split	Dudley Road	6/29/2019	11:13	12:37	7.1	178.9		37.6	7.6	Pass	1:24	Pass
Lab Blank						<1	Pass					
QC	Monthly											
1	State Line	7/2/2019	10:24	16:12	5.9	85.5					5:48	Pass
4	Brandon Road	7/2/2019	10:36	16:12	5.4	88					5:36	Pass
7	Mill Brook Bigelow	7/2/2019	10:54	16:12	6.2	86					5:18	Pass
8	Mill Brook Nursery	7/2/2019	11:07	16:12	6.2	7.5					5:05	Pass
11	Lowe's Brook	7/2/2019	11:35	16:12	6.2	95.9					4:37	Pass
12	Clara Barton Road	7/2/2019	12:07	16:12	6.2	209.8					4:05	Pass
13	Little River	7/2/2019	12:39	16:12	6.8	153.3					3:33	Pass
14	Dudley Road	7/2/2019	12:26	16:12	6.5	85.7					3:46	Pass
15	Harwood Street	7/2/2019	13:00	16:12	6.5	68.3					3:12	Pass
16	Route 56	7/2/2019	11:55	16:12	5.4	17.1					4:17	Pass
Blank	Harwood Street	7/2/2019	12:59	16:12	5.6	<1					3:13	Pass

DUP	Dudley Road	7/2/2019	12:02	16:12	6.8	75.9		12.1	2.8	Pass	4:10	Pass
Lab Split	Harwood Street	7/2/2019	13:00	16:12	6.5	48		34.9	8.7	Pass	3:12	Pass
Lab Blank						<1	Pass					
QC	All cells positive						Pass					
1	State Line	7/11/2019	11:12	17:08	6.8	90.5					5:56	Pass
4	Brandon Road	7/11/2019	11:35	17:08	5.5	344.8					5:33	Pass
7	Mill Brook Bigelow	7/11/2019	12:17	17:08	6.6	139.1					4:51	Pass
8	Mill Brook Nursery	7/11/2019	12:30	17:08	6.3	15.6					4:38	Pass
11	Lowe's Brook	7/11/2019	13:00	17:08	6.6	47.1					4:08	Pass
12	Clara Barton Road	7/11/2019	14:00	17:08	14:24	49.6					3:08	Pass
13	Little River	7/11/2019	14:40	17:08	14:24	42.6					2:28	Pass
14	Dudley Road	7/11/2019	14:25	17:08	6.6	40.8					2:43	Pass
15	Harwood Street	7/11/2019	14:56	17:08	7.2	37.4					2:12	Pass
16	Route 56	7/11/2019	13:48	17:08	10.2	9.7					3:20	Pass
Blank	Brandon Road	7/11/2019	11:35	17:08	10.2	<1	Flagged	Total	Coliform	10.9	5:33	Pass
DUP	Clara Barton Road	7/11/2019	14:00	17:08	9.3	73.3	0.38	38.6	9.5	Pass	3:08	Pass
Lab Split	Brandon Road	7/11/2019	11:35	17:08	5.5	248.1	0.326	32.6	5.8	Pass	5:33	Pass
Lab Blank		7/11/2019				<1	Pass					
QC	Monthly	7/11/2019										
1	State Line	7/18/2019	12:11	16:01	5.9	816.4					3:50	Pass
4	Brandon Road	7/18/2019	12:23	16:01	5.6	461.1					3:38	Pass
7	Mill Brook Bigelow	7/18/2019	12:36	16:01	5.6	1413.6					3:25	Pass
8	Mill Brook Nursery	7/18/2019	12:47	16:01	5.9	48					3:14	Pass
11	Lowe's Brook	7/18/2019	12:58	16:01	5.6	36.9					3:03	Pass
12	Clara Barton Road	7/18/2019	13:47	16:01	5	142.1					2:14	Pass
13	Little River	7/18/2019	14:23	16:01	5.6	54.6					1:38	Pass
14	Dudley Road	7/18/2019	14:10	16:01	5.9	52.1					1:51	Pass
15	Harwood Street	7/18/2019	14:44	16:01	5.4	137.6					1:17	Pass
16	Route 56	7/18/2019	13:37	16:01	5.9	19.9					2:24	Pass
Blank	Dudley Road	7/18/2019	14:10	16:01	6.5	<1	Flagged	Total	Coliform	10.9	1:51	Pass
DUP	Harwood Street	7/18/2019	14:44	16:01	8.6	204.1		38.9	7.7	Pass	1:17	Pass
Lab Split	Dudley Road	7/18/2019	14:10	16:01	5.8	53.8		3.2	0.8	Pass	1:51	Pass
Lab Blank		7/18/2019				<1	Pass					

QC	Monthly	7/18/2019										
1	State Line	7/27/2019	8:42	12:00	Temperature	101.2				3:18	pass	
4	Brandon Road	7/27/2019	8:52	12:00	Blank 2.4 C	73.3				3:08	pass	
7	Mill Brook Bigelow	7/27/2019	9:38	12:00		178.9				2:22	pass	
8	Mill Brook Nursery	7/27/2019	9:48	12:00		28.2				2:12	pass	
11	Lowe's Brook	7/27/2019	10:12	12:00		19.9				1:48	pass	
12	Clara Barton Road	7/27/2019	10:38	12:00		51.2				1:22	pass	
13	Little River	7/27/2019	10:50	12:00		45.9				1:10	pass	
14	Dudley Road	7/27/2019	10:52	12:00		42.8				1:08	pass	
15	Harwood Street	7/27/2019	11:22	12:00		83.6				0:38	pass	
16	Route 56	7/27/2019	10:33	12:00		10.1				1:27	pass	
Blank	Dudley Road	7/27/2019	10:52	12:00		<1,0				1:08	pass	
DUP	Route 56	7/27/2019	10:33	12:00		21.3	71.3	27.8	failed	1:27	pass	
Lab Split	Dudley Road	7/27/2019	10:52	12:00		49.6	14.7	3.8	pass	1:08	pass	
Lab Blank		7/27/2019				<1	Pass					
QC	Monthly	7/27/2019										
1	State Line	7/31/2019	11:25	16:07	Temperature	184.2				4:42	pass	
4	Brandon Road	7/31/2019	11:29	16:07	Blank 2.5 C	105.0				4:38	pass	
7	Mill Brook Bigelow	7/31/2019	11:41	16:07		129.6				4:26	pass	
8	Mill Brook Nursery	7/31/2019	11:51	16:07		8.6				4:16	pass	
11	Lowe's Brook	7/31/2019	12:03	16:07		21.8				4:04	pass	
12	Clara Barton Road	7/31/2019	12:58	16:07		86				3:09	pass	
13	Little River	7/31/2019	13:26	16:07		46.4				2:41	pass	
14	Dudley Road	7/31/2019	13:14	16:07		58.3				2:53	pass	
15	Harwood Street	7/31/2019	13:45	16:07		48				2:22	pass	
16	Route 56	7/31/2019	12:48	16:07		18.9				3:19	pass	
Blank	State Line	7/31/2019	11:25	16:07		<1	Pass			4:42	pass	
DUP	Harwood Street	7/31/2019	13:45	16:07		69.7	36.9	9.2	Pass	2:22	pass	
Lab Split	State Line	7/31/2019	11:25	16:07		156.5	16.3	3.2	Pass	4:42	pass	
Lab Blank		7/31/2019				<1	Pass					
QC	Monthly											
1	State Line	8/9/2019	10:16	16:13	Temperature	178.9				5:57	Pass	
4	Brandon Road	8/9/2019	10:46	16:13	Blank 3.4 C	95.9				5:27	Pass	

7	Mill Brook Bigelow	8/9/2019	11:34	16:13		488.4			4:39	Pass	
8	Mill Brook Nursery	8/9/2019		Not Sampled							
11	Lowe's Brook	8/9/2019	12:24	16:13		123.3			3:49	pass	
12	Clara Barton Road	8/9/2019	13:25	16:13		547.5			2:48	pass	
13	Little River	8/9/2019	14:09	16:13		151.5			2:04	pass	
14	Dudley Road	8/9/2019	13:51	16:13		161.6			2:22	pass	
15	Harwood Street	8/9/2019	14:35	16:13		275.5			1:38	pass	
16	Route 56	8/9/2019	13:12	16:13		344.8			3:01	pass	
Blank	Brandon Road	8/9/2019	10:46	16:13		<1			5:27	pass	
DUP	Harwood Street	8/9/2019	14:35	16:13		275.5	0.0	0.0	Pass	1:38	pass
Lab Split	Brandon Road	8/9/2019	10:46	16:13		143.9	40.0	8.5	Pass	5:27	pass
Lab Blank		8/9/2019				<1				Pass	
QC	all cells positive	8/9/2019								Pass	
1	State Line	8/15/2019	10:13	16:00	Temperature	72.7			5:47	pass	
4	Brandon Road	8/15/2019	10:27	16:00	Blank 1.1 C	54.8			5:33	pass	
7	Mill Brook Bigelow	8/15/2019	10:39	16:00		272.3			5:21	pass	
8	Mill Brook Nursery	8/15/2019	10:51	16:00		10.1			5:09	pass	
11	Lowe's Brook	8/15/2019	11:04	16:00		28.5			4:56	pass	
12	Clara Barton Road	8/15/2019	11:27	16:00		65.7			4:33	pass	
13	Little River	8/15/2019	11:50	16:00		22.1			4:10	pass	
14	Dudley Road	8/15/2019	11:41	16:00		60.9			4:19	pass	
15	Harwood Street	8/15/2019	12:12	16:00		54.8			3:48	pass	
16	Route 56	8/15/2019	11:17	16:00		12			4:43	pass	
Blank	State Line	8/15/2019	10:13	16:00		<1.0			5:47	pass	
DUP	Harwood Street	8/15/2019	12:12	16:00		40.2	30.7	8.0	Pass	3:48	pass
Lab Split	State Line	8/15/2019	10:13	16:00		65.7	10.1	2.4	Pass	5:47	pass
Lab Blank		8/15/2019				<1				Pass	
QC	Monthly	8/15/2019									
1	State Line	8/24/2019	8:32	10:41	Temperature	63.1			2:09	pass	
4	Brandon Road	8/24/2019	8:42	10:41	Blank 3.6 C	90.8			1:59	pass	
7	Mill Brook Bigelow	8/24/2019	8:51	10:41		133.4			1:50	pass	
8	Mill Brook Nursery	8/24/2019	8:59	10:41		85.7			1:42	pass	
11	Lowe's Brook	8/24/2019	9:09	10:41		62.4			1:32	pass	
12	Clara Barton Road	8/24/2019	9:31	10:41		45			1:10	pass	

13	Little River	8/24/2019	9:58	10:41		29.2			0:43	pass		
14	Dudley Road	8/24/2019	9:46	10:41		35.5			0:55	pass		
15	Harwood Street	8/24/2019	10:10	10:41		65.7			0:31	pass		
16	Route 56	8/24/2019	9:22	10:41		46.5			1:19	pass		
Blank	State Line	8/24/2019	8:32	10:41		<1.0	Pass		2:09	pass		
DUP	Harwood Street	8/24/2019	10:10	10:41		47.1		33.0	8.3	Pass	0:31	pass
Lab Split	State Line	8/24/2019	8:32	10:41		81.6		25.6	6.0	Pass	2:09	pass
Lab Blank		8/24/2019				<1	Pass					
QC	Monthly	8/24/2019										
1	State Line	8/29/2019	13:11	16:00	Temperature	770.1					2:49	pass
4	Brandon Road	8/29/2019	13:23	16:00	Blank 1.1 C	235.9					2:37	pass
7	Mill Brook Bigelow	8/29/2019	13:35	16:00		1299.7					2:25	pass
8	Mill Brook Nursery	8/29/2019	13:45	16:00		25.6					2:15	pass
11	Lowe's Brook	8/29/2019	13:55	16:00		57.6					2:05	pass
12	Clara Barton Road	8/29/2019	14:09	16:00		249.6					1:51	pass
13	Little River	8/29/2019	14:49	16:00		125.9					1:11	pass
14	Dudley Road	8/29/2019	14:37	16:00		238.2					1:23	pass
15	Harwood Street	8/29/2019	15:07	16:00		344.8					0:53	pass
16	Route 56	8/29/2019	14:20	16:00		>2419.6					1:40	pass
Blank	Brandon Road	8/29/2019	13:23	16:00		<1	Pass				2:37	pass
DUP	Harwood Street	8/29/2019	15:07	16:00		272.3		23.5	4.1	Pass	0:53	pass
Lab Split	Brandon Road	8/29/2019	13:23	16:00		410.6		54.0	9.7	Pass	2:37	pass
Lab Blank		8/29/2019				<1	Pass					
QC	Monthly	8/29/2019										
1	State Line	9/6/2019	14:25	18:08	Temperature	28.8					3:43	pass
4	Brandon Road	9/6/2019	14:36	18:08	Blank 1.2 C	37.3					3:32	pass
7	Mill Brook Bigelow	9/6/2019	14:47	18:08		9.8					3:21	pass
8	Mill Brook Nursery	9/6/2019	14:57	18:08		NT	Sample spilled in lab				3:11	pass
11	Lowe's Brook	9/6/2019	15:09	18:08		56.7					2:59	pass
12	Clara Barton Road	9/6/2019	15:39	18:08		33.1					2:29	pass
13	Little River	9/6/2019	16:09	18:08		37.9					1:59	pass
14	Dudley Road	9/6/2019	15:55	18:08		25.6					2:13	pass
15	Harwood Street	9/6/2019	16:29	18:08		49.5					1:39	pass
16	Route 56	9/6/2019	15:30	18:08		96					2:38	pass

Blank	Dudley Road	9/6/2019	15:55	18:08		<1	Pass			2:13	pass
DUP	Harwood Street	9/6/2019	16:29	18:08		35.9		31.9	8.6	Pass	1:39 pass
Lab Split	Dudley Road	9/6/2019	15:55	18:08		18.5		32.2	10.5	Pass	2:13 pass
Lab Blank		9/6/2019				<1	Pass				
QC	Monthly	9/6/2019									
1	State Line	9/12/2019	13:46	16:12	Temperature	191.8				2:26	pass
4	Brandon Road	9/12/2019	14:00	16:12	Blank 1.9 C	98.5				2:12	pass
7	Mill Brook Bigelow	9/12/2019	14:15	16:12		88.4				1:57	pass
8	Mill Brook Nursery	9/12/2019	14:25	16:12		2				1:47	pass
11	Lowe's Brook	9/12/2019	14:38	16:12		93.3				1:34	pass
12	Clara Barton Road	9/12/2019	15:05	16:12		143.9				1:07	pass
13	Little River	9/12/2019	15:27	16:12		73.3				0:45	pass
14	Dudley Road	9/12/2019	15:38	16:12		90.8				0:34	pass
15	Harwood Street	9/12/2019	15:46	16:12		185				0:26	pass
16	Route 56	9/12/2019	14:56	16:12		71.7				1:16	pass
Blank	State Line	9/12/2019	13:46	16:12		<1	Pass			2:26	pass
DUP	Harwood Street	9/12/2019	15:49	16:12		214.3		14.7	2.8	Pass	0:23 pass
Lab Split	State Line	9/12/2019	13:46	16:12		141.4		30.3	6.2	Pass	2:26 pass
Lab Blank		9/12/2019				<1	Pass				
QC	Monthly	9/12/2019									
1	State Line	9/16/2019	10:00	16:00	Temperature	51.2				6:00	pass
4	Brandon Road	9/16/2019	10:18	16:00	Blank 2.1 C	45.7				5:42	pass
7	Mill Brook Bigelow	9/16/2019	10:26	16:00		35				5:34	pass
8	Mill Brook Nursery	9/16/2019	10:43	16:00		9.6				5:17	pass
11	Lowe's Brook	9/16/2019	11:09	16:00		12				4:51	pass
12	Clara Barton Road	9/16/2019	11:36	16:00		78				4:24	pass
13	Little River	9/16/2019	12:10	16:00		55.6				3:50	pass
14	Dudley Road	9/16/2019	11:55	16:00		32.3				4:05	pass
15	Harwood Street	9/16/2019	12:26	16:00		69.7				3:34	pass
16	Route 56	9/16/2019	11:28	16:00		63.1				4:32	pass
Blank	State Line	9/16/2019	10:00	16:00		<1	Pass			6:00	pass
DUP	Harwood Street	9/16/2019	12:26	16:00		56.3		21.3	5.2	Pass	3:34 pass
Lab Split	State Line	9/16/2019	10:00	16:00		46.5		9.6	2.6	Pass	6:00 pass
Lab Blank		9/16/2019				<1	Pass				

QC	Monthly	9/16/2019											
1	State Line	9/21/2019	7:58	10:10	Temperature	42.6					2:12	pass	
4	Brandon Road	9/21/2019	8:08	10:10	Blank 1.1 C	44.1					2:02	pass	
7	Mill Brook Bigelow	9/21/2019	8:19	10:10		66.4					1:51	pass	
8	Mill Brook Nursery	9/21/2019	8:28	10:10		3					1:42	pass	
11	Lowe's Brook	9/21/2019	8:39	10:10		31.8					1:31	pass	
12	Clara Barton Road	9/21/2019	9:00	10:10		30.5					1:10	pass	
13	Little River	9/21/2019	9:13	10:10		75.4					0:57	pass	
14	Dudley Road	9/21/2019	9:31	10:10		39.3					0:39	pass	
15	Harwood Street	9/21/2019	9:38	10:10		56.5					0:32	pass	
16	Route 56	9/21/2019	8:52	10:10		25.6					1:18	pass	
Blank	Dudley Road	9/21/2019	9:31	10:10		<1	Pass				0:39	pass	
DUP	Brandon Road	9/21/2019	8:08	10:10		38.8		12.8	3.3	Pass	2:02	pass	
Lab Split	Dudley Road	9/21/2019	9:31	10:10		47.9		19.7	5.2	Pass	0:39	pass	
Lab Blank		9/21/2019				<1	Pass						
QC	Monthly												

Quality assurance, quality control and data validation

The QAPP was not approved until 8/7/2019. The only significant difference between the draft and approved QAPP was the transit sample temperature. The draft QAPP had a transit temperature requirement of six degrees Celsius as determined by a temperature gun. The approved QAPP required that temperature blank be used and that the blank temperature be below four degree Celsius. The transit temperature for the 6/1 sampling exceeded the draft QAPP and has been flagged. The transit temperature for sites 12,13,14,15, and the field blank from 6/13 sampling exceeded the draft QAPP. With short transit time, transit temperature is not significant and would only result in a minor increase in the analyte value. The only significant deviations from the QAPP were that no Lab split was analyzed for the 6/1 sampling, no lab split was used for the 6/4 sampling but a sample was sent to Microbac Lab for analysis, and the lab positive culture control was not conducted in September.

Field blanks, and field duplicates were taken for all sampling events. Lab blanks were taken for all sampling events. Lab splits were taken for all sampling events except 6/1 and 6/4 as discussed above. Results shown in the Results and QC Table above show that all blanks, duplicates, and splits passed, with the exception field blanks for 7/11 and 7/18 which tested <1 for *E. Coli* but 10.9 for Coliform and were flagged. The lab split for 6/21 failed, but very low values were involved and the 6/21 sampling event was still considered valid. The 7/27 blank failed the calculated RPD log 10 transformed data test and data from the 7/27 sampling was not included in the portal data submittal.

Transit time for all samples were calculated and passed the six-hour transit limit.

There were two missing data points. Both were associated with site 7, Mill Brook Nursey. During the 8/9 sampling event the water level was too low to sample without entraining sediment and during 9/6 sampling event the sample was spilled in the lab

Discussion

The data has been assessed in relation to surface water quality standards for *E. Coli* and river segment MA42-04 meets class B standards. River segments MA42-06, MA42-05, MA42-19, MA42-04, MA42-04, and MA42-04 meet class C standards. The data would seem to indicate that the high readings are usually related to storm water runoff. In the table below, E. Coli readings are shown along with the rainfall total on the sample date and the two previous days. Each date where one or more samples exceeded 235 colonies per 100 ml is highlighted. Red highlighting of a sample indicates that it does not appear to be related to stormwater runoff.

Date	Rainfall	State Line	Brandon Road	Mill Brook Bigelow	Mill Brook Plaza	Lowes Brook	Clara Barton	Little River	Dudley Road	Harwood Street	Rt. 56
5/30/2019	0.07										
5/31/2019	0										
6/1/2019	0	52.9	76.7	25.9	6.2	73.8	35.5	35.5	45.5	101.9	40.4
6/2/2019	0.18										
6/3/2019	0.01										
6/4/2019	0		45.0	19.9	2.0	23.3	35.5	35.5	33.2	46.4	6.3
6/11/2019	0.35										
6/12/2019	0										
6/13/2019	0.41	98.8	686.7	686.7	33.6	344.8	261.3	139.6	365.4	325.5	44.1
6/19/2019	0.01										
6/20/2019	0.42										
6/21/2019	0.16	95.9	90.9	104.6	12.0	59.4	185.0	185.0	105.0	146.7	79.4
6/27/2019	0										
6/28/2019	0										
6/29/2019	0.05	166.4	126.7	73.8	2.0	53.0	38.9	38.9	122.3	123.6	5.1
6/30/2019	0.27										
7/1/2019	0										
7/2/2019	0	85.5	88.0	86.0	7.5	95.9	209.8	209.8	85.7	68.3	17.1
7/9/2019	0										
7/10/2019	0										
7/11/2019	0.05	90.5	344.8	139.1	15.6	47.1	49.6	49.6	40.8	37.4	9.7
7/16/2019	0										
7/17/2019	0.79										
7/18/2019	0.03	816.4	461.1	1413.6	48.0	36.9	142.1	142.1	52.1	137.6	19.9
7/25/2019	0										
7/26/2019	0										
7/27/2019	0.11	101.2	73.3	178.9	28.2	19.9	51.2	51.2	42.8	83.6	10.1

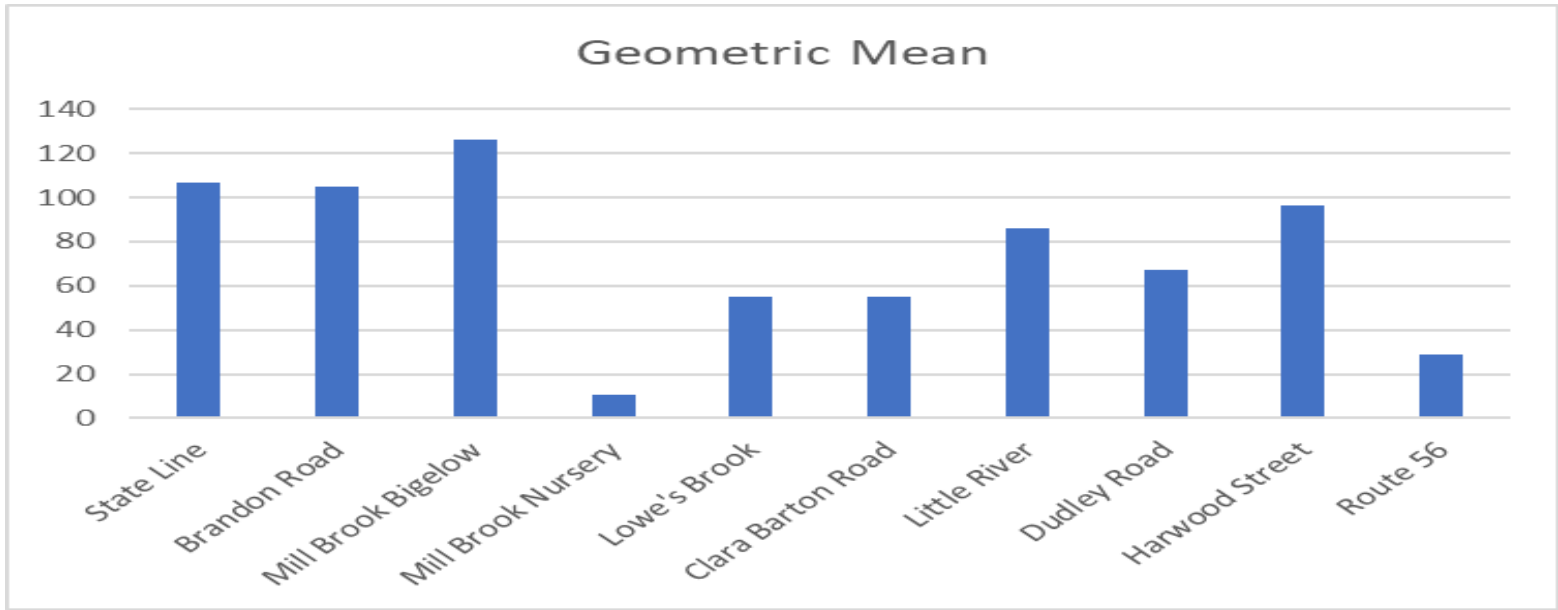
7/29/2019	0.01										
7/30/2019	0										
7/31/2019	0.26	184.2	105.0	129.6	8.6	21.8	86.0	86.0	58.3	48.0	18.9
8/7/2019	2.43										
8/8/2019	0.08										
8/9/2019	0	178.9	95.9	488.6		123.3	547.5	151.5	161.6	275.5	344.8
8/13/2019	0										
8/14/2019	0										
8/15/2019	0	72.7	54.8	272.3	10.1	28.5	65.7	65.7	60.9	54.8	12.0
8/22/2019	0										
8/23/2019	0.01										
8/24/2019	0	63.1	90.8	183.4	85.7	62.4	45.0	45.0	35.3	65.7	46.5
8/27/2019	0										
8/28/2019	1.47										
8/29/2019	0.01	770.1	235.9	1299.7	25.6	57.6	249.6	135.9	238.2	344.8	>2419.6
9/4/2019	0										
9/5/2019	0										
9/6/2019	0	28.8	37.3	9.8		56.7	33.1	33.1	25.6	49.5	96.0
9/10/2019	0										
9/11/2019	0										
9/12/2019	0.27	191.8	98.5	88.4	2.0	93.3	143.9	143.9	90.8	185.0	71.7
9/14/2019	0.3										
9/15/2019	0.01										
9/16/2019	0	51.2	45.7	35.0	9.6	78.0	78.0	78.0	32.3	69.7	63.1
9/19/2019	0										
9/20/2019	0										
9/21/2019	0	42.6	44.1	62.4	3.0	31.8	30.5	30.5	39.3	56.5	25.6

The upper reach of segment MA42-10 meet Class B Standards but it would appear the lower segment did not meet this standard due beaver activity.

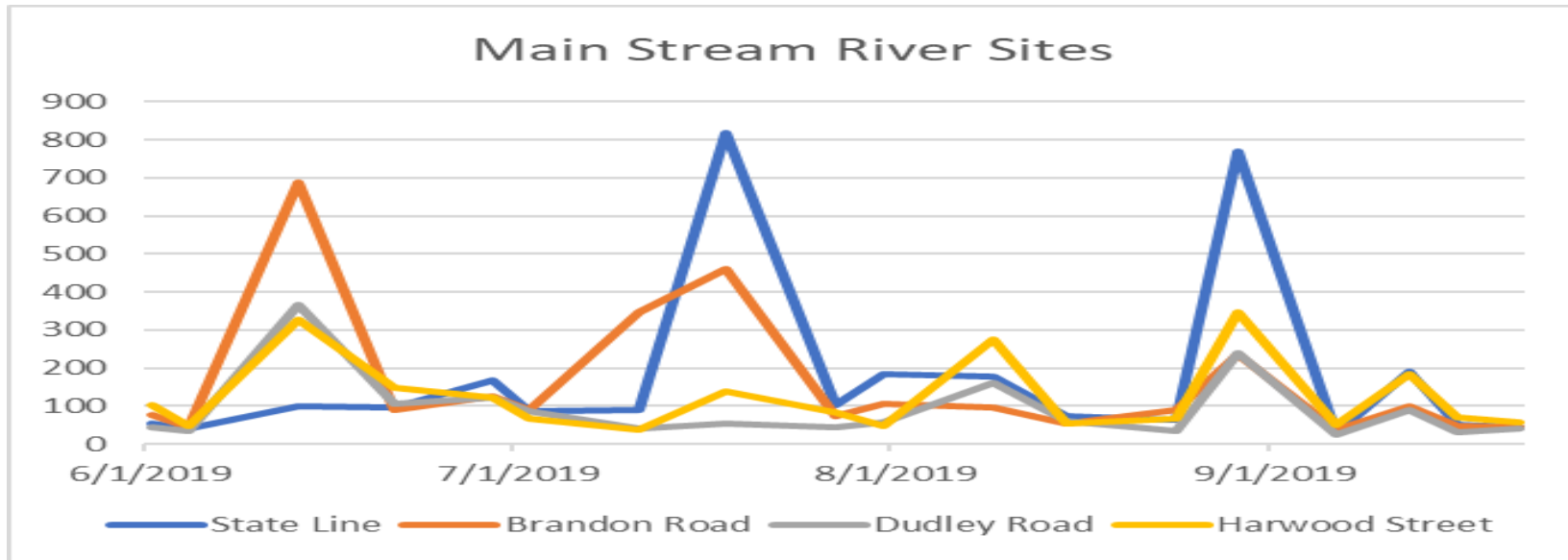
Conclusion

All river segments normally used for kayaking and boating met or exceeded Class C water quality for E. Coli which supports these activities.

As a general indication for the river watershed water quality the graph below shows that the geomean for all sites met class B standards which is 126.



The table below shows the relationship between the E. Coli values at the French River main sample sites



The data indicates that under dry weather flow conditions all segments would meet Class B Standards. Additional sampling to determine the sources of high E. Coli runoff may be warranted.

