

*French River
Connection*



2020 *E. Coli* Monitoring Report

October 21, 2020

FRENCH RIVER CONNECTION
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Introduction

In Spring of 2020 the French River Connection received a grant from DEP for the purchase of material 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.

This project has been financed with State Capital Funds from the Massachusetts Department of Environmental Protection (the Department) under a Water Quality Monitoring Grant. The contents do not necessarily reflect the views and policies of the Department, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use."

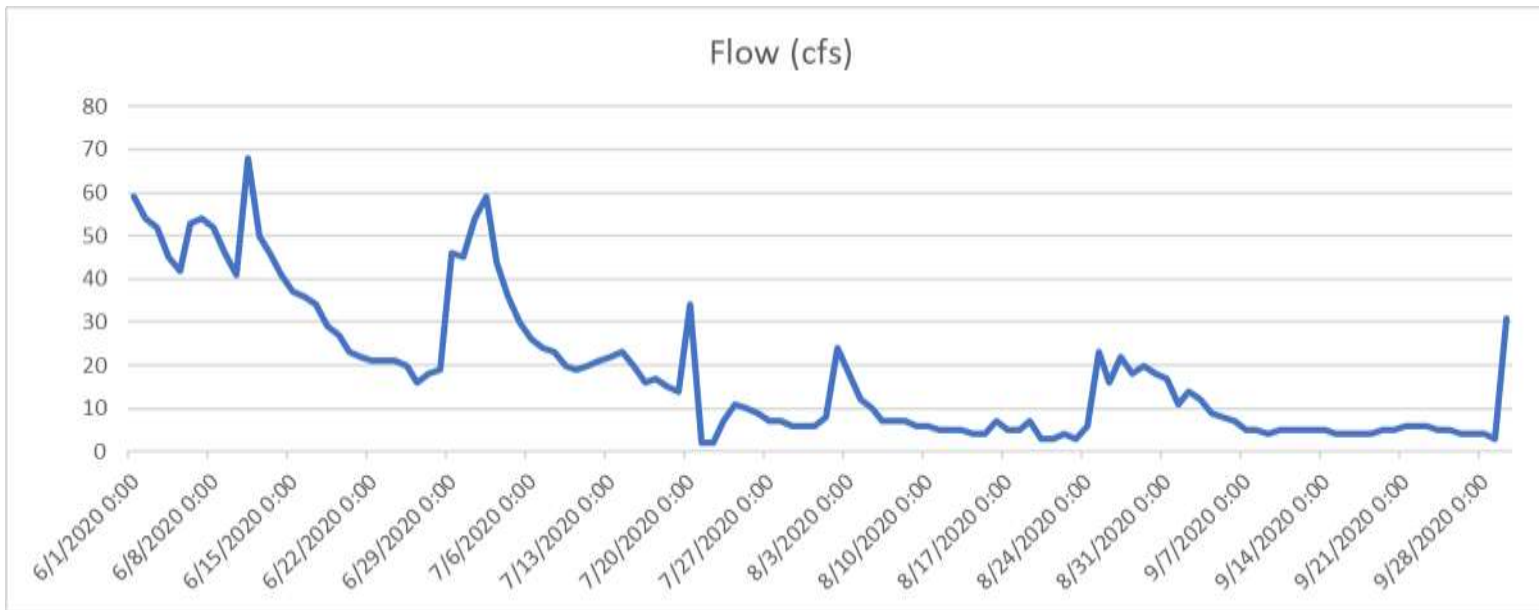
The objective of this sampling was twofold. One, to obtain data to assess seven river segments in the French River Watershed for Primary and Secondary Recreational Use and second, to obtain data for entry into the State data portal. This report presents the data, addresses QA/QC, provides data in a format for entry into the State portal, and assesses river segments for Primary and Secondary Recreational Use.

Methods used

Parameter	Method #	Source of Method	MDL (mg/l or as stated)	Special Considerations
<i>E. Coli</i>	SM 9223-B (enzyme substrate)	Standard Methods, 21 st edition	1 MPN/100 mls.	preferred indicator for fresh waters Sodium thiosulfate will be used

River Flow

The graph below shows the flow rate at the USGS gage station on the French River in Webster, MA. The flow rate ranged from low to very low for the duration of the testing period. Duplicate samples and lab splits were taken at the only two stations that could insure no influence of bottom sediment



Training

Due to Covid 19, training for field work was conducted on an individual basis prior to sampling. Signatures of those trained are provided in Appendix E. Devon Avery conducted analysis for all sampling events. Mr. Avery is a trained chemist and works at the Worcester, MA WWTP as a chemist.

Documentation

Field logs are provided in Appendix A, Chain of Custody Logs are provided in Appendix C, and Lab Notebooks are provided in Appendix E.

Waste Disposal

Documentation of biological waste disposal is provided in Appendix F.

Locations Sampled

Location, photo, *E. Coli* data, and weather information for each site is presented below

Site 1

State Line, Webster 42.024370 -71.883948

MA42-06

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 northside of Perryville Road toward the river, then under the bridge to the sample location approximately fifty feet down stream diagonally downstream of the bridge



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

Date	E. Coli	Current Weather	Previous 24 hours
6/2/2020	77.6	Cloudy	Sunny
6/17/2020	307.6	Sunny	Sunny
7/2/2020	261.3	Sunny	Rain
7/16/2020	49.5	Sunny	Cloudy
7/30/2020	24.1	Cloudy	Sunny
8/13/2020	31.8	Cloudy	Dry
8/27/2020	42.0	Heavy Rain	Partly Sunny
9/11/2020	14.5	Partly Sunny	Rain
9/24/2020	18.3	Sunny	Sunny
	51.695	Geometric Mean	

Site 4 Brandon Road, Dudley 42.042582 -71.887444

MA42-05

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, Secondary Recreational Use

Date	E. Coli	Current Weather	Previous 24 hours
6/2/2020	22.2	Cloudy	Sunny
6/17/2020	235.9	Sunny	Sunny
7/2/2020	135.4	Sunny	Rain
7/16/2020	20.4	Sunny	Cloudy
7/30/2020	79.8	Cloudy	Sunny
8/13/2020	42.6	Cloudy	Sunny
8/27/2020	69.1	Heavy Rain	Partly Sunny
9/11/2020	44.3	Partly Sunny	Rain
9/24/2020	44.1	Sunny	Sunny
	57.227	Geometric Mean	

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

MA42 10

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

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

Date	E. Coli	Current Weather	Previous 24 hours
6/2/2020	31.3	Cloudy	Sunny
6/17/2020	198.9	Sunny	Sunny
7/2/2020	78.9	Sunny	Rain
7/16/2020	73.8	Sunny	Cloudy
7/30/2020	59.4	Cloudy	Sunny
8/13/2020	65.0	Cloudy	Dry
8/27/2020	365.4	Heavy Rain	Partly Sunny
9/11/2020	30.9	Partly Sunny	Rain
9/24/2020	98.7	Sunny	Sunny
	81.358	Geometric Mean	

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

MA42-10

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

Date	E. Coli	Current Weather	Previous 24 hours
6/2/2020	1.0	Cloudy	Sunny
6/17/2020	19.9	Sunny	Sunny
7/2/2020	201.4	Sunny	Rain
7/16/2020	41.4	Sunny	Cloudy
7/30/2020	7.5	Cloudy	Sunny
8/13/2020	21.8	Cloudy	Dry
8/27/2020	980.4	Heavy Rain	Partly Sunny
9/11/2020	4.1	Partly Sunny	Rain
9/24/2020	<1.0	Sunny	Sunny
	16.842	Geometric Mean	

Site 11

Lowe's Brook, Oxford 42.104027 -71.866313

MA42-19

Lowes Brook (reference): This site measures the quality of water leaving Lowes 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 Secondary Recreational Use

Date	E. Coli	Current Weather	Previous 24 hours
6/2/2020	114.5	Cloudy	Sunny
6/17/2020	410.6	Sunny	Sunny
7/2/2020	261.3	Sunny	Rain
7/16/2020	129.1	Sunny	Cloudy
7/30/2020	88.4	Cloudy	Sunny
8/13/2020	172.6	Cloudy	Dry
8/27/2020	816.4	Heavy Rain	Partly Sunny
9/11/2020	160.7	Partly Sunny	Rain
9/24/2020	129.1	Sunny	Sunny
	175.665	Geometric Mean	

Site 12

Clara Barton Road, Oxford 42.154835 -71.882514

MA42-04

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, Secondary Recreational Use

Date	E. Coli	Current Weather	Previous 24 hours
6/2/2020	17.5	Cloudy	Sunny
6/17/2020	22.6	Sunny	Sunny
7/2/2020	275.5	Sunny	Rain
7/16/2020	21.6	Sunny	Cloudy
7/30/2020	5.2	Cloudy	Sunny
8/13/2020	4.1	Cloudy	Dry
8/27/2020	121.1	Heavy Rain	Partly Sunny
9/11/2020	54.6	Partly Sunny	Rain
9/24/2020	3.1	Sunny	Sunny
	18.958	Geometric Mean	

Site 13

Little River, Oxford 42.110470 -71.883447

MA42-14

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. We are monitoring here to see if there are any adverse effects from these sites. Where Dudley Road crosses over the French River there is a public parking lot at the Leovich Landing boat launch site. Park here and walked down the old Boston & Albany railbed about ¼ mile and monitor the Little River when reached



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

Date	E. Coli	Current Weather	Previous 24 hours
6/2/2020	54.6	Cloudy	Sunny
6/17/2020	62.7	Sunny	Sunny
7/2/2020	193.5	Sunny	Rain
7/16/2020	105.0	Sunny	Cloudy
7/30/2020	93.3	Cloudy	Sunny
8/13/2020	93.3	Cloudy	Dry
8/27/2020	63.7	Heavy Rain	Partly Sunny
9/11/2020	115.3	Partly Sunny	Rain
9/24/2020	21.1	Sunny	Sunny
	76.880	Geometric Mean	

Site 14

Dudley Road, Oxford 42.107183 -71.883204

MA42-04

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

Date	E. Coli	Current Weather	Previous 24 hours
6/2/2020	44.8	Cloudy	Sunny
6/17/2020	56.1	Sunny	Sunny
7/2/2020	204.6	Sunny	Rain
7/16/2020	59.4	Sunny	Cloudy
7/30/2020	93.4	Cloudy	Sunny
8/13/2020	37.9	Cloudy	Dry
8/27/2020	45.7	Heavy Rain	Partly Sunny
9/11/2020	55.6	Partly Sunny	Rain
9/24/2020	29.2	Sunny	Sunny
	55.605	Geometric Mean	

Site 15

Harwood Street , Oxford 42.091509 -71880146

MA42-04

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, Secondary Recreational Use

Date	E. Coli	Current Weather	Previous 24 hours
6/2/2020	111.9	Cloudy	Sunny
6/17/2020	95.9	Sunny	Sunny
7/2/2020	307.6	Sunny	Rain
7/16/2020	83.9	Sunny	Cloudy
7/30/2020	123.6	Cloudy	Sunny
8/13/2020	39.9	Cloudy	Dry
8/27/2020	275.5	Heavy Rain	Partly Sunny
9/11/2020	88.0	Partly Sunny	Rain
9/24/2020	36.8	Sunny	Sunny
	44.072	Geometric Mean	

Site 16

Route 56, Oxford 42.162652 - 71.887219

MA42-03

Route 56 (reference): It 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.



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

Date	E. Coli	Current Weather	Previous 24 hours
6/2/2020	549.3	Cloudy	Sunny
6/17/2020	13.5	Sunny	Sunny
7/2/2020	71.7	Sunny	Rain
7/16/2020	7.5	Sunny	Cloudy
7/30/2020	38.9	Cloudy	Sunny
8/13/2020	9.7	Cloudy	Dry
8/27/2020	1,119.9	Heavy Rain	Partly Sunny
9/11/2020	18.5	Partly Sunny	Rain
9/24/2020	7.4	Sunny	Sunny
	21.840		Geometric Mean

Results

Field measurement data and laboratory data, including that for quality control samples are shown below: Completed field sheets and completed chain-of-custody forms are provided in appendices. 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

French River Connection 2020 E. Coli QC Table								SF calculations					
Site #	Site Name	Assessment Unit		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	Pass/Fail	Hold time calc	Hold time Pass/Fail
1	State Line	MA42-06	6/2/2020	11:00	16:41	Temperature	77.6					5:41	Pass
4	Brandon Road	MA42-05	6/2/2020	11:16	16:41	Blank 2.4 C	22.2					5:25	Pass
7	Mill Brook Bigelow	MA42-10	6/2/2020	11:31	16:41		31.3					5:10	Pass
8	Mill Brook Nursery	MA42-10	6/2/2020	11:42	16:41		1.0					4:59	Pass
11	Lowe's Brook	MA42-19	6/2/2020	11:56	16:41		114.5					4:45	Pass
12	Clara Barton Road	MA42-04	6/2/2020	13:36	16:41		17.5					3:05	Pass
13	Little River	MA42-14	6/2/2020	14:52	16:41		54.6					1:49	Pass
14	Dudley Road	MA42-04	6/2/2020	13:07	16:41		44.8					3:34	Pass
15	Harwood Street	MA42-04	6/2/2020	13:55	16:41		111.9					2:46	Pass
16	Route 56	MA42-03	6/2/2020	13:23	16:41		549.3					3:18	Pass
Blank	State Line		6/2/2020	11:00	16:41		<1.0	Pass				5:41	Pass
DUP	Harwood Street		6/2/2020	13:55	16:41		93.3		18.1	3.9	Pass	2:46	Pass
Lab Split	State Line		6/2/2020	11:00	16:41		81.6		5.0	1.1	Pass	5:41	Pass
Lab Blank			6/2/2020				<1	Pass					
QC	Monthly		6/2/2020					Pass					

1	State Line	MA42-06	6/17/2020	11:21	16:31		307.6					5:10	Pass
4	Brandon Road	MA42-05	6/17/2020	11:41	16:31		235.9					4:50	Pass
7	Mill Brook Bigelow	MA42-10	6/17/2020	12:09	16:31		198.9					4:22	Pass
8	Mill Brook Nursery	MA42-10	6/17/2020	12:33	16:31		19.8					3:58	Pass
11	Lowe's Brook	MA42-19	6/17/2020	15:09	16:31		410.6					1:22	Pass
12	Clara Barton Road	MA42-04	6/17/2020	14:45	16:31		22.6					1:46	Pass
13	Little River	MA42-14	6/17/2020	13:34	16:31		62.7					2:57	Pass
14	Dudley Road	MA42-04	6/17/2020	13:53	16:31		56.1					2:38	Pass
15	Harwood Street	MA42-04	6/17/2020	15:29	16:31		95.9					1:02	Pass
16	Route 56	MA42-03	6/17/2020	14:19	16:31		13.5					2:12	Pass
Blank	State Line		6/17/2020	11:21	16:31		<1.0	Pass				5:10	Pass
DUP	Harwood Street		6/17/2020	15:29	16:31		101.7		5.9	1.3	Pass	1:02	Pass
Lab Split	State Line		6/17/2020	11:21	16:31		167		59.2	11.3	Pass	5:10	Pass
Lab Blank			6/17/2020				<1.0	Pass					
QC	Monthly			not tested									
1	State Line	MA42-06	7/2/2020	10:45	16:32	Temperature	261.3					5:47	Pass
4	Brandon Road	MA42-05	7/2/2020	10:55	16:32	Blank 2.1 C	135.4					5:37	Pass
7	Mill Brook Bigelow	MA42-10	7/2/2020	11:06	16:32		78.9					5:26	Pass
8	Mill Brook Nursery	MA42-10	7/2/2020	11:23	16:32		201.4					5:09	Pass
11	Lowe's Brook	MA42-19	7/2/2020	11:37	16:32		261.3					4:55	Pass
12	Clara Barton Road	MA42-04	7/2/2020	12:08	16:32		275.5					4:24	Pass
13	Little River	MA42-14	7/2/2020	12:35	16:32		193.5					3:57	Pass
14	Dudley Road	MA42-04	7/2/2020	12:49	16:32		204.6					3:43	Pass
15	Harwood Street	MA42-04	7/2/2020	13:02	16:32		307.6					3:30	Pass
16	Route 56	MA42-03	7/2/2020	11:53	16:32		71.7					4:39	Pass
Blank	State Line		7/2/2020	10:45	16:32		<1.0	Pass				5:47	Pass
DUP	Harwood Street		7/2/2020	13:02	16:32		307.2		0.1	0.0	Pass	3:30	Pass
Lab Split	State Line		7/2/2020	10:45	16:32		224.7		15.1	2.7	Pass	5:47	Pass
Lab Blank			7/2/2020	16:42			<1.0	Pass					
QC	Monthly		7/2/2020	16:42				Pass					
1	State Line	MA42-06	7/16/2020	10:35	16:32	Temperature	49.5					5:57	Pass
4	Brandon Road	MA42-05	7/16/2020	10:57	16:32	Blank 1.6 C	20.4					5:35	Pass

7	Mill Brook Bigelow	MA42-10	7/16/2020	11:11	16:32		73.8					5:21	Pass
8	Mill Brook Nursery	MA42-10	7/16/2020	11:42	16:32		41.4					4:50	Pass
11	Lowe's Brook	MA42-19	7/16/2020	11:57	16:32		129.1					4:35	Pass
12	Clara Barton Road	MA42-04	7/16/2020	14:02	16:32		21.6					2:30	Pass
13	Little River	MA42-14	7/16/2020	12:59	16:32		105					3:33	Pass
14	Dudley Road	MA42-04	7/16/2020	13:15	16:32		59.4					3:17	Pass
15	Harwood Street	MA42-04	7/16/2020	14:38	16:32		83.9					1:54	Pass
16	Route 56	MA42-03	7/16/2020	13:41	16:32		7.5					2:51	Pass
Blank	State Line		7/16/2020	10:35	16:32		<1.0	Pass				5:57	Pass
DUP	Harwood Street		7/16/2020	14:38	16:32		73.3		13.5	3.1	Pass	1:54	Pass
Lab Split	State Line		7/16/2020	10:35	16:32		53.8		8.3	2.1	Pass	5:57	Pass
Lab Blank			7/16/2020				<1.0	Pass					
QC	Monthly		Not Tested										
1	State Line	MA42-06	7/30/2020	12:45	16:11	Temperature	24.1					3:26	Pass
4	Brandon Road	MA42-05	7/30/2020	12:53	16:11	Blank 1.2 C	79.8					3:18	Pass
7	Mill Brook Bigelow	MA42-10	7/30/2020	13:08	16:11		59.4					3:03	Pass
8	Mill Brook Nursery	MA42-10	7/30/2020	13:17	16:11		7.5					2:54	Pass
11	Lowe's Brook	MA42-19	7/30/2020	13:30	16:11		88.4					2:41	Pass
12	Clara Barton Road	MA42-04	7/30/2020	13:45	16:11		5.2					2:26	Pass
13	Little River	MA42-14	7/30/2020	14:25	16:11		93.3					1:46	Pass
14	Dudley Road	MA42-04	7/30/2020	14:46	16:11		93.4					1:25	Pass
15	Harwood Street	MA42-04	7/30/2020	14:55	16:11		123.6					1:16	Pass
16	Route 56	MA42-03	7/30/2020	14:08	16:11		38.9					2:03	Pass
Blank	State Line		7/30/2020	12:45	16:11		<1.0	Pass				3:26	Pass
DUP	Harwood Street		7/30/2020	14:55	16:11		105		16.3	3.4	Pass	1:16	Pass
Lab Split	State Line		7/30/2020	12:45	16:11		23.1		4.2	1.3	Pass	3:26	Pass
Lab Blank			7/30/2020		17:20		<1.0	Pass					
QC	Monthly			Not tested									
1	State Line	MA42-06	8/13/2020	11:19	16:44	Temperature	31.8					5:25	Pass
4	Brandon Road	MA42-05	8/13/2020	11:35	16:44	Blank 1.8 C	42.6					5:09	Pass
7	Mill Brook Bigelow	MA42-10	8/13/2020	12:00	16:44		65					4:44	Pass
8	Mill Brook Nursery	MA42-10	8/13/2020	12:10	16:44		21.8					4:34	Pass
11	Lowe's Brook	MA42-19	8/13/2020	12:41	16:44		172.6					4:03	Pass

12	Clara Barton Road	MA42-04	8/13/2020	13:41	16:44		4.1					3:03	Pass
13	Little River	MA42-14	8/13/2020	14:00	16:44		93.3					2:44	Pass
14	Dudley Road	MA42-04	8/13/2020	14:15	16:44		37.9					2:29	Pass
15	Harwood Street	MA42-04	8/13/2020	14:31	16:44		39.9					2:13	Pass
16	Route 56	MA42-03	8/13/2020	13:24	16:44		9.7					3:20	Pass
Blank	State Line		8/13/2020	11:19	16:44		<1.0	Pass				5:25	Pass
DUP	Harwood Street		8/13/2020	14:31	16:44		47.1		16.6	4.4	Pass	2:13	Pass
Lab Split	State Line		8/13/2020	11:19	16:44		24.1		27.5	8.3	Pass	5:25	Pass
Lab Blank			8/13/2020	16:44	16:44		<1.0	Pass					
QC	Monthly		8/13/2020	16:44	16:44		Passed						
1	State Line	MA42-06	8/27/2020	13:25	16:42	Temperature	42					3:17	Pass
4	Brandon Road	MA42-05	8/27/2020	13:44	16:42	Blank 6.0 C	69.1					2:58	Pass
7	Mill Brook Bigelow	MA42-10	8/27/2020	13:55	16:42	Data flagged	365.4					2:47	Pass
8	Mill Brook Nursery	MA42-10	8/27/2020	14:08	16:42	2 degrees	980.4					2:34	Pass
11	Lowe's Brook	MA42-19	8/27/2020	14:19	16:42	above QAPP	816.4					2:23	Pass
12	Clara Barton Road	MA42-04	8/27/2020	14:53	16:42		121.1					1:49	Pass
13	Little River	MA42-14	8/27/2020	12:05	16:42		63.7					4:37	Pass
14	Dudley Road	MA42-04	8/27/2020	12:20	16:42		45.7					4:22	Pass
15	Harwood Street	MA42-04	8/27/2020	15:15	16:42		275.5					1:27	Pass
16	Route 56	MA42-03	8/27/2020	14:33	16:42		1119.9					2:09	Pass
Blank	State Line		8/27/2020	13:25	16:42		<1.0	Flagged, Total Coliform 1.0 MPN				3:17	Pass
DUP	Harwood Street		8/27/2020	15:15	16:42		260.3		5.7	1.0	Pass	1:27	Pass
Lab Split	State Line		8/27/2020	13:25	16:42		42		0.0	0.0	Pass	3:17	Pass
Lab Blank			8/27/2020	16:48	16:42		<1.0	Pass					
QC	Monthly				Not Tested								
1	State Line	MA42-06	9/11/2020	11:35	16:16	Temperature	14.5					4:41	Pass
4	Brandon Road	MA42-05	9/11/2020	11:48	16:16	Blank 4.1 C	44.3					4:28	Pass
7	Mill Brook Bigelow	MA42-10	9/11/2020	11:59	16:16	0.1 degree	30.9					4:17	Pass
8	Mill Brook Nursery	MA42-10	9/11/2020	12:09	16:16	Above QAPP	4.1					4:07	Pass
11	Lowe's Brook	MA42-19	9/11/2020	12:22	16:16	Not flagged	160.7					3:54	Pass
12	Clara Barton Road	MA42-04	9/11/2020	13:52	16:16		54.6					2:24	Pass
13	Little River	MA42-14	9/11/2020	13:10	16:16		115.3					3:06	Pass

14	Dudley Road	MA42-04	9/11/2020	13:22	16:16		55.6					2:54	Pass
15	Harwood Street	MA42-04	9/11/2020	14:01	16:16		88					2:15	Pass
16	Route 56	MA42-03	9/11/2020	13:38	16:16		18.5					2:38	Pass
Blank	State Line		9/11/2020	11:35	16:16		<1.0					4:41	Pass
DUP	Harwood Street		9/11/2020	14:01	16:16		101.4		14.1	3.1	Pass	2:15	Pass
Lab Split	State Line		9/11/2020	11:35	16:16		14.5		0.0	0.0	Pass	4:41	Pass
Lab Blank			9/11/2020				<1.0						
QC	Monthly		9/11/2020								Pass		
1	State Line	MA42-06	9/24/2020	10:39	15:56	Temperature	18.3					5:17	Pass
4	Brandon Road	MA42-05	9/24/2020	10:50	15:56	Blank 2.4 C	44.1					5:06	Pass
7	Mill Brook Bigelow	MA42-10	9/24/2020	11:08	15:56		98.7					4:48	Pass
8	Mill Brook Nursery	MA42-10	9/24/2020	11:20	15:56		<1.0					4:36	Pass
11	Lowe's Brook	MA42-19	9/24/2020	11:35	15:56		129.1					4:21	Pass
12	Clara Barton Road	MA42-04	9/24/2020	13:19	15:56		3.1					2:37	Pass
13	Little River	MA42-14	9/24/2020	12:30	15:56		21.1					3:26	Pass
14	Dudley Road	MA42-04	9/24/2020	12:47	15:56		29.2					3:09	Pass
15	Harwood Street	MA42-04	9/24/2020	13:41	15:56		36.8					2:15	Pass
16	Route 56	MA42-03	9/24/2020	13:04	15:56		7.4					2:52	Pass
Blank	State Line		9/24/2020	10:39	15:56		<1.0	Pass				5:17	Pass
DUP	Harwood Street		9/24/2020	13:41	15:56		44.1		18.0	4.9	Pass	2:15	Pass
Lab Split	State Line		9/24/2020	10:39	15:56		14.6		22.5	8.1	Pass	5:17	Pass
Lab Blank			9/24/2020				<1.0	Pass					
QC	Monthly					Not Tested							

Quality assurance, quality control and data validation

The approved QAPP required that temperature blank be used and that the blank temperature be below four degree Celsius. The transit temperature for the 8/27 sampling exceeded the QAPP and has been flagged. With short transit time, transit temperature is not significant and would only result in a minor increase in the analyte value.

7/29/2020	0.0											
7/30/2020	0.0	24.1	79.8	59.4	7.5	88.4	5.2	93.3	93.4	123.6	38.9	
8/11/2020	0.0											
8/12/2020	0.06											
8/13/2020	0.0	31.8	42.6	65.0	21.8	172.6	4.1	93.3	37.9	39.9	9.7	
8/25/2020	0.0											0.95 in rain on 8/24/2020
8/26/2020	0.0											
8/27/2020	0.0	42.0	69.1	365.9	980.4	816.4	121.1	63.7	45.7	275.5	1119.9	Local heavy rain
9/9/2020	0.0											
9/10/2020	0.0											
9/11/2020	0.23	14.5	44.3	30.9	4.1	160.7	54.6	115.3	55.6	88.0	18.5	
9/22/2020	0.0											
9/23/2020	0.0											
9/24/2020	0.0	18.3	44.1	98.7	<1.0	129.1	3.1	21.1	29.2	36.8	7.4	

Conclusion

The data indicates that rainfall and related runoff has an impact on E. Coli concentration. Additional sampling to determine the sources of high E. Coli runoff may be warranted

Appendix

Appendix A Field Sheets

Appendix B Chain of Custody logs

Appendix C Lab Note Books

Appendix D Incubator Temperature logs

Appendix E Training Log

Appendix F Disposal Tracking Forms