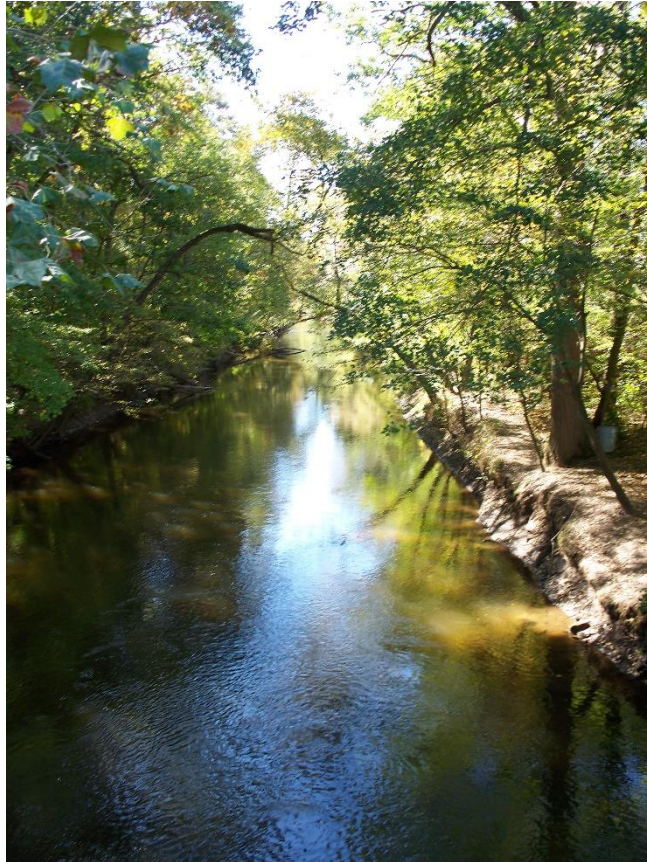


## **State of the Scantic: 2020**



**Annual Report Prepared by:**

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Prepared for the Scantic River Watershed Association, the East Windsor American Heritage Rivers Commission, the Town of East Windsor, the Somers Conservation Commission, and the Enfield Conservation Commission

**January 2021**

The Scantic River Watershed Monitoring Program (WMP) began in 2010 with the goal of providing accurate information on water quality and overall watershed health to local conservation commissions and to the State of Connecticut. Throughout the year, volunteers collected water samples from locations throughout the watershed.

Summer monitoring of total fecal coliform and *Escherichia coli* (*E. coli*) levels continued at selected locations in Somers, Enfield, and East Windsor. The Scantic River Water Monitoring Project's testing lab is based at the University of Saint Joseph, and takes advantage of the expanded testing capabilities, the additional facilities, and to allow for the involvement of USJ student researchers.

Funding for the *E. coli* project was obtained from the Scantic River Watershed Association, East Windsor, CT, Enfield, CT, the Somers Conservation Commission, and from the University of Saint Joseph. Additional funds to support the WMP project came from individual donors.

I wish to express my gratitude to the many dedicated volunteers, for their ongoing work on the project. This year was certainly challenging due to the Covid-19 pandemic and personal health issues, so I am especially thankful for those individuals who stepped forward to ensure that the Scantic River Water Monitoring Project could continue.

**Kirsten Martin, Ph.D.**

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**In an effort to streamline the report, this year's "State of the Scantic" report will only contain data from the 2020 collection season. Tables presented in this report compare the 2020 data to the 2019 data using a color scale (yellow = 2020 data is higher than the 2019 data; green – 2020 data is lower than the 2019 data, blue = 2020 and 2019 data are the same). Data that does not have a comparison, is un-highlighted. If no data is listed, this represents no sample was available for that month.**

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## pH

The pH of aquatic systems is a crucial indicator of water quality. While aquatic organisms can vary in their sensitivity to pH, most have specific ranges in which they can exist most easily.

**Table 1: Impacts of pH levels on aquatic organisms** (adapted from Johnson, Homquist, and Redding. 2007. Water Quality with Vernier)

pH level	Impact
3.0-3.5	Fish cannot survive for more than a few hours. Some invertebrates and plants might be able to exist at this level.
3.5-4.0	Lethal to salmonids
4.0-4.5	At this level, most frogs, insects, and fish will be absent
4.5-5.0	Mayfly absent, other types of sensitive insects might also be absent. Fish eggs will have great difficulty hatching
5.0-5.5	Benthic bacteria begin to die, detritus begins to accumulate. Fungal mats will replace the bacteria. Freshwater snails and clams will be absent. Lead and aluminum that might be tied up in the sediments will be released into the water.
6.0-6.5	Freshwater shrimp will be absent.
6.5-8.2	Optimal level for most aquatic organisms
8.2-9.0	Not directly harmful to fish, but pH level might cause chemical changes in the water
9.0-10.5	Harmful to salmonids and perch
10.5-11.0	Rapidly lethal to salmonids. Lethal to carp and perch if there is prolonged exposure
11.0-11.5	Rapidly lethal to all species of fish

## Temperature

Water temperature is another key component of overall aquatic health. Changes in riparian habitat can alter the temperature of the river or stream. Increased water temperatures are linked to increases in photosynthetic rate, resulting in increased plant growth and/or algal blooms. Aquatic organisms have optimal temperature ranges.

**Table 2: Impacts of temperature on aquatic organisms** (adapted from Johnson, Homquist, and Redding. 2007. Water Quality with Vernier)

Organism	Temperature range (°C)
Trout	5-20
Caddisfly larvae	10-25
Mayfly larvae	10-25
Stonefly larvae	10-25

## Total Dissolved Solids (TDS)

The total dissolved solids analysis looks at the ability of dissolved salts, and associated ions to conduct an electrical current. A high amount of dissolved ions is not necessarily an indication of a polluted river, as ions can be weathered natural from the benthic geologic materials. TDS amounts can also differ, however when additional ions (perhaps from fertilizers, road-runoff, or

even acid precipitation) enter the system. TDS values in this project are recorded as parts per million (ppm).

### **Phosphorous**

Phosphorous is an essential plant nutrient, used for growth. Sources of phosphorous in the water might include human and animal waste, soil erosion, fertilizers, and/or industrial wastes. High levels of phosphorous might result in algal “blooms” which could cause a reduction in dissolved oxygen. Phosphorous is recorded as parts per billion (ppb).

### **Nitrate**

Nitrate can find its ways into rivers and streams through either natural or anthropogenic sources. While nitrate is essential for both plant and animal health, an overabundance of nitrate may be detrimental to aquatic systems. Typically nitrate levels in freshwater rivers and streams are less than 1 mg/L.

### **Turbidity**

Turbidity is a measure of how unclear the water is. A sample with a high turbidity value is often cloudy, while a sample with a low turbidity value will appear clear. The presence of particles in the sample determines the amount of turbidity. There are many factors which might contribute to a samples turbidity, heavy precipitation can cause an increase in stream flow, and increased soil erosion might also increase turbidity

**Table 3: 2020 pH and Water Temperature (F) Results for Somers Locations**

(scale (yellow = 2020 data is higher than the 2019 data; green – 2020 data is lower than the 2019 data, blue = 2020 and 2019 data are the same)

pH	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Durkee Rd (S21)	9.03	10.12	7.90	9.29	9.00	8.74	8.76	9.13	9.46	9.40	11.07	
Four Bridges Rd (S22)	9.18	10.25	7.80	9.44	9.21	8.76	8.73	9.08	9.58	9.31	11.05	10.41
Kibbe Grove Rd. (S19)	8.91	9.93	7.20	9.29	8.89	8.79	8.90	9.13	9.30	9.48	10.70	
King Rd. (S20)	8.99	10.00	7.30	9.00	8.90	8.79	8.87	9.12	9.39		10.72	10.42
Rt 190 bridge (S17)	9.37	10.15	7.90	10.05	9.60	9.15	8.80	9.12	9.84	9.53	10.99	10.63
Route 83 (S18)	8.85	9.85	7.60	9.18	8.87	8.75	8.84	9.10	9.21	9.42	10.65	10.34
Somersville Mill Pond Boat Launch (S26)	7.90	8.10	8.00	8.10	7.80	8.40	7.70	9.30		9.50	9.50	8.70
Somersville Mill Pond Dam (S23)	7.80	8.20	7.80	8.00	7.70	8.10	8.10	9.00		8.50	8.50	8.90
Average Water Temperature	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Durkee Rd (S21)	39.5	36.3	41.0	52.7	57.4	72.6	70.1	73.7	65.1	57.1	50.9	
Four Bridges Rd (S22)	39.2	37.2	40.0	52.7	58.5	72.6	71.8	74.5	65.7	58.4	51.2	38.4
Kibbe Grove Rd. (S19)	39.1	35.6	42.0	52.0	56.2	72.1	69.0	71.9	64.1	55.7	50.7	
King Rd. (S20)	39.9	35.8	42.0	52.4	57.8	72.2	69.0	73.3	64.7		51.7	38.0
Rt 190 bridge (S17)	40.0	39.8	40.0	54.0	58.8	71.7	69.5	74.9	66.0	58.4	52.2	40.1
Route 83 (S18)	38.1	35.3	42.0	52.4	56.0	72.4	68.9	71.5	63.4	55.3	50.7	37.9
Somersville Mill Pond Boat Launch (S26)	40.0	41.0	36.0	55.0	63.0	70.0	83.0	81.0		74.5	74.5	45.0
Somersville Mill Pond Dam (S23)	39.0	40.0	37.0	53.0	61.0	69.0	77.0	80.0		68.5	68.5	44.0

**Table 4: 2020 Total Dissolved Solids (ppm), Nitrate (mg/L), and Phosphorous (ppb) Results for Somers Locations.**

(scale **yellow** = 2020 data is higher than the 2019 data; **green** – 2020 data is lower than the 2019 data, **blue** = 2020 and 2019 data are the same)

<b>Average Total Dissolved Solids</b>	<b>JAN</b>	<b>FEB</b>	<b>MARCH</b>	<b>APRIL</b>	<b>MAY</b>	<b>JUNE</b>	<b>JULY</b>	<b>AUG</b>	<b>SEPT</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>
Durkee Rd (S21)	64.80	59.60	19.00	4.00	9.00	3.00	1.00	1.00	2.00	1.00	1.00	
Four Bridges Rd (S22)	67.30	57.90	21.00	6.00	4.00	2.00	1.00	2.00	2.00	2.00	2.00	1.00
Kibbe Grove Rd. (S19)	3.00	2.00	14.00	6.00	4.00	2.00	1.00	1.00	1.00	2.00	1.00	
King Rd. (S20)	4.00	44.10	12.00	6.00	6.00	1.00	1.00	2.00	2.00		1.00	2.00
Rt 190 bridge (S17)	73.50	65.20	12.00	18.00	9.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00
Route 83 (S18)	4.00	45.80	11.00	3.00	9.00	1.00	1.00	2.00	1.00	1.00	1.00	2.00
Somersville Mill Pond Boat Launch (S26)	67.10	3.00	3.00	15.00	6.00	1.00	1.00	1.00		1.50	1.50	2.00
Somersville Mill Pond Dam (S23)	3.00	68.40	3.00	4.00	10.00	2.00	1.00	1.00		1.50	1.50	1.00
<b>Average Nitrate</b>	<b>JAN</b>	<b>FEB</b>	<b>MARCH</b>	<b>APRIL</b>	<b>MAY</b>	<b>JUNE</b>	<b>JULY</b>	<b>AUG</b>	<b>SEPT</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>
Durkee Rd (S21)	6.50	1.00	1.90	0.23	0.38	0.33	0.14	0.12	0.20	0.20	0.14	
Four Bridges Rd (S22)	2.50	3.21	1.60	0.43	0.33	0.21	0.20	0.22	0.16	0.21	0.13	0.20
Kibbe Grove Rd. (S19)	0.33	0.20	1.30	0.36	0.36	0.21	0.15	0.12	0.11	0.19	0.13	
King Rd. (S20)	0.31	4.30	1.60	0.41	0.32	0.35	0.10	0.20	0.10		0.12	0.21
Rt 190 bridge (S17)	2.80	1.90	1.60	1.30	0.56	0.42	0.18	0.18	0.18	0.26	0.21	0.11
Route 83 (S18)	0.65	1.20	1.70	0.26	0.42	0.20	0.16	0.11	0.10	0.18	0.11	0.10
Somersville Mill Pond Boat Launch (S26)	1.43	0.22	0.20	1.40	0.41	0.21	0.20	0.10		0.18	0.18	0.20
Somersville Mill Pond Dam (S23)	0.20	1.40	0.20	0.21	0.45	0.22	0.11	0.21		0.23	0.23	0.24
<b>Average Phosphorous</b>	<b>JAN</b>	<b>FEB</b>	<b>MARCH</b>	<b>APRIL</b>	<b>MAY</b>	<b>JUNE</b>	<b>JULY</b>	<b>AUG</b>	<b>SEPT</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>
Durkee Rd (S21)	125.00	800.00	18.00	33.00	34.00	26.00	32.00	140.00	133.00	110.00	100.00	
Four Bridges Rd (S22)	142.00	120.00	10.00	21.00	36.00	25.00	110.00	42.00	125.00	110.00	47.00	45.00
Kibbe Grove Rd. (S19)	36.00	32.00	22.00	24.00	23.00	29.00	48.00	22.00	124.00	118.00	110.00	
King Rd. (S20)	36.00	137.00	24.00	23.00	14.00	41.00	57.00	110.00	124.00		100.00	32.00
Rt 190 bridge (S17)	68.00	159.00	19.00	22.00	25.00	42.00	42.00	104.00	122.00	111.00	112.00	43.00
Route 83 (S18)	25.00	1200.00	17.00	27.00	24.00	14.00	110.00	36.00	110.00	117.00	100.00	38.00
Somersville Mill Pond Boat Launch (S26)	57.00	37.00	28.00	14.00	25.00	37.00	110.00	49.00		115.50	36.50	42.00
Somersville Mill Pond Dam (S23)	28.00	126.00	27.00	37.00	26.00	22.00	53.00	21.00		112.50	32.50	39.00

**Table 5: 2020 Turbidity (NTU) Results for Somers Locations.**

(scale **yellow** = 2020 data is higher than the 2019 data; **green** – 2020 data is lower than the 2019 data, **blue** = 2020 and 2019 data are the same)

Average Turbidity	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Durkee Rd (S21)	37.00	58.80	6.00	6.00	9.00	5.00	4.00	4.00	2.00	2.00	1.00	
Four Bridges Rd (S22)	32.60	59.10	3.50	10.00	8.00	5.00	9.00	6.00	2.00	3.00	1.00	3.00
Kibbe Grove Rd. (S19)	8.00	7.00	13.00	8.00	7.00	2.00	2.00	4.00	1.00	2.00	1.00	
King Rd. (S20)	8.00	51.50	12.00	7.00	5.00	5.00	3.00	5.00	2.00		1.00	2.00
Rt 190 bridge (S17)	53.80	50.60	10.00	28.00	10.00	5.00	6.00	4.00	2.00	3.00	1.00	4.00
Route 83 (S18)	6.00	3.50	9.00	5.00	14.00	3.00	9.00	7.00	1.00	1.00	1.00	2.00
Somersville Mill Pond Boat Launch (S26)	60.40	5.00	4.00	23.00	10.00	3.00	4.00	9.00		1.50	1.50	2.00
Somersville Mill Pond Dam (S23)	8.00	55.10	4.00	8.00	12.00	3.00	3.00	6.00		3.50	3.50	3.00



**Table 6: 2020 pH and Water Temperature (F) Results for Enfield Locations**

(scale (yellow = 2020 data is higher than the 2019 data; green – 2020 data is lower than the 2019 data, blue = 2020 and 2019 data are the same)

\*No samples available for November

<b>pH</b>	<b>JAN</b>	<b>FEB</b>	<b>MARCH</b>	<b>APRIL</b>	<b>MAY</b>	<b>JUNE</b>	<b>JULY</b>	<b>AUG</b>	<b>SEPT</b>	<b>OCT</b>	<b>DEC</b>
464 Hazard Ave (E24)	7.50	8.10	7.20	8.10	7.80	8.20	8.50	8.40	8.40	8.50	9.10
Broad Brook Road (E16)	7.70	8.10	7.60	7.90	7.90	8.30	8.40	8.60	8.80	8.60	8.28
Powder Hollow (E15)	7.80	8.20	7.70	7.90	7.70	8.10	8.40	8.50	8.20	8.40	9.2
Town Farm Road (E14)	7.90	8.80	7.90	7.80	7.70	7.90	8.40	7.80	7.90	7.90	9.00
<b>Average Water Temperature</b>	<b>JAN</b>	<b>FEB</b>	<b>MARCH</b>	<b>APRIL</b>	<b>MAY</b>	<b>JUNE</b>	<b>JULY</b>	<b>AUG</b>	<b>SEPT</b>	<b>OCT</b>	<b>DEC</b>
464 Hazard Ave (E24)	40.00	40.00	38.00	52.00	61.00	69.00	78.00	76.00	74.00	59.00	44.00
Broad Brook Road (E16)	40.00	39.00	38.00	52.00	61.00	70.00	80.00	77.00	74.00	61.00	44.00
Powder Hollow (E15)	42.00	39.00	37.00	53.00	58.00	68.00	78.00	77.00	73.00	60.00	44.00
Town Farm Road (E14)	41.00	40.00	36.00	53.00	58.00	68.00	76.00	76.00	73.00	59.00	44.00

**Table 7: 2020 Total Dissolved Solids (ppm), Nitrate (mg/L), and Phosphorous (ppb) Results for Enfield Locations**

(scale (yellow = 2020 data is higher than the 2019 data; green – 2020 data is lower than the 2019 data, blue = 2020 and 2019 data are the same)

\*No samples available for November

<b>Average Total Dissolved Solids</b>	<b>JAN</b>	<b>FEB</b>	<b>MARCH</b>	<b>APRIL</b>	<b>MAY</b>	<b>JUNE</b>	<b>JULY</b>	<b>AUG</b>	<b>SEPT</b>	<b>OCT</b>	<b>DEC</b>
464 Hazard Ave (E24)	66.90	74.60	3.00	18.00	4.00	2.00	2.00	2.00	2.00	2.00	1.00
Broad Brook Road (E16)	3.00	3.00	3.00	7.00	5.00	1.00	1.00	2.00	1.00	1.00	2.00
Powder Hollow (E15)	62.50	69.30	3.00	5.00	8.00	2.00	1.00	1.00	2.00	2.00	2.00
Town Farm Road (E14)	68.70	74.60	3.00	11.00	7.00	1.00	2.00	1.00	2.00	2.00	2.00
<b>Average Nitrate</b>											
<b>Average Nitrate</b>	<b>JAN</b>	<b>FEB</b>	<b>MARCH</b>	<b>APRIL</b>	<b>MAY</b>	<b>JUNE</b>	<b>JULY</b>	<b>AUG</b>	<b>SEPT</b>	<b>OCT</b>	<b>DEC</b>
464 Hazard Ave (E24)	1.70	2.70	0.42	1.30	0.41	0.32	0.12	0.20	0.20	0.22	0.21
Broad Brook Road (E16)	0.32	0.33	0.25	0.32	0.38	0.31	0.10	0.15	0.23	0.25	0.20
Powder Hollow (E15)	2.10	3.42	0.32	0.36	1.10	0.42	0.14	0.16	0.14	0.20	0.20
Town Farm Road (E14)	1.90	9.60	0.21	1.10	0.43	0.35	0.17	0.21	0.10	0.12	0.21
<b>Average Phosphorous</b>											
<b>Average Phosphorous</b>	<b>JAN</b>	<b>FEB</b>	<b>MARCH</b>	<b>APRIL</b>	<b>MAY</b>	<b>JUNE</b>	<b>JULY</b>	<b>AUG</b>	<b>SEPT</b>	<b>OCT</b>	<b>DEC</b>
464 Hazard Ave (E24)	2800.00	2200.00	31.00	12.00	34.00	29.00	48.00	41.00	118.00	113.00	100.00
Broad Brook Road (E16)	33.00	21.00	35.00	34.00	24.00	42.00	68.00	102.00	112.00	110.00	100.00
Powder Hollow (E15)	73.00	152.00	26.00	34.00	18.00	27.00	25.00	110.00	120.00	124.00	22.00
Town Farm Road (E14)	1300.00	118.00	38.00	17.00	14.00	21.00	101.00	100.00	132.00	121.00	36.00

**Table 8: 2020 Turbidity (NTU) Results for Enfield Locations.**

(scale **yellow** = 2020 data is higher than the 2019 data; **green** – 2020 data is lower than the 2019 data, **blue** = 2020 and 2019 data are the same)

\*No samples available for November

Average Turbidity	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	DEC
464 Hazard Ave (E24)	7.00	5.40	8.00	22.00	9.00	2.00	2.00	8.00	4.00	2.00	2.00
Broad Brook Road (E16)	3.00	7.00	7.00	6.00	7.00	6.00	8.00	6.00	5.00	3.00	2.00
Powder Hollow (E15)	57.30	59.50	8.00	8.00	11.00	9.00	5.00	8.00	4.00	6.00	3.00
Town Farm Road (E14)	14.80	61.60	5.00	20.00	12.00	2.00	8.00	9.00	2.00	4.00	1.00

**Table 9: 2020 pH and Water Temperature (F) Results for East Windsor Locations**

(scale (yellow = 2020 data is higher than the 2019 data; green – 2020 data is lower than the 2019 data, blue = 2020 and 2019 data are the same))

<b>pH</b>	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Broad Brook Mill Pond/ Depot St (EW7)	8.47	8.54	8.50	9.30	8.86	9.94	8.93	8.47	8.16		8.53	8.39
Broad Brook/ East Rd (EW8)	8.57	8.68	8.69	8.72	8.62	8.76	8.75	8.69	8.53			8.47
Broad Brook/ Mill St (EW5)	8.47	8.66	8.70	8.89	8.60	9.22	8.83	8.69	8.66	8.81	8.61	8.43
Chestnut Brook/ above reservoir (EW9)	8.58	8.72	8.68	8.78	8.62	8.74		8.64	8.56	8.68	8.64	8.41
Chestnut Brook/ Main Street Broad Brook (EW10)	8.30	8.3	8.36	8.37	8.30	8.53	8.42	8.46		8.46	8.34	8.12
Ketch Brook/ Rye St (EW6)	8.60	8.53	8.60	8.65	8.62	8.69	8.67	8.74	8.74	8.79	8.56	8.59
Old Melrose Bridge (EW4)	8.51	8.38	8.40	8.40	8.35	8.70	8.51	8.38	8.35	8.50	8.33	8.27
Omelia Bridge (EW3)	8.59	8.55	8.59	8.57	8.24	8.65	8.66	8.56	8.65	8.60	8.50	8.65
Rt 140 Bridge (EW1)	8.57		8.63	8.57	8.55		8.29	8.56	8.37	8.57	8.54	8.36
Styles Bridge (EW2)	8.70	8.80	8.86	8.73	8.60	8.77	8.75	8.67	8.64	8.73	8.71	8.62
<b>Average Water Temperature</b>												
	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Broad Brook Mill Pond/ Depot St (EW7)	46.00	42.10	45.40	59.70	62.60	66.50	78.20	76.20	74.20		54.30	38.80
Broad Brook/ Mill St (EW5)	45.70	41.80	44.70	56.30	63.00	64.10	74.00	74.20	66.80	56.10	56.10	38.30
Broad Brook/ East Rd (EW8)	42.80	42.40	47.00	60.00	62.50	58.90	68.50	68.40	62.00			39.40
Chestnut Brook/ above reservoir (EW9)	44.30	41.70	47.10	59.70	63.60	59.20		68.50	64.50	55.90	56.60	39.70
Chestnut Brook/ Main Street Broad Brook (EW10)	43.50	42.90	45.70	57.40	59.90	60.40	72.40	66.25		55.00	55.70	40.10
Rt 140 Bridge (EW1)	44.30	39.90	43.50	55.50	62.60		84.00	75.90	67.00	56.30	54.80	39.00
Ketch Brook/ Rye St (EW6)	43.50	42.10	45.50	57.20	63.10	60.00	69.30	65.20	60.80	51.90	54.40	38.60
Old Melrose Bridge (EW4)	44.10	39.20	42.50	55.50	62.90	65.00	73.85	73.80	66.10	56.30	55.10	39.10
Omelia Bridge (EW3)	44.90	41.50	47.40	56.60	63.20	64.60	74.80	74.20	66.70	56.50	56.30	39.60
Styles Bridge (EW2)	44.40	40.20	43.10	55.90	62.90	64.40	75.60	73.40	67.70	55.40	54.10	39.50

**Table 10: 2020 Total Dissolved Solids (ppm), and Nitrate (mg/L) Results for East Windsor Locations**

(scale (yellow = 2020 data is higher than the 2019 data; green – 2020 data is lower than the 2019 data, blue = 2020 and 2019 data are the same)

<b>Average Total Dissolved Solids</b>	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Broad Brook Mill Pond/ Depot St (EW7)	126.00	117.70	19.00	17.00	4.00	5.00	1.00	1.00	7.00		2.00	1.00
Broad Brook/ Mill St (EW5)	127.00	125.50	11.00	10.00	4.00	3.00	1.50	2.00	2.00	1.00	1.00	1.00
Broad Brook/ East Rd (EW8)	4.00	130.60	13.00	10.00	4.00	4.00	1.00	3.00	2.00			2.00
Chestnut Brook/ above reservoir (EW9)	116.20	4.00	16.00	9.00	4.00	3.00		2.00	2.00	1.00	1.00	2.00
Chestnut Brook/ Main Street Broad Brook (EW10)	4.00	123.70	12.00	20.00	4.00	2.00	1.00	2.00		2.00	2.00	3.00
Rt 140 Bridge (EW1)	5.00	80.60	20.00	16.00	5.00		1.00	2.00	2.00	2.00	1.00	2.00
Ketch Brook/ Rye St (EW6)	123.10	124.20	13.00	9.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	2.00
Old Melrose Bridge (EW4)	79.10	3.00	42.00	10.00	4.00	3.00	1.00	2.00	3.00	2.00	1.00	1.00
Omelia Bridge (EW3)	3.00	87.80	14.00	8.00	4.00	2.00	1.00	2.00	1.00	1.00	1.00	2.00
Styles Bridge (EW2)	5.00	85.00	17.00	14.00	4.00	2.00	2.00	2.00	2.00	2.00	1.00	2.00

<b>Average Nitrate</b>	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Broad Brook Mill Pond/ Depot St (EW7)	4.90	5.10	2.00	1.40	0.53	1.46	0.11	0.12	0.42		0.14	0.26
Broad Brook/ Mill St (EW5)	5.40	5.90	1.00	1.00	0.46	1.23	0.14	0.18	0.14	0.21	0.20	0.26
Broad Brook/ East Rd (EW8)	1.11	5.80	1.20	1.20	0.44	0.44	0.11	0.22	0.31			0.18
Chestnut Brook/ above reservoir (EW9)	8.30	0.37	1.20	1.00	1.00	1.10		0.17	0.22	0.21	0.21	0.14
Chestnut Brook/ Main Street Broad Brook (EW10)	0.42	5.40	1.70	1.30	1.06	0.38	0.12	0.13		0.24	0.24	0.12
Rt 140 Bridge (EW1)	0.48	2.70	1.20	1.20	1.10		0.20	0.11	0.10	0.17	0.12	0.13
Ketch Brook/ Rye St (EW6)	6.00	6.80	1.40	1.00	0.22	0.21	0.22	0.11	0.21	0.22	0.20	0.10
Old Melrose Bridge (EW4)	2.00	0.54	1.40	1.10	0.55	1.10	0.16	0.24	0.25	0.20	0.15	0.15
Omelia Bridge (EW3)	0.41	2.50	1.60	1.00	0.42	1.23	0.15	0.21	0.11	0.18	0.14	0.20
Styles Bridge (EW2)	0.31	2.70	1.30	1.20	1.10	1.34	0.15	0.14	0.14	0.16	0.11	0.14

**Table 11: 2020 Phosphorous (ppb) and Turbidity (NTU) Results for East Windsor Locations.**

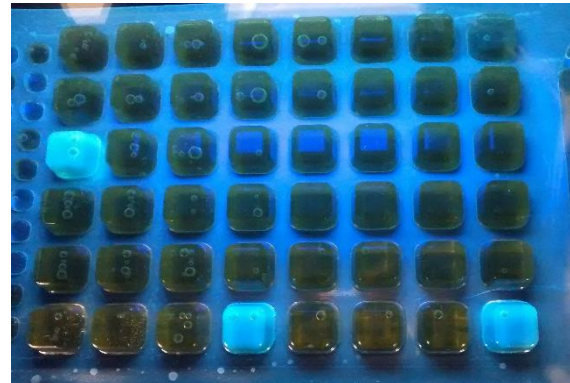
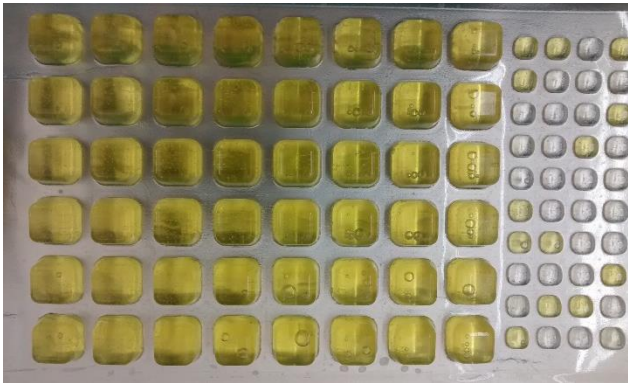
(scale (yellow = 2020 data is higher than the 2019 data; green – 2020 data is lower than the 2019 data, blue = 2020 and 2019 data are the same)

<b>Average Phosphorous</b>	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Broad Brook Mill Pond/ Depot St (EW7)	1200.00	139.00	13.00	10.00	26.00	36.00	27.00	26.00	44.00		113.00	61.00
Broad Brook/ Mill St (EW5)	700.00	200.00	18.00	15.00	31.00	33.00	36.00	41.00	32.00	117.00	113.00	120.00
Broad Brook/ East Rd (EW8)	38.00	140.00	10.00	19.00	35.00	31.00	42.00	48.00	24.00			52.00
Chestnut Brook/ above reservoir (EW9)	186.00	34.00	13.00	18.00	26.00	32.00		29.00	47.00	114.00	114.00	45.00
Chestnut Brook/ Main Street Broad Brook (EW10)	32.00	1100.00	11.00	19.00	24.00	27.00	47.00	33.00		116.00	116.00	37.00
Rt 140 Bridge (EW1)	27.00	1000.00	22.00	20.00	37.00		69.00	28.00	36.00	115.00	112.00	110.00
Ketch Brook/ Rye St (EW6)	1000.00	108.00	14.00	10.00	31.00	31.00	48.00	120.00	110.00	115.00	114.00	100.00
Old Melrose Bridge (EW4)	2200.00	32.00	120.00	15.00	34.00	27.00	36.00	38.00	41.00	115.00	112.00	130.00
Omelia Bridge (EW3)	25.00	148.00	16.00	21.00	33.00	31.00	28.00	37.00	33.00	111.00	108.00	140.00
Styles Bridge (EW2)	17.00	133.00	14.00	12.00	29.00	34.00	52.00	38.00	38.00	113.00	120.00	100.00

<b>Average Turbidity</b>	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Broad Brook Mill Pond/ Depot St (EW7)	11.30	54.60	35.00	20.00	5.00	8.00	7.00	2.00	4.00		2.00	4.00
Broad Brook/ Mill St (EW5)	7.70	3.50	20.00	9.00	6.00	6.00	2.00	3.00	1.00	2.00	2.00	4.00
Broad Brook/ East Rd (EW8)	7.00	59.80	14.00	19.00	5.00	4.00	2.00	2.00	2.00			4.00
Chestnut Brook/ above reservoir (EW9)	7.10	8.00	18.00	12.00	3.00	3.00		3.00	2.00	2.00	2.00	3.00
Chestnut Brook/ Main Street Broad Brook (EW10)	6.00	7.50	15.00	4.00	6.00	4.00	5.00	2.50		5.00	5.00	4.00
Rt 140 Bridge (EW1)	10.00	8.00	4.20	19.00	9.00		11.00	3.00	2.00	3.00	2.00	4.00
Ketch Brook/ Rye St (EW6)	8.40	52.40	19.00	18.00	4.00	2.00	5.00	1.00	2.00	2.00	2.00	2.00
Old Melrose Bridge (EW4)	9.30	5.00	6.00	18.00	3.00	4.00	4.50	3.00	9.00	2.00	1.00	3.00
Omelia Bridge (EW3)	6.00	56.90	14.00	3.60	6.00	5.00	5.00	2.00	3.00	5.00	1.00	4.00
Styles Bridge (EW2)	8.00	9.90	20.00	18.00	7.00	6.00	8.00	5.00	2.00	3.00	2.00	4.00

## Bacterial Testing

This past summer, monitoring of *E. coli* levels at selected Scantic River locations continued. The project was made possible by funding from the towns of East Windsor, CT, Enfield, CT, the Scantic River Watershed Association, the University of Saint Joseph, and donations from private individuals. Samples were collected weekly, and *E. coli* levels were reported to the CRWC's website. Testing methodology followed the CRWC SOP (Analytical Quantification of *Escherichia coli* bacteria in ambient surface waters using an enzyme substrate test (Standard Methods 9223B). 100ml samples were tested by adding Colilert reagent (IDEXX), the sample was then poured into a multi-well tray, sealed, then incubated for 24 hours at  $35^{\circ} \pm 0.5^{\circ}\text{C}$ . The number of yellow large and small wells were counted, the MPN (most probable number) for total fecal coliform was found using a chart. The MPN for Colilert equates to 1 colony forming unit (cfu) per 100ml. The tray was then placed under a UV light and the number of large and small wells that fluoresced were counted. This number was again used to find the MPN for *E. coli*.



### *E. coli*

The CRWC uses the follow “recreational threshold” to list the relative health of rivers. Several sites in East Windsor had “red” levels during the testing period, and “yellow” levels were also common. In the graphs below, the “yellow” threshold is marked by a gray line at 235 cfu (MPN), the “red” threshold is marked by a red line at 575 cfu (MPN).

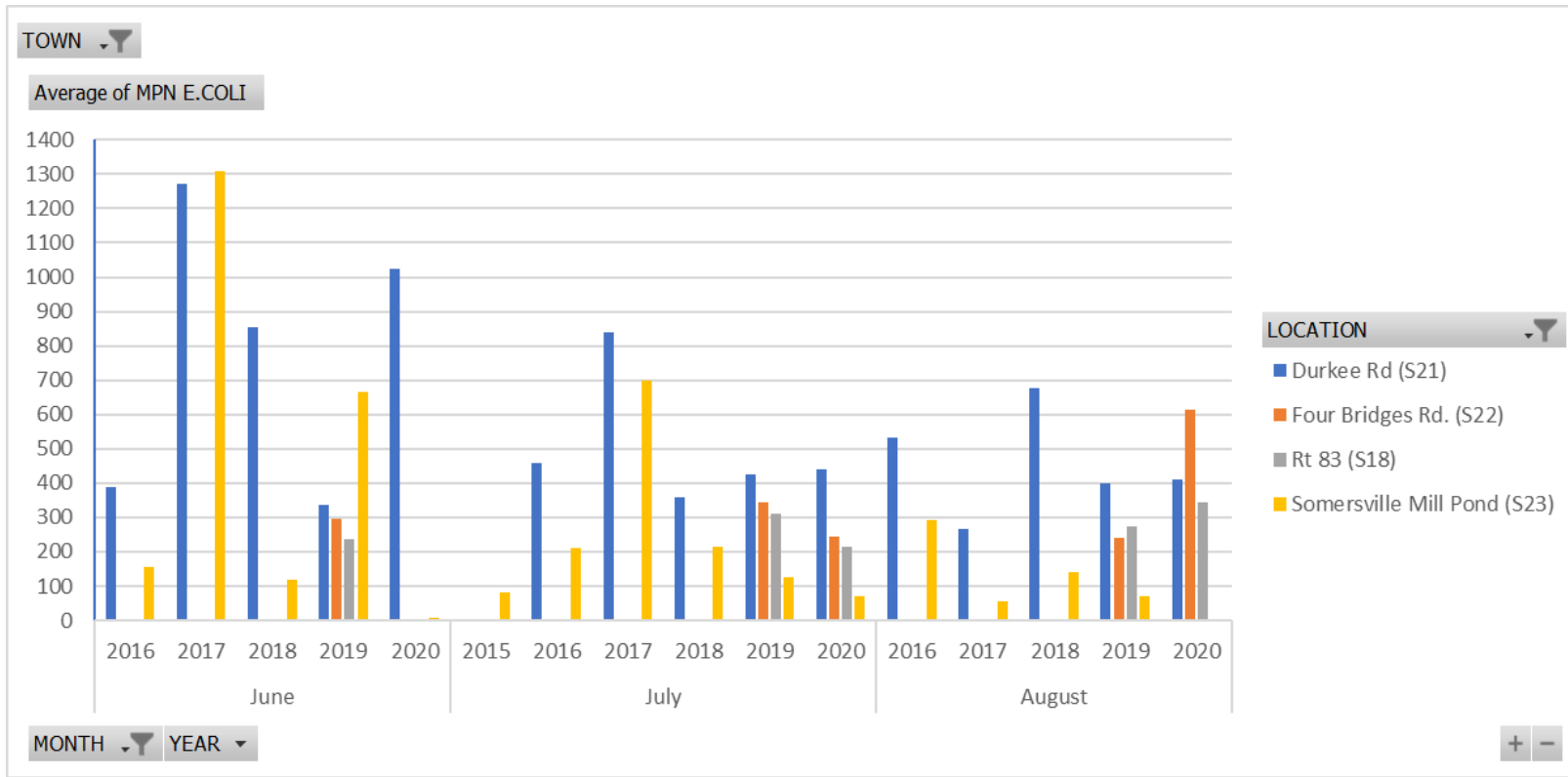
BLUE	Clean for swimming and boating	<235 cfu/100 ml
YELLOW	Clean for boating only	235 - 575 cfu/100 ml
RED	Not clean for swimming or boating	>575 cfu/100 ml

## Scantic River Water Monitoring Program

### Summer 2020 *E. coli*

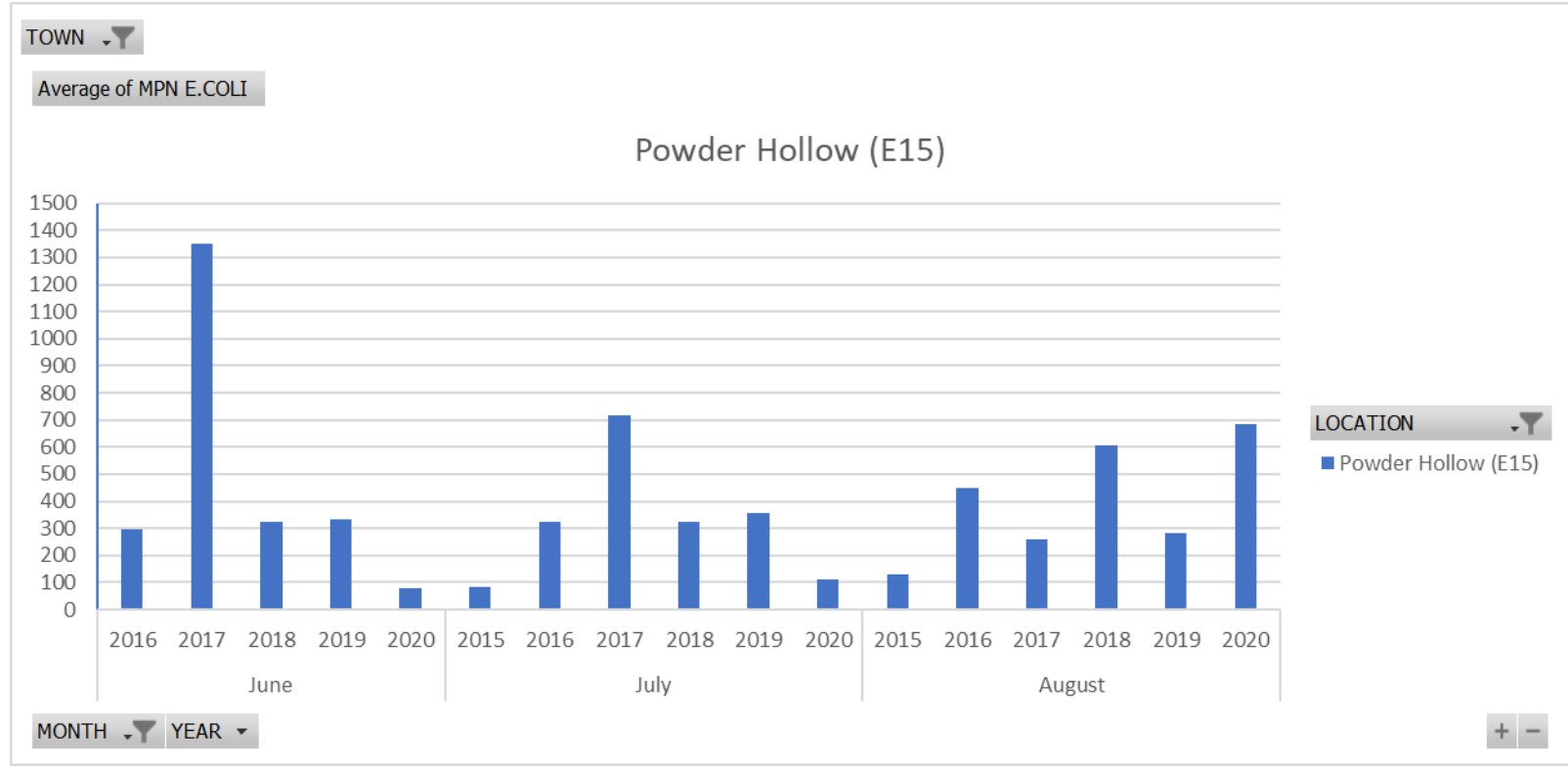
The *E. coli* monitoring project continued in the summer of 2020, with some slight modifications due to Covid19. The start of testing was delayed until June, and during the first few weeks a reduced number of sites were sampled. The number of sites monitored in Enfield was reduced to just one, Powder Hollow, as the other two sites previously monitored (Broad Brook Road and Town Farm Road) had consistently low *E. coli* levels during the previous years of monitoring.

### Somers, CT

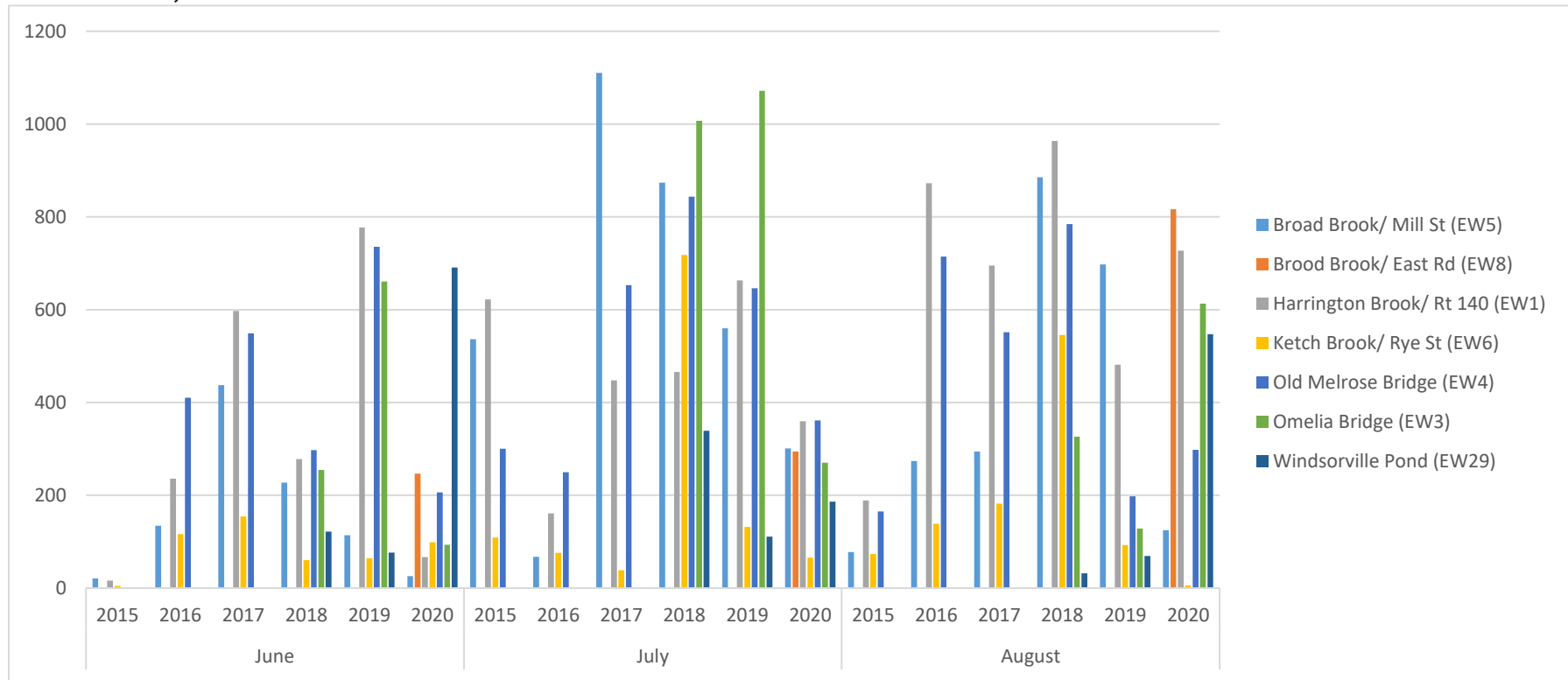




# Enfield, CT



# East Windsor, CT



## 2020 Comparison Table

The numbers in the chart below represent monthly averages. **Yellow** shaded values show that the 2020 average was higher than the 2019 average, **green** shaded values show that the 2020 value was lower than the 2019 value, **blue** shaded values show that the 2020 average was the same as the 2019 value.

	Location	June	July	August
Somers	Durkee Rd (S21)	1025	439	411
	Four Bridges Rd. (S22)	Not sampled in June	243	613
	Rt 83 (S18)	Not sampled in June	214	345
	Somersville Mill Pond (S23)	7	72	2
Enfield	Powder Hollow (E15)	77	111	687
East Windsor	Broad Brook/ Mill St (EW5)	26	301	125
	Brood Brook/ East Rd (EW8)	247	295	816
	Filterbeds (EW28)	39	311	579
	Harrington Brook/ Rt 140 (EW1)	67	359	727
	Ketch Brook/ Rye St (EW6)	99	66	6
	Old Melrose Bridge (EW4)	206	362	298
	Omelia Bridge (EW3)	93	271	613
	Windsorville Pond (EW29)	691	186	548