

2019 TRWA Sampling Results for Nitrate (mg/l)			TARGET FOR CONCERN - GREATER THAN 0.4 MG/L							AVG**
Sample	Site No.	River & Location Description	April	May	June	July	August	Sept.	Oct.	AVG**
1	TNT-01	Taunton R. Br, Center St., Berkley	0.36	0.34	0.48	0.73				
2	TNT-02	Taunton R. Br, Plain St., Taunton	0.37	0.32	0.33	0.51				
3	BED-01/TNT-03	Taunton R., Rt 18, Bedford St., Bridgewater	0.39	0.32	0.41	0.45				
4	CHE-01/TNT-04	Taunton R. Br, Cherry St., Bridgewater	0.49	0.50	0.82	1.08				
5	ASO-01	Assonet R. Bridge, Rt 79	NS	0.07	0.08	0.09				
6	SEG	Segregansett R. Br, Brook St. Dighton	0.15	0.11	0.27	0.40				
7	BER-01	Chuckamucksett Brk. Br, Berkley St.	0.43	0.25	0.90	1.30				
8	TMR-01	Three Mile R. Br, Rt 138, Somerset Ave.	0.34	0.31	0.31	0.38				
9	TMR-02	Three Mile R. Br, Rt 44, Cohannet St.	0.31	0.32	0.30	0.41				
10	TMR-03	Three Mile R. Br, Crane St., Norton	0.25	0.23	0.21	0.21				
11	MIL-01	Mill R., Ingell St., Taunton	0.27	0.13	0.25	NS				
12	MIL-02	Mill R., Washington St., Taunton	0.25	0.12	0.21	NS				
13	MIL-03	Mill R., Whittendon St., Taunton	0.23	0.10	0.15	NS				
14	FORGE	Forge R. Br, Rt 44, Raynham	0.26	0.27	0.34	0.53				
15	COT-01	Cotley R., Middleboro Ave, Taunton	0.17	0.09	0.26	0.41				
16	FBR-01	Furnace Brk., River St., E. Taunton	0.23	0.22	0.24	0.25				
17	TBR-01	Tomson Brk., Highstone St., E. Taunton	0.14	0.05	<0.05	0.15				
18	TWH-01	Town R., Br, Hayward St., Bridgewater	0.24	0.21	0.35	1.20				
19	MAT-01	Matfield R., Br, High St., Bridgewater	CoC	0.75	0.98	1.04				
20	NEM-01	Nemasket R., Murdock St., Middleboro	0.16	0.10	0.10	0.09				
		NS - Not Sampled; CoC - Lab Chain of Custody (CoC) Error (problem corrected for future sampling)							** Avg is for the water quality months	
Month	Site No.	Duplicate and Blank Locations by Month	DUP #	Duplicate Results	BL #	Blank Results	of May through October used in NPDES permit TN limitation averaging.			
April	COT-01	Cotley R., Middleboro Ave, Taunton	DUP 1	0.14	BL 1	<0.05				
	BER-01	Chuckamucksett Brk. Br, Berkley St.	DUP 2	0.40	BL 2	<0.05				
May	SEG	Segregansett R. Br, Brook St. Dighton	DUP 1	0.11	BL 1	<0.05				
	FBR-01	Furnace Brk., River St., E. Taunton	DUP 2	0.21	BL 2	<0.05			<b>Month</b>	<b>Sampling Date</b>
June	TNT-02	Taunton R. Br, Plain St., Taunton	DUP 1	0.33	BL 1	<0.05			April	4/9/2019
	ASO-01	Assonet R. Bridge, Rt 79	DUP 2	0.06	BL 2	<0.05			May	5/14/2019
July	BED-01/TNT-03	Taunton R., Rt 18, Bedford St., Bridgewater	DUP 1	0.46	BL 1	<0.05			June	6/18/2019
	SEG	Segregansett R. Br, Brook St. Dighton	DUP 2	0.40	BL 2	<0.05			July	7/9/2019
August	MAT-01	Matfield R., Br, High St., Bridgewater	DUP 1		BL 1				August	<b>8/13/2019</b>
	TNT-02	Taunton R. Br, Plain St., Taunton	DUP 2		BL 2				Sept.	9/10/2019
Sept.	MIL-01	Mill R., Ingell St., Taunton	DUP 1		BL 1				Oct.	10/8/2019
	BED-01/TNT-03	Taunton R., Rt 18, Bedford St., Bridgewater	DUP 2		BL 2				Next sampling date in bold font.	
Oct.	TMR-02	Three Mile R. Br, Rt 44, Cohannet St.	DUP 1		BL 1					
	NEM-01	Nemasket R., Murdock St., Middleboro	DUP 2		BL 2					

2019 TRWA Sampling Results for Total Phosphorus (mg/l)			TARGET FOR CONCERN - GREATER THAN 0.100 mg/l							AVG**	
Sample	Site No.	River & Location Description	April	May	June	July	August	Sept.	Oct.	AVG**	
1	TNT-01	Taunton R. Br, Center St., Berkley	*	0.060	0.114	0.105					
2	TNT-02	Taunton R. Br, Plain St., Taunton	*	0.056	0.068	0.079					
3	BED-01/TNT-03	Taunton R., Rt 18, Bedford St., Bridgewater	0.038	0.062	0.075	0.095					
4	CHE-01/TNT-04	Taunton R. Br, Cherry St., Bridgewater	0.051	0.072	0.100	0.112					
5	ASO-01	Assonet R. Bridge, Rt 79	NS	0.027	0.039	0.085					
6	SEG	Segregansett R. Br, Brook St. Dighton	*	0.017	0.049	0.066					
7	BER-01	Chuckamucksett Brk. Br, Berkley St.	0.016	0.033	0.046	0.044					
8	TMR-01	Three Mile R. Br, Rt 138, Somerset Ave.	*	0.034	0.044	0.038					
9	TMR-02	Three Mile R. Br, Rt 44, Cohannet St.	*	0.035	0.049	0.048					
10	TMR-03	Three Mile R. Br, Crane St., Norton	*	0.041	0.040	0.033					
11	MIL-01	Mill R., Ingell St., Taunton	*	0.035	0.045	NS					
12	MIL-02	Mill R., Washington St., Taunton	*	0.023	0.038	NS					
13	MIL-03	Mill R., Whittendon St., Taunton	*	0.020	0.033	NS					
14	FORGE	Forge R. Br, Rt 44, Raynham	*	0.056	0.077	0.106					
15	COT-01	Cotley R., Middleboro Ave, Taunton	*	0.019	0.022	0.018					
16	FBR-01	Furnace Brk., River St., E. Taunton	*	0.027	0.033	0.022					
17	TBR-01	Tomson Brk., Highstone St., E. Taunton	*	0.032	0.026	0.052					
18	TWH-01	Town R., Br, Hayward St., Bridgewater	0.050	0.052	0.096	0.118					
19	MAT-01	Matfield R., Br, High St., Bridgewater	CoC	0.090	0.090	0.095					
20	NEM-01	Nemasket R., Murdock St., Middleboro	0.023	0.033	0.050	0.053					
*Samples lost due to preservation error HNO3 used instead of H2SO4 (problem corrected for future sampling)							** Avg is for the water quality months				
<b>Duplicate and Blank Locations by Month</b>			<b>Duplicate Results</b>		<b>Blank Results</b>		of May through October (season AVG).				
April	COT-01	Cotley R., Middleboro Ave, Taunton	DUP 1	0.117	BL 1	<0.0106	NPDES permits use TP mo. avg. limits.				
	BER-01	Chuckamucksett Brk. Br, Berkley St.	DUP 2	0.015	BL 2	0.077	Based on observations TRWA considers				
May	SEG	Segregansett R. Br, Brook St. Dighton	DUP 1	0.031	BL 1	0.024	a season AVG $\geq 0.05$ mg/l is concern.				
	FBR-01	Furnace Brk., River St., E. Taunton	DUP 2	0.038	BL 2	<0.0106					
June	TNT-02	Taunton R. Br, Plain St., Taunton	DUP 1	0.071	BL 1	<0.0106		<b>Month</b>	<b>Sampling Date</b>		
	ASO-01	Assonet R. Bridge, Rt 79	DUP 2	0.044	BL 2	<0.0106		April	4/9/2019		
July	BED-01/TNT-03	Taunton R., Rt 18, Bedford St., Bridgewater	DUP 1	0.0924	BL 1	0.0924		May	5/14/2019		
	SEG	Segregansett R. Br, Brook St. Dighton	DUP 2	0.0723	BL 2	<0.0106		June	6/18/2019		
August	MAT-01	Matfield R., Br, High St., Bridgewater	DUP 1		BL 1			July	7/9/2019		
	TNT-02	Taunton R. Br, Plain St., Taunton	DUP 2		BL 2			August	<b>8/13/2019</b>		
Sept.	MIL-01	Mill R., Ingell St., Taunton	DUP 1		BL 1			Sept.	9/10/2019		
	BED-01/TNT-03	Taunton R., Rt 18, Bedford St., Bridgewater	DUP 2		BL 2			Oct.	10/8/2019		
Oct.	TMR-02	Three Mile R. Br, Rt 44, Cohannet St.	DUP 1		BL 1			Next sampling date in bold font.			
	NEM-01	Nemasket R., Murdock St., Middleboro	DUP 2		BL 2						

2019 Bacteria - Fecal Coliform (FC), Enterococci (EN) colonies/100 ml			FC* > 200	EN CONCERN - GREATER THAN 61 COLONIES/100 ML							
Sample	Site No.	River & Location Description	April	May	June	July	August	Sept.	Oct.	EN GEO MEAN May to Oct.	
1	TNT-01	Taunton R. Br, Center St., Berkley	10	190	130	170					
2	TNT-02	Taunton R. Br, Plain St., Taunton	20	420	110	130					
3	BED-01/TNT-03	Taunton R., Rt 18, Bedford St., Bridgewater	30	310	170	30					
4	CHE-01/TNT-04	Taunton R. Br, Cherry St., Bridgewater	180	1250	140	90					
5	ASO-01	Assonet R. Bridge, Rt 79	NS	270	70	80					
6	SEG	Segregansett R. Br, Brook St. Dighton	60	420	120	600					
7	BER-01	Chuckamucksett Brk. Br, Berkley St.	20	280	1170	130					
8	TMR-01	Three Mile R. Br, Rt 138, Somerset Ave.	20	130	170	300					
9	TMR-02	Three Mile R. Br, Rt 44, Cohannet St.	30	100	250	90					
10	TMR-03	Three Mile R. Br, Crane St., Norton	<10	590	30	150					
11	MIL-01	Mill R., Ingell St., Taunton	<10	160	1980	NS					
12	MIL-02	Mill R., Washington St., Taunton	20	160	1530	NS					
13	MIL-03	Mill R., Whittendon St., Taunton	20	260	850	NS					
14	FORGE	Forge R. Br, Rt 44, Raynham	<10	700	670	480					
15	COT-01	Cotley R., Middleboro Ave, Taunton	10	1890	750	480					
16	FBR-01	Furnace Brk., River St., E. Taunton	20	80	230	450					
17	TBR-01	Tomson Brk., Highstone St., E. Taunton	30	20	<10	390					
18	TWH-01	Town R., Br, Hayward St., Bridgewater	20	700	110	110					
19	MAT-01	Matfield R., Br, High St., Bridgewater	CoC	1540	130	70					
20	NEM-01	Nemasket R., Murdock St., Middleboro	20	70	290	30					
*Bacteriological analysis in April was fecal coliform, analysis for May to Oct. is enterococci							** Geometric Mean for the six months				
		Duplicate and Blank Locations by Month		Duplicate Results	Blank Results		from May to Oct. should not exceed				
April	COT-01	Cotley R., Middleboro Ave, Taunton	DUP 1	<10	BL 1	<10	<b>33 colonies per 100 ml.</b>				
	BER-01	Chuckamucksett Brk. Br, Berkley St.	DUP 2	<10	BL 2	<10					
May	SEG	Segregansett R. Br, Brook St. Dighton	DUP 1	530	BL 1	<10					
	FBR-01	Furnace Brk., River St., E. Taunton	DUP 2	60	BL 2	<10	<b>Month</b>		<b>Sampling Date</b>		
June	TNT-02	Taunton R. Br, Plain St., Taunton	DUP 1	110	BL 1	<10	April		4/9/2019		
	ASO-01	Assonet R. Bridge, Rt 79	DUP 2	70	BL 2	<10	May		5/14/2019		
July	BED-01/TNT-03	Taunton R., Rt 18, Bedford St., Bridgewater	DUP 1	50	BL 1	<10	June		6/18/2019		
	SEG	Segregansett R. Br, Brook St. Dighton	DUP 2	270	BL 2	<10	July		7/9/2019		
August	MAT-01	Matfield R., Br, High St., Bridgewater	DUP 1		BL 1		August		<b>8/13/2019</b>		
	TNT-02	Taunton R. Br, Plain St., Taunton	DUP 2		BL 2		Sept.		9/10/2019		
Sept.	MIL-01	Mill R., Ingell St., Taunton	DUP 1		BL 1		Oct.		10/8/2019		
	BED-01/TNT-03	Taunton R., Rt 18, Bedford St., Bridgewater	DUP 2		BL 2		Next sampling date in bold font.				
Oct.	TMR-02	Three Mile R. Br, Rt 44, Cohannet St.	DUP 1		BL 1						
	NEM-01	Nemasket R., Murdock St., Middleboro	DUP 2		BL 2						

Sample Analysis, Collection Method - Standard Operating Procedures (SOP) and Instream Target Values									
Samples Are Analyzed by:									
Microbac, Dayville, CT					A MassDEP Certified Laboratory				
<a href="https://www.microbac.com/our-laboratories/dayville-connecticut/#services">https://www.microbac.com/our-laboratories/dayville-connecticut/#services</a>									
Samples Are Collected by Trained TRWA Volunteers Using An SOP Jointly Developed by TRWA and Veolia North America:									
<a href="http://savethetaunton.org/wp/wp-content/uploads/2019/03/TRWA-Sampling-SOP-3-16-2019.pdf">http://savethetaunton.org/wp/wp-content/uploads/2019/03/TRWA-Sampling-SOP-3-16-2019.pdf</a>									
Sampling Locations Map May Be Found At:									
<a href="https://www.google.com/maps/d/edit?mid=zhnldTn8bGeU.kyo7mqjZ3YFQ&amp;usp=sharing">https://www.google.com/maps/d/edit?mid=zhnldTn8bGeU.kyo7mqjZ3YFQ&amp;usp=sharing</a>									
Water Quality Protection <b>Instream Target Values:</b>									
<b>Nitrate</b>									
Water Quality Target Values for Nitrogen are expressed as <u>Total</u> Nitrogen = <b>Nitrate</b> + Organic Nitrogen + Ammonia + Nitrite									
Like most environmental groups TRWA measures only <b>Nitrate</b> because of its low cost (\$12 / sample) and low reporting level (0.05 mg/l). The MassDEP in a large number of TMDLs for estuaries has recommended <u>TN</u> values between 0.39 to 0.5 mg/l for estuaries <u>without eel grass</u> in good to fair condition. The Cape Cod Commission recommends values 0.34 to 0.39 while the Buzzards Bay Project/ Massachusetts Coastal Zone Management recommends 0.39 to 0.44 mg/l. After consultation with MassDEP and Rhode Island DEM (downstream state) EPA selected a TN target estuary value of 0.45 mg/l as a medium target for the Taunton River.									
Because Nitrate is <u>only a portion of Total Nitrogen</u> we consider <b>Nitrate values &gt; 0.4 mg/l high for both the tidal portion of the estuary below Route 24 at the Raynham/Taunton Bridge and above because of transport concerns to the salt waters of the estuary.</b>									
<b>Total Phosphorus</b>									
The Water Quality Target Values for <b>Total Phosphorus are 0.100 mg/l for freshwaters</b> in free flowing streams and 0.050 mg/l in lakes, ponds, impoundments and streams tributary to them. These Targets are from the EPA Suggested Criteria for Water sometimes called the Gold Book.									
Based on observation and photos of the shallow effluent dominated freshwaters of the watershed TRWA considers <b>average TP greater than 0.05 mg/l</b> a value for concern in addition to <b>single month samples &gt; 0.100 mg/l.</b>									
<b>Bacteria - Enterococci</b>									
The Water Quality Target Value used for <b>enterococci is 61 colonies per 100 ml as a single sample maximum (SSM) and 33 colonies as geometric mean of all samples taken in the most recent six months.</b> These targets are from the MA Water Quality Standards 314 CMR for Class B waters.									
For Class SB waters the criteria are: SSM - 104 colonies/100 ml and Geo Mean for the last 6 months of samples - 35 colonies/100 ml.									
TRWA sampling locations TNT-01 and TNT-02 are in SB waters all others are in Class B waters.									