

Saugus River Watershed Council
2014 Water Quality Monitoring Results

Site Code	Site Name / Description	Town	Water Quality Designation	BACTERIA, Enterococcus: cfu / 100 mL						Geometric Mean	% of Samples Meeting Swimming Standard	% of Samples Meeting Boating Standard
				Light rain 29-Apr-14	Dry weather 13-May-14	Light rain (24 hr) 10-Jun-14	Heavy Rain (24 hr) 29-Jul-14	Light Rain 30-Sep-14	Dry weather 28-Oct-14			
LQ1	Lake Quannapowitt	Wakefield	B	10	10	74	233	20	121	40	50%	100%
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	10	30	85	197	93	41	52	50%	100%
MR1	Mill River @ Farm Street	Wakefield	B	173	109	256	6,870	63	85	237	0%	83%
SR2	Saugus River @ Breakheart	Saugus	B	52	41	122	13,000	143	122	197	33%	83%
SR3	Saugus River @ Route 1	Saugus	B	31	63	156	13,000	231	110	216	17%	83%
SR4	Saugus River @ Bridge Street	Saugus	B	31	31	203	13,000	670	134	247	33%	67%
SHB1	Shute Brook downstream of Central St.	Saugus	B	169	259	441	2,050	428	256	404	0%	50%
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	74	373	275	6,130	246	318	392	17%	67%
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	161	1,470	108	754	789	86	331	17%	50%
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	10	10	10	231	10	10	17	83%	100%
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	10	10	10	146	20	20	20	83%	100%
TRB1	Trifone Brook	Revere	SA	52	2,480	24,200	1,520	17,300	120	1,464	17%	33%
TLB1	Town Line Brook @ Cemeteries	Malden	SA	20	324	1,660	7,270	2,910	119	548	17%	50%

Water Quality Standards for Enterococci

Swimming Freshwater:	Geometric mean of $\leq 33/100$ mL or $\leq 61/100$ mL for a single sample
Swimming Marine:	Geometric mean of < 35 , or $\leq 104/100$ mL for a single sample
Boating:	Geometric mean $\leq 175 / 100$ mL, and 10% of samples $\leq 350 / 100$ mL

Bacterial pollution exceeds recommended levels for swimming and boating

The following sites are coastal: PR1, PR2

The following sites are tidally influenced: SHSB, SR5, STB1

The following sites may be tidally influenced depending upon tide gate settings: TRB1, TLB1

Saugus River Watershed Council
2014 Water Quality Monitoring Results

Site Code	Site Name / Description	Town	Water Quality Designation	BACTERIA, E. coli: MPN / 100 mL						Geometric Mean	% of Samples Meeting Swimming Standard	% of Samples Meeting Boating Standard
				Light rain 29-Apr-14	Dry weather 13-May-14	Light rain (24 hr) 10-Jun-14	Heavy Rain (24 hr) 29-Jul-14	Light Rain 30-Sep-14	Dry Weather 28-Oct-14			
LQ1	Lake Quannapowitt	Wakefield	B	10	10	161	10	73	368	40	83%	100%
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	10	63	41	323	31	86	53	83%	100%
MR1	Mill River @ Farm Street	Wakefield	B	496	327	771	9,800	86	121	483	33%	67%
SR2	Saugus River @ Breakheart	Saugus	B	63	134	203	24,200	160	441	378	67%	83%
SR3	Saugus River @ Route 1	Saugus	B	193	134	275	19,900	231	209	436	67%	83%
SR4	Saugus River @ Bridge Street	Saugus	B	85	63	638	24,200	97	187	338	67%	67%
SHB1	Shute Brook downstream of Central St.	Saugus	B	74	379	909	4,610	1,530	959	746	17%	33%
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	231	749	545	24,200	388	457	860	17%	67%
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	601	5,170	63	1,190	620	309	596	17%	67%
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	10	20	20	272	52	30	35	100%	100%
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	20	31	10	512	61	30	42	83%	100%
TRB1	Trifone Brook	Revere	SA	368	6,870	24,200	4,880	24,200	1,160	4,507	0%	17%
TLB1	Town Line Brook @ Cemeteries	Malden	SA	20	388	2,600	13,000	13,000	399	1,053	17%	50%

Water Quality Standards for E. coli

Swimming: E. coli geometric mean of ≤ 126 / 100 ml, or ≤ 235 /100 mL for a single sample

Boating: E. Coli geometric mean of ≤ 630 / 100 mL, and 10% of samples 1260 / 100 mL

Bacterial pollution exceeds recommended levels for swimming and boating

The following sites are coastal: PR1, PR2

The following sites are tidally influenced: SHSB, SR5, STB1

The following sites may be tidally influenced depending upon tide gate settings: TRB1, TLB1

Saugus River Watershed Council
2014 Water Quality Monitoring Results

Site Code	Site Name / Description	Town	Water Quality Designation	TSS: mg/L						Geometric Mean
				Light rain 29-Apr-14	Dry weather 13-May-14	Light rain (24 hr) 10-Jun-14	Heavy Rain (24 hr) 29-Jul-14	Light Rain 30-Sep-14	Dry Weather 28-Oct-14	
LQ1	Lake Quannapowitt	Wakefield	B	16.5	7.5	21.3	45	33.5	45	23.7
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	5	5	7.5	5	42	5.5	7.7
MR1	Mill River @ Farm Street	Wakefield	B	5	6.5	18	5	9.5	10	8.1
SR2	Saugus River @ Breakheart	Saugus	B	5	6	11	5	112	5	9.9
SR3	Saugus River @ Route 1	Saugus	B	5	6.5	13.5	8.5	6.5	5	7.0
SR4	Saugus River @ Bridge Street	Saugus	B	5	8	13	11.5	5	5	7.3
SHB1	Shute Brook downstream of Central St.	Saugus	B	5	5	5	5	5	5	5.0
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	8	14.5	24	25	26.5	16.5	17.7
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	5	5	5	5	13.5	5	5.9
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	33.5	16.5	20.5	30	27	49.5	27.7
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	30	24.5	29.5	38.5	38	12.5	27.1
TRB1	Trifone Brook	Revere	SA	5	11.5	12	5	5	5	6.6
TLB1	Town Line Brook @ Cemeteries	Malden	SA	5	5	5	5.5	8.5	6.5	5.8

Water Quality Standards

Massachusetts does not have numeric water quality standards for total suspended solids.

Elevated levels of TSS or turbidity degrade water quality and habitat for fish.

Saugus River Watershed Council
2014 Water Quality Monitoring Results

Site Code	Site Name / Description	Town	Water Quality Designation	Total Nitrogen: mg/L						Geometric Mean
				Light rain 29-Apr-14	Dry weather 13-May-14	Light rain (24 hr) 10-Jun-14	Heavy Rain (24 hr) 29-Jul-14	Light Rain 30-Sep-14	Dry Weather 28-Oct-14	
LQ1	Lake Quannapowitt	Wakefield	B	1.768868	1.469856	1.537108	1.7264	1.40436	2.062048	1.647272852
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	0.528116	0.599088	0.880108	0.763712	1.18182	0.921472	0.783645844
MR1	Mill River @ Farm Street	Wakefield	B	1.01552	1.111416	1.242508	0.967856	1.2444	1.262308	1.13448842
SR2	Saugus River @ Breakheart	Saugus	B	0.655184	0.766704	1.033156	0.86492	1.28244	0.784144	0.87584574
SR3	Saugus River @ Route 1	Saugus	B	0.565136	0.710976	1.015252	0.779	0.489444	0.63592	0.680044689
SR4	Saugus River @ Bridge Street	Saugus	B	0.656528	0.80568	1.153648	0.835808	0.782352	0.708592	0.810150467
SHB1	Shute Brook downstream of Central St.	Saugus	B	1.742168	1.714356	1.656388	1.38206	1.53588	1.720888	1.61993772
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	0.73856	0.921816	0.742204	0.935768	0.547764	0.832192	0.774324655
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	1.063148	2.162256	0.835636	1.09232	1.27026	1.433908	1.250394234
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	0.255836	0.375912	0.36034	0.466736	0.267048	0.421192	0.349395127
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	0.251432	0.459984	0.393544	0.521756	0.442428	0.442444	0.408527055
TRB1	Trifone Brook	Revere	SA	3.894968	4.114296	3.892588	3.85616	4.17996	4.492768	4.065804621
TLB1	Town Line Brook @ Cemeteries	Malden	SA	1.924028	2.891376	1.737148	2.02598	1.20378	2.173408	1.927137577

Water Quality Standards

*Numerical water quality standards for phosphorus and nitrogen are currently under development in Massachusetts
Elevated nutrient levels (nitrogen and phosphorus) can lead to excessive algal growth*

Saugus River Watershed Council
2014 Water Quality Monitoring Results

Site Code	Site Name / Description	Town	Water Quality Designation	Total Phosphorus: mg/L						Geometric Mean
				Light rain 29-Apr-14	Dry weather 13-May-14	Light rain (24 hr) 10-Jun-14	Heavy Rain (24 hr) 29-Jul-14	Light Rain 30-Sep-14	Dry Weather 28-Oct-14	
LQ1	Lake Quannapowitt	Wakefield	B	0.0484	0.034424	0.071204	0.143928	0.130772	0.18636	0.086404688
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	0.022864	0.032324	0.089624	0.072372	0.155312	0.123432	0.067176519
MR1	Mill River @ Farm Street	Wakefield	B	0.039664	0.051884	0.065264	0.105576	0.094472	0.092388	0.070593479
SR2	Saugus River @ Breakheart	Saugus	B	0.027916	0.03992	0.071192	0.105876	0.218468	0.067908	0.070674629
SR3	Saugus River @ Route 1	Saugus	B	0.026584	0.034976	0.068696	0.089664	0.073388	0.064116	0.054754765
SR4	Saugus River @ Bridge Street	Saugus	B	0.02524	0.033572	0.064448	0.095436	0.058388	0.068568	0.052469334
SHB1	Shute Brook downstream of Central St.	Saugus	B	0.033712	0.034832	0.041192	0.071916	0.053084	0.054228	0.046426373
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	0.039424	0.051548	0.089912	0.130344	0.094784	0.072312	0.07392723
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	0.034444	0.055772	0.031856	0.061032	0.122804	0.058452	0.054707696
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	0.038464	0.048044	0.05828	0.08916	0.053912	0.040272	0.052462056
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	0.036472	0.0617	0.060836	0.1047	0.098168	0.04194	0.062396238
TRB1	Trifone Brook	Revere	SA	0.074176	0.074684	0.067868	0.113772	0.07364	0.116064	0.084560418
TLB1	Town Line Brook @ Cemeteries	Malden	SA	0.062572	0.053576	0.042224	0.113016	0.080876	0.096336	0.070676709

Water Quality Standards

*Numerical water quality standards for phosphorus and nitrogen are currently under development in Massachusetts
Elevated nutrient levels (nitrogen and phosphorus) can lead to excessive algal growth*

Saugus River Watershed Council
2014 Water Quality Monitoring Results

Site Code	Site Name / Description	Town	Water Quality Designation	Dissolved Oxygen: mg/L						Geometric Mean
				Light rain 29-Apr-14	Dry weather 13-May-14	Light rain (24 hr) 10-Jun-14	Heavy Rain (24 hr) 29-Jul-14	Light Rain 30-Sep-14	Dry Weather 28-Oct-14	
LQ1	Lake Quannapowitt	Wakefield	B	11.35	6.91	7.82	6.13	7.2	8.96	7.90
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	9.45	6.02	6.7	6.2	3.32	3.44	5.48
MR1	Mill River @ Farm Street	Wakefield	B	8.65	4.93	3.4	2.47	4.23	5.49	4.50
SR2	Saugus River @ Breakheart	Saugus	B	9.35	6.07	5.6	4.37	6.14	7.5	6.32
SR3	Saugus River @ Route 1	Saugus	B	9.57	5.56	5.25	4.82	5.92	7.48	6.25
SR4	Saugus River @ Bridge Street	Saugus	B	10.47	7.5	8.23	6.42	8.61	9.19	8.31
SHB1	Shute Brook downstream of Central St.	Saugus	B	10.8	9.23	8.05	7.53	7.98	9.07	8.71
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	9.08	6.18	5.89	5.55	4.53	8.19	6.39
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	9.21	5.3	6.74	3.76	3.6	7.57	5.68
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	8.5	6.25	5.18	5.38	6.28	7.33	6.39
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	8.3	5.87	5.38	4.79	5.65	6.95	6.06
TRB1	Trifone Brook	Revere	SA	9.35	8.04	7.57	6.85	7.01	6.5	7.50
TLB1	Town Line Brook @ Cemeteries	Malden	SA	7.51	5.53	3.98	4.23	3	5.19	4.71

Water Quality Standards

(warm water fishery), > or = 5.0 mg/L unless background conditions are lower

Dissolved oxygen levels do not meet water quality standards

Dissolved oxygen levels may pose risk for fish and wildlife habitat

Site Code	Site Name / Description	Town	Water Quality Designation	Temperature: Degrees Celcius						Geometric Mean
				Light rain 29-Apr-14	Dry weather 13-May-14	Light rain (24 hr) 10-Jun-14	Heavy Rain (24 hr) 29-Jul-14	Light Rain 30-Sep-14	Dry Weather 28-Oct-14	
LQ1	Lake Quannapowitt	Wakefield	B	10.4	16.7	21.7	23.3	18.4	11.3	16.2
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	9.4	20	22.6	22.4	17.5	9.4	15.8
MR1	Mill River @ Farm Street	Wakefield	B	8.9	15	18.1	20.1	15.8	9.3	13.9
SR2	Saugus River @ Breakheart	Saugus	B	9.5	17.8	19.9	20.4	16.3	9.7	14.9
SR3	Saugus River @ Route 1	Saugus	B	9.2	17	19.7	20.6	17	9.8	14.8
SR4	Saugus River @ Bridge Street	Saugus	B	9.2	16.7	19.1	20.5	16.2	10	14.6
SHB1	Shute Brook downstream of Central St.	Saugus	B	8.7	12.6	15.9	18.8	15.3	11.1	13.3
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	9.2	17	20.8	20.7	19.1	10	15.3
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	10.7	14.6	20.8	22	19.5	13.1	16.2
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	7.8	15	19.7	20.2	17	11.1	14.4
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	7.6	14.1	19.9	20.2	17.6	10.9	14.2
TRB1	Trifone Brook	Revere	SA	8.8	12	15.8	18.3	16	11.6	13.4
TLB1	Town Line Brook @ Cemeteries	Malden	SA	8.2	10.9	15.3	18.5	16.3	10.4	12.7

Water Quality Standards

Class A/B: < 28.3°C for warm water fisheries

Class SA/SB: < 29.4°C

All samples meet water quality standards for temperature (warm water fisheries)

Saugus River Watershed Council
2014 Water Quality Monitoring Results

Site Code	Site Name / Description	Town	Water Quality Designation	Specific Conductance: uS/cm						Geometric Mean
				Light rain 29-Apr-14	Dry weather 13-May-14	Light rain (24 hr) 10-Jun-14	Heavy Rain (24 hr) 29-Jul-14	Light Rain 30-Sep-14	Dry Weather 28-Oct-14	
LQ1	Lake Quannapowitt	Wakefield	B	487	526	514	505	525	498	509
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	657	755	713	602	707	455	640
MR1	Mill River @ Farm Street	Wakefield	B	880	901	943	336.1	1,185	789	786
SR2	Saugus River @ Breakheart	Saugus	B	708	769	779	281.7	952	478	615
SR3	Saugus River @ Route 1	Saugus	B	707	772	784	281.1	863	478	606
SR4	Saugus River @ Bridge Street	Saugus	B	728	795	852	318.5	894	498	642
SHB1	Shute Brook downstream of Central St.	Saugus	B	1,182	1,176	1,194	888	1,109	1,122	1,106
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	5,650	5,860	32,310	1520	40,660	2,040	7,161
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	975	3,153	1,826	7220	39,900	2,345	3,949
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	40,450	40,270	40,550	40640	44,630	41,710	41,348
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	41,560	32,610	40,460	40590	44,760	41,170	40,009
TRB1	Trifone Brook	Revere	SA	1,276	1,281	1,228	1005	979	1,126	1,142
TLB1	Town Line Brook @ Cemeteries	Malden	SA	639	689	754	921	6,140	829	1,076

Water Quality Standards

There are currently no formal water quality standards for specific conductance

Elevated conductivity at freshwater sites may indicate potential long term impact from use of road salt

The following sites are coastal: PR1, PR2

The following sites are tidally influenced: SHSB, SR5, STB1

The following sites may be tidally influenced depending upon tide gate settings: TRB1, TLB1