

Saugus River Watershed Council
2013 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
				Wet (drizzle) 23-Apr-13	Dry weather 14-May-13	Wet (48 hrs) 25-Jun-13	Wet (Steady Rain) 23-Jul-13	Dry Weather 24-Sep-13	Dry Weather 22-Oct-13		
LQ1	Lake Quannapowitt	Wakefield	B	30	10	31	235	30	30	35	83%
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfielc	B	20	121	388	86	20	20	56	67%
MR1	Mill River @ Farm Street	Wakefield	B	31	74	1,330	1,260	97	41	158	67%
SR2	Saugus River @ Breakheart	Saugus	B	10	20	627	833	179	30	91	50%
SR3	Saugus River @ Route 1	Saugus	B	10	63	471	3,080	74	31	113	67%
SR4	Saugus River @ Bridge Street	Saugus	B	20	31	689	3,260	63	110	146	50%
SHB1	Shute Brook downstream of Central St.	Saugus	B	86	185	1,320	24,200	650	121	585	17%
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	20	74	1,780	2,360	318	106	244	33%
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	51	605	240	24,200	1,320	504	702	17%
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	10	10	281	52	10	10	23	83%
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	10	20	754	171	31	10	45	67%
TRB1	Trifone Brook	Revere	SA	985	683	5,170	24,200	4,350	1,610	2,896	0%
TLB1	Town Line Brook @ Cemeteries	Malden	SA	98	262	2,250	12,000	714	305	730	17%
											49%

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

Saugus River Watershed Council
2013 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
				Wet (light rain) 23-Apr-13	Dry weather 14-May-13	Wet (48 hrs) 25-Jun-13	Wet (Steady Rain) 23-Jul-13	Dry Weather 24-Sep-13	Dry Weather 22-Oct-13			
LQ1	Lake Quannapowitt	Wakefield	B	10	30	52	52	63	231	48	100%	100%
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	63	52	278	10	63	52	56	83%	100%
MR1	Mill River @ Farm Street	Wakefield	B	243	345	1,310	882	253	122	380	17%	67%
SR2	Saugus River @ Breakheart	Saugus	B	97	161	529	816	209	10	155	67%	83%
SR3	Saugus River @ Route 1	Saugus	B	84	122	259	1,160	331	31	178	50%	83%
SR4	Saugus River @ Bridge Street	Saugus	B	97	121	272	1,560	309	20	177	50%	83%
SHB1	Shute Brook downstream of Central St.	Saugus	B	259	404	2,910	19,900	3,260	323	1,362	0%	50%
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	41	504	1,110	4,610	583	262	503	17%	67%
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	110	960	364	5,790	1,610	393	721	17%	50%
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	10	98	197	242	10	20	46	83%	100%
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	31	10	882	397	63	20	72	67%	83%
TRB1	Trifone Brook	Revere	SA	464	1,020	4,610	24,200	2,760	6,130	3,103	0%	17%
TLB1	Town Line Brook @ Cemeteries	Malden	SA	52	594	3,260	24,200	1,990	677	1,219	17%	33%

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

Saugus River Watershed Council
2013 Water Quality Monitoring Results

Site Code	Site Name / Description	Town	Water Quality Designation	TSS: mg/L						Geometric Mean
				Wet (light rain) 23-Apr-13	Dry Weather 14-May-13	Wet (48 hrs) 25-Jun-13	Wet (Steady Rain) 23-Jul-13	Dry Weather 24-Sep-13	Dry Weather 22-Oct-13	
LQ1	Lake Quannapowitt	Wakefield	B	11.5	15	3.8	21.5	85	31	18.3
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	13	5.5	3.67	5	5	5	5.7
MR1	Mill River @ Farm Street	Wakefield	B	10	6	4.33	10	152	32.5	15.3
SR2	Saugus River @ Breakheart	Saugus	B	5	7	5.8	8	14	10	7.8
SR3	Saugus River @ Route 1	Saugus	B	5	5	6.2	5	7.5	5	5.5
SR4	Saugus River @ Bridge Street	Saugus	B	7.5	5.5	8.4	7	5	5	6.3
SHB1	Shute Brook downstream of Central St.	Saugus	B	5	5	2.8	63.5	5	5	6.9
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	25.5	25.5	22	26	20	9	20.2
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	10.5	5	5.33	13	5	6	6.9
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	21	19.5	21	18.5	35.5	33	23.9
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	22.5	28.5	46.2	19.5	19	16.5	23.8
TRB1	Trifone Brook	Revere	SA	5	5	2.6	19	5	5	5.6
TLB1	Town Line Brook @ Cemeteries	Malden	SA	5	5	3.4	5	8.5	5	5.1

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
2013 Water Quality Monitoring Results

Site Code	Site Name / Description	Town	Water Quality Designation	Total Nitrogen: mg/L						Geometric Mean
				Wet (light rain) 23-Apr-13	Dry Weather 14-May-13	Wet (48 hrs) 25-Jun-13	Wet (Steady Rain) 23-Jul-13	Dry Weather 24-Sep-13	Dry Weather 22-Oct-13	
LQ1	Lake Quannapowitt	Wakefield	B	1.561804	1.371476	1.43278	2.012676	3.022912	1.34092	1.710407
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	1.093084	0.734972	0.799192	0.77838	0.965944	0.688684	0.832319
MR1	Mill River @ Farm Street	Wakefield	B	1.261684	1.439036	1.2304	1.022136	1.398892	1.26124	1.26142
SR2	Saugus River @ Breakheart	Saugus	B	0.873304	1.319456	1.06432	1.146036	0.902464	0.506272	0.92884
SR3	Saugus River @ Route 1	Saugus	B	0.793036	1.194716	1.08304	1.147176	0.611704	0.488452	0.840168
SR4	Saugus River @ Bridge Street	Saugus	B	0.886468	1.316876	1.13536	1.207236	0.821368	0.531004	0.941806
SHB1	Shute Brook downstream of Central St.	Saugus	B	1.708264	1.816436	1.6141	3.303276	1.651192	1.42078	1.840048
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	0.6313	1.200476	1.1827	0.908292	0.801568	0.68746	0.874943
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	1.185844	1.050764	1.12336	3.317196	1.340572	1.59682	1.466318
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	0.289576	0.386108	0.395872	0.383892	0.286108	0.320428	0.340473
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	0.35272	0.460568	0.477472	0.503472	0.330232	0.361696	0.40876
TRB1	Trifone Brook	Revere	SA	4.275724	3.798716	3.83884	4.748436	4.558072	4.69114	4.301066
TLB1	Town Line Brook @ Cemeteries	Malden	SA	1.662484	1.588256	2.01622	1.903116	1.227172	1.33378	1.596903

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
2013 Water Quality Monitoring Results

Site Code	Site Name / Description	Town	Water Quality Designation	Total Phosphorus: mg/L						Geometric Mean
				Wet (light rain) 23-Apr-13	Dry Weather 14-May-13	Wet (48 hrs) 25-Jun-13	Wet (Steady Rain) 23-Jul-13	Dry Weather 24-Sep-13	Dry Weather 22-Oct-13	
LQ1	Lake Quannapowitt	Wakefield	B	0.045756	0.051204	0.041336	0.081648	0.197548	0.117972	0.075436
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	0.134148	0.04236	0.062324	0.078912	0.14326	0.071664	0.081213
MR1	Mill River @ Farm Street	Wakefield	B	0.05082	0.065376	0.090272	0.085296	0.105088	0.109224	0.081527
SR2	Saugus River @ Breakheart	Saugus	B	0.063228	0.077964	0.086156	0.107616	0.076972	0.08652	0.082017
SR3	Saugus River @ Route 1	Saugus	B	0.038856	0.05928	0.086636	0.10236	0.064984	0.068784	0.067104
SR4	Saugus River @ Bridge Street	Saugus	B	0.036936	0.054612	0.083768	0.102708	0.054844	0.056376	0.061415
SHB1	Shute Brook downstream of Central St.	Saugus	B	0.026856	0.038496	0.061688	0.23928	0.05602	0.056148	0.060285
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	0.074364	0.085488	0.0974	0.151068	0.0868	0.0768	0.09243
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	0.043416	0.0363	0.038804	0.347424	0.07078	0.08802	0.071389
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	0.041772	0.05874	0.043484	0.08088	0.052	0.040512	0.051278
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	0.046116	0.078036	0.05636	0.108528	0.059824	0.049116	0.063357
TRB1	Trifone Brook	Revere	SA	0.037632	0.047544	0.094916	0.158784	0.084844	0.097644	0.077895
TLB1	Town Line Brook @ Cemeteries	Malden	SA	0.050964	0.065628	0.09044	0.0855	0.086932	0.11382	0.079679

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*

Site Code	Site Name / Description	Town	Water Quality Designation	Dissolved Oxygen: mg/L						Geometric Mean
				Wet (light rain) 23-Apr-13	Dry Weather 14-May-13	Wet (48 hrs) 25-Jun-13	Wet (Steady Rain) 23-Jul-13	Dry Weather 24-Sep-13	Dry Weather 22-Oct-13	
LQ1	Lake Quannapowitt	Wakefield	B	8.86	10.2	6.26	6.2	9.05	7.44	7.86
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	7.64	8.08	3.2	1.1	4.35	4.46	4.02
MR1	Mill River @ Farm Street	Wakefield	B	6.08	5.2	2.6	2.6	5.6	4	4.11
SR2	Saugus River @ Breakheart	Saugus	B	8.2	6.3	4.3	4.7	6.44	4.9	5.66
SR3	Saugus River @ Route 1	Saugus	B	8.23	6.6	3.63	3.8	6.51	3.8	5.14
SR4	Saugus River @ Bridge Street	Saugus	B	9.73	10.1	6.46	6.8	9.42	8.7	8.41
SHB1	Shute Brook downstream of Central St.	Saugus	B	9.58	8.73	7.9	6.16	9.16	8.05	8.18
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	8.33	6.34	5.71	3.44	5.32	5.71	5.62
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	6.99	6.65	6.37	4.52	3.59	4.05	5.19
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	7.57	7.27	4.84	4.69	6.36	6.2	6.05
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	7.2	6.16	5.48	3.98	5.79	5.83	5.65
TRB1	Trifone Brook	Revere	SA	7.59	8.25	6.93	6.26	7.59	6.56	7.16
TLB1	Town Line Brook @ Cemeteries	Malden	SA	6.18	5.69	5.04	4.08	4.64	3.67	4.81

Water Quality Standards

(warm water fishery), ≤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

Saugus River Watershed Council
2013 Water Quality Monitoring Results

Site Code	Site Name / Description	Town	Water Quality Designation	Temperature: Degrees Celcius						Geometric Mean
				Wet (light rain) 23-Apr-13	Dry Weather 14-May-13	Wet (48 hrs) 25-Jun-13	Wet (Steady Rain) 23-Jul-13	Dry Weather 24-Sep-13	Dry Weather 22-Oct-13	
LQ1	Lake Quannapowitt	Wakefield	B	12.1	16.5	25.6	27.2	16	13.1	17.5
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	12.2	16	25.5	26.1	15.7	13.6	17.4
MR1	Mill River @ Farm Street	Wakefield	B	8.8	10.6	21.5	22.1	10.8	9.5	12.9
SR2	Saugus River @ Breakheart	Saugus	B	10.5	13.4	23.7	23.3	12.9	10.5	14.8
SR3	Saugus River @ Route 1	Saugus	B	10	12.6	23.4	23.3	13.7	11.8	14.9
SR4	Saugus River @ Bridge Street	Saugus	B	10	12.3	22.6	22.7	13	11.2	14.5
SHB1	Shute Brook downstream of Central St.	Saugus	B	8.3	11	19.2	20.3	12.2	11.5	13.1
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	11.5	13.7	22.8	23.6	14.6	12.6	15.8
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	11.6	15.7	23.2	24.1	18	14.8	17.3
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	8.5	12.6	20.7	21.2	14.4	13	14.4
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	9.5	12.9	20.3	21	13.8	13	14.5
TRB1	Trifone Brook	Revere	SA	8.7	10.3	18.3	19	12.7	12.1	13.0
TLB1	Town Line Brook @ Cemeteries	Malden	SA	8	9.7	18.1	19.9	11.3	10.9	12.3

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
2013 Water Quality Monitoring Results**

Site Code	Site Name / Description	Town	Water Quality Designation	Specific Conductance: uS/cm						Geometric Mean
				Wet (light rain) 23-Apr-13	Dry Weather 14-May-13	Wet (48 hrs) 25-Jun-13	Wet (Steady Rain) 23-Jul-13	Dry Weather 24-Sep-13	Dry Weather 22-Oct-13	
LQ1	Lake Quannapowitt	Wakefield	B	524	483	472	480	489	502	491
SR1	Saugus River upstream of LWSC Dam	Wakefield/Lynnfield	B	793	724	531	612	646	682	659
MR1	Mill River @ Farm Street	Wakefield	B	972	868	568	830	945	1,028	853
SR2	Saugus River @ Breakheart	Saugus	B	792	741	540	710	588	961	709
SR3	Saugus River @ Route 1	Saugus	B	732	726	566	698	542	728	660
SR4	Saugus River @ Bridge Street	Saugus	B	740	735	575	681	591	803	683
SHB1	Shute Brook downstream of Central St.	Saugus	B	1,034	1,003	885	907	905	977	950
SR5	Saugus River @ Boston St. / Lincoln Ave.	Lynn/Saugus	SB/CSO, ORW, SH	21,530	8,860	2,982	27,100	22,200	25,670	14,364
STB1	Strawberry Brook Outlet	Lynn	SB/CSO, ORW, SH	23,060	3,711	1,420	4,400	11,790	26,790	7,435
PR1	Pines / Saugus River @ Gibson Park	Revere	SB, ORW, SH	46,290	44,250	41,570	41,000	42,530	45,580	43,492
PR2	Pines River @ Route 1A	Revere	SB, ORW, SH	45,430	44,180	41,630	44,100	43,820	45,820	44,142
TRB1	Trifone Brook	Revere	SA	1,414	1,345	1,088	1,500	1,056	1,145	1,247
TLB1	Town Line Brook @ Cemeteries	Malden	SA	667	616	504	972	533	797	664

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