

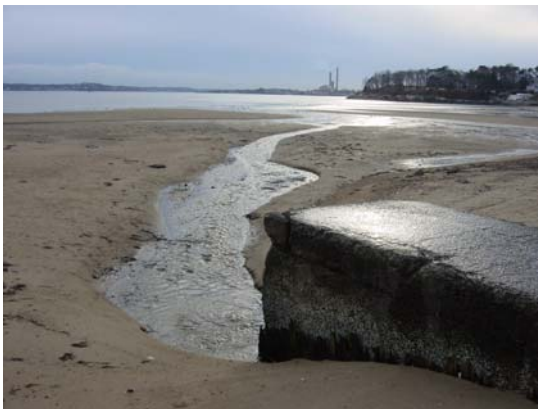
SALEM SOUND COASTWATCH

Protecting the Coastal Habitats of the Salem Sound Watershed with the Communities of Manchester, Beverly, Danvers, Peabody, Salem, and Marblehead.



Salem Sound Clean Beaches and Streams Program 2005 Report

The following report is a summary of results from water quality testing that has occurred over the past summer by Salem Sound Coastwatch's Clean Beaches and Streams Program and by Salem Sound municipalities. The data is displayed in tables and graphs below: Table 1. displays results of tests performed by Salem Sound Coastwatch (SSCW) at coastal outfall pipes and streams.



US EPA National Water Quality Inventory reports runoff from urbanized areas is the leading source of water quality impairments to surveyed estuaries, harming fish and marine plants and animals, killing native vegetation, and making recreational areas unsafe and unpleasant.

(EPA 841-F-03-003)

Approach and Methods

While municipalities test bathing waters at public beaches, Salem Sound Coastwatch focuses on storm water outfall pipes and coastal streams, many of which are located on bathing beaches and near boating areas. SSCW's samples are collected at sites of stormwater discharge at low tide. As a result, bacterial counts tend to be higher than from samples taken from the water in the middle of a bathing beach. However, results from outfall pipes and streams indicate that contaminants are still making their way into our area waters.

EPA has concluded that *Enterococcus* is the best indicator organism in marine waters to show a correlation with adverse human health effects. Therefore, all states have been mandated to use this standard by April of 2004. During the 2003 transition year, SSCW tested for both fecal coliform and *Enterococcus*. In 2004 and 2005, all Salem Sound communities and SSCW used *Enterococcus* as the indicator organism for marine water testing.

The Salem Sound municipalities test bathing waters at least once a week during the swimming season, more frequently if *Enterococcus* levels were shown to be high. **Beaches are closed if a single test reports *Enterococcus* levels greater than 104 CFU/100mL or if the geometric mean of the most recent five (5) *Enterococcus* levels within the same bathing season exceeds 35 colonies per 100mL** (Massachusetts state sanitary code 105 CMR 445.000). This is a statistical averaging method used to even out the average when dealing with a wide range of numbers.

Definition of Dry vs. Wet Conditions

Rain can cause temporary elevated bacterial counts at discharge sites and within nearshore coastal waters. Runoff from impervious surfaces (parking lots, roofs, streets) flushes contaminants through storm drains, bringing pollution onto the beaches and other coastal habitats.

Salem Sound Coastwatch defines “dry” conditions vs. “wet” differently than the municipalities. Under SSCW’s definition, dry conditions are less than 0.2" precipitation the day of sampling or less than 0.5" within the three days preceding sampling. Wet conditions are defined as more than 0.2" precipitation on the day of sampling or more than .5" within three days preceding sampling. Protocols for wet weather sampling are the same as for dry weather sampling.

The municipalities define wet conditions, or a “storm” event, as any occurrence of precipitation during the sampling or within the 24 hours preceding the sampling.

Salem Sound Coastwatch Test Results

Table 1. below shows the results of samples taken by Salem Sound Coastwatch over the course of the summer. Samples were taken every 2 weeks within two hours of low tide. All samples were tested by the US EPA New England Regional Laboratory (11 Technology Way, North Chelmsford, MA 01863), using EPA Region I method, A110: Entrolert and Quanti Tray method,.

Since there were too few samples to calculate a meaningful geometric mean, each test result is included in the table. Those values that are higher than EPA standards (EPA-823-R-03-008) are indicated in **bold**: *Enterococcus* >104 CFU/100mL and fecal coliform >200 CFU/100mL.



Samples were taken from May through September. Eight of the nine SSCW’s water quality testing dates took place during dry weather conditions. The one wet event took place on May 24th. Every site, except two, on this sampling date exceeded the standards set by EPA (EPA-823-R-03-008), and test results ranged from 116 to 51,720 CFU/100mL for *Enterococcus*. See Table 1.0.



For Additional Information

For additional information about Salem Sound Coastwatch’s Clean Beaches & Streams Program, including information on how you can get involved as a volunteer in this important, environmental monitoring program, please call Salem Sound Coastwatch at 978-741-7900 or email barbara.warren@salemsound.org.

**Table 1. Salem Sound Coastwatch--water quality monitoring results
2005 from outfall pipes and streams in the Salem Sound Watershed.**

			WET	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
Marblehead	Site #	Test	5/24	6/7	6/21	7/5	7/26	8/9	8/23	9/6	9/20	
Stramski Beach - Stream draining across beach	722	Ent	364	75	293	195	960	1,038	6,932	ns	2,318	
Stramski Way - Dodge Road drainage	722a	Ent	587	91	666	1,350	2,452	996	4,480	>9,678	4,813	
Stramski Way - Pitman Street drainage	722b	Ent	1,664	nd	54	100	1,140	4	7,945	3,080	5,654	
Doliber Cove Creek-Grace Oliver Beach	700	Ent	6,270	97	159	174	52	507	No flow	ns	ns	
Riverhead Beach Culvert-facing on left	701A	Ent	933	124	265	ns	278	310	334	192	384	
Riverhead Beach Culvert-facing on right	701B	Ent	953	81	281	ns	276	289	162	90	1,164	
Preston Beach Culvert	800	Ent	ns	ns	21	100	ns	ns	ns	ns	ns	
Beverly												
Dane St. Beach - western storm drain at beach	322	Ent	1,041	4	239	25	105	64	79	34	16	
Dane St. Beach - Lawrence Street brook at beach	321	Ent	193	117	222	34	744	129	152	52	62	
Rice Beach - stream outfall onto beach	214	Ent	373	54	ns	89	6,932	No flow	1,302	ns	No flow	
Rice Beach - stream draining from under shed	214A	Ent	165	860	ns	44	774	2,190	5,199	ns	3,683	
Brackenbury Beach - stream from 4' x 4' Culvert	213	Ent	116	344	167	168	420	250	518	179	287	
Concrete culvert to the east (18" dia.)	213A	Ent	48	21	159	672	826	No flow	44	138	208	
Storm drain 100 ft west of road	222	Ent	229	600	132	77	2,452	420	No flow	155	512	
Wilson Street - beach seepage below steel upright	350s	Ent	ns	ns	nd	ns	ns	ns	ns	ns	ns	
Kernwood Bridge - Beverly	352	Ent	ns	ns	nd	ns	12	115	54	820	ns	
Salem												
North River - upstream of Rt. 114 overpass, Commercial St	537	Ent	2,460	229	2,318	839	>9,678	8,664	9,678	5,654	>9,678	
North River - Commercial Way near foot bridge	559	Ent	38,730	21	127	30	263	507	826	352	5,654	
Juniper Beach - storm drain on beach	620	Ent	4,100	198,630	81,640	8,390	30,760	4,814	14,210	126	>9,678	
Palmer Cove - storm drain at Shetland Park	629	Ent	825	558	1,730	1,230	405	468	3,266	1,954	1,741	
Derby Wharf - storm drain	630	Ent	32,700	510	475	744	1,549	9,678	2,747	395	471	
Palmer Cove-storm drain below Playground	631	Ent	34	8	8	4	8	12	4,480	86	30	
Willows Ave. Beach	642	Ent	51,720	215	3,300	6,240	373	>24,196	1,642	334	>9,678	
Manchester												
Bennett's Brook (at Bennett Street)	149	Ent	ns	12	187	163	2,452	1,642	2,318	1,252	ns	
Coolidge Point - Black Beach	151	Ent	140	48	105	54	5,654	606	2,747	120	587	
Danvers												
Sandy Beach - outfall pipe	430	Ent	ns	ns	ns	ns	ns	147	ns	ns	ns	
ENT = enterococci			Numbers in bold exceed standards s specified by the EPA (EPA-823-R-03-008):									
ns = not sampled			Enterococcus > 104 CFU/100mL									
			nd = not detected									