TABLE A43. ANALYSIS OF 1977 LAKE PONTCHARTRAIN DATA BY RAINFALL (DRY VERSUS WET PERIODS)

Characteristic	Relatively Dry Period			Relatively Wet Period		
Trial Numbers	1, 3, 4, 5, 6			7, 8, 9, 19, 11, 12, 13, 15, 16		
Period	7/9 — 7/24			7/30—8/28		
Rainfall[1]	.128 in/day			.433 in/day		
Indicator Densities/100 ml[2]	Enterococcus		*E. coli*	Enterococcus		*E. coli*
Roped-off Area	253		76.1	22.7		2074
Bayou	362		149.0	66.3		2219
Total	301		107.0	38.8		2145
GI Symptom Rates	Swim	Nonswim	▲	Swim	Nonswim	▲
Total	123.2[3]	56.8[4]	66.4***	86.6[5]	60.7[6]	25.9
Highly Credible	46.8	17.0	29.7**	32.2	9.8	22.4**

[1] Total rainfall for the interval starting 6 days before the first trial and ending with the trial date divided by the number of days in the interval.
[2] Geometric mean for all samples collected on the trial dates.
[3] N—1282; [4] N-528; [5] N-993; [6] N-511.
**$p<.01$; ***$p<.001$.

TABLE A44. GASTROINTESTINAL SYMPTOM RATES FOR 1977 LAKE PONTCHARTRAIN TRIALS CLUSTERED BY INDICATOR DENSITIES

Indicator	Density/100 ml		N		Gastrointestinal Symptoms			Highly Credible Symptoms		
	Mean	Range	Swim	Nonswim	Swim	Nonswim	▲	Swim	Nonswim	▲
Enteroccocci	44[1]	9.7-88	874	451	85.8	51.0	34.8*	32.0	11.1	20.9*
	224[2]	190-249	720	456	108.0	50.4	57.9**	31.9	8.8	23.1*
	495[3]	344-711	895	464	108.0	53.9	54.1**	35.8	8.6	27.2**
E. coli	44[4]	33-54	372	222	132	45.0	87.0**	32.3	9.0	23.3
	161[5]	112-221	910	306	119.8	65.4	54.5**	52.7	22.8	29.9*
	497[6]	433-556	574	307	85.4	45.6	39.8*	32.9	13.0	19.8
	3091[7]	1033-4267	419	204	88.3	83.3	4.9	31.0	4.9	26.1

Trials clustered—[1] 7, 8, 9, 11, 12, 13, 15, 16; [2] 1, 3, 4, 10; [3] 5, 6; [4] 3, 4; [5] 1, 5, 6; [6] 8, 12, 15, 16; [7] 7, 9, 10, 11, 13.
*$p<0.05$; **$p<0.01$.

TABLE A45. GASTROINTESTINAL SYMPTOM FOR THE FOUR, 1977 LAKE PONTCHARTRAIN TRIALS WITH THE HIGHEST *E. coli* AND ENTEROCOCCUS DENSITIES

	Density Per 100 ml		Rate for Symptoms Per 1000 Persons					
			Total Gastrointestinal			Highly Credible GI		
Trials	*E. coli*	Enterococcus	Swim	Nonswim	▲	Swim	Nonswim	▲
7	3390	37.0						
9	4267	59.0						
11	4366	39.0						
13	2401	9.7						
Ave.	3606	36.2	86.7	62.5	24.2	30.0	6.9	24.2
5	149	711						
6	112	344						
3	54	249						
1	221	246						
Ave.	134	388	116.2	65.8	50.4**	48.4	18.4	30.0**

**$p<0.01$

TABLE A46. CLUSTERING OF TRIALS FOR THE CALCULATION OF GASTROINTESTINAL SYMPTOM RATES FOR 1978 TRIALS AT LEVEE BEACH, LAKE PONTCHARTRAIN

			Indication Density/100 ml				Clustering for	
			Enterococcus		*E. coli*			
Trial	Date	Rainfall	Bayou	Roped Area[1]	Bayou	Roped Area	Enterococcus	*E. coli*
1	6/10	.45	42	45	400	367	Eliminated[2]	
2	6/11	.72	34	3	198	214	Eliminated	
3	6/17	.05	127	17	79	32	H[3]	H
4	6/18	.02	122	17	142	105	H	H
5	6/24	.01	292	239	117	89	H	H
6	6/25	.02	25	18	70	57	L[4]	H
7	7/11	.00	67	67	37	64	H	L
8	7/2	.14	18	29	45	83	L	L
9	7/8	.02	17	14	32	52	L	L
10	7/9	.00	9	37	25	15	L	L
11	7/15	.09	3	5	27	8	L	L
12	7/16	1.47	442	717	286	67	Eliminated	

[1] Roped-off area.
[2] Trial eliminated from analysis; see text for basis.
[3] Trial assigned to high indicator density cluster.
[4] Trial assigned to low indicator density cluster.

TABLE A47. GASTROINTESTINAL SYMPTOM RATES AND CORRESPONDING MEAN INDICATOR DENSITIES FOR 1978 TRIALS AT LAKE PONTCHARTRAIN

Indicator	Density/100 ml		N		Rate for 1000 Persons for Gastrointestinal Symptoms			Rate for 1000 Persons for Highly Credible GI Symptoms		
	Mean	Range	Swim	Nonswim	Swim	Nonswim	▲	Swim	Nonswim	▲
Enterococcus	11.1	3-30	1230	415	75	34	41**	36.6	14.5	22.1*
	14.4 [1]	3-325	248	303	82	63	18	44.3	23.1	21.3
	142	67-303	801	322	112	50	62**	42.4	15.5	26.9*
E. coli	9.0 [1]	1-23	248	303	81	63	18	44.3	23.1	21.3
	32.6	17-87	1123	383	78	44	33*	38.3	20.9	17.4
	93.7	53-177	918	355	103	36	67**	39.2	8.5	30.7*

[1] Fontainebleau Beach.
*$p<0.05$; **$p<0.01$

TABLE A48. SYMPTOM RATES FOR REVERE AND NAHANT BEACHES DURING 1978 BOSTON HARBOR STUDY

Symptom Group	Rate Per 1000 Persons At Revere Beach[1]			Rate Per 1000 Persons At Nahant Beach[2]		
	Swim	Nonswim	▲	Swim	Nonswim	▲
Gastrointestinal	89.0	70.0	19.0	69.6	63.7	5.9
Respiratory	82.7	72.3	10.4	98.2	102.8	−4.6
Other	83.8	68.5	14.3	82.3	102.8	−20.5
Ear, Eyes, Nose	95.8	99.0	−3.2	87.7	109.2	−21.4
Highly Credible GI	27.0	12.0	15.0	33.0	28.0	5.0
Severe GI	34.8	29.8	5.0	26.5	28.2	−1.7

[1] N—919 swimmers; 905 nonswimmers.
[2] N—1150 swimmers; 1099 nonswimmers

TABLE A49. GASTROINTESTINAL SYMPTOM RATES AND CORRESPONDING INDICATOR DENSITIES FOR REVERE AND NAHANT BEACHES FOR 1978 BOSTON HARBOR STUDY

Beach	Indicator Density/100 ml				Rate for GI[1] Symptoms Per 1000 Persons			Rate for HCGI[2] Symptoms Per 1000 Persons		
	Enterococci		*E.coli*							
	Mean	Range	Mean	Range	Swim[3]	Nonswim[4]	▲	Swim	Nonswim	▲
Revere[5]	6.3	2-12	18.0	5-31	89	70	19	27	10	15
Nahant[6]	7.3	6-9	11.5	4-22	70	64	6	33	28	5

[1] Gastrointestinal; [2] highly credible gastrointestinal; [3] swimmers; [4] nonswimmers; [5] data from four trials (days); N for swimmers 919, for nonswimmers 905; [6] data from four trials (days); N for swimmers 1150, for nonswimmers 1099.

TABLE A50. GASTROINTESTINAL SYMPTOM RATES AND CORRESPONDING INDICATOR DENSITIES FOR CLUSTERED TRIALS DURING 1978 BOSTON HARBOR STUDY

Indicator	Density/100 ml		Beach	N		Gastrointestinal Symptoms Per 1000 Persons			Highly Credible Symptoms Per 1000 Persons		
	Mean	Range		Swim	Nonswim	Swim	Nonswim	▲	Swim	Nonswim	▲
Enteroccocci	4.3[1]	2-6	Revere	697	529	83	66	17	23	11	12
	7.3[2]	6-9	Nahant	1130	1099	71	67	4	33	28	5
	12.0[3]	12	Revere	222	376	108	74	34*	41	13	28*
E. coli	5.5[4]	4-7	Nahant	541	874	72	63	9	39	29	10
	7.0[5]	5-9	Revere	477	410	86	68	18	23	9.8	13
	17.5[6]	13-22	Nahant	589	225	70	67	3	27	27	0
	29.5[7]	28-31	Revere	442	495	93	71	22	32	14	17

Trials clustered—[1] 1, 3, 4; [2] 1, 2; [3] 2; [4] 1, 2; [5] 1, 3; [6] 3, 4; [7] 2, 4.
*$p<0.05$.

TABLE A51. 95% CONFIDENCE LIMITS FOR SWIMMING-ASSOCIATED GASTROINTESTINAL SYMPTOM RATES PREDICTED FROM THE OBSERVED MEAN ENTEROCOCCUS DENSITIES (TRIALS CLUSTERED BY INDICATOR DENSITIES)

Enterococcus Density Per 100 ml	Total GI Symptoms			HCGI[1] Symptoms		
	Predict.[2] Rate	95% Conf. Lim. Lower	Upper	Predict. Rate	95% Conf. Lim. Lower	Upper
3.6	8.4	−0.8	17.6	6.9	1.0	12.8
4.3	10.2	1.6	18.9	7.8	2.3	13.4
5.7	13.2	5.3	21.0	9.3	4.3	14.4
7.0	15.4	8.0	22.7	10.4	5.7	15.1
7.3	15.8	8.6	23.0	10.7	6.0	15.3
11.1	20.2	13.9	26.4	12.9	8.9	16.9
12.0	21.0	14.9	27.1	13.3	9.0	17.2
13.5	22.3	16.3	28.2	13.9	10.1	17.7
14.4	22.9	17.1	28.8	14.3	10.5	18.0
20.3	26.5	21.1	32.0	16.1	12.6	19.6
21.8	27.3	21.8	32.7	16.5	13.0	20.0
31.5	31.2	25.7	36.7	18.4	14.9	22.0
44.0	34.7	28.8	40.5	20.2	16.5	24.0
91.2	42.3	35.0	49.7	24.1	19.4	28.8
142.0	47.0	38.4	55.5	26.4	21.0	31.9
154.0	47.8	39.0	56.3	26.9	21.2	32.5
224.0	51.8	41.8	61.7	28.9	22.5	35.3
495.0	60.1	47.5	72.7	33.1	25.0	41.2

[1] Highly credible gastrointestinal.
[2] Rates predicted from Y on X regression lines.

TABLE A52. 95% CONFIDENCE LIMITS FOR MEAN ENTEROCOCCUS DENSITIES PREDICTED FROM THE OBSERVED SWIMMING-ASSOCIATED GI SYMPTOM RATES

Total GI Per 1000 Persons	Enterococcus Density/100 ml			HCGI[1] Per 1000 Persons	Enterococcus Density/100 ml		
		95% Conf. Lim.				95% Conf. Lim.	
	Predict.[2]	Lower	Upper		Predict.	Lower	Upper
4	5.1	2.5	10.4	−0.5	3.8	1.4	10.3
8	6.6	3.4	12.5	3.4	5.7	2.5	13.3
17	11.7	7.1	19.5	3.6	5.9	2.5	13.5
18	12.5	7.6	20.5	5.0	6.8	3.1	14.8
20	14.2	8.9	22.9	7.4	8.8	4.4	17.5
22	16.2	10.3	25.5	12.0	14.4	8.2	25.1
25	19.7	12.7	30.4	13.6	17.0	10.1	28.8
29	29.0	16.6	39.0	15.2	20.2	12.2	33.5
34	35.2	22.6	54.8	18.1	27.6	16.8	45.2
35	37.5	23.9	58.9	20.9	37.2	22.0	62.9
41	55.4	33.1	92.6	21.2	38.4	22.6	65.3
48	87.1	46.8	162.0	22.1	42.3	24.4	73.2
54	128.0	61.9	266.0	23.1	47.1	26.6	83.4
58	166.0	74.0	373.0	26.9	70.6	35.6	140.0
62	215.0	88.4	524.0	27.2	72.9	36.3	146.0
				28.0	79.5	38.5	164.0
				28.4	82.9	39.6	174.0
				34.5	159.0	59.5	426.0

[1] Highly credible GI symptom
[2] Predicted from X on Y regression lines.

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