

Appendix E -

Table E1. Total coliforms vs salinity.

Location	Date	N	Slope	Intercept	R ² /likli r/t	P-value	% Censored	Min Salinity	Max Salinity
top 5m ²	all	587	-6,980	228,180	0.360	0.000	25.2	26.828	33.400
top 5m ²	2004	335	-5,710	185,200	0.397	0.000	28.9	26.828	33.400
top 5m ²	2005	252	-11,900	389,700	0.386	0.000	20.2	27.626	33.248
Santa Clara River ^{1,3}	2004	15	-632	20,973	-0.457	0.006	60.0	32.569	33.227
Santa Clara River ³	24-Mar-05	14	-1,152	38,812	-0.297	0.155	7.1	31.654	33.248
Santa Clara River ³	25-Mar-05	14	-565	19,284	-0.154	0.476	7.1	32.175	33.194
Santa Clara River ³	26-Mar-05	14	-248	8,246	-0.231	0.272	14.3	31.416	33.143
Santa Clara River ²	2005	42	-115	4,636	0.044	0.780	9.5	31.416	33.248
Ballona Creek ⁴	27-Feb-04	7	-4,821	160,530	0.537	0.061	0.0	29.684	33.045
Ballona Creek ³	28-Feb-04	21	-1,058	34,868	-0.500	0.002	14.3	28.265	33.033
Ballona Creek ³	1-Mar-04	21	-1,898	62,692	-0.729	0.000	42.9	30.903	33.089
Ballona Creek ²	2004	49	-2,610	85,780	0.623	0.000	24.5	28.265	33.089
Ballona Creek ⁴	23-Mar-05	9	-5,152	172,363	0.690	0.006	0.0	27.636	32.841
Ballona Creek ⁴	24-Mar-05	21	-6,105	200,939	0.795	0.000	0.0	31.665	32.952
Ballona Creek ³	26-Mar-05	21	0.000	10	0.010	0.974	42.9	32.430	33.037
Ballona Creek ²	2005	51	-5,940	195,300	0.833	0.000	17.6	27.636	33.037
LA/San Gabriel Rivers ³	27-Feb-04	31	-2,076	68,448	-0.703	0.000	22.6	27.041	33.113
LA/San Gabriel Rivers ³	28-Feb-04	36	-1,219	40,361	-0.425	0.000	27.8	26.963	33.189
LA/San Gabriel Rivers ³	1-Mar-04	38	-1,010	33,267	-0.486	0.000	34.2	26.828	33.137
LA/San Gabriel Rivers ²	2004	105	-7,340	235,260	0.575	0.000	28.6	26.828	33.189
LA/San Gabriel Rivers ³	23-Mar-05	22	-1,422	46,945	-0.411	0.001	63.6	30.928	33.239
LA/San Gabriel Rivers ³	25-Mar-05	37	-442	14,611	-0.369	0.001	32.4	31.816	33.124
LA/San Gabriel Rivers ²	2005	59	-1,850	60,210	0.384	0.002	44.1	30.928	33.239
Santa Ana River	27-Feb-04			only two data points				31.835	32.283
Santa Ana River ³	28-Feb-04	20	-324	10,809	-0.368	0.025	5.0	32.235	33.060
Santa Ana River ³	1-Mar-04	22	-561	18,560	-0.524	0.000	70.0	32.197	33.102
Santa Ana River ²	2004	44	-1,290	42,300	0.773	0.000	34.1	31.835	33.102
Santa Ana River	23-Mar-05			no total coliform data				28.513	32.816
Santa Ana River ³	24-Mar-05	16	-1,553	51,491	-0.692	0.000	12.5	29.427	33.186
Santa Ana River ³	25-Mar-05	24	3	-5	0.051	0.744	20.8	31.063	33.154
Santa Ana River ²	2005	40	-223	7,497	0.286	0.065	20.0	28.513	33.186
Newport Harbor ⁴	28-Feb-04	11	-465	15,283	0.938	0.000	0.0	28.259	32.754
Newport Harbor ³	1-Mar-04	12	-139	4,602	-0.773	0.000	41.7	27.980	33.131
Newport Harbor ³	2004	23	-280	9,280	-0.696	0.000	21.7	27.980	33.131
Newport Harbor	23-Mar-05			no total coliform data				27.626	32.662
Newport Harbor ⁴	24-Mar-05	9	-10,680	351,244	0.981	0.000	0.0	29.498	33.027
Newport Harbor ⁴	25-Mar-05	9	-2,476	81,246	0.643	0.009	0.0	32.353	32.833
Newport Harbor ⁴	2005	18	-10,690	350,518	0.956	0.000	0.0	27.626	33.027
San Diego River ^{3,5}	2004	10	-414	13,911	-0.400	0.127	10.0	32.164	33.141
Tijuana River ³	24-Feb-04	14	-8,381	278,723	-0.297	0.153	7.1	31.795	33.400
Tijuana River ³	25-Feb-04	14	-1,303	43,199	-0.462	0.023	21.4	32.994	33.193
Tijuana River ³	28-Feb-04	31	0	226	-0.002	1.000	19.4	32.750	33.185
Tijuana River ³	29-Feb-04	30	-7,155	236,874	-0.313	0.009	50.0	32.360	33.166
Tijuana River ²	2004	89	-38,800	1,279,700	0.522	0.000	28.1	31.795	33.400
Tijuana River ³	13-Feb-05	14	-31,888	1,057,757	-0.527	0.009	14.3	30.040	33.103
Tijuana River ³	14-Feb-05	14	-57,223	1,895,105	-0.582	0.004	7.1	31.510	33.111
Tijuana River ³	15-Feb-05	14	-29,019	957,416	-0.495	0.016	7.1	30.803	33.112
Tijuana River ²	2005	42	-33,500	1,119,900	0.674	0.000	9.5	30.040	33.112

¹Santa Clara River only sampled on 29 February in 2004

²Correlation calculated using censored MLE, reports slope, intercept, log likelihood r, and p-value.

³Correlation calculated using censored Theil-Sen, reports slope, intercept, Kendalls t, and p-value.

⁴Correlation calculated using linear regression, reports slope, intercept, and R².

⁵Salinity measurements only available on 24 Feb 2004

Table E2. Fecal coliforms vs salinity.

Location	Date	N	Slope	Intercept	R ²	P-value	% Censored	Min Salinity	Max Salinity
top 5m ²	all	501	-367	11,676	0.243	0.000	51.5	26.828	33.400
top 5m ²	2004	269	-202	6,342	0.260	0.000	58.4	26.828	33.400
top 5m ²	2005	232	-543	17,591	0.253	0.000	43.5	27.626	33.248
Santa Clara River ¹	2004	15		all data less than 10 MPN/100 ml				32.569	33.227
Santa Clara River ³	24-Mar-05	14	0.000	20	-0.066	0.774	28.6	31.654	33.248
Santa Clara River ³	25-Mar-05	14	0.000	20	-0.022	0.955	21.4	32.175	33.194
Santa Clara River ³	26-Mar-05	14	-0.009	10	-0.110	0.581	50.0	31.416	33.143
Santa Clara River ²	2005	41	-0.628	35	0.006	0.970	34.1	31.416	33.248
Ballona Creek ³	27-Feb-04	7	-310	10,153	-0.619	0.072	14.3	29.684	33.045
Ballona Creek ³	28-Feb-04	21	-47	1,546	-0.371	0.009	52.4	28.265	33.033
Ballona Creek ³	1-Mar-04	21	-39	1,303	-0.438	0.000	71.4	30.903	33.089
Ballona Creek ²	2004	49	-2,610	85,780	0.623	0.000	24.5	28.265	33.089
Ballona Creek	23-Mar-05	9	-126	4,273	0.508	0.031	0.0	27.636	32.841
Ballona Creek ³	24-Mar-05	21	-61	2,006	-0.243	0.100	47.6	31.665	32.952
Ballona Creek ³	26-Mar-05	21		all data less than 10 MPN/100 ml				32.430	33.037
Ballona Creek ²	2005	51	-189	6,103	0.617	0.000	60.8	27.636	33.037
LA/San Gabriel Rivers ⁴	27-Feb-04	9	-44	1,497	0.458	0.045	0.0	27.041	33.113
LA/San Gabriel Rivers ³	28-Feb-04	14	-0.39	23	-0.198	0.336	21.4	26.963	33.189
LA/San Gabriel Rivers ³	1-Mar-04	16	-27	873	-0.358	0.005	75.0	26.828	33.137
LA/San Gabriel Rivers ²	2004	39	-73	2,361	0.543	0.000	35.5	26.828	33.189
LA/San Gabriel Rivers	23-Mar-05			no fecal coliform data				30.928	33.239
LA/San Gabriel Rivers ³	25-Mar-05	15	-45	1,484	-0.257	0.126	60.0	31.816	33.124
LA/San Gabriel Rivers ³	2005	15	-45	1,484	-0.257	0.126	60.0	30.928	33.239
Santa Ana River	27-Feb-04			only two data points				31.835	32.283
Santa Ana River ³	28-Feb-04	20	-21	701	-0.279	0.024	70.0	32.235	33.060
Santa Ana River ³	1-Mar-04	22	-14	459	-0.126	0.016	90.9	32.197	33.102
Santa Ana River ²	2004	44	-44	1,442	0.496	0.000	77.3	31.835	33.102
Santa Ana River	23-Mar-05			no fecal coliform data				28.513	32.816
Santa Ana River ³	24-Mar-05	16	-56	1,842	-0.533	0.003	37.5	29.427	33.186
Santa Ana River ³	25-Mar-05	24	-0.02	10,513	-0.043	0.624	83.3	31.063	33.154
Santa Ana River ²	2005	40	-16	526	0.318	0.039	65.0	28.513	33.186
Newport Harbor ³	28-Feb-04	11	-0.002	10,072	-0.291	0.180	36.4	28.259	32.754
Newport Harbor ³	1-Mar-04	12	-82	2,691	-0.136	0.000	91.7	27.980	33.131
Newport Harbor ³	2004	23	-0.097	13,060	-0.300	0.013	65.2	27.980	33.131
Newport Harbor	23-Mar-05			no fecal coliform data				27.626	32.662
Newport Harbor ³	24-Mar-05	9	-25	838	-0.167	0.491	66.7	29.498	33.027
Newport Harbor ³	25-Mar-05	9	-85	2,780	-0.417	0.014	77.8	32.353	32.833
Newport Harbor ³	2005	18	-21	697	-0.196	0.126	72.2	27.626	33.027
San Diego River ^{3,5}	2004	10	-294	9,713	-0.200	0.000	90.0	32.164	33.141
Tijuana River ³	24-Feb-04	14	-894	29,718	-0.352	0.089	14.3	31.795	33.400
Tijuana River ³	25-Feb-04	14	-1,445	47,908	-0.549	0.002	57.1	32.994	33.193
Tijuana River ³	28-Feb-04	31	-91	3,033	-0.222	0.069	41.9	32.750	33.185
Tijuana River ³	29-Feb-04	30	-476	15,767	-0.202	0.053	66.7	32.360	33.166
Tijuana River ²	2004	89	-1,890	62,230	0.601	0.000	47.2	31.795	33.400
Tijuana River ³	13-Feb-05	14	-2,301	76,111	-0.462	0.024	21.4	30.040	33.103
Tijuana River ³	14-Feb-05	14	-1,513	50,085	-0.549	0.007	7.1	31.510	33.111
Tijuana River ³	15-Feb-05	14	-366	12,092	-0.297	0.147	28.6	30.803	33.112
Tijuana River ²	2005	66	-1,620	54,110	0.576	0.000	12.1	30.040	33.112

¹Santa Clara River only sampled on 29 February in 2004²Correlation calculated using censored MLE, reports slope, intercept, log likelihood r, and p-value.³Correlation calculated using censored Theil-Sen, reports slope, intercept, Kendalls t, and p-value.⁴Correlation calculated using linear regression, reports slope, intercept, and R².⁵Salinity measurements only available on 24 Feb 2004

Table E3. *Enterococcus* vs salinity.

Location	Date	N	Slope	Intercept	R ²	P-value	% Censored	Min Salinity	Max Salinity
top 5m ²	all	611	-1,120	35,360	0.355	0.000	57.3	26.828	33.400
top 5m ²	2004	335	-1,550	48,220	0.406	0.000	63.9	26.828	33.400
top 5m ²	2005	276	-459	14,780	0.280	0.000	49.3	27.626	33.248
Santa Clara River ^{1,3}	2004	15	-30	1,016	-0.010	1.000	86.7	32.569	33.227
Santa Clara River ³	24-Mar-05	14	-0.008	10	-0.099	0.652	28.6	31.654	33.248
Santa Clara River ³	25-Mar-05	14	-0.048	12	-0.088	0.683	42.9	32.175	33.194
Santa Clara River ³	26-Mar-05	14	-0.041	11	-0.154	0.429	50.0	31.416	33.143
Santa Clara River ²	2005	42	5	-162	0.058	0.710	40.5	31.416	33.248
Ballona Creek ³	27-Feb-04	7	-161	5,243	-0.476	0.172	28.6	29.684	33.045
Ballona Creek ³	28-Feb-04	21	-57	1,900	-0.243	0.092	52.4	28.265	33.033
Ballona Creek ³	1-Mar-04	21	-42	1,387	-0.376	0.001	71.4	30.903	33.089
Ballona Creek ²	2004	49	-97	3,117	0.617	0.000	57.1	28.265	33.089
Ballona Creek ⁴	23-Mar-05	9	-291	9,753.67	0.524	0.027	0.0	27.636	32.841
Ballona Creek ³	24-Mar-05	21	-17	564	-0.367	0.014	42.9	31.665	32.952
Ballona Creek ³	26-Mar-05	21	-0.042	11	-0.019	0.852	85.7	32.430	33.037
Ballona Creek ²	2005	51	-385	12,477	0.666	0.000	52.9	27.636	33.037
LA/San Gabriel Rivers ³	27-Feb-04	31	-516	16,860	-0.561	0.000	41.9	27.041	33.113
LA/San Gabriel Rivers ³	28-Feb-04	36	-84	2,789	-0.284	0.008	61.1	26.963	33.189
LA/San Gabriel Rivers ³	1-Mar-04	38	-57	1,864	-0.275	0.002	71.1	26.828	33.137
LA/San Gabriel Rivers ²	2004	105	-2,280	69,740	0.489	0.000	59.0	26.828	33.189
LA/San Gabriel Rivers ³	23-Mar-05	22	-135	4,452	-0.455	0.001	54.5	30.928	33.239
LA/San Gabriel Rivers ³	25-Mar-05	37	-36	1,198	-0.113	0.208	70.3	31.816	33.124
LA/San Gabriel Rivers ²	2005	59	-271	8,692	0.326	0.010	64.4	30.928	33.239
Santa Ana River	27-Feb-04			only two data points				31.835	32.283
Santa Ana River ³	28-Feb-04	20	-53	1,741	-0.253	0.057	65.0	32.235	33.060
Santa Ana River ³	1-Mar-04	22	-65	NA	-0.299	0.001	81.8	32.197	33.102
Santa Ana River ²	2004	44	-47	1,516	0.453	0.002	75.0	31.835	33.102
Santa Ana River	23-Mar-05			no <i>Enterococcus</i> data				28.513	32.816
Santa Ana River ³	24-Mar-05	16	-43	1,434	-0.500	0.003	50.0	29.427	33.186
Santa Ana River ³	25-Mar-05	24	-15	488	-0.004	1.000	91.7	31.063	33.154
Santa Ana River ²	2005	40	-21	654	0.313	0.042	75.0	28.513	33.186
Newport Harbor ³	28-Feb-04	11	-7	239	-0.273	0.207	54.5	28.259	32.754
Newport Harbor ³	1-Mar-04	12	-0.003	10	-0.152	0.206	83.3	27.980	33.131
Newport Harbor ³	2004	23	-0.055	12	-0.202	0.081	69.6	27.980	33.131
Newport Harbor	23-Mar-05			no <i>Enterococcus</i> data				27.626	32.662
Newport Harbor ³	24-Mar-05	9	-27	n/a	-0.222	0.003	88.9	29.498	33.027
Newport Harbor	25-Mar-05	9		all data less than 10 MPN/100 ml				32.353	32.833
Newport Harbor ³	2005	18	-28	931	-0.111 NaN		94.4	27.626	33.027
San Diego River ^{3,5}	2004	10	0.000	10	0.067	0.848	40.0	32.164	33.141
Tijuana River ³	24-Feb-04	14	-979	32,702	-0.209	0.324	7.1	31.795	33.400
Tijuana River ³	25-Feb-04	14	-0.11	14	-0.044	0.786	78.6	32.994	33.193
Tijuana River ³	28-Feb-04	31	-873	28,848	-0.265	0.006	71.0	32.750	33.185
Tijuana River ³	29-Feb-04	30	-147	4,856	-0.092	0.272	80.0	32.360	33.166
Tijuana River ²	2004	89	-3,530	115,380	0.528	0.000	61.2	31.795	33.400
Tijuana River ³	13-Feb-05	14	-1,601	52,935	-0.538	0.008	21.4	30.040	33.103
Tijuana River ³	14-Feb-05	14	-344	11,468	-0.484	0.018	14.3	31.510	33.111
Tijuana River ³	15-Feb-05	14	-245	8,118	-0.484	0.018	14.3	30.803	33.112
Tijuana River ²	2005	66	-1,080	36,060	0.507	0.000	10.6	30.040	33.112

¹Santa Clara River only sampled on 29 February in 2004

²Correlation calculated using censored MLE, reports slope, intercept, log likelihood r, and p-value.

³Correlation calculated using censored Theil-Sen, reports slope, intercept, Kendalls t, and p-value.

⁴Correlation calculated using linear regression, reports slope, intercept, and R².

⁵Salinity measurements only available on 24 Feb 2004

Table E4. Toxicity vs salinity.

Location	Date	N	Slope	Intercept	R2	P-value	Min Salinity	Max Salinity
top 5m	all	564	0.836	71.94	0.007	0.046	26.828	33.400
top 5m	2004	289	0.955	65.476	0.008	0.125	26.828	33.400
top 5m	2005	275	0.066	99.723	<0.0001	0.876	27.626	33.248
Santa Clara River ¹	2004	15	0.424	86.970	0.009	0.735	32.569	33.227
Santa Clara River	24-Mar-05	14	-0.061	102.086	<0.0001	0.984	31.654	33.248
Santa Clara River	25-Mar-05	14	0.611	80.100	0.209	0.101	32.175	33.194
Santa Clara River	26-Mar-05	14	-0.244	109.009	0.097	0.278	31.416	33.143
Santa Clara River	2005	42	-0.203	107.102	0.001	0.826	31.416	33.248
Ballona Creek	27-Feb-04	7	0.347	85.438	0.015	0.793	29.684	33.045
Ballona Creek	28-Feb-04	21	-0.822	124.295	0.017	0.568	28.265	33.033
Ballona Creek	1-Mar-04	20	9.128	-201.336	0.160	0.081	30.903	33.089
Ballona Creek	2004	49	1.027	64.518	0.010	0.496	28.265	33.089
Ballona Creek	23-Mar-05	9	2.173	37.436	0.426	0.057	27.636	32.841
Ballona Creek	24-Mar-05	21	0.804	73.683	0.004	0.004	31.665	32.952
Ballona Creek	26-Mar-05	21	5.972	-98.213	0.058	0.295	32.430	33.037
Ballona Creek	2005	51	-0.074	102.789	<0.0001	0.936	27.636	33.037
LA/San Gabriel Rivers	27-Feb-04	31	-0.299	106.215	0.024	0.407	27.041	33.113
LA/San Gabriel Rivers	28-Feb-04	36	6.116	-101.574	0.201	0.006	26.963	33.189
LA/San Gabriel Rivers	1-Mar-04	38	-1.969	161.316	0.058	0.146	26.828	33.137
LA/San Gabriel Rivers	2004	105	0.742	72.986	0.009	0.329	26.828	33.189
LA/San Gabriel Rivers	23-Mar-05	22	-0.332	110.014	0.001	0.884	30.928	33.239
LA/San Gabriel Rivers	25-Mar-05	37	-0.432	113.595	0.006	0.636	31.816	33.124
LA/San Gabriel Rivers	2005	59	-0.385	111.953	0.002	0.739	30.928	33.239
Santa Ana River	27-Feb-04	2		only two data points			31.835	32.283
Santa Ana River	28-Feb-04	20	4.996	-63.080	0.143	0.100	32.235	33.060
Santa Ana River	1-Mar-04	22	-0.671	122.081	0.004	0.769	32.197	33.102
Santa Ana River	2004	44	9.937	-226.493	0.217	0.001	31.835	33.102
Santa Ana River	23-Mar-05	14	-0.075	103.503	0.019	0.640	28.513	32.816
Santa Ana River	24-Mar-05	16	-0.275	108.631	0.051	0.399	29.427	33.186
Santa Ana River	25-Mar-05	24	-0.063	102.098	0.001	0.880	31.063	33.154
Santa Ana River	2005	54	-0.309	110.187	0.082	0.036	28.513	33.186
Newport Harbor	28-Feb-04	12	-0.400	111.338	0.057	0.455	28.259	32.754
Newport Harbor	1-Mar-04	12	2.157	27.896	0.138	0.234	27.980	33.131
Newport Harbor	2004	24	1.119	61.981	0.058	0.257	27.980	33.131
Newport Harbor	23-Mar-05	9	1.971	37.838	0.879	0.000	27.626	32.662
Newport Harbor	24-Mar-05	9	-0.319	110.405	0.152	0.299	29.498	33.027
Newport Harbor	25-Mar-05	9	-1.357	144.444	0.051	0.557	32.353	32.833
Newport Harbor	2005	27	0.981	68.484	0.340	0.001	27.626	33.027
San Diego River ²	2004	10	16.777	-460.788	0.027	0.653	32.164	33.141
Tijuana River	24-Feb-04	14	3.216	-26.885	0.013	0.695	31.795	33.400
Tijuana River	25-Feb-04			no toxicity data			32.994	33.193
Tijuana River	28-Feb-04	14	-13.394	538.948	0.101	0.268	32.750	33.185
Tijuana River	29-Feb-04	14	0.783	69.296	<0.0001	0.953	32.360	33.166
Tijuana River	2004	42	16.311	-445.502	0.206	0.003	31.795	33.400
Tijuana River	13-Feb-05	14	0.528	94.996	0.012	0.711	30.040	33.103
Tijuana River	14-Feb-05	14	-0.789	137.719	0.008	0.760	31.510	33.111
Tijuana River	15-Feb-05	14	-0.696	134.454	0.047	0.456	30.803	33.112
Tijuana River	2005	42	-0.063	113.982	<0.0001	0.941	30.040	33.112

¹Santa Clara River only sampled on 29 February in 2004²Salinity measurements only available on 24 Feb 2004