

Table 1. Santa Monica Bay Beaches Listed for Coliform (LARWQCB, 1996)

Beach (North to South)	Miles Affected
Leo Carillo Beach	1.15
Trancas Beach (Broad Beach)	2.02
Paradise Cove Beach	1.33
Dan Blocker Memorial Beach (Corral Beach)	1.04
Surfrider Beach	0.66
Las Flores Beach	0.76
Big Rock Beach	1.09
Topanga Beach	1.01
Will Rogers State Beach	2.2
Santa Monica Beach	2.95
Venice Beach	1.5
Dockweiler Beach	5.4
Redondo Beach	1.37
Torrance Beach	0.58
<i>Total miles affected</i>	<i>23.06</i>

Table 2. Santa Monica Bay Beaches Listed for Beach Closures (LARWQCB, 1996)

Beach (North to South)	Miles Affected
Leo Carillo Beach ^{**}	1.15
Nicholas Canyon Beach [^]	1.94
Robert H. Meyer Memorial Beach	1.23
Sea Level Beach	0.67
Trancas Beach ^{**}	2.02
Zuma Beach [^]	1.65
Point Dume Beach	0.95
Paradise Cove Beach ^{**}	1.33
Escondido Beach [#]	2.05
Puerco Beach [^]	1.68
Malibu Beach [^]	0.53
Surfrider Beach ^{**}	0.66
Carbon Beach	1.48
La Costa Beach	0.74
Big Rock Beach ^{**}	1.09
Castlerock Beach ⁺	0.81
Las Tunas Beach	1.25
Topanga Beach ^{**}	1.01
Will Rogers State Beach ^{**}	2.2
Santa Monica Beach ^{**}	2.95
Venice Beach ^{**}	1.5
Dockweiler Beach ^{**}	5.4
Manhattan Beach	2.08
Hermosa Beach [^]	1.88
Redondo Beach ^{**}	1.37
Torrance Beach ⁺	0.58
Malaga Cove Beach [^]	1.13
Flat Rock Point Beach Area	0.3
Bluff Cove Beach	0.61
Rocky Point Beach	0.52
Lunada Bay Beach	0.35
Resort Point Beach	0.49
Point Vicente Beach	2.13
Long Point [^]	0.45
Abalone Cove Beach	0.94
Inspiration Point Beach	0.3
Portuguese Bend Beach	2.2
Palos Verdes Shoreline Park Beach	0.12
Royal Palms Beach	1.06
Whites Point Beach	0.7
Point Fermin Park Beach	1.5
Cabrillo Beach (Outer)	0.51
<i>Total miles affected</i>	<i>53.51</i>

*Denotes that the beach is listed as impaired due to beach closures and coliform in the 1996 regional water quality assessment.

[^]Denotes that the beach was given an annual (2000-01) BRC grade of "C" or worse by Heal the Bay, Inc.

[#] Denotes that the beach exceeds water quality standards based on Santa Monica BayKeeper's BeachKeeper monitoring data.

⁺ Denotes that the beach exceeds water quality standards based on the City of Los Angeles' Low-Flow Diversion Study monitoring data.

Table 3. Land Use as a Percent of Total Subwatershed Area														
Subwatershed	Agriculture	Commercial	Education	High Density Residential	Industrial	Low Density Residential	Military	Mixed Urban	Open	Public Facilities	Recreation	Transportation	Water	Total Land Area (acres)
Las Virgenes	1.2%	0.8%	0.5%	4.2%	0.3%	1.1%	0.0%	0.2%	90.9%	0.0%	0.0%	0.9%	0.1%	15,554
Lidero Canyon	0.1%	2.0%	0.6%	11.2%	1.6%	7.7%	0.0%	0.4%	74.4%	0.7%	0.0%	1.1%	0.1%	11,455
Monte Nido	0.3%	0.4%	0.0%	0.1%	0.3%	5.5%	0.0%	0.1%	93.4%	0.0%	0.0%	0.0%	0.0%	13,432
Russell Valley	0.1%	5.9%	0.2%	11.6%	2.0%	15.7%	0.0%	0.1%	60.5%	1.0%	1.1%	1.7%	0.1%	9,165
Sherwood	12.9%	0.0%	0.0%	0.0%	0.1%	3.5%	0.0%	0.0%	82.1%	0.0%	0.0%	0.0%	1.2%	10,739
Triunfo Canyon	0.7%	0.1%	0.0%	1.3%	0.0%	6.4%	0.0%	0.2%	89.2%	0.0%	0.0%	0.0%	2.0%	10,064
Malibu Creek Total	2.4%	1.4%	0.2%	4.5%	0.7%	6.0%	0.0%	0.2%	83.1%	0.2%	0.1%	0.6%	0.5%	70,410
Arroyo Sequit	0.3%	0.1%	0.0%	0.0%	0.1%	1.5%	0.0%	0.0%	98.0%	0.0%	0.0%	0.0%	0.0%	7,549
Carbon Canyon	0.0%	1.2%	0.0%	5.6%	0.0%	8.5%	0.0%	0.0%	84.7%	0.0%	0.0%	0.0%	0.0%	2,320
Castlerock	0.0%	0.7%	0.2%	12.5%	0.1%	1.3%	0.0%	0.0%	85.0%	0.0%	0.0%	0.0%	0.3%	4,976
Corral Canyon	0.1%	0.8%	4.1%	3.4%	0.2%	1.7%	0.0%	0.0%	89.6%	0.0%	0.2%	0.0%	0.0%	4,280
Encinal Canyon	0.8%	0.0%	0.0%	3.9%	0.0%	4.7%	0.0%	0.0%	90.5%	0.0%	0.0%	0.0%	0.0%	1,794
Escondido Canyon	0.0%	0.0%	0.0%	1.1%	0.0%	10.3%	0.0%	0.0%	88.6%	0.0%	0.0%	0.0%	0.0%	2,295
Las Flores Canyon	0.5%	0.5%	0.0%	1.9%	0.1%	6.5%	0.0%	0.0%	90.4%	0.0%	0.0%	0.0%	0.0%	2,897
Latigo Canyon	0.0%	0.1%	0.0%	2.0%	0.0%	6.9%	0.0%	0.0%	91.0%	0.0%	0.0%	0.0%	0.0%	813
Los Alisos Canyon	1.0%	0.1%	0.0%	0.9%	0.0%	7.8%	0.0%	0.0%	90.3%	0.0%	0.0%	0.0%	0.0%	2,396
Nicholas Canyon	0.0%	0.4%	0.0%	1.8%	0.0%	4.5%	0.0%	1.6%	91.6%	0.0%	0.0%	0.0%	0.0%	1,235
Pena Canyon	0.0%	0.0%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	97.1%	0.0%	0.0%	0.0%	0.0%	608
Piedra Gorda Canyon	0.0%	0.0%	0.0%	18.1%	0.0%	0.0%	0.0%	0.0%	81.9%	0.0%	0.0%	0.0%	0.0%	644
Pulga Canyon	0.0%	3.0%	2.0%	17.8%	0.3%	0.2%	0.0%	0.0%	76.6%	0.0%	0.0%	0.0%	0.1%	1,955
Ramirez Canyon	0.3%	0.5%	0.1%	2.3%	0.0%	18.5%	0.0%	0.1%	78.3%	0.0%	0.0%	0.0%	0.0%	3,334
Santa Monica Canyon	0.0%	0.4%	0.3%	11.6%	0.0%	8.5%	0.0%	0.0%	77.6%	0.0%	1.6%	0.0%	0.0%	10,088
Solstice Canyon	0.0%	0.1%	0.0%	0.0%	0.0%	2.7%	0.0%	0.0%	97.2%	0.0%	0.0%	0.0%	0.0%	2,841
Topanga Canyon	0.3%	0.2%	0.1%	0.8%	0.0%	8.7%	0.0%	0.2%	89.8%	0.0%	0.0%	0.0%	0.0%	12,575
Trancas Canyon	0.3%	0.3%	0.4%	1.8%	0.0%	6.7%	0.0%	0.1%	88.4%	0.0%	1.8%	0.0%	0.1%	6,514
Tuna Canyon	0.0%	0.0%	0.0%	1.3%	0.0%	2.3%	0.0%	0.0%	96.4%	0.0%	0.0%	0.0%	0.0%	1,013
Santa Ynez	0.0%	1.5%	0.6%	49.4%	0.0%	2.5%	0.0%	0.0%	46.1%	0.0%	0.0%	0.0%	0.0%	1,203
Zuma Canyon	1.7%	0.7%	0.0%	1.1%	0.0%	10.5%	0.0%	0.0%	85.8%	0.0%	0.0%	0.0%	0.1%	6,339
Other Northern Bay Total	0.3%	0.5%	0.4%	4.8%	0.0%	6.5%	0.0%	0.1%	87.0%	0.0%	0.4%	0.0%	0.0%	77,671
Northern Bay Total	1.3%	0.9%	0.3%	4.6%	0.3%	6.3%	0.0%	0.1%	85.2%	0.1%	0.3%	0.3%	0.3%	148,081
Cienega	0.1%	13.8%	4.2%	59.2%	8.3%	0.1%	0.0%	6.8%	4.5%	0.0%	0.0%	2.9%	0.1%	16,624
Culver City	0.0%	4.0%	1.2%	32.8%	5.9%	15.3%	0.0%	0.4%	34.1%	0.0%	4.6%	0.8%	0.9%	8,011
Hollywood	0.0%	16.1%	2.0%	52.7%	2.1%	3.0%	0.0%	9.1%	13.1%	0.0%	0.6%	0.9%	0.4%	29,602
Marina Del Rey	0.0%	10.5%	4.2%	44.0%	9.5%	0.0%	0.0%	1.0%	24.5%	0.0%	0.0%	0.2%	6.1%	5,241
West Los Angeles	0.0%	10.7%	5.3%	40.9%	2.9%	2.5%	0.0%	0.1%	29.7%	0.0%	2.7%	4.6%	0.4%	10,127
Westwood Village	0.0%	8.4%	5.1%	59.9%	5.6%	7.5%	0.0%	0.6%	6.8%	0.0%	4.4%	0.9%	0.8%	6,086
Windsor Hills	0.0%	13.3%	1.4%	55.9%	13.4%	0.3%	0.1%	2.4%	9.1%	0.0%	0.0%	4.1%	0.1%	6,288
Ballona Creek Total	0.0%	12.7%	3.1%	50.8%	5.4%	3.5%	0.0%	5.0%	15.4%	0.0%	1.3%	2.0%	0.7%	81,980
Dockweiler	0.0%	4.8%	2.8%	27.0%	19.9%	0.0%	0.0%	0.3%	12.8%	0.0%	1.1%	31.1%	0.2%	6,573
Hermosa	0.0%	10.8%	5.5%	71.5%	3.7%	0.0%	0.2%	5.2%	2.9%	0.0%	0.0%	0.0%	0.4%	2,624
Palos Verdes	0.5%	1.6%	2.0%	51.1%	0.9%	4.5%	1.5%	0.1%	33.6%	0.0%	2.9%	1.2%	0.1%	10,023
Redondo	1.7%	11.6%	8.0%	57.5%	4.1%	0.0%	0.0%	11.2%	5.5%	0.0%	0.1%	0.0%	0.2%	3,544
Santa Monica	0.0%	11.9%	3.0%	54.3%	3.7%	4.6%	0.0%	4.6%	13.0%	0.0%	2.3%	2.6%	0.0%	8,850
Other Southern Bay Total	0.3%	7.1%	3.4%	49.4%	6.2%	2.7%	0.5%	3.1%	17.8%	0.0%	1.8%	7.6%	0.1%	31,614
Southern Bay Total	0.1%	11.1%	3.2%	50.4%	5.6%	3.3%	0.1%	4.5%	16.1%	0.0%	1.4%	3.5%	0.6%	113,594
Grand Total	0.8%	5.3%	1.6%	24.5%	2.6%	5.0%	0.1%	2.0%	55.2%	0.1%	0.8%	1.7%	0.4%	261,675

Table 4. Bacteria Objectives for REC-1 Designated Marine Waters (LARWQCB, 2001)

Parameter	Geometric Mean	Single Sample
Total Coliform	1,000	10,000
Fecal Coliform	200	400
Fecal-to-Total Coliform Ratio	N/A	Total Coliform \leq 1,000 if ratio $>$ 0.1
Enterococci	35	104

Table 5. Average Percentage of Days Exceeding Any Bacterial Indicator for Shoreline Bacteriological Monitoring Stations in Santa Monica Bay (1996-2000)

Station ID	Location Name	Average Percent Exceedance (1996-2000)		
		April 1-Oct. 31	Nov. 1-Mar. 31	Wet Weather
<i>City of Los Angeles, Environmental Monitoring Division</i>				
S1	Surfrider Beach (breach point) - daily	0.22	0.38	0.60
S2	Topanga State Beach	0.04	0.12	0.32
S3	Pulga Canyon storm drain - 50 yards east (Will Rogers)	0.02	0.09	0.29
S4	Santa Monica Canyon, Will Rogers State Beach	0.17	0.11	0.32
S5	Santa Monica Municipal Pier - 50 yards southeast (Santa Monica)	0.25	0.29	0.43
S6	Santa Monica Beach at Pico/Kenter storm drain (Santa Monica)	0.07	0.26	0.56
S7	Ashland Av. storm drain - 50 yards south (Venice)	0.07	0.10	0.27
S8	Venice City Beach at Windward Av. - 50 yards north	0.01	0.01	0.16
S10	Ballona Creek entrance - 50 yards south (Dockweiler)	0.03	0.06	0.36
S11	Dockweiler State Beach at Culver Bl.	0.03	0.04	0.28
S12	Imperial Highway storm drain - 50 yards north (Dockweiler)	0.03	0.02	0.22
S13	Manhattan State Beach at 40th Street	0.00	0.01	0.04
S14	Manhattan Beach Pier - 50 yards south	0.00	0.01	0.06
S15	Hermosa Beach Pier - 50 yards south	0.00	0.02	0.10
S16	Redondo Municipal Pier - 50 yards south	0.07	0.13	0.17
S17	Redondo State Beach at Avenue I	0.01	0.03	0.08
S18	Malaga Cove, Palos Verdes Estates - daily	0.00	0.01	0.04
<i>Los Angeles County Department of Health Services</i>				
DHS (010)	Leo Carillo Beach (REFERENCE BEACH)	0.00	0.03	0.22
DHS (009)	Nicholas Beach	0.03	0.00	0.20
DHS (010a)	Broad Beach	0.01	0.07	0.20
DHS (008)	Trancas Beach entrance	0.02	0.00	0.27
DHS (007)	Westward Beach, SE end	0.03	0.00	0.22
DHS (006)	Paradise Cove	0.07	0.13	0.31
DHS (005)	26610 Latigo Shore Drive	0.05	0.18	0.44
DHS (005a)	Corral Beach	0.01	0.08	0.22
DHS (004)	Puerco Beach	0.00	0.11	-
DHS (003)	Malibu Point, Malibu Colony Dr.	0.10	0.10	0.24
DHS (003a)	Surfrider Beach, Malibu, 50 yds.	0.27	0.32	0.60
DHS (002)	Malibu Pier	0.19	0.19	0.60
DHS (001a)	Las Flores Beach	0.08	0.11	0.35
DHS (001)	Big Rock Beach	0.15	0.26	0.38
DHS (101)	17200 Pacific Coast Hwy.	0.01	0.13	0.29
DHS (102)	Bel Air Bay Club, 16801 Pacific	0.06	0.09	0.36
DHS (103)	Temescal Storm Drain	0.08	0.03	0.42
DHS (104a)	San Vicente Blvd. extended	0.03	0.03	0.44
DHS (104)	Montana Ave. Storm Drain	0.03	0.03	0.40
DHS (105)	Wilshire Blvd., Santa Monica	0.07	0.07	0.42
DHS (106)	Strand Street extended	0.03	0.10	0.49
DHS (106a)	Ashland Storm Drain	0.11	0.05	0.51
DHS (107)	Venice City Beach at Brooks Av.	0.01	0.15	0.29
DHS (108)	Venice Pier, Venice	0.01	0.03	0.22
DHS (109)	Topsail Street extended	0.05	0.03	0.51
DHS (110)	World Way extended	0.02	0.04	0.40
DHS (111)	Opposite Hyperion Plant, 1 mile	0.01	0.07	0.24
DHS (112)	Grand Avenue extended	0.04	0.09	0.33
DHS (113)	26th Street extended	0.02	0.00	0.16
DHS (114)	Herondo Street extended	0.02	0.04	0.24
DHS (115)	Topaz Street extended	0.03	0.17	0.22
<i>County Sanitation Districts of Los Angeles County*</i>				
LACSD1	Long Point	0.003	0.001	0.03
LACSD2	Abalone Cove	0.002	0.000	0.01
LACSD3	Portuguese Bend Cove	0.003	0.007	0.01
LACSD5	Royal Palms	0.003	0.010	0.04
LACSD6	Wilder Annex	0.003	0.003	0.01
LACSD7	Cabrillo Beach, oceanside	0.003	0.007	0.01
LACSDMC	Malaga Cove	0.005	0.004	0.05
LACSDBC	Bluff Cove	0.000	0.007	0.00

* Average percent exceedance for County Sanitation Districts' data is for 4-year period (1997-2000).

Table 6. Heal the Bay's Annual BRC Grades for SMB Beaches (2000-01)

Beach/Monitoring Location	Dry Weather	Wet Weather
Leo Carrillo Beach	A	F
Nicholas Canyon Beach	A	F
Trancas Beach (Broad Beach)	A	F
Westward Beach (Zuma Beach)	A	D
Paradise Cove	B	F
Latigo Canyon Creek entrance (Corral Beach)	B	F
Puerco Beach	A	F
Surfrider Beach (near Malibu Colony)	C	F
Surfrider Beach (@ breach location)	F	F
Malibu Pier	C	F
Big Rock Beach	F	F
Topanga State Beach	B	F
Will Rogers Beach (@ PCH & Sunset Blvd.)	A	F
Will Rogers Beach (near Bel Air Bay Club)	B	F
Will Rogers Beach (Pulga Canyon storm drain)	A	F
Will Rogers Beach (Temescal Canyon)	C	F
Will Rogers Beach (Santa Monica Canyon)	F	F
Santa Monica Beach (Montana Ave.)	A	F
Santa Monica Beach (Arizona Ave.)	A	F
Santa Monica Pier	B	F
Santa Monica Beach (Pico-Kenter storm drain)	C	F
Santa Monica Beach (Strand St.)	A	F
Ocean Park Beach (Ashland Ave. storm drain)	A	F
Venice Beach (Brooks Ave.)	A	F
Venice Beach (Windward Ave.)	A	D
Venice Pier	A	C
Venice Beach (Topsail St.)	A	F
Dockweiler Beach (south of Ballona Cr.)	A	F
Dockweiler Beach (Culver Blvd.)	A	F
Dockweiler Beach (D&W jetty)	A	C
Dockweiler Beach (Imperial Hwy. storm drain)	A	F
Dockweiler Beach (opposite Hyperion)	A	C
Dockweiler Beach (Grand Ave.)	A	F
Manhattan Beach (40 th St.)	A	B
Manhattan Pier	A	A
Hermosa Beach (26 th St.)	A	A
Hermosa Pier	A+	C
Herondo St. storm drain	B	F
Redondo Pier	C	D
Redondo Beach (Topaz St.)	A	D
Redondo Beach (Ave. I)	A	B
Malaga Cove	A	A
Malaga Cove	A+	F
Bluff Cove	A	A+
Long Point	A	F
Abalone Cove	A	B
Portuguese Bend	A+	A
Royal Palms Beach	A	B
Cabrillo Beach (Outer)	A	A

Table 7: Summary of Dry-weather Bacteria Counts in the Mixing Zone at Various Storm Drains Discharging to Santa Monica Bay

Location		Date	Total Coliform			Fecal Coliform			Enterococcus		
			N	Arithmetic Mean	Percent (%) Exceedance	N	Arithmetic Mean	Percent (%) Exceedance	N	Arithmetic Mean	Percent (%) Exceedance
LA City	Castlerock	2000	17	62,941	76.5	17	1,672	58.8	17	4,248	94.1
	Santa Ynez Canyon		15	50,065	40.0	15	558	40.0	15	1,586	60.0
	Marquez		8	135	0.0	9	114	11.1	8	78	0.0
	Pulga Canyon		18	1,335	0.0	18	123	56.0	18	181	27.8
	Temescal Canyon		17	24,898	41.2	17	326	29.4	17	1,432	76.5
	Santa Monica Canyon		17	19,676	41.2	17	1,605	94.1	17	1,187	100.0
	North Westchester		16	1,714	6.3	16	1,568	63.0	16	1,319	63.0
	Imperial Highway		16	4,944	12.5	16	161	63.0	16	184	25.0
HTB	Malibu	2000	13	5,957	23.1	13	652	53.8	13	105	38.5
	Santa Monica Canyon	2000	22	3,474	4.5	22	459	31.8	22	215	68.2
	"	2001	4	4,343	25	4	428	50	4	250	50

Table 8: Summary of Dry-weather Bacteria Counts in Storm Drain Discharges to Santa Monica Bay

Location		Date	Total Coliform			Fecal Coliform			Enterococcus		
			N	Arithmetic Mean	Percent (%) Exceedance	N	Arithmetic Mean	Percent (%) Exceedance	N	Arithmetic Mean	Percent (%) Exceedance
LA County	Herondo	1998	2	91,000	100.0	2	1,515	50.0	2	9,150	100.0
	Pershing		1	3,000,000	100.0	1	30,000	100.0	1	300,000	100.0
	Brooks		2	195,000	100.0	2	1,250	50.0	2	1,500	100.0
	Ashland		2	8,450,000	100.0	2	495,000	100.0	2	900,000	100.0
LA City	Castlerock	1999	12	163,333	100.0	12	13,304	100.0			
	Santa Ynez Canyon		11	30,818	81.8	11	1,430	45.5			
	Marquez		13	298,462	100.0	13	11,967	46.2			
	Pulga Canyon		14	12,157	28.6	14	231	14.3			
	Temescal Canyon		14	78,343	85.7	14	2,872	85.7			
	Santa Monica Canyon		14	57,043	92.9	14	3,210	85.7			
	North Westchester		14	29,193	64.3	14	1,212	92.9			
	Imperial Highway		14	48,125	92.9	14	2,278	92.9			
	Castlerock	2000	17	398,083	100.0	17	10,783	100.0	17	20,633	94.1
	Santa Ynez Canyon		15	34,253	53.3	15	1,469	80.0	15	3,603	73.3
	Marquez		16	287,438	100.0	16	5,806	100.0	16	6,989	100.0
	Pulga Canyon		18	6,039	11.1	18	589	50.0	18	340	33.3
	Temescal Canyon		17	143,000	100.0	17	4,015	94.1	17	8,833	100.0
	Santa Monica Canyon		17	40,106	88.2	17	3,764	100.0	17	3,029	8.2
Venice Pavilion	4	161,750	100.0	4	5,600	100.0	4	6,553	100.0		
North Westchester	9	1,233	0.0	9	800	77.8	9	174	22.2		
Imperial Highway	15	69,407	16.7	15	3,787	80.0	15	1,476	60.0		
HTB	Santa Monica Canyon	2000	22	36,468	63.6	22	6,100	81.8	22	2,252	100
	"	2001	4	64,000	100	4	2,265	100	4	2,575	100

Table 9: Summary of Dry-weather Bacteria Counts for Ballona Creek & Lagoon

Location	Date	Total Coliform			Fecal Coliform			Enterococcus			
		N	Arithmetic Mean	Percent (%) Exceedance	N	Arithmetic Mean	Percent (%) Exceedance	N	Arithmetic Mean	Percent (%) Exceedance	
LA City	BC @ Centinela	1996	213	166,974	79.3	212	11,829	91.5	209	3,265	90.0
		1997	119	62,292	84.9	119	2,303	92.4	118	595	82.2
		1998	200	141,269	92.5	188	4,728	93.1	112	3,488	93.8
		1999	204	86,374	83.3	209	3,442	78.0			
		2000	161	77,794	69.6	185	3,644	81.1			
	BC @ Pacific	1996	33	38,097	15.2	33	2,649	36.4	31	470	48.4
		1997	17	332	0.0	15	406	26.7	17	165	11.8
		1998	24	10,497	16.7	25	2,620	56.0	23	856	69.6
		1999	28	9,703	14.3	28	606	17.9	25	586	48.0
		2000	29	11,880	13.8	29	1,893	41.4	28	1,276	67.9
SMBK	BC 5	2000	2	3,150	0	3	100	0			
	BC30	"	2	153,400	100	2	3,010	100			
	BC31	"	1	36,540	100	1	860	100			
	BC40	"	3	101,959	100	2	7,095	100	1	100	0
	BC41	"	1	57,940	100	1	100	0	1	100	0
	BC90	"	1	2,064	0	1	740	100			
	BC95	"	1	36,540	100	1	1,080	100			
	BC119	"	2	50,020	100	2	625	100			
	BC120	"	2	185,958	100	2	17,970	100			
	BC121	"	1	111,965	100	1	520	100			
	BC122	"	1	28,510	100	1	100	0			
	Ballona Lagoon	"	8	62,868	87.5	8	235	12.5	2	100	0
	LA County	BC @ Culver & Beloit	1994-2000	9	44,156		9	2,426		9	2,581

BC: Ballona Creek; SMBK: Santa Monica BayKeeper

Table 10: Summary of Dry-weather Bacteria Counts for Malibu Creek and Lagoon

Location	Date	Total Coliform			Fecal Coliform			Enterococcus		
		N	Arithmetic Mean	Percent (%) Exceedance	N	Arithmetic Mean	Percent (%) Exceedance	N	Arithmetic Mean	Percent (%) Exceedance
LA County MC @ Malibu Cyn Rd.	1994-2000	6	16,633		6	265		5	250	
HTB Malibu Lagoon SD	2000	13	9,000	30.8	13	832	84.6	13	120	23.1

MC: Malibu Creek; HTB: Heal the Bay; SD: Storm drain

Table 11. Allowable Number of Winter Dry Weather Days that May Exceed Any Bacterial Indicator Based on Daily or Weekly Sampling Regimes for Existing Shoreline Monitoring Stations

Station ID	Location Name	Winter Dry Weather	
		Daily sampling (No. days)	Weekly sampling (No. days)
<i>City of Los Angeles, Environmental Monitoring Division Sites</i>			
S1	Surfrider Beach (breach point) - daily	4	1
S2	Topanga State Beach	4	1
S3	Pulga Canyon storm drain - 50 yards east (Will Rogers)	4	1
S4	Santa Monica Canyon, Will Rogers State Beach	4	1
S5	Santa Monica Municipal Pier - 50 yards southeast (Santa Monica)	4	1
S6	Santa Monica Beach at Pico/Kenter storm drain (Santa Monica)	4	1
S7	Ashland Av. storm drain - 50 yards south (Venice)	4	1
S8	Venice City Beach at Windward Av. - 50 yards north	2	1
S10	Ballona Creek entrance - 50 yards south (Dockweiler)	4	1
S11	Dockweiler State Beach at Culver Bl.	4	1
S12	Imperial Highway storm drain - 50 yards north (Dockweiler)	3	1
S13	Manhattan State Beach at 40th Street	1	1
S14	Manhattan Beach Pier - 50 yards south	1	1
S15	Hermosa Beach Pier - 50 yards south	3	1
S16	Redondo Municipal Pier - 50 yards south	4	1
S17	Redondo State Beach at Avenue I	4	1
S18	Malaga Cove, Palos Verdes Estates - daily	2	1
<i>Los Angeles County Department of Health Services Sites</i>			
DHS (010)	Leo Carillo Beach (REFERENCE BEACH)	4	1
DHS (009)	Nicholas Beach	0	0
DHS (010a)	Broad Beach	4	1
DHS (008)	Trancas Beach entrance	0	0
DHS (007)	Westward Beach, SE end	0	0
DHS (006)	Paradise Cove	4	1
DHS (005)	26610 Latigo Shore Drive	4	1
DHS (005a)	Corral Beach	4	1
DHS (004)	Puerco Beach	4	1
DHS (003)	Malibu Point, Malibu Colony Dr.	4	1
DHS (003a)	Surfrider Beach, Malibu, 50 yds.	4	1
DHS (002)	Malibu Pier	4	1
DHS (001a)	Las Flores Beach	4	1
DHS (001)	Big Rock Beach	4	1
DHS (101)	17200 Pacific Coast Hwy.	4	1
DHS (102)	Bel Air Bay Club, 16801 Pacific	4	1
DHS (103)	Temescal Storm Drain	4	1
DHS (104a)	San Vicente Blvd. extended	4	1
DHS (104)	Montana Ave. Storm Drain	4	1
DHS (105)	Wilshire Blvd., Santa Monica	4	1
DHS (106)	Strand Street extended	4	1
DHS (106a)	Ashland Storm Drain	4	1
DHS (107)	Venice City Beach at Brooks Av.	4	1
DHS (108)	Venice Pier, Venice	4	1
DHS (109)	Topsail Street extended	4	1
DHS (110)	World Way extended	4	1
DHS (111)	Opposite Hyperion Plant, 1 mile	4	1
DHS (112)	Grand Avenue extended	4	1
DHS (113)	26th Street extended	0	0
DHS (114)	Heronido Street extended	4	1
DHS (115)	Topaz Street extended	4	1
<i>County Sanitation Districts of Los Angeles County Sites</i>			
LACSD1	Long Point	1	1
LACSD2	Abalone Cove	1	1
LACSD3	Portuguese Bend Cove	1	1
LACSD5	Royal Palms	1	1
LACSD6	Wilder Annex	1	1
LACSD7	Cabrillo Beach, oceanside	1	1
LACSDMC	Malaga Cove	1	1
LACSDBC	Bluff Cove	0	0

Notes: The number of allowable exceedances days was calculated based on the reference year (1993).

1993 had 29 days of wet weather (rainfall >=0.1 inch plus the 3 days following).

There were an estimated 122 days of non-AB411 dry weather in 1993.

The number of allowable weekly sampling days that may exceed was calculated by simply dividing the number of days for the period of concern by 7, and then multiplying by the exceedance percentage.

The percentage & number of allowable exceedances is based on the lesser of (1) the reference beach or (2) existing levels of exceedance based on historical shoreline data as summarized in Table 5.

Because these winter dry weather historical exceedance levels may underestimate exceedance levels in the wave wash (the compliance point for the TMDL), they will be re-evaluated once sampling locations are located in the wave wash.

Table 12. Average Percentage of Days Exceeding Any Bacterial Indicator and the Required Reduction in the Number of Days of Exceedance to Achieve Compliance with the Dry Weather TMDL*

Location Name	Subwatershed	Summer Dry Weather		Winter Dry Weather	
		April 1-Oct. 31 Average Percent Exceedance	Required Reduction in No. Daily Sample Days	Nov. 1-Mar. 31 Average Percent Exceedance	Required Reduction in No. Daily Sample Days
<i>City of Los Angeles, Environmental Monitoring Division Sites</i>					
Surfrider Beach (breach point) - daily	Malibu Canyon	0.22	48	0.38	43
Topanga State Beach	Topanga Canyon	0.04	10	0.12	11
Pulga Canyon storm drain - 50 yards east (Will Rogers)	Pulga Canyon	0.02	4	0.09	8
Santa Monica Canyon, Will Rogers State Beach	Santa Monica Canyon	0.17	36	0.11	10
Santa Monica Municipal Pier - 50 yards southeast (Santa Monica)	Santa Monica	0.25	54	0.29	31
Santa Monica Beach at Pico/Kenter storm drain (Santa Monica)	Santa Monica	0.07	15	0.26	28
Ashland Av. storm drain - 50 yards south (Venice)	Santa Monica	0.07	16	0.10	9
Venice City Beach at Windward Av. - 50 yards north	Ballona	0.01	3	0.01	0
Ballona Creek entrance - 50 yards south (Dockweiler)	Dockweiler	0.03	7	0.06	4
Dockweiler State Beach at Culver Bl.	Dockweiler	0.03	6	0.04	1
Imperial Highway storm drain - 50 yards north (Dockweiler)	Dockweiler	0.03	7	0.02	0
Manhattan State Beach at 40th Street	Hermosa	0.00	1	0.01	0
Manhattan Beach Pier - 50 yards south	Hermosa	0.00	1	0.01	0
Hermosa Beach Pier - 50 yards south	Hermosa	0.00	2	0.02	0
Redondo Municipal Pier - 50 yards south	Redondo	0.07	16	0.13	12
Redondo State Beach at Avenue I	Redondo	0.01	2	0.03	0
Malaga Cove, Palos Verdes Estates - daily	Palos Verdes	0.00	1	0.01	0
<i>Los Angeles County Department of Health Services Sites</i>					
Leo Carillo Beach (REFERENCE BEACH)	Arroyo Sequit Canyon	0.00	0	0.03	0
Nicholas Beach	Nicholas Canyon	0.03	7	0.00	0
Broad Beach	Trancas Canyon	0.01	3	0.07	4
Trancas Beach entrance	Trancas Canyon	0.02	5	0.00	0
Westward Beach, SE end	Zuma Canyon	0.03	8	0.00	0
Paradise Cove	Ramirez Canyon	0.07	16	0.13	12
26610 Latigo Shore Drive	Latigo Canyon	0.05	11	0.18	18
Corral Beach	Latigo Canyon	0.01	3	0.08	7
Puerco Beach	Corral Canyon	0.00	0	0.11	10
Malibu Point, Malibu Colony Dr.	Malibu Canyon	0.10	23	0.10	9
Surfrider Beach, Malibu, 50 yds.	Malibu Canyon	0.27	58	0.32	36
Malibu Pier	Malibu Canyon	0.19	42	0.19	20
Las Flores Beach	Las Flores Canyon	0.08	18	0.11	10
Big Rock Beach	Piedra Gorda Canyon	0.15	32	0.26	29
17200 Pacific Coast Hwy.	Santa Ynez Canyon	0.01	3	0.13	12
Bel Air Bay Club, 16801 Pacific	Santa Ynez Canyon	0.06	14	0.09	7
Temescal Storm Drain	Pulga Canyon	0.08	17	0.03	0
San Vicente Blvd. extended	Santa Monica	0.03	7	0.03	0
Montana Ave. Storm Drain	Santa Monica	0.03	7	0.03	0
Wilshire Blvd., Santa Monica	Santa Monica	0.07	15	0.07	5
Strand Street extended	Santa Monica	0.03	8	0.10	9
Ashland Storm Drain	Santa Monica	0.11	24	0.05	2
Venice City Beach at Brooks Av.	Ballona	0.01	3	0.15	15
Venice Pier, Venice	Ballona	0.01	4	0.03	0
Topsail Street extended	Ballona	0.05	11	0.03	0
World Way extended	Dockweiler	0.02	5	0.04	2
Opposite Hyperion Plant, 1 mile	Dockweiler	0.01	3	0.07	5
Grand Avenue extended	Dockweiler	0.04	8	0.09	7
26th Street extended	Hermosa	0.02	5	0.00	0
Heronado Street extended	Hermosa	0.02	5	0.04	2
Topaz Street extended	Redondo	0.03	8	0.17	17
<i>County Sanitation Districts of Los Angeles County</i>					
Long Point	Palos Verdes	0.003	1	0.00	0
Abalone Cove	Palos Verdes	0.002	1	0.00	0
Portuguese Bend Cove	Palos Verdes	0.003	1	0.01	0
Royal Palms	Palos Verdes	0.003	1	0.01	0
Wilder Annex	Palos Verdes	0.003	1	0.00	0
Cabrillo Beach, oceanside	Palos Verdes	0.003	1	0.01	0
Malaga Cove	Palos Verdes	0.005	2	0.00	0
Bluff Cove	Palos Verdes	0.000	0	0.01	0

*Average percentage of days exceeding any bacterial indicator is taken from Table 5.

Table 13. Implementation Schedule

Year	Compliance Point	Implementation Methods
3	No exceedance days from April 1 to October 31	<ul style="list-style-type: none">• Divert dry weather storm drain flows to treatment plants, where possible• Eliminate illicit discharges• Control sources of bacteria (including groundwater sources) and/or• Implement “end-of-pipe” treatment
3	Re-open TMDL to revise as necessary allowable exceedance days during winter dry weather based on shoreline monitoring data collected in the wave wash, additional data on reference system(s) and a re-evaluation of the reference year	N/A
6	Compliance with allowable winter dry weather exceedance days as set forth in Table 11	Same as above

Table 14. Capital Costs and Annual Costs for Low Flow Diversions of Major Storm Drains to Santa Monica Bay

	Major Storm Drains to SMB	Adjacent Beach	Drainage Area	Schedule	Estimated Construction Cost	Phase I O&M Costs	Phase I Treatment Costs	Phase II Sewer Facility Charge (SFC)	Phase II O&M Costs	Phase II Treatment Costs
1	Castlerock (& Parker Canyon)	Castlerock	Castlerock	not prop	800,000	25,000	14,992	600,000	17,857	4,463
2	Santa Ynez (Sunset Blvd.)	Will Rogers	Castlerock		800,000	50,000	99,420	600,000	35,714	29,595
3	Bay Club Dr.	Will Rogers	Santa Ynez	operational		17,000	6,312	600,000	12,143	1,879
4	Marquez Ave.	Will Rogers	Santa Ynez		800,000	18,000	64	600,000	12,857	19
5	Pulga	Will Rogers	Pulga		800,000	25,000	26,039	3,300,000	17,857	7,751
6	Temescal	Will Rogers	Pulga	2002		22,000	19,332	3,300,000	15,714	5,755
7	Palisades Park	Will Rogers	Pulga	operational		20,000	15,000	1,200,000	14,286	5,000
8	Santa Monica Canyon	Will Rogers	Santa Monica Canyon	2002		54,000	370,854	8,400,000	38,571	110,394
9	Montana Ave.	Santa Monica	Santa Monica		600,000	25,000	15,000	300,000	17,857	10,714
10	Wilshire Blvd.	Santa Monica	Santa Monica		600,000	25,000	15,000	300,000	17,857	5,000
11	Santa Monica Pier	Santa Monica	Santa Monica	operational		25,000	15,000	300,000	17,857	5,000
12	Pico-Kenter	Santa Monica	Santa Monica	operational		50,000	15,781	1,100,000	35,714	4,698
13	Ashland Ave. & Rose Ave.	Venice	Santa Monica	operational		28,000	15,000	180,000	20,000	5,000
14	Thornton Ave.	Venice	Santa Monica	operational		50,000	15,000	130,000	35,714	5,000
15	Brooks Ave.	Venice	Santa Monica	operational		19,000	15,000	285,000	13,571	5,000
16	Windward Ave./Venice Pavilion	Venice	Santa Monica	2002		25,000	15,000	260,000	17,857	5,000
17	Playa del Rey/Culver Blvd.	Dockweiler	Dockweiler	operational		20,000	15,000	675,000	14,286	5,000
18	North Westchester	Dockweiler	Dockweiler		800,000	50,000	15,000	500,000	35,714	5,000
19	Imperial Highway	Dockweiler	Dockweiler	2002		20,000	11,047	1,300,000	14,286	3,288
20	El Segundo Blvd./Grand Ave.	Dockweiler	Dockweiler		800,000	50,000	15,000	500,000	35,714	5,000
21	South of Dockweiler Jetty	Dockweiler	Dockweiler	operational		50,000	15,000	500,000	35,714	5,000
22	27th St., Manhattan Beach	Manhattan Beach	Hermosa	2002		20,000	15,000	500,000	14,286	5,000
23	Manhattan Beach Pier	Manhattan Beach	Hermosa	operational		50,000	15,000	500,000	35,714	5,000
24	Hermosa Beach Pier	Hermosa Beach	Hermosa		800,000	20,000	15,000	500,000	14,286	5,000
25	Herondo St.	Hermosa Beach	Redondo	operational		50,000	15,000	500,000	35,714	5,000
26	Redondo Beach Pier	Redondo Beach	Redondo		800,000	20,000	15,000	500,000	14,286	5,000
27	Avenue I/Miramar	Redondo Beach	Palos Verdes	2003		25,000	15,000	500,000	17,857	5,000
	Totals				7,600,000	853,000	833,840	27,930,000	609,286	263,555

Cost estimates are based on a report prepared by the City of Los Angeles (2001); personal communication with Mike Mullin, City of Los Angeles, Bureau of Sanitation; project proposals submitted to the Regional Board; and other sources.