

Bacteriological Data Evaluation for City of San Diego Recreational Beaches, 2000 through 2010

Final Report

Prepared for:
City of San Diego
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June 25, 2010

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2000–2010**

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LIST OF ACRONYMS

§	section
AB411	Assembly Bill 411
CDF	cumulative distribution function
DEH	Department of Environmental Health
HA	hydrologic area
HU	hydrologic unit
MPN	most probable number
Regional Board	Regional Water Quality Control Board
State Board	State Water Resources Control Board
WQO	water quality objective

Executive Summary

Within the City of San Diego (City), there are 17 shoreline water quality monitoring stations located along coastal beaches, bays, and harbors that have been included on the draft State Water Resources Control Board (State Board) 2010 Section (§) 303(d) list for indicator bacteria. The purpose of this report is to 1) compile and summarize the available bacterial data of the shoreline sites monitored in the City of San Diego between 2000 and 2010, 2) assess the data at those sites that are listed on the draft State Board 2010 §303(d) list, and 3) identify those beaches that should be considered for removal (delisting) from the State Board §303(d) list.

Ten years of data were assessed (i.e., from January 2000 through February 2010). Data were compiled from City and County of San Diego raw data for shoreline sites that were made available by the City. Water samples for most sites were typically collected and analyzed weekly by the City or the County Department of Environmental Health (DEH). Samples were analyzed for three indicator bacteria (i.e., total coliforms, fecal coliforms, and enterococci). The guidelines and approach regarding delisting criteria used in this document were taken from the Water Quality Control Policy for Developing California's Clean Water Act Section §303(d) List (State Board, 2004). The Assembly Bill (AB411) single sample and 30-day rolling geometric mean limits were used to determine the number of exceedances for a given sample size.

The draft State Board 2010 §303(d) list identifies four hydrologic areas (HAs) within the City that have shoreline beaches listed due to elevated bacterial levels: Pacific Ocean Shoreline—Miramar Reservoir HA, Pacific Ocean Shoreline—Scripps HA, Mission Bay Shoreline, and Pacific Ocean Shoreline—San Diego. Results of the analysis are summarized below:

- Pacific Ocean Shoreline—Miramar Reservoir HA: Torrey Pines State Beach is listed on the draft State Board 2010 §303(d) list for indicator bacteria. This beach was listed for total coliforms. No single sample criteria or geometric mean criteria were exceeded at this beach during the sampling period. **These data suggest that total coliforms may be eligible for delisting from the draft State Board 2012 §303(d) list at the Torrey Pines State Beach, and that enterococci and fecal coliforms should remain unlisted.**
- Pacific Ocean Shoreline—Scripps HA: Six beaches are included on the draft State Board 2010 §303(d) list within the Scripps HA. Children's Pool and Pacific Beach Point beaches are listed for enterococci, fecal coliforms, and total coliforms. Avenida de la Playa, La Jolla Cove, Ravina, and Vallecitos Court are listed for total coliforms. The results indicate that Children's Pool may not be considered for delisting of fecal coliforms at this time, and Pacific Beach Point may not be considered for delisting of enterococci at this time. **Avenida de la Playa, Children's Pool, La Jolla Cove, Pacific Beach Point, Ravina, and Vallecitos Court may be eligible for delisting of total coliforms from the draft State Board 2012 §303(d) list. In addition, Children's Pool may be considered for delisting of enterococci, and Pacific Beach Point may be considered for delisting of fecal coliforms from the draft State Board 2012 §303(d) list.**
- Mission Bay Shoreline: Nine beaches within Mission Bay are included on the draft State Board 2010 §303(d) list. Bahia Point, Bonita Cove, Campland, and De Anza Cove are listed for enterococci, fecal coliforms, and total coliforms. Fanuel Park, Leisure Lagoon, North Crown Point, and Tecolote Shores are listed for enterococci and total coliforms.

The results indicate no beaches are recommended for delisting of enterococci at this time. **Bahia Point, Bonita Cove, Campland, De Anza Cove, Fanuel Park, Leisure Lagoon, North Crown Point, Tecolote Shores, and the Visitor's Center beaches may all be considered for delisting of total coliforms from the draft State Board 2012 §303(d) list. Bahia Point, Bonita Cove, and De Anza Cove may be considered for delisting of fecal coliforms from the draft State Board 2012 §303(d) list.**

- **Pacific Ocean Shoreline—San Diego:** There is one beach on the draft State Board 2010 §303(d) list in the San Diego Hydrologic Unit (HU). No exceedances of either the single sample or 30-day geometric mean were found for any indicator bacteria. **These data indicate that enterococci and total coliforms may be eligible for delisting from the draft State Board 2012 §303(d) list at Dog Beach and that fecal coliforms should remain unlisted.**

1.0 Introduction and Background

The City of San Diego (City) routinely monitors water quality at numerous beach locations throughout the City. Several of these locations are listed on the State Water Resources Control Board (State Board) 2010 Section (§) 303(d) list for impairment due to elevated levels of indicator bacteria. The purpose of this document is to:

1. Compile the available data on bacterial concentrations at the shoreline water quality monitoring sites within the City,
2. Summarize the monitoring results in comparison to water quality standards and criteria, and
3. Identify those sites that should be considered for removal from the State Board §303(d) list based on the Water Quality Control Policy for Developing California's Clean Water Act Section §303(d) List (State Board, 2004).

2.0 Methods of Data Evaluation

2.1 Data Sources

Data for this report were compiled from City and County of San Diego raw data for all shoreline sites that were made available by the City. All of the bacteriological data available for these sites from a ten-year period (January 2000 through February 2010) are summarized and assessed in this report. Graphical representations of the data for each site are presented in the Results Section (Section 3.0). Water samples for most sites were typically collected and analyzed weekly by the City or the County Department of Environmental Health (DEH) Samples were analyzed for three indicator bacteria (i.e., total coliforms, fecal coliforms, and enterococci).

2.2 Delisting Procedure

For those surface waterbodies (beaches) listed on the draft State Board 2010 §303(d) list, an assessment was conducted to determine the number of exceedances of bacterial standards that have occurred at each site from 2000 through 2010 and to identify those beaches that may be considered for delisting. The process for removing a waterbody from the State Board §303(d) list in California is summarized in the Water Quality Control Policy for Developing California's Clean Water Act Section §303(d) List (State Board, 2004). Based on this process, data from all sites within a beach were analyzed using both an individual site analysis and a beach-wide analysis for beaches with more than one sampling location. The individual site results are presented in the Results section (Section 3.0) and the beach results are presented in the Summary Section (Section 4.0).

Table 2-1 is reproduced from Table 4.2 in the Water Quality Control Policy for Developing California's Clean Water Act Section §303(d) List (State Board, 2004) and summarizes the

maximum number of exceedances allowable for delisting for a given sample size up to 121 samples. For sample sizes greater than 121 samples, the maximum number of allowable exceedances is determined using a formula in Microsoft Excel. The formula provided in the Water Quality Control Policy for Developing California's Clean Water Act Section §303(d) List (State Board, 2004) can only be used for sample sizes up to approximately 1,000 (a limitation of Microsoft Excel). Because some of the impaired waterbodies assessed in this evaluation had sample sizes greater than 1,000, the maximum number of exceedances for each site was calculated with SAS® software using the cumulative distribution function (CDF). The same parameters from the Excel function were used in the SAS program and verified with Excel results. This resulted in a maximum exceedance frequency specific to each site.

Table 2-1. Maximum Number of Measured Exceedances Allowable to Remove a Water Segment from the State Water Resources Control Board Section 303(d) List (reproduced from State Board 2004, Table 4.2)

Sample Size		Maximum Number of Exceedances Allowable for Delisting
From	To	
26	30	4
31	36	5
37	42	6
43	48	7
49	54	8
55	60	9
61	66	10
67	72	11
73	78	12
79	84	13
85	91	14
92	97	15
98	103	16
104	109	17
110	115	18
116	121	19

The minimum sample size for delisting consideration identified by the State Board (2004) is 26.

2.3 Applicable Water Quality Standards

All of the beach shoreline sites assessed in this document are considered contact recreational waters with a beneficial use designation of REC-1. The most applicable criteria for REC-1 waters are those designated under Assembly Bill 411 (AB411) for three indicator bacteria (i.e., total coliforms, fecal coliforms, and enterococci). The AB411 criteria are summarized in Table 2-2.

Table 2-2. Assembly Bill 411 Bacteriological Standards

Indicator	30-Day Limit ¹	Single Sample Limit
Total coliforms	1,000 MPN ² / 100 mL	1,000 MPN/ 100 mL if fecal > 10% of total, or 10,000 MPN/100 mL ³
Fecal coliforms	200 MPN/ 100 mL	400 MPN/ 100 mL
Enterococci	35 MPN/ 100 mL	104 MPN/ 100 mL

¹30-day limit is based on the geometric mean of at least five weekly samples.

²MPN = most probable number.

³Total coliform single sample limit of 10,000 MPN decreases to 1,000 when the fecal coliform value is greater than 10% of total coliform value.

There are two AB411 criteria presented in Table 2-2: the 30 day geometric mean of at least five samples and the single sample limit. According to the State Board (2004) guidance document, the method used to place a surface waterbody on the State Board §303(d) list is the same method that must be used to delist the waterbody. To assure that proper consideration will be given to this assessment, the data in this document were compared to the values in Table 2-1. Maximum Number of Measured Exceedances Allowable to Remove a Water Segment from the State Water Resources Control Board Section 303(d) List (reproduced from State Board 2004, Table 4.2) Table 2-1 and Table 2-2 in the following two different ways:

1. Single sample limit.
2. Rolling 30-day geometric mean.

The methods for each of these assessments are presented below.

Single Sample Limit—The AB411 single sample limits were used to determine the number of exceedances allowable for a given sample size, as listed in Table 2-1. Typically, a single sample is collected on a given day from a site and analyzed for three indicator bacteria (i.e., total coliforms, fecal coliforms, and enterococci). Thus, a single sample usually produces three different analyses. To calculate the number of exceedances within a surface waterbody, the data were assessed to determine the total number of analyses for each indicator that exceeded the single sample limits at each site. The number of exceedances and samples for each of the three indicators over the ten year period (January 2000 through February 2010) was then summed for each site and each impaired beach. The total number of exceedances was compared to the number allowable by State Board (2004) for the sample size at both the individual site and the

beach. The results of this analysis were used to assess whether an impaired beach could be recommended for delisting consideration and removal from the State Board §303(d) list. For the beach-wide analyses that included more than one sample site, the maximum value for the beach was used. For example, if there were three sites on a beach and all three were sampled on the same day, the maximum result from the three sites was used in the beach single sample exceedance evaluation.

The procedure discussed above provides a very conservative, or protective, approach to delisting consideration for several reasons:

- In the case of multiple samples on a single monitoring day, the maximum result for each indicator was used to calculate exceedances.
- All data were considered in the ten-year time frame for a given surface waterbody, including data collected in dry and wet seasons as dry and wet weather (within 72 hours of a rain event).
- No allowances were given for samples that may have been collected under extreme conditions, such as those taken during a sewage spill.

The conservative approach provides the greatest protection of the beneficial uses for the protection of public health and the environment and generates delisting recommendations only for those surface waterbodies where bacterial contamination is minimal.

Rolling Geometric Mean—The rolling geometric mean is the averaging method recommended for assessing bacterial indicator exceedances within REC-1 beach areas by the San Diego Department of Health Services. If public beach areas fail to meet AB411 standards, public health officials may post warning signs or otherwise restrict use of the beach (State Board, 2005).

The 30-day geometric mean was calculated at each site for all values in the dataset in chronological order starting from the date of the most recent sample. For instance, starting at the end of the dataset (February 2010, in this case), the geometric mean was calculated for a given sample date using all data from the previous 30 days when at least five samples were collected. The geometric mean value for that 30-day period was then compared to the AB411 Criteria in Table 2-2. Then the geometric mean was calculated from the next day and the data collected 30 days prior to that date. This method produces a continuous, or rolling, dataset and provides an accurate chronological assessment of the bacteriological conditions at that site over time.

For this assessment, the total number of exceedances at each site was estimated as the sum of all 30-day geometric mean exceedances (given in Table 2-2). For the beach summary, which was used to make recommendations regarding State Board §303(d) delisting, the total number of exceedances for all sites on the beach was used to calculate the number of exceedances for the beach. If there was more than one sample result for the same date on a beach, the maximum result was used in the analysis. The total number of exceedances was compared to the allowable number of exceedances listed in Table 2-1 for the total number of samples within that water segment. The total sample size was calculated as the sum of all 30-day geometric mean days at each site.

3.0 Site-Specific Results

3.1 Site Locations

The beach shoreline sites within the City of San Diego that are on the draft State Board 2010 §303(d) list for elevated levels of indicator bacteria are presented in Table 3-1. These sites are shown graphically on Figure 3-1. A total of 17 beach shoreline sites were monitored in the City from January 2000 through February 2010 and included on the draft State Board 2010 §303(d) list.

The shoreline sites are grouped on the State Board §303(d) list by beach area (Table 3-1). Of the 17 beaches that are included on the draft State Board 2010 §303(d) list, one was located in the Miramar Reservoir HA, six were located in the Scripps HA, nine were located in Mission Bay, and one was located in the San Diego HU. Several of the State Board §303(d)-listed beaches included more than one site. The individual sites are indicated in Table 3-1 as the DEH ID. A site assessment was completed for each site, and includes a site description, an evaluation of temporal representation, a review of the data relative to delisting criteria, and a graphical representation of the data showing the number of exceedances for each indicator bacteria. An evaluation was completed for each beach area as it was listed on the draft State Board §303(d) list, and the results are presented in Section 4 (Summary).

3.2 Site Assessments

Individual assessments of each of the sites on the State Board 2010 §303(d) list are provided below.

Table 3-1. Coastal Shorelines, Bays, and Harbors within the City of San Diego Listed on the State Water Resources Control Board 2010 Section 303(d) List for Indicator Bacteria

State Board §303(d) Waterbody Name	Beach Area	Location of Impairments	DEH ID
Pacific Ocean Shoreline, Miramar Reservoir HA, at Los Peñasquitos River	Torrey Pines State Beach	Torrey Pines (Los Peñasquitos Lagoon outlet)	FM-100
Pacific Ocean Shoreline, Scripps HA	La Jolla Cove	La Jolla Cove	FM-070
	Children's Pool	Children's Pool	EH-310
		South Casa beach	EH-305
	Ravina	Whispering Sands/S .Nicholson Pt (Horseshoes)	EH-300
	Pacific Beach Point	Pacific Beach, Tourmaline Surfing Park	EH-255
		Tourmaline Surf Park	FM-030
	Vallecitos	Vallecitos	EH-320
	Avenida de la Playa	Ave De La Playa	FM-080

State Board §303(d) Waterbody Name	Beach Area	Location of Impairments	DEH ID
Mission Bay Shoreline	De Anza Cove	De Anza Cove, western shore (NR)	EH-227
		De Anza Cove, near storm drain	MB-070
		De Anza Cove swim area	MB-071
	Tecolote Shores	Tecolote Shores, near storm drain	MB-040
		Tecolote Shores, swim area	MB-041
	Leisure Lagoon	Leisure Lagoon, near storm drain	MB-050
		Leisure Lagoon swim area	MB-051
		Comfort Station, north of Leisure Lagoon	MB-053
	Visitor's Center	Visitor's Center, near storm drain	MB-060
		Beach at Visitor's Center	MB-061
	Campland On The Bay	Campland	MB-080
	North Crown Point	Wildlife Refuge fence, near storm drain	MB-090
		swim area next to Wildlife Refuge	MB-091
		Crown Point, near storm drain	MB-100
		Crown Point, watercraft area	MB-101
	Fanuel Park	Fanuel Park	MB-120
	Bahia Point	Bahia Point, near storm drain	MB-160
		Bahia Point swim area	MB-161
	Bonita	Bonita Cove (Mariners)	MB-170
		Bonita Cove, eastern shore	MB-173
Pacific Ocean Shorelines, San Diego	Dog Beach Ocean Beach	San Diego River outlet	FM-010

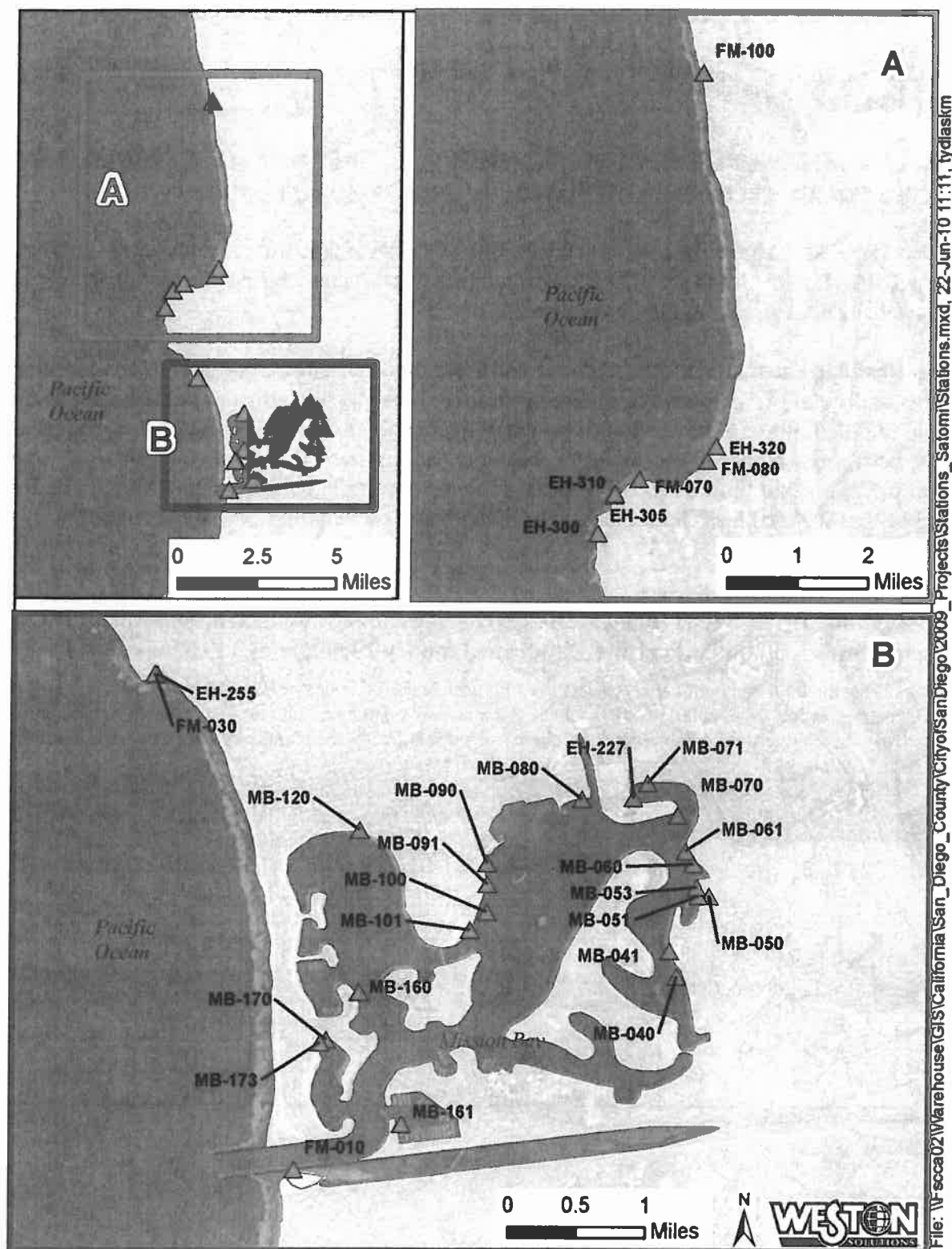


Figure 3-1. Map of City of San Diego Shoreline Water Quality Monitoring Stations included on the State Water Resources Control Board 2010 Section 303(d) List for Elevated Levels of Indicator Bacteria

3.2.1 Pacific Ocean Shoreline, Miramar Reservoir Hydrologic Area

Waterbody Sampling Location: Torrey Pines State Beach, San Diego at Los Peñasquitos Lagoon outlet (FM-100)

This site is located just at the Torrey Pines State Beach at the Los Peñasquitos Lagoon outlet and is currently listed for total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through February 2010 (Figure 3-2). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-2. A total of 1,399 analyses were performed. None of the indicator bacteria surpassed the single sample limit of 82 exceedances for enterococci and total coliforms and 67 exceedances for fecal coliforms. None of the indicator bacteria had rolling 30-day geometric means that exceeded the allowable limit of 272. These data suggest that total coliforms may be eligible for delisting at the Torrey Pines State Beach, San Diego, at Los Peñasquitos Lagoon outlet at this time.

Table 3-2. Summary of Bacteriological Data at Torrey Pines State Beach, San Diego, at Los Peñasquitos Lagoon Outlet (FM-100) from January 2000 through February 2010

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Torrey Pines (Los Peñasquitos Lagoon outlet)	Single Sample Results					
	Enterococci	497	470	27	82	5
	Fecal coliforms	406	392	14	67	3
	Total coliforms	496	475	21	82	4
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,640	1,502	138	272	8
	Fecal coliforms	1,640	1,639	1	272	0
	Total coliforms	1,640	1,605	35	272	2

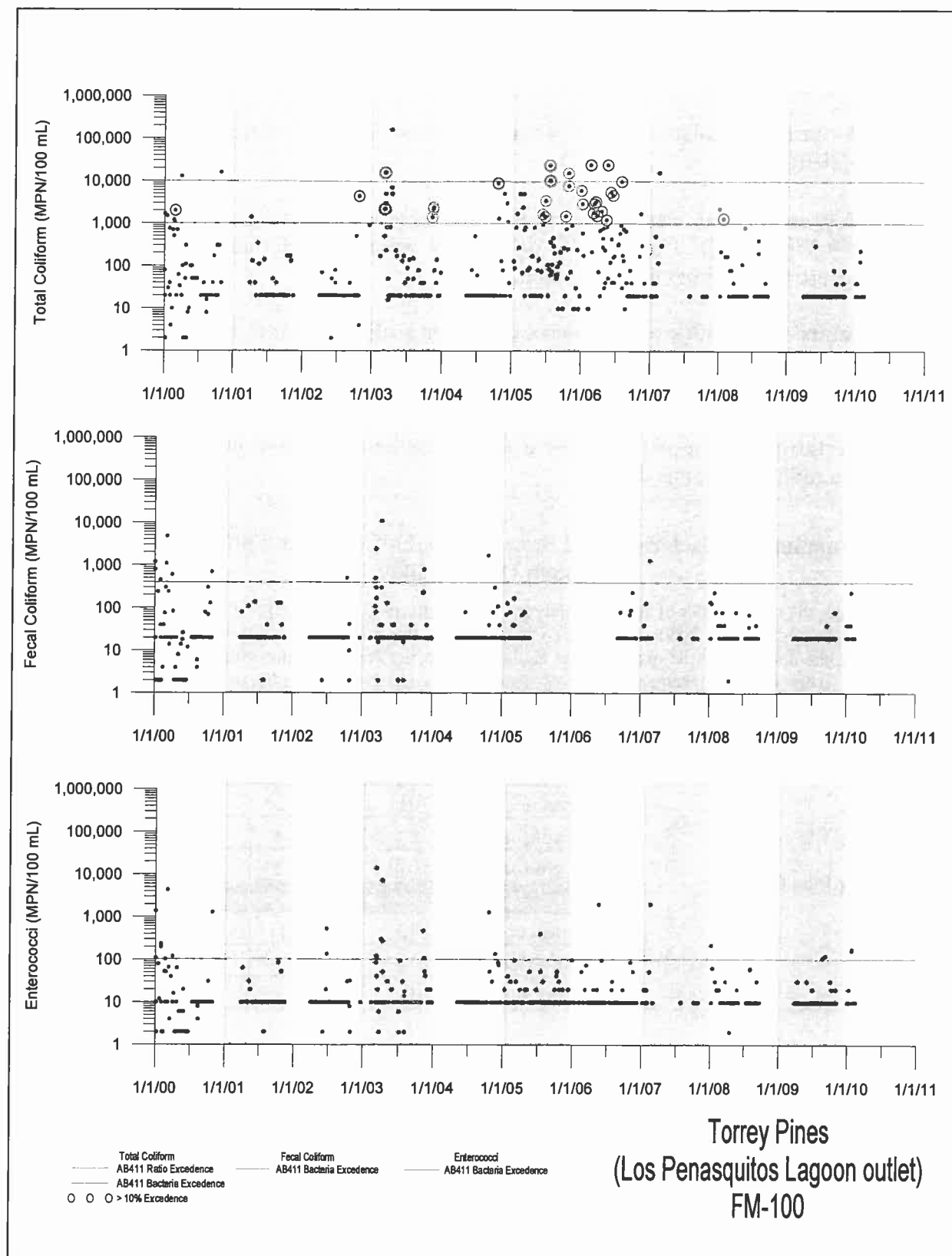


Figure 3-2. Summary of Bacteriological Water Quality Data Collected from the Torrey Pines (Los Peñasquitos Lagoon outlet) (FM-100) Monitoring Site from January 2000 through February 2010

3.2.2 Pacific Ocean Shoreline, Scripps Hydrologic Area

Waterbody Sampling Location: La Jolla Cove (FM-070)

This site is located at La Jolla Cove and is currently listed for total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through October 2009 (Figure 3-3). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-3. A total of 865 analyses were performed. None of the indicator bacteria surpassed the single sample limit of 49 exceedances for enterococci and total coliforms and 43 exceedances for fecal coliforms. None of the indicator bacteria had rolling 30-day geometric means that exceeded the allowable limit of 101. These data suggest that total coliforms may be eligible for delisting at La Jolla Cove at this time.

Table 3-3. Summary of Bacteriological Data at La Jolla Cove (Fm-070) from January 2000 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2009 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
La Jolla Cove	Single Sample Results					
	Enterococci	301	296	5	49	2
	Fecal coliforms	263	255	8	43	3
	Total coliforms	301	293	8	49	3
	Rolling 30-Day Geometric Mean Results					
	Enterococci	612	601	11	101	2
	Fecal coliforms	612	612	0	101	0
	Total coliforms	612	612	0	101	0

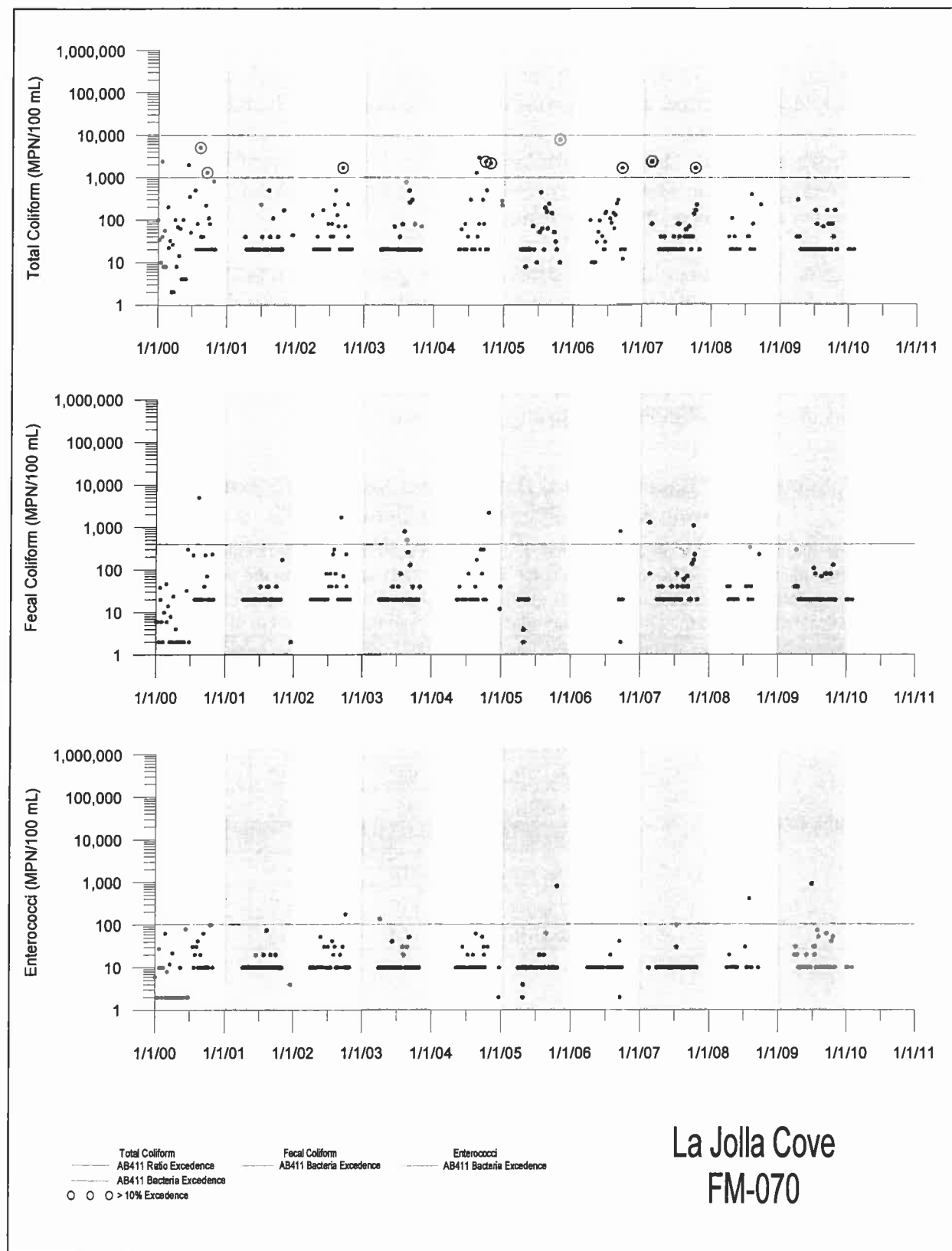


Figure 3-3. Summary of Bacteriological Water Quality Data Collected from the La Jolla Cove (FM-070) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Casa Beach (Children's Pool) EH-310

This site is located just south of Point La Jolla at Children's Pool Beach and is currently listed for enterococci, fecal coliforms, and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through October 2004 (Figure 3-4). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-4. A total of 281 analyses were performed. Of these, fecal coliforms and total coliforms surpassed the single sample limit of 15 exceedances. Fecal coliform and total coliform rolling 30-day geometric means exceeded the allowable limit of 18. These data suggest that enterococci may be eligible for delisting at the Children's Pool site, whereas fecal coliforms and total coliforms may not be eligible for delisting at this time.

Table 3-4. Summary of Bacteriological Data at Casa Beach (Children's Pool) (EH-310) from January 2000 through October 2004

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2004 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Children's Pool	Single Sample Results					
	Enterococci	93	88	5	15	5
	Fecal coliforms	93	38	55	15	59
	Total coliforms	95	63	32	15	34
	Rolling 30-Day Geometric Mean Results					
	Enterococci	114	98	16	18	14
	Fecal coliforms	114	0	114	18	100
	Total coliforms	114	93	21	18	18

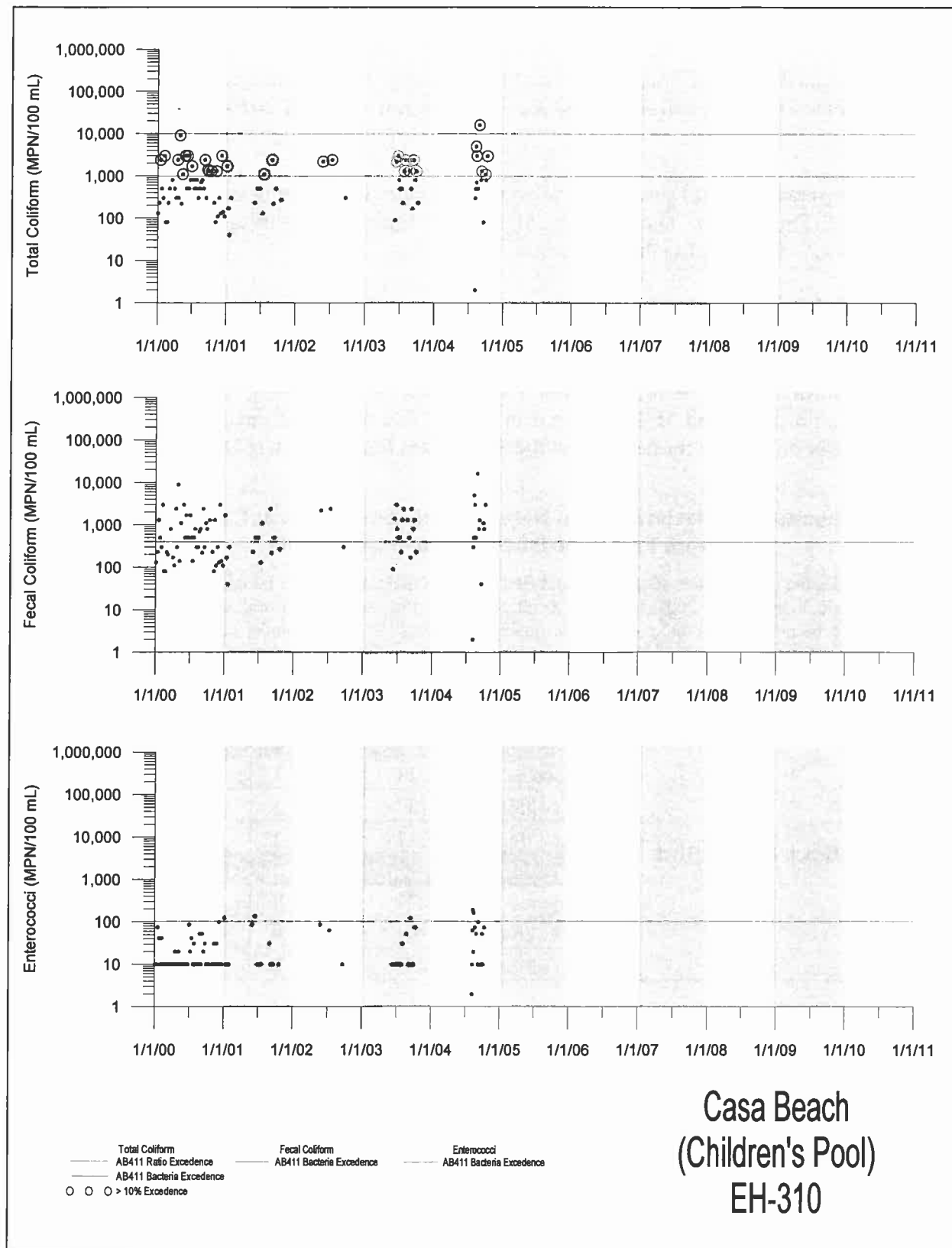


Figure 3-4. Summary of Bacteriological Water Quality Data Collected from the Casa Beach (Children's Pool) (EH-310) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: South Casa Beach at Coast Blvd. (EH-305)

This site is located south of Point La Jolla at the southern end of Casa Beach and is currently listed for enterococci, fecal coliforms, and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from February 2001 through October 2009 (Figure 3-5). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-5. A total of 632 analyses were performed. None of the indicator bacteria surpassed the single sample limit of 36 exceedances for enterococci and total coliforms and 30 exceedances for fecal coliforms. None of the indicator bacteria had rolling 30-day geometric means that exceeded the allowable limit of 47. These data suggest that total coliforms, fecal coliforms, and enterococci may be eligible for delisting at the South Casa Beach at Coast Blvd site at this time.

Table 3-5. Summary of Bacteriological Data at South Casa Beach at Coast Blvd. (EH-305) from February 2001 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2001 to 2009 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
South Casa Beach at Coast Blvd.	Single Sample Results					
	Enterococci	223	219	4	36	2
	Fecal coliforms	187	185	2	30	1
	Total coliforms	222	220	2	36	1
	Rolling 30-Day Geometric Mean Results					
	Enterococci	284	284	0	47	0
	Fecal coliforms	284	284	0	47	0
	Total coliforms	284	284	0	47	0

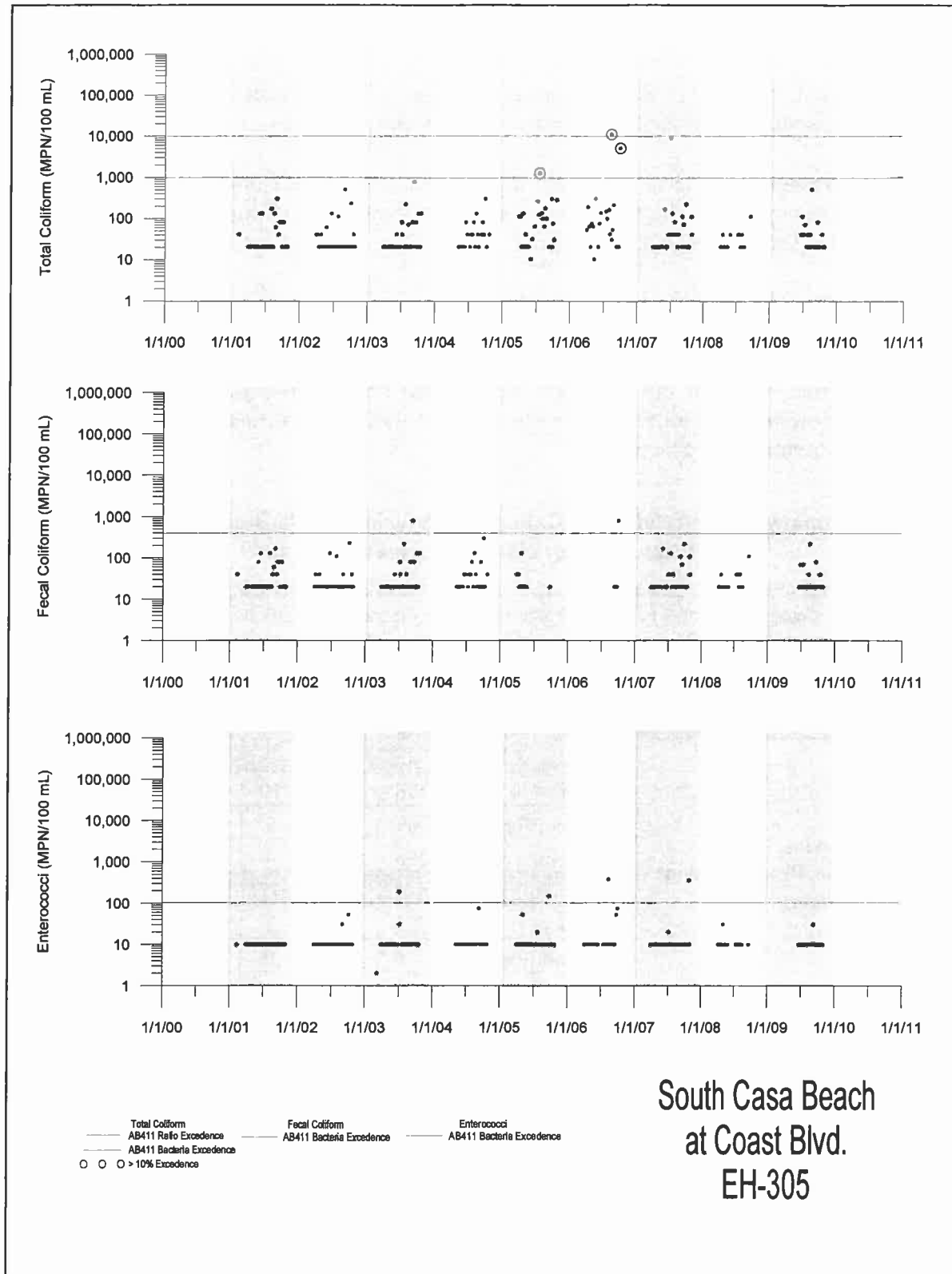


Figure 3-5. Summary of Bacteriological Water Quality Data Collected from the South Casa Beach at Coast Boulevard (EH-305) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Ravina (Whispering Sands Beach at Ravina Street) (EH-300)

This site is located south of Nicholson Point in La Jolla at Ravina Street and is currently listed for total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through October 2009 (Figure 3-6). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-6. A total of 859 analyses were performed. None of the indicator bacteria surpassed the single sample limit of 49 exceedances for enterococci and total coliforms and 44 exceedances for fecal coliforms. None of the indicator bacteria had rolling 30-day geometric means that exceeded the allowable limit of 95. These data suggest that total coliforms may be eligible for delisting at the Ravina site at this time.

Table 3-6. Summary of Bacteriological Data at Whispering Sands Beach at Ravina St. (EH-300) from January 2000 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2009 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Ravina (Whispering Sands Beach at Ravina Street)	Single Sample Results					
	Enterococci	296	286	10	49	3
	Fecal coliforms	267	262	5	44	2
	Total coliforms	296	292	4	49	1
	Rolling 30-Day Geometric Mean Results					
	Enterococci	579	576	3	95	1
	Fecal coliforms	579	579	0	95	0
	Total coliforms	579	577	2	95	0

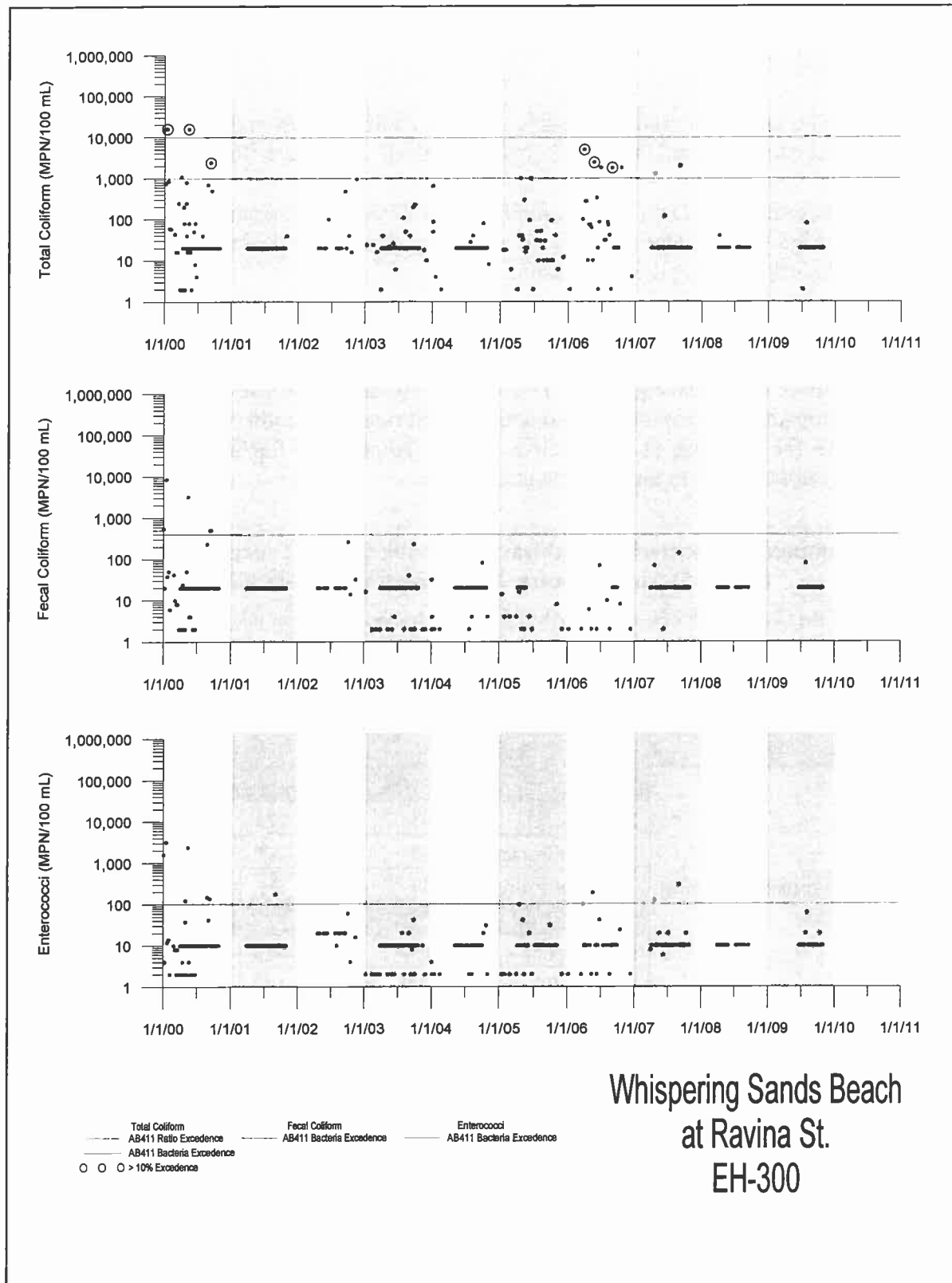


Figure 3-6. Summary of Bacteriological Water Quality Data Collected from the Whispering Sands Beach at Ravina Street (EH-300) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Pacific Beach, Tourmaline Surfing Park, San Diego, at Pacific Beach Point (EH-255)

This site is located at the Tourmaline Surfing Park in Pacific Beach and is currently listed for enterococci, fecal coliforms, and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through October 2009 (Figure 3-7). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-7. A total of 1,436 analyses were performed. Of these, enterococci surpassed the single sample limit of 83 exceedances. The rolling 30-day geometric mean for enterococci exceeded the allowable limit of 248. These data suggest that fecal coliforms and total coliforms may be eligible for delisting at the Pacific Beach, Tourmaline Surfing Park site, whereas enterococci may not be eligible for delisting at this time.

Table 3-7. Summary of Bacteriological Data at Pacific Beach, Tourmaline Surfing Park (EH-255) from January 2000 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2009 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Pacific Beach, Tourmaline Surfing Park	Single Sample Results					
	Enterococci	505	384	121	83	24
	Fecal coliforms	472	415	57	78	12
	Total coliforms	459	428	31	76	7
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,499	734	765	248	51
	Fecal coliforms	1,499	1,372	127	248	8
	Total coliforms	1,499	1,459	40	248	3

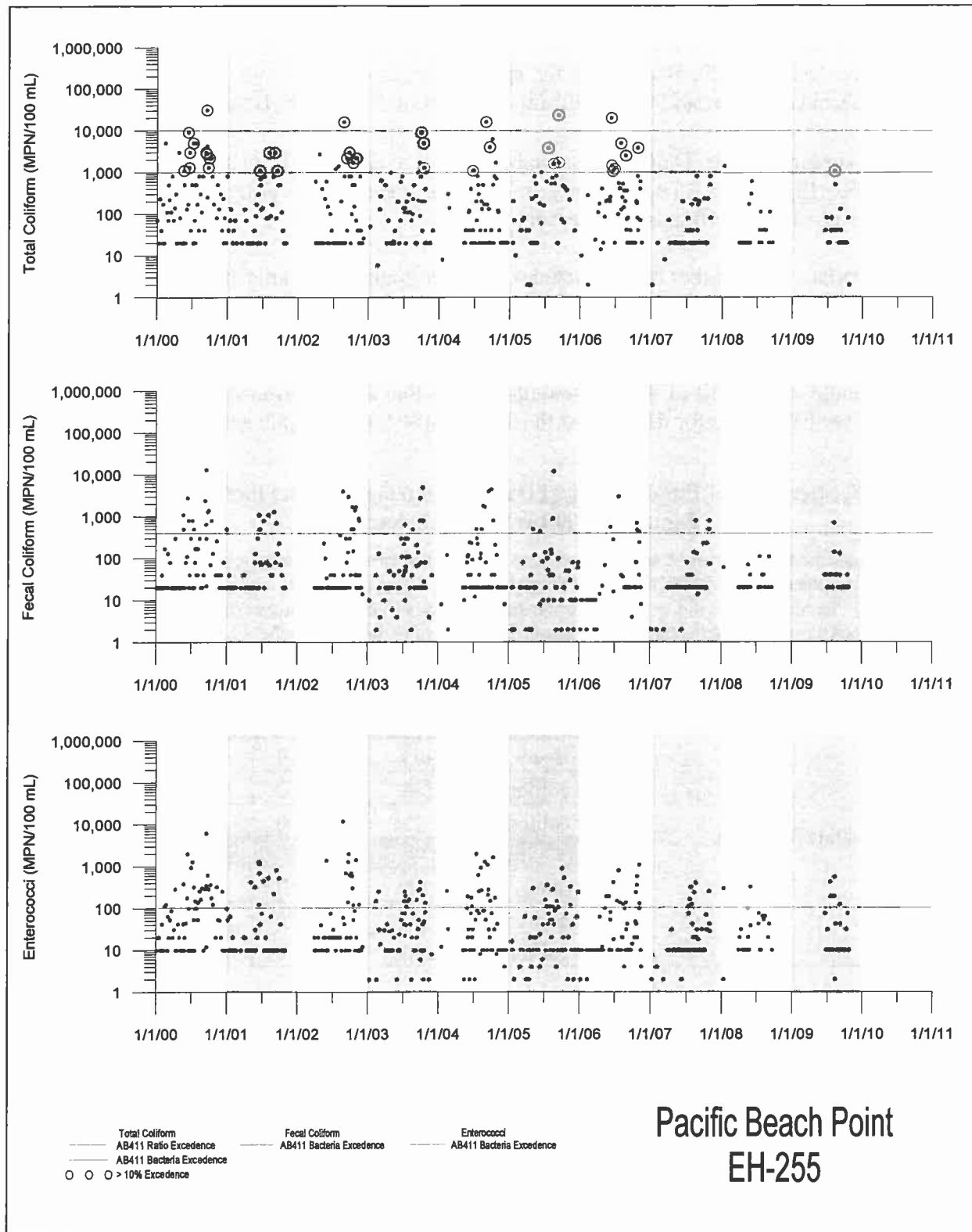


Figure 3-7. Summary of Bacteriological Water Quality Data Collected from the Pacific Beach Point (EH-255) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Tourmaline Surf Park (FM-030)

This site is located in Pacific Beach near the end of Turquoise Street and is currently listed for enterococci, fecal coliforms, and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through February 2010 (Figure 3-8). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-8. A total of 874 analyses were performed. None of the indicator bacteria surpassed the single sample limit of 50 exceedances for enterococci and total coliforms and 43 exceedances for fecal coliforms. None of the indicator bacteria had rolling 30-day geometric means that exceeded the allowable limit of 83. These data suggest that fecal coliforms, total coliforms, and enterococci may be eligible for delisting at the Tourmaline Surf Park site at this time.

Table 3-8. Summary of Bacteriological Data at Tourmaline Surf Park (FM-030) from January 2000 through February 2010

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Tourmaline Surf Park	Single Sample Results					
	Enterococci	306	297	9	50	3
	Fecal coliforms	263	261	2	43	1
	Total coliforms	305	305	0	50	0
	Rolling 30-Day Geometric Mean Results					
	Enterococci	505	465	40	83	8
	Fecal coliforms	505	505	0	83	0
	Total coliforms	505	505	0	83	0

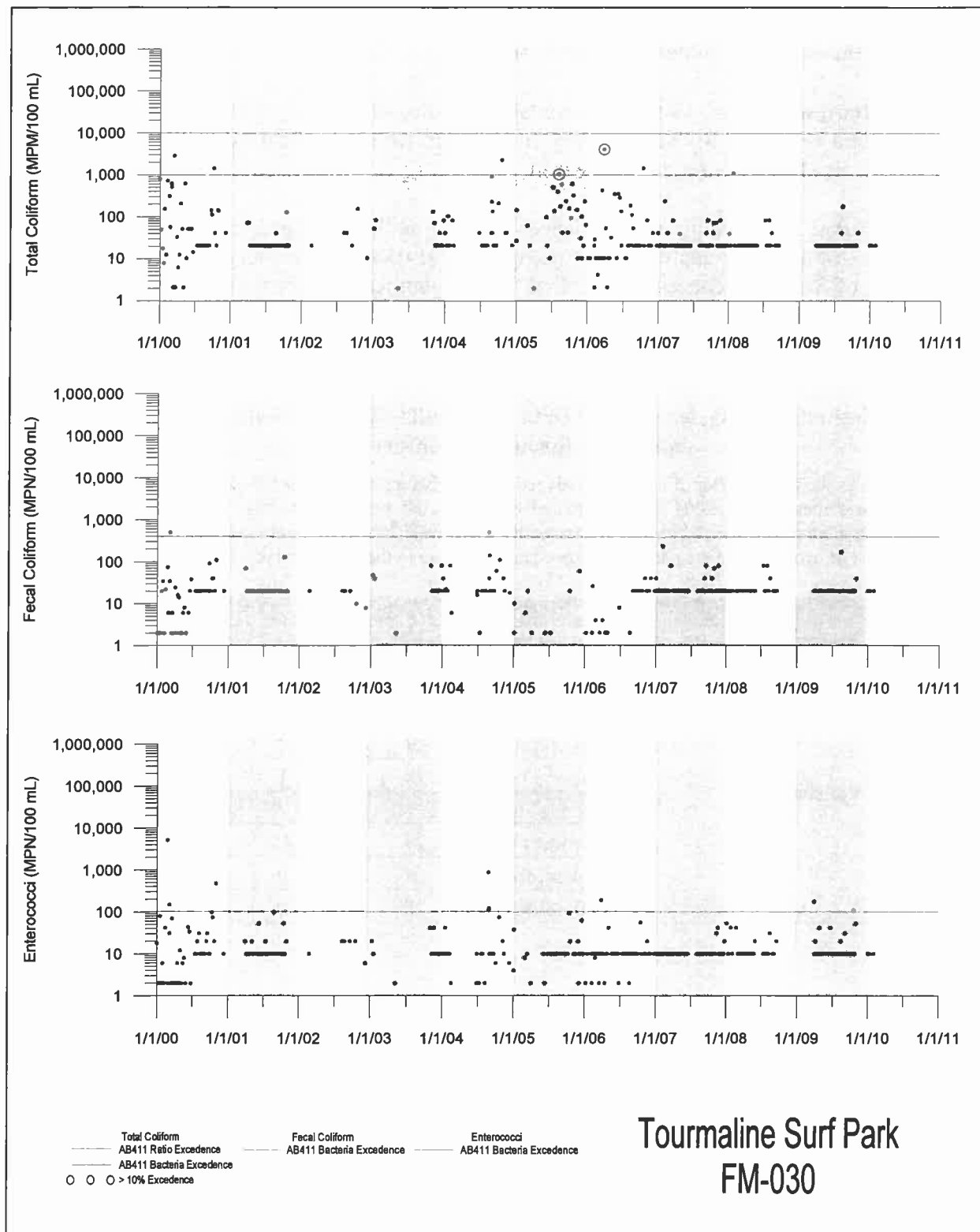


Figure 3-8. Summary of Bacteriological Water Quality Data Collected from the Tourmaline Surf Park (FM-30) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: La Jolla Shores at Vallecitos (EH-320)

This site is located at La Jolla Shores Beach at Vallecitos Street and is currently listed for total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from April 2001 through December 2008 (Figure 3-9). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-9. A total of 87 analyses were performed. Of these, enterococci surpassed the single sample limit of four exceedances. The rolling 30-day geometric mean for enterococci exceeded the allowable limit of four. These data suggest that total coliforms may be eligible for delisting at the La Jolla Shores at Vallecitos site at this time.

Table 3-9. Summary of Bacteriological Data at La Jolla Shores at Vallecitos (EH-320) from April 2001 through December 2008

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2001 to 2008 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Vallecitos	Single Sample Results					
	Enterococci	29	23	6	4	21
	Fecal coliforms	29	27	2	4	7
	Total coliforms	28	27	1	4	4
	Rolling 30-Day Geometric Mean Results					
	Enterococci	26	0	26	4	100
	Fecal coliforms	26	26	0	4	0
	Total coliforms	26	26	0	4	0

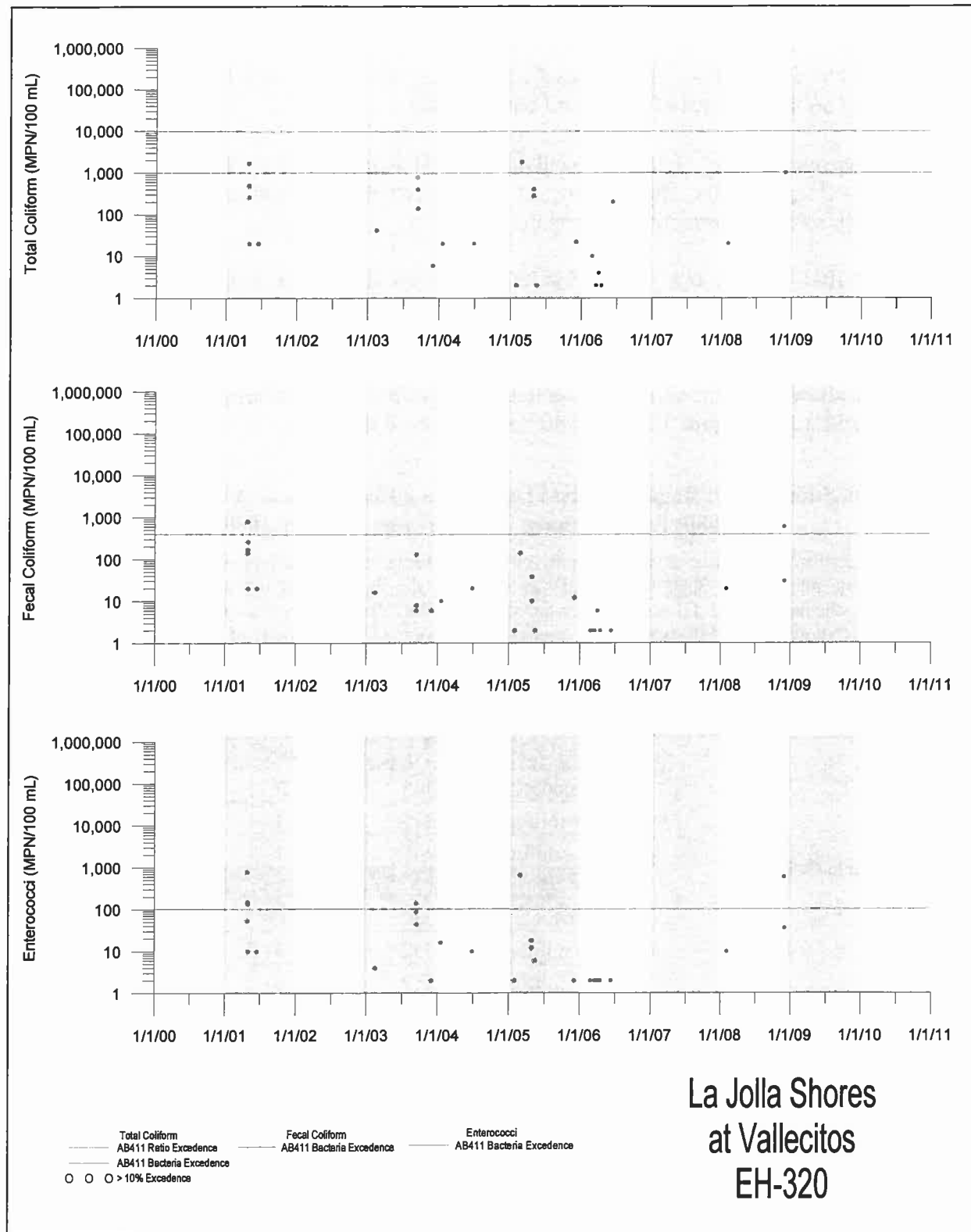


Figure 3-9. Summary of Bacteriological Water Quality Data Collected from the La Jolla Shores at Vallecitos (EH-320) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: La Jolla Shores at Avenue de La Playa (FM-080)

This site is located at La Jolla Shores Beach at Avenue de La Playa and is currently listed for total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through October 2009 (Figure 3-10). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-10. A total of 985 analyses were performed. None of the indicator bacteria surpassed the single sample limit of 57 exceedances for enterococci and total coliforms and 48 exceedances for fecal coliforms. None of the indicator bacteria had rolling 30-day geometric means that exceeded the allowable limit of 124. These data suggest that total coliforms may be eligible for delisting at the La Jolla Shores at Avenue de La Playa site at this time.

Table 3-10. Summary of Bacteriological Data at La Jolla Shores at Avenue De La Playa (FM-080) from January 2000 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2009 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Avenida de la Playa	Single Sample Results					
	Enterococci	345	319	26	57	8
	Fecal coliforms	295	291	4	48	1
	Total coliforms	345	341	4	57	1
	Rolling 30-Day Geometric Mean Results					
	Enterococci	752	663	89	124	12
	Fecal coliforms	752	752	0	124	0
	Total coliforms	752	746	6	124	1

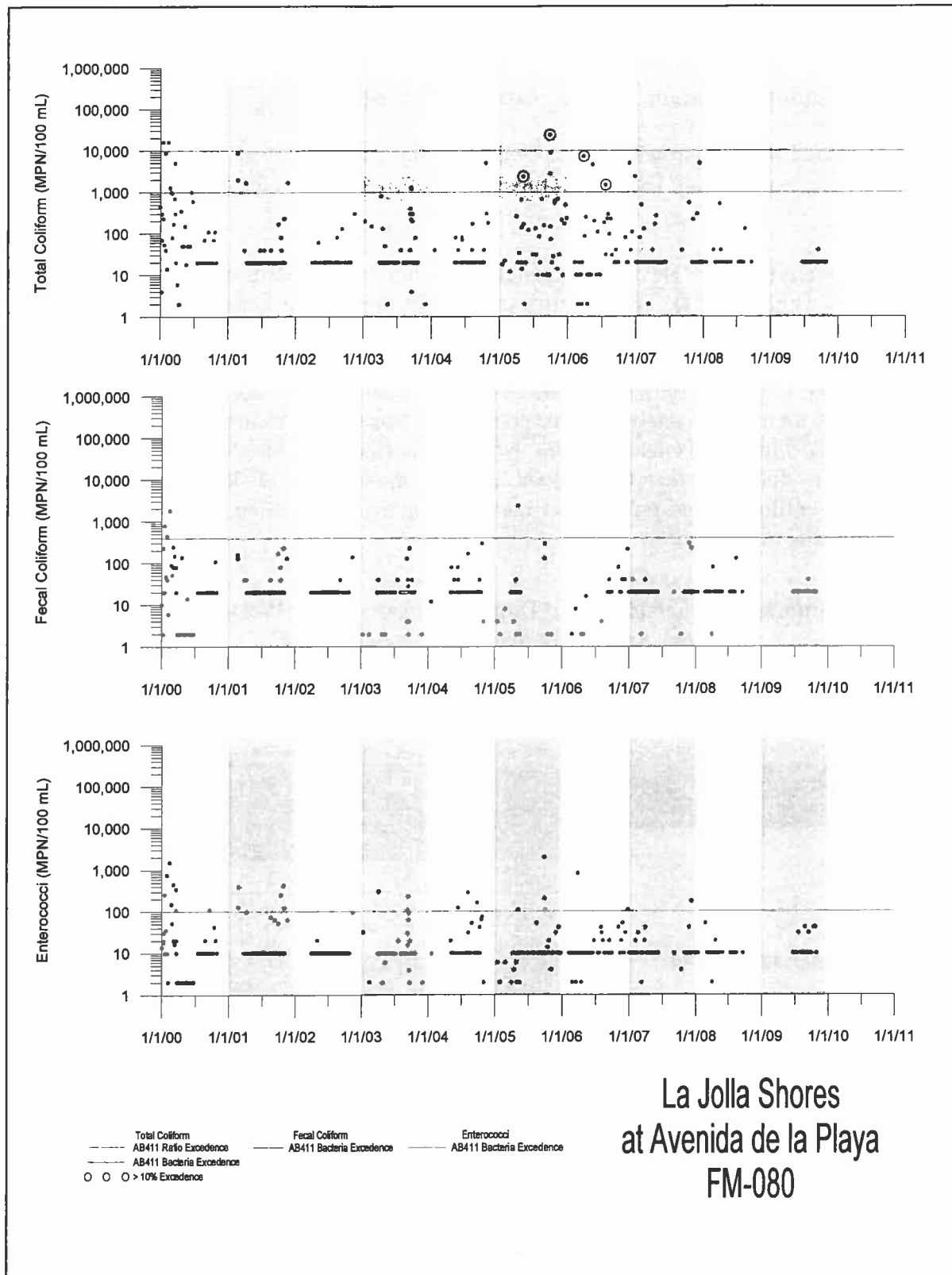


Figure 3-10. Summary of Bacteriological Water Quality Data Collected from the La Jolla Shores at Avenida De La Playa (FM-080) Monitoring Site from January 2000 through February 2010

3.2.3 Mission Bay Shoreline

Waterbody Sampling Location: De Anza Cove (western shore) (EH-227)

This site is located on the northeast side of Mission Bay on the west of De Anza Cove and is currently listed for enterococci, fecal coliforms, and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from April 2000 through November 2007 (Figure 3-11). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-11. A total of 111 analyses were performed. None of the indicator bacteria surpassed the single sample limit of six exceedances. None of the indicator bacteria had rolling 30-day geometric means that exceeded the allowable limit of nine. These data suggest that fecal coliforms, total coliforms, and enterococci may be eligible for delisting at the De Anza Cove (western shore) site at this time.

Table 3-11. Summary of Bacteriological Data at De Anza Cove (Western Shore) (EH-227) from April 2000 through November 2007

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2007 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
De Anza Cove, western shore	Single Sample Results					
	Enterococci	37	35	2	6	5
	Fecal coliforms	37	37	0	6	0
	Total coliforms	37	37	0	6	0
	Rolling 30-Day Geometric Mean Results					
	Enterococci	59	56	3	9	5
	Fecal coliforms	59	59	0	9	0
	Total coliforms	59	59	0	9	0

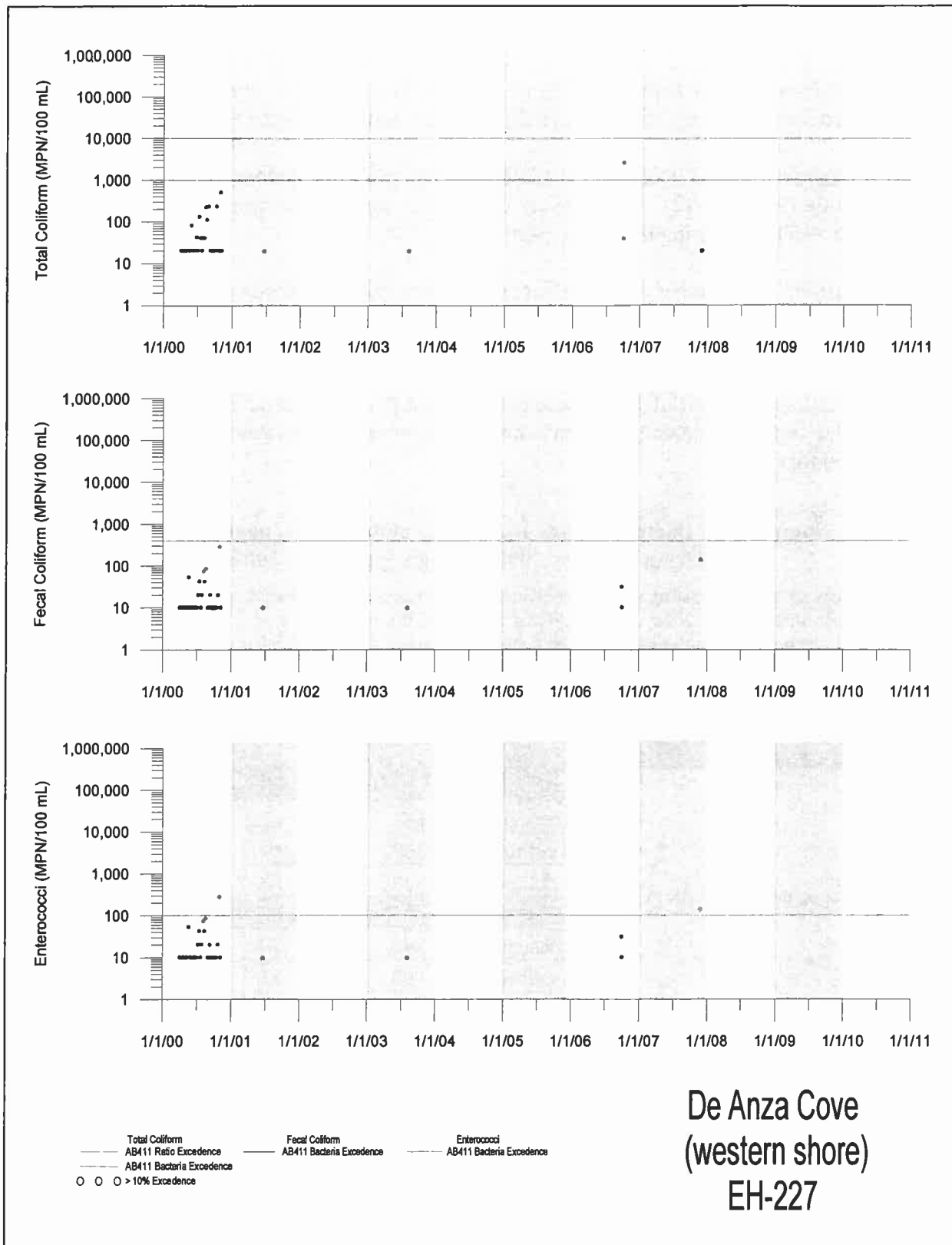


Figure 3-11. Summary of Bacteriological Water Quality Data Collected from the De Anza Cove (Western Shore) (EH-227) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Tecolote Shores, near storm drain (MB-040)

This site is located on the southeast side of Mission Bay, south of the Hilton Hotel and is currently listed for enterococci and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through September 2008 (Figure 3-12). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-12. A total of 989 analyses were performed. None of the indicator bacteria surpassed the single sample limit of 56 exceedances for enterococci, 50 exceedances for fecal coliforms, and 55 exceedances for total coliforms. The rolling 30-day geometric mean for enterococci exceeded the allowable limit of 131. These data suggest that total coliforms may be eligible for delisting at the Tecolote Shores (near storm drain) site, whereas enterococci may not be eligible for delisting at this time.

Table 3-12. Summary of Bacteriological Data at Tecolote Shores, near Storm Drain (MB-040) from January 2000 through September 2008

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2008 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Tecolote Shores, near storm drain	Single Sample Results					
	Enterococci	344	298	46	56	13
	Fecal coliforms	307	289	18	50	6
	Total coliforms	338	324	14	55	4
	Rolling 30-Day Geometric Mean Results					
	Enterococci	790	526	264	131	33
	Fecal coliforms	790	778	12	131	2
	Total coliforms	790	759	31	131	4

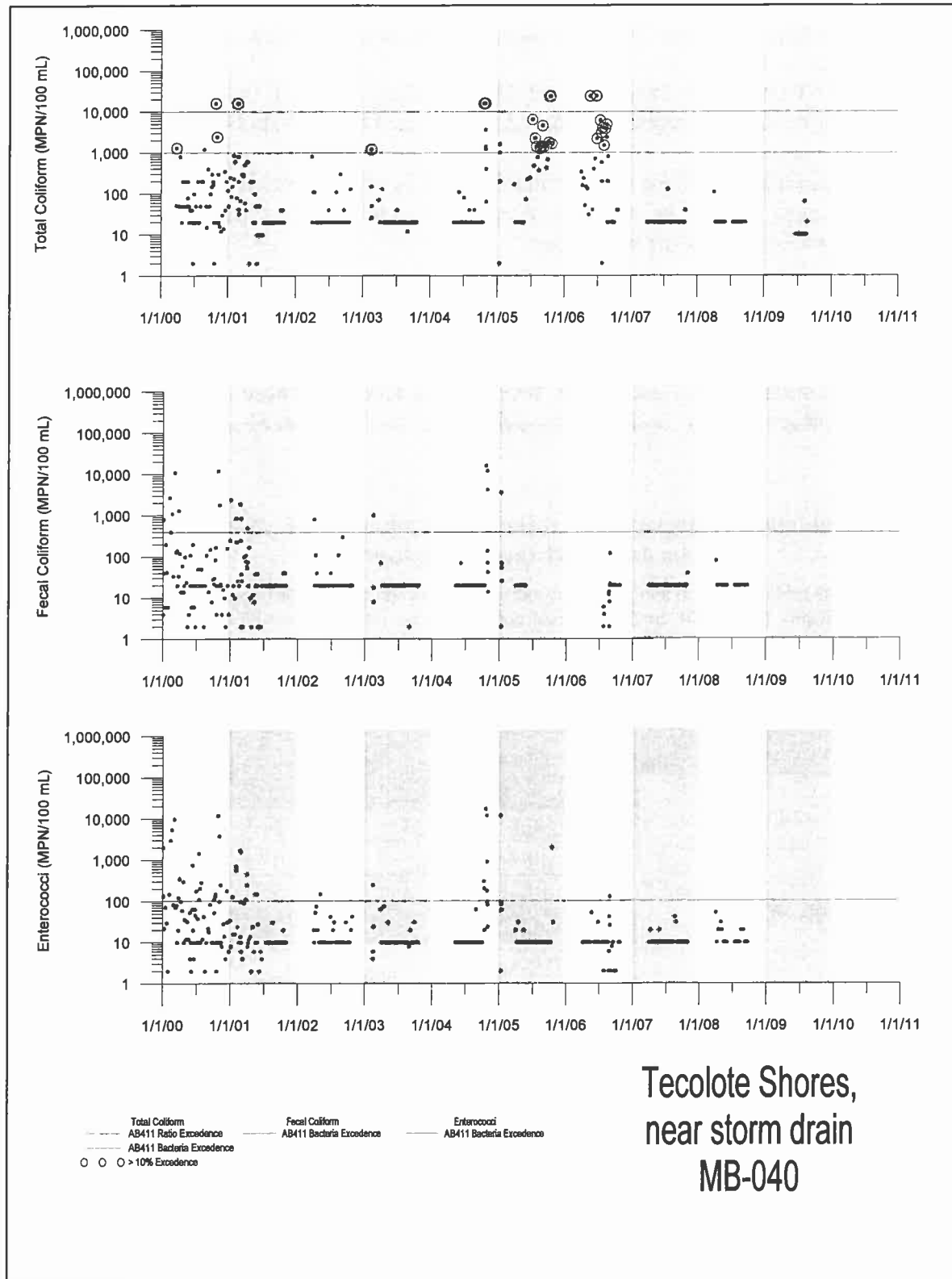


Figure 3-12. Summary of Bacteriological Water Quality Data Collected from the Tecolote Shores, near Storm Drain (MB-040) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Tecolote Shores, swim area (MB-041)

This site is located on the southeast side of Mission Bay, south of the Hilton Hotel and is currently listed for enterococci and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from June 2001 through October 2009 (Figure 3-13). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-13. A total of 76 analyses were performed. None of the indicator bacteria surpassed the single sample limit of four exceedances. The minimum sample size requirement was not met for the 30-day geometric mean, and it was therefore not reported. These data suggest that total coliforms and enterococci may be eligible for delisting at the Tecolote Shores (swim area) site at this time.

Table 3-13. Summary of Bacteriological Data at Tecolote Shores, Swim Area (MB-041) from June 2001 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2001 to 2009 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Tecolote Shores swim area	Single Sample Results					
	Enterococci	25	23	2	4	8
	Fecal coliforms	25	25	0	4	0
	Total coliforms	26	26	0	4	0
	Rolling 30-Day Geometric Mean Results					
	Enterococci	Not Applicable – Minimum Sample Requirements Not Met				
	Fecal coliforms					
	Total coliforms					

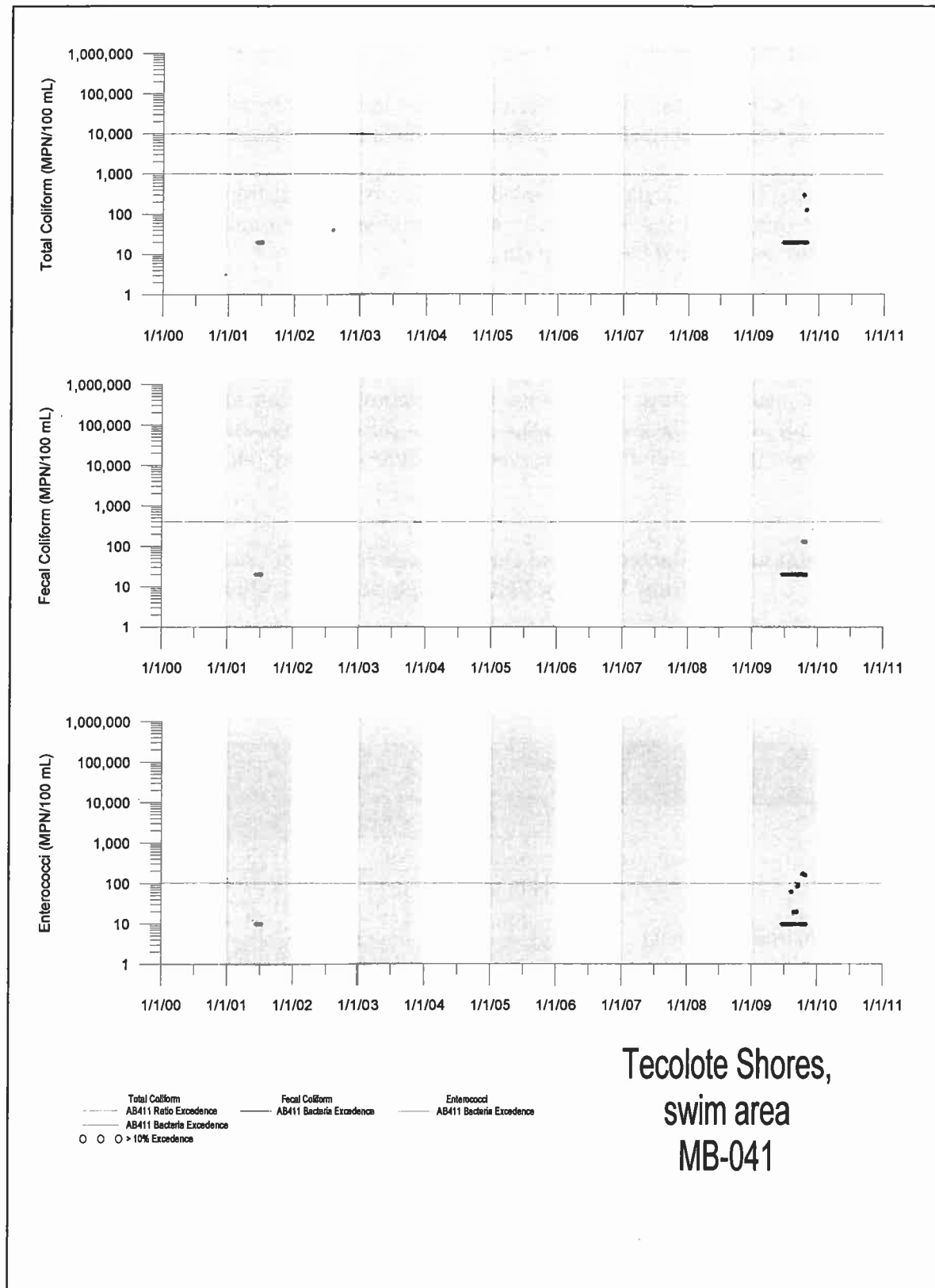


Figure 3-13. Summary of Bacteriological Water Quality Data Collected from the Tecolote Shores, Swim Area (MB-041) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Leisure Lagoon near storm drain (MB-050)

This site is located on the east side of Mission Bay on the east side of Leisure Lagoon and is currently listed for enterococci and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through September 2008 (Figure 3-14). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-14. A total of 1,039 analyses were performed. None of the indicator bacteria surpassed the single sample limit of 59 exceedances for enterococci and total coliforms and 53 exceedances for fecal coliforms. The rolling 30-day geometric mean for enterococci exceeded the allowable limit of 162. These data suggest that total coliforms may be eligible for delisting at the Leisure Lagoon (near storm drain) site, whereas enterococci may not be eligible for delisting at this time.

Table 3-14. Summary of Bacteriological Data at Leisure Lagoon, near Storm Drain (MB-050) from January 2000 through September 2008

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2008 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Leisure Lagoon, near storm drain	Single Sample Results					
	Enterococci	360	327	33	59	9
	Fecal coliforms	322	305	17	53	5
	Total coliforms	357	345	12	59	3
	Rolling 30-Day Geometric Mean Results					
	Enterococci	978	749	229	162	23
	Fecal coliforms	978	956	22	162	2
	Total coliforms	978	955	23	162	2

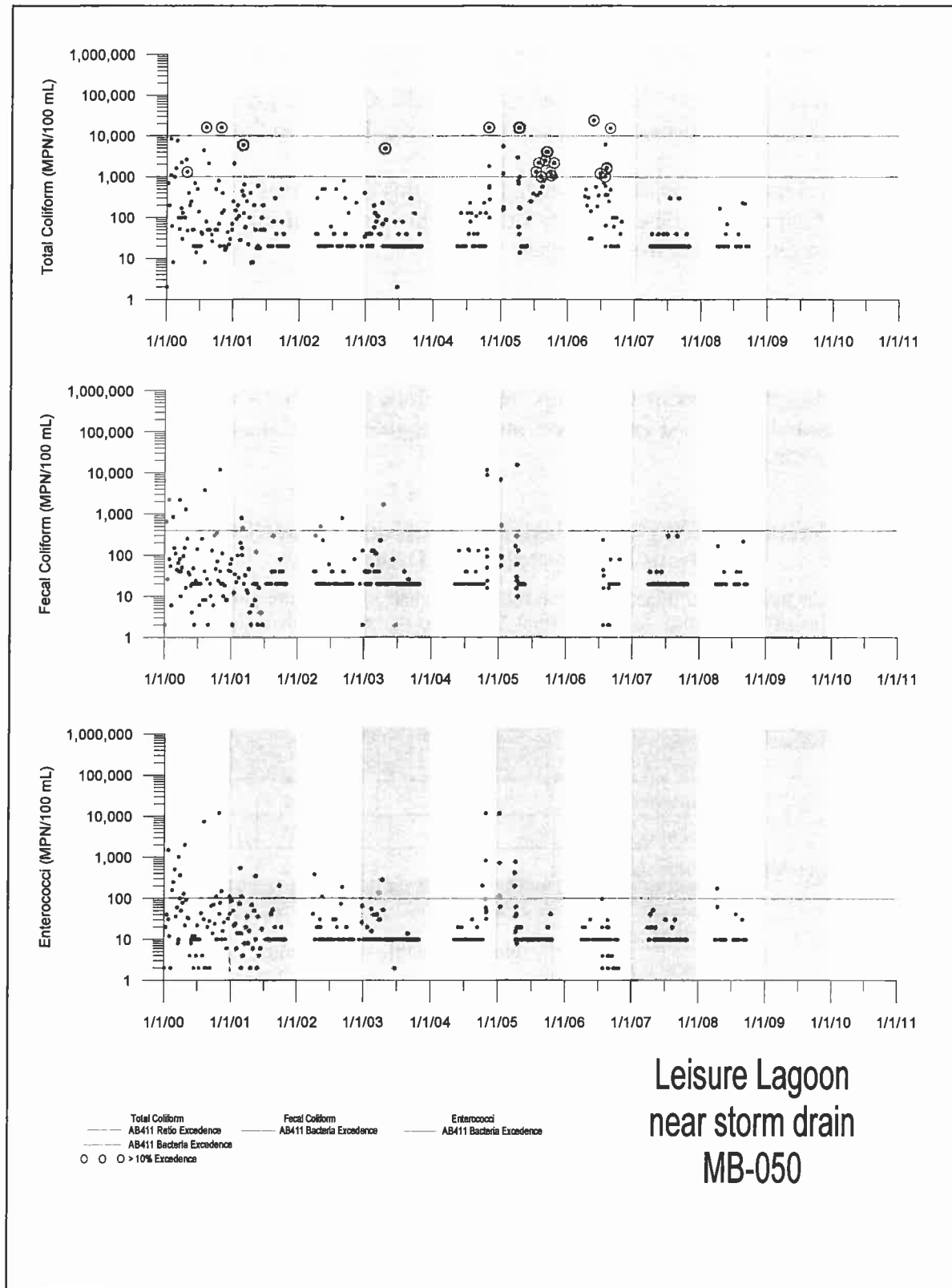


Figure 3-14. Summary of Bacteriological Water Quality Data Collected from the Leisure Lagoon near Storm Drain (MB-050) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Leisure Lagoon Swim Area (MB-051)

This site is located on the east side of Mission Bay on the northeast side of Leisure Lagoon and is currently listed for enterococci and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from June 2001 through October 2009 (Figure 3-15). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-15. A total of 105 analyses were performed. None of the indicator bacteria surpassed the single sample limit of five exceedances. The minimum sample size requirements were not met for the 30-day rolling geometric mean, and therefore no results were reported. These data suggest that total coliforms and enterococci may be eligible for delisting at the Leisure Lagoon Swim Area site at this time.

Table 3-15. Summary of Bacteriological Data at Leisure Lagoon Swim Area (MB-051) from June 2001 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2001 to 2009 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Leisure Lagoon swim area	Single Sample Results					
	Enterococci	35	35	0	5	0
	Fecal coliforms	35	35	0	5	0
	Total coliforms	35	35	0	5	0
	Rolling 30-Day Geometric Mean Results					
	Enterococci	Not Applicable – Minimum Sample Requirements Not Met				
	Fecal coliforms					
	Total coliforms					

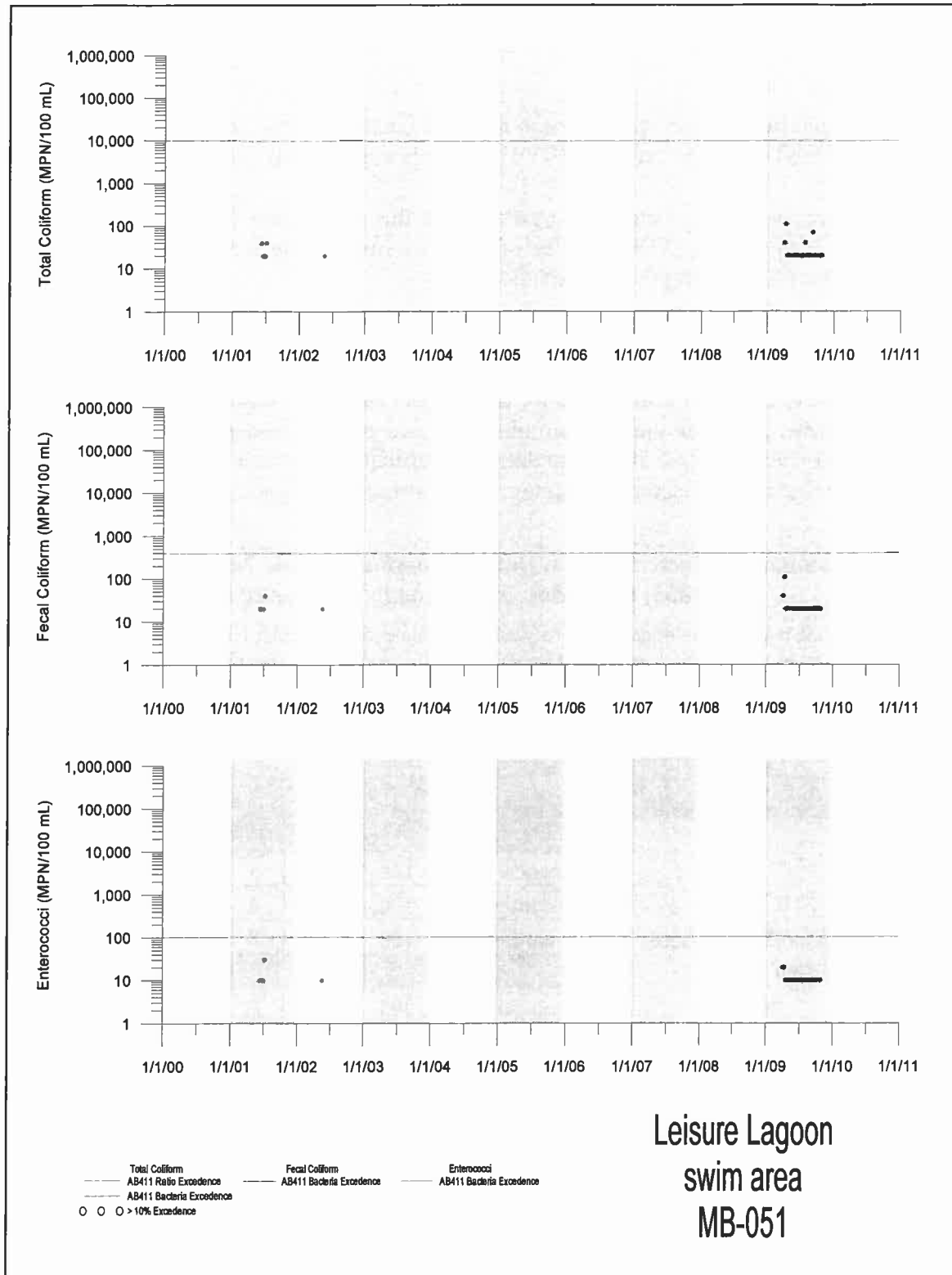


Figure 3-15. Summary of Bacteriological Water Quality Data Collected from the Leisure Lagoon Swim Area (MB-051) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Leisure Lagoon at Comfort Station, North of Leisure Lagoon (MB-053)

This site is located just at the comfort station north of Leisure Lagoon and is currently listed for enterococci and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from May 2004 through October 2009 (Figure 3-16). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-16. A total of 466 analyses were performed. None of the indicator bacteria surpassed the single sample limit of 27 exceedances for enterococci and total coliforms and 21 exceedances for fecal coliforms. None of the indicator bacteria had rolling 30-day geometric means that exceeded the allowable limit of 50. These data suggest that enterococci and total coliforms may be eligible for delisting at the Comfort Station, North of Leisure Lagoon site, at this time.

Table 3-16. Summary of Bacteriological Data at Comfort Station, North of Leisure Lagoon (MB-053) from May 2004 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2004 to 2009 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Comfort Station, north of Leisure Lagoon	Single Sample Results					
	Enterococci	168	163	5	27	3
	Fecal coliforms	130	126	4	21	3
	Total coliforms	168	160	8	27	5
	Rolling 30-Day Geometric Mean Results					
	Enterococci	305	284	21	50	7
	Fecal coliforms	305	291	14	50	5
	Total coliforms	305	273	32	50	10

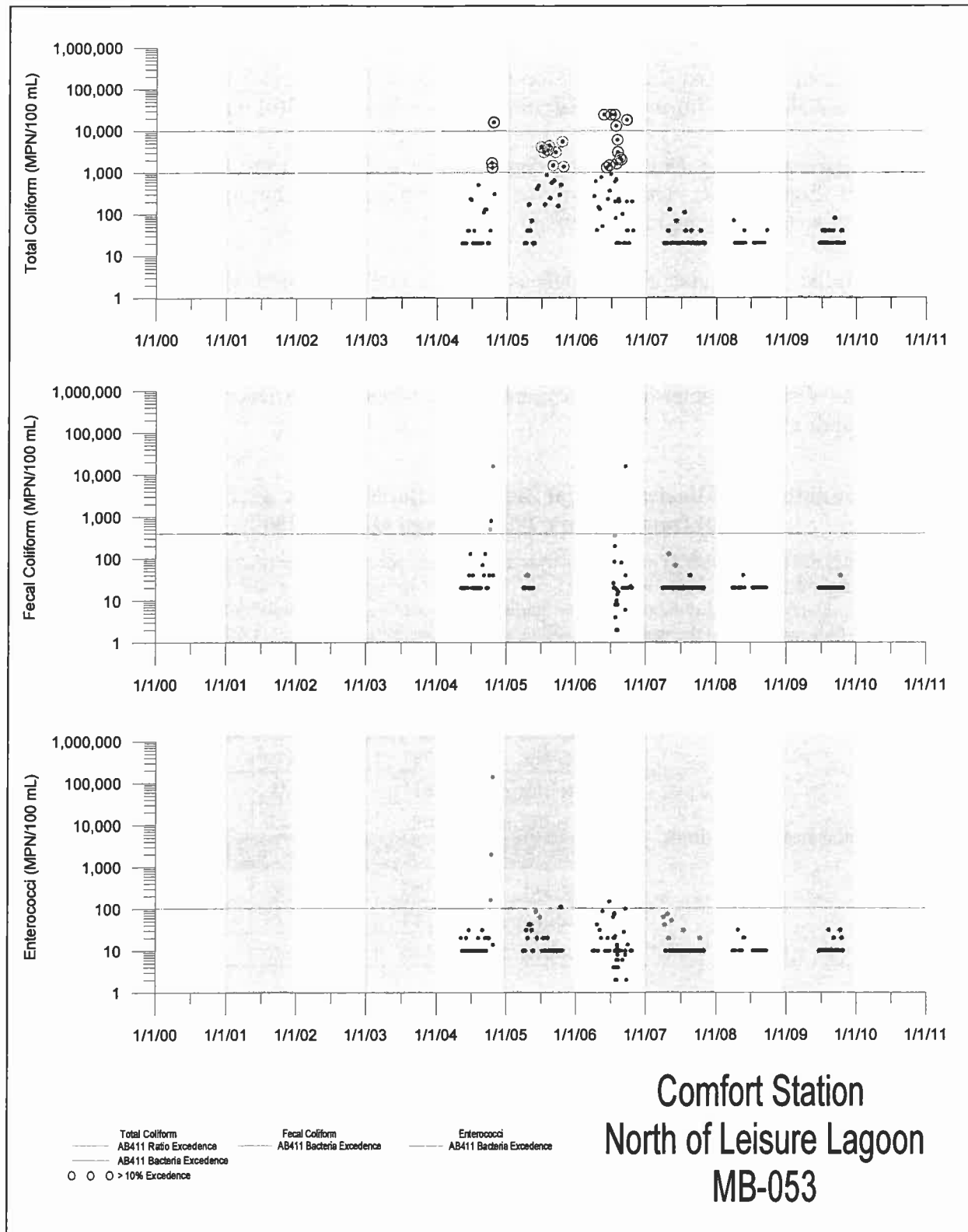


Figure 3-16. Summary of Bacteriological Water Quality Data Collected from the Comfort Station North of Leisure Lagoon (MB-053) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Visitor's Center, near storm drain (MB-060)

This site is located on the east side of Mission Bay north of Cudahy Creek and is currently listed for enterococci and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through October 2009 (Figure 3-17). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-17. A total of 1,457 analyses were performed. Of these, enterococci surpassed the single sample limit of 82 exceedances. The rolling 30-day geometric mean for enterococci exceeded the allowable limit of 246. These data suggest that total coliforms may be eligible for delisting at the Visitor's Center (near storm drain) site, whereas enterococci may not be eligible for delisting at this time.

Table 3-17. Summary of Bacteriological Data at Visitor's Center, near Storm Drain (MB-060) from January 2000 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2009 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Visitor's Center, near storm drain	Single Sample Results					
	Enterococci	498	388	110	82	22
	Fecal coliforms	461	388	73	76	16
	Total coliforms	498	453	45	82	9
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,488	626	862	246	58
	Fecal coliforms	1,488	1265	223	246	15
	Total coliforms	1,488	1422	66	246	4

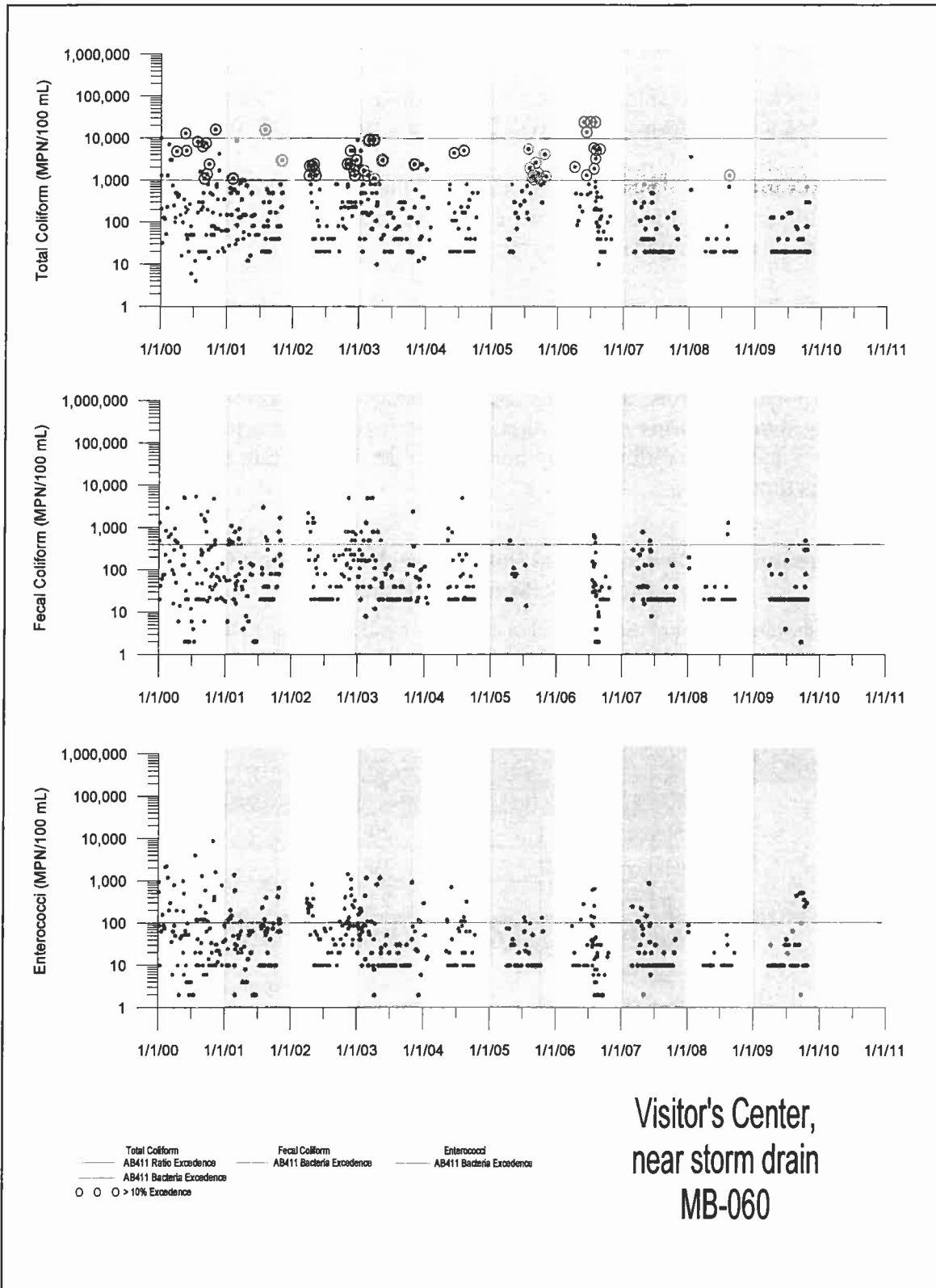


Figure 3-17. Summary of Bacteriological Water Quality Data Collected from the Visitor's Center, near Storm Drain (MB-060) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Beach at Visitor's Center (MB-061)

This site is located on the east side of Mission Bay, north of Cudahy Creek and is currently listed for enterococci and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from June 2001 through October 2002 (Figure 3-18). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-18. A total of 81 analyses were performed. Of these, enterococci and fecal coliforms surpassed the single sample limit of four exceedances. The rolling 30-day geometric means for fecal coliforms, total coliforms, and enterococci exceeded the allowable limit of three. These data suggest that total coliforms may be eligible for delisting at the Beach at Visitor's Center, while enterococci and fecal coliforms may not be eligible for delisting at the Beach at Visitor's Center site at this time.

Table 3-18. Summary of Bacteriological Data at Beach at Visitor's Center (MB-061) from June 2001 through October 2002

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2001 to 2002 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Beach at Visitor's Center	Single Sample Results					
	Enterococci	27	20	7	4	26
	Fecal coliforms	27	19	8	4	30
	Total coliforms	27	23	4	4	15
	Rolling 30-Day Geometric Mean Results					
	Enterococci	Not Applicable – Minimum Sample Requirements Not Met				
	Fecal coliforms					
	Total coliforms					

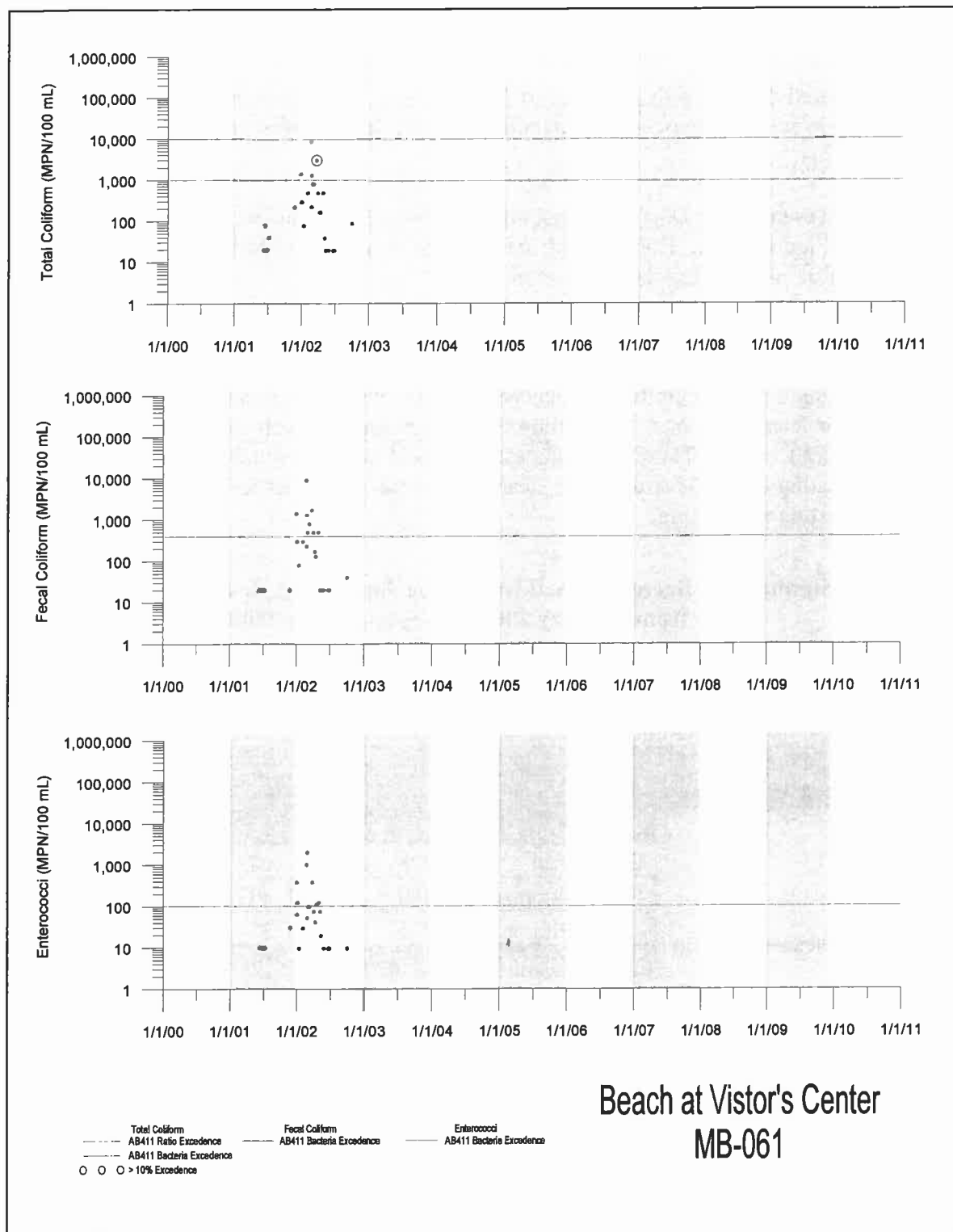


Figure 3-18. Summary of Bacteriological Water Quality Data Collected from the Beach at Visitor's Center (MB-061) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: De Anza Cove, near storm drain (MB-070)

This site is located on the north east side of Mission Bay on the northeast corner of De Anza Cove currently listed for enterococci, fecal coliforms, and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through October 2009 (Figure 3-19). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-19. A total of 1243 analyses were performed. None of the bacteria indicators surpassed the single sample limit of 70 exceedances for enterococci and total coliforms and 64 exceedances for fecal coliforms. The rolling 30-day geometric mean for enterococci exceeded the allowable limit of 204. These data suggest that fecal coliforms and total coliforms may be eligible for delisting at the De Anza Cove, near storm drain site, whereas enterococci may not be eligible for delisting at this time.

Table 3-19. Summary of Bacteriological Data at De Anza Cove, near Storm Drain (MB-070) from January 2000 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
De Anza Cove, near storm drain	Single Sample Results					
	Enterococci	428	360	68	70	16
	Fecal coliforms	390	341	49	64	13
	Total coliforms	425	388	37	70	9
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,232	713	519	204	42
	Fecal coliforms	1,232	1120	112	204	9
	Total coliforms	1,232	1224	8	204	1

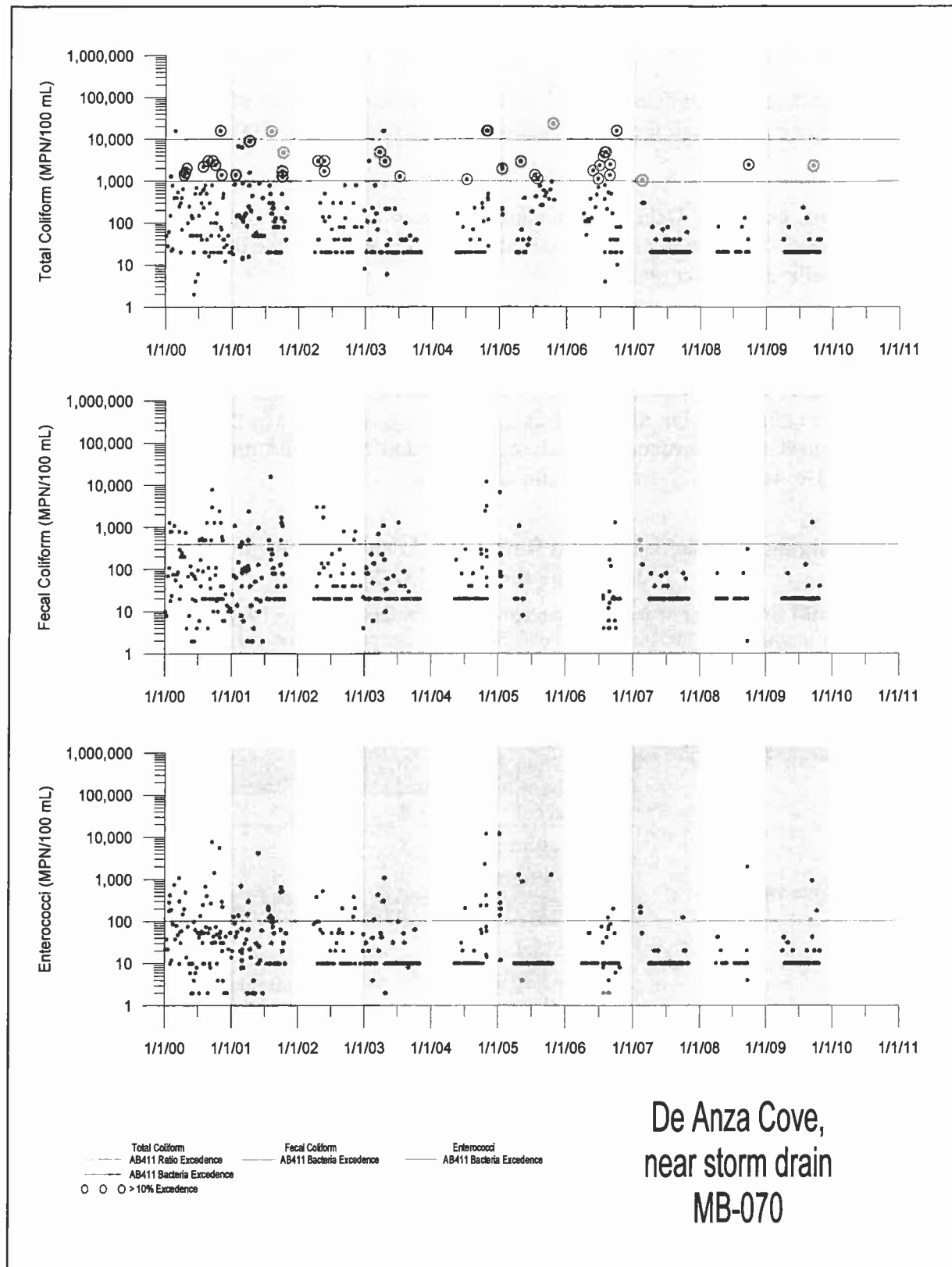


Figure 3-19. Summary of Bacteriological Water Quality Data Collected from the De Anza Cove, near Storm Drain (MB-070) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: De Anza Cove, swim area (MB-071)

This site is located on the east side of Mission Bay on the northwest side of De Anza Cove and is currently listed for enterococci, fecal coliforms, and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from June 2001 through May 2002 (Figure 3-20). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-20. A total of 24 analyses were performed. The single sample limit could not be calculated because sample size was below the minimum of 22. The minimum sample size requirement was not met for the rolling 30-day geometric mean, and was therefore not presented. These data suggest that enterococci, fecal coliforms, and total coliforms may be eligible for delisting at the De Anza Cove, swim area site at this time.

Table 3-20. Summary of Bacteriological Data at De Anza Cove, Swim Area (MB-071) from June 2001 through May 2002

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
De Anza Cove swim area	Single Sample Results					
	Enterococci	8	7	1	NA	13
	Fecal coliforms	8	7	1	NA	13
	Total coliforms	8	7	1	NA	13
	Rolling 30-Day Geometric Mean Results					
	Enterococci	Not Applicable – Minimum Sample Requirements Not Met				
	Fecal coliforms					
	Total coliforms					

NA = sample size below State Board minimum of 22

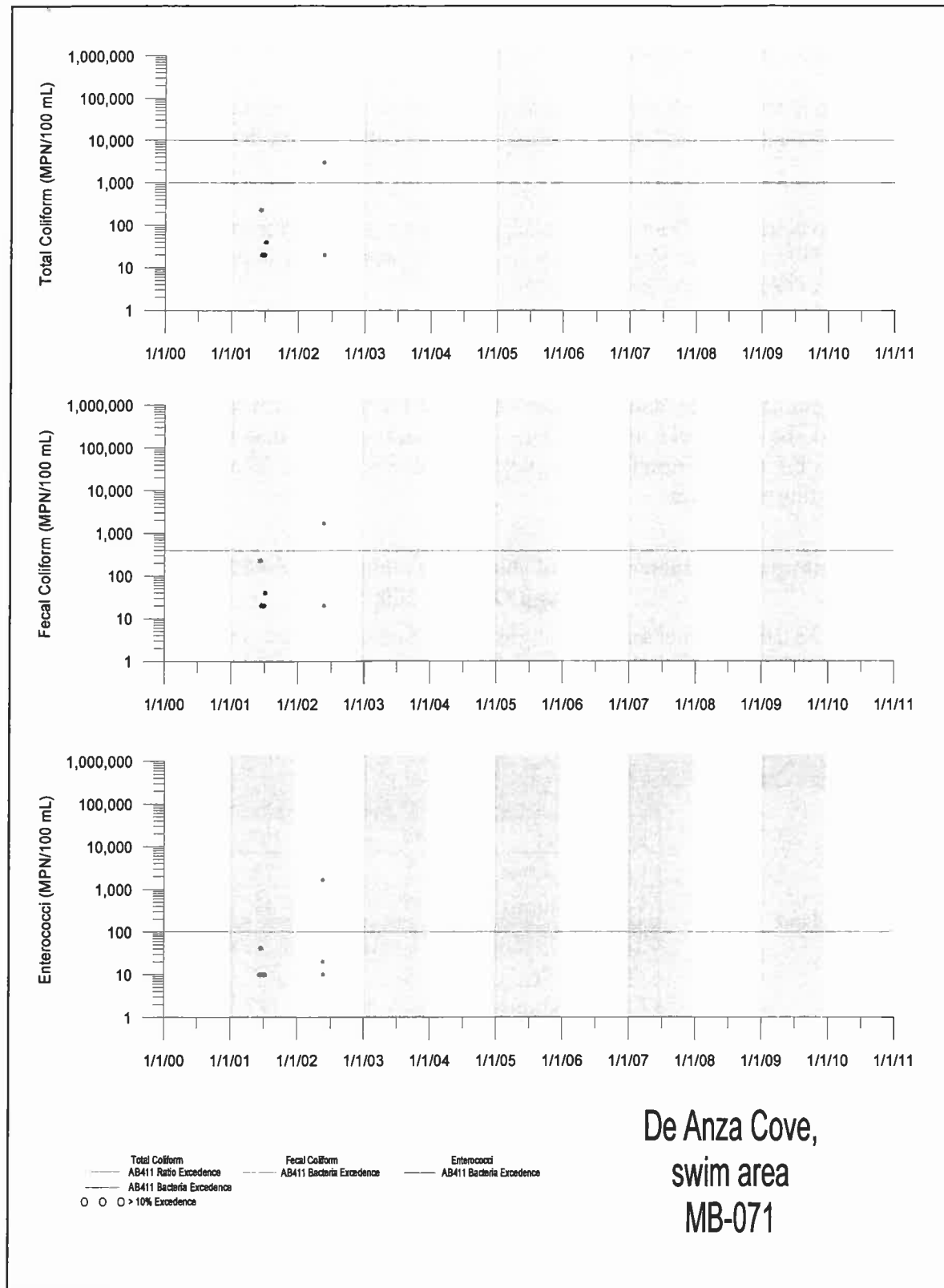


Figure 3-20. Summary of Bacteriological Water Quality Data Collected from the De Anza Cove, Swim Area (MB-071) Monitoring Site from January 1999 through October 2003

Waterbody Sampling Location: Campland (MB-080)

This site is located on the north side of Mission Bay, just west of the mouth of Rose Creek and is currently listed for enterococci, fecal coliforms, and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through October 2009 (Figure 3-21). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-21. A total of 1452 analyses were performed. Of these, enterococci surpassed the single sample limit of 83 exceedances. Enterococcus and fecal coliform rolling 30-day geometric means exceeded the allowable limit of 272. These data suggest that total coliforms may be eligible for delisting at the Campland site, whereas enterococci and fecal coliforms may not be eligible for delisting at this time.

Table 3-21. Summary of Bacteriological Data at Campland (MB-080) from January 2000 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Campland	Single Sample Results					
	Enterococci	501	387	114	83	23
	Fecal coliforms	452	380	72	74	16
	Total coliforms	499	458	41	82	8
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,643	744	899	272	55
	Fecal coliforms	1,643	1,366	277	272	17
	Total coliforms	1,643	1,531	112	272	7

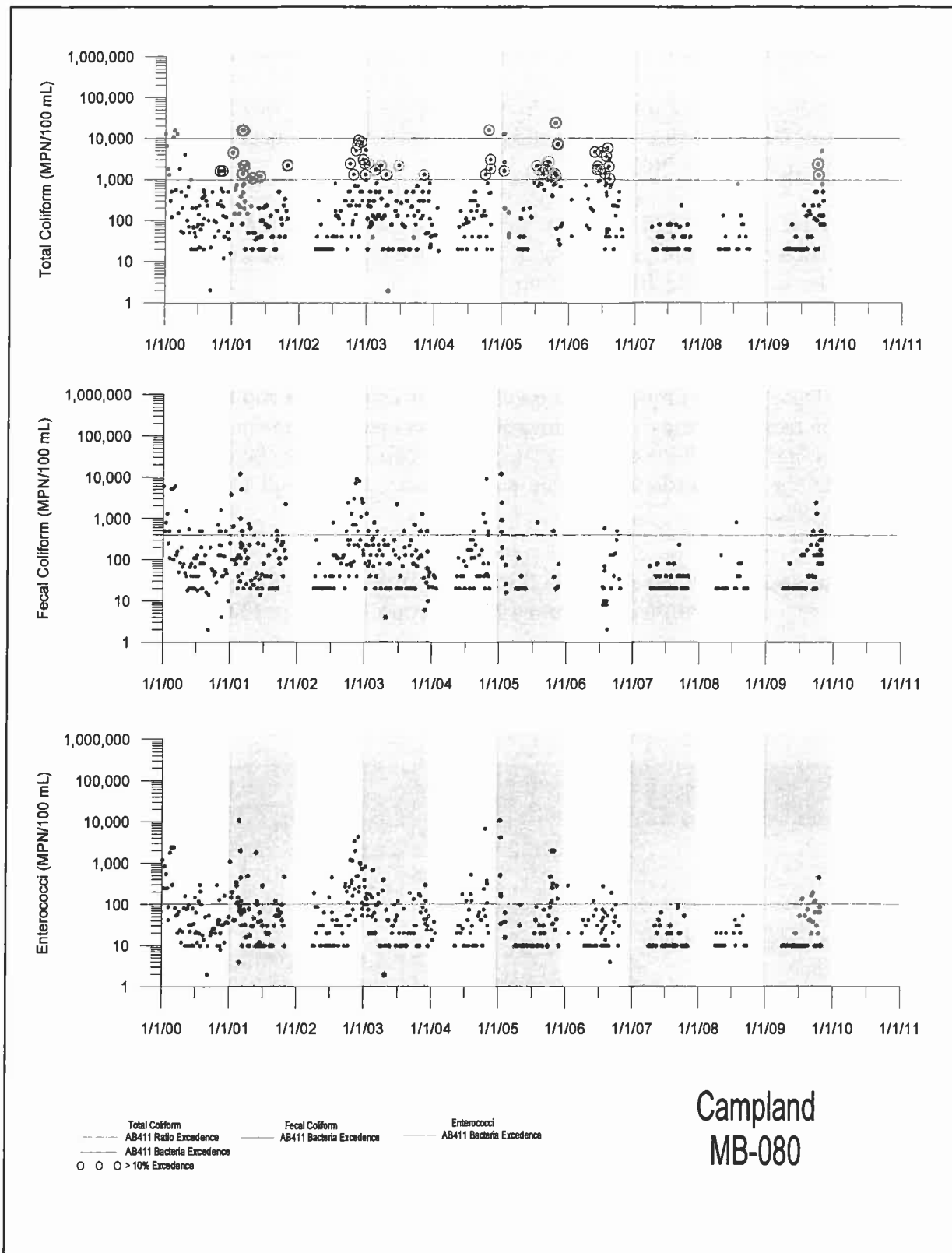


Figure 3-21. Summary of Bacteriological Water Quality Data Collected from the Campland (MB-080) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Wildlife Refuge fence near storm drain (MB-090)

This site is located on the east side of the Crown Point Peninsula in Mission Bay, just south of the Kendall Frost Wildlife Preserve and is currently listed for enterococci and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through October 2009 (Figure 3-22). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-22. A total of 1,118 analyses were performed. None of the bacteria indicators surpassed the single sample limit of 63 exceedances for enterococci and total coliforms and 57 exceedances for fecal coliforms. The rolling 30-day geometric mean for enterococci exceeded the allowable limit of 182. These data suggest that total coliforms may be eligible for delisting at the Wildlife Refuge fence near storm drain site, whereas enterococci may not be eligible for delisting at this time.

Table 3-22. Summary of Bacteriological Data at Wildlife Refuge Fence, near Storm Drain (MB-090) from January 2000 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Wildlife Refuge fence, near storm drain	Single Sample Results					
	Enterococci	386	335	51	63	13
	Fecal coliforms	349	319	30	57	9
	Total coliforms	383	367	16	63	4
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,099	695	404	182	37
	Fecal coliforms	1,099	1,061	38	182	3
	Total coliforms	1,099	1,064	35	182	3

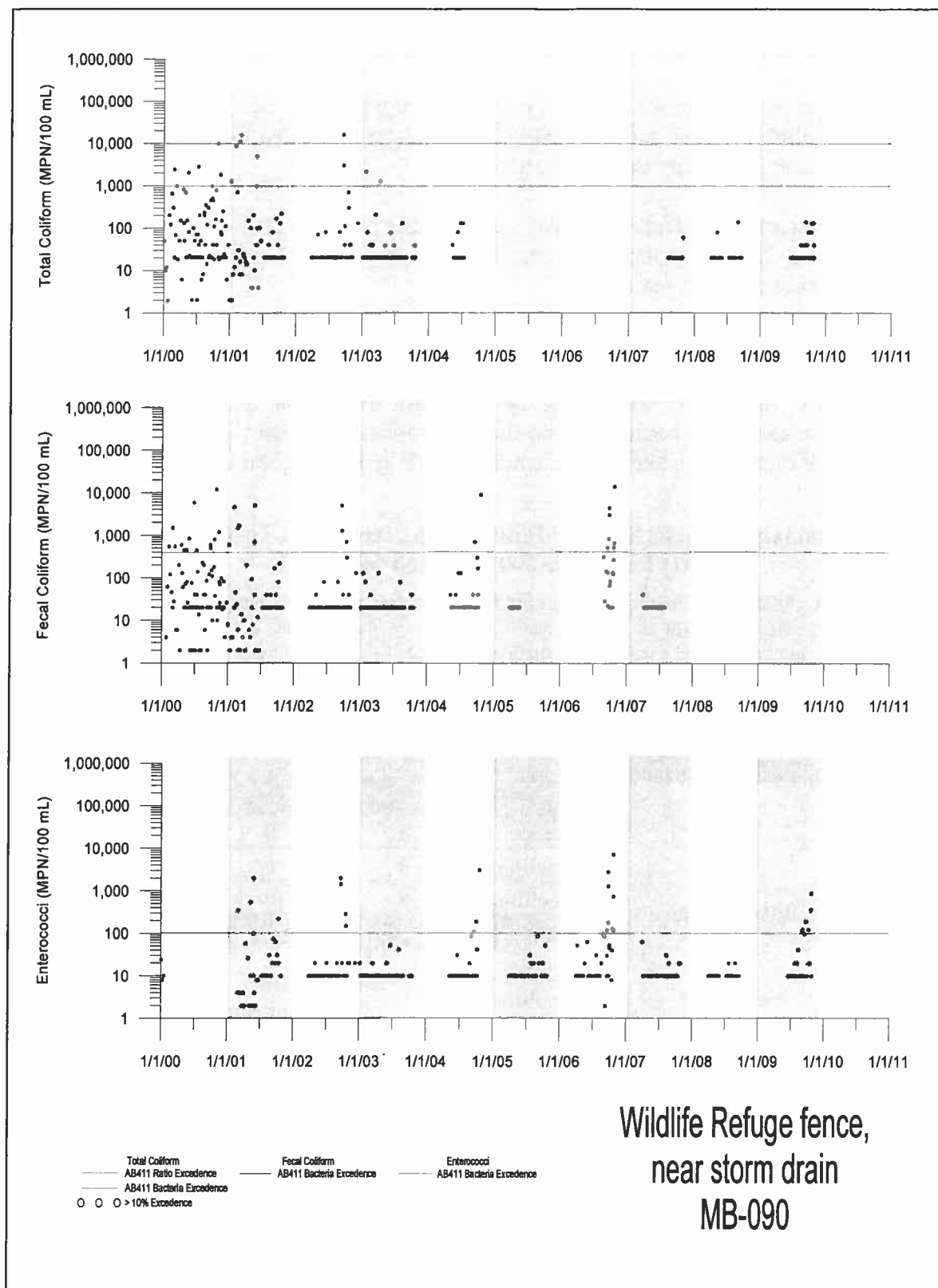


Figure 3-22. Summary of Bacteriological Water Quality Data Collected from the Wildlife Refuge Fence near Storm Drain (MB-090) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Swim Area Next to Wildlife Refuge (MB-091)

This site is located on the east side of the Crown Point Peninsula in Mission Bay, south of the Kendall Frost Wildlife Preserve and site MB-090 and is currently listed for enterococci and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from June 2001 through May 2002 (Figure 3-23). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-23. A total of 24 analyses were performed. The single sample limit could not be calculated because sample size was below the minimum of 22. The rolling 30-day geometric mean could not be calculated because the minimum sample requirement was not met. There are not enough data at this site to make an assessment regarding delisting status.

Table 3-23. Summary of Bacteriological Data at Swim Area Next To Wildlife Refuge (MB-091) from June 2001 through May 2002

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Swim area next to Wildlife Refuge	Single Sample Results					
	Enterococci	8	8	0	NA	0
	Fecal coliforms	8	8	0	NA	0
	Total coliforms	8	8	0	NA	0
	Rolling 30-Day Geometric Mean Results					
	Enterococci	Not Applicable – Minimum Sample Requirements Not Met				
	Fecal coliforms					
	Total coliforms					

NA = sample size below State Board minimum of 22

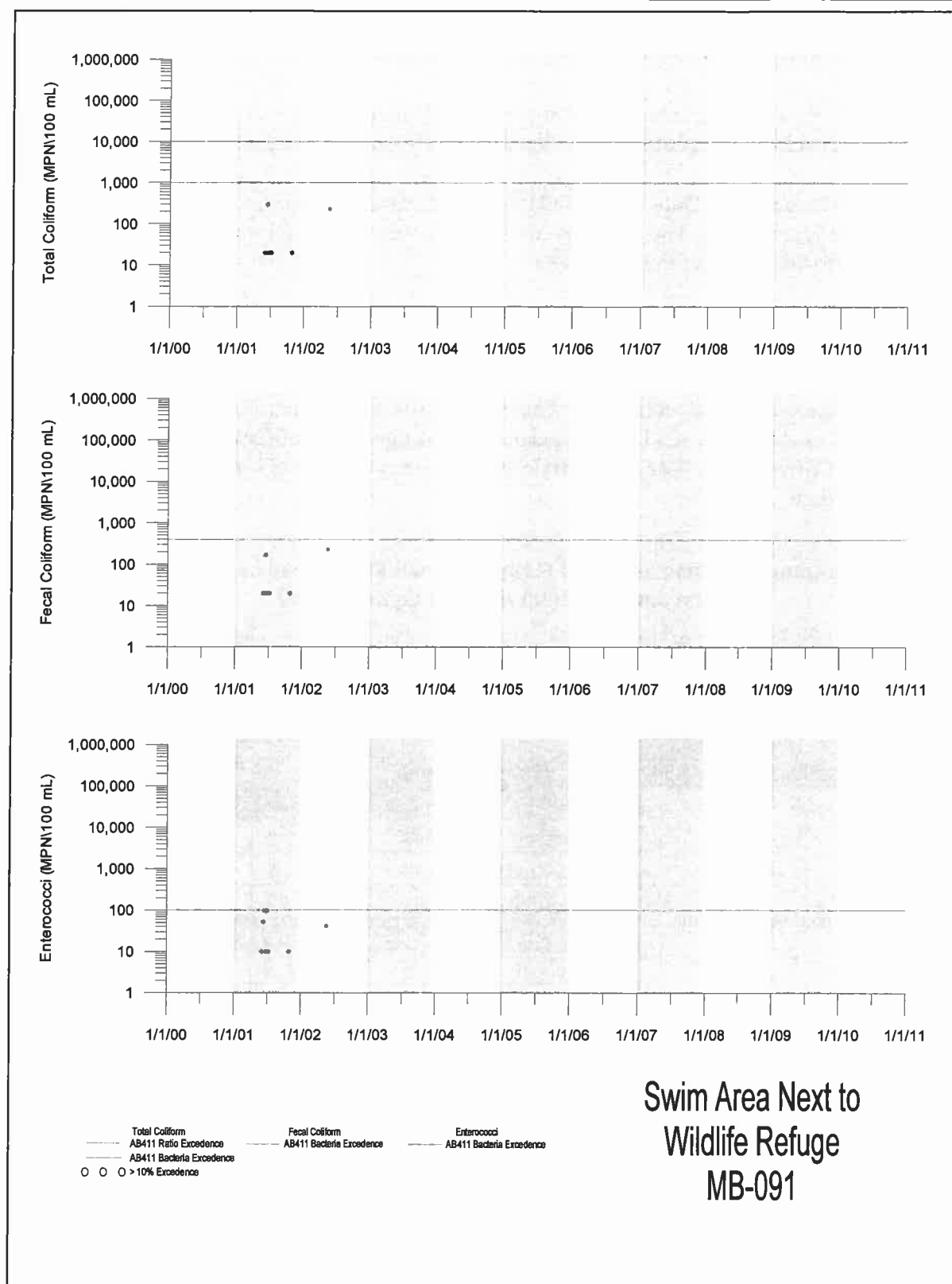


Figure 3-23. Summary of Bacteriological Water Quality Data Collected from the Swim Area Next to Wildlife Refuge (MB-091) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Crown Point, near storm drain (MB-100)

This site is located on the east side of the Crown Point Peninsula in Mission Bay and is currently listed for enterococci and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through October 2009 (Figure 3-24). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-24. A total of 815 analyses were performed. None of the bacteria indicators surpassed the single sample limit of 47 exceedances for enterococci, 41 exceedances for fecal coliforms, and 46 exceedances for total coliforms. The rolling 30-day geometric mean for enterococci exceeded the allowable limit of 111. These data suggest that total coliforms may be eligible for delisting at the Crown Point, near storm drain site, whereas enterococci may not be eligible for delisting at this time.

Table 3-24. Summary of Bacteriological Data at Crown Point, near Storm Drain (MB-100) from January 2000 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Crown Point, near storm drain	Single Sample Results					
	Enterococci	284	250	34	47	12
	Fecal coliforms	248	234	14	41	6
	Total coliforms	283	272	11	46	4
	Rolling 30-Day Geometric Mean Results					
	Enterococci	675	451	224	111	33
	Fecal coliforms	675	666	9	111	1
	Total coliforms	675	675	0	111	0

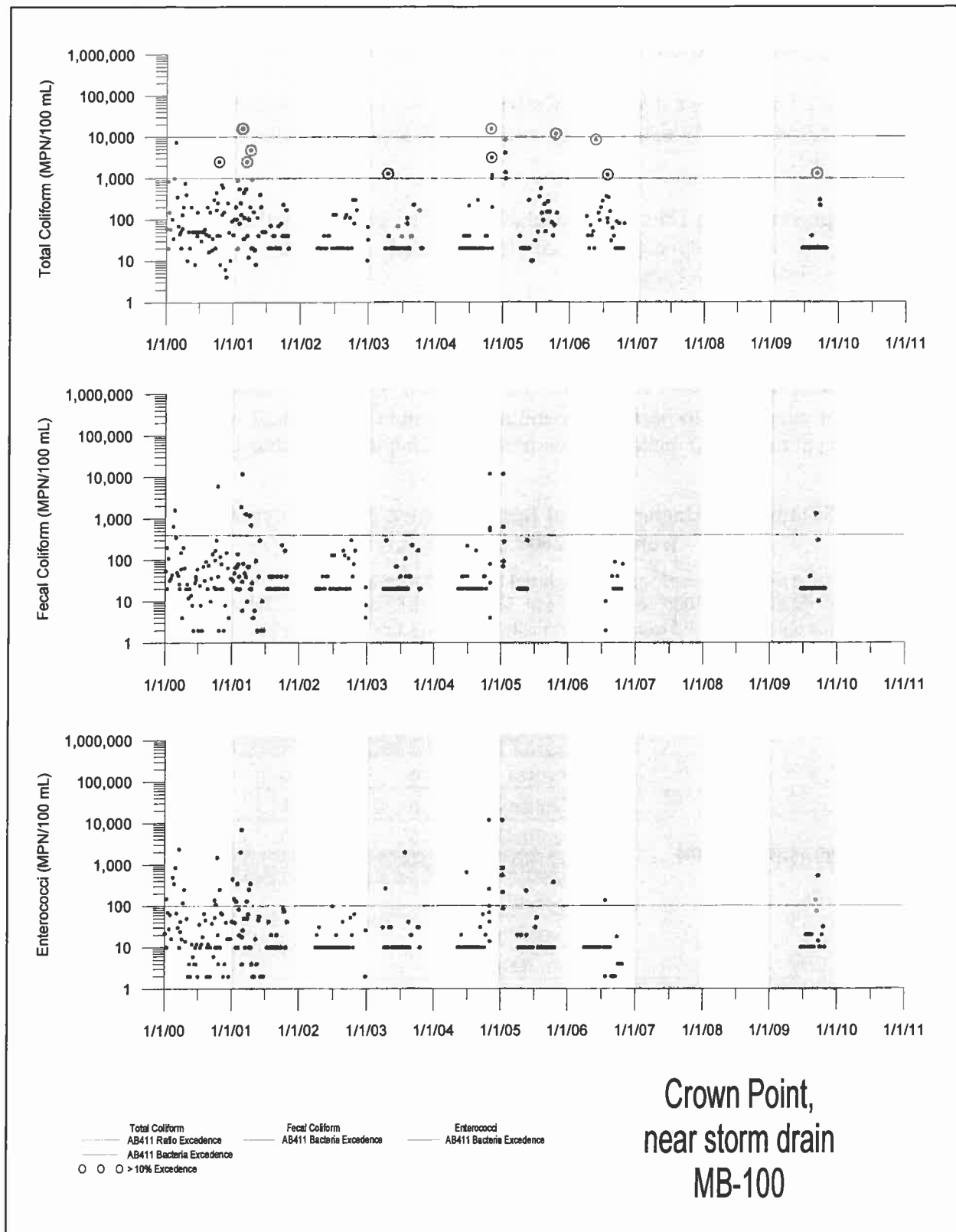


Figure 3-24. Summary of Bacteriological Water Quality Data Collected from the Crown Point, near Storm Drain (MB-100) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Crown Point watercraft area (MB-101)

This site is located on the east side of the Crown Point Peninsula in Mission Bay near the tip of the peninsula and is currently listed for enterococci and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from June 2001 through July 2001 (Figure 3-25). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-25. A total of 18 analyses were performed. The single sample limit could not be calculated because sample size was below the minimum of 22. The rolling 30-day geometric mean could not be calculated because the minimum sample requirement was not met. There is not enough data at this site to make an assessment regarding delisting status.

Table 3-25. Summary of Bacteriological Data at Crown Point Watercraft Area (MB-101) from June 2001 through July 2001

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Crown Point, watercraft area	Single Sample Results					
	Enterococci	6	6	0	NA	0
	Fecal coliforms	6	5	1	NA	17
	Total coliforms	6	6	0	NA	0
	Rolling 30-Day Geometric Mean Results					
	Enterococci	Not Applicable – Minimum Sample Requirements Not Met				
	Fecal coliforms					
	Total coliforms					

NA = sample size below State Board minimum of 26

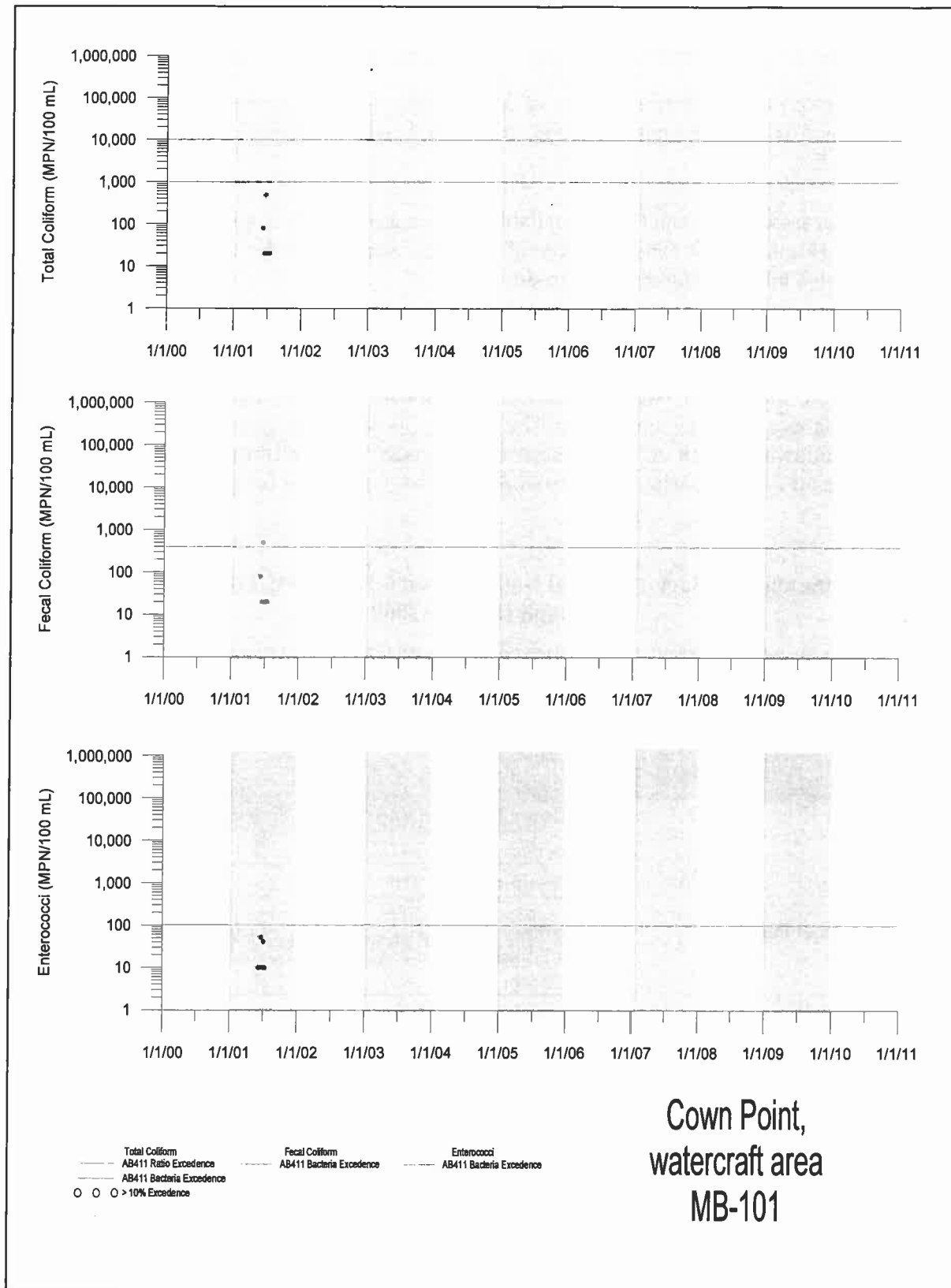


Figure 3-25. Summary of Bacteriological Water Quality Data Collected from the Crown Point Watercraft Area (MB-101) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Fanuel Park (MB-120)

This site is located on the northeast side of Mission Bay on the northern end of Sail Bay at Fanuel Street and is currently listed for enterococci and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through October 2009 (Figure 3-26). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-26. A total of 1001 analyses were performed. None of the indicator bacteria surpassed the single sample limit of 57 exceedances for enterococci, 51 exceedances for fecal coliforms, and 56 exceedances for total coliforms. The rolling 30-day geometric mean for enterococci exceeded the allowable limit of 131. These data suggest total coliforms may be eligible for delisting at Fanuel Park site, whereas enterococci may not be eligible for delisting at this time.

Table 3-26. Summary of Bacteriological Data at Fanuel Park (MB-120) from January 2000 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Fanuel Park	Single Sample Results					
	Enterococci	347	312	35	57	10
	Fecal coliforms	310	290	20	51	6
	Total coliforms	344	333	11	56	3
	Rolling 30-Day Geometric Mean Results					
	Enterococci	793	573	220	131	28
	Fecal coliforms	793	792	1	131	0
	Total coliforms	793	793	0	131	0

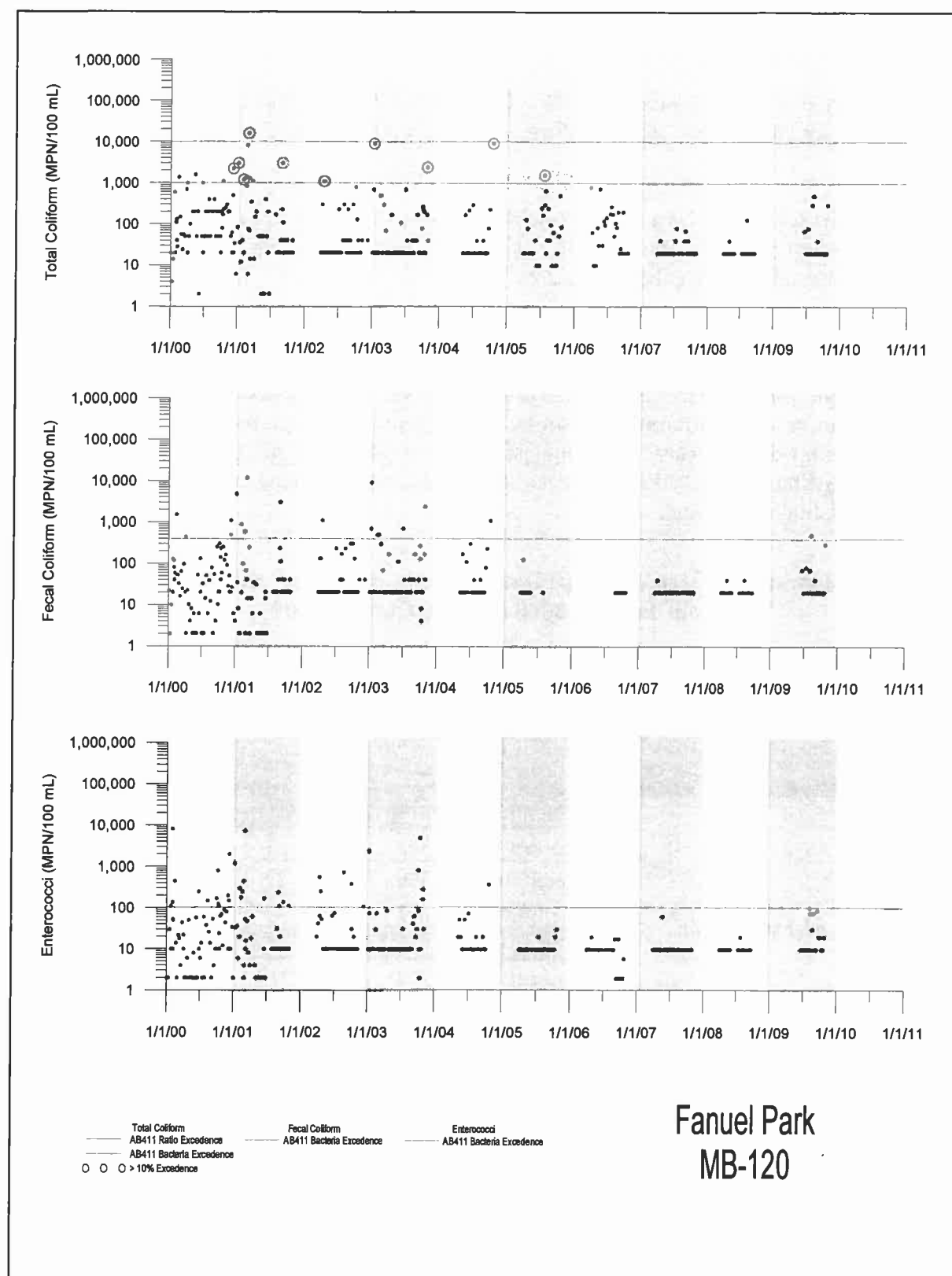


Figure 3-26. Summary of Bacteriological Water Quality Data Collected from the Fanuel Park (MB-120) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Bahia Point, near storm drain (MB-160)

This site is located on the west side of Mission Bay at the end of the Bahia Point peninsula and is currently listed for enterococci, fecal coliforms, and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through October 2009 (Figure 3-27). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-27. A total of 1087 analyses were performed. None of the indicator bacteria surpassed the single sample limit of 62 exceedances for enterococci, 56 exceedances for fecal coliforms, and 61 exceedances total coliforms. The rolling 30-day geometric mean for enterococci exceeded the allowable limit of 151. These data suggest that fecal coliforms and total coliforms may be eligible for delisting at the Bahia Point near storm drain site, whereas enterococci may not be eligible for delisting at this time.

Table 3-27. Summary of Bacteriological Data at Bahia Point, near Storm Drain (MB-160) from January 2000 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Bahia Point, near storm drain	Single Sample Results					
	Enterococci	375	324	51	62	14
	Fecal coliforms	339	307	32	56	9
	Total coliforms	373	356	17	61	5
	Rolling 30-Day Geometric Mean Results					
	Enterococci	914	595	319	151	35
	Fecal coliforms	914	861	53	151	6
	Total coliforms	914	914	0	151	0

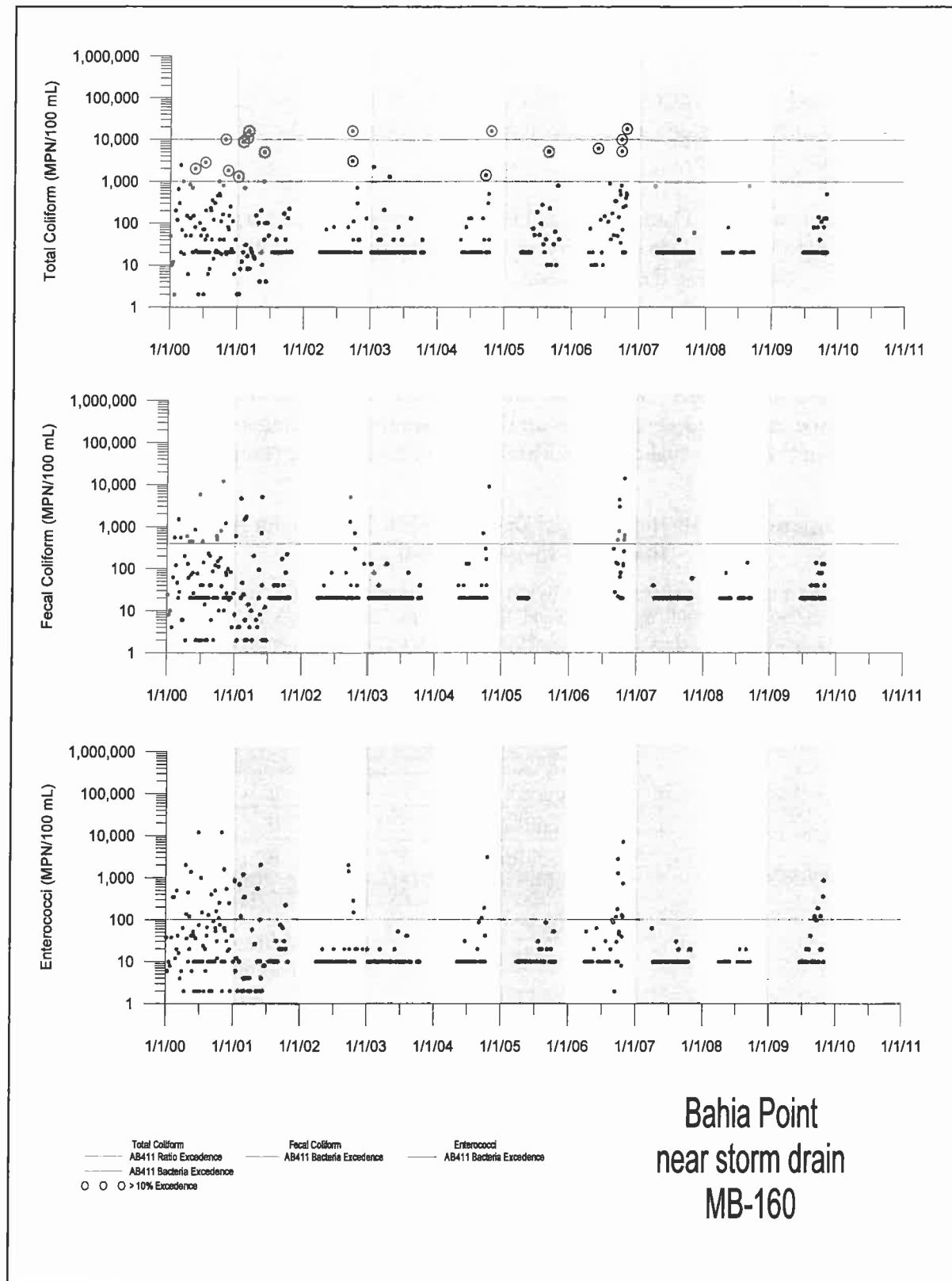


Figure 3-27. Summary of Bacteriological Water Quality Data Collected from the Bahia Point, near Storm Drain (MB-160) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Bahia Point Swim Area (MB-161)

This site is located on the west side of Mission Bay on the eastern side of the Bahia Point peninsula and is currently listed for enterococci, fecal coliforms, and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from June 2001 through October 2001 (Figure 3-28). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-28. A total of 21 analyses were performed. The single sample limit could not be calculated because sample size was below the minimum of 22. The rolling 30-day geometric mean could not be calculated because the minimum sample requirement was not met. There is not enough data at this site to make an assessment regarding delisting status.

Table 3-28. Summary of Bacteriological Data at Bahia Point Swim Area (MB-161) from June 2001 through October 2001

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Bahia Point swim area	Single Sample Results					
	Enterococci	7	7	0	NA	0
	Fecal coliforms	7	7	0	NA	0
	Total coliforms	7	7	0	NA	0
	Rolling 30-Day Geometric Mean Results					
	Enterococci	Not Applicable – Minimum Sample Requirements Not Met				
	Fecal coliforms					
	Total coliforms					

NA = sample size below State Board minimum of 26

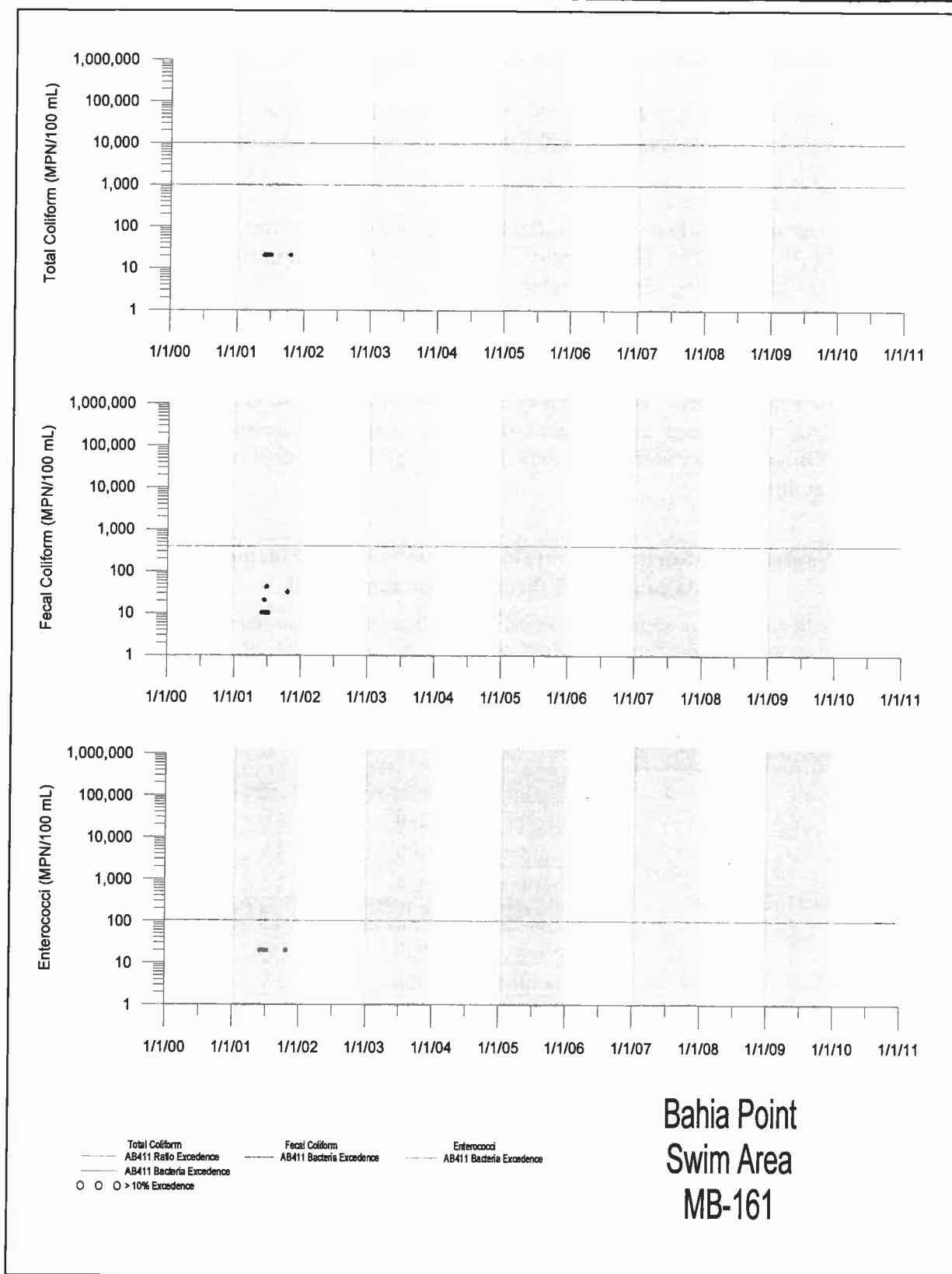


Figure 3-28. Summary of Bacteriological Water Quality Data Collected from the Bahia Point Swim Area (MB-161) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Bonita Cove (Mariners) (MB-170)

This site is located on the southeast side of Mission Bay on the northern end of Bonita Cove and is currently listed for enterococci, fecal coliforms, and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through September 2008 (Figure 3-29). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-29. A total of 837 analyses were performed. Of these, enterococci surpassed the single sample limit of 46 exceedances. The rolling 30-day geometric mean for enterococci exceeded the allowable limit of 157. These data suggest that fecal coliforms and total coliforms may be eligible for delisting, while enterococci may not be eligible for delisting at the Bonita Cove (Mariners) site at this time.

Table 3-29. Summary of Bacteriological Data at Bonita Cove (Mariners) (MB-170) from January 2000 through September 2008

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Bonita Cove (Mariners)	Single Sample Results					
	Enterococci	280	219	61	46	22
	Fecal coliforms	279	247	32	46	11
	Total coliforms	278	256	22	46	8
	Rolling 30-Day Geometric Mean Results					
	Enterococci	950	541	409	157	43
	Fecal coliforms	950	919	31	157	3
	Total coliforms	950	950	0	157	0

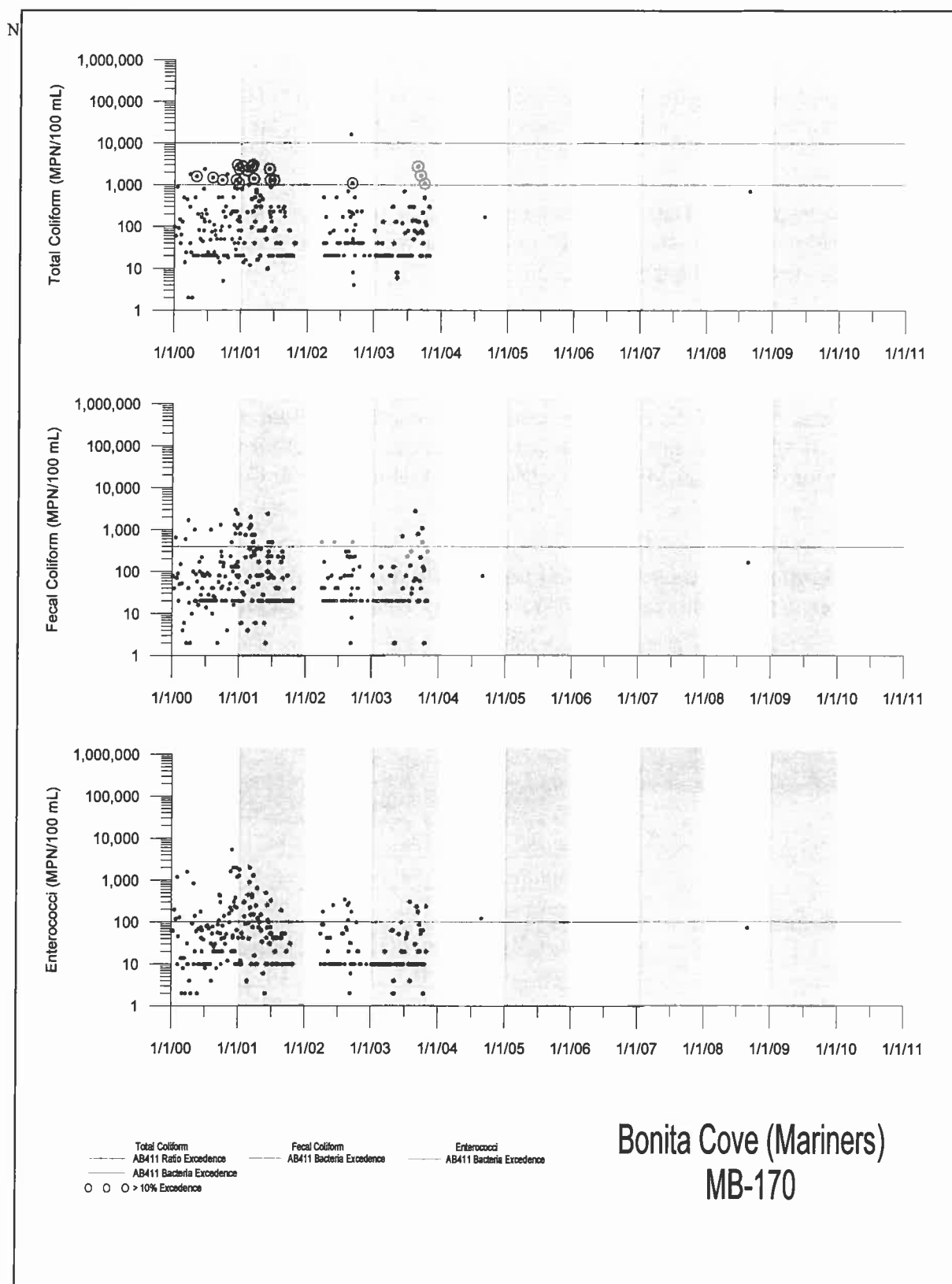


Figure 3-29. Summary of Bacteriological Water Quality Data Collected from the Bonita Cove (Mariners) (MB-170) Monitoring Site from January 2000 through February 2010

Waterbody Sampling Location: Mission bay Mariner's Basin at Bonita Cove, Eastern Shore (MB-173)

This site is located on the southeast side of Mission Bay on the east side of Bonita Cove and is currently listed for enterococci, fecal coliforms, and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from May 2004 through October 2009 (Figure 3-30). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-30. A total of 504 analyses were performed. None of the indicator bacteria surpassed the single sample limit of 29 exceedances for enterococci and total coliforms and 23 exceedances for fecal coliforms. None of the indicator bacteria exceeded the rolling 30-day geometric mean allowable limit of 80. These data suggest that enterococci, fecal coliforms, and total coliforms may be eligible for delisting at Mission bay Mariner's Basin at Bonita Cove, Eastern Shore site, at this time.

Table 3-30. Summary of Bacteriological Data at Mission Bay Mariner's Basin at Bonita Cover, Eastern Shore (MB-173) from May 2004 through October 2009

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Bonita Cove, eastern shore	Single Sample Results					
	Enterococci	180	166	14	29	8
	Fecal coliforms	144	138	6	23	4
	Total coliforms	180	176	4	29	2
	Rolling 30-Day Geometric Mean Results					
	Enterococci	483	423	60	80	12
	Fecal coliforms	483	483	0	80	0
	Total coliforms	483	483	0	80	0

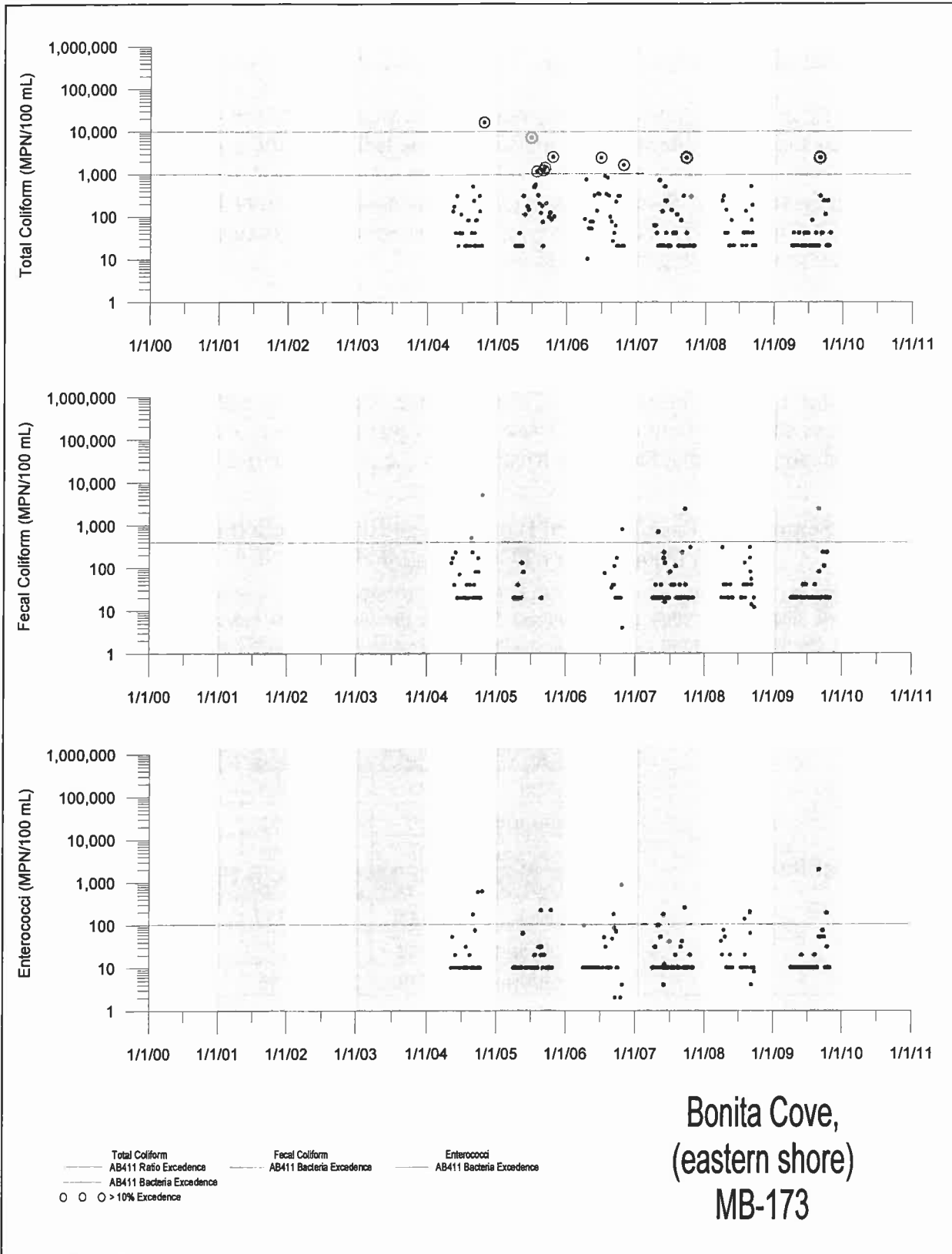


Figure 3-30. Summary of Bacteriological Water Quality Data Collected from the Bonita Cove (Eastern Shore) (MB-173) Monitoring Site from January 2000 through February 2010

3.2.4 Pacific Ocean Shoreline, San Diego

Waterbody Sampling Location: San Diego River Mouth (i.e., Dog Beach) (FM-010)

This site is located on the south side of the mouth of the San Diego River and is currently listed for enterococci and total coliforms on the draft 2010 State Board §303(d) list.

Temporal Representation: Data were available for this assessment from January 2000 through February 2010 (Figure 3-31). The majority of samples were taken during the dry season, but samples were also taken during the wet season.

Analysis Results: The number of exceedances of water quality standards at this site is presented in Table 3-31. A total of 2,030 analyses were performed. None of the indicator bacteria surpassed the single sample limit of 116 exceedances for enterococci and total coliforms and 102 exceedances for fecal coliforms. None of the indicator bacteria exceeded the rolling 30-day geometric mean allowable limit of 389. These data suggest that enterococci and total coliforms may be eligible for delisting at San Diego River Mouth (i.e., Dog Beach) at this time.

Table 3-31. Summary of Bacteriological Data at Diego River Mouth (i.e., Dog Beach) (FM-010) from January 2000 through February 2010

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Location	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
San Diego River outlet	Single Sample Results					
	Enterococci	705	622	83	116	12
	Fecal coliforms	620	569	51	102	8
	Total coliforms	705	672	33	116	5
	Rolling 30-Day Geometric Mean Results					
	Enterococci	2,348	1,991	357	389	15
	Fecal coliforms	2,348	2,291	57	389	2
	Total coliforms	2,348	2,302	46	389	2

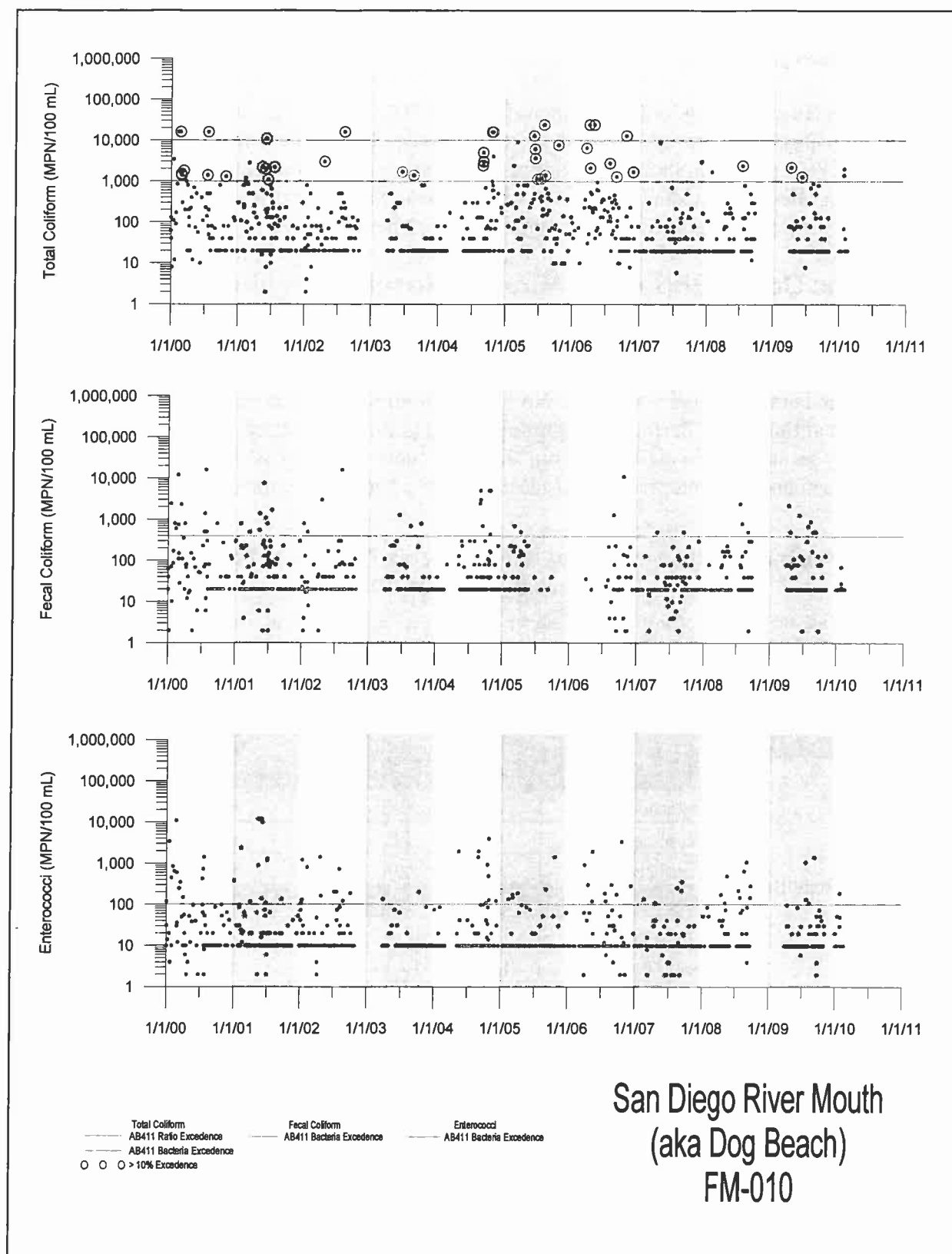


Figure 3-31. Summary of Bacteriological Water Quality Data Collected from the San Diego River Mouth (AKA Dog Beach) (FM-010) Monitoring Site from January 2000 through February 2010

4.0 Summary

The draft State Board 2010 §303(d) list identifies four HAs within the City of San Diego that have shoreline sites listed due to elevated bacterial levels: Pacific Ocean Shoreline—Miramar Reservoir HA, Pacific Ocean Shoreline—Scripps HA, Mission Bay Shoreline, and Pacific Ocean Shoreline—San Diego. Individual sites within these areas were assessed in the Results Section (Section 3) of this report. These results are summarized by beach below.

4.1 Pacific Ocean Shoreline, Miramar Reservoir Hydrologic Area

Torrey Pines State Beach is listed on the draft State Board 2010 §303(d) list for indicator bacteria in Miramar Reservoir HA: Torrey Pines State Beach at Los Peñasquitos Lagoon Outlet. This beach was listed for total coliforms. No single sample criteria or geometric mean criteria were exceeded at this beach during the sampling period (Table 4-1). These data suggest that total coliforms may be eligible for delisting from the draft State Board 2010 §303(d) at the Torrey Pines State Beach and that enterococci and fecal coliforms should remain unlisted.

Table 4-1. Summary of Bacteriological Data at Torrey Pines State Beach from January 2000 through February 2010

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Beach	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Torrey Pines State Beach	Single Sample Results					
	Enterococci	497	470	27	82	5
	Fecal coliforms	406	392	14	67	3
	Total coliforms	496	475	21	82	4
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,640	1,502	138	389	8
	Fecal coliforms	1,640	1,639	1	389	0
	Total coliforms	1,640	1,605	35	389	2

4.2 Pacific Ocean Shoreline, Scripps Hydrologic Area

Six beaches are included on the draft State Board 2010 §303(d) list within the Scripps HA. The Children's Pool and Pacific Beach Point beaches are listed for enterococci, fecal coliforms, and total coliforms. Avenida de la Playa, La Jolla Cove, Ravina, and Vallecitos Court are listed for total coliforms.

The results presented in Table 4-2, below indicate that Avenida de la Playa, Children's Pool, La Jolla Cove, Pacific Beach Point, Ravina, and Vallecitos Court may be eligible for removal of total coliforms from the draft State Board 2010 §303(d) list. In addition, Children's Pool may be considered for delisting of enterococci, and Pacific Beach Point may be considered for delisting

of fecal coliforms from the draft State Board 2010 §303(d) list. Children's Pool may not be considered for delisting of fecal coliforms at this time, and Pacific Beach Point may not be considered for delisting of enterococci at this time.

Table 4-2. Summary of Bacteriological Data Pacific Ocean Shoreline, Scripps from January 2000 through February 2010

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Beach	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
La Jolla Cove	Single Sample Results					
	Enterococci	301	296	5	49	2
	Fecal coliforms	263	255	8	43	3
	Total coliforms	301	293	8	49	3
	Rolling 30-Day Geometric Mean Results					
	Enterococci	612	601	11	101	2
	Fecal coliforms	612	612	0	101	0
	Total coliforms	612	612	0	101	0
Children's Pool	Single Sample Results					
	Enterococci	316	307	9	52	3
	Fecal coliforms	280	223	57	46	20
	Total coliforms	317	283	34	52	11
	Rolling 30-Day Geometric Mean Results					
	Enterococci	383	367	16	63	4
	Fecal coliforms	383	269	114	63	30
	Total coliforms	383	362	21	63	5
Ravina	Single Sample Results					
	Enterococci	296	286	10	49	3
	Fecal coliforms	267	262	5	44	2
	Total coliforms	296	292	4	49	1
	Rolling 30-Day Geometric Mean Results					
	Enterococci	579	576	3	95	1
	Fecal coliforms	579	579	0	95	0
	Total coliforms	579	577	2	95	0
Pacific Beach Point	Single Sample Results					
	Enterococci	811	681	130	134	16
	Fecal coliforms	735	676	59	121	8
	Total coliforms	764	733	31	126	4
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,738	970	768	288	44
	Fecal coliforms	1,738	1,611	127	288	7
	Total coliforms	1,738	1,698	40	288	2

Beach	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Vallecitos	Single Sample Results					
	Enterococci	29	23	6	4	21
	Fecal coliforms	29	27	2	4	7
	Total coliforms	28	27	1	4	4
	Rolling 30-Day Geometric Mean Results					
	Enterococci	26	0	26	4	100
	Fecal coliforms	26	26	0	4	0
	Total coliforms	26	26	0	4	0
Avenida de la Playa	Single Sample Results					
	Enterococci	345	319	26	57	8
	Fecal coliforms	295	291	4	48	1
	Total coliforms	345	341	4	57	1
	Rolling 30-Day Geometric Mean Results					
	Enterococci	752	663	89	124	12
	Fecal coliforms	752	752	0	124	0
	Total coliforms	752	746	6	124	1

4.3 Mission Bay Shoreline

Nine beaches within Mission Bay are included on the draft State Board 2010 §303(d) list. Bahia Point, Bonita Cove, Campland, and De Anza Cove are listed for enterococci, fecal coliforms, and total coliforms. Fanuel Park, Leisure Lagoon, North Crown Point, and Tecolote Shores are listed for enterococci and total coliforms.

The results presented in Table 4-2, below indicate that Bahia Point, Bonita Cove, Campland, De Anza Cove, Fanuel Park, Leisure Lagoon, North Crown Point, Tecolote Shores, and the Visitor's Center beaches may all be considered for delisting of total coliforms from the draft State Board 2010 §303(d) list. Bahia Point, Bonita Cove, and De Anza Cove may be considered for delisting of fecal coliforms from the draft State Board 2010 §303(d) list. No beaches are recommended for delisting of enterococci at this time.

Table 4-3. Summary of Bacteriological Data at Mission Bay Shores from January 2000 through February 2010

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Beach	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
De Anza Cove	Single Sample Results					
	Enterococci	473	402	71	78	15
	Fecal coliforms	435	385	50	72	11
	Total coliforms	470	432	38	77	8
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,240	721	519	205	42
	Fecal coliforms	1,240	1,128	112	205	9
	Total coliforms	1,240	1,232	8	205	1
Tecolote Shores	Single Sample Results					
	Enterococci	369	321	48	61	13
	Fecal coliforms	332	314	18	54	5
	Total coliforms	364	350	14	60	4
	Rolling 30-Day Geometric Mean Results					
	Enterococci	829	565	264	137	32
	Fecal coliforms	829	817	12	137	1
	Total coliforms	829	798	31	137	4
Leisure Lagoon	Single Sample Results					
	Enterococci	563	525	38	93	7
	Fecal coliforms	487	466	21	80	4
	Total coliforms	560	540	20	92	4
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,080	836	244	179	23
	Fecal coliforms	1,080	1,046	34	179	3
	Total coliforms	1,080	1,027	53	179	5
Visitor's Center	Single Sample Results					
	Enterococci	525	408	117	87	22
	Fecal coliforms	488	407	81	80	17
	Total coliforms	525	476	49	87	9
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,511	628	883	250	58
	Fecal coliforms	1,511	1,267	244	250	16
	Total coliforms	1,511	1,426	85	250	6
Campland On The Bay	Single Sample Results					
	Enterococci	501	387	114	83	23
	Fecal coliforms	452	380	72	74	16
	Total coliforms	499	458	41	82	8

Beach	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,643	744	899	272	55
	Fecal coliforms	1,643	1,366	277	272	17
	Total coliforms	1,643	1,531	112	272	7
North Crown Point	Single Sample Results					
	Enterococci	684	599	85	113	12
	Fecal coliforms	611	566	45	101	7
	Total coliforms	680	653	27	112	4
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,152	711	441	191	38
	Fecal coliforms	1,152	1,107	45	191	4
	Total coliforms	1,152	1,117	35	191	3
Fanuel Park	Single Sample Results					
	Enterococci	347	312	35	57	10
	Fecal coliforms	310	290	20	51	6
	Total coliforms	344	333	11	56	3
	Rolling 30-Day Geometric Mean Results					
	Enterococci	793	573	220	131	28
	Fecal coliforms	793	792	1	131	0
	Total coliforms	793	793	0	131	0
Bahia Point	Single Sample Results					
	Enterococci	382	331	51	63	13
	Fecal coliforms	346	314	32	57	9
	Total coliforms	380	363	17	62	4
	Rolling 30-Day Geometric Mean Results					
	Enterococci	914	595	319	151	35
	Fecal coliforms	914	861	53	151	6
	Total coliforms	914	914	0	151	0
Bonita Cove	Single Sample Results					
	Enterococci	460	385	75	76	16
	Fecal coliforms	423	385	38	70	9
	Total coliforms	458	432	26	75	6
	Rolling 30-Day Geometric Mean Results					
	Enterococci	1,433	964	469	237	33
	Fecal coliforms	1,433	1,402	31	237	2
	Total coliforms	1,433	1,433	0	237	0

4.4 Pacific Ocean Shoreline, San Diego Hydrologic Unit

There is one beach on the draft State Board 2010 §303(d) list in the San Diego HU: San Diego River Mouth (i.e., Dog Beach). No exceedances of either the single sample or 30-day geometric mean were found for any bacterial indicator (Table 4-4). These data suggest that enterococci and total coliforms may be eligible for delisting from the draft State Board 2010 §303(d) at Dog Beach, and fecal coliforms should remain unlisted.

Table 4-4. Summary of Bacteriological Data At Pacific Ocean Shoreline, San Diego Hydrologic Unit Dog Beach January 2000 through February 2010

The table includes the total number of analyses analyzed for each bacterial indicator (single sample limit and rolling 30-day geometric mean) from 2000 to 2010 (Total Samples), the number that did not exceed water quality objectives (No), the number that did exceed water quality objectives (Yes), the number of exceedances allowed by the State Board (Allowable), and the percent of exceedances relative to the total number of analyses (Percent).

Beach	Indicator	Total Samples	No	Yes	Allowable	Percent (Yes/Total)
Dog Beach Ocean Beach	Single Sample Results					
	Enterococci	705	622	83	116	12
	Fecal coliforms	620	569	51	102	8
	Total coliforms	705	672	33	116	5
	Rolling 30-Day Geometric Mean Results					
	Enterococci	2,348	1,991	357	389	15
	Fecal coliforms	2,348	2,291	57	389	2
	Total coliforms	2,348	2,302	46	389	2

5.0 Conclusions

Based on the single sample and 30-day rolling geometric mean exceedance evaluation, and following the guidelines of the State Board water quality listing policy, the following summary conclusions are drawn (Table 5-1):

- In general, total coliforms do not exceed either single sample criteria or 30-day geometric mean criteria at any beach currently included on the draft State Board 2010 §303(d) list. All current total coliform listings are recommended for delisting.
- Of the six fecal coliform listings, four are recommended for delisting from the State Board §303(d) list.
- Of the 12 enterococcus listings, two are recommended for delisting from the State Board §303(d) list.
- Due to the proximity of sampling stations EH-320 and FM-080 (less than a quarter of a mile), it is recommended that Vallecitos and Avenida de la Playa waterbodies should be combined for the purposes of State Board §303(d) listing.

Table 5-1. Summary State Water Resources Control Board Section 303(d) Delisting Recommendations

A recommendation to delist a waterbody is indicated with a “Yes” and a recommendation that a waterbody is not eligible for delisting is indicated with a “No.” Blank spaces represent indicator bacteria that are not currently included on the draft State Board 2010 §303(d) list.

State Board §303(d) Waterbody Name	Beach Area	Delisting Recommendations		
		Enterococci	Fecal Coliforms	Total Coliforms
Pacific Ocean Shoreline, Miramar Reservoir HA, at Los Peñasquitos River	Torrey Pines State Beach			Yes
Pacific Ocean Shoreline, Scripps HA	La Jolla Cove			Yes
	Children's Pool	Yes	No	Yes
	Ravina			Yes
	Pacific Beach Point	No	Yes	Yes
	Vallecitos			Yes
	Avenida de la Playa			Yes
Mission Bay Shoreline	De Anza Cove	No	Yes	Yes
	Tecolote Shores	No		Yes
	Leisure Lagoon	No		Yes
	Visitor's Center	No		Yes
	Campland On The Bay	No	No	Yes
	North Crown Point	No		Yes
	Fanuel Park	No		Yes
	Bahia Point	No	Yes	Yes
	Bonita	No	Yes	Yes
Pacific Ocean Shorelines, San Diego	Dog Beach, Ocean Beach	Yes		Yes

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