



OCEAN BACTERIOLOGICAL DATA EVALUATION FOR DANA POINT HSA, CITY OF DANA POINT, NOVEMBER 2005 – DECEMBER 2006

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FEBRUARY 2007

EXECUTIVE SUMMARY

Along the City of Dana Point's coastline, there are two shoreline and one large outlet water quality limited segments included in the 2006 Section (§) 303(d) list, in the Dana Point HSA: Salt Creek Beach at Salt Creek Service Road, Salt Creek Beach at Dana Strand and Salt Creek (large outlet). There has been a definitive improvement in water quality at these locations due to the construction and operation of the Salt Creek Ozone Treatment Plant. The plant was complete in November 2005 and has been running continuously during dry weather. The purpose of this report is to compile and summarize the bacterial data for the listed water body segments along the City's coastline, in Dana Point HSA, and assess the data within those listed segments with respect to listing guidelines established by the State Water Quality Control Board (SWQCB), and identify listed segments which meet the criteria for removal from the §303(d) List.

There are three shoreline sampling sites and one creek outlet sampling site that have been assessed. Over the past 13.5 months, water samples from these sites have been tested weekly, at a minimum, for total coliform, fecal coliform, and enterococcus by the Orange County Health Care Agency (OCHCA), South Orange County Wastewater Authority (SOCWA) and the City of Dana Point. This comprehensive, quality assured (QA) data set is the basis for the conclusions made herein.

Based on the assessment and evaluation and the criteria for removing a surface water segment from the §303(d) List provided in the Water Quality Control Policy for Developing California's Clean Water Act Section §303(d) List (SWRCB 2004), it has been concluded that Salt Creek Beach at Salt Creek service road and Salt Creek Beach at Dana Strand Road, Pacific Coast Shoreline, Dana Point HSA, Calwater Watershed 900114000, meet the de-listing criteria and should be removed from the CWA Section 303(d) List of Water Quality Limited Segments for indicator bacteria. The segment, Salt Creek (large outlet), although listed as a Pacific Ocean Shoreline site, is not a shoreline site, and did not meet the criteria for delisting. It is recommended; however, that the segment, Salt Creek (large outlet) be listed separately, as "Salt Creek (mouth)" (see San Juan Creek on the 2006 303(d) List as an example).

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Note:

The County of Orange Water Quality Program Quality Assurance/ Quality Control Manual, February 2004, is submitted by reference: www.ocwaterlab.com. A digital version of this document has been previously forwarded to RWQCB-9 staff.

1. INTRODUCTION AND BACKGROUND

This evaluation is submitted in response to the letter from the State Water Resources Control Board (SWRCB), dated December 4, 2007, *Notice of Public Solicitation of Water Quality Data and Information for 2008 Integrated Report – List of Impaired Waters and Surface Water Quality Assessment [303(d)/305(b)]*, which requests data regarding water quality conditions of surface waters of California. The data attached herein is provided specifically in response to “Data that show standards are being met should also be submitted, as these data and information are extremely important to a proper understanding of the health of the waters of the State.” The data and assessment submitted herein is in accordance with Enclosure 3 of the Solicitation Notice, “Specific information regarding this solicitation and the ensuing section 303(d) Listing/Delisting process:”, as follows:

- it has been evaluated and assessed in accordance with the “Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List”,
- it includes a comprehensive narrative evaluation as well as an electronic data CD submittal,
- it is being submitted by the deadline of February 28, 2007,
- it includes the name, organization, certification mailing address, telephone number and email address of contact responsible for answering questions about the information,
- it did not use any specific software besides Microsoft Excel (spreadsheet),
- it includes bibliographic citations for published information provided,
- it includes the name and exact area of the waterbody, including GIS (lat and long and datum), and clear copy of map,
- it includes metadata for lab analyses, including # samples, analytes, units, methods, detection limits (some additional information is included in Quality Assurance Plans)
- it includes appropriate Quality Assurance Project Plans and Monitoring Plans.

To meet the requirements of the California AB411 standards, the Orange County Health Care Agency (OCHCA) and South Orange County Wastewater Authority (SOCWA) routinely monitor the ocean water quality at numerous ocean locations along the Orange County coastline, including beaches located in the City of Dana Point. A number of these locations, including locations in the Salt Creek Watershed in Dana Point, are listed on the State Water Resources Control Board (SWRCB) 2006 303(d) List for impairment due to apparent elevated levels of indicator bacteria (total coliform, fecal coliform, and enterococcus).

The purpose of this document is to:

1. compile the available data on bacterial densities at specific water quality monitoring sites along the City’s coastline, in the Dana Point HSA, specifically the Salt Creek watershed,
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 303(d) List based on guidance documents prepared by the SWRCB.

The process for removing a water body from the 303(d) List in California is summarized in the Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List (SWRCB 2004). The data provided in this assessment was compared to AB411 standards for bacteria. The number of exceedances for a each sample size (number of analyses) were compared against those allowed for de-listing in the SWRCB guidance using two different criteria: the single sample limit, and the monthly geometric mean. Both methods are presented to provide the SWRCB with two options for interpretation and assessment. In addition, the water sample as a whole was assessed, to determine collectively, the number of samples that exceeded one or more of the three indicators (i.e. the number of water samples that would cause a posting). All methods produced similar final results with respect to de-listing. This assessment approach provides a conservative (protective) approach to de-listing consideration, which allows for the greatest protection of public health and the environment.

2. AREAS OF INTEREST & ASSESSMENT

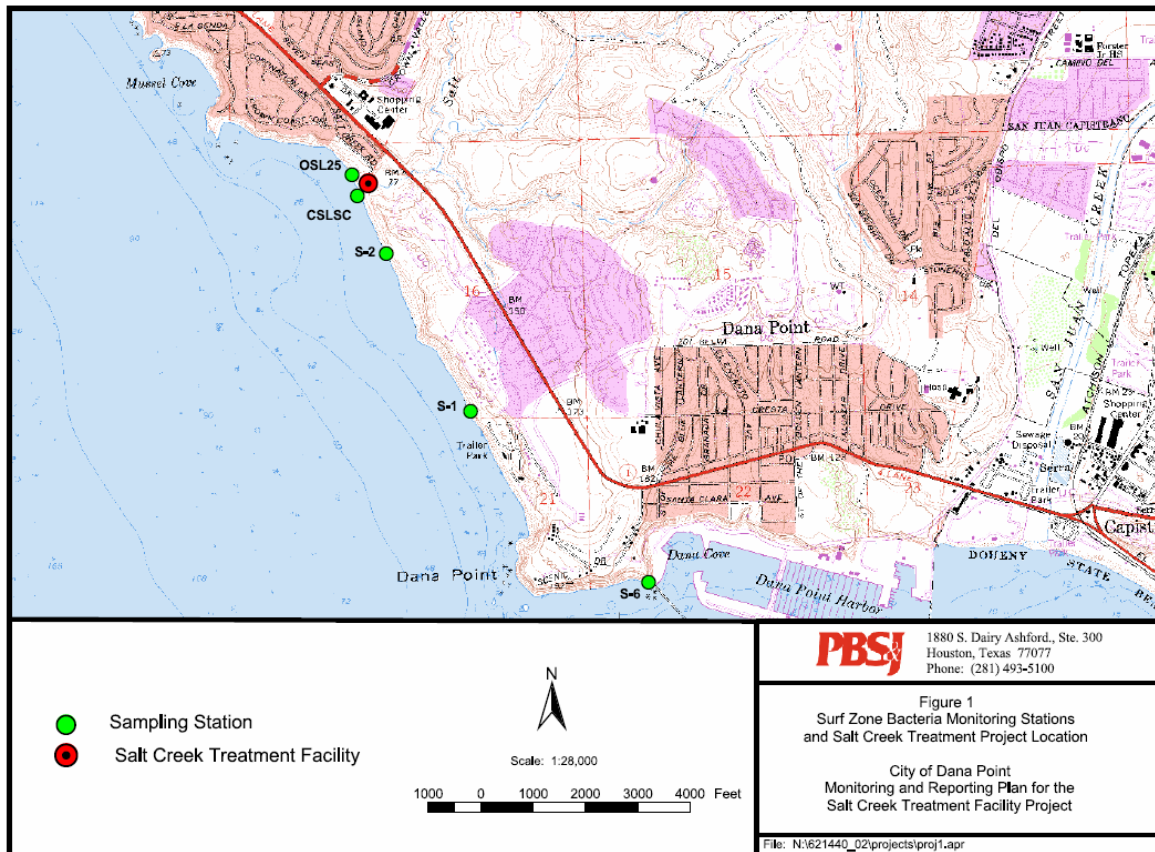
The SWRCB 2006 303(d) List identifies specific waterbodies within the City of Dana Point, impaired by indicator bacteria, located in Dana Point Hydrologic Subunit Area (HSA), which are the focus of this report. Information for the waterbodies of interest, taken from the 2006 303(d) List is summarized in Table 2-1 below:

Table 2-1: List of Waterbodies Evaluated in this Report from the 2006 SWRCB 303(d) List

Name / CALWATER Watershed	Impairment Sites	Pollutant	Est. Size Affected	Site ID per AB411	Sampling Frequency	Longitude (NAD83)	Latitude (NAD83)
Pacific Ocean Shoreline, Dana Point HSA 90114000	Salt Creek (large outlet)	Indicator Bacteria	2 miles	CSLSC – Salt Creek	once/week by each OCHCA and Dana Point (Nov 05-06)	-117.72502	33.48101
				OSL25 – Monarch Beach (No. of Salt Creek)		-117.72595	33.48172
	Salt Creek Beach at Salt Creek Service Road			S2 – Salt Creek Beach, So. Of Salt Creek Surfzone	once/week by each OCHCA and Dana Point (Nov 05-06)	-117.72423	33.47926
	Salt Creek Beach at Dana Strand Road			S1 – Dana Strands surfzone	twice/week	-117.71826	33.46959

A map indicating the locations of the monitoring sites, referenced with AB411 Site ID is provided below in Figure 2-1.

Figure 2-1: Map of OCHCA & SOCWA Monitoring Sites



3. METHODS OF DATA EVALUATION

Data Sources

Data for this report were compiled from raw data for specific shoreline sites along the City's coastline. The bacteriological data for these sites from November 2005 through December 2006 are summarized and assessed in this report. This period was selected to coincide with the operation of the newly constructed Salt Creek Ozone Treatment Plant which treats dry weather flows in Salt Creek prior to discharge to the ocean. Graphical representations of the data for each site on the 303(d) List are presented in **Appendix A**. Ocean water samples for all the sites were typically collected and analyzed weekly or twice per week by the OCHCA and SOCWA. In addition, three locations, consistent with OCHCA & SOCWA locations, were sampled by the City in an independent weekly monitoring program. All samples were analyzed for three indicator bacteria: total coliform, fecal coliform, and enterococcus. Bacterial densities were determined by multiple tube fermentation (MTF), membrane filtration (MF), or the Enterolert technique (for enterococcus only). A copy of the hard data can be found in **Appendix B**. OCHCA data was collected and analyzed in accordance with the County of Orange Water Quality Program Quality Assurance/Quality Control Manual, February 2004 (previously submitted to RWQCB staff). The SOCWA data was collected and analyzed in accordance with the SOCWA Microbiology Standard Operating Procedures and Quality Assurance Plan in **Appendix D**. The City's data was collected and analyzed in accordance with an SWRCB-approved Quality Assurance Project Plan (QAPP) & Monitoring & Reporting Plan (MP), provided in **Appendix C**. Although the SOCWA & OCHCA electronic data is submitted with this report, all the data can also be obtained from www.ocbeachinfo.com.

In addition, the City of Dana Point has supplemented the OCHCA/SOCWA data with data from an additional one-year monitoring program required as part of SWRCB CONTRACT NO.: 02-217-550-0 for the Salt Creek Ozone Treatment Plant. This monitoring program included weekly samples tested for indicator bacteria in locations consistent with OCHCA/SOCWA locations from the period November 2005 - November 2006. This data has been included in this assessment and the Monitoring Plan is provided in **Appendix C**.

De-listing Procedure

For those sites in the Dana Point HSA that are listed on the SWRCB 2006 303(d) List, an assessment was conducted to determine the number of exceedances of bacterial standards that have occurred at each site from November 2005 through December 2006 and to identify those sites that should be considered for de-listing. The process for removing a water body from the 303(d) List in California is summarized in the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (SWRCB 2004).

Table 3-1 is taken from Table 3.2 of the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List, SWRCB 2004 and summarizes the maximum number of exceedances allowable for de-listing for a given sample size (number of analyses) up to 121. All data for the single sample assessment for the sites identified in this report were evaluated based on the criteria in Table 3-1 or the formula provided, whichever is appropriate.

Table 3-1. Maximum Number of Exceedances Per Number of Sample Size

Sample Size (Number of Analyses)	List if the number of exceedances equal or is greater than
26 - 30	5
31 - 36	6
37 - 42	7
43 - 48	8
49 - 54	9
55 - 60	10
61 - 66	11
67 - 72	12
73 - 78	13
79 - 84	14
85 - 91	15
92 - 97	16
98 - 103	17
104 - 109	18
110 - 115	19
116 - 121	20

For sample sizes greater than 121, the maximum number of allowable exceedances is determined using a formula provided in the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (SWRCB 2004):

For sample sizes greater than 121, the minimum number of measured exceedances is established where α and $\beta < 0.2$ and where $|\alpha - \beta|$ is minimized.

α = Excel® Function BINOMDIST(n-k, n, 1 – 0.10, TRUE)

β = Excel® Function BINOMDIST(k-1, n, 0.25, TRUE)

where n = the number of samples,

k = minimum number of measured exceedances to place a water segment on section 303(d) list,

0.10 = acceptable exceedance proportion, and

0.25 = unacceptable exceedance proportion.

Calculations for the maximum number of exceedances for samples sizes greater than 121 that have been assessed in the report are provided in Appendix D.

Applicable Water Quality Standards

All of the 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: total coliform (TC), fecal coliform (FC), and enterococcus (ENT). The AB411 criteria are summarized in Table 3-2.

Table 3-2. Assembly Bill 411 (AB411) Bacteriological Standards.

	30 Day Limit ¹	Single Sample Limit
Total Coliform	1,000 MPN/ 100 ml ²	1,000 MPN/ 100 ml if Fecal > 10% of Total, or 10,000 MPN/100 ml ³
Fecal Coliform	200 MPN/ 100 ml	400 MPN/ 100 ml
Enterococcus	35 MPN/ 100 ml	104 MPN/ 100 ml

1 = 30 day limit is based on the geometric mean of at least five weekly samples in a calendar month

2 = MPN is Most Probable Number

3 = Total 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 3-2: the single sample limit and the monthly 30 day geometric mean of at least five weekly samples. It is unclear from the SWRCB (2004) guidance document whether data should be assessed using the geometric mean or the single sample limit, so both were evaluated. Statistically, the single sample limit may be most valid because the statistical derivation of the allowable exceedance frequency listed in Table 3-1 is based on single sample, discrete data. To assure that proper consideration will be given to this assessment, the data in this document were compared to the values in Table 3-1 in three different ways:

1. single sample limit,
2. monthly geometric mean, and
3. just for comparison, an assessment of exceedences for the entire water sample collectively as a whole, i.e. number of water samples that exceeded one or more criteria for ENT, TC, FC or the 30-day monthly geomean. This is equivalent to the number of days the beach was posted.

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 3-1. Typically, a single sample is collected on a given day from a site and analyzed for three indicators: total coliform, fecal coliform, and enterococcus. Thus, a single sample usually produces three different analyses. To assess the number of exceedances at a site, first, the data was assessed to determine the total number of analyses for each indicator that exceeded the single sample limits at each site. The number of exceedances for each of the three indicators over the period from November 2005 through December 2006 was then summed for each site. The total number of exceedances was then compared to the number allowable by SWRCB (2004) for the sample size at that site. Those sites that had a number of exceedances of water quality standards below that provided in the SWRCB guidance document for a given sample size, were recommended for de-listing consideration (i.e. removal from the 303(d) list). The procedure discussed above provides a very conservative (i.e. protective) approach to delisting consideration for several reasons:

- Exceedance of standards for any of the three indicators was counted as a single exceedance even if more than one standard was exceeded in a single day. For example, if both fecal coliform and enterococcus standards were exceeded at a site in the same sample, it was counted as two exceedances rather than just one.

- All data were considered in the designated time frame for a given site, including data collected in dry and wet seasons as dry and wet weather (within 72 hours of a rain event).

The conservative approach provides the greatest protection of the beneficial uses for the protection of public health and the environment and generates de-listing recommendations only for those sites where bacterial contamination is minimal.

Monthly Geometric Mean

For this assessment, the 30-day geometric mean of five samples for all data collected within a given calendar month was calculated for the entire data set. This method produces approximately 12 values per year. Each of these values was compared to the 30-day geometric mean AB411 criteria for a given indicator (Table 3-2). The total number of monthly geometric mean values that exceeded the allowable number given in Table 3-1 was then calculated for a given sample size. In the site assessment section that follows the data is presented in tabular form based on the assessment of all three methods described above.

4. RESULTS/CONCLUSION

This section includes the results of the assessment for each of the four sites evaluated: Salt Creek (CSLSC), Monarch Beach (OSL25), Salt Creek Beach (S2), and Dana Strand Beach (S1). Graphical representation of the data, as well as hard copies of the data, for each of the sites, are provided in Appendices A & B, respectively. Table 4-1 & 4-2 provide a summary of the results. Detailed information on each of the sites follows.

Table 4-1. Summary of Assessment of Bacteriological data for 2006 303(d) Listed Sites in Dana Point HSA – SINGLE SAMPLE ASSESSMENT

SINGLE SAMPLE ASSESSMENT													
Site	Site ID	a	b	c	d	e	f	g		h	i	Do # exceedences based on water samples meet De-listing Criteria? (h) less than (i)?	Recommend De-List
		# water samples taken	Sample Size (total number of ENT, FC & TC analyses, i.e. column (a) times 3)	# exceedences allowed per Policy, based on Sample Size	# samples exceeded (single sample) ENT	# samples exceeded (single sample) FC	# samples exceeded (single sample) TC	Total # of exceedences (single sample)	Are # exceedences less than criteria for listing? (g) less than (c)	# water samples that exceed criteria (collectively exceeded one or more criteria)	# exceedences allowed for # water samples taken (a)		
Monarch Beach, N. of Salt Creek	OSL25	106	318	52	14	7	0	21	YES	16	18	YES	YES
Salt Creek (outlet)	CSLSC	100	300	49	60	42	20	122	NO	61	17	NO	NO
Salt Creek Beach at Salt Creek Service Road	S2	185	555	91	7	0	0	7	YES	7	30	YES	YES
Salt Creek Beach at Dana Strand	S1	117	351	58	2	0	0	2	YES	2	20	YES	YES

- (a) number of water quality samples taken
- (b) Sample Size – each water sample in (a) results in three sample analyses, one of each Total Coliform (TC), Fecal Coliform (FC) and enterococcus (ENT)
- (c) # of exceedences based on Sample Size (b) in accordance with Water Quality Control Policy for Developing California Clean Water Act Section 303(d) list, SWRCB 2004
- (d) # exceedences identified in Sample for enterococcus
- (e) # exceedences identified in Sample for fecal coliform
- (f) # exceedences identified in Sample for total coliform
- (g) sum of exceedences for all enterococcus, fecal coliform and total coliform, (d) + (e) + (f)
- (h) # of water samples (a) that exceeded one or more criteria for enterococcus, fecal coliform, total coliform and/or 30-day monthly geomean (i.e. number of days beach posted)
- (i) # of exceedences based on Sample Size (a), the number of water samples taken, in accordance with Water Quality Control Policy for Developing California Clean Water Act Section 303(d) list, SWRCB 2004

Table 4-2. Summary of Assessment of Bacteriological Data for 2006 303(d) Listed Sites in Dana Point HSA – 30-Day Monthly Geomean of 5 Samples

30-DAY MONTHLY GEOMEAN ASSESSMENT						
Site	Site ID	# water samples taken	Sample Size Geometric Mean (Total of ENT, FC, TC)	# exceedences allowed per Policy, based on Sample Size	# samples exceeded monthly Geometric Mean	Meet Criteria for De-List
Monarch Beach, N. of Salt Creek	OSL25	106	13 – TC 12- FC 13- ENT Total: 38	7	1 (ENT)	YES
Salt Creek (outlet)	CSLSC	100	12 – TC 12- FC 12- ENT Total: 36	17	ENT -9 FC- 6 TC- 5 Total: 20	NO
Salt Creek Beach at Salt Creek Service Road	S2	168	12 – TC 12- FC 13- ENT Total: 36	27	0	YES
Salt Creek Beach at Dana Strand	S1	117	14 – TC 14- FC 14- ENT Total: 42	20	0	YES

Discussion of results:

Water Body Sampling Location: [Monarch Beach, No. of Salt Creek \(OSL25\)](#)

This site is located adjacent to the north of the Salt Creek outlet. Samples are taken from the surf zone.

Temporal Representation: Available data from November 2005 through December 2006 was analyzed for this assessment. Samples were taken during both the wet and dry seasons.

Water Quality Standards: The number of exceedences of water quality standards at this site is presented in Table 4-1. A total of 106 water samples were taken, totaling 318 analyses that were performed during the period from November 2005 through December 2006. Of these, there were a total of 21 exceedences of the bacterial standards based on single sample criteria (the enterococci standard was exceeded 14 times, the fecal coliform standard was exceeded 7 times, and the total coliform exceeded 0 times). A total of 14 exceedences out of 52 analyses is well below the number of exceedences allowed by the SWRCB guidance document based on the single sample criteria. There was only one exceedence of the 30-day monthly geomean (enterococcus), which is well below the number of allowable which is 7 based on sample size.

In addition, for a conservative comparative approach, the number of water samples that exceeded one or more criteria were looked at and compared to the number allowable. This resulted in 16 exceedences which is below the maximum allowable of 18. This assessment corresponds to the number of days the waterbody was posted.

These results of all three assessments suggest that the Monarch Beach site should be removed from the 303(d) List of impaired waterbodies for indicator bacteria .

Water Body Sampling Location: [Salt Creek \(CSLSC\)](#)

This creek site is located prior to the ocean interface, with Monarch Beach to the north and Salt Creek beach further south.

Temporal Representation: Available data from November 2005 through December 2006 was analyzed for this assessment. Samples were taken during both the wet and dry seasons.

Water Quality Standards: The number of exceedences of water quality standards at this site is presented in Table 4-1. A total of 100 water samples were taken, totaling 300 analyses were performed during the period from November 2005 through December 2006. Of these, there were a total of 122 exceedences of the bacterial standards based on single sample criteria (the enterococci standard was exceeded 60 times, the fecal coliform standard was exceeded 42 times, and the total coliform exceeded 20 times). A total of 122 exceedences out of 300 analyses is above the maximum number of exceedences allowed by the SWRCB guidance document based on the single sample criteria. There were no exceedences of the 30-day monthly geomean.

The results of these assessments suggest that the Salt Creek site does not meet criteria for de-listing at this time.

Water Body Sampling Location: [Salt Creek Beach, So. Of Salt Creek at Salt Creek Service Road \(S2\)](#)

This site is located south of the Salt Creek outlet at Salt Creek Service Road. Samples are taken from the surf zone.

Temporal Representation: Available data from November 2005 through December 2006 was analyzed for this assessment. Samples were taken during both the wet and dry seasons.

Water Quality Standards: The number of exceedences of water quality standards at this site is presented in Table 4-1. A total of 168 water samples were taken, totaling 504 analyses were performed during the period from November 2005 through December 2006. Of these, there were a total of 7 exceedences of the bacterial standards based on single sample criteria (the enterococci standard was exceeded 7 times). A total of 7 exceedences out of 504 analyses is well below the number of exceedences allowed by the SWRCB guidance document based on the single sample criteria. There were no exceedences of the 30-day monthly geomean.

In addition, for a conservative comparative approach, the number of water samples that exceeded one or more criteria were looked at and compared to the number allowable. This resulted in 7 exceedences which is below the maximum allowable of 27. This assessment corresponds to the number of days the waterbody was posted.

These results of all three assessments suggest that the Salt Creek Beach site should be removed from the 303(d) List of impaired waterbodies for indicator bacteria .

Water Body Sampling Location: [Salt Creek Beach at Dana Strands surfzone \(S1\)](#)

This site is located south of the Salt Creek Beach at Dana Strand. Samples are taken from the surf zone.

Temporal Representation: Available data from November 2005 through December 2006 was analyzed for this assessment. Samples were taken during both the wet and dry seasons.

Water Quality Standards: The number of exceedances of water quality standards at this site is presented in Table 4-1. A total of 117 water samples were taken, totaling 351 analyses were performed during the period from November 2005 through December 2006. Of these, there were a total of 2 exceedances of the bacterial standards based on single sample criteria (the enterococci standard was exceeded 2 times). A total of 2 exceedances out of 351 analyses is well below the number of exceedances allowed by the SWRCB guidance document based on the single sample criteria. There were no exceedances of the 30-day monthly geomean.

In addition, for a conservative comparative approach, the number of water samples that exceeded one or more criteria were looked at and compared to the number allowable. This resulted in 2 exceedances which is below the maximum allowable of 20. This assessment corresponds to the number of days the waterbody was posted.

These results of all three assessments suggest that the Salt Creek Beach at Dana Strands site should be removed from the 303(d) List of impaired waterbodies for indicator bacteria .

Conclusion

Of the four waterbodies assessed, all three surf zone sites, located within the Dana Point HSA, Monarch Beach, Salt Creek Beach and Salt Creek Beach at Dana Strands do meet the established criteria for de-listing and should be removed from the 2008 303(d) List of Impaired Waterbodies for indicator bacteria.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



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REFERENCES:

Water Quality Control Policy For Developing California's Clean Water Act Section 303(d) List.

www.ocbeachinfo.com , Orange County Health Care Agency Data

www.ocbeachinfo.com, Bacteriological Sampling Frequencies and Sampling Locations

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SOCWA Quality Assurance Plan.

City of Dana Point Quality Assurance Project Plan for the Salt Creek Ozone Treatment Plant.

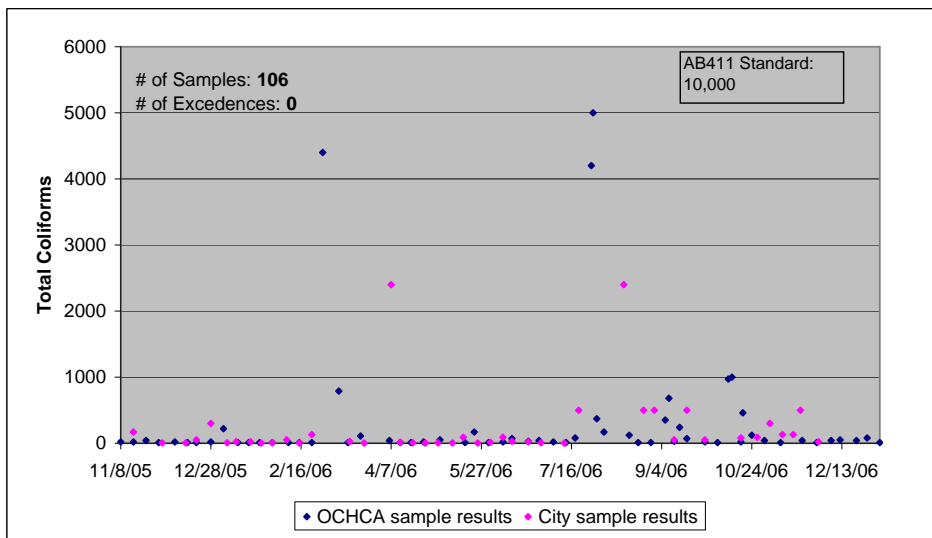
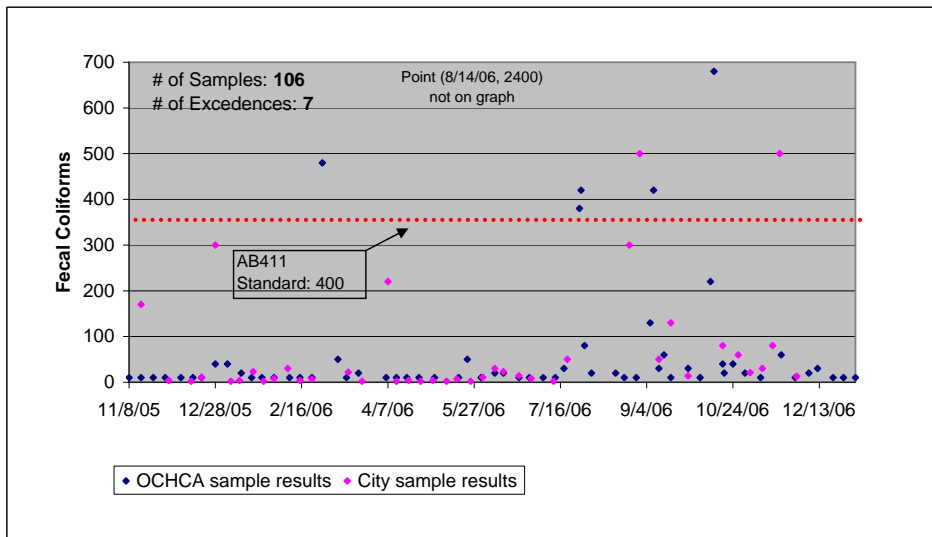
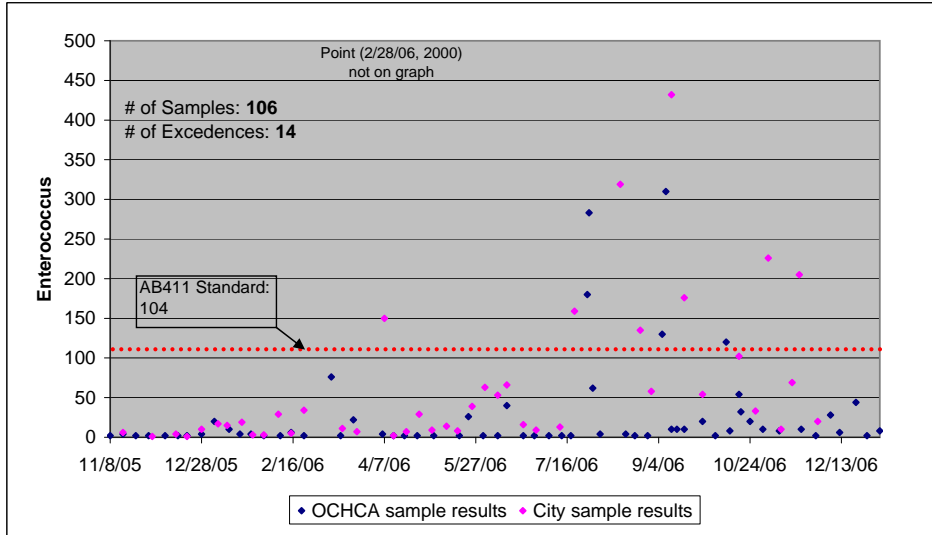
Pacific Ocean Shoreline for San Diego Region Fact Sheet

State Water Resources Control Board, Water Quality Control Plan, Ocean Waters of California, California Ocean Plan, 2005

APPENDIX A

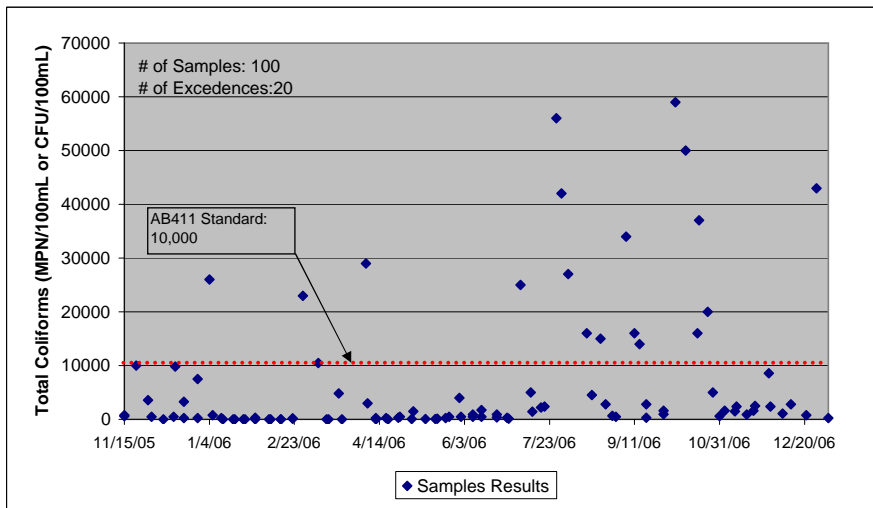
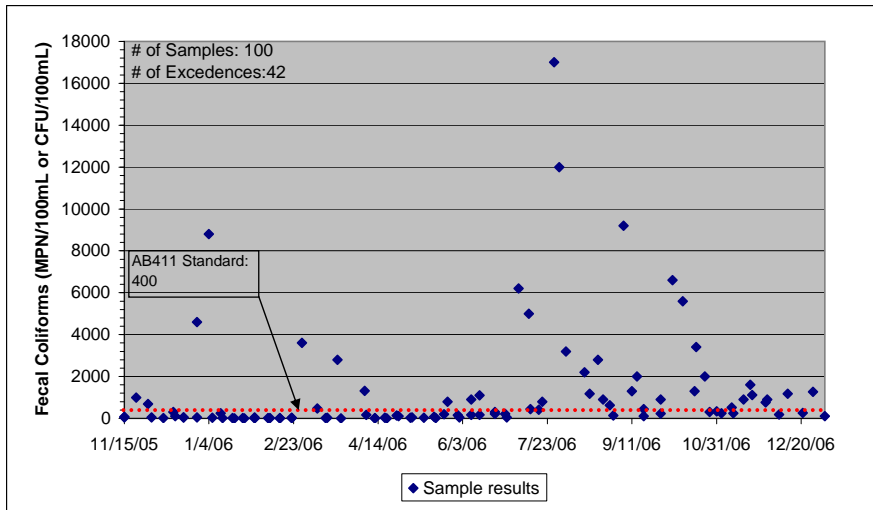
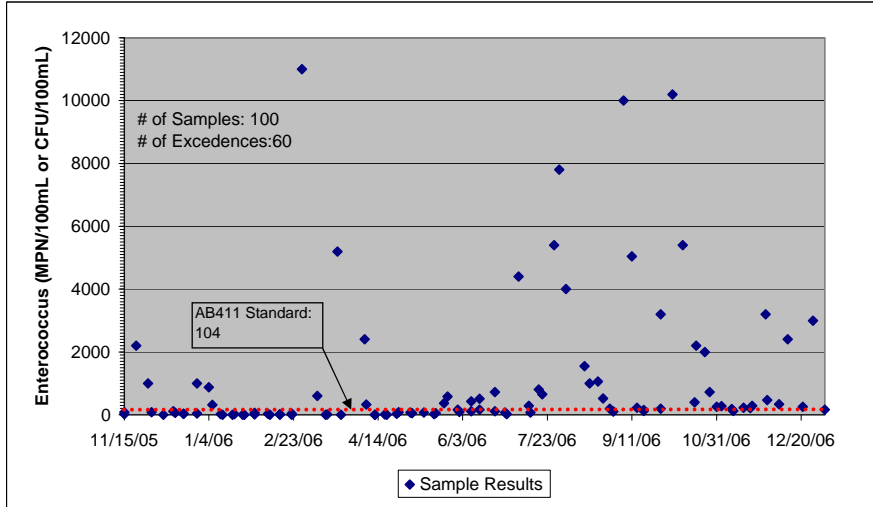
GRAPHICAL REPRESENTATION OF DATA FOR EACH SITE

Graphical Representation of Enterococcus, Fecal Coliform Total Coliform (Single Sample) for Monarch Beach (OSL25)
November 2005 through December 2006

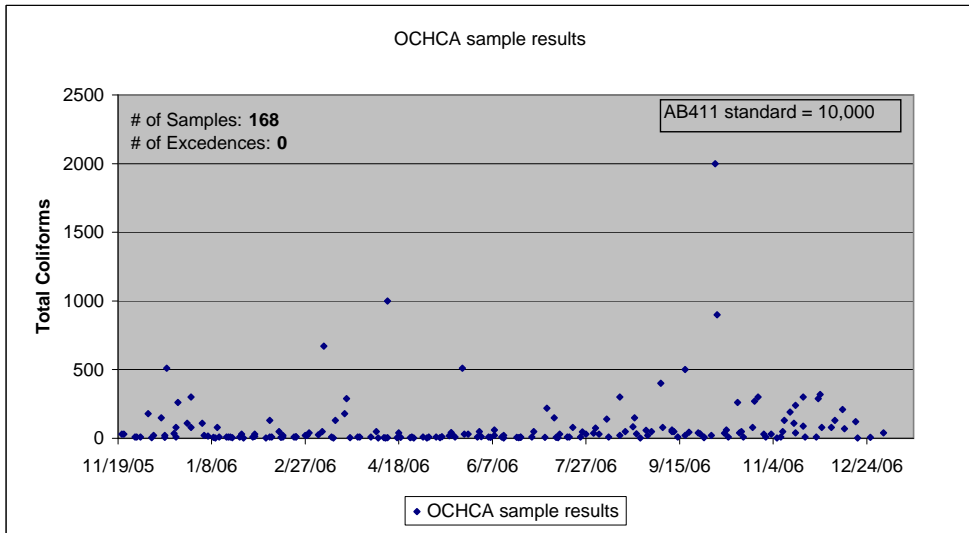
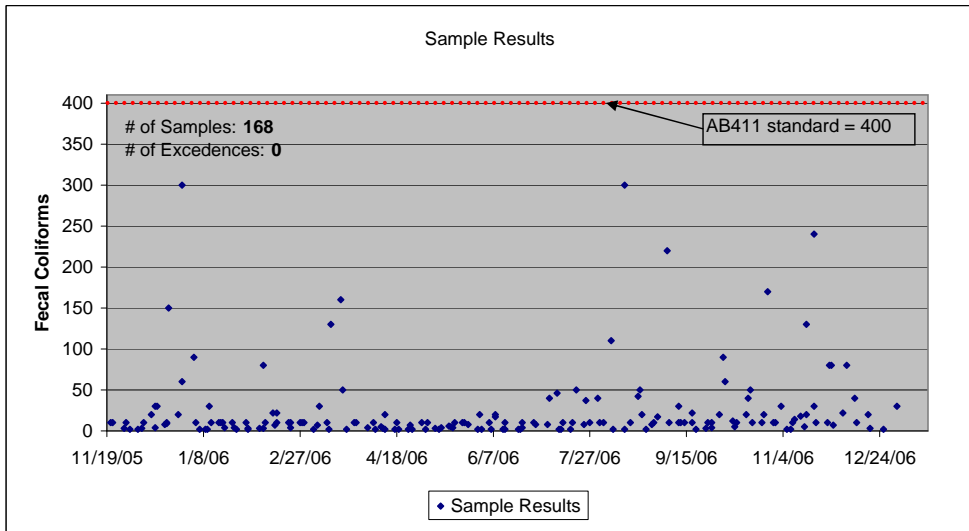
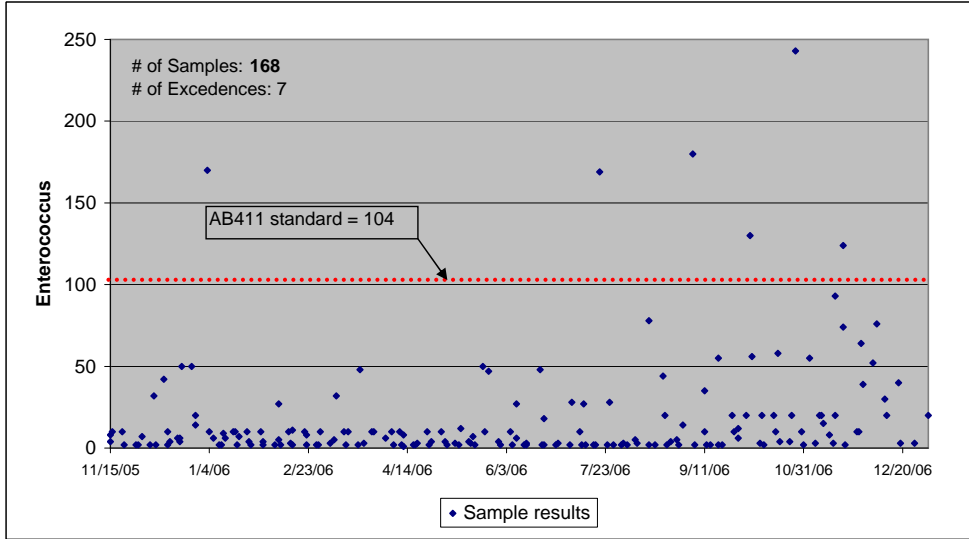


Bacteria levels in MPN/100mL or CFU/100ml

Graphical Representation of Enterococcus, Fecal Coliform and Total Coliform (Single Sample) for Salt Creek (CSLSC) November 2005 through December 2006



**Graphical Representation of Enterococcus, Fecal Coliform and Total Coliform (Single Sample) for Salt Creek Beach (S2)
November 2005 through December 2006**



Graphical Representation of Enterococcus, Fecal Coliform Total Coliform (Single Sample) for Dana Strands Beach (S1)
November 2005- December 2006

