

**Dry Weather Diversion Report
DAMP Appendix E6
November/December 2003 Revisions**

In response to recent comments by the County, the following revisions have been made to the Dry Weather Diversion Report dated October 2003:

Page Number	Revision
E6-29	Corrected Table E6-5 for information related to the Cleo diversion: 1) inserted correct location description 2) corrected watershed name 3) corrected receiving water name 4) changed volume diverted to 1,050,000 gallons per month
E6-37	Corrected Figure E6-12 to show proper location of Cleo diversion.
E6-51	Corrected Table E6-11 to reflect that the Aliso diversion is pumped rather than gravity flow and revised the capital cost to \$60,000 (and updated corresponding life cycle cost). Also revised footnote 3 to indicate that there is not treatment cost imposed on the Greenville Banning diversion.
E6-52	Corrected Table E6-12 to indicate that the Aliso (Alt. 4a) diversion is pumped flow and revised text at top of page to indicate that the life cycle cost for the Greenville Banning diversion does not include possible future treatment costs.
E6-56	Corrected table under heading "E. Cost" as follows: 1) updated annual O&M cost for all three facilities to reflect 6 months of actual operation and added table note 2) updated O&M present value cost based on change in #1 above 3) updated "present value + O&M cost" based on changes in #1 and #2 above 4) updated gallons/month amount treated for Cleo diversion to 1,050,000 5) updated volume treated per year for Cleo diversion to 6,300,000 gallons 6) updated lifecycle costs for all three facilities based on changes above
E6-57	Corrected last paragraph to indicate that the ranking score for all three case studies exceeded 15, and that the Newport Dunes diversion ranked highest.
E6-58	Corrected the ranking summary table to reflect updated O&M and life cycle costs for all three facilities. Also corrected ranking score for Cleo diversion, which changed from 13 to 16 based on the changed (reduced) life cycle cost.

**ORANGE COUNTY STORMWATER
PROGRAM**

APPENDIX E6

**DRY WEATHER DIVERSION
STUDY**

October 2003

A cooperative project between the County of Orange, Orange County Flood Control District and the incorporated cities of Orange County.

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Executive Summary

The dry weather diversion study was prepared to evaluate the dry weather diversions to the sanitary sewer that are in place or proposed within Orange County. The findings are incorporated into the Dry Weather Diversion Plan that identifies decision-making criteria to be used in selecting diversions as a preferred BMP. The current Orange County NPDES permits do not have a specific requirement for dry weather diversions to be implemented. Urban runoff resulting in dry weather or nuisance flows, however, can be a source of pollution to receiving waters. Diversion of dry weather or nuisance flows to the sanitary sewer is a viable alternative for treatment of urban runoff.

The Orange County coastal beaches continue to be subject to beach closures and warnings due to unsafe bacteria levels. To reduce these impacts, the County and its permittees have implemented drainage system diversions of dry weather flows to the sanitary sewer system throughout Orange County. The existing diversions have been in operation from less than 1 year to more than 4 years and are in place at Talbert channel/Lower Santa Ana River pump stations and channels, Newport Dunes, Aliso Creek, and various Laguna Beach, Dana Point, and San Clemente coastal storm drains near the outfall to the ocean. There are 38 existing diversion projects operating within 9 of the 13 watersheds within the county. Diversion facilities vary in design from in-pipe diversion systems to large open-channel diversion structures.

Dry weather diversion projects are subject to the policies and requirements of the treatment plant agencies -- the Orange County Sanitation District (OCSD) and South Orange County Wastewater Authority (SOCWA). OCSD does not charge a fee for acceptance of dry weather flows for the first 4 million gallons per day (MGD) for all diversion sources. Once this threshold is exceeded, ALL discharges (including the initial 4 MGD allowance) are subject to an assessment fee. Further, OCSD reserves the right to increase and/or modify this charge and/or require a capital facilities recovery fee (CFRF) at any time. The discharge fee structure for SOCWA is much less clear. SOCWA member agencies may choose to accept dry weather diversions to their own system without charge, contingent upon sufficient plant capacity. Member agencies are generally not willing to discuss total dry weather diversion capacities since most plant capacity is reserved for future use (future urbanization).

An alternative analysis was prepared to compare cost of dry weather diversion with other forms of equally effective treatment. Wet basins or constructed wetlands may be cost-effective in the long term, especially if fees are imposed by the agencies for

treatment of urban runoff. Furthermore, the treatment plant agencies presently view dry weather diversion as a temporary, short-term practice.

Three case studies were evaluated with varying characteristics: 1) diversion term; 2) size of diversion facility (open Channel or pipe diversion); 3) proximity to recreational areas (beach usage, Rec1 water); 4) volume of dry weather flows diverted; and 5) water quality. For each case study, diversion has proven effective in reducing exceedences of bacteria concentration standards. No major issues were encountered over the 2-year operational period. Construction and O&M costs varied by site due to operational needs. Alternatives to diversion may be more cost-effective for other sites.

Based on the assessment of current dry weather diversions and review of agency policies, the Dry Weather Diversion Plan was developed to serve as a framework for decision-making, identification of additional potential diversion locations, BMP type selection and prioritization of implementation of the proposed sites. The dry weather diversion plan includes: 1) dry weather diversion decision process; 2) water quality data availability; 3) beneficial uses downstream of diversion; 4) source control – bacteria and dry weather runoff; 5) equally effective and cost-effective BMPs; 6) impacts to downstream recreation uses; 7) impacts to habitat downstream; and 8) community/regulatory agency support.

A recommended procedure for prioritizing implementation of diversion facilities was developed. Potential threats to water quality as indicated by bacterial loads (concentration x flow volume) and proximity to recreational waters will determine how a diversion facility would rank/score compared to others proposed.

Prioritization involves the following elements:

- Classifying a facility as being a high or low priority based on site information
- A quantitative assessment of the site (identify concentrations, flow rates, and potential issues.
- Proximity to recreational waters (review list of beneficial uses downstream)
- Quantity and quality of dry weather flow
- Characteristics of watershed (% urbanized and size of the watershed)
- Beach usage
- Cost (capital cost and life cycle cost)

An additional 38 dry weather diversions are proposed within Orange County watersheds. It is anticipated that each of the proposed diversions will be evaluated

based on the Dry Weather decision criteria provided herein. A life-cycle cost analysis should first be performed to determine if another BMP can achieve the desired project objectives for a lower cost. For projects located in the SOCWA jurisdiction, diversions must be considered temporary, and the “permanent” BMP with the lowest life-cycle cost should be selected for implementation when capital funds are available.

It should also be noted that under the current agreement with OCSD, the current 4 MGD threshold should probably not be exceeded. Further analysis of the existing diversion case studies reveals that the present worth of these existing diversions is less for the wet pond/wetland scenario if a flow-based fee is required to be paid to OCSD.

TABLE OF CONTENTS

Executive Summary E6-i

E6-1 Introduction **E6-1**

 E6-1.1 Background..... E6-1

 E6-1.2 Scope of Work..... E6-1

 E6-1.3 Program Objectives..... E6-2

 E6-1.3.1 Dry Weather/Low Flow Impacts E6-2

 E6-1.3.2 Regulatory Requirements E6-4

 E6-1.4 Guidance Overview E6-4

 E6-1.4.1 Source Identification and Diversion Requirements E6-4

 E6-1.4.2 Sanitary Sewer Service Areas E6-5

 E6-1.4.3 Dry Weather Diversion Plan E6-6

 E6-1.4.4 Inspection and Monitoring E6-6

 E6-1.5 Value of Beach Closure Days E6-6

E6-2 Agency Policy/Requirements..... **E6-8**

 E6-2.1 OCSD E6-9

 E6-2.2 SOCWA E6-13

 E6-2.3 Discussion E6-17

E6-3 Assessment of Current Dry Weather Diversion Facilities..... **E6-18**

 E6-3.1 Overview E6-18

 E6-3.2 Facility Description..... E6-23

 E6-3.3 Watersheds..... E6-26

 E6-3.4 Case Studies..... E6-27

 E6-3.4.1 Case Study 1: Newport Dunes Diversion Project..... E6-30

 E6-3.4.2 Case Study 2: Greenville Banning Channel Diversion Project E6-33

 E6-3.4.3 Case Study 3: Cleo St @ Gaviota Drive, Laguna Beach
 Diversion Project..... E6-36

 E6-3.5 Protocols and Maintenance of Diversion Facilities E6-39

 E6-3.6 General Sanitary Sewer Issues E6-39

 E6-3.7 General Design Issues E6-39

 E6-3.8 Setup and O&M Costs..... E6-41

E6-4 Dry Weather Diversion Plan..... **E6-42**

 E6-4.1 Introduction E6-42

 E6-4.2 Diversion Decision-Making Criteria E6-42

 E6-4.2.1 Dry Weather Diversion Decision Process..... E6-43

E6-4.2.2	Beneficial Uses Downstream of Diversion	E6-45
E6-4.2.3	Source Control – Bacteria and Dry Weather Runoff.....	E6-47
E6-4.2.4	Equally Effective and Cost-Effective BMPs.....	E6-48
E6-4.2.5	Performance Comparison	E6-52
E6-4.2.6	Impacts to Downstream Recreation Uses.....	E6-52
E6-4.2.7	Impacts to Habitat Downstream.....	E6-53
E6-4.2.8	Community/Regulatory Agency Support	E6-53
E6-4.3	Prioritization Procedure.....	E6-53
E6-5	Program Report and Assessment	E6-60
E6-5.1	Program Report Procedures	E6-60
E6-5.2	Record Keeping.....	E6-60
E6-5.3	Effectiveness Assessment.....	E6-60
E6-6	Proposed Dry Weather Diversions	E6-61
E6-7	References.....	E6-63

ATTACHMENTS

- Attachment A: OCSD and SOCWA Policies on Dry Weather Diversion
- Attachment B: County of Orange Health Care Agency/Environmental Health Bacteria Data
- Attachment C: Orange County Diversion Locations Map

List of Tables

Table E6-1.	Treatment Plant Operators and Service Areas	E6-5
Table E6-2.	Beach-Mile Day Warnings– 2000 Data	E6-7
Table E6-3.	List of Existing Dry Weather Diversion Facilities.....	E6-24
Table E6-4.	Orange County Watersheds – Number of Diversions	E6-26
Table E6-5.	Case Studies - Summary	E6-29
Table E6-6.	Bacteria Levels at Dunes Downstream of Dunes Diversion.....	E6-32
Table E6- 7.	Bacteria Levels Near Outfall Downstream of Greenville Banning.....	E6-35
Table E6-9.	Existing Dry-Weather Diversion Facilities Setup and O&M Costs.....	E6-41
Table E6-10.	Water Bodies Within Orange County With Rec-1 and Rec-2 Beneficial Uses.....	E6-46
Table E6-11.	Cost Comparison of Alternatives For Selected Dry-Weather Diversions	E6-51

Table E6-12. Summary of Bacteria Removal Performance For Alternatives to Dry Weather Diversion E6-52

Table E6-13. Summary of the 2002 Proposed 303(D) List of Impaired Water Bodies..... E6-59

Table E6-14. Proposed Dry Weather Diversions E6-62

List of Figures

Figure E6-1. Sanitary Sewer Service Areas..... E6-5

Figure E6-2. Sources of Beach Warning Postings E6-7

FigureE6- 3. Sources of Beach Closures E6-8

Figure E6-4. Bacteria Monitoring Trend 1999-2002 (Huntington Beach) E6-19

Figure E6-5. Bacteria Level Exceedence Trend at Newport Dunes..... E6-20

Figure E6- 6. Location of Existing and Proposed Diversion Facilities in Orange County E6-25

Figure E6-7. Watershed Boundary Maps of Orange County..... E6-27

Figure E6-8. Newport Dunes West Channel Diversion Project..... E6-31

Figure E6-9. Photographs of the Newport Dunes Pipe Diversion and Outlet E6-31

Figure E6-10. Location of the Greenville-Banning Dry Weather Diversion E6-34

Figure E6-11. Photograph of the Greenville-Banning Dry Weather Diversion..... E6-34

Figure E6-12. Cleo Street at Gaviota Drive - Laguna Beach Diversion Project E6-37

Figure E6-13. Cleo Street at Gaviota Drive CDS™ Diversion and Beach Outlet E6-37

Figure E6-14. Typical Wet Pond E6-49

Figure E6-15. Typical Clear Creek System E6-50

LIST OF ACRONYMS

BMD	Beach-Mile Day
BMP	Best Management Practices
BOD	Biochemical oxygen demand
CDS™	Continuous Deflective Separation Unit
CFRF	Capital facilities recovery fee
DAMP	Drainage Area Management Plan
ENT	Enterococci
FC	Fecal Coliform
GIS	Geographical information system
GWR	Groundwater Recharge TMDL
IND	Industrial Process Supply (PROC),
MGD	million gallons discharged
MUN	Municipal and Domestic Supply Industrial Service Supply
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and maintenance
OC	Orange County
OCSD	Orange County Sanitation District
POTW	Publicly-owned treatment works
SOCWA	South Orange County Wastewater Authority
SS	Suspended solids
SWD	Special Waste Discharge [Permit]
SWRCB	State Water Resources Control Board
TC	Total Coliform
TDS	Total dissolved solids
ULFDP	Urban Low Flow Diversion Project
TSS	Total Suspended Solids
WARM	Warm Freshwater Habitat
WDRs	Waste Discharge Requirements

E6-1 Introduction

E6-1.1 Background

The County of Orange (“the County”), the County Flood Control District and incorporated cities (the County Permittees) are in the process of revising the Drainage Area Management Plan (DAMP) to present a plan to address National Pollutant Discharge Elimination System (NPDES) permit requirements. The Dry Weather Diversion study is a component of the NPDES Program Section B – Plan Development of the DAMP.

The objectives of the dry weather diversion study are to evaluate the dry weather diversions to the sanitary sewer that are in place or proposed within Orange County, and incorporate the findings into a Dry Weather Diversion Plan that identifies decision-making criteria to be used in selecting diversions as a preferred BMP.

A dry weather diversion project or diversion is defined as the process of directing nuisance flow (dry weather flow) from a storm drain, a creek, or other body of water into the sewer collection system for eventual treatment at a wastewater treatment plant prior to discharge to the receiving water, or discharge to the treatment plant outfall line if directly tributary to the ocean.

E6-1.2 Scope of Work

Specific tasks included:

Task 1 *Assessment of Existing Diversions* - Using the list of existing diversions, three diversion projects, representing different sizes and conditions, were selected for further assessment. The assessment considered the proximity to recreational areas, the amount and quality of water diverted, issues related to sewer agency acceptance of the diverted water, the effectiveness of the diversion on the receiving waters, and costs. Based on available information, or engineering estimates, the cost analysis considered costs for construction, maintenance, conveyance, and sewer plant treatment capacity. The analysis compares costs with other major BMP types for equivalent water treatment volumes.

Task 2 *Develop Diversion Decision-Making Criteria* – Decision-making criteria to be used in selecting diversions as a preferred BMP were developed, taking the following into consideration:

- The designated uses and actual recreational and other impacts of the flows in the areas where the diversion is proposed
- Capacity-related limitations such as those related to the sizing of treatment plants and collection systems in the areas where the diversion is proposed
- Limitations related to water quality limitations such as those related to the permits of treatment plants or reclaimed water incompatibility in the areas where the diversion is proposed
- Habitat issues related to the potential loss of valuable water resources in the areas where the diversion is proposed
- Comparative costs of diversions versus other alternatives such as water conservation techniques to reduce dry weather runoff and treatment train BMPs
- Community/regulatory support for other diversions

Task 3 *Map of Current/proposed Diversion Sites* – A GIS map layer was prepared showing current and proposed diversion sites. The map identifies (to the extent existing data is available) the storm drain outfalls greater than 18 inches in diameter to ocean and harbor/bay receiving waters, and the volume and quality (bacteriological data) of the receiving waters.

Task 4 *Development of a Dry Weather Diversion Plan* – A plan to assist the County Permittees and wastewater agencies in understanding existing diversions and providing decision making criteria for future diversion projects was developed.

E6-1.3 Program Objectives

E6-1.3.1 Dry Weather/Low Flow Impacts

Urban runoff contains pollutants believed to be harmful to the environment and human health. The Federal Clean Water Act regulates “urban runoff” – the discharge of pollutants draining into receiving waters and the ocean. Pollutants can include sediment, trash and debris, heavy metals, bacteria and/or viruses, oil and grease, and other household chemicals such as detergents, herbicides, and insecticides. Health, environmental, and economic impacts are associated with pollution conveyed by dry weather/low flows to downstream recreational waters.

Much attention has been given to the number of beach closures and postings, especially along the Orange County coastline. Orange County communities have active monitoring programs (conducted primarily by county health agencies) and municipal waste treatment facilities to determine if recreational waters are contaminated with indicator bacteria (total coliform, fecal coliform, and enterococci bacteria). Under the new regulations, health officers are required to post warnings whenever any one of the bacterial standards is violated in areas near storm drains; They have the authority to close a beach when appropriate. Many beaches near storm drains are frequently in violation of at least one of the standards established by the Department of Health Services (California Beach Report, SWRCB 2001).

A number of pollutants can impact receiving water quality and beneficial uses. However, the incidence of historic and recent postings and closures on OC beaches have been almost exclusively related to violation of bacteria standards. Therefore, this report has concentrated on fecal indicator bacteria as a basis for runoff quality and receiving water quality considerations related to diversion project evaluation.

Beach closures result in economic impacts to local beach communities because beaches are an important destination for tourists in California. Based on 2000 data, Orange County had 53 BMDs (Beach-Mile Days) of closures. BMD is a measure of beach availability for recreation and is generally assessed on an annual basis. It is a product of the number of miles of coastline and 365 days (the number of days the beach may be available for recreation in California). The County has 112 miles of open coast, bay and harbor beaches, it has 40,880 BMD available (112×365). However, if 150 BMD are impaired due to closures or posted warnings, then 0.4 percent ($150/40880 \times 100$) of the beach availability was impaired. In other words, 99.6 percent of beach usage met standards for the reporting year.

To mitigate these impacts, the permittees have implemented drainage system diversions throughout Orange County for dry weather flows to the sanitary sewer. The existing diversions have been in operation from less than 1 year to more than 4 years and are in place at Talbert channel/Lower Santa Ana River pump stations and channels, Newport Dunes, Aliso Creek, and various Laguna Beach, Dana Point, and San Clemente coastal storm drains near the outfall to the ocean. Additional diversion facilities are proposed by the various permittees.

E6-1.3.2 Regulatory Requirements

Water diversion to sanitary sewers is subject to regulatory requirements imposed on the sanitary sewer treatment facilities. Publicly-owned treatment works (POTWs) treat and dispose of wastewater according to local, state, and federal regulations meeting public health requirements. NPDES permits are issued to the POTWs by the Regional Water Quality Control Board, specifying conditions, requirements and standards for disposal of wastewater effluent to the receiving water or ocean. In Orange County, both OCSD and SOCWA hold an NPDES permit for each of their ocean outfalls. Both existing and proposed dry weather diversion facilities discharging to the sanitary sewer system will be subject to the same conditions and requirements imposed upon the sanitary sewer treatment facilities if the dry weather flow is commingled with the plant influent. The requirements of the agencies are described in Section E6-2.

E6-1.4 Guidance Overview

E6-1.4.1 Source Identification and Diversion Requirements

The current Orange County NPDES permits do not have a specific requirement for dry weather diversions to be implemented. Urban runoff resulting in dry weather or nuisance flows, however, can be a source of pollution to receiving waters. Diversion of dry weather or nuisance flows to the sanitary sewer is a viable alternative for treatment of urban runoff.

The first step in dry weather runoff control is to identify candidate locations. Inspection of drainage channels, storm drains, and natural streams for flow during the dry season will identify potential sites. Sources of dry weather flow may include: ground water inflow, excess irrigation, broken pipes, illicit connection and discharges to the storm drain system, and other human-related activities (street cleaning, car washing, carpet cleaning, etc.).

Dry weather diversion requirements generally include the following assessments: 1) determination of quantity and quality of dry weather flow; 2) acceptance of flow by agencies to sanitary sewer; 3) assessment of downstream conditions; and 4) funding to construct, operate, and maintain the diversion facility.

E6-1.4.2 Sanitary Sewer Service Areas

Several Orange County sanitary service districts are currently accepting and treating dry weather runoff. Sanitary sewer treatment service in OC is provided by 9 agencies. The Orange County Sanitation District (OCSD) services the majority of central and northern Orange County. The South Orange County Wastewater Authority (SOCWA) is a joint powers authority comprised of 10 member agencies and acts as the regional (southern Orange County) liaison to regulatory agencies on wastewater management issues. Table E6-1 lists the treatment plant operators within Orange County. Figure E6-1 shows the service boundaries of the agencies.

Table E6-1. Treatment Plant Operators and Service Areas

Agency	Service Area	Currently Treating Dry Weather Runoff?
Orange County Sanitation District	Anaheim, Brea, Costa Mesa, Cypress, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, La Habra, La Palma, Los Alamitos, Placentia, Santa Ana, Seal Beach, Stanton, Tustin, Villa Park, Westminster, Yorba Linda, Orange	Yes
City of San Clemente	San Clemente	Yes
El Toro Water District	Lake Forest, Laguna Woods, Mission Viejo, Laguna Hills	Yes
Irvine Ranch Water District	Irvine, Newport Coast, portions of Tustin, Santa Ana, Newport Beach, Costa Mesa, Orange and Lake Forest	Yes
Moulton Niguel Water District	Laguna Niguel, Laguna Hills, Aliso Viejo	Yes
Santa Margarita Water District	Mission Viejo, Rancho Santa Margarita, Coto de Caza, Ladera, Las Flores, and urban areas east of San Juan Capistrano and San Clemente	Yes
South Coast Water District	Capistrano Beach, Dana Point and Laguna Beach	Yes
Trabuco Canyon Water District	Trabuco Canyon, Dove Canyon, Portola Hills, unincorporated southeast Orange County	No
South Orange County Wastewater Authority	Aliso Viejo, Laguna Hills, Laguna Beach, Laguna Niguel, Rancho Santa Margarita, Dana Point, Mission Viejo, San Clemente, Coto de Caza, Laguna Woods, San Juan Capistrano, Las Flores, Talega, Ladera, Lake Forest	Yes

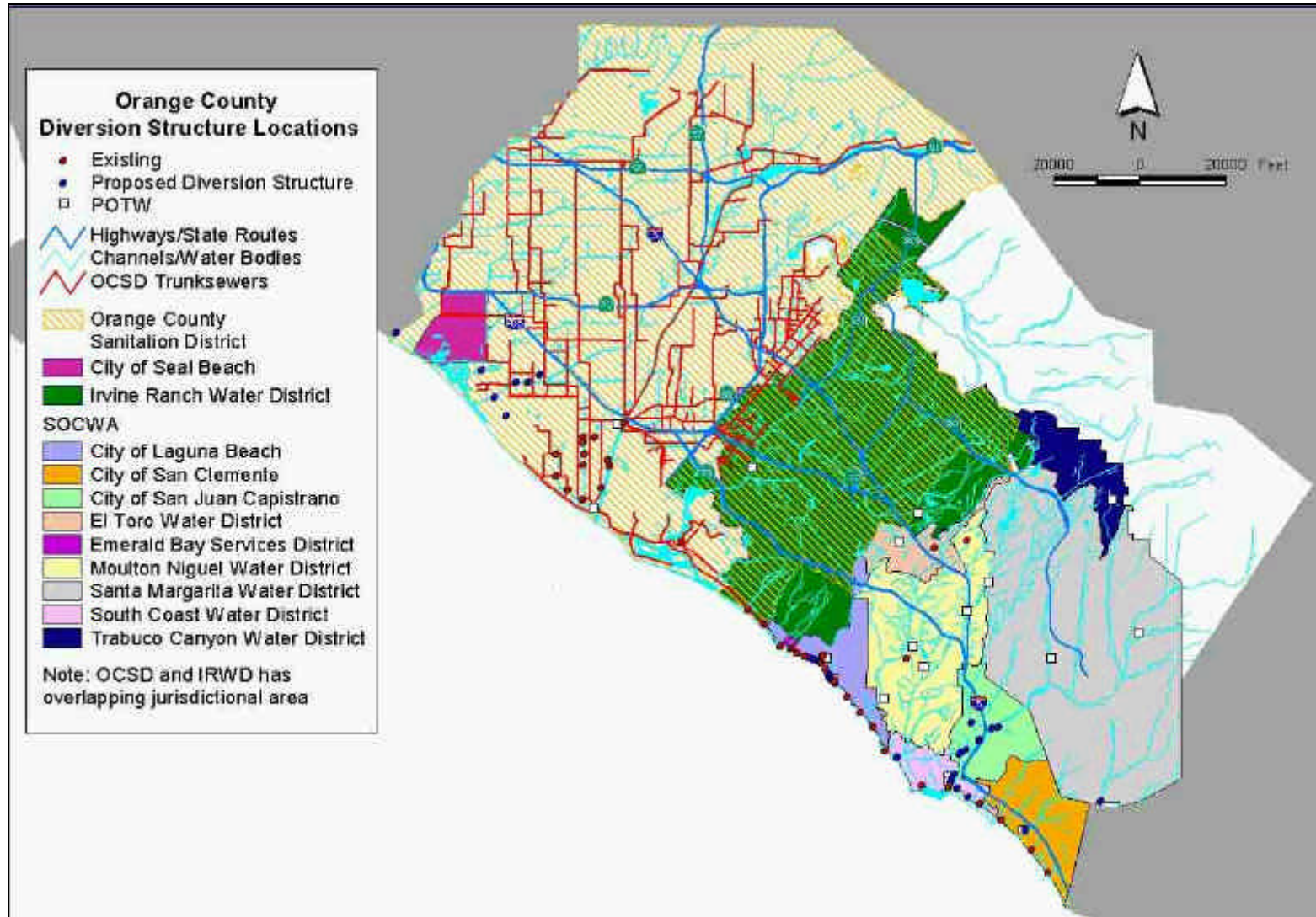


Figure E6-1. Sanitary Sewer Service Areas

E6-1.4.3 Dry Weather Diversion Plan

The Dry Weather Diversion Plan developed herein identifies the issues related to diversions and discusses criteria for diversion implementation. The Plan is supported by a decision-making process, a prioritization process, and requirements by agencies for acceptance of flow to the sanitary sewer system. The dry weather diversion plan is provided in Section E6-E6-4.

E6-1.4.4 Inspection and Monitoring

Dry weather flow monitoring is required for proposed diversion to determine the quality and quantity of flow proposed for diversion. Sampling will be required prior to applying for diversion of dry weather runoff to the sanitary sewer. Periodic sampling will also be required to monitor the quality of flow entering the sanitary sewer system. OCSD will require quarterly sampling. SOCWA will initially require sampling twice weekly. Subsequently sampling requirements may be reduced to a less frequent level at the discretion of the permitting authority.

E6-1.5 Value of Beach Closure Days

California Health and Safety Code §115910 requires each local health officer to submit to the State Water Resources Control Board (SWRCB) an annual survey documenting all beach postings and closures due to threats to public health that occurred during the preceding calendar year. The media has given much attention in recent years to the number of beach closures and warnings, especially along the southern California coast. California coastal communities have active monitoring programs conducted primarily by county health agencies and by municipal waste treatment facilities. Water samples are collected in the surf zone to determine if recreational waters are contaminated with indicator bacteria (total coliform, fecal coliform, and enterococcus bacteria). Under the new regulations, health officers are required to post warnings whenever any one of the bacterial standards is violated in areas near storm drains and have the authority to close a beach when appropriate. Many beaches near storm drains frequently violate at least one of the standards established by the Department of Health Services. (Ref: California Beach Report, SWRCB, 2001.)

The BMD is a tool for comparing the compliance with REC-1 standards of beaches from year to year. Table E6-2 presents the data on beach warnings posted in southern

California in 2000. A total of 1,091 BMDs had warnings posted in the State. A total of 596 BMDs of the 1,091 BMDs are postings during 2000 along Orange County beaches.

Table E6-2. Beach-Mile Day Warnings– 2000 Data (SWRCB, July 2001)

Location	Number of			Primary Cause(s)
	Incidences	Days	BMDs posted	
Sonoma	12	29	2.7	Rain, Unknown
San Francisco	13	31	49	Rain
San Mateo	17	387	21.5	Unknown
Santa Cruz	7	44	19.8	Unknown
Monterey	16	42	13.8	Unknown
San Luis Obispo	6	16	2.2	Rain
Santa Barbara	152	1,296	73.5	Rain, Unknown
Ventura	72	237	13.4	Unknown
Los Angeles	325	1,150	126.1	Unknown
Long Beach	99	161	4.6	Unknown
Orange	290	2,055	595.8	Unknown
San Diego	274	2,450	168.9	Bacteria Levels Exceed Standards

Figure E6-2 shows that statewide the source of 53 percent of all BMDs with warnings posted was contamination carried to the beach by urban runoff (18%) and by creeks and rivers (35%). Wildlife and rain accounted for 5 percent of warnings. The cause for the remaining 42 percent of the BMD warnings posted was unknown.

Figure E6-2. Sources of Beach Warning Postings (SWRCB, July 2001)

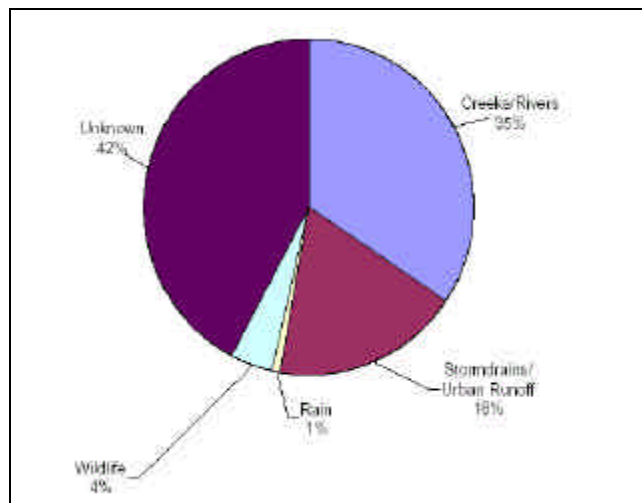
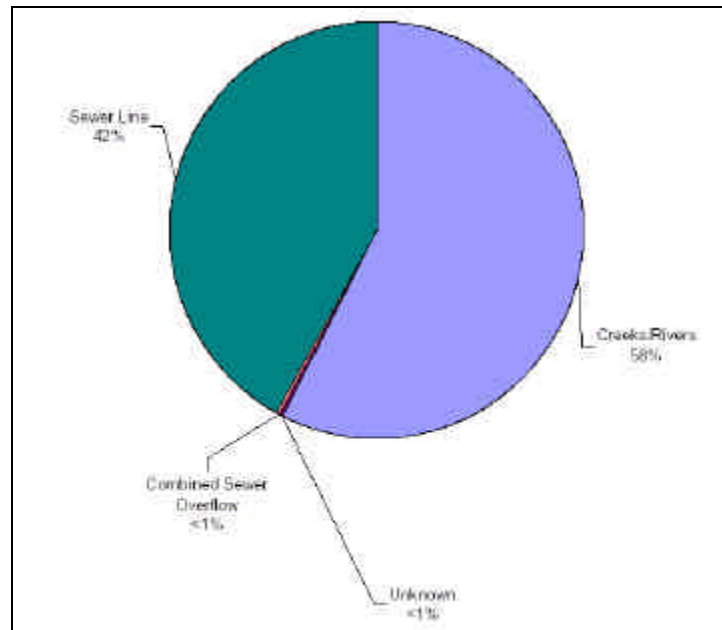


Figure E6- 3 shows the percentages of sources that contributed to beach closures in 2000 statewide. Forty-three percent of the BMDs of closures resulted from releases of sewage either directly (42%) or as the result of heavy rains that caused overflows of sewer systems (1%). Contamination from runoff from creeks and rivers accounted for 58 percent of the BMDs of closures. The source of contamination for 1 percent of the BMDs of closures was unknown.

Figure E6- 3. Sources of Beach Closures (SWRCB, July 2001)



Note that criteria for issuing “beach warning” and “beach closure” differ. In general, beach closures are indicated after repeated incidences of exceedences of bacterial standards. A closure is a notice to the public that the water is unsafe for contact and there is risk of getting ill from swimming in the water. A “beach warning” sign means that at least one bacterial standard has been exceeded. The postings alert the public to the possible risk of illness associated with water contact.

E6-2 Agency Policy/Requirements

Dry weather diversion projects are subject to the policies and requirements of the agency providing sanitary sewer treatment. This section lists the requirements according to the policies of the OCSD and South Orange County Wastewater Authority (SOCWA). Complete copies of the relevant policies of the agencies are included in Attachment A.

E6-2.1 OCSD

OCSD has established policy for acceptance of urban runoff discharge. The main requirements according to the policy are excerpted below.

“No person or entity shall discharge urban runoff, directly or indirectly, to the sewerage system during wet weather. The agency may accept urban runoff into the sewerage system during dry weather conditions (“dry weather urban runoff”) provided that the discharger meets the following requirements:

Requirements for Obtaining Permission to Discharge

1. The dry weather urban runoff diversion to the sewerage system shall address a public health or environmental problem associated with the runoff discharge that cannot be otherwise economically or practically controlled.

A dry weather urban runoff diversion structure shall be designed and installed and other necessary provisions shall be implemented to exclude storm and other runoff from entry into District’s sewerage system during wet weather. The diversion structure shall be equipped with a lockable shut-off device, satisfactory to the District, and to which the District shall be provided access at all times;

2. Prior to commencement of discharge of the dry weather urban runoff to the sewerage system, in accordance with the policies and procedures set by the District, the applicant shall apply for and obtain a Wastewater Discharge Permit (“permit”) from the District. The District may require that the permit applicant enter into an agreement setting forth the terms under which the dry weather discharge is authorized in addition to or in lieu of issuance of the permit;
3. The permit applicant shall consider and evaluate the feasibility of other disposal alternatives (i.e., discharge into storm drains, reuse and reclamation of the runoff, etc.) for the discharge of the dry weather urban runoff. The permit applicant shall submit to the District a report, satisfactory to the District, evaluating each disposal alternative, and demonstrating why each alternative is not economically or practically

feasible to dispose of the proposed dry weather urban runoff in lieu of sewer discharge;

4. The permit applicant's proposed diversion system shall prevent debris and any other pollutants of concern from entering the District's sewerage system. Attachment A provides OCSD's list of pollutants of concerns. The permit applicant shall submit design drawings and an operations and maintenance plan for the proposed dry weather diversion structure which shall be sufficient to establish that all District requirements will be met to prevent pass through of and/or interference with the District's sewerage facilities. The diversion system shall be capable of measuring and recording on a daily basis the flow discharged to the sewerage system;
5. The permit applicant shall submit best management practices and pollution prevention strategies designed to minimize or eliminate dry weather urban runoff. More stringent practices and strategies may be required depending on the nature of the anticipated discharge;
6. The permit applicant shall submit to the District a proposed method of guarantee the existence of an enforceable mechanism to ensure that the District receives payment for all monies due pursuant to this policy, and any amendments thereto, for as long as the discharge occurs. No permit application shall be complete without such an enforceable mechanism, satisfactory to the District in its sole discretion. This mechanism shall be designed to limit any administrative burden on the District;
7. The General Manager, or his designee, may impose additional requirements as may be appropriate to reduce the burden on the District's collection, treatment and disposal facilities;
8. Collection, treatment and disposal of sanitary sewer discharges remain the District's primary functions. No additional dry weather urban runoff permits shall be issued if the General Manager, or his designee, determines that such issuance may, alone or in conjunction with other permits, adversely affect the District's primary functions.

Requirements After Granting Permission to Discharge

The quality and quantity of the discharge shall meet the conditions, provisions or limitations contained in the District's *Wastewater Discharge Regulations* (Ordinance No. OCSD-01);

The permittee shall conduct self-monitoring for the pollutants of concern as directed by the District to ensure compliance with the terms, conditions and limits set forth in the permit/agreement and the District's Ordinances. Unless otherwise directed, the permittee shall conduct self-monitoring of the discharge on a quarterly basis. The results of all self-monitoring shall be submitted to the District, upon request, but in no event later than forty-five (45) days following the completion of sample analysis. The permittee shall monitor the flow and submit reports documenting the quality and quantity of the flow discharged as directed by the District;

1. In the event that the quality or quantity of the dry weather urban runoff discharge to the sewerage system does not meet the conditions, provisions, or limitations set forth in the discharge permit/agreement or Ordinance No. OCSD-01, the permittee shall take immediate action to correct the problem(s) to ensure that full compliance is met. The District may take enforcement action for any violation of the terms of the permit/agreement and/or the District's Ordinances, including termination of the discharge, in accordance with the provisions of Ordinance No. OCSD-01;
2. Dischargers located within the District's service area shall not initially be required to pay any fees and charges associated with the authorized discharge of dry weather urban runoff to the District's sewerage system. Dischargers located outside the District's service area that the District authorizes to discharge dry weather urban runoff, directly or indirectly, to the District's sewerage system shall initially pay District operations and maintenance costs of \$321.00 per million gallons discharged (MGD). Once the total volume of all dry weather urban runoff discharges to the District's sewerage system exceeds four (4) MGD, *all dischargers, including those for whom authorization to discharge has previously been granted [emphasis added]*, shall pay District operations and maintenance costs, initially at the rate of \$321.00 per million gallons discharged. The District reserves the right to impose other fees and charges, including but not limited to permit fees, sewer use charges, capital facilities charges and modified

operations and maintenance charges on all urban runoff discharges in accordance with any future amendment of this policy, and pursuant to any other current or future District Ordinances or policies. Failure to pay fees in a timely manner shall be cause for termination of the permit/agreement and the discharge. All dischargers shall, at all times, be subject to noncompliance sampling fees set forth in Ordinance No. OCSD-01;

3. The permittee shall provide District's employees with access to the diversion location and all areas from which and through runoff originates and/or flows, during all reasonable hours, which shall include any time when a discharge to the sewerage system may be occurring, for purposes of inspection, monitoring, and verifying compliance with the permit/agreement and/or the District's Ordinances;
4. The permittee shall have complete responsibility for the construction, operation and maintenance of the diversion facility or any other associated facilities and for ensuring compliance with the terms and conditions of the discharge permit/agreement and the District's Ordinances;
5. No later than the commencement of any measurable rainfall, each discharger of urban runoff shall shut off the flow of urban runoff (and accompanying storm water) to the District's sewerage system. The discharge shall not resume until the discharger has obtained District approval for the resumption of the discharge. Such approval shall not be deemed effective until the discharger provides written confirmation to the District of approval, which confirmation shall include the first and last name of the District employee providing such approval and the time at which such approval was issued;
6. If the District determines that the dry weather runoff, alone or in conjunction with other discharges, is adversely affecting or threatening to adversely affect the District's collection, treatment and/or disposal facilities, the District shall so notify the permittee who shall immediately cease all such discharge to the sewerage system. The District may, in its sole discretion, allow the continued discharge provided that the permittee installs, operates and maintains additional facilities as the Districts determines are appropriate to ensure that the dry weather runoff does

not, alone or in conjunction with other discharges, adversely affect or threaten to adversely affect the District's collection treatment and/or disposal facilities;

7. Under no circumstances shall District authorization to discharge dry weather urban runoff to the District's sewerage system be deemed to provide a vested right for such discharge; and
8. Except as expressly authorized by this policy or a District Ordinance, no urban runoff shall be discharged directly or indirectly into the District's facilities."

E6-2.2 SOCWA

Similar to OCSD, SOCWA has established policy/guidelines for acceptance of urban runoff discharge. The main requirements are excerpted below.

“Project Standards

1. The primary mission of SOCWA and the member agencies is to provide efficient and environmentally compliant treatment of wastewater as well as reclamation for beneficial purposes and the agencies do not intend to jeopardize their wastewater and reclamation operations in any way by approving diversions of nuisance water to the sewer system. No diversion project, however temporary, which would jeopardize or nuisance the SOCWA NPDES permits, result in violation of those permits or potentially causing a sanitary sewer overflow will be approved. The Member Agencies, and SOCWA will review the potential impact of any proposed diversion project on their facilities, the NPDES Permits and the Waste Discharge Requirements (WDRs). Any possible negative impact to SOCWA's or a member agency's recycled water facilities and/or to the WDRs governing the related operation must be fully mitigated by the applicant if required by the agencies owning such facilities, or diversion project will not be permitted. The mitigation will be the sole responsibility of the applicant proposing the diversion.
2. Diversions of nuisance flows to SOCWA or member agency sewage collection systems and treatment/disposal facilities may be permitted only when such diversion helps to solve an immediate public health or

environmental problem associated with the nuisance flows that cannot otherwise be addressed in an alternative practical or economical manner. The applicant shall submit to the member Agency and SOCWA a report satisfactory to the Member Agency and SOCWA, evaluating each disposal alternatives, and demonstrating why each alternative is not economically or practically feasible to dispose of the nuisance flow in lieu of a diversion to the sewage collection systems and treatment/disposal facilities. Member agencies and SOCWA shall have sole discretion in making the determination as to whether to permit a diversion project.

Every applicant must adequately detail how the applicant will provide a permanent solution in place of the diversion project; or , in the alternative in the case of Member Agency's own application, how the diversion project functions within a member Agency's operational practices and overall program to reduce nuisance flows to creeks, streams, or the ocean. The information will be deemed adequate only if it details alternative facilities or operational practices; a time-schedule to substitute the alternative (s) for the diversion project; and any other information and details requested by SOCWA or a Member agency.

3. Diversion of nuisance flows to SOCWA or a Member Agency may be permitted only during the dry weather period (April 15th through October 15th) in any given year, and provided that the member agency approving or applying for such diversion has adequate capacity in the SOCWA wastewater treatment and disposal facilities available to permit the diversion without exceeding that Member Agency's ownership capacity. Any such diversion shall be designed to shut down prior to the "first flush" during a storm event. A diversion of nuisance flows may be permitted beyond the dry weather period so long as the system is properly designed and approved by the receiving Member Agency and SOCWA to shut down prior to the "first flush" of any significant precipitation event. A member agency and SOCWA may, at their discretion, accept "first flush" flows and/or wet weather runoff provided such diversion are regulated in a controlled manner and do not adversely impact the wastewater collection or treatment system and or cause a violation of the NPDES Permits or WDRs.
4. Each applicant for a diversion project, whether it be a member agency, or public agency or private applicant shall secure a Special Waste Discharge

(SWD) Permit from the member agency, or SOCWA as applicable, permitting and approving the diversion project in accordance with the Pretreatment Ordinances. All fees for application, review and development of the SWD permit shall be borne by the applicant. All requirements of the WDRs and Pretreatment Ordinances shall be applicable to diversion projects (except as certain terms of the Pretreatment Ordinances are altered by this Policy). For example, but not by way of limitations, diversion projects must meet the local limits contained within the Pretreatment Ordinances. In the event that a diversion project predates the existence of this Policy, SOCWA and the affected member Agency shall review these existing diversions and expeditiously issue SWD Permits for such diversion in accordance with this Policy.

5. SWD Permits maybe issued for a term not-to-exceed five (5) years and may be renewed at the discretion of the affected Member Agency and SOCWA for additional periods in accordance with this Policy, provided the applicant has adequately demonstrated the continued non-feasibility of alternatives.
6. The applicant for the diversion shall submit plans and specifications for the diversion project to the permitting member agency, or SOCWA as applicable, prior to issuance of the SWD Permit, connection to the sewage collection systems and commencement of the diversion. All such plans must meet any and all requirements now in effect or henceforth established by the member agency or SOCWA and must be approved by the affected member agency, or SOCWA as applicable.
7. In accordance with its plan approval process, the affected member Agency, or SOCWA as applicable, may require the diversion project applicant to provide for the installation of appropriate filters or other control technologies necessary to remove grease and oil, trash and debris and other objectionable substances prior to connection to the sewage collection system. The total number of diversion project connections should be kept to a minimum whenever possible. The project applicant(s) will, wherever feasible, design projects which interconnect the diverted flows to a single sewage collection system connection point. A lockable shut-off device, or similar device, shall be required at all connection points, and the member agency and SOCWA shall have access

to such device at all times; provided, this does not permit SOCWA to modify any storm drain or sewage collection system of a Member Agency, but only to operate the lockable shut-off device (or the alternative device) as necessary to carry out the terms of this Policy relative to protection of facilities. Pumped diversions are preferred method of discharge in order to prevent debris from entering the sewage collection system and to control the maximum rate of flow. The location of capture should be at or near the end of the storm drain or channel to provide the greatest degree of capture. The diversion project design shall allow control of the amount of the flow diverted and shall allow the capture devices to be easily removed or bypassed in the event of significant precipitation event.

Each diversion project shall provide for the quantity of flow to be recorded on a continuous daily basis, at least until sufficient data is available for analysis. Flow monitoring results shall be submitted to the affected member agency, or SOCWA as applicable, on a weekly basis and the member agency shall forward same to SOCWA. The cost for such monitoring shall be borne solely by the project applicant. Based upon the initial flow data submitted, at its discretion the affected member agency, in consultation with SOCWA, may reduce the monitoring requirements to a less frequent level. It is recognized that some diversion projects, due to their size and /or complexity, may require more or less flow monitoring than others. Member agencies and SOCWA will have discretion in the administration of this Policy, as long as sufficient data is provided for documenting compliance with WDRs and capacity impacts to SOCWA facilities.

8. For each diversion project, at a minimum a 24-hour composite sample shall be collected twice a week by the applicant. The sample must then be analyzed by an independent certified laboratory acceptable to the member Agencies and SOCWA for general mineral content, oil and grease, and any other substances determined by the agencies and SOCWA to be appropriate to the specific diversion project. The project applicant must submit sampling data to SOCWA and the Member Agency upon receipt. At its discretion, the Member Agency, in consultation with SOCWA, or SOCWA as applicable, may reduce this requirement to a less frequent level. All costs for sampling and analysis shall be borne by the project applicant. It is recognized that some

diversion projects, due to their size, complexity or the type of nuisance flow diverted, may require more or less sampling than others. Member agencies and SOCWA have discretion in the administration of this policy, so long as sufficient data is provided for documenting compliance with WDRs and the NPDES Permit requirements.

9. Operation and maintenance of an approved diversion project shall be the sole responsibility of the project applicant. Member agencies and SOCWA reserve the right to inspect, monitor, or otherwise gain access to the diversion structure(s) or site at any time for the purpose of verifying compliance with the SWD Permit requirements.
10. The Member Agency receiving the nuisance flow into its sewage collection system shall have the discretionary authority to halt the diversion either temporarily or permanently without prior notice to the other public agency or private applicant, and without cause. Upon notification by SOCWA to any Member Agency that a diversion project has resulted in, or may cause a violation of the NPDES permits or WDRs, the member agency shall immediately halt the diversion.”

E6-2.3 Discussion

There are several interesting items of note in the formal diversion requirements for OCSD and SOCWA. First, OCSD does not charge a fee for acceptance of dry weather flows for the first 4 MGD for all diversion sources. Once this threshold has been exceeded, ALL discharges (including the initial 4 MGD allowance) are subject to a \$321/MG charge for operation and maintenance. Further, OCSD reserves the right to increase and/or modify this charge and/or require a capital facilities recovery fee (CFRF) at any time.

The discharge fee structure for SOCWA is much less clear. SOCWA member agencies may choose to accept dry weather diversions to their own system without charge provided there is sufficient plant capacity. Member agencies are generally not willing to discuss total dry weather diversion capacities since most plant capacity is reserved for future use (future urbanization). Flow-based charges for non-member entities vary with the specific service provider; however, to date a flow-based charge of \$644/MG has been imposed in addition to non-recurring costs for permit origination etc. Individual member agencies must be approached on a case-by-case basis to assess if there is plant

capacity available for the diversion, and negotiate the initial and flow-based costs that will be assessed.

Lastly, it is explicit in the SOCWA requirements, and inferred in the OCSD requirements that dry weather diversions are considered a temporary measure. Treatment plants are designed to reduce biochemical oxygen demand (BOD) and suspended solids (SS) in addition to disinfecting the influent. Dry weather flow contains low levels of BOD and total suspended solids (TSS), essentially passing through the treatment works. Further, dry weather flow can contain elevated levels of total dissolved solids (TDS) which are problematic for those operators that reclaim the plant effluent. An example of this situation occurs in the San Diego Creek watershed where a portion of the dry weather flow is attributable to groundwater which contains about 2000 mg/L of TDS.

E6-3 Assessment of Current Dry Weather Diversion Facilities

E6-3.1 Overview

The Permittees have implemented drainage system diversions for dry weather flows to the sanitary sewer system at several coastal locations during various periods from 1997 to present.

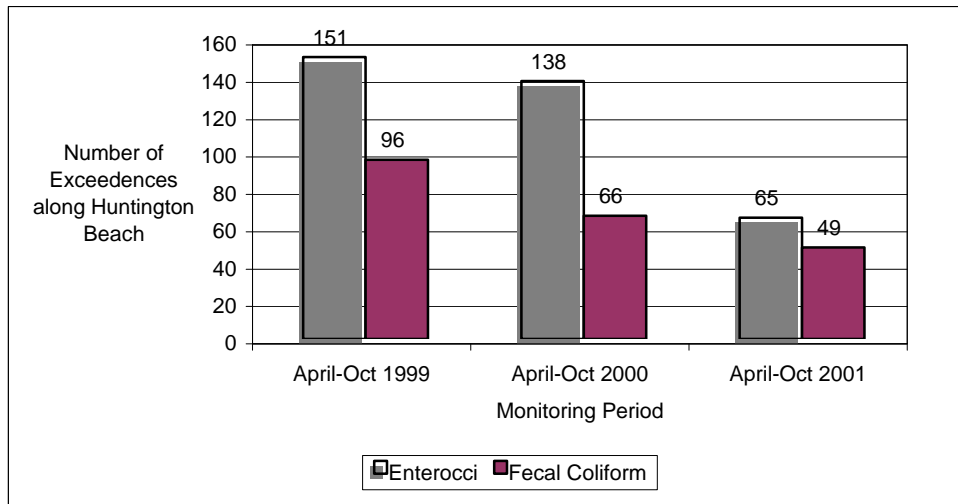
Nine Permittees have implemented a total of 38 drainage system diversions for dry weather flows to the sanitary sewer system in Orange County. The total reported installation costs for these diversions is over \$3.6 million. Combined, over 109 million gallons of urban runoff were diverted per month (about 3.6 MGD). Existing diversion facilities are described below.

a) Talbert/Lower Santa Ana River Watershed

Elevated bacteria indicator levels in the surf zone off Huntington State Beach in 1999 were attributed, in part, to the storm drain system of the Talbert/Lower Santa Ana River Watershed. As part of an early action plan, all drainage channel and pump station discharges in this watershed were temporarily diverted during the summer months of 2000. This action plan was implemented again during the summer months of 2001 as low flow runoff from the Talbert/Lower Santa Ana River Watershed was diverted to the sanitary sewer at thirteen (13) locations. Of the 13 locations, 9 are pump station diversions operated by the City of Huntington Beach and the remaining 4 locations are operated by the County of Orange (3 channel locations and 1 pump station location). Single-sample bacterial exceedances along Huntington State and City Beaches have

declined during each successive year since these diversions have been implemented. Figure E6-4 shows the bacteria monitoring results trend (source: OC Health Svc, OCSD).

Figure E6-4. Bacteria Monitoring Trend 1999-2002 (Huntington Beach, source OCSD)

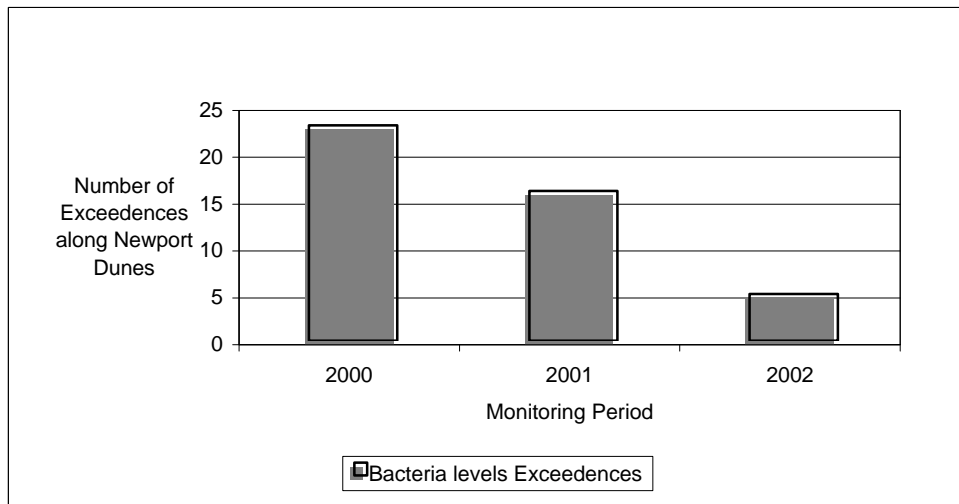


During 2001-02, the County designed and constructed inflatable rubber diversion dams and the required appurtenances in Talbert and Greenville-Banning Channels and a wet well in the Santa Ana River to replace the temporary dams used during the first two summers. The principal Permittee received a \$1 million Clean Beaches Initiative grant from the SWRCB for the structure in Talbert Channel. These improved diversion structures will allow urban runoff to be captured and treated year-round since the structures can be deactivated quickly in advance of a storm.

b) Newport Dunes

Elevated bacteria indicator levels in the Back Bay/Newport Dunes resort area also lead to the diversion of the Back Bay drain during the summer months when the resort area has a high number of people who utilize the area. The Newport Dunes diversion was implemented in March 2001 by the City of Newport Beach on County lease property. As a result, the postings in the Newport Dunes area have been reduced (see Figure E6-5).

Figure E6-5. Bacteria Level Exceedence Trend at Newport Dunes (source: Newport Dunes, OC Health Svcs.)



c) Buck Gully

The Buck Gully diversion project was completed in an effort to decrease the amount of dry-weather flow and associated constituents in a small creek directly tributary to the ocean in an area frequently used for recreation. This diversion facility was temporary and is currently decommissioned.

d) Muddy Canyon and Los Trancos

Two pump stations, Muddy Canyon and Los Trancos were diverted to the sanitary sewer beginning in April 2002.

e) Aliso Creek

In the State Water Quality Assessment (1999), the lower mile of Aliso Creek is listed as water quality limited for the presence of elevated levels of fecal coliform. One storm drain, identified as J03P02, which exhibited elevated fecal coliform levels, was issued a Clean Up and Abatement Order in December 1999 by the San Diego Regional Board.

The County implemented an in-county temporary diversion facility near the mouth of Aliso Creek in May 2001. It operated for approximately 1 year. However, the County was unable to secure an ongoing operation permit for this facility from the Coastal Commission and has subsequently decommissioned it.

As a first-response action, the flows from storm drain J03P02 were diverted to the sanitary sewer by the City of Laguna Niguel. Consistent with SOCWA requirements, the City then began implementation of a more permanent alternative method of treatment. The City currently directs the flows from J03P02 through a Clear Creek® multi-step filtration and ultraviolet water treatment system before the treated water is discharged to Sulphur Creek. Even though the Clear Creek® system effectively decreases the bacterial concentrations within the dry weather flows, this is a temporary demonstration project. The system was designed to treat 150,000 gpd. Effectiveness assessments indicate sporadic results; however, in general a reduction in concentration of constituents is observed. Dry weather flow is currently treated by a series of recently constructed wetlands designed to treat dry weather flows.

f) Laguna Beach Coastal Storm Drains

The City of Laguna Beach installed its first dry weather diversion in 1987. To date, the City has installed eight dry season diversion systems which collect and divert low flow runoff from approximately 1,150 urban acres of the City into the sewer system. In 2001, continuous deflector separator (CDS™) units were installed at two of the locations. Ten more systems are currently under design (one being a re-design). Further, the City has conditioned some private developers to install diversion systems prior to project approval. Upon completion of the eighteen (18) diversion systems, runoff from about 1,500 acres or 60% of the total urbanized acreage in the City will be diverted.

g) Dana Point

Coastal Storm Drains

The City of Dana Point, working with the South Coast Water District, designed and constructed their first Urban Low Flow Diversion Project (ULFDP) in the spring of 2000. This project constructed low-flow interceptor basins upstream of the new peak flow catch basins constructed by the city.

Observation of the diversion system over the summer season indicated that the grates are effectively intercepting irrigation water and other low-flow constituents. Catch basin filters in the new peak flow basins immediately downstream are intercepting large floating trash and other macro pollutants. Six additional low-flow diversion projects are planned:

- The Alipaz Storm Drain Project and Del Obispo Park Storm Drain Projects are two projects that incorporate a CDS™ unit followed by low-flow diversion to the sanitary sewer. The Alipaz Project was completed in October. The Del Obispo project has not been completed pending an agreement between the City of Dana Point and the South Coast Water District.
- Two projects direct low flows to the sanitary sewer without a CDS™ unit. The first project, called the Urban Runoff Diversion Project (URDP), will collect multiple pipe discharges from above Coast Highway and divert the low flows to an existing sanitary sewer that currently lacks sufficient flow to be self-cleaning.

The Phase II Master Plan Storm Drain Improvements bring flow down Palisades Drive from Camino Capistrano to a low-flow diversion on Coast Highway.

- Two other projects, the Salt Creek Storm Drain Treatment Project and North Creek Storm Drain Diversion, are both planned for construction by the City of Dana Point. Both diversions are proposed to function year-round, except during storm events. Construction dates have not been established due to factors such as planning, permitting and bid status.

Dana Point Harbor

The Principal Permittee installed temporary diversion plugs in the storm drains that outlet into Baby Beach at Dana Point Harbor, to the South Coast Water District, then flows to the SOCWA J.B. Latham Treatment Plant.

h) San Clemente Coastal Storm Drains

The City of San Clemente, completed its first low-flow diversion projects in the summer of 2001. The Linda Lane channel is diverted near Via Mecha, and the Los Lobos Channel is diverted northeast of Plaza a La Playa. These diversions operate from mid-May to early October.

i) Other Activities

Other Permittees have evaluated the need to implement more dry weather diversions and report that 38 additional drainage system diversions are either pending or underway in design or construction. Section E6-E6-6 provides a summary of proposed diversion facilities.

E6-3.2 Facility Description

There are 38 existing dry weather diversion facilities within Orange County. Most of the diversion facilities are located near the coastline or at the main trunk line of each major watershed.

Figure E6- 6 illustrates the locations of the existing diversion facilities. For clarity, a larger exhibit is provided in Attachment C. Table E6-3 provides a summary list of existing diversion facilities including location, start date, channel name, and quantity of dry weather flow diverted.

Table E6-3. List of Existing Dry Weather Diversion Facilities

Location	Sanitary Sewer Treatment Agency	Permittee	Month/Year Built	Flow Diverted GPD
9731 Flounder Dr @ D02 (Flounder PS)	OCSD	Huntington Beach	Feb. 2000	72,000
9211 Yorktown Ave @ D02 (Yorktown PS)	OCSD	Huntington Beach	Feb. 2000	72,000
19661 Chesapeake Ln @ D02 (Adams PS)	OCSD	Huntington Beach	Feb. 2000	72,000
20192 Midland Ln @ E01 (Meredith PS)	OCSD	Huntington Beach	Feb. 2000	288,000
9221 Indianapolis Ave @ D02 (Indianapolis PS)	OCSD	Huntington Beach	Feb. 2000	144,000
8151 Atlanta Ave @ D01 (Atlanta PS)	OCSD	Huntington Beach	July 1999	504,000
10101 Hamilton Ave @ E01 (Hamilton PS)	OCSD	Huntington Beach	Feb. 2000	144,000
2201 Malibu Ln @ D02 (Banning PS)	OCSD	Huntington Beach	July 1999	288,000
8612 Hamilton St @ D01 (Newland PS)	OCSD	Huntington Beach	July 1999	288,000
1131 Back Bay Dr (Newport Dunes)	OCSD	Newport Beach	March 2001	8,640
Santa Ana Channel (E01)	OCSD	County of Orange	May 2001	295,154
Greenville-Banning Channel	OCSD	County of Orange	May 2001	214,596
Talbert Channel (D02)	OCSD	County of Orange	May 2001	119,836
Downstream of Adams Ave @ D01 (Huntington Beach)	OCSD	County of Orange	May 2001	-
Linda Ln @ Via Mecha	City of	San Clemente	Aug. 2001	14,000
Camino del Estrella (est. location)	SCWD	Dana Point	NA	1,000
Laguna Cyn @ Forest Ave	City of	Laguna Beach	1987	140,000
Bluebird Canyon	City of	Laguna Beach	1997	30,000
Dumond Dr./Victoria Beach	City of	Laguna Beach	1997	5,000
Fisherman's Cove	City of	Laguna Beach	1998	2,000
El Paseo@Laguna Ave (Main Beach)	City of	Laguna Beach	1998	10,000
5th Ave @ Coast Hwy	City of	Laguna Beach	1999	2,000
Barranca St. @ Cliff Dr	City of	Laguna Beach	2001	1,400
Cleo St. @ Gaviota	City of	Laguna Beach	2001	35,000
Aliso Creek/ Sulphur Creek Confluence	MNWD	Laguna Nigel	May 2000	174,506
Muddy Canyon	OCSD	Newport Beach/IRWD	April 2002	288,000
Los Trancos	OCSD	Newport Beach/IRWD	April 2002	288,000
Los Lobos (est. loc)	City of	San Clemente	Aug. 2001	29,000
Aliso Creek (J01) at mouth*	OCSD	County of Orange	May 2001	234,061
Riviera Beach (150 yards upstream of MO	City of	San Clemente	-	29,000
Pump Station #1 (Emerald Point)	EBSD	Laguna Beach	-	1,000
Three Arches Bay	SCWD	Laguna Beach	-	-
Dana Point Harbor-Baby Beach	SCWD	Dana Point	NA	1,300
Doheny State Beach	SCWD	Dana Point	NA	10,000
#118 Emerald Bay	EBSD	Laguna Beach	-	1,000
#206 Emerald Bay	EBSD	Laguna Beach	-	1,000
#101 Emerald Bay	EBSD	Laguna Beach	-	1,000
Crescent Bay Dr and Circle Way	City of	Laguna Beach	2001	7,500

- Data not available

*Presently decommissioned

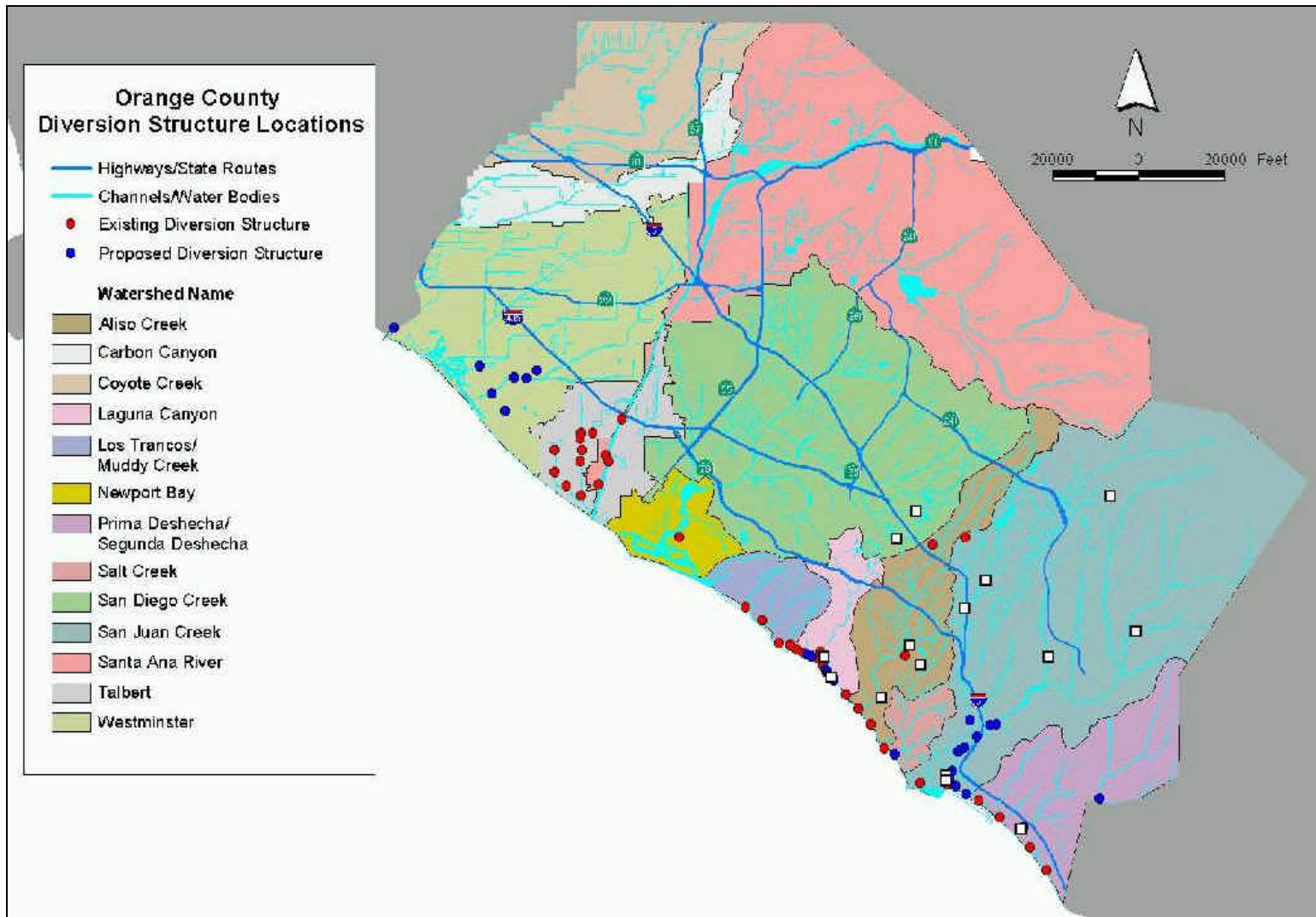


Figure E6- 6. Location of Existing and Proposed Diversion Facilities in Orange County

E6-3.3 Watersheds

The 38 existing diversion projects operate within 9 of the 13 watersheds within the county. Diversion facilities vary in design from in-pipe diversion systems to large open-channel diversion structures. Other diversion facilities are considered temporary (1 – 2 year operation or removed prior to wet season). An additional 38 sites are proposed for implementation (February 2002 County database). Table E6-4 summarizes the number of diversion facilities within each of the County watersheds.

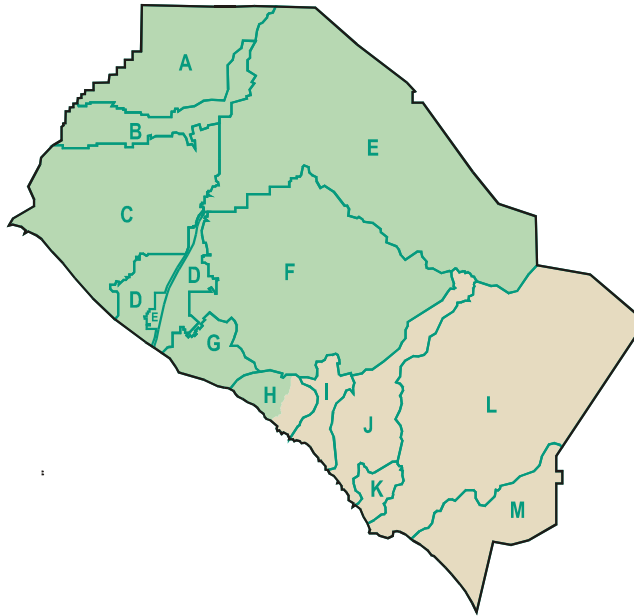
The majority of the diversion facilities are located near the receiving water outfall to the ocean. Collected runoff from various diversion facilities located along Newport Beach to northern Orange County coastline is diverted to the OCSD treatment plants. South of Newport Beach, collected runoff from the diversion facilities is diverted to local treatment plants within the South Orange County Wastewater Authority (SOCWA) jurisdiction.

Table E6-4. Orange County Watersheds – Number of Diversions

Region	Watershed	Identifier	Diversions	
			Existing	Proposed
Region 8 Santa Ana	Coyote Creek	A	-	-
	Carbon Canyon	B	-	-
	Westminster	C	-	14
	Talbert	D	10	-
	Santa Ana river	E	3	-
	San Diego Creek	F	-	-
	Newport Bay	G	1	-
	Los Trancos/Muddy Creek	H	6	-
Region 9 San Diego	Laguna Canyon	I	8	11
	Aliso Creek	J	3	-
	Salt Creek	K	1	1
	San Juan Creek	L	2	10
	Prima Deshecha and Segunda Deshecha	M	4	2
Total			38	38

Figure E6-7 shows the location of each of the lettered watersheds in Orange County.

Figure E6-7. Watershed Boundary Maps of Orange County



Dry season diversions (May – September) can be accommodated by temporary diversion dams and relatively simple gravity and manually operated control structures. Diversion dams are installed during the beginning of the dry season and are physically removed with the onset of the wet season. Flows are diverted to the sanitary system either by gravity or by pressurized conveyance by wet well pump stations.

Dry weather diversion is practiced throughout the year. It relies on more sophisticated features to differentiate between storm and non-storm (diversion) flow conditions, and may change between these two operational modes several times through the course of the year. Permanent rubber dams and pump station diversions are especially amenable to dry weather operation. Rubber diversion dams are deflated prior to the onset of wet weather, then are re-inflated after storm flows have subsided. Remote telemetry facilitates the operation of diversion dam, pump, and valve controls in response to weather forecasts.

E6-3.4 Case Studies

Using the County’s list of existing diversions, three diversion projects, representing different diversion volumes and receiving water conditions were selected for further assessment. A summary of the three diversion projects is provided in Table E6-5. The assessment considers the proximity to recreational areas, the amount and quality of water diverted, issues related to sewer agency acceptance of the diverted water, the

effectiveness of the diversions on the receiving waters and costs. The criteria for selection of the case projects and the selected cased projects are described below.

Case Project Sites selected vary by the following characteristics:

- Diversion period (dry season or dry weather)
- Size of diversion facility (open channel or pipe diversion)
- Proximity to recreational areas (beach usage, REC-1 water)
- Volume of dry weather flows diverted
- Water quality

Table E6-5. Case Studies - Summary

Case No.	Channel/Drain	Location	Watershed	Receiving Water	Volume Diverted gal/month	Operator	Sanitary Sewer Treatment Agency
1	Newport Dunes West Channel	Newport Dunes	Newport Bay "G"	Newport Bay	259,200	City of Newport Beach	OCSD (by gravity)
2	Greenville Banning Channel	Upstream of Hamilton St.	Talbert "D"	Pacific Ocean at Huntington Beach	6,437,867	County of Orange	OCSD (by pump)
3	Local Flow, Laguna Beach	Cleo St. @ Gaviota	Laguna Beach "I"	Pacific Ocean	1,050,000	City of Laguna Beach	SOCWA (by pump)

E6-3.4.1 Case Study 1: Newport Dunes Diversion Project

A diversion facility was constructed on March 2001 at the Newport Dunes along the northeast side of the Newport Dunes channel. The diversion occurs by gravity flow controlled by a shallow dam along the storm drain diverting dry weather flow to the OCSD sanitary sewer system. A manual shut off valve prevents flow from entering the sewer system during the wet season. Location of the diversion is near Newport Dunes along Back Bay Drive in Newport Beach.

The construction plan development and implementation was a joint effort between OCSD and the City of Newport Beach. The City of Newport Beach operates and maintains the facility. Location Map and photographs of the Newport Dunes Diversion Project is shown in Figures E6-8 and E6-9.

Cost

Construction /set up cost for the diversion is \$60,000. Amount of flow diverted to the sewer system is 259,000 gallons per month. A formal agreement between OCSD and the City of Newport Beach is currently being prepared which outlines permit requirements such as monitoring and reporting. This site has minimal monthly operation and maintenance activities (mostly associated with manual on/off valves operated prior to and after the wet season). Monthly cost to divert flow is estimated to be approximately \$1,100, which includes maintenance and expected monitoring and reporting activities to be required by OCSD as part of the discharge permit. Currently OCSD does not assess fees for treatment of dry weather flows.

Maintenance

The diversion facility operates by gravity flow with no necessary mechanical parts. Maintenance of the facility is minimal (less than 8 hours a year) with activities consisting of manual shutting-off of the system during wet weather, and removal of debris at the headworks where a grate is installed to prevent large debris from reaching the diversion.

Effectiveness

Orange County Health Care Agency has tested the waters along Newport Dunes on weekly basis for the past three years. Bacteria measurements show a significant

Figure E6-8. Newport Dunes West Channel Diversion Project

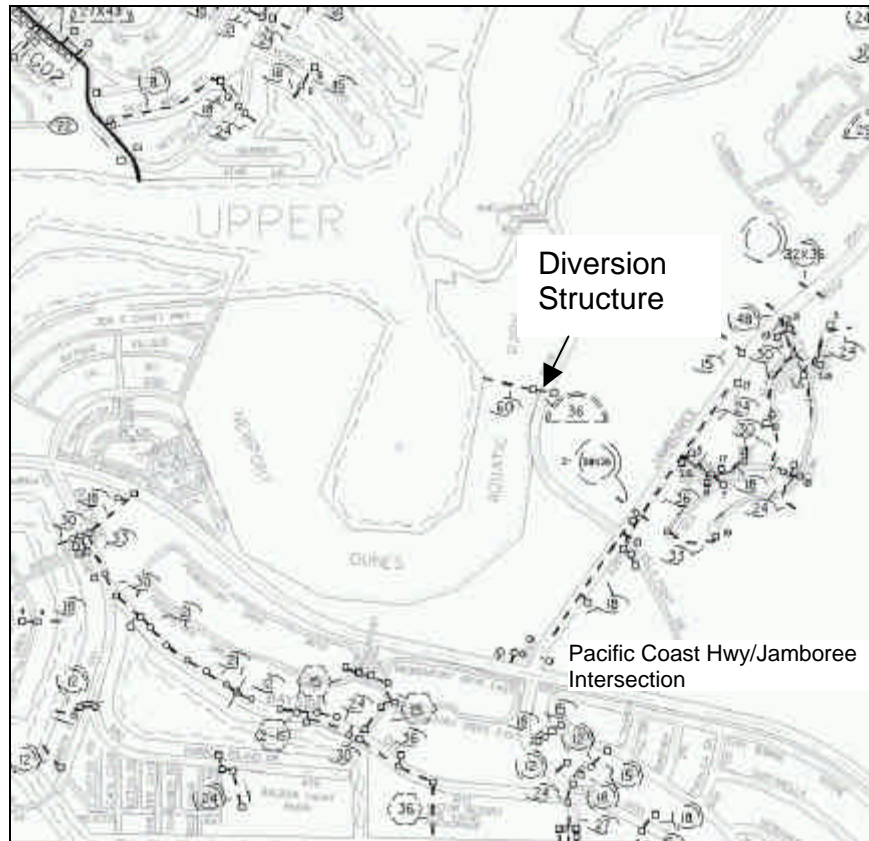


Figure E6-9. Photographs of the Newport Dunes Pipe Diversion and Outlet



improvement after the diversion was constructed. Bacteria levels exceeded REC-1 standards five times during 2002, a significant reduction from 16 days of unsafe water in 2001 and the 23 days in 2000. Table E6-6 lists the bacteria monitoring results from April through October 2002 (dry weather season). Last year, bacteria level were exceeded only once during the dry season. This is an indication that dry weather diversion to sanitary sewer at the Newport Dunes site is effective in reduction or elimination of pollutants to downstream water bodies.

Table E6-6. Bacteria Levels at Dunes Downstream of Dunes Diversion

Location Description	Type	Number of Sampling	Average #/100ml	Maximum #/100ml	Minimum #/100ml	Exceedences 2002 ¹	Exceedences 2001 (Comparison)	Exceedences 2000 (Comparison)
Newport Dunes - North	TC	28	2422	42000	10	1	2	0
	FC	28	104	590	10	1	3	10
	ENT	28	29	90	10	3	3	5

Current standards for contact-sport recreation:

TC -Total Coliforms: 10,000 organisms per 100 milliliter sample.

FC-Fecal Coliforms: 400 organisms per 100 milliliter sample.

ENT-Enterococci: 104 organisms per 100 milliliter sample.

¹See Attachment B for actual bacteria levels.

Alternative to Dry Weather Diversion

An effective alternative to dry weather diversion is treatment of flow through a wet basin or a constructed wetland. Either option would require additional right-of-way to construct a wet basin near the location of the dry weather diversion from the Dunes West pipe. The sizing of the wet pond will require a permanent pool volume of approximately 0.1 acre-feet (based on .01 cfs x24 hr x10day residence time/3 ft depth). The permanent pool volume is sized based on a target hydraulic retention time (approximately 2 weeks for a 3- to 6-foot depth). Assuming a wet basin with a maximum depth of 3 feet with 2:1 side slopes, a minimum basin footprint of 0.1 acres is required. An estimated construction cost of a wet pond may range from \$100,000 to \$300,000 with an estimated annual O&M cost of \$20,000. Construction of a wet basin is more costly compared to a dry weather diversion. However, a wet basin is considered a permanent BMP. The wet basin located at I-5 and La Costa Avenue in San Diego, built and monitored by Caltrans achieved 99% reduction of fecal coliform.

E6-3.4.2 Case Study 2: Greenville Banning Channel Diversion Project

Greenville Banning Channel Diversion facility was constructed in 2002 and began operation in June 2003. This permanent facility replaces the temporary diversion facility at this location that was operated by the County during the summers of 2000-2002.

The diversion consists of a rubber dam spanning across a concrete-lined channel designed to inflate and dam dry weather flows. Telemetry and a pump were installed to divert dry weather flows into the sanitary sewer system. During storm events, the dam is designed to deflate so as not to interfere with the flood control conveyance to downstream. This facility diverts a relatively sizeable flow rate, over 6 million gallons per month. The location and photograph of the facility are shown in Figures E6-10 and E6-11. The facility is intended to operate year round under dry weather conditions.

Cost

Construction cost for the permanent facility is \$1,405,000. Total estimated monthly cost to operate the diversion is approximately \$4,000. Operation cost includes periodic inspections and activities to support the use of the mechanical pump, power, and maintenance of the facility (debris removal at the sump) and upkeep of the pump. OCSD currently does not impose fees for treatment of dry weather flow. However, periodic monitoring for pollutants of concern, flow measurements, and reporting is required by OCSD for diversion of dry weather flows. The additional cost associated with monitoring is approximately \$520/month (\$6,300/yr).

Maintenance

Maintenance of the facility consists of routing removal of debris accumulated at the pump sump area, servicing the pump, and inspecting the facility. During wet weather flows and when water level increases above the top of the sill, the pump float stops the pump operation and ceases conveyance of flow to the sanitary sewer system. To date, no major maintenance has been necessary for the operation of the diversion facility.

Issues

No major issues have been noted during the operation of the temporary diversion facility began. Issues pertaining to the failure of the operation of a diversion may be possible due to mechanical failure (i.e., if pumps failed). Although no pump failures have been noted, failure of the diversion operation may be attributed to pumps and

Figure E6-10. Location of the Greenville-Banning Dry Weather Diversion

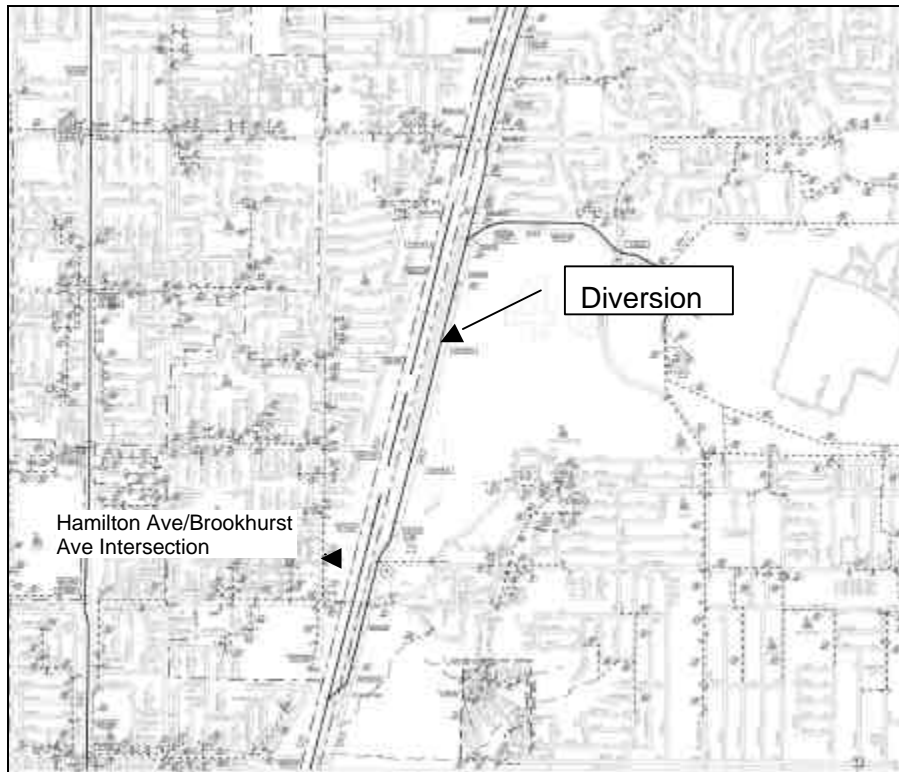


Figure E6-11. Photograph of the Greenville-Banning Dry Weather Diversion



other mechanical features. Another issue may be the possibility of facility damage or unintentional diversion of storm water flows to the sanitary sewer system if there is telemetry failure with regard to dam deflation and/or pump deactivation. OCS&D does not allow diversion of flows to occur when measurable rainfall events occur. OCS&D and other agencies do not allow the diversion of storm water flows into the sanitary sewer system so as not to overwhelm the capacity of the system.

Effectiveness

The diversion facility is located approximately two miles from the outfall at the beach. It is difficult to assess whether bacteria levels have decreased along the beaches downstream of the diversion since several watersheds ultimately drain to the outfall location where water quality sampling is conducted. Moreover, it is difficult to provide definitive pre-diversion water quality data, as dry season diversion has been conducted since 2000 using temporary facilities, and extensive beach water quality monitoring was not initiated before that year. However, it is generally acknowledged that the comprehensive program of 13 diversion facilities implemented on the Talbert-Lower Santa Ana watersheds have had a positive influence on summer beach water quality in Huntington Beach. Table E6- 7 summarizes the bacteria monitoring results taken near the outfall of the Santa Ana River (downstream of Greenville Banning).

Table E6- 7. Bacteria Levels near outfall Downstream of Greenville Banning

(April –Oct 2002, Source OC Health Services)

Location Description	Type	Number of Sampling	Average #/100ml	Maximum #/100ml	Minimum #/100ml	Exceedences 2002 ¹
Santa Ana River Mouth	TC	136	482	16000	20	2
	FC	136	309	16000	20	3
	ENT	136	15	116	2	1

Current standards for contact sport recreation.

TC- Total coliforms; 10,000 organisms were 100 milliliter sample

FC – Fecal coliforms: 400 organisms per 100-milliliter sample

ENT – Enterococci: 104 organisms per 100-milliliter sample

¹See Attachment B for actual bacteria levels.

Alternative to Dry Weather Diversion

An effective alternative to dry weather diversion is treatment of flow through a wet basin or a constructed wetland. Adjacent to the channel near the dry weather diversion location is a park/natural area which could be used to construct a wet basin. If the adjacent area is not available for use, then additional right of way may need to be purchased to construct a wet basin. The sizing of the wet pond will require a permanent

pool volume of approximately 0.3 acre-feet. The permanent pool volume is sized based on a target hydraulic retention time (typically 2 weeks for a 3-6 feet). Assuming a wet basin with a maximum of 3 feet with 2:1 side slopes, a minimum basin footprint of 0.3 acres is needed. An estimated construction cost of a wet pond may range from \$300,000 to \$500,000 and an annual O&M cost of \$20,000. Construction of a wet basin is more costly compared to a dry weather diversion. A wet basin monitored by Caltrans achieved 99% reduction in fecal coliform.

E6-3.4.3 Case Study 3: Cleo St @ Gaviota Drive, Laguna Beach Diversion Project

The Cleo Street diversion facility consists of an end of pipe proprietary device designed to divert dry weather flow from a 209-acre drainage area to the sanitary sewer system. The existing drainage area is 60% urbanized. The device is a hydrodynamic Continuous Deflective Separation (CDS™) Unit which receives flow through a reinforced concrete diversion box along a 66-inch RCP with a weir designed to direct flow into the unit. The diverted flow continues downstream of the CDS™ unit where the flow diverted to the sanitary sewer. A lift station is nearby to pump the flow to the sanitary sewer treatment plant (SOCWA). The CDS™ unit is designed to treat flow up to 3 cfs. Flow in excess of 3 cfs bypasses via the diversion weir and continues downstream to the ocean. The facility built in 2001 is one of many existing and proposed dry weather diversions within the City of Laguna Beach. The location and photographs of the diversion facility are shown on Figure E6-12 and Figure E6-13.

Cost

The construction cost for the installation of the CDS™ unit, the concrete box, manhole shafts, and pipes amounts to \$85,000. The annual cost to operate and maintain the unit is \$1,500. The annual cost is associated with debris removal, compliance water quality testing, and inspections.

Maintenance

The average annual maintenance of this site is conducted by two to three people, four times per year to clean out the CDS™ unit, remove debris, and inspection. Removal of debris is done with a vactor truck vacuum hose and pressure wash of the screens. The CDS unit is in operation year round. After the first few storm events of the wet season, maintenance is typically required. Maintenance needs of the CDS™ unit vary depending on the watershed characteristics.

Figure E6-12. Cleo Street at Gaviota Drive - Laguna Beach Diversion Project

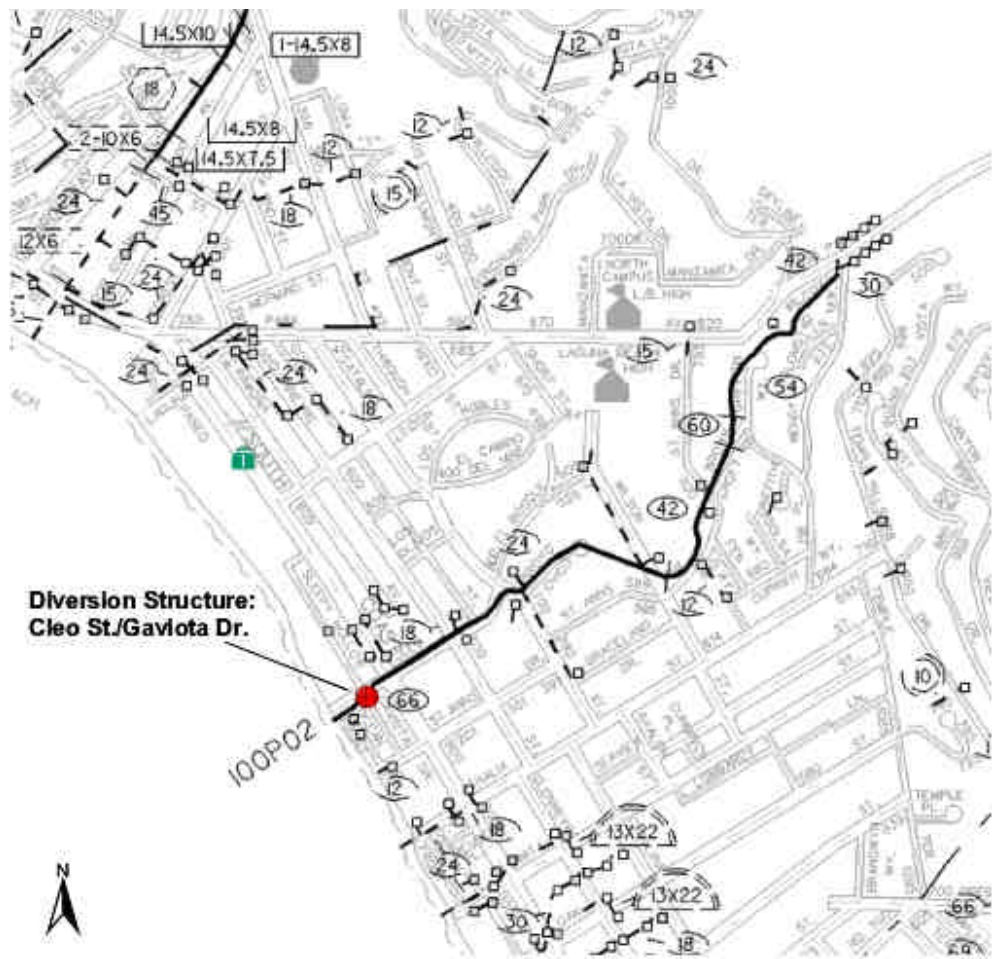


Figure E6-13. Cleo Street at Gaviota Drive CDS™ Diversion and Beach Outlet



Issues

The CDS™ units are in operation year round with maximum flows diverted not to exceed 3 cfs. A general concern was the potential effect on the downstream sewer treatment plant of installing several diversion systems. The city’s sewer collection system conveys the flows approximately five miles to the SOCWA Coastal Treatment Plant

Effectiveness

The end of pipe devices such as these captures and diverts urban runoff to the sanitary sewer and prevents urban runoff from discharging to the ocean. Since its operation, over four million gallons of water has been diverted. The outfall pipe is located along Laguna Beach where many beach goers are present year-round. Effectiveness of the diversion could not be assessed since there is currently no monitoring data available at the location of the Cleo Street outfall. However, data is available north of the outfall near Laguna Hotel.

summarizes the bacteria monitoring results. Data from April through October 2002 indicate standards have not been exceeded during the dry weather season. Although data does not exist directly downstream of the diversion, nearby data may generally indicate that dry weather diversion at this location is effective.

Table E6-8. Bacteria Levels near Outfall Downstream of Cleo Street Diversion (April – Oct 2002; Source OC Health Services)

Location Description	Type	Number of Sampling	Average #/100ml	Maximum #/100ml	Minimum #/100ml	Exceedences 2002 ¹	Exceedences 2001 (Comparison)	Exceedences 1999 (Comparison)
Hotel Laguna	TC	55	22	200	2	0	1	0
	FC	55	9	74	2	0	0	0
	ENT	55	12	74	2	0	1	1

Current Standards for contact-sport recreation:

TC -Total Coliforms: 10,000 organisms per 100 milliliter sample.

FC-Fecal Coliforms: 400 organisms per 100 milliliter sample.

ENT-Enterococci: 104 organisms per 100 milliliter sample.

¹See Attachment B for actual bacteria levels.

Alternative to Sewer Diversion

An alternative to the dry weather diversion at Cleo Street is the installation of a Clear Creek system. A clear creek system may be installed near the pump house located near the diversion location. However, a Clear Creek System may be more costly than dry

weather diversion since the treatment of the urban runoff is at no cost to the City due to agreements with the agency. Another alternative to dry weather diversion is elimination of dry weather flows by source tracking and control of non-stormwater discharge.

E6-3.5 Protocols and Maintenance of Diversion Facilities

Maintenance tasks are generally the same for each of the facilities. Diversion dams are constructed to divert the dry weather flows. For some diversion facilities, pumps are used to transfer flow from the channel to the sanitary sewer system. Maintenance activities for the facilities are typically associated with the pump servicing and/or replacement. Diversion systems such as those with rubber dams where dams inflate and deflate may include mechanical parts requiring maintenance.

E6-3.6 General Sanitary Sewer Issues

The volume of urban runoff allowed for treatment at the sanitary sewer treatment facilities are limited by the difference between the total capacity of the facility and the volume of wastewater treated (current volume and volume at watershed built-out conditions). For other facilities, the volume of runoff allowed for treatment may be limited by permit conditions. Limitations vary by treatment facility.

OCSD is the largest of the sanitary sewer treatment agencies in Orange County. OCSD's principal guideline states, "dry weather urban runoff diversion to the sewerage shall address a public health or an environmental problem associated with the runoff discharge that cannot be otherwise economically or practically controlled." Dry weather diversion is stressed as the last form of treatment if other measures cannot be implemented or be effective. OCSD also has plant capacity limitations and will allow a maximum flow rate of 10 MGD. Existing diversion is at a flow rate of 2.4 MGD; with proposed facilities, flow rate will be at 2.5 MGD. Treatment of flow at this rate is offered cost-free with a maximum threshold of 4 MGD. In excess of 4 MGD, OCSD will charge a fee for treatment of diverted water.

E6-3.7 General Design Issues

A low flow diversion structural device is designed to route urban runoff away from the storm drain system or waterway, and redirects it into the sanitary sewer system. Design issues include:

- a. A diversion feature to regulate the flow rate discharged to the sanitary sewer system
- b. A shut-off mechanism so that no runoff is discharged to the sewer system during wet weather flows
- c. Access to the diversion facilities for ease of inspections and monitoring required by the sanitary sewer agencies
- d. Continuous flow of water or a method of eliminating standing or stagnant water
- e. Installation of flow meter to measure urban runoff volumes diverted to sanitary system.
- f. Installation of debris screens to avoid discharge of litter or gross pollutants into the sanitary sewer system
- g. A mechanical method of decommissioning temporary diversion structures during wet weather
- h. Installation of rain gages to monitor rainfall.
- i. No diversion of salt water into the sanitary sewer system; do not locate diversion where mixing with salt water is possible

Decrease in beach closures and acceptable levels of bacteria indicate the effectiveness of the dry weather diversions upstream of the outfalls. In 1999, new bacteriological ocean water quality standards that are more protective of public health were added to the California Health and Safety Code. The new standards are informally called AB 411 Ocean Water-Contact Sports Standards and include the following:

- Established single sample standards for total coliforms, fecal coliforms, and enterococci bacteria as follows:
 - Total Coliforms: 10,000 organisms per 100 milliliter sample.
 - Fecal Coliforms: 400 organisms per 100 milliliter sample.
 - Enterococci: 104 organisms per 100 milliliter sample.
 - Fecal: Total ratio: >1000 total coliforms if ratio exceeds 0.1.
- Beach closure reports and bacteriological monitoring data collected by OC Health Services.

Attachment B contains the recent weekly sampling results at all sampling locations along Orange County beaches and bays. The recent weekly (daily for some sites) data based on samples taken near the outfall pipes/channels were reviewed for sampling locations near/or directly downstream of the three case study sites (Greenville Banning,

Newport Dunes, and Laguna Beach Cleo Street diversions). For the three case study sites, data shows that bacteria level standards for water-contact recreation were exceeded only two times or none during the dry weather season (April-October) in 2002. In general, this is an indication that dry weather diversion to sanitary sewer is effective in removal or reduction of pollutants to downstream water bodies.

It should be noted that bacterial quality can be difficult to assess or to substantiate improvement, given its episodic, non-conservative nature and the viability of other non-waterborne sources (e.g., waterfowl, sediment propagation). Notwithstanding these

difficulties, it seems that water quality improvements have been demonstrated in these case studies.

E6-3.8 Setup and O&M Costs

Table E6-9 lists set up costs and operation and monthly costs associated with operation and maintenance of the dry weather diversion facilities in Orange County.

Table E6-9. Existing Dry-Weather Diversion Facilities Setup and O&M Costs

Location	Permittee	Year Built	Flow GPD	Set-up Cost \$	Monthly O&M Cost
9731 Flounder Dr @ D02 (Flounder PS)	Huntington Beach	Feb. 2000	72,000	\$ 30,000	\$ 750
9211 Yorktown Ave @ D02 (Yorktown PS)	Huntington Beach	Feb. 2000	72,000	\$ 30,000	\$ 750
19661 Chesapeake Ln @ D02 (Adams PS)	Huntington Beach	Feb. 2000	72,000	\$ 30,000	\$ 750
20192 Midland Ln @ E01 (Meredith PS)	Huntington Beach	Feb. 2000	288,000	\$ 30,000	\$ 1,500
9221 Indianapolis Ave @ D02 (PS)	Huntington Beach	Feb. 2000	144,000	\$ 30,000	\$ 1,000
8151 Atlanta Ave @ D01 (Atlanta PS)	Huntington Beach	July 1999	504,000	\$ 30,000	\$ 2,000
10101 Hamilton Ave @ E01 (Hamilton PS)	Huntington Beach	Feb. 2000	144,000	\$ 30,000	\$ 1,000
2201 Malibu Ln @ D02 (Banning PS)	Huntington Beach	July 1999	288,000	\$ 30,000	\$ 1,500
8612 Hamilton St @ D01 (Newland PS)	Huntington Beach	July 1999	288,000	\$ 30,000	\$ 1,500
1131 Back Bay Dr (Newport Dunes)	Newport Beach	March 2001	8,640	\$ 60,000	\$ 1,089
Santa Ana Channel (E01)	County of Orange	May 2001	295,154	\$ 1,000,000	\$ 4,700
Greenville Banning Channel	County of Orange	May 2001	214,596	\$ 1,405,000	\$ 4,700
Talbert Channel (D02)	County of Orange	May 2001	119,836	\$ 1,200,000	\$ 4,700
D/S of Adams Ave @ D01 (HB)	County of Orange	May 2001	-	\$ 200,000	\$ 4,700
Linda Ln @ Via Mecha	San Clemente	Aug. 2001	14,000	\$ 40,000	\$ 1,197
Camino del Estrella (est. loc)	Dana Point	NA	1,000	\$ 25,000	\$ -
Laguna Cyn @ Forest Ave	Laguna Beach	1987	140,000	\$ 15,000	\$ 567
Bluebird Canyon	Laguna Beach	1997	30,000	\$ 30,000	\$ 1,521
Dumond Dr./Victoria Beach	Laguna Beach	1997	5,000	\$ 10,000	\$ 389
Fisherman's Cove	Laguna Beach	1998	2,000	\$ 10,000	\$ 160
El Paseo@Laguna Ave (Main Beach)	Laguna Beach	1998	10,000	\$ 30,000	\$ 735
5th Ave @ Coast Hwy	Laguna Beach	1999	2,000	\$ 10,000	\$ 242
Barranca St. @ Cliff Dr	Laguna Beach	2001	1,400	\$ 85,000	\$ 524

APPENDIX E6, DRY WEATHER DIVERSION STUDY

Location	Permittee	Year Built	Flow GPD	Set-up Cost \$	Monthly O&M Cost
Cleo St. @ Gaviota	Laguna Beach	2001	35,000	\$ 85,000	\$ 1,544
Aliso Creek/ Sulphur Creek Confl	Laguna Nigel	May 2000	174,506	\$ 40,000	\$ 3,476
Muddy Canyon	Newport Beach/IRWD	April 2002	288,000	\$ -	\$ -
Los Trancos	Newport Beach/IRWD	April 2002	288,000	\$ -	\$ -
Los Lobos (est. loc)	San Clemente	Aug. 2001	29,000	\$ 5,000	\$ 1,479
Aliso Creek (J01), at mouth	County of Orange	May 2001	234,061	\$ 350,000	\$ 3,700
Riviera Beach (150 yrd u/s of MO)	San Clemente	-	29,000	\$ -	\$ -
Pump Station #1 (Emerald Point)	Laguna Beach	-	1,000	\$ -	\$ -
Three Arches Bay	Laguna Beach	-	-	\$ -	\$ -
Dana Pt. Harbor-Baby Beach	Dana Point	-	1,300	\$ -	\$ -
Doheny State Beach	Dana Point	-	10,000	\$ -	\$ -
#118 Emerald Bay	Laguna Beach	-	1,000	\$ -	\$ -
#206 Emerald Bay	Laguna Beach	-	1,000	\$ -	\$ -
#101 Emerald Bay	Laguna Beach	-	1,000	\$ -	\$ -
Crescent Bay Dr and Circle Way	Laguna Beach	2001	7,500	\$ -	\$ -
Maintenance Yd, Wash Rack Sump	Laguna Beach	2001	-	\$ -	\$ -

- Information not available

E6-4 Dry Weather Diversion Plan

E6-4.1 Introduction

The Dry Weather Diversion Plan will serve as a framework for decision-making, identification of additional potential diversion locations, BMP type selection and prioritization of implementation of the proposed sites. The following sections provide the logic for an initial site assessment prior to implementation of the facilities. A thorough evaluation for each facility must be conducted, which may include an assessment of environmental impacts associated with diversion as well as an economic assessment to ensure that other alternatives are not viable.

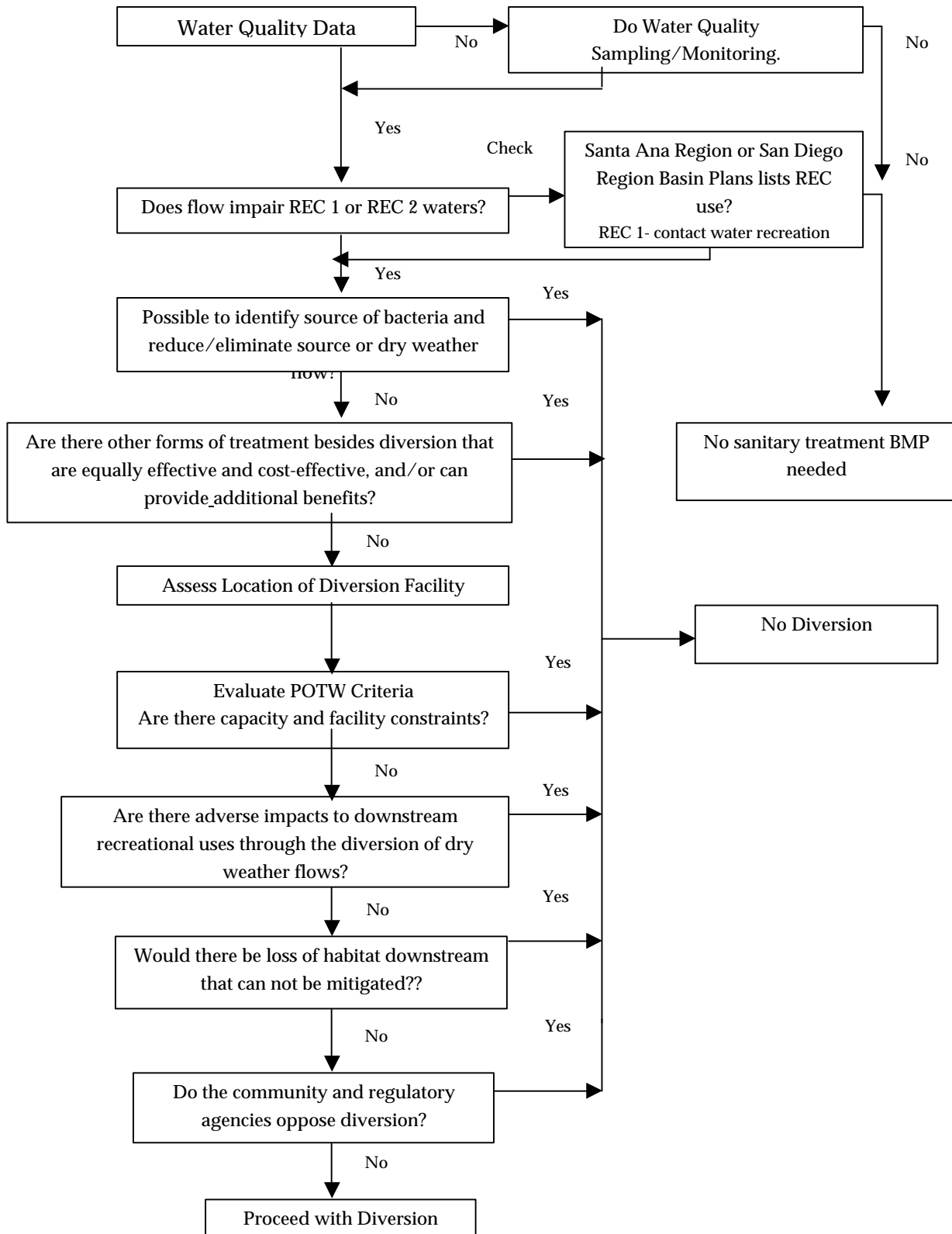
E6-4.2 Diversion Decision-Making Criteria

Decision-making on implementation of a diversion facility is a two-step process. The first step will determine the feasibility or eligibility of runoff flows for diversion. The eligibility of diversion is compared to the technical feasibility of implementing on-site treatment BMPs. Once diversion has been decided over implementation of on-site BMPs, the second step is to proceed on the process for prioritizing eligible projects for cost-effective solution, capital facility planning, budgeting, and project scheduling. The

prioritization is based primarily on criteria on receiving water quality, beneficial use impairment, and improvements resulting from implementation of the diversion facility.

E6-4.2.1 Dry Weather Diversion Decision Process

The diversion eligibility decision tree on the following page provides general guidance for determining the feasibility of implementation of a diversion facility. The following sections provide guidance on each of the topics identified in the decision tree.



**DIVERSION ELIGIBILITY
DECISION TREE**

Water Quality Data Availability

There are several sources of water quality data for various locations within Orange County. The County Health Services is actively monitoring at coastal and inland locations. The latest annual data is enclosed in Attachment B and is posted on the County Health Services web site.

The County of Orange Public Facilities and Resources Department – Watershed & Coastal Resources Division has been actively monitoring and continuing to expand on the dry weather runoff monitoring program. The Annual Report of the County Storm Water Program provides data collected from previous years. The Annual Report is available on the website www.ocwatersheds.com. Site-specific water quality data must be collected for a minimum of one year to establish a chronic high bacteria count at the proposed location. The data must be isolated for the location under consideration and not be co-mingled with tributaries located downstream. A site above REC-1 areas is a candidate for diversion, with preference to the sites with the chronic high bacteria levels.

E6-4.2.2 Beneficial Uses Downstream of Diversion

Beneficial uses for water bodies, creeks, and channels have been identified by the regional board and may be used as guidance for determining impacts of diverting urban runoff from reaching downstream water bodies. Beneficial use such as REC-1 recreational contact to water may be identified for downstream water bodies. If so, diversion of urban runoff may be the more appropriate form of treatment. Diversion may not be appropriate for a water body with a REC-2 or WARM designation since the dry weather flow supports the use. Knowing the beneficial uses downstream will also identify if other forms of treatment BMPs would be appropriate rather than construction of dry weather diversion. Table E6-10 lists the beneficial uses of water bodies within Orange County.

Table E6-10. Water Bodies within Orange County with REC-1 and REC-2 Beneficial Uses

Waterbody Name	Reported Hydrologic Units	REC-1	REC-2
Agua Chinon Wash	801.11	✓	✓
Aliso Creek	845.63	✓	✓
Aliso Creek	901.13	✓	✓
Aliso Creek Mouth	901.13	✓	✓
Anaheim Bay	801.11	*	*
Anaheim Bay - Outer Bay	801.11	✓	✓
Anaheim Bay - Seal Beach National Wildlife Refuge	801.11	✓	✓
Anaheim Lake - Lower Santa Ana River Basin	801.11	✓	✓
Arroyo Salada	901.14	O	✓
Bee Canyon Wash	801.11	I	I
Black Star Creek	801.12	I	I
Blue Bird Canyon	901.12	O	✓
Boat Canyon	901.11	O	✓
Bolsa Bay	801.11	✓	✓
Bolsa Chica Ecological Reserve	801.11	✓	✓
Bonita Creek	801.11	I	I
Borrego Canyon Wash	801.11	I	I
Carbon Canyon Creek	845.63	✓	✓
Emerald Canyon	901.11	O	✓
English Canyon	901.13	O	✓
Hicks Canyon Wash	801.11	I	I
Hobo Canyon	901.13	O	✓
Irvine Lake (Santiago Reservoir)	801.12	✓	✓
Irvine Lake (Santiago Reservoir) - Lower Santa Ana River Basin	801.12	✓	✓
Jan Joaquin Freshwater Marsh Wetland (Inland)	801.11	✓	✓
Ladd Creek	801.12	I	I
Laguna Canyon	901.12	O	✓
Laguna Canyon Wash	801.11	I	I
Laguna Stream - Lower Santa Ana River Basin	801.12	✓	✓
Lambert Stream - Lower Santa Ana River Basin	801.12	✓	✓
Lower Newport Bay	801.11	✓	✓
Mission Viejo	901.2	*	*
Moro Canyon	901.11	O	✓
Nearshore Zone - Poppy Street to Southeast Regional Boundary	801.11	✓	✓
Nearshore Zone - San Gabriel River to Poppy Street in Corona Del Mar	801.11	✓	✓
Peters Canyon Streams - Lower Santa Ana River Basin	801.12	I	I
Peters Canyon Wash	801.11	I	I
Rattlesnake Canyon Wash	801.11	I	I
Rattlesnake Stream - Lower Santa Ana River Basin	801.12	✓	✓

APPENDIX E6, DRY WEATHER DIVERSION STUDY

Waterbody Name	Reported Hydrologic Units	REC-1	REC-2
Rim Rock Canyon	901.12	O	✓
Salt Creek	901.14	O	✓
San Clemente	901.3	*	*
San Diego Creek Reach 1 - below Jeffrey Road	801.11	✓	✓
San Diego Creek Reach 2 -above Jeffrey Road to Headwaters	801.11	I	I
San Juan Canyon	901.14	O	✓
Sand Canyon Streams - Lower Santa Ana River Basin	801.12	✓	✓
Sand Canyon Wash	801.11	I	I
Santa Ana River Reach 1 - Tidal Prism to 17th St in Santa Ana	801.11	✓	✓
Santa Ana River Reach 2 - 17th St in Santa Ana to Prado Dam	801.11	✓	✓
Santa Ana River Salt Marsh	801.11	✓	✓
Santiago Creek Reach 1 - below Irvine Lake	801.12	✓	✓
Santiago Creek Reach 3 - Irvine Lake to Modjeska Canyon	801.12	I	I
Santiago Creek Reach 4 - in Modjeska Canyon	801.12	✓	✓
Serrano Creek	801.11	I	I
Silverado Creek	801.12	✓	✓
Siphon Reservoir - Lower Santa Ana River Basin	801.12	✓	✓
Sulphur Creek	901.13	O	✓
Sunset Bay - Huntington Harbor	801.11	✓	✓
Tidal Prism of Flood Control Channels Discharging to Coastal or Bay Waters	801.11	✓	✓
Tidal Prism of San Gabriel River - River Mouth to Marina Drive	845.61	✓	✓
Tidal Prism of Santa Ana River (to within 1000' of Victoria St.) & Newport Slough	801.11	✓	✓
Unnamed intermittent coastal streams	901.14	*	*
Unnamed intermittent coastal streams	901.11	O	✓
Unnamed intermittent coastal streams	901.13	O	✓
Unnamed intermittent coastal streams	901.14	O	✓
Unnamed intermittent coastal streams	901.3	O	✓
Upper Newport Bay	801.11	✓	✓
Wood Canyon	901.13	✓	✓

- ✓ - Existing
- o - Potential beneficial use
- I - Intermittent beneficial use
- * - No beneficial uses reported

E6-4.2.3 Source Control – Bacteria and Dry Weather Runoff

A logical step in the decision process is to identify the source of bacteria upstream and the source of the dry weather runoff. Inspection and investigation of the source of flow may be necessary and can easily be done by visual observation. If identified, and measures can be taken to reduce or eliminate dry weather runoff, no diversion of urban

runoff would be necessary. Source control may include: regulation of rate of irrigation rather than overwatering of yards, or other forms of excess use of water causing dry weather flows downstream.

The source of bacteria is generally much more difficult to assess and most likely will not be apparent through field inspection. Coliform bacteria is present naturally in the environment, and wildlife is commonly found in and around storm drains and open channels. If a specific tributary can be identified upstream that conveys a majority of the bacteria, isolating and addressing the tributary may be the best choice since the flow rate would most likely be reduced.

E6-4.2.4 Equally Effective and Cost-Effective BMPs

Both OCSD and SOCWA have statements in the policy for treatment of urban runoff that other alternatives to dry weather diversion be evaluated. OCSD's policy states, ". . . dry weather urban runoff diversion to the sewerage system shall address a public health or environmental problem associated with the runoff discharge that cannot be otherwise economically or practically controlled."

Diversion of urban runoff to sanitary sewer systems is to be considered the "last" option when selecting appropriate dry weather flow treatment. There are other types of BMPs which may provide similar treatment of dry weather flows. Wet basins, constructed wetland channels, or Clear Creek systems may be equally effective and cost-effective compared to dry weather diversion to the sanitary sewer system. A description of other types of BMPs is provided below.

Wet Pond/Constructed Wetland

Wet ponds or constructed wetlands may be appropriate alternatives to diversion to the sanitary sewer system. A constructed wet pond reduces pollutants by settlement of sediment and nutrient uptake by vegetation. Independent testing of constructed wetlands has shown reduction in bacteria levels. Wet pond applicability, siting and design have limitations and should be evaluated.

Wet ponds can be relatively inexpensive. However, the construction costs vary considerably depending on the degree to which the existing topography would support a wet pond, the complexity and amount of concrete required for the outlet structure, and whether the wet pond is installed as part of new construction or implemented as a retrofit of an existing storm drain system. Value of land and loss of space for property

development may add to the cost of the drainage infrastructure. Appropriate vegetation control and vector monitoring and controls should be considered for maintenance budgeting. See *BMP Effectiveness and Applicability to Orange County* for details on siting and design criteria.

Typical costs for wet ponds range \$0.50 - \$1.00 per foot³ (CWP, 1998). Several studies have shown retrofitting a wet pond to a developed area may be 5 to 10 times the cost of constructing the same-size pond in an undeveloped area (USEPA, 1999). Sizing the wet pond will require a permanent pool volume depending on the rate of dry weather flow. Treated volume is estimated based on the dry weather diversion flow rate over a 24-hour duration. The permanent pool volume is sized based on a target hydraulic retention time - approximately 2 to 3 weeks for a 3- to 6-foot basin (Water Environment Federation, Urban Runoff Management). Assuming a wet basin with a maximum of 3 feet with 5:1 side slopes, a minimum basin footprint of 2 acres is desired. The basin footprint area is estimated as follows:

$$\text{Basin area (acres)} = 0.3 \text{ cf/sec} \times 24 \text{ hrs/day} \times 3600 \text{ sec/hr} \times 10 \text{ days residence time} \div 43560 \text{ cf/acre} \div 3 \text{ ft basin depth} = 2 \text{ acres}$$

The estimated construction cost of a wet pond may range from \$300,000 to \$500,000. It should be noted that there are several wet pond sizing criteria which may yield varying costs and performance. Figure E6-14 shows a typical wet pond.

Implementation of wet ponds may also contribute to beneficial uses of treated urban runoff. Beneficial uses may include: establishment of vegetation, aquatic wildlife habitat, non-contact recreation, groundwater recharge, and source of irrigation.

Figure E6-14. Typical Wet Pond



Clear Creek Systems

Another device that may be equally effective is the installation of a Clear Creek® System (manufactured by Clear Creek systems, Inc.). Clear Creek® is a proprietary device consisting of several filtration tanks and UV light treatment. A Clear Creek system has been installed and currently treats dry weather flows along Aliso Creek and has proven effective in reducing bacteria levels. Installation cost for a 0.3 cfs treatment system ranges from \$150,000 to near \$1 million, depending on the housing of the units. Manufacturer information may be obtained from the website www.clearcreeksystems.com. Figure E6-15 shows a typical Clear Creek system.

Figure E6-15. Typical Clear Creek System



Constructed Wetland/vegetated Channel

Low flow vegetated channel or a serpentine channel may be alternatives to diversion of dry weather flows. Pollutant removal is achieved by infiltration, settling of sediment by reducing flow velocity, and nutrient uptake by the vegetation. Channel sizing is based on the flow rate, achieving the minimum hydraulic residence time, and the desired planting density.

As with wet basins, operation and maintenance of constructed wetland channel will typically include inspection, maintenance, and vector control. Maintenance may consist of vegetation thinning, sediment removal, basin regrading, and possibly vector abatement. It is probable that the presence of endangered species could impact the ability to perform maintenance over the long-term. Consultation with appropriate regulatory agencies on the issue of maintenance would be necessary.

The estimated construction cost for a constructed wetland channel treating 0.3 cfs of dry weather flow may range from \$200,000 to \$300,000. In general, construction items include: excavation of the channel, vegetation, and installation of riprap flow training riprap dikes, conveyance pipes. It should be noted that availability of land and land cost should be considered in addition to construction cost.

Table E6-11 compares the costs of other alternatives with dry weather diversion to sanitary sewer. Diversions (4a and 4b) are based on actual setup costs and operation and maintenance costs of the Sulphur Creek/Aliso Creek confluence dry weather diversion (pumped system) and costs of the Greenville Banning diversion facility (pumped system). Both these facilities have average dry weather flow rates of approximately 0.3 cfs. Life cycle cost is computed based on 20-year life of diversion structure and a 4% discount rate. The lifecycle cost (\$/1000gal) is equal to the total cost (capital cost + present value of the maintenance cost at 20-year life and a 4% rate) divided by the total volume treated over the 20-year life (gal/month x 6 months x 20 years/1000 gallons).

Table E6-11. Cost Comparison of Alternatives for Selected Dry-Weather Diversions

Alternative No.	Description¹	Capital Cost²	O&M Cost Annual	Life cycle Cost \$/1000gal
1	Clear Creek System	\$300,000	\$44,000	\$1.27
2	Wet Basin	\$400,000	\$17,000	\$0.89
3	Constructed Wetland Channel	\$300,000	\$17,000	\$0.75
4a	Diversion to Sanitary Sewer (pumped flow) Sulphur Creek/Aliso Creek confluence J03P02 facility	\$60,000	\$40,000	\$0.85
4b	Diversion to Sanitary Sewer (pumped flow) Greenville Banning diversion	\$1,405,000	\$57,000 ³	\$2.82

¹Treatment of approximately 0.3 cfs of dry weather flow

² Land cost not included

³ Presently there is no treatment charge imposed by the sanitation district for this diversion project.

As shown in Table E6-11, other forms of equally effective treatment may be cost-effective in the long-term. Note that life cycle costs presented for Greenville Banning diversion alternative diversion do not reflect any future potential treatment costs that

might be imposed. For example, OCSD treatment costs might impose an additional \$0.33/1000gal on diversion alternatives. Furthermore, the agencies presently view dry weather diversion as a temporary, short-term practice. It should be noted that land availability and cost and regulatory constraints of in-channel BMP implementation are potential considerations which may offset the findings of the alternative cost comparison. In channel BMP alternatives do not include land acquisition costs.

E6-4.2.5 Performance Comparison

The following table compares the bacteria removal performance of alternatives to dry weather diversion. The comparison is based on available information (see *Orange County BMP Effectiveness and Applicability Report* for reference).

Table E6-12. Summary of Bacteria Removal Performance for Alternatives to Dry Weather Diversion

Alternative No.	Description	Median Removal Rates Bacteria (Fecal Coliform)
1	Clear Creek System	>90%
2	Wet Basin	70%
3	Constructed Wetland Channel	70%
4a	Diversion to Sanitary Sewer (pumped flow)	100%
4b	Diversion to Sanitary Sewer (pumped flow)	100%

E6-4.2.6 Impacts to Downstream Recreation Uses

Water Contact Recreation (REC-1) waters are used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and use of natural hot springs. Non-contact Water Recreation (REC-2) waters are used for recreational activities involving proximity to water but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment.

Diversion of dry weather runoff is not anticipated to have a negative impact on recreational uses downstream. However, it would be appropriate to check whether dry weather diversion would have negative impacts to downstream recreational uses for the

REC-2 use, which include aesthetics and passive contact. Table E6-10 lists the water bodies within Orange County with REC-1 and REC-2 beneficial uses.

E6-4.2.7 Impacts to Habitat Downstream

Potential impacts associated with implementation of a dry weather diversion may be due to the elimination of use of dry weather flow downstream of the facility. Loss of water resources in the areas where dry weather diversions are proposed may result in impacts to habitat due to loss of habitat or a reduction in the value and quality of habitat. Several habitat restoration projects exist and many are proposed within Orange County watersheds. Habitat restoration projects within tributaries to Aliso Creek are currently being implemented by the Corps of Engineers. Loss of dry weather flows upstream to these facilities would greatly impact the performance and quality of habitat. Evaluation of existing and proposed dry weather diversion facilities should consider impacts to habitat downstream.

Maps identifying Environmentally Sensitive Areas where wetland and other habitat may exist within Orange County should be examined in conjunction with an evaluation of a dry weather flow project. If dry weather diversion is planned upstream of habitat areas, appropriate evaluation must be conducted to assess possible impacts. If impacts are identified, further investigation and assessment must be conducted to determine whether dry weather diversion should or should not be pursued.

E6-4.2.8 Community/Regulatory Agency Support

As with any project, community and regulatory agency support must be sought prior to implementation of dry weather flows. Care must be taken on selection of location and impacts to adjacent residential areas must be identified. Impacts may be associated with noise (use of pumps), routine access by maintenance personnel, potential standing water and vector issues, and other issues negative to the surrounding community and/or regulatory agencies. Impacts on other beneficial designations such as Municipal and Domestic Supply (MUN), Industrial Service Supply (IND), Industrial Process Supply (PROC), Groundwater Recharge (GWR), and Warm Freshwater Habitat (WARM) are possible as a result of a diversion.

E6-4.3 Prioritization Procedure

This section outlines the recommended procedure for prioritizing implementation of diversion facilities. Potential threats to water quality by identifying bacterial loads

(concentration x flow volume) and proximity to recreational waters will determine how a diversion facility would rank/score compared to others proposed.

The prioritization is a relatively simple and straight-forward ranking method which will allow criteria to be easily modified to meet the specific needs of any given local jurisdiction. As an example, the canyon drainages of Laguna Beach will require a different prioritization regimen than the bay environment of Newport Beach.

Prioritization involves the following elements:

- Initially classifying a facility as being a high or low priority based on site information
- Subsequently, performing a quantitative assessment of the site (identifying concentrations, flow rates, and potential issues)
- Proximity to recreational waters (review list of beneficial uses downstream)
- Quantity and quality of dry weather flow
- Characteristic of watershed (% urbanized and size of the watershed)

Following steps 1, 2, and 3, below, will determine whether a proposed diversion would rank as high or low priority.

Step 1. Is the facility a designated high or low priority site? Diversion facilities upstream of waterbodies with a TMDL in place or 303d-listed as high priority for pathogens will rank the highest. If unknown or if additional prioritization is required, proceed to Step 2.

Step 2. Use the prioritization scheme outlined below. Prioritization is performed by applying steps A through E. A point value (0 to 5) may be assigned from each step and totaled for a final. Based on the final score, the facility is classified as high or low priority.

A. Quality and Quantity of Dry Weather Flow

Obtain water quality and flow data. Estimate bacteria loads (concentration x flow volume). Check for available data. If no data exists, sampling must be conducted. Color, strong odor, and other characteristics may indicate poor water quality. Table E6-13 lists the existing 303(d) waterbodies. This table should be consulted to determine the water bodies within Orange County where pathogens/coliform are a concern.

AB 411 Ocean Water-Contact Sports Standards for single sampling are:

Total Coliforms: 10,000 organisms per 100 milliliter sample.
Fecal Coliforms: 400 organisms per 100 milliliter sample.
Enterococci: 104 organisms per 100 milliliter sample.
Fecal:Total ratio: >1000 total coliforms if ratio exceeds 0.1.

5 = Beach closure postings (>2x/yr) due to health issues. TMDLs for pathogens enforced. Bacteria levels are high (Fecal >400/100ML).
Flow rate > 0.3 cfs.

3 = Bacteria levels are moderate (Fecal <400/100ML), flow rates <0.3 cfs

0 = Data does not indicate high bacteria levels. Flow rates <0.1 cfs.

B. Watershed Characteristics (Urbanization)

Review available aerial photograph illustrating the percentage of urbanization within the drainage area tributary to the diversion site.

5 = Highly urbanized (>75% urbanized)

3 = Moderately urbanized (50-75% urbanized)

0 = Somewhat urbanized (<50% urbanized)

C. Proximity to Recreational Waters

Location of proposed diversion is near recreational waters. Review watershed map to identify downstream recreational waters. REC-1 and REC-2 beneficial uses of downstream water are listed in Table E6-10.

5 = Proposed diversion is less than 1/2 mile from recreational waters/beaches.

3 = Proposed diversion is > 1 mile from recreational waters

0 = No recreational waters downstream or recreational waters is >5 miles away

D. Beach Usage

Assess benefits to beach protection. Estimate volume of beach goers benefiting from the diversion. Beach usage density may be available from the local chamber of commerce or state coastal databases.

5 = High beach usage (>1000 people/mile/day during beach days)

3 = Moderate beach usage (500-1000 people/mile/day during beach days)

0 = Low beach usage (<500 people/mile/day during beach days)

E. Cost

Estimate lifecycle cost of proposed diversion by adding the present value of expected O&M costs to the construction/set up costs. Present value of calculation is based on a 20-year diversion project life and a 4 percent discount rate. Any associated fees required by agencies for treating of runoff should be included in the estimation of life cycle costs. To meet OCSD permit requirement, monitoring and reporting fees is approximately \$7,000/year per site. As examples, the life cycle costs of the three case studies are presented below

Facility	Capital Cost	Annual O&M ¹	O&M In PV ²	PV+Capital	Gallons/ Month	Operation Months	Volume Treated/Yr (Gallons)	\$ Lifecycle Cost/1000Gallons
Newport Dunes	\$ 60,000	\$ 6,600	\$89,696	\$149,696	259,200	6	1,555,200	\$4.81
Cleo at Laguna Beach	\$ 85,000	\$9, 000	\$122,313	\$207,313	1,050,000	6	6,300,000	\$1.65
Greenville Banning	\$1,405,000	\$28,500	\$387,324	\$1,792,324	6,437,867	6	38,627,202	\$2.32

Notes: 1) Annual O&M = monthly O&M from Table E6-9 x number of months of actual operation; 2) PV = Present Value

5 = Lifecycle cost is low (<\$1 per 1000 gallons treated/diverted)

3 = Lifecycle cost is moderate (\$1 to \$10 per 1000 gallons treated/diverted)

0 = Lifecycle cost is high (>\$10 per 1000 gallons treated/diverted)

Step 3. By totaling the scores determined above (steps A-D) the priority ranking of the facility can be determined.

$$\text{Ranking} = A+B+C+D+E$$

Prioritization Rankings

High Priority: > 15

Low Priority: < or = 15

Examples for the prioritization process were conducted for the three case studies identified in Section E6-3.4.

The ranking procedure indicates that all of the three cases of diversions exceeded 15, indicating high priority, with the Newport Dunes diversion scoring the highest and Cleo Street at Laguna Beach diversion scoring the lowest of the three cases.

APPENDIX E6, DRY WEATHER DIVERSION STUDY

Case 1: Newport Dunes	Step	Category	Comment	Score
	A	Quality and Quantity of Flow	Postings of beach closures more than 2x per year. 259,200 gallons per month	5
	B	Urbanization of Drainage Area	100% urbanized	5
	C	Proximity to Recreational Waters	Less than 1 mile	5
	D	Beach Usage	High beach usage	5
	E	Cost	\$60,000 set up, \$6,600/yr O&M (lifecycle cost=\$4.81/1000gal)	3
	Total			23
Case 2: Greenville Banning	Step	Category	Comment	Score
	A	Quality and Quantity of Flow	Postings of beach closures more than 2x per year. 6.4 million gallons/month	5
	B	Urbanization of Drainage Area	100% urbanized	5
	C	Proximity to Recreational Waters	>1 mile from beach	3
	D	Beach Usage	High beach usage near outfall	5
	E	Cost	\$1.4 million set up, \$28,500/yr O&M (lifecycle cost=\$2.32/1000gal)	3
	Total			21
Case 3 Cleo Street at Laguna Beach	Step	Category	Comment	Score
	A	Quality and Quantity of Flow	Poor quality by observation, no bacteria data 1 million gallons/month	3
	B	Urbanization of Drainage Area	<50% urbanized	0
	C	Proximity to Recreational Waters	Less than 1 mile	5
	D	Beach Usage	high beach usage near outfall	5
	E	Cost	\$85,000 set up, \$9,000/yr O&M (lifecycle cost =\$1.65/1000 gal)	3
	Total			16

Table E6-13. Summary of the 2002 303(d) list of Impaired Water Bodies

Region	Orange County Water Body	Pollutant								
		Bacteria Indicators	Pathogens	Metals	Nutrients	Pesticides	Toxicity	Trash	TDS	Turbidity
Region 8 Santa Ana	Buck Gully Creek	X								
	Huntington Beach State Park	X								
	Huntington Harbor		X							
	Los Trancos Creek (Crystal Cove Creek)	X								
	Newport Bay, Lower			X		X				
	Newport Bay, Upper (Ecological Reserve)			X		X				
	Orange County Beaches							X		
	San Diego Creek, Reach 1	X				X				
	San Diego Creek, Reach 2			X			X			
	Seal Beach	X								
	Silverado Creek		X						X	
Region 9 San Diego	Aliso Creek (Mouth)	X								
	Aliso Creek	X			X		X			
	Dana Point Harbor	X		X						
	Pacific Ocean Shoreline, Aliso Beach HSA	X								
	Pacific Ocean Shoreline, Dana Point HSA	X								
	Pacific Ocean Shoreline, Laguna Beach and San Joaquin Hills HSAs	X								
	Pacific Ocean Shoreline, Lower San Juan HSA	X								
	Pacific Ocean Shoreline, San Clemente, San Mateo, and San Onofre HSAs	X								
	Prima Deshecha Creek				X					X
	San Juan Creek	X								
	San Juan Creek (Mouth)	X								
	Segunda Deshecha Creek				X					X

E6-5 Program Report and Assessment

E6-5.1 Program Report Procedures

The County and its co-permittees are required to submit an annual report to the state/regional board providing status of the Drainage Area Management Plan, the storm water management measures implemented, the effectiveness, and proposed implementations. The dry weather diversion summary is a component of the annual reporting requirements. Each co-permittee will be required to report the number of existing dry weather diversions, the performance, lessons learned, and information on proposed dry weather diversion facilities.

E6-5.2 Record Keeping

Records of monitoring, inspection, and maintenance of diversion facilities should be kept for during the period of operation. Records will provide data for trends on evaluating maintenance, lessons learned, and effectiveness evaluation. Records may be submitted to the sanitary sewer treatment agencies and to the County for annual reporting.

E6-5.3 Effectiveness Assessment

To determine whether the dry weather diversion should be continued, an assessment should be conducted to determine the effectiveness. Data evaluation should include comparison of bacteriological data collected during the period of operation at the receiving water. The number of beach postings/closures should be compared each year of operation. This information should then be compared to historic data. In many cases, a simple comparison of on-site and downstream bacteria indicators may not be sufficient due to other variables such as tributaries or wildlife. In such cases, the quality of the diverted discharge should be recorded, and the total volume of flow and bacterial indicators should be computed and reported to the Board. Diversions are 100% effective for the volume of water intercepted.

E6-6 Proposed Dry Weather Diversions

Table E6-14 lists the proposed diversion within Orange County watersheds. It is anticipated that each of the proposed diversions will be evaluated based on the Dry Weather decision criteria provided herein. A life-cycle cost analysis should first be performed to determine if another BMP can achieve the desired project objectives for a lower cost. For projects located in the SOCWA jurisdiction, diversions must be considered temporary, and the 'permanent' BMP with the lowest life-cycle cost should be selected to ultimately be constructed when capital funds are available.

It should also be noted that under the current agreement with OCSD, the current 4 MGD threshold should probably not be exceeded. Further analysis of the existing diversion case studies reveals that the present worth of these existing diversions is considerably less for the wet pond/wetland scenario if a flow-based fee is required to be paid to OCSD.

Table E6-11 provides the results of this analysis. Note that this analysis is based on the assumption that land is available at no cost to construct the pond systems.

Table E6-14. Proposed Dry Weather Diversions

LOCATION	Sanitary Sewer Treatment Agency	Permittee	Year Built	Flow to be Diverted GPD	Anticipated Set-up Cost \$
Alipaz St (est loc)	SCWD	Dana Point	Spring 2001	-	\$ 425,000
Capistrano Beach adj to PCH (est	SCWD	Dana Point	-	-	\$ -
Capistrano Beach adj. to PCH (est	SCWD	Dana Point	-	-	\$ -
Outlet of Salt Creek	SCWD	Dana Point	June 2001	-	\$1,000,000
Scenario Pump Station	OCS D	Huntington Beach	-	10,000	\$ -
Shields	OCS D	Huntington Beach	-	10,000	\$ -
Slater	OCS D	Huntington Beach	-	804,000	\$ -
Marilyn	OCS D	Huntington Beach	-	8,000	\$ -
Heil	OCS D	Huntington Beach	-	30,000	\$ -
1 st Street	OCS D	Huntington Beach	-	7,900	\$ -
7 th Street	OCS D	Huntington Beach	-	16,000	\$ -
13 th Street	OCS D	Huntington Beach	-	57,700	\$ -
13 th Street	OCS D	Huntington Beach	-	1,800	\$ -
16 th Street	OCS D	Huntington Beach	-	8,700	\$ -
20 th Street	OCS D	Huntington Beach	-	8,800	\$ -
22nd Street	OCS D	Huntington Beach	-	76,000	\$ -
Golden West	OCS D	Huntington Beach	-	15,000	\$ -
Anita St./ Gaviota Dr.	City of	Laguna Beach	Nov. 2002	2,310	\$ 85,000
Oak St./ Gaviota Dr.	City of	Laguna Beach	Nov. 2002	2,310	\$ 85,000
Pearl St./Ocean Way	City of	Laguna Beach	Nov. 2002	6,970	\$ 90,000
Jasmine St./ Cliff Dr.	City of	Laguna Beach	Nov. 2002	2,240	\$ 85,000
Myrtle St./ Cliff Dr.	City of	Laguna Beach	Sept. 2003	1,500	\$ -
1160 Gaviota Dr.	City of	Laguna Beach	Sept. 2003	1,000	\$ -
Cress St./ Gaviota	City of	Laguna Beach	Sept. 2003	1,500	\$ -
Mountain Road/ Gaviota Dr.	City of	Laguna Beach	Sept. 2003	850	\$ -
Cliff Dr. between Jasmine/Aster	City of	Laguna Beach	Sept. 2003	4,500	\$ -
Camino Capistrano @ Ave Padre	City of	San Juan Capistr	-	-	\$ -
Avenida de La Vista @L02 P02 out	City of	San Juan Capistr	-	-	\$ -
La Novia Ave. @ San Juan Creek R	City of	San Juan Capistr	-	-	\$ -
Alipaz Street @Camino Del Avion	City of	San Juan Capistr	-	-	\$ -
Alipaz Street @Via Monterey (el)	City of	San Juan Capistr	-	-	\$ -
Rancho Viejo@SJC (est. loc)	City of	San Juan Capistr	-	-	\$ -
West End PS- 100 Riversea	OCS D	Seal Beach	-	-	\$ 125,000
Del Obispo Park (est. loc)	SCWD	Dana Point	Spring 2002	-	\$ 437,500
Avenida Pico/ Cristianitos Cr.	SMWD	San Clemente	-	-	\$ -
Marblehead Costal	City of	San Clemente	-	21,000	\$ -
Laguna Channel and PCH	City of	Laguna Beach	Sept. 2003	7,500	\$ -
Broadway @ PCH	City of	Laguna Beach	Sept. 2003	1,000	\$ -

- No data available

Source: County of Orange, February 2002; City of Huntington Beach, April 2003

E6-7 References

Center of Watershed Protection, 1998.

County of Orange, *NPDES Permit Annual Report* Submitted to Regional Board, 2002.

Orange County, *Drainage Area Management Plan (DAMP)*, 1998.

OC Health Services, *2001 Annual Ocean and Bay Water Quality Report*, May 2002.

OC Health Services, *Bacteria Monitoring Program Results*, January-December 2002.

Orange County Sanitation District (SOCWA), *Resolution and Policy on Urban Runoff Diversion*, 2002.

Orange County Stormwater Program, 2003. *BMP Effectiveness and Applicability for Orange County*, September 2003.

South Orange County Wastewater Authority (SOCWA), *Policy on Urban Runoff Diversion*, 2001.

State Water Resources Control Board, *California Beach Report*, July 2001.

Regional Water Quality Control Board, Region 8, *Basin Plan*.

Regional Water Quality Control Board, Region 9, *Basin Plan*.

U.S. EPA, 1999. Stormwater Technology Fact Sheet: Wet ponds, Office of Water, Washington DC.

ATTACHMENT A

**OCSD and SOCWA Policies on Dry Weather
Diversion**

RESOLUTION NO. OCSD 01-07

ESTABLISHING DRY WEATHER URBAN RUNOFF POLICY

A RESOLUTION OF THE BOARD OF DIRECTORS OF ORANGE
COUNTY SANITATION DISTRICT ESTABLISHING DRY WEATHER
URBAN RUNOFF POLICY, AND REPEAL RESOLUTION
NO. OCSD 00-22

WHEREAS, certain types of dry weather urban runoff create public health and/or environmental problems which are infeasible to economically or practically control;

WHEREAS, THE Orange County Sanitation District ("District") has available limited system capacity in its collection, treatment and disposal facilities which may allow the District to accept certain dry weather urban runoff discharges without adversely affecting the District's primary function of collection, treatment and disposal of sanitary sewer discharges;

WHEREAS, District is willing to accept into its sewerage system aggregate dry weather urban runoff flow discharges not exceeding 10 million gallons per day ("mgd");

WHEREAS, District does not have system capacity available to allow wet weather discharges to the District's facilities;

WHEREAS, District has developed a Dry Weather Urban Runoff Policy to address certain environmental concerns associated with dry weather runoff;

WHEREAS, over the next three (3) years District intends to evaluate (1) sources of dry weather urban runoff; (2) the quality and quantity of dry weather urban runoff discharges to the sewerage system; and (3) District's costs associated with such discharges. The District anticipates that this policy may be revised as a result of such evaluation;

WHEREAS, District may accept dry weather urban runoff, provided that the discharge occurs in full and complete compliance with the terms of this Dry Weather Urban Runoff Policy, including any subsequent amendments thereto;

WHEREAS, District intends to initially waive fees and charges associated with authorized discharges of dry weather urban runoff to the sewerage system, where such runoff originates within the District's service area, until such time as (1) the total volume of all dry weather urban runoff discharges to the sewerage system exceeds four (4) mgd calculated on a monthly average or (2) the District otherwise modifies its dry weather urban runoff policy to require dischargers to pay for permit fees, sewer use charges, capital facilities charges, operations and maintenance costs and/or any other fees or charges which the District determines to impose on such discharges;

WHEREAS, for purposes of this policy, "wet weather" shall mean any period during which measurable rainfall occurs in any portion of the District's service area and shall include the period following the cessation of rainfall until the District determines that the wet weather event is no longer impacting the District's collection, treatment and disposal facilities; and

WHEREAS, for the purposes of this policy, "dry weather" shall mean any period which does not fall within the definitions of "wet weather."

NOTE THEREFORE, the Board of Directors of the Orange County Sanitation District,

DOES HEREBY RESOLVE, DETERMINE AND ORDER:

Section 1: That the following Dry Weather Urban Runoff Policy is established as District Policy:

POLICY FOR ACCEPTANCE OF DRY WEATHER URBAN RUNOFF INTO THE ORANGE COUNTY SANITATION DISTRICT SEWERAGE SYSTEM

No person or entity shall discharge urban runoff, directly or indirectly, to the District's sewerage system during wet weather. The District may accept urban runoff into the sewerage system during dry weather conditions ("dry weather urban runoff") provided that the discharger meets the following requirements:

A. Requirements for Obtaining Permission to Discharge

1. The dry weather urban runoff diversion to the sewerage system shall address a public health or environmental problem associated with the runoff discharge that cannot be otherwise economically or practically controlled.

2. A dry weather urban runoff diversion structure shall be designed and installed and other necessary provisions shall be implemented to exclude storm and other runoff from entry into District's sewerage system during wet weather. The diversion structure shall be equipped with a lockable shut-off device, satisfactory to the District, and to which the District shall be provided access at all times;
3. Prior to commencement of discharge of the dry weather urban runoff to the sewerage system, in accordance with the policies and procedures set by the District, the applicant shall apply for and obtain a Wastewater Discharge Permit ("permit") from the District. The District may require that the permit applicant enter into an agreement setting forth the terms under which the dry weather discharge is authorized in addition to or in lieu of issuance of the permit;
4. The permit applicant shall consider and evaluate the feasibility of other disposal alternatives (i.e., discharge into storm drains, reuse and reclamation of the runoff, etc.) for the discharge of the dry weather urban runoff. The permit applicant shall submit to the District a report, satisfactory to the District, evaluating each disposal alternative, and demonstrating why each alternative is not economically or practically feasible to dispose of the proposed dry weather urban runoff in lieu of sewer discharge;
5. The permit applicant's proposed diversion system shall prevent debris and any other pollutants of concern from entering the District's sewerage system. The permit applicant shall submit design drawings and an operations and maintenance plan for the proposed dry weather diversion structure which shall be sufficient to establish that all District requirements will be met to prevent pass through of and/or interference with the District's sewerage facilities. The diversion system shall be capable of measuring and recording on a daily basis the flow discharged to the sewerage system;
6. The permit applicant shall submit best management practices and pollution prevention strategies designed to minimize or eliminate dry weather urban runoff. More stringent practices and strategies may be required depending on the nature of the anticipated discharge;
7. The permit applicant shall submit to the District a proposed method of guarantee the existence of an enforceable mechanism to ensure that the District receives payment for all monies due pursuant to this policy, and any amendments

thereto, for as long as the discharge occurs. No permit application shall be complete without such an enforceable mechanism, satisfactory to the District in its sole discretion. This mechanism shall be designed to limit any administrative burden on the District;

8. The General Manager, or his designee, may impose additional requirements as may be appropriate to reduce the burden on the District's collection, treatment and disposal facilities;
9. Collection, treatment and disposal of sanitary sewer discharges remain the District's primary functions. No additional dry weather urban runoff permits shall be issued if the General Manager, or his designee, determines that such issuance may, alone or in conjunction with other permits, adversely affect the District's primary functions; and
9. The permit applicant shall indemnify and hold the District harmless from liability associated with the dry weather urban runoff to which the permit and/or agreement apply except for the District's active negligence or intentional wrongful acts or omissions but including any negligence which is alleged to have occurred with respect to any District action to render emergency assistance at the diversion system facilities in the event of an operational malfunction or other problem at such facilities. The terms of the indemnification shall be in a form satisfactory to District's General Counsel;

B. Requirements After Granting Permission to Discharge

1. The quality and quantity of the discharge shall meet the conditions, provisions or limitations contained in the District's *Wastewater Discharge Regulations* (Ordinance No. OCSD-01)*;
2. The permittee shall conduct self-monitoring for the pollutants of concern as directed by the District to ensure compliance with the terms, conditions and limits set forth in the permit/agreement and the District's Ordinances. Unless otherwise directed, the permittee shall conduct self-monitoring of the discharge on a quarterly basis. The results of all self-monitoring shall be submitted to the

* Any reference in this policy to any District Ordinance, policy or permit shall include any subsequent amendments, modifications, revisions or successors to such ordinance, policy or permit.

District, upon request, but in no event later than forty-five (45) days following the completion of sample analysis. The permittee shall monitor the flow and submit reports documenting the quality and quantity of the flow discharged as directed by the District;

3. In the event that the quality or quantity of the dry weather urban runoff discharge to the sewerage system does not meet the conditions, provisions, or limitations set forth in the discharge permit/agreement or Ordinance No. OCSD-01, the permittee shall take immediate action to correct the problem(s) to ensure that full compliance is met. The District may take enforcement action for any violation of the terms of the permit/agreement and/or the District's Ordinances, including termination of the discharge, in accordance with the provisions of Ordinance No. OCSD-01;
4. Dischargers located within the District's service area shall not initially be required to pay any fees and charges associated with the authorized discharge of dry weather urban runoff to the District's sewerage system. Dischargers located outside the District's service area who the District authorizes to discharge dry weather urban runoff, directly or indirectly, to the District's sewerage system shall initially pay District operations and maintenance costs of \$321.00 per million gallons discharged. Once the total volume of all dry weather urban runoff discharges to the District's sewerage system exceeds (4) million mgd, all dischargers, including those for whom authorization to discharge has previously been granted, shall pay District operations and maintenance costs, initially at the rate of \$321.00 per million gallons discharged. The District reserves the right to impose other fees and charges, including but not limited to permit fees, sewer use charges, capital facilities charges and modified operations and maintenance charges on all urban runoff discharges in accordance with any future amendment of this policy, and pursuant to any other current or future District Ordinances or policies. Failure to pay fees in a timely manner shall be cause for termination of the permit/agreement and the discharge. All dischargers shall, at all times, be subject to noncompliance sampling fees set forth in Ordinance No. OCSD-01;
5. The permittee shall provide District's employees with access to the diversion location and all areas from which and through runoff originates and/or flows, during all reasonable hours, which shall include any time when a discharge to the sewerage system may be occurring, for purposes of inspection, monitoring,

and verifying compliance with the permit/agreement and/or the District's Ordinances;

6. The permittee shall have complete responsibility for the construction, operation and maintenance of the diversion facility or any other associated facilities and for ensuring compliance with the terms and conditions of the discharge permit/agreement and the District's Ordinances;
7. No later than the commencement of any measurable rainfall, each discharger of urban runoff shall shut off the flow of urban runoff (and accompanying storm water) to the District's sewerage system. The discharge shall not resume until the discharger has obtained District approval for the resumption of the discharge. Such approval shall not be deemed effective until the discharger provides written confirmation to the District of approval, which confirmation shall include the first and last name of the District employee providing such approval and the time at which such approval was issued;
8. If the District determines that the dry weather runoff, alone or in conjunction with other discharges, is adversely affecting or threatening to adversely affect the District's collection, treatment and/or disposal facilities, the District shall so notify the permittee who shall immediately cease all such discharge to the sewerage system. The District may, in its sole discretion, allow the continued discharge provided that the permittee installs, operates and maintains additional facilities as the District determines are appropriate to ensure that the dry weather runoff does not, alone or in conjunction with other discharges, adversely affect or threaten to adversely affect the District's collection treatment and/or disposal facilities;
9. Under no circumstances shall District authorization to discharge dry weather urban runoff to the District's sewerage system be deemed to provide a vested right for such discharge; and
10. Except as expressly authorized by this policy or a District Ordinance, no urban runoff shall be discharged directly or indirectly into the District's facilities.

PASSED AND ADOPTED at a regular meeting held March 28, 2001.

Chair

ATTEST: _____ Board Secretary

ORANGE COUNTY SANITATION DISTRICT



Source Control Division
10844 Ellis Avenue, P.O. Box 8127
Fountain Valley, CA 92728-8127
Telephone: (714) 962-2411
Fax: (714) 962-6957

DRY WEATHER URBAN RUNOFF POLLUTANTS OF CONCERN	
CONSTITUENT	INSTANTANEOUS/DAILY LIMIT, MG/L
Arsenic (As)	2.00
Cadmium (Cd)	1.00
Chromium Total (Cr)	2.00
Copper (Cu)	3.00
Lead (Pb)	2.00
Mercury (Hg)	0.03
Nickel (Ni)	10.00
Silver (Ag)	5.00
Zinc (Zn)	10.00
Cyanide (Total)†	5.00
Cyanide (Amenable)†	1.00
Polychlorinated Biphenyls	0.01
Pesticides (See Attachment)	0.01
Total Toxic Organics (See Attachment)	0.58
Sulfide (Total)	5.00
Sulfide (Dissolved)	0.50
Oil & Grease (Mineral or Petroleum)	100.00
BOD††	■
Total Suspended Solids (TSS)	■
pH	6 - 12

†Cyanide limits apply at the sampling point after cyanide treatment, but prior to dilution with other streams. If there is no cyanide treatment, the sample must be taken at the end of the cyanide process before dilution with other process streams. In the absence of cyanide process, the limits apply at the sampling point location described above (end of pipe).

†† Monthly BOD Limit is 10,000 lbs./day
Daily BOD Limit is 15,000 lbs./day

PESTICIDES ORANGE COUNTY SANITATION DISTRICT

REGULATED PESTICIDES CONSTITUENTS

Chlorpyrifos

Azinphos methyl

Demetho-O

Demetho-S

Diazinon

Disulfoton

Malathion

Parathion methyl

Parathion ethyl

**TOTAL TOXIC ORGANIC (TTO) LISTING
ORANGE COUNTY SANITATION DISTRICT**

REGULATED TTO CONSTITUENTS	CAS NO.	REGULATED TTO CONSTITUENTS	CAS NO.
1,1-dichloroethane	75-34-3	Bromoform (tribromomethane)	75-25-2
1,1-dichloroethylene	75-35-4	Butyl benzyl phthalate	85-68-7
1,2-benzanthracene (benzo(a)anthracene)	56-55-3	Carbon tetrachloride (tetrachloromethane)	56-23-5
1,2-dichlorobenzene	95-50-1	Chlordane (technical mixture and metabolites) - <i>Pesticide</i>	57-74-9
1,2-dichloroethane	107-06-2	Chlorobenzene	108-90-7
1,2-dichloropropane	78-87-5	Chlorodibromomethane	124-48-1
1,2-diphenylhydrazine	122-66-7	Chloroethane	75-00-3
1,2-trans-dichloroethylene	540-59-0	Chloroform (trichloromethane)	67-66-3
1,3-dichlorobenzene	541-73-1	Chrysene	218-01-9
1,3-dichloropropylene (1,3-dichloropropene)	542-75-6	Di-n-butyl phthalate	84-74-2
1,4-dichlorobenzene	106-46-7	Di-n-octyl phthalate	117-84-0
1,12-benzoperylene (benzo(ghi)perylene)	191-24-2	Dichlorobromomethane	75-27-4
1,1,1-trichloroethane	71-55-6	Dieldrin - <i>Pesticide</i>	60-57-1
1,1,2-trichloroethane	79-00-5	Diethyl phthalate	84-66-2
1,2,4-trichlorobenzene	120-82-1	Dimethyl phthalate	131-11-3
1,1,2,2,-tetrachloroethane	79-34-5	Endosulfan sulfate - <i>Pesticide</i>	1031-07-8
1,2,5,6-dibenzanthracene (dibenzo(a,h)anthracene)	53-70-3	Endrin - <i>Pesticide</i>	72-20-8
2-chloroethyl vinyl ether (mixed)	110-75-8	Endrin aldehyde - <i>Pesticide</i>	7421-93-4
2-chloronaphthalene	91-58-7	Ethylbenzene	100-41-4
2-chlorophenol	95-57-8	Fluoranthene	206-44-0
2-nitrophenol	88-75-5	Fluorene	86-73-7
2,4-dichlorophenol	120-83-2	Heptachlor epoxide - <i>Pesticide</i>	1024-57-3
2,4-dimethylphenol	105-67-9	Heptachlor - <i>Pesticide</i>	76-44-8
2,4-dinitrophenol	51-28-5	Hexachlorobenzene	118-74-1
2,4-dinitrotoluene	121-14-2	Hexachlorobutadiene	87-68-3
2,6-dinitrotoluene	606-20-2	Hexachlorocyclopentadiene	77-47-4
2,4,6-trichlorophenol	88-06-2	Hexachloroethane	67-72-1
2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) - <i>Pesticide</i>	1746-01-6	Indeno (1,2,3-cd) pyrene (2,3-o-phenylene pyrene)	193-39-5
3,3-dichlorobenzidine	91-94-1	Isophorone	78-59-1
3,4-benzofluoranthene (benzo(b) fluoranthene)	205-99-2	Methyl bromide (bromomethane)	74-83-9
4-bromophenyl phenyl ether	101-55-3	Methyl chloride (chloromethane)	74-87-3

4-chlorophenyl phenyl ether	7005-72-3	Methylene chloride (dichloromethane)	75-09-5
4-nitrophenol	100-02-7	N-nitrosodi-n-propylamine	621-64-7
4,4-DDD (p,p-TDE) – <i>Pesticide</i>	72-54-8	N-nitrosodimethylamine	62-75-9
4,4-DDE (p,p-DDX) – <i>Pesticide</i>	72-55-9	N-nitrosodiphenylamine	86-30-6
4,4-DDT- <i>Pesticide</i>	50-29-3	Napthalene	91-20-3
4,6-dinitro-o-cresol	534-52-1	Nitrobenzene	98-95-3
11,12-benzofluoranthene (benzo(k) fluoranthene)	207-08-9	Parachlorometa cresol	59-50-7
Acenaphthene	83-32-9	PCB-1016 (Arochlor 1016)	1336-36-3
Acenaphthylene	208-96-8	PCB-1221 (Arochlor 1221)	1336-36-3
Acrolein	107-02-8	PCB-1232 (Arochlor 1232) <i>PCB</i>	1336-36-3
Acrylonitrile	107-13-1	PCB-1242 (Arochlor 1242) ----- <i>Polychlorinated</i>	1336-36-3
Aldrin – <i>Pesticide</i>	309-00-2	PCB-1248 (Arochlor 1248) <i>Biphenyls</i>	1336-36-3
Alpha -endosulfan	959-98-8	PCB-1254 (Arochlor 1254)	1336-36-3
Anthracene	120-12-7	PCB-1260 (Arochlor 1260)	1336-36-3
Benzene	71-43-2	Pentachlorophenol	87-86-5
Benzidine	92-87-5	Phenanthrene	85-01-8
Benzo(a)pyrene (3,4-benzopyrene)	50-32-8	Phenol	108-95-2
BHC, Alpha – <i>Pesticide</i>	58-89-9	Pyrene	129-00-0
BHC, Beta – <i>Pesticide</i> --- <i>BHC</i> -	58-89-9	Tetrachloroethylene	127-18-4
BHC, Delta – <i>Pesticide Hexachlorocyclohexane</i>	58-89-9	Toluene	108-88-3
BHC, Gamma – <i>Pesticide</i>	58-89-9	Toxaphene – <i>Pesticide</i>	8001-35-2
Beta-endosulfan – <i>Pesticide</i>	33213-65-9	Trichloroethylene	79-01-6
Bis (2-chloroisopropyl) ether	108-60-1	Vinyl chloride (chloroethylene)	75-01-4
Bis (2-chloroethyl) ether	111-44-4		
Bis (2-chloroethoxy) methane	111-91-1		
Bis (2-ethylhexyl) phthalate	117-81-7		

January 30, 1996 -- j:\wp\3590\laurie\tto.lst



Application for Dry Weather Urban Runoff Permit

A. Instructions

For the District to properly evaluate and process a Dry Weather Urban Runoff Permit, the applicant must provide a complete permit application.

The District **will not** process incomplete Permit Applications.

- The Permit Application Form must be filled out completely and signed by the responsible official. Your application will be returned to you if there is any missing information. **Please write N/A if the information being requested does not apply.**
- The permit fee is due at the time the permit application is submitted. An application received without remittance will not be evaluated.
- An operational agreement must be entered with the applicant and the District and signed by the responsible official.

Ownership Information

Applicant

Complete Legal Entity Name

Mailing

Address Street City State Zip Code

Phone Number () _____ Fax Number () _____

E-mail Address _____

Connection

Address Street City State Zip Code

(Please include a site map)

Prior to commencement of discharge of the dry weather urban runoff to the local and regional sewerage system, in accordance with the policies and procedures set by the District, the permit applicant must apply for and receive a Wastewater Discharge Permit from the District. The District may require that the permit applicant enter into an agreement setting forth the terms under which the dry weather discharge is authorized in addition to or in lieu of issuance of the Wastewater Discharge Permit.

B. Requirements for Obtaining Permission to Discharge

Describe and submit the following (Use additional sheets if necessary):

1. Reasons for the request to discharge urban runoff to the sewer system.

-
-
2. Analysis of the feasibility of other disposal alternatives (i.e., discharging into storm drains, reuse and reclamation, etc.):

3. Anticipated or actual daily flow:

Average: _____ gallons/day Minimum: _____ gallons/day Maximum: _____ gallons/day

4. Hours of the proposed discharge:

From: _____ a.m./p.m. To: _____ a.m./p.m.

5. Duration of the proposed discharge:

From: _____ To: _____ How Long: _____
Month-Day Month-Day

6. Location of the proposed discharge point.

7. Monitoring and analysis (if available) of pollutants for the proposed discharge.

8. Watershed drainage map showing the area tributary to the proposed discharge point (attach additional information).

9. Detailed design drawings and technical information (attach additional information):

- Diversion structure including but not limited to pump station, wet wells, piping, etc.

- Structure/equipment to prevent pass through and interference with the sewerage facilities and to keep floatable and settled debris from being discharged to the sewer system.

- Lockable shut-off device, to disconnect the proposed discharge to the sewer system.

- Structure/equipment to measure and record, on a daily basis, the flow discharged to the sewer system.

10. Best management and pollution prevention practices to minimize the proposed discharge to the sewer system.

A copy of Resolution No. OCSD 01-07, Establishing Dry Weather Urban Runoff Policy, is attached for your information.

C. Certification of Responsible Officer

I have personally examined and am familiar with the information submitted in the attached document, and I hereby certify under penalty of perjury under the laws of the State of California that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

I certify that upon issuance of the permit, our wastewater discharge will achieve consistent compliance with the District's Ordinance and applicable federal wastewater discharge requirements. If the wastewater discharge does not meet all the applicable regulations, we will do whatever is necessary to meet discharge requirements.

I also certify that I am the Responsible Officer as defined below:

A responsible officer is defined as follows:

1. For a corporation:
 - a. A president, secretary, treasurer, or vice-president of the corporation in charge of the principal business functions, or any other person who performs similar policy- or decision-making functions for the corporation, or
 - b. The manager of one or more manufacturing, production, or operation facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
2. For partnership or sole proprietorship, a general partner or proprietor, respectively.

As the Responsible Officer, I accept the responsibility for the overall operation of the facility and/or overall responsibility for compliance with all regulatory requirements for the facility from which the wastewater discharge originates.

NOTE: All correspondence regarding permit, enforcement, and self-monitoring issues (e.g., Self-Monitoring Forms and Reminder Letters, Notices of Violations, Permit Application, etc.) shall be sent to the Responsible Officer or to the Designated Signatory if properly authorized. If there is a change in the Responsible Officer or Designated Signatory in the future, the District must be notified in writing and the appropriate form must be submitted.

Name of Responsible Officer _____
(Please Print or Type)

Signature _____

Title _____ Date _____

Company Name _____ Permit No. _____

**SOUTH ORANGE COUNTY
WASTEWATER AUTHORITY (SOCWA)
POLICY FOR ACCEPTANCE OF
INTERIM DRY WEATHER NUISANCE FLOW
TO THE WASTEWATER COLLECTION,
TREATMENT AND DISPOSAL SYSTEM PURSUANT TO
PRETREATMENT PROGRAM AND WASTE DISCHARGE REQUIREMENTS**

Except as permitted by this Policy, no person or entity shall discharge dry weather nuisance flow (as defined herein), directly or indirectly, to SOCWA and its Member Agencies' sewage collection systems and wastewater treatment /disposal facilities. The requirements of this Policy are intended to be used in conjunction with SOCWA and Member Agency Waste Discharge Requirements and Pretreatment Ordinances, and all other applicable ordinances, regulations, rules and requirements, and are not in place thereof (except as may be expressly provided herein).

I. DEFINITIONS/TERMS

Note: Abbreviation or acronym used in text in parenthesis.

A. Best Management Practices (BMPs) -Best Management Practices are defined as schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the pollution of creeks, rivers, lakes or the ocean. BMPs also include treatment requirements, operating procedures and practices to control site runoff, spillage or leaks, including landscape irrigation runoff, sludge or waste disposal, or drainage from raw material storage,

B. Class IV Special Wastewater Discharge Permit (SWD Permit) - A periodically renewable and/or revocable authorization from SOCWA and a Member Agency to a Member Agency, other public agency or a private applicant for the discharge of "groundwater", "surface runoff", "subsurface drainage" and/or "unpolluted water", as those terms are defined in the Pretreatment Ordinances, to the sewage collection system. The SWD Permit sets forth the limits and conditions under which the applicant may discharge into sewage facilities. A sample form of the SWD Permit is Attachment 1 to this Policy.

C. Diversion Project or Diversion - A project proposed by a Member Agency, other public agency or private applicant designed to direct nuisance flow from a storm drain, a creek or other body of water, or any other potential contributing source or site into the sewer collection system of

Member Agency for eventual treatment at a wastewater treatment plant before disposal to the ocean or beneficial reuse in a recycled water distribution system.

D. Dry Weather Nuisance Flow (nuisance flow) - Any water or other discharge which finds its way to storm drains from urban areas, composed primarily of runoff from lawn or landscape watering, washing of vehicles, hosing down of paved areas, storm drain infiltration, natural groundwater from sub-drain systems and a variety of other sources associated with urban activity. This nuisance flow may be high in bacteriological contamination, oil and grease, and may have high organic and inorganic mineral content. Nuisance flow does not include stormwater, as defined, and exists primarily during the dry weather period. Nuisance flows may come in contact with people or the environment in undesirable ways. Nuisance flow is a component of urban runoff.

E. Dry Weather Period (dry weather) - Generally the period of time between April 15th and October 15th of each year when little or no rain occurs in the SOCWA service area. Dry weather may also occur for long periods during any part of the year.

F. First Flush -The stormwater generated during the initial period of a rain storm which enters the storm drain system and tends to clean out or "flush" the debris and other material which has collected in the system. The first flush may also wash down high concentrations of chemicals, oil and grease and road debris that has accumulated on sidewalks, roads and other impervious surfaces and may be very high in bacteriological contamination and organic content and inorganic mineral content.

G. NPDES Permit - A permit issued to SOCWA by the Regional Water Quality Control Board specifying conditions, requirements and standards for disposal of wastewater effluent to the ocean, pursuant to the National Pollution Discharge Elimination System. SOCWA holds an NPDES Permit for each of its ocean outfalls.

H. Other Public Agency - Any city, county, special district or other public agency within the SOCWA service area responsible for collection and disposal of urban runoff from public or private property(s).

I. Pretreatment Ordinances - Ordinances or rules and regulations adopted by SOCWA and the Member Agencies to implement certain of the Waste Discharge Requirements.

J. Private Applicant - Any individual, person(s), firm, corporation, association or non-public agency which has the legal responsibility for disposal of urban runoff from any private property; includes private homeowners' associations.

K. Recycled Water Permit - Order #94-03 (Region 8) and Order #97 -52 (Region 9), and any amendment thereto or updated Order, issued by the Santa Ana and San Diego Regional Water Quality Control Boards, respectively, setting forth conditions, requirements and standards for use of recycled water within the service area of SOCWA.

L. South Orange County Wastewater Authority (SOCWA) - A joint powers agency, including any successor thereto, composed of Member Agencies City of Laguna Beach, Emerald Bay Service District, South Coast Water District, Moulton Niguel Water District, El Toro Water District, Irvine Ranch Water District, Santa Margarita Water District, City of San Juan Capistrano, Trabuco Canyon Water District and City of San Clemente created in 2001 (as consolidated successor-in-interest to the Aliso Water Management Agency (AWMA), South East Regional Reclamation Authority (SERRA) and South Orange County Reclamation Authority (SOCRA) for the construction, maintenance and operation of regional wastewater facilities and for providing interagency and governmental coordination and planning to expedite, facilitate and expand more efficient and economical use of recycled water in the Aliso Creek/Laguna Canyon Creek and San Juan Creek watershed areas of South Orange County, California. SOCWA operates four treatment plants, an effluent transmission main and two ocean outfalls.

M. SOCWA Member Agencies (Member Agencies) - A Member Agency/ies of the South Orange County WasteWater Authority (SOCWA).

N. Storm Drain -A pipe, channel or other facility by which urban runoff, as defined, or other discharges are conveyed for disposal in creeks, rivers, lakes and/or the ocean. Storm drains may include catch basins and a series of interconnecting underground or above-ground pipes or channels for conveyance of stormwater and dry weather nuisance flows off lands, buildings, streets and other impervious surfaces.

O. Stormwater - Water from natural sources such as rain, melted snow, hail or sleet which enters the municipal storm drain system for disposal in a river, stream, lake or creek and ultimately to the Pacific Ocean. Stormwater originates from precipitation events and does not include dry weather nuisance flows. Stormwater is a component of urban runoff.

P. Stormwater NPDES Permit (stormwater permit) - A permit issued to the County of Orange and all of its municipal jurisdictions (co-permittees) by the Regional Water Quality Control Board specifying conditions, requirements and standards for disposal of stormwater and urban runoff through the County and municipal storm drain system, pursuant to the National Pollution Discharge Elimination System.

Q. Urban Runoff - All flows in a stormwater conveyance system and consists of the following components: (1) stormwater (wet weather flows) and (2) dry weather nuisance flows (nuisance flows). Urban runoff may be high in bacteriological contamination, oil and grease, and may have high organic content and inorganic mineral content.

R. Waste Discharge Requirements (WDRs) - All conditions, requirements and standards for disposal of wastewater set forth in the SOCWA NPDES Permits, the Recycled Water Permit and the Pretreatment Ordinances, including all applicable "local limits".

S. Wastewater - For purposes of this Policy wastewater shall be classified as all domestic commercial and industrial sewage which is transported via private laterals and the sewage collection systems of the Member Agencies to SOCWA or Member Agency wastewater treatment plants for treatment, reclamation and/or disposal. Wastewater does not include nuisance flow, urban runoff or stormwater.

II. GUIDELINES ON ACCEPTANCE OF DRY WEATHER NUISANCE FLOW

A. General Statement

1. The sewage collection systems and treatment and disposal facilities of SOCWA and its Member Agencies are master-planned and designed only to collect, treat, dispose of and/or recycle wastewater from within the service area of the Member Agencies in accordance with all applicable United States or State of California Environmental Protection Agency (EPA) regulations and the land planning standards existing at the time of original approval. No provision is made for treatment of dry weather nuisance flows or other urban runoff.

2. Nuisance flows, while recognized as a serious problem within the SOCWA service area, are the responsibility of the County of Orange and the cities within the SOCWA service area which are co-permittees under the stormwater permit.

3. Diversion of nuisance flows to the SOCWA and Member Agency wastewater systems should not be considered as a permanent or long-term solution to the problem of dry weather

nuisance flows; provided, a Member Agency may consider certain diversions as permanent components of an overall program to reduce to nuisance flows to creeks, streams or the ocean. Due to the complexity of the urban run off problem, however, it is recognized that such diversions, if permitted, may exist for some period of time. The permanent solution to the problem of nuisance flows, nevertheless, should originate from the source of the nuisance water at individual homes, businesses and public facilities. Resolution of the problem may also include treatment at individual drains or at the point of entry to streams, creeks or the ocean.

4. Disposal of nuisance flows into the sewage collection system of a Member Agency or the SOCWA facilities shall not be considered a right of the other public agency or private applicant requesting to do so. If such disposal is permitted in accordance with the procedures established by this Policy, the permit may be withdrawn by SOCWA or by the Member Agency at any time. Other than the capacity or other rights a Member Agency has in the SOCWA facilities, no implied dedication of the sewage collection systems or SOCWA facilities is being given to applicants, and no capacity right, or entitlement or dedication thereof is being vested in the applicant, nor are any other entitlements being granted in connection with such disposal. Moreover, capacity exists in the sewage collection systems and SOCWA facilities only for planned wastewater flows. If the other public agencies or private applicants desire to utilize the sewage collection systems and wastewater treatment / disposal capacity on a longer term basis, additional capacity/facilities may need to be constructed by those desiring to utilize them. It is recognized that several Member Agencies of SOCWA are also co-permittees under the stormwater permit (e.g. City of Laguna Beach, City of San Clemente, City of San Juan Capistrano). As such, those cities may own wastewater treatment / disposal capacity in the SOCWA facilities which they may desire to utilize for disposal of nuisance flows in accordance with this Policy and the WDRs.

5. Acceptance of nuisance flows into the SOCWN Member Agency sewage collection systems and SOCWA facilities shall be in accordance with this Policy, the WDRs and the Pretreatment Ordinances. This Policy provides SOCWA with oversight of Member Agencies' diversion projects. and also allows SOCWA to exercise such oversight as to all applicants in conjunction with a Member Agency, as may be necessary to assure compliance with the WDR's and protection of the SOCWA wastewater treatment and disposal facilities. As holder of the NPDES Permit, SOCWA is ultimately responsible for enforcement of the Pretreatment Ordinances and the WDRs. Therefore, SOCWA will be provided all diversion project application plans and information, and no SWD Permits shall be issued without SOCWA's approval and execution. SOCWA has the ability, acting through it's project committees, to exercise any SWD Permit revocation or termination under this Policy, whether such permits are held by private

applicants or by a Member Agency (ies); provided, in the case of an SWD Permit held by a Member Agency as permittee. SOCWA will exercise any termination or revocation in a reasonable manner and only in those cases where compliance with the WDRs, or SOCWA facilities, are jeopardized, as determined by SOCWA. The Member Agency, or SOCWA as applicable, shall ultimately be responsible for review, approval, permitting, monitoring and enforcement actions relative to any and all nuisance flows accepted into its sewage collection system or treatment and disposal facilities. The Member Agency, or SOCWA as applicable, as part of its initial review process, shall require the applicant to submit flow and sampling data and may otherwise require such data or any other information it believes is pertinent to making a decision on whether to approve the proposed diversion project. The SOCWA General Manager or his designees shall administer the SWD Permit approval process; provided, any permit termination or revocation may be reviewed by the appropriate SOCWA project committee. To the extent this Policy sets forth rights and duties relative to the SWD Permit term, revocation or any other terms that are different or inconsistent from the Pretreatment Ordinances, this Policy shall control, provided no violation of any WDRs occur as a result thereof.

B. Project Standards

1. The primary mission of SOCWA and the Member Agencies is to provide efficient and environmentally compliant treatment of wastewater as well as reclamation for beneficial purposes and the agencies do not intend to jeopardize their wastewater and reclamation operations in any way by approving diversions of nuisance water to the sewer system. No diversion project, however temporary, which would jeopardize the SOCWA NPDES Permits, result in violation of those permits or potentially cause a sanitary sewer overflow will be approved. The Member Agencies, and SOCWA will review the potential impact of any proposed diversion project on their facilities, the NPDES Permits and the WDRs. Any possible negative impact to SOCWA's or a Member Agency's recycled water facilities and/or to the WDRs governing the related operation must be fully mitigated by the applicant if required by the agencies owning such facilities, or the diversion project will not be permitted. The mitigation will be the sole responsibility of the applicant proposing the diversion.

2. Diversions of nuisance flows to SOCWA or Member Agency sewage collection systems and treatment/disposal facilities may be permitted only when such diversion helps to solve an immediate public health or environmental problem associated with the nuisance flows that cannot otherwise be addressed in an alternative practical or economical manner. The applicant shall submit to the Member Agency and SOCWA a report, satisfactory to the Member Agency and SOCWA, evaluating each disposal alternative, and demonstrating why each alternative is not

economically or practically feasible to dispose of the nuisance flow in lieu of a diversion to the sewage collection systems and treatment/disposal facilities. Member Agencies and SOCWA shall have sole discretion in making the determination as to whether to permit a diversion project. Every application must adequately detail how the applicant will provide a permanent solution in place of the diversion project; or, in the alternative in the case of a Member Agency's own application, how the diversion project functions within a Member Agency's operational practices; and overall program to reduce nuisance flows to creeks, streams or the ocean. The information will be deemed adequate only if it details alternative facilities or operational practices; a time-schedule to substitute the alternative (s) for the diversion project; and, any other information and details requested by SOCWA or a Member Agency. SOCWA and the Member Agency (ies) are under no obligation to review any application from a private applicant or other public agency, and any such decision to review shall be at the sole discretion of SOCWA or a Member Agency (ies). A sample application is Attachment 2 to this Policy.

3. Diversion of nuisance flows to SOCWA or a Member Agency may be permittee (only during the dry weather period (April 15th through October 15th) in any given year, and provided that the Member Agency approving or applying for such diversion has adequate capacity in the SOCWA wastewater treatment and disposal facilities available to permit the diversion without exceeding that Member Agency's ownership capacity. Any such diversion shall be designed to shut down prior to the "first flush" during a storm event. A diversion of nuisance flows may be permitted beyond the dry weather period so long as the system is properly designed and approved by the receiving Member Agency and SOCWA to shut down prior to the "first flush" of any significant precipitation event. A Member Agency and SOCWA may, at their discretion, accept "first flush" flows and/or wet weather runoff provided such diversions are regulated in a controlled manner and do not adversely impact the wastewater collection or treatment system and or cause a violation of the NPDES Permits or WDRs.

4. Each applicant for a diversion project, whether it be a Member Agency, other public agency or private applicant shall secure a SWD Permit from the Member Agency, or SOCWA as applicable, permitting and approving the diversion project in accordance with the Pretreatment Ordinances. All fees for application, review and development of the SWD Permit shall be borne by the applicant. All requirements of the WDRs and the Pretreatment Ordinances shall be applicable to diversion projects (except as certain terms of the Pretreatment Ordinances are altered by this Policy). For example, but not by way of limitation, diversion projects must meet the local limits contained within the Pretreatment Ordinances. In the event that a diversion project predates the existence of this Policy, SOCWA and the affected Member Agency shall review

these existing diversions and move to expeditiously issue SWD Permits for such diversions in accordance with this Policy.

5. SWD Permits may be issued for a term not-to-exceed five (5) years and may be renewed at the discretion of the affected Member Agency and SOCWA for additional periods in accordance with this Policy, provided the applicant has adequately demonstrated the continued non-feasibility of alternatives under Section II B 2 above. 6. The applicant for the diversion shall submit plans and specifications for the diversion project to the permitting Member Agency, or SOCWA as applicable, prior to issuance of the SWD Permit, connection to the sewage collection systems and commencement of the diversion. All such plans must meet any and all requirements now in effect or henceforth established by the Member Agency or SOCWA and must be approved by the affected Member Agency, or SOCWA as applicable. The project applicant will reimburse the Member Agency, or SOCWA as applicable, for actual time spent in plan review, field checks, monitoring, etc., as determined by the Member Agency or SOCWA. Subsequent to approval of a diversion project within its sewage collection system, or concurrently with a proposal for a diversion project by that Member Agency, the Member Agency will submit copies of all plans and SWD Permit, and, after the operation of the diversion commences, water quality sampling and monitoring data, to SOCWA for record keeping data collection purposes and/or reporting purposes.

7. In accordance with its plan approval process, the affected Member Agency, or SOCWA as applicable, may require the diversion project applicant to provide for the installation of appropriate filters or other control technologies necessary to remove grease and oil, trash and debris and other objectionable substances prior to connection to the sewage collection system. The total number of diversion project connections should be kept to a minimum wherever possible. The project applicant(s) will, wherever feasible, design projects which interconnect the diverted flows to a single sewage collection system connection point. A lockable shut-off device, or similar device as approved, shall be required for all points of connection, and the Member Agency and SOCWA shall have access to such device at all times; provided, this does not permit SOCWA to modify any storm drain or sewage collection system of a Member Agency, but only to operate the lockable shut-off device (or the alternative device) as necessary to carry out the terms of this Policy relative to protection of facilities. Pumped diversions are the preferred method of discharge in order to prevent debris from entering the sewage collection system and to control the maximum rate of flow. The location of capture should be at or near the end of the storm drain or channel to provide the greatest degree of capture. The diversion project design shall allow control of the amount of the flow diverted and shall allow the capture devices to be easily removed or bypassed in the event of a significant precipitation event.

8. Each diversion project shall provide for the quantity of flow to be recorded on a continuous daily basis, at least until sufficient data is available for analysis. Flow monitoring results shall be submitted to the affected Member Agency, or SOCWA as applicable, on a weekly basis and the Member Agency shall forward same to SOCWA. The cost for such monitoring shall be borne solely by the project applicant. Based upon the initial flow data submitted, at its discretion the affected Member Agency, in consultation with SOCWA, may reduce the monitoring requirement to a less frequent level. It is recognized that some diversion projects, due to their size and/or complexity, may require more or less flow monitoring than others. Member Agencies and SOCWA will have discretion in the administration of this Policy, so long as sufficient data is provided for documenting compliance with WDRs and capacity impacts to SOCWA facilities.

9. For each diversion project, at minimum a 24-hour composite sample shall be collected twice a week by the applicant. This sample must then be analyzed by an independent certified laboratory acceptable to the Member Agencies and SOCWA for general mineral content, oil and grease, and any other substances determined by the agencies and SOCWA to be appropriate to the specific diversion project. The project applicant must submit sampling data to SOCWA and the Member Agency upon receipt. At its discretion, the Member Agency, in consultation with SOCWA, or SOCWA as applicable, may reduce this requirement to a less frequent level. All costs for sampling and analysis shall be borne by the project applicant. It is recognized that some diversion projects, due to their size, complexity or the type of nuisance flow diverted, may require more or less sampling than others. Member Agencies and SOCWA have discretion in the administration of this Policy, so long as sufficient data is provided for documenting compliance with WDRs and the NPDES Permit requirements.

10. Operation and maintenance of an approved diversion project shall be the sole responsibility of the project applicant. Member Agencies and SOCWA reserve the right to inspect, monitor, or otherwise gain access to the diversion structure(s) or site at any time for the purpose of verifying compliance with the SWD Permit requirements.

11. The Member Agency receiving the nuisance flow into its sewage collection system shall have the discretionary authority to halt the diversion either temporarily or permanently without prior notice to the other public agency or private applicant, and without cause. Upon notification by SOCWA to any Member Agency that a diversion project has resulted in, or may cause, a violation of the NPDES Permits or WDRs, the Member Agency shall immediately halt the diversion.

III. ADDITIONAL PROVISIONS

1. Fees - It is the responsibility of the project applicant to secure an agreement with the affected Member Agency regarding payment of any and all fees related to the proposed diversion. This agreement must be in place prior to initiation of the diversion project. The affected Member Agency may include fees for treatment of the diverted nuisance flow, disposal, collection and transmission, pumping, administration, inspection and capital facilities, plus any other charge deemed by the affected Member Agency to be appropriate to the specific project. The agreement shall be in a form prescribed by the Member Agency, provided the indemnity and insurance requirements in this Policy are included. SOCWA shall have no obligation or responsibility to collect any fees for diversion projects.

2. SOCWA Impacts. All flows, whether wastewater or nuisance flow, shall be treated as wastewater for purposes of the treatment and disposal process in the SOCWA facilities. No reduction or discount in the cost to process wastewater flows to SOCWA facilities shall be afforded to a Member Agency whose flows may include nuisance flow. SOCWA costs for assistance in implementing SWD Permits shall be charged to the affected Member Agency through the Pretreatment Program. Implementation of this Policy shall not adversely impact the allocation of administrative or overhead costs to Member Agencies who choose not to participate in nuisance flow diversion projects.

3. SWD Permit Terms. The following terms shall be incorporated into any project applicant's agreement and into each SWD Permit:

(a) WDRs Violations -In accordance with the Pretreatment Ordinances, any discharge or effluent violations that occur as a result of a diversion project, as determined by SOCWA in consultation with the affected Member Agency, for which a penalty or fine by the State Regional Water Quality Control Board or other regulatory entity is levied, that fine or penalty will be assessed upon the project applicant.

(b) Indemnification and Insurance –The project applicant shall indemnify and hold harmless the affected Member Agency, SOCWA, including all non-participating SOCWA Member Agencies, and each of their employees, officers and elected officials from any claim, lawsuit, permit or discharge violation, or other liability arising from or in connection with the use, development, approval, operation, maintenance, termination discontinuance or any other aspect of the diversion project. Such indemnity shall be evidenced in writing. The diversion project applicant (except in the case of a Member Agency) shall provide evidence of general liability insurance for the diversion project from a carrier acceptable to the affected Member Agency and in an amount specified by the Member Agency. If

requested, the affected Member Agency, SOCWA, and non-participating Member Agencies, and each of their employees, officers and officials shall be named as additional insureds on the general liability insurance policy.

4. Member Agency Indemnity . A Member Agency that elects to utilize a portion of its capacity for its own or a project applicant's nuisance flow diversion project shall indemnify and hold harmless SOCWA and all non-participating Member Agencies, and each of their employees, officers and elected officials from any claim, lawsuit, permit or discharge violation or other liability arising from or in connection with the use, development, approval, operation, maintenance, discontinuance or any other aspect of the diversion project. This indemnity shall be set forth in a form approved by SOCWA.

5. Best Management Practices -The affected Member Agency or SOCWA as applicable may require the project applicant, depending on the circumstances, to implement best management practices (BMPs) and pollution prevention strategies to minimize or eliminate nuisance~ flow from the area or site served by the proposed diversion project.

6. Consultation with Regulatory Agencies -As part of the diversion project review process, SOCWA and/or the affected Member Agency may consult with the Orange County Health Care Agency, the California Regional Water Quality Control Board (Region 8 or 9 as appropriate) and other appropriate regulatory agencies to solicit comments or concerns on a proposed diversion prior to final approval of the diversion project. Any required regulatory compliance necessary for permit issuance shall be provided in writing prior to the issuance of a SWD Permit. A letter of request pursuant to the Pretreatment Ordinances (see, SOCWA Pretreatment Ordinances, Section 612 C.) shall not be required for the diversions, unless mandated by the appropriate Regional Quality Control Board. Notice of each diversion project shall be sent by SOCWA to the appropriate Regional Water Quality Control Board upon permit issuance for such project.

6.1 In the event SOCWA or any Member Agency is required by a cease and desist order or any other administrative order or regulatory or legal mandate, including but not limited to the stormwater permit, to discontinue, prohibit or otherwise limit operation of any diversion projects or diversions, SOCWA and/or the Member Agency shall comply to the extent such mandate is valid under law; any Member Agency that chooses to challenge such mandate shall pay all engineering, legal or other costs incurred by SOCWA pursuant to Section 1114. 7. Disclaimer- SOCWA and the Member Agencies disclaim any and all responsibility and/or liability for any other public agency's or private applicant's diversion project, including but not limited to compliance with any

regulatory or other legal requirement applicable thereto or to an applicant, including but not limited to the stormwater permit.

ATTACHMENT B

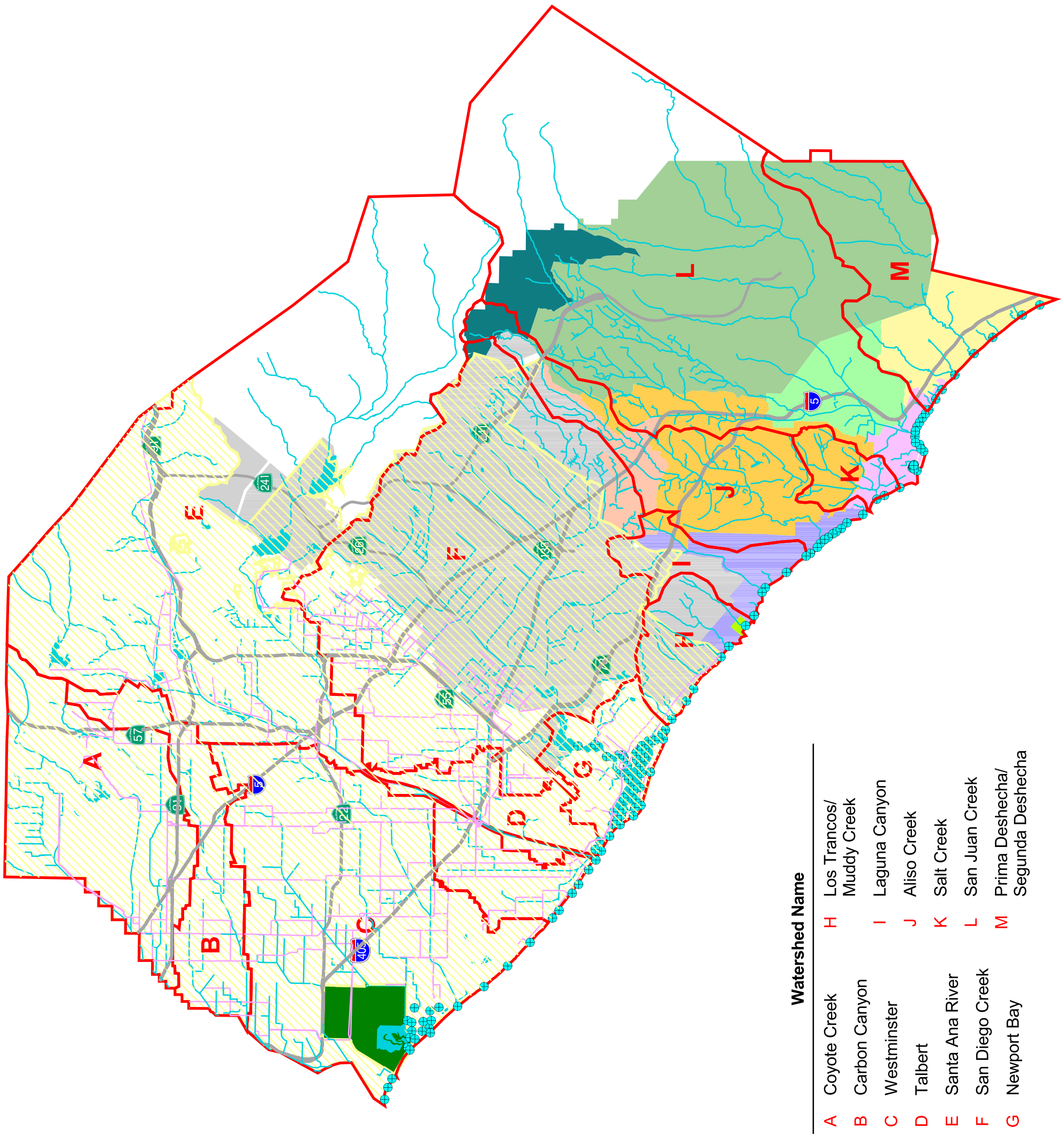
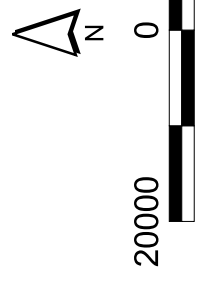
OC Health Agency Bacteria Data

January-December 2002 Data

Orange County Bacteria Monitoring Locations

- Sampling Locations
 - Watershed Boundary
 - Highways/State Routes
 - Channels/Water Bodies
 - OCSD Trunksewers
- Sewer Agencies**
- Orange County Sanitation District
 - City of Seal Beach
 - Irvine Ranch Water District
 - South Orange County Wastewater Authority
 - City of Laguna Beach
 - City of San Clemente
 - City of San Juan Capistrano
 - El Toro Water District
 - Emerald Bay Services District
 - Moulton Niguel Water District
 - Santa Margarita Water District
 - South Coast Water District
 - Trabuco Canyon Water District

Note: OCSD and IRWD have overlapping jurisdictional areas

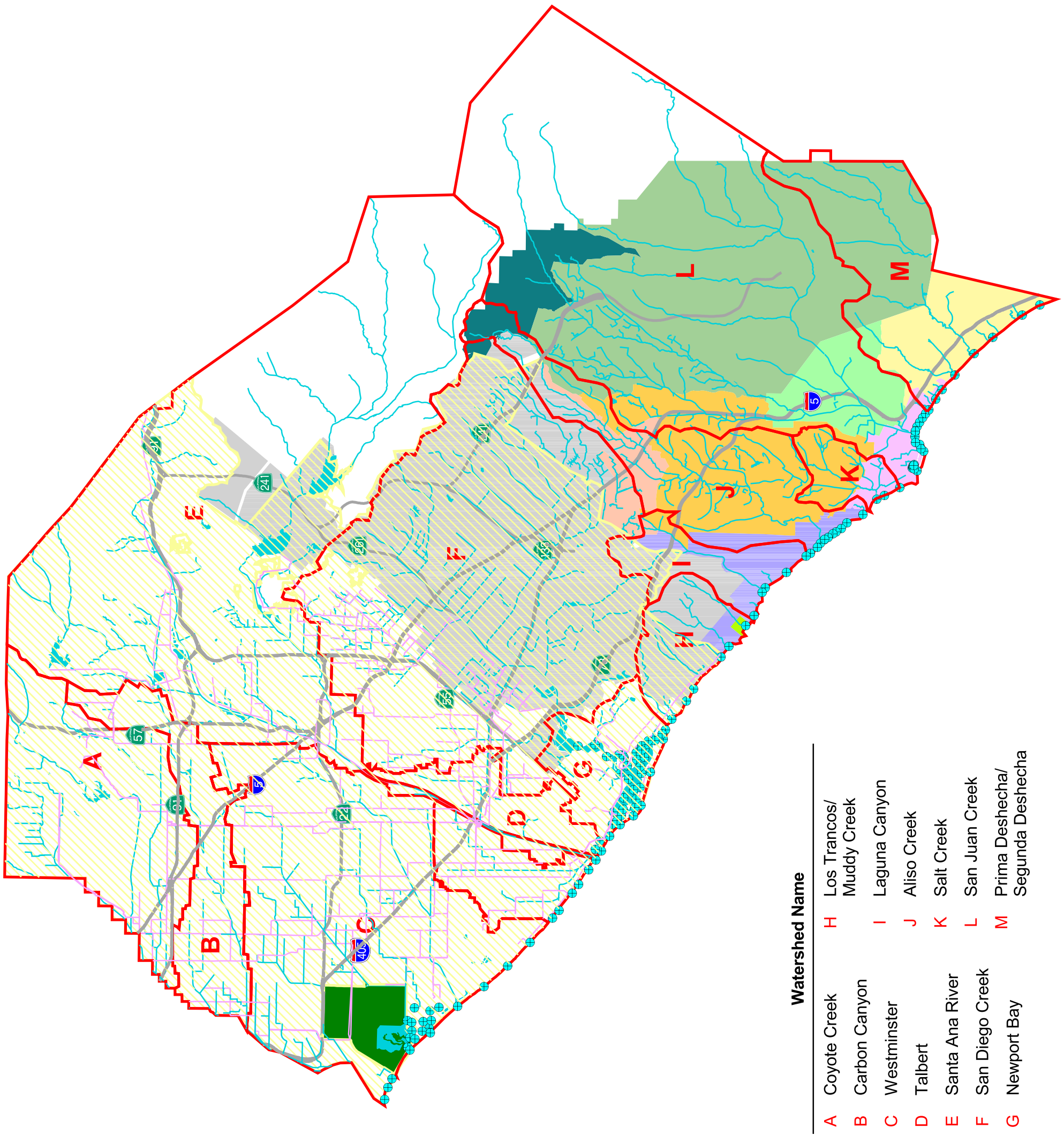
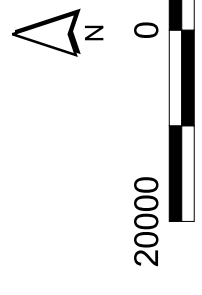


Watershed Name	
A	Coyote Creek
B	Carbon Canyon
C	Westminster
D	Talbert
E	Santa Ana River
F	San Diego Creek
G	Newport Bay
H	Los Trancos/ Muddy Creek
I	Laguna Canyon
J	Aliso Creek
K	Salt Creek
L	San Juan Creek
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Health Care Agency / Environmental Health Ocean and Harbor Bacteriological Monitoring Program
Total Coliform (TC), Fecal Coliform (FC), Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description	7/17/02	7/24/02	7/29/02	8/7/02	8/14/02	8/21/02	8/28/02	9/5/02	9/11/02	9/18/02	9/25/02	10/2/02	10/9/02	10/17/02	10/23/02	10/30/02	11/6/02	11/14/02	11/20/02	11/25/02	12/4/02	12/11/02	12/18/02	12/23/02	12/30/02		
SAN GABRIEL RIVER																												
CSGRM	Marina Drive	TC	20	600	>200	120	>70	>480	3000	<10	30	40	>60	>560	>430	120	95	>150	50	>920	>180	370	Cw/C	>280	Cw/C	4200	>9000	
		FC	40	900	10	<10	60	550	310	20	10	30	50	20	280	20	30	40	20	160	50	140	2000	40	12000	260	290	
CSGR1	1st Street Parking Lot	TC	<10	240	60	10	20	160	270	<10	20	<10	10	<10	10	<10	10	5	40	30	910	300	12000	260	130			
		FC	30	400	<10	880	>110	520	>70	<10	80	>770	>50	>390	>210	30	8400	>240	1040	>1080	3200	150	3200	150	Cw/C	4600	>13000	
SEAL BEACH (surfzone)	1st Street	TC	40	320	<10	760	80	490	10	30	30	660	10	<10	80	10	7800	20	720	170	1170	60	1480	30	8600	290	>30	
		FC	30	430	20	760	20	310	10	10	40	330	<10	<10	<10	<10	1170	<10	900	90	450	50	4000	70	13000	450	560	
OSB02	1st Street	TC	30	>40	<10	400	>50	20	>100	<10	>30	>20	>140	>30	>200	50	40	>110	60	>710	360	80	210	120	>13000	>410	>1950	
		FC	10	20	10	120	30	20	20	10	50	20	60	10	100	50	40	10	68	140	120	50	70	<10	660	90	220	
OSB03	8th Street	TC	10	50	10	100	<10	<10	<10	10	50	40	40	<10	30	20	10	<10	20	50	150	<10	40	10	1640	80	110	
		FC	60	>40	>70	80	>30	70	10	>50	>40	<10	>60	10	>150	<10	50	50	100	>510	150	60	50	40	5800	>3800	>1240	
OSB05	100 Yards South of Pier	TC	20	10	100	20	40	10	10	20	20	30	10	50	<10	40	10	66	110	80	60	10	<10	<10	370	310	280	
		FC	10	<10	10	<10	<10	<10	<10	20	40	10	<10	<10	20	<10	<10	<10	20	70	40	10	<10	<10	590	420	170	
OSB04	14th Street	TC	10	<10	>10	120	20	40	10	>10	>10	>10	>10	>10	>10	>10	>10	>10	21	90	<10	<10	10	<10	<10	240	20	150
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	810	30	90	
OSB01	Sea Way	TC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	52	10	10	10	<10	<10	<10	810	30	90
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	>1500	130	310	
SUNSET BEACH (surfzone)	Broadway	TC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	2	<10	<10	<10	<10	<10	<10	180	20	20
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	60	100	40	<10	<10	<10	>1420	100	280	
HUNTINGTON HARBOUR (in Harbour)	Bolsa Bay	TC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BH#07	Sunset Aquatic Marina	TC	30	20	<10	30	590	<10	120	70	<10	10	<10	10	60	20	<40	>1320	40	1260	390	20	100	170	Cw/C	3800	Cw/C	
		FC	10	<10	<10	10	40	<10	<10	20	10	<10	30	<10	20	10	10	280	9	330	100	10	<10	20	12000	100	>12000	
BH#15	Mother's Beach	TC	30	200	20	50	260	<10	10	10	170	20	60	30	20	20	>740	<10	>860	80	10	60	50	Cw/C	>390	6600		
		FC	<10	160	20	20	<10	<10	10	10	<10	10	40	20	<10	10	10	70	10	70	30	10	<10	<10	18000	40	10	
BH#12	Trinidad Lane Beach	TC	30	8600	20	30	>160	30	20	10	20	10	<10	>200	30	20	10	280	20	>610	60	20	110	10	Cw/C	>690	>710	
		FC	20	7400	<10	10	70	20	<10	10	10	10	<10	>10	10	10	<10	10	10	<10	10	30	10	<10	15000	60	<10	
BH#09	Sea Gate Lagoon	TC	10	40	<10	<10	30	<10	<10	10	20	<10	<10	50	10	<10	<10	<10	2	20	<10	<10	<10	<10	<10	18000	60	10
		FC	200	30	<10	<10	<10	<10	450	10	10	<10	20	<10	10	>10	20	20	140	90	30	50	<10	<10	Cw/C	170	50	
BH#06	Humboldt Beach	TC	<10	<10	<10	<10	<10	270	<10	10	<10	10	<10	<10	<10	<10	<10	3	<10	<10	10	<10	<10	<10	<10	2200	<10	<10
		FC	140	10	20	<10	<10	<10	30	<10	<10	<10	<10	20	<10	<10	<10	<10	6	<10	<10	20	10	20	3600	40	<10	
BH#10	Davenport Beach	TC	10	>40	10	40	>10	30	30	50	80	20	60	90	20	10	40	90	10	>350	80	40	60	20	Cw/C	>440	>890	
		FC	20	50	<10	<10	<10	<10	10	10	20	20	<10	40	<10	<10	10	10	9	80	<10	10	10	<10	<10	>14000	50	10
BH#11	Admiralty Drive	TC	50	20	10	10	20	10	<10	130	<10	10	50	<10	<10	<10	<10	<10	8	10	<10	10	30	40	15000	70	10	
		FC	20	10	<10	10	<10	<10	10	<10	10	<10	<10	<10	<10	<10	<10	<10	2	40	10	<10	30	10	20800	10	<10	
BH#01	Clubhouse Marina	TC	<10	10	<10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<2	<10	10	10	<10	<10	40	20000	40	<10
		FC	1380	20	<10	20	180	>20	>70	60	90	750	>100	100	70	100	170	4200	430	4000	290	>610	490	200	Cw/C	6600	>1700	
BH#13	Harbour Channel	TC	390	<10	<10	<10	20	<10	<10	10	30	380	20	40	20	30	390	140	840	60	270	10	<10	<2	>2400	430	20	
		FC	100	150	360	20	80	220	200	50	13000	210	90	10	40	>13000	580	>1060	50	4200	50	80	130	60	Cw/C	2000	4200	
BH#04	11th Street Beach	TC	<10	<10	120	20	<10	10	50	<10	4200	50	10	<10	20	200	95	50	5	>200	10	<10	30	10	11000	90	130	
		FC	<10	<10	10	20	<10	10	40	160	840	20	20	<10	10	500	80	<10	8	40	20	<10	<10	<10	18000	70	40	
BH#14	Anderson Street Marina	TC	10	60	10	50	10	30	170	20	90	80	20	70	<10	10	120	>560	70	>490	100	60	300	160	Cw/C	>860	Cw/C	
		FC	<10	<10	<10	40	30	<10	20	<10	80	20	10	<10	10	<10	40	20	6	80	30	40	100	100	15000	160	850	
BH#16	Coral Cay Beach	TC	<10	10	<10	10	20	<10	50	<10	70	<10	10	20	<10	10	40	<10	9	30	30	10	70	130	15000	1620	30	
		FC	10	10	80	70	40	100	220	<10	20	160	670	60	150	30	30	>700	50	>240	160	20	50	120	Cw/C	>710	>17000	
BH#05	Anaheim Bay - Gas Dock	TC	70	490	<10	30	40	<10	<10	10	100	10	30	<10	40	10	450	<10	>490	50	<10	90	20	Cw/C	220	Cw/C		
		FC	<10	0	<10	<10	10	10	<10	10	<10	30	10	<10	<10	<10	<10	70	3	30	<10	20	<10	<10	9400	10		

Health Care Agency / Environmental Health Bay Bacteriological Monitoring Program
 Total Coliform (TC), Fecal Coliform, Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description	1/2/02	1/7/02	1/14/02	1/22/02	1/28/02	2/4/02	2/11/02	2/19/02	2/26/02	3/4/02	3/11/02	3/18/02	3/25/02	4/1/02	4/8/02	4/15/02	4/22/02	4/29/02	5/6/02	5/13/02	5/20/02	5/28/02	6/3/02	6/10/02	6/17/02	6/25/02	7/1/02	7/10/02	7/15/02	7/22/02			
NEWPORT BAY (Lower Bay)																																		
		RAIN				RAIN			RAIN				RAIN	RAIN																				
BNB09	43rd Street Beach	TC	940	80	230	330	400	270	70	3600	930	100	70	40	30	240	450	160	20	29800	1400	50	360	9000	3800	70	950	80	3000	10000	1000			
		FC	120	10	110	50	60	70	<10	60	10	100	60	<10	<10	20	10	250	20	10	230	700	30	120	60	1180	<10	200	10	410	2600	60		
		ENT	120	<10	510	50	30	30	<10	10	<10	50	20	80	<10	10	20	<10	10	700	40	50	10	60	30	<10	80	10	140	600	40			
BNB10	38th Street Beach	TC	1000	110	120	100	2400	520	<10	10	10	10	230	2000	1040	20	470	20	50	1460	80	20	130	600	220	TNTC	1040	170	3000	140	400			
		FC	70	10	60	10	340	240	10	30	10	200	10	760	<10	<10	20	10	<10	<10	10	20	70	90	10	20	40	120	490	40	50			
		ENT	20	10	<10	50	250	100	10	<10	10	50	2600	250	<10	70	10	<10	10	<10	<10	<10	10	10	20	20	60	<10	160	20	80			
BNB11	33rd Street Channel	TC	1410	6000	190	800	TNTC	8800	520	TNTC	50	60	890	TNTC	6000	2800	200	90	>35800	470	TNTC	710	Cw/C	600	140	5200	>6800	7400	13000	Cw/C	5200	Cw/C		
		FC	320	130	20	210	2400	50	10	4000	<10	30	40	>38000	90	140	<10	<10	350	10	690	40	1200	10	20	170	460	70	1000	TNTC	500	4800		
		ENT	110	130	<10	50	810	20	70	10	20	20	9800	260	540	<10	<10	210	20	80	50	280	80	<10	690	200	30	70	530	440	680			
BNB32	Lido Yacht Club Beach	TC	880	10	<10	10	710	10	<10	Cw/C	<10	<10	100	60	<10	30	10	4000	340	200	10	<10	80	<10	10	10	10	10	150	>20	6000	60		
		FC	50	<10	<10	10	30	10	<10	1800	<10	<10	110	<10	<10	10	10	4000	200	10	<10	20	80	10	<10	40	<10	10	150	<10	3400	<10		
		ENT	50	10	<10	40	20	<10	10	<10	10	<10	<10	20	<10	10	<10	250	10	10	<10	<10	10	<10	<10	<10	<10	<10	10	30	<10	950	20	
BNB07	Via Genoa Beach	TC	1000	40	20	30	1360	20	10	TNTC	60	20	30	830	40	90	10	120	10	<10	930	60	10	80	40	30	10	40	20	50	20	40		
		FC	80	60	<10	20	170	40	<10	230	40	<10	<10	30	80	<10	20	20	<10	470	10	<10	20	10	<10	10	<10	10	<10	40	<10	<10		
		ENT	20	10	<10	<10	170	<10	<10	10	10	<10	<10	40	10	10	<10	<10	<10	<10	700	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10		
BNB35	Newport Blvd. Bridge	TC	1270	Cw/C	200	10000	TNTC	30400	1190	>10000	TNTC	1400	60	2800	TNTC	1800	TNTC	25000	TNTC	1360	24200	4600	TNTC	450	Cw/C	TNTC	2200	6000	330	900	12000	2800		
		FC	20	40	10	10	140	120	50	120	140	<10	<10	80	70	10	520	600	1430	<10	470	20	190	10	5400	600	100	550	10	<10	640	250		
		ENT	80	100	<10	230	760	50	<10	60	90	10	190	70	<10	450	20	TNTC	70	90	350	80	30	2000	620	30	320	<10	10	1770	140			
BNB12	Rhine Channel	TC	790	360	30	60	760	180	<10	TNTC	270	1230	960	100	140	40	2400	1110	80	20	4000	60	100	40	250	500	420	170	180	200	930	200		
		FC	30	50	10	<10	80	90	<10	330	60	390	40	40	<10	80	20	400	50	<10	1800	<10	10	10	40	410	110	110	50	70	120	10		
		ENT	30	40	<10	<10	230	<10	<10	20	20	20	<10	<10	<10	30	50	60	40	<10	50	<10	<10	<10	10	50	<10	10	30	150	340	10		
BNB14	19th Street Beach	TC	1440	860	130	900	2000	70	20	Cw/C	50	110	70	1310	10	610	<10	10	290	10	170	20	190	10	<10	210	30	90	<10	2200	20	460	150	>400
		FC	390	390	150	350	1200	20	20	370	50	10	10	10	460	<10	<10	70	<10	230	<10	10	<10	<10	<10	<10	20	<10	70	10	200	160	100	
		ENT	100	160	110	50	180	10	<10	30	70	<10	20	100	40	<10	<10	30	10	<10	140	<10	10	<10	<10	10	<10	20	<10	50	<10	50		
BNB15	15th Street Beach	TC	630	20	60	220	540	180	10	Cw/C	30	30	20	130	170	10	30	<10	30	20	10	30	10	10	>30	<10	50	80	<10	240	260	40		
		FC	10	10	<10	<10	40	50	10	390	10	20	40	<10	60	<10	<10	<10	<10	20	<10	20	<10	<10	10	<10	<10	100	<10	40	60	<10		
		ENT	20	<10	<10	10	20	10	20	20	<10	70	<10	10	<10	<10	<10	<10	20	<10	<10	<10	<10	<10	<10	<10	<10	590	<10	<10	<10	10		
BNB17	10th Street Beach	TC	11000	610	100	160	1840	20	70	Cw/C	80	20	10	730	60	10	<10	20	<10	<10	370	10	20	70	20	<10	<10	<10	<10	<10	100	<10	<10	
		FC	4200	370	10	80	160	10	40	960	80	20	40	10	30	<10	<10	<10	<10	270	<10	<10	<10	<10	<10	20	<10	<10	10	10	80	<10		
		ENT	380	3200	250	180	100	10	20	60	130	20	<10	30	10	40	<10	<10	<10	90	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	20	
BNB18	Alvarado/ Bay Isle Beach	TC	700	30	20	<10	1430	20	<10	Cw/C	230	20	320	600	800	40	10	<10	160	40	20	10	40	90	40	40	10	30	20	>10	70	>50		
		FC	30	10	30	<10	90	<10	<10	1000	20	<10	250	30	700	10	<10	<10	150	10	<10	10	<10	<10	<10	<10	10	30	10	20	50	20		
		ENT	80	60	10	10	80	20	<10	50	170	10	70	<10	280	20	20	<10	60	10	10	<10	<10	40	10	30	<10	<10	<10	30	10	30		
BNB22	N Street Beach	TC	<10	20	<10	<10	<10	20	<10	>20000	<10	20	<10	100	20	30	<10	30	40	20	70	<10	120	40	80	<10	40	<10	20	10	10	<10		
		FC	<10	30	10	<10	<10	10	10	30	<10	<10	<10	20	40	10	<10	60	30	40	10	10	10	10	10	10	10	10	10	20	<10	40	<10	
		ENT	<10	<10	<10	<10	<10	10	<10	10	<10	<10	<10	40	10	<10	<10	<10	<10	<10	10	10	40	<10	<10	<10	<10	<10	60	<10	10	<10		
BNB31	Garnet Avenue Beach	TC	320	170	10	60	60	50	10	Cw/C	60	20	30	510	<10	<10	<10	20	400	40	20	<10	50	170	20	50	<10	100	110	140	100	100		
		FC	<10	40	200	<10	40	<10	<10	640	<10	10	<10	20	<10	10	<10	<10	180	<10	10	10	10	10	10	<10	<10	20	30	50	100	60		
		ENT	<10	10	<10	10	10	<10	<10	40	<10	<10	<10	10	20	<10	<10	<10	<10	<10	20	<10	<10	<10	<10	<10	<10	<10	10	20	90	40		
BNB03	Ruby Avenue Beach	TC	420	50	100	40	80	20	<10	2000	50	120	30	20																				

Health Care Agency / Environmental Health Bay Bacteriological Monitoring Program
 Total Coliform (TC), Fecal Coliform, Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description		7/31/02	8/5/02	8/12/02	8/19/02	8/26/02	9/3/02	9/9/02	9/16/02	9/23/02	9/30/02	10/7/02	10/15/02	10/21/02	10/28/02	11/4/02	11/12/02	11/18/02	11/25/02	12/2/02	12/9/02	12/16/02	12/23/02	12/30/02	
NEWPORT BAY (Lower Bay)																		RAIN			RAIN		RAIN			
BNB09	43rd Street Beach	TC	1000	800	1000	>350	380	>740	70	30	880	260	>80	>40	520	>680	100	>22200	30	50	7200	150	100	>1070	3200	
		FC	740	110	90	30	100	>450	40	20	640	80	40	40	340	190	60	2400	30	10	2400	30	60	20	990	
		ENT	10	10	10	30	30	80	10	20	<10	20	<10	<10	<10	<10	10	70	39	<10	10	680	390	60	200	140
BNB10	38th Street Beach	TC	160	600	830	1000	70	5400	100	>220	390	100	40	>430	580	280	180	>15000	470	1140	>14000	60	>50	2400	6200	
		FC	50	60	60	40	20	>590	40	10	40	30	30	270	20	10	920	150	20	440	10	60	60	80	260	
		ENT	40	10	30	60	10	50	20	20	20	10	20	20	10	10	10	30	70	20	4000	50	20	240	750	
BNB11	33rd Street Channel	TC	60	400	900	Cw/C	200	>4000	>280	>150	180	>80	<10	240	150	>190	80	6400	70	340	>1700	>900	100	>9000	Cw/C	
		FC	30	110	200	3200	30	480	110	50	10	20	<10	20	<10	20	<10	<10	640	20	20	80	20	100	630	4800
		ENT	30	20	30	1250	20	140	100	30	<10	150	<10	<10	<10	10	10	29	<10	40	620	20	30	900	1080	
BNB32	Lido Yacht Club Beach	TC	110	50	>10	<10	120	40	20	980	30	<10	10	10	30	30	100	>9200	220	20	>1840	40	70	>890	30	
		FC	70	30	40	10	80	20	<10	1040	10	<10	<10	10	<10	<10	60	440	50	<10	130	30	20	80	20	
		ENT	30	<10	70	10	30	10	10	20	90	<10	<10	<10	<10	<10	20	<2	20	<10	10	10	<10	100	<10	
BNB07	Via Genoa Beach	TC	10	40	20	20	<10	10	20	<10	20	<10	<10	<10	40	>70	40	90	>15000	60	60	3800	90	160	>1720	40
		FC	<10	<10	30	10	10	10	20	<10	10	10	<10	20	<10	10	10	2000	30	10	250	<10	80	200	10	
		ENT	10	<10	<10	<10	<10	<10	10	30	<10	<10	<10	<10	170	10	10	32	<10	40	220	10	210	160	20	
BNB35	Newport Blvd. Bridge	TC	800	540	18000	Cw/C	4400	5000	>470	50	210	30	>190	250	4200	240	20	>9200	Cw/C	70	>21000	150	650	>6400	25000	
		FC	50	30	11000	4000	70	20	20	20	50	<10	60	30	1920	<10	10	1000	1000	<10	200	30	220	40	240	
		ENT	30	20	10	1140	80	70	100	10	<10	<10	<10	10	30	<10	<10	20	210	<10	880	20	10	200	120	
BNB12	Rhine Channel	TC	830	190	Cw/C	600	110	1000	100	30	80	60	40	<10	80	>11000	110	130	>1350	120	100	>840	>580			
		FC	330	40	TNFC	280	20	810	120	20	<10	<10	10	<10	<10	<10	20	600	100	10	180	20	100	20		
		ENT	90	10	710	70	20	90	20	20	<10	<10	<10	<10	<10	<10	29	10	10	10	10	<10	80	50		
BNB14	19th Street Beach	TC	120	30	70	30	>100	8000	60	40	100	70	160	5400	90	160	>300	TNFC	50	50	5400	140	5000	>1890	170	
		FC	80	20	10	10	70	8000	30	<10	10	90	20	200	100	60	260	2000	30	10	560	30	2000	220	60	
		ENT	<10	<10	<10	20	<10	30	20	20	<10	<10	20	20	<10	600	100	<10	50	100	TNFC	100	50			
BNB15	15th Street Beach	TC	50	20	10	60	10	140	40	20	150	30	10	60	60	30	20	4400	80	30	5400	40	20	>790	>820	
		FC	<10	<10	<10	20	10	60	<10	10	160	30	30	20	20	10	20	>350	40	20	140	10	10	90	30	
		ENT	<10	<10	<10	10	<10	<10	10	<10	<10	<10	<10	10	<10	<10	74	10	<10	80	20	<10	40	30		
BNB17	10th Street Beach	TC	<10	30	10	20	20	30	40	20	190	70	30	20	20	20	120	>17000	200	10	5600	50	630	>1500	190	
		FC	<10	10	10	<10	20	10	<10	130	10	10	<10	20	10	<10	60	2000	20	10	210	10	740	220	130	
		ENT	<10	<10	10	<10	10	<10	<10	10	30	<10	<10	<10	<10	20	50	74	<10	<10	50	30	510	200	80	
BNB18	Alvarado/ Bay Isle Beach	TC	100	60	210	10	60	6400	60	<10	30	60	20	<10	230	80	190	>16000	100	10	10000	100	150	>1930	130	
		FC	50	20	10	10	<10	830	10	<10	30	40	10	30	160	10	140	>470	20	10	510	20	100	130	10	
		ENT	<10	30	20	<10	10	<10	90	10	<10	10	<10	<10	<10	<10	30	54	10	<10	50	110	160	30		
BNB22	N Street Beach	TC	30	10	30	20	10	10	10	<10	10	30	<10	<10	10	10	10	>11000	50	50	3800	20	20	>1280	30	
		FC	20	10	<10	20	<10	<10	<10	<10	<10	10	<10	<10	10	<10	<10	>420	<10	10	130	10	20	70	<10	
		ENT	<10	<10	<10	<10	<10	<10	10	10	<10	<10	<10	<10	<10	<10	29	10	10	30	<10	<10	110	10		
BNB31	Garnet Avenue Beach	TC	20	100	30	30	80	70	100	10	80	100	20	20	100	30	20	TNFC	120	270	5800	20	60	4800	>640	
		FC	20	100	10	30	40	10	30	<10	30	130	<10	<10	<10	<10	<10	>500	10	80	200	20	10	130	60	
		ENT	10	<10	20	<10	20	<10	<10	<10	<10	<10	<10	<10	<10	<10	19	<10	19	<10	50	30	<10	<10	250	
BNB03	Ruby Avenue Beach	TC	10	20	<10	10	<10	50	30	60	<10	60	10	70	10	10	30	>11000	250	50	7800	60	260	>1740	60	
		FC	10	<10	<10	<10	<10	20	<10	<10	10	10	20	<10	<10	<10	<10	>350	180	20	100	50	10	550	<10	
		ENT	<10	<10	<10	<10	<10	20	<10	<10	<10	<10	<10	<10	<10	<10	20	<10	10	50	60	<10	160	20		
BNB20	Sapphire Avenue Beach	TC	60	40	40	30	30	10	50	10	40	40	<10	10	20	<10	<10	>8600	10	40	4200	40	10	8000	20	
		FC	50	<10	10	20	<10	50	10	20	40	10	<10	10	20	10	440	<10	20	150	<10	<10	<10	470	10	
		ENT	30	20	60	10	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	3	<10	10	50	<10	<10	<10	300	20	
BNB34	Grand Canal	TC	190	30	160	70	140	60	10	40	40	60	10	30	10	60	<10	14000	70	70	5600	60	70	>1200	160	
		FC	100	10	70	70	140	60	<10	50	10	10	<10	20	10	10	60	<10	20	600	<10	40	120	10	120	
		ENT	<10	20	50	20	110	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	27	10	<10	50	<10	20	100	20	
BNB21	Abalone Avenue Beach	TC	50	30	10	60	20	20	20	<10	20	40	<10	20	10	30	>10000	80	30	>980	30	200	>1000	<10		
		FC	<10	10	20	20	10	10	10	10	<10	10	<10	<10	10	<10	<10	440	20	10	90	<10	90	110	10	
		ENT	10	<10	<10	<10	10	20	10	<10	<10	50	<10	<10	<10	<10	20	40	<10	20	40	<10	50	100		

Health Care Agency / Environmental Health Bay Bacteriological Monitoring Program
Total Coliform (TC), Fecal Coliform (FC), Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description	1/2/02	1/7/02	1/14/02	1/22/02	1/28/02	2/4/02	2/11/02	2/19/02	2/25/02	3/4/02	3/11/02	3/18/02	3/25/02	4/1/02	4/8/02	4/18/02	4/22/02	4/29/02	5/6/02	5/13/02	5/20/02	5/28/02	6/3/02	6/10/02	6/17/02	6/25/02	7/1/02	7/10/02	7/15/02	7/22/02			
NEWPORT BAY (Upper Bay)		RAIN																																
BNB24	Newport Dunes - Middle	TC	1190	220	90	TNTC	100	200	Cw/C	150	10	200	>19800	1650	110	40	10	50	120	190	10	<10	50	10	<10	<10	<10	<10	<10	<10	>50	1840	10	10
		FC	180	230	80	130	2600	10	50	8600	60	<10	90	550	20	160	20	30	50	40	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	80	30	10	10	2900	<10	30	540	20	10	10	320	50	40	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BNB24	Newport Dunes - West	TC	1420	260	60	100	TNTC	100	90	Cw/C	90	30	210	19600	1290	160	70	20	10	50	100	<10	<10	<10	<10	<10	<10	<10	<10	>30	2020	280	30	
		FC	470	110	80	50	2600	20	30	7000	30	<10	90	710	<10	240	<10	<10	50	10	30	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	40	40	60	10	2400	10	10	510	20	<10	20	270	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BNB24	Newport Dunes - East	TC	900	70	120	60	TNTC	170	60	Cw/C	70	510	160	>24400	890	50	100	30	40	30	160	10	>30	10	<10	150	400	10	>10	2200	660	30	30	
		FC	180	100	100	100	1400	130	<10	6200	90	50	120	450	20	20	<10	<10	70	20	60	<10	200	<10	<10	120	30	50	10	20	400	<10		
		ENT	60	30	10	<10	1800	40	10	420	20	<10	<10	4000	10	10	<10	<10	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
BNB24	Newport Dunes - North	TC	400	250	460	270	TNTC	1130	20	Cw/C	180	120	1030	>24200	180	230	130	350	30	100	130	<40	890	70	20	<10	2400	>30	3000	20	10	10		
		FC	70	230	250	210	1400	840	20	5400	60	70	780	1140	<10	60	10	350	400	60	<10	10	100	20	10	<10	10	590	10	90	<10	<10		
		ENT	30	100	10	70	870	130	<10	360	20	260	150	330	<10	10	30	<10	<10	20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BNB25	Vaughn's Launch	TC	NS	NS	NS	NS	NS	NS	NS	NS	180	NS	240	NS	310	NS	180	NS	40	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
		FC	NS	NS	NS	NS	NS	NS	NS	NS	NS	10	NS	10	NS	30	NS	<10	NS	<10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		ENT	NS	NS	NS	NS	NS	NS	NS	NS	NS	70	NS	70	NS	50	NS	20	NS	150	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BNB26	Ski Zone	TC	NS	NS	NS	NS	NS	NS	NS	NS	940	NS	1600	NS	5000	NS	730	NS	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		FC	NS	NS	NS	NS	NS	NS	NS	NS	40	NS	<10	NS	40	NS	<10	NS	20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		ENT	NS	NS	NS	NS	NS	NS	NS	NS	10	NS	10	NS	50	NS	30	NS	20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BNB28	North Star Beach	TC	2600	90	70	1000	2200	540	20	Cw/C	300	2800	130	TNTC	170	50	8200	1770	30	400	10	20	120	90	10	30	<10	10	10	50	50	50		
		FC	100	30	<10	130	90	60	<10	11000	30	310	<10	3200	<10	40	6400	50	<10	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
		ENT	20	10	10	40	100	40	10	910	10	30	<10	5000	<10	10	230	10	90	20	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BNB30	De Anza	TC	890	100	20	50	890	1040	310	Cw/C	40	100	50	13600	180	10	80	210	20	530	10	1100	80	30	30	10	<10	<10	50	20	>10			
		FC	70	90	20	<10	60	690	10	4600	<10	10	<10	580	10	<10	20	<10	<10	450	<10	30	<10	10	20	10	<10	40	<10	10	<10	10		
		ENT	40	40	20	10	120	10	<10	580	10	<10	1170	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
BNB05	Bayshore Beach	TC	600	30	20	40	590	120	20	Cw/C	50	70	10	1200	30	60	80	120	10	50	40	50	170	60	20	160	50	10	20	120	20	50		
		FC	30	10	<10	<10	20	10	<10	4800	10	30	10	170	<10	70	20	<10	<10	10	20	<10	10	<10	10	<10	30	<10	<10	10	<10	<10		
		ENT	20	<10	<10	30	50	20	<10	580	10	30	<10	140	<10	10	20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
NEWPORT BAY TRIBUTARIES																																		
CNBCD	San Diego Creek - Campus Dr.	TC	13600	>7000	2400	3400	Cw/C	15000	2400	Cw/C	3200	14000	3400	TNTC	10400	>4400	TNTC	4400	2000	13800	>1400	>2400	TNTC	2000	>2200	>600	2400	400	<10	>1000	<10	Cw/C		
		FC	360	140	160	110	TNTC	350	140	4000	270	550	150	10600	200	80	1100	120	80	280	10	140	3600	110	800	190	180	170	160	>70	200	120		
		ENT	410	80	10	70	22600	210	20	1250	40	10	10	18400	>1400	>40	>90	4600	1000	200	200	90	1300	310	190	650	70	60	60	330	1100	1200		
CNBSA	Santa Ana Delhi Channel	TC	18400	TNTC	5200	>3800	Cw/C	TNTC	8400	Cw/C	TNTC	8400	TNTC	>11000	15000	TNTC	>29200	TNTC	TNTC	6200	23000	13400	6800	>5800	TNTC	TNTC	>3000	3400	2000	2200	>1000	>15000	400	Cw/C
		FC	210	650	260	180	15400	810	760	850	2000	130	390	18800	200	1100	2200	280	630	470	520	930	520	400	1000	560	340	730	390	1400	320	840		
		ENT	780	910	320	270	26500	690	500	740	1050	460	860	TNTC	410	1640	500	810	1070	670	840	290	420	490	1500	1280	1890	1680	470	1120	550	6000		
CNBCC	Big Canyon Creek	TC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
		FC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		ENT	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CNBND	Backbay Drive Pipe	TC	3400	>460	4200	2400	1400	1230	20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
		FC	30	10	50	460	30	80	<10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
		ENT	100	40	110	280	100	20	<10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
NEWPORT SLOUGH		1/2/02 1/9/02 1/16/02 1/24/02 1/30/02 2/6/02 2/14/02 2/22/02 2/27/02 3/6/02 3/13/02 3/20/02 3/27/02 4/3/02 4/10/02 4/17/02 4/24/02 5/1/02 5/8/02 5/15/02 5/22/02 5/29/02 6/5/02 6/12/02 6/19/02 6/27/02 7/1/02 7/9/02 7/17/02 7/24/02																																
BNS01	Lancaster Street	TC	900	840	540	<10	3400	40	4400	7000	220	10	70	130	40	30	40	40	<10	<10	>20	450	130	4000	410</									

Health Care Agency / Environmental Health Bay Bacteriological Monitoring Program
Total Coliform (TC), Fecal Coliform (FC), Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description	7/31/02	8/5/02	8/12/02	8/19/02	8/26/02	9/3/02	9/9/02	9/16/02	9/25/02	9/30/02	10/7/02	10/15/02	10/21/02	10/28/02	11/4/02	11/12/02	11/18/02	11/25/02	12/2/02	12/9/02	12/16/02	12/23/02	12/30/02		
NEWPORT BAY (Upper Bay)																	RAIN			RAIN		RAIN				
BNB24	Newport Dunes - Middle	TC	<10	40	<10	40	30	80	<10	10	40	110	150	30	80	7000	40	Cw/C	830	370	Cw/C	60	100	>1280	490	
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	10	20	250	60	5600	150	100	6200	40	40	180	40
		ENT	<10	20	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	10	10	30	46	20	30	450	30	10	60	30	
BNB24	Newport Dunes - West	TC	<10	190	<10	20	<10	70	40	140	20	30	50	20	280	5600	50	TNTC	760	380	Cw/C	1130	100	>1580	>630	
		FC	20	20	<10	<10	<10	<10	<10	50	<10	10	10	40	70	150	50	3600	160	100	6800	1100	20	210	30	
		ENT	10	<10	<10	70	<10	<10	<10	30	<10	<10	<10	<10	70	30	50	32	40	<10	460	210	10	180	<10	
BNB24	Newport Dunes - East	TC	1400	450	40	50	120	20	70	50	60	70	20	>800	70	7800	40	Cw/C	990	280	Cw/C	30	120	>1380	400	
		FC	10	<10	10	30	80	10	20	<10	<10	<10	<10	240	20	200	70	6000	120	100	5800	50	60	240	50	
		ENT	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	540	<10	20	<10	100	<10	<10	310	20	30	90	30	
BNB24	Newport Dunes - North	TC	42000	>10	80	70	20	>90	50	40	100	>110	30	50	6600	90	Cw/C	770	200	Cw/C	>420	>200	>1300	340		
		FC	80	30	40	30	40	160	90	<10	50	20	100	40	80	160	60	6400	140	90	5800	260	100	290	40	
		ENT	20	20	10	30	10	70	10	30	<10	10	20	<10	30	10	70	72	50	60	470	110	40	100	20	
BNB25	Vaughn's Launch	TC	NS	NS	>10	<10	NS	>170	<10	30	20	NS	NS	NS	NS	NS	NS	NS	470	NS	>33600	110	100	4800	380	
		FC	NS	NS	<10	10	NS	20	10	10	<10	NS	NS	NS	NS	NS	NS	NS	40	NS	570	10	20	420	20	
		ENT	NS	NS	20	30	NS	40	10	10	10	NS	NS	NS	NS	NS	NS	NS	20	NS	160	10	670	220	80	
BNB26	Ski Zone	TC	NS	NS	<10	20	NS	<10	<10	<10	<10	NS	NS	NS	NS	NS	NS	NS	>850	NS	>39000	310	30	>6800	13000	
		FC	NS	NS	<10	30	NS	10	<10	<10	<10	NS	NS	NS	NS	NS	NS	NS	60	NS	520	<10	<10	510	100	
		ENT	NS	NS	<10	50	NS	30	<10	20	<10	NS	NS	NS	NS	NS	NS	NS	10	NS	140	<10	30	60	110	
BNB28	North Star Beach	TC	<10	10	10	10	510	30	10	<10	30	20	10	70	Cw/C	<10	TNTC	510	270	>19000	70	100	6200	>430		
		FC	<10	<10	<10	10	<10	100	<10	10	<10	10	10	10	<10	7400	20	2600	20	30	360	10	40	360	<10	
		ENT	<10	20	<10	20	<10	<10	<10	<10	<10	<10	<10	<10	10	70	<10	78	40	70	100	20	20	650	50	
BNB30	De Anza	TC	20	30	<10	30	30	230	100	30	10	20	<10	10	50	3600	<10	TNTC	120	30	21000	30	20	>1780	110	
		FC	<10	10	10	30	340	40	<10	10	40	<10	<10	<10	<10	120	<10	2800	10	<10	230	10	10	180	10	
		ENT	<10	<10	10	<10	10	<10	<10	10	20	<10	50	<10	<10	<10	96	10	20	100	<10	10	160	<10		
BNB05	Bayshore Beach	TC	120	20	10	70	<10	>1120	10	80	20	10	50	40	30	95	20	TNTC	110	110	16000	60	30	4800	60	
		FC	80	<10	10	10	<10	140	<10	<10	40	<10	10	<10	10	30	10	3200	30	10	390	<10	10	290	10	
		ENT	330	<10	<10	20	<10	20	10	<10	10	<10	<10	20	20	10	<10	48	<10	10	80	40	<10	270	<10	
NEWPORT BAY TRIBUTARIES																										
CNBCD	San Diego Creek - Campus Dr.	TC	>800	Cw/Cc	>400	>400	>4800	>200	>1600	>400	2800	>800	>600	>800	4800	Cw/C	Cw/C	TNTC	>15000	>6800	Cw/C	>13000	>3800	Cw/C	Cw/C	
		FC	>20	50	270	160	20	180	>230	190	210	160	>280	330	>490	>310	TNTC	2800	7400	1000	>530	4000	>410	260	800	9600
		ENT	>800	270	210	370	350	>380	90	1000	380	90	60	140	120	100	50	880	350	100	1300	230	80	3000	2000	
CNBSA	Santa Ana Delhi Channel	TC	TNTC	>2200	>2400	Cw/C	>2800	Cw/C	4000	>1000	4200	>4000	TNTC	20600	TNTC	Cw/C	TNTC	Cw/C	>17000	>10000	Cw/C	>16000	>17000	Cw/C	Cw/C	
		FC	5000	570	2000	400	1000	7600	740	220	730	800	1000	>570	1550	13000	2200	6000	1000	880	2800	910	>330	2800	TNTC	
		ENT	1400	1600	520	520	540	340	490	300	840	380	430	150	150	270	200	1320	370	380	1150	450	480	1100	6000	
CNBCC	Big Canyon Creek	TC	>60	1000	1000	>4000	>390	1000	>550	3200	>490	>600	NS	NS	NS	NS	NS	NS	600	>590	>10000	2000	>10000	3400	3000	
		FC	10	100	310	620	130	480	250	1030	350	1070	NS	NS	NS	NS	NS	NS	70	360	860	250	120	290	270	
		ENT	220	120	180	360	210	110	240	510	370	1110	NS	NS	NS	NS	NS	NS	100	470	590	220	60	130	330	
CNBND	Backbay Drive Pipe	TC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	>8400	>200	4600	>1320	>1000	>410	2000	>120
		FC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	3240	300	130	210	50	40	510	20
		ENT	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	3250	170	520	850	510	110	110	10
NEWPORT SLOUGH																										
		7/29/02	8/14/02	8/7/02	8/14/02	8/21/02	8/28/02	9/5/02	9/11/02	9/18/02	9/25/02	10/2/02	10/9/02	10/16/02	10/23/02	10/30/02	11/6/02	11/14/02	11/20/02	11/25/02	12/4/02	12/11/02	12/18/02	12/23/02	12/30/02	
BNS01	Lancaster Street	TC	80	10	>480	10	80	1000	150	>160	>90	60	60	10	540	50	30	>12000	2800	570	70	60	Cw/C	>680	2800	
		FC	60	290	40	10	40	100	70	30	10	<10	10	<10	210	20	10	>1500	220	400	10	30	17000	70	10	
		ENT	<10	1190	10	40	90	60	40	40	10	<10	<10	90	10	10	10	530	90	190	20	10	13000	130	30	
BNS02	Grant Street	TC	9000	70	140	20	50	430	10	20	70	30	30	100	20	10	50	>7600	100	140	30	20	Cw/C	3800	>410	
		FC	6600	10	<10	<10	30	10	<10	10	30	40	10	<10	<10	26	<10	4400	60	50	40	10	2400	130	<10	
		ENT	30	40	10	<10	80	100	30	10	160	260	10	110	20	10	10	660	60	30	90	40	11000	180	50	

NS - NOT SAMPLED
 LA - LAB ACCIDENT
 Cw/C - CONFLUENT GROWTH WITH COLIFORMS
 TNTC - TOO NUMEROUS TO COUNT

SINGLE SAMPLE STANDARDS:
 Total Coliforms - 10,000 organisms per 100 milliliters sample.
 Fecal Coliforms - 400 organisms per 100 milliliters sample.
 Enterococci - 104 organisms per 100 milliliters sample.
 Fecal:Total Ratio - >1000 total coliforms if ratio exceeds 0.1.

30-DAY LOG MEAN STANDARDS (of five weekly samples)
 Total Coliforms - 1,000 organisms per 100 milliliters sample.
 Fecal Coliforms - 200 organisms per 100 milliliters sample.
 Enterococci - 35 organisms per 100 milliliters sample.

Health Care Agency / Environmental Health Ocean Bacteriological Monitoring Program
Total Coliform (TC), Fecal Coliform (FC), Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description	1/3/02	1/10/02	1/15/02	1/23/02	1/29/02	2/7/02	2/13/02	2/20/02	2/26/02	3/7/02	3/12/02	3/19/02	3/26/02	4/4/02	4/9/02	4/16/02	4/23/02	4/30/02	5/9/02	5/14/02	5/23/02	5/29/02	6/6/02	6/11/02	6/20/02	6/24/02	7/2/02	7/11/02		
NEWPORT COAST (surfzone)		RAIN		RAIN		RAIN		RAIN		RAIN		RAIN		RAIN		RAIN		RAIN		RAIN		RAIN		RAIN		RAIN		RAIN			
29S	Corona Del Mar State Beach	TC	40	110	40	<10	<10	60	10	<10	20	330	100	40	60	<10	30	10	30	70	10	40	<10	<10	60	<10	90	<10	200		
		FC	10	20	10	<10	<10	10	<10	<10	270	10	<10	<10	<10	<10	<10	<10	30	50	<10	<10	<10	<10	90	<10	180	<10	170		
		ENT	<10	10	20	20	<10	<10	<10	<10	370	<10	<10	50	<10	10	<10	<10	<10	<10	<10	<10	<10	100	<10	150	<10	220			
ONB31	Little Corona Beach	TC	30	40	570	20	210	30	180	<10	260	2400	120	20	1190	10	370	60	30	40	60	<10	20	100	<10	180	<10	100	20	50	
		FC	20	20	480	30	70	10	60	<10	160	320	60	20	960	<10	50	20	10	<10	<10	<10	10	<10	100	<10	70	<10	60		
		ENT	<10	20	280	40	50	10	60	<10	130	640	40	<10	360	<10	10	<10	<10	<10	<10	<10	50	<10	50	10	20	<10	20		
ONB35	Pelican Point	TC	10	60	<10	<10	60	20	20	<10	30	8200	<10	<10	<10	<10	10	200	10	<10	<10	<10	10	30	20	30	<10	250	<10		
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	410	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	20	<10	10	60	30	20		
		ENT	<10	<10	<10	<10	<10	<10	<10	<10	1940	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	20	60	<10	10		
38S	Crystal Cove	TC	10	60	50	<10	10	20	<10	<10	7600	<10	<10	<10	<10	<10	50	20	20	40	<10	20	<10	<10	<10	<10	<10	<10	<10		
		FC	<10	20	20	<10	<10	30	10	<10	570	10	<10	<10	<10	<10	10	20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10		
		ENT	<10	<10	30	<10	<10	<10	<10	<10	1530	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10		
ONB43	Muddy Creek	TC	20	60	<10	<10	10	10	<10	<10	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	20	30	<10		
		FC	<10	10	<10	<10	<10	<10	<10	<10	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	20	<10	<10	<10		
		ENT	<10	<10	10	<10	<10	<10	<10	<10	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	<10	<10	<10	<10		
ONB45	El Morro Beach	TC	<10	30	10	10	50	<10	<10	<10	<10	10	<10	<10	<10	<10	10	10	<10	<10	10	170	<10	<10	<10	<10	<10	<10	20		
		FC	<10	10	20	40	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10		
		ENT	<10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10		
NEWPORT COAST (creeks) All Creeks Flowing Unless*		TC	3200	1800	>570	400	>8400	1000	1800	2800	2200	18000	1700	>3000	4400	2200	>3400	7200	6400	10000	2800	4600	5400	2200	390	3000	2600	800	400	Cw/C	
CNB8G	Buck Gully Creek	FC	840	70	20	20	1200	<10	20	160	520	4200	460	570	790	210	2400	480	1000	350	190	350	80	100	60	180	28	820	180	220	
		ENT	900	140	350	130	4800	170	120	320	320	12000	990	5800	410	410	650	560	410	710	260	410	190	240	330	300	440	700	610	700	
CNBPP	Pelican Point Creek	TC	>18400	20600	7000	5800	14400	5800	>17400	8600	10000	TNTC	12000	>1100	13600	>14400	>21800	TNTC	Cw/C	>12600	4600	>1400	>15600	TNTC	26200	>13000	>11000	20000	10000	>6800	
		FC	500	470	120	70	170	70	1600	130	40	11000	80	50	100	>1000	640	8600	TNTC	1100	830	2400	4600	5000	12000	5600	2600	7800	2200	2600	
		ENT	1290	810	120	90	570	330	1100	480	220	15000	490	840	370	2800	33000	3400	TNTC	1330	880	2400	2030	11400	7200	1680	1670	9800	1700	6500	
CNBPM	Pelican Point Middle Creek	TC	>6600	7000	400	NS	>2800	>50	>70	>1200	6000	32200	90	>600	>1400	>10	>1600	>27000	>400	>2200	>4000	>1000	>2000	>200	>10	NS	NS	>20	>200	Cw/C	
		FC	<10	20	10	NS	40	<10	<10	<10	210	2800	<10	<10	<10	<10	<10	<10	<10	900	360	10	<10	<10	NS	NS	10	<10	3800		
		ENT	60	430	40	NS	440	10	20	880	450	25800	10	140	310	10	70	230	120	370	4000	820	1070	162	240	NS	NS	100	300	1170	
CNBPW	Pelican Hill Waterfall	TC	500	320	>230	60	1800	400	6000	670	TNTC	4600	1800	600	10	160	1200	>1400	800	1200	800	>11000	TNTC	860	60	3000	510	7000	200	>400	
		FC	50	20	<10	<10	470	<10	80	40	11000	20	40	10	50	30	70	70	60	30	7800	650	10	280	150	2200	110	7400	20	1050	
		ENT	140	40	10	<10	200	450	430	<10	210	TNTC	250	130	80	20	140	230	190	780	190	8200	200	70	250	820	50	3600	100	770	
CNBCC	Crystal Cove Creek	TC	720	3000	4000	1400	3800	600	1600	4000	440	27000	4400	2800	>9800	600	>8000	>4800	2200	>200	>800	Cw/C	Cw/C	>200	400	>3400	Cw/C	Cw/C	Cw/C	Cw/C	
		FC	120	1440	240	230	400	80	200	130	150	1910	80	380	9000	20	110	970	1610	180	740	800	200	70	260	3000	600	500	1800	1000	
		ENT	90	460	320	640	1260	150	330	450	12000	290	1200	350	10	840	1180	850	60	180	340	90	180	440	1020	740	210	2200			
CNBCU	Crystal Cove Creek Upstream	TC	2000	8600	TNTC	7400	4000	3800	5200	>8800	8400	39000	5400	3600	610	200	1000	>16800	400	1600	2600	>4400	1000	NS	240	1000	1000	460	NS	NS	
		FC	30	70	670	650	400	150	90	280	50	4600	1350	2200	<10	<10	>2200	<10	20	20	<10	70	NS	40	10	60	60	NS	NS		
		ENT	100	1440	2200	720	800	680	700	14500	4200	15000	1700	4600	140	380	160	4200	50	180	140	30	200	NS	90	30	150	340	NS	NS	
CNBMC	Muddy Creek	TC	>1200	7200	>650	>260	>12200	>200	>600	>1400	>4000	NS	TNTC	Cw/C	>1400	NS	<10	Cw/C	NS	>400	NS	>400	NS	>400	NS	>400	>400	>400	>400	>200	600
		FC	110	370	<10	<10	5000	<10	10	1400	20	1620	NS	10	1400	20	NS	<10	8000	NS	80	NS	<10	<10	20	>10	240	20	730		
		ENT	470	590	10	10	2000	90	20	<10	210	NS	30	230	200	NS	20	3400	NS	3300	NS	3400	NS	<10	720	120	740	100	750	5600	
CNB45	El Morro Creek	TC	5000	4800	3000	480	200	600	3200	2400	>2600	7600	1290	2400	2200	>6600	4600	>3800	11000	7600	>12400	15000	17600	>9800	5800	6800	7200	7400	>22000		
		FC	1350	1400	60	30	20	<10	<10	10	20	510	<10	40	10	60	20	40	10	70	10	840	200	10	80	140	70	410	440	1000	
		ENT	290																												

Health Care Agency / Environmental Health Ocean Bacteriological Monitoring Program
Total Coliform (TC), Fecal Coliform (FC), Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description	7/16/02	7/25/02	7/30/02	8/8/02	8/13/02	8/22/02	8/27/02	9/4/02	9/12/02	9/17/02	9/26/02	10/1/02	10/10/02	10/16/02	10/24/02	10/29/02	11/7/02	11/13/02	11/19/02	11/26/02	12/5/02	12/10/02	12/17-19-02	12/26/02	
NEWPORT COAST (surfzone)																										
29S	Corona Del Mar State Beach	TC	10	<10	110	<10	>19000	10	20	10	<10	70	<10	<10	40	<10	100	NS	NS	NS	NS	NS	NS	NS	RAIN	NS
	FC	10	<10	<10	<10	6200	10	10	10	<10	<10	<10	<10	<10	<10	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	ENT	10	10	70	70	7400	10	10	20	<10	<10	<10	<10	<10	<10	<10	NS	NS	NS	NS	NS	NS	NS	NS	NS	
ONB31	Little Corona Beach	TC	<10	50	>10	10	30	30	10	<10	120	20	40	20	100	30	110	140	180	190	410	120	60	10	>1040	160
	FC	10	<10	<10	<10	<10	<10	<10	<10	<10	40	<10	20	10	70	30	20	10	50	42	200	30	<10	<10	330	40
	ENT	40	20	<10	<10	<10	<10	<10	<10	<10	<10	50	<10	20	10	20	40	64	84	260	20	<10	<10	1360	<10	
ONB35	Pelican Point	TC	10	20	20	40	30	70	<10	<10	10	50	20	110	20	<10	<10	20	70	10	40	10	10	>90	<10	
	FC	<10	<10	40	<10	<10	<10	<10	<10	<10	30	<10	<10	<10	<10	<10	<10	2	6	<10	<10	<10	<10	50	<10	
	ENT	<10	20	20	10	10	<10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<2	6	<10	<10	<10	<10	90	<10	
38S	Crystal Cove	TC	<10	<10	<10	50	1150	10	<10	<10	<10	<10	10	20	10	10	<10	<10	<10	20	>20	<10	<10	10	>160	20
	FC	<10	<10	<10	<10	930	<10	10	<10	10	<10	10	<10	20	<10	<10	<10	2	3	10	<10	<10	<10	80	<10	
	ENT	<10	10	10	10	70	<10	<10	<10	<10	<10	<10	<10	40	<10	<10	<10	<2	18	<10	<10	<10	<10	350	<10	
ONB43	Muddy Creek	TC	40	<10	20	<10	10	10	30	<10	<10	10	20	<10	<10	<10	<10	30	NS	10	<10	<10	10	90	<10	
	FC	20	<10	<10	<10	<10	<10	10	<10	<10	<10	<10	<10	<10	30	<10	<10	3	NS	10	<10	<10	20	<10	<10	
	ENT	10	<10	<10	<10	<10	<10	30	10	10	<10	<10	<10	<10	20	<10	<10	2	NS	10	<10	<10	20	<10	<10	
ONB45	El Morro Beach	TC	20	20	<10	10	<10	20	<10	<10	<10	10	<10	10	20	10	20	20	>550	10	10	>630	10	>220	10	
	FC	<10	<10	40	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	20	60	10	780	10	10	700	<10	110	<10		
	ENT	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<2	210	<10	220	<10	200	<10		
NEWPORT COAST (creeks) All Creeks Flowing Unless*																										
CNB8G	Buck Gulch Creek	TC	10	<10	2000	>100	3600	>7400	>190	>670	>200	2000	>600	>530	>2000	1200	3200	5000	3400	6000	>4200	8800	7000	3600	Cw/C	2400
	FC	340	160	810	160	220	830	570	550	150	380	410	280	170	300	1130	300	240	1520	270	3800	990	200	>7400	320	
	ENT	1400	910	1160	770	550	590	540	540	500	550	340	260	310	300	500	300	270	940	200	330	4800	390	21400	360	
CNBPP	Pelican Point Creek	TC	>6400	Cw/C	Cw/C	Cw/C	10	TNTC	Cw/C	>27200	Cw/C	>8000	Cw/C	Cw/C	Cw/C	Cw/C	>11000	>19000	>12000	>12000	3800	6400	8000	>9600	>6000	2800
	FC	1160	Cw/C	9800	3600	30	>16000	12000	Cw/C	TNTC	3000	Cw/C	4600	2400	12000	2600	12000	6600	2850	390	1090	670	490	>550	140	
	ENT	3800	Cw/C	7600	4000	10	15000	6800	8200	16000	3800	17000	8800	8000	15000	1180	5600	1970	1690	130	490	890	260	1820	640	
CNBPM	Pelican Point Middle Creek	TC	NS	>200	NS	NS	NS	NS	NS	>60	NS	NS	1170	NS	>770	NS	NS	NS	NS	>930	>80	NS	2000	>210	NS	9400
	FC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<10	NS	<10	NS	NS	NS	NS	NS	150	20	NS	300	10	NS	40
	ENT	NS	340	NS	NS	NS	NS	NS	630	NS	NS	<10	NS	20	NS	NS	NS	NS	NS	54	20	NS	330	50	NS	10
CNBPW	Pelican Hill Waterfall	TC	>1000	<10	>400	Cw/C	200	780	>200	>330	800	>80	5400	>30	Cw/C	>3400	>220	4000	>290	20	2200	>240	20	>240	Cw/C	>460
	FC	190	10	60	240	180	1200	150	1050	<10	20	350	<10	3800	270	90	970	130	6	210	50	10	40	270	90	
	ENT	190	200	210	250	90	150	130	100	200	160	3000	20	8800	780	<10	520	10	<2	100	10	60	280	50		
CNBCC	Crystal Cove Creek	TC	Cw/C	Cw/C	>800	>800	>200	160	Cw/C	>6600	Cw/C	Cw/C	>200	2600	>400	>200	Cw/C	Cw/C	>20	>8800	3800	80	800	<10	NS	>640
	FC	1000	14000	800	1800	560	>1000	290	5600	130	40	>10	20	30	140	>70	20	<10	4600	70	<10	270	20	NS	90	
	ENT	230	2400	270	950	330	940	130	990	1090	1000	660	70	<10	40	370	60	40	32	40	<10	160	10	NS	220	
CNBCU	Crystal Cove Creek Upstream	TC	NS	NS	NS	NS	NS	NS	NS	NS	NS	<10	<10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Cw/C	3600
	FC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<10	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Cw/C	150
	ENT	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	150	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	10000	520
CNBMC	Muddy Creek	TC	1000	>200	>30	>800	13800	650	>10	Cw/C	>50	Cw/C	>10	>10	Cw/C	>200	>400	>400	600	NS	>3200	3600	Cw/C	>5200	Cw/C	1000
	FC	1000	200	60	400	2000	>200	10	>10	TNTC	<10	20	>10	<10	>60	>10	<10	NS	>90	>190	150	130	2000	240		
	ENT	1140	1700	1060	1050	380	270	120	350	300	80	40	70	90	20	2400	60	NS	50	70	890	330	200	60		
CNB45	El Morro Creek	TC	>5800	5400	>4000	>4400	>2400	420	2000	>200	Cw/C	>30	<10	>20	>50	>30	Cw/C	1000	>18000	>840	>340	5000	660	>440	>260	1000
	FC	630	1800	280	590	350	280	20	200	100	360	1210	230	260	230	>170	80	1000	260	70	170	3800	120	90	240	
	ENT	400	730	170	470	300	330	200	120	100	150	190	190	450	120	1240	1870	12000	215	240	160	8800	810	350	150	
CNBEU	El Morro Creek Upstream	TC	2000	>3000	2000	1400	2000	200	3000	130	>220	>1000	200	>190	NS	>540	4000	3200	5400	>690	Cw/C	4200	>690	3600	NS	1000
	FC	80	20	20	20	30	240	100	10	40	<10	200	70	NS	100	70	<10	160	10	160	100	<10	290	NS	250	
	ENT	590	830	740	1470	1240	820	1040	830	620	590	1450	590	NS	270	530	280	300	200	230	210	110	140	NS	440	
Laguna Beach (surfzone)																										
OLB10	Emerald Bay Beach	TC	<10	<10	<10	<10	<10	<10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	30	110	30	
	FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	3	<2	<10	<10	<10	50	120	10	
	ENT	<10	<10	<10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	2	<2	10	<10	<10	30	100	<10	
OLB05	Crescent Bay Beach	TC	<10	10	10	930	20	<10	30	10	<10	30	<10	<10	50	<10	20	350	<10	10	10	40	<10	150	<10	
	FC	10	<10	<10	900	<10	<10	<10	<10	<10	30	<10	<10	<10	<10	<10	10									

Health Care Agency / Environmental Health Ocean Bacteriological Monitoring Program
 Total Coliform (TC), Fecal Coliform (FC), Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description	1/3/02	1/8/02	1/15/02	1/23/02	1/29/02	2/5/02	2/13/02	2/20/02	2/26/02	3/7/02	3/14/02	3/19/02	3/26/02	4/2/02	4/9/02	4/16/02	4/23/02	4/30/02	5/7/02	5/14/02	5/21/02	5/30/02	6/4/02	6/11/02	6/20/02	6/26/02	7/2/02	7/9/02	
DANA POINT (surfzone)		RAIN				RAIN			RAIN		RAIN		RAIN																	
OSL25	Monarch Beach	TC	<10	190	280	200	20	50	50	<10	670	4400	30	10	330	230	1560	120	260	310	340	490	190	<10	60	400	250	30	150	100
	(North of Salt Creek)	FC	<10	40	30	<10	<10	<10	<10	<10	20	740	10	<10	10	<10	10	20	20	10	<10	20	20	<10	<10	<10	<10	<10	<10	<10
		ENT	<10	<10	50	60	10	20	10	<10	80	490	<10	<10	20	<10	10	10	10	20	20	<10	10	<10	<10	<10	60	20	70	10
OSL23	Monarch Beach	TC	30	750	270	150	200	380	<10	220	30	260	1440	280	10	<10	10	40	<10	<10	<10	600	40	<10	370	<10	3800	870	30	10
	(South of Salt Creek)	FC	<10	50	30	<10	20	40	<10	30	10	10	<10	20	10	<10	<10	<10	<10	<10	<10	30	10	10	100	<10	230	40	10	<10
		ENT	<10	30	30	10	10	20	<10	40	20	<10	20	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	130	<10	210	20	<10	10
ODB02	North Beach - Doheny	TC	480	630	16800	1550	5400	760	250	2000	1080	1890	470	1200	1750	220	190	280	20	70	50	200	20	>80	10	970	20	Cw/C	50	>30
		FC	270	260	11600	1000	2200	330	80	650	480	1400	280	80	760	40	30	80	10	20	10	100	<10	30	20	600	10	40	10	250
		ENT	1070	980	12400	770	6200	490	150	820	350	910	170	280	1280	80	40	40	30	20	170	<10	40	50	5000	<10	10	10	240	
S-2	Doheny Beach	TC	780	170	410	19600	2200	250	280	6600	1150	90	570	180	50	1310	180	40	<10	100	<10	40	30	400	<10	90	>10	>40	<10	90
	(North of San Juan Creek)	FC	170	90	130	12000	700	70	150	2400	380	30	180	40	<10	170	120	20	<10	<10	<10	10	<10	310	<10	10	30	20	<10	50
		ENT	460	410	170	12400	920	110	210	1000	1150	70	220	80	10	70	40	<10	<10	<10	<10	<10	220	10	20	<10	130	<10	160	
ODB05	Doheny Beach	TC	560	400	800	7000	1800	520	220	910	920	450	640	>24600	3400	90	80	150	TNTC	270	30	140	240	220	<10	210	10	510	20	<10
	(South Of San Juan Creek)	FC	20	160	340	3000	580	240	110	380	420	240	150	6600	1500	50	40	120	18800	100	<10	80	180	100	<10	130	10	70	<10	50
		ENT	210	540	1020	4200	690	610	570	210	900	360	310	6600	1090	80	20	160	15200	150	20	110	230	90	<10	50	<10	50	<10	30
DANA POINT (creeks) All Creeks Flowing Unless*																														
CSLSC	Salt Creek	TC	25600	Cw/C	TNTC	TNTC	>11000	TNTC	TNTC	TNTC	TNTC	TNTC	TNTC	TNTC	>34200	29200	TNTC	>17000	TNTC	>19200	Cw/C	Cw/C	TNTC	TNTC	Cw/C	7600	Cw/C	Cw/C	TNTC	>6400
		FC	420	2600	790	>1400	1200	4000	1600	5400	1170	6000	1000	2200	1290	1300	800	2200	890	1060	980	5200	700	1800	22800	840	TNTC	8400	9400	>5200
		ENT	390	6200	2800	820	2200	600	800	1400	1290	7000	810	1250	500	990	1010	1130	900	880	790	1170	1130	1400	15000	670	7800	4800	5400	4200
CDRNC	North Beach Creek	TC	Cw/C	*4000	*TNTC	*>2400	Cw/C	*3400	>18000	>17000	*14000	*>7400	>8400	Cw/C	6200	*5200	Cw/C	*Cw/C	*Cw/C	*>2200	*>19400	*Cw/C	*TNTC	*>3600	*1200	*>780	*3200	*2200	*>1470	
		FC	6000	230	900	950	9000	160	590	950	490	850	420	1150	1170	300	1230	19000	2600	120	1970	3000	800	4200	660	130	885	240	160	760
		ENT	14000	700	240	170	4000	110	480	1900	890	160	100	210	80	510	210	430	100	70	1300	1000	40	1000	200	140	380	400	60	160
C-1	San Juan Creek Mouth	TC	>25000	*TNTC	9600	TNTC	>21000	13000	16200	TNTC	20000	39000	20000	TNTC	TNTC	TNTC	8000	>11000	9200	2800	*TNTC	*>1600	9000	TNTC	*11000	*720	*1110	*5400	*1300	*4000
		FC	11400	TNTC	1600	TNTC	12200	5200	40600	13000	17000	12400	16800	33600	15200	4800	8800	3600	1060	TNTC	TNTC	3000	3400	1800	5400	360	1250	110	900	1610
		ENT	19600	TNTC	1380	TNTC	8000	640	8000	7200	13000	8600	3600	1800	25800	8400	1960	740	1560	1740	19400	1160	1410	1790	540	200	730	110	200	740
C-2	Upper San Juan Creek	TC	>32600	3200	6200	1000	7200	3800	5400	1000	2000	>800	>1600	>2000	630	1000	600	400	400	600	2800	1800	5000	2400	5000	2400	600	590	800	800
		FC	24200	350	>560	400	1200	200	430	220	470	180	150	340	40	110	100	90	40	50	70	120	340	470	40	50	140	80	320	
		ENT	TNTC	590	200	170	2800	220	790	170	190	50	100	260	30	180	100	150	10	<10	30	40	80	410	190	10	30	50	200	80
DANA POINT HARBOR (In Harbor)																														
BDP12	Baby Beach - West End	TC	340	220	350	700	110	350	100	<10	130	TNTC	90	50	50	60	1200	70	<10	70	70	160	30	1000	>10	360	40	200	<10	100
		FC	130	80	50	400	100	160	<10	<10	60	1400	120	10	20	<10	820	30	30	10	10	70	30	1020	<10	210	20	<10	<10	60
		ENT	300	220	20	530	<10	340	<10	20	100	330	50	10	40	10	50	40	10	180	40	120	60	20	60	10	60	10	<10	120
BDP13	Baby Beach - Buoy Line	TC	23200	1210	1100	380	220	190	2000	50	220	14200	160	<10	120	10	1000	<10	<10	10	30	30	50	<10	20	10	260	20	80	
		FC	20200	760	230	300	200	140	400	60	100	1580	180	10	120	<10	750	<10	<10	<10	10	10	10	<10	10	10	10	<10	30	
		ENT	6200	940	250	320	190	160	450	130	110	480	140	20	50	20	20	<10	10	10	10	10	10	80	<10	10	60	<10	<10	
BPD14	Baby Beach - Swim Area	TC	220	840	780	190	460	70	30	100	50	11800	380	<10	1810	10	1020	<10	<10	<10	40	10	30	<10	<10	40	40	220	<10	>10
		FC	70	530	560	90	200	40	20	40	20	1380	260	<10	1040	<10	730	<10	<10	<10	10	50	<10	<10	40	20	40	<10	20	
		ENT	180	4000	960	140	230	100	30	160	50	400	380	40	110	20	20	<10	<10	10	40	40	<10	<10	10	30	<10	<10	40	
BDP15	Baby Beach - East End	TC	510	8200	220	90	30	60	370	10	120	19200	120	<10	<10	10	560	<10	10	<10	40	<10	710	20	<10	200	30	160	<10	>90
		FC	350	4400	120	70	10	30	40	<10	60	1090	80	20	20	<10	440	<10	<10	<10	<10	<10	10	<10	120	10	<10	10	10	20
		ENT	600	740	4000	110	30	60	340	220	<10	20	10	10	10	180	<10	<10	130	<10	<10	10	<10	10	20	50	<10	<10	130	
BDP08	Pier	TC	500	20	110	60	<10	20	30	10	200	15200	10	<10	10	50	400	10	<10	<10	10	20	30	<10	70	360	<10	30		
		FC	40	10	10	<10	<10	<10	20	200	1440	&																		

Health Care Agency / Environmental Health Ocean Bacteriological Monitoring Program
Total Coliform (TC), Fecal Coliform (FC), Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description	7/16/02	7/23-25/02	7/30-31/02	8/6-8/02	8/13-15/02	8/20-22/02	8/27-29/02	9/4/02	9/10-12/02	9/17-19/02	9/24-26/02	10/1-3/02	10/9-10/02	10/16/02	9/22-24/200	10/29-31/02	11/5-7/02	11/13/02	11/19-20/02	11/26/02	12/3-5/02	12/10-12/02	2/17-19/200	12/26/02		
DANA POINT (surfzone)																											
OSL25	Monarch Beach	TC	190	>150	230	600	2600	70	>340	240	170	<10	>270	2000	370	20	30	90	>90	40	<10	10	20	680	>920	1000	
	(North of Salt Creek)	FC	40	40	40	80	110	50	50	20	<10	90	480	120	10	30	30	60	<2	<10	<10	<10	<10	20	<10	30	
		ENT	40	40	90	70	110	50	70	50	30	<10	80	780	110	<10	20	<10	58	<2	<10	<10	<10	20	<10	280	10
OSL23	Monarch Beach	TC	80	<10	<10	30	30	730	10	10	<10	210	>490	280	280	1000	260	4200	110	>510	1000	>640	>820	380	>770	560	
	(South of Salt Creek)	FC	20	10	<10	20	<10	40	<10	20	<10	30	180	50	60	110	10	210	20	23	50	30	80	10	100	30	
		ENT	10	<10	<10	10	<10	70	<10	<10	<10	20	50	20	10	60	40	95	30	8	<10	20	60	<10	260	20	
ODB02	North Beach - Doheny	TC	30	400	100	200	70	>80	70	>120	800	10	80	10	>70	30	160	50	980	210	>800	120	2000	1510	>8800	3800	
		FC	10	780	70	150	80	80	10	50	650	<10	100	20	60	30	60	20	620	170	570	50	840	960	3600	>1690	
		ENT	<10	130	90	330	70	70	<10	90	790	210	120	<10	30	90	120	20	660	80	440	20	2000	2000	8200	7600	
S-2	Doheny Beach	TC	50	>30	30	20	<10	<10	80	100	40	60	110	160	130	80	280	NS	420	NS	NS	NS	250	NS	NS	NS	
	(North of San Juan Creek)	FC	20	<10	<10	20	<10	40	20	30	10	100	30	90	NS	NS	460	NS	NS	NS	NS	110	NS	NS	NS		
		ENT	10	10	40	<10	<10	20	<10	30	30	20	120	210	110	40	290	NS	1780	NS	NS	NS	120	NS	NS	NS	
ODB05	Doheny Beach	TC	100	>20	20	60	20	30	70	20	60	150	430	20	60	290	150	260	2800	2600	100	110	830	90	>1140	940	
	(South Of San Juan Creek)	FC	90	<10	10	10	<10	10	40	40	20	320	20	30	210	80	130	2200	2150	30	90	470	70	390	240		
		ENT	90	<10	<10	20	10	10	50	70	10	110	340	40	270	370	170	150	5000	1550	140	60	300	40	560	470	
DANA POINT (creeks) All Creeks Flowing Under																											
CSLSC	Salt Creek	TC	Cw/C	Cw/C	Cw/C	Cw/C	Cw/C	TNTC	Cw/C	Cw/C	>13000	Cw/C	>22400	Cw/C	Cw/C	Cw/C	Cw/C	Cw/C	Cw/C	Cw/C	Cw/C	Cw/C	Cw/C	Cw/C	Cw/C	Cw/C	
		FC	9600	7400	3400	9000	10000	>6400	5400	11000	8200	3400	5600	Cw/C	Cw/C	7000	9200	7600	7200	7800	1000	2800	1460	200	3400	4400	3800
		ENT	22000	4600	6200	6000	8000	>3200	8200	7000	4200	5600	5200	39800	490	10000	6400	5800	5800	1100	700	980	860	1230	1700	590	
CDRNC	North Beach Creek	TC	*56400	*10000	*1170	*200	*5600	*24200	*26000	*Cw/C	*1000	*3400	*600	Cw/C	*15000	*3000	2200	*1000	*7400	*56000	1800	*2000	Cw/C	1400	Cw/C	*Cw/C	
		FC	3400	300	100	130	310	440	980	100	130	340	470	TNTC	2400	200	60	400	100	>360	190	500	3800	470	13000	3800	
		ENT	530	110	180	90	100	330	180	80	270	250	380	30	210	40	260	1280	1350	32	20	20	440	200	19000	8600	
C-1	San Juan Creek Mouth	TC	*600	*1000	*1300	*3400	*1000	*3800	*770	*7400	*2400	*11000	*5000	22200	*6600	*6600	*5600	NS	*2000	NS	NS	NS	NS	Cw/C	NS	NS	
		FC	2800	100	1300	200	690	2800	400	6000	1380	4600	3600	3800	1040	5400	2600	NS	590	NS	NS	NS	NS	17000	NS	NS	
		ENT	1050	400	630	490	250	420	500	820	500	1300	1700	780	210	1260	1310	NS	300	NS	NS	NS	NS	19000	NS	NS	
C-2	Upper San Juan Creek	TC	2200	2400	2600	5400	10000	>9800	6200	>5200	>7800	>400	>200	2000	>7400	3800	>6600	NS	6000	NS	NS	NS	NS	>1860	NS	NS	
		FC	120	120	320	270	100	1070	750	1000	730	760	1480	880	1360	400	1120	NS	500	NS	NS	NS	NS	480	NS	NS	
		ENT	70	80	100	330	120	300	380	290	290	230	270	290	170	240	470	NS	310	NS	NS	NS	NS	210	NS	NS	
DANA POINT HARBOR (In Harbor)																											
BDP12	Baby Beach - West End	TC	3800	>40	90	200	450	>400	170	>60	110	340	470	180	90	720	3400	110	80	530	120	60	80	20	>600	550	
		FC	150	<10	<10	120	260	260	40	100	70	250	350	120	10	180	420	10	30	240	<10	20	20	30	230	490	
		ENT	<10	70	10	230	310	100	20	10	120	60	280	120	<10	70	150	60	<10	43	10	<10	<10	<10	370	80	
BDP13	Baby Beach - Buoy Line	TC	80	40	100	100	440	140	160	>100	80	>430	190	370	120	100	1870	120	1860	140	>900	8200	5800	200	>1140	20	
		FC	30	10	10	60	50	100	<10	140	60	370	110	270	10	10	280	70	1840	10	900	7600	3800	50	650	10	
		ENT	30	30	10	50	490	20	10	80	40	110	170	120	<10	20	170	40	130	82	3600	2000	300	100	440	660	
BDP14	Baby Beach - Swim Area	TC	440	40	120	110	460	>80	170	>80	350	>110	210	80	100	90	1600	100	90	10	70	10	550	20	>930	10	
		FC	240	<10	<10	40	10	50	20	90	90	60	10	100	20	20	360	10	100	24	30	10	410	20	350	30	
		ENT	130	40	70	20	360	40	20	20	310	100	40	120	10	<10	60	40	10	<2	30	10	300	10	430	10	
BDP15	Baby Beach - East End	TC	3600	200	50	4600	340	600	30	>100	80	40	>180	>1350	>90	220	270	90	350	110	140	80	70	80	>1020	50	
		FC	420	200	<10	2200	100	100	10	130	20	40	40	350	20	20	110	90	130	20	50	<10	40	20	500	<10	
		ENT	410	220	10	9000	200	100	20	150	10	40	50	510	30	20	90	130	760	8	10	40	110	10	330	<10	
BDP08	Pier	TC	10	30	100	80	250	80	20	100	10	20	110	110	70	50	280	30	40	140	<10	30	10	20	>510	<10	
		FC	<10	10	<10	10	30	10	10	90	10	<10	10	40	<10	20	20	10	10	8	8	<10	<10	20	<10	<10	
		ENT	20	10	10	<10	120	40	<10	50	10	<10	10	20	30	10	40	70	20	3	<10	20	<10	<10	220	<10	
BDP16	Pilgrim Dock	TC	<10	<10	130	150	260	130	20	190	40	40	170	10	10	50	800	110	30	80	10	<10	60	10	260	10	
		FC	<10	<10	10	<10	30	20	20	50	10	<10	20	10	10	20	10	<10	10	<10	<10	<10	<10	<10	80	<10	
		ENT	<10	20	30	10	120	10	<10	50	10	<10	30	20	<10	10	10	40	<10	2	<10	10	<10	130	<10		
BDP17	Youth Dock	TC	50	30	70	100	350	100	270	130	70	30	60	20	80	330	90	80	60	10	10	380	100	20	>670	30	
		FC	40	<10	<10	100	10	10	30	100	<10	<10	<10	10	10	210	40	20	20	9	<10	<10	<10	<10	140	10	
		ENT	40	30	<10	70	250	20	10	50	20	<10	10	40	50	<10	20	60	<10	<2	10	<10	20	<10	300	<10	
S-4	Harbor Entrance	TC	<10	10	10	20	<10	10	30	30	<10	20	30	40	20	20	NS	340	NS	NS	NS	NS	NS	NS	NS		
		FC	<10	30	10	<10	<10	<10	80	<10	<10	<10	40	10	30	10	NS	200	NS	NS</							

SOCWA (Aliso Outfall) Ocean Bacteriological Monitoring Program
 Total Coliform (TC), Fecal Coliform (FC), Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description	4/2/02	4/8/02	4/9/02	4/15/02	4/17/02	4/22/02	4/24/02	4/29/02	4/30/02	5/6/02	5/7/02	5/13/02	5/14/02	5/20/02	5/21/02	5/28/02	5/29/02	6/3/02	6/4/02	6/10/02	6/12/02	6/18/02	6/19/02	6/24/02	6/27/02	7/1/02	7/2/02	7/8/02		
LAGUNA BEACH (surfzone)																															
S16	Hotel Laguna	TC	7	25	2	200	2	<2	10	24	10	6	20	3	4	<10	10	20	2	86	2	24	10	6	28	28	8	66	<10	56	
		FC	8	2	<2	12	2	<2	4	6	6	4	<10	<2	2	<10	4	<2	<2	4	2	<2	2	32	2	2	<2	<10	7		
		ENT	2	7	4	33	2	<2	2	<2	<2	<2	10	2	4	<10	2	4	10	52	<2	18	2	4	4	10	6	74	<10	60	
S15	Bluebird Canyon	TC	<2	10	2	6	6	2	8	130	<10	<2	<10	32	4	<10	12	4	18	2	4	4	4	4	8	10	6	6	<2	12	
		FC	<2	<2	<2	7	2	2	3	<10	<10	<2	<10	28	2	<2	<10	<2	2	20	<2	<2	<2	<2	<2	<2	<2	4	2	<2	8
		ENT	2	<2	<2	13	2	<2	2	20	<10	<2	<10	2	2	<2	<10	<2	2	2	6	<2	6	<2	12	2	4	4	<2	<2	
S14	Victoria Beach	TC	6	4	10	6	<2	<2	2	<2	4	4	<10	2	6	<10	8	2	<2	<2	2	<2	70	4	10	<2	8	<2	6		
		FC	6	2	2	2	<2	<2	<2	6	<2	<2	<10	<2	2	<10	2	<2	<2	2	<2	<2	50	2	2	<2	2	<2	8		
		ENT	<2	4	4	<2	2	<2	2	<2	2	<2	2	<10	<2	<2	<2	4	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	4	
S13	Blue Lagoon	TC	2	10	2	32	<2	2	52	<2	6	2	20	2	2	<10	8	<2	<2	<2	2	8	<2	2	6	<2	4	8	2	4	
		FC	<2	<2	<2	6	<2	4	<2	2	2	<2	<2	<10	<2	2	<10	6	<2	<2	2	<2	<2	2	<2	2	<2	<2	<2	2	
		ENT	<2	<2	4	7	<2	<2	2	<2	<2	<2	<10	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	280	2	<2	4	<2	<2	<2	
ALISO BEACH (surfzone)																															
S12	Treasure Island Pier	TC	24	10	2	22	10	<2	<2	24	<2	10	<10	<2	4	10	6	4	<2	2	<2	12	8	8	8	20	4	26	2	2	
		FC	4	2	4	8	4	<2	<2	26	<2	<2	<10	<2	4	<10	<2	<2	<2	<2	<2	2	2	2	<2	<2	<2	<2	<2	<2	
		ENT	<2	14	4	8	<2	4	<2	170	<2	4	<10	<2	<2	<10	<2	4	2	<2	<2	<2	<2	4	<2	2	<2	<2	<2	<2	
S11	Treasure Island Sign	TC	34	6	6	16	4	6	<2	2	12	2	10	4	<2	<10	16	2	4	<2	2	10	2	14	2	12	30	98	<10	2	
		FC	4	2	2	6	<2	2	<2	2	4	4	<10	<2	<2	<10	4	2	<2	<2	<2	4	<2	<2	<2	<2	10	20	<10	2	
		ENT	6	2	<2	<2	2	<2	2	<2	4	<2	<10	<2	<2	<10	<2	14	<2	<2	<2	<2	<2	<2	<2	10	6	16	<10	2	
S10	Aliso - North	TC	36	12	28	12	6	2	16	14	28	8	10	34	2	<10	20	4	8	2	2	18	30	10	2	94	20	240	10	22	
		FC	4	2	4	2	<2	<2	6	<2	2	4	<10	2	<2	<10	6	2	2	<2	<2	2	12	<2	4	32	2	64	<10	<2	
		ENT	4	<2	2	4	4	4	2	<2	4	2	<10	12	<2	<10	8	62	<2	<2	<2	<2	<2	<2	<2	18	2	34	<10	<2	
S09	Aliso - Middle	TC	30	10	18	3	5	4	2	10	<2	10	<10	7	20	30	140	330	130	40	50	8	38	64	780	40	13	10	74		
		FC	2	15	2	2	4	2	2	<10	<2	<10	<10	6	<2	<10	86	16	7	5	15	<2	10	20	710	12	3	10	32		
		ENT	<2	2	4	2	<2	<2	<2	<10	8	<10	<10	10	7	<10	27	4	8	2	30	<2	<2	4	2	150	8	<2	<10	13	
S8.5	Aliso Beach Entrance	TC	14	12	6	20	<10	10	2	<10	8	4	10	4	22	10	90	160	66	32	36	8	<2	23	58	>100	24	22	40	48	
		FC	<2	4	6	<10	10	<10	<2	<10	<2	4	<10	4	16	10	40	8	6	6	22	<2	2	4	10	>100	2	2	4	40	
		ENT	<2	4	<2	<10	<10	<10	<2	<10	2	<2	20	<2	<2	<10	6	4	<2	38	<2	38	<2	<2	4	124	8	2	<2	4	
S08	Aliso - South	TC	4	4	4	2	4	<2	<2	4	4	10	6	12	<10	38	2	8	14	<2	6	<2	2	78	<2	6	54	2	4		
		FC	<2	2	4	2	4	<2	<2	2	2	<2	<10	<2	<2	<10	6	<2	<2	2	<2	<2	<2	8	<2	2	4	2	4		
		ENT	2	<2	<2	<2	<2	8	<2	2	4	<2	<10	<2	<2	<10	2	2	<2	2	<2	<2	<2	8	<2	2	<2	<2	<2	2	
S07	Camel Point	TC	4	4	6	<2	<2	<2	2	<2	4	<2	<10	4	4	<10	18	2	2	24	<2	2	4	12	6	10	22	<2	2		
		FC	4	2	<2	6	<2	<2	<2	2	<2	<10	<2	<2	<2	<10	2	<2	<2	2	<2	2	<2	2	2	2	2	2	<2	<2	
		ENT	230	<2	<2	<2	4	2	<2	<2	4	<2	<10	<2	<2	<10	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
S06	Table Rock	TC	2	<2	<2	6	2	<2	<2	<2	6	2	<10	2	24	<10	22	2	10	<2	<2	2	<2	10	8	2	66	2	2		
		FC	<2	<2	<2	4	2	<2	<2	<2	<2	<10	<2	<2	<10	8	<2	2	<2	<2	<2	<2	2	4	2	2	<2	<2	<2		
		ENT	<2	2	<2	<2	<2	4	<2	<2	<2	<10	<2	<2	<10	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
S05	Laguna Lido Apartments	TC	8	2	<2	4	2	<2	<2	<2	10	4	<10	2	6	<10	30	<2	<2	<2	2	2	2	4	2	4	<2	6	<2	<2	
		FC	<2	<2	<2	4	<2	<2	<2	<2	<2	6	4	<10	8	<2	<2	2	<2	2	<2	6	2	<2	<2	<2	2	<2	<2	<2	<2
		ENT	10	4	2	2	2	<2	<2	<2	<2	10	18	<2	<10	2	<2	<2	<2	<2	<2	2	<2	<2	2	<2	<2	<2	<2	<2	<2
S04	9th Street/1000 Steps Beach	TC	6	14	4	10	<2	<2	4	4	6	<10	8	6	10	4	4	<2	6	<2	10	50	<2	8	<2	8	16	2	2		
		FC	2	14	<2	4	<2	<2	<2	6	<2	2	<10	2	2	<10	<2	2	<2	2	<2	2	40	2	<2	2	<2	2	<2	<2	
		ENT	<2	4	6	2	<2	<2	<2	<2	<2	<2	<10	16	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
S03	Three Arch Bay	TC	86	2	2	56	4	<2	2	<2	12	6	<10	2	8	10	6	4	6	4	12	8	<2	6	4	6	24	6	8		
		FC	<2	<2	<2	8	<2	2	4	<2	<2	<10	<2	<2	<10	<2	<2	<2	<2	<2	<2	6	<2	10	<2	6	<2	<2	2		
		ENT	<2	<2	<2	50	<2	<2	<2	2	<2	<2	<10	2	<2	<10	<2	<2	<2	<2	<2	2	2	<2	2	2	2	<2	<2	<2	
ALISO CREEK																															
C1	Aliso Creek Mouth	TC	3900	4600	1400	2600	2500	2000	1900	2200	2000	2800	4200	1400	2100	4000	2600	2700	2600	1800	1500	1400	1300	3900	2000	4500	1500	2200	5500	2200	
		FC	54	210	400	130	110	230	150	370	240	270	210	220	82	150	10	110	91	230	170	330	110	90	360</						

SOCWA (Aliso Outfall) Ocean Bacteriological Monitoring Program
 Total Coliform (TC), Fecal Coliform (FC), Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description		7/9/02	7/15/02	7/16/02	7/22/02	7/24/02	7/29/02	7/30/02	8/5/02	8/6/02	8/12/02	8/13/02	8/19/02	8/21/02	8/26/02	8/27/02	9/2/02	9/3/02	9/9/02	9/10/02	9/16/02	9/18/02	9/23/02	9/24/02	9/30/02	10/1/02	10/7/02	10/8/02	10/14/02	
LAGUNA BEACH (surfzone)																															
S16	Hotel Laguna	TC	23	20	4	14	10	26	26	10	2	10	Cw/C	18	98	16	14	20	18	>400	28	10	40	26	8	6	<10	4	4	22	
		FC	5	8	2	6	3	<2	<2	4	2	8	24	30	20	2	2	4	2	74	2	<2	16	32	2	<2	<10	<2	<2	<2	28
		ENT	8	<2	4	30	6	2	4	8	4	4	8	<10	44	8	4	3	4	22	26	2	10	4	14	<2	<10	<2	2	8	
S15	Bluebird Canyon	TC	6	8	12	18	6	4	8	4	5	14	6	10	10	18	4	4	26	40	4	14	200	22	30	30	22	10	8		
		FC	2	<2	2	6	<2	<2	2	4	<2	4	2	<10	2	<2	15	3	<2	<2	6	10	<2	<2	180	<2	2	10	4	2	4
		ENT	<2	<2	<2	20	2	<2	<2	<2	4	4	4	10	4	<2	<2	<2	6	8	2	<2	4	60	12	4	<10	4	<2	2	
S14	Victoria Beach	TC	4	<2	4	8	<2	<2	<2	<2	10	6	40	2	2	2	2	14	18	14	20	<2	4	2	32	80	2	24	6		
		FC	2	<2	<2	2	2	<2	<2	<2	<2	<2	<2	<10	2	<2	<2	<2	4	20	4	16	<2	16	<2	8	<10	2	<2	4	
		ENT	<2	<2	<2	2	<2	<2	4	<2	<2	4	2	<10	<2	<2	2	<2	8	18	22	10	2	4	4	2	<10	<2	<2	<2	
S13	Blue Lagoon	TC	<2	2	4	<2	48	<2	6	<2	4	18	8	110	30	8	12	12	20	20	42	28	10	12	44	180	50	10	52	24	
		FC	2	<2	<2	8	22	<2	<2	<2	2	8	2	20	8	<2	2	2	4	6	8	14	2	20	6	8	<10	4	2	22	
		ENT	<2	<2	<2	<2	4	<2	<2	4	2	4	6	<10	4	2	4	4	<2	14	8	<2	12	<2	4	18	24	<10	<2	8	14
ALISO BEACH (surfzone)																															
S12	Treasure Island Pier	TC	<2	12	6	6	18	2	6	4	2	32	4	<10	4	14	6	14	12	<10	2	12	62	<2	44	<2	<10	4	14	2	
		FC	2	<2	<2	4	10	<2	<2	4	4	<2	2	<10	2	2	<2	6	6	10	2	14	8	2	<2	2	<10	2	2	2	
		ENT	4	<2	8	<2	2	<2	<2	<2	<2	<2	10	<2	10	<2	4	2	20	<10	<2	<2	2	270	<2	10	<2	4	<2		
S11	Treasure Island Sign	TC	12	18	6	8	<2	4	2	8	12	36	8	30	16	32	42	12	16	4	2	8	10	8	<2	24	<10	2	14	<2	
		FC	6	<2	2	6	2	2	<2	<2	4	2	10	4	4	10	2	4	10	<2	<2	4	4	2	2	<10	<2	2	<2		
		ENT	<2	2	<2	<2	<2	<2	4	<2	2	8	<2	10	2	6	6	2	8	8	4	<2	4	6	20	4	<10	2	8	<2	
S10	Aliso - North	TC	22	<2	60	<2	8	14	14	8	6	14	18	<10	6	28	54	12	24	10	10	2	12	8	12	32	<10	<2	44	6	
		FC	8	<2	14	<2	2	2	<2	6	2	4	8	<10	2	<2	4	<2	12	10	<2	6	<2	4	2	6	10	2	4	<2	
		ENT	6	<2	14	<2	<2	<2	2	<2	<2	6	4	<10	8	6	4	2	10	<10	4	<2	2	<2	10	<2	<10	4	24	2	
S09	Aliso - Middle	TC	15	2	310	17	28	4	680	22	20	25	3	<10	7	10	2	32	12	<10	20	16	30	70	40	23	40	4	12	25	
		FC	6	<2	27	4	<2	<2	40	12	22	22	<2	<10	2	<10	<2	10	6	<10	<2	2	8	<10	23	<2	10	<2	2	8	
		ENT	2	<2	22	12	3	<2	52	2	5	8	7	<10	4	<10	<2	17	2	40	12	4	8	<10	74	2	<10	2	110	17	
S8.5	Aliso Beach Entrance	TC	12	4	250	10	22	4	18	14	72	<2	10	22	42	<2	32	6	<10	<10	12	66	24	26	14	<10	4	38	28		
		FC	8	<2	30	<10	<2	<2	<2	10	10	38	<2	<10	8	4	<2	12	<2	<10	<10	4	14	10	14	<2	<10	2	24	14	
		ENT	10	<2	10	<10	6	<2	6	<2	16	<2	<10	6	14	<2	42	<2	<10	<10	<2	2	14	20	<2	<10	<2	42	4		
S08	Aliso - South	TC	8	2	2	2	6	2	6	300	12	10	<2	<10	8	16	4	6	12	<2	<2	2	18	<2	10	18	<10	<2	6	10	
		FC	4	<2	2	4	6	<2	<2	<2	2	6	2	20	2	4	<2	2	2	<2	2	<2	4	2	8	12	10	<2	2	4	
		ENT	2	<2	2	<2	6	<2	<2	4	2	4	<2	20	2	8	<2	2	2	<2	2	<2	6	<2	10	4	<10	2	2	2	
S07	Camel Point	TC	2	4	4	4	8	2	6	<2	82	2	10	12	20	4	2	<2	16	<2	2	10	6	6	4	10	2	2	12		
		FC	<2	<2	<2	2	2	<2	<2	2	<2	<2	<2	<10	2	2	<2	<2	<2	2	<2	2	<2	4	<2	<2	6	4	<10	<2	4
		ENT	<2	<2	<2	<2	<2	<2	6	2	<2	4	<2	<10	<2	<2	<2	<2	<2	2	<2	2	<2	<2	8	2	<10	<2	<2	10	
S06	Table Rock	TC	4	<2	<2	<2	<2	4	4	4	2	8	6	10	16	2	4	4	2	14	2	4	6	<2	8	6	<10	<2	<2	24	
		FC	2	<2	<2	2	4	<2	2	<2	2	<2	<2	<10	10	<2	<2	<2	<2	2	<2	2	<2	2	<2	2	<10	<2	<2	10	
		ENT	<2	<2	2	<2	<2	2	<2	4	2	2	<2	<10	<2	2	<2	<2	<2	2	4	2	<2	<2	<2	8	<10	<2	<2	28	
S05	Laguna Lido Apartments	TC	52	6	4	2	2	4	4	<2	<2	6	4	<10	44	4	2	10	2	12	10	2	4	8	<2	6	10	16	8	36	
		FC	20	<2	<2	<2	<2	<2	<2	<2	4	2	<10	34	2	<2	8	2	2	6	2	<2	2	2	<2	2	<2	<10	2	2	<2
		ENT	2	<2	2	<2	<2	<2	4	2	2	10	2	<10	<2	2	<2	2	10	2	10	48	<2	2	2	<2	<10	<2	2	2	
S04	9th Street/1000 Steps Beach	TC	20	2	2	10	14	4	8	6	2	6	2	<10	14	8	2	6	6	6	4	2	10	8	42	12	30	<2	10	24	
		FC	20	2	<2	2	2	<2	<2	<2	<2	4	10	6	<2	2	<2	2	<2	<2	2	2	4	4	46	2	<10	<2	<2	<2	
		ENT	<2	<2	<2	<2	18	<2	<2	<2	<2	2	<10	2	<2	2	2	8	<2	<2	2	8	<2	<2	4	98	<2	10	<2	<2	
S03	Three Arch Bay	TC	26	2	4	<2	4	6	<2	8	12	10	2	30	8	10	2	18	18	40	8	10	18	20	86	6	<10	6	30	18	
		FC	10	<2	<2	2	<2	<2	<2	2	4	2	2	<10	2	<2	<2	6	10	14	<2	2	6	4	76	2	<10	4	<2	2	
		ENT	8	<2	<2	<2	<2	<2	<2	2	2	<2	<2	<10	2	<2	2	16	12	18	2	6	6	4	28	2	<10	2	10	2	
ALISO CREEK																															
C1	Aliso Creek Mouth	TC	2700	2700	2900	1700	640	680	2400	630	2000	2200	2000	2400	1100	2500	2600	1700	4800	1200	3400	1500	950	340	570	4300	4900	2700	3700	5100	
		FC	250	300	270	100	150	150	350	370	340	660	2200	1100	300	570	560	110	590	410	7200	110	230	100	240	290	73	130	54	180	
		ENT	100	200	200	80	100	50	190	82	45	580	240	460	190	380	140	60</													

SOCWA (Aliso Outfall) Ocean Bacteriological Monitoring Program
Total Coliform (TC), Fecal Coliform (FC), Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description	10/15/02	10/21/02	10/22/02	10/28/02	10/29/02	11/4/02	11/7/02	11/12/02	11/14/02	11/18/02	11/20/02	11/25/02	11/26/02	12/2/02	12/3/02	12/9/02	12/10/02	12/16/02	12/17/02	12/22/02	12/23/02	12/30/02		
LAGUNA BEACH (surfzone)																									
S16	Hotel Laguna	TC	19	70	140	8	420	70	44	2800	250	250	56	140	86	260	58	26	66	960	760	100	10	380	
		FC	11	52	10	6	420	54	18	360	78	80	48	68	22	140	22	16	26	60	91	10	<10	80	
		ENT	15	68	33	<2	48	94	23	840	110	64	7	120	18	100	16	24	12	160	350	36	10	80	
S15	Bluebird Canyon	TC	10	8	216	10	32	44	48	100	72	210	200	10	52	2700	145	30	130	830	2200	310	<10	160	
		FC	2	6	2	<2	8	30	28	10	14	35	22	50	2	64	70	<2	120	240	290	30	20	30	
		ENT	4	2	46	<2	38	6	490	<10	16	27	38	10	8	100	10	<2	15	580	570	40	20	270	
S14	Victoria Beach	TC	6	4	42	6	10	34	18	20	54	110	86	10	14	320	8	<2	6	70	920	<10	10	170	
		FC	<2	6	<2	8	<2	18	10	<10	36	56	4	4	26	70	5	<2	4	<10	70	<10	<10	50	
		ENT	2	<2	78	6	6	10	6	<10	14	84	6	44	6	90	10	<2	2	<10	190	<10	<10	10	
S13	Blue Lagoon	TC	<2	18	40	16	6	33	24	10	46	76	32	8	10	10	12	4	30	340	1900	10	<10	220	
		FC	<2	<2	52	8	<2	<2	2	<10	36	30	4	6	6	<2	<10	2	4	8	20	90	<10	<10	
		ENT	<2	8	20	2	2	13	270	<10	8	72	42	6	<2	<10	2	12	4	50	410	<10	<10	50	
ALISO BEACH (surfzone)																									
S12	Treasure Island Pier	TC	12	4	14	4	2	22	4	<10	14	38	68	>400	4	30	4	16	14	130	490	50	<10	10	
		FC	<2	2	14	<2	<2	14	<2	<10	4	2	2	>400	<2	10	4	<2	10	<10	40	10	<10	<10	
		ENT	<2	<2	6	2	<2	2	4	<10	2	<2	8	38	<2	<10	<2	2	2	30	680	<10	<10	10	
S11	Treasure Island Sign	TC	10	26	2	2	<2	6	20	<10	16	14	2	8	4	20	14	2	6	30	540	30	20	60	
		FC	<2	22	6	<2	<2	2	36	<10	<2	4	<2	<2	2	10	4	6	4	10	50	10	<10	20	
		ENT	4	38	2	<2	<2	6	8	<10	<2	2	<2	<2	2	<10	2	<2	2	10	120	20	<10	10	
S10	Aliso - North	TC	2	2	<2	2	6	12	66	30	18	18	4	10	4	10	8	<2	12	<10	760	10	10	40	
		FC	<2	2	4	<2	<2	4	54	<10	4	2	<2	<2	4	<10	2	2	2	<10	50	<10	<10	20	
		ENT	<2	2	6	<2	<2	2	8	<10	<2	2	2	<2	2	<10	2	<2	2	<10	200	10	<10	<10	
S09	Aliso - Middle	TC	25	120	30	15	580	17	470	2300	42	25	<10	<10	25	2200	40	40	34	30	15000	91	100	14000	
		FC	6	100	80	18	270	6	320	80	14	6	<10	15	15	27	24	35	30	27	1600	30	<10	130	
		ENT	<2	180	570	5	90	<2	220	73	9	2	<10	20	4	40	42	8	10	10	6900	60	40	150	
S8.5	Aliso Beach Entrance	TC	16	230	80	12	72	150	-99	810	32	6	8	34	6	100	50	24	26	20	TNTC	100	100	>2000	
		FC	6	190	32	10	68	80	320	10	18	10	6	24	<2	25	30	4	8	10	520	10	10	110	
		ENT	4	130	740	6	12	100	330	10	6	2	8	22	<2	<10	20	4	8	10	1200	30	10	70	
S08	Aliso - South	TC	22	40	<2	2	8	6	170	40	28	28	4	16	4	<10	20	4	8	40	1200	90	20	2000	
		FC	6	32	2	<2	2	180	<10	2	2	2	12	<2	<10	12	2	8	<10	250	10	<10	10		
		ENT	4	110	2	2	<2	4	130	<10	2	12	2	2	<2	<10	<2	<2	<2	20	820	20	<10	50	
S07	Camel Point	TC	10	50	4	2	2	32	10	20	30	2	18	<2	<10	4	2	2	280	940	20	<10	170		
		FC	2	10	2	<2	<2	16	<10	6	2	<2	2	<2	10	2	<2	4	30	220	<10	<10	<10		
		ENT	<2	34	2	<2	2	<2	44	<10	4	6	<2	4	<2	<10	<2	<2	2	10	410	10	20	20	
S06	Table Rock	TC	8	<2	30	2	20	4	36	10	16	34	2	10	8	20	6	4	6	50	1100	60	<10	120	
		FC	<2	<2	<2	2	<2	4	16	<10	4	6	<2	2	<2	<10	<2	4	<2	10	280	<10	<10	10	
		ENT	<2	<2	4	<2	2	<2	44	10	2	8	<2	2	<2	<10	<2	<2	<2	30	570	<10	<10	10	
S05	Laguna Lido Apartments	TC	10	74	30	6	<2	8	-99	10	22	18	2	8	6	20	20	4	2	100	760	60	40	100	
		FC	2	4	<2	8	<2	4	2	<10	6	2	<2	<2	2	20	4	<2	<2	40	220	10	<10	10	
		ENT	2	6	14	<2	<2	2	26	<10	4	4	<2	<2	2	<10	2	2	2	10	460	10	<10	<10	
S04	9th Street/1000 Steps Beach	TC	28	18	22	2	14	4	240	110	16	10	2	6	<2	10	6	2	6	80	NS	100	20	30	
		FC	4	<2	<2	2	8	<2	66	<10	4	6	<2	4	<2	<10	<2	2	<2	<10	NS	<10	<10	10	
		ENT	<2	2	44	2	<2	<2	130	<10	2	4	<2	2	<2	<10	2	<2	<2	40	NS	20	<10	10	
S03	Three Arch Bay	TC	14	<10	26	6	16	38	-99	10	230	330	110	30	4	380	35	38	6	360	510	91	<10	60	
		FC	4	<10	<2	8	14	16	-99	<10	4	14	10	2	2	<10	20	16	2	100	60	10	10	10	
		ENT	36	10	12	2	2	2	-99	<10	4	38	56	14	2	70	7	6	10	50	150	54	<10	20	
ALISO CREEK																									
C1	Aliso Creek Mouth	TC	15000	860	200	3500	4300	2000	560	41000	9700	4300	4600	1200	6600	5700	4300	2500	750	350	19000	3200	2600	>20000	
		FC	30	420	10	320	73	10	490	500	400	280	100	140	1600	100	210	130	60	60	210	8100	36	73	550
		ENT	10	400	64	50	110	10	430	1100	370	1500	100	70	50	<100	120	110	100	270	11000	370	360	480	
DANA POINT (surfzone)																									
S02	Salt Creek Beach	TC	590	>2000	320	88	370	140	150	330	90	340	60	880	270	420	430	98	250	940	580	210	250	80	
		FC	50	50	40	8	14	6	10	45	10	22	8	13	58	20	50	4	<2	190	160	20	20	10	
		ENT	80	200	110	24	44	13	27	110	16	110	10	18	28	120	30	3	4	230	310	36	<10	10	
S01	Dana Strand Beach	TC	70	58	28	6	12	28	110	90	64	330	48	190	76	300	620	70	4	TNTC	730	270	20	50	
		FC	2	12	<2	<2	<2	7	9	<10	2	8	4	8	4	10	25	2	<2	120	54	10	<10	<10	
		ENT	2	24	6	<2	<2	41	20	10	4	10	12	10	12	40	30	2	2	510	290	36	<10	<10	

SOCWA (Dehery Outfall) Ocean Bacteriological Monitoring Program
 Total Coliform (TC), Fecal Coliform (FC), Enterococcus (ENT) Colony Forming Units / 100 ml Sample

7/16/02	7/22/02	7/29/02	8/5/02	8/12/02	8/19/02	8/26/02	9/2/02	9/9/02	9/16/02	9/23/02	9/30/02	10/7/02	10/14/02	10/21/02	10/28/02	11/4/02	11/11/02	11/18/02	11/25/02	12/2/02	12/9/02	12/16/02	12/23/02	12/30/02																		
20	29	30	2	16	8	<10	2	16	10	<10	10	64	12	46	10	30	22	18	14	20	8	10	10	20	8	4	6	20	<2	14	30	60	14	110	30	8	INTC	40	70			
<10	32	<10	<2	6	<10	10	4	8	<10	10	<2	4	4	2	46	20	30	16	2	32	<10	2	<10	<10	6	<2	8	<10	2	2	40	<20	14	4	40	<2	40	10	<10			
40	12	<10	6	<2	<10	<10	14	38	10	10	2	2	4	54	10	10	6	24	<2	10	12	<10	<10	20	4	4	6	10	<2	4	20	<20	6	12	<10	<2	180	30	20			
4	22	10	6	20	6	20	14	8	100	10	22	72	38	34	20	<10	10	130	6	30	14	10	10	20	4	14	4	20	4	12	340	20	38	42	200	12	260	20	80			
2	20	30	6	<2	<10	2	10	<10	10	4	7	6	2	30	10	<10	4	6	2	<10	4	10	10	10	2	2	2	10	4	10	200	<20	30	22	170	8	120	<10	30			
4	4	<10	<2	4	2	<10	4	8	<10	<10	4	2	18	24	<10	10	4	230	<10	10	8	10	10	<10	140	16	<2	40	2	12	560	<20	26	46	100	30	320	10	40			
20	<10	>30	10	<10	10	20	<10	20	<10	<10	CwC	100	110	20	40	<10	50	10	110	<10	36	<10	130	40	270	30	260	45	150	420	780	210	320	290	120	340	210	700				
<10	14	<10	<10	<10	<10	20	10	<10	<10	<10	<10	20	30	91	<10	30	20	30	<10	100	<10	20	<10	100	10	100	10	50	450	450	30	160	110	40	70	40	160					
10	10	10	<10	<10	<10	<10	<10	<10	<10	<10	44	60	160	50	30	200	70	20	120	<10	20	<10	110	20	370	80	250	30	270	1780	480	210	320	120	140	900	260	750				
20	<10	>30	10	10	10	90	>40	30	22	240	50	20	50	50	240	300	120	<10	80	160	250	<10	60	50	110	110	30	50	110	200	100	50	70	60	580	180	200	20	160			
<10	<10	20	10	10	20	20	<10	10	10	80	<10	16	40	60	30	150	210	40	20	10	80	170	40	10	80	20	20	20	20	30	10	80	20	10	360	20	160					
20	<10	<10	<10	10	40	50	<10	50	40	30	<10	40	230	70	84	<10	20	50	<10	310	810	10	60	140	230	490	50	130	30	110	100	<20	30	20	80	10	1600	90	330			
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20	<10	20	40	80	30	30	40	30	160	>14																																

OCSD Bacteriological Ocean Monitoring Program
Total Coliform (TC), Fecal Coliform (FC) Most Probable Number / 100 ml Sample
Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description		1/2/02	1/3/02	1/5/02	1/7/02	1/8/02	1/9/02	1/10/02	1/12/02	1/14/02	1/15/02	1/16/02	1/17/02	1/19/02	1/21/02	1/22/02	1/23/02	1/24/02	1/26/02	1/28/02	1/29/02	1/30/02	1/31/02	2/2/02	2/4/02	2/5/02	2/6/02	2/7/02	2/9/02	
HUNTINGTON BEACH (surfzone)			RAIN	RAIN																	RAIN	RAIN	RAIN	RAIN							
39N	Bolsa Chica Beach	TC	70	40	<20	40	<20	<20	<20	20	<20	20	<20	<20	<20	20	<20	<20	<20	20	<20	40	110	<20	<20	<20	<20	<20	<20	<20	
		FC	20	20	<20	40	<20	<20	<20	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
		ENT	8	32	20	4	10	16	16	<2	2	2	<2	<2	<2	10	10	6	2	14	6	20	8	6	2	<2	4	2	6	8	
33N	Bolsa Chica Reserve	TC	<20	40	<20	<20	<20	80	<20	20	140	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	300	300	70	20	<20	<20	<20	<20	
		FC	<20	<20	<20	<20	<20	<20	40	<20	20	140	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	40	20	<20	<20	<20	<20	<20	<20	
		ENT	8	10	<2	6	4	34	<2	6	<2	22	<2	<2	<2	6	2	6	4	4	6	160	4	6	10	<2	6	<2	10	4	
27N	Bluffs	TC	20	40	<20	<20	20	<20	1300	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	130	300	<20	20	<20	40	<20	<20	
		FC	<20	<20	<20	<20	20	<20	1300	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	20	<20	20	<20	40	<20	<20	<20	
		ENT	<2	8	10	2	22	10	54	<2	2	<2	2	<2	<2	6	14	10	4	244	12	22	18	12	4	2	4	22	8	80	
21N	17th Street	TC	<20	16000	20	<20	40	40	500	<20	<20	<20	<20	20	<20	<20	20	<20	<20	40	130	170	40	<20	<20	<20	<20	<20	80	40	20
		FC	<20	16000	20	<20	40	40	300	<20	<20	<20	<20	20	<20	<20	20	<20	<20	40	20	<20	<20	<20	<20	<20	<20	<20	80	40	20
		ENT	2	136	10	140	46	94	90	4	112	10	<2	10	<2	22	10	66	24	88	20	12	6	24	10	20	32	36	34	6	
15N	Jacks Snack Bar	TC	<20	<20	40	<20	20	40	80	<20	80	<20	80	<20	<20	<20	<20	<20	<20	40	20	80	20	<20	130	20	<20	<20	<20	<20	
		FC	<20	<20	40	<20	20	40	80	<20	80	<20	80	<20	<20	<20	<20	<20	<20	40	20	<20	20	<20	130	20	<20	<20	<20	<20	
		ENT	8	2	4	118	54	96	60	14	2	8	20	8	6	2	34	20	8	66	26	16	24	6	36	20	<2	28	14	28	
12N	Beach Blvd.	TC	<20	20	20	20	130	<20	<20	20	<20	20	<20	70	<20	20	40	20	20	220	20	500	80	<20	40	40	<20	80	20	80	
		FC	<20	20	20	<20	130	<20	<20	20	<20	20	<20	70	<20	20	40	20	20	220	<20	20	<20	40	40	<20	80	20	80		
		ENT	2	2	6	96	54	94	28	34	<2	2	22	2	84	44	28	16	502	18	40	26	6	26	10	6	10	30	72		
9N	SCE Plant	TC	<20	<20	<20	20	<20	130	<20	20	<20	20	<20	20	<20	40	<20	40	20	20	40	40	270	40	40	<20	20	<20	20	170	
		FC	<20	<20	<20	20	<20	40	<20	20	<20	20	<20	20	<20	40	<20	40	20	20	40	20	<20	20	<20	40	<20	20	170		
		ENT	2	8	<2	108	20	42	46	22	16	2	8	6	20	14	46	4	24	48	38	30	34	8	20	6	8	22	6	68	
6N	Magnolia Street	TC	2200	20	40	20	130	40	20	<20	<20	40	<20	20	<20	20	<20	40	40	80	800	230	1700	<20	140	130	<20	20	<20	230	
		FC	2200	20	20	130	40	20	<20	<20	40	<20	20	<20	20	<20	40	20	80	800	130	1700	<20	140	130	<20	20	<20	230		
		ENT	52	10	4	134	24	20	44	26	6	10	<2	4	24	18	42	38	46	364	122	3400	90	46	6	8	8	14	60		
3N	Brookhurst	TC	<20	20	110	20	70	40	<20	<20	500	230	230	<20	80	<20	40	40	130	80	210	1300	110	70	40	20	<20	20	<20	80	
		FC	<20	20	80	<20	70	40	<20	<20	500	130	230	<20	40	<20	40	40	130	80	170	40	40	40	40	20	<20	<20	20	80	
		ENT	8	24	10	116	16	38	72	8	174	108	40	22	56	18	68	32	56	106	226	126	42	30	40	2	4	12	10	62	
0	Santa Ana River Mouth	TC	80	40	40	80	<20	170	170	<20	20	20	20	<20	<20	20	40	40	40	70	<20	80	170	20	130	<20	40	20	20	40	40
		FC	80	<20	20	80	<20	110	40	<20	20	20	20	<20	<20	20	40	40	70	<20	80	170	20	40	<20	40	20	20	40	20	
		ENT	4	2	2	22	12	72	28	12	6	8	2	6	12	4	26	24	30	36	78	86	38	92	34	4	8	10	12	24	
NEWPORT BEACH (surfzone)																															
3S	Orange Street	TC	40	130	40	40	80	40	80	60	40	170	<20	<20	80	40	20	<20	<20	110	70	110	80	40	140	80	<20	40	40	80	
		FC	20	80	20	40	80	40	40	60	40	170	<20	<20	80	40	20	<20	<20	110	20	40	20	40	40	40	<20	40	40	40	80
		ENT	4	16	2	4	30	38	24	10	8	6	28	4	46	14	20	18	14	92	132	60	26	28	16	6	6	2	6	16	
6S	52nd/53rd Street	TC	80	20	20	40	80	70	40	80	130	40	20	<20	40	<20	20	20	<20	20	<20	40	130	70	80	70	<20	<20	20	<20	
		FC	40	<20	20	40	40	70	40	40	130	40	20	<20	20	<20	20	<20	<20	20	<20	20	20	<20	40	<20	<20	<20	<20	<20	
		ENT	10	12	4	2	28	20	26	<2	<2	10	2	2	46	20	16	16	6	22	68	70	60	32	8	2	2	2	2	6	
9S	38th Street	TC	20	130	<20	<20	20	40	130	<20	<20	20	20	<20	<20	<20	<20	<20	<20	<20	<20	300	700	1300	170	20	<20	20	20	<20	
		FC	<20	130	<20	<20	20	40	80	<20	<20	20	20	<20	<20	<20	<20	<20	<20	<20	<20	40	20	<20	80	20	<20	20	20	<20	
		ENT	4	16	<2	<2	62	98	18	28	8	8	<2	2	8	8	14	10	6	>400	>400	54	92	56	2	2	<2	4	2	<2	
12S	Newport Pier	TC	20	20	40	<20	<20	80	LA	<20	80	80	<20	170	40	230	80	20	<20	700	800	70	220	<20	110	<20	20	40	40		
		FC	20	20	40	<20	<20	80	LA	<20	80	80	<20	170	40	230	80	<20	<20	700	170	<20	<20	<20	110	<20	20	40	<20		
		ENT	<2	12	<2	<2	<2	20	LA	6	12	12	4	6	10	42	20	40	400	224	38	85	28	<2	2	2	30	34	14		
15S	15th/16th Street	TC	20	40	<20	70	110	170	20	<20	40	<20	20	20	<20	20	<20	40	40	20	1100	40	220	80	20	20	<20	<20	20		
		FC	<20	40	<20	40	110	170	<20	<20	40	<20	20	20	<20	20	<20	40	40</												

OCSD Bacteriological Ocean Monitoring Program
Total Coliform (TC), Fecal Coliform (FC) Most Probable Number / 100 ml Sample
Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description		2/1/02	2/12/02	2/13/02	2/14/02	2/16/02	2/18/02	2/19/02	2/20/02	2/21/02	2/23/02	2/25/02	2/26/02	2/27/02	2/28/02	3/2/02	3/4/02	3/5/02	3/6/02	3/7/02	3/9/02	3/11/02	3/12/02	3/13/02	3/14/02	3/16/02	3/18/02	3/19/02	3/20/02	
HUNTINGTON BEACH (surfzone)								RAIN	RAIN	RAIN											RAIN	RAIN					RAIN	RAIN	RAIN		
39N	Bolsa Chica Beach	TC	<20	<20	<20	<20	<20	110	40	40	20	<20	20	<20	<20	40	<20	<20	<20	<20	<20	20	<20	<20	<20	<20	40	<20	40	170	
		FC	<20	<20	<20	<20	<20	<20	40	20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	<20	<20	<20	40	<20	40	170
		ENT	<2	4	2	2	<2	8	4	10	8	2	4	<2	6	24	<2	<2	4	10	10	<2	<2	10	2	8	2	6	<2	64	
33N	Bolsa Chica Reserve	TC	20	<20	20	<20	<20	80	130	<20	40	20	<20	<20	<20	<20	20	210	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	20	40	<20
		FC	<20	<20	20	<20	<20	20	20	<20	<20	<20	<20	<20	<20	<20	<20	20	210	<20	<20	<20	<20	<20	<20	<20	20	<20	20	<20	<20
		ENT	6	6	80	38	6	6	4	<2	2	8	2	10	6	12	6	8	34	10	2	124	12	8	2	2	6	8	8	8	20
27N	Bluffs	TC	<20	<20	<20	20	130	130	20	<20	70	<20	20	<20	<20	<20	<20	<20	40	<20	40	<20	1100	40	40	<20	40	<20	80	<20	<20
		FC	<20	<20	<20	20	<20	20	<20	20	64	24	36	26	16	58	6	14	44	16	34	26	18	14	8	36	16	16	16	16	
		ENT	40	8	10	14	2	14	2	6	20	52	426	20	2	28	14	28	18	4	2	16	294	4	4	12	4	8	4	6	
21N	17th Street	TC	20	<20	<20	<20	<20	100	170	20	80	80	<20	2800	40	20	110	20	20	40	<20	20	40	<20	<20	<20	<20	20	40	20	20
		FC	20	<20	<20	<20	<20	<20	<20	20	40	40	40	<20	700	40	20	110	20	20	40	<20	20	40	<20	<20	<20	20	40	20	20
		ENT	6	2	4	6	16	10	8	32	78	12	20	>400	16	42	60	10	22	130	24	8	40	10	<2	16	10	6	80	20	40
15N	Jacks Snack Bar	TC	<20	<20	20	20	<20	170	20	20	<20	80	<20	40	20	20	20	20	20	<20	70	40	20	80	20	20	40	<20	<20	<20	<20
		FC	<20	<20	20	20	<20	20	<20	<20	80	<20	40	20	20	20	20	20	20	<20	40	20	20	40	<20	<20	<20	<20	<20	<20	<20
		ENT	<2	14	4	10	6	2	82	10	30	64	24	36	26	16	58	6	14	44	16	34	26	18	14	8	36	16	16	16	
12N	Beach Blvd.	TC	<20	20	20	20	<20	40	<20	40	<20	110	40	80	20	20	80	20	20	80	20	<20	130	40	<20	20	<20	20	<20	<20	<20
		FC	<20	20	20	20	<20	<20	<20	20	<20	40	110	40	80	20	20	80	20	20	<20	130	20	<20	20	<20	20	<20	<20	<20	<20
		ENT	<2	12	20	2	34	10	12	8	64	82	30	52	30	8	88	42	22	40	24	26	62	10	10	8	6	10	10	20	
9N	SCE Plant	TC	<20	<20	70	<20	20	40	<20	20	<20	40	40	1700	800	220	80	40	<20	20	20	80	40	<20	<20	<20	<20	<20	<20	20	20
		FC	<20	<20	70	<20	20	<20	<20	<20	<20	20	40	1700	500	110	40	20	<20	20	20	80	40	<20	<20	<20	<20	<20	<20	20	20
		ENT	<2	4	46	14	52	6	8	26	14	26	14	>400	122	44	54	28	14	6	8	32	20	16	4	14	6	6	6	18	
6N	Magnolia Street	TC	20	40	130	40	300	80	110	20	40	40	1400	800	230	300	>16000	40	20	90	110	40	1700	5000	170	170	500	230	<20	2400	
		FC	20	20	130	40	300	20	110	20	40	40	1400	800	230	300	>16000	20	20	90	110	20	1700	5000	170	170	500	230	<20	2400	
		ENT	16	20	24	16	54	14	22	34	32	>400	>400	242	370	>400	2	20	24	110	12	>400	>400	70	218	>400	336	10	>400		
3N	Brookhurst	TC	<20	20	20	<20	20	230	20	<20	40	<20	20	20	<20	40	130	40	<20	40	<20	20	2400	<20	300	20	40	210	300	130	
		FC	<20	<20	20	<20	20	20	20	<20	20	<20	20	20	<20	40	130	40	<20	20	<20	20	1300	<20	300	20	40	210	300	130	
		ENT	2	6	2	<2	6	6	8	28	16	<2	12	8	14	20	10	8	24	26	16	38	268	246	132	24	58	36	226	82	
0	Santa Ana River Mouth	TC	20	<20	<20	<20	40	>16000	3000	800	130	<20	20	<20	<20	<20	<20	300	110	130	40	800	40	230	<20	170	<20	20	5000	1100	40
		FC	20	<20	<20	<20	40	2400	300	300	80	<20	<20	<20	<20	<20	<20	300	70	130	40	120	40	230	<20	130	<20	20	1700	500	20
		ENT	6	2	4	<2	8	312	70	86	38	2	>400	2	8	22	40	68	12	18	84	20	164	8	40	10	28	>400	100	6	
NEWPORT BEACH (surfzone)																															
3S	Orange Street	TC	20	20	<20	40	20	>16000	16000	300	220	<20	<20	<20	<20	<20	20	<20	40	40	1100	80	80	<20	20	40	40	3000	>16000	1300	
		FC	20	20	<20	40	20	500	230	130	40	<20	<20	<20	<20	<20	<20	20	<20	40	40	80	40	<20	20	<20	40	800	1700	80	
		ENT	12	4	<2	<2	14	246	54	28	48	10	8	10	4	2	10	4	12	14	98	8	24	6	12	12	>400	>400	244		
6S	52nd/53rd Street	TC	<20	<20	20	<20	<20	16000	3000	230	40	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	80	20	20	500	230	<20	1300	>16000	20
		FC	<20	<20	20	<20	<20	300	40	230	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	40	20	20	500	230	<20	300	<20	
		ENT	4	4	2	<2	<2	84	22	18	22	4	16	<2	14	12	<2	2	10	8	8	12	12	2	10	34	18	334	188	<2	
9S	38th Street	TC	20	<20	<20	<20	20	2200	1700	80	80	40	<20	20	<20	20	<20	20	<20	<20	<20	<20	20	40	<20	20	500	<20	800	1100	80
		FC	20	<20	<20	<20	<20	220	20	40	80	40	<20	20	<20	20	<20	<20	<20	<20	<20	<20	20	40	<20	20	80	<20	80	170	80
		ENT	<2	<2	<2	4	<2	56	16	16	4	4	4	4	16	4	8	<2	<2	<2	2	2	4	4	48	50	10	192	58	18	
12S	Newport Pier	TC	40	<20	<20	40	<20	1700	80	40	<20	170	80	70	20	<20	20	<20	20	<20	40	40	700	20	<20	500	20	230	<20	<20	
		FC	40	<20	<20	40	<20	110	80	20	<20	110	80	70	20	<20	<20	<20	<20	20	<20	40	40	700	20	<20	130	20	80	<20	<20
		ENT	6	8	30	2	8	30	24	8	6	48	30	54	32	2	<2	2	6	4	8	2	16	18	4	24	10	114	2	<2	
15S	15th/16th Street	TC	<20	<20	<20	40	<20	130	40	40	20	90	40	20	<20	20	40	20	<20	<20											

OCSD Bacteriological Ocean Monitoring Program
Total Coliform (TC), Fecal Coliform (FC) Most Probable Number / 100 ml Sample
Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description	3/21/02	3/23/02	3/25/02	3/26/02	3/27/02	3/28/02	3/30/02	4/1/02	4/2/02	4/3/02	4/4/02	4/5/02	4/8/02	4/9/02	4/10/02	4/11/02	4/13/02	4/15/02	4/16/02	4/17/02	4/18/02	4/20/02	4/22/02	4/23/02	4/24/02	4/25/02	4/27/02	4/29/02
HUNTINGTON BEACH (surfzone)			RAIN	RAIN	RAIN																								
39N	Bolsa Chica Beach	TC	<20	20	70	20	<20	<20	<20	20	<20	80	<20	<20	<20	<20	<20	<20	20	<20	40	<20	<20	<20	<20	<20	<20	<20	<20
		FC	<20	<20	20	20	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20
		ENT	8	8	34	6	2	<2	14	<2	4	10	8	4	2	2	4	4	<2	16	<2	4	4	<2	<2	6	<2	4	90
33N	Bolsa Chica Reserve	TC	<20	<20	40	40	20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20
		FC	<20	<20	40	20	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20
		ENT	8	22	24	2	<2	4	2	8	14	4	2	2	4	10	4	8	62	2	20	4	6	2	2	10	4	72	<2
27N	Bluffs	TC	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	40	<20	40	<20	<20	<20	<20	<20	<20	<20	<20
		FC	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	40	<20	40	<20	<20	<20	<20	<20	<20	<20	<20
		ENT	4	2	88	20	2	6	8	4	8	8	2	24	6	16	8	2	26	6	18	4	<2	50	8	16	16	88	8
21N	17th Street	TC	80	130	110	<20	<20	<20	80	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	40	40	<20
		FC	80	80	70	<20	<20	<20	40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	80	40	<20
		ENT	32	68	222	4	2	2	42	64	6	2	<2	2	<2	20	2	10	2	6	12	<2	4	<2	14	8	26	4	70
15N	Jacks Snack Bar	TC	20	<20	130	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	40	20	20	<20	<20	<20	40	40	<20
		FC	20	<20	80	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	40	20	<20	<20	<20	<20	40	40	<20
		ENT	16	22	152	6	28	8	14	4	<2	4	<2	4	<2	<2	2	4	2	10	12	22	18	6	30	20	28	48	38
12N	Beach Blvd.	TC	70	<20	80	<20	<20	<20	80	20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	20	<20	<20	<20	<20	<20	40	<20	170
		FC	40	<20	20	<20	<20	<20	80	20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	20	<20	<20	<20	<20	<20	40	<20	170
		ENT	34	14	102	8	8	<2	8	4	4	6	<2	4	<2	<2	18	6	20	18	8	12	8	26	20	34	34	24	
9N	SCE Plant	TC	80	70	20	<20	<20	<20	<20	20	20	<20	40	40	20	<20	<20	<20	<20	40	<20	40	<20	<20	130	20	130	80	40
		FC	40	40	20	<20	<20	<20	<20	20	<20	<20	40	40	20	<20	<20	<20	<20	40	<20	40	<20	<20	130	20	130	80	40
		ENT	24	20	16	8	26	<2	<2	4	6	<2	8	16	10	4	4	10	12	2	10	16	6	76	38	68	50	16	8
6N	Magnolia Street	TC	500	80	1100	5000	1300	1300	1700	40	<20	20	40	<20	70	300	210	20	40	20	<20	20	<20	<20	140	20	170	500	70
		FC	500	80	700	5000	1300	1300	1700	40	<20	20	40	<20	70	230	210	20	40	20	<20	20	<20	<20	140	20	170	500	40
		ENT	120	52	>400	298	>400	>400	>400	40	18	14	4	4	16	70	40	4	8	24	22	10	18	8	112	36	250	58	22
3N	Brookhurst	TC	40	70	300	<20	170	130	70	20	70	80	20	40	<20	40	20	80	<20	20	<20	80	80	20	20	130	20	40	130
		FC	40	70	300	<20	130	130	70	20	20	20	20	40	<20	40	20	80	<20	<20	80	80	20	20	80	20	20	20	80
		ENT	104	2	270	16	50	38	14	132	4	8	2	<2	<2	4	<2	<2	8	20	12	34	2	40	30	16	18	62	
0	Santa Ana River Mouth	TC	40	20	110	<20	20	40	40	80	<20	20	40	<20	<20	20	<20	<20	20	80	80	<20	20	<20	<20	<20	20	40	16000
		FC	40	20	80	<20	20	40	80	<20	<20	20	40	<20	<20	20	<20	<20	20	80	20	<20	20	<20	<20	<20	20	40	500
		ENT	12	20	138	4	28	10	6	6	14	18	14	4	<2	2	14	44	6	14	12	8	12	14	2	2	<2	4	68
NEWPORT BEACH (surfzone)																													
3S	Orange Street	TC	800	20	300	<20	80	<20	40	20	<20	<20	<20	<20	<20	<20	20	<20	80	210	<20	20	20	<20	<20	20	<20	2400	110
		FC	40	20	300	<20	40	<20	40	<20	<20	<20	<20	<20	<20	<20	20	<20	80	<20	<20	<20	<20	<20	<20	20	<20	130	70
		ENT	134	36	90	<2	16	16	32	8	16	<2	<2	2	<2	4	<2	<2	2	24	22	2	46	20	4	2	<2	<2	22
6S	52nd/53rd Street	TC	<20	20	40	20	<20	<20	20	<20	<20	40	<20	<20	<20	<20	<20	<20	40	<20	80	<20	<20	<20	<20	20	<20	2400	70
		FC	<20	20	40	20	<20	<20	20	<20	<20	20	<20	<20	<20	<20	<20	<20	40	<20	80	<20	<20	<20	<20	20	<20	20	40
		ENT	<2	<2	40	<2	2	6	8	8	<2	<2	38	2	4	6	<2	4	2	16	4	6	20	2	2	<2	<2	8	4
9S	38th Street	TC	80	<20	70	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	40	20	20	<20	80	20	20	<20	<20	<20	80	230
		FC	80	<20	70	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	40	20	20	<20	80	20	20	<20	<20	<20	20	80
		ENT	<2	22	18	6	<2	<2	<2	<2	<2	2	<2	2	<2	2	<2	4	8	8	6	<2	4	4	2	30	<2	2	20
12S	Newport Pier	TC	<20	80	80	300	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20
		FC	<20	80	80	300	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20
		ENT	2	10	130	186	<2	6	6	4	28	<2	8	8	<2	<2	<2	12	14	6	16	6	18	<2	<2	10	<2	<2	18
15S	15th/16th Street	TC	<20	<20	170	<20	20	<20	<20	40	<20	<20	20	20	<20	<20	<20	<20	20	40	20	<20	<20	<20	<20	<20	<20	<20	40
		FC	<20	<20	20	<20	<20	<20	20	<20	<20	20	20																

OCSD Bacteriological Ocean Monitoring Program
Total Coliform (TC), Fecal Coliform (FC) Most Probable Number / 100 ml Sample
Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description		7/17/02	7/18/02	7/20/02	7/22/02	7/23/02	7/24/02	7/25/02	7/27/02	7/29/02	7/30/02	7/31/02	8/1/02	8/3/02	8/5/02	8/6/02	8/7/02	8/9/02	8/10/02	8/12/02	8/13/02	8/14/02	8/15/02	8/17/02	8/19/02	8/20/02	8/21/02	8/22/02	8/24/02	
HUNTINGTON BEACH (surfzone)																															
39N	Bolsa Chica Beach	TC	<20	<20	170	20	<20	<20	1300	40	<20	20	<20	70	130	110	40	20	<20	170	20	20	70	20	<20	40	<20	<20	800	40	
		FC	<20	<20	170	20	<20	<20	1300	40	<20	20	<20	70	130	110	40	<20	<20	<20	<20	<20	<20	40	20	<20	<20	<20	800	20	
		ENT	6	2	24	4	2	<2	192	10	<2	2	2	10	72	98	38	6	<2	<4	14	2	4	12	6	20	10	4	52	10	
33N	Bolsa Chica Reserve	TC	<20	<20	20	80	40	20	20	40	<20	20	<20	<20	80	20	<20	20	<20	20	<20	40	<20	20	40	20	<20	20	<20	80	
		FC	<20	<20	20	80	40	20	20	40	<20	20	<20	<20	80	20	<20	20	<20	20	<20	20	<20	20	40	20	<20	20	<20	80	
		ENT	10	4	10	14	6	10	14	4	2	2	10	<2	2	12	38	8	2	4	16	10	4	92	6	8	6	8	4	10	
27N	Bluffs	TC	<20	<20	20	<20	<20	<20	1300	<20	<20	<20	<20	<20	20	<20	80	<20	40	<20	<20	<20	<20	20	<20	80	80	<20	<20	80	
		FC	<20	<20	20	<20	<20	<20	1300	<20	<20	<20	<20	<20	20	<20	80	<20	40	<20	<20	<20	20	<20	80	40	<20	<20	<20	80	
		ENT	4	4	6	24	6	<2	22	388	2	12	6	16	14	16	10	10	12	16	8	10	4	>400	6	12	12	8	82	2	
21N	17th Street	TC	40	<20	20	<20	<20	<20	40	<20	<20	20	<20	20	<20	<20	20	<20	<20	<20	<20	<20	<20	80	20	40	130	20	<20	20	
		FC	40	<20	<20	<20	<20	<20	40	<20	<20	<20	<20	<20	20	<20	<20	20	<20	<20	<20	<20	<20	80	20	40	40	<20	<20	20	
		ENT	2	2	<2	4	4	<2	24	6	4	4	2	22	4	10	18	2	4	2	2	8	<2	14	6	34	10	16	4	<2	
15N	Jacks Snack Bar	TC	<20	<20	<20	<20	40	20	40	<20	<20	<20	<20	<20	40	20	230	80	20	<20	130	<20	<20	40	<20	130	<20	80	20	70	
		FC	<20	<20	<20	<20	40	20	40	<20	<20	<20	<20	<20	40	20	230	80	<20	<20	80	<20	<20	40	<20	130	<20	80	20	70	
		ENT	6	<2	12	14	30	122	32	6	<2	2	<2	6	38	28	262	4	<2	2	10	10	<2	16	<2	38	8	20	<2	8	
12N	Beach Blvd.	TC	20	<20	20	<20	80	20	20	20	<20	20	20	40	80	110	40	<20	40	<20	80	<20	<20	<20	20	40	<20	20	40	80	
		FC	20	<20	20	<20	80	20	20	20	<20	20	20	40	80	110	40	<20	40	<20	80	<20	<20	<20	20	40	<20	20	40	80	
		ENT	<2	<2	2	10	36	10	8	2	<2	14	<2	12	26	24	14	2	2	2	6	18	4	8	4	24	6	16	8	4	
9N	SCE Plant	TC	<20	<20	20	<20	80	500	1100	230	<20	80	<20	20	20	40	110	<20	70	20	230	80	<20	20	<20	20	40	40	130	300	
		FC	<20	<20	20	<20	80	500	1100	230	<20	80	<20	20	20	40	110	<20	70	20	230	80	<20	20	<20	20	40	40	130	300	
		ENT	2	2	<2	82	18	12	234	24	<2	8	<2	4	70	24	32	4	4	6	12	22	<2	10	6	42	4	34	32	38	
6N	Magnolia Street	TC	40	<20	20	20	500	500	130	300	<20	20	<20	230	20	40	2400	<20	230	<20	<20	<20	80	20	<20	500	20	40	220	220	
		FC	20	<20	20	20	500	500	130	300	<20	20	<20	230	<20	20	1300	<20	230	<20	<20	<20	80	20	<20	500	20	40	170	220	
		ENT	4	<2	8	2	108	30	30	34	4	12	2	278	14	42	>400	2	16	4	14	112	4	28	14	162	2	8	50	58	
3N	Brookhurst	TC	<20	40	<20	20	500	20	80	290	<20	20	<20	<20	40	130	80	<20	40	<20	20	20	20	<20	80	40	40	40	230	20	
		FC	<20	40	<20	20	500	20	80	190	<20	<20	<20	<20	40	130	80	<20	40	<20	20	20	20	<20	80	40	20	230	20		
		ENT	2	6	10	14	128	16	20	>400	<2	10	<2	6	60	58	38	4	4	2	16	6	4	6	<2	20	4	22	24	10	
0	Santa Ana River Mouth	TC	<20	40	<20	20	40	40	20	<20	20	20	20	20	230	<20	80	<20	<20	40	20	70	16000	40	70	40	40	20	<20	<20	
		FC	<20	40	<20	<20	40	40	<20	20	20	20	20	20	230	<20	80	<20	<20	40	20	70	16000	<20	70	40	20	20	<20	<20	
		ENT	<2	<2	<2	4	10	14	<2	2	<2	16	8	2	50	12	20	<2	2	2	8	20	>400	>400	8	4	12	2	<2	6	
NEWPORT BEACH (surfzone)																															
3S	Orange Street	TC	<20	20	20	20	<20	20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	80	<20	<20	<20	<20	40	<20	40	40	<20	<20	500	
		FC	<20	20	20	20	<20	20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	40	<20	40	40	<20	<20	80	
		ENT	4	<2	4	10	2	14	8	<2	<2	<2	2	<2	4	10	58	2	10	4	8	6	<2	10	2	<2	2	<2	18	10	
6S	52nd/53rd Street	TC	20	<20	20	<20	<20	20	<20	20	<20	<20	<20	20	40	<20	<20	<20	<20	<20	20	<20	<20	80	20	<20	<20	<20	<20		
		FC	20	<20	20	<20	<20	<20	20	<20	20	<20	<20	<20	20	40	<20	<20	<20	<20	20	<20	<20	80	20	<20	<20	<20	<20		
		ENT	4	<2	2	12	2	6	4	8	<2	<2	<2	<2	2	134	14	<2	8	2	6	2	<2	<2	6	2	2	16	4	<2	
9S	38th Street	TC	20	20	<20	1300	40	<20	40	<20	<20	<20	<20	<20	20	20	<20	20	<20	80	40	<20	<20	<20	<20	20	20	<20	<20	300	
		FC	<20	20	<20	1300	40	<20	<20	<20	<20	<20	<20	<20	20	20	<20	20	<20	80	<20	<20	<20	<20	<20	20	20	<20	<20	300	
		ENT	<2	2	2	>400	<2	8	8	6	2	2	<2	<2	2	2	8	6	44	<2	6	<2	<2	24	2	4	6	4	4	8	
12S	Newport Pier	TC	<20	20	<20	20	<20	40	<20	<20	<20	<20	20	<20	20	20	40	<20	<20	20	<20	40	<20	80	<20	20	220	20	230		
		FC	<20	20	<20	20	<20	40	<20	<20	<20	<20	20	<20	20	20	40	<20	<20	20	<20	40	<20	80	<20	20	20	230			
		ENT	2	<2	6	14	6	8	8	<2	<2	2	<2	12	<2	6	30	2	4	8	2	<2	6	24	6	22	34	<2	20		
15S	15th/16th Street	TC	<20	<20	<20	<20	<20	70	20	<20	<20	<20	<20	<20	<20	20	<20	<20	<20	20	20	<20	<20	<20	20	80	80	40	20		
		FC	<20	<20	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	20	<20	<20	<20	20	20	<20	<20	<20	20	40	80	<20	<20		
		ENT	<2	<2	<2	6	34	6	<2	2	<2	2	<2	8	<2	8	<2	2	2	4	8	2	2	2	2	4</					

OCSD Bacteriological Ocean Monitoring Program
Total Coliform (TC), Fecal Coliform (FC) Most Probable Number / 100 ml Sample
Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description		10/3/02	10/5/02	10/7/02	10/8/02	10/9/02	10/10/02	10/12/02	10/14/02	10/15/02	10/16/02	10/17/02	10/19/02	10/21/02	10/22/02	10/23/02	10/24/02	10/26/02	10/28/02	10/29/02	10/30/02	10/31/02	11/2/02	11/4/02	11/5/02	11/6/02	11/7/02	11/9/02	11/11/02		
HUNTINGTON BEACH (surfzone)																																
39N	Bolsa Chica Beach	TC	<20	20	<20	40	<20	40	40	40	40	20	20	40	<20	20	40	<20	<20	20	60	130	<20	<20	230	<20	500	<20	>16000	3000		
		FC	<20	20	<20	40	<20	40	20	40	40	40	20	40	<20	20	40	<20	<20	20	60	40	<20	<20	130	<20	500	<20	5000	300		
		ENT	<2	20	6	56	20	16	2	30	16	6	2	8	16	10	12	<2	<2	<2	10	28	2	2	78	2	18	2	>400	148		
33N	Bolsa Chica Reserve	TC	20	<20	20	20	<20	20	40	<20	20	20	40	<20	<20	<20	<20	<20	<20	<20	20	<20	<20	<20	500	20	<20	<20	>16000	9000		
		FC	20	<20	20	20	<20	<20	40	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	500	20	<20	<20	13000	220		
		ENT	4	22	6	16	<2	8	106	4	<2	14	2	2	4	8	6	4	<2	<2	4	<2	2	4	>400	6	16	2	>400	136		
27N	Bluffs	TC	<20	<20	<20	40	<20	40	130	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	20	<20	<20	>16000	16000		
		FC	<20	<20	<20	40	<20	40	130	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	20	<20	<20	1300	<20	<20	2400	230
		ENT	16	12	4	4	4	4	70	<2	8	<2	6	6	6	6	2	22	<2	8	<2	30	2	6	>400	12	42	6	>400	134		
21N	17th Street	TC	<20	<20	<20	20	40	<20	20	<20	<20	<20	20	<20	20	<20	<20	<20	<20	40	<20	<20	<20	<20	170	<20	20	<20	>16000	1700		
		FC	<20	<20	<20	20	40	<20	20	<20	<20	<20	<20	20	<20	20	<20	<20	<20	20	<20	<20	<20	<20	170	<20	20	<20	700	40		
		ENT	<2	6	2	8	4	<2	4	6	<2	2	<2	12	2	2	<2	<2	8	<2	6	<2	<2	10	106	4	>400	<2	>400	84		
15N	Jacks Snack Bar	TC	<20	<20	40	170	170	110	20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	20	40	20	80	20	16000	2400	
		FC	<20	<20	20	170	<20	110	20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	20	40	<20	80	20	500	140	
		ENT	12	6	30	56	22	32	4	72	<2	6	10	18	2	2	<2	10	4	4	<2	10	<2	10	56	10	18	12	258	106		
12N	Beach Blvd.	TC	20	80	80	230	20	40	<20	40	<20	<20	300	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	80	20	<20	<20	500	20	<20	16000	5000
		FC	20	40	80	130	<20	40	<20	40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	80	<20	<20	500	20	<20	20	500	300	
		ENT	36	34	16	88	18	58	2	10	<2	6	42	8	6	6	2	<2	6	6	<2	4	<2	4	>400	14	6	2	384	84		
9N	SCE Plant	TC	80	800	230	80	80	20	<20	20	<20	<20	40	<20	20	<20	<20	<20	<20	<20	<20	40	<20	<20	20	20	20	110	16000	5000		
		FC	80	800	230	80	<20	20	<20	20	<20	<20	40	<20	20	<20	<20	<20	<20	<20	<20	40	<20	<20	20	20	20	<20	130	140		
		ENT	214	>400	72	74	28	54	2	12	2	6	18	4	4	12	2	<2	14	<2	8	4	2	16	12	24	42	8	376	118		
6N	Magnolia Street	TC	20	130	60	130	20	<20	<20	20	40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	40	230	20	40	<20	>16000	1700		
		FC	20	130	60	130	20	<20	<20	20	40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	40	130	20	40	<20	230	300		
		ENT	68	82	64	130	16	30	2	4	2	6	6	4	16	22	12	<2	6	<2	4	14	6	10	42	20	18	6	>400	120		
3N	Brookhurst	TC	<20	130	20	20	40	<20	<20	<20	20	20	<20	20	<20	<20	<20	<20	<20	<20	20	<20	<20	<20	20	20	<20	<20	40	20	>16000	2400
		FC	<20	40	<20	20	40	<20	<20	<20	20	20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	<20	<20	20	20	<20	<20	40	20	270	170
		ENT	12	18	6	102	20	18	8	<2	12	6	2	<2	2	2	16	<2	4	12	8	10	6	10	20	18	10	2	244	120		
0	Santa Ana River Mouth	TC	<20	<20	20	<20	20	<20	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	20	20	20	<20	20	40	<20	<20	40	16000	3000		
		FC	<20	<20	20	<20	<20	<20	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	20	20	20	<20	20	20	<20	<20	40	230	130		
		ENT	2	10	2	16	8	6	<2	<2	<2	<2	<2	<2	4	2	6	2	2	8	2	2	4	6	12	4	<2	8	214	82		
NEWPORT BEACH (surfzone)																																
3S	Orange Street	TC	<20	<20	<20	<20	20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	<20	<20	<20	20	20	20	>16000	9000		
		FC	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	20	>16000	300		
		ENT	<2	2	10	12	4	2	4	<2	<2	2	<2	<2	6	6	<2	<2	6	<2	12	<2	2	6	4	8	38	2	>400	104		
6S	52nd/53rd Street	TC	<20	<20	<20	130	<20	<20	<20	<20	<20	<20	<20	20	40	<20	<20	<20	<20	<20	20	<20	<20	<20	40	20	<20	<20	>16000	5000		
		FC	<20	<20	<20	40	<20	<20	<20	<20	<20	<20	<20	<20	20	20	<20	<20	<20	<20	20	<20	<20	<20	20	20	<20	<20	5000	300		
		ENT	<2	2	<2	8	<2	4	<2	4	<2	2	2	6	<2	<2	<2	4	<2	2	6	2	6	<2	4	6	12	6	>400	86		
9S	38th Street	TC	<20	<20	20	500	20	40	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	40	<20	<20	<20	>16000	3000		
		FC	<20	<20	<20	20	<20	40	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	40	<20	<20	<20	3000	300			
		ENT	2	4	4	24	8	114	2	<2	<2	<2	<2	<2	46	2	2	<2	4	4	<2	2	8	2	2	6	8	20	>400	86		
12S	Newport Pier	TC	20	300	130	500	300	80	40	20	80	<20	20	20	20	<20	20	<20	70	40	<20	80	20	<20	70	<20	20	<20	16000	5000		
		FC	20	300	40	500	110	80	40	20	20	<20	20	20	<20	20	<20	20	40	<20	80	20	<20	70	<20	20	<20	2400	500			
		ENT	24	102	>400	>400	24	16	16	4	4	<2	40	28	20	22	40	14	10	8	44	6	4	100	18	48	20	56	>400	56		
15S	15th/16th Street	TC	<20	70	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	40	<20	<20	<20	20	130	80	40				

OCSD Bacteriological Ocean Monitoring Program
Total Coliform (TC), Fecal Coliform (FC) Most Probable Number / 100 ml Sample
Enterococcus (ENT) Colony Forming Units / 100 ml Sample

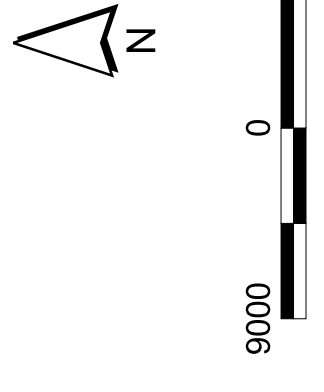
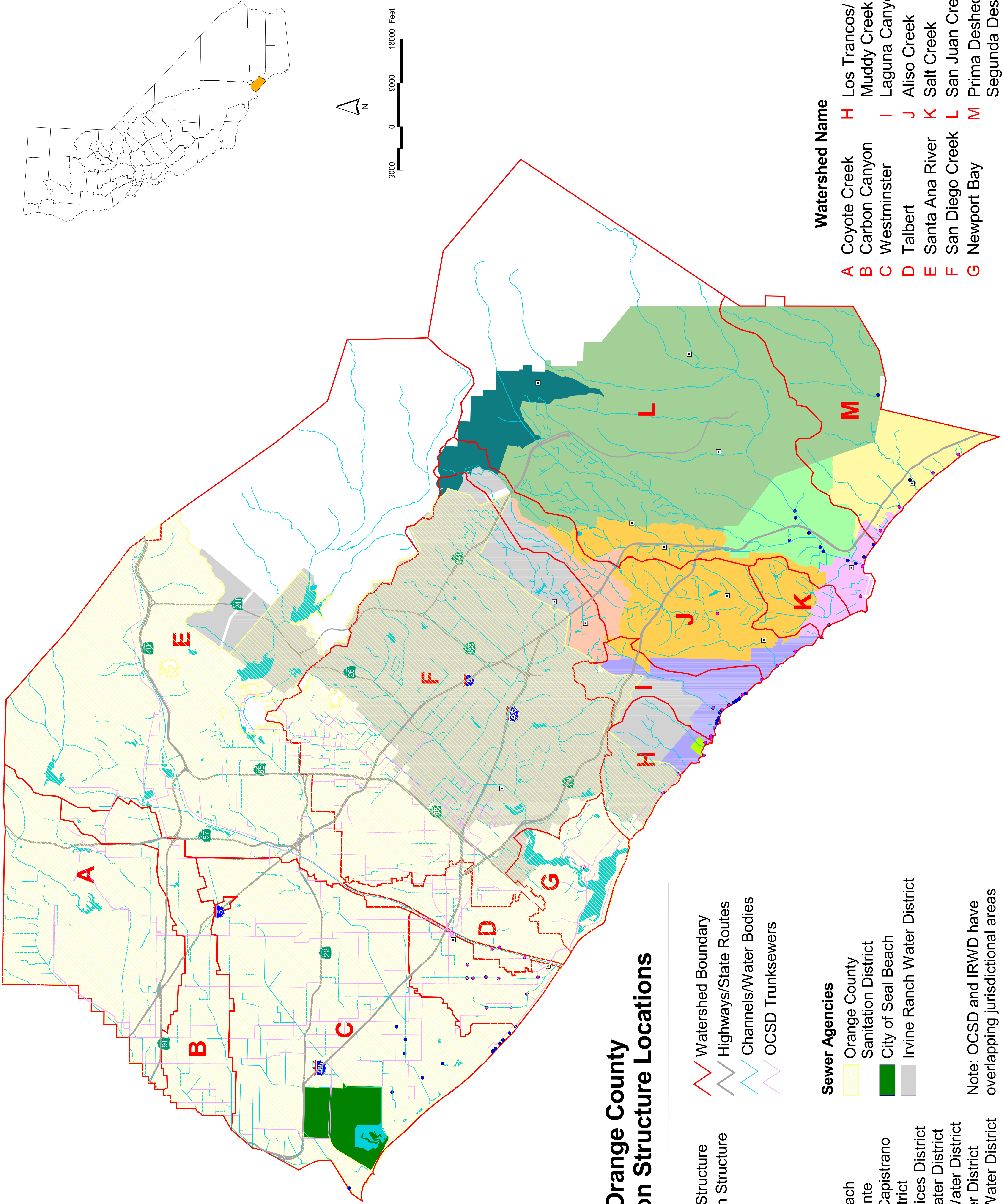
STATION	Location Description	11/1/20	11/3/02	11/4/02	11/6/02	11/18/02	11/19/02	11/20/02	11/21/02	11/23/02	11/25/02	11/26/02	11/27/02	11/30/02	12/2/02	12/3/02	12/4/02	12/5/02	12/7/02	12/9/02	12/10/02	12/11/02	12/12/02	12/14/02	12/16/02	12/17/02	12/18/02	12/19/02	12/21/02	
HUNTINGTON BEACH (surfzone)																										RAIN	RAIN	RAIN	RAIN	
39N	Bolsa Chica Beach	TC 170	230	80	20	120	40	20	<20	20	<20	20	<20	<20	130	170	40	<20	40	20	20	<20	70	<20	<20	16000	1300	300	500	
		FC <20	40	<20	20	40	20	20	<20	20	<20	20	<20	<20	20	<20	<20	<20	20	20	<20	40	<20	<20	500	170	40	20		
		ENT 16	30	4	18	20	2	8	2	2	4	8	4	<2	22	60	<2	6	4	4	4	2	6	22	12	>400	136	132	90	
33N	Bolsa Chica Reserve	TC 300	110	40	40	<20	90	20	40	<20	40	20	<20	<20	500	300	70	<20	20	<20	<20	<20	40	<20	5000	1700	500	500		
		FC <20	20	<20	40	<20	70	20	<20	<20	40	20	<20	<20	20	40	40	<20	<20	<20	<20	<20	20	<20	1700	130	20	20		
		ENT 36	16	16	2	2	48	8	4	14	6	12	6	4	8	26	14	4	6	4	2	<2	12	10	>400	330	100	78		
27N	Bluffs	TC 500	130	40	140	70	40	<20	20	<20	<20	<20	<20	<20	20	40	500	<20	<20	20	40	<20	<20	20	20	3000	2400	900	1700	
		FC 20	20	<20	40	70	40	<20	20	<20	<20	<20	<20	<20	20	<20	<20	<20	<20	20	20	<20	<20	20	20	500	130	20	40	
		ENT 34	34	18	28	52	24	18	8	4	10	6	4	20	8	42	4	<2	10	2	<2	8	4	34	12	>400	288	152	190	
21N	17th Street	TC 500	110	220	20	300	40	20	20	20	<20	<20	<20	<20	1100	70	110	<20	40	20	<20	<20	<20	<20	40	3000	3000	500	300	
		FC 10	<20	<20	<20	80	20	<20	20	<20	<20	<20	<20	20	110	<20	20	<20	40	20	<20	<20	<20	<20	<20	300	500	20	80	
		ENT 10	16	80	26	376	12	8	24	16	6	2	8	26	>400	124	94	10	58	12	4	<2	16	96	>400	380	92	154		
15N	Jacks Snack Bar	TC 300	130	80	<20	40	20	20	20	20	<20	20	<20	130	40	70	<20	20	40	<20	<20	<20	20	20	110	9000	3000	500	800	
		FC 20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	70	1100	300	130	<20	
		ENT 18	6	22	6	8	18	8	14	28	16	8	2	66	42	12	8	12	28	8	2	12	18	30	52	>400	334	132	200	
12N	Beach Blvd.	TC 230	40	80	<20	40	40	40	40	<20	<20	40	<20	110	130	<20	40	20	20	<20	<20	<20	20	20	20	3000	16000	1300	170	
		FC <20	<20	40	<20	40	40	40	40	<20	<20	40	<20	20	40	<20	20	<20	20	<20	<20	<20	20	20	20	300	70	40	20	
		ENT 10	16	12	<2	8	40	26	18	6	16	10	4	36	40	26	16	64	30	8	2	10	2	50	320	>400	290	128	>400	
9N	SCE Plant	TC 220	170	110	20	<20	20	<20	40	<20	20	40	<20	500	220	40	20	<20	70	<20	<20	<20	20	80	40	9000	3000	1100	500	
		FC 40	<20	20	20	<20	20	<20	40	<20	20	<20	<20	40	110	20	20	<20	70	<20	<20	<20	20	40	20	800	1300	40	<20	
		ENT 10	2	12	<2	28	4	<2	22	6	22	8	8	92	42	18	2	20	12	2	<2	4	26	88	46	>400	314	108	112	
6N	Magnolia Street	TC 500	110	70	170	130	230	40	40	5000	230	<20	20	270	40	1300	300	230	40	20	<20	<20	20	80	20	5000	1300	1300	800	
		FC <20	20	40	80	130	230	40	40	2400	230	<20	20	220	40	1300	300	230	20	<20	<20	<20	20	80	20	300	170	170	500	
		ENT 12	12	26	168	44	68	6	164	274	38	22	20	192	48	330	334	312	78	2	<2	<2	16	70	64	>400	236	272	>400	
3N	Brookhurst	TC 170	70	20	80	110	20	40	<20	<20	40	20	110	500	300	3000	220	80	<20	20	20	20	20	40	1700	2400	800	500		
		FC <20	<20	<20	40	70	20	40	<20	<20	40	20	110	70	300	3000	220	40	<20	20	20	20	20	<20	20	170	70	40	110	
		ENT 6	22	10	26	26	14	16	12	28	22	18	26	90	84	>400	82	66	12	4	2	<2	4	50	62	>400	192	120	>400	
0	Santa Ana River Mouth	TC 230	130	130	20	110	20	<20	<20	60	20	<20	20	500	40	20	<20	<20	<20	20	<20	<20	40	20	80	5000	5000	1300	500	
		FC 20	20	130	<20	110	20	<20	<20	60	20	<20	20	80	40	<20	<20	<20	<20	20	<20	<20	20	40	20	1700	170	70	70	
		ENT <2	14	20	6	16	12	<2	6	24	22	10	20	142	38	22	8	48	<2	10	<2	4	66	30	82	>400	296	116	>400	
NEWPORT BEACH (surfzone)																														
3S	Orange Street	TC 700	300	170	40	20	40	20	40	40	<20	20	80	230	140	110	20	<20	<20	<20	20	20	40	20	110	>16000	9000	9000	9000	
		FC 40	40	<20	<20	20	20	20	40	40	<20	20	40	20	20	40	<20	<20	<20	<20	<20	20	40	20	40	20	70	1700	500	500
		ENT 26	48	74	8	26	6	6	<2	22	14	20	18	26	26	10	6	56	10	18	16	40	18	10	114	>400	>400	>400	>400	
6S	52nd/53rd Street	TC 800	170	70	140	110	<20	<20	<20	40	40	<20	20	20	5000	20	20	20	<20	80	<20	<20	40	<20	70	9000	3000	700	3000	
		FC 40	<20	40	<20	80	<20	<20	<20	40	40	<20	20	<20	80	20	20	<20	20	<20	<20	<20	40	<20	70	800	230	40	300	
		ENT 34	<2	38	6	28	6	6	4	18	14	22	12	4	10	36	4	26	6	4	4	14	18	12	106	>400	384	164	>400	
9S	38th Street	TC 2200	9000	230	300	40	230	20	20	40	<20	20	<20	80	500	20	70	70	40	40	<20	80	20	20	110	5000	5000	16000	500	
		FC 70	80	20	<20	<20	20	20	20	<20	<20	<20	<20	<20	20	20	<20	20	40	40	<20	80	20	20	110	500	300	130	40	
		ENT 54	102	24	12	18	22	8	2	24	6	8	<2	12	6	16	18	4	12	2	6	10	8	12	126	>400	318	364	>400	
12S	Newport Pier	TC 230	40	300	<20	<20	<20	130	<20	<20	<20	<20	<20	80	130	40	40	220	40	20	20	130	40	20	<20	2400	5000	3000	1100	
		FC 20	<20	80	<20	<20	<20	80	<20	<20	<20	<20	<20	20	20	20	20	220	40	20	20	130	40	20	<20	230	300	90	170	
		ENT 10	4	38	<2	14	8	22	26	16	<2	8	26	24	48	6	24	4	30	16	24	2	20	22	>400	346	64	278		
15S	15th/16th Street	TC 500	40	130	20	20	80	<20	<20	80	170	<20	<20	<20	1300	230	20	20	<20	<20	<20	<20	40	40	700	2400	5000	1700	170	
		FC 20	<20	20	20	<20	80	<20	<20	40	70	<20	<20	<20	80	230	<20	20	<20											

OCSD Bacteriological Ocean Monitoring Program
 Total Coliform (TC), Fecal Coliform (FC) Most Probable Number / 100 ml Sample
 Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description		RAIN
HUNTINGTON BEACH (surfzone)			
39N	Bolsa Chica Beach	TC	80
		FC	<20
		ENT	10
33N	Bolsa Chica Reserve	TC	20
		FC	<20
		ENT	12
27N	Bluffs	TC	20
		FC	<20
		ENT	4
21N	17th Street	TC	40
		FC	<20
		ENT	24
15N	Jacks Snack Bar	TC	20
		FC	<20
		ENT	16
12N	Beach Blvd.	TC	110
		FC	20
		ENT	8
9N	SCE Plant	TC	130
		FC	<20
		ENT	18
6N	Magnolia Street	TC	170
		FC	170
		ENT	>400
3N	Brookhurst	TC	20
		FC	<20
		ENT	36
0	Santa Ana River Mouth	TC	40
		FC	20
		ENT	50
NEWPORT BEACH (surfzone)			
3S	Orange Street	TC	80
		FC	80
		ENT	54
6S	52nd/53rd Street	TC	<20
		FC	<20
		ENT	42
9S	38th Street	TC	800
		FC	40
		ENT	90
12S	Newport Pier	TC	140
		FC	20
		ENT	66
15S	15th/16th Street	TC	120
		FC	<20
		ENT	42
21S	Balboa Pier	TC	230
		FC	20
		ENT	14
27S	The Wedge	TC	20
		FC	<20
		ENT	10
29S	Corona Del Mar Beach	TC	40
		FC	<20
		ENT	4
39S	Crystal Cove	TC	<20
		FC	<20
		ENT	2

ATTACHMENT C

Orange County Diversion Locations Map








Orange County Diversion Structure Locations














- | | |
|--------------------------------|-------------------------|
| ● Existing Diversion Structure | ▬ Watershed Boundary |
| ● Proposed Diversion Structure | ▬ Highways/State Routes |
| □ POTW | ▬ Channels/Water Bodies |
| | ▬ OCSD Trunksewers |
-
- | | |
|---|-------------------------------|
| South Orange County Wastewater Authority | Sewer Agencies |
| ■ City of Laguna Beach | ■ Orange County |
| ■ City of San Clemente | ■ Sanitation District |
| ■ City of San Juan Capistrano | ■ City of Seal Beach |
| ■ El Toro Water District | ■ Irvine Ranch Water District |
| ■ Emerald Bay Services District | |
| ■ Moulton Niguel Water District | |
| ■ Santa Margarita Water District | |
| ■ South Coast Water District | |
| ■ Trabuco Canyon Water District | |
- Note: OCSD and IRWD have overlapping jurisdictional areas

- | | | |
|-----------------------|--------------------------|--|
| Watershed Name | A Coyote Creek | H Los Trancos/Muddy Creek |
| | B Carbon Canyon | I Laguna Canyon |
| | C Westminster | J Aliso Creek |
| | D Talbert | K Salt Creek |
| | E Santa Ana River | L San Juan Creek |
| | F San Diego Creek | M Prima Deshecha/Segunda Deshecha |
| | G Newport Bay | |

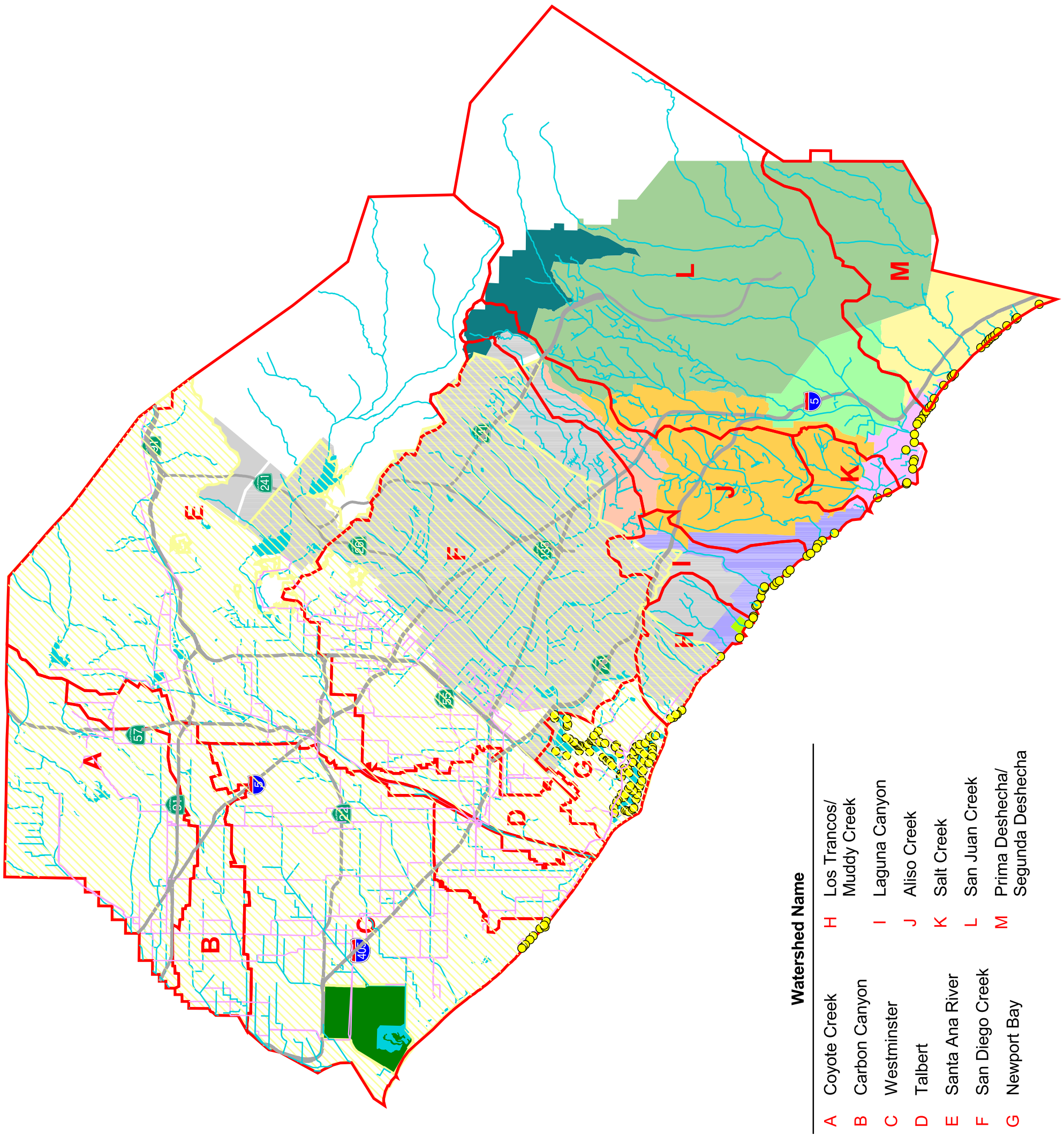
Existing Storm Drain Outfall Locations Locations in Orange County

-  Storm Drain Outfall Locations
-  Watershed Boundary
-  Highways/State Routes
-  Channels/Water Bodies
-  OCSD Trunksewers

Sewer Agencies

-  Orange County Sanitation District
-  City of Seal Beach
-  Irvine Ranch Water District
-  South Orange County Wastewater Authority
-  City of Laguna Beach
-  City of San Clemente
-  City of San Juan Capistrano
-  El Toro Water District
-  Emerald Bay Services District
-  Moulton Niguel Water District
-  Santa Margarita Water District
-  South Coast Water District
-  Trabuco Canyon Water District

Note: OCSD and IRWD have overlapping jurisdictional areas



Watershed Name	
A	Coyote Creek
B	Carbon Canyon
C	Westminster
D	Talbert
E	Santa Ana River
F	San Diego Creek
G	Newport Bay
H	Los Trancos/ Muddy Creek
I	Laguna Canyon
J	Aliso Creek
K	Salt Creek
L	San Juan Creek
M	Prima Deshecha/ Segunda Deshecha