Walsh, Laurie@Waterboards

From: Posthumus, Bruce@Waterboards
Sent: Wednesday, October 29, 2014 5:24 PM
To: WB-RB9-Senior Staff; Arias, Christina@Waterboards; Walsh, Laurie@Waterboards; Lim, Joann@Waterboards; Woodward, Deborah@Waterboards; Nagoda, Carey@Waterboards; Yu, Helen@Waterboards
Subject: FW: Notice of Availability of Draft Letter Directive to Establish Requirements for Implementation of a Unified Beach Water Quality Monitoring and Assessment Program in South Orange County
Attachments: monitoringsoOCbeachWQNotice3signed.pdf; monitoringSoOCBeachWQstaffreport10.7final.pdf; monitoringSoOCbeachWQdirectiveletter6.pdf

The Email below was sent to affected permittees and interested parties late this afternoon.

From: Posthumus, Bruce@Waterboards
Sent: Wednesday, October 29, 2014 5:08 PM
To: Posthumus, Bruce@Waterboards
Cc: Yu, Helen@Waterboards; Nagoda, Carey@Waterboards
Subject: Notice of Availability of Draft Letter Directive to Establish Requirements for Implementation of a Unified Beach Water Quality Monitoring and Assessment Program in South Orange County

Please find the subject notice attached.

Also attached are the:

- Report entitled "Workgroup Recommendation for a Unified Beach Water Quality Monitoring and Assessment Program in South Orange County"
  and
- Proposed Water Code section 13383 letter directive.

The notice, report, and proposed letter directive are also available online under "ANNOUNCEMENTS" at http://www.waterboards.ca.gov/sandiego/.

Please submit written comments on the proposed action to sandiego@waterboards.ca.gov.

If you have any questions regarding the proposed action, please contact Bruce Posthumus at 619-521-3379 or bposthumus@waterboards.ca.gov.

Thank you.

Workgroup Recommendation for a Unified Beach Water Quality Monitoring and Assessment Program in South Orange County

California Regional Water Quality Control Board, San Diego Region

Staff Report

Prepared by

Bruce Posthumus, Senior Water Resource Control Engineer

and

Carey Nagoda, Water Resource Control Engineer

and

Helen Yu, Water Resource Control Engineer

October 2014

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Executive Summary

In April 2012, the San Diego Water Board asked its staff to review beach water quality monitoring conducted in south Orange County, which is part of the San Diego Region. To assist in responding to that request, staff of the Board convened a workgroup that included representatives of the three public agencies (South Orange County Wastewater Authority, Orange County Public Works, and Orange County Health Care Agency) that currently conduct almost all of the routine, ongoing beach water quality monitoring in south Orange County. The workgroup also included other interested parties, including representatives of the Sierra Club and Surfrider Foundation.

Recommendation: Unified Beach Water Quality Monitoring and Assessment Program

The workgroup developed and recommends implementation of a unified regional beach water quality monitoring and assessment program in south Orange County. San Diego Water Board staff participated in the workgroup and concurs with the workgroup's recommendation. This unified program would meet or go beyond meeting the requirements for beach water quality monitoring and related public notification and reporting established by State law. The unified program is intended to be protective, reasonable, and equitable. It would supersede the existing routine, ongoing beach water quality monitoring programs conducted in south Orange County and would eliminate duplicative monitoring.

Features of the Recommended Unified Program

Noteworthy features of the unified program include the following:

- Monitoring and assessment would be question-driven and beneficial use-oriented.
    - The primary purpose of the unified program would be to answer the question "Does beach water quality meet standards for the beneficial use of water contact recreation?"
- Responsibility for implementation of the unified program would be shared and implementation arrangements would be flexible.
    - The responsible agencies would jointly make arrangements to implement the program and would have the flexibility to jointly make short and/or long term changes in those arrangements.
- Triggers for public notification would be in effect at all sampling stations year-round and would be the same for all stations.
- Triggers for additional sampling would be in effect at all sampling stations year-round and would be the same for all stations.
- Where beach water quality standards are not consistently met, investigations would be conducted to assess human health risks, identify sources of FIB, and/or evaluate other pertinent factors, as appropriate.
- The same reporting procedures would be used for all sampling stations.
- An annual review of the unified program and assessment of monitoring results would be conducted by a workgroup representing a variety of responsibilities for and interests in beach water quality monitoring.
- Timely beach water quality information would be easily accessible to the public.
- Annual reports would be submitted to the San Diego Water Board; at the request of the Board, presentations would be made at public Board meetings.

This report outlines the workgroup's efforts, the unified program developed and recommended by the workgroup, and the rationale for the elements and features of the unified program.

Acknowledgements

San Diego Water Board staff expresses its sincere appreciation to each of the participants in the workgroup that developed the unified beach water quality monitoring program outlined in this report. Table 1 lists the core workgroup participants and their affiliations. The participants provided much-needed knowledge, experience, insight, ideas, suggestions, information, perspective, and cooperation. The participants also devoted considerable time to workgroup meetings and to workgroup tasks in between meetings. These contributions represent a substantial commitment to ensuring that beach water quality monitoring in south Orange County is protective, reasonable, and equitable.

Workgroup participants Penny Elia, Monica Mazur, and Jack Skinner participated entirely on their own time, without compensation.

In 2009 and 2010, before the workgroup was convened, workgroup participants Mike Fennessy, Brennon Flahive, Larry Honeybourne, and Ted Von Bitner jointly developed a proposed monitoring program that was outlined in a report entitled “A Collaborative, Integrated, Regional Ocean Water Quality Monitoring Program for Orange County” (see Appendix 2 and Attachment 1). This report was an excellent starting point for the efforts of the workgroup; it was used by the workgroup and much of it was incorporated into the unified program developed by the workgroup and outlined in this report.

Introduction

Background

In southern California, including south Orange County, coastal beach waters are used year-round for swimming, surfing, and a variety of other water contact recreational activities. Beach water quality monitoring is an important part of protecting the health of those who use beach waters for water contact recreation. Several different public agencies conduct routine, ongoing beach water quality monitoring in south Orange County in accordance with several different sets of requirements. The monitoring programs implemented to meet those requirements overlap temporally and spatially. Currently, these monitoring programs are partially but not fully integrated. Appendix 3 provides a brief description of the south Orange County coastline. Appendix 4 provides a brief description of beach water quality monitoring that is currently conducted in south Orange County.

In 2009 and 2010, representatives of two county agencies and two special districts responsible for conducting beach water quality monitoring in Orange County jointly developed a proposed regional monitoring program, with the intent of improving coordination of beach water quality monitoring in Orange County (see Appendix 2 and Attachment 1).

In November 2010, the State Water Board adopted a resolution[1] directing regional water boards to work with dischargers to modify beach water quality monitoring programs required by regional board-issued permits so as to eliminate redundancies and incorporate beach water quality monitoring required by beach water quality statutes, where appropriate. Beach water quality statutes[2] also encourage integration of beach water quality monitoring programs.

San Diego Water Board Request

South Orange County is part of the San Diego Region, where the San Diego Water Board has jurisdiction. At its April 11, 2012 meeting, the San Diego Water Board considered adoption of orders to reissue permits for discharges of wastewater to the ocean through two ocean outfalls owned and operated by South Orange County Wastewater Authority (SOCWA). In written comments submitted during the public comment period before that meeting and during the public hearing at that meeting, SOCWA expressed concerns about beach water quality monitoring requirements in the tentative permits. The Board reissued the permits without making changes to the monitoring requirements in the tentative permits but also asked its staff to review beach water quality monitoring conducted in south Orange County.

San Diego Water Board staff convened a workgroup to assist in responding to that request. The workgroup met fifteen times, from July 2012 through September 2014. This report outlines the workgroup's efforts, the unified program developed and recommended by the workgroup, and the rationale for the elements and features of the unified program.

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[1] Resolution No. 2010-0053; see http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2010/rs2010_0053.pdf.

[2] See http://www.leginfo.ca.gov/pub/11-12/bill/sen/sb_0451-0500/sb_482_bill_20111008_chaptered.pdf

Workgroup Participants

The workgroup included representatives of the three public agencies (SOCWA, Orange County Public Works [OCPW], and Orange County Health Care Agency [OCHCA]) that currently conduct almost all of the routine, ongoing beach water quality monitoring in south Orange County. The workgroup also included other interested parties, including representatives of the Sierra Club and Surfrider Foundation. Table 1 lists the core workgroup participants and their affiliations.

Monitoring and Assessment Framework

The workgroup was convened during the period when San Diego Water Board staff was developing the report entitled "A Framework for Monitoring and Assessment in the San Diego Region"[3] (Framework). Development of the unified beach water quality monitoring and assessment program by the workgroup overlapped with development of the Framework by San Diego Water Board staff. The San Diego Water Board adopted a resolution[4] endorsing the Framework in December 2012.

Formation of the workgroup was in keeping with the Framework, which emphasizes the importance of stakeholder participation in development and implementation of monitoring and assessment programs. Because it was important for the workgroup to represent a variety of interests, perspectives, and experiences, and because it was also important for the workgroup to be small enough to conduct business efficiently, San Diego Water Board staff invited a select group of individuals with a variety of backgrounds and affiliations to participate in the workgroup.

The unified beach water quality monitoring and assessment program developed by the workgroup and outlined in this report is in keeping with and would help implement the Framework, which also emphasizes the need for question-driven, beneficial use-oriented monitoring and assessment with a focus on water body conditions rather than on discharges. The primary purpose of the unified program is to answer the question "Does beach water quality meet standards for the beneficial use of water contact recreation?" (see ***Purpose and Intent***, below), so the unified program is question-driven and beneficial use-oriented and it focuses on water body conditions.

[3] See http://www.waterboards.ca.gov/sandiego/water_issues/programs/swamp/docs/MonitoringFrameworkForSDR-final.pdf.

[4] Resolution No. R9-2012-0069, "A Resolution in Support of a Regional Monitoring Framework;" see *http://www.waterboards.ca.gov/sandiego/water_issues/programs/swamp/docs/Monitoring_Resolution_R9-2012-0069.pdf*.

TABLE 1
Core Workgroup Participants

	Participant	Affiliation
1	Larry Brennler	Orange County Health Care Agency
2	Kacen Clapper	Orange County Public Works
3	Penny Elia	Sierra Club
4	Mike Fennessy	Orange County Public Works*
5	Brennon Flahive	South Orange County Wastewater Authority
6	James Fortuna	Orange County Public Works
7	Michael Gjerde	State Water Resources Control Board
8	Larry Honeybourne	Orange County Health Care Agency
9	Monica Mazur	Orange County Health Care Agency (retired)
10	Carey Nagoda	San Diego Regional Water Quality Control Board
11	Bruce Posthumus	San Diego Regional Water Quality Control Board
12	Robert Rodarte	Orange County Public Works
13	Grant Sharp	Orange County Public Works
14	Jack Skinner	Stop Polluting Our Newport
15	Ted Von Bitner	Orange County Public Works**
16	Rick Wilson	Surfrider Foundation
17	Helen Yu	San Diego Regional Water Quality Control Board

*Current affiliation; participated on behalf of OCHCA through November 2013; participated on behalf of OCPW starting December 2013

**Affiliation at time of participation; affiliation has since changed

Scope of Workgroup Efforts

The workgroup's efforts focused on:

- *Monitoring*;
- Monitoring related to *water contact recreation*;
- *Beach* water quality monitoring;
- *Routine, ongoing* beach water quality monitoring; and
- The *"where and when"* of beach water quality monitoring.

The workgroup's efforts focused on *monitoring* related to water quality standards for water contact recreation, not on the actual standards. The workgroup did not attempt to review or make recommendations about the indicators on which such standards are based or the levels at which such standards are set.

The workgroup's efforts focused on water quality monitoring related to the beneficial use of *water contact recreation* (REC-1), not on monitoring related to other beneficial uses. Because water quality standards for the beneficial use of water contact recreation (REC-1 standards) are expressed in terms of fecal indicator bacteria (FIB) densities, monitoring related to REC-1 involves monitoring FIB densities. Although water quality standards related to the beneficial use of shellfish harvesting (SHELL) are also expressed in terms of FIB densities, the workgroup did not attempt to review or make recommendations about monitoring related to SHELL.

The workgroup's efforts focused on *beach* water quality monitoring, not on water quality monitoring in other areas. For purposes of the workgroup's efforts and this report, "beach water quality monitoring" refers to monitoring to determine if water quality meets REC-1 standards in (a) the surf zone along the open coast of south Orange County and (b) Dana Point Harbor. The workgroup focused on monitoring in these areas because casual observations suggest that the intensity of REC-1 activity in these areas is considerably greater than elsewhere in south Orange County coastal waters. The workgroup did not attempt to review or make recommendations about monitoring related to REC-1 in areas other than in the surf zone or Dana Point Harbor, except for sampling stations that are not located in those areas but that are currently monitored as part of existing routine, ongoing beach water quality monitoring programs.[5]

The workgroup's efforts focused on *routine, ongoing* beach water quality monitoring, not on investigations or other studies related to or triggered by such monitoring. As part of the unified program developed by the workgroup, investigations would be conducted where REC-1 standards are not consistently met, but the workgroup did not attempt to review or make recommendations about how human health risk assessments, source identification investigations, epidemiological studies, sanitary surveys, studies related to TMDLs, or other investigations or studies about or related to beach water quality should be conducted.

The workgroup's efforts focused primarily on the *"where and when"* of beach water quality monitoring, not on the "how." The workgroup did not attempt to review or make recommendations about sample collection, handling, or analysis protocols specified in State law.

[5] Some of the sampling stations referred to as "surf zone stations" in current NPDES permit monitoring requirements are not actually located in the surf zone.

Recommended Unified Beach Water Quality Monitoring and Assessment Program

This section outlines the unified regional beach water quality monitoring and assessment program developed and recommended by the workgroup and the rationale for the elements and features of the unified program. Table 2 provides a comparison of elements and features of the existing programs and the unified program. Appendix 5 lists and shows the location of each sampling station in the existing programs and the unified program.

Purpose and Intent

The primary purpose of the unified program is to answer the question "Does beach water quality meet standards for the beneficial use of water contact recreation?" By answering this question, the unified program is intended to be protective, in other words to help protect the health of those who use beach waters for water contact recreation – and to do so without unnecessarily discouraging such use. The unified program is also intended to be reasonable and equitable and to meet or go beyond meeting the requirements for beach water quality monitoring and related public notification and reporting established by State law.

Rationale

The workgroup agreed that it was important for the unified program to determine whether beach water quality meets REC-1 standards, not only to help protect the health of those who use beach waters for REC-1, but also to avoid unnecessarily discouraging such use by having public notifications remain in effect when beach water quality meets REC-1 standards. (This is addressed further in ***Public Notification*** and ***Additional Sampling***, below.)

The workgroup agreed that it was important for the unified program to be reasonable, as well as protective. The workgroup agreed that monitoring conducted as part of the unified program should be considered reasonable only if it produces meaningful information that is useful for protecting the health of those who use beach waters for REC-1 and/or for making decisions about whether public notifications should be issued and/or remain in effect. Accordingly, the workgroup agreed that it would not be reasonable for the unified program to include duplicative monitoring or other monitoring that does not produce such information. (This is addressed further in ***Sampling Locations***, below.)

The workgroup agreed that it was important for the unified program to be equitable, as well as reasonable and protective. The workgroup agreed that the agencies responsible for implementation of the unified program could and should determine how to equitably allocate implementation tasks and associated costs. (This is addressed further in ***Responsibility and Arrangements for Implementation***, below.)

The workgroup agreed that it was important for the unified program to meet existing requirements for beach water quality monitoring and related public notification and reporting established by State law. Because the workgroup recognized that such requirements have changed in the past and could change in the future, the workgroup agreed that it would be helpful if the language and mechanisms for requiring implementation of the unified program would facilitate expeditious implementation of future revisions to the unified program. (This is addressed further in **Language and Mechanisms for Requiring Implementation of the Unified Program**, below).

TABLE 2
Comparison: Existing Programs and the Unified Program

	Monitoring Program Element or Feature		Existing Programs	Proposed Unified Program	Reason for Change
1	**Purpose & intent**	primary purpose	not explicitly stated	answer the question: "does beach water quality meet standards for REC-1?"	monitoring & assessment should be question-driven & should focus on conditions in water bodies as they relate to beneficial uses
		intent	help protect the health of those who use beach waters for REC-1; meet requirements of State law	help protect the health of those who use beach waters for REC-1; be reasonable & equitable; meet requirements of State law	monitoring & assessment should be protective, reasonable & equitable
2	**Responsibility & arrangements for implementation**		SOCWA, OCPW & OCHCA are separately responsible for implementing different monitoring programs that are partially integrated; implementation flexibility is limited	SOCWA, OCPW & OCHCA share responsibility for implementation of one fully integrated program & have the flexibility to make changes in arrangements for implementation	improve protection of the health of those who use beach waters for REC-1; improve efficiency & ability to deal with out-of-the-ordinary situations; be equitable
3	**Indicators**		enterococcus, fecal coliform & total coliform	enterococcus, fecal coliform & total coliform	(no change)
4	**Sample collection, handling, & analysis**		as specified by State law	as specified by State law	(no change)
5	**Sampling station locations**	total number of sampling stations	81	67	(see next two rows)
		number of sampling stations in creeks & cross-beach flows from creeks, canyons, or storm drains to the ocean	2	0	to protect the health of those who use beach waters for REC-1, samples should be collected where intensity of REC-1 use is highest, i.e., in the surf zone and in Dana Point Harbor
		number of pairs of nearby sampling stations with similar monitoring results	12	0	sampling at stations that are close together & have similar monitoring results is duplicative; monitoring would continue at one station in each pair
6	**Sampling station types (sample collection)**	fixed stations	one sample	one sample	(no change)
		outlet stations: when there is surface flow to the ocean	one sample in the flow to the ocean; one sample in the surf zone 75 feet up-coast from point zero & one sample in the surf zone 75 feet down-coast from point zero	one sample in the surf zone at point zero; one sample in the surf zone 75 feet up-coast from point zero & one sample in the surf zone 75 feet down-coast from point zero	improve protection of the health of those who use beach waters for REC-1, conform to the Ocean Plan & meet conditions attached to State funding OCHCA receives to meet requirements of beach water quality statutes
		outlet stations: when there is no surface flow to the ocean	one sample in the surf zone 75 feet down-coast from virtual point zero	one sample in the surf zone at virtual point zero	improve protection of the health of those who use beach waters for REC-1
7	**Sampling seasons**		62 stations: year-round; 19 stations: April-October	all 67 stations: year-round	REC-1 activities occur year-round
8	**Sampling frequency**		16 stations: 2/week year-round; 17 stations: 2/week May-October & 1/week November-April; 29 stations: 1/week year-round; 19 stations: 1/week April-October	all 67 stations: 1/week year-round	if REC-1 standards are met, 1/week sampling frequency is adequate
9	**Public notification**		triggers apply to some (49) stations; April-October only	triggers apply to all 67 stations year-round	the same triggers should apply to all stations and should apply year-round
10	**Additional sampling**		triggers apply to some (33) stations	triggers apply to all 67 stations	the same triggers should apply to all stations
11	**Investigations**		not included	investigations to be conducted where REC-1 standards are not consistently met	assessment of human health risks and identification of sources of elevated FIB levels is needed to guide decision-making and management actions
12	**Annual review & assessment**		no	yes	monitoring programs & results should be reviewed regularly
13	**Reporting**		separate reporting	unified reporting	improve dissemination of information; improve accountability & transparency
14	**Public access to information**		different information available at different websites	all information easily available at or through the websites of SOCWA, OCPW, OCHCA, & SD Water Board	improve public access to information

Responsibility and Arrangements for Implementation

SOCWA, OCPW, and OCHCA would share responsibility for implementing the unified program. These agencies would jointly make arrangements for implementing the unified program and would have the flexibility to jointly make short and/or long term changes in those arrangements (to change the agency that collects and/or analyzes samples from any particular sampling station, for example).

Rationale

The workgroup agreed that SOCWA, OCPW, and OCHCA, the public agencies that currently conduct almost all of the routine, ongoing beach water quality monitoring in south Orange County, should be responsible for implementation of the unified program. The workgroup agreed that, because the responsibilities and interests of these agencies may overlap in some respects and differ in others, the best way to ensure an equitable allocation of the tasks and associated costs of the unified program would be to allow these agencies to jointly make arrangements for implementing the unified program and to have the flexibility to jointly change those arrangements. The workgroup agreed that this approach could also result in efficiencies and make it easier to deal with out-of-the-ordinary situations.

The workgroup agreed that other entities, such as those that operate wastewater collection systems, should participate in investigations, as appropriate, but not in the routine, ongoing monitoring conducted as part of the unified program (see ***Investigations***, below).

Indicators

All samples collected in the routine, ongoing monitoring conducted as part of the unified program, including repeat samples and samples collected at a frequency of more than once per week (see ***Additional Sampling***, below), would be analyzed for all three types of FIB for which REC-1 standards or REC-1 monitoring requirements are established by State law.

Rationale

The workgroup agreed that monitoring for all three types of FIB (enterococcus, fecal coliform, and total coliform) for which State law establishes REC-1 standards or monitoring requirements should continue at all stations.

The workgroup recognized that "Recreational Water Criteria,"[6] released by USEPA in November 2012, recommends that REC-1 standards be based only on enterococcus (not fecal coliform or total coliform). Although the workgroup agreed with that recommendation, it also agreed that monitoring enterococcus, fecal coliform, and total coliform in coastal beach waters should continue as long as State law includes REC-1 standards or monitoring requirements for these types of FIB in such waters.

[6] See http://water.epa.gov/scitech/swguidance/standards/criteria/health/recreation/index.cfm.

Sample Collection, Handling, and Analysis
The protocols specified in State law for FIB sample collection, handling, and analysis for coastal beach waters used for REC-1 would be used for all sampling stations in the unified program.

Rationale
The workgroup agreed that approved standard methods for FIB sample collection, handling, and analysis should be used for all stations in the unified program. The workgroup agreed that it would be appropriate and reasonable to use the protocols specified in State law. Although the workgroup agreed that analytical methods that enable FIB results to be produced rapidly would be very useful for purposes of protecting the health of those who use beach waters for REC-1 and avoiding unnecessarily prolonged public notifications, it recognized that such "rapid methods" have not yet been approved for purposes of meeting requirements of State law.

Sampling Station Locations
The unified program includes sixty-seven sampling stations, all of which are stations in the existing programs. Two stations in the existing programs would not be included in the unified program. Twelve stations in the existing programs would be combined with twelve other nearby stations in the existing programs. Appendix 5 lists and shows the location of each station in the existing programs and the unified program.

All of the sampling stations in the unified program are located along the open coast or in Dana Point Harbor. At stations located along the open coast, samples would be collected in ankle depth water in the surf zone. At stations located at Baby Beach in Dana Point Harbor, samples would be collected in ankle depth water. At stations located on a pier or dock in Dana Point Harbor, samples would be collected at the water surface.

Rationale
The workgroup agreed that routine, ongoing monitoring conducted as part of the unified program should focus on waters in the surf zone along the open coast and in Dana Point Harbor, which are the areas where the intensity of REC-1 activity is highest. The workgroup agreed that monitoring in these areas produces meaningful information that is useful for protecting the health of those who use beach waters for REC-1. Although the workgroup recognized that sampling creeks, ponded water at beaches, and/or or cross-beach flows from creeks, canyons, or storm drains to the surf zone might be useful as part of source identification investigations or other special studies, it agreed that the intensity of REC-1 activity in such areas is low and agreed that such waters should not be included in routine, ongoing monitoring conducted as part of the unified program. The two stations in the existing programs that would not be included in the unified program are both located in such areas.

The workgroup agreed that collecting samples from stations that are in close proximity and that have consistently similar FIB levels is duplicative and does not produce meaningful information that is useful for protecting the health of those who use beach waters for REC-1. The workgroup agreed that FIB levels at twelve pairs of existing stations that are close together (not more than 600 feet apart) have been consistently similar (see Appendix 2 and Attachment 1). The workgroup agreed that such paired stations should be combined and that sampling should continue at only one station in each pair. Where a pair of stations that would be combined includes a "fixed" station and an "outlet" station (see ***Types of Sampling Stations***, below), the workgroup agreed that sampling should continue at the outlet station.

The workgroup agreed that the current practice of collecting samples in ankle depth water in the surf zone at open coast stations is appropriate and in conformance with the Ocean Plan and should continue. The workgroup also agreed that the current practice of collecting samples in ankle depth water at the Baby Beach stations and from the water surface at the pier and dock stations in Dana Point Harbor is appropriate and should continue.

Sampling Station Types

The unified program includes two types of sampling stations: fixed stations and outlet stations.

Fixed stations are located at positions along the shoreline (up-coast / down-coast) that do not change. Each time a fixed station is sampled, one sample would be collected in the surf zone.

Outlet stations are located where flows from creeks, canyons, or storm drains enter the ocean. Because the positions along the shoreline where such flows enter the ocean sometimes move up-coast or down-coast as a result of beach sand movement, the position along the shoreline where samples would be collected at each outlet station would move accordingly. The number of samples collected at an outlet station would depend on whether there is surface flow from a creek, canyon, or storm drain entering the ocean at that station. Each time an outlet station is sampled when there is such a flow at that station, three samples would be collected in the surf zone, one at each of the following:

- "Point zero," which is the position along the shoreline where the surface flow enters the ocean;
- Seventy-five feet up-coast from point zero; and
- Seventy-five feet down-coast from point zero.

Each time an outlet station is sampled when there is no such flow at that station, one sample would be collected in the surf zone; that sample would be collected at:

- "Virtual point zero," which is the position along the shoreline where it appears that surface flow would enter the ocean if there were a surface flow (immediately adjacent to the low point in the sand berm separating ponded water from the ocean, for example).

Appendix 5 indicates the type of each station in the existing programs and the unified program.

<u>Rationale</u>

The workgroup agreed that when there is surface flow from a creek, canyon, or storm drain to the ocean at an outlet station, samples should be collected at point zero in the surf zone rather than in the surface flow, as is the current practice at most outlet stations. The workgroup agreed that doing so would conform to the Ocean Plan, meet conditions attached to State funding OCHCA receives to meet requirements of beach water quality statutes, and produce information that is more useful for protecting the health of those who use beach waters for REC-1 than that produced by collecting samples in the surface flow. The workgroup agreed that when there is surface flow to the ocean at an outlet station, the current practice of also collecting samples in the surf zone seventy-five feet up-coast and down-coast from point zero is useful in determining the length of shoreline where REC-1 standards are not met and should be continued.

The workgroup agreed that when there is no surface flow to the surf zone at an outlet station, samples should be collected at virtual point zero in the surf zone, rather than seventy-five feet down-coast from virtual point zero in the surf zone, as is the current practice at outlet stations. The workgroup agreed that this would provide for better protection of the health of those who use beach waters for REC-1 than the current practice.

Sampling Seasons
All sampling stations in the unified program would be sampled year-round. Appendix 5 indicates the sampling season at each station in the existing programs and the unified program.

Rationale
Although beach water quality statutes require beach water quality monitoring only in the months of April through October, beach waters in south Orange County are used for REC-1 activities year-round. Consequently, the workgroup agreed that all sampling stations should be sampled year-round, in keeping with the intent that the unified program help to protect the health of those who use beach waters for REC-1. The workgroup agreed that the additional cost of sampling all stations year-round would be modest, because a large majority of the stations that would be included in the unified program are currently sampled year-round.

Sampling Frequency
All sampling stations in the unified program would be sampled at a minimum frequency of once per week unless sampling would be hazardous. Appendix 5 indicates the minimum sampling frequency at each station in the existing programs and the unified program.

Rationale
The workgroup agreed that sampling should be done at a minimum frequency of once per week at all sampling stations, as specified in the Ocean Plan. Beach water quality statutes also require weekly sampling, but only for the April through October period. In the existing programs, the required minimum sampling frequencies are different at different stations and/or at different times of the year (see Appendix 4 and Appendix 5). The workgroup agreed that sampling at a minimum frequency of once per week at all stations, combined with additional sampling when a REC-1 standard is not met, would provide for reasonable protection of the health of those who use beach waters for REC-1 (see ***Additional Sampling***, below).

Public Notification
The criteria and procedures for monitoring-based public notification established by beach water quality statutes would be used for all sampling stations in the unified program and would be used year-round. Such public notification would be based on the results of the monitoring conducted as part of the unified program. Public notification based on circumstances other than monitoring results (such as sanitary sewer overflows and wet weather) would be provided in accordance with beach water quality statutes, but such public notification would not be considered part of the unified program. Table 3 lists triggers for monitoring-based public notification.

Rationale
In keeping with the intent that the unified program help to protect the health of those who use beach waters for REC-1, the workgroup agreed that, regardless of sampling station location or time of year, the same public notification should be provided for any given set of monitoring results. The workgroup agreed that using the criteria and procedures for monitoring-based public notification established by beach water quality statutes for all stations in the unified program (rather than only those stations currently used to meet requirements of beach water quality statutes) and doing so year-round (rather than only in the months of April through October, as required by beach water quality statutes) would better protect the health of those who use beach waters for REC-1 than current public notification practices. The workgroup agreed that providing public notification as outlined above could be done at modest additional cost.

TABLE 3
Triggers for Monitoring-Based Public Notification and Additional Sampling

Triggers for	Trigger	Action
Public Notification	single sample maximum (SSM) standard not met	public notification in accordance with beach water quality statutes (year-round); such public notification to remain in effect until SSM and 30-day geometric mean standards are met
Additional Sampling	SSM standard not met in dry weather*	repeat sampling in accordance with the Ocean Plan until SSM standard is met
	30-day geometric mean standard not met in dry weather*	additional sampling as deemed appropriate by OCHCA until 30-day geometric mean standard is met

*Each storm event starting when 0.2" of precipitation has fallen and continuing until 72 hours after precipitation ends is considered "wet weather;" all other periods are considered "dry weather."

Additional Sampling

When a REC-1 standard is not met at a sampling station in the unified program during dry weather, additional sampling would be done at that station unless sampling would be hazardous. When a single sample maximum (SSM) standard is not met, repeat sampling, as specified in the Ocean Plan, would be done until that standard is met. When a 30-day geometric mean standard is not met, additional sampling, as deemed appropriate by OCHCA, would be done until that standard is met. Additional sampling triggered by circumstances other than monitoring results (such as sanitary sewer overflows) would be done in accordance with beach water quality statutes, but such additional sampling would not be considered part of the unified program. Table 3 lists triggers for monitoring-based additional sampling.

Samples collected as part of additional sampling triggered when a station does not meet a REC-1 standard would be analyzed for all three types of FIB, regardless of which type(s) of FIB did not meet the REC-1 standard(s). Additional sampling triggered when a station does not meet a REC-1 standard would be part of the unified program and the results from all samples collected during any 30-day period would be used to calculate 30-day geometric mean values.

Rationale

The workgroup agreed that when a REC-1 standard established by State law is not met at a sampling station in the unified program during dry weather, additional sampling should be done in order to determine if levels of FIB continue to be elevated and if public notification should remain in effect.

The workgroup agreed that when a REC-1 standard expressed as an SSM is not met during dry weather, repeat sampling would be done, as specified in the Ocean Plan. The workgroup noted that the Ocean Plan specifies that results from such repeat sampling are to be used to calculate 30-day geometric mean values.

The workgroup recognized that the Ocean Plan does not require repeat sampling if a sanitary survey has been conducted to determine the source of elevated FIB levels. The workgroup agreed, however, that additional sampling may be appropriate even if such a sanitary survey has been conducted, in order to determine if public notification should remain in effect. The workgroup agreed that OCHCA should determine if and when additional sampling is appropriate under such circumstances because OCHCA is the local agency with primary responsibility for protecting public health in Orange County.

The workgroup recognized that State law does not require additional sampling when a REC-1 standard expressed as a 30-day geometric mean is not met during dry weather. Nevertheless, the workgroup agreed that additional sampling may be appropriate under such circumstances in order to better characterize variability in beach water quality and to ensure that public notifications do not remain in effect longer than necessary. The workgroup agreed that OCHCA should determine if and when additional sampling is appropriate under such circumstances because OCHCA is the local agency with primary responsibility for protecting public health in Orange County.

The workgroup agreed that, because there are REC-1 standards for three types of FIB, all samples collected as part of additional sampling triggered when a REC-1 standard is not met should be analyzed for all three types of FIB, regardless of which type(s) of FIB did not meet the REC-1 standard(s).

Investigations

Where REC-1 standards are not consistently met, investigations would be conducted to produce information needed to guide decision-making and management actions. Accordingly, these investigations would assess human health risks, identify sources of elevated FIB levels, and/or evaluate other pertinent factors, as appropriate. Such investigations would be conducted systematically, using a hypothesis-driven approach.

The results of routine, ongoing beach water quality monitoring conducted as part of the unified program would be analyzed to determine where REC-1 standards are not consistently met. The protocols and criteria used to determine whether waters should be listed as "impaired" with regard to REC-1 standards for purposes of CWA §303(d), as well as other pertinent factors, would be considered in determining where REC-1 standards are not consistently met. Investigations would be undertaken proactively, without waiting until the San Diego Water Board issues a directive requiring an investigation to be done. Investigations would be conducted in a timely manner but would also be prioritized so that agency staff and other resources can be used strategically. The highest priority would be given to areas where potential human health risks appear to be greatest, considering the intensity of REC-1 activity, levels of FIB, the frequency and timing of when REC-1 standards have not been met, the length of time over which REC-1 standards have not been consistently met, and other factors as appropriate.

Where such an investigation has already been satisfactorily completed, it would not be necessary to repeat the investigation. Where such an investigation is underway and is making satisfactory progress, it would not be necessary to re-start the investigation.

Such an investigation could be suspended if continued monitoring indicates that REC-1 standards are consistently met or if, in the judgment of SOCWA, OCPW, OCHCA, and the San Diego Water Board, (a) continuation of the investigation is not warranted or (b) resources should be reallocated to conducting an investigation in an area where potential human health risks appear to be greater.

Monitoring conducted as part of investigations, including studies related to TMDLs, would not be considered part of the routine, ongoing monitoring conducted as part of the unified program.

<u>Rationale</u>

The workgroup agreed that it is important to know where REC-1 standards are not consistently met. The workgroup also agreed that, where REC-1 standards are not consistently met, investigations should be conducted in order to produce information needed to guide decision-making and management actions. Because it recognized that the details of various situations in which REC-1 standards are not consistently met could be quite different, the workgroup agreed that the scope and specifics of investigations should be determined on a case-by-case basis. Nevertheless, the workgroup also agreed that, in general, investigations should focus on assessment of human health risks and identification of sources of elevated FIB levels, because such information is often essential to guide decision-making and management actions.

The workgroup agreed that such investigations and management actions should, over time, obviate CWA §303(d) "impaired waters" listings for south Orange County beach waters related to REC-1 standards, as well as subsequent development of TMDLs associated with those listings. Accordingly, the workgroup agreed that, in determining where REC-1 standards are not consistently met, it would be important to consider the protocols and criteria used for making CWA §303(d) listings related to REC-1 standards.

The workgroup agreed that initiation of investigations should not be postponed until the San Diego Water Board issues a directive requiring an investigation. Although the workgroup recognized the desirability of conducting investigations in a timely manner, it also recognized the importance of making strategic use of agency staff and other resources. Accordingly, the workgroup agreed that investigations should be prioritized and that potential human health risks would be the most appropriate basis for prioritizing.

The workgroup recognized that some investigations have already been completed or started and agreed that it would not be appropriate to repeat investigations that have been satisfactorily completed or re-start investigations that are making satisfactory progress.

The workgroup also agreed that it might be appropriate to suspend an investigation under some circumstances and agreed that provision should be made for doing so.

The workgroup agreed that, although routine, ongoing monitoring conducted as part of the unified program should be used to determine the need for investigations, monitoring conducted as part of such investigations, including studies related to TMDLs, should not be considered part of the routine, ongoing monitoring conducted as part of the unified program.

The workgroup noted that useful guidance for conducting source identification investigations is provided by the "California Microbial Source Identification Manual: A Tiered Approach to Identifying Fecal Pollution Sources to Beaches,"[7] which was developed by the Southern California Coastal Water Research Project (SCCWRP) with funding from the State Water Resources Control Board Clean Beach Initiative Grant Program and completed in December 2013.

Annual Review and Assessment

As part of the unified program, an annual review and assessment would be done to:

- Review monitoring results;
- Assess beach water quality status and trends;
- Evaluate the progress of investigations;
- Evaluate the effectiveness of management actions taken to address beach water quality problems, issues, and concerns;
- Discuss issues related to the unified program;
- Develop recommendations for revisions to the unified program; and
- Discuss other pertinent matters, as appropriate.

The annual review and assessment would be done by a workgroup that would include individuals representing a variety of responsibilities for and interests in beach water quality monitoring in south Orange County, including representatives of SOCWA, OCPW, and OCHCA, the San Diego Water Board, and other entities and individuals; in other words, its composition would be similar to that of the workgroup that developed the unified program outlined in this report.

[7] See http://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/804_SIPP_MST_ManualPag.pdf.

Rationale

The workgroup agreed that an annual review and assessment would help ensure that:

- Entities and individuals with responsibilities for and interests in beach water quality are familiar with monitoring results;
- Monitoring results are put to use;
- Beach water quality concerns are addressed in an appropriate and timely manner;
- The effectiveness of management actions is evaluated;
- The unified program is updated and revised appropriately and in a timely manner in response to monitoring results, changes in circumstances, and/or changes in requirements (of State law, for example).

The workgroup agreed that the annual review and assessment would best be done by a workgroup with a variety of experiences, backgrounds, and affiliations related to beach water quality in south Orange County.

Reporting

The unified program would include reporting of public notifications of beach water quality health threats, as required by beach water quality statutes. As part of the unified program, annual reports would be submitted to the San Diego Water Board. These annual reports would summarize the results of monitoring conducted as part of the unified program for each 12-month period of April through March and would include:

- A summary of public notifications of beach water quality health threats;
- Assessment of beach water quality status and trends in south Orange County;
- Description of the progress and results of investigations;
- Description of management actions taken to address beach water quality problems, issues, and concerns and an assessment of the effectiveness of those actions;
- Recommendations for updates and revisions to the unified program.

SOCWA, OCPW, and OCHCA would make presentations on the results of the unified program at public meetings of the San Diego Water Board when requested to do so by the Board.

Rationale

The workgroup agreed that annual reports to the San Diego Water Board would be useful for purposes of compiling and disseminating information that could help inform decision-making and guide management actions. The workgroup also agreed that such annual reports would be important for purposes of accountability and transparency, particularly because the unified program is intended to help protect the health of those who use *public* beach waters for REC-1, because three *public* agencies (SOCWA, OCPW, and OCHCA) would be responsible for implementing the unified program, because another *public* agency (San Diego Water Board) would be requiring implementation of the unified program, and because yet another *public* agency (State Water Board) would be providing funding to OCHCA for part of the unified program.

The workgroup agreed that, like the annual reports, presentations to the San Diego Water Board at public meetings would help disseminate information and provide accountability and transparency.

Public Access to Information

All public notifications, monitoring results, reports, and presentations produced by or about the unified program, including archives of such information and materials, would be readily accessible to the public in a timely manner and in a user-friendly format at or through the websites of SOCWA, OCPW, OCHCA, and the San Diego Water Board. Public notifications would also be available via social media.

Rationale

The workgroup agreed that it is important for the public to be able to easily access useful, understandable, and timely information and materials produced by and about the unified program.

Language and Mechanisms for Requiring Implementation of the Unified Program

In addition to considering what elements and features should be part of the unified program, the workgroup considered what language and mechanisms should be used to formally establish requirements for implementation of the unified program. The workgroup recognized that the agencies conducting ongoing, routine beach water quality monitoring in south Orange County do so in accordance with different sets of and different kinds of requirements (see Appendix 4). SOCWA and OCPW conduct their monitoring programs in accordance with requirements established by NPDES permits issued by the San Diego Water Board. In contrast, OCHCA conducts its beach water quality monitoring program in accordance with requirements of beach water quality statutes – and those requirements are in effect only if the State provides sufficient funding for such monitoring.

Although the workgroup recognized that in years past there were concerns about whether the State would provide sufficient funding for such monitoring, it also noted that the way the State provides that funding has since changed. The workgroup agreed that it now appears unlikely that the State would not provide sufficient funding. Accordingly, the workgroup agreed that it was not necessary (a) to determine in advance what changes should be made to the unified program if the State does not provide sufficient funding or (b) for language requiring implementation of the unified program to address the possibility that the State would not provide sufficient funding.

The workgroup recognized that OCHCA has strongly supported collaborative, integrated, regional beach water quality monitoring in Orange County, has actively participated in and supported development of the unified program, and has indicated its willingness to share responsibility for implementation of the unified program. The workgroup also recognized that the requirements for OCHCA to conduct beach water quality monitoring come from beach water quality statutes, not NPDES permits or the Ocean Plan. Accordingly, the workgroup agreed that it would not be necessary or appropriate for the San Diego Water Board to formally direct OCHCA to participate in the unified program.

The workgroup agreed that requirements for participation in the unified program would need to be added to three NPDES permits issued by the San Diego Water Board: the two permits for discharges from the SOCWA ocean outfalls and the permit for discharges from south Orange County MS4s. Because of how monitoring requirements are set forth in the SOCWA permits, those permits would also need to be modified to delete the existing requirements for monitoring "surf zone" stations. Because of how monitoring requirements are set forth in the existing permit for discharges from south Orange County MS4s, and because that permit is scheduled to be replaced early in 2015, that permit would not need to be modified to delete any existing requirements.

The workgroup recognized that future revisions to the unified program may be appropriate, for example if changes are made to the requirements of State law for beach water quality monitoring or related public notification or reporting. Since different permits would include requirements for implementation of the unified program, the workgroup agreed that it would be important for the effective date of any revision to the unified program to be the same for all of the permits that include such requirements. The workgroup also agreed that it would be helpful for the permit language to facilitate putting such revisions into effect expeditiously, for example by allowing the San Diego Water Board Executive Officer to direct that such revisions be made, without need for formal action by the Board itself. This could be done with a directive issued by the Executive Officer pursuant to California Water Code sections 13225, 13267, and/or 13383.

In keeping with the above, the workgroup agreed that, to require participation in the unified program, (a) the following language should be added to the NPDES permits for the SOCWA ocean outfall discharges and (b) corresponding language should be added to the NPDES permit for south Orange County MS4 discharges.

> Unified Beach Water Quality Monitoring and Assessment Program
> South Orange County Wastewater Authority shall participate in and, together with the south Orange County MS4 permittees and Orange County Health Care Agency, shall share responsibility for implementation of a unified regional beach water quality monitoring and assessment program in south Orange County, as directed by the San Diego Water Board Executive Officer pursuant to California Water Code section 13225, 13267, and/or 13383. The unified program shall be implemented no later than April 1, 2015.
>
> Future revisions to the unified program may be made by the San Diego Water Board Executive Officer, provided that the unified program, as revised, remains consistent with and meets the requirements of State law, including the California Ocean Plan, for beach water quality monitoring and related public notification and reporting. Following a thirty day public comment period, and subject to a request for a hearing before the San Diego Water Board, any such revision shall take effect as specified in a written directive issued by the Executive Officer pursuant to California Water Code section 13225, 13267, and/or 13383.

Appendices

Appendix 1
Glossary

ACOO: Aliso Creek Ocean Outfall, which is owned and operated by South Orange County Wastewater Authority (SOCWA)

average monthly flow: average flowrate over any consecutive 30-day period

beach water quality: characteristics of waters at coastal beaches as they relate to the suitability of those waters for water contact recreation; beach water quality is typically expressed in terms of densities of three types of fecal indicator bacteria (FIB): fecal coliform, total coliform, and enterococcus

beach water quality statutes: California statutes (other than the Porter-Cologne Act) and associated regulations that establish or provide for establishment of REC-1 standards for coastal beach waters and/or related requirements for monitoring, public notification, reporting, and/or investigations; individual beach water quality statutes are commonly referred to by the legislative bills that were enacted to establish or provide for the establishment of such standards and requirements, AB 411, AB 538, AB 1946, and SB 482, for example; see
AB 411: http://www.waterboards.ca.gov/water_issues/programs/beaches/beach_surveys/bills/ab_411_bill_19971008_chaptered.pdf
AB 538: http://www.waterboards.ca.gov/water_issues/programs/beaches/beach_surveys/bills/ab_538_bill_19990927_chaptered.pdf
AB 1946: http://www.leginfo.ca.gov/pub/99-00/bill/asm/ab_1901-1950/ab_1946_bill_20000721_chaptered.pdf
SB 482: http://www.leginfo.ca.gov/pub/11-12/bill/sen/sb_0451-0500/sb_482_bill_20111008_chaptered.pdf

beneficial use: a desirable and reasonable use of State waters that the State deems worthy of protection; beneficial uses of coastal waters in the San Diego Region include water contact recreation (REC-1), non-contact recreation (REC-2), shellfish harvesting (SHELL), commercial and sport fishing (COMM), marine habitat (MAR), and wildlife habitat (WILD), among others

BWQW: Beach Water Quality Workgroup, a group convened by the State Water Board circa 1999 to provide a forum for the exchange of information about beach water quality issues; BWQW consists of individuals and representatives of a variety of entities with interests in beach water quality; BWQW usually meets quarterly

CWA: Clean Water Act (also known as Federal Water Pollution Control Act), the primary federal statute for water quality control; see http://www.waterboards.ca.gov/laws_regulations/docs/fedwaterpollutioncontrolact.pdf

CWA: Clean Water Act (also known as Federal Water Pollution Control Act), the primary federal statute for water quality control; see http://www.waterboards.ca.gov/laws_regulations/docs/fedwaterpollutioncontrolact.pdf

dry weather: each storm event, starting when 0.2” of precipitation has fallen and continuing until 72 hours after precipitation ends, is considered “wet weather;” all other periods are considered “dry weather”

enterococcus: a type of fecal indicator bacteria (FIB)

fecal coliform: a type of fecal indicator bacteria (FIB)

FIB: fecal indicator bacteria; types of bacteria used to determine the suitability of water quality for water contact recreation (REC-1) in California; total coliform, fecal coliform, and enterococcus are different types of fecal indicator bacteria; the presence of FIB indicate the possible presence of fecal contamination and associated human pathogens, but FIB are not necessarily pathogenic, and sources of FIB are not necessarily human and not necessarily fecal

fixed station: sampling station located at a position along the shoreline (up-coast / down-coast) that does not change

Monitoring and Assessment Framework: A Framework for Monitoring and Assessment in the San Diego Region; San Diego Water Board staff report outlining a recommended approach for monitoring and assessment; the framework was endorsed by the San Diego Water Board in its Resolution No. R9-2012-0069; see http://www.waterboards.ca.gov/sandiego/water_issues/programs/swamp/docs/MonitoringFrameworkForSDR-final.pdf and http://www.waterboards.ca.gov/sandiego/water_issues/programs/swamp/docs/Monitoring_Resolution_R9-2012-0069.pdf

MS4: municipal separate storm sewer system, also referred to as municipal storm drain system

NPDES: National Pollutant Discharge Elimination System, a regulatory program created by the federal Clean Water Act to protect the quality and beneficial uses of waters of the United States; NPDES permits establish limits and other requirements that apply to discharges to those waters; NPDES permits for discharges to waters of the State of California also serve as waste discharge requirements for purposes of the State Porter-Cologne Water Quality Control Act; NPDES permits typically include requirements for monitoring, including monitoring of conditions, such as beach water quality, in the water bodies where discharges occur

Ocean Plan (also known as California Ocean Plan): Water Quality Control Plan, Ocean Waters of California; formulation, adoption, and periodic review of the Ocean Plan is required by the Porter-Cologne Act; the Ocean Plan was adopted by the State Water Board in 1972 and has been amended by the State Water Board several times since then, most recently in 2012; the Ocean Plan is legally applicable to ocean waters of California, but not to other types of coastal waters, such as enclosed bays, harbors, (including Dana Point Harbor) and estuaries; the Ocean Plan identifies water contact recreation (REC-1) as a beneficial use of ocean waters of the State and includes REC-1 standards; the Ocean Plan also includes monitoring provisions related to REC-1 and provides for monitoring requirements related to REC-1 to be met through participation in a regional monitoring program, such as the unified program outlined in this report; the Ocean Plan does not specify criteria for determining how many locations should be monitored with regard to REC-1; the requirements of the Ocean Plan, including its monitoring provisions, are implemented largely through provisions, limits, and requirements in NPDES permits issued for discharges to the ocean; when NPDES permits for ocean discharges are reissued, usually about every five years, those permits are supposed to be revised to be consistent with the most recent version of the Ocean Plan; see http://www.waterboards.ca.gov/water_issues/programs/ocean/docs/cop2012.pdf

OCHCA: Orange County Health Care Agency, an agency of the County of Orange; the OCHCA Ocean Water Protection Program webpage is at http://ocbeachinfo.com/

OCPW: Orange County Public Works, a department of the County of Orange

OCSD: Orange County Sanitation District, a special district serving central and northwest Orange County

outlet station: sampling station located where flow from a creek, canyon, or storm drain enters the ocean; the position along the shoreline (up-coast / down-coast) of an outlet station moves with the location where such flow enters the ocean

PCA: Porter-Cologne Act (also known as Porter-Cologne Water Quality Control Act), the primary California statute for water quality control; the PCA requires formulation, adoption, and periodic review of the Ocean Plan; see http://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf

point zero: position along the shoreline where the surface flow from a creek, canyon, or storm drain enters the ocean

public notification: warning to inform the public about beach water quality conditions that are or may be unsafe for water contact recreation; these include beach closure postings, beach warning postings, and rain advisories; beach water quality statutes require public notification under certain circumstances

REC-1: the beneficial use of "contact water recreation" (also referred to as water contact recreation or body contact recreation), which is the use of water for recreational activities that involve body contact with water and where ingestion of water is reasonably possible

REC-1 standards: numeric thresholds established by State law to protect the health of those who use waters for water contact recreation (REC-1); the REC-1 standards established by beach water quality statutes are the same as those established by the Ocean Plan; REC-1 standards for coastal waters currently established by State law are expressed as single sample maximum (SSM) and 30-day geometric mean levels of the densities of each of three different types of fecal indicator bacteria (FIB) (total coliform, fecal coliform, and enterococcus); the levels of FIB at which REC-1 standards are set are not zero-risk levels but water quality that meets REC-1 standards is considered suitable for water contact recreation

Recreational Water Criteria: USEPA recommendations provided as guidance to assist states in developing REC-1 standards; see http://water.epa.gov/scitech/swguidance/standards/criteria/health/recreation/index.cfm

San Diego Region: the area in which the San Diego Water Board has jurisdiction, including State coastal waters from north of Laguna Beach to the Mexican border

San Diego Water Board: California Regional Water Quality Control Board, San Diego Region, the State agency with primary responsibility for overseeing implementation of California and federal water quality control law in the San Diego Region

Santa Ana Region: the area to the north of the San Diego Region in which the Santa Ana Water Board has jurisdiction, including State coastal waters from Seal Beach to north of Laguna Beach

Santa Ana Water Board: California Regional Water Quality Control Board, Santa Ana Region, the State agency with primary responsibility for overseeing implementation of California and federal water quality control law in the Santa Ana Region

SHELL: the beneficial use of shellfish harvesting, which includes uses of water that support habitats suitable for the collection of filter-feeding shellfish (clams, oysters and mussels, for example) for human consumption, commercial, or sport purposes

SJCOO: San Juan Creek Ocean Outfall, which is owned and operated by South Orange County Wastewater Authority (SOCWA)

SOCWA: South Orange County Wastewater Authority, a joint powers authority serving south Orange County

South Orange County: the part of Orange County in the San Diego Region, where the San Diego Water Board has jurisdiction; the south Orange County coastline extends approximately eighteen miles from the northern boundary of the San Diego Region, at the northern end of El Moro Beach, north of Laguna Beach, down-coast to the southernmost end of San Clemente, at the San Diego County line; see Appendix 3

SSM: single sample maximum

State law: California statutes, regulations, and water quality control plans; notably, for purposes of this report, the Porter-Cologne Act, the Ocean Plan, and beach water quality statutes, as defined above

State Water Board: State Water Resources Control Board, the State agency with primary responsibility for overseeing implementation of California and federal water quality control law throughout California

TMDLs: total maximum daily loads, formal regulatory approaches used to identify sources of and reduce levels of pollutants or pollution indicators in parts of water bodies listed as "impaired" for purposes of CWA §303(d); for example, TMDLs for FIB might be developed where it is determined that the frequency at which REC-1 standards are not met is unacceptably high

total coliform: a type of fecal indicator bacteria (FIB)

unified program: Unified Beach Water Quality Monitoring and Assessment Program for South Orange County, as outlined in this report

USEPA: United States Environmental Protection Agency

virtual point zero: position along the shoreline where it appears that surface flow would enter the surf zone if there were a surface flow (immediately adjacent to the low point in the sand berm separating ponded water from the surf zone, for example)

visitor-day: a measure of beach use intensity; one person visiting a beach for all or part of one day represents one visitor-day

waste discharge requirements: regulatory documents, sometimes referred to as “permits,” that establish limits and other requirements that apply to discharges to waters of the State of California in order to protect the quality and beneficial uses of those waters; waste discharge requirements are issued pursuant to the State Porter-Cologne Water Quality Control Act

wet weather: each storm event, starting when 0.2” of precipitation has fallen and continuing until 72 hours after precipitation ends, is considered “wet weather;” all other periods are considered “dry weather”

Appendix 2
Previous Work to Improve Coordination of Beach Water Quality Monitoring in Orange County

In August 2009, in response to concerns about the availability of State funding for beach water quality monitoring and related work, representatives of OCHCA, OCPW, SOCWA, and Orange County Sanitation District (OCSD) initiated an effort to better coordinate routine, ongoing beach water quality monitoring conducted in Orange County. The proposed monitoring program resulting from that effort was outlined in a report, completed in 2010, entitled "A Collaborative, Integrated, Regional Ocean Water Quality Monitoring Program for Orange County" (2010 Report), which is included in this report as Attachment 1. The 2010 Report and the work that went into developing it proved to be extremely valuable to the workgroup effort outlined in this report.

Development of the 2010 Report included statistical analyses of monitoring results to determine if monitoring results at nearby stations were similar. Those analyses are described in the 2010 Report. Development of the 2010 Report also made use of "model monitoring matrices" developed by the Monitoring and Reporting Subcommittee of the southern California Beach Water Quality Workgroup (BWQW) in 2009. Those matrices are included in the 2010 report.

Appendix 3
South Orange County Coastline

The south Orange County coastline extends approximately eighteen miles from the northern boundary of the San Diego Region, at the northern end of El Moro Beach, north of Laguna Beach, to the southernmost end of San Clemente, at the San Diego County line. Dana Point Harbor is located about ten miles down-coast from El Moro Beach and about eight miles up-coast from the San Diego County line.

From El Moro Beach to Dana Point Harbor, the shoreline consists of naturally rocky areas interspersed with sandy beaches, with some armored areas. The shoreline of Dana Point Harbor is armored, except for Baby Beach, a small sandy beach located in the northwestern part of the harbor. From Dana Point Harbor to the San Diego County line, most of the shoreline consists of sandy beaches, with some armored areas.

The south Orange County coastline includes parts of the cities of Laguna Beach, Dana Point, and San Clemente, as well as unincorporated areas. Part of Crystal Cove State Park, all of Doheny State Beach, all of San Clemente State Beach, and various county and city parks and beaches are located along the south Orange County coastline. Use of coastal beaches in south Orange County is estimated to be roughly six million visitor-days per year.[8]

Flows from a number of creeks, canyons, and storm drains enter the ocean along the south Orange County coastline; Aliso Creek and San Juan Creek are the two largest creeks. The location where the flow from any particular creek, canyon, or storm drain enters the ocean sometimes moves up-coast or down-coast as a result of beach sand movement. Sand berms sometimes block surface flows from entering the ocean, but do not necessarily prevent subsurface percolation through the sand to the ocean.

Treated wastewater is discharged to the ocean through the Aliso Creek Ocean Outfall (ACOO), which extends offshore from Aliso Beach County Park near the mouth of Aliso Creek in Laguna Beach. The inshore end of the ACOO diffuser is approximately 6700 feet offshore at a depth of approximately 170 feet. The current NPDES permit for the ACOO requires that wastewater receive at least secondary treatment prior to discharge and establishes an average monthly flow limit of about 34 MGD. ACOO is owned and operated by SOCWA.

Treated wastewater is also discharged to the ocean through the San Juan Creek Ocean Outfall (SJCOO), which extends offshore from Doheny State Beach near the mouth of San Juan Creek in Dana Point. The inshore end of the SJCOO diffuser is approximately 10,300 feet offshore at a depth of approximately 100 feet. The current NPDES permit for the SJCOO requires that wastewater receive at least secondary treatment prior to discharge and establishes an average monthly flow limit of about 39 MGD. SJCOO is also owned and operated by SOCWA.

[8] United States Lifesaving Association; see http://arc.usla.org/Statistics/public.asp

Appendix 4
Existing Beach Water Quality Monitoring in South Orange County

SOCWA, OCPW, and OCHCA currently conduct four different routine, ongoing beach water quality monitoring programs in south Orange County, in accordance with four different sets of requirements. The Orange County Sanitation District (OCSD) also conducts a routine, ongoing beach water quality monitoring program that includes one sampling station in south Orange County. These five existing programs include eighty-one sampling stations in south Orange County. Most but not all of these stations are located in the surf zone along the shoreline of the open coast or in Dana Point Harbor. Appendix 5 lists and shows the locations of these stations.

The following sections briefly describe these requirements and the routine, ongoing beach water quality monitoring conducted by SOCWA, OCPW, OCHCA, and OCSD in south Orange County.

Monitoring Conducted by SOCWA

SOCWA is responsible for conducting routine, ongoing beach water quality monitoring in accordance with requirements of the NPDES permits for the discharge of treated wastewater through its two ocean outfalls.

The NPDES permit for discharges to the ocean through the SOCWA Aliso Creek Ocean Outfall (ACOO), which was most recently reissued by the San Diego Water Board in 2012 (Order No. R9-2012-0013[9]), requires FIB monitoring at sixteen "surf zone stations" from Main Beach in Laguna Beach to Dana Strands in Dana Point. All of these stations are "fixed" stations, so their positions along the shoreline do not change. FIB monitoring at these stations is required at a minimum frequency of twice per week year-round. The permit for the ACOO requires repeat sampling when REC-1 standards expressed as a single sample maximum (SSM) are not met, in accordance with the Ocean Plan monitoring requirements that were first included in the 2009 version of the Ocean Plan, the version that was in effect when Order No. R9-2012-0013 was adopted.

The NPDES permit for discharges to the ocean through the SOCWA San Juan Creek Ocean Outfall (SJCOO), which was most recently reissued by the San Diego Water Board in 2012 (Order No. R9-2012-0012[10]), requires FIB monitoring at seventeen "surf zone stations"[11] from immediately up-coast of Dana Point Harbor in Dana Point to the southern part of San Clemente near the San Diego County line. All of these stations are "fixed" stations, so their positions along the shoreline do not change. FIB monitoring at these stations is required at a minimum frequency of twice per week from May 1 through October 31 and once per week from November 1 through April 30. The permit for the SJCOO requires repeat sampling when REC-1 standards expressed as an SSM are not met, in accordance with the Ocean Plan monitoring requirements that were first included in the 2009 version of the Ocean Plan, the version that was in effect when Order No. R9-2012-0012 was adopted.

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[9] See http://www.waterboards.ca.gov/sandiego/board_decisions/adopted_orders/2012/R9-2012-0013.pdf.

[10] See http://www.waterboards.ca.gov/sandiego/board_decisions/adopted_orders/2012/R9-2012-0012.pdf.

[11] Two of the sampling stations referred to as "surf zone stations" in the current NPDES permit monitoring requirements for the SJCOO are actually located in San Juan Creek, not in the surf zone.

Monitoring Conducted by OCPW

The entities subject to the NPDES permit for discharges from the municipal storm drain systems (also referred to as municipal separate storm sewer systems or MS4s) in south Orange County are responsible for conducting routine, ongoing beach water quality monitoring in accordance with requirements of that permit. The County of Orange is one of the entities subject to that permit; OCPW conducts the beach water quality monitoring required by that permit on behalf of all of the entities subject to that permit. That permit, which was most recently reissued by the San Diego Water Board in 2009 (Order No. R9-2009-0002[12]), requires FIB monitoring at twenty-eight shoreline stations from Emerald Bay, near the northern part of Laguna Beach, to the southern part of San Clemente, near the San Diego County line. All of these stations are "outlet" stations; they are located where flows from creeks, canyons, and storm drains enter the ocean. Because the location where flow from any particular creek, canyon, or storm drain enters the ocean sometimes moves up-coast or down-coast as a result of beach sand movement, the position (up-coast / down-coast) along the shoreline where samples are collected at these stations moves accordingly. Each time one of these stations is sampled when there is surface flow from a creek, canyon, or storm drain into the ocean at that station, three samples are collected; one in the water flowing into the ocean, one in the surf zone seventy-five feet up-coast from where the surface flow enters the ocean, and one in the surf zone seventy-five feet down-coast from where the surface flow enters the ocean. Each time one of these stations is sampled when there is no surface flow into the ocean at that station, one sample is collected and that sample is collected in the surf zone seventy-five feet down-coast from where a surface flow would be expected to enter the ocean. FIB monitoring at these stations is required at a frequency of once per week year-round.

Monitoring Conducted by OCHCA

County health agencies are responsible for meeting the requirements of beach water quality statutes for beach water quality monitoring, public notification, and reporting; OCHCA is the agency responsible for meeting these requirements in Orange County. Beach water quality statutes require "waters adjacent to public beaches" to be monitored for FIB once per week in the months of April through October at beaches that are both (a) "visited by more than 50,000 people annually" and (b) "located on an area adjacent to a storm drain that flows in the summer."[13] Beach water quality statutes also require public notification when a REC-1 standard expressed as a single sample maximum (SSM) is not met and under other circumstances when beach water quality conditions are or may be unsafe for water contact recreation. Beach water quality statutes also require reporting of such public notifications to the State Water Board. These requirements of beach water quality statutes apply only if the State provides sufficient funding for such work.

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[12] See http://www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/docs/oc_permit/updates_012710/FINAL_R9_2009_0002.pdf and http://www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/docs/oc_permit/updates_012710/FINAL_Attachments.pdf.

[13] Beach water quality statutes do not specify criteria for what constitutes (a) "a beach visited by more than 50,000 people annually" or (b) "a beach located on an area adjacent to a storm drain that flows in the summer." To date, such criteria have not been established by the two State agencies that have been responsible for administering the State program that provides funding to county health agencies to meet the monitoring requirements of beach water quality statutes. The State Water Board currently administers that program, which was previously administered by the State Department of Public Health.

To meet the requirements of beach water quality statutes as they apply to south Orange County, OCHCA uses results of monitoring at forty-nine sampling stations from El Moro Beach, north of Laguna Beach, to the southern part of San Clemente, near the San Diego County line. Monitoring at some of these stations is required by NPDES permits issued to SOCWA.

Monitoring Conducted by OCSD

Orange County Sanitation District (OCSD) is responsible for conducting routine, ongoing beach water quality monitoring in accordance with requirements of an NPDES permit issued by the Santa Ana Water Board and USEPA for the discharge of treated wastewater through an ocean outfall that extends offshore from the mouth of the Santa Ana River in the Santa Ana Region. One of the sampling stations in the OCSD beach water quality monitoring program is in the San Diego Region, at El Moro Beach, approximately nine miles down-coast from the mouth of the Santa Ana River and just down-coast from the boundary between the Santa Ana Region and the San Diego Region. This station is an "outlet" station; it is located where flow from Moro Canyon enters the ocean. Because the location where this flow enters the ocean sometimes moves up-coast or down-coast as a result of beach sand movement, the position (up-coast / down-coast) along the shoreline where samples are collected at this station moves accordingly. Each time this station is sampled when there is surface flow from Moro Canyon, three samples are collected; one in the surf zone where the surface flow Moro Canyon enters the ocean, one in the surf zone seventy-five feet up-coast from where the surface flow enters the ocean, and one in the surf zone seventy-five feet down-coast from where the surface flow enters the ocean. Each time this station is sampled when there is no surface flow into the ocean from Moro Canyon, one sample is collected and that sample is collected in the surf zone seventy-five feet down-coast from where a surface flow would be expected to enter the ocean. FIB monitoring at the El Moro Beach station is required at a minimum frequency of once per week year-round.

Appendix 5
Sampling Stations

Figure A-5-1
Sampling Stations: Crystal Cove State Park and Laguna Beach

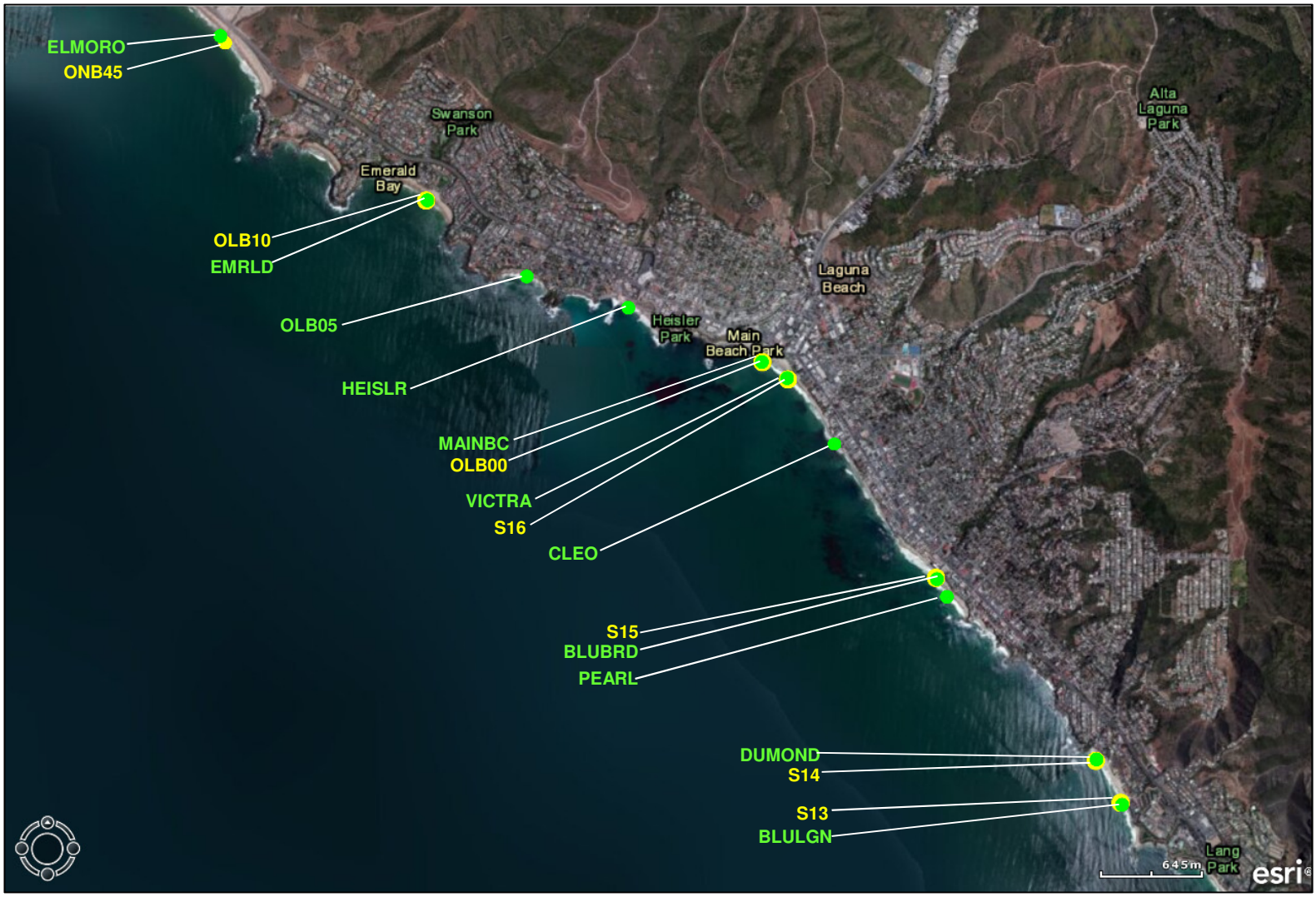


Table A-5-1
Sampling Stations: Crystal Cove State Park and Laguna Beach

Area		Sampling Station Identification	Sampling Station Location	Existing Programs				Recommended Unified Program		
				Program(s)	Sampling Station Type	Sampling Season	Minimum Sampling Frequency	Sampling Station Type	Sampling Season	Minimum Sampling Frequency
Crystal Cove State Park	1	ELMORO	surf at El Moro Beach adjacent to Moro Canyon outlet	OCSD	outlet	year-round	once/week	outlet	year-round	once/week
	2	*ONB45*	*surf at El Moro Beach*	*OCHCA*	*fixed*	*April-October*	*once/week*	*this station would be combined with ELMORO*		
Laguna Beach	*3*	*OLB10*	*surf at Emerald Bay Beach*	*OCHCA*	*fixed*	*April-October*	*once/week*	*this station would be combined with EMRLD*		
	4	EMRLD	surf at Emerald Bay Beach adjacent to drain outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	5	OLB05	surf at Crescent Bay Beach	OCHCA	fixed	April-October	once/week	fixed	year-round	once/week
	6	HEISLR	surf at Divers Cove adjacent to Cliff Drive drain outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	7	MAINBC	surf at Laguna Main Beach adjacent to Broadway Creek outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	8	*OLB00*	*surf at Laguna Main Beach*	*OCHCA*	*fixed*	*April-October*	*once/week*	*this station would be combined with MAINBC*		
	9	VICTRA	surf adjacent to drain outlet immediately up-coast from Hotel Laguna	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	10	*S16*	*surf adjacent to Hotel Laguna*	*SOCWA (ACOO) & OCHCA*	*fixed*	*year-round*	*twice/week*	*this station would be combined with VICTRA*		
	11	CLEO	surf adjacent to Cleo Street drain outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	12	*S15*	*surf at Bluebird Canyon Beach*	*SOCWA (ACOO) & OCHCA*	*fixed*	*year-round*	*twice/week*	*this station would be combined with BLUBRD*		
	13	BLUBRD	surf at Bluebird Canyon Beach adjacent to drain outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	14	PEARL	surf adjacent to drain outlet between Agate Street and Pearl Street	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	15	DUMOND	surf at Victoria Beach adjacent to drain outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	16	*S14*	*surf at Victoria Beach*	*SOCWA (ACOO) & OCHCA*	*fixed*	*year-round*	*twice/week*	*this station would be combined with DUMOND*		
	17	*S13*	*surf at Blue Lagoon Beach*	*SOCWA (ACOO) & OCHCA*	*fixed*	*year-round*	*twice/week*	*this station would be combined with BLULGN*		
	18	BLULGN	surf at Blue Lagoon Beach adjacent to drain outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week

Figure A-5-2
Sampling Stations: South Laguna and Dana Point

Table A-5-2
Sampling Stations: South Laguna and Dana Point

Area		Sampling Station Identification	Sampling Station Location	Existing Programs				Recommended Unified Program		
				Program(s)	Sampling Station Type	Sampling Season	Minimum Sampling Frequency	Sampling Station Type	Sampling Season	Minimum Sampling Frequency
South Laguna	19	S12	surf at Goff Island Beach	SOCWA (ACOO) & OCHCA	fixed	year-round	twice/week	fixed	year-round	once/week
	20	S11	surf at Treasure Island Beach	SOCWA (ACOO) & OCHCA	fixed	year-round	twice/week	fixed	year-round	once/week
	21	S10	surf at Aliso Beach adjacent to pedestrian bridge up-coast from Aliso Creek	SOCWA (ACOO) & OCHCA	fixed	year-round	twice/week	fixed	year-round	once/week
	22	ACM1	surf at Aliso Beach at Aliso Creek mouth	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	23	S9	surf at Aliso Beach adjacent to parking lot down-coast from Aliso Creek	SOCWA (ACOO) & OCHCA	fixed	year-round	twice/week	fixed	year-round	once/week
	24	S8	surf at Aliso Beach near down-coast end	SOCWA (ACOO) & OCHCA	fixed	year-round	twice/week	fixed	year-round	once/week
	25	S7	surf at Camel Point Beach	SOCWA (ACOO) & OCHCA	fixed	year-round	twice/week	fixed	year-round	once/week
	26	WEST	surf at West Street beach adjacent to drain outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	27	S6	surf at Table Rock Beach	SOCWA (ACOO) & OCHCA	fixed	year-round	twice/week	fixed	year-round	once/week
	28	S5	surf at Laguna Lido Beach	SOCWA (ACOO) & OCHCA	fixed	year-round	twice/week	fixed	year-round	once/week
	29	S4	surf at 1000 Steps Beach	SOCWA (ACOO) & OCHCA	fixed	year-round	twice/week	fixed	year-round	once/week
	30	S3	surf at Mussel Cove Beach, Three Arch Bay	SOCWA (ACOO) & OCHCA	fixed	year-round	twice/week	fixed	year-round	once/week
Dana Point	*31*	*OSL25*	*surf at Monarch Beach, up-coast end*	*OCHCA*	*fixed*	*April-October*	*once/week*	*this station would be combined with SCM1*		
	32	SCM1	surf at Monarch Beach at Salt Creek mouth	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	33	S2	surf at Salt Creek Beach down-coast from Salt Creek	SOCWA (ACOO) & OCHCA		year-round	twice/week	fixed	year-round	once/week
	34	S1	surf at Dana Strands Beach	SOCWA (ACOO) & OCHCA	fixed	year-round	twice/week	fixed	year-round	once/week
	35	S-6	surf at Marine Science Institute Beach, outside and just west of Dana Point Harbor breakwater	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			

Figure A-5-3
Sampling Stations: Dana Point Harbor

Table A-5-3
Sampling Stations: Dana Point Harbor

Area		Sampling Station Identification	Sampling Station Location	Existing Programs				Recommended Unified Program		
				Program(s)	Sampling Station Type	Sampling Season	Minimum Sampling Frequency	Sampling Station Type	Sampling Season	Minimum Sampling Frequency
Dana Point Harbor	36	BDP16	Dana Point Harbor Pilgrim Dock	OCHCA	fixed	April-October	once/week	fixed	year-round	once/week
	37	BDP08	Dana Point Harbor pier	OCHCA	fixed	April-October	once/week	fixed	year-round	once/week
	38	BDP12	Dana Point Harbor Baby Beach, west end	OCHCA	fixed	April-October	once/week	fixed	year-round	once/week
	39	BDP13	Dana Point Harbor Baby Beach, buoy line	OCHCA	fixed	April-October	once/week	fixed	year-round	once/week
	40	BDP14	Dana Point Harbor Baby Beach, swim area	OCHCA	fixed	April-October	once/week	fixed	year-round	once/week
	41	BDP15	Dana Point Harbor Baby Beach, east end	OCHCA	fixed	April-October	once/week	fixed	year-round	once/week
	42	BDP17	Dana Point Harbor Youth Dock	OCHCA	fixed	April-October	once/week	fixed	year-round	once/week
	43	MDP11	Dana Point Harbor Guest Dock (West Basin)	OCHCA	fixed	April-October	once/week	fixed	year-round	once/week
	44	MDP18	Dana Point Harbor “M” Dock (East Basin)	OCHCA	fixed	April-October	once/week	fixed	year-round	once/week
	45	MDP10	Dana Point Harbor Harbor Patrol Dock (East Basin)	OCHCA	fixed	April-October	once/week	fixed	year-round	once/week
	46	BDP07	Dana Point Harbor Fuel Dock	OCHCA	fixed	April-October	once/week	fixed	year-round	once/week

Figure A-5-4
Sampling Stations: Doheny State Beach

Table A-5-4
Sampling Stations: Doheny State Beach

Area		Sampling Station Identification	Sampling Station Location	Existing Programs				Recommended Unified Program		
				Program(s)	Sampling Station Type	Sampling Season	Minimum Sampling Frequency	Sampling Station Type	Sampling Season	Minimum Sampling Frequency
Doheny State Beach	47	DSB 5	surf at Doheny State Beach at "North Creek" outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	48	*ODB02*	*surf at Doheny State Beach outside and just east of Dana Point Harbor jetty*	*OCHCA*	*fixed*	*April-October*	*once/week*	*this station would be combined with DSB 5*		
	49	S-2	surf at Doheny State Beach, midway between Dana Point Harbor jetty and San Juan Creek	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			
	50	SJC1	surf at Doheny State Beach at San Juan Creek mouth	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	51	*C-2*	*in San Juan Creek above SOCWA Latham treatment plant*	*SOCWA (SJCOO)*	*in-stream*	*May-October*	*twice/week (when flowing)*	*this station would not be included in the unified program*		
						November-April	*once/week (when flowing)*			
	52	*C-1*	*in San Juan Creek cross-beach flow*	*SOCWA (SJCOO)*	*in-stream*	*May-October*	*twice/week (when flowing)*	*this station would not be included in the unified program*		
						November-April	*once/week (when flowing)*			
	53	S-0	surf at Doheny State Beach adjacent to the down-coast side of the San Juan Creek mouth pond area	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			
	54	*ODB05*	*surf at Doheny State Beach adjacent to the fence between San Juan Creek and the up-coast end of the campground area*	*OCHCA*	*fixed*	*April-October*	*once/week*	*this station would be combined with S-0*		
	55	S-1	surf at Doheny State Beach adjacent to the down-coast end of the campground area	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			
	56	DSB 4	surf at Doheny State Beach adjacent to the drain outlet next to the south day use area restrooms that are closest to the campground area	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	57	S-3	surf at Doheny State Beach adjacent to the south day use area restrooms that are closest to the campground area	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			
	58	S-5	surf at Doheny State Beach adjacent to the pedestrian bridge	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			
	59	DSB 1	surf at Doheny State Beach adjacent to the first drain outlet up-coast of the down-coast boundary of the state beach	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	60	*S-7*	*surf at Doheny State Beach adjacent to the palm trees near the down-coast boundary of the state beach*	*SOCWA (SJCOO)*	*fixed*	*May-October*	*twice/week*	*this station would be combined with DSB 1*		
						November-April	*once/week*			

Figure A-5-5
Sampling Stations: Capistrano Beach

Table A-5-5
Sampling Stations: Capistrano Beach

Area		Sampling Station Identification	Sampling Station Location	Existing Programs				Recommended Unified Program		
				Program(s)	Sampling Station Type	Sampling Season	Minimum Sampling Frequency	Sampling Station Type	Sampling Season	Minimum Sampling Frequency
Capistrano Beach	61	S-9	surf at Capistrano Beach County Park adjacent to the guard shack at the entrance to the park	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			
	62	CSBMP1	surf at Capistrano Beach County Park adjacent to the drain outlet just down-coast from basketball court	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	63	CSBBR1	surf adjacent to the first drain outlet down-coast from the down-coast boundary of Capistrano Beach County Park	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	64	S-11	surf adjacent to the home at 35197 Beach Road	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			
	65	S-13	surf adjacent to the home at 35535 Beach Road	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			

Figure A-5-6
Sampling Stations: San Clemente

Table A-5-6
Sampling Stations: San Clemente

Area		Sampling Station Identification	Sampling Station Location	Existing Programs				Recommended Unified Program		
				Program(s)	Sampling Station Type	Sampling Season	Minimum Sampling Frequency	Sampling Station Type	Sampling Season	Minimum Sampling Frequency
San Clemente	66	POCHE	surf at Poche Beach adjacent to drain outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	67	S-15	surf at Poche Beach near drain outlet	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			
	68	SCCS52	surf adjacent to drain outlet, Capistrano Shores up-coast	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	69	SCCS17	surf adjacent to drain outlet, Capistrano Shores down-coast	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	70	PICO	surf adjacent to Pico Drain outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	71	S-17	surf adjacent to the concession stand across the RR tracks from Ole Hanson Beach Club	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			
	72	MARIPO	surf adjacent to Mariposa drain outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	73	LINDAL	surf adjacent to Linda Lane drain outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	74	S-19	surf adjacent to lifeguard headquarters up-coast from San Clemente Pier	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			
	75	PIER	surf adjacent to the drain outlet at San Clemente Pier	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	76	TRFCYN	surf adjacent to Trafalgar Canyon outlet	OCPW	outlet	year-round	once/week	outlet	year-round	once/week
	77	*OSC01*	*surf near Trafalgar Canyon outlet*	*OCHCA*	*fixed*	*April-October*	*once/week*	*this station would be combined with TRFCYN*		
	78	LADERA	surf adjacent to Ladera drain outlet	OCPW		year-round	once/week	outlet	year-round	once/week
	79	RIVERA	surf adjacent to the drain outlet across the RR tracks from the up-coast end of Plaza la Playa	OCPW		year-round	once/week	outlet	year-round	once/week
	80	S-21	surf at San Clemente State Beach across the RR tracks from the parking lot at the end of Avenida Calafia	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			
	81	S-23	surf across the RR tracks from the bottom of the access road extending from the end of Avenida de las Palmeras	SOCWA (SJCOO) & OCHCA	fixed	May-October	twice/week	fixed	year-round	once/week
						November-April	once/week			

Attachment

Attachment 1
"A Collaborative, Integrated, Regional Ocean Water Quality Monitoring Program for Orange County"
(May 13, 2010)

FINAL DRAFT

A Collaborative, Integrated, Regional Ocean Water Quality Monitoring Program for Orange County

County of Orange Health Care Agency

May 13, 2010

Background

Orange County's coastal ocean waters are an important integral part of the county's lifestyle and a significant economic asset. Over the last 40 years, ocean water quality monitoring has successfully provided assurances to the public that recreational ocean waters meet appropriate health related standards for swimming, surfing, and diving. Through a collaborative monitoring program with several regional wastewater agencies, the Health Care Agency has been responsible for protecting the public from exposure to ocean and bay waters that may be contaminated with sewage or cause illness.

Currently, four separate public agencies conduct microbial ocean water quality monitoring along 42 miles of open coastline and 72 miles of harbor and bay frontage under various discharge permit requirements or statutory mandates. Annually, the four agencies collect over 15,000 samples and perform over 40,000 individual analyses. Historically, National Pollutant Discharge Elimination System (NPDES) permit requirements including monitoring locations, frequencies, types of microbial analyses and reporting criteria, have been established without regard to an integration of regional monitoring needs. In some cases this has created redundancy and a less than effective use of limited resources to address public health protection and permit compliance. Legacy compliance monitoring for the NPDES POTW permits date back over 40 years. Recent iterations of the NPDES MS4 storm water permits have focused on the microbial water quality of non-point source urban runoff. Microbial monitoring is utilized to assess potential public health impacts associated with point and non-point source discharges.

The uncertainty of state funding for local health programs coupled with upcoming NPDES POTW and MS4 permit renewals provides an opportunity to design a collaborative and integrated ocean water quality monitoring program that meets long-term public health and permit compliance needs.

Proposed Plan

The proposed plan is to establish a collaborative and integrated regional monitoring program through enhanced partnerships with other public agencies who currently sample ocean and bay waters for regulatory purposes. This will provide a more efficient and effective way to leverage limited monitoring resources and sampling results while increasing the current level of public health protection for recreational water users. This conceptual regional monitoring program has been presented to, and endorsed by, the State Water Resources Control Board.

By eliminating current redundancies and integrating all ocean and bay coastal microbial monitoring being conducted by HCA/Environmental Health (HCA), Orange County Sanitation District (OCSD), South Orange County Wastewater Authority (SOCWA) and OC Public Works (OC Watersheds), it will create a sustainable recreational ocean water quality monitoring program, satisfy regulatory compliance requirements and benefit public health.

Criteria Used in Developing Multi-Agency Regional Monitoring Program

On August 25, 2009 representatives from the four separate public agencies that conduct microbial ocean water quality monitoring in Orange County met and conceptually agreed to collaborate on establishing an integrated regional monitoring program for the region. Because of limited resource availability, representatives from HCA, OCSD, SOCWA and OC Watersheds agreed that a viable multi-agency regional monitoring program would have to focus on meeting three primary objectives. The regional monitoring program would have to:

1. Maintain existing regulatory compliance and public health monitoring locations;
2. Consolidate redundant and overlapping sampling stations; and
3. Establish and maintain a level of coastal monitoring that provides the appropriate balance between regulatory compliance and public health protection.

To meet these objectives, agency representatives agreed to use the following criteria in designing a regional monitoring program:

- Agency collaboration will be based on public health protection and equitable resource sharing using current resource availability and not based on a prescribed formula or by a financial arrangement.
- The regional monitoring being proposed is strictly the routine weekly shoreline monitoring currently being conducted by each agency and does not include sampling for special studies, research, adaptive sampling, and/or storm sampling.
- The focus of collecting shoreline samples will be to satisfy the bacteriological water quality monitoring requirements of each public agency while protecting public health.
- Coastal monitoring stations that are considered individual and unique locations for regulatory compliance or public health purposes will be preserved.
- Subject to Regional Water Quality Control Board (RWQCB) approval, NPDES POTW and MS4 coastal monitoring stations located within close proximity to each other will be reconciled and consolidated if there is no statistically significant difference between the monitoring stations based on analyses of historical water quality sampling data.
- A minimum of one bacteriological sample will be collected at each coastal sampling station.
- The minimum sampling frequency at each coastal sampling station will be 1x/week, year round.
- The minimum sampling frequency will be increased at the coastal sampling stations considered to have an elevated public health risk.
- HCA will continue to collect weekly bacteriological water samples year-round at all harbor and bay monitoring stations.
- Current samples collected at storm drain, creek and river monitoring stations that are not used for regulatory compliance or public health purposes will be discontinued.
- Samples collected by each agency will be analyzed for total coliform, fecal coliform and enterococcus using approved laboratory test methods.
- Sample results will be provided to each agency by e-mail in the current format used by the laboratory providing analysis.
- It will be the responsibility of HCA to conduct recheck and/or confirmation sampling to determine compliance with State Ocean Water-Contact Sport Standards (AB411).

- An annual review of data will be conducted to assess and adjust monitoring location sampling frequencies based on an evaluation of the rolling 30-day geometric mean standard exceedance rates and the single sample standard exceedance rates.
- Upon agreement by the four public agencies on the conceptual design of a regional monitoring program, stakeholder groups will be invited to participate in the development of the program.
- Prior to implementation of a regional monitoring program, a detailed work plan of the specific monitoring responsibilities of each agency will be put into place which has been agreed upon and approved by each of the participating agencies.
- Upon implementation of a regional ocean water quality monitoring program, the four public agencies have agreed to establish regular meetings to review and discuss regional monitoring program operations, regulatory compliance and public health issues along with program effectiveness and efficiency. Stakeholder groups will be invited to attend and participate in the regional monitoring program regular meetings.

Proposed Regional Monitoring Program

Sample Stations to be Discontinued

A review of all current coastal monitoring locations was conducted with representatives from HCA, OCSD, SOCWA and OC Watersheds to identify monitoring locations where bacteriological samples are being collected but are not required for regulatory compliance purposes. It was agreed that monitoring these sampling stations should be discontinued and make preserving the regulatory compliance and public health monitoring locations a priority. The following table (Table 1) lists the specific sampling stations which will be discontinued. The stations listed in the table are monitoring locations which are not required to be sampled for regulatory compliance or public health purposes by any of the participating agencies.

Table 1 - Sample Stations to be Discontinued

Sampling Agency
HCA
OCSD

Station	Location
CSGRM	San Gabriel River @ Marina Dr.
CSGR1	San Gabriel River @ 1st Street
CBCW1	Bolsa Chica Wetlands Channel
SAR-N	Santa Ana River - North
SAR-S	Santa Ana River - South
CNBPM	Pelican Point Middle Creek
CNBCC	Crystal Cove Creek
CNBCU	Crystal Cove Creek Upstream
CNBEU	El Moro Upstream

Sample Stations to be Consolidated

A multi-agency review of coastal monitoring locations was conducted and redundant and overlapping sampling stations were identified for potential consolidation. A determination was made to consolidate two agency sampling stations if they were located within 25 yards distance of another and exhibit a less than 5% exceeded rate for all AB 411 single sample standards for the five year AB 411 period (April 1 – October 31) from 2005 – 2009. A listing of all AB 411 monitoring locations and the 5-year dry weather single sample standard exceedance rate for total coliform, fecal coliform and enterococcus is provided in Appendix A.

The following table (Table 2) lists the agency sampling stations which would be consolidated under these conditions.

Table 2 – Sample Stations to be Consolidated

Sampling Agency
OC Watersheds
HCA
SOCWA

Station	Location
BGC / ONB31	Little Corona Beach
PPC / ONB35	Pelican Point Beach
MDC / ONB43	Muddy Beach
ELMORO / ONB45	El Moro Beach
EMRLD / OLB10	Emerald Bay
MAINBC / OLB00	Laguna Main Beach
VICTRA / S16	Hotel Laguna
BLUBRD / S15	Bluebird Canyon
DUMOND / S14	Victoria Beach
BLULG / S13	Blue Lagoon
TRFCYN / OSC01	Trafalgar Canyon

In addition, coastal receiving waters fecal indicator bacteria data were statistically evaluated to assess the feasibility of consolidating sampling efforts for monitoring locations which exhibited a greater than 5% exceeded rate for any of the AB 411 standards. Consolidation analyses was performed for a select number of candidate monitoring stations that were determined to have redundant sampling efforts by two or more agencies at sampling stations located within 200 yards distance of another agency and exhibit a greater than 5% AB 411 exceedance rate from 2005 - 2009. The specific analysis used for the consolidation of these candidate monitoring stations and case examples are provided in Appendix B. The following table (Table 3) lists the sampling stations which would be consolidated under these conditions.

Table 3 - Sample Stations to be Consolidated

Sampling Agency
OC Watersheds
HCA
SOCWA

Station	Location
DSB5 / ODB02	North Beach (Doheny)
SJC1 / C1	San Juan Creek
S-0 / ODB05	San Juan Creek Ocean Interface
DSB 4 / S-1	~1000 Feet South of Outfall (Doheny)
DSB 1 / S-7	~4000 Feet South of Outfall (Doheny)

Monitoring Location Sampling Frequency

A review of NPDES POTW and MS4 permits show that the frequency of shoreline bacteriological monitoring required by each agency is inconsistent and varies widely between monitoring locations and by sampling agencies. To establish and maintain a level of coastal monitoring that provides the appropriate balance between regulatory compliance and public health protection it was determined by the participating agencies that monitoring location sampling frequencies should be consistent and based on a public health approach.

In December 2009, the Monitoring and Reporting (M&R) Subcommittee of the Southern California Beach Water Quality Workgroup (BWQW) developed a set of Model Monitoring Matrices identifying three sampling protocols that would be used to protect public health at a series of different types of beaches (Appendix C). The matrices establish a minimum weekly sampling frequency at high, medium and low use beaches based on potential health risks associated with the beach location. The matrices are structured to provide the highest level of

public health protection by offering sampling protocols to local health agencies based on multiple agency participation and resource availability. To provide the highest level of public health protection with current agency participation and resource availability, the regional monitoring program would implement a modified "Preferred Monitoring Matrix" sampling protocol.

Although the Preferred Monitoring Matrix sampling protocol provides that no weekly samples are to be collected at some medium and low use beaches, the participating agencies for the regional monitoring program agree to establish and maintain a minimum sampling frequency of one bacteriological sample being collected 1x/week, year round at each of the proposed coastal sampling stations due to year round recreational water use. In addition, the minimum sampling frequency would be increased to 2x/week at each of the proposed coastal sampling stations considered to have an elevated public health risk and increased to 3x/week at each of the proposed coastal sampling stations considered to have a chronic public health risk. The M&R Subcommittee determined that beaches with sampling stations that exhibit a 5% or greater exceedance rate for any of the AB 411 single sample standards during the most recent 5-year AB 411 period would be considered to have an elevated public health risk and sampling stations that exhibit a 15% or greater exceedance rate for any of the AB 411 single sample standards during the most recent 5-year AB 411 period would be considered to have a chronic public health risk. A list of all AB 411 monitoring locations and their 5-year single sample exceedance rates are provided in Appendix A.

Using a modified Preferred Monitoring Matrix sampling protocol and the AB 411 single sample standards exceedance rates in Appendix A, the minimum sampling frequency would be increased from 1x/week to 2x/week at the monitoring locations listed in Table 4 and 3x/week at the monitoring locations listed in Table 5. All other monitoring locations would be sampled 1x/week.

Table 4 – Monitoring Locations to be Sampled 2x/Week

Sampling Agency
HCA
OCSD
SOCWA

Station	Location
OSB02	1st Street
9N	Newland Street
6N	Magnolia Street
3N	Brookhurst Street
0	Santa Ana River Mouth
OSL25	Monarch Beach
S-2	Mid North Beach (Doheny)
S-1	1000 Feet S. of Outfall (Doheny)
S-3	2000 Feet S. of Outfall (Doheny)
S-5	3000 Feet S. of Outfall (Doheny)
S-9	5000 Feet S. of Outfall (Capistrano)
S-11	7500 Feet S. of Outfall (Capistrano)
S-13	10000 Feet S. of Outfall (Capistrano)

Table 5 – Monitoring Locations to be Sampled 3x/Week

Station	Location
ODB02	North Beach (Doheny)
S-0	SJC / Ocean Interface (Doheny)
S-15	14000 Feet S. of Outfall (Poche)

Agency Collaboration and Integration

A collaborative and integrated regional monitoring program that meets the criteria listed above and has been endorsed by the four participating public agencies that conduct ocean water quality monitoring in Orange County. Each agency has agreed to share the costs and resources that would be required to collect and analyze samples at all the proposed NPDES POTW and MS4 regulatory compliance monitoring stations. In addition, the participating agencies have agreed to share costs and resources to maintain all individual and unique coastal monitoring stations that are used for AB 411 compliance purposes only.

By collaborating and integrating all ocean and bay coastal microbial monitoring being conducted by HCA, OCSD, SOCWA and OC Watersheds, it creates a functional coastal ocean water quality monitoring program that can satisfy regulatory compliance requirements and benefit public health. The planned agency partnership will result in a sustainable regional monitoring program that provides a more efficient and effective way to leverage limited monitoring resources and is critical for maintaining the current level of public health protection to recreational water users in Orange County. This draft proposal seeks to integrate NPDES POTW permit, MS4 permit and AB 411 shoreline monitoring to establish and maintain a level of coastal monitoring that provides an appropriate balance between regulatory compliance and public health protection which will be endorsed by the public, stakeholder groups and regulatory agencies.

Current and Proposed Sampling Locations

The current and proposed sampling stations, monitoring locations and sampling frequencies conducted by each agency are provided in following tables which are organized by geographical area and color-coded by sampling agency and sampling frequency.

North County Monitoring Stations (Seal Beach – Crystal Cove)

Current

SEAL BEACH / SURFSIDE / SUNSET BEACH	
Station / Agency	**Location / Frequency**
CSGRM	San Gabriel River @ Marina Dr.
CSGR1	San Gabriel River @ 1st Street
OSB02	1st Street
OSB03	8th Street
OSB05	100 Yards South of Pier
OSB04	14th Street
OSB01	Sea Way
OSUB1	Broadway
BOLSA CHICA / HUNTINGTON / NEWPORT	
39N	Bolsa Chica Beach
33N	Bolsa Chica Reserve
CBCW1	Bolsa Chica Wetlands Channel
27N	Bluffs
HB1	PCH & Goldenwest St
HB2	PCH & 22nd St.
HB3	PCH & 20th St
21N	17th Street
HB4	PCH & 13th St.
HB5	PCH & 6th St.
15N	Jacks Snack Bar
12N	Beach Blvd.
9N	Newland Street
6N	Magnolia Street
3N	Brookhurst Street
0	Santa Ana River Mouth
SAR-N	Santa Ana River - North
SAR-S	Santa Ana River - South
3S	Orange Street
6S	52nd / 53rd Street
9S	38th Street
15S	15th / 16th Street
21S	Balboa Pier
27S	The Wedge
29S	Corona Del Mar Beach
ONB31	Little Corona Beach
BGC	Buck Gully Creek
CRYSTAL COVE	
ONB35	Pelican Point
PPC	Pelican Point Creek
CNBPP	Pelican Point Creek
39S	Crystal Cove - Pelican Point
CNBPM	Pelican Point Middle Creek
WFC	Pelican Hill Waterfall
CNBPW	Pelican Hill Waterfall
ONB39	Crystal Cove – Los Trancos
CNBCC	Crystal Cove Creek
CNBCU	Crystal Cove Creek Upstream
MDC	Muddy Creek
CNBMC	Muddy Creek
ONB43	Muddy Beach
ELMORO	El Moro Creek
CNB45	El Moro Creek
ONB45	El Moro Beach
CNBEU	El Moro Upstream

Proposed

SEAL BEACH / SURFSIDE / SUNSET BEACH	
Station / Agency	**Location / Frequency**
OSB02	1st Street
OSB03	8th Street
OSB05	100 Yards South of Pier
OSB04	14th Street
OSB01	Sea Way
OSUB1	Broadway
BOLSA CHICA / HUNTINGTON / NEWPORT	
39N	Bolsa Chica Beach
33N	Bolsa Chica Reserve
27N	Bluffs
HB1	PCH & Goldenwest St
HB2	PCH & 22nd St.
HB3	PCH & 20th St
21N	17th Street
HB4	PCH & 13th St.
HB5	PCH & 6th St.
15N	Jacks Snack Bar
12N	Beach Blvd.
9N	Newland Street
6N	Magnolia Street
3N	Brookhurst Street
0	Santa Ana River Mouth
SAR-N	Santa Ana River - North
SAR-S	Santa Ana River - South
3S	Orange Street
6S	52nd / 53rd Street
9S	38th Street
15S	15th / 16th Street
21S	Balboa Pier
27S	The Wedge
29S	Corona Del Mar Beach
BGC	Little Corona Beach / Buck Gully Creek
CRYSTAL COVE	
PPC	Pelican Point Beach / Pelican Point Creek
39S	Crystal Cove - Pelican Point
WFC	Pelican Hill Waterfall
ONB39	Crystal Cove – Los Trancos
MDC	Muddy Creek Beach / Muddy Creek
ELMORO	El Moro Beach / El Moro Creek

Sampling Agency
OCSD
HCA
OC Watersheds

Sampling Frequency
1 bacteriological sample - 1x / week
1 bacteriological sample - 2x / week
1 bacteriological sample - 5x / week
If creek / storm drain flowing to ocean: 3 bacteriological samples – 1x /week, also temperature reading and flow rate estimation. **If creek / storm drain *not* flowing to ocean:** 1 bacteriological sample - 1x / week

South County Monitoring Stations (Laguna Beach – Dana Point)

Current

LAGUNA BEACH	
Station / Agency	**Location / Frequency**
EMRLD	Emerald Bay Drain
CLBEB	Emerald Bay Drain
OLB10	Emerald Bay Beach
OLB05	Crescent Bay Beach
HEISLR	Cliff Drive
OLB00	Laguna Main Beach
MAINBC	Broadway Creek
CLBBC	Broadway Creek
VICTRA	Hotel Laguna
S16	Hotel Laguna
CLEO	Cleo St.
BLUBRD	Bluebird Canyon
S15	Bluebird Canyon
PEARL	Pearl Street
DUMOND	Victoria Beach
S14	Victoria Beach
BLULGN	Blue Lagoon
S13	Blue Lagoon
S12	Goff Island Beach
S11	Treasure Island Beach
S10	Aliso Beach - North
ACM1	Aliso Creek
S9	Aliso Beach – Middle
S8	Aliso Beach - South
S7	Camel Point
WEST	West St.
S6	Table Rock
S5	Laguna Lido
S4	9th Street / 1000 Steps Beach
S3	Three Arch Bay
DANA POINT	
OSL25	Monarch Beach
SCM1	Salt Creek
CSLSC	Salt Creek
S2	Salt Creek Beach
S1	Dana Strands
S-6	Ocean Institute Beach
S-4	Dana Point Harbor Entrance

Proposed

LAGUNA BEACH	
Station / Agency	**Location / Frequency**
EMRLD	Emerald Bay Drain / Emerald Beach
OLB05	Crescent Bay Beach
HEISLR	Cliff Drive
MAINBC	Broadway Creek / Laguna Main Beach
VICTRA	Hotel Laguna / S16
CLEO	Cleo St.
BLUBRD	Bluebird Canyon / S15
PEARL	Pearl Street
DUMOND	Victoria Beach / S14
BLULGN	Blue Lagoon / S13
S12	Goff Island Beach
S11	Treasure Island Beach
S10	Aliso Beach - North
ACM1	Aliso Creek
S9	Aliso Beach - Middle
S8	Aliso Beach - South
S7	Camel Point
WEST	West St.
S6	Table Rock
S5	Laguna Lido
S4	9th Street / 1000 Steps Beach
S3	Three Arch Bay
DANA POINT	
OSL25	Monarch Beach
SCM1	Salt Creek
S2	Salt Creek Beach
S1	Dana Strands
S-6	Ocean Institute Beach
S-4	Dana Point Harbor Entrance

Sampling Agency
HCA
OC Watersheds
SOCWA

Sampling Frequency
1 bacteriological sample - 1x / week
1 bacteriological sample - 2x / week
If creek / storm drain flowing to ocean: 3 bacteriological samples – 1x /week, also temperature reading and flow rate estimation. **If creek / storm drain *not* flowing to ocean:** 1 bacteriological sample - 1x / week
May 1 – October 31: 1 bacteriological sample - 2x / week **November 1 - April 30:** 1 bacteriological sample - 1x / week

South County Monitoring Stations (Doheny State Beach – San Clemente)

Current

DOHENY STATE BEACH	
Station / Agency	**Location / Frequency**
CDBNC	North Beach Creek
DSB5	North Beach Creek
ODB02	North Beach - Doheny
S-2	Mid North Beach
S-0	San Juan Creek / Ocean Interface
SJC1	San Juan Creek
C-1	San Juan Creek Mouth
C-2	San Juan Creek - North
ODB05	Doheny 250' S. SJC
S-1	1000 Feet South of Outfall
DSB 4	~1000 Feet South of Outfall
S-3	2000 Feet South of Outfall
S-5	3000 Feet South of Outfall
S-7	4000 Feet South of Outfall
DSB 1	~4000 Feet South of Outfall
CAPISTRANO BEACH	
S-9	5000 Feet South of Outfall
CSBMP1	~4500 Feet South of Outfall
CSBBR1	~5500 Feet South of Outfall
S-11	7500 Feet South of Outfall
S-13	10000 Feet South of Outfall
SAN CLEMENTE	
S-15	14000 Feet South of Outfall
POCHE	Poche Creek
SCCS52	Capistrano Shores
SCCS17	Capistrano Shores
PICO	Pico Drain
S-17	20000 Feet South of Outfall
MARIPO	Mariposa
LINDAL	Linda Lane
S-19	450 Feet North of Pier
PIER	San Clemente Pier
OSC01	T Street Bridge
TRFCYN	Trafalgar Canyon
LADERA	Ladera
RIVERA	Riveria
S-21	Avenida Calafia
S-23	Las Palmeras

Proposed

DOHENY STATE BEACH	
Station / Agency	**Location / Frequency**
ODB02	North Beach
DSB5	North Beach Creek
S-2	Mid North Beach
SJC1	San Juan Creek / C1
S-0	SJ Creek Ocean Interface / ODB05
C-2	San Juan Creek - North
S-1	1000 Feet South of Outfall
DSB 4	~1000 Feet South of Outfall
S-3	2000 Feet South of Outfall
S-5	3000 Feet South of Outfall
DSB 1	~4000 Feet South of Outfall / S-7
CAPISTRANO BEACH	
CSBMP1	~4500 Feet South of Outfall
S-9	5000 Feet South of Outfall
CSBBR1	~5500 Feet South of Outfall
S-11	7500 Feet South of Outfall
S-13	10000 Feet South of Outfall
SAN CLEMENTE	
S-15	14000 Feet South of Outfall
POCHE	Poche Creek
SCCS52	Capistrano Shores
SCCS17	Capistrano Shores
PICO	Pico Drain
S-17	20000 Feet South of Outfall
MARIPO	Mariposa
LINDAL	Linda Lane
PIER	San Clemente Pier
S-19	450 Feet North of Pier
TRFCYN	Trafalgar Canyon / OSC01
LADERA	Ladera
RIVERA	Riveria
S-21	Avenida Calafia
S-23	Las Palmeras

Sampling Agency
HCA
OC Watersheds
SOCWA

Sampling Frequency
1 bacteriological sample - 1x / week
1 bacteriological sample - 2x / week
If creek / storm drain flowing to ocean: 3 bacteriological samples – 1x /week, also temperature reading and flow rate estimation. **If creek / storm drain *not* flowing to ocean:** 1 bacteriological sample - 1x / week
May 1 – October 31: 1 bacteriological sample - 2x / week **November 1 - April 30:** 1 bacteriological sample - 1x / week

Appendix A

County of Orange Health Care Agency/Environmental Health
AB 411 Period - Dry Weather Single Sample Standard Exceedance Rate
for Total Coliform, Fecal Coliform and Enterococcus
2005 - 2009

Station	Monitoring Location	% Exceeds	Station	Monitoring Location	% Exceeds	Station	Monitoring Location	% Exceeds
Seal Beach / Surfside / Sunset Beach			**Laguna Beach**			**Capistrano Beach**		
OSB02	1st Street	**8.6%**	OLB10	Emerald Bay	1.4%	S-9	5000 Feet S. of Outfall	**5.0%**
OSB03	8th Street	2.8%	OLB05	Crescent Bay Beach	0.0%	S-11	7500 Feet S. of Outfall .	**5.0%**
OSB05	100 Yards South of Pier	2.8%	OLB00	Laguna Main Beach	0.0%	S-13	10000 Feet S. of Outfall	**5.4%**
OSB04	14th Street	0.7%	S16	Hotel Laguna	0.7%	**San Clemente**		
OSB01	Sea Way	0.0%	S15	Bluebird Canyon	1.7%	S-15	14000 Feet S. of Outfall	**37.7%**
OSUB1	Broadway	0.0%	S14	Victoria Beach	1.4%	S-17	20000 Feet S. of Outfall	3.2%
Bolsa Chica State Beach			S13	Blue Lagoon	0.7%	S-19	450 Feet North of Pier	2.6%
39N	Parking Area #20	0.4%	S12	Goff Island Beach	1.4%	OSC01	Trafalgar "T" Street	0.7%
33N	Parking Area #14	1.8%	S11	Treasure Island Beach	0.0%	S-21	Avenida Califia	1.1%
Huntington City & State Beach			S10	Aliso Beach - North	0.7%	S-23	Las Palmeras	0.7%
27N	Bluffs	1.6%	S9	Aliso Beach - Middle	3.0%			
21N	17th Street	0.1%	S8	Aliso Beach - South	0.3%			
15N	Jacks Snack Bar	0.8%	S7	Camel Point	0.7%			
12N	Beach Blvd.	1.5%	S6	Table Rock	0.3%			
9N	Newland Street	**7.0%**	S5	Laguna Lido	0.0%			
6N	Magnolia Street	**11.5%**	S4	9th Street / 1000 Steps	0.3%			
3N	Brookhurst Street	**10.5%**	S3	Three Arch Bay	1.0%			
0	Santa Ana River Mouth	**7.7%**	**Dana Point**					
Newport Beach			OSL25	Monarch Beach	**8.7%**			
3S	Orange Street	1.4%	S2	Salt Creek Beach	1.1%			
6S	52nd / 53rd Street	0.7%	S1	Dana Strands	0.7%			
9S	38th Street	0.4%	S-6	Ocean Institute Beach	0.4%			
15S	15th / 16th Street	1.2%	S-4	DP Harbor Entrance	0.7%			
21S	Balboa Pier	0.3%	**Doheny State Beach**					
27S	The Wedge	0.0%	ODB02	North Beach	**18.7%**			
29S	Corona Del Mar Beach	1.6%	S-2	Mid North Beach	**10.1%**			
ONB31	Little Corona Beach	1.4%	S-0	SJC / Ocean Interface	**17.3%**			
Crystal Cove State Beach			S-1	1000 Feet S. of Outfall	**7.8%**			
ONB35	Pelican Point	0.0%	S-3	2000 Feet S. of Outfall	**10.6%**			
39S	Pelican Point Beach	0.1%	S-5	3000 Feet S. of Outfall	**12.2%**			
ONB39	Crystal Cove Beach	0.0%	S-7	4000 Feet S. of Outfall	4.6%			
ONB43	Muddy Creek Beach	0.6%						
ONB45	El Moro Beach	0.7%						

Denotes >=5.0% exceedance rate

Denotes >=15.0% exceedance rate

Appendix B

INTRODUCTION

A subset of the coastal receiving water monitoring locations for the regional monitoring program represent areas of concern for public health issues that are currently sampled by two or more of the stakeholder agencies. An information review of the historic data was performed to determine if monitoring efforts could be consolidated that would afford appropriate protection of public health while at the same time maintaining the management intent of a unified coastal receiving waters regional monitoring program. Coastal receiving waters fecal indicator bacteria data were statistically evaluated to assess the feasibility of consolidating sampling efforts for monitoring locations which exhibited a greater than 5% exceeded rate for any of the Assembly Bill 411 (AB-411) ocean recreational contact water quality standards. Consolidation analyses were performed for a select number of candidate monitoring stations as shown in table 1 that were determined to have redundant sampling efforts by two or more agencies, to be located within the 200 yards distance of another agency, and exhibit greater than 5% exceedances rates.

Table 1. Consolidation Candidate Station List

Location	OCPW	SOCWA	OCEH
Pacific Ocean at San Juan Creek	SJC1u,d	S-0	ODB05
San Juan Creek pond	SJC1	C-1	
Pacific Ocean at Capistrano County Beach	CSBMP1u,d	S-9	
Pacific Ocean at Poche Beach	POCHEu,d	S-15	
Pacific Ocean at San Clemente City North Beach	PICOu,d	S-17	
Pacific Ocean at San Clemente Pier	PIERu,d	S-19	

*The suffix (u,d) indicates shoreline sampling locations 25 yards upcoast (u) and 25 yards downcoast (d) of the freshwater-ocean interface.

The ocean recreational contact water quality exceedances rates of the Enterococcus AB-411 standard for the candidate station over the period of January 2003 to June 2009 are provided in table 2 shown below. Receiving water data were evaluated against the single sample standard (104 CFU/100mL) and the geomean standard (35 CFU/100mL).

Table 2. Exceedances of AB-411 Enterococcus water quality standard

Location	OCPW	SOCWA	OCEH
Pacific Ocean at San Juan Creek	51.8%	44.7%	40.5%
San Juan Creek pond	92.2%	91.6%	
Pacific Ocean at Capistrano County Beach	26.0%	18.8%	
Pacific Ocean at Poche Beach	43.6%	41.2%	
Pacific Ocean at San Clemente City North Beach	21.9%	11.6%	
Pacific Ocean at San Clemente Pier	9.4%	5.5%	

*Data from the San Juan Creek pond were only compared to the single sample standard.

Appendix B
cont.

Consolidation Criteria:

The candidate monitoring sites were analyzed using four different data review criteria to evaluate consolidation feasibility based on multiple lines of information.

1. Are the long term baselines statistically different?
2. Do stations exhibit within year baseline differences?
3. Are the exceedance rate percentages for shoreline samples significantly different within years?
4. Are trends in public health protection consistent?

A recommendation to consolidate redundant sampling efforts is based on the premise that the candidate station pair(s) must meet all of the review criteria at an adequate level of data agreement.

Data Inventory

Historic data sets were compiled from South Orange County Wastewater Authority (SOCWA), Orange County Public Works (OCPW), and Orange County Health Care Agency – Environmental Health Division (OCEH) for the period of January 2003 until June 2009. The data time period was selected to cover the duration of the Coastal Storm Drain Outfall monitoring program for Orange County Public Works which was enacted under NPDES Order No. R9-2002-0001 in January 2003 through fiscal year end 2009.

METHODS

Data Analysis

Bacteria data were analyzed for spatial and temporal differences in Enterococcus densities with a significance level of $\alpha = 0.05$. Differences amongst groups were tested using a Kruskal-Wallis one-way analysis of variance (ANOVA) on ranks with a Dunn's post-hoc test for multiple comparisons between data sets of unequal sample sizes. Differences between specific pairs of interest were evaluated using a Mann-Whitney Rank Sum test for comparison of baseline averages or a proportion test for differences in exceedances rates. Relationships in exceedances rate trends over time were analyzed using univariate regression. Statistical analyses were performed using commercial available software from Systat Software Inc.

Statistical Reconciliation

Outliers data points in environmental data sets can lead to spurious or incorrect baseline assessments of fecal indicator bacteria conditions of receiving waters. The addition of outliers in environmental data sets further creates complications when attempting to establish comparability of data sets. The data sets for the station consolidation review were evaluated for outliers contributing to significant differences using a standard Grubb's test statistical method. Additional review criteria for outlier deletion were established to ensure that events contributing to elevated indicator levels were not improperly removed. The removal criteria for outliers from data sets are:

1. Are differences associated with storm drain flows?
   NO – Outlier removed
   YES – Data point stays

2. Are differences associated with sanitary sewer overflows?
   NO – Outlier removed
   YES – Data point stays

Appendix B
cont.

3. Are differences associated with deviation from dry weather protocols by sampling days occurring within 72 hours of storm event?
   YES – Outlier removed
   NO – Data point stays

The removal of outlier data points in the consolidation data sets was solely restricted to comparisons of the baselines trends over time between stations. Outlier points were not excluded in any of the data sets for calculation of the AB-411 exceedance rate percentages.

Rejection Criteria

Candidate station pairs were evaluated in a stepwise fashion using specific rejection criteria to screen data sets that would deny consolidation of monitoring efforts. The first review criterion establishes whether monitoring locations have tracked the same environmental conditions over a long term period. The consolidation review was terminated if the station pair(s) demonstrated significantly different long term baselines. If the data sets did not demonstrate statistically different long term baselines, a population based ranking system approach was used to evaluate the within year differences of data sets.

The evaluation criteria to assess within year differences consist of a pass or fail grading approach to evaluate whether random variations within years account for major environmental differences or whether an "anomalous" year contributes minor variability to the overall conditions. The rejection criteria applied to determine whether significant differences account for non-comparability of the data set use multiple lines of information to review data sets.

The stepwise rejection criteria for consolidation are:

1. Station pair exhibits significantly different long term baselines.

2. Annual baseline exhibiting significant differences between sites are significantly different compared to the cumulative data set.

3. Station pairs exhibit significantly differences in annual exceedances rates and/or cumulative exceedances rates and the outstanding years account for more than 5% of the total exceedance rates.

4. Relationships in annual exceedances rates demonstrate a statistically insignificant regression or the regression coefficient is less than $R^2 = 0.500$. The slope of the least squares best fit line is less than or more than 1.0 ± 0.25.

CASE EXAMPLES

The Pacific Ocean shoreline along south Orange County is the focus of several public and regulatory agencies. In December 2007 the California Regional Water Quality Control Board San Diego adopted the Beaches and Creeks Total Maximum Daily Load directive in order to address the persistent elevated levels of fecal indicator bacteria in the receiving waters. The consolidation of environmental sampling efforts from the candidate station list benefits the stakeholder agencies involved in the TMDL and at the same time the Unified Coastal Receiving Water Regional Monitoring Program will be supported by the complimentary management effort to reduce fecal indicator bacteria pollution from the watershed. The consolidation of monitoring efforts for the two case examples involves data sets from each of the stakeholders agencies in the unified monitoring program.

*The probability values (p-values) for statistically significant relationships at the 95% confidence level are indicated by bold entries

Appendix B
cont.

Case Example 1: Pacific Ocean Shoreline at Poche Beach

Data Analysis Objective 1. Do stations exhibit long term baseline differences?

Station Pair(s)	Significantly Different	P value
POCHEu,d; S-15	NO	0.263
POCHEu,POCHEd	NO	0.265
POCHEu; S-15	NO	0.762
POCHEd; S-15	NO	0.104

The station pairs do not demonstrate long term significant differences in environmental conditions for receiving waters.

Data Analysis Objective 2 and 3. Do stations exhibit within year differences?

Baseline

Year	2003	2004	2005	2006	2007	2008	2009
p-value	0.95	0.25	0.277	0.122	**0.002**	0.439	330
n	178	185	170	196	187	182	80

The baseline differences between the OCPW monitoring station (POCHEu,d) and SOCWA monitoring station (S-15) in year 2007 are in addition statistically significant compared to the remaining data sets of these two sampling locations

Station Pair(s)	**Significantly Different**	**P value**
POCHE in 2007; POCHE	YES	**<0.001**
POCHE in 2007; S-15	YES	**<0.001**
S-15 in 2007; POCHE	YES	**0.020**
S-15 in 2007; S-15	YES	**0.013**

Appendix B
cont.

Percent Exceedances AB-411 Standard

POCHE(u,d)

Year	2003	2004	2005	2006	2007	2008	2009	All Years
%exceed	30.8	34.3	23.7	51.7	70.1	56.9	25.6	43.6
n	133	137	131	151	154	137	86	929

S-15

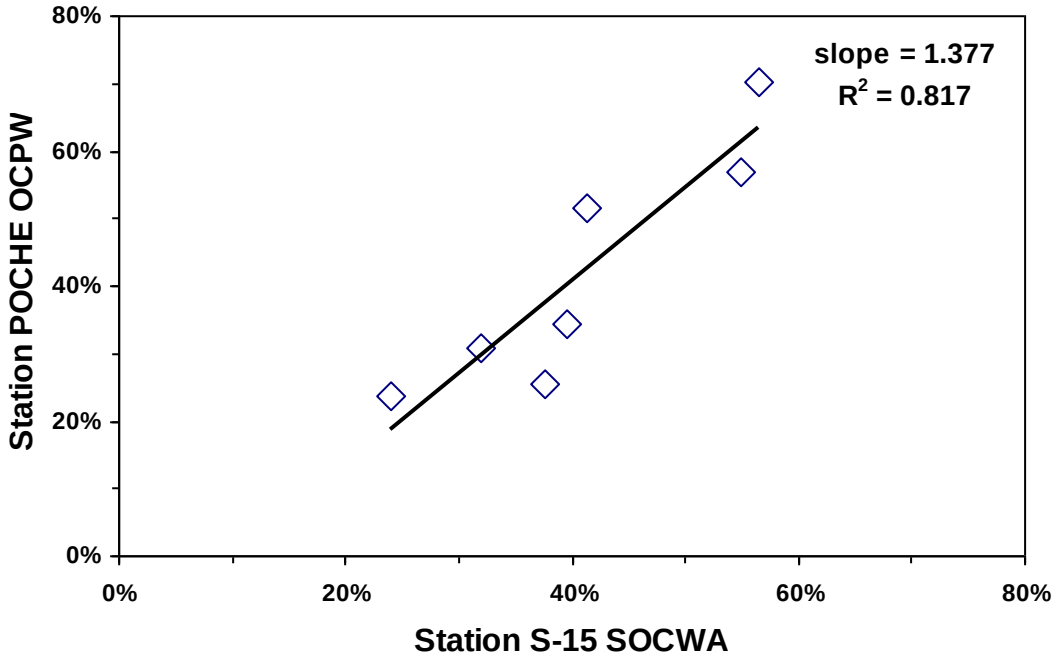
Year	2003	2004	2005	2006	2007	2008	2009	All Years
%exceed	32.0	39.6	24.0	41.3	56.5	54.9	37.6	41.2
n	172	182	154	184	161	173	101	1127
p-value*					**<0.05**			

*Blank entries indicate that the proportion differences are not statistically significant

Although the proportion of AB-411exceedances for the combined data sets, including 2007, are not statistically significant, the AB-411 exceedances in 2007 contribute to 9.7% of the total exceedances rate for the complete data period.

Data Analysis Objective 4. Are trends in public health protection consistent?

Corresponding Relationship for Exceedances in AB-411 Standard



Appendix B
cont.

Although the annual exceedances rates track similarly over time, the slope of the best fit line does not conform to an reasonably level of agreement in annual trends. Exceedance rates that differ by more than 25% represent a probability that two samples could result in a false negative detection for an Enterococcus level exceeding the public health standard.

Consolidation Review Recommendation Summary

	Points Earned	Total Points	% Agreement	Recommendation
Consolidation Ranking	14	22	63.6%	Do Not Consolidate

Case Example 2: Pacific Ocean Shoreline at Doheny State Beach

Data Analysis Objective 1. Do stations exhibit long term baseline differences?

Station Pair(s)	Significantly Different	P value
SJC1u,d; S-0; ODB05	YES	**0.002**
SJC1u; SJC1d	NO	0.586
SJC1u,d; S-0	YES	**0.015**
SJC1u,d; ODB05	YES	**0.002**
S-0; ODB05	NO	0.667

The OCPW monitoring station pair SJC1u,d form an existing sampling location at the freshwater-ocean interface of San Juan Creek and will not be analyzed further for consolidation. The following data analysis section applies only to the consolidation review of SOCWA station S-0 and OCEH station ODB05.

Data Analysis Objective 2 and 3. Do stations exhibit within year differences?

Baseline							
Year	2003	2004	2005	2006	2007	2008	2009
p-value	0.427	0.859	0.510	0.761	0.411	0.786	0.732
n	146	137	123	143	131	145	63

These results show that station S-0 and ODB05 do not exhibit within year significant differences.

Appendix B
cont.

Percent Exceedances AB-411 Standard

S-0

Year	2003	2004	2005	2006	2007	2008	2009	All Years
%exceed	68.4	51.8	54.5	51.2	38.8	51.5	41.5	52.9
n	177	164	145	170	147	171	65	1056

ODB05

Year	2003	2004	2005	2006	2007	2008	2009	All Years
%exceed	69.5	52.1	49.3	49.5	45.7	53.8	34.7	51.8
n	95	94	69	101	94	104	49	689

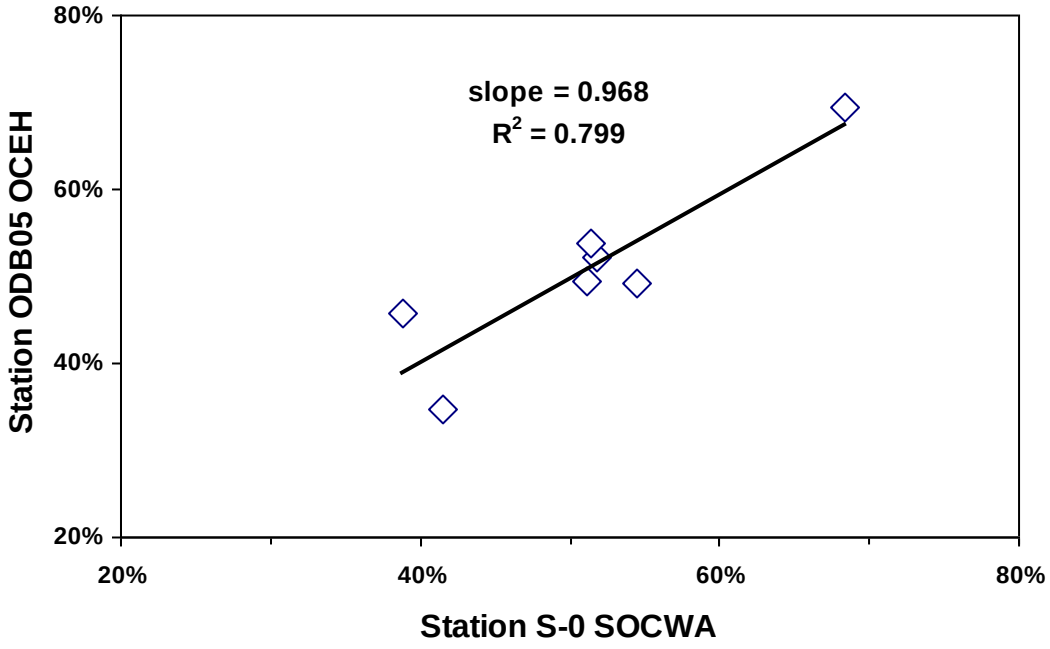
p-value*								

*Blank entries indicate that the proportion differences are not statistically significant

The station pair does not exhibit any within year significant difference for percent samples exceeding the AB-411 standard.

Data Analysis Objective 4. Are trends in public health protection consistent?

Corresponding Relationship for Exceedances in AB-411 Standard



Appendix B
cont.

Consolidation Review Recommendation Summary

	Points Earned	Total Points	% Agreement	Recommendation
Consolidation Ranking	16	16	100%	Consolidate

Summary of Results for Candidate Station Pairs

Candidate Pair(s)	Recommendation	Consolidation Review
SJC1u,d; S-0; ODB05	Do Not Consolidate	Significantly Different Baselines
S-0; ODB05	Consolidate	100% Agreement
SJC1, C-1	Consolidate	94.1% Agreement
CSBMP1u,d; S-9	Do Not Consolidate	38.1% Agreement
POCHEu,d; S-15	Do Not Consolidate	63.6% Agreement
PICOu,d; S-17	Do Not Consolidate	Significantly Different Baselines
PIERu,d; S-19	Do Not Consolidate	61.9% Agreement

Appendix C

State Water Resources Control Board
Beach Water Quality Workgroup
Monitoring and Reporting Subcommittee
Model Monitoring Matrices

Minimum Monitoring Matrix:

Swimming Season AB 411 (April 1 - October 31st) Note: % for dry weather season	Sites near storm drains BMP successfully implemented (diversions)	Sites near storm drains with history of Indicator problems (>=5%)	Sites near storm drains and without history of pollution (<5%)	No nearby sources or history of problems (<5%) (mostly open coastal)	Permanent signage (Sample as per AB 411 requirement)**
High Use Beach -lifeguards, high usage >50,000	1/week*	1/week*	1/week*	1/week*	1/week
Medium Use Beach - nearby parking, moderate usage summer and/or winter	1/week*	1/week*	1/week*	0/week	0/week
Low Use Beach - low access and/or usage	0/week	0/week	0/week	0/week	0/week

Preferred Monitoring Matrix:

Swimming Season AB 411 (April 1 - October 31st) Note: % for dry weather season	Sites near storm drains BMP successfully implemented (diversions)	Sites near storm drains with history of Indicator problems (>=5%)	Sites near storm drains and without history of pollution (<5%)	No nearby sources or history of problems (<5%) (mostly open coastal)	Permanent signage (Sample as per AB 411 requirement)**
High Use Beach -lifeguards, high usage >50,000	1/week*	2-3/week*	1/week*	1/week*	1/week
Medium Use Beach - nearby parking, moderate usage summer and/or winter	1/week*	2/week*	1/week*	0/week	0/week
Low Use Beach -low access and/or usage	0/week	1/week	0/week	0/week	0/week

Optimal Monitoring Matrix:

Swimming Season AB 411 (April 1 - October 31st) Note: % for dry weather season	Sites near storm drains BMP successfully implemented (diversions)	Sites near storm drains with history of Indicator problems (>=5%)	Sites near storm drains and without history of pollution (<5%)	No nearby sources or history of problems (<5%) (mostly open coastal)	Permanent signage (Sample as per AB 411 requirement)**
High Use Beach -lifeguards, high usage >50,000	1/week*	5/week*	1/week*	1/week*	1/week
Medium Use Beach - nearby parking, moderate usage summer and/or winter	1/week*	3/week*	1/week*	0/week	0/week
Low Use Beach -low access and/or usage	0/week	1/week	0/week	0/week	0/week

*If AB 411 single sample standard violation - adaptive confirmation resampling conducted to help identify source, spatial area impact and temporal period.

**Permanent signage can be used when spatial area impact has been fully delineated and defined.

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

California Regional Water Quality Control Board, San Diego Region

October 30, 2014

In reply refer to / attn:
257590:bposthumus
257592:bposthumus
658018:bposthumus

NOTICE OF AVAILABILITY OF DRAFT LETTER DIRECTIVE TO ESTABLISH REQUIREMENTS FOR IMPLEMENTATION OF A UNIFIED BEACH WATER QUALITY MONITORING AND ASSESSMENT PROGRAM IN SOUTH ORANGE COUNTY (WATER CODE SECTION 13383)

This letter is a notification that, following a 30-day written public comment period that starts today and after consideration of comments received, I propose to establish requirements[1] that South Orange County Wastewater Authority (SOCWA) and the south Orange County municipal separate storm sewer system (MS4) copermittees participate in, and, together with Orange County Health Care Agency (OCHCA), share responsibility for implementation of the unified regional monitoring program (Unified Program) set forth in the attached report ("Workgroup Recommendation for a Unified Beach Water Quality Monitoring and Assessment Program in South Orange County"). The requirements would become effective April 1, 2015. The proposed Section 13383 letter directive that would establish these requirements is attached.

The San Diego Water Board will consider proposed amendments to affected NPDES permits to ensure that the requirements established through the Section 13383 letter directive are enforceable components of the monitoring and reporting requirements of those permits. The affected permits are for discharges from the (a) SOCWA Aliso Creek Ocean Outfall, (b) SOCWA San Juan Creek Ocean Outfall, and (c) south Orange County MS4s. The tentative orders that would amend these NPDES permits are currently available for public comment.[2] The Unified Program requirements would supersede the existing beach water quality monitoring requirements in the NPDES permits for SOCWA and the south Orange County MS4 copermittees effective April 1, 2015.

[1] The requirements would be issued pursuant to California Water Code section 13383. Use of an Executive Officer-issued directive, e.g., pursuant to Water Code section 13383, to require participation in and shared responsibility for implementation of the Unified Program and to specify the effective date of any revisions thereto facilitates putting the program and any such revisions into effect expeditiously and with the same effective date for all parties.

[2] The proposed revisions to the monitoring and reporting requirements of these NPDES permits are available as follows:
(a) SOCWA Aliso Creek Ocean Outfall (Tentative Order No. R9-2014-0098) (amendments to NPDES No. CA0107611): http://www.waterboards.ca.gov/sandiego/board_decisions/tentative_orders/;
(b) SOCWA San Juan Creek Ocean Outfall (Tentative Order No. R9-2014-0105) (amendments to NPDES No. CA0107417): http://www.waterboards.ca.gov/sandiego/board_decisions/tentative_orders/; and
(c) south Orange County MS4s (Tentative Order No. R9-2015-0001) (amendments to NPDES No. CAS0109266): http://www.waterboards.ca.gov/rwqcb9/water_issues/programs/stormwater/oc_stormwater.shtml.

The San Diego Water Board is currently scheduled to consider making these permit revisions at its public meetings on the following dates:

- December 11, 2014: NPDES permits for SOCWA; and
- February 11, 2015: NPDES permit for south Orange County MS4 copermittees (through amendments to the San Diego Regional MS4 Permit).

Please submit written comments on the proposed action to sandiego@waterboards.ca.gov. In the subject line of any written response, please include the reference numbers 257590:257592:and 658018:bposthumus.

I very much appreciate the efforts of the workgroup that developed the Unified Program. The workgroup, which developed the Unified Program during the period from July 2012 to September 2014, included representatives of SOCWA, Orange County Public Works, OCHCA, and other entities and individuals with interests in beach water quality in south Orange County. I commend the workgroup participants for their significant contributions to making meaningful, practical, and valuable improvements in beach water quality monitoring in south Orange County.

If you have any questions regarding the proposed action, please contact Bruce Posthumus, Senior Water Resource Control Engineer, at 619-521-3379 or bposthumus@waterboards.ca.gov.

Respectfully,

DAVID W. GIBSON
Executive Officer

DWG:jgs:jch:bwp

Attachments:

1. "Workgroup Recommendation for a Unified Beach Water Quality Monitoring and Assessment Program in South Orange County"
2. Proposed Water Code section 13383 letter directive

Tech Staff Info & Use	
Place ID	257590
Place ID	257592
Place ID	658018

CALIFORNIA Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

California Regional Water Quality Control Board, San Diego Region

TO: South Orange County Wastewater Authority (SOCWA)
South Orange County Municipal Separate Storm Sewer System (MS4) Copermittees
(via Email; see attached mailing list)

In reply refer to / attn:
257590:bposthumus
257592:bposthumus
658018:bposthumus

Subject: Requirements for Implementation of a Unified Beach Water Quality Monitoring and Assessment Program in South Orange County (Water Code Section 13383)

The Code of Federal Regulations (CFR) at 40 CFR section 122.48 requires that all National Pollutant Discharge Elimination System (NPDES) permits specify monitoring and reporting requirements. California Water Code section 13383 also authorizes the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) to establish monitoring and reporting requirements for discharges to surface waters regulated by NPDES permits within the San Diego Region.

This letter serves to establish requirements, pursuant to Water Code section 13383,[1] that your agencies participate in, and, together with Orange County Health Care Agency (OCHCA), share responsibility for implementation of the unified regional monitoring program (Unified Program) set forth in the attached report ("Workgroup Recommendation for a Unified Beach Water Quality Monitoring and Assessment Program in South Orange County"), effective April 1, 2015.

The Unified Program, which is incorporated herein, was developed during the period from July 2012 to September 2014 by a workgroup that included representatives of SOCWA, Orange County Public Works, OCHCA, and other entities and individuals with interests in beach water quality in south Orange County. The Unified Program is intended to be protective, reasonable, and equitable and to meet or go beyond meeting the requirements for beach water quality monitoring and related public notification and reporting established by State law.

Effective April 1, 2015, the requirements established through issuance of this Water Code section 13383 letter directive will become enforceable components of the monitoring and reporting requirements of the NPDES permits for discharges from the (a) SOCWA Aliso Creek Ocean Outfall, (b) SOCWA San Juan Creek Ocean Outfall, and (c) south Orange County MS4s.[2] This letter directive is being issued to the NPDES permittees for those discharges, i.e., SOCWA (permittee for discharges from the Aliso Creek Ocean Outfall and the San Juan Creek Ocean Outfall) and the County of Orange, Orange County Flood Control District, and the cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita, San

[1] Use of an Executive Officer-issued directive, e.g., pursuant to Water Code section 13383, to require participation in and shared responsibility for implementation of the Unified Program and to specify the effective date of any revisions thereto facilitates putting the program and any such revisions into effect expeditiously and with the same effective date for all parties.

[2] The order numbers and NPDES numbers of these three permits, respectively, are:
(a) SOCWA Aliso Creek Ocean Outfall: Order No. R9-2012-0013 (NPDES No. CA0107611);
(b) SOCWA San Juan Ocean Outfall: Order No. R9-2012-0012 (NPDES No. CA0107417); and
(c) south Orange County MS4s: Order No. R9-2013-0001, (NPDES No. CAS0109266)

Clemente and San Juan Capistrano (copermittees for discharges from the south Orange County MS4s).

The Executive Officer or the San Diego Water Board may approve future revisions to the Unified Program by updating this letter directive, provided that the Unified Program, as revised, will continue to meet the requirements of State law, including the California Ocean Plan, for beach water quality monitoring and related public notification and reporting requirements. Any future revisions requested by affected permittees or interested parties, or as deemed necessary and/or appropriate by the Executive Officer, will be subject to a 30 (thirty) day public comment period and request for hearing before the San Diego Water Board.

Under Water Code section 13389, issuance of this Water Code section 13383 letter directive is exempt from the provisions of the California Environmental Quality Act (Public Resources Code sections 21100-21177).

Any person aggrieved by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

Ordered by _____

DAVID W. GIBSON
Executive Officer

DATE: _____

DWG:jgs:jch:bwp

Attachments:
1. Mailing List
2. "Workgroup Recommendation for a Unified Beach Water Quality Monitoring and Assessment Program in South Orange County"

Tech Staff Info & Use	
Place ID	257590
Place ID	257592
Place ID	658018

ATTACHMENT 1

Mailing List

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SDRWQCB Email list: Orange County MS4 Permit

SWRCB Email list: Beach Water Quality Workgroup – Southern California