



*Ventura Countywide
Stormwater Quality
Management Program*

2016-2017
Permit Year

Ventura Countywide Stormwater Quality
Management Program Annual Report

Attachment E2 - TMDL Reports (part II)



Camarillo
County of Ventura
Fillmore
Moorpark
Ojai
Oxnard
Port Hueneme
Santa Paula
Simi Valley
Thousand Oaks
Ventura

Ventura County Watershed Protection District

December 15, 2017

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Bacteria Total Maximum Daily Load Compliance Report - Draft

Harbor Beaches of Ventura County (Kiddie Beach and Hobie Beach)

Prepared for

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1. INTRODUCTION

The water quality of the Harbor Beaches of Ventura County, Kiddie and Hobie, is regulated by a Bacteria Total Maximum Daily Load (TMDL) (Resolution R2007-017) effective December 18, 2008. The TMDL requires weekly beach monitoring, the implementation of Best Management Practices (BMPs) to control sources of bacteria, and achievement of Waste Load Allocations (WLAs) (expressed as allowable exceedance days). The TMDL requires responsible MS4 agencies to submit compliance reports by six years (December 18, 2014), eight years (December 18, 2016), and ten years (December 18, 2018) after the effective date of the TMDL. These Compliance Report must include: an evaluation of monitoring data with regards to final dry weather, interim wet weather, and rolling 30-day geometric mean WLAs; a summary of recently completely TMDL special studies; and an assessment of BMPs currently implemented.

As required by TMDL, in December 2014, compliance reports were submitted for the County of Ventura and Ventura County Watershed Protection District (Geosyntec Consultants, 2014b) and for the City of Oxnard (Geosyntec Consultants, 2014a). This Compliance Report satisfies the 2016 TMDL reporting requirements for the County of Ventura (County), the Ventura County Watershed Protection District (VCWPD), and the City of Oxnard (City).

1.1 TMDL Background

The Clean Water Act (CWA) of 1972 provides the basis for the protection of all inland surface waters, estuaries, and coastal waters. The federal Environmental Protection Agency (EPA) is responsible for administering the CWA and developing regulations, but may delegate its authority to the State.

California's primary statute governing water quality is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the California State Water Resources Control Board (State Board) and nine California Regional Water Quality Control Boards broad powers to protect water quality, and it is the primary vehicle for the administration of California's regulations under the federally delegated responsibilities of the CWA. The governing Regional Board for the Los Angeles area watersheds is the Los Angeles Regional Water Quality Control Board (LARWQCB).

The Porter Cologne Act is implemented in the Los Angeles Region by the California Water Quality Control Plan, Los Angeles Region (Basin Plan). The Basin Plan sets water quality standards for the Los Angeles Region, which includes beneficial uses for surface and groundwater with numeric and narrative objectives necessary to support those uses.

Section 303(d) of the CWA requires that states conduct a biennial assessment of waters and identify those waters that are not achieving water quality objectives, referred to as the 303(d) list. The 303(d) list outlines the impaired waterbody and the specific pollutant(s) for which it is impaired. Once listed on the 303(d) list, all waterbodies are subject to the development of a TMDL. A TMDL establishes the maximum amount of a pollutant that a waterbody can receive and still meet the applicable water quality standard for that pollutant.

1.2 TMDL Requirements

The State Board identified the Harbor Beaches of Ventura County (Harbor Beaches) as impaired by indicator bacteria based on REC-1 water quality objectives and placed them on the 303(d) list in 2006. REC-1 water quality objectives for marine waters include the following:

1. Rolling 30-day Geometric Mean Limits¹
 - a. Total coliform density shall not exceed 1,000/100 mL
 - b. Fecal coliform density shall not exceed 200/100 mL
 - c. Enterococcus density shall not exceed 35/100 mL
2. Single Sample Limits
 - a. Total coliform density shall not exceed 10,000/100 mL
 - b. Fecal coliform density shall not exceed 400/100 mL
 - c. Enterococcus density shall not exceed 104/100 mL
 - d. Total coliform density shall not exceed 1,000/100 mL, if the ratio of fecal-to-total coliform exceeds 0.1

On December 18, 2008, the EPA made effective the TMDL for bacteria as an amendment to the Basin Plan (Resolution R2007-017). The TMDL was then incorporated into the current version of the Ventura County MS4 permit in 2009¹. Allowable pollutant loadings under the TMDL, WLAs, are expressed as an allowable number of days per year that the water quality objectives can be exceeded. The allowable number of exceedance days for each monitoring site is based on the more stringent of two criteria: (1) exceedance days in the designated reference system, or (2) exceedance days based on historical bacteriological data at the monitoring site, because the TMDL was developed based on a reference system/antidegradation approach. This ensures that bacteriological water

¹ The geometric mean WLAs are an exception as they were included in the TMDL but not incorporated in the 2009 Ventura County MS4 permit. However, the MS4 Permit is currently being renewed by the LARWQCB and is expected to incorporate geometric mean WLAs to reflect the TMDL.

quality is at least as good as that of a largely undeveloped system and that there is no degradation of existing water quality.

Both interim and final single sample and geometric mean exceedance WLAs are provided in the TMDL for the County, VCWPD, the City, and Caltrans². The WLAs are provided in the TMDL for three different seasonal conditions within the TMDL year (November 1 – October 31), which include summer (April 1 – October 31), winter (November 1 – March 31) and wet weather³ (for single sample WLA only). Interim WLAs became effective upon the effective date of the TMDL (December 18, 2008) and are assigned for the duration of the implementation schedule. Final WLAs became effective five years after TMDL approval (December 18, 2013) for dry weather and geometric means and will go into effect ten years after TMDL approval (December 18, 2018) for wet weather.

The TMDL requires that weekly beach monitoring continue at the two compliance monitoring locations where monitoring is conducted to comply with Assembly Bill No. 411 (AB411): Ventura County Environmental Health Division (VCEHD) 36000 (at Hobie Beach) and VCEHD 37000 (at Kiddie Beach). The monitoring should be conducted on a year-round basis in ankle- to knee-high water, consistent with AB411 compliance monitoring requirements. In the situation that WLAs are exceeded at the compliance monitoring locations, then structural or non-structural BMPs are required to be implemented.

2. BACKGROUND

2.1 Channel Islands Harbor and Harbor Beaches

The Harbor Beaches are located within the Channel Islands Harbor (Harbor), along the southern California coast in Ventura County (Figure 1). The Harbor Beaches are located near the Harbor entrance at the southern terminus of the Harbor along the east side of the main channel as it turns north. Towards the north, the main channel divides into a West Channel and an East Channel. The West Channel becomes Edison Channel, which continues north past the Mandalay Bay Generating Station and reenters the Pacific Ocean approximately 3.6 miles north of the southern entrance to the Harbor. The Channel Islands Harbor includes approximately 2,150 boat slips, four yacht clubs, and nine marinas. The tributary area draining to the Harbor is approximately 11.58 square miles in

² Caltrans activities are not included in this Compliance Report.

³ defined as days with 0.1 inch of rain or greater and the three days following

size and is comprised of areas within the jurisdictions of the County (3.07 square miles), the City of Oxnard (7.93 square miles) and the City of Port Hueneme (0.58 square miles).

The Army Corp of Engineers designed and created the Kiddie and Hobie Beaches as “surge beaches” to collectively absorb the impact of tidal surges and, as a consequence, prevent infrastructure damage in the Harbor. Protection against tidal surges remains the primary purpose of the Harbor Beaches and each beach also possesses a surge wall designed for this purpose. Providing water contact recreation was not the Harbor Beaches’ original purpose, but rather has evolved to be a beneficial use. Kiddie Beach, comprised mainly of sand, and Hobie Beach, comprised mainly of rocks, are situated adjacent to one another. Kiddie Beach is located at the end of the southern entrance jetty and Hobie beach is located just to the north of Kiddie Beach. Kiddie Beach is approximately 430 feet long with a width ranging from about 120 feet wide at Mean Lower Low Water (MLLW) to 70 feet at Mean Higher High Water (MHHW). Hobie Beach is approximately 400 feet long with a width ranging from 75 to 250 feet at MLLW to being nearly completely inundated at MHHW.

2.2 County MS4 Area Draining to the Harbor Beaches

The County owns a single MS4 outfall that discharges wet weather runoff directly to the Harbor Beaches and dry weather flows are diverted year-round (since April 2015) to the sewer system⁴. This outfall, located immediately on the south side of Kiddie Beach, is the discharge point for a small storm drain network (33 acres) in the Silver Strand Neighborhood (Figure 2). The County owns additional MS4 outfalls that discharge to the greater Harbor area, including an MS4 that drains a portion of the Hollywood-by-the-sea neighborhood (west of the Harbor Beaches), and approximately 17 outfalls which drain a section of Harbor Blvd. and the Harbor parking lots to the northwest of the Harbor Beaches. Additionally, the VCWPD owns one MS4 that discharges into Edison Channel north of West 5th Street collecting runoff from mostly agricultural land uses and the Oxnard Airport. County urban land use in the Harbor watershed includes single-family residential (19.1%), multi-family residential (15.3%), commercial (10.1%), marina water facilities (28.8%), and parks and recreation (26.7%).

The predominant MS4 network of the watershed (the Oxnard West Drain) discharges into the Harbor on the north side of Channel Islands Boulevard, approximately one mile north of the Harbor Beaches. The Oxnard West Drain, owned by VCWPD, starts in the upper reaches of the watershed, runs south along Ventura Road and then west along Channel Islands Boulevard to the Harbor. The majority of the Harbor watershed (4.37 square miles

⁴ See Section 5.3.3 for details regarding the San Nicholas pump station and diversion structure.

of single- and multi-family residential, education, commercial and industrial land uses) drains into the Oxnard West Drain.

2.3 City MS4 Area Draining to the Harbor Beaches

The City owns a single MS4 outfall that discharges directly to the Harbor Beaches. This outfall, located immediately on the north side of Hobie Beach, is the discharge point for a short storm drain connecting two street inlets on Victoria Avenue to the Harbor (Figure 3). The City owns additional MS4 outfalls that discharge to the greater Harbor area, all of which are located to the north of the Harbor Beaches.

The City of Oxnard also owns smaller drains along Hemlock and Wooley Road that collect runoff from single- and multi-family residential and commercial land uses that discharge into the Harbor between Channel Islands Boulevard and west 5th Street, as well as sheet flow from adjacent land uses (vacant, single- and multi-family land uses) to the west of the Harbor.

City land use in the Harbor watershed include single-family residential housing (48.0%), multi-family residential housing (14.8%), commercial (12.2%), agricultural (6.5%), vacant (4.3%), transportation (4.1%), education (3.8%), parks and recreation (3.7%), industrial areas (1.4%), and marina water facilities (1.3%) (shown in Figure 3).

3. COMPLIANCE MONITORING

Appendix A contains a detailed discussion of (1) the compliance monitoring data that were collected after the TMDL effective date; (2) the data analysis performed; and (3) the data analysis results that were obtained. The following sections briefly summarize the analysis methodology and the data analysis results

3.1 Analysis methodology

Monitoring at the CIH Beaches is based on TMDL and State monitoring requirements. Monitoring occurs at the beach compliance monitoring locations on a weekly frequency, year-round. An exception is during dry weather, when follow-up samples are typically collected the day after a sample exceeds the single sample water quality objective. The

following analysis includes all data (i.e., weekly and follow-up samples) collected from February 4, 2009 through October 31, 2016⁵ and is described in detail in Appendix A

The interim and final single sample WLAs, based on a weekly sampling frequency and expressed as annual allowable exceedance days (AEDs), are shown in Table 1.

Table 1. Interim and Final Single Sample WLAs for Weekly Sampled Sites

Season	Interim WLAs (AEDs)			Final WLAs (AEDs)		
	Compliance Deadline	Hobie Beach	Kiddie Beach	Compliance Deadline	Hobie Beach	Kiddie Beach
Summer Dry	Dec. 18, 2008	6	8	Dec. 18, 2013	0	0
Winter Dry		4	4		1	1
Wet		6	5	Dec. 18, 2018	3	3

The geometric mean WLAs are not incorporated into the Ventura County MS4 permit, however they are defined in the TMDL and have been evaluated here for informational purposes. The interim and final 30-day rolling geometric mean WLAs, based on a weekly sampling frequency and expressed as AEDs, are shown in Table 2.

Table 2. Interim and Final 30-day Rolling Geometric Mean WLAs for Weekly Sampled Sites

Season	Interim WLAs (AEDs)			Final WLAs (AEDs)		
	Compliance Deadline	Hobie Beach	Kiddie Beach	Compliance Deadline	Hobie Beach	Kiddie Beach
Summer	Dec. 18, 2008	12	8	Dec. 18, 2013	0	0
Winter		13	14		0	0

For each sample result, the measured indicator bacteria concentrations were compared to the single sample water quality objectives. If any one of the objectives were exceeded, one exceedance was counted, with exceedance counts summed by season to compare with weekly sampling allowed exceedance days. Rolling 30-day geometric means were calculated on sample days based on a minimum of five samples in the 30-day period during each TMDL season (November 1 – October 31). Similar to single sample results,

⁵ This time period represents monitoring since the TMDL effective date through the end of the 2016 TMDL year, as monitoring data was available. This period does not include 12/18/2008 through 1/28/2009 (as described in Appendix A) because no funding was available for monitoring during this time (i.e., state budget cuts for ocean water testing).

calculated geometric means were compared to geometric mean water quality objectives to determine total exceedance counts by season.

3.2 Data analysis results

The following results are summarized by TMDL season. Both beaches had instances of missing weekly samples due to unavailability of funding (12/18/2008 – 1/28/2009) and no public access caused by maintenance/dredging activities; these periods with missing data are identified and explained in Appendix A.

3.2.1 Summer season

Table 3 summarizes summer season exceedance results. No exceedances of the interim AEDs were observed, and the final AEDs were only exceeded at Kiddie Beach during the 2014 TMDL year for both single sample and geometric mean.

Table 3. Summer Exceedances (April 1 - October 31)

TMDL Year ¹	Single Sample Exceedances (excludes wet weather) ^{2,3}		Geometric Mean Exceedances (dry and wet weather) ^{2,3}	
	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach
<i>Interim AEDs</i>	6	8	12	8
2009	2.0	1.3	0	0
2010	0	0.14	0	0
2011	1.4	0	0	0
2012	1.3	2.0	0	3.0
2013	0.14	0.43	0	2.0
<i>Final AEDs</i>	0	0	0	0
2014	0	1.3	0	1.0
2015	0	0	0	0
2016	0	0	0	0

1. The summer season includes days between April 1 and October 31.
2. As discussed in Appendix A, if a follow-up sample did not exceed a water quality objective, then only a fractional exceedance was counted for that week.
3. Exceedances in **bold** are above the applicable WLA

3.2.2 Winter season

Winter season exceedance results are summarized in Table 4. The 2014 TMDL year winter results are compared to interim AEDs for data collected before December 18, 2013 (five years after the TMDL effective date), while data collected for the remainder of the

2014 TMDL year are compared to final AEDs. No exceedances of the interim AEDs were observed. Single sample and geometric mean final AEDs were exceeded at Kiddie Beach in 2014, 2015, and 2016. No exceedances of the final AEDs occurred at Hobie Beach.

Table 4. Winter Exceedances (Nov. 1 – Mar. 31)

TMDL Year ¹	Single Sample Exceedances (excludes wet weather) ^{2,3}		Geometric Mean Exceedances (dry and wet weather) ^{2,3}	
	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach
<i>Interim AEDs</i>	4	4	13	14
2009	2.0	0	5.0	0
2010	1.1	0.14	5.0	5.1
2011	0	1.0	0	9.0
2012	0	1.1	0	3.0
2013	0	0	0	0
2014 (Interim) ⁴	1.0	2.0	0	3.0
<i>Final AEDs</i>	1	1	0	0
2014 (Final) ⁵	0	3.0	0	3.0
2015	1.0	3.0	0	12.0
2016	1.0	2.0	0	1.0

1. The winter season includes days between November 1 and March 31.
2. As discussed in Appendix A, if a follow-up sample did not exceed a water quality objective, then only a fractional exceedance was counted for that week.
3. Exceedances in **bold** are above the applicable WLA
4. 2014 (Interim) includes data collected before December 18, 2013.
5. 2014 (Final) includes data collected on December 18, 2013 and subsequent days.

3.2.3 Wet Weather

Table 5 summarizes wet weather single sample exceedance results for each TMDL year. Interim AEDs were only exceeded once at Kiddie Beach in 2011. Final AEDs for wet weather are not yet in effect.

Table 5. Wet Weather Exceedances

TMDL Year ¹	Single Sample Exceedances ²	
	Hobie Beach	Kiddie Beach
<i>Interim AEDs</i>	6	5
2009	2	1
2010	3	3
2011	1	6
2012	3	2
2013	1	2
2014	0	0
2015	5	5
2016	1	1

1. Includes wet weather days between Nov. 1 and Oct. 31

2. Exceedances in **bold** are above the applicable WLA

4. TMDL SPECIAL STUDIES

There have been numerous studies conducted at the Harbor Beaches to identify bacteria sources and appropriate measures to decrease bacteria concentrations. Many of the studies that occurred before the TMDL effective date were described in the Harbor Beaches Dry and Wet Weather TMDL Implementation Plans (IPs) for the County and the VCWPD (Malcolm Pirnie, Inc. and Geosyntec Consultants, 2009 and Geosyntec Consultants, 2010, respectively) and the City’s Dry Weather TMDL IP (City of Oxnard, 2012), and are listed below (Section 4.1). In 2013, a Microbial Source Tracking (MST) and Quantitative Microbial Risk Assessment (QMRA) study was conducted by the Southern California Coastal Water Research Project (SCCWRP) and in 2014 and 2015 the VCWPD conducted a separate MST Study. The methodology and findings of these studies are summarized in Section 4.2 and 4.3, respectively.

4.1 Previously Summarized Studies

Studies that are summarized in detail in the Harbor Beaches Dry and Wet Weather IPs include:

Harbor Beaches Monitoring Studies

- Weekly water quality beach monitoring since 1999;
- Tidal water quality monitoring in 1999 and 2000;
- Sediment disturbance water quality monitoring in 2000;
- Beach transect sampling studies in August and October of 2000;

Harbor Monitoring Studies

- Quarterly water quality monitoring in the Harbor since 1999;
- Wash-off pathogen monitoring in 2000;
- Bacteria survey along the surge wall 2000;
- Water quality monitoring at additional Harbor locations in 2000;
- Water quality monitoring of seepage from rock riprap area in 2001;

Harbor Circulation Studies

- Current and tidal hydraulics study in 2000;
- Harbor Circulation Study in 2003;
- Field surveys of circulation patterns in 2009;

Sanitary Sewer Studies

- Sewer/Storm drain interaction study in 1999;
- CCTV investigation of sanitary sewer lateral from Kiddie Beach bathroom in 2000;

Storm Drain Studies

- Storm drain water quality weekly sampling in 1999;
- CCTV investigation of storm drain in 1999;
- Dye testing of Silver Strand Pump station in 2000;

Bacteria Source Tracking and Control Studies

- Dry weather bacteria source study using DNA typing method in 2003; and
- Bird control measures efficacy study in 2006.

4.2 SCCWRP QMRA

The objectives of this study were to calculate illnesses related to swimming at the Harbor Beaches, and to support the development of site-specific indicator bacteria objectives based on the EPA's tolerable illness rates, if calculated rates were found to be low.

The QMRA study involved five steps: 1) select beach; 2) perform a source identification study; 3) determine the pathogen load linked to each source; 4) quantify exposure of swimmers to pathogen; and 5) perform risk modeling and characterization to predict the illness rates in swimmers based on exposure, ingestion, and infectious dose.

Weekly monitoring data were reviewed from 57 beach sites in Ventura County from January 1, 2007 to December 31, 2011. Both Kiddie Beach and Hobie Beach were classified in the top five beaches with the highest frequency of water quality objective exceedances. To identify possible sources of contamination at Kiddie and Hobie Beaches, observational data were collected. As a result, possible fecal sources at the beaches were

found to include human (leaking sewer lines or discharge from boat holding tanks), birds, cats, dogs, and regrowth of indicator bacteria (in sand, biofilms, kelp or seagrass, or trash).

Daily dry weather samples were collected at the Harbor Beaches for eight weeks at eight locations (three at Hobie and five at Kiddie) between June 26 and August 20, 2012. All samples were analyzed for cultural *Enterococcus*, which was detected at all sites (Figure 4). Site 1 (Hobie Beach) showed the highest levels of *Enterococcus*, exceeding the single sample water quality objective (104 MPN/100 mL) on over half of the sampling days. The highest exceedance rates at Kiddie Beach were observed at Site 5, with approximately seven percent of sampling days exceeding standards. Approximately 11 percent of all samples exceeded the single sample water quality objective for *Enterococcus*.

Rapid molecular methods (qPCR) were also performed for an *Enterococcus* marker (*EnterolA*) and two human fecal markers (HF183 and HumM2). HF183 was detected during at least 40 percent of sampling days at all eight locations and was found in two-thirds of all samples. HumM2, which is less sensitive than HF183 but more specific to human fecal pollution, was detected in seven percent of all samples. There was no correlation between HF183 and tide height or amplitude, but spatial correlation showed that the Kiddie Beach locations likely share a common source of HF183. These observations suggest evidence of a constant, diffuse source of human fecal pollution at both beaches.

Evidence suggests that the *Enterococcus* and human markers could be associated with different sources. Several possible sources of fecal indicators at the beaches were identified based on visual observations: a storm drain, sewer infrastructure, birds, domesticated dogs, or feral cats.

A storm drain outlet at the north end of Hobie Beach, submerged during high tides, had observable flow during low tides due to tidal backwater. Strong decreasing gradients in *Enterococcus* concentrations and exceedance rates were observed from the drain outlet along the beach sampling sites. Only two catch basins from the adjacent road drain to the outlet, and no surface runoff or illicit connections or discharges were observed. The drain outlet was found to function as a reservoir for *Enterococcus* with sources such as biofilms or entrapment of decaying organic material. No human markers were detected in the single grab sample from within the drain.

Sewer infrastructure near the beaches may also be a source of *Enterococcus* and human contamination, possibly through groundwater discharge. The storm drain outlet near Site

7 (shown in Figure 4) was diverted to the sanitary sewer prior to the study, but the gravel bedding outside the storm drain pipe could potentially serve as a conduit for transport of sewage-impacted groundwater if a nearby sewer is leaking. However, Enterococcus concentrations and exceedance rates near this drain outlet (Sites 7 and 8) were among the lowest in this study.

A significant population of seabirds was observed near the sampling sites, therefore it is possible that seabird waste is a source of Enterococcus at the beaches. The domesticated dogs brought to the beach by their owners were also identified as a possible fecal source based on local observations. And feral cats living in the jetty rocks were also identified as possible fecal sources, by deposit and wash-off.

Results indicated human fecal influence at the beaches, therefore the remaining phases of the QMRA study were placed on hold until the contamination has been resolved. Photographs of SCCWRP monitoring activities are shown in Appendix B.

4.3 2014/2015 MST Study

The SCCWRP QMRA suggested that likely sources contributing bacteria to Kiddie Beach include sanitary sewer lines, birds, and dogs. Additionally, 2014 dredging activities in the harbor entrance channel appeared to coincide with elevated bacteria levels at the beach, based on weekly water quality monitoring. Therefore, in 2014 and 2015 the VCWPD conducted an MST study (VCWPD, 2015) to determine the specific sources (i.e., humans, birds, and dogs) that are likely contributing bacteria to the beaches and investigate whether dredging activities in the channel were correlated with high levels of bacteria.

Sixteen samples from Kiddie Beach, collected during the period from 5/6/2014 to 1/20/2015, were analyzed⁶ for indicator bacteria and human (HF183), dog (DogBact) and bird (BirdGFD) genetic markers. The majority of samples were collected in dry weather, with the exception of 11/3/2014, 12/15/2014, and 1/12/2015, which were collected during wet weather. Observations of human, dog, and bird activity at Kiddie Beach were also noted, in addition to observation of any deposits from these sources. A summary of the MST samples, including enterococcus results, genetic marker results, and other relevant activities are shown in Table 6 and a memo describing the MST study is included in Appendix B.

⁶ Two labs were used for analyzing samples: Weston Solutions and Source Molecular Corporation. Both laboratories participated in the Source Identification Protocol Project (SIPP) in 2011.

Table 6. Summary of MST Sampling Results at Kiddie Beach

Date	Enterococcus (MPN/100 mL)	Human	Dog	Bird	Activity	Deposit	Channel dredging ¹	New sewer ²
5/6/2014	31	ND	ND	10,551	Human/dog	Bird	No	No
5/13/2014	<10	ND	ND	3,508	Human	ND	No	No
5/20/2014	31	ND	ND	18,215	ND	ND	No	No
5/27/2014	<10	ND	ND	10,413	Human/dog	ND	No	No
6/3/2014	<10	ND	ND	3,575	ND	Bird	No	No
9/30/2014	<10	ND	ND	ND	ND	ND	No	Constr.
10/7/2014	42	ND	DNQ	8,678	ND	ND	No	Constr.
10/14/2014	<10	ND	ND	2,220	ND	ND	No	Constr.
10/21/2014	659	ND	ND	ND	Bird	Bird	Yes	Constr.
10/22/2014	738	n/a	n/a	n/a	n/a	n/a	Yes	Yes
10/28/2014	31	ND	ND	3,152	ND	ND	Yes	Yes
11/3/2014	<31	ND	1,580	266	ND	ND	Yes	Yes
12/8/2014	165	ND	DNQ	4,400	ND	Bird	Yes	Yes
12/15/2014	222	1,540	DNQ	1,620	Human	ND	Yes	Yes
12/22/2014	124	ND	1,440	4,720	ND	ND	Yes	Yes
1/12/2015	324	ND	16,600	573	ND	ND	Yes	Yes
1/20/2015	364	ND	ND	298	ND	ND	Yes	Yes

Note: ND = not detected, DNQ = detected but not quantifiable, n/a = not analyzed.

1. Dredging activities at the channel entrance west of Kiddie Beach.

2. Rehabilitated force main was placed back in service on 10/22/2014.

Significant findings include:

- The highest Enterococcus concentrations occurred during dredging activities in the harbor entrance channel.
- The human marker was only detected (at low concentrations) in one sample and human activity was observed at the beach coinciding with this sample.
- Dog markers were detected in six samples (but not quantifiable in three) and did not correspond to observed dog activity on the beach. In addition, dog fecal deposits were not observed on the beach.
- Bird markers were detected in most (fourteen) of the samples and did not correspond to observed bird activity or deposits on the beach.
- Correlations between enterococcus and each genetic marker were analyzed using a Spearman's rank correlation test. No correlations with statistical

significance (p-value > 0.05) were found between enterococcus and any of the markers tested.

The MST study did not identify a specific source primarily contributing to the exceedances at Kiddie Beach. Therefore, the MST study recommended if exceedances continue after operation of the County storm drain diversion (discussed in Section 5.3.3 below) is updated to a year-round schedule and the implementation of other improvements (i.e. sewer rehabilitation), additional source investigations may be useful in further evaluating whether dogs, birds, and dredging activities may be the main contributors of bacteria at these beaches. Also, although only one human marker was detected at Kiddie Beach, additional human marker sampling is needed, at both Hobie and Kiddie Beaches, to conclusively determine if human waste is now absent from the beaches.

4.4 Conclusions based on various studies

Based on the previous studies conducted at the Harbor Beaches, the following findings are noted:

- Dry weather exceedances are infrequent, at low concentrations, and generally near or below the AEDs;
- Dry weather exceedances at the Harbor Beaches are localized and spatially limited to within a short distance of the beach wave wash area;
- Dry weather exceedances at the Harbor Beaches occur as a result of a variety of diffuse local sources that may include birds, bathers, sewers/groundwater (although the nearest main sewer line was repaired [see Section 5.3.1], so this source is now unlikely), and storm drains (although the San Nicholas Pump Station became operational year-round during dry weather [see Section 5.3.3], so this source is now unlikely);
- Dredging activities may directly impact indicator bacteria concentrations by stirring up sediment;
- Humans are not likely the source of indicator bacteria;
- Similar to what is found at other Southern California enclosed beaches, the lack of circulation at the Harbor Beaches facilitates an environment conducive to bacteria persistence;
- Wet weather exceedances are infrequent, at low concentrations, and generally near or below the AEDs;
- Wet weather sources to the beaches (beyond just the two nearby storm drain outfalls) are less well known, including to what extent the greater harbor waters and other storm drain outfalls contribute to these beach indicator bacteria concentrations.

4.5 Future Additional Studies

The County submitted two concept study applications to the Clean Beaches Initiative Grant Program, but a grant was not awarded. The first study proposed to conduct source identification during wet-weather and the second study was focused on dry-weather monitoring to evaluate effectiveness of implemented BMPs and infrastructure improvements. Implementation of those studies will be pending future funding opportunities.

5. BMP IMPLEMENTATION

The Dry and Wet Weather TMDL IPs identified an implementation approach for the County and VCWPD to comply with the requirements of the TMDL. The City's 2012 Dry Weather TMDL Workplan also identified various implementation measures the City intended to address for dry weather exceedances. The following section provides an overview of the wet and dry weather BMPs that the County, VCWPD, and the City have implemented (Table 7 provides an overview).

Table 7. BMP Implementation Status

	BMPs recommended in the County and VCWPD Dry Weather IP	BMPs recommended in the City Dry Weather IP	BMPs recommended in the County and VCWPD Wet Weather IP	Additional BMPs Not Identified in the IPs
BMPs Implemented	<ol style="list-style-type: none"> 1. Public Information and Participation Program 2. Proper Pet Waste Disposal 3. Feral Cat Abatement 4. Fish Waste Disposal Ordinance and Enforcement 5. Bathroom Maintenance 6. Code and Ordinance Review Program 7. Beach Grooming 8. Bird Control Measures 9. Mobile High Pressure Flushing 	<ol style="list-style-type: none"> 1. Educational Signage 2. Public Outreach 3. Catch Basin Monitoring and Maintenance 4. Street Sweeping 5. Bathroom Maintenance 6. Trash Management 7. Proper Pet Waste Disposal 8. Code and Ordinance Review Program 	<ol style="list-style-type: none"> 1. Downspout Disconnect Program 2. Pet Ownership Outreach and Enforcement Program 3. Catch Basin Cleaning 4. Structural BMPs 	<ol style="list-style-type: none"> 1. Sewer line replacement 2. Dry-Weather Diversions 3. Parking Lot Drain Removal 4. Marina Facilities 5. Ordinances
BMPs Not Implemented	<ol style="list-style-type: none"> 1. Pilot Enhanced Circulation Devices 		<ol style="list-style-type: none"> 1. Storm Drain Monitoring Program 	Not Applicable

5.1 Dry Weather IP Recommended BMPs

5.1.1 Source and Early Action Controls

5.1.1.1 Educational Signage - City

Educational signs are located at both Kiddie and Hobie Beach to educate the community and beach-goers of water quality issues at the Harbor beaches. Signage encourages the public to properly dispose of pet waste, refrain from feeding feral cats and birds, use diapers on small children while swimming, and properly dispose of trash. Examples of educational signage are included in Appendix B.

Discouraging beach visitors and residents from feeding feral cats and shore birds aids in limiting the cat and bird populations near the beaches, reducing bacterial contributions from fecal waste to the harbor waters. Proper disposal of pet waste also helps to reduce bacteria contributions, either directly into the harbor waters or through runoff, attributed to animal waste.

5.1.1.2 Public Information and Participation Program (PIPP) - County

The goals of the Public Information and Participation Program (PIPP) are to increase public knowledge of the MS4, including the adverse impacts of storm water pollution on receiving waters, and to change public behavior to implement appropriate solutions regarding waste disposal and storm water pollution. The program aims to engage communities to participate in mitigating the impacts of storm water pollution. The County has engaged in numerous actions to educate the public on issues relating to water quality. In addition to the activities discussed in the Downspout Disconnect Program and Pet Ownership Outreach Program sections, the County's ongoing efforts include the following.

- Installation of additional signage at Kiddie and Hobie Beaches, in both English and Spanish, describing potential bacteria contamination from birds and cats and advising the public not to feed the cats or birds. Signs have also been redesigned to include brighter colors and more graphics. Examples of this signage are shown in Appendix B.
- The County continues to provide information to boaters, dock tenants, and live aboards regarding water quality issues and reminders of the prohibitions against dumping in the harbor. Dye tabs also continue to be provided that reveal if holding tanks were emptied in the harbor.

- The County included a reminder for pet owners to clean up after pets in the Channel Islands Beach Community Services District News Brief issued in February 2011 and May 2014.

Implementation of the PIPP, utilizing several methods such as advertising campaigns, public service announcements, signage, and educational materials, educates the public on how they can assist in keeping the beaches clean and open for full public use. These efforts encourage the public to be conscious of their actions relating to pet waste management, feeding of feral cats and birds, use of bathroom facilities before swimming, and other issues.

5.1.1.3 Public Outreach – City

Public outreach efforts aim to educate the public on how water quality at the beaches can be potentially impacted through the storm drain system. The City website includes information explaining how pollutants travel through the storm drain system and ultimately into the ocean. The website educates on how the community can manage their use of fertilizers/pesticides, household hazardous wastes, and auto care activities to avoid releasing pollutants into the storm drains. Information about the benefits of implementing permeable pavement, rain barrels, and grass swales is also included. This educational information included on the City website is shown in Appendix B. The two storm drain detention basins were labeled with the City’s “Don’t Dump – Drains to Ocean” message on a placard located on the face of the inlet, and the placards continue to be maintained and replaced as needed. These outreach efforts educate the public on how they can assist in keeping the beaches clean and open for full public use by refraining from illegal dumping to the storm drain system.

5.1.1.4 Proper Pet Waste Disposal – County and City

County Public Health Ordinance No. 4466 states that dog and cat feces must be removed from public beaches, sidewalks, parks, school grounds or County property, and a sign is maintained to advise beach visitors of the ordinance (Ventura County Animal Control Department).

There are 20 dog waste stations located throughout the harbor and beaches, and approximately 200,000 biodegradable pet waste disposal bags are purchased by the County annually to supply the waste stations. The most popular County dog waste station is located on the jetty walkway south west of Kiddie Beach. This station is stocked daily with 200 waste bags, or approximately 73,000 bags per year.

There is also a City owned dog waste station located at Kiddie Beach that is stocked with biodegradable pet waste bags. Approximately 2,000 to 4,000 bags are used on a monthly basis, with higher usage during the summer months. Outreach relating to pet waste is also implemented through television, internet resources (Cleanwatershed.org and the City website), and radio spots. Examples of a pet waste disposal station and outreach information are shown in Appendix B.

Encouraging pet owners to adhere to proper pet waste management helps to reduce bacteria contributions, either directly into the harbor waters or through runoff, attributed to pet waste.

5.1.1.5 Feral Cat Abatement – County

The County's Harbor Department works with the Greyfoot Cat Rescue to remove feral cats from the area, keeping the population to a manageable level but allowing a limited number of cats to remain to aid in rodent control.

Approximately 12-15 feral cats are captured, neutered, and removed from the beach annually to maintain a low feral cat population at the beaches; 19 were removed in 2015. Maintaining a limited population of feral cats near the beaches reduces bacterial contributions from cat waste to the harbor waters, and discouraging beach visitors and neighborhood residents from feeding feral cats aids in maintaining a low cat population.

5.1.1.6 Fish Waste Disposal Ordinance and Enforcement – County

The majority of fish waste is disposed of properly, but the TMDL staff report identified fish waste discharged directly into harbor waters or in nearby trashcans (CRWQCB, 2007). County's Harbor Department's Ordinance No. 6402(f) is in place to prohibit discharge of waste or dead fish at the marine or shore area. Fish waste that is dumped in the harbor waters or improperly disposed of in the harbor area could attract birds, therefore it is expected that eliminating fish waste reduces bacterial contributions from bird waste. The Standard enforcement by the Harbor Patrol include 1) verbal warning, 2) written warning, and 3) written citation tickets. There was one written citation by Harbor Patrol Officer given in October 2013 for VC06406-9.2 live bait.

5.1.1.7 Bathroom Maintenance – County and City

The QMRA study found evidence of diffuse human fecal pollution at both beaches. To discourage beach visitors from utilizing the beach waters as a bathroom, the nearby public bathroom facility is maintained daily by the City of Oxnard's Department of Parks.

Maintenance of a clean and accessible bathroom facility reduces swimmer contributions as a source of fecal indicator bacteria at the beaches.

5.1.1.8 Code and Ordinance Review Program – County and City

The County's Stormwater Ordinance 4142 was amended in July 2012 to include prohibitions of non-stormwater discharges into the County storm drain system and progressive enforcement provisions as required by the NPDES MS4 Permit.

- Article 2 - Prohibition of non-stormwater discharges to the County storm drain systems or receiving waters.
- Article 4 - No discharge of litter/trash to the County storm drain system or receiving waters.

The City's Stormwater Ordinance 2876 adopted in 2013 was amended to include enforcement methods to prohibit illicit discharges (notice of violation, fine, time schedule order, cease and desist order, cost recovery for cleanup, administrative complaint/fine, or referral to the district attorney) into the City storm drains or receiving waters.

In order to more effectively enforce stormwater ordinances, progressive enforcement including civil penalties are included in both Stormwater Ordinances. These enhanced provisions discourage people from violating stormwater ordinances and are likely reducing pollutant contributions entering the harbor, either directly or through runoff, generated from human activity.

5.1.1.9 Beach Grooming – County

To improve the cleanliness of the beaches and reduce the amount of trash/debris possibly contaminating the harbor waters, a beach cleaner is used to dispose of debris present in the sand. In 2013, the County purchased new beach grooming equipment for \$134,515 including the tractor (\$81,141) and beach cleaner attachment (\$53,374). Photographs of the new beach cleaner and tractor, and Kiddie Beach post grooming, are included in Appendix B. A tractor pulling a rake was used by the County Harbor Department for beach cleaning at Kiddie Beach⁷ beginning October, 2013. Kiddie Beach is groomed weekly, although the tide height, amount of visitors on the beach, and availability of an equipment operator determines if beach grooming is feasible on any given week.

⁷ Hobie beach is mainly rocks and is therefore not suited for grooming.

5.1.1.10 Catch Basin Monitoring and Maintenance – City and County

Both City and County own and maintain catch basins within the TMDL drainage area. All City and County's catch basins are subject to NPDES Municipal Stormwater Permit's requirements for inspection and cleanouts on frequencies based on prioritization of high, medium, and low trash generating areas.

The City owns and maintains two catch basins located on the east and west sides of Victoria Avenue that discharge into the harbor at Hobie Beach. The drainage area for these two catch basins is comprised of four streets with residential housing on the east side of Victoria Ave and the U.S. Coast Guard Facility on the west Side. The Channel Islands Beach Communities Service District (CIBCSO) allows residential landscape irrigation on Mondays and Thursdays; however, most of the homes in this area do not have front lawns, resulting in very little irrigation runoff (if any) to these catch basins.

City catch basins were previously inspected annually, at a minimum, by the Oxnard City Corps and were cleaned if more than 25 percent full. The catch basins for the inlets to the storm drain that discharges at Hobie Beach are "Priority C" basins, meaning they are low priority and typically less than 20 percent full of trash. Cleaning has historically not been needed (i.e., the catch basins are typically less than 25 percent full), but the City had planned to increase inspections to once per quarter and clean as needed.

In an effort to determine if dry weather flow is impacting the water quality at Hobie Beach, the City met with VCWPD, VCEHD, and Ocean Water Quality Monitoring Program (OWQMP) to coordinate a program to monitor dry weather flow at catch basins. A plan was developed whereby the City conducts weekly catch basin inspections each Tuesday when OWQMP conducts AB411 water quality monitoring at Hobie Beach. The City developed an inspection worksheet to document the presence of dry weather runoff, water in the catch basins, tidal conditions, trash/floatables, and any other relevant observations. In addition, OWQMP agreed to notify the City if any dry weather runoff was observed during weekly sampling activities at Hobie Beach. Any exceedances of state ocean water quality standards would also be noted.

Since monitoring efforts began in June 2016, no dry weather runoff has been observed and no state ocean water quality standards have been exceeded at Hobie Beach. At each monitoring event, photographs are taken upstream and downstream of each catch basin to provide evidence that no dry weather flow was present. Photos are also taken of the inside of the catch basins to document the presence of water, floatables, and kelp. Water is often present in both catch basins; however, it appears to be the result of tidal influence as the depth of water in the catch basins directly correlates with tidal conditions at the

time of monitoring (based on visual observations). Additionally, VCWPD staff have measured the salinity of water in the catch basins and compared it to the salinity of the water in the harbor and found that they were similar. Additional details and an example field sheet are included in Appendix B.

5.1.1.11 Street Sweeping - City

Street sweeping conducted by the City occurs twice per month, or more frequently, as necessary. This removes possible sources of contamination from the streets, preventing these sources from being transported to the beaches and negatively affecting water quality.

5.1.1.12 Trash Management - City

The QMRA (SCCWRP, 2013) identified pelicans, gulls, and pigeons as possible sources of indicator bacteria and fecal wastes at the beaches. Trash containers were replaced with bird resistant receptacles that are emptied daily by the City (examples are shown in Appendix B). This measure both reduces the bird population, reducing fecal waste from the birds, and decreases the amount of trash that is removed from trash cans and eventually transported into harbor waters.

5.1.2 Pilot Studies and Structural Controls

5.1.2.1 Bird Control Measures - County

The QMRA (SCCWRP, 2013) identified pelicans, gulls, and pigeons as possible sources of indicator bacteria and fecal wastes at the beaches. Efforts to reduce bird populations are currently in place, such as discouraging feedings by the public, trash controls, and reducing fish waste in the area. To accompany these efforts, prior to the TMDL, the County Harbor Department tested several bird control measures at the CIH beaches. These efforts included the following:

- Clothesline stands with metallic streamers (“scarecrows”)
- Bird resistant refuse containers (examples shown in Appendix B)
- Increased frequency of beach clean-up
- Installation of wire rotors on the sea wall
- Installation of the “BirdXpellar”, a device that admits periodic raptor calls

Bird filaments are another potential deterrent that could be used at the beaches, however considerations related to protection of special status species (e.g., brown pelican) restrict their potential use. Other Southern California beaches have used dogs and falcons with

mixed success. At this time, the County is focusing its efforts on human and storm drain related sources of bacteria, and therefore is not planning to pursue these options.

5.1.2.2 Mobile High Pressure Flushing - County

A lack of circulation in the shallow surf zones at the beaches may contribute to an environment that is able to support elevated levels of bacteria. Therefore, a high pressure water hose was proposed by the County Harbor Department to encourage circulation and mixing in the shallow beach areas. This technique was conducted as an experiment. The Harbor Department staff used a high pressure hose on two separate dates and found it to be unproductive for enhancing local water circulation at the Harbor Beaches.

5.1.2.3 Pilot Enhanced Circulation Devices - County

A sample conducted at the beaches in 2000 showed that elevated levels of indicator bacteria were only found in samples collected from the surf zone (LWA, 2001). Observations during a dye study at Kiddie Beach noted that there was limited circulation near the beach areas, as dye placed in the surf stayed concentrated within 25 feet of the surf line (LWA, 2001).

Poor circulation in the surf zone creates an environment able to support high bacteria densities. The design of the harbor and inclusion of the surge wall isolate these beach areas from the general circulation in the harbor. Dry weather bacteria exceedances can likely be attributed to local sources, so it is expected that improvements to circulation near the beaches will also improve water quality. No additional circulation studies have been conducted, and circulation devices have not been implemented.

5.2 Wet Weather IP Recommended BMPs

5.2.1 Institutional BMPs

5.2.1.1 Downspout Disconnect Program - County

The Wet Weather IP recommended implementation of a downspout disconnect program to reduce wet weather stormwater discharges to the Harbor. In 2012, the County performed a feasibility assessment of a downspout disconnect program. It was found that due to a lack of roof gutters, small setbacks and minimal landscaping area, implementation of a downspout disconnect program is infeasible and would provide very minimal benefits (the findings are summarized in Appendix B). Therefore, alternatives

have been implemented in County tier 1⁸ areas. The Greens Gardens Group (G³), in coordination with the County, prepared a “Downspout Redirect” workshop brochure and hosted an Ocean Friendly Gardens class on June 14, 2013 (Appendix B). The brochure provides general information, using language intended for the average homeowner, on downspouts redirected to rain barrels, permeable paving, and sponge (rain) gardens, while the classroom seminar taught local residents techniques to install these systems. This program is anticipated to contribute to a reduction in wet weather runoff and bacteria loads from County residential areas to the Harbor.

5.2.1.2 Pet Ownership Outreach and Enforcement Programs - County

Several actions have been taken by the County to reduce domesticated dogs as a potential source of contamination. 3,400 flyers educating on pet waste disposal were mailed to all beach residents and boat slip tenants in February 2011 and May 2014. These flyers are also available at public counters and retail areas throughout the Harbor area. A “Watershed Protection Tips for Pet Owners” brochure was developed by the Countywide Stormwater Program and 5,000 copies were made for distribution. In 2014, the County updated the brochure and redistributed it. A pet waste flyer was also developed for the County Harbor Department to educate the public on why it is important to properly dispose of pet waste. Another bacteria pollution prevention brochure in both English and Spanish, “4 Simple Habits to Reduce Watershed Pollution” or “4 Simples Consejos Para Reducir La Contaminacion de Cuenca Hidrograficas”, has been recently completed, and 2,400 copies will be distributed with utility bills in December 2016. These materials are included in Appendix B.

5.2.1.3 Catch Basin Cleaning - County

A catch basin cleaning program is currently in place through the MS4 NPDES permit. Catch basins have been classified into three priority groups based on the volume of trash generated, and inspections are performed according to priority group. County catch basins are cleaned as needed based on inspection or whenever they are more than 25 percent full. The County’s catch basins draining to the Harbor beaches collect sand and very little trash. Continued inspections and clean outs of the catch basins contribute to water quality improvement in MS4 wet weather discharges to the Harbor.

⁸ A “tier 1” implementation area was identified for the Wet Weather IP to characterize the estimated area that is directly tributary to the Harbor south of Channel Islands Boulevard.

5.2.2 Structural BMPs

The wet weather IP identified Harbor redevelopment projects that would result in new structural stormwater controls consistent with MS4 requirements for onsite retention and/or treatment of stormwater. Only a single redevelopment project, a boat launch ramp replacement, has been completed with structural BMPs since the submission of the wet weather IP (Figure 5). The project, completed in June 2014, is located on the east channel of the Channel Islands Harbor, west of Victoria Avenue and just north of Curlew Way. Two bioswales and two large Contech stormwater cartridge filtration vaults were constructed to treat runoff from approximately 3.5 acres of impervious area prior to discharge to the Harbor. The filtration vaults are designed to remove 80 percent of particulates that are 50 microns or larger at a water quality flow rate of 0.48 and 0.6 cubic feet per second.

5.2.3 Storm Drain Outfall Monitoring Program – County

The Wet Weather IP identified storm drain outfall monitoring as an important activity to help prioritize outfalls for possible treatment retrofit projects. The concept was developed and applied for funding under the Clean Beaches Initiative Grant Program in August 2013; however, funding has not been awarded. After discussions with the State Water Resources Control Board Financial Assistance Program (Clean Beaches Initiative) staff, it was recognized that due to on-going improvements, the project schedule may be inappropriate to meet the funding program goals. Also, an invitation for resubmittal suggested focusing on dry weather only. The County submitted another grant application in July 2014 but it was not selected for funding.

5.3 Additional BMPs (Not Identified in IPs)

Additional BMPs were identified for implementation based on findings from the QMRA study.

5.3.1 Sewer Line Replacement – Channel Island Beach Community Services District

The sewer system within Silver Strand community and its vicinity is operated by CIBCSO. A sewer replacement project implemented in 2014 involved the replacement of 8,500 linear feet of cured in place pipe (CIPP) and 1,200 linear feet of open trench pipe (9,700 linear feet total), including a section that runs along Victoria Avenue parallel to Kiddie and Hobie Beaches on the east side of the street (see Figure 5). The pipeline was installed in 1966 and had experienced several failures throughout the years. Observation

during the most recent failure in 2003 indicated that the pipe was near the end of its useful life.

The CIBCSO's capital improvement project began on July 22, 2014, and newly rehabilitated force mains near the beaches that were placed back in service around October 22, 2014. Replacement of these sewer lines reduces the chance that sewage will leak from the sewer system and travel to the harbor or storm drains through the subsurface.

5.3.2 Storm Drain Outfall – County and City

A storm drain outfall on Hobie Beach is owned and operated by the City, and receives surface runoff from two catch basins on S. Victoria Ave. During the 2012 SCCWRP study, the outfall discharged very high Enterococcus concentrations, and a concentration gradient was observed in the surf zone downstream of the outfall. However, no surface runoff entered the storm drain, and the high Enterococcus concentrations were caused by growth in the storm drain and tidal flushing. The County and the City agreed to collaborate on the drain outfall retrofit project to eliminate dry weather indicator bacteria inputs to Hobie Beach. The City is planning to install a Tideflex valve (<http://www.tideflex.com/tf/index.php>) on the outfall to reduce backwater ponding and bacteria regrowth in the storm drain.

5.3.3 Dry Weather Diversion – VCWPD

The San Nicholas Pump Station (Pump Station) was installed by VCWPD in 1986 and since then has been operated for flood control purposes. As a result of stakeholder efforts to improve water quality of the Harbor Beaches, VCWPD temporarily diverted dry weather flows from the Pump Station to the City's Wastewater Treatment Plant for treatment from October 1999 to October 2000, resulting in lower total and fecal coliform concentrations at Kiddie Beach. A permanent diversion structure was then installed in 2003. From 2003 to October 2014, the sewer diversion pump was active during the summer dry periods (April 15 through September 30) with periodic disturbances due to operational issues or weather (i.e., the diversion pump was switched off before forecasted storms during the summer). In April 2015, the diversion pump was switched to operate year-round during dry weather, and was manually turned on/off by VCWPD personnel based on storm forecasts and recorded amounts of rain (TMDL defined wet weather as 0.1 inches of rain or more plus the three days following the rain event). This change to year-round operation was expected to result in further reduction of dry weather bacteria exceedances at Kiddie Beach.

Based on VCWPD's existing Supervisory Control and Data Acquisition (SCADA) system, between June 2015 (when the diversion pumping information was incorporated into the SCADA system) and October 2016, a total of 8,383,652 gallons were diverted to the sanitary sewer system from the Pump Station (details are included in Appendix B).

In April 2016, VCWPD staff updated the diversion pump system by installing a new stand pipe rain gage on the roof outfitted with a Hydrolynx 50386 ALERT2 Transmitter in order to automate the operations based on actual rainfall. The rain gage and transmitter were then programmed to turn the sewer diversion pump "off" and turn the sump pump that discharges to the harbor "on" when 0.1 inches of rainfall is received on the rooftop rain gage. After 72 consecutive hours of no additional rainfall, the sump pump will turn "off" and the sewer diversion pump will turn back "on" and resume regular operation of diverting all flows into the pump station to the sanitary sewer system.

On June 16, 2016, VCWPD staff performed a dye test within the two storm drains draining to the Pump Station. The purpose of this dye test was to confirm that both the Pump Station and sewer diversion pump were working correctly and that valve/infrastructure leaks or other issues were not causing dry weather runoff collected at the Pump Station to discharge to the CIH adjacent to Kiddie beach (instead of being diverted to the sanitary sewer system).

Two locations within the storm drain system were identified as being ideal for discharging the dye upstream from the Pump Station (shown in Appendix B). Location #1 was the closest upstream manhole, where approximately 95 percent of the total 31 acres drains through this location via a 36-inch reinforced concrete pipe (RCP). Location #2 was within a catch basin that ties into an 18-inch RCP draining directly to the Pump Station, and this location represents the remaining five percent of the drainage area to the Pump Station.

Notification of the dye test was given one to two weeks prior to the study to all appropriate organizations, which included the Ventura County Harbor Department, CIBCSD, VCEHD, Ventura County Transportation Department, VCWPD Operations and Maintenance Division, and California State Lifeguards. Three dye test notification signs were placed along Kiddie Beach prior to starting the procedure. The low tide period on June 16, 2016 (1.8 feet at 1:29 p.m.) was selected as the date for the dye test to increase the likelihood of observing dye flowing from the outfall. The dye test was executed using the following procedure (a schematic of the Pump Station is included in Appendix B):

- 12:50 p.m.: one gallon of the dye liquid (Cole Parmer Yellow/Green Tracing Dye) was poured into the Location #1 "Parking Lot" storm drain manhole.

Simultaneously, O&M staff hosed approximately 150 gallons of water from the water truck into the manhole. Dye was observed in the containment vault at the Pump House at 12:54 p.m., transported by the 36-inch RCP.

- 1:00 p.m.: one gallon of the liquid dye was poured into the Location #2 west side catch basin on San Nicholas. Approximately 100 gallons of water from the water truck was flushed into the catch basin. The dye was immediately observed entering the containment vault through the 18-inch RCP outfall.
- 1:04 p.m.: the Pump Station storm drain to sewer automatic diversion pump was turned on. The water level within the vault at this time was approximately 64 inches. The storm drain diversion pump is programmed to turn on when the water level within the vault reaches 48 inches and remain on until the water is drawn down to approximately 18 inches. The pump functioned properly and immediately kicked on. The dye was observed being pumped into the Sewer manhole adjacent to the pump house.
- 3:00 p.m.: CIBCSO staff remained on site until approximately 3:00 p.m. to visually monitor Kiddie Beach for the presence of dye. Dye was not observed within the waters at Kiddie Beach or exiting the Pump Station's main pump outfall locations throughout the test.

On June 17, 2016 at approximately 9:00 a.m., a follow-up dye monitoring inspection was conducted at Kiddie Beach by CIBCSO staff. Dye was not observed at the beach. Throughout the entire study, dye was not detected within the Kiddie Beach area or the Pump Station Main Pump outfalls while the sewer diversion pump was operating per normal operating conditions. Therefore, it was confirmed that all dry weather flows are being successfully diverted to the sanitary sewer system, with no discharge of dry weather flows to the Kiddie Beach/Channel Islands Harbor area. Photographs from the dye study are included in Appendix B.

5.3.4 Parking Lot Drain Removal – County

Improvements to parking lot drainage have recently been implemented, and these improvements have aided in preventing dry and wet weather flows originating at the Kiddie Beach parking lot from reaching the beach. No direct runoff from the parking lot of Kiddie Beach is discharged onto the beach sand. The elimination of stormwater runoff from these parking areas reduces bacteria contributions to the beach during wet weather.

5.3.5 Marina Facilities – County

The County Harbor Department prohibits septic and other illicit discharges from boats, and pump-out facilities are located in the harbor to encourage the public to pump their

septic and holding tanks instead of discharging into harbor waters. Dye tablets are also distributed to boaters to reveal if boat holding tanks are being emptied into the harbor waters.

The County Harbor Marinas were certified as a Clean Marinas by the Clean Marina California Program on February 22, 2006 and recertified as Clean Marinas on June 8, 2016. Four sewage pump-out facilities and a bilge pump-out facility are maintained monthly to help prevent pollutant loading in the Harbor. Maintaining strict regulation at the marina limits the illegal discharges that could contribute bacteria directly to the harbor waters.

5.3.6 Ordinances

Many sources of bacterial loads contributing to the pollution at the beaches are associated with human activity. The County and City have established numerous ordinances to regulate the behavior of the public to help reduce pollutants entering the harbor waters. In addition, the CIBCSO adopted Ordinance No. 75 to establish water conservation and water supply shortage program and regulations including water use restrictions, which aid reduction of urban runoff and nuisance flows within the beach community.

- County Ordinance No. 4450 – No discharge of pollutants, bacteria, or trash into County storm drains.
- City Ordinance No. 2876 – The discharge of pollutants into the storm drain system is prohibited.
- Harbor Ordinance 6408 – No deposition of refuse, trash, sewage, or waste matter in water of harbor or outer harbor.
- City Ordinance No. 2876 - No person may throw, deposit, leave, maintain, keep, or permit to be thrown, deposited, kept, or maintained, in or upon any public or private driveway, parking area, street, alley, sidewalk, trail, or component of the storm drain system or any receiving waters, any refuse, rubbish, garbage, litter, or other discarded or abandoned objects, articles, accumulations, or pollutant so that the same may cause or contribute to pollution.
- County Parks Ordinance No. 6408-3 – Trash must be placed in trash receptacles.
- Parks Ordinance 6306-3 – No removal of objects from trash receptacles; and rubbish must be placed in specified locations.
- CIBCSO Water Conservation Ordinance 75 - In accordance with water conservation efforts, residents are prohibited from hosing down hard/paved surfaces or generating runoff from landscape areas onto hard surfaces/pavement. Residents must also use a hose equipped with a self-closing spray nozzle when washing vehicles.

Enforcement of these ordinances are likely reducing pollutant contributions entering the harbor, either directly or through runoff, generated from human activity.

6. COMPLIANCE DISCUSSION

6.1 Dry Weather Compliance

The dry weather monitoring results from 2009 to 2014 show no exceedances of the single sample interim WLAs required by the TMDL. Also there were no dry weather single sample or geometric mean final WLA exceedances at Hobie Beach. However, there were dry weather single sample or geometric mean final WLA exceedances at Kiddie Beach. Dry weather sampling events that exceeded single sample or geometric mean water quality objectives are summarized in Table 8, along with important comments.

Although final WLAs were exceeded at Kiddie Beach during dry weather, dry weather BMPs have been implemented to eliminate dry weather flows. Additionally, studies have been conducted to demonstrate that the County and City's local MS4 outfalls are not contributing dry weather flows to the Harbor Beaches and therefore are not causing or contributing to the exceedances measured at the Harbor Beaches during dry weather.

These dry weather BMPs and studies include:

- Setting the San Nicholas Pump Station diversion pump to operate during year-round dry weather starting in April 2015. In addition, the diversion pump was recently upgraded to operate based on actual rainfall at a site-specific rain gage, starting in April 2016. In June 2016, a dye test was also performed at the San Nicholas Pump Station that confirmed that all dry weather flows were being diverted to the sanitary sewer system and were not discharging to the Kiddie Beach area.
- Inspecting the catch basins that discharge into Hobie Beach on a weekly basis for dry weather flow. No dry weather runoff has been observed by the City since this program began in June 2016.

Since the sewer line replacement in October 2014, only one out of eight samples at Kiddie Beach that were analyzed in the MST study had a human marker detection. This shows significant improvement relative to the frequent rate of detection, as determined by SCCWRP in 2014/2015, prior to the sewer repair. It is also important to note that Heal the Bay's Beach Report Cards from 2014 to 2016 rated the Harbor beaches favorably for dry weather, awarding Hobie Beach and Kiddie Beach an "A" grade four times and a "B" grade once during this period. These grades are significant improvements from prior to the TMDL, when Hobie Beach received a grade of "F" for the years 2000 to 2003 and Kiddie Beach received a grade of "F" for the years 2000, 2001, 2002, and 2004.

Table 8. Dry Weather Exceedance Days at Kiddie Beach (after December 18, 2013)

Date	Season	Single Sample Exceedances			Geometric Mean Exceedances ¹		Important Comments	
		Fecal Coliforms (MPN/100 mL)	Enterococcus (MPN/100mL)	Total Coliform (MPN/100mL)	Enterococcus (MPN/100mL)	Total Coliform (MPN/100mL)		
TMDL Threshold		400	104	10,000	35	1,000		
1/27/14	Winter Dry		364				Forcemain Undergoing Rehabilitation	
2/18/14			344				Forcemain Undergoing Rehabilitation	
2/24/14					41		Forcemain Undergoing Rehabilitation	
3/17/14				831	89		Forcemain Undergoing Rehabilitation	
3/24/14					36		Forcemain Undergoing Rehabilitation	
12/8/14				165	11,199	66		Dredging between 10/14/2014 and 1/24/2015
12/22/14				124		70	1,925	Dredging between 10/14/2014 and 1/24/2015
12/29/14						55	1,355	Dredging between 10/14/2014 and 1/24/2015
1/5/15						38	1,055	Dredging between 10/14/2014 and 1/24/2015
1/20/15				364		90		Dredging between 10/14/2014 and 1/24/2015
1/26/15						81		
2/2/15						71		
2/17/15						41		
11/17/15				531				All year dry weather Diversion Pump Operation started in April 2015
1/4/16				306				Diversion Pump Operating

Date	Season	Single Sample Exceedances			Geometric Mean Exceedances ¹		Important Comments
		Fecal Coliforms (MPN/100 mL)	Enterococcus (MPN/100mL)	Total Coliform (MPN/100mL)	Enterococcus (MPN/100mL)	Total Coliform (MPN/100mL)	
TMDL Threshold		400	104	10,000	35	1,000	
3/28/16					44		Diversion Pump Operating
4/1/14	Summer Dry		344				Diversion Pump Operating; Forcemain Undergoing Rehabilitation; Follow-up sample did not exceed
4/15/14			750				Diversion Pump Operating; Forcemain Undergoing Rehabilitation; Follow-up sample did not exceed
10/21/14		703	659				Diversion Pump Operating; Forcemain Undergoing Rehabilitation; Dredging between 10/14/2014 and 1/24/2015
10/22/14 ²		624	738		42		Diversion Pump Operating; Dredging between 10/14/2014 and 1/24/2015
10/28/14					45		Diversion Pump Operating; Dredging between 10/14/2014 and 1/24/2015

1. There were no geometric mean exceedances of the water quality objective for fecal coliforms.
2. This was a follow-up sample.

6.2 Wet Weather Compliance

While the wet weather single sample final WLAs are not effective until December 18, 2018, the wet weather monitoring results from 2009 to 2016 show that no exceedances of the interim WLAs occurred for both Hobie Beach and Kiddie Beach, except for interim

WLAs at Kiddie Beach in TMDL year 2011. It is also important to note that 2011 and 2015 were the only TMDL years where exceedance days would have exceeded the wet weather single sample final WLAs. However, the recent drought, which has resulted in fewer wet days over the past several years, could have partially contributed to this.

The winter and summer geometric mean targets became effective on December 18, 2013 and there were no exceedances greater than the geometric mean targets at Hobie Beach on wet weather days. However, there were exceedances greater than the final geometric mean targets at Kiddie Beach during wet weather, and these exceedance days are summarized in Table 9.

With the ongoing implementation of the BMPs defined in the Wet Weather IP, it is expected that the water quality during wet weather will improve and the number of wet weather exceedance days will continue to decrease. This water quality improvement is supported by recent wet weather monitoring results that suggest a significant improvement in beach water quality since the TMDL became effective. Based on the period of record used in the TMDL (April 1999 - March 2006), AB411 monitoring data indicated that Kiddie and Hobie Beaches exceeded single sample water quality objectives 51 percent and 43 percent of the time, respectively, during wet weather. However, since the TMDL effective date (February 2009 – October 2016), wet weather exceedance percentages were 29 percent and 26 percent at Kiddie and Hobie Beaches, respectively, indicating significant water quality improvement since the TMDL. To further guide wet weather implementation planning, the City and County are considering MST sampling at the Harbor Beaches and the MS4s during wet weather to identify and eliminate (if present) human fecal sources.

Heal the Bay also awarded high grades for the Harbor Beaches during wet weather. Hobie Beach and Kiddie Beach were given two “A” grades and two “C” grades for wet weather for 2014 to 2016. Again this is an improvement over the pre-TMDL condition, in which Hobie Beach received an “F” grade from 2000 to 2003 and Kiddie Beach received an “F” grade from 2000 to 2007 (excluding 2006).

Table 9. Wet Weather Exceedance Days at Kiddie Beach (after December 18, 2013)

Date	Season	Single Sample Exceedances			Geometric Mean Exceedances ¹	
		Fecal Coliforms (MPN/100 mL)	Enterococcus (MPN/100mL)	Total Coliform (MPN/100mL)	Enterococcus (MPN/100mL)	Total Coliform (MPN/100mL)
TMDL Threshold		400	104	10,000	35	1,000
12/1/14	Wet ²				47	
12/15/14					53	1,454
1/12/15					44	1,231
2/9/15					82	

1. There were no geometric mean exceedances of the water quality objective for fecal coliforms.
2. Exceedances during wet weather are only listed for exceedances of the geometric mean, since single sample final WLAs for wet weather are not yet effective.

7. CONCLUSION

The City, County, and VCWPD have implemented numerous dry and wet weather BMPs to comply with the TMDL requirements, including modification to the low flow diversion (to extend operation into winter dry weather) and repair of a nearby sewer line. As a result, dry weather indicator bacteria concentrations and human marker detections rates have fallen. In addition, a dye test of the low flow diversion and regular inspections have demonstrated that dry weather flows are not occurring at the MS4 outfalls. Therefore, local MS4s are not causing or contributing to the few remaining dry weather WLA exceedances that are observed at the Harbor beaches. To confirm the absence of human markers, additional human marker sampling is needed at both Hobie and Kiddie Beaches.

Although wet weather final WLAs are not effective yet, the City, VCWPD, and County have also made progress towards consistently meeting them. To further improve water quality and prioritize the elimination of human fecal bacteria, the City, VCWPD, and County are considering MST investigations during wet weather as well.

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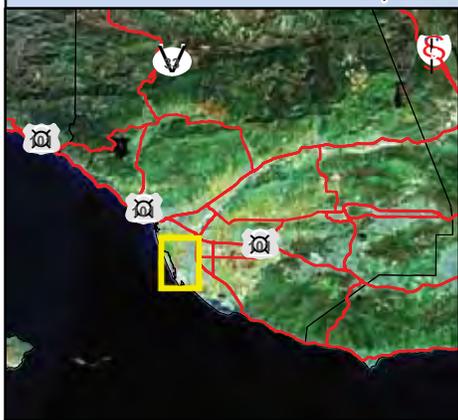
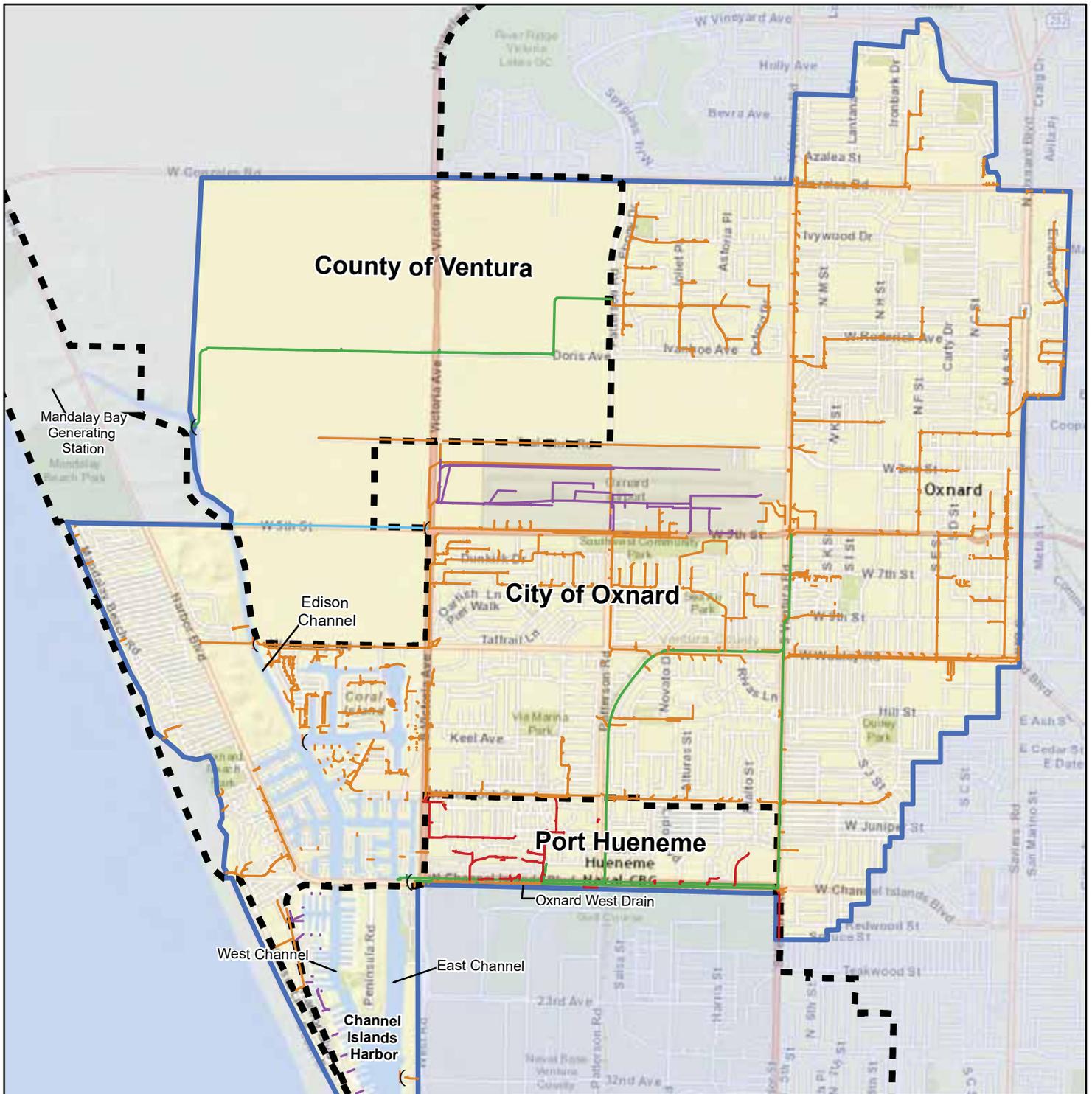


Figure 1: Channel Islands Harbor Watershed Harbor Beaches Bacteria TMDL

Legend

CIH Watershed	City of Oxnard	Agriculture Drainage Ditch	MS4 Outfalls	MS4 Conveyances	
			County of Ventura	County of Ventura	
			City of Oxnard	City of Oxnard	
			VCWPD	VCWPD	
			Port Hueneme	Port Hueneme	

0 0.3 0.6 1.2
Miles

December 18, 2016

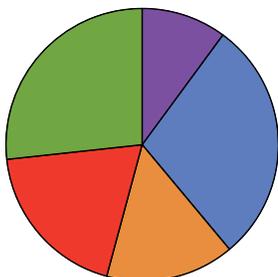
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**Figure 2: County MS4 and Land Use
Harbor Beaches Bacteria TMDL**

County Land Uses in CIH Watershed



- Commercial (10.1%)
- Marina Water Facilities (28.8%)
- Multi-family Residential (15.3%)
- Single-family Residential (19.1%)
- Parks and Recreation (26.7%)

Legend

- CIH Watershed
- City of Oxnard
- County of Ventura MS4 Outfall
- VCWPD
- Land Use**
- Parks and Recreation
- Marina Water Facilities
- Commercial
- Multi-family Residential
- Single-family Residential



December 18, 2016

LA0399

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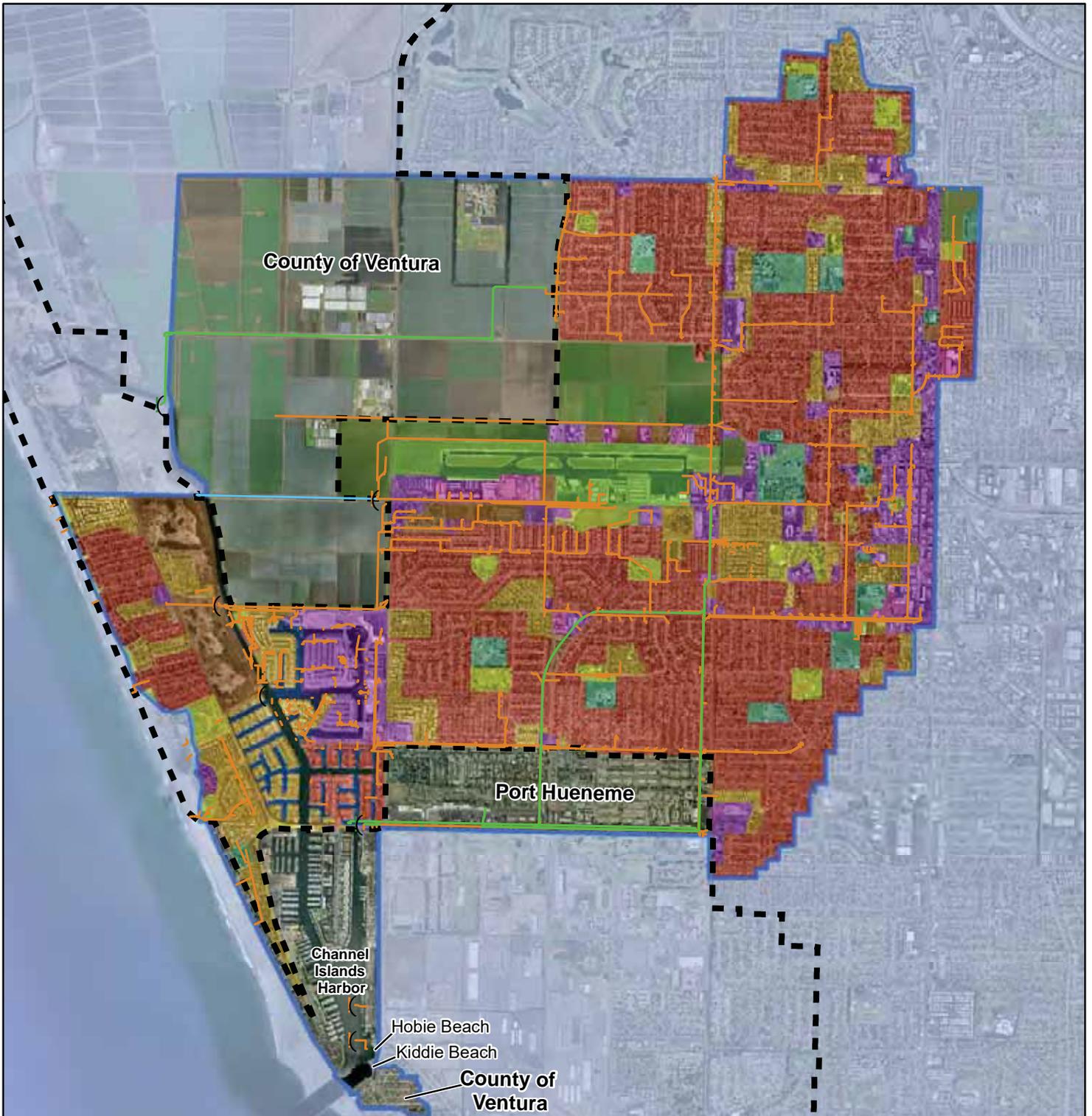
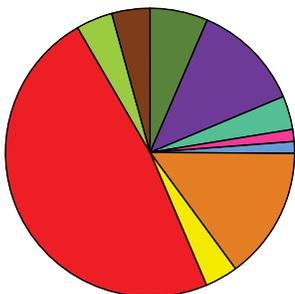


Figure 3: City MS4 and Land Use
Harbor Beaches Bacteria TMDL

City Land Uses in CIH Watershed



- Agriculture (6.5%)
- Commercial (12.2%)
- Education (3.8%)
- Industrial (1.4%)
- Marina Water Facilities (1.3%)
- Multi-family Residential (14.8%)
- Parks and Recreation (3.7%)
- Single-family Residential (48.0%)
- Transportation (4.1%)
- Vacant (4.3%)

Legend

- CIH Watershed
- City of Oxnard
- MS4 Outfalls
 - { City of Oxnard
 - { VCWPD
- Agriculture
- Drainage Ditch
- MS4 Conveyances
 - City of Oxnard
 - VCWPD

- Land Use
 - Agriculture
 - Commercial
 - Transportation
 - Parks and Recreation
 - Multi-family Residential
 - Single-family Residential
 - Marina Water Facilities
 - Education
 - Industrial
 - Vacant



December 18, 2016

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Figure 4: QMRA Monitoring Locations
Harbor Beaches Bacteria TMDL

Legend

CIH Watershed	MS4 Conveyances County of Ventura	MS4 Outfalls County of Ventura	
QMRA Monitoring Locations	MS4 Conveyances City of Oxnard	MS4 Outfalls City of Oxnard	
Wastewater Gravity Sewer			
Wastewater Force Main			
			0 275 550 1,100 Feet

December 18, 2016

LA0399

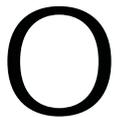
Geosyntec
consultants



Figure 5: Locations of Key BMP Implementation
Harbor Beaches Bacteria TMDL

Legend

- | | |
|--|--------------------------|
| CIH Watershed | Wastewater Gravity Sewer |
| Boat Launch Ramp Redevelopment Project | Wastewater Force Main |
| MS4 Outfalls | MS4 Conveyances |
| County of Ventura | County of Ventura |
| City of Oxnard | City of Oxnard |



0 450 900 1,800 Feet

December 18, 2016

LA0399

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Appendix A

Draft CIH Bacteria TMDL Data Analysis Report

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1. INTRODUCTION

1.1 Background

The Harbor Beaches of Ventura County, or Kiddie Beach and Hobie Beach, located within the Channel Island Harbor (CIH), are included on the California 303(d) list for bacteria. To address this, a Total Maximum Daily Load (TMDL) was developed for the CIH beaches. The TMDL, an amendment to the Water Quality Control Plan for the Los Angeles Region (Basin Plan), became effective on December 18, 2008 (Resolution R2007-017). The TMDL Basin Plan Amendment contains numeric limits based on REC-1¹ bacteriological water quality objectives for marine water. The allowable pollutant loadings under the TMDL, or waste load allocations (WLAs), are expressed as an allowable number of days per year that the water quality objectives can be exceeded. The TMDL single sample interim and final WLAs were included in the 2009 Ventura County MS4 Permit, for three seasons: (1) summer dry weather (April 1 to October 31), (2) winter dry weather (November 1 to March 31), and (3) wet weather days (defined as days of 0.1 inches of rain or more plus the three days following the rain event). The geometric mean WLAs listed in the TMDL Basin Plan Amendment are not incorporated into the Ventura County MS4 permit. The Amendment required submittal of a Compliance Report by December 18, 2014 (six years after the effective date of the TMDL), that summarized monitoring results relative to TMDL WLAs and implemented activities to improve water quality at the beaches. Two reports were submitted on December 18, 2014 to fulfill this requirement, one for the City of Oxnard (Geosyntec Consultants, 2014a) and one for the County of Ventura Public Works Agency and the Ventura County Watershed Protection District (Geosyntec Consultants 2014b). The Amendment requires an additional Compliance Report to be submitted by December 18, 2016 (eight years after the effective date of the TMDL).

The TMDL was developed based on a reference system/antidegradation approach. Therefore, the allowable number of exceedance days for each monitoring site are based on the more stringent of two criteria: (1) exceedance days in the designated reference system (Leo Carrillo Beach), or (2) exceedance days based on historical bacteriological data at the monitoring site (1999-2006). This ensures that bacteriological water quality is at least as good as that of a largely undeveloped system and that there is no degradation of existing water quality. In the case of the CIH beaches the number of exceedance days at the reference beach was the more stringent criteria (LARWQCB 2007).

¹ The REC-1 beneficial use category covers uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs. (LARWQCB 1994)

This report presents results from a data analysis performed on the weekly monitoring data for indicator bacteria at the CIH beaches for the TMDL WLAs for which compliance dates have passed; these include the interim and final summer and winter dry weather single sample WLAs, the interim wet weather single sample WLA, and the interim and final geometric mean WLAs. The weekly monitoring data for indicator bacteria at the CIH Beaches were compared with the REC-1 single sample and geometric mean objectives. An exceedance day was counted when any indicator bacteria density exceeded the single sample objective or the rolling 30-day geometric mean objective. Exceedance days were then compared to the interim and final allowable exceedance days for each season.

1.2 Data Analysis Objectives

The following single sample water quality objectives for waters designated REC-1 are referenced in the TMDL:

- a. Total coliform density shall not exceed 10,000 MPN/100 mL.
- b. Fecal coliform density shall not exceed 400 MPN/100 mL.
- c. Enterococcus density shall not exceed 104 MPN/100 mL.
- d. If the ratio of fecal-to-total coliform exceeds 0.1, total coliform density shall not exceed 1,000 MPN/100mL.

The single sample WLAs, based on a weekly sampling frequency, are expressed as annual allowable exceedance days and are shown in Table 1 (interim) and Table 2 (final).

Table 1. Interim Single Sample WLAs for Weekly Sampled Sites, Expressed as Annual Allowable Exceedance Days

Location	Summer Dry Weather	Winter Dry Weather	Wet Weather
Hobie Beach	6	4	6
Kiddie Beach	8	4	5

Table 2. Final Single Sample WLAs for Weekly Sampled Sites, Expressed as Annual Allowable Exceedance Days

Location	Summer Dry Weather	Winter Dry Weather	Wet Weather
Hobie Beach	0	1	3
Kiddie Beach	0	1	3

The following rolling 30-day geometric mean water quality objectives for waters designated REC-1 are referenced in the TMDL:

- a. Total coliform density shall not exceed 1,000 MPN/100 mL.

- b. Fecal coliform density shall not exceed 200 MPN /100 mL.
- c. Enterococcus density shall not exceed 35 MPN/100 mL.

The interim 30-day rolling geometric mean WLAs, based on a weekly sampling frequency, are expressed as allowable exceedance days in the TMDL Basin Plan Amendment and are shown in Table 3. The final 30-day rolling geometric mean WLAs are zero allowable exceedance days during any season.

Table 3. Interim 30-day Rolling Geometric Mean WLAs for Weekly Sampled Sites, Expressed as Allowable Exceedance Days

Location	Summer Weather	Winter Weather
Hobie Beach	12	13
Kiddie Beach	8	14

The interim WLAs (listed in Table 1 and Table 3) became effective the date the TMDL went into effect (December 18, 2008) and are applicable until the final WLAs become effective as shown in Table 4.

Table 4. Effective Dates of Final WLAs

Calculation Type and Time Period	Effective Date of Final WLAs
Single Sample WLAs for Dry Weather	December 18, 2013
Single Sample WLAs for Wet Weather	December 18, 2018
Rolling 30-day Geometric Mean WLA	December 18, 2013

1.3 Monitoring Summary

Monitoring at the CIH Beaches is based on TMDL and State monitoring requirements. Monitoring occurs at the beach sampling locations (VCEHD 36000 and VCEHD 37000) on a weekly frequency, year-round. Samples are collected in ankle to knee deep water.

This analysis includes water quality monitoring data from February 4, 2009 through October 31, 2016. The majority of the monitoring data were collected by the Ventura County Environmental Health Department (VCEHD). Some dates with missing data from the VCEHD were filled in with monitoring data collected by the Ventura County Water Protection District (VCWPD).

Sampling has generally occurred on a weekly basis. Typically, if a dry weather sample exceeded a water quality objective a follow-up sample was collected on the following day. As a result, there are numerous weeks with back-to-back sample days. The monitoring periods with unfilled gaps, where samples were not collected by the VCEHD or VCWPD, include the following periods, with explanations for why each period was missed:

- 12/18/2008 – 1/28/2009 (Hobie and Kiddie Beach): State budget cut for ocean water testing, no funding available for this time period.
- 11/22/2010 – 1/17/2011 (Hobie Beach): No sampling due to beach maintenance (gate locked).
- 12/17/2012 – 2/18/2013 (Hobie Beach): Dredging equipment on beach, area fenced (no access).
- 9/9/2014 (Hobie and Kiddie Beach): Dredging equipment on beach, area fenced (no access).
- 9/30/2014 (Hobie Beach): Dredging equipment on beach, area fenced (no access).
- 10/21/2014 (Hobie Beach): Dredging equipment on beach, area fenced (no access).
- 12/29/2014 (Hobie Beach) – No access (gate locked).

Table 5 shows a summary of missed weekly sampling at both beaches for each season (as defined for the single sample WLA) and year. Table 6 shows a summary of missed weekly sampling at both beaches for each season (as defined for the Geometric Mean WLA) and year.

**Table 5. Summary of Missing Data
(Seasons Defined for Single Sample WLA)**

TMDL Year (Nov 1 - Oct 31)	Missed Weekly Samples					
	Summer Dry		Winter Dry		Wet	
	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach
2008/2009 ^{1,2}	0	0	9	9	4	4
2009/2010	0	0	0	0	0	0
2010/2011	0	0	4	0	5	0
2011/2012	0	0	0	0	0	0
2012/2013	0	0	7	0	3	0
2013/2014	3	1	0	0	0	0
2014/2015	0	0	1	0	0	0
2015/2016	0	0	0	0	0	0

1. Four of the nine weeks not sampled during the 2009 winter dry season were not sampled because the TMDL was not effective until December 18, 2008.

2. Three of the four weeks not sampled during the 2009 wet season were not sampled because the TMDL was not effective until December 18, 2008.

**Table 6. Summary of Missing Data
(Seasons Defined for Geometric Mean WLA)**

TMDL Year (Nov 1 - Oct 31)	Missed Weekly Samples			
	Summer		Winter	
	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach
2008/2009 ¹	0	0	13	13
2009/2010	0	0	0	0
2010/2011	0	0	9	0
2011/2012	0	0	0	0
2012/2013	0	0	10	0
2013/2014	3	1	0	0
2014/2015	0	0	1	0
2015/2016	0	0	0	0

1. Seven of the 13 weeks not sampled during the 2009 winter season were not sampled because the TMDL was not effective until December 18, 2008.

2. ANALYSIS METHODOLOGY

2.1 Single Sample

For each sample result, the measured indicator bacteria concentrations were compared to the single sample water quality objectives. If any one of the objectives were exceeded, one exceedance was counted, with exceedance counts summed by season to compare with weekly sampling allowed exceedance days. Occasional follow-up samples result in multiple samples in a week. If both samples exceed objectives, this is counted as one weekly exceedance. However, if the first day exceeds but the second day does not, this counts as 1/7th (0.143) of a weekly exceedance to enable comparison with allowed exceedance days since these assume strict weekly sampling.

Single sample exceedance day totals were analyzed by season. For each TMDL year (November 1 – October 31), sampling days were classified as a winter dry, summer dry, or wet day. Wet days are classified as days with at least 0.1 inches of rain and the three days following, based on rainfall data from the Port Hueneme – Oxnard Sewer Plant station (VCWPD #017C)² and the CIH – Kiddie Beach station (VCWPD #215A)³. Winter dry

² Note that the TMDL used historical rainfall data from the Los Angeles International Airport (LAX) meteorological station for calculating the WLAs, since this station has the longest historical rainfall record (54 years) in the Los Angeles region.

³ Hourly rainfall data were downloaded from the VCWPD Hydrologic Data Server (http://www.vcwatershed.net/hydrodata/php/getstations.php?dataset=rain_hour) to determine daily rainfall totals. The Port Hueneme – Oxnard Sewer Plant station (VCWPD # 017C) was used for 2008 – 2015. The new CIH – Kiddie Beach station (VCWPD #215A) came online partway through 2015 and therefore was used

weather is defined as days between November 1 and March 31 that are not classified as wet days. Summer dry weather includes days between April 1 and October 31 that are not wet weather days. The number of allowable exceedance days listed in the TMDL Basin Plan Amendment were calculated, by the Regional Board staff, based on the number of wet days during the 90th percentile storm year⁴ (LARWQCB 2007). There were 79 wet days during the 90th percentile storm year at the CIH rain gage station (VCWPD #215) (based on 50 years of record, 1964-2013). None of the TMDL compliance years had more wet days than the 90 percentile storm year; though 2010 and 2011 were close to the 90th percentile year with 75 and 72 wet days, respectively.

2.2 Geometric Mean

The 30-day rolling geometric mean calculations were performed based on approaches set forth by the TMDL Basin Plan Amendment, the TMDL staff report (LARWQCB, 2007), and conversation with LARWQCB staff (Man Voong, personal communication, October 16, 2014). These approaches maintain that geometric means are to be computed based on a minimum of five samples on a rolling 30-day basis during each TMDL season.

For weekly geometric mean calculations, the following procedure is used:

1. A rolling 30-day geometric mean is calculated every day that a sample is collected, as long as the following conditions are true:
 - a. There are at least five samples collected in the rolling 30-day window.
 - b. The 30-day window is contained within the same season (i.e. summer or winter).
2. If there are not at least five samples in the 30-day window or all samples were not collected during the same season, there are insufficient samples to perform the geometric mean calculation.

Recent Southern California MS4 permits and TMDL include slight variations on the calculation approach of geometric means, including the exclusion of wet weather results in the calculation (San Diego MS4 permit, 2013) and the calculation of a 6-week rolling geometric mean (LARWQCB, 2014).

For the total and fecal coliform geometric mean calculation, the non-detect results were replaced with the value of the lower detection limit of that sample. For the enterococcus geometric mean calculation, the non-detect results with a lower detection limit less than 3.7 organisms/100 mL were replaced with the value of the lower detection limit of that sample,

for 2016 and will be used for future analyses. Hourly data from 9/30/2015 – 10/6/2016 are preliminary data and subject to revision. Hourly data from 10/7/2016 – 10/31/2016 are unverified data.

⁴ The “storm year” is defined as November 1 to October 31 to be consistent with the TMDL years.

while the non-detect results with lower detection limit greater than or equal to 3.7 organisms/100 mL were replaced with a value of 3.7 organisms/100 mL. This approach is consistent with the approach used by the Los Angeles Regional Water Quality Control Board in the Los Angeles region's 2012 bacteria TMDL reopeners, based on data analyses performed by the City of Los Angeles⁵.

The number of geometric mean calculations performed on weekly samples and the total number of geometric mean objective exceedances, separated by summer and winter season, were used to determine an exceedance percentage for each TMDL year and season. Sampling days with insufficient data to calculate a geometric mean (as defined above) did not contribute to the exceedance percentage. Similar to the single sample calculations, a follow-up sample (collected after an exceedance day) that was above an objective was not counted as a separate exceedance. A follow-up sample that was below an objective meant the first day was only counted as a fractional exceedance (1/7th or 0.143), to allow comparison with allowed exceedance days since these assume strict weekly sampling.

3. RESULTS

3.1 Single Sample Results

The 2009-2013 single sample exceedance days for dry weather (both summer and winter) are compared to interim allowable exceedance days. The 2014 TMDL year results are compared to interim allowable exceedance days for data collected before December 18, 2013, while data collected for the remainder of the 2014 TMDL year are compared to final allowable exceedance days. Results from the 2015-2016 TMDL years for dry weather single sample exceedance days (both summer and winter) are compared to final allowable exceedance days. All single sample exceedance days for wet weather are compared to the interim allowable exceedance days since the final wet weather WLAs are not effective until 2018. Table 7 through Table 9 summarize the seasonal monitoring results for each TMDL year including the total number of weekly samples collected at each location, the number of single sample exceedance days based on water quality objectives discussed in section 1.2, and the resulting exceedance percentage. The interim and final allowable exceedance days for each location are shown graphically in Figure 1 through Figure 3.

⁵ This is based on the City of Los Angeles Environmental Monitoring Division finding that, "Assuming a normal distribution of the log results, 90% of results reported as less than 10, would be less than 3.7," as described in the June 2012 Los Angeles Bacteria TMDL Reconsideration Staff Report ("Reconsideration of Certain Technical Matters of the Santa Monica Bay Beaches Bacteria TMDLs; the Marina del Rey Harbor Mothers' Beach and Back Basins Bacteria TMDL; and the Los Angeles Harbor Inner Cabrillo Beach and Main Ship Channel Bacteria TMDL – Staff Report")

Table 7. Summer Dry Weather Single Sample Monitoring Results

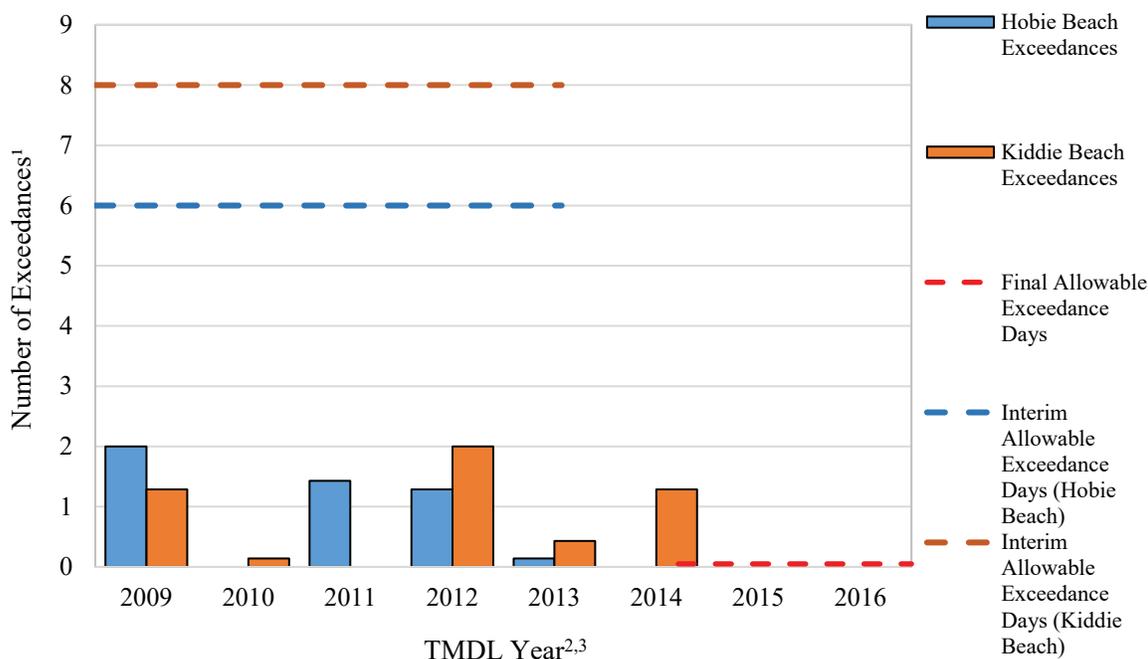
TMDL Year (Apr 1 - Oct 31)	Weeks Sampled		Exceedance Days ^{1,2}		Allowable Exceedance Days		Exceedance Percentage ³	
	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach
2009	29	29	2.0	1.3	6	8	6.9%	10%
2010	24	24	0	0.14	6	8	0%	4.2%
2011	28	28	1.4	0	6	8	14%	0%
2012	30	30	1.3	2.0	6	8	13%	13%
2013	30	30	0.14	0.43	6	8	3.3%	10%
2014	28	30	0	1.3	0	0	0%	13%
2015	25	25	0	0	0	0	0%	0%
2016	29	29	0	0	0	0	0%	0%

1. As discussed in section 2.1, if a follow-up sample did not exceed a water quality objective, then only a fractional exceedance was counted for that week.

2. Exceedance days in **bold** are above the applicable WLA

3. Exceedance percentage represents total number of sampled exceedance days divided by the total number of samples collected during the season.

Figure 1. Summer Dry Weather Single Sample Exceedances



1. As discussed in section 2.1, if a follow-up sample did not exceed a water quality objective, then only a fractional exceedance was counted for that week.

2. Zero exceedance days in 2010, 2014, 2015, and 2016 at Hobie Beach.

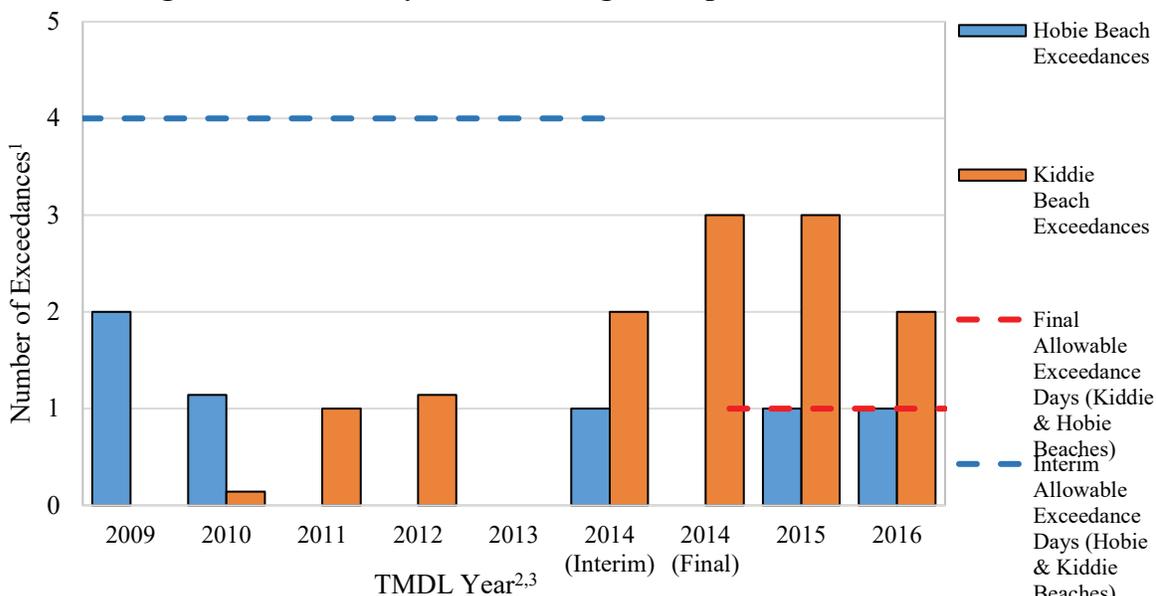
3. Zero exceedance days in 2011, 2015, and 2016 at Kiddie Beach

Table 8. Winter Dry Weather Single Sample Monitoring Results

TMDL Year (Nov 1 - Mar 31)	Weeks Sampled		Exceedance Days ^{1,2}		Allowable Exceedance Days		Exceedance Percentage ³	
	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach
2009	6	6	2.0	0	4	4	33%	0%
2010	14	14	1.1	0.14	4	4	21%	7.1%
2011	8	12	0	1.0	4	4	0%	8.3%
2012	15	15	0	1.1	4	4	0%	13%
2013	8	14	0	0	4	4	0%	0%
2014 (Interim) ⁴	5	5	1.0	2.0	4	4	20%	40%
2014 (Final) ⁵	13	13	0	3.0	1	1	0%	23%
2015	14	15	1.0	3.0	1	1	7.1%	20%
2016	17	17	1.0	2.0	1	1	5.9%	12%

1. As discussed in section 2.1, if a follow-up sample did not exceed a water quality objective, then only a fractional exceedance was counted for that week.
2. Exceedance days in **bold** are above the applicable WLA
3. Exceedance percentage represents total number of sampled exceedance days divided by the total number of samples collected during the season.
4. 2014 (Interim) include dates before December 18, 2013
5. 2014 (Final) includes December 18, 2013 and subsequent days.

Figure 2. Winter Dry Weather Single Sample Exceedances



1. As discussed in section 2.1, if a follow-up sample did not exceed a water quality objective, then only a fractional exceedance was counted for that week.
2. Zero exceedance days in 2009 and 2013 at Kiddie Beach
3. Zero exceedance days in 2011, 2012, and 2013 at Hobie Beach.
4. 2014 (Interim) include dates before December 18, 2013.
5. 2014 (Final) includes December 18, 2013 and subsequent days.

Table 9. Wet Weather Single Sample Monitoring Results

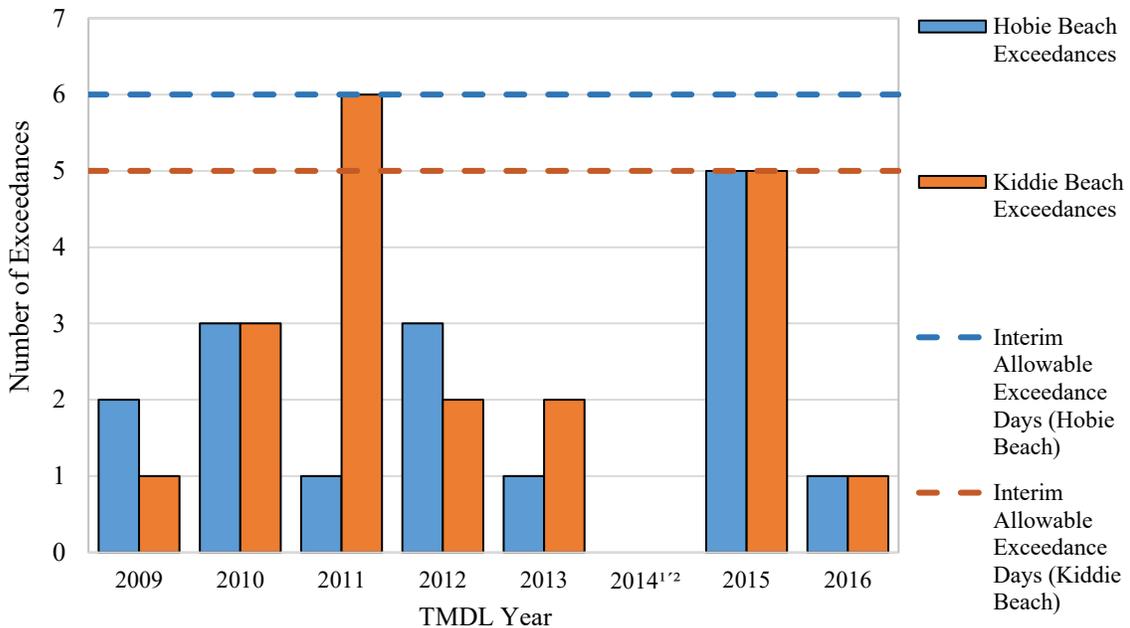
TMDL Year (Nov 1 - Oct 31)	Wet Weather Days	Samples Collected		Exceedance Days ^{1,2}		Allowable Exceedance Days		Exceedance Percentage ³	
		Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach
2009	59	4	4	2	1	6	5	50%	25%
2010	75	14	14	3	3	6	5	21%	21%
2011	72	7	12	1	6	6	5	14%	50%
2012	36	8	8	3	2	6	5	38%	25%
2013	52	4	8	1	2	6	5	25%	25%
2014	25	3	3	0	0	6	5	0%	0%
2015	62	13	12	5	5	6	5	42%	45%
2016	41	7	7	1	1	6	5	14%	14%

1. Follow-up samples were not generally collected for wet weather days. Therefore, the exceedance day totals only include sampled days.

2. Exceedance days in **bold** are above the applicable WLA

3. Exceedance percentage represents total number of sampled exceedance days divided by the total number of samples collected by season.

Figure 3. Wet Weather Single Sample Exceedances



1. Zero exceedance days in 2014 at Hobie Beach.

2. Zero exceedance days in 2014 at Kiddie Beach.

3.2 Geometric Mean Results

The 2009-2013 geometric mean exceedance days (i.e., exceedances of any of the rolling 30-day geometric mean objectives) are compared to interim allowable exceedance days. The 2014 TMDL year results for data collected before December 18, 2013 are compared to interim allowable exceedance days, while data collected on or after December 18, 2013 are compared to final allowable exceedance days. Summaries of geometric mean calculation results for the summer and winter weather monitoring data are shown in Table 10 and Table 11.

The number of weekly geometric means calculated for both locations are included along with the number of exceedance days based on geometric mean water quality objectives. Geometric mean exceedance days, including interim and final allowable exceedance days, are illustrated for summer in Figure 4 and winter in Figure 5.

Table 10. Summer Geometric Mean Exceedance Results

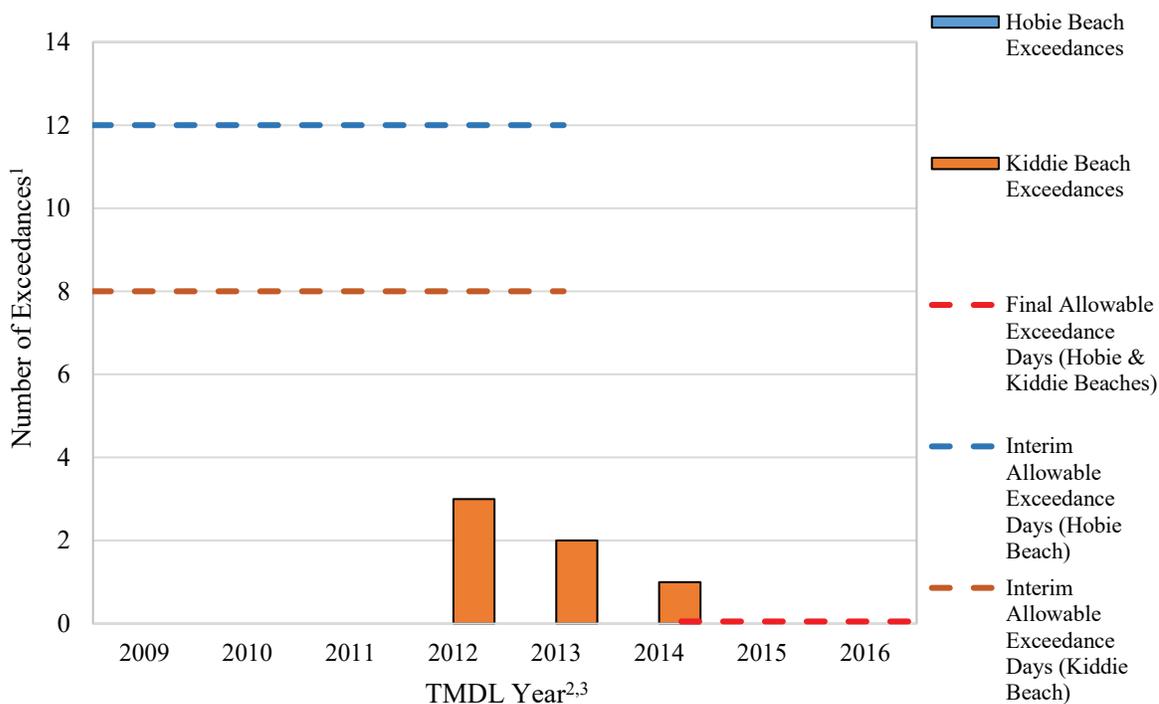
TMDL Year (Apr 1 - Oct 31)	Days with Geometric Mean Calculations		Exceedance Days ^{1,2}		Allowable Exceedance Days		Exceedance Percentage ³	
	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach
2009	26	28	0	0	12	8	0%	0%
2010	28	27	0	0	12	8	0%	0%
2011	28	26	0	0	12	8	0%	0%
2012	30	29	0	3	12	8	0%	14%
2013	28	30	0	2	12	8	0%	10%
2014	18	22	0	1	0	0	0%	9.1%
2015	27	26	0	0	0	0	0%	0%
2016	27	27	0	0	0	0	0%	0%

1. As discussed in section 2.1, if a follow-up sample did not exceed a water quality objective, then only a fractional exceedance was counted for that week.

2. Exceedance days in **bold** are above the applicable WLA

3. Exceedance percentage represents total number of sampled exceedance days divided by the total number of sample days with geometric mean calculations during the season.

Figure 4. Summer Weekly Geometric Mean Exceedances



1. As discussed in section 2.1, if a follow-up sample did not exceed a water quality objective, then only a fractional exceedance was counted for that week.
2. Zero geometric mean exceedances in 2009, 2010, 2011, 2015, and 2016 at Kiddie Beach.
3. Zero geometric mean exceedances in all years at Hobie Beach.

Table 11. Winter Geometric Mean Exceedance Results

TMDL Year (Nov 1 - Mar 31)	Days with Geometric Mean Calculations		Exceedance Days ^{1,2}		Allowable Exceedance Days		Exceedance Percentage ³	
	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach	Hobie Beach	Kiddie Beach
2009	5	5	5	0	13	14	100%	0%
2010	20	19	5	5.1	13	14	30%	32%
2011	6	17	0	9	13	14	0%	53%
2012	17	17	0	3	13	14	0%	18%
2013	3	15	0	0	13	14	0%	0%
2014 (Interim) ⁴	3	3	0	3	13	14	0%	100%
2014 (Final) ⁵	14	14	0	3	0	0	0%	21%
2015	13	18	0	12	0	0	0%	67%
2016	18	18	0	1	0	0	0%	5.6%

1. As discussed in section 2.1, if a follow-up sample did not exceed a water quality objective, then only a fractional exceedance was counted for that week.

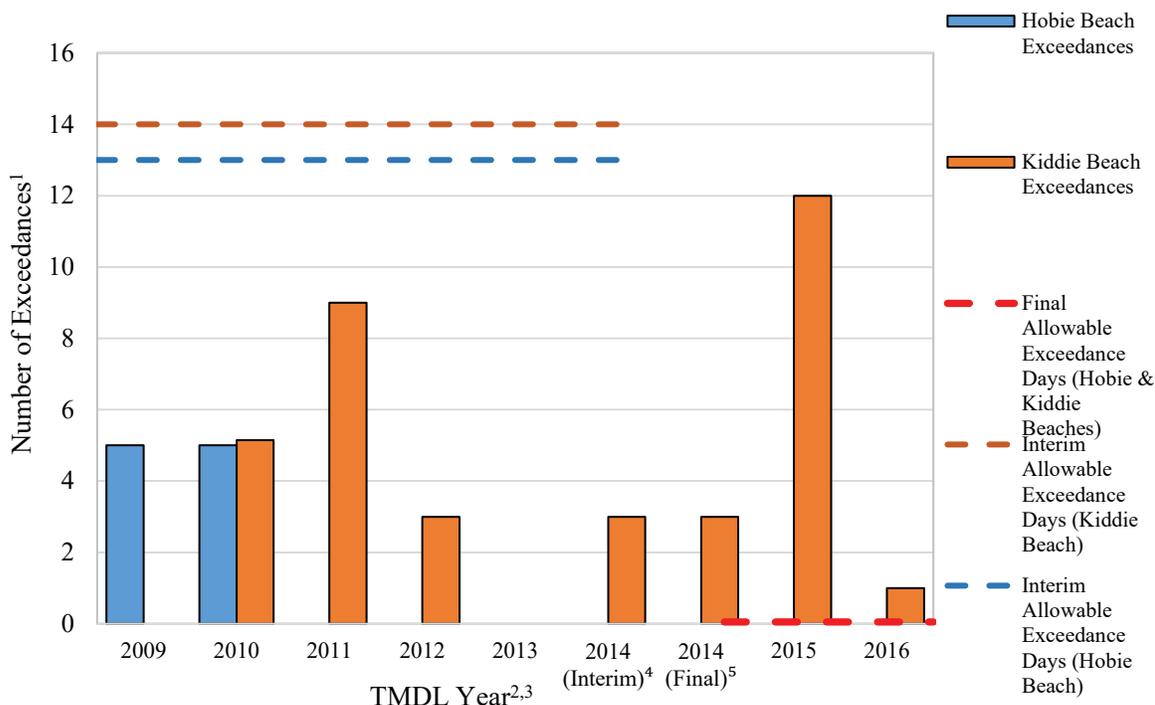
2. Exceedance days in **bold** are above the applicable WLA

3. Exceedance percentage represents total number of sampled exceedance days divided by the total number of sample days with geometric mean calculations during the season.

4. 2014 (Interim) include dates before December 18, 2013.

5. 2014 (Final) includes December 18, 2013 and subsequent days.

Figure 5. Winter Weekly Geometric Mean Exceedances



1. As discussed in section 2.1, if a follow-up sample did not exceed a water quality objective, then only a fractional exceedance was counted for that week.
2. Zero geometric mean exceedances in 2009 and 2013 at Kiddie Beach.
3. Zero geometric mean exceedances in 2011 through 2016 at Hobie Beach.
4. 2014 (Interim) include dates before December 18, 2013.
5. 2014 (Final) includes December 18, 2013 and subsequent days.

4. OBSERVATIONS

Interim summer and winter dry weather single sample WLAs were never exceeded. Final summer dry weather single sample WLAs were only exceeded once, at Kiddie Beach in 2014. Final winter dry weather single sample WLAs were exceeded three times, at Kiddie Beach in 2014, 2015, and 2016. It should be noted that samples were missed at Hobie and Kiddie Beaches in the summer and winter dry seasons during multiple years (see Table 5). Therefore, total exceedances days could have been somewhat higher than reported for each of these periods.

Although final WLAs for wet weather do not become effective until 2018, the majority of wet seasons between 2009 and 2016 met the final allowable exceedance days of three days for both beaches. Only the 2011 wet season surpassed the interim allowable exceedance days for wet weather sampling (at Kiddie Beach). Recent drought conditions have resulted in lower than average wet days per year (see Table 9), potentially contributing to the very low number of wet weather exceedance days observed per year.

Similar to single sample dry weather monitoring results, there were no exceedances of interim geometric mean WLAs at Kiddie or Hobie beaches. Final geometric mean WLAs for the summer season were only exceeded at Kiddie Beach in 2014, while final geometric mean WLAs for the winter season were exceeded at Kiddie Beach in 2014, 2015, and 2016. Total geometric mean exceedance days could have been somewhat higher than reported during periods when samples were missed, although there have been no more than three missed weekly samples in a single season and beach since final geometric mean WLAs became effective (see Table 6).

5. REFERENCES

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Geosyntec Consultants, 2014b. "Bacteria Total Maximum Daily Load Compliance Report – Harbor Beaches of Ventura County (Kiddie Beach and Hobie Beach)." Prepared for the County of Ventura Public Works Agency and Ventura County Watershed Protection District. December 18, 2014.

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Appendix B

Additional Information for Implemented BMPs

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1 SCCWRP MONITORING ACTIVITIES



(Provided by the County)



(Provided by the County)



(Provided by the County)



**Ventura County
Watershed Protection District
Water & Environmental Resources Division**

MEMORANDUM

DATE: February 3, 2015

FROM: Bram Sercu, Water Resources Specialist

TO: Ewelina Mutkowska, Engineering Manager

SUBJECT: Summary of host-specific marker testing results at Kiddie Beach

Introduction

Kiddie Beach is located along the entrance channel to Channel Islands Harbor, and experiences occasional exceedances of numeric targets specified in the Harbor Beaches of Ventura County Bacteria TMDL. A recent source identification study suggested that most likely sources of fecal indicator bacteria include nearby sanitary sewer lines, birds and dogs.¹ However, dredging activities in the harbor entrance channel occurred in October of 2014, and appeared to coincide with elevated bacteria levels at the beach, based on weekly beach water quality monitoring. As weekly beach water quality monitoring at Kiddie Beach includes collection and pre-processing of samples for the Bight 2013 Microbiology study, there was an opportunity to analyze samples for host-specific genetic markers and assess whether dredging in the channel could be associated with elevated bacteria levels. The samples collected as part of this study were taken before, during and after construction work to rehabilitate the sanitary sewer force main adjacent to the beach, and were also evaluated for the presence of human waste markers, which were detected at relatively high frequency in 2012.¹

Summary of Results

Ten samples were analyzed for bacteria indicators and human (HF183), dog (DogBad) and bird (BirdGFD) genetic markers. Genetic markers were analyzed by Weston Laboratories, Inc. One sample was collected during dredging of harbor entrance channel (10/21), other samples were analyzed for comparison, i.e. the week after dredging (10/28), just prior to dredging (9/30 – 10/7) and before the summer (5/6 – 6/3). The latter samples were taken before start of construction for sanitary sewer forced main rehabilitation by the Channel Islands Beach Community Services District, when low amounts of sewage may have been contaminating beach waters.¹ Sampling results, field notes regarding potential bacteria sources, and timing of dredging activities and sewer rehabilitation are summarized in Table 1.

¹Modeling Fecal Indicator Bacteria in Ventura County: Quantitative Microbial Risk Assessment, Ventura County, California. Prepared by Southern California Coastal Water Research Project (SCCWRP), March 2013.

Enterococcus concentrations were highest when dredging activities in the harbor entrance channel were occurring (10/21 and 10/22). Human markers were not detected in any sample, either before, during or after construction work to replace sewer force main. Dog markers were detected (but not quantifiable) on only one occasion, and observation did not correspond to observed dog activity on beach. Dog fecal deposits were never observed. Bird markers were detected in 8 of the 10 samples. However, bird markers were not detected during dredging, even though birds and bird fecal deposit were observed.

Table 1. Summary of sampling results, field observation and dredging and sewer rehabilitation activities relevant to Kiddie Beach. Concentrations of Enterococcus and host-specific markers are shown as MPN/100 ml and copies/100 ml, respectively (ND = not detected; DNQ = detected but not quantifiable; n/a = not analyzed).

Date	ENT	Human	Dog	Bird	Activity	Deposit	Channel dredging ¹	New sewer ²
5/6/14	31	ND	ND	10,551	Human/dog	Bird	No	No
5/13/14	<10	ND	ND	3,508	Human	ND	No	No
5/20/14	31	ND	ND	18,215	ND	ND	No	No
5/27/14	<10	ND	ND	10,413	Human/dog	ND	No	No
6/3/14	<10	ND	ND	3,575	ND	Bird	No	No
9/30/14	<10	ND	ND	ND	ND	ND	No	Constr.
10/7/14	42	ND	DNQ	8,678	ND	ND	No	Constr.
10/14/14	<10	ND	ND	2,220	ND	ND	No	Constr.
10/21/14	659	ND	ND	ND	Bird	Bird	Yes	Constr.
10/22/14	738	n/a	n/a	n/a	n/a	n/a	Yes	Yes
10/28/14	31	ND	ND	3,152	ND	ND	No	Yes

¹Dredging activities at the entrance channel west of Kiddie Beach were conducted between 10/14 (approx. 11:30 AM) and 10/23.

²Rehabilitated force main was placed back in service on 10/22. Construction was likely ongoing between 9/30 and 10/22.

Discussion

Based on monitoring data presented here, birds are a potential cause for the elevated *Enterococcus* concentrations observed on 10/21 and 10/22. Note that birds have been observed roosting on pontoon structures used during dredging (Fig. 1). However, a County storm drain outfall south of Kiddie Beach could have been contributing to elevated *Enterococcus* levels as well, as this outfall was identified as a potential source of similarly high *Enterococcus* concentrations earlier in 2014, before the start of the dredging activities (results not shown here).² Insufficient monitoring data is available to determine whether dredging activities can directly impact *Enterococcus* concentrations, e.g. by stirring up sediment. Prior dredging activities also occurred between October 2012 and January 2013, but it's unknown if high *Enterococcus* concentrations were observed during this period.

²Bacteria Total Maximum Daily Load Draft Compliance Report. Harbor Beaches of Ventura County (Kiddie and Hobie Beach). Prepared by GeoSyntec Consultants, December 18, 2014.

Overall, these results support plans laid out in the 2014 TMDL Compliance Report to update operation of the County storm drain diversion to a year-round schedule, and to determine if dry weather exceedances of numeric targets continue following this and other (i.e. sewer rehabilitation) recent improvements. If exceedances continue, birds should be a focus of future source identification investigations. It is also recommended to collect water quality samples when dredging occurs again in one or two years, in order to better determine potential impacts of dredging activities.

Based on the results presented here, there's no evidence that dogs or sanitary sewers are impacting Kiddie Beach.



Fig. 1. Birds roosting on pontoon structure used for harbor dredging.

Additional Monitoring Data Analyzed After Memo

Date	ENT	Human	Dog	Bird	Activity	Deposit	Channel dredging¹	New sewer²
11/3/2014	<31	ND	1,580	266	ND	ND	Yes	Yes
12/8/2014	165	ND	<LOQ ³	4,400	ND	Bird	Yes	Yes
12/15/2014	222	1,540	<LOQ ³	1,620	Human	ND	Yes	Yes
12/22/2014	124	ND	1,440	4,720	ND	ND	Yes	Yes
1/12/2015	324	ND	16,600	573	ND	ND	Yes	Yes
1/20/2015	364	ND	ND	298	ND	ND	Yes	Yes
¹ Dredging activities at the entrance channel west of Kiddie Beach were conducted between 10/14 (approx. 11:30 AM) and 10/23. ² Rehabilitated force main was placed back in service on 10/22. ³ Below level of quantification								

3 PUBLIC INFORMATION AND PARTICIPATION PROGRAM (COUNTY) AND EDUCATIONAL SIGNAGE (CITY)



(Provided by the County)



(Provided by the County)



(Provided by the County)

4 PUBLIC OUTREACH - CITY

Stormwater

What we can do...and why we should

Remember, the storm drain system was constructed to protect public health and safety by preventing flooding of homes, businesses, and streets. The storm drain system is typically built with the street system, so that the new streets will drain during storm events. The storm drain system consists of gutters, catch basins, manholes, underground pipes, roadside ditches, and channels. When it rains, or if the yards are over watered, untreated pollutant sources are flushed to the storm drain system and into the ocean.



All of us are responsible for ensuring that our ocean and the contributing waterways remain free of pollution. Make the right choice, be part of the solution and not the problem.

Remember - you are the solution to stormwater pollution.

(Provided by the City - <http://publicworks.cityofoxnard.org/>)

Landscaping & Gardening

Fertilizers and Pesticides - Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Adjust the timing of your sprinklers to avoid overwatering. Consider using drip or bubbler irrigation instead of sprinklers.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts.
- Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains.
- Cover piles of dirt or mulch being used in landscaping projects.

Permeable Pavement - Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain to soak through, decreasing stormwater runoff.

Rain Barrels - You can collect rainwater from rooftops in rain barrels. The water can be used later to water lawn, garden areas, or houseplants.

Grassy Swales - Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.

To learn more about water wise landscaping design and plants, visit the City of Oxnard's South Oxnard Branch Library California Friendly Demonstration Garden and the [Water Section's Landscaping website](#).

(Provided by the City - <http://publicworks.cityofoxnard.org/>)

Household Hazardous Waste

Some common sources of contaminants in storm runoff include materials such as used motor oil, antifreeze, and paint products that people pour or spill into a street or storm drain.

Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

- Never use the gutter or storm drain system for disposal of household waste.
- Properly use and store all toxic products including cleaners, solvents and paints.
- Select water based or latex paints whenever possible.
- Use kitty litter or other absorbent material to clean up spills from paved surfaces.

The City of Oxnard Environmental Resources offers [Household Hazardous Waste Collection events](#). For more information, or to make an appointment call (805) 987-0717.

(Provided by the City - <http://publicworks.cityofoxnard.org/>)

Auto Care

Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into the storm drains has the same result as dumping the materials directly into our water system.

- Use a commercial car wash that treats or recycles its wastewater.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

Did you know that Oil Recycling Centers are a free service to all City of Oxnard residents? To learn more visit the Environmental Resources Division website for locations of [Certified Used Oil Collection Centers](#).

(Provided by the City - <http://publicworks.cityofoxnard.org/>)

5 PROPER PET WASTE DISPOSAL – COUNTY AND CITY



(Provided by the County)



(Provided by the County)



Watershed Protection Tips for Pet Owners

The Watershed Should Only Shed Water

The storm drain system is a vast network of gutters, pipes and open channels designed for flood control, which directs runoff – untreated – from the watershed straight into the waterways.

Polluted stormwater contaminates streams, rivers and lakes. It can kill or damage plants, fish and wildlife, and can degrade the quality of our water.

The Community for a Clean Watershed program was established to protect Ventura County's watershed by preventing stormwater pollution.

For more information on how to keep our watersheds clean, go to cleanwatershed.org.



Printed on recycled paper



What Is Our Watershed?

Our watershed is the total land area, including your yard, from which stormwater drains into streams, rivers or other bodies of water. In Ventura County our primary watersheds drain into the Ventura and Santa Clara Rivers, Malibu and Calleguas Creeks and the marinas and estuaries that flow into the Pacific Ocean.



(Provided by the City and County)



Facts About Pet Waste

Every time it rains, thousands of pounds of accumulated and untreated pet waste in Ventura County can potentially wash into storm drains and flow directly into our streams, lakes and the ocean.

Pet waste runoff includes bacteria and parasites that threaten the health of both people and wildlife, as well as create an overly rich nutrient environment, causing excess weed and algae growth.

A clean and healthy watershed is invaluable to the well-being and beauty of our community. Simple precautions can protect and preserve our watersheds.

What Can You Do?

There are safe methods for handling and disposing of pet waste. By following these easy practices you can protect both the environment and your health.

- Pick up pet waste daily from your yard. While "organic," pet waste is not a safe fertilizer in your yard or in the watershed.



- When you walk your pet, always carry disposable bags to pick up and dispose of waste properly.



Dispose of Dog Waste Properly

- **Put dog waste in the trash.** Wrap it carefully in a sealed bag to prevent spillage during collection.
- **Dog waste can be flushed down the toilet,** so it can be properly treated at a sewage treatment plant. Be sure not to flush the pet waste bag.

Dispose of Cat Waste Properly

- **Put cat waste, including cat litter, in the trash.** Wrap it carefully in a sealed bag to prevent spillage during collection. Cat waste and litter should only be disposed of in the trash.
- **Do not flush cat waste** or used litter down the toilet.
- **Do not mix cat waste** or used litter into your garden soil.

Cat waste has been associated with various diseases found in marine mammals as a result of pathogens that end up in the storm drain system or are not eliminated during sewage treatment.

(Provided by the City and County)

Here is how you can help!

Pet Care

Why should I pick up after my pet?

- When walking your pet, remember to pick up the waste and dispose of it properly. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain.
- Pet waste is more than smelly and unsightly, it can be a major source of bacteria and excess nutrients in local waters.



What should I do with my pet's waste?

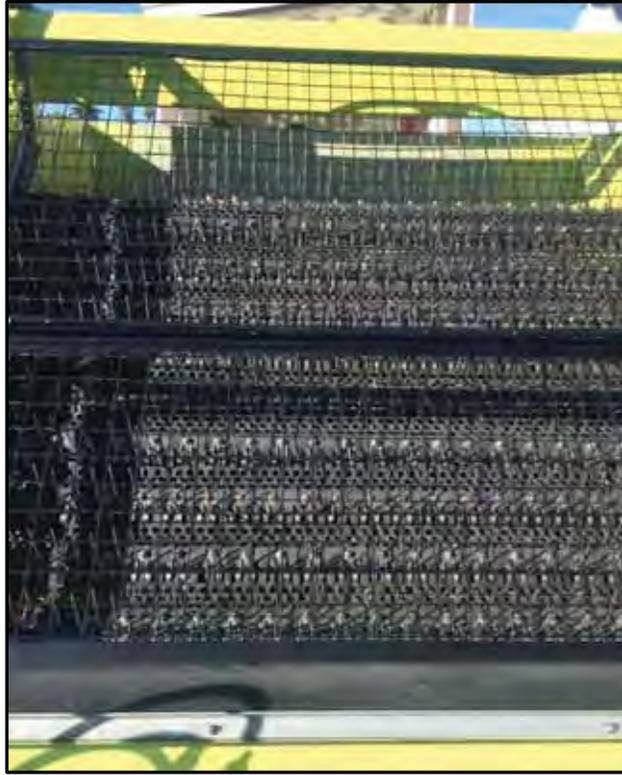
- Toss it: place the waste in a plastic grocery bag, tie the end securely and place in trash.

(Provided by the City - <http://publicworks.cityofoxnard.org/>)

6 BEACH GROOMING – COUNTY



(Provided by the County)



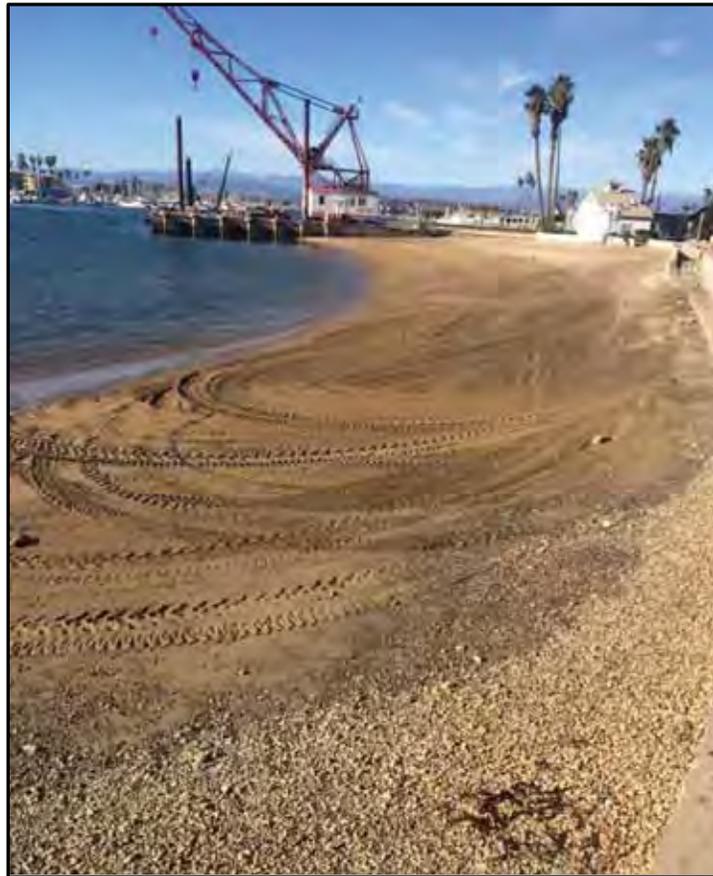
(Provided by the County)



(Provided by the County)



(Provided by the County)



(Provided by the County)



(Provided by the County)

7 CATCH BASIN MONITORING/MAINTENANCE - CITY



(Provided by the City)



West Inlet (Provided by the City)



East Inlet (Provided by the City)

Kiddie Beach-Hobie Beach Bacteria TMDL

Catch Basin Inspection Worksheet

Site ID: H31-CB300
Specific Location: Victoria Ave @ Laurel Ct.
Field Technician Names: Jeremy Grant
Current Weather Conditions: Sunny 79°F
Current Tidal Conditions: High 5.66 Ft
High Tide at: 12:20 PM 5.91 Ft Low Tide at: 7:18 PM 0.39 Ft
Event Date: 9-20-16
Event Start Time: 11:33 AM
Event End Time: 11:35 AM
of Pictures Taken: 4

Types of flow observed (check all that apply)

- None
 Trickle
 Steady
 Heavy
 flooding

Water Clarity

- Clear
 Cloudy
 Milky
 Other: _____

Floatables observed (check all that apply)

- None
 Garbage Ribbon
 Sheen
 Sewage
 Oily Sheen
 Other: _____

Was there evidence of any runoff in the curb or gutters? if yes, please describe:
No runoff was observed

Was any water present in the catch basin? If yes, possible sources? Yes, High tide.
Water level is almost at top of catch basin.

Actions for Follow-up:

Additional Notes: Very high tide today, water level at Hobie Beach is near top of the Jetty. No residential runoff observed in drainage area.

Lead Field Technician Certification (sign/print): 

Revised June 2013

Example catch basin inspection worksheet (Provided by the City)



**Ocean
Water Quality
Monitoring Program**



County of Ventura
Environmental Health Division
800 South Victoria Avenue
Ventura, California 93009-1730

OWQMP Pamphlet (Provided by the City)

Ocean Water Quality Monitoring Program (OWQMP)

Background

In September 1998, the Ventura County Board of Supervisors established a program in the Environmental Health Division (EHD) to monitor the bacteriological quality of ocean water at Ventura County beaches.

The Program

EHD's OWQMP staff provides the public with information about ocean water quality via a telephone hotline, website, and press release. Weekly ocean water samples are collected and tested for certain bacteria that indicate the potential for increased risk to human health. Sample results are compared with State standards for ocean water quality.

If a sample result fails to comply with one or more of these State standards, the beach is posted with signs warning the public to avoid body contact with the ocean water. This information is also available on the EHD telephone hotline, website, and in press releases distributed to the media.

The health warning stays in effect for the beach until resampling indicates that the water meets State standards.

Common symptoms associated with exposure to ocean water of poor bacteriological quality include:

- vomiting, diarrhea, nausea
- fever, chills
- ear, nose, throat irritation
- skin rash

If you experience any of these symptoms, or otherwise become ill after visiting the beach, contact your doctor and the County Public Health Department, Communicable Disease Control Section (CDCS). Also, please complete the illness report form available on EHD's OWQMP website.

EHD's OWQMP website includes up-to-date information on ocean water quality. It also contains regional and detailed maps of sampling locations, a list of beach postings, and weekly sampling results data.

Storm Drains and Runoff Water

EHD's OWQMP staff is also responsible for alerting the public about possible health risks from contact with storm drain water and runoff that flows onto beaches from pipes, culverts, rivers, creeks, and streams.

Storm drain water and runoff can carry disease causing bacteria to the ocean. Therefore, as a general precaution, you should avoid body contact with storm drain water, runoff, and the ocean near storm drains.

Permanent warning signs are posted at specific storm drains along the coast to remind you of this risk. Check EHD's OWQMP website for locations.

Important OWQMP Phone Numbers and Website Information

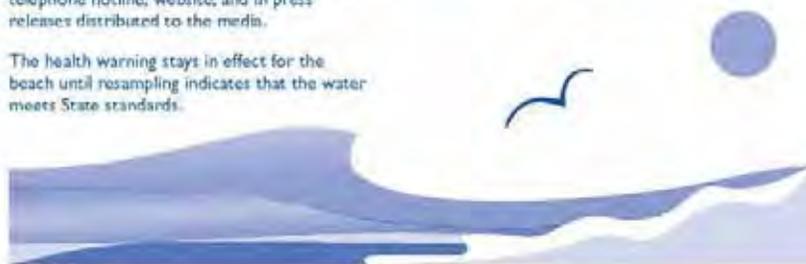
Telephone Hotline*
805/662-6555

OWQMP Website*
www.ventura.org/ems/health/programs/owqmp/owqmp/index.html

OWQMP Coordinator*
805/654-3524

Ventura County Public Health Department
CDCS
805/901-5101

* Information about ocean water quality at Ventura County beaches is updated throughout the week and provided on the telephone hotline and the OWQMP webpage.



OWQMP Pamphlet (Provided by the City)



If you see this sign posted at any Ventura County beach:

- ✦ *Stay out of the ocean for at least 50 yards on either side of the sign.*
- ✦ *There are levels of bacteria in the ocean water that may make you sick!*

CP Feb. 2011

OWQMP Pamphlet (Provided by the City)

8 TRASH MANAGEMENT (CITY) AND BIRD CONTROL MEASURES (COUNTY)



(Provided by the County)



(Provided by the County)

9 DOWNSPOUT DISCONNECT PROGRAM – COUNTY

The City of Portland has been implementing an effective downspout retrofit program since 1996. They report that over 56,000 property owners have disconnected their downspouts, resulting in a significant reduction in potential pollutant loading to storm drains. This program requires that overflows from rain barrels be directed onto a yard or landscape area and must meet certain safety requirements. Roof runoff must also be discharged at least five feet away from any property lines and the discharge pipe should not flow towards the building or neighboring property. Soakage trenches should be at least ten feet away from buildings and five feet away from property and utility lines.

In development of the downspout disconnect program, the County of Ventura reports that the majority of homes in the tier 1 area, Silver Strand and Hollywood Beach, do not have gutters or downspouts. The following pictures include examples of homes in the area, showing that many have no gutters or downspouts. It was reported that approximately ten percent of homes on Rossmore Drive have downspouts or gutters, and a maximum of 40 percent of homes on Ocean Drive have gutters or downspouts.

These homes also have small setbacks and minimal or no landscape areas to discharge rainbarrel or rain water flows. The following pictures show the three foot side yard setback, five foot rear setback, and 20 foot paved front yard at a home in Silver Strand, CA. They also illustrate the density of homes in Silver Strand and the lack of green landscaping areas, and contrast the setbacks and landscaping of typical homes in Portland, OR. The home has five to ten foot side yard setbacks, 20 to 40 foot rear yard setbacks, and 20 feet of a landscaped front yard. The lower home density and increase in green landscaping area is illustrated. All photographs were provided by the County.



Rossmore Drive 272-256 (About 10% of homes in this area have gutters or downspouts)



Rossmore Drive 284-272



Rossmore Dr. 285-295



Rossmore Dr 324-318



Rossmore Dr. 341-361



Rossmore Dr. 368-374



Roofs with gutter and downspouts

Ocean Drive 3430-3424 (Maximum of 40% with gutters or downspouts on Ocean Drive)

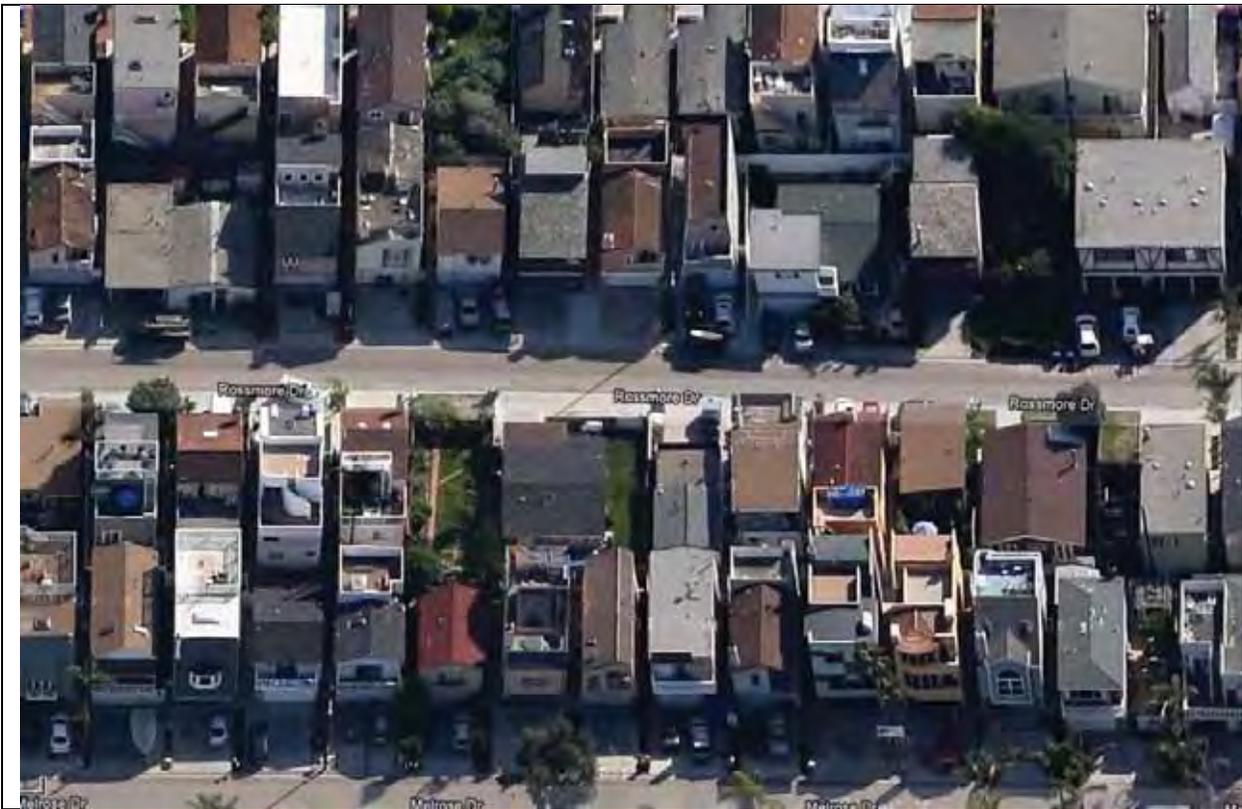


Ocean Drive 3424 – Internal routing of gutters

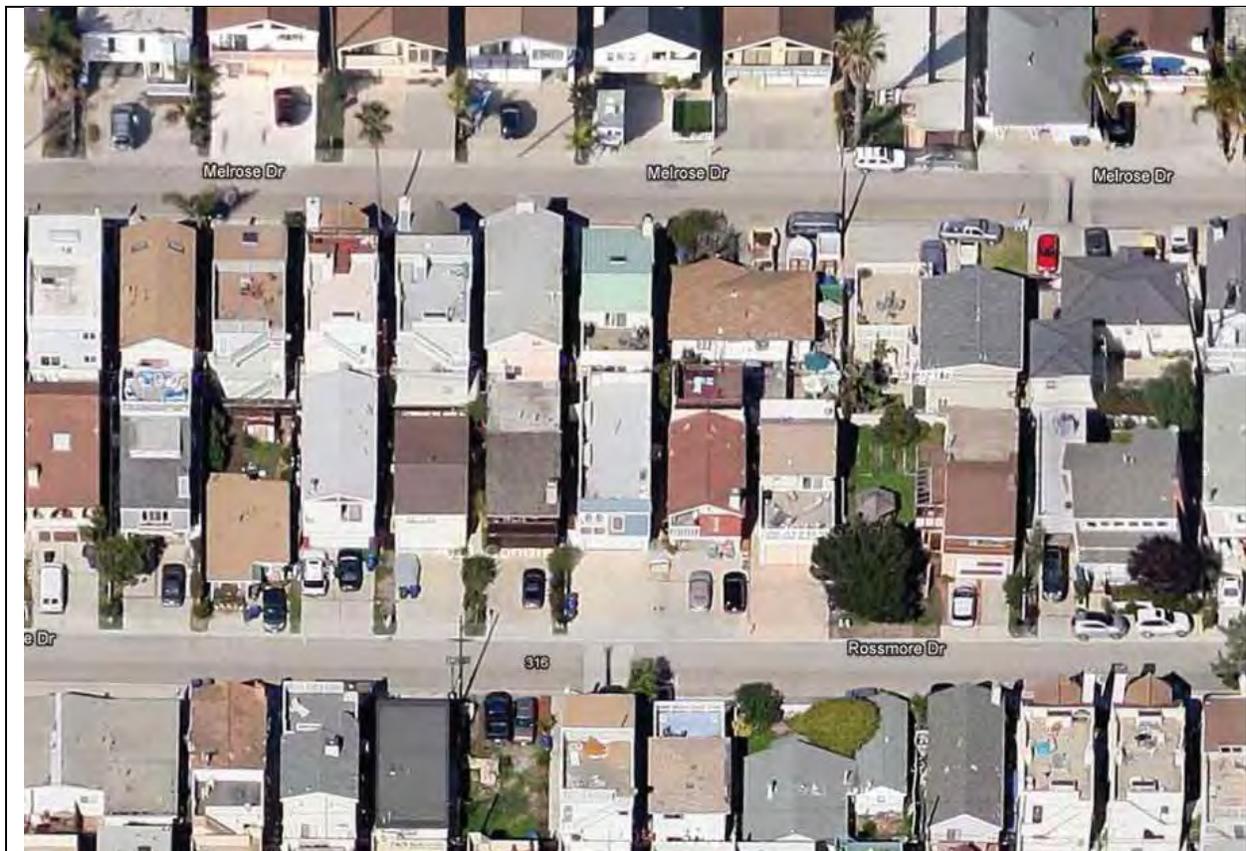
Portland, OR vs. Silver Strand, CA



SILVER STRAND, CA - Rossmore Drive, 264-256: 3 ft side yard setbacks, 5 ft rear setbacks, 20 ft paved front yard setbacks. Few or no gutters/ downspouts, little or no landscaping to direct water to.



SILVER STRAND, CA - Rossmore Drive, 301-309: 3 ft side yard setbacks, 5 ft rear setbacks, 20 ft paved front yard setbacks. Few or no gutters or downspouts, little or no landscaping to direct water to.



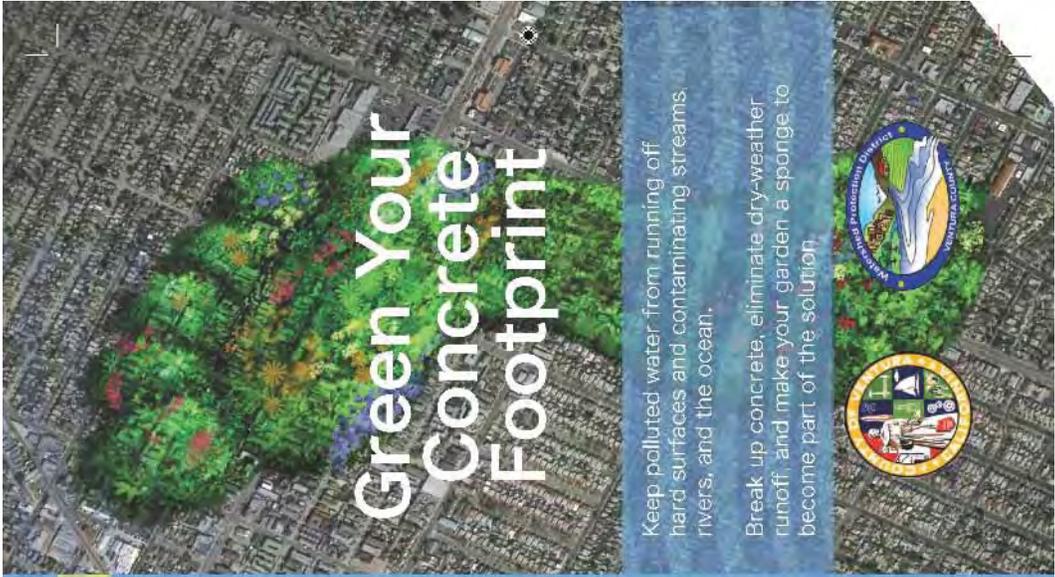
Portland, OR

Typical Residential Development



PORTLAND OR - 2704, SE Kelly: 5-10 side yards, 20-40 rear yard setbacks, 20 ft landscaped front yards





Green Your Concrete Footprint

Keep polluted water from running off hard surfaces and contaminating streams, rivers, and the ocean.

Break up concrete, eliminate dry-weather runoff, and make your garden a sponge to become part of the solution.



Build Ocean Friendly Gardens Berms Are Beautiful



Sheet mulching covers grass with wet paper, compost, and fresh (not trimmed) mulch to effectively remove the grass by composting it in place. The downspout in the front yard connected underground to the street and pulled the nearby water-way. The homeowner decided to redirect it into the garden.



After a few months of sheet mulching the grass is gone and healthy soil remains. Big, beautiful berms create high and low spots.



Almost two years later, the dry climate adapted plants are starting to grow back. The homeowner has to use irrigation during the summer. By keeping 3 or 4 inches of mulch on the garden to retain moisture, eliminate weeds, and feed the living soil, this homeowner has a low stress beautiful Ocean Friendly garden.



Conservation

Bricks To Sponges
Is your soil a BRICK or a SPONGE? Sponges are Living Soil filled with microorganisms working together to feed plants, gather water when it's dry, and release water when it's too wet. Mulch, add compost, and aerate soil to turn it into a sponge.



Permeability

Swales Are Swell
A planted swale is a contour on the land that collects, conveys and filters water running through a site, removing pollutants by infiltration into the soil. Flat yards increase runoff, while the mounds on either side of the swale, called Berms, keep water on site, giving it time to sink in.



Retention

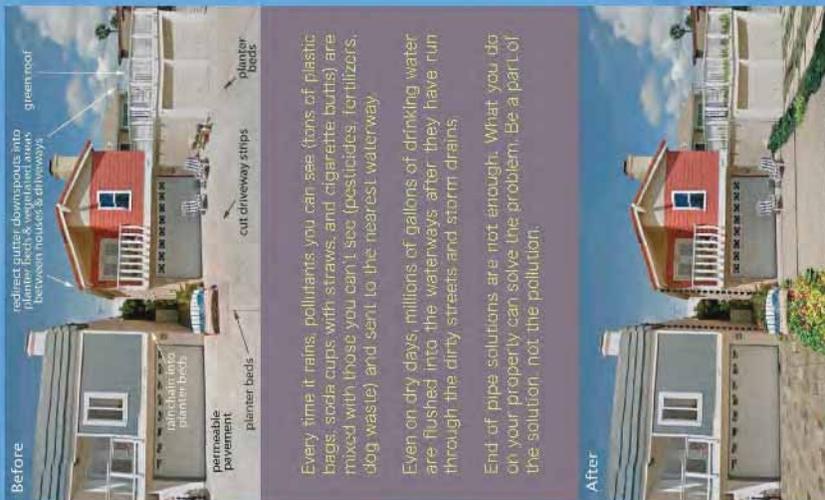
Slow, Spread, Sink
Instead of paving, plow, and polluting, slow down, spread it out, and sink as much as you can to reduce your water needs in the landscape, and keep pollution off the beach. An added bonus of Retention is that groundwater may be recharged.



www.greengardensgroup.com

(Provided by the County)

Let's Break It Down



Breaking Up Is Easy To Do



Permeable Paving
 Replace concrete and asphalt with paving materials that have gaps between them allowing water to flow through rather than run off. These pavers are beautiful too.



Beachin' Driveway
 Remove a strip down the middle of the driveway and fill with gravel or add a rainwater storage cell (See insert). Water has a place to get sponged up and your vehicle hedges in on the remaining concrete.



Carve A Path
 Break up a continuous concrete pathway or driveway and reset the stones (called 'jumbled') in a sand or gravel bed. This technique helps cars get beautiful and artistic while simultaneously increasing permeability.



Roll Out A Barrel
 Replace your downspout with a rainchain to slow and direct roof water into a 50 gallon rain barrel. Go, make space! Add another barrel. Then use the water for veggies, pets, or fill a bird bath.



Liberate A Curb
 Cutting your curb and allowing water to enter a sidewalk median or other landscape area adjacent to the street, uses soil to filter and absorb runoff before entering the ocean. Check with your County Transportation Department for restrictions and guidelines.

Break Old Habits



Pick Up After Pup
 Thousands of pounds of dog waste, including bacteria and parasites that threaten the health of people and wildlife, wash into storm drains and flow directly into our waterways every time it rains. When you walk your pet, carry disposable bags to pick up and deposit waste in a trashcan.



Broom To Groom
 Driveways don't grow when you water them, and you just waste drinking water. Use a broom to clean hard outdoor surfaces. Sweep up any debris blown into the street and place in the appropriate trash bin.



Cars To A Car Wash
 Take your car to a certified car wash, where you know they are recycling all the used water for proper treatment. Car washing in your driveway puts oil and soap into the storm drain, contributing to ocean pollution.



Hold On To Your Butt
 Cigarette butts filter nicotine to break down, all the while polluting car stalls and degrading our beaches and water quality. Hold on to your butt, and dispose of it properly!



Redirect A Downspout
 Got downspouts? Redirect them into landscape areas or planter boxes. Keep water from going to the street via your driveway by adding a filter and a downspout divertor to landscape. Add a rain chain that slows water down into a barrel or planter area.

(Provided by the County)

Ocean Friendly Gardens™ Class

Reduce Urban Runoff Pollution + Conserve Water



When: Saturday, June 15, 2013 • 10:00 a.m. to 1:00 p.m.

**Where: School Cafeteria
Hollywood Beach Elementary
4000 Sunset Lane, Oxnard CA 93035**

Sign Up Today! It's

FREE

Space is Limited!

Call Now!

805.477.7139

Registration Deadline

June 12, 2013

Attend this interactive, action packed class taught by a Green Gardens Group landscape designer and learn to:

Develop an Ocean Friendly Garden™

- Install permeable surfaces and on-site water retaining systems
- Use native plants
- Understand water efficient irrigation devices

Use Surfrider Foundation's Principles of CPR® (Conservation • Permeability • Retention) to transform your thirsty landscape into an ocean friendly asset that prevents beach and ocean pollution, saves time and money, and creates wildlife habitat.

- A light snack and drinks will be provided -



For more information, please contact Jason Burke at the County of Ventura Public Works Agency: (805) 477-7139 or by email at jason.burke@ventura.org



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(Provided by the County)

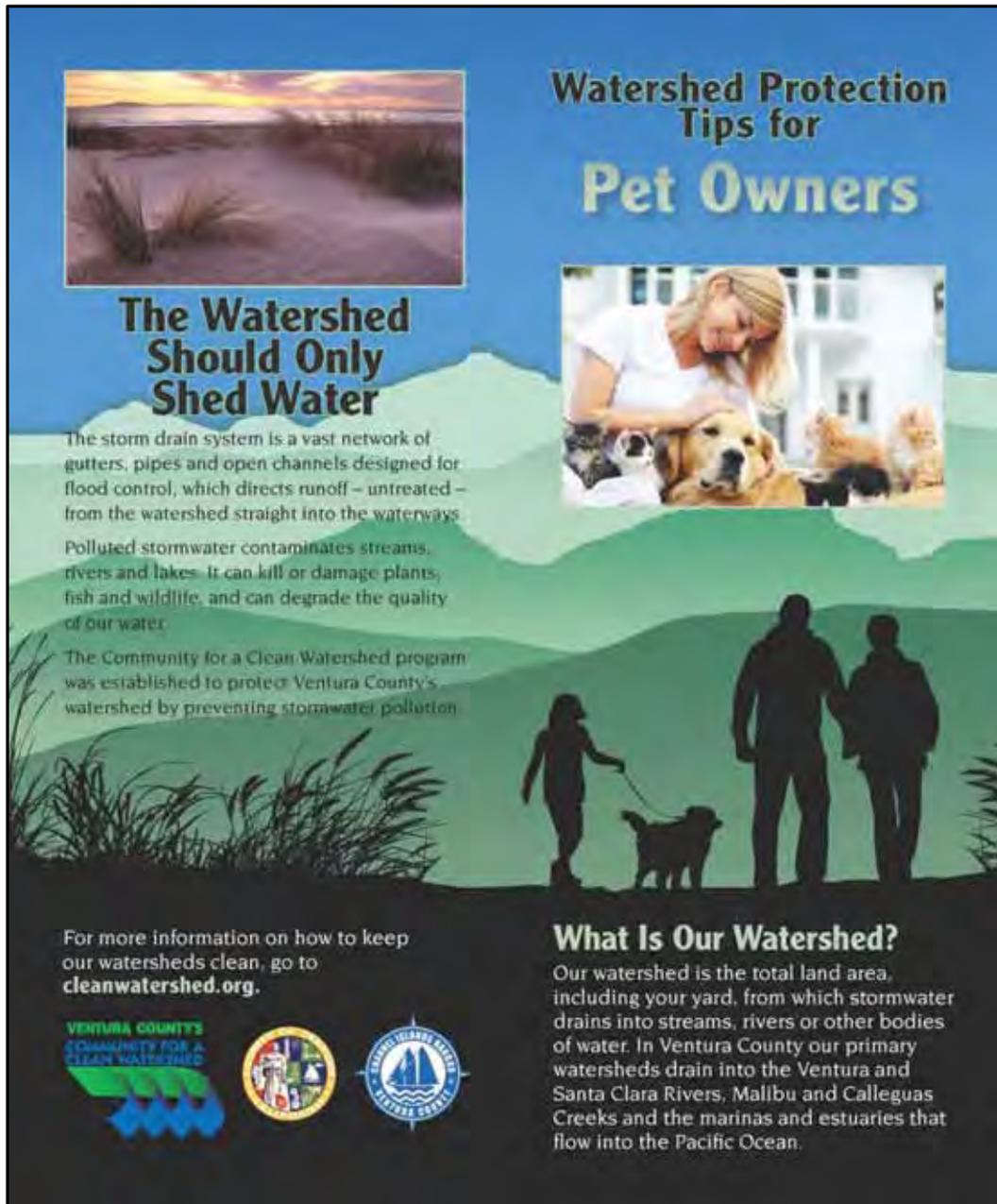


(Provided by the County)



(Provided by the County)

10 PET OWNERSHIP OUTREACH AND ENFORCEMENT – COUNTY



The poster features a blue sky background with green hills and a silhouette of a person walking a dog and another person standing. In the top left, there is a photograph of a sunset over a field. In the top right, there is a photograph of a woman petting a dog. The text is arranged in columns and sections.

Watershed Protection Tips for Pet Owners

The Watershed Should Only Shed Water

The storm drain system is a vast network of gutters, pipes and open channels designed for flood control, which directs runoff – untreated – from the watershed straight into the waterways.

Polluted stormwater contaminates streams, rivers and lakes. It can kill or damage plants, fish and wildlife, and can degrade the quality of our water.

The Community for a Clean Watershed program was established to protect Ventura County's watershed by preventing stormwater pollution.

What Is Our Watershed?

Our watershed is the total land area, including your yard, from which stormwater drains into streams, rivers or other bodies of water. In Ventura County our primary watersheds drain into the Ventura and Santa Clara Rivers, Malibu and Calleguas Creeks and the marinas and estuaries that flow into the Pacific Ocean.

For more information on how to keep our watersheds clean, go to cleanwatershed.org.



(Provided by the County)

Facts About Pet Waste



Every time it rains, thousands of pounds of accumulated and untreated pet waste in Ventura County can potentially wash into storm drains and flow directly into our streams, lakes and the ocean.

Pet waste runoff includes bacteria and parasites that threaten the health of both people and wildlife, as well as create an overly rich nutrient environment, causing excess weed and algae growth.

A clean and healthy watershed is invaluable to the well-being and beauty of our community. Simple precautions can protect and preserve our watersheds.

What Can You Do?

There are safe methods for handling and disposing of pet waste. By following these easy practices you can protect both the environment and your health.

- Pick up pet waste daily from your yard. While "organic," pet waste is not a safe fertilizer in your yard or in the watershed.
- When you walk your pet, always carry disposable bags to pick up and dispose of waste properly.

Dispose of Dog Waste Properly

- Put dog waste in the trash. Wrap it carefully in a sealed bag to prevent spillage during collection.
- Dog waste can be flushed down the toilet, so it can be properly treated at a sewage treatment plant. Be sure not to flush the pet waste bag.



Dispose of Cat Waste Properly

- Put cat waste, including cat litter, in the trash. Wrap it carefully in a sealed bag to prevent spillage during collection. Cat waste and litter should only be disposed of in the trash.
- Do not flush cat waste or used litter down the toilet.
- Do not mix cat waste or used litter into your garden soil.

Cat waste has been associated with various diseases found in marine mammals as a result of pathogens that end up in the storm drain system or are not eliminated during sewage treatment.



cleanwatershed.org

(Provided by the County)

Pet Waste Is Pollution

Bag it

Pet waste stations are located around the Harbor, but just in case, bring plastic bags with you when you walk your dog. Use a bag to pick up the dog waste. Tie the bag closed and throw it in the trash.

Options at Home

Flush dog and cat waste down the toilet. Kitty litter should not be flushed because it can clog your toilet. Double bag kitty litter, tie the bag shut and throw it in the trash.



**Thanks for Keeping Our Harbor and
Beaches Clean!**



County of Ventura Harbor Department
3900 Pelican Way
Oxnard, CA 93035
805.382.3001
www.channelislandsharbor.org

*Please!
Pick Up
After
Your Pet!*



Dog waste left on the street or lawns is not fertilizer. The bacteria in dog waste is often washed down storm drains and ends up directly in the Harbor where it can contaminate large areas of beaches and waterways.

Kitty litter dumped outside can be washed into the Harbor. The bacteria in pet waste can make it unsafe to swim on the beaches or fish in the nearby waters.

Did you know?

One day's waste from one large dog can contain 7.8 billion fecal coliform bacteria, enough to contaminate up to 15 acres of water area. Fecal coliform can make humans sick. Small children are even more likely to become ill from fecal bacterial!

(Provided by the County)

Whether you live inland or close to the beach, we all live in a watershed. Our watershed is the total land area from which runoff is directed into a storm drain system and empties into the nearest stream, arroyo, lake, and the marinas and estuaries all flowing into the Pacific Ocean.

Ya sea que usted vive en el interior o cerca de las playas, nosotros todos vivimos en cuenca hidrográfica. Nuestra cuenca hidrográfica es el área total de terreno por las que desperdicios corren al sistema de alcantarillas que desagua a lagos, arroyos, marinas y desembocaduras más cercanos, fluyendo hacia el Océano Pacífico.

THE WATERSHED SHOULD ONLY SHED WATER
The storm drain system is a vast network of gutters, pipes and open channels, which directs runoff from the watershed straight into our waterways.

El sistema de alcantarillas es una red de drenajes, tuberías y canales abiertos, dirigiendo desperdicios desde las cuencas hidrográficas directamente hacia nuestro sistema de agua. Si su casa está localizada a una o más millas del Océano Pacífico, lo que empieza en su patio, puede terminar como desperdicios tóxicos y contribuir a la contaminación de las cuencas hidrográficas.

4 SIMPLE HABITS TO REDUCE WATERSHED POLLUTION

4 SIMPLES CONSEJOS PARA REDUCIR LA CONTAMINACIÓN DE CUENCA HIDROGRÁFICAS

1. PICK UP AFTER YOUR DOG
Bacteria and parasites in dog waste left on the ground get washed into our waterways threatening the health of people and wildlife. Pick up after your pet, wrap the waste in a sealed bag, or a waste baggie, and drop it in the trash.

RECÓJALA DETRÁS DE SU PERRO
Bacterias y parásitos en la excremento de los perros que quedan en el suelo, son lavados directamente al sistema de alcantarillas y de ahí al océano. Bote a los desperdicios en un plástico sellado o en un bote de basura, o en un bote de basura.

2. AVOID FEEDING BIRDS OR FERAL CATS
Flocks of birds and feral (wild) cats gather where food is left lying or offered to them. Large numbers of birds and cat waste can cause serious water pollution problems. Please do not feed or offer food to wild birds or cats.

EVITE ALIMENTAR A AVES Y A GATOS HELENDOS
Grupos de aves y gatos salvajes se congregan alrededor de los desperdicios que se ofrecen, o se tiran al suelo. Grandes cantidades de aves y gatos, pueden causar serios problemas de contaminación del agua. Por favor, no alimente ni ofrezca comida a las aves o a los gatos salvajes.

3. USE SWIM DIAPERS
Bacteria from a dirty diaper stays in the water and its harmful effects can cause infections. Reusable swim diapers protect both your child and the water from the harmful bacteria, while also reducing the risk of overflowing overflowing toilets.

USE PAÑALES PARA NADAR
Las bacterias de un pañal sucio, se lavan directamente al agua, y sus efectos dañinos pueden causar infecciones. Los pañales reutilizables protegen tanto a su hijo, como al agua, de las bacterias dañinas, al mismo tiempo que reducen el riesgo de desbordamiento de los sanitarios.

4. CLEAN UP YOUR TRASH
Put your waste in a trash container with a secure lid or take it with you when you leave. Litter from food wrappers and containers encourages birds to gather and makes it very hard for waterways and all the way to the beach.

LIMPIA TU BASURERO
Pon tu desperdicio en un contenedor con tapa segura, o llévatelo contigo cuando te vayas. Litter from food wrappers and containers encourages birds to gather and makes it very hard for waterways and all the way to the beach.

(Provided by the County)

HERE ARE SOME SIMPLE WAYS TO PROTECT OUR WATERSHEDS
AQUÍ ESTÁN ALGUNAS FORMAS SIMPLES DE CÓMO PROTEGER NUESTRAS CUENCA HIDROGRÁFICAS

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(Provided by the County)

11 STORM DRAIN OUTFALL (TIDEFLEX VALVE) - COUNTY AND CITY



SDFA 29 - Kiddie Beach

Outfall MH-H31-100_MIS-H31-800



Location view



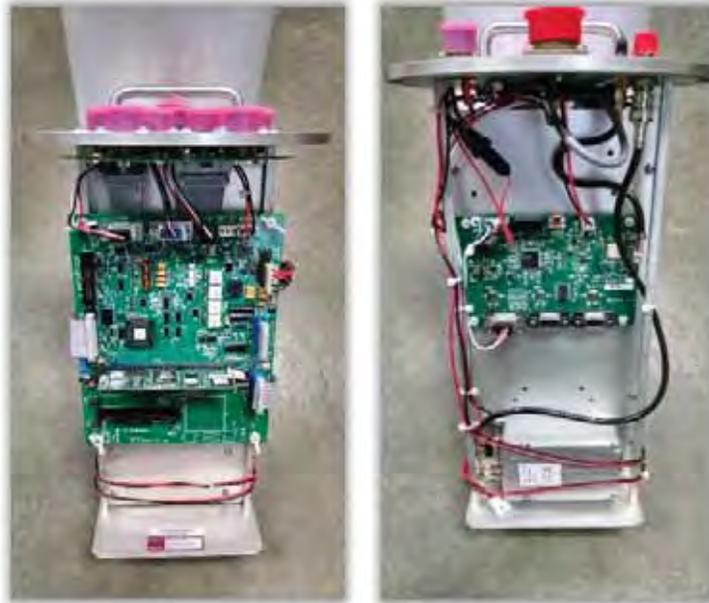
Location view



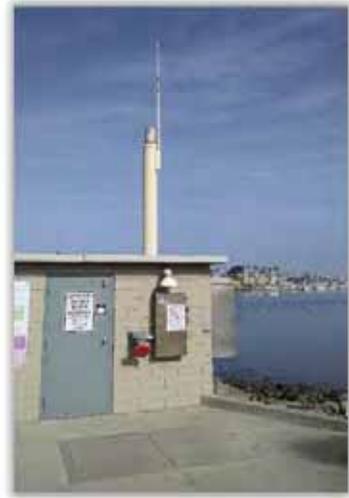
(Provided by the City)

12 DRY WEATHER DIVERSION (SAN NICHOLAS PUMP STATION) – VCWPD

Month/Year	Gallons Diverted
June 2015	312,582
July 2015	403,052
August 2015	652,414
September 2015	962,778
October 2015	717,237
November 2015	417,165
December 2015	422,456
January 2016	735,602
February 2016	641,254
March 2016	780,597
April 2016	433,128
May 2016	332,596
June 2016	287,577
July 2016	323,352
August 2016	283,962
September 2016	289,669
October 2016	388,231
Total:	8,383,652



HydroLynx 50386 ALERT2 Transmitter (Provided by the County)



Stand pipe rain gage on roof of pump house (Provided by the County)



Pump Controls (Provided by the County)



(Provided by the County)

13 SAN NICHOLAS PUMP STATION DYE TEST - VCWPD



(Provided by the County)



(Provided by the County)



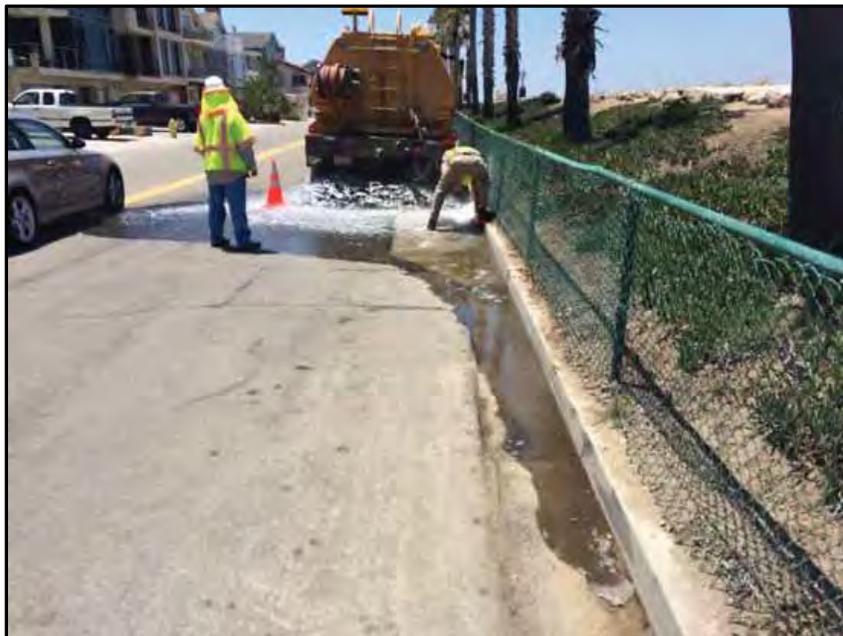
Notification Signs (Provided by the County)



Cole Parmer Yellow/Green Dye (Provided by the County)



Location #1 Manhole (Provided by the County)



Location #2 catch basin (Provided by the County)



Dye Entering Pump Station Containment Vault (Provided by the County)



36'' and 18'' RCPs discharging to Pump Station Containment Vault (Provided by the County)



Sewer diversion pump discharging to sanitary sewer system (Provided by the County)



Kiddie Beach Area at 2:10 p.m. on 6/16/16 (Provided by the County)



Kiddie Beach Area at 2:45 p.m. on 6/16/16 (Provided by the County)



Follow-up inspection at 9:00 a.m. on 6/17/16 (Provided by the County)



Follow-up inspection at 9:00 a.m. on 6/17/16 (Provided by the County)

14 DREDGING ACTIVITIES



(Provided by the County)



(Provided by the County)



(Provided by the County)

Appendix C

Environmental Health Department – Water Quality Testing Raw Data (Since November 2014)

RUN ON: 11/03/14

**WATER QUALITY RESULTS
FROM COLL DATE: 11/03/14
THRU COLL DATE: 11/03/14
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MP N/100 ml
11/03/14	0905	OCEAN	EN,VH 1,000	63	10	<10
11/03/14	0925	OCEAN	EN,VH 4,000	41	<10	10
11/03/14	0943	OCEAN	EN,VH 7,000	120	10	10
11/03/14	0950	OCEAN	EN,VH 10,000	171	<10	<10
11/03/14	1000	OCEAN	EN,VH 11,000	135	20	<10
11/03/14	1012	OCEAN	EN,VH 13,000	288	74	53
11/03/14	1017	OCEAN	EN,VH 14,000	173	10	10
11/03/14	1038	OCEAN	EN,VH 19,000	15,531	201	124
11/03/14	1151	OCEAN	EN,VH 25,000	1,076	10	<10
11/03/14	1110	OCEAN	EN,VH 36,000	11,199	1,250	<10
11/03/14	1120	OCEAN	EN,VH 37,000	11,199	1,354	31
11/03/14	1148	OCEAN	EN,VH 42,000	857	52	31
11/03/14	1300	OCEAN	LAB BLANK	<10	<10	<10
Sampled by M. Talent						
11/4/14 Posted						
	19000	Posted at beach entrance @ San Jan Rd. and posted at sampling location on beach				
	36000	Posted perimeter chain-link fence across from sampling location and fence at gate near parking lot				
	37000	Posted at base of steps across from post sample location and at beach entrance next to bathroom.				

hotline 11/4/14
website 11/4/14
email HD + PWA
dbase

RUN ON: 12/15/14

**WATER QUALITY RESULTS
FROM COLL DATE: 12/15/14
THRU COLL DATE: 12/15/14
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MP N/100 ml
12/15/14	0900	OCEAN	EN,VH 1,000	41	<10	<10
12/15/14	0921	OCEAN	EN,VH 4,000	109	<10	<10
12/15/14	0940	OCEAN	EN,VH 7,000	414	<10	31
12/15/14	0948	OCEAN	EN,VH 10,000	2,909	<10	<10
12/15/14	1002	OCEAN	EN,VH 11,000	465	<10	53
12/15/14	1018	OCEAN	EN,VH 13,000	512	10	10
12/15/14	1030	OCEAN	EN,VH 14,000	933	10	10
12/15/14	1100	OCEAN	EN,VH 19,000	754	<10	10
12/15/14	1110	OCEAN	EN,VH 25,000	1,187	63	53
12/15/14	1130	OCEAN	EN,VH 36,000	>24,196	41	53
12/15/14	1135	OCEAN	EN,VH 37,000	>24,196	41	10
12/15/14	1205	OCEAN	EN,VH 42,000	>24,196	285	222
12/15/14	1300	OCEAN	LAB BLANK	<10	<10	<10
12/16/14	Posted Hobie Beach at gate to Hansen enclosed work area and on fence at sidewalk just across from sample location 3000.					
	Replaced one missing post at base of steps @ Kiddie Beach. Posting at beach entrance next to bathroom remains in-place					
	Posted Diamond Beach at site location 42000 (near high-tide mark) and on east side of flowing drain (near high-tide mark)					
12/16/14	Issued Press Release for Hobie, Kiddie, + J Street					

hotline 12/16/14 (rainfall + postings)

website 12/16/14

database (data) 12/16/14

email HD + PWA 12/16/14

database (upload advisories) - pending uploads of open advisories after closed out

RUN ON: 01/12/15

**WATER QUALITY RESULTS
FROM COLL DATE: 01/12/15
THRU COLL DATE: 01/12/15
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MP N/100 ml
01/12/15	0915	OCEAN	EN,VH 1,000	457	20	<10
01/12/15	****	OCEAN	EN,VH 4,000	NO	SAMPLE	COLLECTED
01/12/15	1000	OCEAN	EN,VH 7,000	1,211	<10	<10
01/12/15	1012	OCEAN	EN,VH 10,000	173	10	<10
01/12/15	1022	OCEAN	EN,VH 11,000	63	<10	10
01/12/15	1036	OCEAN	EN,VH 13,000	2,613	31	10
01/12/15	1050	OCEAN	EN,VH 14,000	2,143	10	10
01/12/15	1106	OCEAN	EN,VH 19,000	1,354	20	<10
01/12/15	1123	OCEAN	EN,VH 25,000	1,119	41	<10
01/12/15	1145	OCEAN	EN,VH 36,000	>24,196	134	20
01/12/15	1150	OCEAN	EN,VH 37,000	>24,196	2,613	324
01/12/15	1220	OCEAN	EN,VH 42,000	>24,196	85	53
01/12/15	1330	OCEAN	LAB BLANK	<10	<10	<10
Sampled by Wahl						
1/12/15	Press Release / website / hotline (rain - all beaches)					
1/13/15	Press Release / website / hotline (36000, 37000, 42000)					
1/13/15	: 36000 posted perimeter fence at sidewalk across from sample location and at entrance gate to storage yard.					
	37000 posted at base of steps and at beach entrance South of restrooms					
	42000 posted at high tide marking at sample location					

email HD + PWA

database (data)

database (advisories)

RUN ON: 01/26/15

**WATER QUALITY RESULTS
FROM COLL DATE: 01/26/15
THRU COLL DATE: 01/26/15
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MP N/100 ml
01/26/15	0915	OCEAN	EN,VH 1,000	52	<10	10
01/26/15	0950	OCEAN	EN,VH 4,000	10	<10	<10
01/26/15	1000	OCEAN	EN,VH 7,000	<10	<10	<10
01/26/15	1015	OCEAN	EN,VH 10,000	<10	<10	<10
01/26/15	1024	OCEAN	EN,VH 11,000	<10	<10	<10
01/26/15	1040	OCEAN	EN,VH 13,000	30	<10	<10
01/26/15	1050	OCEAN	EN,VH 14,000	10	<10	<10
01/26/15	1110	OCEAN	EN,VH 19,000	41	10	10
01/26/15	1128	OCEAN	EN,VH 25,000	156	10	<10
01/26/15	1145	OCEAN	EN,VH 36,000	4,611	41	75
01/26/15	1200	OCEAN	EN,VH 37,000	457	134	75
01/26/15	1230	OCEAN	EN,VH 42,000	97	<10	<10
01/26/15	1320	OCEAN	LAB BLANK	<10	<10	<10

Sampled by WJH

1/27/15 Removed positives @ 1000, 36000, 37000, 19000

Hotline 1/27/15

Website 1/27/15

database 1/28/15

1/27/15 removed press release

email HD + PWA 1/28/15

uploaded advisories 1/28/15:

1000 (1/21/15)

19000 (1/21/15)

36000 (1/13/15)

37000 (1/13/15)

42000 (1/13/15)

rain (1/12/15)

RUN ON: 02/23/15

**WATER QUALITY RESULTS
FROM COLL DATE: 02/23/15
THRU COLL DATE: 02/23/15
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MP N/100 ml
02/23/15	0918	OCEAN	EN,VH 1,000	<10	<10	<10
02/23/15	0948	OCEAN	EN,VH 4,000	<10	<10	<10
02/23/15	1000	OCEAN	EN,VH 7,000	199	97	10
02/23/15	1011	OCEAN	EN,VH 10,000	30	<10	<10
02/23/15	1022	OCEAN	EN,VH 11,000	<10	<10	<10
02/23/15	1038	OCEAN	EN,VH 13,000	10	<10	<10
02/23/15	1048	OCEAN	EN,VH 14,000	31	<10	<10
02/23/15	1107	OCEAN	EN,VH 19,000	109	<10	10
02/23/15	1118	OCEAN	EN,VH 25,000	97	41	20
02/23/15	1138	OCEAN	EN,VH 36,000	52	<10	<10
02/23/15	1145	OCEAN	EN,VH 37,000	86	10	20
02/23/15	1210	OCEAN	EN,VH 42,000	>24,196	576	324
02/23/15	1300	OCEAN	LAB BLANK	<10	<10	<10
			Sampled by Wale			
			hotline:			
			website: 2/24/15			
			press release			
			database			
			email HD + PHA			
			posting 42000			
			Remove 2/23 rain advisory			

RUN ON: 03/02/15

WATER QUALITY RESULTS
FROM COLL DATE: 03/02/15
THRU COLL DATE: 03/02/15
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MP N/100 ml	
03/02/15	0915	OCEAN	EN,VH 1,000	10	<10	<10	
03/02/15	0938	OCEAN	EN,VH 4,000	10	<10	<10	
03/02/15	0946	OCEAN	EN,VH 7,000	109	<10	<10	
03/02/15	1000	OCEAN	EN,VH 10,000	63	<10	10	
03/02/15	1008	OCEAN	EN,VH 11,000	<10	<10	<10	
03/02/15	1025	OCEAN	EN,VH 13,000	63	10	<10	
03/02/15	1032	OCEAN	EN,VH 14,000	109	41	10	
03/02/15	1050	OCEAN	EN,VH 19,000	3,255	<10	31	
03/02/15	1108	OCEAN	EN,VH 25,000	130	10	10	
03/02/15	1130	OCEAN	EN,VH 36,000	226	<10	10	
03/02/15	1135	OCEAN	EN,VH 37,000	216	<10	42	
03/02/15	1208	OCEAN	EN,VH 42,000	109	<10	<10	
03/02/15	1330	OCEAN	LAB BLANK	<10	<10	<10	
3/3/15	removed	sign. @	42000				
3/2/15	hotline/website/press release	(rain advisory)					
3/3/15	hotline/website	combined rain advisory + weekly results/ no beaches posted.					
	email	HD + PWA					
3/5/15	remove	press release + update hotline/website for 'no beaches posted only'					
3/3/15	upload	2/23 Rain advisory + 2/24 beach advisory (42000)					
	create + upload	rain advisory 3/3/15					
	Sampled by Wahl						

upload lab data to SCCWRP

RUN ON: 03/16/15

WATER QUALITY RESULTS
FROM COLL DATE: 03/16/15
THRU COLL DATE: 03/16/15
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MP N/100 ml
03/16/15	0915	OCEAN	EN,VH 1,000	10	<10	<10
03/16/15	0934	OCEAN	EN,VH 4,000	<10	<10	<10
03/16/15	0945	OCEAN	EN,VH 7,000	41	30	20
03/16/15	1005	OCEAN	EN,VH 10,000	31	<10	<10
03/16/15	1012	OCEAN	EN,VH 11,000	62	52	<10
03/16/15	1030	OCEAN	EN,VH 13,000	84	<10	<10
03/16/15	1040	OCEAN	EN,VH 14,000	52	10	<10
03/16/15	1056	OCEAN	EN,VH 19,000	52	20	<10
03/16/15	1112	OCEAN	EN,VH 25,000	10	10	<10
03/16/15	1133	OCEAN	EN,VH 36,000	134	10	31
03/16/15	1137	OCEAN	EN,VH 37,000	397	74	64
03/16/15	1220	OCEAN	EN,VH 42,000	<10	<10	<10
03/16/15	1300	OCEAN	LAB BLANK	<10	<10	<10
website 3/17/15 hotline 3/17/15 email PWA + HD database 3/17/15						

RUN ON: 05/26/15

**WATER QUALITY RESULTS
FROM COLL DATE: 05/26/15
THRU COLL DATE: 05/26/15
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
05/26/15	0900	OCEAN	EN,VH 1,000	<10	<10	<10
05/26/15	0922	OCEAN	EN,VH 4,000	10	<10	10
05/26/15	0936	OCEAN	EN,VH 7,000	<10	<10	<10
05/26/15	0950	OCEAN	EN,VH 10,000	10	10	<10
05/26/15	1003	OCEAN	EN,VH 11,000	30	<10	384
05/26/15	1016	OCEAN	EN,VH 13,000	40	<10	<10
05/26/15	1033	OCEAN	EN,VH 14,000	20	<10	75
05/26/15	1042	OCEAN	EN,VH 19,000	10	<10	<10
05/26/15	1059	OCEAN	EN,VH 25,000	<10	<10	<10
05/26/15	1120	OCEAN	EN,VH 36,000	110	<10	<10
05/26/15	1129	OCEAN	EN,VH 37,000	1171	10	13
05/26/15	1218	OCEAN	EN,VH 42,000	<10	<10	<10
05/26/15	1300	OCEAN	EN,VH BLANK	<10	<10	<10
Holiday Schedule - Memorial Day						
Sampled by Wahl						
website + hotline 5/27/15						
press release 5/27/15						
posted @ sample 11000 (rocks) and at swing gate next to lifeguard station. (No resample collected)						
email HD + PWA						
database! data: 5/28/15						
advisory:						

pull posting:

RUN ON: 06/16/15

**WATER QUALITY RESULTS
FROM COLL DATE: 06/16/15
THRU COLL DATE: 06/16/15
LOCATION: ENVH, ENVH**

Date1000	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
06/16/15	0853	OCEAN	EN,VH 29,000	96	20	<10
06/16/15	0858	OCEAN	EN,VH 30,000	107	<10	<10
06/16/15	0906	OCEAN	EN,VH 32,000	20	<10	<10
06/16/15	0909	OCEAN	EN,VH 33,000	41	<10	<10
06/16/15	0920	OCEAN	EN,VH 34,000	10	<10	<10
06/16/15	0930	OCEAN	EN,VH 35,000	10	10	<10
06/16/15	0942	OCEAN	EN,VH 36,000	426	85	10
06/16/15	1000	OCEAN	EN,VH 37,000	62	20	87
06/16/15	0958	OCEAN	EN,VH 38,000	20	10	<10
06/16/15	1013	OCEAN	EN,VH 39,000	10	<10	<10
06/16/15	1015	OCEAN	EN,VH 40,000	<10	<10	<10
06/16/15	1045	OCEAN	EN,VH 41,000	41	41	<10
06/16/15	1053	OCEAN	EN,VH 42,000	20	10	10
06/16/15	1058	OCEAN	EN,VH 43,000	20	<10	10
06/16/15	1130	OCEAN	EN,VH 44,000	<10	<10	<10
06/16/15	1150	OCEAN	EN,VH 45,000	97	<10	<10
06/16/15	1200	OCEAN	EN,VH 46,000	30	<10	10
06/16/15	1206	OCEAN	EN,VH 47,000	<10	<10	<10
06/16/15	1232	OCEAN	EN,VH 49,500	<10	<10	<10
06/16/15	1225	OCEAN	EN,VH 50,000	63	<10	87
06/16/15	1300	OCEAN	LAB BLANK	<10	<10	<10
Sampled by WJL						
hotline: 6/17/15						
website: (data + advisory page): 6/17/15						
email: HD + PWA:						

RUN ON: 08/11/15

WATER QUALITY RESULTS
FROM COLL DATE: 08/11/15
THRU COLL DATE: 08/11/15
LOCATION: ENVH, ENVH

Date1000	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
08/11/15	0815	OCEAN	EN,VH 29,000	10	10	<10
08/11/15	0820	OCEAN	EN,VH 30,000	41	10	<10
08/11/15	0828	OCEAN	EN,VH 32,000	<10	<10	<10
08/11/15	0830	OCEAN	EN,VH 33,000	20	20	<10
08/11/15	0840	OCEAN	EN,VH 34,000	41	10	<10
08/11/15	0847	OCEAN	EN,VH 35,000	20	20	<10
08/11/15	0858	OCEAN	EN,VH 36,000	122	<10	<10
08/11/15	0905	OCEAN	EN,VH 37,000	176	<10	10
08/11/15	0915	OCEAN	EN,VH 38,000	52	52	<10
08/11/15	0920	OCEAN	EN,VH 39,000	63	10	<10
08/11/15	0927	OCEAN	EN,VH 40,000	<10	<10	<10
08/11/15	0954	OCEAN	EN,VH 41,000	<10	<10	<10
08/11/15	1000	OCEAN	EN,VH 42,000	21	10	<10
08/11/15	1006	OCEAN	EN,VH 43,000	10	<10	<10
08/11/15	1017	OCEAN	EN,VH 44,000	10	<10	<10
08/11/15	1058	OCEAN	EN,VH 45,000	<10	<10	<10
08/11/15	1106	OCEAN	EN,VH 46,000	<10	<10	<10
08/11/15	1112	OCEAN	EN,VH 47,000	<10	<10	<10
08/11/15	1123	OCEAN	EN,VH 49,500	20	<10	<10
08/11/15	1134	OCEAN	EN,VH 50,000	20	10	10
08/11/15	1300	OCEAN	LAB BLANK	<10	<10	<10
Sampled by Wahl						
Hotline : 8/11/15 (advisory) ; remove advisory : 8/12/15						
website (date) : 8/12/15						
website : (advisory) : update website advisory : 8/2/15						
website (log of postings) : close out dates on log of postings : 8/12/15						
email HD + PWA :						

database (date) : 8/13/15

remove ^{beach} postings : 8/12/15 (all 4 signs recovered)

RUN ON: 09/8/15

WATER QUALITY RESULTS
FROM COLL DATE: 09/08/15
THRU COLL DATE: 09/08/15
LOCATION: ENVH, ENVH

*Holiday/Wet
Weather Sampling
Schedule*

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MP N/100 ml
09/08/15	****	OCEAN	EN,VH 1,000	NO	SAMPLE	COLLECTED
09/08/15	0830	OCEAN	EN,VH 4,000	<10	<10	<10
09/08/15	0840	OCEAN	EN,VH 7,000	<10	<10	<10
09/08/15	0857	OCEAN	EN,VH 10,000	31	20	<10
09/08/15	0909	OCEAN	EN,VH 11,000	<10	<10	<10
09/08/15	0925	OCEAN	EN,VH 13,000	10	10	<10
09/08/15	0934	OCEAN	EN,VH 14,000	20	<10	<10
09/08/15	0948	OCEAN	EN,VH 19,000	<10	<10	<10
09/08/15	1007	OCEAN	EN,VH 25,000	10	<10	<10
09/08/15	1028	OCEAN	EN,VH 35,000	<10	<10	<10
09/08/15	1043	OCEAN	EN,VH 36,000	20	<10	<10
09/08/15	1048	OCEAN	EN,VH 37,000	168	41	<10
09/08/15	1108	OCEAN	EN,VH 38,000	31	10	<10
09/08/15	1114	OCEAN	EN,VH 39,000	<10	<10	<10
09/08/15	1121	OCEAN	EN,VH 40,000	2,064	2,064	885
09/08/15	1155	OCEAN	EN,VH 41,000	41	10	20
09/08/15	1200	OCEAN	EN,VH 42,000	<10	<10	<10
09/08/15	1207	OCEAN	EN,VH 43,000	<10	<10	<10
09/08/15	1243	OCEAN	EN,VH 44,000	10	<10	<10
09/08/15	1330	OCEAN	LAB BLANK	<10	<10	<10

Sampled by D. Wahl

1

*posted 2 signs: 9/9/15
(not resampled this date)*

*(one sign placed on upper beach in front
of drain, The second on lower beach
in front of drain.)*

press release: 9/9/15

website (data + advisory): 9/9/15

hotline: 9/9/15

database (data): 9/10/15

database (advisory):

pull signs:

email HD + PWA:

pull P.R. off website:

Rcd 9/18/15

RUN ON: 09/16/15

WATER QUALITY RESULTS
FROM COLL DATE: 09/16/15
THRU COLL DATE: 09/16/15
LOCATION: ENVH, ENVH

Date1000	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml	
09/16/15	1448	OCEAN	EN,VH 29,000	>24,196	402	53	
09/16/15	1204	OCEAN	EN,VH 30,000	259	10	<10	pass
		OCEAN	EN,VH 32,000				
		OCEAN	EN,VH 33,000				
		OCEAN	EN,VH 34,000				
		OCEAN	EN,VH 35,000				
09/16/15	1220	OCEAN	EN,VH 36,000	>24,196	1,722	111	
09/16/15	1248	OCEAN	EN,VH 37,000	>24,196	2,495	64	+ ratio
09/16/15	1507	OCEAN	EN,VH 38,000	465	41	10	*
		OCEAN	EN,VH 39,000				
09/16/15	1520	OCEAN	EN,VH 40,000	96	<10	10	pass
		OCEAN	EN,VH 41,000				
		OCEAN	EN,VH 42,000				
		OCEAN	EN,VH 43,000				
		OCEAN	EN,VH 44,000				
		OCEAN	EN,VH 45,000				
		OCEAN	EN,VH 46,000				
		OCEAN	EN,VH 47,000				
		OCEAN	EN,VH 49,500				
		OCEAN	EN,VH 50,000				
09/16/15	1400	OCEAN	LAB BLANK	<10	<10	<10	
		Sampled by Wohl					
		Website (data - advisories): 9/18/15					
		Website (log): 9/18/15					
		Hotline: 9/18/15					

email HD + PWA: 9/18/15
 database (advisories): 9/18/15
 database (data): 9/18/15

* disregard. Original sample never failed. resample unnecessary. Lab miscommunication. Postings removed 9/16/15.

RUN ON: 09/22/15

WATER QUALITY RESULTS
FROM COLL DATE: 09/22/15
THRU COLL DATE: 09/22/15
LOCATION: ENVH, ENVH

Date1000	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
09/22/15	0816	OCEAN	EN,VH 29,000	10	<10	<10
09/22/15	0823	OCEAN	EN,VH 30,000	31	<10	<10
09/22/15	0830	OCEAN	EN,VH 32,000	<10	<10	<10
09/22/15	0934	OCEAN	EN,VH 33,000	20	<10	42
09/22/15	0844	OCEAN	EN,VH 34,000	10	<10	<10
09/22/15	0853	OCEAN	EN,VH 35,000	41	<10	<10
09/22/15	0912	OCEAN	EN,VH 36,000	238	<10	10
09/22/15	0917	OCEAN	EN,VH 37,000	417	86	42
09/22/15	0930	OCEAN	EN,VH 38,000	41	<10	20
09/22/15	0938	OCEAN	EN,VH 39,000	20	10	<10
09/22/15	0945	OCEAN	EN,VH 40,000	41	20	20
09/22/15	1014	OCEAN	EN,VH 41,000	41	10	10
09/22/15	1021	OCEAN	EN,VH 42,000	20	10	<10
09/22/15	1027	OCEAN	EN,VH 43,000	20	10	<10
09/22/15	1043	OCEAN	EN,VH 44,000	<10	<10	<10
09/22/15	1127	OCEAN	EN,VH 45,000	<10	<10	<10
09/22/15	1136	OCEAN	EN,VH 46,000	31	10	<10
09/22/15	1145	OCEAN	EN,VH 47,000	31	<10	<10
09/22/15	1155	OCEAN	EN,VH 49,500	31	<10	<10
09/22/15	1210	OCEAN	EN,VH 50,000	30	<10	<10
09/22/15	1300	OCEAN	LAB BLANK	<10	<10	<10
Sampled by:		Wahle				
website:		9/23/15				
hotline:		9/23/15				
pull posts:		29000, 36000, 37000	9/23/15			
remove press release:		9/23/15				
email HD + PWA:		9/24/15				
Beachwatch (dotz):		9/24/15				
Beachwatch (advisories):		9/23/15	(close date for 29000, 36000, 37000)			

RUN ON: 09/29/15

WATER QUALITY RESULTS
FROM COLL DATE: 09/29/15
THRU COLL DATE: 09/29/15
LOCATION: ENVH, ENVH

Date1000	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
09/29/15	0812	OCEAN	EN,VH 29,000	41	<10	<10
09/29/15	0819	OCEAN	EN,VH 30,000	41	<10	<10
09/29/15	0828	OCEAN	EN,VH 32,000	84	<10	<10
09/29/15	0831	OCEAN	EN,VH 33,000	179	<10	<10
09/29/15	0841	OCEAN	EN,VH 34,000	95	<10	53
09/29/15	0849	OCEAN	EN,VH 35,000	10	<10	<10
09/29/15	0906	OCEAN	EN,VH 36,000	121	<10	20
09/29/15	0911	OCEAN	EN,VH 37,000	153	10	<10
09/29/15	0921	OCEAN	EN,VH 38,000	52	<10	<10
09/29/15	0928	OCEAN	EN,VH 39,000	30	<10	<10
09/29/15	0937	OCEAN	EN,VH 40,000	20	<10	<10
09/29/15	1008	OCEAN	EN,VH 41,000	74	20	20
09/29/15	1014	OCEAN	EN,VH 42,000	86	31	31
09/29/15	1021	OCEAN	EN,VH 43,000	228	31	20
09/29/15	1056	OCEAN	EN,VH 44,000	61	10	10
09/29/15	1116	OCEAN	EN,VH 45,000	158	41	<10
09/29/15	1122	OCEAN	EN,VH 46,000	92	30	<10
09/29/15	1130	OCEAN	EN,VH 47,000	86	31	<10
09/29/15	1140	OCEAN	EN,VH 49,500	408	52	87
09/29/15	1151	OCEAN	EN,VH 50,000	2,282	767	20
09/29/15	1300	OCEAN	LAB BLANK	<10	<10	<10
Sampled by: [handwritten]						
Website (date + advisory): 9/30/15						
headline: 9/30/15						
email: HD + PWA:						
Beach watch: 9/30/15 (date)						
post + resample: 9/30/15 (one post @ base of footpath)						

Ratio

Microbio

Beach Watch:

remove post:

press release: 10/1/15

remove press release:

RUN ON: 10/07/15

**WATER QUALITY RESULTS
FROM COLL DATE: 10/07/15
THRU COLL DATE: 10/07/15
LOCATION: ENVH, ENVH**

Date1000	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
		OCEAN	EN,VH 29,000			
		OCEAN	EN,VH 30,000			
		OCEAN	EN,VH 32,000			
		OCEAN	EN,VH 33,000			
		OCEAN	EN,VH 34,000			
		OCEAN	EN,VH 35,000			
10/07/15	1118	OCEAN	EN,VH 36,000	602	31	<10
10/07/15	1125	OCEAN	EN,VH 37,000	1,169	20	20
		OCEAN	EN,VH 38,000			
		OCEAN	EN,VH 39,000			
		OCEAN	EN,VH 40,000			
		OCEAN	EN,VH 41,000			
		OCEAN	EN,VH 42,000			
		OCEAN	EN,VH 43,000			
		OCEAN	EN,VH 44,000			
		OCEAN	EN,VH 45,000			
		OCEAN	EN,VH 46,000			
		OCEAN	EN,VH 47,000			
		OCEAN	EN,VH 49,500			
		OCEAN	EN,VH 50,000			
10/07/15	1320	OCEAN	LAB BLANK	<10	<10	<10
<i>Sampled by Wiche</i>						
<i>Signs pulled (36000/37000): 10/8/15</i>						
<i>Hotline: 10/8/15</i>						
<i>Email HD + PWA:</i>						
<i>Beachwater (data): 10/8/15</i>						
<i>Website (data/advisory/log): 10/8/15</i>						

RUN ON: 10/20/15

**WATER QUALITY RESULTS
FROM COLL DATE: 10/20/15
THRU COLL DATE: 10/20/15
LOCATION: ENVH, ENVH**

Date1000	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
10/20/15	1200	OCEAN	EN,VH 29,000	1,376	10	10
10/20/15	1150	OCEAN	EN,VH 30,000	631	<10	<10
10/20/15	1140	OCEAN	EN,VH 32,000	677	<10	<10
10/20/15	1135	OCEAN	EN,VH 33,000	663	10	<10
10/20/15	1126	OCEAN	EN,VH 34,000	565	<10	<10
10/20/15	1120	OCEAN	EN,VH 35,000	426	<10	<10
10/20/15	1038	OCEAN	EN,VH 36,000	110	<10	<10
10/20/15	1042	OCEAN	EN,VH 37,000	156	<10	<10
10/20/15	1046	OCEAN	EN,VH 38,000	364	<10	<10
10/20/15	1050	OCEAN	EN,VH 39,000	631	<10	<10
10/20/15	1056	OCEAN	EN,VH 40,000	313	<10	<10
10/20/15	1024	OCEAN	EN,VH 41,000	269	<10	10
10/20/15	1018	OCEAN	EN,VH 42,000	384	30	<10
10/20/15	1010	OCEAN	EN,VH 43,000	243	20	<10
10/20/15	0940	OCEAN	EN,VH 44,000	288	<10	<10
10/20/15	0836	OCEAN	EN,VH 45,000	97	<10	<10
10/20/15	0843	OCEAN	EN,VH 46,000	75	41	<10
10/20/15	0850	OCEAN	EN,VH 47,000	135	10	10
10/20/15	0900	OCEAN	EN,VH 49,500	135	<10	<10
10/20/15	0910	OCEAN	EN,VH 50,000	110	<10	<10
10/20/15	1300	OCEAN	LAB BLANK	<10	<10	<10
<i>Sampled by Lethel</i>						
<i>Hotline: 10/21/15</i>						
<i>website (data): 10/21/15</i>						
<i>website (advisory): 10/21/15</i>						
<i>email: HD + PWA</i>						
<i>beachwatch:</i>						

RUN ON: 10/27/15

**WATER QUALITY RESULTS
FROM COLL DATE: 10/27/15
THRU COLL DATE: 10/27/15
LOCATION: ENVH, ENVH**

Date1000	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
10/27/15	1146	OCEAN	EN,VH 29,000	75	10	31
10/27/15	1137	OCEAN	EN,VH 30,000	20	20	20
10/27/15	1127	OCEAN	EN,VH 32,000	41	<10	20
10/27/15	1122	OCEAN	EN,VH 33,000	<10	<10	<10
10/27/15	1107	OCEAN	EN,VH 34,000	20	<10	<10
10/27/15	1112	OCEAN	EN,VH 35,000	10	<10	<10
10/27/15	1019	OCEAN	EN,VH 36,000	10	<10	<10
10/27/15	1024	OCEAN	EN,VH 37,000	576	295	42
10/27/15	1030	OCEAN	EN,VH 38,000	345	86	75
10/27/15	1038	OCEAN	EN,VH 39,000	107	10	20
10/27/15	1045	OCEAN	EN,VH 40,000	75	41	31
10/27/15	0935	OCEAN	EN,VH 41,000	98	20	10
10/27/15	0942	OCEAN	EN,VH 42,000	10	<10	10
10/27/15	0950	OCEAN	EN,VH 43,000	52	10	20
10/27/15	0903	OCEAN	EN,VH 44,000	52	<10	20
10/27/15	0757	OCEAN	EN,VH 45,000	355	31	<10
10/27/15	0803	OCEAN	EN,VH 46,000	41	<10	<10
10/27/15	0840	OCEAN	EN,VH 47,000	52	10	<10
10/27/15	0813	OCEAN	EN,VH 49,500	31	<10	10
10/27/15	0826	OCEAN	EN,VH 50,000	<10	<10	<10
10/27/15	1300	OCEAN	LAB BLANK	<10	<10	<10
	Sampled by (initial)					
	Update website (date):		10/28/15			
	hotline: N/A (done 10/27)					
	email H-D + PWA:					
	Beach Watch (date):		10/28/15			

RUN ON: 11/02/15

WATER QUALITY RESULTS
FROM COLL DATE: 11/02/15
THRU COLL DATE: 11/02/15
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MP N/100 ml
11/02/15	0804	OCEAN	EN,VH 1,000	20	10	<10
11/02/15	0833	OCEAN	EN,VH 4,000	<10	<10	<10
11/02/15	0848	OCEAN	EN,VH 7,000	10	<10	<10
11/02/15	0855	OCEAN	EN,VH 10,000	20	10	<10
11/02/15	0904	OCEAN	EN,VH 11,000	10	<10	<10
11/02/15	0916	OCEAN	EN,VH 13,000	985	<10	10
11/02/15	0926	OCEAN	EN,VH 14,000	97	<10	10
11/02/15	0934	OCEAN	EN,VH 19,000	20	<10	<10
11/02/15	0952	OCEAN	EN,VH 25,000	41	<10	<10
11/02/15	1014	OCEAN	EN,VH 35,000	<10	<10	<10
11/02/15	1028	OCEAN	EN,VH 36,000	20	<10	20
11/02/15	1034	OCEAN	EN,VH 37,000	146	75	31
11/02/15	1039	OCEAN	EN,VH 38,000	63	<10	<10
11/02/15	1043	OCEAN	EN,VH 39,000	31	10	<10
11/02/15	1047	OCEAN	EN,VH 40,000	10	10	<10
11/02/15	1124	OCEAN	EN,VH 41,000	41	10	10
11/02/15	1132	OCEAN	EN,VH 42,000	31	10	<10
11/02/15	1138	OCEAN	EN,VH 43,000	20	10	20
11/02/15	1203	OCEAN	EN,VH 44,000	10	10	10
11/02/15	1310	OCEAN	LAB BLANK	10	10	<10

Sampled by label

1
Hotline / website : 11/3/15
Email HD + PW A :
Beachwatcher 11/4/15

RUN ON: 11/09/15

WATER QUALITY RESULTS
FROM COLL DATE: 11/09/15
THRU COLL DATE: 11/09/15
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MP N/100 ml
11/09/15	0837	OCEAN	EN,VH 1,000	<10	<10	20
11/09/15	0903	OCEAN	EN,VH 4,000	41	<10	<10
11/09/15	0915	OCEAN	EN,VH 7,000	110	31	10
11/09/15	0928	OCEAN	EN,VH 10,000	31	<10	10
11/09/15	0940	OCEAN	EN,VH 11,000	<10	<10	<10
11/09/15	0950	OCEAN	EN,VH 13,000	10	<10	<10
11/09/15	1002	OCEAN	EN,VH 14,000	31	20	<10
11/09/15	1015	OCEAN	EN,VH 19,000	<10	<10	42
11/09/15	1030	OCEAN	EN,VH 25,000	10	<10	<10
11/09/15	1100	OCEAN	EN,VH 35,000	31	10	<10
11/09/15	1113	OCEAN	EN,VH 36,000	226	10	53
11/09/15	1118	OCEAN	EN,VH 37,000	323	226	99
11/09/15	1128	OCEAN	EN,VH 38,000	<10	<10	<10
11/09/15	1136	OCEAN	EN,VH 39,000	31	<10	10
11/09/15	1140	OCEAN	EN,VH 40,000	<10	<10	<10
11/09/15	1200	OCEAN	EN,VH 41,000	63	10	<10
11/09/15	1205	OCEAN	EN,VH 42,000	20	10	<10
11/09/15	1211	OCEAN	EN,VH 43,000	31	20	10
11/09/15	1220	OCEAN	EN,VH 44,000	10	10	<10
11/09/15	1300	OCEAN	LAB BLANK	<10	<10	<10

Sampled by [signature]

- 1 website (data/advisory) : 11/10/15
- hotline: 11/10/15
- email HD + PWA :
- BeachWatch (data) : 11/10/15

RUN ON: 11/17/15

WATER QUALITY RESULTS
FROM COLL DATE: 11/17/15
THRU COLL DATE: 11/17/15
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
03/17/15	0837	OCEAN	EN,VH 1,000	<10	<10	<10
03/17/15	0910	OCEAN	EN,VH 4,000	<10	<10	<10
03/17/15	0919	OCEAN	EN,VH 7,000	<10	<10	<10
03/17/15	0925	OCEAN	EN,VH 10,000	20	<10	<10
03/17/15	0933	OCEAN	EN,VH 11,000	<10	<10	<10
03/17/15	0945	OCEAN	EN,VH 13,000	<10	<10	<10
03/17/15	0957	OCEAN	EN,VH 14,000	<10	<10	<10
03/17/15	1010	OCEAN	EN,VH 19,000	98	<10	<10
03/17/15	1024	OCEAN	EN,VH 25,000	10	<10	<10
03/17/15	1058	OCEAN	EN,VH 35,000	<10	<10	<10
03/17/15	1110	OCEAN	EN,VH 36,000	<10	<10	<10
03/17/15	1115	OCEAN	EN,VH 37,000	565	305	531
03/17/15	1118	OCEAN	EN,VH 38,000	<10	<10	<10
03/17/15	1124	OCEAN	EN,VH 39,000	<10	<10	<10
03/17/15	1129	OCEAN	EN,VH 40,000	<10	<10	<10
03/17/15	1200	OCEAN	EN,VH 41,000	146	20	10
03/17/15	1205	OCEAN	EN,VH 42,000	75	20	10
03/17/15	1210	OCEAN	EN,VH 43,000	30	10	<10
03/17/15	1238	OCEAN	EN,VH 44,000	10	10	<10
03/17/15	1300	OCEAN	LAB BLANK	<10	<10	<10

Sampled by Weibel

hotline: 11/19/15 (a.m.)

website: 11/19/15 (a.m.)

posting: 11/18/15 Ernte

Beachwatch (advisory) ^{open}: 11/19/15 (data): 11/19/15

email HD + PWA: 11/19/15

Press Release: 11/19/15 (a.m.)

pull posting:

pull press release:

Beachwatch (close advisory):

RUN ON: 11/23/15

WATER QUALITY RESULTS
FROM COLL DATE: 11/23/15
THRU COLL DATE: 11/23/15
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
11/23/15	0825	OCEAN	EN,VH 1,000	<10	<10	<10
11/23/15	0855	OCEAN	EN,VH 4,000	10	10	10
11/23/15	0908	OCEAN	EN,VH 7,000	10	<10	10
11/23/15	0915	OCEAN	EN,VH 10,000	86	10	<10
11/23/15	0925	OCEAN	EN,VH 11,000	31	10	10
11/23/15	0943	OCEAN	EN,VH 13,000	52	31	<10
11/23/15	0957	OCEAN	EN,VH 14,000	10	<10	<10
11/23/15	1011	OCEAN	EN,VH 19,000	20	<10	10
11/23/15	1030	OCEAN	EN,VH 25,000	10	<10	<10
11/23/15	1058	OCEAN	EN,VH 35,000	<10	<10	<10
11/23/15	1114	OCEAN	EN,VH 36,000	20	<10	<10
11/23/15	1123	OCEAN	EN,VH 37,000	10	10	<10
11/23/15	1126	OCEAN	EN,VH 38,000	<10	<10	<10
11/23/15	1132	OCEAN	EN,VH 39,000	<10	<10	<10
11/23/15	1136	OCEAN	EN,VH 40,000	<10	<10	<10
11/23/15	1214	OCEAN	EN,VH 41,000	63	10	42
11/23/15	1222	OCEAN	EN,VH 42,000	10	<10	<10
11/23/15	1228	OCEAN	EN,VH 43,000	<10	<10	<10
11/23/15	1240	OCEAN	EN,VH 44,000	20	<10	<10
11/23/15	1300	OCEAN	LAB BLANK	<10	<10	<10
<i>Sampled by WJL</i>						

headline: 11/24/15

website (data + close advisory): 11/24/15

pull last week's press release: 11/24/15

email HD + PWA:

Beachwatcher data: 11/25/15

pull sign@37000: 11/24/15

RUN ON: 11/30/15

WATER QUALITY RESULTS
FROM COLL DATE: 11/30/15
THRU COLL DATE: 11/30/15
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
11/30/15	0834	OCEAN	EN,VH 1,000	20	<10	<10
11/30/15	0853	OCEAN	EN,VH 4,000	10	<10	<10
11/30/15	0910	OCEAN	EN,VH 7,000	<10	<10	<10
11/30/15	0918	OCEAN	EN,VH 10,000	30	30	<10
11/30/15	0930	OCEAN	EN,VH 11,000	<10	<10	<10
11/30/15	0942	OCEAN	EN,VH 13,000	20	10	<10
11/30/15	0956	OCEAN	EN,VH 14,000	<10	<10	<10
11/30/15	1008	OCEAN	EN,VH 19,000	86	41	<10
11/30/15	1023	OCEAN	EN,VH 25,000	10	<10	<10
11/30/15	1054	OCEAN	EN,VH 35,000	10	<10	<10
11/30/15	1108	OCEAN	EN,VH 36,000	20	<10	<10
11/30/15	1115	OCEAN	EN,VH 37,000	<10	<10	<10
11/30/15	1122	OCEAN	EN,VH 38,000	20	<10	<10
11/30/15	1129	OCEAN	EN,VH 39,000	<10	<10	<10
11/30/15	1136	OCEAN	EN,VH 40,000	<10	<10	<10
11/30/15	1207	OCEAN	EN,VH 41,000	98	31	<10
11/30/15	1215	OCEAN	EN,VH 42,000	41	20	<10
11/30/15	1220	OCEAN	EN,VH 43,000	<10	<10	<10
11/30/15	1245	OCEAN	EN,VH 44,000	<10	<10	<10
11/30/15	1300	OCEAN	LAB BLANK	<10	<10	<10
<i>Sampled by Licht</i>						

website (advisory → date): 12/1/15

hotline: 12/1/15

beachwatch (date): 12/1/15

email PWA + HD: 12/1/15

RUN ON: 12/07/15

WATER QUALITY RESULTS
FROM COLL DATE: 12/07/15
THRU COLL DATE: 12/07/15
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
12/07/15	0840	OCEAN	EN,VH 1,000	41	31	<10
12/07/15	0925	OCEAN	EN,VH 4,000	10	<10	<10
12/07/15	0935	OCEAN	EN,VH 7,000	<10	<10	<10
12/07/15	0948	OCEAN	EN,VH 10,000	109	63	<10
12/07/15	0957	OCEAN	EN,VH 11,000	10	<10	<10
12/07/15	1010	OCEAN	EN,VH 13,000	<10	<10	<10
12/07/15	1022	OCEAN	EN,VH 14,000	20	<10	<10
12/07/15	1033	OCEAN	EN,VH 19,000	52	<10	<10
12/07/15	1050	OCEAN	EN,VH 25,000	108	41	20
12/07/15	1116	OCEAN	EN,VH 35,000	<10	<10	<10
12/07/15	1130	OCEAN	EN,VH 36,000	233	20	<10
12/07/15	1136	OCEAN	EN,VH 37,000	439	10	<10
12/07/15	1146	OCEAN	EN,VH 38,000	41	10	10
12/07/15	1157	OCEAN	EN,VH 39,000	41	<10	<10
12/07/15	1205	OCEAN	EN,VH 40,000	20	<10	<10
12/07/15	1227	OCEAN	EN,VH 41,000	75	41	20
12/07/15	1233	OCEAN	EN,VH 42,000	10	10	10
12/07/15	1237	OCEAN	EN,VH 43,000	75	20	20
12/07/15	1248	OCEAN	EN,VH 44,000	20	20	<10
12/07/15	1315	OCEAN	LAB BLANK	<10	<10	<10

Sampled by Wahl/Custer

website (advisory + data): 12/8

hotline: 12/8

email HD + PWA:

beachwatch (data):

RUN ON: 12/15/15

WATER QUALITY RESULTS
FROM COLL DATE: 12/15/15
THRU COLL DATE: 12/15/15
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
12/15/15	0842	OCEAN	EN,VH 1,000	10	10	<10
12/15/15	0905	OCEAN	EN,VH 4,000	10	<10	<10
12/15/15	0925	OCEAN	EN,VH 7,000	10	<10	<10
12/15/15	0933	OCEAN	EN,VH 10,000	10	10	<10
12/15/15	0945	OCEAN	EN,VH 11,000	10	10	<10
12/15/15	0958	OCEAN	EN,VH 13,000	20	<10	<10
12/15/15	1005	OCEAN	EN,VH 14,000	10	<10	<10
12/15/15	1026	OCEAN	EN,VH 19,000	7,701	63	<10
12/15/15	1042	OCEAN	EN,VH 25,000	41	10	<10
12/15/15	1120	OCEAN	EN,VH 35,000	<10	<10	<10
12/15/15	1138	OCEAN	EN,VH 36,000	20	<10	<10
12/15/15	1146	OCEAN	EN,VH 37,000	74	<10	<10
12/15/15	1149	OCEAN	EN,VH 38,000	10	<10	<10
12/15/15	1155	OCEAN	EN,VH 39,000	31	<10	<10
12/15/15	1200	OCEAN	EN,VH 40,000	20	<10	<10
12/15/15	1224	OCEAN	EN,VH 41,000	20	10	<10
12/15/15	1229	OCEAN	EN,VH 42,000	10	<10	<10
12/15/15	1234	OCEAN	EN,VH 43,000	41	20	<10
12/15/15	1256	OCEAN	EN,VH 44,000	<10	<10	<10
12/15/15	1315	OCEAN	LAB BLANK	<10	<10	<10

Sampled by DBW

website (data + advisory): 12/16/15

Mon. 12/14 High surf advisory, postpone sampling to 12/15 (Tues)

hotline: 12/16/15

email HD + PWA: 12/14/15

Beachwatch: 12/16/15

RUN ON: 12/22/15

WATER QUALITY RESULTS
FROM COLL DATE: 12/22/15
THRU COLL DATE: 12/22/15
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
12/22/15	0840	OCEAN	EN,VH 1,000	62	<10	31
12/22/15	0908	OCEAN	EN,VH 4,000	98	86	10
12/22/15	0922	OCEAN	EN,VH 7,000	52	10	<10
12/22/15	0930	OCEAN	EN,VH 10,000	<10	<10	<10
12/22/15	0938	OCEAN	EN,VH 11,000	20	<10	<10
12/22/15	0951	OCEAN	EN,VH 13,000	640	41	42
12/22/15	1004	OCEAN	EN,VH 14,000	181	<10	31
12/22/15	1018	OCEAN	EN,VH 19,000	1,291	148	150
12/22/15	1032	OCEAN	EN,VH 25,000	231	86	313
12/22/15	1102	OCEAN	EN,VH 35,000	86	<10	<10
12/22/15	1116	OCEAN	EN,VH 36,000	246	10	<10
12/22/15	1120	OCEAN	EN,VH 37,000	336	<10	20
12/22/15	1128	OCEAN	EN,VH 38,000	63	31	<10
12/22/15	1134	OCEAN	EN,VH 39,000	41	10	<10
12/22/15	1140	OCEAN	EN,VH 40,000	108	<10	10
12/22/15	1210	OCEAN	EN,VH 41,000	98	52	10
12/22/15	1216	OCEAN	EN,VH 42,000	97	10	10
12/22/15	1221	OCEAN	EN,VH 43,000	63	20	20
12/22/15	1232	OCEAN	EN,VH 44,000	63	10	<10
12/22/15	1315	OCEAN	LAB BLANK	<10	<10	<10
Sampled on Tues. 12/22 - White						

hotline: updated 12/28/15

website: 12/23/15

posted: 12/23/15 1 sign @ each locations

postings removed: 12/29/15

email HD + PWA: 12/29/15

Beach Watch (data): 12/29/15

(advisories): 12/29/15

RUN ON: 12/28/15

**WATER QUALITY RESULTS
FROM COLL DATE: 12/28/15
THRU COLL DATE: 12/28/15
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MP N/100 ml
12/28/15	0844	OCEAN	ENVH 1000	51	51	<10
12/28/15	0913	OCEAN	ENVH 4000	20	20	20
12/28/15	0925	OCEAN	ENVH 7000	52	10	<10
12/28/15	0938	OCEAN	ENVH 10000	<10	<10	<10
12/28/15	0945	OCEAN	ENVH 11000	20	20	10
12/28/15	1002	OCEAN	ENVH 13000	<10	<10	<10
12/28/15	1016	OCEAN	ENVH 14000	<10	<10	<10
12/28/15	1030	OCEAN	ENVH 19000	<10	<10	<10
12/28/15	1044	OCEAN	ENVH 25000	10	10	<10
12/28/15	1113	OCEAN	ENVH 35000	<10	<10	10
12/28/15	1125	OCEAN	ENVH 36000	<10	<10	10
12/28/15	1130	OCEAN	ENVH 37000	<10	<10	<10
12/28/15	1137	OCEAN	ENVH 38000	<10	<10	<10
12/28/15	1144	OCEAN	ENVH 39000	<10	<10	<10
12/28/15	1149	OCEAN	ENVH 40000	<10	<10	<10
12/28/15	1214	OCEAN	ENVH 41000	<10	<10	<10
12/28/15	1218	OCEAN	ENVH 42000	<10	<10	10
12/28/15	1223	OCEAN	ENVH 43000	<10	<10	<10
12/28/15	1242	OCEAN	ENVH 44000	<10	<10	<10
12/28/15	1300	OCEAN	ENVH LAB BLANK	<10	<10	<10
Sampled by Wahl						
website (data/advisory/log): 12/29/15						
hotline: 12/29/15						
email #s + PWA:						
Pull posts: 12/29/15						
BeachWatch (data + advisory): 12/29/15						

RUN ON: 01/04/16

WATER QUALITY RESULTS
FROM COLL DATE: 01/04/16
THRU COLL DATE: 01/04/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
01/04/16	0900	OCEAN	EN,VH 1,000	<10	<10	<10
01/04/16	0918	OCEAN	EN,VH 4,000	<10	<10	<10
01/04/16	0941	OCEAN	EN,VH 7,000	<10	<10	<10
01/04/16	0949	OCEAN	EN,VH 10,000	10	<10	<10
01/04/16	1003	OCEAN	EN,VH 11,000	<10	<10	<10
01/04/16	1021	OCEAN	EN,VH 13,000	<10	<10	<10
01/04/16	1033	OCEAN	EN,VH 14,000	20	10	<10
01/04/16	1051	OCEAN	EN,VH 19,000	10	<10	<10
01/04/16	1120	OCEAN	EN,VH 25,000	63	31	10
01/04/16	1153	OCEAN	EN,VH 35,000	<10	<10	10
01/04/16	1203	OCEAN	EN,VH 36,000	41	10	10
01/04/16	1208	OCEAN	EN,VH 37,000	86	75	306
01/04/16	1217	OCEAN	EN,VH 38,000	<10	<10	<10
01/04/16	1234	OCEAN	EN,VH 39,000	<10	<10	<10
01/04/16	1241	OCEAN	EN,VH 40,000	<10	<10	<10
01/04/16	1308	OCEAN	EN,VH 41,000	109	52	10
01/04/16	1323	OCEAN	EN,VH 42,000	<10	<10	<10
01/04/16	1330	OCEAN	EN,VH 43,000	20	<10	<10
01/04/16	1339	OCEAN	EN,VH 44,000	<10	<10	<10
01/04/16	1400	OCEAN	LAB BLANK	<10	<10	<10
Sampled by Oregon						

website (data): 1/5/16
 (rain advisory): 1/5/16
 website log of posts (rain + 37000): 1/5/16
 hotline (rain): 1/5/16
 press release (rain): 1/5/16
 post (37000): 1/5/16
 email HD + PSA: 1/5/16
 Beach Watch (data):
 (advisory + rain/37000):

No Biglet 13' samples collected this week

RUN ON: 01/11/16

WATER QUALITY RESULTS
FROM COLL DATE: 01/11/16
THRU COLL DATE: 01/11/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
01/11/16	0835	OCEAN	EN,VH 1,000	74	<10	<10
01/11/16	****	OCEAN	EN,VH 4,000	NO	SAMPLE	COLLECTED
01/11/16	0920	OCEAN	EN,VH 7,000	305	<10	<10
01/11/16	0931	OCEAN	EN,VH 10,000	644	<10	<10
01/11/16	0941	OCEAN	EN,VH 11,000	52	<10	<10
01/11/16	0955	OCEAN	EN,VH 13,000	41	<10	<10
01/11/16	1006	OCEAN	EN,VH 14,000	72	10	<10
01/11/16	1026	OCEAN	EN,VH 19,000	717	<10	10
01/11/16	1045	OCEAN	EN,VH 25,000	31	<10	<10
01/11/16	1110	OCEAN	EN,VH 35,000	86	<10	<10
01/11/16	1127	OCEAN	EN,VH 36,000	41	10	10
01/11/16	1131	OCEAN	EN,VH 37,000	41	<10	<10
01/11/16	1158	OCEAN	EN,VH 38,000	74	<10	<10
01/11/16	1150	OCEAN	EN,VH 39,000	98	<10	<10
01/11/16	1140	OCEAN	EN,VH 40,000	63	<10	<10
01/11/16	1224	OCEAN	EN,VH 41,000	63	10	<10
01/11/16	1228	OCEAN	EN,VH 42,000	63	41	10
01/11/16	1258	OCEAN	EN,VH 43,000	1,904	20	64
01/11/16	1245	OCEAN	EN,VH 44,000	41	<10	<10
01/11/16	1340	OCEAN	LAB BLANK	<10	<10	<10
	<i>Sampled by Link</i>					

hotline: 1/12/16

website (advisory, data, close out 37000 in log): 1/12/16

email HD + AWA:

beachwatch (data + close out 37000 advisory):

RUN ON: 01/19/16

WATER QUALITY RESULTS
FROM COLL DATE: 01/19/16
THRU COLL DATE: 01/19/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
01/19/16	0831	OCEAN	EN,VH 1,000	31	<10	<10
01/19/16	****	OCEAN	EN,VH 4,000	NO	SAMPLE	COLLECTED
01/19/16	0920	OCEAN	EN,VH 7,000	98	<10	10
01/19/16	0931	OCEAN	EN,VH 10,000	<10	<10	<10
01/19/16	0942	OCEAN	EN,VH 11,000	41	20	<10
01/19/16	1000	OCEAN	EN,VH 13,000	63	10	10
01/19/16	1009	OCEAN	EN,VH 14,000	75	10	10
01/19/16	1028	OCEAN	EN,VH 19,000	262	<10	<10
01/19/16	1044	OCEAN	EN,VH 25,000	110	10	<10
01/19/16	1108	OCEAN	EN,VH 35,000	41	10	<10
01/19/16	1120	OCEAN	EN,VH 36,000	187	63	10
01/19/16	1126	OCEAN	EN,VH 37,000	134	52	10
01/19/16	1138	OCEAN	EN,VH 38,000	52	10	<10
01/19/16	1150	OCEAN	EN,VH 39,000	1,354	<10	75
01/19/16	1156	OCEAN	EN,VH 40,000	<10	<10	20
<1001/19/16	1228	OCEAN	EN,VH 41,000	41	20	<10
01/19/16	1235	OCEAN	EN,VH 42,000	>24,196	98	137
01/19/16	****	OCEAN	EN,VH 43,000	NO	SAMPLE	COLLECTED
01/19/16	1251	OCEAN	EN,VH 44,000	20	<10	<10
01/19/16	1340	OCEAN	LAB BLANK	<10	<10	<10

Sampled by Wash

1/19/16 rain advisory

1/20/16 post 1 sign @ 42000

Beach Watch (advisory rain): open: 1/20/16

(advisory <2000): open: 1/20/16

(data): 1/20/16

email PWA + HD:

RUN ON: 01/25/16

WATER QUALITY RESULTS
FROM COLL DATE: 01/25/16
THRU COLL DATE: 01/25/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
01/25/16	0828	OCEAN	EN,VH 1,000	20	<10	<10
01/25/16	****	OCEAN	EN,VH 4,000	NO	SAMPLE	COLLECTED
01/25/16	0903	OCEAN	EN,VH 7,000	63	10	<10
01/25/16	0913	OCEAN	EN,VH 10,000	52	10	10
01/25/16	0926	OCEAN	EN,VH 11,000	41	<10	<10
01/25/16	0945	OCEAN	EN,VH 13,000	243	<10	10
01/25/16	0955	OCEAN	EN,VH 14,000	213	10	<10
01/25/16	1006	OCEAN	EN,VH 19,000	<10	<10	<10
01/25/16	1030	OCEAN	EN,VH 25,000	41	<10	10
01/25/16	1050	OCEAN	EN,VH 35,000	10	<10	<10
01/25/16	1108	OCEAN	EN,VH 36,000	10	<10	<10
01/25/16	1112	OCEAN	EN,VH 37,000	20	<10	<10
01/25/16	1119	OCEAN	EN,VH 38,000	10	<10	10
01/25/16	1124	OCEAN	EN,VH 39,000	10	<10	<10
01/25/16	1130	OCEAN	EN,VH 40,000	20	<10	<10
01/25/16	1203	OCEAN	EN,VH 41,000	41	<10	<10
01/25/16	1207	OCEAN	EN,VH 42,000	10	10	<10
01/25/16	****	OCEAN	EN,VH 43,000	NO	SAMPLE	COLLECTED
01/25/16	1228	OCEAN	EN,VH 44,000	10	<10	<10
01/25/16	1320	OCEAN	LAB BLANK	<10	<10	<10
<i>Sampled by Wahl</i>						

Website: (advisory): 1/26/16
(data): 1/26/16

pull sign @ 42000: 1/26/16

hotline: 1/26/16

Beachwatch:

email HD+PWA:

RUN ON: 02/01/16

WATER QUALITY RESULTS
FROM COLL DATE: 02/01/16
THRU COLL DATE: 02/01/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
02/01/16	0836	OCEAN	EN,VH 1,000	884	31	53
02/01/16	****	OCEAN	EN,VH 4,000	NO	SAMPLE	COLLECTED
02/01/16	0905	OCEAN	EN,VH 7,000	813	20	31
02/01/16	0920	OCEAN	EN,VH 10,000	1,354	41	87
02/01/16	0930	OCEAN	EN,VH 11,000	435	10	10
02/01/16	0943	OCEAN	EN,VH 13,000	19,863	82	384
02/01/16	0955	OCEAN	EN,VH 14,000	7,701	231	99
02/01/16	1010	OCEAN	EN,VH 19,000	3,448	145	111
02/01/16	1025	OCEAN	EN,VH 25,000	703	52	31
02/01/16	1055	OCEAN	EN,VH 35,000	350	<10	31
02/01/16	1100	OCEAN	EN,VH 36,000	836	299	64
02/01/16	1105	OCEAN	EN,VH 37,000	638	75	53
02/01/16	1115	OCEAN	EN,VH 38,000	288	10	10
02/01/16	1118	OCEAN	EN,VH 39,000	336	10	42
02/01/16	1124	OCEAN	EN,VH 40,000	160	10	10
02/01/16	1145	OCEAN	EN,VH 41,000	86	<10	20
02/01/16	1154	OCEAN	EN,VH 42,000	158	10	10
02/01/16	1200	OCEAN	EN,VH 43,000	185	<10	10
02/01/16	1212	OCEAN	EN,VH 44,000	161	<10	<10
02/01/16	1300	OCEAN	LAB BLANK	<10	<10	<10

Sampled by Otten/Wahl

posted: 2/2/16 (2 signs @ 13,000, 1 sign @ 19,000)

** rain advisory from 2/1/16 in effect so hotline + website (advisory) will be changed after end of advisory.*

hotline (rain): 2/1/16, website (log + advisory - rain): 2/1/16

website (data): 2/2/16

website (log): 2/2/16

email HD + PWA: 2/2/16

press release (rain): 2/1/16

RUN ON: 02/09/16

WATER QUALITY RESULTS
FROM COLL DATE: 02/09/16
THRU COLL DATE: 02/09/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
02/09/16	0824	OCEAN	EN,VH 1,000	10	<10	<10
02/09/16	****	OCEAN	EN,VH 4,000	NO	SAMPLE	COLLECTED
02/09/16	0858	OCEAN	EN,VH 7,000	<10	<10	10
02/09/16	0906	OCEAN	EN,VH 10,000	41	10	<10
02/09/16	0914	OCEAN	EN,VH 11,000	10	<10	<10
02/09/16	0930	OCEAN	EN,VH 13,000	10	10	10
02/09/16	0940	OCEAN	EN,VH 14,000	173	<10	10
02/09/16	0953	OCEAN	EN,VH 19,000	10	<10	<10
02/09/16	1015	OCEAN	EN,VH 25,000	20	<10	<10
02/09/16	1033	OCEAN	EN,VH 35,000	63	<10	10
02/09/16	1048	OCEAN	EN,VH 36,000	63	<10	99
02/09/16	1053	OCEAN	EN,VH 37,000	<10	<10	10
02/09/16	1100	OCEAN	EN,VH 38,000	148	<10	87
02/09/16	1105	OCEAN	EN,VH 39,000	<10	<10	<10
02/09/16	1113	OCEAN	EN,VH 40,000	<10	<10	<10
02/09/16	1144	OCEAN	EN,VH 41,000	20	20	<10
02/09/16	1148	OCEAN	EN,VH 42,000	20	10	<10
02/09/16	1153	OCEAN	EN,VH 43,000	<10	<10	<10
02/09/16	1206	OCEAN	EN,VH 44,000	<10	<10	<10
02/09/16	1345	OCEAN	LAB BLANK	<10	<10	<10
<i>Sampled by WJL</i>						

★ Contribute down, could not update website on 2/10/16.

hotline: 2/10/16

email HD + PWA:

website:

Beach Watch:

RUN ON: 02/16/16

WATER QUALITY RESULTS
FROM COLL DATE: 02/16/16
THRU COLL DATE: 02/16/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
02/16/16	0832	OCEAN	EN,VH 1,000	41	<10	<10
02/16/16	****	OCEAN	EN,VH 4,000	NO	SAMPLE	COLLECTED
02/16/16	0907	OCEAN	EN,VH 7,000	75	<10	<10
02/16/16	0918	OCEAN	EN,VH 10,000	20	10	<10
02/16/16	0930	OCEAN	EN,VH 11,000	<10	<10	<10
02/16/16	0943	OCEAN	EN,VH 13,000	<10	<10	<10
02/16/16	0958	OCEAN	EN,VH 14,000	10	<10	<10
02/16/16	1016	OCEAN	EN,VH 19,000	<10	<10	<10
02/16/16	1032	OCEAN	EN,VH 25,000	10	<10	<10
02/16/16	1100	OCEAN	EN,VH 35,000	20	<10	20
02/16/16	1113	OCEAN	EN,VH 36,000	31	<10	<10
02/16/16	1120	OCEAN	EN,VH 37,000	10	<10	<10
02/16/16	1126	OCEAN	EN,VH 38,000	63	<10	10
02/16/16	1132	OCEAN	EN,VH 39,000	<10	<10	<10
02/16/16	1138	OCEAN	EN,VH 40,000	52	10	<10
02/16/16	1214	OCEAN	EN,VH 41,000	<10	<10	<10
02/16/16	1220	OCEAN	EN,VH 42,000	<10	<10	<10
02/16/16	1224	OCEAN	EN,VH 43,000	<10	<10	<10
02/16/16	1238	OCEAN	EN,VH 44,000	<10	<10	<10
02/16/16	1330	OCEAN	LAB BLANK	<10	<10	<10

Sampled Tuesday by W&L

** Mon. 2/15 holiday*

website (data + rain advisory): 2/17/16
(log - rain advisory): 2/18/16

hotline: 2/17/16 (rainfall advisory): 2/17
press release (rainfall advisory): 2/17

email HD + PWA:

Beachwatch (data + ^{rain} advisory):

RUN ON: 02/22/16

WATER QUALITY RESULTS
FROM COLL DATE: 02/22/16
THRU COLL DATE: 02/22/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
02/22/16	0830	OCEAN	EN,VH 1,000	20	<10	<10
02/22/16	****	OCEAN	EN,VH 4,000	NO	SAMPLE	COLLECTED
02/22/16	0900	OCEAN	EN,VH 7,000	<10	<10	<10
02/22/16	0905	OCEAN	EN,VH 10,000	97	<10	31
02/22/16	0914	OCEAN	EN,VH 11,000	31	<10	10
02/22/16	0933	OCEAN	EN,VH 13,000	10	<10	<10
02/22/16	0940	OCEAN	EN,VH 14,000	301	<10	<10
02/22/16	0950	OCEAN	EN,VH 19,000	10	<10	<10
02/22/16	1005	OCEAN	EN,VH 25,000	31	10	<10
02/22/16	1028	OCEAN	EN,VH 35,000	41	<10	<10
02/22/16	1041	OCEAN	EN,VH 36,000	86	10	20
02/22/16	1045	OCEAN	EN,VH 37,000	20	10	<10
02/22/16	1048	OCEAN	EN,VH 38,000	30	<10	<10
02/22/16	1056	OCEAN	EN,VH 39,000	10	<10	<10
02/22/16	1103	OCEAN	EN,VH 40,000	10	<10	<10
02/22/16	1137	OCEAN	EN,VH 41,000	41	10	<10
02/22/16	1148	OCEAN	EN,VH 42,000	31	20	<10
02/22/16	1154	OCEAN	EN,VH 43,000	41	20	<10
02/22/16	1210	OCEAN	EN,VH 44,000	<10	<10	10
02/22/16	1320	OCEAN	LAB BLANK	<10	<10	<10

Sampled by W. Able

Hotline: updated 2/22/16 (remove rain advisory)

website (advisory): updated 2/22/16 (remove rain advisory)
(data): 2/23/16

email LTD + PWA: 2/23/16

Beachwatch: 2/23/16

RUN ON: 03/01/16

WATER QUALITY RESULTS
FROM COLL DATE: 03/01/16
THRU COLL DATE: 03/01/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
03/01/16	0830	OCEAN	EN,VH 1,000	52	31	<10
03/01/16	****	OCEAN	EN,VH 4,000	NO	SAMPLE	COLLECTED
03/01/16	0917	OCEAN	EN,VH 7,000	20	10	<10
03/01/16	0928	OCEAN	EN,VH 10,000	<10	<10	<10
03/01/16	0940	OCEAN	EN,VH 11,000	<10	<10	<10
03/01/16	0952	OCEAN	EN,VH 13,000	<10	<10	<10
03/01/16	1004	OCEAN	EN,VH 14,000	<10	<10	<10
03/01/16	1020	OCEAN	EN,VH 19,000	10	10	<10
03/01/16	1036	OCEAN	EN,VH 25,000	10	<10	<10
03/01/16	1110	OCEAN	EN,VH 35,000	10	<10	<10
03/01/16	1121	OCEAN	EN,VH 36,000	31	10	<10
03/01/16	1128	OCEAN	EN,VH 37,000	31	10	<10
03/01/16	1132	OCEAN	EN,VH 38,000	10	<10	<10
03/01/16	1138	OCEAN	EN,VH 39,000	30	<10	<10
03/01/16	1145	OCEAN	EN,VH 40,000	10	<10	<10
03/01/16	1225	OCEAN	EN,VH 41,000	<10	<10	<10
03/01/16	1230	OCEAN	EN,VH 42,000	<10	<10	<10
03/01/16	1236	OCEAN	EN,VH 43,000	<10	<10	<10
03/01/16	1250	OCEAN	EN,VH 44,000	<10	<10	<10
03/01/16	1300	OCEAN	LAB BLANK	<10	<10	<10

Sampled by WWH

Down off on march 2/24, so sampled 3/1/16

Hotline: 3/2/16

Website (data & advisory): 3/3 (get ¹¹¹¹ results too late)

email HQ + HWA 3/3/16

Beachwatch (data): 3/3/16

RUN ON: 03/07/16

WATER QUALITY RESULTS
FROM COLL DATE: 03/07/16
THRU COLL DATE: 03/07/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
03/07/16	0845	OCEAN	EN,VH 1,000	>24,196	1,860	>2,005
03/07/16	****	OCEAN	EN,VH 4,000	NO	SAMPLE	COLLECTED
03/07/16	0930	OCEAN	EN,VH 7,000	>24,196	860	1,445
03/07/16	0940	OCEAN	EN,VH 10,000	3,255	31	124
03/07/16	0950	OCEAN	EN,VH 11,000	1,565	41	42
03/07/16	1008	OCEAN	EN,VH 13,000	>24,196	3,300	>2,005
03/07/16	1015	OCEAN	EN,VH 14,000	>24,196	1,137	1,184
03/07/16	1030	OCEAN	EN,VH 19,000	>24,196	1,918	>2,005
03/07/16	1048	OCEAN	EN,VH 25,000	3,654	85	137
03/07/16	1115	OCEAN	EN,VH 35,000	52	10	10
03/07/16	1123	OCEAN	EN,VH 36,000	10,462	134	453
03/07/16	1127	OCEAN	EN,VH 37,000	6,488	331	1,184
03/07/16	1133	OCEAN	EN,VH 38,000	199	31	<10
03/07/16	1140	OCEAN	EN,VH 39,000	529	10	31
03/07/16	1146	OCEAN	EN,VH 40,000	816	20	31
03/07/16	1214	OCEAN	EN,VH 41,000	108	<10	31
03/07/16	1220	OCEAN	EN,VH 42,000	>24,196	1,670	>2,005
03/07/16	****	OCEAN	EN,VH 43,000	NO	SAMPLE	COLLECTED
03/07/16	1240	OCEAN	EN,VH 44,000	>24,196	121	222
03/07/16	1330	OCEAN	LAB BLANK	<10	<10	<10

Sampled by Wabel

Postings: 3/8/16 see attached

website (data): 3/8/16

website (advisory): 3/8/16

website (log): 3/9/16 (open), (close)

hotline: 3/8/16

email HD + PWA:

Beachwatch (data): 3/9/16

Beachwatch (rain advisory): 3/9/16 (open), (close)

Beachwatch (beach advisory): 3/9/16 (open), (close)

press release (rain): 3/7/16

RUN ON: 03/14/16

WATER QUALITY RESULTS
FROM COLL DATE: 03/14/16
THRU COLL DATE: 03/14/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
03/14/16	0836	OCEAN	EN,VH 1,000	98	<10	10
03/14/16	****	OCEAN	EN,VH 4,000	NO	SAMPLE	COLLECTED
03/14/16	0922	OCEAN	EN,VH 7,000	30	<10	<10
03/14/16	0935	OCEAN	EN,VH 10,000	41	<10	<10
03/14/16	0946	OCEAN	EN,VH 11,000	52	<10	<10
03/14/16	1006	OCEAN	EN,VH 13,000	185	20	<10
03/14/16	1024	OCEAN	EN,VH 14,000	171	10	<10
03/14/16	1042	OCEAN	EN,VH 19,000	187	10	99
03/14/16	1102	OCEAN	EN,VH 25,000	85	10	<10
03/14/16	1130	OCEAN	EN,VH 35,000	85	10	<10
03/14/16	1140	OCEAN	EN,VH 36,000	259	<10	64
03/14/16	1145	OCEAN	EN,VH 37,000	31	10	64
03/14/16	1148	OCEAN	EN,VH 38,000	31	10	<10
03/14/16	1154	OCEAN	EN,VH 39,000	327	<10	<10
03/14/16	1200	OCEAN	EN,VH 40,000	52	<10	<10
03/14/16	1232	OCEAN	EN,VH 41,000	20	<10	<10
03/14/16	1240	OCEAN	EN,VH 42,000	10	<10	<10
03/14/16	****	OCEAN	EN,VH 43,000	NO	SAMPLE	COLLECTED
03/14/16	1258	OCEAN	EN,VH 44,000	2,359	<10	<10
03/14/16	1320	OCEAN	LAB BLANK	<10	<10	<10

Sampled by Wahl

website (data + advisory) : 3/15/16

hotline : 3/15/16

email HTS & RST :

Beachwatcher:(data) : 3/16/16

RUN ON: 03/21/16

WATER QUALITY RESULTS
FROM COLL DATE: 03/21/16
THRU COLL DATE: 03/21/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
03/21/16	0825	OCEAN	EN,VH 1,000	10	10	<10
03/21/16	****	OCEAN	EN,VH 4,000	NO	SAMPLE	COLLECTED
03/21/16	0930	OCEAN	EN,VH 7,000	20	<10	<10
03/21/16	0919	OCEAN	EN,VH 10,000	<10	<10	<10
03/21/16	0906	OCEAN	EN,VH 11,000	63	10	<10
03/21/16	0947	OCEAN	EN,VH 13,000	62	<10	<10
03/21/16	0956	OCEAN	EN,VH 14,000	199	10	<10
03/21/16	1008	OCEAN	EN,VH 19,000	31	<10	<10
03/21/16	****	OCEAN	EN,VH 25,000	NO	SAMPLE	COLLECTED
03/21/16	1038	OCEAN	EN,VH 35,000	<10	<10	20
03/21/16	1052	OCEAN	EN,VH 36,000	75	31	10
03/21/16	1101	OCEAN	EN,VH 37,000	156	<10	20
03/21/16	1105	OCEAN	EN,VH 38,000	<10	<10	<10
03/21/16	1110	OCEAN	EN,VH 39,000	20	<10	<10
03/21/16	1116	OCEAN	EN,VH 40,000	10	<10	<10
03/21/16	1152	OCEAN	EN,VH 41,000	20	<10	<10
03/21/16	1201	OCEAN	EN,VH 42,000	41	20	<10
03/21/16	1227	OCEAN	EN,VH 43,000	10	10	<10
03/21/16	1215	OCEAN	EN,VH 44,000	<10	<10	<10
03/21/16	1300	OCEAN	LAB BLANK	<10	<10	<10

Sampled by Welch / Guarnero

website: 3/22/16

hotline: 3/22/16

email HD + PWA: 3/22/16

Bechwatich:

RUN ON: 03/28/16

WATER QUALITY RESULTS
FROM COLL DATE: 03/28/16
THRU COLL DATE: 03/28/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
03/28/16	0845	OCEAN	EN,VH 1,000	10	<10	<10
03/28/16	****	OCEAN	EN,VH 4,000	NO	SAMPLE	COLLECTED
03/28/16	0908	OCEAN	EN,VH 7,000	<10	<10	<10
03/28/16	0921	OCEAN	EN,VH 10,000	10	10	<10
03/28/16	0930	OCEAN	EN,VH 11,000	10	<10	<10
03/28/16	0943	OCEAN	EN,VH 13,000	41	<10	<10
03/28/16	0953	OCEAN	EN,VH 14,000	10	<10	<10
03/28/16	1003	OCEAN	EN,VH 19,000	52	20	<10
03/28/16	1015	OCEAN	EN,VH 25,000	5,172	<10	<10
03/28/16	1041	OCEAN	EN,VH 35,000	2,481	<10	<10
03/28/16	1100	OCEAN	EN,VH 36,000	2,613	2,014	<10
03/28/16	1102	OCEAN	EN,VH 37,000	134	<10	31
03/28/16	1106	OCEAN	EN,VH 38,000	880	<10	<10
03/28/16	1111	OCEAN	EN,VH 39,000	816	<10	<10
03/28/16	1148	OCEAN	EN,VH 40,000	388	<10	<10
03/28/16	1217	OCEAN	EN,VH 41,000	160	63	<10
03/28/16	1223	OCEAN	EN,VH 42,000	62	30	<10
03/28/16	1227	OCEAN	EN,VH 43,000	<10	<10	<10
03/28/16	1247	OCEAN	EN,VH 44,000	31	<10	<10
03/28/16	1300	OCEAN	LAB BLANK	<10	<10	<10

Sampled by: [unclear]

Website; (advisory): 3/29/16
(data): 3/29/16

Hotline: 3/28/16

Email HD + PWA:

Beachwater (data):
(advisory):

posted 36000/Hobie: 3/29/16 - one post at boat launch

RUN ON: 04/05/16

**WATER QUALITY RESULTS
FROM COLL DATE: 04/05/16
THRU COLL DATE: 04/05/16
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
04/05/16	0812	OCEAN	EN,VH 29,000	703	<10	<10
04/05/16	0820	OCEAN	EN,VH 30,000	448	<10	42
04/05/16	0835	OCEAN	EN,VH 32,000	173	20	<10
04/05/16	0841	OCEAN	EN,VH 33,000	158	<10	<10
04/05/16	0855	OCEAN	EN,VH 34,000	173	<10	<10
04/05/16	0904	OCEAN	EN,VH 35,000	131	10	<10
04/05/16	0915	OCEAN	EN,VH 36,000	20	<10	20
04/05/16	0918	OCEAN	EN,VH 37,000	98	41	<10
04/05/16	0924	OCEAN	EN,VH 38,000	30	<10	<10
04/05/16	0931	OCEAN	EN,VH 39,000	41	<10	<10
04/05/16	0938	OCEAN	EN,VH 40,000	41	<10	<10
04/05/16	1001	OCEAN	EN,VH 41,000	10	<10	<10
04/05/16	1015	OCEAN	EN,VH 42,000	<10	<10	<10
04/05/16	1023	OCEAN	EN,VH 43,000	<10	<10	<10
04/05/16	1049	OCEAN	EN,VH 44,000	10	<10	<10
04/05/16	1112	OCEAN	EN,VH 45,000	<10	<10	<10
04/05/16	1122	OCEAN	EN,VH 46,000	<10	<10	<10
04/05/16	1132	OCEAN	EN,VH 47,000	<10	<10	<10
04/05/16	1143	OCEAN	EN,VH 49,500	<10	<10	<10
04/05/16	1152	OCEAN	EN,VH 50,000	<10	<10	<10
04/05/16	1320	OCEAN	LAB BLANK	<10	<10	<10
Sampled by Wehe / Tordisian						
website (advisory + data): 4/6/16						
email + D + PWA: 4/6/16						
Beachwatch:						
hotline: 4/6/16						
pull Hoist/36000 advisory: 4/6/16 + close advisory in Beachwatch						

RUN ON: 05/10/16

**WATER QUALITY RESULTS
FROM COLL DATE: 05/10/16
THRU COLL DATE: 05/10/16
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
05/10/16	0900	OCEAN	EN,VH 29,000	10	10	<10
05/10/16	0903	OCEAN	EN,VH 30,000	<10	<10	<10
05/10/16	0915	OCEAN	EN,VH 32,000	10	<10	<10
05/10/16	0920	OCEAN	EN,VH 33,000	<10	<10	<10
05/10/16	0927	OCEAN	EN,VH 34,000	<10	<10	<10
05/10/16	0934	OCEAN	EN,VH 35,000	10	<10	<10
05/10/16	0950	OCEAN	EN,VH 36,000	63	10	64
05/10/16	0955	OCEAN	EN,VH 37,000	52	20	10
05/10/16	1000	OCEAN	EN,VH 38,000	41	<10	<10
05/10/16	1006	OCEAN	EN,VH 39,000	<10	<10	<10
05/10/16	1012	OCEAN	EN,VH 40,000	<10	<10	<10
05/10/16	1035	OCEAN	EN,VH 41,000	<10	<10	<10
05/10/16	1041	OCEAN	EN,VH 42,000	10	<10	<10
05/10/16	1047	OCEAN	EN,VH 43,000	10	<10	10
05/10/16	1118	OCEAN	EN,VH 44,000	<10	<10	<10
05/10/16	1152	OCEAN	EN,VH 45,000	<10	<10	<10
05/10/16	1202	OCEAN	EN,VH 46,000	<10	<10	<10
05/10/16	1208	OCEAN	EN,VH 47,000	<10	<10	<10
05/10/16	1217	OCEAN	EN,VH 49,500	<10	<10	<10
05/10/16	1230	OCEAN	EN,VH 50,000	<10	<10	<10
05/10/16	1300	OCEAN	LAB BLANK	<10	<10	<10
	Sampled by Lustig/Wahle					
	Website: no access, done by allen Brown 5/11/16					
	hotline: 5/11/16					
	email HD + PWA: 5/13/16					
	Beach Watch: 5/13/16					

RUN ON: 05/17/16

**WATER QUALITY RESULTS
FROM COLL DATE: 05/17/16
THRU COLL DATE: 05/17/16
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
05/17/16	1055	OCEAN	EN,VH 29,000	12,997	<10	<10
05/17/16	1105	OCEAN	EN,VH 30,000	5,172	<10	<10
05/17/16	1112	OCEAN	EN,VH 32,000	355	<10	<10
05/17/16	1128	OCEAN	EN,VH 33,000	520	<10	<10
05/17/16	1135	OCEAN	EN,VH 34,000	175	<10	<10
05/17/16	1142	OCEAN	EN,VH 35,000	233	<10	<10
05/17/16	1008	OCEAN	EN,VH 36,000	52	10	<10
05/17/16	1012	OCEAN	EN,VH 37,000	31	10	10
05/17/16	1019	OCEAN	EN,VH 38,000	121	<10	<10
05/17/16	1026	OCEAN	EN,VH 39,000	20	<10	<10
05/17/16	1035	OCEAN	EN,VH 40,000	10	<10	<10
05/17/16	0928	OCEAN	EN,VH 41,000	<10	<10	<10
05/17/16	0942	OCEAN	EN,VH 42,000	20	<10	<10
05/17/16	0947	OCEAN	EN,VH 43,000	<10	<10	<10
05/17/16	0910	OCEAN	EN,VH 44,000	10	<10	<10
05/17/16	0758	OCEAN	EN,VH 45,000	<10	<10	<10
05/17/16	0809	OCEAN	EN,VH 46,000	20	<10	<10
05/17/16	0817	OCEAN	EN,VH 47,000	10	<10	<10
05/17/16	0825	OCEAN	EN,VH 49,500	10	10	<10
05/17/16	0830	OCEAN	EN,VH 50,000	10	10	<10
05/17/16	1300	OCEAN	LAB BLANK	<10	<10	<10
Sampled by Otten						
Resample + post 29000: 5/18/16						
Website (data, advisory, log): 5/18/16						
email HD + PWA:						
Hotline: 5/18/16 pm						
Beachwatch (data + advisory): 5/23/16						

RUN ON: 07/05/16

WATER QUALITY RESULTS
FROM COLL DATE: 07/05/16
THRU COLL DATE: 07/05/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100ml	ENTERO MPN/100 ml
07/05/16	0845	OCEAN	EN,VH 1,000	10	<10	<10
07/05/16	0912	OCEAN	EN,VH 4,000	10	<10	<10
07/05/16	0922	OCEAN	EN,VH 7,000	<10	<10	<10
07/05/16	0942	OCEAN	EN,VH 10,000	383	121	10
07/05/16	1000	OCEAN	EN,VH 11,000	10	<10	<10
07/05/16	1010	OCEAN	EN,VH 13,000	287	20	64
07/05/16	1018	OCEAN	EN,VH 14,000	63	10	<10
07/05/16	1035	OCEAN	EN,VH 19,000	<10	<10	20
07/05/16	1054	OCEAN	EN,VH 25,000	20	10	<10
07/05/16	1120	OCEAN	EN,VH 35,000	20	10	<10
07/05/16	1132	OCEAN	EN,VH 36,000	10	<10	<10
07/05/16	1135	OCEAN	EN,VH 37,000	201	41	<10
07/05/16	1153	OCEAN	EN,VH 38,000	31	10	<10
07/05/16	1200	OCEAN	EN,VH 39,000	10	<10	<10
07/05/16	1205	OCEAN	EN,VH 40,000	<10	<10	<10
07/05/16	1230	OCEAN	EN,VH 41,000	10	<10	<10
07/05/16	1235	OCEAN	EN,VH 42,000	<10	<10	<10
07/05/16	1240	OCEAN	EN,VH 43,000	<10	<10	<10
07/05/16	1258	OCEAN	EN,VH 44,000	<10	<10	<10
07/05/16	1330	OCEAN	LAB BLANK	<10	<10	<10

Sampled by Wahl - Holiday Schedule

Website: 7/6/16

Beachwatch: 7/6/16

Hotline: 7/6/16

email HD + PWA:

RUN ON: 07/12/16

WATER QUALITY RESULTS
FROM COLL DATE: 07/12/16
THRU COLL DATE: 07/12/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
07/12/16	1232	OCEAN	EN,VH 29,000	<10	<10	<10
07/12/16	1220	OCEAN	EN,VH 30,000	<10	<10	<10
07/12/16	1210	OCEAN	EN,VH 32,000	<10	<10	<10
07/12/16	1205	OCEAN	EN,VH 33,000	52	31	<10
07/12/16	1158	OCEAN	EN,VH 34,000	<10	<10	<10
07/12/16	1152	OCEAN	EN,VH 35,000	134	<10	<10
07/12/16	1115	OCEAN	EN,VH 36,000	41	<10	<10
07/12/16	1120	OCEAN	EN,VH 37,000	10	10	10
07/12/16	1125	OCEAN	EN,VH 38,000	10	<10	<10
07/12/16	1132	OCEAN	EN,VH 39,000	20	10	<10
07/12/16	1138	OCEAN	EN,VH 40,000	<10	<10	<10
07/12/16	1140	OCEAN	EN,VH 41,000	<10	<10	<10
07/12/16	1046	OCEAN	EN,VH 42,000	<10	<10	<10
07/12/16	1055	OCEAN	EN,VH 43,000	98	98	<10
07/12/16	1010	OCEAN	EN,VH 44,000	<10	<10	<10
07/12/16	0850	OCEAN	EN,VH 45,000	<10	<10	<10
07/12/16	0900	OCEAN	EN,VH 46,000	<10	<10	<10
07/12/16	0909	OCEAN	EN,VH 47,000	<10	<10	<10
07/12/16	0917	OCEAN	EN,VH 49,500	20	<10	<10
07/12/16	0927	OCEAN	EN,VH 50,000	10	<10	<10
07/12/16	1300	OCEAN	LAB BLANK	<10	<10	<10
Sampled by Wahl						
website (data + advisory): 7/13/16						
email PWA + HD: 7/13/16						
Hotline:						

Beachwatch: 7/13/16

RUN ON: 07/19/16

WATER QUALITY RESULTS
FROM COLL DATE: 07/19/16
THRU COLL DATE: 07/19/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
07/19/16	1230	OCEAN	EN,VH 29,000	10	<10	10
07/19/16	1214	OCEAN	EN,VH 30,000	<10	<10	10
07/19/16	1205	OCEAN	EN,VH 32,000	<10	<10	<10
07/19/16	1201	OCEAN	EN,VH 33,000	20	10	10
07/19/16	1152	OCEAN	EN,VH 34,000	<10	<10	<10
07/19/16	1142	OCEAN	EN,VH 35,000	<10	<10	10
07/19/16	1103	OCEAN	EN,VH 36,000	10	<10	10
07/19/16	1107	OCEAN	EN,VH 37,000	52	10	<10
07/19/16	1212	OCEAN	EN,VH 38,000	<10	<10	<10
07/19/16	1119	OCEAN	EN,VH 39,000	<10	<10	<10
07/19/16	1124	OCEAN	EN,VH 40,000	<10	<10	<10
07/19/16	1024	OCEAN	EN,VH 41,000	10	<10	<10
07/19/16	1030	OCEAN	EN,VH 42,000	51	20	<10
07/19/16	1036	OCEAN	EN,VH 43,000	20	<10	<10
07/19/16	1006	OCEAN	EN,VH 44,000	<10	<10	<10
07/19/16	0845	OCEAN	EN,VH 45,000	96	10	<10
07/19/16	0856	OCEAN	EN,VH 46,000	10	<10	<10
07/19/16	0905	OCEAN	EN,VH 47,000	63	<10	<10
07/19/16	0910	OCEAN	EN,VH 49,500	31	<10	<10
07/19/16	0922	OCEAN	EN,VH 50,000	10	<10	<10
07/19/16	1300	OCEAN	LAB BLANK	<10	<10	<10
<i>Sampled by Wabbe</i>						
<i>Wabbe 7/20/16</i>						
<i>Wabbe 7/20/16</i>						
<i>Wabbe 7/20/16</i>						
<i>Amal PD + HCA 7/20/16</i>						

RUN ON: 08/16/16

**WATER QUALITY RESULTS
FROM COLL DATE: 08/16/16
THRU COLL DATE: 08/16/16
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
08/16/16	1220	OCEAN	EN,VH 29,000	>24,196	10	<10
08/16/16	1212	OCEAN	EN,VH 30,000	>24,196	<10	<10
08/16/16	1204	OCEAN	EN,VH 32,000	>24,196	20	<10
08/16/16	1200	OCEAN	EN,VH 33,000	>24,196	<10	<10
08/16/16	1147	OCEAN	EN,VH 34,000	>24,196	20	<10
08/16/16	1142	OCEAN	EN,VH 35,000	>24,196	<10	<10
08/16/16	1103	OCEAN	EN,VH 36,000	1,039	<10	<10
08/16/16	1107	OCEAN	EN,VH 37,000	425	31	<10
08/16/16	1114	OCEAN	EN,VH 38,000	2,359	<10	<10
08/16/16	1120	OCEAN	EN,VH 39,000	2,187	<10	<10
08/16/16	1126	OCEAN	EN,VH 40,000	3,282	<10	<10
08/16/16	1128	OCEAN	EN,VH 41,000	30	<10	<10
08/16/16	1032	OCEAN	EN,VH 42,000	20	10	<10
08/16/16	1040	OCEAN	EN,VH 43,000	<10	<10	<10
08/16/16	1008	OCEAN	EN,VH 44,000	10	<10	<10
08/16/16	0847	OCEAN	EN,VH 45,000	169	10	<10
08/16/16	0855	OCEAN	EN,VH 46,000	51	31	<10
08/16/16	0904	OCEAN	EN,VH 47,000	41	<10	<10
08/16/16	0916	OCEAN	EN,VH 49,500	20	20	<10
08/16/16	0926	OCEAN	EN,VH 50,000	73	<10	<10
08/16/16	1320	OCEAN	LAB BLANK	<10	<10	<10
Sampled by Walsh						
Website (data + list of failures): 8/17/16						
Website (advisories): 8/18/16						
hotline: 8/17/16						
posting: 8/17/16						
Beachwatch (data): 8/19/16 Beachwatch (advisories): 8/19/16						
email: HD + PWA: 8/18/16 source for failures						

Remove Posts: 8/18/16

presumed to be a failure of sand berm @ Santa Clara River

RUN ON: 08/23/16

**WATER QUALITY RESULTS
FROM COLL DATE: 08/23/16
THRU COLL DATE: 08/23/16
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
08/23/16	1228	OCEAN	EN,VH 29,000	10	<10	<10
08/23/16	1220	OCEAN	EN,VH 30,000	<10	<10	<10
08/23/16	1210	OCEAN	EN,VH 32,000	31	<10	<10
08/23/16	1205	OCEAN	EN,VH 33,000	10	<10	<10
08/23/16	1152	OCEAN	EN,VH 34,000	10	<10	<10
08/23/16	1140	OCEAN	EN,VH 35,000	20	<10	<10
08/23/16	1100	OCEAN	EN,VH 36,000	52	20	<10
08/23/16	1108	OCEAN	EN,VH 37,000	51	<10	<10
08/23/16	1113	OCEAN	EN,VH 38,000	<10	<10	<10
08/23/16	1119	OCEAN	EN,VH 39,000	<10	<10	<10
08/23/16	1124	OCEAN	EN,VH 40,000	10	<10	<10
08/23/16	1013	OCEAN	EN,VH 41,000	20	<10	<10
08/23/16	1020	OCEAN	EN,VH 42,000	<10	<10	<10
08/23/16	1028	OCEAN	EN,VH 43,000	<10	<10	<10
08/23/16	0957	OCEAN	EN,VH 44,000	<10	<10	<10
08/23/16	0936	OCEAN	EN,VH 45,000	10	10	<10
08/23/16	0930	OCEAN	EN,VH 46,000	10	10	<10
08/23/16	0913	OCEAN	EN,VH 47,000	<10	<10	<10
08/23/16	0904	OCEAN	EN,VH 49,500	31	<10	<10
08/23/16	0856	OCEAN	EN,VH 50,000	20	<10	<10
08/23/16	1320	OCEAN	LAB BLANK	<10	<10	<10
Sampled by WHH						
Hotline: 8/24/16						
Website: 8/24/16						
email HD + PWA: 8/24/16						
Beach Watch:						

RUN ON: 08/29/16

WATER QUALITY RESULTS
FROM COLL DATE: 08/29/16
THRU COLL DATE: 08/29/16
LOCATION: ENVH, ENVH

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
08/29/16	1250	OCEAN	EN,VH 29,000	<10	<10	<10
08/29/16	1240	OCEAN	EN,VH 30,000	<10	<10	<10
08/29/16	1230	OCEAN	EN,VH 32,000	20	<10	<10
08/29/16	1222	OCEAN	EN,VH 33,000	<10	<10	<10
08/29/16	1214	OCEAN	EN,VH 34,000	<10	<10	<10
08/29/16	1206	OCEAN	EN,VH 35,000	<10	<10	<10
08/29/16	1056	OCEAN	EN,VH 36,000	86	<10	<10
08/29/16	1100	OCEAN	EN,VH 37,000	118	10	<10
08/29/16	1104	OCEAN	EN,VH 38,000	<10	<10	<10
08/29/16	1122	OCEAN	EN,VH 39,000	<10	<10	<10
08/29/16	1150	OCEAN	EN,VH 40,000	20	10	<10
08/29/16	1012	OCEAN	EN,VH 41,000	10	<10	<10
08/29/16	1018	OCEAN	EN,VH 42,000	10	<10	<10
08/29/16	1026	OCEAN	EN,VH 43,000	<10	<10	<10
08/29/16	0948	OCEAN	EN,VH 44,000	41	10	<10
08/29/16	0926	OCEAN	EN,VH 45,000	10	<10	<10
08/29/16	0918	OCEAN	EN,VH 46,000	10	<10	20
08/29/16	0910	OCEAN	EN,VH 47,000	10	<10	<10
08/29/16	0902	OCEAN	EN,VH 49,500	31	<10	<10
08/29/16	0852	OCEAN	EN,VH 50,000	10	<10	<10
08/29/16	1300	OCEAN	LAB BLANK	<10	<10	<10
Sampled by Wehle						
Website (advisory + data): 8/31/16						
Beschreiben: 8/31/16						
emx:1 HD + PVA: 9/1/16						
Hotline: 8/31/16						

RUN ON: 09/06/16

**WATER QUALITY RESULTS
FROM COLL DATE: 09/06/16
THRU COLL DATE: 09/06/16
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
09/06/16	0904	OCEAN	ENVH 1000	<10	<10	<10
09/06/16	0930	OCEAN	ENVH 4000	<10	<10	<10
09/06/16	0944	OCEAN	ENVH 7000	10	10	<10
09/06/16	0953	OCEAN	ENVH 10000	10	<10	<10
09/06/16	1003	OCEAN	ENVH 11000	20	10	<10
09/06/16	1014	OCEAN	ENVH 13000	98	<10	<10
09/06/16	1026	OCEAN	ENVH 14000	41	<10	<10
09/06/16	1036	OCEAN	ENVH 19000	86	10	<10
09/06/16	1052	OCEAN	ENVH 25000	8,664	20	<10
09/06/16	1109	OCEAN	ENVH 35000	<10	<10	<10
09/06/16	1118	OCEAN	ENVH 36000	20	20	<10
09/06/16	1122	OCEAN	ENVH 37000	1,090	189	99
09/06/16	1126	OCEAN	ENVH 38000	<10	<10	<10
09/06/16	1136	OCEAN	ENVH 39000	10	<10	<10
09/06/16	1144	OCEAN	ENVH 40000	<10	<10	<10
09/06/16	1225	OCEAN	ENVH 41000	<10	<10	10
09/06/16	1231	OCEAN	ENVH 42000	10	10	42
09/06/16	1236	OCEAN	ENVH 43000	<10	<10	<10
09/06/16	1303	OCEAN	ENVH 44000	<10	<10	10
09/06/16	1300	OCEAN	LAB BLANK	<10	<10	<10

Sampled by WJchl

website (log): 9/7/16

website (data + advisory): 9/7/16

hotline: 9/7/16

Beach Watch (data + advisory): 9/8/16

posted: 9/7/16 (2 signs)

Removed posts:

email HD + PWA: 9/8/16

RUN ON: 10/10/16

**WATER QUALITY RESULTS
FROM COLL DATE: 10/10/16
THRU COLL DATE: 10/10/16
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
10/10/16	1233	OCEAN	EN,VH 29,000	<10	<10	<10
10/10/16	1223	OCEAN	EN,VH 30,000	10	10	<10
10/10/16	1212	OCEAN	EN,VH 32,000	<10	<10	<10
10/10/16	1208	OCEAN	EN,VH 33,000	<10	<10	<10
10/10/16	1158	OCEAN	EN,VH 34,000	10	<10	<10
10/10/16	1150	OCEAN	EN,VH 35,000	10	10	<10
10/10/16	1106	OCEAN	EN,VH 36,000	<10	<10	<10
10/10/16	1110	OCEAN	EN,VH 37,000	399	108	<10
10/10/16	1115	OCEAN	EN,VH 38,000	10	<10	<10
10/10/16	1120	OCEAN	EN,VH 39,000	<10	<10	<10
10/10/16	1134	OCEAN	EN,VH 40,000	<10	<10	<10
10/10/16	1025	OCEAN	EN,VH 41,000	<10	<10	<10
10/10/16	1028	OCEAN	EN,VH 42,000	<10	<10	<10
10/10/16	1036	OCEAN	EN,VH 43,000	<10	<10	<10
10/10/16	0956	OCEAN	EN,VH 44,000	10	10	<10
10/10/16	0836	OCEAN	EN,VH 45,000	<10	<10	<10
10/10/16	0844	OCEAN	EN,VH 46,000	<10	<10	<10
10/10/16	0852	OCEAN	EN,VH 47,000	10	10	10
10/10/16	0904	OCEAN	EN,VH 49,500	30	<10	<10
10/10/16	0916	OCEAN	EN,VH 50,000	10	<10	<10
10/10/16	1310	OCEAN	LAB BLANK	<10	<10	<10
<i>Sampled by Wahr</i>						
<i>hotline:</i>						
<i>website (advisory + data): 10/12/16</i>						
<i>email HD + PWA:</i>						
<i>Beachwatch (data): 10/12/16</i>						

RUN ON: 10/17/16

**WATER QUALITY RESULTS
FROM COLL DATE: 10/17/16
THRU COLL DATE: 10/17/16
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
10/17/16	1242	OCEAN	EN,VH 29,000	10	10	<10
10/17/16	1238	OCEAN	EN,VH 30,000	31	10	<10
10/17/16	1228	OCEAN	EN,VH 32,000	41	10	<10
10/17/16	1222	OCEAN	EN,VH 33,000	41	20	10
10/17/16	1212	OCEAN	EN,VH 34,000	31	<10	10
10/17/16	1205	OCEAN	EN,VH 35,000	52	<10	20
10/17/16	1128	OCEAN	EN,VH 36,000	31	<10	10
10/17/16	1132	OCEAN	EN,VH 37,000	529	52	20
10/17/16	1135	OCEAN	EN,VH 38,000	171	10	10
10/17/16	1141	OCEAN	EN,VH 39,000	10	<10	10
10/17/16	1146	OCEAN	EN,VH 40,000	10	<10	10
10/17/16	1044	OCEAN	EN,VH 41,000	1,012	233	31
10/17/16	1048	OCEAN	EN,VH 42,000	350	41	20
10/17/16	1057	OCEAN	EN,VH 43,000	307	41	53
10/17/16	1018	OCEAN	EN,VH 44,000	10	<10	<10
10/17/16	0955	OCEAN	EN,VH 45,000	122	<10	<10
10/17/16	0945	OCEAN	EN,VH 46,000	20	<10	<10
10/17/16	0935	OCEAN	EN,VH 47,000	20	<10	<10
10/17/16	0925	OCEAN	EN,VH 49,500	<10	<10	10
10/17/16	0916	OCEAN	EN,VH 50,000	85	20	31
10/17/16	1320	OCEAN	LAB BLANK	<10	<10	<10

Ratio 1,012 233

Sampled by *Wahl*
 pulled *5/2/16*
 website (Advison + data): *10/19/16*
 website (log): *10/18/16*
 email + ID + PWA: *10/20/16*
 Beach Watcher (advison + sign):
 hotline: *10/19/16* *resample + posted 4100 - one sign @ simple location + one at front of pier: 10/18/16*

RUN ON: 10/24/16

**WATER QUALITY RESULTS
FROM COLL DATE: 10/25/16
THRU COLL DATE: 10/25/16
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
10/24/16	1320	OCEAN	EN,VH 29,000	<10	<10	<10
10/24/16	1312	OCEAN	EN,VH 30,000	<10	<10	<10
10/24/16	1300	OCEAN	EN,VH 32,000	<10	<10	<10
10/24/16	1255	OCEAN	EN,VH 33,000	10	<10	<10
10/24/16	1240	OCEAN	EN,VH 34,000	<10	<10	<10
10/24/16	1231	OCEAN	EN,VH 35,000	97	<10	<10
10/24/16	1144	OCEAN	EN,VH 36,000	10	<10	<10
10/24/16	1149	OCEAN	EN,VH 37,000	20	<10	<10
10/24/16	1158	OCEAN	EN,VH 38,000	20	10	<10
10/24/16	1205	OCEAN	EN,VH 39,000	<10	<10	<10
10/24/16	1210	OCEAN	EN,VH 40,000	10	<10	<10
10/24/16	1053	OCEAN	EN,VH 41,000	<10	<10	<10
10/24/16	1100	OCEAN	EN,VH 42,000	20	<10	<10
10/24/16	1108	OCEAN	EN,VH 43,000	<10	<10	<10
10/24/16	1032	OCEAN	EN,VH 44,000	31	10	<10
10/24/16	1010	OCEAN	EN,VH 45,000	<10	<10	<10
10/24/16	0956	OCEAN	EN,VH 46,000	20	<10	<10
10/24/16	0940	OCEAN	EN,VH 47,000	<10	<10	<10
10/24/16	0928	OCEAN	EN,VH 49,500	31	<10	<10
10/24/16	0918	OCEAN	EN,VH 50,000	10	<10	<10
10/24/16	1300	OCEAN	LAB BLANK	<10	<10	<10
Sampled by L. Khl.						
website (advisory + date) : 10/26/16						
hotline:						
email HD+PWA : 10/26/16						
Beach Watch:						

RUN ON: 10/31/16

**WATER QUALITY RESULTS
FROM COLL DATE: 10/31/16
THRU COLL DATE: 10/31/16
LOCATION: ENVH, ENVH**

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
10/31/16	1233	OCEAN	EN,VH 29,000	443	<10	<10
10/31/16	1225	OCEAN	EN,VH 30,000	327	<10	<10
10/31/16	1211	OCEAN	EN,VH 32,000	311	<10	<10
10/31/16	1205	OCEAN	EN,VH 33,000	313	<10	10
10/31/16	1158	OCEAN	EN,VH 34,000	355	10	<10
10/31/16	1154	OCEAN	EN,VH 35,000	279	<10	<10
10/31/16	1112	OCEAN	EN,VH 36,000	265	31	<10
10/31/16	1118	OCEAN	EN,VH 37,000	<i>ratio</i> 2,500	441	124
10/31/16	1124	OCEAN	EN,VH 38,000	75	10	<10
10/31/16	1130	OCEAN	EN,VH 39,000	10	<10	<10
10/31/16	1136	OCEAN	EN,VH 40,000	<10	<10	<10
10/31/16	1034	OCEAN	EN,VH 41,000	<10	<10	10
10/31/16	1040	OCEAN	EN,VH 42,000	52	31	<10
10/31/16	1046	OCEAN	EN,VH 43,000	20	10	<10
10/31/16	1018	OCEAN	EN,VH 44,000	52	<10	10
10/31/16	0958	OCEAN	EN,VH 45,000	41	<10	<10
10/31/16	0940	OCEAN	EN,VH 46,000	41	<10	<10
10/31/16	0934	OCEAN	EN,VH 47,000	109	85	<10
10/31/16	0924	OCEAN	EN,VH 49,500	132	<10	<10
10/31/16	0912	OCEAN	EN,VH 50,000	52	<10	10
10/31/16	1300	OCEAN	LAB BLANK	<10	<10	<10
<i>Sampled by Wake/Dinh</i>						
<i>locksites (advisory): no change - rain advisory in effect</i>						
<i>(date) 11/2/16</i>						
<i>(flag) 11/1/16</i>						
<i>rain advisory: 10/29/16</i>						
<i>hotline: rain advisory in effect - no change yet for 27000</i>						

email HDP/PSA: 11/3/16

*Beachwatch (date): 11/3/16
(rain advisory): 11/3/16
(37000 advisory): 11/3/16*

Beach 37000 resampled + posted on 11/1/16

RUN ON: 11/07/16

WATER QUALITY RESULTS
FROM COLL DATE: 11/07/16
THRU COLL DATE: 11/07/16
LOCATION: ENVH, ENVH

**** HOLIDAY/WINTER COLLECTION ****

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
11/07/16	0903	OCEAN	ENVH 1000	10	<10	20
11/07/16	0936	OCEAN	ENVH 4000	<10	<10	<10
11/07/16	0945	OCEAN	ENVH 7000	<10	<10	<10
11/07/16	1000	OCEAN	ENVH 10000	20	<10	<10
11/07/16	1008	OCEAN	ENVH 11000	30	<10	<10
11/07/16	1023	OCEAN	ENVH 13000	20	<10	<10
11/07/16	1030	OCEAN	ENVH 14000	10	<10	20
11/07/16	1046	OCEAN	ENVH 19000	41	<10	<10
11/07/16	1109	OCEAN	ENVH 25000	10	<10	<10
11/07/16	1133	OCEAN	ENVH 35000	<10	<10	<10
11/07/16	1140	OCEAN	ENVH 36000	<10	<10	<10
11/07/16	1144	OCEAN	ENVH 37000	41	<10	10
11/07/16	1150	OCEAN	ENVH 38000	<10	<10	<10
11/07/16	1154	OCEAN	ENVH 39000	<10	<10	<10
11/07/16	1200	OCEAN	ENVH 40000	<10	<10	<10
11/07/16	1228	OCEAN	ENVH 41000	<10	<10	<10
11/07/16	1234	OCEAN	ENVH 42000	<10	<10	<10
11/07/16	1239	OCEAN	ENVH 43000	<10	<10	<10
11/07/16	1300	OCEAN	ENVH 44000	<10	<10	<10
11/07/16	1340	OCEAN	LAB BLANK	<10	<10	<10

Sampled by Wohl/Isheriz

website (advisory & data): 11/8/16

hotline: 11/8/16

email HD + PWA: 11/10/16

BeachWatch: 11/10/16

RUN ON: 11/14/16

**WATER QUALITY RESULTS
FROM COLL DATE: 11/14/16
THRU COLL DATE: 11/14/16
LOCATION: ENVH, ENVH**

**** HOLIDAY/WINTER COLLECTION ****

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
11/14/16	0910	OCEAN	ENVH 1000	504	63	31
11/14/16	0947	OCEAN	ENVH 4000	86	20	<10
11/14/16	0956	OCEAN	ENVH 7000	857	565	192
11/14/16	1004	OCEAN	ENVH 10000	221	20	87
11/14/16	1013	OCEAN	ENVH 11000	158	41	150
11/14/16	1028	OCEAN	ENVH 13000	63	10	<10
11/14/16	1043	OCEAN	ENVH 14000	31	20	10
11/14/16	1053	OCEAN	ENVH 19000	10	<10	<10
11/14/16	1107	OCEAN	ENVH 25000	31	31	<10
11/14/16	1128	OCEAN	ENVH 35000	<10	<10	<10
11/14/16	1142	OCEAN	ENVH 36000	<10	<10	10
11/14/16	1146	OCEAN	ENVH 37000	450	75	64
11/14/16	1151	OCEAN	ENVH 38000	41	<10	<10
11/14/16	1157	OCEAN	ENVH 39000	<10	<10	10
11/14/16	1203	OCEAN	ENVH 40000	<10	<10	<10
11/14/16	1230	OCEAN	ENVH 41000	74	31	10
11/14/16	1235	OCEAN	ENVH 42000	10	<10	<10
11/14/16	1241	OCEAN	ENVH 43000	10	<10	<10
11/14/16	1300	OCEAN	ENVH 44000	41	20	<10
11/14/16	1320	OCEAN	LAB BLANK	<10	<10	<10

RUN ON: 11/21/16

**WATER QUALITY RESULTS
FROM COLL DATE: 11/21/16
THRU COLL DATE: 11/21/16
LOCATION: ENVH, ENVH**

**** HOLIDAY/WINTER COLLECTION ****

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
11/21/16	0910	OCEAN	ENVH 1000	41	20	20
11/21/16	0950	OCEAN	ENVH 4000	10	10	<10
11/21/16	1000	OCEAN	ENVH 7000	<10	<10	<10
11/21/16	1020	OCEAN	ENVH 10000	146	63	42
11/21/16	1028	OCEAN	ENVH 11000	10	<10	<10
11/21/16	1043	OCEAN	ENVH 13000	169	52	64
11/21/16	1102	OCEAN	ENVH 14000	414	74	99
11/21/16	1100	OCEAN	ENVH 19000	20	20	20
11/21/16	1128	OCEAN	ENVH 25000	536	158	87
11/21/16	1145	OCEAN	ENVH 35000	20	<10	<10
11/21/16	1155	OCEAN	ENVH 36000	51	10	42
11/21/16	1200	OCEAN	ENVH 37000	72	30	31
11/21/16	1202	OCEAN	ENVH 38000	73	31	20
11/21/16	1208	OCEAN	ENVH 39000	20	<10	<10
11/21/16	1214	OCEAN	ENVH 40000	40	10	<10
11/21/16	1240	OCEAN	ENVH 41000	81	41	31
11/21/16	1245	OCEAN	ENVH 42000	128	62	53
11/21/16	1251	OCEAN	ENVH 43000	84	20	20
11/21/16	1307	OCEAN	ENVH 44000	84	20	31
11/21/16	1330	OCEAN	LAB BLANK	<10	<10	<10

RUN ON: 11/28/16

WATER QUALITY RESULTS
FROM COLL DATE: 11/28/16
THRU COLL DATE: 11/28/16
LOCATION: ENVH, ENVH

** HOLIDAY/WINTER COLLECTION **

Date	Time	Source	Specimen ID	T. COLI MPN/100 ml	E. COLI MPN/100 ml	ENTERO MPN/100 ml
11/28/16	0855	OCEAN	ENVH 1000	121	31	<10
11/28/16	0932	OCEAN	ENVH 4000	63	20	<10
11/28/16	0943	OCEAN	ENVH 7000	318	<10	<10
11/28/16	0950	OCEAN	ENVH 10000	404	<10	20
11/28/16	1000	OCEAN	ENVH 11000	63	20	10
11/28/16	1014	OCEAN	ENVH 13000	52	<10	10
11/28/16	1026	OCEAN	ENVH 14000	20	<10	<10
11/28/16	1035	OCEAN	ENVH 19000	1,421	52	42
11/28/16	1055	OCEAN	ENVH 25000	313	<10	<10
11/28/16	1113	OCEAN	ENVH 35000	216	<10	<10
11/28/16	1123	OCEAN	ENVH 36000	2,187	<10	<10
11/28/16	1127	OCEAN	ENVH 37000	1,789	10	20
11/28/16	1150	OCEAN	ENVH 38000	155	<10	<10
11/28/16	1145	OCEAN	ENVH 39000	195	<10	<10
11/28/16	1135	OCEAN	ENVH 40000	132	<10	<10
11/28/16	1210	OCEAN	ENVH 41000	110	63	<10
11/28/16	1216	OCEAN	ENVH 42000	63	10	<10
11/28/16	1221	OCEAN	ENVH 43000	86	<10	<10
11/28/16	1240	OCEAN	ENVH 44000	74	<10	10
11/28/16	1330	OCEAN	LAB BLANK	<10	<10	<10
Sampled by Welch 11/28/16						
rain press release: 11/28/16						
rain (advisory + hotline + log): 11/28/16						

website (data) 11/29/16

pull rain advisory + update website advisory: 11/30/16

close out rain (log): 11/30/16

hotline (no posting): 11/30/16

Beach watch (data and rain advisory): 11/30/16

email HD + PWA: 11/30/16



JANUARY 2017

Ventura River Estuary Trash TMDL 2015-2016 TMRP Annual Report

prepared by

VENTURA HILLSIDE CONSERVANCY

submitted to

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD,
LOS ANGELES REGION

submitted by

CITY OF VENTURA, COUNTY OF VENTURA, VENTURA COUNTY
WATERSHED PROTECTION DISTRICT, PARTICIPANTS IN THE VENTURA
COUNTY AGRICULTURAL IRRIGATED LANDS GROUP, CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE, CALIFORNIA DEPARTMENT
OF STATE PARKS, AND CALIFORNIA DEPARTMENT OF TRANSPORTATION



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Introduction

This Annual Report is being submitted to fulfill the compliance requirements of the Amendments to the Water Quality Control Plan – Los Angeles Region for the Ventura River Estuary Trash Total Maximum Daily Load (Trash TMDL), Resolution No. R4-2007-008 (effective March 6, 2008). The purpose of this report is to present the results of the monitoring efforts conducted in accordance with the Trash Monitoring Reporting Plan (TMRP) and Minimum Frequency Assessment Collection/Best Management Practice (MFAC/BMP) Program developed to meet the requirements of the Trash TMDL.

The initial TMRP, which was approved in 2009 by the California Regional Water Quality Control Board, Los Angeles Region (Regional Board), was revised in 2014 to more effectively target the disbandment of homeless encampments in the Ventura River Estuary (Estuary), which have been determined to be the primary source of trash in the TMDL compliance area. An Addendum No. 1 to the TMRP was submitted on April 30, 2014 and a revised Addendum was submitted on October 22, 2014 addressing comments from Regional Board staff. The TMRP and MFAC/BMP Program are designed to prioritize the use of resources to implement actions effective in reducing trash in the Estuary, while still providing a monitoring approach that will allow for an evaluation of the effectiveness of the MFAC/BMP Program and support identification of any needed adjustments to the MFAC/BMP Program. The responsible parties are still waiting for approval of the Addendum No. 1; however, Regional Board staff indicated the responsible parties should implement the revised TMRP program while awaiting approval.

In the responsible parties' TMRP revision request letter, dated October 9, 2013, the responsible parties stated additional time was needed to develop the details of the monitoring approach, particularly the most effective locations to implement the patrols and visual assessments. As such, the responsible parties proposed implementing an interim MFAC/BMP Program to begin in October 2014 while the responsible parties developed the revised MFAC/BMP Program and Regional Board staff reviewed and approved the revised MFAC/BMP Program. An interim MFAC/BMP Program was necessary to support development of some aspects of the monitoring approach, facilitate transition to a more effective clean-up and trash prevention program, and avoid the necessity of continuing to count pieces of trash while the responsible parties developed the detailed TMRP. The interim MFAC/BMP Program implemented by the responsible parties was as follows:

1. Conducted clean-up of all Estuary parcels within the TMDL compliance area by mid-November 2013 as the initial quarterly event.
2. Began initial patrols to determine the route(s) that will be used for visual assessments and identified the preferred routes by January 2014.
3. Formalized Memorandum of Agreement with Ventura Hillside Conservancy to organize and manage volunteer cleanup events and conduct trash monitoring activities.
4. Conducted regularly scheduled clean-up events in the Estuary beginning in March 2014, which were additional to the required collection events for the MFAC/BMP Program.

In addition, the responsible parties conducted several initial assessments in May and June 2014 and an initial collection event in May 2014 to test the applicability of the revised MFAC/BMP Program. The revised MFAC/BMP Program began in July 2014.

This Annual Report includes the following information from third-year monitoring conducted under the revised TMRP and MFAC/BMP Program:

- Monitoring Summary
- MFAC Events/BMP Implementation Summary
- MFAC/BMP Program Evaluation and Revision Recommendations

The efforts to implement the Trash TMDL are being completed on behalf of the responsible parties to the Trash TMDL as listed in **Table 1**. The efforts to implement the Trash TMDL requirements for nonpoint sources are focused within the Estuary and the parcels adjacent to the Estuary. **Table 2** presents the names of the parcels within the Estuary, which were grouped into four MFAC areas identified for the MFAC/BMP Program implementation. **Figure 1** shows the locations of the parcels within the Estuary. Per 2014 revised MFAC/BMP Program, the cleanup and monitoring efforts included the whole TMDL compliance area including areas that are not part of the eight parcels listed in **Table 2** and shown in **Figure 1** including the area under the Main Street Bridge, the area under the US 101 Bridge, and the area under the railroad bridge between MFAC Area 1 and MFAC Area 2. In addition, both County of Ventura and City of Ventura installed required full trash capture devices within their respective jurisdictions draining to the MS4 within the Trash TMDL Staff Report-defined Estuary Sub-watershed area.

Table 1. Responsible Parties Participating in the TMRP and MFAC/BMP Program

Responsible Party	Nonpoint Source (NPS)	Point Source (PS)
City of Ventura (City)	X	X
Ventura County (County)	X	X
Ventura County Watershed Protection District (VCWPD)	X	X
California Department of Food & Agriculture (Ventura Fairgrounds)	X	X
California Department of Transportation (Caltrans)	X ¹	X
California Department of Parks and Recreation	X	--
Participants in the VCAILG ²	X	--

1. Caltrans was not assigned a Load Allocation, yet it is participating in the MFAC/BMP Program to meet the Trash TMDL goals.

2. Ventura County Agricultural Irrigated Lands Group.

Table 2. Estuary Parcels by MFAC Area

	MFAC Area 1	MFAC Area 2	MFAC Area 3	MFAC Area 4
Parcel Owner	State of California Department of Parks and Recreation	State of California Department of Parks and Recreation	Ventura Beach RV Resort, Inc.	Wood-Claeysens Foundation
	City of San Buenaventura	State of California Department of Parks and Recreation	Ventura Hillside Conservancy	Ventura County Watershed Protection District



Figure 1. MFAC/BMP Program Monitoring Area and Assessment/Patrol Route

Monitoring Summary

ASSESSMENTS AND COLLECTION EVENTS

The responsible parties implemented the revised MFAC/BMP Program (as of July 2014) from the October 2015 to September 2016 reporting period. Upon implementation of the revised MFAC/BMP Program, the responsible parties conducted regular visual trash assessment surveys along a pre-defined route in the Estuary on a rotating schedule each month to ensure the entire Estuary, as defined in the Trash TMDL, was covered on a quarterly basis. The assessment route was designed to include historic in-Estuary TMRP monitoring locations in addition to other areas on all parcels of the Estuary to reflect the new MFAC/BMP Program. The assessment route is shown in **Figure 1**. The visual trash assessment surveys were conducted in accordance with the revised TMRP. However, the responsible parties conducted significantly more assessments than required in the revised TMRP, which is one assessment per quarter. This is due to this monitoring year being a transition year between the previous MFAC/BMP Program and the revised MFAC/BMP Program. Additional cleanups have been determined to be necessary to address legacy trash that has accumulated in the Estuary. After the legacy trash has been removed, the revised TMRP frequency will be implemented.

The responsible parties also conducted trash collection events utilizing information from the monitoring program and from the assessments to determine the locations to focus trash collection efforts.

In addition, the responsible parties conducted regularly scheduled patrols along the assessment route as shown in **Figure 1**. The patrols were conducted to eliminate existing homeless encampments and prevent the establishment of new homeless encampments and to assess trash levels, as homeless individuals and homeless encampments are the main nonpoint sources of trash for the Estuary. The responsible parties averaged up to two patrols per week in areas exhibiting large homeless populations and averaged up to two patrols per month in areas exhibiting small homeless populations. The responsible parties conducted 125 patrols from October 2015 to December 2016.

A summary of the assessment dates, the collection event dates, and the patrol dates is presented in **Table 3**. Assessment and Collection Worksheets contains the Trash Visual Survey Worksheets and the Collection Event Worksheets for all MFAC Events conducted during October 2015 to September 2016.

Table 3. Assessment, Collection, and Patrol Dates for October 2015-September 2016

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	Q1			Q2			Q3			Q4		
Assessment Dates												
MFAC Area 1	10/9/15	11/30/15	12/28/15	1/14/16	2/26/16	3/9/16	4/14/16	5/5/16	6/2/16	7/13/16	8/15/16	9/13/16
MFAC Area 2	10/9/15	11/30/15	12/28/15	1/14/16	2/26/16	3/9/16	4/14/16	5/5/16	6/2/16	7/13/16	8/15/16	9/13/16
MFAC Area 3	10/9/15	11/30/15	12/28/15	1/14/16	2/26/16	3/9/16	4/14/16	5/5/16	6/2/16	7/13/16	8/15/16	9/13/16
MFAC Area 4	10/9/15	11/30/15	12/28/15		2/26/16	3/9/16			6/2/16			9/13/16
Collection Dates												
MFAC Area 1											8/20/16	
MFAC Area 2									6/18/16	7/16/16		9/17/16
MFAC Area 3	10/3/15						4/16/16	5/21/16	6/18/16	7/16/16	8/20/16	9/17/16
MFAC Area 4												9/17/16
Patrol Dates												
10/1/15	12/28/15	3/3/16	5/5/16	7/6/16	9/1/16	10/20/16	11/29/16					
10/2/15	1/8/16	3/9/16	5/12/16	7/13/16	9/6/16	10/21/16	12/1/16					
10/5/15	1/14/16	3/14/16	5/19/16	7/18/16	9/13/16	10/24/16	12/6/16					
10/9/15	1/22/16	3/22/16	5/23/16	7/27/16	9/19/16	11/1/16	12/7/16					
11/30/15	1/28/16	3/30/16	6/2/16	8/3/16	9/23/16	11/4/16	12/14/16					
12/4/15	2/5/16	4/6/16	6/8/16	8/9/16	9/29/16	11/7/16	12/21/16					
12/7/15	2/11/16	4/14/16	6/13/16	8/11/16	10/4/16	11/14/16	12/27/16					
12/14/15	2/18/16	4/18/16	6/22/16	8/15/16	10/10/16	11/18/16	12/30/16					
12/21/15	2/26/16	4/26/16	6/28/16	8/23/16	10/17/16	11/21/16						

ASSESSMENT FINDINGS

The goal of the MFAC/BMP Program is to ensure the parcels in the Estuary are at a Category 1 level of trash based on the information collected during Estuary visual assessments.

The three Trash Assessment Categories of the MFAC/BMP Program are:

- Category 1 – Represents the SWAMP Category “Optimal”
- Category 2 – Represents the SWAMP Category “Suboptimal”
- Category 3 – Represents the SWAMP Category “Poor”

The definition of Category 1 is:

- “On first glance, no trash is visible. Little or no trash (<10 pieces) evident when streambed and stream banks are closely examined for litter and debris, for instance by looking under leaves.”

The definition of Category 2 is:

- “On first glance, low to medium levels of trash are evident (10 – 50 pieces). Stream, bank surfaces, and riparian zone contain some litter and debris. Possible evidence of site being used by people: scattered cans, bottles, food wrappers, blankets, or clothing.”

The definition of Category 3 is:

- “On first glance, medium to high levels of trash (51-100 pieces) are visible at stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, or clothing.”

There were multiple locations on the parcels within the four MFAC Areas that were assessed during the MFAC Events. These areas were located along the assessment route and in other areas of the Estuary identified through the patrols. Based on the trash conditions at the multiple assessed locations, the Ventura Hillside Conservancy determined the overall percentage of the MFAC Areas that were in each of the Trash Assessment Categories. **Table 4** presents a summary of the Trash Assessment Categories for MFAC Areas resulting from the assessments conducted during 2015-2016. Assessment and Collection Worksheets contains the Trash Visual Survey Worksheets and MFAC Events Worksheets conducted during 2015-2016.

Table 4. Percent of MFAC Area by Assessment Category

Quarter 1*				
Assessment Area	Category 1	Category 2	Category 3	Notes
MFAC Area 1	100%	-	-	No trash was observed in MFAC area 1 during quarter 1
MFAC Area 2	90%	6%	4%	
MFAC Area 3	96%	4%	0%	No trash was observed in MFAC area 3 during quarter 1
MFAC Area 4	98%	2%	-	No trash observed in MFAC area 4 during quarter 1 was category 3
*October visual trash assessments were not included in Quarter 1 (not clear as to which MFAC areas were being referenced in assessment reports due to insufficient notes during a change in staff)				
Quarter 2				
Assessment Area	Category 1	Category 2	Category 3	Notes
MFAC Area 1	92%	5%	3%	
MFAC Area 2	89%	6%	5%	
MFAC Area 3	93%	4%	3%	
MFAC Area 4	100%	-	-	No trash was observed in MFAC area 4 during quarter 2
Quarter 3				
Assessment Area	Category 1	Category 2	Category 3	Notes
MFAC Area 1	90%	6%	4%	
MFAC Area 2	91%	5%	4%	
MFAC Area 3	93%	5%	2%	
MFAC Area 4	99%	1%	-	No trash observed in MFAC area 4 during quarter 3 was category 3
Quarter 4				
Assessment Area	Category 1	Category 2	Category 3	Notes
MFAC Area 1	94%	4%	2%	
MFAC Area 2	93%	4%	3%	
MFAC Area 3	96%	4%	-	No trash observed in MFAC area 3 during quarter 4 was category 3
MFAC Area 4	99%	0.5%	0.5%	

MFAC Events/BMP Implementation Summary

To ensure the parcels are all within Category 1, the MFAC/BMP Program is continuously evaluated and modified using the following adaptive management approach:

1. Estuary parcels in Category 1 for the monitoring event conducted prior to a scheduled MFAC Event are noted and any trash observed is collected during the visual survey. If no potential high trash generating areas are identified through the patrol of the parcel, the MFAC Event is not conducted. If potential high trash generating areas are identified by the patrols, then the MFAC Event focusing on those areas of the parcel that require clean-up.
2. Monitoring sites in Category 2 are evaluated to determine if additional BMPs are needed to reduce the accumulation of trash between monitoring events (i.e., visual surveys). The

types of trash, likely sources, and observed trends in trash amounts are considered in determining if modifications to the MFAC/BMP Program are necessary to move these sites to Category 1.

3. MFAC parcels that have Category 3 levels of trash for two consecutive quarters are targeted for more frequent patrols and/or more frequent clean-ups (depending on the identified primary source of trash) until the parcels reach Category 1 levels of trash for two consecutive visual surveys.

This following section provides the results of the collection events and the results of the BMPs implemented related to reducing trash within the Estuary and from adjacent land areas.

MFAC COLLECTION EVENTS AND ADDITIONAL CLEAN-UP EVENTS

One facet of the MFAC/BMP Program is to clean up any trash found through the assessments. This is done to ensure zero pieces of trash are found after the assessment. **Table 5** presents the trash collected during all collection events during 2015-2016. Assessment and Collection Worksheets contains the Collection Event Worksheets for MFAC Events conducted during 2015-2016 (**Appendix 1**). Only third Saturday of the month volunteer clean up events have MFAC Event Worksheets; all other clean up events listed in Table 5 were smaller scale, hour to two hour long events by VHC volunteers who chose to pick up trash in their own time outside of monthly volunteer events. Another facet of the MFAC/BMP Program is to conduct additional clean-ups in the Estuary if it is found that trash is accumulating in deleterious amounts between assessments. The Ventura Hillside Conservancy and volunteers conducted 63 clean-ups in the Estuary to address high trash accumulation areas. Parcels 1, 2, and 3 were known to have legacy trash issues, and therefore were targeted for additional clean-ups from the beginning of the 2015-2016 monitoring year. Clean-up provided in **Appendix 2** include photos of the types of trash removed during collection events and additional clean-up events.

Table 5. Summary of Trash Collected during the MFAC Collection and Additional Clean-up Events

Date	MFAC Area 1	MFAC Area 2	MFAC Area 3	MFAC Area 4
10/3/15			26 bags/ 650 lbs	
4/16/16			27/ 675 lbs	
5/12/16			5/ 125 lbs	
5/21/16			35 /875 lbs	
6/18/16		4/ 100 lbs	28/ 700 lbs	
7/12/16			1/ 25 lbs	
7/16/16		13/ 325 lbs	14/ 350 lbs	
8/20/16	30/ 750 lbs		2/ 50 lbs	
8/29/16		6/ 150 lbs		
9/1/16			2/ 50 lbs	
9/14/16			2/ 50 lbs	
9/15/16	4/ 100 lbs			
9/17/16		15/ 375 lbs	15/ 375 lbs	12/ 300 lbs
9/20/16		2/ 50 lbs		
9/28/16	2/ 50 lbs	2/ 50 lbs		
10/7/16	3/ 75 lbs			
10/9/16	2/ 50 lbs			
10/13/16		3/ 75 lbs		
10/15/16			25/ 625 lbs	
10/24/16	1/ 25 lbs			
10/27/16	2/ 50 lbs			
11/2/16		1/ 25 lbs		
11/3/16		1/ 25 lbs		
11/4/16		1/ 25 lbs		
11/5/16	2/ 50 lbs			
11/8/16		1/ 25 lbs		
11/10/16		2/ 50 lbs		
11/12/16		1/ 25 lbs		
11/13/16		1/ 25 lbs		
11/15/16	1/ 25 lbs	2/ 50 lbs		
11/16/16		2/ 50 lbs		
11/17/16		1/ 25 lbs	4/ 100 lbs	

Table5. Summary of Trash Collected during the MFAC Collection and Additional Clean-up Events (Continuation)

Date	MFAC Area 1	MFAC Area 2	MFAC Area 3	MFAC Area 4
11/18/16	1/ 25 lbs	2/ 50 lbs		
11/19/16		2/ 50 lbs		
11/20/16		1/ 25 lbs		
11/21/16		1/ 25 lbs		
11/22/16		2/ 50 lbs	1/ 25 lbs	
11/23/16	1/ 25 lbs			
11/30/16		1/ 25 lbs		
12/1/16		2/ 50 lbs		
12/2/16	1/ 25 lbs			
12/3/16	1/ 25 lbs			
12/4/16	1/ 25 lbs			
12/5/16	1/ 25 lbs			
12/6/16	1/ 25 lbs	2/ 50 lbs		
12/7/16	1/ 25 lbs			
12/8/16		2/ 50 lbs		
12/9/16		1/ 25 lbs		
12/12/16		2/ 50 lbs		
12/13/16		2/ 50 lbs		
12/14/16		4/ 100 lbs		
12/16/16			2/ 50 lbs	
12/17/16		2/ 50 lbs	1/ 25 lbs	
12/18/16	1/ 25 lbs			
12/19/16	1/ 25 lbs			
12/20/16		1/ 25 lbs		
12/21/16			1/ 25 lbs	
12/22/16	1/ 25 lbs			
12/25/16			1/ 25 lbs	
12/26/16			1/ 25 lbs	
12/27/16			1/ 25 lbs	
12/30/16			1/ 25 lbs	
12/31/16			3/ 75 lbs	

lbs=pounds (1 bag roughly equal to 25 lbs)

BMP IMPLEMENTATION

This section describes the BMPs implemented by the responsible parties within the Estuary and on land areas adjacent to the Estuary.

City of Ventura Litter Management Program BMPs

- Installation of required Full Capture Catch Basin Trash Excluders completed in October 2014 to achieve 100% point-source compliance.
 - Installation of certified Stormtek Full Capture Catch Basin Trash Excluder Devices (CPS Devices) to achieve 100% reduction of trash from Baseline WLA, for all of the MS4 areas within the City of Ventura that drain to the Ventura River estuary.
- Street Sweeping
 - Residential Streets swept at least once a month.
 - Commercial Streets swept two to four times per month.
 - Information encouraging residents/businesses to move parked cars for sweeping.
- Catch Basin Inlet-Cleaning and Placarding
 - City-maintained catch basin inlets are inspected and cleaned of trash and debris one to three times per year depending on the priority categorization of the catch basin.
 - Information encouraging residents/businesses to report trash filled inlets.
 - “Don’t Dump – Drains to Oceans – Only Rain Down the Drain” stencils or placards placed on storm drain inlets.
- Trash Collection in Public Areas
 - The City installed 3 new ‘bear proof’ trash containers along the bike path directly adjacent to the river to promote the proper disposal of refuse, and prevent the spread of litter by providing locked, secure containers.
 - Trash and recycling containers are installed at all transit shelters and maintained at least once per week to remove litter and to verify that containers are functioning properly.
 - Special event permit language requires additional trash and recycling containers to be set out during street fairs and art walks, along with litter clean-up following events.
 - Collection of trash from 18 public trash receptacles located within the watershed two or three times per week depending on the locations of the receptacles.
- Trash Collection and Bulky Item Pickup
 - Residents and businesses are provided with trash and recycling collection services.
 - Residential customers are allowed to set out two “bulky items” for free collection once per year as part of their regular trash collection service.

- Inspection, Planning and Enforcement Support
 - The City identifies and requires corrective measures for litter or litter sources found during commercial, industrial, and construction site inspections.
 - New development and redevelopment projects are required to install trash enclosures with doors and covers to reduce litter.
 - The Ventura Police Department conducts periodic “enforcement sweeps” through the portion of the Estuary that is adjacent to the City limits.
 - Litter laws that prohibit the accumulation of trash on private property are enforced by the City Code Enforcement and County Environmental Health Department. Private properties are required to remove all trash from their premises at least once every seven days.
- Outreach
 - Litter prevention outreach is included in classroom presentations and stormwater pollution prevention advertisements/announcements.
 - Several half-hour TV programs produced by the City encourage residents to prevent litter.
- Partners in Progress
 - Citywide volunteer program with a mission to preserve Ventura’s natural environment by minimizing litter in water bodies and coastal areas.
- City-Initiated Clean-Up Events
 - The City will initiate clean-up events, as necessary, in response to observed elevated trash levels.
- City-Sponsored Clean-Up Events
 - The City sponsors various clean-up events throughout the City that may include one or more of the following events during any given year: Martin Luther King Day; Earth Day Beach Clean-Up; Coastal Clean-Up Day; Backyard Collective; and Ventura Charter School Trash-a-thon.
 - The City sponsored Westside Clean-Up (September 24, 2016) provided free disposal of solid waste from any west side (adjacent to the Ventura River) Ventura residents. Residents brought solid waste to a centralized location where it was sorted for recycling or disposal.
 - An additional clean up event was conducted by the City, in partnership with California Lutheran University. Incoming students cleared arundo to improve visibility and deter transient encampments. During the process they also removed litter that was lodged in the plant debris.
- Work Plan to Eliminate Homeless Encampments (Safe and Clean Program)
 - The Ventura City Council initiated the development of a work plan in September 2012 to eliminate encampments in the Estuary and to implement an on-going enforcement program. The work plan includes organizing stakeholder partners, conducting civil engagement, developing an action plan and corresponding follow-up steps, posting camps, conducting camp removal, and launching post-camp removal strategies.

County of Ventura and VCWPD Litter Management Program BMPs

- 100% Point-Source Compliance. Installation of required Full Capture Catch Basin Trash Excluders completed in October 2014. Installation of certified Stormtek Full Capture Catch Basin Trash Excluder Devices (CPS Devices) to achieve 100% reduction of trash from Baseline WLA, for all Ventura County Unincorporated areas draining to the County's MS4 within the Ventura River Estuary subwatershed. The County's Certification Report with installation details was provided in the 2013-2014 Annual Report.
- Development and Implementation of Connector Pipe Screen Trash Excluders Operation and Maintenance Plan (O&M Plan) – Developed an O&M Plan including schedule for regular maintenance and reporting of debris/trash removed for the 15 installed CPS devices. Training provided to maintenance staff in both the classroom and field to ensure proper cleanout and reporting methods and procedures.
- Regular Maintenance and Reporting 15 CPS Devices – Per the Connector Pipe Screen Trash Excluders O&M Plan, County staff inspect and perform necessary maintenance of each catch basin with CPS devices installed a minimum of three times per fiscal year: (1) One inspection before wet season, (2) one inspection during the wet season and (3) one inspection after the wet season. Debris depth is recorded and all debris is removed. Volume and type of debris is recorded and documented.
- Catch Basin Cleaning – Catch basins are inspected at least once per year and cleaned when filled to 25% or more of the catch basin's capacity. During storm season, all drainage facilities are inspected and cleaned as necessary.
- Catch Basin Labeling – All County catch basins are labeled with “Don't Pollute, Flows to Waterways.”
- Open Channel Storm Drain Maintenance – All VCWPD owned and maintained channels are cleared, inspected, and cleaned as required at least once per year.
- Trash Management at Public Events – A plan for the proper management of trash and litter is required when obtaining a permit for staging public events. This plan requires adequate facilities for trash collection and disposal.
- Trash Collection in Public Areas – Trash receptacles have been placed within high trash generation areas. These devices are cleaned and maintained regularly to prevent trash overflow.
- Ventura County Ordinance No. 4142 – County ordinance (Section 6923 “Litter” and Section 6955 “Watercourse Protection”) prohibit the disposal and accumulation of trash in public areas, private driveways, parking areas, streets, alleys, sidewalks, or components of the storm drain or any watercourse.
- Inspections – The County conducts commercial, industrial, and construction facility/site inspections to ensure proper pollution prevention BMPs are being applied and to educate employees on the importance of pollution prevention.
- Anti-Littering Signage – The County has installed anti-dumping and anti-littering signage at key locations including high trash generating areas, as well as at known illegal dumping locations.

- Foster Park Trash Management – The County manages Foster Park, which is situated along the Ventura River upstream of the Estuary, to ensure that trash originating from the park does not enter the river and deposit in the Estuary. Management actions include:
 - Park host and rangers removing trash and enforcing litter ordinance
 - Increased enforcement and collection during high trash generating events (holidays)
 - Covered trash containers and frequent trash pick-up and removal
 - Continued evaluation of trash management practices to determine whether current practices are sufficient
 - Continued evaluation of existing litter-related signage to determine whether current signage is adequate
- Happy Valley Bioswale was designed and constructed in spring of 2016 to capture runoff from 40% or 37 acres of urban area of County unincorporated Meiners Oaks community for removal of trash, debris, and other stormwater pollutants. This project treats estimated 1.6M cubic feet of the average annual runoff discharging into Happy Valley Drain, a tributary to Ventura River. This project was funded in parts by the Proposition 84 Storm Water Implementation Grant, Round 2. Project photos are provided in Appendix 3.
- Watershed Friendly Gardens – In Fall 2016, the County sponsored a series of five, free, open to the public, Watershed Friendly Garden Hands-On-Workshops in Meiners Oaks focusing on how to construct your own Watershed Friendly Garden, designed to help prevent stormwater pollutants, including trash, from entering the storm drains, creeks and rivers. The class culminated with construction of a Watershed Friendly Garden at Meiners Oaks Elementary School. Summary and photos are provided in Appendix 4.
- Countywide Outreach – The County and VCWPD continue to participate in the Countywide Outreach Program retaining the services of The Agency, a professional advertisement group that designs and conducts countywide, bilingual outreach programs advocating proper trash disposal. The most recent addition to the outreach program is trash prevention and protection of storm water quality education using Facebook®, Twitter® and other forms of social media. Examples of outreach materials are provided in Appendix 5.
- Targeted Outreach – The County conducts targeted outreach to schools within the area covered by the Trash TMDL to educate students, staff, and faculty on the importance of pollution prevention specifically regarding trash.

Caltrans Litter Management Program BMPs

- Ventura River Estuary – State Highway 33, between Post Mile 0.0 and 5.55, has litter removed approximately twice per month and is mechanically swept approximately once per month, as needed. This highway is also open to 'Adopt-A-Highway' groups and there are groups who currently have adoptions and perform litter removal twice per month.

Additional Trash Management Plans/BMPs in place for Caltrans:

- Caltrans currently uses a variety of methods to educate the public about the importance of managing stormwater. These are intended to change public behavior regarding the release of potential pollutants (e.g., litter, spilled loads, and oil leaks).
 - The outreach program consists of a variety of written materials, monthly and quarterly bulletins, websites, workshops, and Caltrans’s Adopt-a-Highway Program, as described below.
- Caltrans installs “No Dumping” and “Litter Fine” signs at selected locations on highways and freeways. Stenciled warnings prohibiting discharges to drain inlets at state-owned park-and-ride lots, rest areas, vista points, and other areas with pedestrian traffic are also used to increase public awareness.
- Litter and debris removal activities include sweeping of shoulders, paved medians, etc., and litter removal along the roadsides.
- Caltrans uses venues such as public schools, community-sponsored clean-up events, Bring Your Child to Work Day, and Earth Day to educate the public about the importance of excluding pollutants from stormwater.
- Caltrans’s Adopt-A-Highway program is an opportunity for volunteers to make a tangible contribution to community and roadside aesthetics, and acts as a way to inform the public about the stormwater problems related to illegal dumping of litter and debris. As part of this program, signs are posted along roadways acknowledging groups that have volunteered to plant wildflowers, trees and/or shrubs, collect litter, or remove graffiti from structures.
- In the metropolitan portions of Los Angeles, San Diego, Orange, and Ventura Counties, storm drain inlets are inspected and cleaned annually prior to the rainy season. Those storm drain inlets that contain 12 inches or more of accumulated material will be cleaned.
- Litter and debris are periodically collected from Caltrans’s rights-of-way and removed from drainage grates, trash racks, and ditch lines. Maintenance supervisors inspect highways in their assigned sections for the accumulation of litter. Signs may be installed where litter accumulation is a concern.
- “Protect Every Drop” is a statewide Caltrans education and outreach pollution reduction public program that has been conducted since March 2016. The program uses public service announcements through various media such as television and radio broadcasts, billboards, newspapers, public outreach events, banners, posters, tip cards etc., and focuses on behavior changes. The program encourages the public to learn more about sources and pathways of stormwater pollution and teaches motorists what to do to reduce pollutants like trash. For more information, please refer to website www.protecteverydrop.com.
- Caltrans has in construction seven (7) Gross Solids Removal Devices – Inclined Screen Box in Route 33 which will be estimated to be completed on March 19, 2018. Four (4) Bioswales were planned on Route 33 and Route 101 which were proposed to begin construction on September 30, 2018.

In addition to local anti-litter ordinances, Caltrans relies on Sections 23112, 23113, 23114, and 23115 of the Vehicle Code as legal authority to prevent spills, dumping or disposal of materials on the highways and freeways under its jurisdiction, as enforced by the California Highway Patrol.

- Section 23112 states:

No person shall throw or deposit, nor shall the registered owner or the driver, if such owner is not then present in the vehicle, aid or abet in the throwing or depositing upon any highway any bottle, can, garbage, glass, nail, offal, paper, wire, any substance likely to injure or damage traffic using the highway, or any noisome, nauseous, or offensive matter of any kind.

No person shall place, deposit, or dump, or cause to be placed, deposited, or dumped, any rocks, refuse, garbage, or dirt in or upon any highway, including any portion of the right-of-way thereof, without the consent of the state or local agency having jurisdiction over the highway.

- Section 23113 states:

Any person who drops, dumps, deposits, places or throws, or causes or permits to be dropped, dumped, deposited, placed or thrown, upon any highway or street any material described in Section 23112 or in subdivision (d) of Section 23114 shall immediately remove the material or cause the material to be removed.

If the person fails to comply with subdivision (a), the governmental agency responsible for the maintenance of the street or highway on which the material has been deposited may remove the material and collect, by civil action, if necessary, the actual cost of the removal operation in addition to any other damages authorized by law from the person made responsible under subdivision (a).

- Section 23114 states (in pertinent part):

No vehicle shall be driven or moved on any highway unless the vehicle is so constructed, covered, or loaded as to prevent any of its contents or load other than clear water or feathers from live birds from dropping, sifting, leaking, blowing, spilling, or otherwise escaping from the vehicle.

- Section 23115 of the Vehicle Code states (in pertinent part):

No vehicle loaded with garbage, swill, cans, bottles, waste papers, ashes, refuse, trash, or rubbish, or any other noisome, nauseous, or offensive matter, or anything being transported to a dump site for disposal shall be driven or moved upon any highway unless the load is totally covered in a manner which will prevent the load or any part of the load from spilling or falling from the vehicle.

Ventura County Fairgrounds Litter Management BMPs

Ventura County Fair's BP for Litter Maintenance Non-Fair Time

Description of Action	Daily	Weekly	Monthly	Annually	Before Event	During Event	After Event	As Needed
Litter pickup Main Parking Lot	X					X	X	X
Litter pickup Beach Lot		X			X	X	X	X
Overflow Lot		X				X	X	X
Area Around Event		X			X	X	X	X
Trash Cans emptied	X					X	X	X
Recycle bins emptied		X						X
40 Yard dens emptied		X						X
Straw and Hay Removal								X
Power Sweep			X					X
Storm Dain Maintenance				October				X
Wash Rack Maintenance				June & Aug				X

Ventura County Fair's BP for Litter Maintenance Fair Time

Description of Action	Daily	Weekly	Monthly	Annually	Before Event	During Event	After Event	As Needed
Litter pickup Main Parking Lot	X				X	X	X	X
Litter pickup Beach Lot	X				X	X	X	X
Overflow Lot	X				X	X	X	X
Area Around Event (Harbor to Calif., Promenade and Beach, Garden St. to Main St. and surrounding area).	X				X	X	X	X
Trash Cans emptied	X				X	X	X	X
Recycle bins emptied	X				X	X	X	X
40 Yard dens emptied	X				X	X	X	X
Straw and Hay Removal	X				X	X	X	X
Power Sweep	X				X	X	X	X
Storm Dain Maintenance					Storm Drain Diverted to Sewer during Fair July- August			
Wash Rack Maintenance				June & Aug.				

California Department of Parks and Recreation (State Parks) BMPs

- Designated Public Use Areas
 - Trash containers are installed at all visitor activity areas. Containers are kept in good working order and are emptied as needed.
 - State Parks keeps one mixed use 40 yard roll-off container onsite to collect and dispose of approximately 20,000 lbs. of trash annually.
 - Park personnel and camp hosts routinely collect loose trash within developed park areas as a part of their daily duties. In addition, park personnel conduct weekly sweeps to identify, and remove trash accumulation in vegetated areas along the established trail system east of the campground.
- Undeveloped Areas
 - Litter and debris is periodically collected from park backcountry lands, water courses, and roadways. Maintenance supervisors inspect park roads in their assigned sections for the accumulation of litter.
 - Signs may be installed where litter concentration is repetitive and at known illegal dumping locations.
 - Catch basins are inspected and cleaned at least once per year. During storm season, drainage facilities are inspected before significant storm events.
- Volunteer Events and Public Outreach
 - State Parks sponsors various Earth Day and Coastal Cleanup events throughout the district and participates in special cleanup events to address observed elevated trash levels.
 - Routine and random river bottom patrols are conducted by law enforcement at a minimum of once per week to discourage establishment of illegal camp sites.
 - Camper outreach and education is implemented year-round in an effort to limit trash dispersal by wind and wildlife.
- Construction Projects and Special Events
 - All special events permits issued on State Park property require a plan for the proper management of trash. This plan requires adequate facilities and patrols for trash collection and disposal.
 - All contractors that work on State property are required to implement BMPs to keep job site clean and litter free.

VCAILG Litter Management Program BMPs

- Conditional Waiver – The *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region* (“Conditional Waiver,” Order No. R4-2016-0143) requires VCAILG to provide educational classes focused on improving water quality, including identifying trash as an impairment of water quality.
- VCAILG members are required to maintain trash control BMPs for agricultural areas. In a BMP survey completed in 2015, VCAILG members in the Ventura River watershed reported a 99% adoption rate for trash control BMPs, an 18% increase since 2010. In its role, VCAILG will continue to assist members with implementation of additional BMPs for trash control, as necessary, following the adaptive process identified in the group’s Water Quality Management Plan (WQMP).
- Outreach – During VCAILG outreach activities, the Trash TMDL is highlighted and a connection made for the need to control trash in order to meet the requirements of the Trash TMDL.
- Ventura River Trash TMDL Fee – VCAILG members are assessed a fee, based on acreage farmed, to further reinforce through a fiscal measure that trash in the watershed needs addressing.
- Plastics Recycling – Local farmers will recycle agricultural plastic used to cover strawberry beds and used in some vegetable fields during the growing season. Collection and recycling of plastic is an effective method for reducing plastic trash from entering the Ventura River and the Estuary.
- Taylor Ranch (Wood-Claeyssens Foundation), a VCAILG member with property beginning immediately upstream of the Ventura River Main Street bridge, is an active participant in the Trash TMDL program by regularly cleaning and patrolling their property. Through the efforts of the Wood-Claeyssens Foundation, it is estimated that approximately 55 tons of trash were removed from the Taylor Ranch Ventura River bottom from transient/homeless camps through March 2012. Since that time, 5 to 10 more tons has been collected annually. In 2016, it is estimated that 9.5 tons were removed and disposed of properly. Taylor Ranch continues to be successful in maintaining the cleanliness of the property and protecting water quality by employing the following practices:
 - Regular monitoring and patrolling of the area adjacent to the river was increased to an average of every two weeks in 2016 to intercept homeless camps more quickly and prevent the cycle of trash accumulation.
 - As camps are discovered, clean-up is initiated as soon as possible in order to convey the message that the area is being actively monitored. Law enforcement assistance is requested, as needed.

- Both the Ventura Police Department and the Ventura County Sheriff's Department have responded in the past with Rangers from the California State Parks systems also helping with this effort.

MFAC/BMP Program Evaluation and Revision Recommendations

The TMRP states the responsible parties will: "Evaluate effectiveness of BMPs and recommended changes to TMRP Addendum No. 1 and MFAC/BMP Program, as necessary." Under the previous MFAC/BMP Program and TMRP, the following steps were used to assess MFAC/ BMP Program effectiveness:

1. A review of BMP implementation, including identification of BMPs, location of BMPs, and time frame (*e.g.*, when an activity was implemented or installed); and
2. A comparison of monitoring results between monitoring locations and between events before and after BMP implementation.
3. Comprehensive review and assessment of MFAC/BMP Program

Given the broad nature of most of the BMPs implemented (*e.g.*, education programs, ordinances, street sweeping), the highly variable amounts of trash collected, and the relatively short time frame that full capture devices were installed, the responsible parties could not identify trends in the monitoring data that could be used to determine effectiveness of individual BMPs implemented. Based on the results of the previous evaluation and the structure of the new MFAC/BMP Program, the responsible parties utilized an approach based on the visual assessments.

The responsible parties utilized parcel rankings by Category as a means to assess effectiveness of the MFAC/BMP Program. That is, if there was an overall trend of parcels starting out and remaining in Category 1, or parcels moving from Category 2 or Category 3 to Category 1, then no modifications to the MFAC/BMP Program are needed. Conversely, if there was an overall trend of parcels moving from Category 1 to Category 2 or Category 3 over the course of the implementation year, then modifications to the MFAC/BMP Program would be considered.

2013-14 was the first year of the revised TMRP and modified MFAC/BMP Program implementation. A large amount of legacy trash existed in the Ventura River Estuary and the bulk of the effort (including many additional clean-up events) during this monitoring year has gone towards cleaning up the legacy trash. While most of the parcels have been cleaned and legacy trash removed, the State Parks Parcel (MFAC Area 2) still contains legacy trash. This is due to a population of homeless individuals that are not receptive to relocating from the area, even after multiple citations from local law enforcement. Once the legacy trash is removed, the revised TMRP and MFAC/BMP Program will begin to be implemented at the frequency outlined in the TMRP (without the additional clean-ups).

As a result, the responsible parties are not conducting an assessment of the program or proposing any revisions to the MFAC/BMP Program during this annual report. The focus on removing remaining legacy trash in the Estuary during the monitoring year does not allow for development of an assessment of the baseline MFAC/BMP Program this year. Once the legacy trash is removed and the MFAC/BMP Program has been implemented without the legacy trash, the

responsible parties will have a clearer understanding of the effectiveness of the baseline MFAC/BMP Program. However, through the initial implementation of the revised MFAC/BMP Program, it is clear that the revised MFAC/BMP Program is a better use of resources and much more effective at removing trash from the Estuary compared to the previous MFAC/BMP Program. The responsible parties will provide any revisions that were made or will be made to the MFAC/BMP Program, in the fourth-year Annual Report, which will be submitted in January 2018.

Appendix 1. Assessment and Collection Worksheets

Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: _____ Event Date: Oct 3 2015
 Specific Cleanup Location: Willoughby Preserve Event Start/ End Time: 0900 / 1200
 Field Technician name(s): Derek Powlitney
 Current Weather Condition: Sunny, 80°
 Antecedent Weather Condition: Sunny, clear

Types of Trash Observed (check all that apply):

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> Plastic/ Styrofoam | <input checked="" type="checkbox"/> Paper Products/ Biodegradable | <input checked="" type="checkbox"/> Household Items |
| <input checked="" type="checkbox"/> Landscape Materials | <input checked="" type="checkbox"/> Aluminum/ Metal | <input type="checkbox"/> Automotive |
| <input checked="" type="checkbox"/> Toxic/ Hazardous Materials | <input checked="" type="checkbox"/> Glass | <input checked="" type="checkbox"/> Biohazardous |
| <input checked="" type="checkbox"/> Personal Effects | <input checked="" type="checkbox"/> Sports Equipment | <input checked="" type="checkbox"/> Other |

Notes: Area cleaned up consisted of the area between the Main Street Bridge & the Union Pacific Bridge. Project included rehabilitating an area just North of the Union Pacific Bridge previously used as a encampment where a large amount of trash was removed and the campsite was buried in arundo clippings.

Potential Source(s) of Trash Collected: Homeless camps, party spots

Hazardous/ Legacy Trash Requiring Follow-up: None on VHC land however the State Park land along the Ventura River West bank has numerous large piles of trash & human waste

MFAC Event Actions for Follow-up: Camp area just North of the railroad bridge has been picked clean of trash however additional work should be done covering the site up with arundo clippings to discourage further camping

Additional Notes: _____

Trash Collected:
 No. of Trash Bags Filled: 26 Dumpster % Fill: N/A Dumpster Size (cubic yds): N/A

Lead Field Technician Certification (sign/ print):
 "Cleaned area is free of all visible trash." - Flemming Bertelsen / Flemming Bertelsen

Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 3 and Main Street Bridge Event Date: 4/16/16
 Specific Cleanup Location: Willoughby Property Event Start/ End Time: 9:00 / 12:00
 Field Technician name(s): Jessia Nikolai, Derek Poultney
 Current Weather Condition: Sunny
 Antecedent Weather Condition: Sunny

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/ Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials	Aluminum/ Metal	Automotive
Toxic/ Hazardous Materials <input checked="" type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment	Other

Notes: One large tent with personal effects, 1 twin sized mattress, blankets, towels, some explicit reading materials and drug paraphernalia.

Potential Source(s) of Trash Collected: Illegal camps and/or parties.

Hazardous/ Legacy Trash Requiring Follow-up: None in the immediate location - more camps to be removed under the Main Street bridge in the near future.

MFAC Event Actions for Follow-up: City to clean up camps under the Main Street after police have removed the illegal camps. State Parks and City property still have numerous camps.

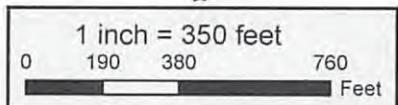
Additional Notes: State Parks vehicle removed collected trash and disposed of in State Park dumpster.

Trash Collected: No. of Trash Bags Filled: 27 Dumpster % Fill: 100% Dumpster Size (cubic yds): 9

Lead Field Technician Certification (sign/print):
 "Cleaned area is free of all visible trash." - Jessia Nikolai



Legend	
	Parcels
	Ventura River Trash TMDL Subwatershed
	TMDL Defined Estuary
	Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

DISCLAIMER:
The information combined hereon was created by the County of Ventura Geographic Information System (GIS) data which is operated for the convenience of the County. The County of Watershed Protection District makes no representation or warranty of this map, based on County GIS data, is accurate and that it contains no errors or omissions; and asserts that no economic or physical reliance should be placed on the County data or on any conclusions generated from County GIS data contained hereon.

4/16/16

Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 3 Event Date: 5/21/16
 Specific Cleanup Location: Willoughby/Main St. Event Start/ End Time: 9:00 / 12:00
 Field Technician name(s): Jessica Nikolai, Adrienne Stephens
 Current Weather Condition: Sunny
 Antecedent Weather Condition: Sunny

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/ Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials <input type="checkbox"/>	Aluminum/ Metal <input type="checkbox"/>	Automotive <input checked="" type="checkbox"/>
Toxic/ Hazardous Materials <input checked="" type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input checked="" type="checkbox"/>	Other <input type="checkbox"/>

Notes: Plastic/paper bags and product packaging, clothing, food, bottles full of urine, buckets with fecal matter, car keys, an unloaded gun, glass bottles, bicycles, law motor and battery, and one large BBQ.

Potential Source(s) of Trash Collected: Homeless encampments, disrespectful visitors, parties/graffiti artists, traffic from the Main Street bridge, wind blown trash from elsewhere.

Hazardous/ Legacy Trash Requiring Follow-up: Continued efforts needed under other sections of the Main Street bridge.

MFAC Event Actions for Follow-up: Continued monitoring of bridges/ areas in which tents can easily hide.

Additional Notes: Car keys and gun discovered were handed over to State Park law enforcement. State Park was instrumental in removing bagged trash in their truck from the property. Bikes were also given to law enforcement with the CA State Parks.

Trash Collected:
 No. of Trash Bags Filled: 35 Dumpster % Fill: 25% Dumpster Size (cubic yds): 40

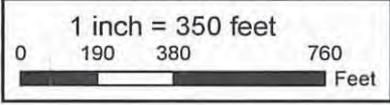
Lead Field Technician Certification (sign/print):

"Cleaned area is free of all visible trash." -

Jessica Nikolai



Legend	
	Parcels
	Ventura River Trash TMDL Subwatershed
	TMDL Defined Estuary
	Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

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5/21/16

Appendix B - MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 23 Event Date: 6/18/16
 Specific Cleanup Location: Willoughby State Park Event Start/ End Time: 9:00 | 11:00
 Field Technician name(s): Jessica Mikolaj, Derek Paulthey
 Current Weather Condition: Sunny, warm
 Antecedent Weather Condition: -same-

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/ Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials <input type="checkbox"/>	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive <input type="checkbox"/>
Toxic/ Hazardous Materials <input checked="" type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input checked="" type="checkbox"/>	Other <input type="checkbox"/>

Notes: Batteries, old food wrappers, urine bottles, rugs, pillows, hand tools, knives, bikes/ bike parts, cardboard, plastic bags, clothes, luggage case, shopping carts, plastic/glass/aluminum spray cans, cigarette butts.

Potential Source(s) of Trash Collected: Homeless individuals and parties - some possibly blown in from the freeway/roads.

Hazardous/ Legacy Trash Requiring Follow-up: wooden structure under the 101 freeway to be dismantled at some point.

MFAC Event Actions for Follow-up: Increase patrols/ notifying local enforcement.

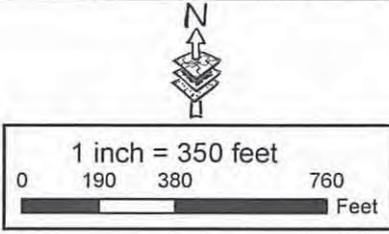
Additional Notes: Port-a-potty has shown up along bike path near trail entrance to Willoughby - may increase activity in the river bottom.

Trash Collected:
 No. of Trash Bags Filled: 32 Dumpster % Full: 23% Dumpster Size (cubic yds): 40

Lead Field Technician Certification (sign/print):
 "Cleaned area is free of all visible trash." - Jessica Mikolaj



Legend	
Parcels	
Ventura River Trash TMDL Subwatershed	
TMDL Defined Estuary	
Adjacent Properties	



Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

6/8/16

DISCLAIMER:
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Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 2, 3 Event Date: 7/16/16
 Specific Cleanup Location: VHC, State Park, Main Street Bridge Event Start/ End Time: 9:00 12:00
 Field Technician name(s): J. Mikalai, D. Parthay, A. Stephens
 Current Weather Condition: cloudy
 Antecedent Weather Condition: Sunny

Types of Trash Observed (check all that apply):

- | | | |
|--|---|---|
| Plastic/ Styrofoam <input checked="" type="checkbox"/> | Paper Products/ Biodegradable <input checked="" type="checkbox"/> | Household Items <input checked="" type="checkbox"/> |
| Landscape Materials | Aluminum/ Metal | Automotive |
| Toxic/ Hazardous Materials | Glass <input checked="" type="checkbox"/> | Biohazardous <input checked="" type="checkbox"/> |
| Personal Effects <input checked="" type="checkbox"/> | Sports Equipment | Other |

Notes: Good amount of plastic bags and plastic wrappers/
packaging, tarps, clothing, electronics, paper and paper
packaging, mattress, old food, blankets, fecal matter.

Potential Source(s) of Trash Collected: Homeless individuals, disrespectful
day users, blown in from nearby roads

Hazardous/ Legacy Trash Requiring Follow-up: One large trash "pit" is
still present near the State Park island, as well as a
large trash pile and homeless encampment (wooden fort)
under the 101 Freeway and old camp trash on City prop.

MFAC Event Actions for Follow-up: Contact State Parks and
CALTrans to notify / assist in removal of trash

Additional Notes: State Park truck removed / hauled away
trash to their dumpsters.

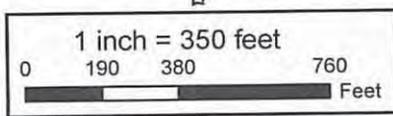
Trash Collected:
 No. of Trash Bags Filled: ~28 Dumpster % Fill: 19% Dumpster Size (cubic yds): 40

Lead Field Technician Certification (sign/print):
 "Cleaned area is free of all visible trash." - Jenica Mikalai



Legend

- Parcels
- Ventura River Trash TMDL Subwatershed
- TMDL Defined Estuary
- Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

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7/16/16

Appendix B – MFAC Event Worksheet

MFAC Event Worksheet

Parcel No.: 1,3 Event Date: 8/20/16
 Specific Cleanup Location: City of Ventura, VHC Event Start/ End Time: 9:00 / 1:00
 Field Technician name(s): J. Nikolai
 Current Weather Condition: partly cloudy, cool
 Antecedent Weather Condition: Sunny, warm

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/ Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials <input type="checkbox"/>	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive <input checked="" type="checkbox"/>
Toxic/ Hazardous Materials <input checked="" type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input checked="" type="checkbox"/>	Other <input type="checkbox"/>

Notes: Batteries, clothing, old food, toys, plastic/paper trash, feminine products, tents, rugs, boogie boards, blankets, feces/urine, pillows, buckets, sundries, wooden pallet.

Potential Source(s) of Trash Collected: Illegal camping, general homeless individual activities.

Hazardous/ Legacy Trash Requiring Follow-up: One rug that was nailed down to a group of trees remains - volunteer offered to return later in the week to collect with a hammer. A large piece of upholstery remains on VHC property along trail.

MFAC Event Actions for Follow-up: Increase in patrols on City property to ensure it remains clear for upcoming CLV event.

Additional Notes: CLV (Cal Lutheran) arundo-removal event on Monday, Aug 29th on City property. Trash was removed to create space for students to work! State Park truck removed/hauled away trash to their dumpsters.

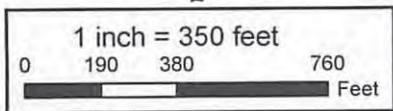
Trash Collected:
 No. of Trash Bags Filled: 32 Dumpster % Fill: 23% Dumpster Size (cubic yds): 40

Lead Field Technician Certification (sign/print):
 "Cleared area is free of all visible trash." - Jessica Nikolai



Legend

- Parcels
- Ventura River Trash TMDL Subwatershed
- TMDL Defined Estuary
- Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

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8/20/16

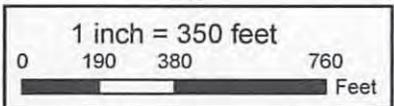
Appendix B – MFAC Event Worksheet

MFAC Event Worksheet		
Parcel No.: <u>2,3,4</u>	Event Date: <u>9/17/16</u>	
Specific Cleanup Location: <u>State Park, VHC, County</u>	Event Start/ End Time: <u>9:00 11:00</u>	
Field Technician name(s): <u>J. Nikolai, D. Dunkell</u>		
Current Weather Condition: <u>Sunny</u>		
Antecedent Weather Condition: <u>Sunny</u>		
Types of Trash Observed (check all that apply):		
Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/ Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials <input type="checkbox"/>	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive <input type="checkbox"/>
Toxic/ Hazardous Materials <input checked="" type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input checked="" type="checkbox"/>	Other <input type="checkbox"/>
Notes: <u>Tarps, clothing, pillows, bedding, plastic/paper trash, cans/ bottles, baby chair, furniture, cardboard, old food, books, needles, bags, batteries.</u>		
Potential Source(s) of Trash Collected: <u>Illegal camping and/or trash blown in from 101 freeway and Arambrecht bridge.</u>		
Hazardous/ Legacy Trash Requiring Follow-up: <u>Wooden "fort" (homeless encampment) still under the 101. Some trash remains in large trash pit on state property.</u>		
MFAC Event Actions for Follow-up: <u>Increase in patrols into more dense, woody areas.</u>		
Additional Notes: <u>State Park truck removed/hauled away trash to their dumpsters. United way "Day of Caring" event - (6 volunteers (also Coastal Cleanup Day).</u>		
Trash Collected:	No. of Trash Bags Filled: <u>~42</u>	Dumpster % Full: <u>35%</u> Dumpster Size (cubic yds): <u>40</u>
Lead Field Technician Certification (sign/print): "Cleaned area is free of all visible trash." - <u>Jenica Nikolai</u>		



Legend

- Parcels
- Ventura River Trash TMDL Subwatershed
- TMDL Defined Estuary
- Adjacent Properties



**Ventura River
Trash TMDL
Estuary Subwatershed
Area
(as defined by TMDL)**

DISCLAIMER:
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9/17/16

Appendix A - Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3, 4 Survey Date: 10/9/15
 Inspector: Flemming Bertelsen Survey Start/ End Time: 1530 / 1730
 Current Weather Condition: Sunny, hot
 Antecedent Weather Condition: Sunny

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
1- Trash pile	3	New pile at new camp
2- shoe collection	1	personal items
3- shelter	2	built with planks & arundo
4- blankets	1	used as privacy screens/blinds
5- trash pile	3	camp trash
6- trash pile	3	camp trash
7- bike parts	2	camp site
8- sleeping bag	1	camp/personal trash
9- graffiti trash	1	paint can
10- lawn chair	1	camp item
11- large trash pile	3	camp trash
12- old camp	3	personal items

Types of Trash Observed (check all that apply):

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> Plastic/ Styrofoam | <input checked="" type="checkbox"/> Paper Products/Biodegradable | <input checked="" type="checkbox"/> Household Items |
| <input checked="" type="checkbox"/> Landscape Materials | <input checked="" type="checkbox"/> Aluminum/ Metal | <input type="checkbox"/> Automotive |
| <input checked="" type="checkbox"/> Toxic/ Hazardous Materials | <input checked="" type="checkbox"/> Glass | <input checked="" type="checkbox"/> Biohazardous |
| <input checked="" type="checkbox"/> Personal Effects | <input checked="" type="checkbox"/> Sports Equipment | <input type="checkbox"/> Other |

Notes: _____

Est. No. of Follow-up Cleanup Events Needed (describe why):

campers are migrating off the preserve and onto state parks land west of the River.

Additional Notes:

Island & Preserve are clear of major trash

Appendix A – Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: _____ Survey Date: 11/30/15
 Inspector: Derek Pahlitzky & Jess Nikolai Survey Start/ End Time: 1:30 | 2:30
 Current Weather Condition: Sunny, warm
 Antecedent Weather Condition: Sunny, warm

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① Main street Bridge	2	Scattered trash
② 101 Bridge	2	" "
③ Throughout St. Paulk prop.	1	" "

Types of Trash Observed (check all that apply):

- | | | |
|--|--|-----------------|
| Plastic/ Styrofoam <input checked="" type="checkbox"/> | Paper Products/Biodegradable <input checked="" type="checkbox"/> | Household Items |
| Landscape Materials | Aluminum/ Metal | Automotive |
| Toxic/ Hazardous Materials <input checked="" type="checkbox"/> | Glass | Biohazardous |
| Personal Effects | Sports Equipment | Other |

Notes: Batteries, spray paint cans

Est. No. of Follow-up Cleanup Events Needed (describe why): More trash clean up throughout patrols.

Additional Notes: Quick patrol - mostly trash observed throughout properties.

APN: 060-0-320-284
Ventura Beach RV Resort Inc.
18.56 Acres

APN: 060-0-320-065
Ventura Hillside Conservancy
8.74 Acres

APN: 060-0-320-215
State of California
Dept. of Parks & Recreation
35.87 Acres

APN: 060-0-320-075
State of California
Dept. of Parks & Recreation
18.34 Acres

APN: 060-0-320-225
State of California
Dept. of Parks & Recreation
21.44 Acres

APN: 060-0-320-090
City of San Buenaventura
19.66 Acres

APN: 073-0-231-010
31st District Agricultural Association
(Ventura County Fair)
11.48 Acres



Legend

11/30/15

Ventura River
Trash TMDL

Appendix A – Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3, 4 Survey Date: 12/28/15
 Inspector: Jessica Nikolai, Stephen Byrne Survey Start/ End Time: 1:00 / 3:00
 Current Weather Condition: Sunny, cool
 Antecedent Weather Condition: - same -

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① 4 - Near Main St. Bridge	2	1 tent in ditch near bridge
② 4 - Under shrubs at drainage	2	old trash pile; clothing, paper/plastics
③ Under Main St. Bridge	3	Living Structure
④ Under 101 freeway	3	large trash pile
⑤ 2 - west of river	2	encampment left overs
⑥ 2 - west of river	2	old trash pile - scattered
⑦ 2 - west of river	2	Scattered bike parts / shopping cart
⑧ 2 - Emma Wood	2	Scattered trash / bike parts
⑨ 2 - Emma Wood	3	HUGE trash pile
⑩ 2 - Emma wood	2	Scattered trash
⑪ 2 - cypress grove	3	Encampment
⑫ 2 - Crossing to island	2	large trash pile
⑬ 2 - Island	2	1 tent + 2 car batteries

Types of Trash Observed (check all that apply):

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> Plastic/ Styrofoam | <input checked="" type="checkbox"/> Paper Products/Biodegradable | <input checked="" type="checkbox"/> Household Items |
| <input type="checkbox"/> Landscape Materials | <input checked="" type="checkbox"/> Aluminum/ Metal | <input checked="" type="checkbox"/> Automotive |
| <input type="checkbox"/> Toxic/ Hazardous Materials | <input checked="" type="checkbox"/> Glass | <input type="checkbox"/> Biohazardous |
| <input checked="" type="checkbox"/> Personal Effects | <input checked="" type="checkbox"/> Sports Equipment | Other - <u>Many rusty bike parts</u> |

Notes: Many bike parts observed this patrol - a few semi-active sites in/around Emma wood.

Est. No. of Follow-up Cleanup Events Needed (describe why): Emma Wood
definitely need some help! Also various spots along the river bottom on state park prop. need clean up - maybe 2 or 3 clean ups to knock these locations (including Emma wood) out.

Additional Notes: State Parks has done A LOT of work opening up the Emma wood River trail - many tents/trash observed in this area from recent patrols is now gone.
Osprey hanging out on light pole above 101, black skimmer seen at beach near river mouth. River no longer connected to ocean.

12/28/15



Appendix A – Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3 Survey Date: 1/14/16
 Inspector: J. Nikolaj, D. Poutrey Survey Start/ End Time: 3:30/ 5:00
 Current Weather Condition: cool, sunny
 Antecedent Weather Condition: cool, dark

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① Main Street Bridge	3	Tent and garbage - camp
② Main Street Bridge	3	Tent and garbage - camp
③ Main Street Bridge	3	Tent and garbage - camp
④ State Park - 2	2	Scattered garbage
⑤ State Park - 2	3	Tent and garbage
⑥ State Park "Island" - 2	3	Multiple tents - camp
⑦ City - 1	2	Scattered trash
⑧ City - 1	2	Scattered trash
⑨ State Park - 2	2	Scattered trash

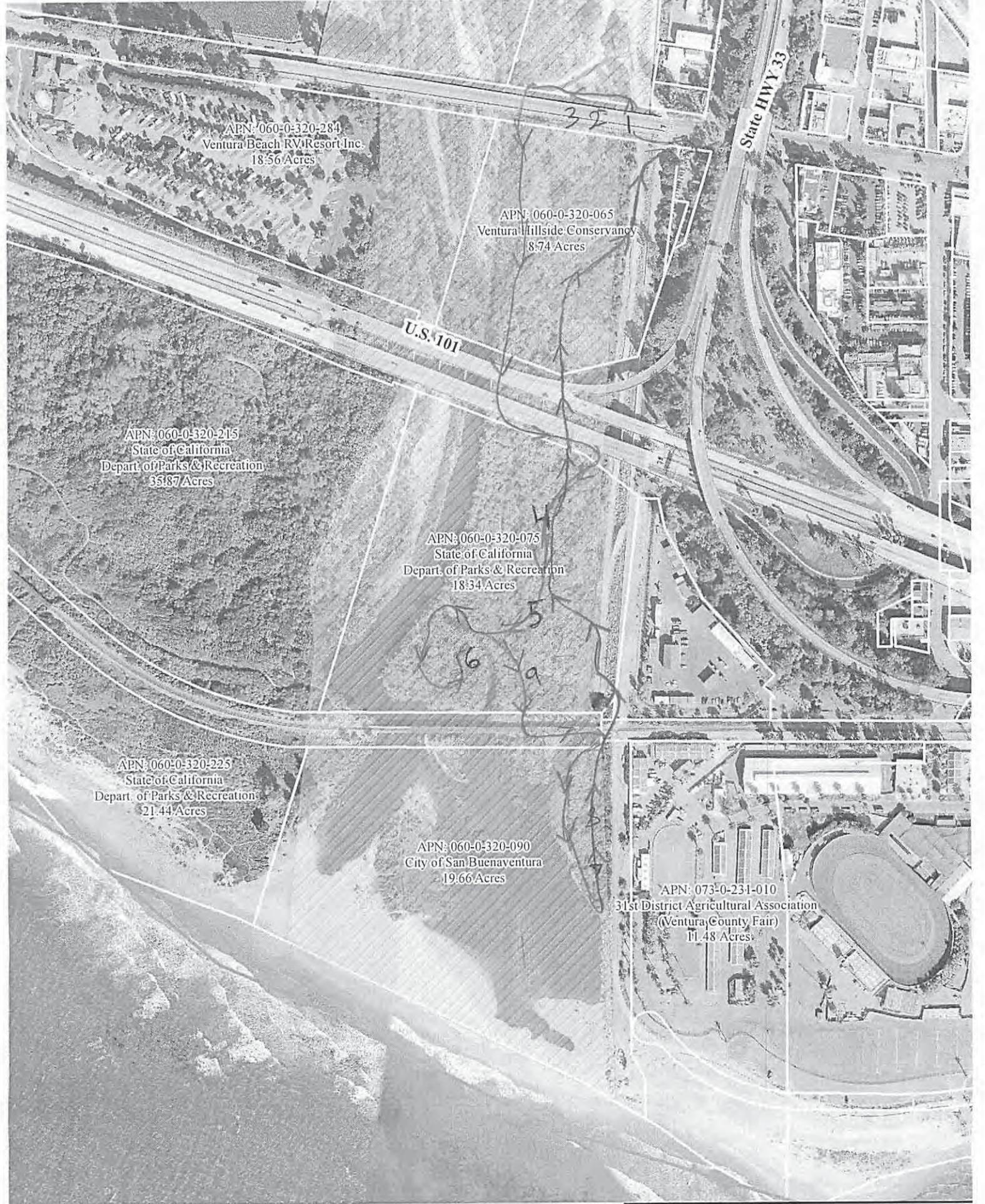
Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials	Aluminum/ Metal	Automotive
Toxic/ Hazardous Materials	Glass	Biohazardous
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment	Other

Notes: _____

Est. No. of Follow-up Cleanup Events Needed (describe why): Authorities will notify squatters that they will need to leave and take their things.

Additional Notes: Jerry Foreman of Ventura Police and Gina Lynch of CA State Park Law Enforcement were notified of camps. Spoke with a few folks near the island and on the island - warned them that authorities would be coming.



APN: 060-0-320-284
Ventura Beach RV Resort, Inc.
18.56 Acres

APN: 060-0-320-065
Ventura Hillside Conservancy
8.74 Acres

APN: 060-0-320-215
State of California
Dept. of Parks & Recreation
35.87 Acres

APN: 060-0-320-075
State of California
Dept. of Parks & Recreation
18.34 Acres

APN: 060-0-320-225
State of California
Dept. of Parks & Recreation
21.44 Acres

APN: 060-0-320-090
City of San Buenaventura
19.66 Acres

APN: 073-0-231-010
31st District Agricultural Association
(Ventura County Fair)
11.48 Acres



1/14/16

Legend

Ventura River Trash TMDL

Appendix A - Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3, 4 Survey Date: 2/26/16
 Inspector: J. Nikolic, Andre Casanova, John Lemo, John Luchich Survey Start/ End Time: 2:30 / 4:00
 Current Weather Condition: Sunny, breeze with a chill
 Antecedent Weather Condition: Sunny, some clouds coming in from ocean

Level of Trash Observed:
 Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① Main St. Bridge	3	Large camp - persons now gone, leftover garbage/belongings
② Main St. Bridge	2	Sleeping bag w/ some belongings
③ State Parks - 2	3	Living structure
④ State Parks - 2	2	Leftover trash from tent
⑤ State Parks - 2	2	Misc. trash scattered
⑥ City - 1	3	Tent w/ many belongings
⑦ City - 1	2	Possible living/resting area
⑧ City - 1	2	Trash pile
⑨ State Park "Cypress Grove"	3	New tent along trail
⑩ State Park "Cypress Grove"	3	New tent, semi hidden
⑪ State Park "Cypress Grove"	3	Large trash pile, some in bags

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive
Toxic/ Hazardous Materials	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment	Other

Notes: Still misc. scattered trash under Main St. and 101 freeway bridges.

Est. No. of Follow-up Cleanup Events Needed (describe why): One to two - mostly scattered trash throughout properties as well as the now accessible garbage under the Main St. Bridge.

Additional Notes: Island inaccessible today. State park law enforcement, John Luchich, accompanied us on the east side of the river - not city property. Persons that had been under the Main St. Bridge were arrested Thurs morning (2/25).

APN: 060-0-320-284
Ventura Beach RV Resort Inc.
18.56 Acres

APN: 060-0-320-065
Ventura Hillside Conservancy
8.74 Acres

APN: 060-0-320-215
State of California
Depart. of Parks & Recreation
35.87 Acres

APN: 060-0-320-075
State of California
Depart. of Parks & Recreation
18.34 Acres

APN: 060-0-320-225
State of California
Depart. of Parks & Recreation
21.44 Acres

APN: 060-0-320-090
City of San Buenaventura
19.66 Acres

APN: 073-0-231-010
31st District Agricultural Association
(Ventura County Fair)
11.48 Acres



2/26/16

Legend

Ventura River
Trough TMDL

Appendix A - Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3, 4 Survey Date: 3/9/16
 Inspector: S. Nikola, Maria Villalobos, Bill Murphy Survey Start/ End Time: 11:00 11:00
 Current Weather Condition: Sunny, breezy
 Antecedent Weather Condition: sunny, breezy

Level of Trash Observed:
 Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① City-1	2	Trash pile
② City-1	2	Two collapsed tents + personal items
③ City-1	1	Blankets on path
④ Willoughby, VHC-3	2	Sheets strung up w/ aranda + personal items
⑤ Willoughby, VHC-3	3	Large tent + personal items + hung up clothes
⑥ Willoughby, VHC-3	2	Living structure (from last week) in poison oak
⑦ Willoughby, VHC-3	2	Trash pile
⑧ Willoughby, VHC-3	2	Trash pile
⑨ Main St. Bridge	3	Trash pile (from old camp)
⑩ Main St. Bridge	2	Trash pile (from old camp)
⑪ 101 Freeway	2	Active encampment - 1 tent + personal items
⑫ Main St. Bridge	2	Trash pile

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam	Paper Products/Biodegradable	Household Items
Landscape Materials	Aluminum/ Metal	Automotive
Toxic/ Hazardous Materials	Glass	Biohazardous
Personal Effects	Sports Equipment	Other

Notes: Many living structures present - only (5) and (11) seemed active, others seem recent but not really in use (rain from yesterday possibly deterred camping).

Est. No. of Follow-up Cleanup Events Needed (describe why): 1 or 2 good clean ups required in Willoughby old camps and current camps that will need to be evicted.

Additional Notes: Trash pile from now abandoned camp under Main Street bridge appears to be dwindling in size - other persons taking items from this location? City police to be contacted for current camps.



APN 060-0-320-193
Wood-Tecasset Foundation
105.13 Acres

City of San
Huenaventura
9.78 Acres

APN 060-0-320-191
Ventura County
Flood Control District (WPD)
7.00 Acres

APN 060-0-320-264
Ventura Beach RV Resort Inc
18.56 Acres

APN 060-0-320-063
Ventura Hills Golf Course
27.7 Acres

APN 060-0-320-214
State of California
Dept. of Parks & Recreation
35.67 Acres

APN 060-0-320-275
State of California
Dept. of Parks & Recreation
18.17 Acres

APN 060-0-320-225
State of California
Dept. of Parks & Recreation
21.44 Acres

APN 060-0-320-090
City of San Huenaventura
19.66 Acres

APN 073-0-231-010
1st District Agricultural Association
Ventura County Fair
11.48 Acres

Legend

- Parcels
- Ventura River Trash TMDL Subwatershed
- TMDL Defined Estuary
- Adjacent Properties

N

1 inch = 350 feet

0 190 380 760 Feet

Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

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3/9/16

Appendix A – Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3 Survey Date: 4/14/16
 Inspector: J. Nikolai & Ken Meredith Survey Start/ End Time: 3:30 - 4:30
 Current Weather Condition: Sunny, breezy
 Antecedent Weather Condition: Sunny, windy

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① Main Street Bridge	3	Tent + personal belongings
② Main Street Bridge	3	Tents + personal belongings
③ I-5 freeway	3	4 tents + personal belongings
④ City -1	3	Tents + personal belongings
⑤ City -1	2	Misc. items
⑥ City -1	2	Misc. trash
⑦ City -1	1	Two garbage bags full of items
⑧ City -1	2	Small living area
⑨ City -1	2	Old fire pit / camp site
⑩ State Park -2	2	Small living area
⑪ State Park -2	2	Scattered trash pile
⑫ State Park -2	2	Small trash pile

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive
Toxic/ Hazardous Materials	Glass <input checked="" type="checkbox"/>	Biohazardous
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment	Other

Notes: _____

Est. No. of Follow-up Cleanup Events Needed (describe why): 2-3; tents need to be removed, lots of misc. trash throughout properties.

Additional Notes: VHC volunteer cleanup coming up, 4/16. Willoughby tent and nearby trash to be removed.

13	State Park - 2	2	Scattered trash
14	State Park - 2	2	Plastic bag with spilled trash
15	State Park - 2	2	Plastic bag w/ trash
16	Willoughby - VHC - 3	2	Trash pile
17	Willoughby - VHC - 3	1	Blankets
18	Willoughby - VHC - 3	3	Tent w/ many personal belongings
19	Willoughby - VHC - 3	2	Trash piles
20	Willoughby - VHC - 3	2	Trash pile

APN: 060-0-320-284
Ventura Beach RV Resort Inc.
18.56 Acres

APN: 060-0-320-065
Ventura Hillside Conservancy
8.74 Acres

APN: 060-0-320-215
State of California
Dept. of Parks & Recreation
35.87 Acres

APN: 060-0-320-075
State of California
Dept. of Parks & Recreation
18.34 Acres

APN: 060-0-320-225
State of California
Dept. of Parks & Recreation
21.44 Acres

APN: 060-0-320-090
City of San Buenaventura
19.66 Acres

APN: 073-0-231-010
31st District Agricultural Association
(Ventura County Fair)
11.48 Acres



4/14/16

Legend

Ventura River
Tosh TMD

Appendix A - Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3 Survey Date: 5/5/16
 Inspector: J. Nikolay, Jill Foreman Survey Start/ End Time: 1:00 / 3:00
 Current Weather Condition: cloudy / cool
 Antecedent Weather Condition: sunny / warm

Level of Trash Observed:
 Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① Main Street bridge	1	clothing / misc. items
② Main Street bridge	3	Almost every trestle has misc. trash
③ Willoughby - 3	1	Plastic bags / misc. trash
④ Willoughby - 3	1	Clothing
⑤ Willoughby - 3	2	Tent & / personal items
⑥ Willoughby - 3	2	Living structure w/ personal items
⑦ 101 Freeway	2	large pile of misc. items
⑧ 101 Freeway	2	Tent w/ personal items
⑨ State Parks - 2	2	Scattered trash on trail
⑩ State Parks - 2	2	Personal items
⑪ State Parks - 2	1	Bike laying next to trail
⑫ City - 1	2	Bike parts behind an arundo wall

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam	Paper Products/Biodegradable	Household Items
Landscape Materials	Aluminum/ Metal	Automotive
Toxic/ Hazardous Materials	Glass	Biohazardous
Personal Effects	Sports Equipment	Other

Notes: Could not get a good look at items on "the island" (site 10).

Est. No. of Follow-up Cleanup Events Needed (describe why): 2-3 +; new tents and remains of old encampments, lots of misc. trash scattered around. Some trash observed in river near the islands as well.

Additional Notes: County vehicle parked near Main St. bridge - one employee w/ two girls testing water quality of river.

⑬ City - 1	3	Multiple tents + personal items
⑭ City - 1	2	Opened trash bags w/ trash
⑮ City - 1	2	Living structure w/ personal items
⑯ City - 1	2	Misc personal items - possible living structure
⑰ State Parks - 2	1	Misc. trash
⑱ State Parks - 2	1	Trash, sleeping bags, misc items
⑲ Willoughby - 3	2	Scattered misc. trash



APN: 060-0-320-284
Ventura Beach RV Resort Inc.
18.56 Acres

APN: 060-0-320-065
Ventura Hillside Conservancy
8.74 Acres

APN: 060-0-320-215
State of California
Dept. of Parks & Recreation
35.87 Acres

APN: 060-0-320-075
State of California
Dept. of Parks & Recreation
18.34 Acres

APN: 060-0-320-225
State of California
Dept. of Parks & Recreation
21.44 Acres

APN: 060-0-320-090
City of San Buenaventura
19.66 Acres

APN: 073-0-231-010
31st District Agricultural Association
(Ventura County Fair)
11.48 Acres

7.85 Acres

U.S. 101

State Hwy 33



5/5/16

Legend

Ventura River

Appendix A - Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3, 4 Survey Date: 6/2/16
 Inspector: Dr. Nikolaj Chris Reinhardt Survey Start/ End Time: 2:00 / 3:30
 Current Weather Condition: cloudy
 Antecedent Weather Condition: Sunny to partly cloudy

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① County - 4	2	Trash in drainage ditch
② VHC - 3	2	Misc. trash, shopping cart
③ Main Street bridge	2	Misc. trash
④ VHC - 3	2	Tent w/ misc. items
⑤ VHC - 3	2	Luggage, clothing, trash, books
⑥ VHC - 3	2	Wooden pallet, misc. trash
⑦ VHC - 3	3	Tent w/ misc. items
⑧ VHC - 3	1	Sleeping bag + trash
⑨ VHC - 3	2	Sleeping bag + trash
⑩ 101 Freeway	3	Misc. trash under trestles
⑪ 101 Freeway	3	Tents + many personal items
⑫ State Park - 2	3	Trash pile

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials <input type="checkbox"/>	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive <input type="checkbox"/>
Toxic/ Hazardous Materials <input checked="" type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input type="checkbox"/>	Other <input type="checkbox"/>

Notes: Lots of "leftover" trash, biohazardous wastes, and scattered garbage throughout properties.

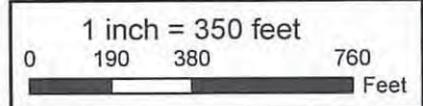
Est. No. of Follow-up Cleanup Events Needed (describe why): 3-4; discovering more and more trash! Efforts needed on all properties.

Additional Notes: Site (7) on VHC to be cleared by police tomorrow - will inform them of a new tent (4) that has popped up in a location where a tent was recently removed.

(13) State Park-2	2	Tent + personal items
(14) State Park-2	2	Misc. trash all along trail
(15) State Park-2	1	Few pieces of trash visible on island
(16) State Park-2	2	Misc trash all along trail
(17) City-1	3	Trash leftover from camps
(18) City-1	2	Old firepit w/ misc trash
(19) City-1	3	Tent + many items
(20) City-1	2	3 full trash bags
(21) City-1	1	Sleeping bag + a few items
(22) State Parks-2	3	Leftover trash from camps
(23) State Parks-2	3	Leftover trash from camp
(24) State Parks-2	2	Tin cans, other metal pieces
(25) State Parks-2	2	Plastics + misc trash
(26) State Parks-2	2	Paper products + misc. trash
(27) State Parks-2	3	Tent + items
(28) VHC-3	2	Trash pile
(29) VHC-3	2	Few pieces of scattered trash



Legend	
	Parcels
	Ventura River Trash TMDL Subwatershed
	TMDL Defined Estuary
	Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area

DISCLAIMER:
The information combined hereon was created by the County of

6/2/16

Appendix A - Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3 Survey Date: 7/13/16
 Inspector: J. Nikobi, Russell Richardson Survey Start/ End Time: 1:00 / 2:30
 Current Weather Condition: Sunny
 Antecedent Weather Condition: Sunny

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① VHC-3	2	Trash can lid, bicycle parts, trash
② VHC-3	1	Bicycles, trash
③ Main Street bridge	2	Under most central freestyles - misc. trash
④ VHC-3	1	Few pieces of trash
⑤ VHC-3	2	Plastic wrappers along trail
⑥ VHC-3	2	Remains of a camp - mostly paper
⑦ VHC-3	2	Plastic bags, trash, toilet paper
⑧ VHC-3	1	Misc. trash on trail
⑨ VHC-3	1	Clothing, plastics
⑩ VHC-3	1	Plastic bags w/ trash
⑪ 101 Freeway	3	Living structure + sheets, chairs
⑫ 101 Freeway	1	Tarp + trash

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam <input checked="" type="checkbox"/>	Paper Products/Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials <input type="checkbox"/>	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive <input type="checkbox"/>
Toxic/ Hazardous Materials <input type="checkbox"/>	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input type="checkbox"/>	Other <input type="checkbox"/>

Notes: Lots of plastics, clothing, bike parts.

Est. No. of Follow-up Cleanup Events Needed (describe why): 3-4; trails need to be walked to remove scattered trash throughout properties.

Additional Notes: One individual seen in camp, (19), during patrol. Camp that was on VHC property, (6), now gone. Still many camps/camp trash in City and State properties - lots of trash along VHC trails.

- (13) 101 Freeway
- (14) State Parks - 2
- (15) State Parks - 2
- (16) Train trestle
- (17) City - 1
- (18) City - 1
- (19) City - 1
- (20) City - 1
- (21) State Parks - 2

- 3
- 2
- 2
- 3
- 3
- 3
- 3
- 3
- 1

Leftover trash from encampment
 Mattress + trash, tarp
 Trash along trail to island
 Mix. trash, clothing under bridge
 Lots of old camp trash
 Large, full trash bags
 Encampment
 Old encampment trash, possible active site
 Tape? across trail in trees above trail



APN: 060-0-320-193
Wood-Clayssens Foundation
105.12 Acres

APN: 071-0-120-110
City of San
Buenaventura
9.78 Acres

APN: 060-0-320-050
Ventura County
Flood Control District (WPD)
7.85 Acres

APN: 060-0-320-284
Ventura Beach RV Resort Inc.
18.56 Acres

APN: 060-0-320-065
Ventura Hills Conservancy
8.54 Acres

APN: 060-0-320-215
State of California
Dept. of Parks & Recreation
33.87 Acres

APN: 060-0-320-075
State of California
Dept. of Parks & Recreation
18.34 Acres

APN: 060-0-320-225
State of California
Dept. of Parks & Recreation
21.44 Acres

APN: 060-0-320-090
City of San Buenaventura
19.66 Acres

APN: 073-0-231-010
31st District Agricultural Association
(Ventura County Fair)
11.48 Acres

Legend

- Parcels
- Ventura River Trash TMDL Subwatershed
- TMDL Defined Estuary
- Adjacent Properties

N

1 inch = 350 feet

0 190 380 760

Feet

Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

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7/13/16

Appendix A – Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3 Survey Date: 8/15/16
 Inspector: J. Nikolai, B. Richardson Survey Start/ End Time: 1:30 / 3:00
 Current Weather Condition: Sunny, breezy
 Antecedent Weather Condition: sunny

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① Main Street bridge	1	Clothing, trash
② Main Street bridge	1	Trash, cardboard
③ Main Street bridge	1	Multiple spray paint cans
④ VHC-3	1	Trash, clothing
⑤ VHC-3	2	Few trash spots hidden in shrubs
⑥ VHC-3	1	Pieces of wood
⑦ 101	1	Small trash pile
⑧ State Parks -2	3	Large trash pile
⑨ 101	3	Old camp-trash
⑩ State Parks -2	2	Clothing trash, beach toys
⑪ State Parks -2	3	Campsite - dismantling
⑫ State Parks -2	1	Paper/plastic trash

Types of Trash Observed (check all that apply):

Plastic/Styrofoam ✓	Paper Products/Biodegradable ✓	Household Items ✓
Landscape Materials	Aluminum/Metal ✓	Automotive
Toxic/Hazardous Materials ✓	Glass ✓	Biohazardous ✓
Personal Effects ✓	Sports Equipment ✓	Other

Notes: lots of clothing, paper and plastic trash - old campsites.

Est. No. of Follow-up Cleanup Events Needed (describe why): 3-4; cleanup to occur this week (August 20th) on city property.

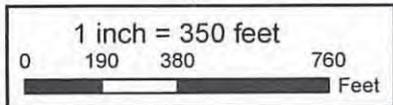
Additional Notes: ⑪ Campsite was in the process of being dismantled by inhabitants during patrol (it appeared).

- ⑬ Train trestle 2
- ⑭ State Parks-2 1
- ⑮ City-1 3
- ⑯ City-1 3
- ⑰ City-1 2
- ⑱ City-1 2
- ⑲ State Parks-2 2
- ⑳ State Parks-2 3
- ㉑ State Parks-2 1
- ㉒ 101 3
- ㉓ 101 3
- ㉔ VHC-3 1

- Trash under each trestle
- Starbucks umbrella
- Old campsite trash - many spots here
- Old campsite trash
- Trash bags w/ trash
- Old campsite trash
- Old campsite trash - many spots here
- Active camp
- Plastic trash on trail
- Old campsite trash - blankets, plastic bottles
- Wooden fort
- Trash on trail



Legend	
	Parcels
	Ventura River Trash TMDL Subwatershed
	TMDL Defined Estuary
	Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

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8/15/16

Appendix A - Trash Visual Survey Worksheet

Trash Visual Survey Worksheet

Parcel No.: 1, 2, 3, 4 Survey Date: 9/13/16
 Inspector: J. Nikolaj, John Harrison Survey Start/ End Time: 1:00 13:15
 Current Weather Condition: Sunny, Cool
 Antecedent Weather Condition: Sunny

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the parcel. If necessary, categorize these areas individually.

KEY: Category 1 (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Notes/ Parcel Area:	Category:	Reason(s) for Category Rating:
① County - 4	3	Old campsite
② County - 4	2	Clothing, paper trash
③ Main Street bridge	2	Plastic trash, bottles
④ VHC - 3	2	Old clothing, trash
⑤ VHC - 3	1	Old cushion or mattress
⑥ VHC - 3	2	Small camp - clothing, sleeping pad, bucket
⑦ State Park - 2	3	Clothing trash
⑧ 101 Freeway	3	Toilet paper, clothing, paper/plastics
⑨ 101 Freeway	2	Tarp, clothing, blankets
⑩ State Parks - 2	2	Small tent, personal effects
⑪ State Parks - 2	1	Clothing, boots, trash
⑫ State Parks - 2	3	Large trash pit
⑬ State Parks - 2	1	Suitcase w/ clothing
⑭ State Parks - 2	1	Starbucks umbrella & stand, Caltrans hat

Types of Trash Observed (check all that apply):

Plastic/ Styrofoam	Paper Products/Biodegradable <input checked="" type="checkbox"/>	Household Items <input checked="" type="checkbox"/>
Landscape Materials	Aluminum/ Metal <input checked="" type="checkbox"/>	Automotive
Toxic/ Hazardous Materials	Glass <input checked="" type="checkbox"/>	Biohazardous <input checked="" type="checkbox"/>
Personal Effects <input checked="" type="checkbox"/>	Sports Equipment <input checked="" type="checkbox"/>	Other

Notes: Still lots of clothing, plastic/paper trash.

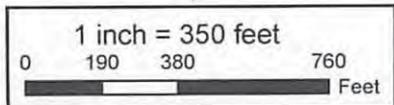
Est. No. of Follow-up Cleanup Events Needed (describe why): With enough volunteers, 1 to 2 cleanups. Cleanup upcoming on 9/17.

Additional Notes: Heard what sounded like tools being used around (25).

(13) State Parks - 2	1	Metal stand
(14) State Parks - 2	1	Clothing, trash
(15) Railroad bridge	2	Trash, cooler, clothing
(16) Railroad bridge	2	Plastic trash
(17) Railroad bridge	2	Couch cushions, trash
(18) City - 1	1	Plastic trash
(19) City - 1	2	Tent
(20) City - 1	2	Full garbage bags
(21) City - 1	2	Old campsite
(22) City - 1	2	Old camp trash
(23) City - 1	2	Full garbage bags
(24) State Parks - 2	2	Medium pile of trash
(25) State Parks - 2	1	Bicycles
(26) I01 freeway	2	Old campsite
(27) I01 freeway	3	wooden fort...



Legend	
	Parcels
	Ventura River Trash TMDL Subwatershed
	TMDL Defined Estuary
	Adjacent Properties



Ventura River Trash TMDL Estuary Subwatershed Area (as defined by TMDL)

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9/13/16

Appendix 2. Clean-Up Photos

Ventura Hillside Conservancy Clean Up Photos



October 5, 2015- United Way volunteers cleaning up under the 101 freeway.



October 5, 2015- Executive Director, Derek Poultney, lends a hand.



April 16, 2016- A small but mighty group of volunteers!



April 16, 2016- A camp in Willoughby Preserve “before”.



April 16, 2016- "After" of camp in Willoughby Preserve.



May 21, 2016- Removing a BBQ from Willoughby Preserve.



May 21, 2016- A large haul from Willoughby Preserve.



May 21, 2016- State Park employees picking up the haul to kindly transport to their dumpsters.



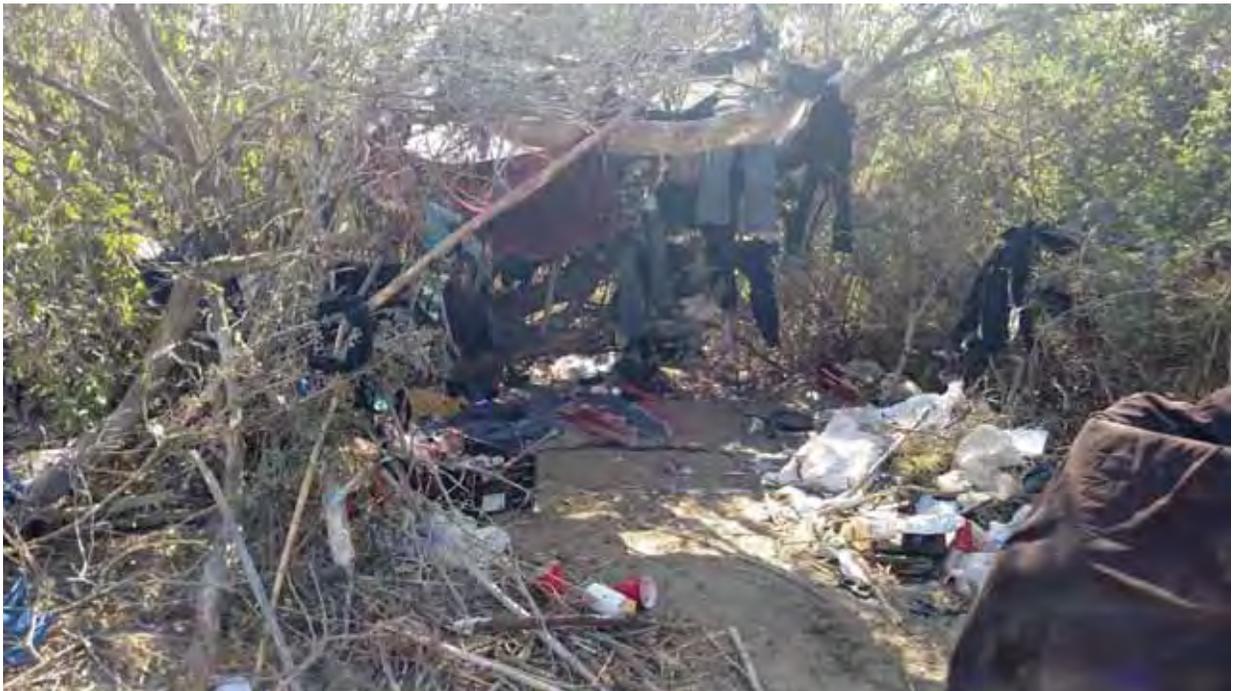
June 18, 2016- A “before” camp under a large elderberry.



June 18, 2016- “After” cleaning up the camp.



June 18, 2016- Scattered trash in between 101 and RV Park property.



June 18, 2016- "Before" camp in Willoughby Preserve.



June 18, 2016- "During" camp removal in Willoughby Preserve.



August 20, 2016- "Before" camp on City property near the bike path.



August 20, 2016- "After" camp on City property near the bike path.



August 20, 2016- Another large haul, this time from City property and part of State Park.



August 20, 2016- “Before” camp on City property near the river.



August 20, 2016- “After” camp near the river.



August 20, 2016- Another “before” camp on City property near the river.



August 20, 2016- “After” camp near the river.



September 17, 2016- Clearing out a large “trash pit” on State Park property. This pit required a few more visits until it was completely free of trash.



September 17, 2016- United Way volunteers at it again, this time on County property.

Appendix 3. Happy Valley Bioswale in Meiners Oaks, CA

Happy Valley Bioswale

Urban Low Impact Development (LID) Retrofit South Lomita Ave, Meiners Oaks, CA



Facing East From Lomita Avenue
At OVLC Property's Existing
Walking Path Near Northern Tip of
OVLC Property



Facing South From on Lomita Avenue
From Northern Tip Of OVLC Property



Facing East From Lomita Avenue Looking At Existing Catch Basin At Southern Rip Of OVLC Property



Facing South From On Lomita Avenue Approaching Southern Tip Of OVLC Property



Contractor mobilization and start of grading



Graded swale and OVLC maintenance crossing



OVLC maintenance crossing



OVLC maintenance crossing





Concrete and forms for diversion catch basin and transition structure



Diversion catch basin and inlet local depression concrete work



Excavation for treatment vault



Treatment vault placement



Constructing concrete headwall
for swale discharge piping



Concrete headwall for
swale discharge piping



Baffle box vault
placement





Constructing concrete headwall for swale inlet piping from baffle box



Constructing concrete headwall for swale inlet piping from baffle box



Excavated area for maintenance vehicle parking (out of traffic)



Maintenance vehicle parking area (out of traffic)

Installed Irrigation System

7



Completed Outlet



Completed Swale

8



Completed Swale





Drone picture before construction



Drone picture after construction

Happy Valley Bioswale – Educational Signs

August 2016

11



**Appendix 4. County's Watershed Friendly Garden Program in
Meiners Oaks, CA**

WATERSHED FRIENDLY GARDEN PROGRAM AT MEINERS OAKS ELEMENTARY SCHOOL

September 10, 2016 through October 22, 2016

Ventura County Public Works Agency's Watershed Protection District
Ojai Unified School District & Meiners Oaks Elementary School

Surfrider Foundation & Green Gardens Group (G3)

G3 Instructors: Kathy Nolan, ASLA; John Tikotsky, ASLA;
Laura Bauer, Natasha Elliott, and Jan Bird

Dufau Landscaping, Inc.



**Surfrider
Foundation®**



Funding has been provided in full or in part through an agreement with the State Water Resources Control Board.



Watershed Friendly Garden Program

1st Seminar: **Get the Basics**
September 10, 2016

Instructor:

Kathy Nolan, Green Gardens Group

32 Participants at Meiners Oaks
Elementary School



Watershed Friendly Garden Program

2nd Seminar: **Evaluate the Site**
September 24, 2016

Instructor:
John Tikotsky, Green Gardens Group

30 Participants at Meiners Oaks Elementary School



Watershed Friendly Garden Program

3rd Seminar: Landscape Design
October 1, 2016

Instructor:
Kathy Nolan, Green Gardens Group

32 Participants at Meiners Oaks
Elementary School



Watershed Friendly Garden Program

4th Seminar: Lawn Be Gone
– Build Soil and Capture Rain
October 15, 2016

Instructor:
Laura Bauer, Green Garden Group

18 Participants at Meiners Oaks Elementary School



Watershed Friendly Garden Program

5th Seminar: Planting and Irrigation
October 22, 2016

Instructor:
John Tikotsky, Green Garden Group

23 Participants at Meiners Oaks Elementary School



**Meiners Oak Elementary School
Watershed Friendly Garden
Completion
October 24, 2016**



Watershed Friendly Garden at Meiners Oak Elementary School

September - October 2016



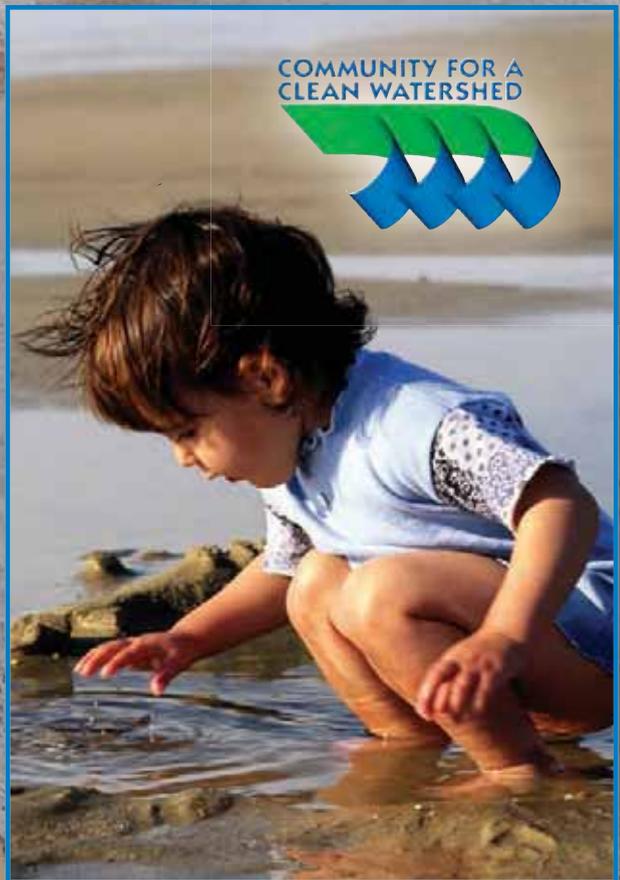
Appendix 5. Countywide Outreach Materials

GARBAGE IN GARBAGE OUT

Storm drains empty straight into our rivers, lakes and beaches.

Unfiltered. Untreated.

Act responsibly with your household trash, pesticides, fertilizers, grass clippings, pet waste and driveway fluids.



The watershed should
only shed water.

cleanwatershed.org

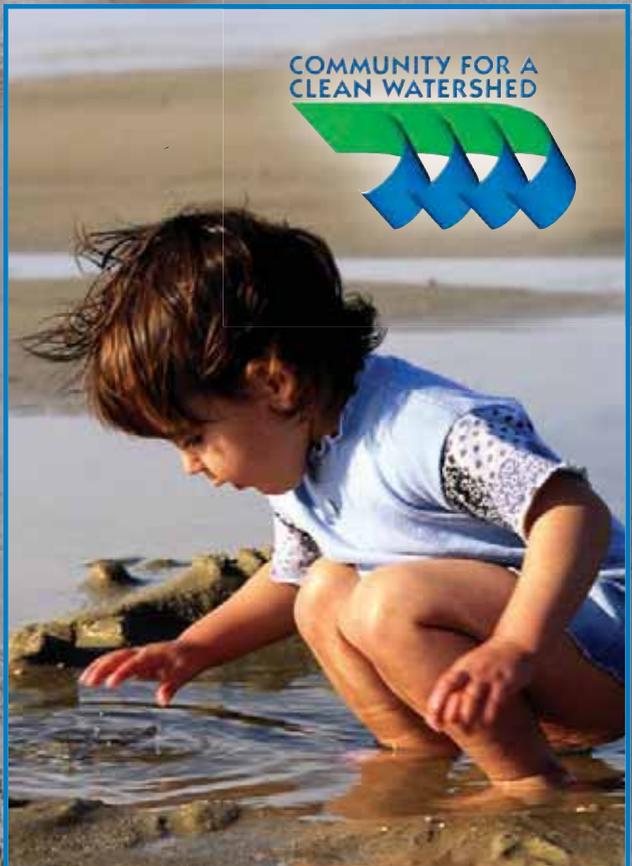
SI HECHAS BASURA SALE BASURA

Los sistemas de drenaje se vacían directamente a nuestros ríos, lagos y playas.

Sin filtración. Sin tratamiento.

Actúe responsablemente

con los desechos de su hogar, como pesticidas, fertilizantes, recortes de pasto, residuos de mascota y fluidos de carro.



La cuenca hidrográfica sólo debería transportar agua.

cleanwatershed.org

**THE WATERSHED
SHOULD ONLY
SHED WATER...**

NOT TRASH.



COMMUNITY FOR A
CLEAN WATERSHED



cleanwatershed.org

La Cuenca Hidrográfica Solamente Debería Transportar Agua...

No Basura.



COMMUNITY FOR A
CLEAN WATERSHED



cleanwatershed.org

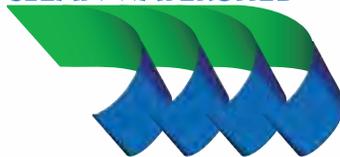


PICK IT UP

BEFORE IT MAKES THE TRIP.

THE WATERSHED SHOULD ONLY SHED WATER

COMMUNITY FOR A
CLEAN WATERSHED



www.cleanwatershed.org



RECOGELO ANTES DE QUE HAGA
EL VIAJE HACIA EL OCEANO.

**Nuestra Cuenca Hidrográfica Solo
Debe Transportar Agua**

**COMMUNITY FOR A
CLEAN WATERSHED**



www.cleanwatershed.org

Ventura River Watershed Boundary Signs



Ventura River Watershed “Keep It Clean” Signs

