

SECTION C-12

WATERSHED MANAGEMENT

**PROGRAM EFFECTIVENESS ASSESSMENT
2016-17**





SECTION C-12, Watershed Management

C-12.0 WATERSHED MANAGEMENT

C-12.1 Introduction (LIP Section A-12.1)

The County coordinates regional activities in all of the watersheds of Orange County. A summary of watershed management progress and plan modifications during the reporting year is provided below. For additional details on watershed management efforts in the Santa Ana Region during the reporting period, please reference **Section C-12** of the **Santa Ana Region Unified PEA Report**.

C-12.2 Watershed Management Progress

C-12.2.1 TMDL Program Accomplishments

The County has coordinated significant city and stakeholder efforts implementing Total Maximum Daily Load (TMDL) programs, including the San Gabriel River/Coyote Creek, Newport Bay, Aliso Creek, Baby Beach (Dana Point Coastal Streams), and San Juan Creek watersheds.

San Diego Region - Beaches and Creeks Bacteria TMDL

As part of Aliso Creek and San Juan Creek watershed bacteria TMDL efforts, Comprehensive Load Reduction Plans (CLRPs) were developed outlining the BMPs needed to meet TMDL Waste Load Allocations (WLAs) and the special studies needed to identify sources of indicator bacteria and other listed pollutants in the watershed. During the reporting period, the County and south Orange County cities continued implementation of Aliso and San Juan Creek Watershed CLRP special studies and monitoring. The County in conjunction with the County and City of San Diego and the San Diego Regional Board also participated in extensive meetings to revise the Beaches and Creeks Bacteria TMDL and to complete a cost benefit analysis of compliance with wet weather bacteria standards.

San Diego Region - Baby Beach Bacteria TMDL

During the reporting period, the County in cooperation with the City of Dana Point, continued implementation of Baby Beach Bacteria TMDL work plan efforts. An assessment of current bacterial water quality and BMP efforts at Baby Beach is provided in the Baby Beach Bacteria TMDL Annual Progress Report 2015-16 which can be found on the County's website at: <https://ocgov.box.com/v/Appendix-F>.

Los Angeles and Santa Ana Regions - Coyote Creek Metals TMDL

Coyote Creek, a tributary of the San Gabriel River, was identified on the Clean Water Act Section 303(d) list as impaired by copper. The USEPA also found impairments for lead and zinc and established technical TMDLs for all three metals. No dry weather TMDLs were established for Coyote Creek, but a dry weather waste load allocation for copper was established to help



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protect the downstream San Gabriel River Estuary. Wet weather TMDLs were established for copper, lead, and zinc. These TMDLs were established by the Los Angeles Regional Board, since most of the San Gabriel River watershed exists within that region, but 54% of the Coyote Creek subwatershed lies within the purview of the Santa Ana Regional Board. The Santa Ana Regional Board included the TMDLs in the Fourth Term Permit and required development of a Source Control Plan and Monitoring Program (SCP). In 2009, a work group was convened, consisting of the County and the cities of Anaheim, Brea, Buena Park, Cypress, Fullerton, La Habra, La Palma, Los Alamitos, Placentia, and Seal Beach, to help guide SCP development. The SCP was finalized and monitoring began under the initiative in 2010 and is ongoing. Results suggest that copper is the primary concern in the watershed in wet weather. The California State Legislature passed SB346 to phase out copper content in brake pads in California to less than 5% by 2021 and to less than 0.5% by 2025, which should reduce the major source of copper. Recent communications indicate that major brake manufacturers are significantly ahead of schedule in meeting the 5% copper limit.

Santa Ana Region - Newport Bay Fecal Coliform TMDL

The fecal coliform TMDL for Newport Bay was adopted in 1999 to improve bacterial water quality and water contact recreational activities and reduce public health risks. Based on evaluation of trends in data since 2001 from Newport Bay sites, average fecal coliform concentrations have decreased substantially. The TMDL requires that a TMDL Revisions Report be prepared to direct the revision of the TMDL based upon findings from a Source Identification Plan and recommendations in the Source Management Plan, which have both been completed. During the reporting period, a facilitated stakeholder process was initiated including MS4s, developers, environmental groups, and the Regional Board, with SCCWRP providing technical guidance with the goal of assessing potential changes to the recreational standards, based on 2012 EPA guidance, and the fecal coliform TMDL.

The 2016-17 Newport Bay Fecal Coliform TMDL Annual Data Report (submitted to the Santa Ana Regional Board on September 1, 2017) is available at:
<http://prg.ocpublicworks.com/DocmgmtInternet/Download.aspx?id=1370>.

Santa Ana Region - Newport Bay Watershed Nutrient TMDL

The nutrient TMDL for the Newport Bay watershed was approved in 1999. In February 2000, the County on behalf of the Watershed Permittees, initiated the Regional Nutrient Monitoring Program (RMP) for the Newport Bay watershed pursuant to requirements established by the Santa Ana Regional Board (Resolution 99-77).

Current analysis of the RMP watershed and Bay data indicate the overall TMDL reduction targets are being met. The urban runoff waste load allocation for both nitrogen and phosphorus, however, has not been consistently achieved. Nutrient levels at Santa Ana-Delhi Channel and San Diego Creek Reach 2 are influenced by rising groundwater, which has been documented as a significant source of nitrogen. As rising groundwater has a separate load allocation under the TMDL, revisions of the TMDL have been recommended to the Santa Ana



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Regional Board to address this issue. For phosphorus, the current allocation would require sustained drought conditions (<5 inches of rain per year) to meet the urban runoff target since phosphorus loads are highly correlated with rainfall. The total phosphorus load to Newport Bay has recently been in attainment of the overall TMDL as shown in the *2015-16 Annual Data Report for the Newport Bay Watershed Nutrient TMDL* (December 15, 2016), available at <http://prg.ocpublicworks.com/DocmgmtInternet/Download.aspx?id=1296>. Revisions to the TMDL have been recommended in the annual data report to address the issue. The 2016-17 Newport Bay Nutrient TMDL Annual Data Report will be submitted to the Santa Ana Regional Board on December 15, 2017.

Santa Ana Region - Newport Bay Watershed Sediment TMDL

The sediment TMDL for the Newport Bay watershed was approved in April 1999. Analysis of monitoring data indicates that sediment loads in the Newport Bay Watershed have been reduced significantly from rates recorded in the pre-TMDL period and that compliance with the 50% reduction (62,500 tons per year) is being achieved.

In February 2014, the Santa Ana Regional Board approved requested modifications to the Monitoring and Reporting Program for the Sediment TMDL. The revisions were based on the extensive monitoring data collected to date and reflect the changing nature of the watershed in response to sediment control initiatives and efforts put in place over the past 30 years. The revised Monitoring Program aligns monitoring with current conditions in the watershed.

A comprehensive review of sediment loading rates and status was completed in 2015-16. The County and TMDL funding partners are actively working with the Regional Board and utilizing this report to make revisions to the TMDL.

Santa Ana Region - Newport Bay Watershed Toxics TMDL

On June 14, 2002, EPA Region 9 established the Toxics TMDL for the Newport Bay watershed. The Santa Ana Regional Board is currently splitting the EPA promulgated Toxics TMDL into five separate constituent and geographically specific TMDLs. The five resulting TMDLs will include (1) diazinon and chlorpyrifos, (2) organochlorine compounds, (3) selenium, (4) metals, and (5) Rhine Channel. Each of these individual TMDLs must proceed through the full approval process before they are officially adopted and effective and the EPA TMDLs will need to be depromulgated. To date, the Santa Ana Regional Board has adopted three of the five TMDLs one for diazinon and chlorpyrifos (organophosphate pesticides) and one for organochlorine compounds, and recently, one for selenium.

In response to the organochlorine compounds TMDLs the County formed a stakeholder working group, the Toxicity Reduction and Investigation Program (TRIP). Stakeholders include watershed cities, the Santa Ana Regional Board, environmental representatives and local business interests. A TRIP Work Plan was submitted to the Santa Ana Regional Board detailing watershed-wide efforts needed to address issues related to sources and effects of toxicity in the



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San Diego Creek and Newport Bay watershed. The Work Plan focuses primarily on the indirect effects of organochlorine pesticides and other toxic constituents on key wildlife species of concern that consume contaminated prey items, on humans consuming contaminated seafood from the Bay and on the causes of direct toxicity to sediment dwelling organisms. A reassessment of the Work Plan is ongoing with the County, funding partners and Santa Ana Regional Board participating.

C-12.2.2 Non-TMDL Program Accomplishments

San Diego Region - Aliso Creek 13225 Directive

In 2001, the San Diego Regional Board issued a Water Code Section 13225 Directive (Directive) to the Watershed Permittees in response to the elevated levels of bacterial indicators detected in many areas of the Aliso Creek watershed that were attributed to urban sources. In response, the Watershed Permittees developed and implemented an extensive bacterial monitoring program and specific plans of action for addressing problem stormdrains on a prioritized basis. The County on behalf of the Aliso Creek watershed permittees submits an annual Aliso Creek water quality data assessment monitoring report on March 1 of each year (Aliso Creek Watershed Runoff Management Plan Water Quality Data Assessment Annual Report). Findings from the latest annual report indicate that 2016 marked another year of progress for the Aliso Creek watershed as the state of Creek is significantly improved from the start of monitoring and BMP efforts in the 1990s. With the enrollment in the regional MS4 permit, which requires the development of a region wide WQIP, activities implemented through the Directive are being integrated into the WQIP process.

Santa Ana Region - Newport Bay Watershed Nitrogen and Selenium Management Program

The Newport Bay Nitrogen and Selenium Management Program (NSMP) was created in 2004 in response to a general NPDES permit (Order No. R8-2004-0021, which was replaced by R8-2007-0041 and amended by R8-2009-0045) issued to establish waste discharge requirements for certain groundwater-related discharges and to regulate *de minimus* discharges. The NSMP is a collaborative effort of stakeholders, including the Santa Ana Regional Board, the County, and local agencies, and private entities with the goal of developing management strategies and treatment technologies for both selenium and nitrogen for the watershed. Since the permit expiration in December 2009, a Time Schedule Order (TSO) R8-2009-0069 (and subsequently R8-2013-0060 and amended by R8-2014-0025) has been in place to provide interim coverage for the NSMP dischargers. Currently, NSMP stakeholders are working on the tasks outlined in the BMP Strategic Plan which includes several pilot testing efforts and diversion projects. The revised Selenium TMDL was adopted by the Regional Board in August 2017 and is expected to be fully adopted in 2018. Among the implementation measures outlined in the TSO and the TMDL, three projects are in implementation phase:

1. Peters Canyon Channel Water Capture and Water Reuse Pipeline Project – This project is designed to capture groundwater dewatering or seepage-related discharges from four



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locations in the lower Peters Canyon Wash. The construction of the project was completed in the summer 2016 and is currently operating.

2. Santa Ana Delhi Channel Diversion Project – similar to the Peters Canyon Channel project although focused on channel water rather than groundwater, will divert dry weather base flow from Santa Ana-Delhi Channel to the Orange County Sanitation District (OCSD) to remove about 40 lbs. of selenium per year, among other pollutants. The construction of the project started in late 2016 and is expected to be completed in the spring of 2018.
3. Big Canyon Wash Comprehensive Selenium Management Program – This program includes many projects to reduce selenium loads in this small watershed (2 square miles) located entirely within the city of Newport Beach. The construction is expected to complete in spring of 2018.

Santa Ana Region - Watershed Infiltration and Hydromodification Management Plans (WIHMP)

The Santa Ana Region Fourth Term MS4 Permit for Orange County required the development of watershed master plans for the Coyote Creek-San Gabriel River, Anaheim Bay-Huntington Harbor, Santa Ana River, and Newport Bay-Newport Coast watersheds. To fulfill these requirements master plans, termed Watershed Infiltration and Hydromodification Management Plan (WIHMP) have been under development. These plans include maps to identify areas susceptible to hydromodification and where stormwater and urban runoff infiltration is possible and appropriate. A hydromodification model is also being developed as a tool to enable proponents of land development projects to readily select stormwater preventive and mitigative site BMP measures. WIHMPs were finalized for all north Orange County watersheds in 2016-17.

San Diego Region - Water Quality Improvement Plan (WQIP)

The San Diego Region Fourth Term MS4 Permit for Orange County required the development of Watershed Workplans for south Orange County identifying the management activities being undertaken by Permittees to address water quality constituents of concern. These plans were developed in the 2010-11 reporting period and subsequently updated until adoption of the San Diego Region Fifth Term Permit. The Fifth Term Permit emphasizes a management approach focused more on specific priority water quality conditions, this is implemented through development of a WQIP that identifies the highest priority water quality conditions and strategies to achieve improvements in water quality. During the reporting period the County and co-permittees submitted the completed WQIP for the San Juan Hydrologic Unit in April, 2017. Before the WQIP is officially approved by the Regional Board, which is expected to be by the end of 2017, the County continued the implementation of a transitional monitoring program and has also submitted a Transitional Monitoring Report on January 31, 2017 that covers the reporting period from October 1, 2015 to September 30, 2016 as required by the Fifth Term Permit.



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Integrated Regional Water Management Plans (IRWMPs)

The County has organized governance for water quality programs around three geographic sub-areas, or watershed management areas North, Central and South Orange County Watershed Management Areas (WMAs). Integrated Regional Water Management Plans (IRWM Plans) have been developed for each WMA prioritizing goals, objectives, research strategies, and projects to achieve more sustainable water use.

The North and Central IRWM Plans are considered local IRWM Plans, focused on establishing local priorities for and implementation of projects. The Permittees in each WMA and other stakeholders initiated a process to update and merge these plans to cover both WMAs during the reporting period. The updated plan will be open for public review in late 2017 and finalized in 2018.

The South Orange County WMA is a recognized IRWM Region by the State Department of Water Resources and applies directly for IRWM grant funding. As such, the South IRWM Group independently applies for grant funding and implements projects in coordination with the Tri-County Funding Area Coordinating Committee (Tri-FACC); however, the North/Central WMA stakeholders coordinate with the South Orange County WMA wherever possible, including on IRWM Projects (e.g. the Irvine Ranch Water District Baker Treatment Plant).

During the reporting period, both the North/Central and South Orange County IRWM Plans underwent revisions to comply with IRWM Plan Standards issued by the State Department of Water Resources in 2016. Alignment between these two plans was sought where possible, to provide consistency in water resource planning in Orange County. The updated plan will be available in mid-2018.

Orange County Stormwater Resource Plan (OC SWRP)

Per the requirements of SB 985 (Pavley), the County developed the OC SWRP on behalf of cities, water agencies and stakeholders throughout the three WMAs. The OC SWRP is a functionally equivalent document, describing the significant planning efforts conducted by the Permittees, other agencies and stakeholders. These planning efforts include and/or closely align with IRWM Plans and NPDES compliance programs discussed in this PEA. The OC SWRP is required for project funding to be available from voter-approved bonds.

Four primary, significant planning efforts referenced throughout the OC SWRP are used for functional equivalency to meet the SWRP guidelines. These include (1) the 2013/2014 Reports of Waste Discharge (ROWDs), (2) Integrated Regional Watershed Management Plans for North, Central and South Orange County, (3) Watershed Infiltration and Hydromodification Management Plan (WIHMP) mapping tools, and (4) the South Orange County Water Quality Improvement Plan (WQIP). In addition to meeting the SWRP guidelines, these four primary documents also provide the basis for project identification and prioritization in the OC SWRP.



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The OC SWRP was submitted to the North/Central and South WMAs and SAWPA for incorporation in the applicable IRWM Plans per SB 985. The OC SWRP, functionally equivalent documents associated with the WMAs and other planning efforts, mapping tools and the project list materials can be found at this website:

http://www.ocwatersheds.com/programs/ourws/oc_stormwater_resource_plan.

C-12.3 Watershed Management Program Modifications

With the adoption of the San Diego Region Fifth Term Permit the County will continue to evaluate its ongoing watershed management programs during 2017-18 to ensure compliance with the new permit requirements principally related to the development of a WQIP for the San Juan Hydrologic Unit. A complete draft of the WQIP was submitted to the San Diego Regional Board on April 1, 2017 and approval is pending. Consequently, no program modifications are currently proposed.

As adoption of a Fifth Term Permit in the Santa Ana Region is on hold no further program modifications are proposed at this time for north Orange County.