November 2020

Santa Margarita River WMA

WQIP Update Pages

WQIP Update Introduction

In July 2019, the Santa Margarita River (SMR) Watershed Management Area (WMA) Copermittees (the Cities of Murrieta, Temecula, and Wildomar; the Counties of Riverside and San Diego; and the Riverside County Flood Control and Water Conservation District) received a letter from the San Diego Regional Water Quality Control Board (Regional Water Board) providing the results of a review of the 2017-2018 Water Quality Improvement Plan (WQIP) Annual Report. The letter included several requests to address items specific to the SMR WMA WQIP as well as topics to be addressed for all WMAs covered under the Regional Phase I MS4 permit (Order No. R9-2013-001 as amended by Order Nos. R9-2015-0001 and R9-2015-0100) (Permit) as applicable. Copermittees provided responses to several topics with the 2018-2019 Annual Report in January 2020, while responses to other items were requested by January 31, 2021.

For the Santa Margarita River WMA, the primary WQIP update requested by the Regional Water Board is the incorporation of the 2019 SMR Estuary Investigative Order No. R9-2019-0007 (2019 Investigative Order or IO), including the Final Monitoring and Assessment Workplan for the SMR Estuary and Watershed Monitoring and Assessment Program (IO Workplan) by January 31, 2021. This document contains specific WQIP updates to incorporate the 2019 Investigative Order and other as needed updates to address items in the Regional Water Board letter. Additional updates were made based on comments received from Consultation Committee members during the development of the Draft WQIP Update and at the WQIP Consultation Committee meeting that was held on October 22, 2020. Following the 30-day public review and comment period, from November 5, 2020, to December 7, 2020, as well as additional input from Copermittees and the Consultation Committee, this document may be further updated prior to submittal with the WQIP Annual Report by January 31, 2021.

Table I-1 summarizes the initial draft updates to the WQIP. The specific updates are included on the following pages, with changes shown in redline/strikeout format. Note, the entire WQIP writeup was not included below, only the sections that were revised as part of this update.

Section	Section Name	Revision	Regional Water Board Review Letter Topic(s) Addressed
1	Introduction		
1.5.2	Public Participation Process	Updated to reflect the 2021 WQIP Update public participation process, including data solicitation, Consultation Committee involvement, and public review. (<i>This section may be further updated as needed following the</i> <i>public review period</i>)	
1.5.2.4	4 Santa Margarita River Nutrient Initiative Group (SMRNIG) Updated to reflect the adopted IO and the incorporation of the IO into the WQIP.		2019 Investigative Order
2	Priority Water Quality C	onditions	
2.2.2	Beneficial Uses and Thresholds to Assess Data	Updated Table 2-5 to add enterococcus as a REC-1 and REC-2 beneficial use indicator.	FIB- Statewide Bacteria Provisions
2.3.1.1	Step 1A. Impaired Receiving Waters - 303(d) Listings (Permit Provision B.2.a(1))	Updated to reflect the 2014/2016 Integrated Report's acceptance by the EPA in 2018. Revised Table 2-6 to reflect all 2014/2016 303(d) listings.	Updated 303(d) Listings

Table I-1. Summary of Updates to the WQIP

Section	Section Name	Revision	Regional Water Board Review Letter Topic(s) Addressed
3	Identification of MS4 So	urces of Pollutants and/or Stressors	
3.1.2	Parks, Recreational and Open Space Areas	Added a new section, 3.1.2.1, to define Ecological Reserves (ERs) related to open space nutrient and bacteria sources.	Ecological Reserves
4	Water Quality Improvem	ent Goals, Strategies, and Schedules	
4.1.2	TMDL Alternative Background	Updated text to reflect the adoption of the IO.	2019 Investigative Order
		Updated Table 4-2 Pathway 2 to include both primary and secondary numeric goals and targets.	
4.1.3	Goals and Schedules for SMR Watershed	Updated Table 4-3 Pathway 2 to include both primary and secondary numeric goals and targets. Updated Pathway 3 to clarify the nutrient load reduction goal is for watershed receiving waters.	2019 Investigative Order
4.2.1.3.2	Coordination with Water Districts	Added a reference to Appendix 6, Table A6-2, and a map illustrating the geographic boundaries of the water districts within the WMA.	Water and Sewer District Coordination
4.2.2.3.2	Promote Incentive Programs for BMP Retrofits	Updated text to reference Appendix 6, Table A6-2.	Water and Sewer District Coordination
4.2.3	Optional WMA Strategies	Updated the WMA Optional Strategy in Table 4-16 to describe the Permitted Flow Assessment and updated the strategy's implementation schedule/time frame.	Persistent Flow in MS4 Outfalls
5	Monitoring and Assessm	ent Program	
5.3	General Scope of Monitoring	Modified the section to list the monitoring elements from the IO Workplan. Added the IO monitoring elements to Table 5-1. Included a new section, 5.3.3.2 SMR Estuary and Watershed Monitoring and Assessment Program, to describe and reference the IO Workplan attached to the WQIP as Appendix 51.	2019 Investigative Order
5.4.1.1	Monitoring to Assess Progress Toward Achieving Goals and Schedules in the Middle SMR Subwatershed	Updated Table 5-9 to reference the numeric targets listed in the IO.	2019 Investigative Order
5.5.2.2	MS4 Outfall Discharge Assessments	Updated text to reflect changes to the C Value methodology are underway as part of a regional effort.	Use of C Value
6	Iterative Approach and A	Adaptive Management Process	
6.2.1	Adaptation of Goals and Schedules	Updated text to describe that the IO Workplan monitoring and assessment results may influence future updates to goals and schedules.	2019 Investigative Order
6.4.1.1.1	Regulatory Drivers	Updated text to reflect the status of the pending Biological Objectives Basin Plan Amendment and future SMR Total Maximum Daily Load (TMDL)	This item is not a Regional Water Board Review Letter topic
6.4.1.1.3	Program Assessments	Added reference to Appendix 6, Table A6-2.	Water and Sewer District Coordination
8	References		
Add 2019 I	nvestigative Order and TM	DL Staff Report references	
Appendices			
Appendix	Santa Margarita River	Included Bacteria Provisions reference in Section 2.1 text and	FIB-Statewide
ЭA	Final Monitoring and	in a rootnote to 1 able monitoring in Section 2.1.	Bacteria Provisions
Appendix 5I	Assessment Workplan for the SMR Estuary and Watershed	Appendix 5I added to include the IO Workplan.	2019 Investigative Order

Section	Section Name	Revision	Regional Water Board Review Letter Topic(s) Addressed
	Monitoring and		
	Assessment Program		
Annondiv	Adaptive Management	Appendix 6 added to include additional information related to	Ecological Reserves
Appendix	Topics Supplemental	adaptive management topics, Ecological Reserves and Water	and Water and Sewer
0	Information	and Sewer Agency coordination.	Project Coordination

OCTOBER 2018 , REVISED JANUARY 2019

NOVEMBER 2020 UPDATES AND ERRATA CHANGES

SANTA MARGARITA RIVER WATERSHED MANAGEMENT AREA

Water Quality Improvement Plan

Submitted by

COUNTY OF RIVERSIDE, COUNTY OF SAN DIEGO, RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, CITIES OF MENIFEE, MURRIETA, TEMECULA, AND WILDOMAR

Appendices

Appendix 1 – Response to Comments

Appendix 2 – Data and Analysis Summary

Appendix 3A - Other Available Data and Studies

Appendix 3B - Potential Strategies to Address the HPWQC

Appendix 4A - Rainbow Creek Watershed Modeling and Compliance Analysis

Appendix 4B – Watershed Management Area Analysis

Appendix 5A – Santa Margarita River Monitoring Plan

Appendix 5B – Santa Margarita Region Hydromodification Management Plan

Appendix 5C – County of San Diego Hydromodification Management Plan

Appendix 5D – Consolidated Monitoring Plan Volume II, Quality Assurance Project Plan

 $\label{eq:spectral} \begin{array}{l} \textbf{Appendix 5E} - \textbf{Toxicity Identification Evaluation /Toxicity Reduction Evaluation Implementation Work Plan} \end{array}$

Appendix 5F – San Diego County Municipal Copermittees Sediment Monitoring Plan-Final

Appendix 5G – Riverside County Flood Control & Water Conservation District Low Impact Development (LID) Demonstration Facility Monitoring Plan and Quality Assurance Project Plan (QAPP)

Appendix 5H – Post-Fire Stormwater Monitoring Study – 2019 Tenaja Fire

Appendix 5I – Monitoring and Assessment Workplan SMR Estuary and Watershed Monitoring and Assessment Program

Appendix 6 – Additional Coordination Strategies and Information

1.5.2 Public Participation Process

...[following text describing the public participation process for the development of the WQIP]

2021 WQIP Update

During the development of the 2021 update to the WQIP, the Copermittees implemented a public participation process in accordance with Provision F.2.c that included public data solicitation, as well as Consultation Committee (CC) and public review of the draft document. The CC members for the 2021 WQIP Update are noted in **Section 1.5.2.2**.

1.5.2.1 Data Solicitation

...[following text describing the data solicitation in 2016]

During the development of the 2021 update to the WQIP, a 30-day public data solicitation was conducted from July 1, 2020, through July 31, 2020. The Copermittees distributed a public data request letter to watershed stakeholders by email and posted the solicitation to the RCFCWCD and Project Clean Water clearinghouse websites. The data solicitation was also distributed to individuals subscribed to the San Diego Region 9 Santa Margarita River Nutrient Initiative Group (SMRNIG) and the Regional Water Board's MS4 Lyris list. While no data were received from the public in response to the public data solicitation, the Copermittees provided updated data from monitoring and WQIP and JRMP implementation.

1.5.2.2 Consultation Committee

The Copermittees and the City of Menifee formed a Consultation Committee to receive recommendations during the development of the WQIP (Provision F.1.a.(1)(b)). The Permit includes requirements for the Consultation Committee to review and provide recommendations at key points during the WQIP development process. Feedback from the Committee is vital to the development of the WQIP. The Consultation Committee consisted of representatives from the Regional Water Board, the environmental community, the development community, community organizations, neighborhood groups, and businesses all sharing a commitment to improve water quality. The Consultation Committee must consist of at least the following members: included the following individuals:

Required Members

- A representative of the Regional Water Board;
- A representative of the environmental community familiar with the water quality conditions of concern in receiving waters within the WMA; and
- A representative of the development community familiar with the opportunities and constraints for implementing structural BMPs, and stream, channel, or habitat rehabilitation projects in the WMA.

Original CC members during the development of the WQIP included:

Required Members

Erica Ryan (San Diego Regional Water Quality Control Board) Terri Biancardi (Environmental Community) Dr. Mark Grey, Clint Lorimore (*alternate*) (Development Community)

At Large Members

Ben Drake (Temecula Winegrowers Association) Andy Domenigoni (Riverside County Farm Bureau) Kyle Cook (Camp Pendleton Marine Base) Pablo Bryant (Santa Margarita Ecological Reserve) Laurie Correa (Western Riverside County Regional Conservation Authority) Rick Neugebauer (Temecula/Elsinore/Anza/Murrieta Resource Conservation District (TEAM-RCD))

Participation in the CC may change over time due to changes in agency staffing, member availability, and other reasons. The 2021 WQIP Update members included:

Required Members

Erica Ryan (San Diego RWQCB) Terri Biancardi (Environmental Community) Dr. Mark Grey (Development/Construction Community)

At Large Members

Bill Wilson (Business Owner, Wilson Creek Winery) Rachel Johnson (Riverside County Farm Bureau) Matt Winterbourne (Camp Pendleton Marine Base) Pablo Bryant (Santa Margarita Ecological Reserve) Jonathan Snapp-Cook (Biologist, U.S. Fish and Wildlife Service) Rick Neugebauer (Temecula, Elsinore, Anza, Murrieta Resource Conservation District (TEAM-RCD))

...[following Table 1-2]

As part of the 2021 WQIP Update, CC members reviewed draft materials and provided input on the update. A Consultation Committee meeting was held on October 22, 2020, during which time several CC members provided additional comments. The public was invited to attend the meeting.

1.5.2.4 Santa Margarita River Nutrient Initiative Group (SMRNIG)

The Copermittees also regularly participate in the SMRNIG which includes cities and counties, utility districts, Caltrans, scientists, tribes, non-governmental organizations (NGOs), United States Geological Survey (USGS), Camp Pendleton, Farm Bureau, and RWQCB staff that periodically meet to focus on nutrient-related issues in the SMR Estuary. While the SMRNIG did not participate directly in WQIP development, they have conducted extensive modeling efforts in support of a Total Maximum Daily Load (TMDL) Alternative for the SMR Estuary for nutrients, and their work has provided valuable insight and scientific information used in the development of this Plan. With respect to the SMR Copermittees, this WQIP will is be a key implementation mechanism for the TMDL Alternative. The TMDL Alternative is expected to be was activated through resulted in the issuance of an Investigative Order No. R9-2019-0007 by the Regional Water Board. For simplicity, hereinafter this WQIP will use the term "TMDL Alternative" to refer to this action, pending finalization of the TMDL Alternative approach to be conducted by the Regional Water Board. Further discussion of the TMDL Alternative process and how it dovetails with the is incorporated into the WQIP is provided in **Chapters 2, 3, 4**, and **5**.

1.5.2.5 Public Review Process (to be updated based on Fall 2020 Public Review Process)

2.2.2 Beneficial Uses and Thresholds to Assess Data

...[following several paragraphs of text]

Beneficial Use Category⁴	Beneficial Uses	Physical, Chemical, and Biological Indicators
		Algal biomass
		Benthic community indices (IBI/CSCI)
		Dissolved Oxygen
		Total Nitrogen
		Total Phosphorus
	WARM	
	COLD	Ammonia
A	WILD	Pesticides ¹
Aquatic Life	RARE	Metals ²
	BIOL (limited)	Toxicity
	SPWN (limited)	
		Sediment - visual observations ⁵
		Physical habitat scores (CRAM)
		Evidence of erosion and hydromodification
		Trash
		Trash
Decreation	REC-1	Fecal Coliform
Recreation	REC-2	E. coli
		Enterococci
Motor Querly	MUN	Nitrate
vvater Supply	GWR	Title 22 Constituents ³
		Total Dissolved Solids
Agricultural Supply	AGR	Chloride
		Boron
la du atm i	IND	Physical habitat scores (CRAM)
industry	PROC	Total Dissolved Solids

Table 2-5. Beneficial Uses and Associated Physical, Chemical, and Biological Indicators Within the Santa Margarita River WMA

1. Pesticides include: Organophosphorus, Organochlorine, and Pyrethroid pesticides.

2. Metals include: Copper, Nickel, Zinc, and Selenium.

A full list of the California Code of Regulations Title 22 (Title 22) Constituents is included in Appendix 2.
 Beneficial use categories were developed to group related designated beneficial uses from the Basin Plan for ease of

assessment in the Water Quality Improvement Plan. Beneficial use categories are not designated in the Basin Plan.

5. Visual observations provided by Consultation Committee.

2.3.1.1 Step 1A. Impaired Receiving Waters - 303(d) Listings (Permit Provision B.2.a(1))

In this step, the Copermittees identified constituent/water body combinations that are on the 303(d) list that could be considered pollutants or stressors of potential concern in receiving waters.

The Clean Water Act Section 303(d)/305(b) Integrated Report (Integrated Report) identifies the condition of the region's surface waters as well as the water quality limited segments that are identified as "impaired" or "threatened" (the 303(d) list). In California, water bodies are assessed and listed consistent with the State Water Board's Listing Policy. (California State Water Resources Control Board, 2004)

The receiving waters in the SMR WMA listed as impaired in the 2010 2014/2016 Integrated Report are summarized in **Table 2-6**. The 2010 Integrated Report is currently being updated. A proposed 2014/2016 list of impaired waters was approved by the State Water Board on October 3, 2017, and it was approved by the USEPA on April 6, 2018. but has not yet been approved by USEPA. Because the proposed listings are were not yet effective at the time of analysis, they have not been included within **Table 2-6**. However, tThe Step 1B assessment includes a review of the data used for the development of the 2014/2016 list to identify additional constituents that may be contributing to impairments based on data collected since the 2010 303(d) list and the 2014/2016 State Water Board approved list was considered in the identification of PWQCs.

	Water Body ³												
	Upper Santa Margarita River	Middl	le Sa Su	nta N bwat	/larga tersh	rita I ed	River	Lo F	owe Rive	r Sai r Su	nta N bwa	Marg ters	arita hed
Pollutant/ Stressor	Temecula Creek ²	Warm Springs	Long Canyon Creek ¹	Murrieta Creek ¹	Santa Gertrudis Creek	Temecula Creek ²	Redhawk Channel ²	Santa Margarita River Upper	Santa Margarita River Lower	Rainbow Creek ⁴	De Luz Creek	Sandia Creek	Santa Margarita River Estuary ⁵
Aluminum							•			•		•	
Ammonia (un-ionized)												•	
Benthic Community Effects									•				
Chlorpyrifos	•	•	•	٠	•	•	•		٠				
Copper	•			٠	•	•	•						
Diazinon							٠						
Eutrophic													хх
Fecal-Indicator Bacteria ⁶	•	•		•	•	•	•	•	•				
Escherichia coli (E. coli)	•	•			٠	٠	•						
Enterococcus								•	٠				
Fecal Coliform	•	•	•	•	•	٠	•		•				
Iron		•	•	٠	•		•	•		•	•	•	
Manganese		•	•	•	•		٠	•			•	•	
Nitrogen		•		•	•		٠	•	•	х	•	•	
Phosphorus	•	•	•	•	•	•	٠	•	•	х			
Selenium												٠	
Silver												٠	
Sulfates										•	•	•	
Total Dissolved Solids	•					•	٠			•		•	
Total Nitrogen as N		•							•				
Toxicity	•			٠		•		•	•				

Table 2-6. 2014/2016 2010 303 (d) Listings for the SMR WMA

1. Both reaches are within the Murrieta and Long Canyon Creeks subarea.

4. X – Currently being addressed by a TMDL.

^{2.} Both reaches are within the Temecula Creek and Redhawk Channel subarea. Listed extent of Temecula Creek lies within the Temecula Creek-Redhawk Channel, Cottonwood Creek-Temecula Creek, and Rattlesnake Creek-Temecula Creek subareas.

^{3.} There are no 303(d) listed waterbodies in the Pechanga Creek subarea in the Middle SMR Subwatershed; Fallbrook Creek subarea in the Middle SMR Subwatershed; or in the Chihuahua Creek, Tule Creek, Long Canyon, Upper Cahuilla Creek, Lower Cahuilla Creek, Upper Wilson Creek, Lower Wilson Creek, Arroyo Seco Creek, Rawson Canyon, Upper Tucalota Creek, Temecula Creek, Warm Springs Creek or Lower Tucalota Creek subareas in the Upper SMR Subwatershed. There are no 303(d) listings for Vail Lake, Lake Skinner, or Diamond Valley Lake.

^{5.} XX – Currently being addressed by development of a TMDL Alternative project.

^{6. 2014-2016 303(}d) listings include "Indicator Bacteria" with the individual strains listed in parentheses

3.1.2.1 Ecological Reserves

Ecological Reserves are a subset of open space lands described above. The Regional Water Board defines Ecological Reserves (ERs) as local, regional, and/or other agency projects within marine protected areas, lagoons, estuaries, Areas of Special Biological Significance reserve areas, mitigation banks, river parks, and drinking water and reservoir watersheds. These conserved lands make up more than 40,000 acres of the SMR WMA. The largest reserves include Santa Margarita Ecological Reserve, Santa Rosa Plateau, and Southwestern Riverside Multi-Species Reserve. Other smaller but significant sites for receiving water quality protection or improvement include the AD 161 Preserves in Wildomar and Murrieta abutting Murrieta Creek and the Warm Springs Creek Integrated Mitigation Project (an implemented Copermittee optional strategy). An inventory of identified ERs is listed in **Appendix 6 Table A6-1**, and **Figure A6-1** displays the locations of the ERs within the watershed. As a part of open space, the contribution to nutrient loads is relatively low.

4.1.1 Geographic Extent of Eutrophication HPWQC

...[following Figure 4.1]

In the Middle SMR Subwatershed, goals and schedules that will address both localized eutrophication in Warm Springs and Redhawk Channel and nutrient loadings to the downstream SMR Estuary have been identified. In the Lower SMR Subwatershed, goals and schedules have been developed to address the eutrophic conditions in the SMR Estuary as well as the nutrient loading in the Rainbow Creek subarea.

All of the goals and schedules have been structured to achieve the anticipated targets for the TMDL Alternative targets for the Estuary, as described in more detail in **Section 4.1.2**. Differences among goals and schedules were identified to match jurisdiction and subwatershed-specific strategies and schedules. This approach provides the framework for a more accurate assessment of progress toward achieving goals within each subwatershed. Ultimately, protection of the receiving waters is the desired outcome.

4.1.2 TMDL Alternative Background

The Copermittees and the City of Menifee have developed goals to address the TMDL Alternative for the SMR Estuary. that is currently under development. However, the TMDL Alternative for the SMR Estuary is not yet final, and targets and allocations are still being established. The Copermittees and the City of Menifee have utilized the available TMDL Alternative information in developing their respective goals. This section provides a discussion of the available information and how it was appropriately considered to help inform the selection of the goals.

The Basin Plan WQOs can be described as narrative WQOs with numeric guidance for interpretation of the narrative language. These numeric interpretations have been utilized historically for 303(d) listing decisions, TMDLs, and permit conditions. However, the objectives were established in the 1970s and regulatory and scientific approaches to evaluating biostimulatory objectives have since evolved. It is now recognized that due to site-specific factors (such as hydrology, shading, temperature), total nitrogen and total phosphorus concentrations and loads that can contribute to primary producer overproduction at levels that impact beneficial uses, vary greatly among streams and estuaries.

Current numeric interpretations of the narrative Basin Plan nitrogen and phosphorus WQOs do not consider site-specific factors. An alternative regulatory approach advocated by Regional Water Board staff and USEPA Region 9, is currently under development as part of the Statewide Biostimulatory and Bio-objectives Amendment (Biostimulatory Substances Amendment) being developed by the State Water Board. The State Water Board is proposing to adopt a statewide WQO for biostimulatory substances along with a program of implementation as an amendment to the Water Quality Control Plan for Inland Surface Water, Enclosed Bays and Estuaries of California (ISWEBE Plan). The Biostimulatory Substances Amendment will likely include a statewide narrative objective (with numeric guidance for interpretation), and various regulatory control options for point and non-point sources. This framework will be used to develop scientifically-sound water quality goals for biostimulatory substances that are protective of beneficial uses.

Although the State Water Board's work is still in process, the framework described above is being was utilized for the TMDL Alternative development. As a result, TMDL Alternative targets for the SMR Estuary will are not equal to the numeric interpretation of the Basin Plan objectives (i.e., mg/L for total nitrogen and 0.1 mg/L for total phosphorus) that were used as the basis for the 303(d) listings. Instead, the TMDL Alternative for the SMR Estuary is expected to includes a combination of dissolved oxygen, algal biomass, and benthic macroinvertebrate targets.

As discussed in more detail in **Section 5.2**, two models have been developed to support the TMDL Alternative development: the Estuary model and Watershed Loading model. The Estuary model was used to evaluate a range of possible water quality targets for the SMR Estuary that would align with the Biostimulatory Substances Amendment framework. The Watershed Loading model was used to estimate the amount of total nitrogen and total phosphorus loading from the watershed. Based on the analysis presented in the Model Application Report, the SMRNIG discussed potential targets for the SMR Estuary.

As of February 2017, Through the Regional Water Board's adoption of the 2019 Investigative Order No. R9-2019-0007 the following primary and secondary targets were implemented to determine if the Estuary is supporting beneficial uses (San Diego Water Board 2019): being considered for the TMDL Alternative for the SMR Estuary (County of San Diego, 2017a):

- Primary nutrient numeric targets: <u>A primary algal biomass target of 57 grams (dryweight) per cubic meter [g d-wt/m²];</u>
 - Surface water macroalgal biomass of \leq 57 g dw/m²; and
 - Water column dissolved oxygen daily minima \geq 5 mg/L
- Secondary nutrient numeric targets: A secondary numeric target for algal biomass of 70 g d-wt/m2 ;
 - Surface water macroalgal biomass \leq 70 g dw/m²; and
 - Water column dissolved oxygen 7-day average of daily minimum \geq 5 mg/L with 10% allowable exceedance; and
 - \circ Sediment Quality Objective (SQO) Benthic Community Condition Score ≤ 2.0
 - The SQO score is applicable if monitoring data confirm that the SMR Estuary is meeting an algal biomass between 57 and 70 g d-wt/m2
- A dissolved oxygen target of not less than 5.0 mg/L; and
- If monitoring data confirm that the SMR Estuary is meeting both of the primary targets, of algal biomass of 57 g d-wt/m2, this result indicates that the beneficial uses are protected. If monitoring data confirm that the SMR Estuary is meeting both the secondary targets and the SQO score is ≤2.0, an algal biomass between 57 and 70 g d-wt/m2, these results indicate beneficial uses are protected. The below SQO tool the Sediment Quality Objective (SQO) tool

(http://www.sccwrp.org/Data/DataTools/SedimentQualityAssessment.aspx)-for benthic community structure will be used to assess whether beneficial uses are protected. If the dissolved oxygen target is being met and the SQO tool can be used to calculate the SQO score. if indicate beneficial uses are protected., the SMR Estuary targets are being met regardless of the algal biomass concentrations.

In the TMDL Alternative analysis, year-round dry weather discharges were determined to be primarily responsible for identified impairments in the SMR Estuary. Wet weather loadings were determined to be primarily flushed to the Pacific Ocean, and modeled reductions in wet weather loads did not have an appreciable impact on improving SMR Estuary conditions. As a result, wet weather load reductions are not required by the TMDL Alternative for the SMR Estuary.¹²

The Estuary model was used to evaluate the load reductions in total nitrogen and total phosphorus needed to meet the targets based on the 2008 to 2009 Water Year simulated in the model. Based on the model results, the SMRNIG has developed a proposal for allocations for the TMDL Alternative for the SMR Estuary (County of San Diego, 2017b). The proposed allocations apply a 76% reduction equally to all controllable discharges within the SMR WMA, which are defined for the purposes of the TMDL Alternative as discharges covered by WDRs or NPDES permits. Other discharges are not subject to load reduction goals, as they are either naturally occurring (e.g., open space) or releases necessary to protect other beneficial uses (e.g., Comprehensive Water Rights Management Agreement flows). While Tthe Regional Water Board has provided preliminary positive feedback on incorporated the allocations proposal, into the 2019 Investigative Order. TMDL Alternative for the SMR Estuary is still under development and the proposal may be modified before it becomes final.

¹² If wet weather loadings are identified in the future as a source that is required to be addressed by the TMDL Alternative for the SMR Estuary or TMDLs for the other portions of the SMR WMA, the Water Quality Improvement Plan goals and strategies will be updated as required through the adaptive management process.

4.1.3.1 Goals and Schedules to Address Eutrophication and Nutrient Loading in the Middle SMR Subwatershed¹³

...[following the second paragraph]

The second two pathways include MS4 discharge goals, to demonstrate progress and provide jurisdictional accountability toward meeting the TMDL Alternative-based load reductions and targets. The last two pathways account for natural loading and provide a BMP-based option through WQIP implementation. The following six pathways are presented in **Table 4-2**:

<u>**Pathway 1**</u>. Demonstration that the discharger is attaining the load reduction goal of 76% in the Middle SMR Subwatershed in receiving waters.

<u>**Pathway 2.**</u> Demonstration that the Santa Margarita River Estuary targets (based on the proposed TMDL Alternative) have been attained.

<u>*Pathway 3.*</u> Demonstration that non-stormwater flows that are within agency control have been reduced to meet load reductions.

<u>*Pathway 4.*</u> Demonstration that discharger is meeting required load reductions as described in the TMDL Alternative for the SMR Estuary.

<u>*Pathway 5.*</u> Demonstration that exceedances of targets are due to sources outside of agency control.

<u>Pathway 6</u>. Demonstration that management actions to attain load or flow reductions are being implemented through mechanisms defined in the accepted Water Quality Improvement Plan.

The final goals were identified based on the proposed wasteload allocations and required load reductions proposed for the TMDL Alternative for the SMR Estuary. The proposed wasteload allocations used to establish goals are annual load reductions in dry weather discharges. As discussed above, dry weather discharges were determined in the TMDL analysis to be primarily responsible for identified impairments in the SMR Estuary. As such, the Middle SMR Subwatershed agency goals are applicable under dry conditions year-round (including both summer dry and winter dry conditions). Weather is considered dry if the preceding 72 hours has been without measurable precipitation (>0.1").

The interim goals were established conservatively, to reflect the anticipated reductions that can be achieved through each step of strategy implementation. The strategy implementation process is described in **Section 4.2**. The final goals and timeframe for achieving the goals is based on the implementation schedule anticipated for the final terms of the TMDL Alternative for the SMR Estuary.¹⁴

¹⁴ The final goals and schedules are preliminary and will be updated through the adaptive management process following completion of the IO special study in 2023. When the TMDL Alternative becomes effective.

Table 4-2. Interim and Final Numeric Goals and Schedules, HPWQC – Eutrophication Impacts and Nutrient Loading, Middle Santa Margarita River Subwatershed Agencies

Pathway	Interim Goal (2023)	Interim Goal (2028)	Interim Goal (2033)	Interim Goal (2038)	Metric			
1 ¹ OR	10% reduction in dry weather ² loadings in receiving waters: TN 933 lb/yr TP 99 lb/yr	30% reduction in dry weather loadings in receiving waters: TN 2,980 lb/yr TP 300 lb/yr	50% reduction in dry weather loadings in receiving waters: TN 4,970 lb/yr TP 495 lb/yr	76% reduction in dry weather loadings in receiving waters: TN 7,550 lb/yr TP 752 lb/yr	Assessment of loadings in the Santa Margarita River (receiving water) at the base of the Middle SMR Subwatershed			
2 OR	Numeric interim and fina Santa Margarita River E macroalgal biomass of ≤ attainment of all second dw/m ² , water column allowable exceedance,	Il goals to be determined stuary. Attainment of all 57 g dw/m ² and water co dary nutrient numeric tal dissolved oxygen 7-day and SQO Benthic Comr uses are j	based on outcome of primary nutrient nume olumn dissolved oxyge rgets (surface water m average of daily minir nunity Condition Score protected.	f TMDL Alternative for the eric targets (surface water n daily minima ≥5 mg/L) or acroalgal biomass ≤70 g num ≥5 mg/L with 10% e ≤2.0) indicate beneficial	Assessment of receiving water conditions in the Santa Margarita River Estuary			
3 OR	10% reduction in non- stormwater flows within agency control ³	30% reduction in non-stormwater flows within agency control ³	50% reduction in non-stormwater flows within agency control ³	100% reduction in non- stormwater flows within agency control ³	Assessment of load reductions from implementation actions (based on outfall monitoring or other assessment metrics)			
4 ^{4.5} OR	10% reduction in dry weather loadings from Copermittees. As a Total: TN 993 lb/yr TP 99 lb/yr OR by jurisdiction: City of Wildomar: TN 79, TP 8 City of Murrieta: TN 224, TP 22 City of Temecula: TN 395, TP 39 Riverside County: TN 286, TP 28	30% reduction in dry weather loadings from Copermittees: As a Total: TN 2,980 lb/yr TP 300 lb/yr OR by jurisdiction: City of Wildomar: TN 237, TP 24 City of Murrieta: TN 673, TP 67 City of Temecula: TN 1,186, TP 118 Riverside County: TN 858, TP 85	50% reduction in dry weather loadings from Copermittees: As a Total: TN 4,970 lb/yr TP 495 lb/yr OR by jurisdiction: City of Wildomar: TN 396, TP 39 City of Murrieta: TN 1,122, TP 112 City of Temecula: TN 1,977, TP 197 Riverside County: TN 1,430, TP 142	76% reduction in dry weather loadings from Copermittees: As a Total: TN 7,550 lb/yr TP 752 lb/yr OR by jurisdiction: City of Wildomar: TN 601, TP 60 City of Murrieta: TN 1,705, TP 170 City of Temecula: TN 3,005, TP 300 Riverside County: TN 2,174, TP 217	Assessment of load reductions from implementation actions (based on outfall monitoring or other assessment metrics)			
5 OR	Assess progress toward	achieving final goal (usi	ng other pathways).	Where final goals have not been met, demonstrate that exceedances of targets are due to source(s) of nutrients outside of the control of the Copermittees and the City of Menifee.	Source Investigations			
6	The Copermittees and the City of Menifee develop and implement the jurisdictional strategies as described in the accepted Water Quality Improvement Plan.	The Copermittees and the City of Menifee assess progress towards goals, implement the JRMP or enhanced JRMP strategies as triggered using an iterative approach as described in the accepted Water Quality Improvement Plan.	The Copermittees and the City of Menifee assess progress towards goals, implement the JRMP, enhanced JRMP strategies, or optional jurisdictional strategies, as triggered using an iterative approach as described in the accepted Water Quality Improvement Plan.	The Copermittees and the City of Menifee assess progress towards goals, implement the JRMP, enhanced JRMP strategies, optional jurisdictional strategies, or optional WMA strategies, as triggered through an iterative approach as described in the accepted Water Quality Improvement Plan.	Implementation of JRMP, enhanced JRMP strategies, optional jurisdictional strategies, or optional WMA strategies, as triggered through an iterative, adaptive management approach.			

4.1.3.2 Goals and Schedules to Address Eutrophication Impacts and Nutrient Loading in the Lower SMR Subwatershed¹⁵

The first set of goals and strategies developed for the Lower SMR Subwatershed relate to the Estuary. Studies conducted to support development of the TMDL Alternative for the SMR Estuary indicate that eutrophic conditions are caused by excessive nutrient loading, which leads to excessive growth and decomposition of algae, and low dissolved oxygen conditions. Reducing dry weather flows from the San Diego County stormwater outfalls will ultimately reduce the nutrient loading that leads to the eutrophic condition in the SMR Estuary. Numeric goals addressing this HPWQC have been established to measure and demonstrate progress toward eliminating dry weather flows. The goals take two forms, though there are multiple compliance pathways to accomplish these goals. These goals are presented in Table 4-3.

Efforts to mitigate dry weather flows and consideration of small-scale structural controls (as needed) will begin during the next MS4 Permit term. The final compliance goal, scheduled for FY 2038, is zero persistent discharges from the County of San Diego's MS4 outfalls to receiving waters or a 100% reduction in anthropogenic dry weather flow volume. Compliance pathways for these goals will be demonstrated through the dry weather MS4 outfall field screening program, or the TMDL Alternative (final terms expected in 2018) targets for the SMR Estuary.

¹⁵The County of San Diego is the only Copermittee that has Major Outfalls in the Lower SMR Subwatershed.

Table 4-3 . Interim and Final Numeric Goals and Schedules for HPWQC – Eutrophication in the Santa Margarita River Estuary, Lower SMR Subwatershed – San Diego County

Pathway	Goal	Baseline	FY 2018- 2023	1 st Permit Term (FY 2023)	2 nd Permit Term (FY 2028)	3 rd Permit Term (FY 2033)	4 th Permit Term (FY 2038)					
1	Effectively eliminate anthropogenic dry weather ¹ discharges from MS4 outfalls to the receiving water OR	To be established during 2020- 2021 using dry weather flow measurements ³²	Complete turf replacement in Rainbow Park	Reduce the baseline aggregate flow volume by 25%	Reduce the baseline aggregate flow volume by 50%	Reduce the baseline aggregate flow volume by 75%	Reduce the baseline aggregate flow volume by 100%					
2		Demonstrate attainment of the primary nutrient numeric targets (surface water macroalgal bio of ≤57 g dw/m2 and water column dissolved oxygen daily minima ≥5 mg/L) or attainment of secondary nutrient numeric targets (surface water macroalgal biomass ≤70 g dw/m2, water co dissolved oxygen 7-day average of daily minimum ≥5 mg/L with 10% allowable exceedance, SQO Benthic Community Condition Score ≤2.0) indicate beneficial uses are protected. OR										
3	Comply with the TMDL	Demonstrate tha	t the discharger	is attaining the r nutrient loads t O	outrient load redu to the Estuary. R	iction goal of a 7	6% reduction in					
4	Alternative	Demonstrate that	the discharger i	s attaining the lo the SMR O	ad allocations de Estuary. R	efined in the TME	DL Alternative for					
5		Demonst	Demonstrate that exceedances of the targets are due to non-controllable sources. OR									
6		Demonstrate	that manageme mechar	nt actions to atta nisms defined in	in allocations are each applicable	e being impleme Order. ³	nted through					

Notes:

1. These goals are placeholders and may be updated on the basis of the final implementation requirements for the Santa Margarita River Estuary TMDL Alternative.

1. Dry weather conditions are defined as those that occur on non-storm days, with storm days being defined as all days with measured precipitation greater than 0.1 inch and the 72 hours following the measured precipitation and include both summer and winter dry periods.

 The WQIP originally proposed setting the baseline during 2016-2017. Because the WQIP was not accepted until late 2018, however, the County of San Diego new plans to will establish the baseline in during the 2020-2021 monitoring year. based on data collection under the accepted WQIP.

 Mechanisms for implementing management actions include, but are not limited to, Phase I MS4 Water Quality Improvement Plans, Agricultural Discharger Water Quality Restoration Program Plans, Phase II MS4 permit program elements, and Caltrans compliance units, cooperative implementation grants and cooperative implementation agreements.

Continuati		isuictional Strategies Selected to A		inpacts in t		SIMIN	Subwa		eu – Kn	ei siue	Cour	119 1 100		iu wale
					HPWQC			PW	QC's			lmpi S	ementation chedule	
Strategy Number	Geographic Extent/Jurisdiction/ Collaboration	Sources Addressed	Strategy	Dry Weather/ Wet Weather/ Both	Eutrophication/ Nutrients	Recreation	Physical Habitat	Toxicity	Nuisance (Trash)	Water Supply	Food Supply	FY2018	Future Fiscal Years	
DEV-3	Riverside County Flood Control and Water Conservation District	New Development, Redevelopment, Residential	Update the BMP Design Manual with landscape design and maintenance guidance	Both	x	x		x	x	x	x	x	Ongoing	The Dis guidance landsca on redu mainter improve The BM
DEV-4	Riverside County Flood Control and Water Conservation District	New Development, Redevelopment, Residential	Train staff on Updated BMP Design Manual.	Both	Х	x	x	х	x	х	x	х	Annually	The Dis module deliver Copern District Implem
Construct	ion Management (Pro	v E.4)												
CON-1	Riverside County Flood Control and Water Conservation District	New Development, Residential, Commercial, Industrial	Train staff on implementation of BMPs that reduce the potential of HPWQC and PWQP loading and are site specific and seasonally appropriate to the construction phase, year-round.	Both	Х	x		Х	x	Х	x	X	Annually	The Dis annual implem constru municip through SMR C ensure prepara grojects Genera
CON-2	Riverside County Flood Control and Water Conservation District	New Development, Residential, Commercial, Industrial	Require preparation and implementation of SWPPPs	Both	х	х	x	х	х	х	х	х	Annually	The Dis its cons Non- St specific

Continuation of Table 4-11, Jurisdictional Strategies Selected to Address Eutrophication Impacts in the Middle SMR Subwatershed – Riverside County Flood Control and Water Conservation District

Implementation Approach/Notes

strict, as Principal Permittee, will develop improved ce for the design, implementation, and maintenance of aping for development projects. The guidance will focus ucing the use of fertilizers, selection of plants, and outline nance procedures to prevent non-stormwater flows and e management and containment of landscape clippings. IP Design Manual will be updated with this guidance.

strict, as a Principal Permittee, will revise its training to include the updates to the BMP Design Manual and the module to the Copermittees. The District, as nittee, will ensure that its staff attends this training. The will fund this program through the cooperative nentation Agreement with the SMR Copermittees.

strict, as a Principal Permittee, will continue providing training to enable Copermittees to effect proper nentation of year-round site-specific/phase-specific uction BMPs, CGP requirements, and SWPPPs at pal construction sites. The District will fund this program the cooperative Implementation Agreement with the Copermittees. The District, as a Copermittee, will that its staff attend and apply this training to the ation and oversight of SWPPPs prepared for District s. The District will fund this program through the District al Zone Fund.

strict, as Copermittee, will review SWPPPs and inspect struction sites for conformance with the Stormwater and tormwater Pollution Control provisions of its standard cations and contract documents.

4.2.1.3.2 Coordination with Water Districts

The Copermittees and the City of Menifee could coordinate with water districts to identify areas with high water usage during dry months, and, thereby, pinpoint and address potential sources of dry weather flows. The coordination could include community surveys and enforcement efforts for over-irrigation, and incentive programs to encourage proper irrigation practices. Reducing dry weather flows and collaborating in water conservation efforts can contribute to the reduction in target pollutants. Leveraging Copermittee resources with water district resources to achieve common goals such as pollution prevention and water conservation may increase efficiency and reduce costs for both the Copermittees and water districts.

Furthermore, the Copermittees and the City of Menifee could coordinate with water districts during planning or upcoming projects such as those listed in **Table A6-2** in **Appendix 6**. The table identifies the water districts for each jurisdiction and corresponding possible strategies which may impact water quality and stormwater. **Figure 4-12** shows the water districts that overlay each Copermittee's jurisdiction.



COO – City of Oceanside; FPUD – Fallbrook Public Utilities Department; MCBCP – Marine Corps Base Camp Pendleton; RMWD- Rainbow Municipal Water District; EVMWD – Elsinore Valley Municipal Water District; WMWD – Western Municipal Water District; EMWD – Eastern Municipal Water District; RCWD - Rancho California Water District **Figure 4-12. Water District Coverage Areas**

4.2.2.3.2 Promote Incentive Programs for BMP Retrofits

Another tactic for addressing the source of nutrient loading in this area is the increased promotion and support of incentives targeted to promote water conservation and landscape retrofits through partner agencies (including Metropolitan Water District, local water districts, and the San Diego County Water Authority). Examples of these incentive programs include payments for things such as turf replacement, sprinkler head nozzle replacements, smart irrigation controllers, rain barrels, etc. These incentive programs can be an important tool in creating change at the individual level and could be promoted until resources are depleted. Programs that support landscape retrofits will target sources of wet and dry weather flows that can mobilize nutrients, particularly those associated with residential areas as well as roads, streets, and parking. Although not triggered, Tthe Sustainable Landscapes Retrofit Program is designed also currently being implemented to encourage landscape retrofits at nurseries and greenhouses, as well as residential areas. The Sustainable Landscapes Retrofit Program is discussed in greater detail in **Section 4.2.2.2.4**. Current Copermittee strategies for potential coordination efforts with Water/Sewer districts are outlined in **Appendix 6 Table A6-2**.

Implementation of this strategy will be triggered if:

- 1. An interim goal has not been met;
- 2. It has been determined by the County of San Diego through adaptive management that implementation is necessary;
- 3. Pilot program success and;
- 4. All of the necessary resources have been secured. Resources include staff availability, grant funding or alternative funding source, incentive items, and establishment of partnerships.

4.2.2.3.6 Stream Restoration Projects

Increased runoff volumes and velocities from natural wet weather events and increased urban development can result in erosion of stream banks and channels and degrade or alter natural systems. Erosion can result in large quantities of sediment and sediment-bound pollutants such as phosphorus entering the water column and traveling downstream, where it can contribute to nutrient loading in the SMR Estuary. A stream restoration project could be designed to reduce nutrient loading and is expected to have supplemental reductions to bacteria and sediment. The stream restoration remedy includes the following proposed options, as funds are available and pending approval of environmental documents, obtaining permits, and the feasibility of effectiveness:

- Widening or modifying the impaired creek channel to disperse and slow flow to increase residence time and nutrient uptake.
- Re-sloping streambanks to reduce erosion and Total Suspended Solids (TSS) and nutrient loading downstream.
- Streambank stabilization by revetments, log cribs, groins, or gabions reduce erosion and TSS and nutrient loading downstream.
- Floodplain restoration and reconnection with the stream course to increase retention time and groundwater recharge.
- Restored native basins to temporarily capture and reduce flow and promote nutrient uptake and groundwater recharge.

- Refurbishment of existing basins for desilting and groundwater recharge.
- Replacing invasive vegetation species with native vegetation that has increased nutrient uptake.

Implementation of this strategy may be triggered if:

- 1. An interim goal has not been met;
- 2. It has been determined by the County of San Diego, through adaptive management, that implementation is necessary; and
- 3. All of the necessary resources have been secured. Resources include staff availability, grant funding or alternative source, contractor funding, partnerships, approved restoration/rehabilitation designs, CEQA/NEPA environmental review, environmental permits issued, and ongoing funding for maintenance and monitoring.

Future stream restoration projects may be located on ERs within the WMA and a description of known stream restoration projects on ERs is included in **Appendix 6**.

4.2.3 Optional WMA Strategies

The Copermittees and the City of Menifee have identified multiple coordinated efforts (i.e., optional regional or multijurisdictional WMA strategies) to be implemented to address eutrophication impacts and nutrient loading within the SMR watershed. A list of these can also be found in Appendix 6. The optional WMA strategies differ from the optional jurisdictional strategies in that they are a coordinated effort amongst two or more jurisdictions working collaboratively, at a regional, WMA, or multijurisdictional level within the SMR WMA towards common goals within the watershed. Collaboration potentially increases efficiency and effectiveness in addressing sources through economies of scale (e.g., watershed-wide outreach approaches or incentive programs to address over-irrigation, in-stream rehabilitation to reduce eutrophication within waterbodies). The coordinated efforts are summarized in **Table 4-16**.

Continuation of Table 4-16. Collaborative WMA Strategies for the SMR WMA

											HPWOC	I	Priority Wa Condi			er Q ions	uali	ty
Optional WMA Strategy	Implementation Timeframe/ Schedule	RCFCWCD	County of Riverside	County of San Diego City of Menifee	City of Murrieta	City of Tomoculo	City of Wildomar	Triggers	Resources	Pollutant Sources	Eutrophication (nutrients)	Recreation	Dhysical Hahitat	Triysical Habitat Toxicity	Nuisance (Trash)	Water Supply	Agricultural Supply	Industry
Coordinate with Integrated Regional Water Management (IRWM) regional water managers to plan for and implement water quality improvement Projects (retrofits, stream rehabilitation, or other projects) that will address nutrients and/or dry weather flows.	As triggered	•		•				Participation as stakeholder in IRWM program will occur, as needed and if funded, to promote applicable project adoption in the SMR WMA.	Individual projects and further participation in grant funding offered through IRWM assessed on case-by-case basis.	Sources within Upstream catchment area (to be determined)	•	•		•	•	•	•	•
Participate in Santa Margarita River Watershed Nutrient Initiative-Stakeholder Group as a collaborative effort to reduce nutrients and dry weather flows.	Ongoing	•	•	•	•		•	Ongoing participation. This work is a follow-on effort to the 2006 San Diego Lagoons Investigative Order (R9-2006- 0076; Lagoon Order) and subsequent work plan developed jointly by the Regional Water Board and WMA stakeholders.	Funding for staff support within an agency or contract supported by other Copermittees within the watershed	Sources within upstream catchment area (to be determined)	•							
Participate in the Permitted Flow Assessment by completing an inventory of permitted discharges, recycled water conveyances, and natural water sources. Also, conduct a flow and load characterization.	Ongoing	•	•	•	•		•	Ongoing participation	Involves working with the Regional Water Board	Sources within Upstream catchment area (to be determined)	•	•	•			•		

5 Monitoring and Assessment Program

Chapter 5 outlines procedures to support assessment of progress toward numeric goals and schedules, progress addressing eutrophication impacts and nutrient loading, and each Copermittee's overall efforts to implement the WQIP. In conducting previous NPDES MS4 Permit required monitoring and by participating in various regional monitoring efforts over the past 20 years, the Copermittees have established water quality monitoring stations throughout the SMR WMA. A select number of existing monitoring stations will continue to be monitored. In addition, new monitoring stations to fulfill requirements not contained in previous versions of the Permit have been identified. The quantity and required characteristics of these new monitoring stations are described under the applicable program component in the sections below. The reporting year for the Monitoring and Assessment Program (MAP) extends from October 1st to September 30th of the following year.

Throughout this Chapter various Workplans and Monitoring Plans are referenced. For more details regarding each document, refer to **Appendix 5A** through **Appendix 5I**. Each Appendix describes the monitoring programs established for certain targets, goals, and objectives. **Section 5.3** lists the general scope of monitoring, which include the applicable monitoring programs.

5.3 GENERAL SCOPE OF MONITORING

...[following listed programs 1-4]

The monitoring component of the SMR WMA MAP includes the following programs:

- 4. Special Studies
 - WMA Special Study
 - San Diego Region Special Study
 - Investigative Order Santa Margarita River Estuary and Watershed Monitoring and Assessment Program (IO Workplan)
 - Estuary Resurfacing Groundwater Discharge Rates and Loading
 - o Estuary Continuous Monitoring
 - o Estuary Surface Water Quality and Algal Biomass Monitoring
 - o Estuary Sediment and Benthic Community Condition Monitoring
 - o Santa Margarita River Watershed Monitoring

SMR WMA MAP Component	# Events	Sample Type	Analyses	Permit Provision
Special Study Estuary	Bi-annually dry	Field Observations	Discharge rate, piezometer	Provision D.3.a.(1)
Groundwater Monitoring (5.3.3.2)	winter and summer	Analytical Monitoring	TN, dissolved inorganic nitrogen, total and dissolved phosphorus	Provision D.3.a.(1)
Special Study Estuary Continuous	Continuous for 7	Field Observations	water depth, degree of tidal muting or influence	Provision D.3.a.(1)
Continuous Monitoring (5.3.3.2)	months	Field Monitoring	DO, Temperature, pH, salinity/conductivity	Provision D.3.a.(1)
	Monthly (April – Oct)	Surface Water Quality	Surface water chlorophyll-a, TN, dissolved inorganic nitrogen, total and dissolved phosphorus	Provision D.3.a.(1)
Special Study Estuary Monitoring	Monthly (April – Oct) and 3 additional (Nov – Mar)	Algal Biomass	Temperature, salinity, macroalgal biomass	Provision D.3.a.(1)
(5.3.3.2)	Annually during summer	Sediment and Benthic Community Conditions	Grain size, total organic carbon, nitrogen, phosphorus, Benthic community condition	Provision D.3.a.(1)
Special Study	Monthly (May	Field Observations	Flow rate and volume.	Provision
IO SMR Watershed Monitoring Program (5.3.3.2)	Oct) and Bi- monthly (Nov –	Field Monitoring	Temperature, conductivity	Provision D.3.a.(1)
	April)	Analytical Monitoring	TN, Total and dissolved inorganic nitrogen, Total and dissolved phosphorus	Provision D.3.a.(1)

Continuation of Table 5-1. Summary of Monitoring Programs ...[following San Diego Region Special Study]

5.3.3.1.1 WMA Special Study - SMRNIG Study

The SMRNIG, formed in 2011, is a collaboration of stakeholders from within the watershed for the purpose of monitoring and assessing water quality in order to evaluate and address impairments due to biostimulatory substances in the estuary and river. The SMR Stakeholder Group is funded largely through the Integrated Regional Water Management (IRWM) process and is currently receiving a Proposition 84 grant from the State of California with matching funding and in kind services provided by the County of San Diego, District, Southern California Coastal Water Research Project (SCCWRP), United States Marine Corps (USMC) Base Camp Pendleton, and the Regional Board. A Technical Advisory Committee led by SCCWRP coordinates the technical studies at the bequest of the SMR Stakeholder Group.

Current nitrogen and phosphorus water quality objectives are problematic, in part, because they do not consider site specific factors. The Nutrient Numeric Endpoint (NNE) framework, an alternative regulatory approach advocated by SWRCB staff and United States Environmental Protection Agency (USEPA) Region 9, is currently in development. As a result, the methods for protecting beneficial uses from biostimulatory substances are aimed at addressing the cause of potential impairments rather than focusing on controlling nutrient concentrations in of themselves. This framework can be used to develop scientifically sound nutrient water quality goals for the Estuary and river that are protective of their beneficial uses.

In support of the development of the NNE framework the Copermittees targeted sites for in-kind sampling to provide the study with additional nutrient data, selected in coordination with SCCRWP. Samples collected included analysis of ammonium, orthophosphate, TDN, TDP, particulate organic carbon, particulate organic nitrogen, particulate phosphorus, phytoplankton chlorophyll a, algal CN content, and algal phosphorus content. During early WQIP implementation Copermittees will continued to support the study efforts by including in-kind monitoring of additional NNE relevant parameters at the long-term receiving water station during a dry weather monitoring event. to assess the Estuary through a nutrient numeric endpoint (NNE) process to provide critical information for the long-term management of the Estuary (San Diego Water Board 2018). Accordingly, the Stakeholder Group calculated TMDLs, load allocations, and waste load allocations to achieve NNE-based targets including macroalgal biomass and dissolved oxygen benchmarks rather than traditional eutrophication objectives such as water column nutrient concentrations (San Diego Water Board 2018). The targets developed by the stakeholder group were incorporated into the Middle and Lower SMR HPWQC compliance pathways as a result of the 2019 Investigative Order discussed further in Section **5.3.3.2**. The Copermittees will continue to support future phases of the NNE development efforts.

Currently, the Regional Water Board is preparing a draft resolution and staff report that will support water quality goals for the Estuary that was were developed with the consideration of stakeholder input. The resolution is scheduled to be released for public comment in spring 2018 and is based on technical studies supported by the SMR Stakeholder Group (Sutula et al., 2016). The next stage of the project will develop proposed water quality goals for the Santa Margarita River downstream of the confluence with De Luz Creek. By May 2018, the Technical Advisory Committee will develop a preliminary report that evaluated potential goals for this section of the river that is based on scientific studies and model simulations. Additional discussions of the SMR Stakeholder Group will ensue that use the results of this preliminary technical report to inform the Stakeholder Group in developing recommended goals for this section of the river for

5.3.3.2 SMR Estuary and Watershed Monitoring and Assessment Program Workplan

The Regional Water Board issued Investigative Order No. R9-2006-0076 (2006 Investigative Order) (San Diego Water Board, 2006) due to the SMR Estuary (Estuary) eutrophic conditions. The 2006 IO required the collection of data to support the development of a TMDL. After further assessment of the Estuary, results indicated that there continues to be an ongoing discharge of nutrients. The purpose of the 2019 Investigative Order is to "assess the condition of the Santa Margarita River Estuary (Estuary) and to evaluate the linkage between the nutrient loading trends resulting from the implementation actions by the Cities of Murrieta, Temecula, and Wildomar, the Counties of San Diego and Riverside, the Riverside Flood Control and Water Conservation District, and the United States Marine Corps Base Camp Pendleton (collectively referred to hereafter as Dischargers) and the restoration of the water quality and beneficial uses of the Estuary" (San Diego Water Board, 2019). In November 2019, the Final Monitoring and Assessment Workplan for the Santa Margarita River Estuary and Watershed Monitoring and Assessment Program was completed to respond to the requirements of the 2019 Investigative Order. Results from the water quality monitoring and assessment program will be used to evaluate and demonstrate water quality improvements achieved within the Estuary as a result of implementation actions taken by the Dischargers and to track progress towards achieving the numeric targets and loading reductions needed to reduce eutrophication within the Estuary (Weston, 2019). The IO Workplan and QAPP are included as Appendix 5I.

The following IO Workplan monitoring elements initiated in April 2020, will continue for four years and will be completed by October 2023:

- Estuary Resurfacing Groundwater Discharge Rates and Loading
- Estuary Continuous Monitoring
- Estuary Surface Water Quality and Algal Biomass Monitoring
- Estuary Sediment and Benthic Community Condition Monitoring
- Santa Margarita River Watershed Monitoring

5.4.1.1 Monitoring to Assess Progress Toward Achieving Goals and Schedules in the Middle SMR Subwatershed

A multi-tiered approach to setting goals was used for the Middle SMR Subwatershed. The six compliance pathways for Copermittees to meet the WQIP goals are detailed in Section 4.1.3. Each Copermittee in the Middle SMR Subwatershed will have the option of demonstrating compliance through one of the six pathways. The date by which the final goal for the Middle SMR Subwatershed must be achieved is preliminarily scheduled for 2038 and will be updated through the adaptive management process following completion of monitoring under the IO Workplan in 2023 and/or as appropriate based on other information that becomes available. when the TMDL Alternative becomes effective. Table 5-9 presents the compliance pathways for the Middle SMR Subwatershed goals and the monitoring that may be used to track progress toward achieving these goals.

 Table 5-9 Monitoring Related to HPWQC – Eutrophication Impacts and Nutrient Loading, Middle

 Santa Margarita River Subwatershed Copermittees

	Compliance Pathway	Final Numeric Goal ¹	Monitoring Elements
1	Demonstration that the discharger is attaining the load reduction goal of 76% in the Middle SMR Subwatershed in receiving waters.	76% reduction in dry weather loadings in receiving waters	Dry Weather Receiving Water Monitoring data for total nitrogen and total phosphorus collected in the Santa Margarita River (receiving water) at the base of the Middle SMR Subwatershed.
		OR	
2	Demonstration that the Santa Margarita River Estuary targets (based on the proposed TMDL Alternative) have been attained.	Numeric goals to be determined based on outcome of TMDL Alternative for the Santa Margarita River Estuary. Primary nutrient numeric targets (surface water macroalgal biomass of ≤57 g dw/m ² and water column dissolved oxygen daily minima ≥5 mg/L) or attainment of all secondary nutrient numeric targets (surface water macroalgal biomass ≤70 g dw/m2, water column dissolved oxygen 7-day average of daily minimum ≥5 mg/L with 10% allowable exceedance, and SQO Benthic Community Condition Score ≤2 0)	<i>HIDL Monitoring</i> Santa Margarita River Estuary and Watershed Monitoring and Assessment Program data including Estuary Surface Water Quality and continuous monitoring for dissolved oxygen, algal biomass monitoring, and benthic community condition monitoring for benthic community condition scores.
		OR	
3	Demonstration that non- stormwater flows that are within Copermittee control have been reduced to meet load reductions.	100% reduction in non-stormwater flows within Copermittee control (i.e., within their regulatory authority)	Dry Weather Field Screening Monitoring for flow at Copermittee major outfalls.
		OR	
4	Demonstration that discharger is meeting required load reductions as described in the TMDL Alternative for the SMR Estuary.	<u>76% reduction</u> in dry weather loadings from MS4 Copermittees	Total nitrogen, total phosphorus, and flow data from <i>Non-Storm Water</i> <i>Persistent Flow MS4 Outfall</i> <i>Discharge Monitoring</i> .
		OR	
5	Demonstration that exceedances of targets are due to sources outside of Copermittee control.	Where final goals have not been met, demonstrate that exceedances of targets are due to source of nutrients outside of the control of the Copermittees.	Potential <i>Special Studies</i> conducted during future Permit terms.
		OR	
6	Demonstration that management actions to attain load or flow reductions are being implemented through mechanisms defined in the accepted Water Quality Improvement Plan	The Copermittees assess progress to goals, implement the JRMP, enhanced JRMP strategies, optional jurisdictional strategies, or optional WMA N/A strategies, as triggered through an iterative approach as described in the accepted Water Quality Improvement Plan	

1. The final goals are preliminary and will may be updated through the adaptive management process if triggered by the results of the IO Workplan special studies. when the TMDL Alternative becomes effective.

5.5.2.2 MS4 OUTFALL DISCHARGE ASSESSMENTS

...[following the first paragraph and 10 bullets]

The assessments for stormwater pollutant discharge reductions to be presented in the Annual Report will:

- Use a model or other method to calculate/estimate:
 - The average storm water runoff coefficient for each land use within the WMA. A new method or revised C value methodology to determine pollutant loading is pending and will be developed through regional efforts;
 - The volume of storm water and pollutant loads discharged from monitored outfalls for each storm event with measurable rainfall greater than 0.1 inch;
 - The total flow volume and pollutant loadings discharged from each jurisdiction within the WMA over the course of the wet season (extrapolated from the monitored MS4 outfalls); and
 - The percent contribution of storm water volumes and pollutant loads discharged from each land use type within each hydrologic subarea with a major MS4 outfall to receiving waters or within each major MS4 outfall to receiving waters in the Copermittee's jurisdiction within the WMA for each storm event with measurable rainfall greater than 0.1 inch;
- Evaluate findings against analyses/assumptions from the WQIP to determine whether updates are needed;

6.2.1 Adaptation of Goals and Schedules

As part of the preparation of the Report of Waste Discharge, the Copermittees will evaluate the progress toward achieving the watershed goals established in **Chapter 4**. The watershed goals and schedules that will be assessed as part of the Report of Waste Discharge are provided in **Tables 4-2 and 4.3** in **Section 4.1**.

Assessment of the watershed goals and compliance pathways will be performed using data collected per the Monitoring and Assessment Program (MAP) and JRMP/LIPs, along with the schedules developed in conjunction with each goal. Depending on the results of the assessment, it may be appropriate to adjust either the numeric goals and/or the schedules associated with each goal. The ability to modify goals and schedules based on the TMDL Alternative for the SMR Estuary will be dependent on the outcomes of IO Workplan monitoring and coordination with the Regional Water Board. flexibility afforded by the Resolution for the TMDL Alternative, which has yet to be adopted by the Regional Water Board. Table 6-3 lists the considerations that he will be included in the process of evaluating progress towards defined goals and schedules

6.4.1.1.1 Regulatory Drivers

Where new regulations or policies are adopted that impact watershed planning and implementation processes in the near term, modifications to the goals, strategies, schedules, and/or Monitoring and Assessment Program may be warranted, and, in some cases, required. For example, an update will be initiated no later than six months following approval of a TMDL Basin Plan Amendment by the OAL and the USEPA, or adoption of the TMDL Alternative Resolution. The trigger applies to TMDLs containing wasteload allocations assigned to Copermittees within the watershed during the term of the Order (Provision F.2.c.(2)). Similarly,

future modifications to the TMDL Alternative, based on the results of monitoring under the IO Workplan concluding in 2023, in development during preparation of the WQIP, may also necessitate adaptations to the WQIP. The WQIP is based on the best available information related to the TMDL Alternative at the time of development, but modifications to the TMDL Alternative during the adoption process may necessitate modifications to the WQIP.

Other examples of regulatory drivers that may trigger modifications include new state policies or plans (e.g., biostimulatory substances amendments, biological objectives) and changes resulting from modifications to existing Permit requirements (e.g., as a result of revising a TMDL). An updated Permit, a proposed Biological Objectives Basin Plan Amendment, and a SMR Mainstem TMDL Alternative are regulatory actions expected in the near-term. When adopted, these actions are expected to trigger new modifications to the WQIP. WQIP updates related to these actions will be conducted as part of the adaptive management process related to New Information as described in **Section 6.4**.

8 References

[new references in alphabetical order]

San Diego Water Board (California Regional Water Quality Control Board, San Diego Region). 2019. Investigative Order No. R9-2019-0007 An Order Directing the Cities of Murrieta, Temecula, and Wildomar, The Counties of San Diego and Riverside, The Riverside Flood Control and Water Conservation District and the United States Marine Corps Base Camp Pendleton to Design and Implement A Water Quality Improvement Monitoring and Assessment Program For Eutrophic Conditions in the Santa Margarita River Estuary and Watershed, California. May 2019.

San Diego Water Board (California Regional Water Quality Control Board, San Diego Region). 2018. Santa Margarita River Estuary, California Nutrients Total Maximum Daily Load Project Staff Report. July 2018.

Riverside County Flood Control and Water Conservation District. 2019. Upper Santa Margarita River Watershed Stormwater Resource Plan.

Appendix 3B- Potential Strategies to Address the HPWQC

...[Following page 12 in Appendix 3B]

Table 1. Key Potential Strategies to Address Eutrophication and Nutrient Loading from Source Categories

			Source C	Categories	
Potential Strategy	Residential	Commercia I/Industrial	Parks and Recreation	Orchards, Vineyards, Nurseries, and other Agriculture	Horse Ranches
Coordination with Water Districts to pinpoint and address problem sources of dry weather flows; potential implementation actions could include rebate/incentive programs, irrigation retrofits, or other programs as appropriate and effective See Appendix 6 Table A6-2 for complete list of potential (and not yet triggered) coordinated strategies.	x	х			
Coordination with Water Districts on inspection and enforcement efforts.	Х	х			
Coordination with Riverside County Flood Control and Water Conservation District to install waste receptacles at or around channels with public access roads/trails.			х		
Establish semiannual meetings among Engineering and Community Services District to evaluate opportunities for improving water quality at MS4s, streets, parking lots, parks and other landscaped areas.			x		
Establish semiannual meetings to discuss potential ordinance changes.	Х	Х	х	х	х
Establish semiannual meetings among CIP staff to identify opportunities to rehabilitate channels or habitats.	х	х	х	х	х
Regional inspector to inspect areas watershed-wide for anthropogenic sources of dry weather flows.	х	х	х	х	х
Streambed protection and critical area planting	Х	Х	х	х	х
Provide funding and support for future phases of the Murrieta Creek Army Corp of Engineers project	х	х	х	х	х
Infiltration Testing at District Basins and/or outfalls private basin sites to provide data to assess the feasibility of regional recharge facilities or individual infiltration BMPs	x	х	х	х	x
Education and reporting to reduce yard waste dumping	Х	Х	х	х	х
A private partnership to engage the public, promote educational programs and a community cleanup.	х	х	х	x	х
Detention Basin located upstream of I-15. Requires an evaluation for basin suitability.	х	х	х	х	х

Appendix 5A-Santa Margarita River Monitoring Plan

...[following Section 1]

2 RECEIVING WATER MONITORING PROGRAM

The Receiving Water Monitoring Program is part of a regional effort by the Copermittees to implement a watershed-based monitoring program.

2.1 RECEIVING WATER MONITORING PROGRAM OVERVIEW

Samples will be collected in accordance with the Copermittees' Standard Operating Procedures (SOPs). Monitoring is intended to be compatible with the Surface Water Ambient Monitoring Program (SWAMP). Fecal Indicator Bacteria (FIB) monitoring will be carried out in accordance with the California State Water Resources Control Board's Bacteria Provisions for Inland Surface Waters, Enclosed Bays, and Estuaries, and for Ocean Waters adopted in August 2018. Composite and grab sample times, *in-situ* field measurements, and sampling activities and observations will be recorded on a field data sheet in accordance with the Copermittees' procedures.

The Receiving Water Monitoring Program incorporates the following monitoring components:

Receiving Water Wet Weather Monitoring and Receiving Water Dry Weather Monitoring (Sections 2.2 and 2.3)

Receiving Water Sampling Teams, Equipment, and Bottles (Section 2.4)

- Receiving Water Data Collection (Section 2.5)
- Bioassessment Monitoring (Section 2.6)
- Hydromodification Monitoring (Section 2.7)
- Follow-up Analysis and Actions (Section 0)
- Sediment Quality Monitoring (Section 2.9)
- Receiving Water Monitoring Program Analysis Types (Section 2.10)
- Assessment and Reporting (as discussed in Chapter 5 of the WQIP)

The Receiving Water Monitoring Program includes both wet weather and dry weather sampling for chemistry and toxicity. The Dry Weather Receiving Water Monitoring Program requires bioassessment monitoring and hydromodification monitoring at least once during the permit term. Refer to **Figure 2-1** for the long-term receiving water monitoring locations.

2.5 RECEIVING WATER DATA COLLECTION

...[following a list of samples and measurements]

Table 2-2. Receiving Water Constituents for Analysis

Analyte Group	Constituents
Conventionals, Nutrients	Chlorophyll-a ^{1,2} , Total Dissolved Solids, Total Suspended Solids, Total Hardness, Total Organic Carbon, Dissolved Organic Carbon, Sulfate, Methylene Blue Active Substances (MBAS), Total Phosphorus, Orthophosphate, Total Phosphate (calc.), Nitrite ³ , Nitrate ³ , Total Nitrogen (calc.), Total Kjeldhal Nitrogen, Ammonia (total), Ammonia (un- ionized)
Metals (Total and Dissolved)	Aluminum, Arsenic, Cadmium, Chromium, Chromium III ¹ , Chromium VI ¹ , Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver ¹ , Thallium, Zinc
Pesticides	Organophosphate Pesticides, Pyrethroid Pesticides
Indicator Bacteria ⁵	Total Coliform, Fecal Coliform, Enterococcus, E. Coli
Toxicity ⁴	Pimephales promelas (Fathead Minnow), Ceriodaphnia dubia (Daphnid), Selenastrum capricornutum (Green Algae), Strongylocentrotus purpuratus (Purple Sea Urchin)

1. Only collected during dry weather monitoring events.

2. Collected as part of Bioassessment monitoring.

3. Nitrate and nitrite may be combined and reported as nitrite + nitrate

4. If sample has salinity less than 1ppt, then test for *Pimephales promelas*, *Ceriodaphnia dubia*, *Selenastrum capricornutum*. If sample has salinity greater than 1ppt, then test for *Strongylocentrotus purpuratus*. To determine the most sensitive test species for freshwater, all three test species will be screened for two wet weather events. After this screening period, toxicity monitoring will only be conducted using the most sensitive test species. Rescreening will occur once each permit term.

5. According to the New Bacteria Provisions for Inland Surface Waters, Enclosed Bays and Estuaries, and for Ocean Waters adopted in Aug 2018, *E. coli* is the new standard of FIB for REC-1, and enterococci is the FIB standard for brackish waters. It is important to analyze all FIB for data comparability over time; thus, the monitoring plan will remain unchanged.

Appendix 5I – Final Monitoring and Assessment Workplan for the SMR Estuary and Watershed Monitoring and Assessment Program

Appendix 5I: Final Monitoring and Assessment Workplan for the SMR Estuary and Watershed Monitoring and Assessment Program

Santa Margarita River Watershed Management Area

Submitted by:

COUNTY OF RIVERSIDE, RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, CITIES OF MENIFEE, MURRIETA, TEMECULA, WILDOMAR, AND COUNTY OF SAN DIEGO

Appendix 6 – Adaptive Management Topics Supplemental Information

JANUARY 2021

Appendix 6: Adaptive Management Topics Supplemental Information

Santa Margarita River Watershed Management Area

Submitted by:

COUNTY OF RIVERSIDE, RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, CITIES OF MENIFEE, MURRIETA, TEMECULA, WILDOMAR, AND COUNTY OF SAN DIEGO

A6-1 Strategies and Coordination Related to Ecological Reserves

An inventory of Ecological Reserves (ER) within the Santa Margarita River (SMR) watershed and associated ER project or programmatic goals are detailed in the ER Inventory **Table A6-1**. In addition to these and other named reserves, the Regional Conservation Authority of Riverside County has identified critical conservation areas and core criteria cells to target for future land acquisition as part of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). In San Diego County, key conservation corridors and conserved lands are identified as part of Multiple Species Conservation Program (MSCP). **Figure A6-1** illustrates the locations of ERs, and other conserved lands within the watershed.

The SMR Watershed Management Area (WMA) Water Quality Improvement Plan's (WOIP) goals and strategies related to Priority Water Quality Conditions (PWQCs) and Highest Priority Water Quality Conditions (HPWQCs) within the watershed are supportive of the Ecological Reserve goals and projects within the WMA. Current jurisdictional illicit discharge detection and elimination (IDDE) strategies to eliminate illicit discharges and other anthropogenic dry weather flows from residential and commercial land uses benefit ERs and their project or programmatic goals centered around resource protection through pollution and impairment prevention. Additionally, the Santa Margarita Watershed Management Area Analysis (WMAA) identified multiple candidate projects for alternative compliance consistent with ER goals such as structural restoration projects like the Meadowview Stream Restoration project and Natural System Management Practices including Land Preservation (WMAA, 2018). Furthermore, the District has prepared the Upper Santa Margarita River Watershed Stormwater Resource Plan (USMRW SWRP) to facilitate planning and funding eligibility for stormwater and dry weather runoff projects in the planning area (USMRW SWRP, 2019). As new ERs are added and projects are implemented, the ER inventory table will be updated as part of the WQIP adaptive management process.



Figure A6-1. SMR Conserved Land and Ecological Reserves

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Table A6-1. Ecological Reserve Inventory

Sub- watershed	Ecological Reserve Name	Owned /Managed By	Acres	Covering Municipal Boundaries	Description	Ecological Reserve Goals	Identified in WQIP (Y/N)? Related Strategies	Website
Lower SMR	Santa Margarita Ecological Reserve (SMER)	State of California (San Diego State University), SDSU, CDFW	4,344	Unincorporated San Diego County	Provides protected sites for research and education of southern California ecosystems. The reserve is managed by SDSU and comprises land owned by SDSU, the SDSU Research Foundation, the U.S. Bureau of Land Management, the California Department of Fish and Wildlife, and the Nature Conservancy. The reserve lies on the Riverside/San Diego county line between Temecula and Fallbrook. The reserve encompasses a 5-mile reach of the Santa Margarita River, the longest protected coastal river in southern California, and a variety of upland habitats. Part of a 30-mile protected riparian corridor.	SMER supports an active scientific research program, provides an outdoor classroom for education and outreach, and protects critical wildlife habitat.	Ν	https://fsp.sdsu.edu/about-us/
Lower SMR	Santa Margarita River Preserve	County of San Diego	221	Unincorporated San Diego County	Adjacent to SMER and Santa Margarita River Trail Preserve. Abuts Camp Pendleton	The overall MSCP goal is to maintain and enhance biological diversity in the region and conserve viable populations of endangered, threatened, and key sensitive species and their habitat. This RMP includes management directives and implementation measures to meet Draft North County Plan goals and objectives under the following elements: (A) Biological Resources, (B) Vegetation Management, (C) Public Use, Trails, and Recreation, (D) Operations and Facility Maintenance, and (E) Cultural Resources	Ν	https://www.sandiegocounty.gov/content/d am/sdc/parks/RMD/RMPs%20and%20Tra ils/Santa%20Margarita Final%20RMP_6. 29.12.pdf
Lower SMR	Santa Margarita River Trail Preserve	The Wildlands Conservancy	1,384	Unincorporated San Diego County	Sensitive species habitat, 5 miles of river, corridor between Santa Ana Mountains and Inland San Diego County, public access for recreation	Remediation of two key steelhead passage barriers on Santa Margarita River, this project provides the biological, hydrologic, geomorphic, and structural analysis of the project site to inform selection of fish passage enhancement alternatives and results in the recommendation of a preferred alternative ready for on-the- ground implementation.	Yes, candidate project for Lower SMR as part of WMAA	https://www.wildlandsconservancy.org/preserve_santamargarita.html
Lower SMR	Margarita Peak Preserve	Fallbrook Lands Conservancy	1,207	Unincorporated San Diego County	This 1,207-acre preserve was acquired in 2007 through a partnership with Camp Pendleton, the California Wildlife Conservation Board, and the Trust for Public Land. It is our largest preserve, and at 3,193 feet, it is the highest point in San Diego county west of I-15. This remote and pristine property is home to an abundance of native plant and animal species.	Biological studies, sensitive habitat protection	N	https://www.fallbrooklandconservancy.org/ margarita-peak-preserve
Middle SMR	Warm Springs Creek Integrated Mitigation Project	Regional Conservation Authority Western Riverside County (RCA)	7	Unincorporated Riverside county		Creation of over 1,500 linear feet of new intermittent channel and seasonal wetlands. The mitigation project is located within a larger 75-acre site south of Scott Road and west of Briggs road in the County of Riverside. The project will preserve, restore, and enhance the existing un-named creek (which is tributary to Warm Springs Creek), ephemeral drainages, and associated wetland habitats.	Yes, as part of Optional Strategy-4 for Jurisdictional Strategies Selected to Address Eutrophication Impacts in the Upper SMR Subwatershed – City of Menifee and; Optional Strategy 1 for Riverside County Jurisdictional Strategies Selected to Address Eutrophication Impacts in the Upper SMR Subwatershed	
Middle SMR	Meadowview Restoration ¹	Meadowview Homeowner's Association	400	City of Temecula	The Restoration Project uses bioengineered BMPs to stop dangerous mass bank failure in the Meadowview Creek, improve infiltration and surface water quality. The Project will also improve wildlife habitat along the creek. Multiple phases.	Reduce erosion, improve safety, regrade to 3:1 slopes, and add diversions and water bars. Invasive plant removal, revegetation.	Yes, candidate project for Middle SMR as part of WMAA	
Middle SMR	Emerson Oaks Preserve	UC Natural Reserve (UCR)	241	Unincorporated Riverside County	Habitat restoration, removal of invasive species, research		Ν	<u>https://ucrnrs.ucr.edu/emerson-oaks-</u> reserve
Middle SMR	French Valley Wildlife Area / Johnson Ranch	Regional Conservation Authority of Western Riverside County,	702	Unincorporated Riverside County	French Valley Wildlife Area is 702 acres of coastal sage scrub, southern willow scrub, grasslands, eucalyptus woodlands, and prior dry-land farming agricultural lands. It has rolling hills with elevations from 1,300'-1,600'. It was designated as a wildlife area by the Fish and Game Commission in 2007.		N	https://wildlife.ca.gov/Lands/Places-to- Visit/French-Valley-WA

Sub- watershed	Ecological Reserve Name	Owned /Managed By	Acres	Covering Municipal Boundaries	Description	Ecological Reserve Goals	Identified in WQIP (Y/N)? Related Strategies	Website
		California Department of Fish and Wildlife (CDFW)						
Middle SMR	Santa Rosa Plateau Ecological Reserve	CDFW	9,000	Unincorporated Riverside County			Ν	https://www.rivcoparks.org/santa-rosa- plateau-wildlife-area
Middle SMR	lodine Springs	Riverside County Parks and Open Space	65.24	Wildomar	Open to the public. Contains undocumented trails. Public not to disturb the ecology of this area.		N	https://www.rivcoparks.org/open-space- areas-and-reserves
Middle SMR	AD 161 Preserve Property	Regional Conservation Authority Western Riverside County (RCA)	83.88	City of Murrieta			N	<u>https://www.wrc-rca.org/habitat-</u> conservation/reserves/
Middle SMR	Southwester n Riverside County Multi- Species Reserve	Riverside County Parks and Open Space	14,000	Unincorporated Riverside County	Mitigation for the development of Diamond Valley Lake. Connects Diamond Valley Lake and Lake Skinner, includes multi-use trails and protected habitat	Primarily critical habitat conservation and some public passive recreational use.	N	https://www.multispeciesreserve.org/
Middle SMR	Sylvan Meadows Multi-Use Area	Regional Conservation Authority Western Riverside County (RCA)	10,000	Unincorporated Riverside County	Southwest Riverside County/Near Murrieta, 10000 acres of protected lands 10 miles of multiuse trails, scenic meadows, and vernal pools six protected plant communities. Adjacent to Santa Rosa Plateau Ecological Reserve.		N	https://www.rivcoparks.org/open-space- areas-and-reserves
Middle SMR	Warmington Mitigation Site	Riverside County Parks and Open Space	188	City of Murrieta	Multi-use trails. Open to the public, sensitive ecological resources		N	https://www.rivcoparks.org/open-space- areas-and-reserves
Upper SMR	Agua Tibia Wilderness	BLM	17,979	Unincorporated Riverside County	Part of the National Wilderness Preservation System. In wilderness, you can enjoy challenging recreational activities and extraordinary opportunities for solitude. Active and passive recreational uses are allowed.		N	https://www.blm.gov/visit/agua-tibia- wilderness

1. The Meadowview project is not an Ecological Reserve as described, it is not conducted by an agency and is a voluntary project supported by local and federal funding

A6-2 Strategies Related to Water and Sewer Agency Coordination

The Copermittees have identified a number of jurisdictional, optional, and Watershed Management Area strategies that involve coordination with or leveraging resources of water and/or sewer agencies within the watershed management area to conserve water, prevent pollution, and improve water quality. Some strategies are partially implemented by the City of Temecula, County of Riverside, the District, and the City of Murrieta. San Diego County has fully implemented a strategy, IDDE-8, which includes coordination with upstream entities such as sewer/water agencies. **Table A6-2** below summarizes these strategies. WQIP **Section 4.2.1.3.2** further describes the existing and potential added benefits of water and sewer agencies coordination. WQIP **Figure 4-12** identifies the geographic boundaries of each water district within the watershed.

Copermittee		Strategy Description	Implemented
San Diego County	IDDE-8 (AR update: Combined with IDDE-2)	Identify and report illicit connections and discharges. Includes coordination with upstream entities and monitoring outfalls for discharges from potential ICIDs.	Fully Implemented, and Ongoing
	Opt-1 (AR update; Now Opt-6)	Divert persistent dry weather flows from storm drains to sewer [with permission granted from sewer agency].	No, not triggered
	FPUD Recycled water Storage (PCP)	Construct a recycled water storage tank that would allow FPUD to store and utilize.	Yes
City of Temecula	Opt-3	Implement dry weather infiltration, diversion to sanitary sewer, to eliminate non-stormwater discharges to the MS4.	Partially Implemented
County of Riverside	Opt-4	Implement a Partnering Program with Sewer Agencies (note: County of Riverside does not provide sewer system services) to identify where sewer and storm water infrastructure are in close proximity and, subsequently, confirm the absence of flow at nearby major outfall during dry weather for high risk areas.	Partially Implemented
RCFCWCD (District)	WMA-1	Partner with Water District(s) on pilot projects to abate dry weather flows [through diversions to the sanitary sewers].	Partially implemented (planning stage)
City of Opt-1 Wildomar		Coordination with water districts to pinpoint and address problem sources of dry weather flows; potential implementation actions could include rebate/incentive programs, irrigation retrofits, or others as appropriate and effective.	No, not triggered
City of Menifee	None	N/A	N/A
City of Murrieta	Opt-1	Water District Coordination – Coordination with Water Districts to pinpoint problem sources of dry weather flows.	No, not triggered
	Opt-2	Water District Coordination – Coordination with Water Districts on inspection and enforcement efforts.	Partially Implemented
	Opt-6	Partner with Water Districts to implement an incentive program.	No, not triggered

Table A6-2. WQIP Water and Sewer Agency Coordination Strategies