SANTA MARGARITA RIVER
WATERSHED MANAGEMENT AREA

Water Quality Improvement Plan
Provision B.2 Submittal:
Priority Water Quality Conditions

submitted by
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GEOSYNTEC CONSULTANTS
Executive Summary

The Counties of Riverside and San Diego, Riverside County Flood Control and Water Conservation District (RCFCWCD), and the Cities of Menifee, Murrieta, Temecula, and Wildomar (Parties) are developing this Water Quality Improvement Plan (Plan) to comply with requirements in their Municipal Separate Storm System (MS4) Permit (NPDES No. CAS 0109266; Permit). The Santa Margarita River (SMR) watershed is unique as the least disturbed watershed along the Southern California coast, and the Santa Margarita River is the longest free flowing, undammed river in the region. The SMR watershed is divided into the Upper and Lower SMR watersheds, which are located in the Counties of Riverside and San Diego, respectively. The Upper and Lower watersheds support a wide variety of beneficial uses, including recreation, water supply, food supply, industry, and aquatic life.

This Plan is being developed to protect these beneficial uses of the SMR watershed. The Plan is being developed in three phases, according to the process for development described in the Permit. The process for development and implementation of the Plan is outlined in Figure ES-1.
The first phase of development identified the priority water quality conditions for the watershed, along with potential water quality improvement strategies. The results are summarized in this first submittal to the Regional Board. The next phase will identify numeric goals for the highest priority water quality conditions in the watershed, and strategies that the Parties will implement to achieve...
the numeric goals. The third phase will be to develop a monitoring and assessment program to provide feedback to program managers. During implementation, adaptive management will be incorporated within the process utilized to assess progress and make adjustments as needed.

This Plan is being developed through a stakeholder process involving a Consultation Committee consisting of required representatives from the Regional Board, the environmental community, and the development community, and of at large members. The larger stakeholder and public participation process also includes participation from the Santa Margarita River Nutrient Initiative Group (Cities, counties, utility districts, Caltrans, scientists, tribes, NGOs, United States Geological Survey (USGS), Camp Pendleton, Farm Bureau, regulators).

**PRIORITY WATER QUALITY CONDITIONS**

As the first step in Plan development, the Parties identified the priority water quality conditions for the watershed. The subset of the priority water quality conditions, the highest priority water quality conditions (HPWQC), will provide the basis for selecting watershed strategies and developing goals and schedules during the next stages of Plan development. The process to select priority water quality conditions considered available data and information, known impacts to beneficial uses, and local knowledge about watercourse function, environmental values, community goals, and habitat preservation, among other factors. Results show that on the whole, dry and wet weather water quality in the watershed are both trending towards improvement. The non-perennial nature of the watershed and the lack of connectivity between the MS4 discharges and receiving waters in the Upper SMR result in relatively few locations where the MS4 has the potential to impact receiving waters. As a result, the prioritization process focused on the few perennial reaches in the watershed where there is evidence of flowing MS4 outfalls that discharge to the receiving water.

Priority water quality conditions were selected, and assigned to a relative priority level: Priority Level A, B, or C, Level A being the most important, to provide an initial relative ranking of the conditions to support identification of the highest priority condition(s). Wet and dry weather conditions were considered independently, as wet weather and dry weather priorities may be different and the cost implications and feasibility of implementation could be very different.

The second phase of the prioritization defined the highest priority water quality condition(s) using an evaluation of functional uplift and input from the Parties. The functional uplift evaluation considered the potential environmental, social, and economic benefits to be gained if priority conditions impacting beneficial uses in the prioritization category are improved. The functional uplift analysis identified that the aquatic life beneficial use category was of higher importance to address than the recreation, water supply and food supply beneficial use categories.

Three Priority Level A conditions were identified that have the potential to impact the beneficial uses associated with aquatic life: eutrophication, physical habitat, and trash in specific locations. Given the Clean Water Act Section 303(d) List of Water Quality Limited Segments (303(d) List) listings, existing Total Maximum Daily Loads (TMDLs), and TMDLs under development for nutrients and biostimulatory substances in the watershed and the potential impact on aquatic life from those conditions, an elevated concentration of algal biomass that could contribute to eutrophic conditions is a clear watershed priority. In addition, Parties that did not have reaches where eutrophication was identified as a potential priority chose to focus on trash. Physical habitat was not selected as a HPWQC as the other conditions were viewed as higher and
more clear priorities as information on physical habitat is still being gathered in the Upper SMR Watershed. The Statewide Trash Amendments (as a regulatory driver) identify urbanized areas as priority land uses for trash, which is a potential threat to aquatic life beneficial uses. These conditions were assigned as the highest priority conditions for the Upper and Lower SMR watersheds, as shown in Table ES-1. There was no HPWQC identified for the City of Menifee or the RCFCWCD. The lack of connectivity between the MS4 and Warm Springs Creek in the City of Menifee establish that the reach is not a priority. The RCFCWCD has limited land use authority within the watershed, which puts constraints on the types of projects and activities that it may fund. As such, the City of Menifee and the RCFCWCD will focus their efforts on supporting watershed strategies that will support addressing other Priority Level A conditions impacting aquatic life; the HPWQC of trash and eutrophication/nutrients identified by the other agencies in the watershed.

Table ES-1. HPWQCs Identified by Jurisdiction and Watershed Location

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>HPWQC(s)</th>
<th>Condition</th>
<th>Watershed Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Dry</td>
<td>Wet</td>
</tr>
<tr>
<td>Wildomar</td>
<td>Trash</td>
<td>X</td>
<td>X Priority land uses(^2) in Upper Murrieta Creek (Reach 1 in Upper Watershed)</td>
</tr>
<tr>
<td>Murrieta</td>
<td>Eutrophication</td>
<td>X</td>
<td>Warm Springs (Reach 8 in Upper Watershed)</td>
</tr>
<tr>
<td>Temecula</td>
<td>Eutrophication</td>
<td>X</td>
<td>Redhawk Channel (Reach 25 in Upper Watershed)</td>
</tr>
<tr>
<td>Riverside County</td>
<td>Trash</td>
<td>X</td>
<td>X Priority Land uses(^1) in Upper Watershed</td>
</tr>
<tr>
<td>San Diego County</td>
<td>Nutrients(^3)</td>
<td>X</td>
<td>Rainbow Creek (Reach 14 in Lower Watershed)</td>
</tr>
<tr>
<td>Eutrophication</td>
<td></td>
<td>X</td>
<td>Santa Margarita River Estuary (Reach 30 in Lower Watershed)</td>
</tr>
</tbody>
</table>

1 The Permittees may change HPWQC as more information is collected through their monitoring programs or compliance activities. If changing compliance efforts toward another HPWQC could potentially provide greater functional uplift.
2 As defined in the Amendment to the Water Quality Control Plan for Ocean Waters of California to Control Trash and Part I Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California.
3 Rainbow Creek has a TMDL specifically addressing nutrients.

A source assessment was conducted to identify potential sources contributing to the highest priority conditions based on a review of available data and information for potential MS4 sources that are likely to be present in the Upper and Lower SMR watersheds. Finally, potential strategies were identified that could result in improvements to water quality in MS4 discharges and/or receiving waters.
Introduction

**Priority Water Quality Conditions**

### 3.6.2.6 HIGHEST PRIORITY WATER QUALITY CONDITION(S)

The HPWQCs to be addressed by the Plan were selected from the list of priority water quality conditions using a two-step process. First, the functional uplift was evaluated for each category of beneficial uses used in the prioritization. Second, the Parties were engaged to determine the HPWQCs, including a consideration of the Consultation Committee comments.

Functional uplift is a term used to evaluate and demonstrate the benefits and feasibility of addressing each of the priority water quality conditions. In its traditional sense, functional uplift is used in stream restoration work to determine benefits related to five categories: hydrology, hydraulics, geomorphology, physiochemical, and/or biology. The evaluation of functional uplift for each of the reaches begins with an evaluation of the potential benefits to be gained within the reach if the priority conditions potentially impacting the beneficial uses in the prioritization category (e.g., aquatic life, recreation, etc.) are improved. The evaluation considers environmental, social, and economic benefits. Questions considered for this evaluation are presented below.

1. Are there feasible projects or programs that could be considered to improve priority conditions in the prioritization category?
2. If priority conditions are improved through actions taken by the MS4s, would opportunities related to the beneficial use be realized within the reach?
3. Are there other potential social benefits gained by improving the beneficial uses in the category?
4. Are there potential economic gains that could result from improving the beneficial uses within the reach?

The initial relative ranking of priority water quality conditions identified that the aquatic life and recreation beneficial use categories include at least one Priority Level A condition in both the Upper and Lower SMR WMAs, and the water supply and food supply beneficial use categories include Priority Level A conditions in the Lower SMR WMA. Beneficial use categories that had Priority Level A conditions in both the Upper and Lower SMR WMAs were further evaluated to identify a watershed-wide highest priority condition. Functional uplift was evaluated for the beneficial use categories that have at least one Priority Level A condition within the watershed by scoring the categories from 0-5. The rankings were developed based on evaluating existing information and best professional judgement to provide a qualitative ranking of the beneficial use categories. The scoring was developed as follows:

- A score of zero means the answer to the applicable question is clearly no (e.g., no feasible projects or programs to improve priority conditions).
- A score of one means that there is a low probability of answering yes to the question.
- A score of two means that the answer is unknown at this time.
• A score of three means that it may be possible to answer yes, but that actions taken solely by the MS4s are not likely to be sufficient to address the priority condition (question 2).

• A score of four means that it is likely the answer to the question is yes.

• A score of five means that it is clear that actions by the MS4s will result in answering yes to the question.

The functional uplift scores for each prioritization category are shown in Table 2-.

### Table 2-7. Functional Uplift Evaluation for the Priority Level A Conditions in the Upper and Lower SMR WMA

<table>
<thead>
<tr>
<th>Functional Uplift Evaluation Consideration</th>
<th>Aquatic Life</th>
<th>Recreation</th>
<th>Water Supply</th>
<th>Food Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feasible Projects/Programs</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Beneficial Use Opportunities</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Other Potential Benefits</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Potential Economic Gains</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>13</td>
<td>4</td>
<td>10</td>
<td>9</td>
</tr>
</tbody>
</table>

Based on the functional uplift analysis, the aquatic life beneficial use category was determined to be of higher importance to address than the recreation, water supply and food supply beneficial use categories. In general, the scoring reflects the lack of technology available to effectively and economically treat all constituents impacting recreation, water supply, and food supply and the limited locations where these beneficial uses are likely to occur.

Further analysis reveals three Priority Level A conditions that have the potential to impact the beneficial uses associated with aquatic life: the specific locations where algal biomass is potentially contributing to eutrophic conditions in the watershed, trash within the upper watershed during wet and dry weather, and physical habitat effects. Water quality data and other available information indicate that eutrophication is a potential concern in several reaches of the watershed during dry weather. Furthermore, the TMDL in Rainbow Creek sets nutrient load reductions during wet weather. Excess algal biomass, caused by excess nutrients in combination with other factors, is a potential contributor to eutrophication. Although not a problem in all areas of the watershed, trash has the potential to impact aquatic life under dry and wet conditions and is typically associated with urbanized areas, such as those defined as priority land uses under the Statewide Trash Amendments. Physical habitat was not selected as a HPWQC as the other conditions were viewed as higher and more clear priorities as information on physical habitat is still being gathered in the Upper SMR Watershed.

Based on this assessment, the HPWQC by jurisdiction and watershed location are summarized in Table 2- and shown in Figure 2-. Based on the priority condition assessment, the HPWQC is limited to the geographic scope shown in Figure 2-.
There was no HPWQC identified for the City of Menifee or the RCFCWCD. The City of Menifee has limited MS4 influence within the watershed reaches. As shown in Figure 1-1, MS4 discharges from the City of Menifee do not contribute flow to Warm Springs Creek. The lack of connectivity between the MS4 and Warm Springs Creek in Menifee establishes that the reach is not a priority (as outlined in Figure 2-1 and described in the prioritization process in Section 2.2). The RCFCWCD has limited land use authority within the watershed, which puts constraints on the types of projects and activities that it may fund. Unlike cities and counties, the RCFCWCD does not own or operate public streets, roads, or highways, and does not have planning, zoning, development permitting, or other land use authority within its service area. As such, the City of Menifee and the RCFCWCD will focus their efforts on jurisdictional strategies and supporting watershed strategies that will support addressing the HPWQC of trash and eutrophication/nutrients identified by the other agencies in the watershed. A conditions impacting aquatic life, such as physical habitat. Those watershed strategies could include regional programs to reduce dry weather flow (e.g. water conservation) and trash (e.g. outreach and education on littering), and/or restoration efforts or efforts to address areas with erosion or hydromodification impacts.

Table 2-8. HPWQCs Identified by Jurisdiction and Watershed Location

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>HPWQC</th>
<th>Condition</th>
<th>Watershed Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wildomar</td>
<td>Trash</td>
<td>X</td>
<td>Priority land uses¹ in Upper Murrieta Creek (Reach 1 in Upper Watershed)</td>
</tr>
<tr>
<td>Murrieta</td>
<td>Eutrophication</td>
<td>X</td>
<td>Warm Springs (Reach 8 in Upper Watershed)</td>
</tr>
<tr>
<td>Temecula</td>
<td>Eutrophication</td>
<td>X</td>
<td>Redhawk Channel (Reach 25 in Upper Watershed)</td>
</tr>
<tr>
<td>Riverside County</td>
<td>Trash</td>
<td>X</td>
<td>Priority Land uses¹ in Upper Watershed</td>
</tr>
<tr>
<td>San Diego County</td>
<td>Nutrients²</td>
<td>X</td>
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1. The Parties may change HPWQC as more information is collected through their monitoring programs or compliance activities. If changing compliance efforts toward another HPWQC could potentially provide greater functional uplift.
3. Rainbow Creek has a TMDL specifically addressing nutrients.

As discussed in the receiving water and MS4 impacts section (Section 2.4), the non-perennial nature of the watershed and the lack of connectivity between the MS4 discharges and receiving waters in the Upper SMR WMA result in relatively few locations where the MS4 has the potential to impact receiving waters. As such, relatively few potential priority conditions were identified in the watershed. When selecting the HPWQC(s), the Parties looked closely at the gathered information to identify areas where there were conditions that could clearly be linked to MS4 contributions. As a result, the focus is on the few perennial reaches in the watershed where there is evidence of flowing MS4 outfalls in dry weather that discharge to the receiving water. Given the 303(d) listings and existing TMDLs, and TMDLs under development for nutrients and
biostimulatory substances in the watershed and the potential impact on aquatic life from those conditions, an elevated concentration of algal biomass that could contribute to eutrophic conditions is a clear watershed priority. However, in many areas of the watershed, the ephemeral nature of the receiving waters or lack of connectivity between contributions from the MS4s indicate that elevated algal biomass contributing to eutrophic conditions would not be a concern in some reaches. In Murrieta, eutrophication due to elevated algal biomass was selected as the HPWQC, despite it not being identified as a high priority during the prioritization process. In this case, there are sensitive receiving waters within the Reach. In addition, 303(d) listings for nitrogen and phosphorus in Murrieta Creek, in combination with total nitrogen and total phosphorus exceedances in MS4 outfall data, suggest that elevated biomass could become a potential issue, and eutrophication was selected for the HPWQC as a preventative measure to prevent any degradation of aquatic life beneficial uses.

Parties that did not have reaches where eutrophication was identified as a potential priority chose to focus on trash, since the Statewide Trash Amendments (as a regulatory driver) identify urbanized areas as priority land uses, thereby being potential contributors of trash. As a result, the HPWQC for the SMR WMA include both trash and eutrophication.
Commented [CL2]: Mapping/data doesn’t include 19,716 acres of RCA owned MSHCP conservation land in this watershed. Data available for download on at http://data.wrerra.opendata.arcgis.com/.

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Figure 2-5. HPWQC in Santa Margarita River Watershed

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