

**Southern California Stormwater Monitoring Coalition  
Streamlined Annual Reporting Project Summary  
(January 2021 – December 2023)**

**Introduction**

Municipal stormwater programs throughout California face complex annual reporting requirements that require extensive resources to complete each year. The resulting reports are typically voluminous and difficult to understand, sometimes obscuring program results and achievements. In addition, due to varying requirements and formats across the state, the reports and key findings are often incomparable.

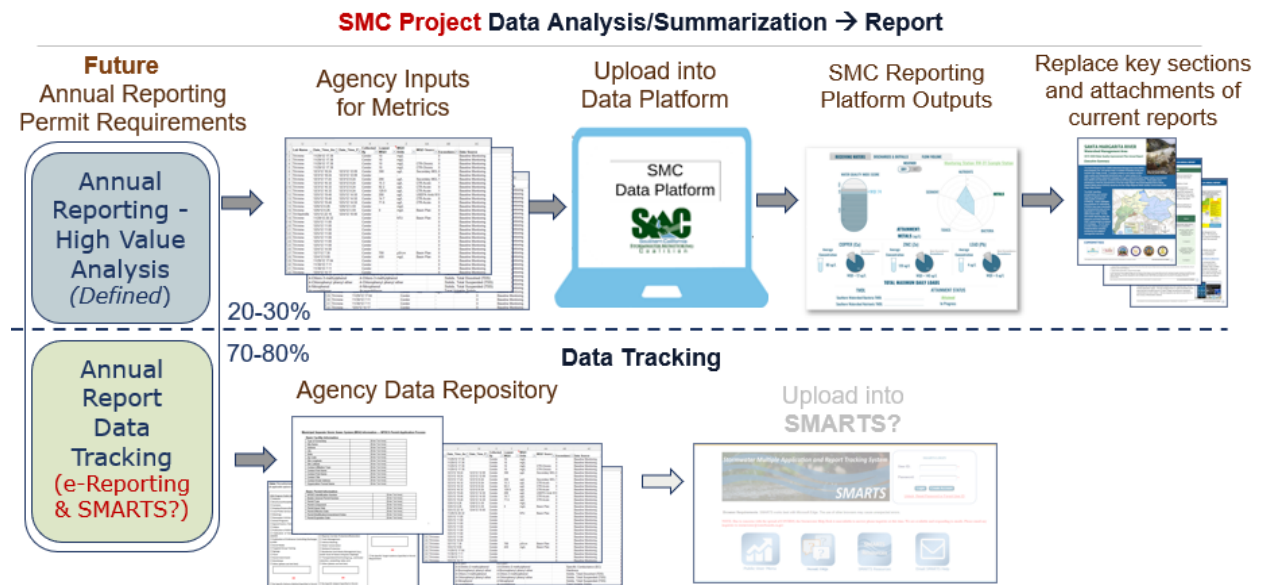
In June 2020, the Southern California Coastal Water Research Project (SCCWRP) developed the Southern California Stormwater Monitoring Coalition (SMC) Five-Year Research Agenda 2019-2024<sup>1</sup>. Project 4.2 summarized the issues that are faced by the SMC members and identified the desired outcomes for annual reporting<sup>2</sup>. This project was one of several that was ranked as a high priority by the SMC.

In January 2021, the Southern California Stormwater Monitoring Coalition (SMC) initiated the project with Larry Walker Associates (LWA) and Paradigm Environmental (Paradigm) (collectively “Project Team”) to accomplish three objectives:

- 1) Identify key metrics that are the essence of program effectiveness.
- 2) Create a data platform for incorporating the data necessary to track and calculate the key metrics.
- 3) Generate a user interface (for regulated members only) for quickly and efficiently automating the Annual Report using the key metrics as the focal point of the report format.

Although this initial effort was a “proof of concept” to demonstrate how high value metrics can be identified and reported on regionally and in a user-friendly manner to show the state of the environment within Southern California, the overarching, future intent of this project is to further streamline the Annual Reporting for each SMC member agency while producing more actionable information.

To this end, the vision for the streamlining of the annual reporting was captured as follows:



<sup>1</sup> SCCWRP Technical Report #1126

<sup>2</sup> Project 4.2 Streamline Data Collection for Stormwater Annual Reporting and Prototype Interfaces for Program Effectiveness Information.

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This project included two phases and six tasks over a three-fiscal year period. Each of the tasks and resulting work products are briefly summarized below.

- A. Identify Key Metrics / Desired Outputs
  - 1) Create a Focus Group
  - 2) Review Current Annual Reports
  - 3) Identify Key Metrics to Assess Compliance Among all SMC Member Agencies
- B. Develop / Refine Data Platform
  - 4) Create a Data Platform for Incorporating the Data to Calculate the Key Metrics
  - 5) Pilot Test the Streamlined Annual Report Web Interface
  - 6) Use the Focus Group to Refine the new Annual Report Format

### **Task 1. Focus Group**

A Focus Group was formed to oversee the project and provide critical feedback. The group was comprised of representatives from both the regulated and regulatory SMC member agencies including:

- Orange County Public Works
- County of San Diego Watershed Protection Program
- San Bernardino County Flood Control District
- Los Angeles County Flood Control District
- Riverside County Flood Control and Water Conservation District
- Ventura County Watershed Protection District
- California Department of Transportation
- Los Angeles Regional Water Board
- Santa Ana Regional Water Board
- San Diego Regional Water Board

The Focus Group met 15 times between February 2021 – December 2023.

### **Task 2. Annual Reports - Review of Permit Requirements and Submitted Annual Reports**

This work effort involved a) a review of the draft/current municipal stormwater permit annual reporting requirements (as of 2020), and b) a review of the most recent annual reports submitted by the SMC member agencies (FY 2019-2020). The purpose of this review was to *generally* summarize (a) what the permits required for annual reporting and what was documented in the most current SMC member agency Annual Reports (FY 2019-2020), (b) how the permits and SMC member agencies were similar or different, and (c) what valuable information is currently provided. The results of the review were summarized in a Technical Memorandum dated June 28, 2021<sup>3</sup>.

A total of six (6) municipal stormwater permits and ten (10) SMC member annual reports were reviewed and summarized. Based on the analysis, the overarching conclusions included the following.

- Management Questions - The permits and annual reports did not appear to identify the range of management questions that the agencies are seeking to answer through evaluation of specific

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<sup>3</sup> SMC Streamlining Annual Reporting Project – Task 2: Review Permit Annual Reporting Requirements and Current Annual Reports, June 28, 2021.

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metrics. However, to some degree, management questions are utilized as a part of the monitoring programs and reporting.

- Reporting on Implementation vs. Impact of the Program - The permits overwhelmingly require reporting on program implementation instead of intermediate and/or final impacts of the stormwater program. As a result, it can be difficult to assess progress to goals and/or adaptively manage the program if the results and effectiveness of the intermediate steps are unknown.
- Reporting on the Stormwater Program vs. Program Elements – With the exception of the Los Angeles and San Diego Region permits and corresponding annual reports, reporting tends to be fairly “siloed” and focused on aspects of the program elements instead of the overall program or high priority water quality conditions/constituents.
- Reporting on Monitoring Programs - All of the permits require, and the corresponding annual reports assess, the urban runoff quality and receiving water quality and trends, which comprise a large component of the annual reports.
- Reported Information/Metrics - The agencies often have to interpret how to report out the required information; as a result, the annual reports include much of the same information, but tend to differ in the types of metrics and specificity.

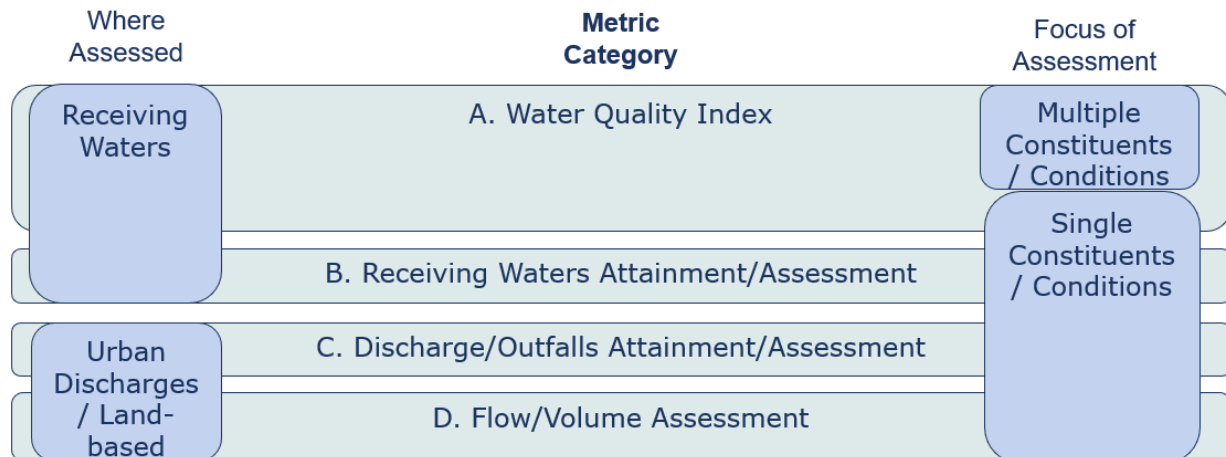
This information was used to identify the management questions, outcomes, metrics/performance indicators, and data analysis tools that were desired for the Southern California region.

**Task 3. Identification of Key Metrics**

Based on the review of the permit requirements and submitted annual reports (Task 2), the Focus Group identified the high value:

- Outcomes – Environmental Metrics and associated:
  - Performance Indicators – Program-based Metrics; and
  - Management Questions

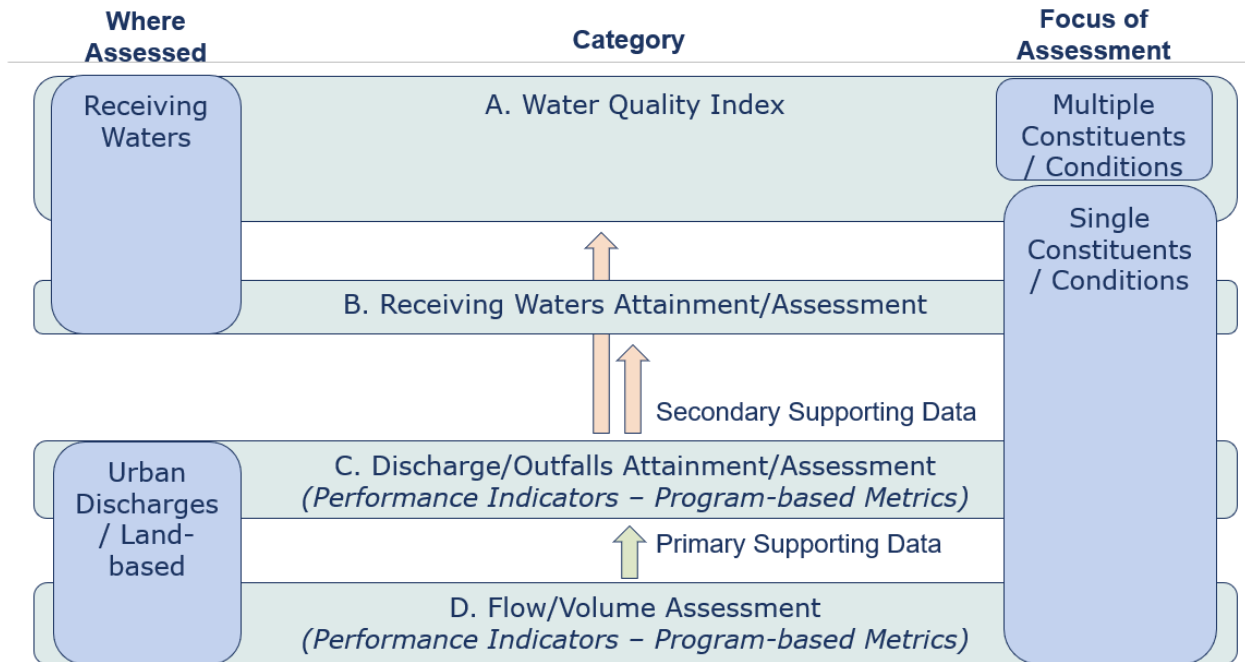
These were summarized within an Excel workbook<sup>4</sup> and approved by the SMC Steering Committee on June 7, 2022. A conceptual graphic of the Outcomes – Environmental-based metrics categories is below.



<sup>4</sup> Final SMC Outcome Indicators Metrics June 2, 2022.

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A conceptual graphic of the related Performance Indicators – Program-based metrics categories is below.



**Tasks 4-6 – Develop/Refine a Data Platform and User Interface for the High Value Metrics**

In the second year, the SMC undertook a major investment in creating a seamless and transparent interface for sharing the agreed upon metrics that were identified in Task 3. Program data and metrics uploaded to the data platform are displayed spatially and visually and in a way that can be viewed at the watershed and drainage area levels so that progress towards completion of permit mandated requirements is easily demonstrated, understandable, and consistent across the region. For this stage of the project, the user interface is not a front-facing publicly, available database, rather it was designed to assist the user (regulated members) to aide in their reporting on the high value metrics.

The platform includes a dashboard with an interactive map and summaries of water quality results to better understand watershed conditions.

Platform functionality is divided into three pages, Home, Upload, and Report.

- Home Page - landing page for the platform and displays uploaded stations in spatial and tabular formats. Selecting a station from the map or list will display its details and uploaded metric data. Station metric data is organized into four tabs, which are consistent with the four performance indicator categories developed in Task 3. Each tab contains visuals and data for the metrics developed for that category.
- Upload Page - provides two templates for the user to download and complete, the Station Data Template and the Metric Data Template. Details on receiving water and outfall stations for which metric data will be uploaded are entered and uploaded through the Station Data Template. Metric data associated with each uploaded station is then entered and uploaded through the Metric Data Template. The Upload page includes detailed instructions and tips to support successful uploads and includes a table of upload history for future reference.
- Report Page - enables users to filter and download uploaded data.

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Welcome, admin   Home   Upload   Report   Logout

## SMC Streamlined Annual Reporting Platform

Pilot System for Regional MS4 Reporting

This platform is a repository for assessing watersheds and the protection of beneficial uses provided by the stormwater programs across Southern California.

Please explore the map to the right to understand key water quality metrics as conveyed by monitoring programs, along with the benefits provided by stormwater infrastructure projects.

Select a station below to zoom to its location on the map:

Receiving Waters Station

Outfall Station

Upper Santa Margarita River

Upper Temecula Creek

ACJ01 - Aliso Creek at dip x-ing in Aliso Wood Cyn Park

Watershed: Santa Ana
Perris Valley Channel at Nuevo Rd
Station Details

Receiving Waters Station: Perris Valley Channel at Nuevo Rd (802HVO325)

RECEIVING WATERS

TMDLS & WLAS

DISCHARGE & OUTFALLS

CAPTURE

Year 21/22

Weather

WET

Receiving Water Assessment By Water Quality Objectives (WQOs):

All

YEAR

TRENDS

**E. coli**

# of Samples: 2

Average Annual Concentration

= 15.40k MPN/100 mL

WQO Name: STV - Statewide Bacteria Provisions

WQO Threshold: 320.00 MPN/100 mL

**Oxygen, Dissolved**

# of Samples: 2

Average Annual Concentration

= 9.22 mg/L

WQO Name: Basin Plan WQO

WQO Threshold: 5.00 mg/L

**pH**

# of Samples: 2

Average Annual Concentration

= 8.27

WQO Name: Basin Plan WQO

WQO Threshold: 8.50

**Total Dissolved Solids**

# of Samples: 2

Average Annual Concentration

= 230.00 ug/L

Exceedance data not provided

**Temperature**

# of Samples: 2

Average Annual Concentration

= 12.76 Deg C

**Boron**

# of Samples: 2

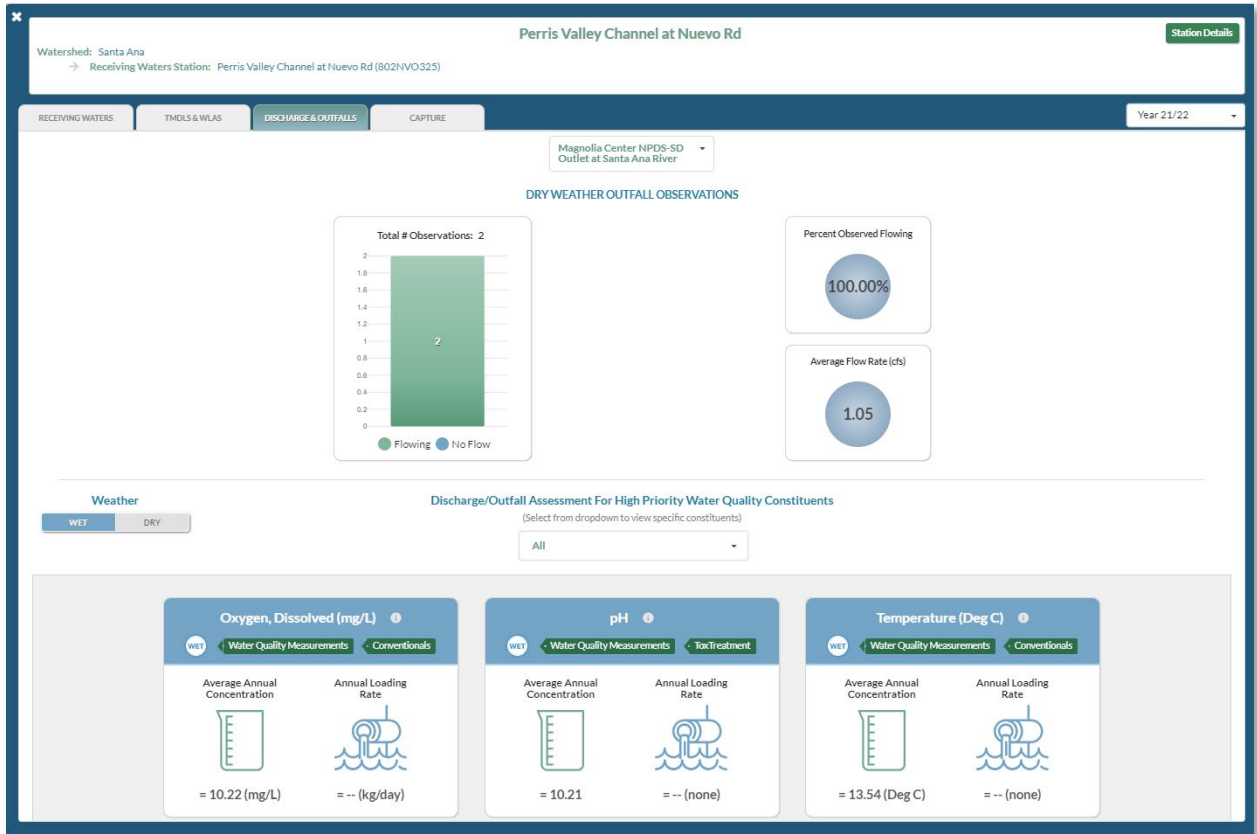
Average Annual Concentration

= 180.00 ug/L

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February 12, 2024  
Item 3E - Attachment No. 1

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### UPLOAD

Data uploaded here will be displayed in the platform and used to generate Report Outputs. Data uploaded here can only be viewed by authorized users, click [here](#) to learn more about user permissions.  
To upload station and metric data please follow the steps outlined here. To add drainage areas for outfall and receiving water stations, please send their shapefiles to support@smc-reporting.org.

#### STEP 1: Station Data

**1.1**   [Download the Station Data Template](#)

Download and complete the Station Data Upload Template. Include all stations for which Metric Data will be or has been uploaded. New stations may be uploaded separately from existing stations, or they can be uploaded in a single workbook that contains a complete repository of both new and existing stations. Please note that uploading a Template containing an existing station will update the details for that station. Please see the Station Data Upload Template Readme for additional details. Station Data is independent of time and can be updated at any time.

**1.2**   Upload Station Data

Select and upload your completed Station Data Upload Template.

Choose File

No file chosen

Upload

#### STEP 2: Metric Data

**2.1**   [Download the Metric Data Template](#)

Download and complete the Metric Data Upload Template for a given Reporting Year. Please ensure any stations included in the Metric Data Upload Template were uploaded through the Station Data Upload, as the Metric Data must reference existing stations. Please note that if an upload contains data for a given reporting year and station for which data already exists, the data from the new upload will replace the existing. Please see the Metric Data Upload Template Readme for additional details.

**2.2**   Upload Metric Data

Select the completed Metric Data Upload Template file and its respective fiscal year and click upload.

Choose File

No file chosen

Select A Fiscal Year

▼

Upload



### ANNUAL REPORTING

The Report page generates outputs using uploaded station and metric data. The Data Output generated below compiles uploaded data into a tabular format for download. The Report Output is coming soon and will compile uploaded data and Platform visualizations into a document for download. Please email support@smc-reporting.org for any assistance needed.

#### REPORTING OUTPUTS

Please select one or more attributes from the following dropdowns to customize your data output.

<p><b>Reporting Period</b></p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Select... ▼</div> <p><b>County</b></p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Select... ▼</div> <p><b>Receiving Waters Station</b></p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Select... ▼</div>	<p><b>Regional Board</b></p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Select... ▼</div> <p><b>Uploaded By</b></p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Select... ▼</div> <p><b>Outfall Station</b></p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Select... ▼</div>
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Generate Outputs

Generated On:

Download Data Output   The Excel output compiles existing data based on the above selection into the same format as the upload template.

Download Report Output   "Future feature" Please use screenshots to capture visualizations to support reporting.

The Focus Group provided input throughout platform development, from the wireframe stage through pilot testing the fully functioning site. Focus Group feedback from each stage was used to iteratively revise and develop functionality behind the data platform. In the pilot testing phase, the Focus Group populated test data and reviewed the pilot format which is intended to generate a useful output for annual reporting. Over the course of testing, three Focus Group members, Riverside County Flood Control District, San Diego County, and Orange County, uploaded station and metrics data for a total of thirty-seven (37) receiving waters stations and twenty-eight (28) to the live platform. Feedback received from this project phase informed the final set of revisions to the pilot platform.

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**Next Steps**

The portion of the streamlined annual reporting project that was completed in December 2023 allowed the SMC Focus Group to explore how the challenges of the annual reports may be able to be streamlined in a way that would result in more user friendly and substantive submittals that could identify the state of the environment at a watershed and regional scale. In addition, the SMC Focus Group members were able to identify additional modules/data inputs that would also assist Regional Water Board staff in evaluating compliance with some of the permit provisions.

The Project Team confirmed the desired next steps with the Focus Group and the Steering Committee.

- FY 23-24 and 24-25 - SMC Focus Group regulated members will continue to explore the use of the data platform and user interface and identify how it can a) potentially replace certain sections of the Annual Reports, and/or b) provide summaries of similar information for the Southern California region as a whole.
- FY 23-24 and 24-25 – SMC Focus Group regulated members will continue to collaborate with the Regional Board staff to garner support for this streamlined reporting framework and build in language during permit renewals.
- FY 23-24 and 24-25 – SMC Focus Group leadership will continue to collaborate with the State Water Board regarding the future e-Reporting requirements (due Dec 2025).
- FY 24-25 (near the finalization of the e-Reporting roll out) - the SMC Focus Group members will re-evaluate how the data platform and user interface may be able to complement the e-Reporting requirements and assist in streamlining the annual reports.
- FY 24-25 - SMC Focus Group members may identify additional core functionality and/or data processing capabilities that could be added to the data platform.