

October 2018

California Department of Transportation

Stormwater Monitoring and BMP Development Status Report: Fiscal Year 2017–18

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Stormwater Liaison

California Department of Transportation, Division of Environmental Analysis

PO Box 942874, MS-27

Sacramento, CA 94274-0001

(916) 653-8896 Voice, or dial 711 to use a relay service.

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List of Abbreviations and Acronyms

ASBS	Areas of Special Biological Significance
BMP	Best Management Practice
Caltrans	California Department of Transportation
FY	Fiscal Year
NPDES	National Pollutant Discharge Elimination System
Permit	Caltrans NPDES Statewide Storm Water Permit Order No. 2012-0011-DWQ
Regional Water Board	California Regional Water Quality Control Board
Road-RAM	Road-Rapid Assessment Methodology Verification and Traction Sand Monitoring
State Water Board	California State Water Resources Control Board
Status Report	Stormwater Monitoring and BMP Development Status Report
TMDL	Total Maximum Daily Load

Introduction and Purpose

This Stormwater Monitoring and BMP Development Status Report (Status Report) is being submitted pursuant to reporting requirements in the California Department of Transportation (Caltrans) National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Order No. 2012-0011-DWQ (Permit), Section E.2.e (State Water Board 2012). The NPDES Permit requires the Status Report to provide an update on the status of stormwater treatment technology studies, source control studies—including erosion control studies, and monitoring and discharge characterization studies for July 1, 2017, through June 30, 2018, the 2017–18 fiscal year (FY). The information is summarized according to the type of study as follows:

- Treatment technology studies
- Source control studies
- Monitoring and discharge characterization studies

The Status Report also summarizes how study findings are being implemented to improve Caltrans's stormwater monitoring program. These updates are provided for studies conducted during FY 2017–18 or studies for which the implementation category has changed since this Report was last updated (Caltrans 2017b).

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Treatment Technology Studies

Table 2-1 provides a status update of treatment technology studies for the period of July 1, 2017, to June 30, 2018. These studies are intended to evaluate the performance of potential treatment technologies in terms of concentration, volume, or load reductions. The table provides the following information for each study:

- Name
- Description
- Findings
- Year water quality monitoring began
- Status during FY 2017–18
- Planned activities for the next three fiscal years

During FY 2017–18, the treatment technology studies that were underway (i.e., in the planning, construction, monitoring, or reporting phase) or completed included:

- State Route 73 Bioretention Study
- Tahoe Sand Vaults Retrofit Pilot Study
- District 3 Linear Filtration Pilot Study
- District 7 Linear Filtration Pilot Study
- Chollas Creek Best Management Practice (BMP) Retrofit Project
- D4 Trash Net Pilot Study

The studies are presented chronologically in Table 2-1 based on the year that monitoring began. For some studies, monitoring was temporarily discontinued for one or more FYs but later resumed. The description of each study includes a summary of the type of treatment technology being studied and how its performance will be evaluated (i.e., whether in terms of concentration, volume, or load reductions).

Influent and effluent monitoring for the State Route 73 Bioretention Study continued during FY 2017–18 as part of Caltrans’s Tier 1 BMP efficiency monitoring. In the beginning of FY 2017–18, the underdrain system was modified with an inverted U pipe section. This modification will allow stormwater runoff to pond in the gravel layer between storm events. Nitrate treatment is expected to improve. Monitoring will continue at the influent and effluent monitoring stations for FY 2018–19.

For the other studies, some type of activity (e.g., monitoring, reporting, or further study planning) will continue during FY 2018–19, so there are no findings to report at this time. The findings will be included in subsequent Status Reports once the respective studies have been completed.

Table 2-1. Stormwater Treatment Technology Studies

Study Name	Description	Findings	FY Monitoring Began	FY 2017–18 Status	FY 2018–19 Plan	FY 2019–20 Plan	FY 2020–21 Plan
State Route 73 Bioretention Study	Evaluate the pollutant removal effectiveness of one bioretention basin on State Route 73 with respect to concentration.	See note ¹	FY 2006–07 ² and FY 2013–14 ²	Conduct Tier 1 BMP efficiency TMDL monitoring ³	Conduct Tier 1 BMP efficiency TMDL monitoring ³	Conduct Tier 1 BMP efficiency TMDL monitoring ³	Conduct Tier 1 BMP efficiency TMDL monitoring ³
Tahoe Sand Vaults Retrofit Pilot Study	Determine load reductions of new filter media configuration in Austin-type vaults (horizontal flow through the media as opposed to the traditional vertical flow configuration of media filters). Compare results with those predicted by Tahoe Pollutant Load Reduction Model for potential TMDL compliance.	TBD ⁵	FY 2012–13	Conduct monitoring	Develop Report	TBD ⁴	TBD ⁴
District 3 Linear Filtration Pilot Study	Evaluate performance of various linear filtration designs in terms of concentration, volume, and load reduction.	TBD ⁵	FY 2014–15	Conduct monitoring	Conduct monitoring	Develop report	No action planned (study complete)
District 7 Linear Filtration Pilot Study	Evaluate performance of various linear filtration designs in terms of concentration, volume, and load reduction.	TBD ⁵	FY 2015–16	See Note 6	Conduct monitoring	Conduct monitoring	Develop report
Chollas Creek BMP Retrofit Project	Evaluate performance of modular infiltration trenches and bio-infiltration swales in terms of reducing pollutant concentrations associated with the Chollas Creek TMDL WLAs.	TBD ⁵	FY 2015–16	Conduct monitoring	Conduct monitoring	Conduct monitoring	TBD ⁴
D4 Trash Net Pilot Study	Evaluate performance of two types of end-of-pipe trash net devices at four locations in the San Francisco Bay area.	TBD ⁵	FY 2018–19	Construction Complete	Conduct monitoring	Develop Report	TBD ⁴

Acronyms & Abbreviations:

- BMP = Best Management Practice
- FY = Fiscal Year
- TBD = To Be Determined
- TMDL = Total Maximum Daily Load
- WLA = Waste Load Allocation

Notes:

- Very effective treatment of total suspended solids, total and dissolved metals, total Kjeldahl nitrogen, and polynuclear aromatic hydrocarbons were observed—polychlorinated biphenyls were not sampled. Not so effective treatment of total phosphorus, orthophosphate, and nitrate. However, the design tested did not include a raised underdrain, which is known to improve nitrate treatment, and literature studies suggest that orthophosphate export only occurs during the first few years of media use. Most of the nutrient data were collected during the first few years after installation. Variable treatment of bacteria. The mean bacteria treatment data are affected by one or two high export events that skew calculations of mean removals. The median treatment data, which show some treatment, are considered more reliable. Source: Caltrans 2014.
- Water quality monitoring for State Route 73 began FY 2006–07. Monitoring discontinued FY 2008–09. Monitoring restarted FY 2013–14.

3. BMP performance monitoring (influent and effluent) was initially scheduled to be completed in FY 2016–17. Before the start of FY 2017–18, the underdrain system was modified to include an inverted U pipe section. Therefore, BMP efficiency monitoring will continue to assess the performance with the inverted riser. Starting with the FY 2016–17 Monitoring Results Report (Caltrans 2018), both influent and effluent stations now count toward the minimum 100 Tier 1 monitoring sites. Monitoring status of the BMP influent and effluent stations will continue to also be updated in Table 4-1, Monitoring and Discharge Characterization Studies.
4. Future activities will be determined after evaluating previous years' monitoring results.
5. Study is ongoing. Findings will be summarized once final study report is completed.
6. Due to contract issues, the District 7 Linear Filtration Pilot Study sites were not ready for water quality monitoring. The sites will be ready for monitoring for FY 2018–19.

Source Control Studies

Table 3-1 provides a status update on the source control studies, including erosion control studies, for the period of July 1, 2017, to June 30, 2018. Source control studies are intended to investigate potential activities or materials that can prevent pollutants from entering Caltrans runoff. The table provides the following information for each study:

- Name
- Description
- Findings
- Year water quality monitoring began
- Status during FY 2017–18
- Planned activities for the next three fiscal years

One source control study was underway during FY 2017–18:

- Road-Rapid Assessment Methodology Verification and Traction Sand Monitoring (Road-RAM) Study

Water quality monitoring for the Road-RAM Study began in FY 2015–16. The Road-RAM Study is intended to verify the accuracy and validity of the Lahontan Regional Water Quality Control Board (Regional Water Board)-mandated Road-Rapid Assessment Methodology field observation and data management tool. The Road-RAM Study also includes monitoring stormwater runoff from areas where new abrasives are applied for snow and ice control. Previous bench-scale studies identified that these abrasives could potentially reduce fine sediment particles and nutrients in highway runoff. The Road-RAM Study findings will be included in future status reports once the study has been completed.

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Table 3-1. Source Control Studies

Study Name	Description	Findings	FY Monitoring Began	FY 2017–18 Status	FY 2018–19 Plan	FY 2019–20 Plan	FY 2020–21 Plan
Road-Rapid Assessment Methodology Verification and Traction Sand Monitoring Study	Verify the accuracy and validity of the Lahontan Regional Water Board-mandated Road-Rapid Assessment Methodology field observation and data management tool.	Road RAM Scores do not correlate with fine sediment concentrations in roadway washoff and accumulated sediment samples. Fine sediment concentrations in roadway washoff and accumulated sediment samples were lower from sites where higher quality (i.e., Spec. H) traction abrasives were applied. Fine sediment concentrations in roadway wash off samples correlated well with turbidity. Turbidity may be useful as a surrogate for fine sediment on roadways, but additional measurements would still be needed.	FY 2015–16	Conduct monitoring and develop report	Evaluate results	TBD ¹	TBD ¹

Acronyms & Abbreviations:

- FY = Fiscal Year
- TBD = To Be Determined

Notes:

- Future activities will be determined after evaluating previous years’ monitoring results/evaluations.

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Monitoring and Discharge Characterization Studies

Table 4-1 provides a status update on the monitoring and discharge characterization studies for the period of July 1, 2017, to June 30, 2018. These studies include monitoring required pursuant to either the Areas of Special Biological Significance (ASBS) Special Protections or pursuant to an approved Total Maximum Daily Load (TMDL) in an impaired watershed where Caltrans has been assigned a Waste Load Allocation. The following information is provided for each study:

- Name
- Description
- Findings
- Year water quality monitoring began
- Status during FY 2017–18
- Planned activities for the next three fiscal years

Monitoring and discharge characterization studies conducted during FY 2017–18 consisted of ASBS special protections monitoring for the South region and multiple TMDL monitoring efforts throughout the state. The studies are categorized by ASBS or TMDL monitoring. Caltrans's FY 2017–18 Monitoring Results Report (Caltrans 2018) summarizes the data collected during the fiscal year for all monitored locations.

The ASBS monitoring in the North and Central regions has been suspended pending analysis of water quality data by the California State Water Resources Control Board (State Water Board). Therefore, ASBS monitoring only occurred in the South region for the 2017–18 wet season.

Caltrans submitted its required monitoring report for the Coachella Valley TMDL (Caltrans TMDL Monitoring Watershed #15) to the Colorado River Regional Water Board in November 2015 after two years of monitoring. The monitoring report concluded that it is highly unlikely that Caltrans facilities have been responsible for contributing bacteria to the Coachella Valley Stormwater Channel due to not enough runoff reaching the channel. Caltrans requested the Regional Water Board remove Caltrans from the TMDL due to lack of connectivity. The Regional Water Board responded January 2016 (the letter is inadvertently dated 2015) indicating that it was too early to determine exclusion of any groups/individuals from the responsible party list—a copy of this letter is provided in Attachment 1. Caltrans emailed the Regional Water Board in May 2018 asking for an update. The Regional Water Board responded that no decision has been made—a copy of the email exchange is provided in Attachment 1. No further work is anticipated at this time until the Regional Water Board makes a determination of exclusion.

Caltrans submitted a letter with a document that summarized the Rainbow Creek TMDL (Caltrans TMDL Monitoring Watershed #51) monitoring activities to the San Diego Regional Water Board in February 2017 after four years of monitoring. The document concluded that it is unlikely Caltrans discharges are providing significant nutrient contributions to Rainbow Creek. The Caltrans drainage area contains no known sources of nutrients, makes up approximately 2 percent of the total watershed, and is bordered by commercial growers, nurseries and orchards—operations which take up 21 percent of the watershed. Soil tests have shown that the installation of an infiltration-type BMP is not practical. Caltrans has requested that the Regional Water Board adjust the permitting language accordingly based on the monitoring report conclusions. The Regional Water Board responded to Caltrans indicating that it supports a reduction in monitoring frequency to once per permit term. The letter stipulates that the next reporting period for Caltrans is October 1, 2020, to September 30, 2021. A copy of the letter Caltrans submitted to the Regional Water Board and a copy of the letter with the Regional Water Board's response are provided in Attachment 2.

Additional information regarding plans for future monitoring in TMDL watersheds is contained in Caltrans's Comprehensive Total Maximum Daily Load Monitoring Plan (Caltrans 2017a).

Table 4-1. Monitoring and Discharge Characterization Studies

Study Name ⁴	Description ^{1,5}	Findings	FY Monitoring Began	FY 2017–18 Status	FY 2018–19 Plan	FY 2019–20 Plan	FY 2020–21 Plan
ASBS Monitoring – North	Conduct monitoring to comply with requirements for discharging stormwater into ASBS	TBD ¹⁶	FY 2013–14	See Note 12	Awaiting State Water Board direction ¹²	TBD ¹²	TBD ¹²
ASBS Monitoring – Central	Conduct monitoring to comply with requirements for discharging stormwater into ASBS	TBD ¹⁶	FY 2013–14	See Note 12	Awaiting State Water Board direction ¹²	TBD ¹²	TBD ¹²
ASBS Monitoring – South	Conduct monitoring to comply with requirements for discharging stormwater into ASBS	TBD ²	FY 2012–13	Conduct monitoring ³	Conduct monitoring ³	TBD ³	TBD ³
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #2	Conduct TMDL monitoring for Ballona Creek, Metals (Ag, Cd, Cu, Pb, & Zn) and Selenium	TBD ²	FY 2017–18	See Note 14	Conduct monitoring	Conduct monitoring	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #3	Conduct TMDL monitoring for Ballona Creek, Trash	TBD ²	FY 2017–18	See Note 14	Conduct monitoring	Conduct monitoring	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #4	Conduct TMDL monitoring for Ballona Creek Estuary, Toxic Pollutants (Ag, Cd, Cu, Pb, Zn, Chlordane, DDTs, Total PCBs, and Total PAHs)	TBD ²	FY 2017–18	See Note 14	Conduct monitoring	Conduct monitoring	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #5	Conduct TMDL monitoring for Ballona Creek Wetlands, Sediment and Invasive Exotic Vegetation	TBD ²	FY 2017–18	See Note 14	Conduct monitoring	Conduct monitoring	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #6	Conduct TMDL monitoring for Ballona Creek, Ballona Estuary, and Sepulveda, Bacteria	TBD ²	FY 2017–18	See Note 14	Conduct monitoring	Conduct monitoring	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #12	Conduct TMDL monitoring for Chollas Creek, Diazinon	TBD ²	FY 2011–12	Conduct monitoring	Conduct monitoring	Conduct monitoring	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #13	Conduct TMDL monitoring for Chollas Creek, Dissolved Copper, Lead, and Zinc	TBD ²	FY 2011–12	Conduct monitoring	Conduct monitoring	Conduct monitoring	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #15	Conduct TMDL monitoring for Coachella Valley Stormwater Channel, Bacterial Indicator	See summary of findings provided in narrative	FY 2013–14	Await Regional Water Board direction ⁸	Await Regional Water Board direction ⁸	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #30	Conduct TMDL monitoring for LA River, Trash	TBD ²	FY 2016–17	Conduct monitoring	Conduct monitoring	TBD ⁶	TBD ⁶

Study Name ⁴	Description ^{1,5}	Findings	FY Monitoring Began	FY 2017–18 Status	FY 2018–19 Plan	FY 2019–20 Plan	FY 2020–21 Plan
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #31	Conduct TMDL monitoring for LA River and Tributaries, Metals	TBD ²	FY 2013–14	Conducted monitoring	Conduct monitoring	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #32	Conduct TMDL monitoring for LA River Watershed, Bacteria	TBD ²	FY 2013–14	Conducted monitoring	Conduct monitoring	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #34	Conduct TMDL monitoring for Lost River, Nitrogen, Biochemical Oxygen Demand, and pH	TBD ²	FY 2016–17	Conduct monitoring	Conduct monitoring	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #35	Conduct TMDL monitoring for Lower Eel River, Temperature and Sediment	TBD ²	FY 2016–17	Conduct monitoring	Conduct monitoring	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #39	Conduct TMDL monitoring for Mad River, Sediment and Turbidity	TBD ²	FY 2016–17	Conduct Monitoring	Conduct monitoring	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #40	Conduct TMDL monitoring for Malibu Creek and Lagoon, Sedimentation and Nutrients	TBD ²	FY 2014–15	See Note 9	TBD ⁹	TBD ⁹	TBD ⁹
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #41	Conduct TMDL monitoring for Malibu Creek Watershed, Bacteria	TBD ²	FY 2014–15	See Note 9	TBD ⁹	TBD ⁹	TBD ⁹
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #42	Conduct TMDL monitoring for Malibu Creek Watershed, Trash	See Note 11	See Note 11	See Note 11	See Note 11	See Note 11	See Note 11
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #47	Conduct TMDL monitoring for Napa River, Sediment	TBD ²	FY 2016–17	Conduct monitoring	Conduct monitoring	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #51	Conduct TMDL monitoring for Rainbow Creek, Total Nitrogen and Total Phosphorus	See summary of findings provided in narrative	FY 2011–12	See Note 7	See Note 7	See Note 7	See Note 7
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #55	Conduct TMDL monitoring for Richardson Bay, Pathogens	TBD ²	FY 2016–17	Conduct monitoring	Conduct monitoring	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #56	Conduct TMDL monitoring for Sacramento/San Joaquin Delta Estuary, Methyl Mercury	TBD ²	FY 2013–14	Conduct monitoring	Conduct monitoring ⁴	TBD ⁶	TBD ⁶

Study Name ⁴	Description ^{1,5}	Findings	FY Monitoring Began	FY 2017–18 Status	FY 2018–19 Plan	FY 2019–20 Plan	FY 2020–21 Plan
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #57	Conduct TMDL monitoring for San Diego Creek and Newport Bay, including Rhine Channel, Metals (Copper, Lead, and Zinc)	TBD ²	FY 2013–14	Conduct monitoring	Conduct monitoring	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #58	Conduct TMDL monitoring for San Diego Creek and Upper Newport Bay, Cadmium	TBD ²	FY 2013–14	Conduct monitoring	Conduct monitoring	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #59	Conduct TMDL monitoring for San Diego Creek Watershed, Organochlorine Compounds (DDT, Chlordane, PCBs, and Toxaphene)	TBD ²	FY 2013–14	Conduct monitoring	Conduct monitoring	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #60	Conduct TMDL monitoring for San Francisco Bay, Mercury	TBD ²	FY 2013–14	See Note 15	See Note 15	See Note 15	See Note 15
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #61	Conduct TMDL monitoring for San Francisco Bay, PCBs	TBD ²	FY 2013–14	See Note 15	See Note 15	See Note 15	See Note 15
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #62	Conduct TMDL monitoring for San Francisco Bay Area and Urban Creeks, Diazinon and Pesticide Toxicity	See Note 10	FY 2013–14	See Note 10	See Note 10	See Note 10	See Note 10
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #64	Conduct TMDL monitoring for San Lorenzo River (includes Carbonera, Lompico, and Shingle Mill Creeks), Sediment	TBD ²	FY 2016–17	Conduct monitoring	Conduct monitoring	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #72	Conduct TMDL monitoring for Klamath River, Dissolved Oxygen and Temperature	TBD ²	FY 2016–17	Conduct monitoring	Conduct monitoring	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #74	Conduct TMDL monitoring for South Fork Lower Eel River, Temperature and Sediment	TBD ²	FY 2016–17	Conduct monitoring	Conduct monitoring	TBD ⁶	TBD ⁶
TMDL Monitoring– Caltrans TMDL Monitoring Watershed #78	Conduct TMDL monitoring for Truckee River, Sediment	TBD ²	FY 2016–17	See Note 13	TBD ⁶	TBD ⁶	TBD ⁶

Acronyms & Abbreviations:

Ag = Silver	DDT = Dichlorodiphenyltrichloroethane
Cd = Cadmium	PAH = Polynuclear Aromatic Hydrocarbons
Cu = Copper	PCB = Polychlorinated Biphenyl
FY = Fiscal Year	TMDL = Total Maximum Daily Load
Pb = Lead	
Zn = Zinc	

Notes:

1. Monitoring is being conducted under the General Exception to Prohibiting Storm Water Discharges in the California Ocean Plan and in compliance with ASBS requirements of Caltrans’s NPDES Permit (State Water Board 2012).
2. Study is ongoing. Findings will be summarized once monitoring is complete.
3. After the 2017–18 wet season, the minimum number of storm events have been captured at all ASBS sites. Monitoring will continue at ASBS 24 for the 2018–19 wet season. The State Water Board agreed via letter dated July 27, 2017, to terminate monitoring in ASBS 33. The State Water Board is in the process of assessing all ASBS monitoring data. Future activities will be determined pending the State Water Board analysis.
4. Caltrans TMDL Watershed number is based on Caltrans’s Comprehensive Total Maximum Daily Load Monitoring Plan (Caltrans 2017a).
5. Monitoring is being conducted in compliance with TMDL requirements (Attachment IV) and Tier 1 monitoring requirements of Caltrans’s NPDES Permit (State Water Board 2012).
6. Future activities will be determined pending compliance determination in accordance with Caltrans’s NPDES permit (State Water Board 2012).
7. In February 2017, Caltrans submitted a letter and monitoring report to the San Diego Regional Water Board, requesting adjustment of the permit language. The Regional Water Board responded to Caltrans indicating that it supports a reduction in monitoring frequency to once per permit term.
8. In November 2015, Caltrans submitted the required monitoring report to the Colorado River Regional Water Board, documenting 2 years of wet weather characterization monitoring in Phase I, in which no runoff from Caltrans sites occurred. Caltrans has no dry weather flows. The Regional Water Board has accepted Caltrans monitoring under its Phase I requirements. Caltrans will consider entering a cooperative agreement for implementation monitoring with other stakeholders pending more information from the Regional Water Board on the requirements for Phase II. Caltrans emailed the Regional Water Board in May 2018 asking for an update. The Regional Water Board responded that no decision has been made.
9. Monitoring for Sediment and Nutrients and Bacteria TMDLs began FY 2014–15 and continued through FY 2016–17. Future activities will be determined pending compliance determination in accordance with Caltrans’s NPDES permit (State Water Board 2012).
10. As of December 2016, the San Francisco Regional Water Board determined monitoring for diazinon and pesticide toxicity is not required at this time, but may be required in the future.
11. Caltrans began developing a cooperative agreement for the trash TMDL monitoring in FY 2016–17, for which monitoring is expected to begin FY 2018–19.
12. After the 2017–18 wet season, the minimum number of storm events have been captured at all ASBS sites. Caltrans submitted a request to the State Water Board to suspend monitoring at ASBS 5 & 8 (North region) and ASBS 9, 15 and 34 (Central region). The State Water Board is in the process of assessing all ASBS monitoring data. Future activities will be determined pending the State Water Board analysis.
13. Monitoring was conducted for one year.
14. Due to contract issues, sites in Caltrans TMDL Monitoring Watersheds #2 through #6 were not ready for water quality monitoring. The sites will be ready for monitoring for FY 2018–19.
15. Caltrans has entered into a cooperative agreement that covers monitoring for Mercury and PCBs. Monitoring at these sites has ceased (per email communication dated Dec., 7, 2016 from Tom Mumley, Region 2).
16. Monitoring activities have been suspended pending an evaluation by the State Water Board of the data collected to date. The State Water Board will advise Caltrans if further action is needed.

Implementation of Findings into Stormwater Program

This section provides a summary of the current implementation status for the efforts listed in Tables 2-1, 3-1, and 4-1. Table 5-1 provides a key to the implementation categories that are assigned to Caltrans’s studies. Table 5-2 presents the most recent implementation category for each treatment technology, source control, and monitoring and discharge characterization study, respectively. Implementation updates are only provided for studies conducted during FY 2017–18 or previous studies for which the implementation category has changed since the previous Status Report was submitted.

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Table 5-1. Implementation Category Key

Implementation Category	Explanation
A	Study findings resulted in changes to maintenance program.
B	Study findings resulted in changes to the Project Planning and Design Guide or other supplemental design guidance.
C	Study is complete and results did not justify changes to program based on the information generated.
D	Study is ongoing.
E	Study findings resulted in approval of BMP for statewide use (i.e., inclusion in Caltrans's BMP toolbox).
F	Study findings resulted in changes to construction practices/management.
G	Study is long-term and the management implications have yet to be determined.
H	Study findings provided information for regulatory compliance or BMP planning.
I	Study's field/laboratory effort is complete, but incorporation into program is still under assessment.
J	Study findings led to full-scale field studies or follow-up study.
K	Study was postponed for further consideration.
L	Study was replaced with other study.
M	Monitoring resulted in release from further characterization or BMP development for TMDL watershed.

Acronyms & Abbreviations:

BMP = Best Management Practice

TMDL = Total Maximum Daily Load

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Table 5-2. Update of Implementation Findings of Studies

Study Type	Study Title	Implementation Category
TT	State Route 73 Bioretention Study	D & E
TT	Tahoe Sand Vaults Retrofit Pilot Study Test	D
TT	District 3 Linear Filtration Pilot Study	D
TT	District 7 Linear Filtration Pilot Study	D
TT	Chollas Creek BMP Retrofit Project	D
SC	Road-RAM Verification and Traction Sand Monitoring	D
MDC	ASBS Monitoring – North	D & H
MDC	ASBS Monitoring – Central	D & H
MDC	ASBS Monitoring – South	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #2 (Ballona Creek, Metals (Ag, Cd, Cu, Pb, & Zn) and Selenium)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #3 (Ballona Creek, Trash)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #4 (Ballona Creek Estuary, Toxic Pollutants (Ag, Cd, Cu, Pb, Zn, Chlordane, DDTs, Total PCBs, and Total PAHs)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #5 (Ballona Creek Wetlands, Sediment and Invasive Exotic Vegetation)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #6 (Ballona Creek, Ballona Estuary, and Sepulveda, Bacteria)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #12 (Chollas Creek, Diazinon)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #13 (Chollas Creek, Dissolved Copper, Lead, and Zinc)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #15 (Coachella Valley Stormwater Channel, Bacterial Indicator)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #30 (LA River, Trash)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #31 (LA River and Tributaries, Metals)	D & H

Study Type	Study Title	Implementation Category
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #32 (LA River Watershed, Bacteria)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #34 (Lost River, Nitrogen, Biochemical Oxygen Demand, and pH)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #35 (Lower Eel River, Temperature and Sediment)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #39 (Mad River, Sediment and Turbidity)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #40 (Malibu Creek and Lagoon, Sedimentation and Nutrients)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #41 (Malibu Creek Watershed, Bacteria)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #42 (Malibu Creek Watershed, Trash)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #47 (Napa River, Sediment)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #51 (Rainbow Creek, Total Nitrogen and Total Phosphorus)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #55 (Richardson Bay, Pathogens)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #56 (Sacramento/San Joaquin Delta Estuary, Methyl Mercury)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #57 (San Diego Creek and Newport Bay, including Rhine Channel, Metals (Copper, Lead, and Zinc))	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #58 (San Diego Creek and Upper Newport Bay, Cadmium)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #59 (San Diego Creek Watershed, Organochlorine Compounds (DDT, Chlordane, PCBs, and Toxaphene))	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #60 (San Francisco Bay, Mercury)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #61 (San Francisco Bay, PCBs)	D & H

Study Type	Study Title	Implementation Category
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #62 (San Francisco Bay Area and Urban Creeks, Diazinon and Pesticide Toxicity)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #64 (San Francisco Bay Area and Urban Creeks, Diazinon and Pesticide Toxicity)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #72 (Klamath River, Dissolved Oxygen and Temperature)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #74 (South Fork Lower Eel River, Temperature and Sediment)	D & H
MDC	TMDL Monitoring – Caltrans TMDL Monitoring Watershed #78 (Truckee River, Sediment)	D & H

Acronyms & Abbreviations:

Ag = Silver

ASBS = Area of Special Biological Significance

BMP = Best Management Practice

Cd = Cadmium

Cu = Copper

DDT = Dichlorodiphenyltrichloroethane

FY = Fiscal Year

MDC = Monitoring and Discharge Characterization Study

PCB = Polychlorinated Biphenyl

Pb = Lead

PAH = Polynuclear Aromatic Hydrocarbons

Road-RAM = Road-Rapid Assessment Methodology

SC = Source Control Study

TBD = To Be Determined

TMDL = Total Maximum Daily Load

TT = Treatment Technology Study

Zn = Zinc

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to facilitate double-sided printing.*

References

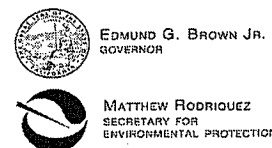
- Caltrans 2014. Caltrans, District 4, San Francisco Oakland Bay Bridge (SFOBB) Bioretention Pilot Project Final Report. October. CTSW-RT-14-288.05.3.
- Caltrans 2016. Report Addendum. Lake Tahoe Austin Media Filter Pilot Study. 2015-16 Monitoring Season. June. CTSW-TM-16-326.4.1.
- Caltrans 2017a. Comprehensive Total Maximum Daily Load (TMDL) Monitoring Plan. January. CTSW-RT017-350.01.01.
- Caltrans 2017b. Stormwater Monitoring and BMP Development Status Report: Fiscal Year 2016–2017 Update. August. CTSW-RT-17-350.01.04.
- Caltrans 2018. Monitoring Results Report: Fiscal Year 2017–18. October. CTSW-RT-18-350.01.03.
- State Water Board 2012. Order No. 2012-0011-DWQ, NPDES No. CAS000003, National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements (WDRs) for State of California, Department of Transportation. September 19, 2012.

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Attachment 1

Coachella Valley Stormwater Channel TMDL Monitoring Communication

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Colorado River Basin Regional Water Quality Control Board

January 6, 2015

via email only (patrick.hally@dot.ca.gov)

Patrick Hally, P.E.
California Department of Transportation (Caltrans) District 8
464 W. Fourth Street, 6th Floor
San Bernardino, CA 92401

Dear Mr. Hally:

**SUBJECT: CALTRANS 2 YEARS MONITORING IN CONFORMANCE WITH
PHASE I IMPLEMENTATION FOR THE INDICATOR BACTERIA
TOTAL MAXIMUM DAILY LOAD (TMDL) FOR COACHELLA
VALLEY STORMWATER CHANNEL (CVSC)**

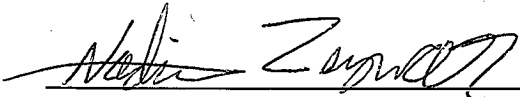
Staff of the California Regional Water Quality Control Board, Colorado River Basin Region (Regional Water Board) received the above reference report on November 30, 2015. The report summarizes two years of *E.coli* monitoring, from October 2013 to September 2015, in the CVSC by the Caltrans under Phase I of the TMDL Implementation.

The report indicates that no water samples were collected because there was not enough runoff due to the rare rainfall events that occurred at the monitoring sites. The report concludes that even if bacteria is generated in highway right-of-way, it is highly unlikely that Caltrans facilities represented by the monitoring sites have been responsible for contribution of bacteria to the CVSC due to not enough runoff to reach to the CVSC, and recommends that Caltrans being removed from the TMDL due to lack of connectivity.

Regional Water Board staff is aware that current drought conditions might suggest an absence of runoff at the monitoring sites. However, the report does not support or discount Caltrans' contribution to the *E.coli* impairments to the CVSC, because no data was collected to determine the contribution. The sources of *E.coli* have not been identified yet, and therefore, it is too early to determine exclusion of any groups/individuals from the responsible party list.

Should you have any questions, please contact Dr. Jeong-Hee Lim by calling at 760-776-8940 or via email to jeong-hee.lim@waterboards.ca.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Nadim Shukry-Zeywar", written over a horizontal line.

Nadim Shukry-Zeywar, TMDL/NPS Unit Chief
Colorado River Basin Water Board

JHL/

File: CW-805091: Coachella Valley Stormwater Channel Bacteria TMDL

Alderete, David Joseph

From: Joshi, Bhaskar@DOT <bhaskar.joshi@dot.ca.gov>
Sent: Thursday, May 31, 2018 11:21 AM
To: Shinneman, Joel Tyson
Cc: Alderete, David Joseph; Murphy, Kevin
Subject: FW: Coachella Valley TMDL

Please include this below email in the appendix of the MRR and also in the annual report write up on Monitoring

From: Dunn, Kai@Waterboards [mailto:Kai.Dunn@waterboards.ca.gov]
Sent: Thursday, May 31, 2018 10:05 AM
To: Joshi, Bhaskar@DOT <bhaskar.joshi@dot.ca.gov>
Cc: Shukry-Zeywar, Nadim@Waterboards <Nadim.Shukry-Zeywar@waterboards.ca.gov>; Chakraborty, Suhas@Waterboards <Suhas.Chakraborty@waterboards.ca.gov>; Dunn, Kai@Waterboards <Kai.Dunn@waterboards.ca.gov>; Chen, Jenny@Waterboards <Jenny.Chen@waterboards.ca.gov>; Perreira, Gayleen@Waterboards <Gayleen.Perreira@waterboards.ca.gov>
Subject: RE: Coachella Valley TMDL

Hi Bhaskar,

After consulting with our TMDL unit, the response from TMDL is “ *The TMDL Program hasn’t made any decision on phase 2 implementation of this TMDL because we are still analyzing the data and information from phase 1 implementation to find the sources of impairments.*” Thanks.

Kai Dunn, Ph.D., P.E.
Senior Water Resources Control Engineer – NPDES/Stormwater/401 WQC Unit Chief
California Regional Water Quality Control Board – Colorado River Basin Region (R7)
73-720 Fred Waring Dr. Ste 100
Palm Desert, CA 92260
TEL: 760-7768986, FAX 760-3416820, Front Desk: 760-3467491
Kai.dunn@waterboards.ca.gov

From: Joshi, Bhaskar@DOT [<mailto:bhaskar.joshi@dot.ca.gov>]
Sent: Friday, May 25, 2018 10:04 AM
To: Dunn, Kai@Waterboards <Kai.Dunn@waterboards.ca.gov>
Subject: Coachella Valley TMDL

Hello , Good day!

We have been involved with the Coachella valley TMDL monitoring Phase I along with other stakeholders in the Desert Task Force

We had submitted a Phase I monitoring report which showed no impacts from Caltrans after 2 seasons of monitoring. we had requested that Caltrans be delisted from this TMDL.

At that time the RWQCB asked us to wait for a decision

Is there any updates about the TMDL monitoring or implementation going forward?

I would be grateful if you could share any information.

Regards

Bhaskar Joshi, Ph.D, P.E., PMP
Office Chief-Storm Water Program Development
Division of Environmental Analysis
California Department of Transportation
Desk: 916-653-5240
Cell:
Fax: 916-653-6366

How did we do? Help us serve you better! Caltrans Environmental Analysis Customer Service Survey Link:

<https://www.surveymonkey.com/r/CTEnvironmentalAnalysisSurvey>

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Attachment 2

February 7, 2017
Rainbow Creek TMDL Monitoring
Communication

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to facilitate double-sided printing.*

DEPARTMENT OF TRANSPORTATION

4050 TAYLOR STREET
SAN DIEGO, CA 92110
PHONE (619) 688-0100
FAX (619) 688-4277
TTY 711



*Flex your power!
Be energy efficient!*

February 7, 2017

Mrs. Laurie Walsh
Water Resources Control Engineer
San Diego Regional Water Quality Control Board
2375 Northside Drive, Suite 100
San Diego, CA 92108

SUBJECT: **Rainbow Watershed Monitoring
California Department of Transportation, District 11**

Mrs. Walsh:

Caltrans District 11 is listed as a discharger into the Rainbow Creek TMDL which was established for Total Nitrogen and Phosphorus and is listed in Attachment IV of the Statewide Caltrans Permit Order 2012-0011-DWQ (with amendments). Shortly after the TMDL inception Caltrans began monitoring its Stormwater discharges to Rainbow Creek and has expended approximately \$150K per year continuing in that effort. Based on the results of that monitoring and other technical studies we have determined that further monitoring of Stormwater runoff from the Caltrans R/W to Rainbow Creek will provide little additional value. We do not come by this conclusion lightly and have prepared a summary document detailing the issues we face in this TMDL watershed.

In summary this conclusion is based on the following:

- Caltrans is fractional owner in the watershed owning approximately 2% of the total watershed. (approx. 120 of 6900 acre)
- Upstream neighbors (nurseries and agriculture) have been issued NOVs for discharging constituents to the creek and watershed.
- Caltrans does not irrigate, fertilize nor plant the pervious areas in its right of way however the Basin Plan does mention the likelihood of aerially deposited constituents
- The water leaving Caltrans R/W is sourced from most all that lands on the impervious roadway areas and fractionally from the pervious median and roadside. (approx. 20% impervious and 80% pervious)
- Caltrans' property contains no known source of nutrients. We have completed a drainage pattern review searching for run-on situation, soil samples, numerous water grab samples at the various inlets, subsurface geology review and televised the entire drainage system in an attempt to find a source of nutrients and phosphorus.
- Geological tests have shown that the subsurface material is effectively solid rock and the installation of an infiltration BMPs is impractical
- Water tests have shown that during rain events the Caltrans run off actually improves water quality downstream as upstream water contains a level of constituents such that Caltrans run off is diluting overall downstream constituent levels.

"Caltrans improves mobility across California"

SDRQWB
February 7, 2017
Page 2

- Non-Stormwater creek flow constituent levels are at, or slightly below, Stormwater flow constituent levels. Caltrans are ephemeral and do not contribute to non-Stormwater flow

Based on the above, stressing the inability to install an effective BMP due to geology, we have discontinued further monitoring of the location and ask you take the appropriate steps to adjust the permit language accordingly.

Please contact me at (619) 688-3626 should you have any concerns or questions. I have attached a technical study reviewing the above points in more detail.

Sincerely,



CARL SAVAGE
NPDES/Stormwater Branch Chief
Environmental Division

Attachments

San Diego Regional Water Quality Control Board

August 2, 2017

Mr. Carl Savage
Department of Transportation
4050 Taylor Street
San Diego, CA 92110

In reply refer to / attn:
212814:RMitchell

Subject: District 11 Rainbow Creek Nutrient TMDL Implementation Monitoring Program

Mr. Savage:

This letter is to notify the California Department of Transportation, District 11 (hereinafter the Department) that the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) supports a reduction to the frequency of monitoring storm water runoff from its right-of-way to Rainbow Creek. The San Diego Water Board does not support the Department's actions to suspend monitoring as declared in its February 2017 letter.

Suspending monitoring requires prior approval by the State Water Resources Control Board (State Water Board) or the San Diego Water Board according to Order No. 2012-0011-DWQ – *National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements (WDRs) for State of California Department of Transportation (Caltrans Permit)*.

To support a reduction to the frequency of monitoring related to the Rainbow Creek Total Nitrogen and Total Phosphorus Total Maximum Daily Loads (Rainbow Creek TMDL), the San Diego Water Board reviewed the Caltrans Permit, Resolution No. R9-2005-0036, *Rainbow Creek TMDL Basin Plan Amendment and Technical Report*, and two Department letters dated February 2017 "*District 11 Rainbow Creek Nutrient TMDL Implementation Monitoring Soil Nutrient Concentration Special Study*" and April 2017 "*Reference code 212814: Comments on the Districts' Rainbow Creek Maximum Daily Load Implementation Monitoring Historical Research, Data Analysis, and Conclusion – California Department of Transportation, District 11.*" In consultation with the State Water Board, the San Diego Water Board finds:

1. Discharges from the Department's right-of-way to Rainbow Creek are in compliance with the Rainbow Creek TMDL. Pursuant to provision E.2.c.2)a)ii) of the Caltrans Permit the site will no longer be considered an active monitoring site pursuant to provision E.2.c.1) and monitoring of Attachment II constituents will be discontinued. Provision E.2.c.2)a)ii) further stipulates that continued monitoring may be required at the monitoring site¹ pursuant to a TMDL. Resolution No. R9-2005-0036, Rainbow Creek Technical Report identifies that the monitoring frequency of various surface water monitoring parameters should be conducted to best meet the monitoring objective. The monitoring frequency

¹ The Caltrans Rainbow Creek TMDL monitoring site is located on Interstate 15, between mile markers 51 and 54. The monitoring site consists of four monitoring stations: 11-331, 11-332, 11-333, and 11-334.

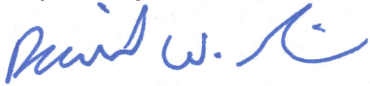
should be adequate to evaluate the ambient conditions and address any impact from low dissolved oxygen concentrations and algal growth. Therefore, the San Diego Water Board supports a reduction in monitoring frequency to once per permit term (i.e. every 5 years). Such a reduction in monitoring will provide sufficient monitoring data to evaluate the Department's continued compliance with the Rainbow Creek TMDL and supports the Department's prioritization of water quality improvement projects, statewide.

2. The Department's request to initiate an out-of-cycle permit revision is unnecessary.

Therefore, effective January 31, 2017, the Department will conduct the specified monitoring pursuant to section III.A and section III.B of Attachment IV, as described in the Comprehensive Rainbow Creek TMDL monitoring plan, every 5 years. As such the Department's next reporting period will be October 1, 2020 to September 30, 2021, submitting the next monitoring report to the San Diego Water Board on or before January 31, 2022.

Please contact Mr. Roger Mitchell, Engineering Geologist for the Storm Water Management Unit at 619-521-5898 or at roger.mitchell@waterboards.ca.gov if you have any questions.

Respectfully,



David W. Gibson
Executive Officer

DWG:jgs:law:rnm

Tech Staff Info & Use	
Order No.	Order 2012-0011-DWQ, as amended by Orders Nos. WQ 2014-0006-EXEC, WQ 2014-0077-DWQ, WQ 2015-0036-EXEC.
Place ID	212814