



B A S M A A

Alameda Countywide
Clean Water Program

Contra Costa
Clean Water Program

Fairfield-Suisun
Urban Runoff
Management Program

Marin County
Stormwater Pollution
Prevention Program

Napa County
Stormwater Pollution
Prevention Program

San Mateo Countywide
Water Pollution
Prevention Program

Santa Clara Valley
Urban Runoff Pollution
Prevention Program

Sonoma County
Water Agency

Vallejo Sanitation
and Flood
Control District

Bay Area

Stormwater Management

Agencies Association

P.O. Box 2385

Menlo Park, CA 94026

510.622.2326

info@basmaa.org

September 28, 2017

Bruce Wolfe, Executive Officer
California Regional Water Quality Control Board, San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: FY 2016-17 Annual Report: MRP Provision C.9.f - Track and Participate
in Relevant Regulatory Processes

Dear Mr. Wolfe:

This letter and attachments are submitted on behalf of all 76 municipalities subject to the requirements of the Municipal Regional Stormwater NPDES Permit (MRP).

The essential requirements of provision C.9.f (text attached) are to track U.S. Environmental Protection Agency (USEPA) and California Department of Pesticide Regulation (DPR) actions related to urban-uses of pesticides and actively participate in the shaping of regulatory efforts currently underway. This provision allows for cooperation among Permittees through the California Stormwater Quality Association (CASQA), BASMAA, and/or the Urban Pesticide Pollution Prevention Project (UP3 Project) – an approach the Permittees have engaged in for a number of years. Recognizing this approach is the most likely to result in meaningful changes in the regulatory environment, Permittees elected to continue on this course in FY 2016-17 to achieve compliance with this provision. Oversight of this provision is the purview of the BASMAA Board of Directors.

The actual work of tracking and participating in the ongoing regulatory efforts related to pesticides was accomplished through CASQA. CASQA conducted its activities on behalf of members and coordinated funding contributions and activities through its Pesticides Subcommittee, a group of stormwater quality agencies affected by pesticides or pesticides-related toxicity listings, TMDLs, or permit requirements, as well as others knowledgeable about pesticide-related stormwater issues. FY 2016-17 was another productive year for the Subcommittee. The CASQA Pesticides Subcommittee's annual report for FY 2016-17 (attached) provides a comprehensive and detailed accounting of efforts to track and participate in relevant regulatory processes as well as accomplishments related to pesticides and stormwater quality.

We certify under penalty of law that this document was prepared under our direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on our inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of our knowledge and belief, true, accurate, and complete. We are aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

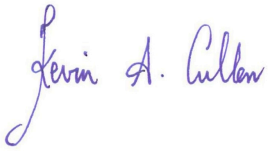
FY 2016-17 Annual Report: MRP Provision C.9.f - Track and Participate in Relevant Regulatory Processes



James Scanlin, Alameda Countywide Clean Water Program



Adele Ho, Contra Costa Clean Water Program



Kevin Cullen, Fairfield-Suisun Urban Runoff Management Program



Matt Fabry, San Mateo Countywide Water Pollution Prevention Program



Adam Olivieri, Santa Clara Valley Urban Runoff Pollution Prevention Program



Jennifer Harrington, Vallejo Sanitation and Flood Control District

Attachments

MRP Provision C.9.f

Pesticides Subcommittee Annual Report and Effectiveness Assessment 2016-2017; California Stormwater Quality Association; August 2017

MRP Provision C.9.f states:

C.9.f. Track and Participate in Relevant Regulatory Processes

- i. Task Description** – The Permittees shall conduct the following activities, which may be done at a county, regional, or statewide level:
 - (1) The Permittees shall track U.S. EPA pesticide evaluation and registration activities as they relate to surface water quality and, when necessary, encourage U.S. EPA to coordinate implementation of the Federal Insecticide, Fungicide, and Rodenticide Act and the CWA and to accommodate water quality concerns within its pesticide registration process;
 - (2) The Permittees shall track DPR pesticide evaluation activities as they relate to surface water quality and, when necessary, encourage DPR to coordinate implementation of the California Food and Agriculture Code with the California Water Code and to accommodate water quality concerns within its pesticide evaluation process;
 - (3) The Permittees shall assemble and submit information (such as monitoring data) as needed to assist DPR and county agricultural commissioners in ensuring that pesticide applications comply with WQS; and
 - (4) As appropriate, the Permittees shall submit comment letters on U.S. EPA and DPR re-registration, re-evaluation, and other actions relating to pesticides of concern for water quality.
- ii. Reporting** – In their Annual Reports, the Permittees shall summarize participation efforts, information submitted, and how regulatory actions were affected. Permittees who contribute to a county, regional, or statewide effort shall submit one report at the county or regional level. Duplicate reporting is discouraged.

Pesticides Subcommittee Annual Report and Effectiveness Assessment 2016 - 2017

California Stormwater Quality Association



Final Report
August 2017

Pesticides Subcommittee Annual Report and Effectiveness Assessment
2016-2017

California Stormwater Quality Association

August 3, 2017

Preface

The California Stormwater Quality Association (CASQA) is comprised of stormwater quality management organizations and individuals, including cities, counties, special districts, industries, and consulting firms throughout California. CASQA's membership provides stormwater quality management services to more than 22 million people in California. This report was funded by CASQA to provide CASQA's members with focused information on its efforts to prevent pesticide pollution in urban waterways. It is a component of CASQA's Source Control Initiative, which seeks to address stormwater and urban runoff pollutants at their sources.

This report was prepared by Stephanie Hughes under the direction of the CASQA Pesticides Subcommittee Co-Chairs Dave Tamayo and Katie Keefe. The Co-Chairs, along with Dr. Kelly Moran of TDC Environmental, provided documents, guidance, and review.

Disclaimer

Neither CASQA, its Board of Directors, the Pesticides Subcommittee, any contributors, nor the authors make any warranty, expressed or implied, nor assume any legal liability or responsibility for any third party's use of this report or the consequences of use of any information, product, or process described in this report. Mention of trade names or commercial products, organizations, or suppliers does not constitute an actual or implied endorsement or recommendation for or against use, or warranty of products.

Copyright © 2017 California Stormwater Quality Association.

All rights reserved. CASQA member organizations may include this report in their annual reports provided credit is provided to CASQA. Short sections of text, not to exceed three paragraphs, may be quoted without written permission provided that full attribution is given to the source.

Abbreviations Used in this Report

ACS – American Chemical Society
CASQA – California Stormwater Quality Association
CWA – Clean Water Act
DPR – California Department of Pesticide Regulation
EMB – Environmental Monitoring Branch (DPR)
EPA – United States Environmental Protection Agency
ESA – Endangered Species Act
FY – Fiscal Year (July 1 through June 30)
IPM – Integrated pest management
MS4 – Municipal Separate Storm Sewer System
OPP – U.S. EPA Office of Pesticide Programs
OW – U.S. EPA Office of Water
PAH – Polycyclic aromatic hydrocarbon
PPDC – Pesticide Program Dialogue Committee
PSC – CASQA Pesticides Subcommittee
SPCB – Structural Pest Control Board
SETAC – Society of Environmental Toxicology and Chemistry
SFBRWQCB – San Francisco Bay Regional Water Quality Control Board
STORMS – Strategy to Optimize Resource Management of Storm Water (a program of the State Water Board)
SWAMP – California Water Boards Surface Water Ambient Monitoring Program
SWPP – DPR’s Surface Water Protection Program
TMDL – Total Maximum Daily Load (regulatory plan for solving a water pollution problem)
UP3 Partnership – Urban Pesticides Pollution Prevention Partnership
USGS – U. S. Geological Survey
Water Boards – California State Water Resources Control Board together with the California Regional Water Quality Control Boards

Pesticides Subcommittee Annual Report and Effectiveness Assessment

2016-2017

California Stormwater Quality Association

Table of Contents

Preface	i
Executive Summary.....	1
Section 1: Introduction	4
1.1 Importance of CASQA’s Efforts to Improve Pesticide Regulation	4
1.2 CASQA’s Goals and Application to Program Effectiveness Assessment.....	8
Section 2: Results of CASQA 2016-2017 Efforts.....	10
2.1 Updated Pesticide Watch List.....	10
2.2. Results of Efforts Addressing Near-Term Regulatory Concerns	12
2.3 Long-Term Change in the Pesticides Regulatory Structure	19
2.4 Highlights in California.....	29
Section 3: CASQA’s Approach Looking Ahead	33
Appendix –Summary of STORMS Urban Pesticides Amendments Project.....	39

List of Tables

Table 1. California TMDLs and Basin Plan Amendments Addressing Current-Use Pesticides in Urban Watersheds	5
Table 2. Current Pesticide Watch List (July 2017)	11
Table 3. Latest Results of Efforts Communicating Near-Term Regulatory Concerns (3 pages)	16
Table 4. Latest Outcomes and Next Steps Regarding Long-Term Regulatory Change (5 pages)	21
Table 5. Communication, Education, and Advisory Efforts to Support CASQA’s Goals	26
Table 6. Types of Activities Necessary to Address Immediate Pesticide Concerns and Long-term Regulatory Change (3 pages)	35
Table 7. Anticipated Opportunities for CASQA and the UP3 Partnership Pesticides Regulatory Engagement in 2017-2018	38

List of Figures

Figure 1. Current Pesticide Regulatory System.	6
Figure 2. Proactive Use of the Pesticide Regulatory Structure to Restrict Pesticide Uses That Have the Potential to Cause Urban Water Quality Problems.	7
Figure 3. EPA’s New Pesticide Registration Process	12
Figure 4. EPA’s Registration Review – Process to Review Registered Pesticides at a Minimum of Every 15 Years.	12
Figure 5. Urban Runoff Imidacloprid Sources Conceptual Model.	15
Figure 6. CASQA’s Assessment of Recent Progress and Remaining Gaps Relative to Long-Term Goals.....	28

Executive Summary

To address the problems caused by pesticides in California's urban waterways, CASQA collaborates with the California State Water Resources Control Board and the California Regional Water Quality Control Boards (Water Boards) in a coordinated statewide effort, referred to as the Urban Pesticides Pollution Prevention (UP3)

Partnership. By working with the Water Boards and other water quality organizations, we address the impacts of pesticides efficiently and proactively through the statutory authority of the California Department of Pesticide Regulation (DPR) and EPA's Office of Pesticide Programs (OPP). More than a decade of collaboration with UP3 Partners, as well as EPA and DPR staff, has resulted in significant changes in pesticide regulation in the last five years. CASQA's 2016-17 activities and outcomes are described in Section 2. This year's highlights include the State Water Board's Urban Pesticides Amendments project (see right) as well the pesticide regulator actions described below.

(Near term/Current problems) – Are actions being taken by State and Federal pesticides regulators and stakeholders that are expected to end recently observed pesticide-caused toxicity or exceedances of pesticide water quality objectives in surface waters receiving urban runoff?

- 💧 In direct response to continued communication from CASQA and UP3 regarding **fipronil** water pollution in urban areas DPR and registrants are in the process of implementing changes in allowable fipronil use anticipated to reduce fipronil concentrations in California urban runoff by more than 90 percent. This mitigation precedes dozens of future 303(d) listings anticipated by the Water Boards and, if successful, could avoid numerous fipronil TMDLs. *(See page 13 and Table 3.)*
- 💧 In direct response to continued communication from CASQA and UP3 regarding continued **pyrethroid** water pollution in urban areas, DPR completed a special project to evaluate the effectiveness of its 2012 Surface Water Protection Regulations and, based on the outcomes of that study, is in exploring additional mitigation measures to provide more effective control of pyrethroids. *(See Section 2.4 and Table 3.)*



Urban Pesticide Reduction is a Top Priority of State Water Board

In response to CASQA's efforts, the State Water Board established urban pesticide reduction as a top priority project for 2016 under the comprehensive stormwater strategy it adopted in December 2015, known as "Strategy to Optimize Resource Management of Storm Water" or STORMS. In 2016-17, the State Water Board continued to make progress in three areas: (1) a coordination framework for working with U.S. EPA and DPR, (2) minimum source control requirements for urban permittees, and (3) a statewide pesticide/toxicity monitoring framework. The project is expected to culminate with a 2018 adoption of statewide Water Quality Control Plan amendments for urban pesticides reduction. *(See Section 2.4.)*

- 💧 Responding to the growing body of monitoring data suggesting that **imidacloprid** concentrations present in California's urban watersheds have potential to threaten aquatic ecosystems, CASQA completed substantial scientific groundwork (e.g., monitoring data review, urban usage investigation) to prepare for formally requesting that EPA and DPR pursue imidacloprid risk management. Based on this research, CASQA anticipates future 303(d) listings in multiple urban watersheds. CASQA initiated this effort toward avoiding future TMDLs.
- 💧 Based on urban use data provided by CASQA, EPA agreed to incorporate urban uses (rights-of-way and outdoor building paints, caulks, and sealants) in the registration review process for diuron. (*See Table 3.*)
- 💧 In direct response to communication from CASQA and its UP3 Partners, EPA developed model language to control discharges of pesticide-containing swimming pool water, in the context of its review of lithium hypochlorite, the first among many antimicrobial pesticides used in pools and spas. (*See Table 3.*)
- 💧 In direct response to communication from CASQA and its UP3 Partners, EPA agreed that construction site applicators take steps to prevent pollution from pre-construction termiticide treatments with the insecticide chlorfenapyr. The requirements are identical to ones for pyrethroid insecticides that were developed by EPA at CASQA's suggestion. (*See Table 3.*)
- 💧 CASQA prepared comment letters to EPA for 3 pesticide reviews, provided the Water Boards with information that triggered 6 additional letters, responded to EPA's request for input on pesticide regulatory reform, and participated in numerous meetings and conference calls focused on priority pesticides and long-term regulatory structure improvements. (*See Tables 3, 4 and 5.*)
- 💧 CASQA/UP3 reviewed scientific literature in order to update and prioritize the Pesticide Watch List, which it shared with pesticides regulators and with government agency and university scientists to stimulate generation of surface water monitoring and aquatic toxicity data for the highest priority pesticides. (*See Table 2.*)

(Long term/Prevent future problems) – Do pesticides regulators have an effective system in place to exercise their regulatory authorities to prevent pesticide toxicity in urban water bodies?

- 💧 A series of UP3-organized teleconference meetings in early 2017 clarified that EPA goals and authority differ between initial pesticide registration and subsequent registration reviews. During the initial registration, EPA has stronger and more flexible authority to impose restrictions and data requirements for chemicals than it does during the subsequent registration reviews. Knowledge of the limitations of registration review allows CASQA to more effectively focus scientific insights and mitigation recommendations that we provide in our registration review comment letters.
- 💧 DPR's robust follow up actions after adopting the 2012 Surface Water Protection Regulations addressing pyrethroids in urban runoff (see above) demonstrate DPR's commitment to evaluating the effectiveness of its water quality protection measures and exploring modifications when warranted.

- 💧 CASQA, working with its UP3 partners, used EPA registration reviews for pyrethroids and imidacloprid as an opportunity to educate senior EPA managers about the urban water quality gaps in their review processes and the cost and regulatory implications of their regulatory decisions. EPA’s risk assessments for the registration review of pyrethroids and imidacloprid both identified significant risks to aquatic ecosystems, opening the door to EPA action to protect water quality. Unfortunately, the imidacloprid document also revealed key deficiencies in the assessment process in that EPA failed to recognize and evaluate critical uses that have the potential to impact urban runoff. EPA staff has recognized the need to consider mitigation for both classes of pesticides, and encouraged California water quality stakeholders to provide input on potential mitigation strategies, which will be submitted in July 2017. EPA’s willingness to adopt effective mitigation on pyrethroids and imidacloprid will be a key indicator of the effectiveness of its capacity and commitment to prevent impacts on urban water quality.
- 💧 Because scientific information sharing and education are a key part of integrating urban runoff protection into pesticide regulatory systems, CASQA/UP3 provided presentations to DPR, scientific meetings, and professional associations; served on DPR and Water Board policy and science advisory committees; and prepared and delivered public testimony. *(See Table 5.)*

In FY 2017-2018, CASQA plans to continue to address near-term pesticide concerns and seek long-term regulatory change. Future near-term and long-term tasks are identified in Section 3. Key topics include:

- 💧 Responding to the immediate need to participate in EPA pyrethroids, fipronil, and imidacloprid reviews (the only such opportunity for the next 15 years) and to support and encourage DPR steps toward expanded pyrethroids and new fipronil mitigation measures.
- 💧 Seeking EPA risk mitigation for malathion and carbaryl in urban runoff and the continuation of traditional water quality risk assessments in tandem with Endangered Species Act evaluations. *(See highlight at right.)*
- 💧 Continue to leverage our successes at the state level as a key stakeholder in the development of statewide Water Quality Control Plan amendments for urban pesticides reduction.



EPA’s Endangered Species Evaluation Approach May Prevent Urban Mitigation

In its 2016 malathion review, EPA modified its water quality risk assessment methods to integrate Endangered Species Act (ESA) compliance. The result was an ESA “Biological Evaluation” that did not address traditional (non-endangered species) water quality risks and overlooked most urban malathion uses. Consequently, while EPA found adverse effects to most aquatic endangered species, it concluded that urban malathion uses (other than rare mosquito abatement applications) do not cause water pollution – a result that directly conflicts with recent urban monitoring data and 303(d) listings in process for about two dozen California urban watersheds. Unless EPA’s conclusion is corrected, it will not propose any risk mitigation for malathion in urban runoff. Most urban malathion use appears to be by non-professionals who use products purchased at retail stores that cannot easily be regulated by DPR and which state law bars municipalities from regulating.

Section 1: Introduction

This report by the Pesticides Subcommittee (PSC) of the California Stormwater Quality Association (CASQA) describes CASQA's activities related to the goal of preventing pesticide pollution in urban waterways from July 2016 through June 2017. On behalf of CASQA, the PSC works in collaboration with the California State and Regional Water Boards (Water Boards), Partners,¹ and other stakeholders to bring about change in how pesticides are regulated by the United States Environmental Protection Agency (EPA) and the California Department of Pesticide Regulation (DPR), with the goal of ensuring that currently registered pesticides do not impair urban receiving waters. This collaborative effort is referred to as the UP3 Partnership.²

1.1 Importance of CASQA's Efforts to Improve Pesticide Regulation

For decades now, the uses of certain pesticides in urban areas – even when applied in compliance with pesticide regulations – have adversely impacted urban water bodies. Under the Clean Water Act (CWA), when pesticides impact water bodies, local agencies may be held responsible for costly monitoring and mitigation efforts. To date, some California municipalities³ have incurred substantial costs to comply with Total Maximum Daily Loads (TMDLs) and additional permit requirements. In the future, more municipalities throughout the state could be subject to similar requirements, as additional TMDL and Basin Plan amendments are adopted (Table 1). Meanwhile local agencies have no authority to restrict or regulate when or how pesticides are used⁴ in order to proactively prevent pesticide pollution and avoid these costs.

¹ Partners: National Association of Clean Water Agencies (NACWA); various California POTW organizations and individual POTWs; individual urban runoff programs; USGS; other state and local government; university and other research organizations; other NGOs.

² The UP3 Partnership collaborations are generally through information sharing, coordinating communications with pesticide regulators, and contributing staff time and other resources in support of the shared goal. The UP3 Partnership is an outgrowth of the UP3 *Project*, a broader effort with activities that are no longer supported.

³ For example, Sacramento-area municipalities spent more than \$75,000 in the 2008-2013 permit term on pyrethroid pesticide monitoring alone; Riverside-area municipalities spent \$617,000 from 2007 to 2013 on pyrethroid pesticide chemical and toxicity monitoring.

⁴ Local agencies in California have authority over their own use of pesticides, but are pre-empted by state law from regulating pesticide use by consumers and businesses.

Table 1. California TMDLs and Basin Plan Amendments Addressing Current-Use Pesticides in Urban Watersheds⁵

Water Board Region	Water Body	Pesticide	Status
Statewide	Statewide Water Quality Control Plan amendment for urban pesticides reduction (all MS4s/ all urban waterways)	All	In preparation
San Francisco Bay (2)	All Bay Area Urban Creeks	All Pesticide-Related Toxicity	Adopted
Central Coast (3)	Santa Maria River Watershed	Pyrethroids, Toxicity	Adopted
Central Coast (3)	Lower Salinas River Watershed	Pyrethroids, Toxicity	Approved by region; awaiting State Water Board review
Los Angeles (4)	Marina del Rey Harbor	Copper (Marine antifouling paint)	Adopted
Los Angeles (4)	Oxnard Drain 3 (Ventura County)	Bifenthrin, Toxicity	EPA-Adopted Technical TMDL
Central Valley (5)	Nine urban creeks in Sacramento, Placer, and Sutter Counties (TMDL) Sacramento River and San Joaquin River Basins (Basin Plan Amendment)	Pyrethroids	Approved by region; awaiting State Water Board review
Central Valley (5)	Sacramento River and San Joaquin River Basins	Diuron	In preparation
Santa Ana (8)	Newport Bay	Copper (Marine antifouling paint)	In preparation
San Diego (9)	Shelter Island Yacht Basin (San Diego Bay)	Copper (Marine antifouling paint)	Adopted

Under federal and state statutes, EPA and DPR have the authority to regulate pesticides, including substantial authority and responsibility to protect water bodies from adverse effects (including impacts from pesticides in urban runoff). Unfortunately, in the relatively recent past these agencies did not recognize the need, nor did they possess the institutional capacity to exercise their authority to protect urban water quality. As a result, past registration actions have allowed a number of pesticides (such as pyrethroids and fipronil) to be used legally in ways that have resulted in widespread pollution in urban water bodies.

To change this situation, *CASQA is actively engaged with state and federal regulators in an effort to develop an effective pesticide regulatory system, based primarily on existing statutes, that includes timely identification and mitigation of urban water quality impacts, and proactively prevents additional problems through the registration and registration review processes (Figure 2).*

⁵ Excludes pesticides that are not currently used in meaningful quantities in California urban areas, such as organochlorine pesticides and diazinon and chlorpyrifos.



Figure 1. Current Pesticide Regulatory System.⁶

⁶ Photo in Figures 1 and 2 of spraying pesticide along a garage was taken by Les Greenberg, UC Riverside.



Figure 2. Proactive Use of the Pesticide Regulatory Structure to Restrict Pesticide Uses That Have the Potential to Cause Urban Water Quality Problems.

Largely in response to CASQA's focus on this issue, in recent years DPR has made very substantial progress in improving its effectiveness in protecting urban water bodies and can now be viewed as playing a strong role in urban water quality protection. Although EPA has made some progress in the area of urban water quality protection significant problems remain, and CASQA needs to continue to advocate strongly for EPA to increase its commitment and ability to mitigate current water quality impacts and prevent future ones.

1.2 CASQA's Goals and Application to Program Effectiveness Assessment

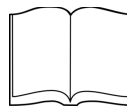
CASQA's ultimate goal in engaging in pesticide-related regulatory activities is to protect water quality by eliminating problems stemming from urban pesticide use. The CASQA PSC envisions a future when the following goals have been attained:



Goal 1: EPA and DPR will conduct effective, proactive evaluations of pesticide risks. EPA and DPR registration and registration reviews will include effective evaluations for the potential of all pesticide active ingredients and formulated products to impact urban waterways. Staff will understand all urban use patterns, and models will accurately reflect urban use patterns, the impervious nature of the urban environment, drainage systems and pathways to receiving waters. Data required of manufacturers will support proactive evaluations. Cumulative risk assessments will be conducted, especially for pesticides with similar modes of action.



Goal 2: Pesticide regulators and water quality regulators will work in coordination to protect water quality. The Water Boards, DPR, EPA's Office of Water (OW) and Office of Pesticide Programs (OPP) will have a consistent definition of what comprises a water quality problem. EPA's OW and OPP will complete "harmonization" of methodologies and approaches to protect aquatic life.



Goal 3: Pesticide regulations and statutes will be used to solve pesticide-related water quality impairments resulting from the registered uses of pesticides. Rather than look to the Clean Water Act, the EPA and Water Boards will work with DPR and the EPA's Office of Pesticide Programs to manage problem pesticides without the use of the costly, slow and burdensome TMDL process.



Goal 4: Pesticide monitoring will be coordinated at the state level to support rapid response to emerging pesticide problems in urban waterways. DPR and the Water Boards will coordinate statewide monitoring to identify emerging pesticide problems in urban waterways before they become widespread and severe. Urban-specific, use-specific mitigation measures will be used to address water quality problems.

The effectiveness of CASQA's efforts toward these goals can be expressed in relation to management questions established as part of Municipal Separate Storm Sewer Systems' (MS4s') program effectiveness assessment. With respect to addressing urban pesticide impacts on water quality, the following two management questions, derived from CASQA's goals, are suggested for inclusion in MS4s' program effectiveness assessment:

Question 1: (Near term/Current problems) – Are actions being taken by State and Federal pesticides regulators and stakeholders that are expected to end recently observed pesticide-caused toxicity or exceedances of pesticide water quality objectives in surface waters receiving urban runoff? (Parallel to CASQA Goal 3)

Question 2: (Long term/Prevent future problems) – Do pesticides regulators have an effective system in place to exercise their regulatory authorities to prevent pesticide toxicity in urban water bodies? (Parallel to CASQA Goal 1, as well as Goals 2 and 4)

This report is organized to answer these management questions, and is intended to serve as an annual compliance submittal for both Phase I and Phase II MS4s. It describes the year's status and progress, provides detail on stakeholder actions (by CASQA and others), and provides a roadmap/timeline showing the context of prior actions as well as anticipated end goal of these activities. This report may also be used as an element of future effectiveness assessment annual reporting.

Section 2: Results of CASQA 2016-2017 Efforts

To prevent urban water quality impacts from registered pesticide uses, CASQA employs a two-pronged approach:

- 💧 Address near-term regulatory concerns (Goal 3)
- 💧 Seek long-term changes in the pesticide regulatory structure (Goals 1, 2, and 4)

At any given time there are dozens of pesticides with current or pending actions from the EPA or DPR; therefore CASQA prioritizes regulatory efforts using the pesticide “Watch List” created by the PSC and the UP3 Partnership (Section 2.1). The Watch List aids CASQA and the UP3 Partnership in their prioritization of near-term efforts (Section 2.2). Meanwhile, CASQA and the UP3 Partnership are also working on a parallel effort to effect long-term change in the regulatory process. By identifying inadequacies and inefficiencies in the pesticide regulatory process, and persistently working with EPA and DPR to improve the overall system of regulating pesticides, CASQA and the UP3 are gradually achieving results (Sections 2.3 and 2.4).

2.1 Updated Pesticide Watch List

CASQA, working through the UP3 Partnership, reviews scientific literature and monitoring studies as they are published. This information is used to prioritize pesticides based on urban uses and the latest understanding of surface water quality toxicity (for pesticides and their degradates). The PSC uses these insights to update a Pesticide “Watch List” (Table 2) which serves as a management tool to prioritize and track pesticides used outdoors in urban areas.⁷ Three changes have been made since the Watch List was published in the 2015-16 PSC Annual Report. Based on 23 new 303(d) listings across California in urban watersheds and an analysis of urban runoff data (which shows continued benchmark exceedances since 2010), malathion was moved up to Priority 1. Dichlobenil was added as Priority 4 because this root control chemical, which is highly toxic to aquatic organisms, is approved by EPA for use in storm drains without any measures to prevent subsequent discharge of the chemical to surface waters. DIDAC was removed from the list because manufacturers have terminated all of their pesticide product registrations.

⁷ The first Watch List was published by the UP3 in 2010.

Table 2. Current Pesticide Watch List (July 2017) ⁸

Priority	Basis for Priority Assignment	Pesticides		
1	Monitoring data exceeding benchmarks; linked to toxicity in surface waters; urban 303(d) listings	Pyrethroids (20 chemicals ⁹)	Fipronil	Imidacloprid (neonic) Malathion
2	Monitoring data approaching benchmarks; modeling predicts benchmark exceedances; very high toxicity and broadcast application on impervious surfaces; urban 303(d) listing for pesticide, degradate, or contaminant that also has non-pesticide sources	Carbaryl Chlorantraniliprole Chlorothalonil (dioxins)	Copper pesticides Creosote (PAHs) Dacthal (dioxins) Indoxacarb	Pentachlorophenol (dioxins) Polyhexamethylenebiguanide Zinc pesticides
3	Pesticide contains a Clean Water Act Priority Pollutant; 303(d) listing for pesticide, degradate, or contaminant in watershed that is not exclusively urban	Arsenic pesticides Chlorpyrifos Chromium pesticides	Diazinon Diuron Naphthenates	Simazine Silver pesticides Trifluralin
4	High toxicity (parent or degradate) and urban use pattern associated with water pollution; synergist for higher tier pesticide; on DPR or Central Valley Water Board priority list	Abamectin Acetamiprid (neonic) Chlorinated isocyanurates Dichlobenil Dithiopyr Halohydantoin	Hydramethylnon Mancozeb MGK-264 Oxadiazon Oxyfluorfen Pendimethalin Phenoxy herbicides ¹⁰	Piperonyl butoxide Pyrethrins Spinosad/ Spinetoram Thiamethoxam (neonic) ¹¹ Thiophanate-methyl Triclopyr Triclosan
New	New pesticides that may threaten water quality depending on the urban use patterns that are approved	Chlorfenapyr Clothianidin (neonic) Cyantraniliprole	Cyclaniliprole Dinotefuran (neonic) Flupyradifurone	Novaluron Thiacloprid (neonic)
None	Based on review of available data, no approved urban use or no tracking trigger as yet identified.	Greater than 300 existing pesticides		
Unknown	Lack of information. No systematic screening has been completed by UP3 for the complete suite of urban pesticides.	Unknown		

⁸ The UP3 Partnership also watches two non-priorities pesticides (Glyphosate and Metaldehyde) due to frequent member questions about them.

⁹ Allethrin, Bifenthrin, Cyfluthrin, Cyhalothrin, Cypermethrin, Cyphenothrin, Deltamethrin, Esfenvalerate, Etofenprox, Flumethrin, Imiprothrin, Metofluthrin, Momfluothrin, Permethrin, Prallethrin, Resmethrin, Sumethrin [d-Phenothrin], Tau-Fluvalinate, Tetramethrin, Tralomethrin.

¹⁰ MCPA and salts, 2,4-D, 2,4-DP, MCPP, dicamba

¹¹ Degrades into Clothianidin

2.2. Results of Efforts Addressing Near-Term Regulatory Concerns

CASQA seeks to ensure that the Water Boards and EPA's OW work with DPR and the EPA's OPP to manage problem pesticides that are creating near-term water quality impairments. These efforts address CASQA's Goal 3.

Immediate pesticide concerns may arise from regulatory processes undertaken at DPR or EPA's OPP. For example, when EPA receives an application to register a new pesticide, there may be two opportunities for public comment that are noticed in the Federal Register, as depicted in green in Figure 3. EPA's process usually takes less than a year while DPR typically evaluates new pesticides or major new uses of active ingredients within 120 days. Now that DPR implements relatively robust surface water quality review procedures for new pesticide registrations, there is reduced need for CASQA to provide input to EPA on new pesticides.



Figure 3. EPA's New Pesticide Registration Process

Another regulatory process, "Registration Review," depicted in Figure 4, is meant to evaluate currently registered pesticides about every 15 years, to account for new data available since initial registration. In general, it takes EPA 5 to 8 years to complete the entire process. EPA regularly updates its schedule for approximately 50 pesticides that will begin the review process in a given year.¹²



Figure 4. EPA's Registration Review – Process to Review Registered Pesticides at a Minimum of Every 15 Years.

¹² See <https://www.epa.gov/pesticide-reevaluation/registration-review-schedules> for schedule information.

While EPA must consider water quality in all of its pesticide registration decisions, at DPR this step is not yet established as standard, so not all outdoor urban pesticide registration applications are routinely routed by DPR for surface water review. CASQA monitors registration applications, to identify those relevant to urban runoff, based on the pesticide watch list in Table 2 and use pattern/toxicity analysis for pesticides that have not previously been reviewed. In 2016-17, CASQA identified three product registration applications containing fipronil (a top priority pesticide). CASQA and/or its UP3 Partners successfully requested these products be routed by DPR for surface water review. DPR staff recommend that CASQA continue monitoring all registration applications while DPR considers changing its standard procedures in response to CASQA's 2015 request that all storm drain pesticides be automatically routed for surface water review.

DPR also has an ongoing, but informal review process (called continuous evaluation) that can address pesticides water pollution. If it needs to obtain data from manufacturers, DPR can initiate a formal action, called "Reevaluation." DPR evaluations of pyrethroids and fipronil in urban runoff have occurred in response to CASQA and Water Board requests. These evaluations have involved ongoing communication with CASQA and the UP3 Partnership.

Table 3 presents a summary of recent UP3 activities to address near-term regulatory concerns and their 2016-2017 results. Of particular note is that DPR developed label language for fipronil intended to greatly reduce the concentration of fipronil and degradates in urban outdoor runoff. *(See highlight at right.)*

Success! DPR Enhances Fipronil Label Restrictions

In California, only professional applicators can spray fipronil outdoors and there are only two registered outdoor spray products. Based on the results of numeric modeling and experimental studies, DPR and registrants are in the process of implementing changes in allowable use of these two fipronil products that are anticipated to reduce fipronil concentrations in California urban runoff by more than 90 percent. The mitigation approach involves:

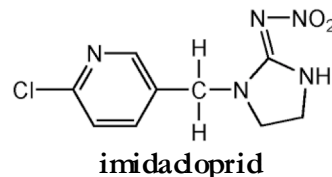
- reduced area treated
- lower application concentration
- lower application frequency
- no use during the rainiest time of year
- no applications on directly connected impervious surfaces that aren't necessary for pest control (garage door/driveway treatments)

Enforceable product label revisions implementing these changes are expected to be in place by the end of 2017. DPR has already started to educate professional applicators about the new restrictions.

The positive outcomes in Table 3 reflect the success of CASQA's teamwork in the UP3 Partnership. Some of this work occurs during formal public comment periods. To accomplish this, CASQA monitors the Federal Register and DPR's website for notices of regulatory actions related to new pesticide registrations and registration reviews. Since the watch list is not based on a comprehensive review of all pesticides, CASQA watches for additional pesticides that appear to have any of the following characteristics: proposed urban, outdoor uses with direct pathways for discharge to storm drains, high aquatic toxicity, or containing a priority pollutant. Participating in these regulatory processes can take many years to complete.

Top tier pesticides were the current push for this year, and CASQA concentrated efforts on educating EPA and collaborating with the State Water Board and DPR on the big picture (next section). Fewer letters were written than in past years, in part because the EPA review schedule was delayed by almost six months following the change in the federal administration. The most significant comment letters were those regarding pyrethroids and imidacloprid, which were in preparation during June 2017, for July submittal to EPA. CASQA's imidacloprid comments drew heavily from the scientific groundwork completed in 2016-17 (*see right and the following page*).

While CASQA has had considerable success in working with DPR and the Water Board, our mixed results with EPA indicate that there are opportunities for further communications and discussions. *A major challenge and opportunity in the upcoming fiscal year will be to continue to work to influence EPA OPP to ensure positive outcomes from its registration reviews of the pyrethroids, fipronil, and imidacloprid, as well as determining the impact of EPA's omission of urban uses of malathion in registration review.*



CASQA Laying the Groundwork to Engage with EPA and DPR Regarding Imidacloprid

Responding to the growing body of monitoring data suggesting that imidacloprid concentrations present in California's urban watersheds have potential to threaten aquatic ecosystems, CASQA prepared the groundwork for engagement with EPA and DPR in the coming year. CASQA – in coordination with multiple UP3 partners:

- reviewed monitoring data
- assembled scientific information including new aquatic toxicity data
- completed a detailed examination of urban imidacloprid uses
- developed a conceptual model of urban runoff imidacloprid sources (*next page*)
- initiated informal discussions with DPR and EPA around this scientific work.

This groundwork sets the stage for upcoming scientific input to EPA on its imidacloprid risk management and for discussions with DPR about California-specific mitigation options. CASQA initiated this effort anticipating multiple future 303(d) listings in an effort toward avoiding future TMDLs

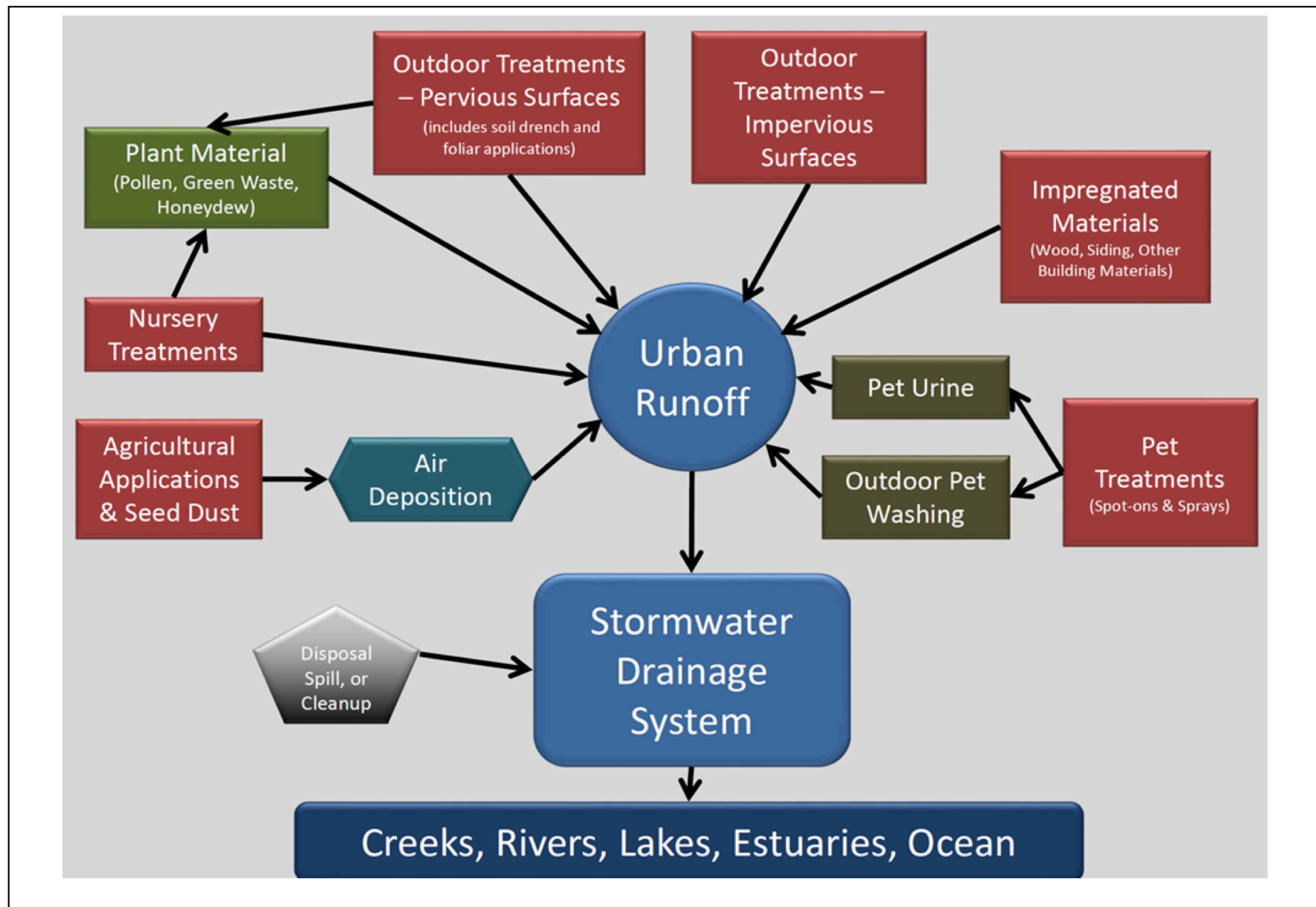


Figure 5. Urban Runoff Imidacloprid Sources Conceptual Model.

Table 3. Latest Results of Efforts Communicating Near-Term Regulatory Concerns (3 pages)¹³

Regulatory Action or Concern	CASQA Efforts			Partner Support	Outcomes and notes
	Letter(s)	Call(s)	Mtg(s)		
DPR					
Fipronil		✓	✓	SWRCB SFBRWQCB CVRWQCB BACWA	Success! Mitigation measures are being implemented via enhanced label language, which are anticipated to reduce the concentration of fipronil and degradates in urban runoff by more than 90 percent. <i>(See highlight on page 13.)</i>
Fipronil Foam Product		✓		SWRCB	Positive. In response to a UP3 partner request, a fipronil foam product was routed review by the DPR Surface Water Protection Program (SWPP). Following initial rejection of the registration application due to water quality concerns related to specific uses, the manufacturer modified the proposed label addressing all SWPP concerns and the newly labeled product was approved.
Other fipronil products (6 products)	✓	✓		SWRCB SFBRWQCB	Partial Success! DPR has routed all fipronil registration applications – including some that might not have met its usually routing criteria – to its surface water program for review. Due to the prevalence of fipronil water pollution, CASQA is carefully screening all fipronil product registration applications and partnering with the Water Board to ensure they have robust DPR surface water program review.
Pyrethroids			✓	BACWA	Promising. CASQA and BACWA representatives met with DPR to discuss possible additional mitigation strategies for urban uses of pyrethroids. DPR continues to expand its pyrethroid monitoring and enforcement programs, partnering with the City of Roseville and the Placer County Agricultural Commissioner on a special study to examine non-professional pyrethroid use and to evaluate the effectiveness and level of compliance with State regulations on professional use (the largest pyrethroid source in urban runoff).

¹³ Color coding in this table is meant to reflect the “Watch List” prioritization color coding in Table 2.

Regulatory Action or Concern	CASQA Efforts			Partner Support	Results and notes
	Letter(s)	Call(s)	Mtg(s)		
Storm drain insert antimicrobial filter media registration application	✓				Success! DPR has proposed to deny the application due to insufficient data to rule out potentially significant water quality risks. The product manufacturer originally applied in 2011 but was denied due to insufficient data. The manufacturer reapplied in 2015. DPR has since reviewed the additional information and denied the application, again due to insufficient data. While the precedent of DPR's strong commitment to water quality protection exemplified by this decision is a success, this case illustrates the challenges in identifying in-storm drain products to provide bacteria control, which some CASQA members desire.
Storm drain insert antimicrobial fabric registration application				SFBRWQCB	Partial Success! DPR routed this registration application to its surface water program for review. The results of the review are pending.
Registration applications – all storm drain products	✓				Pending. Requested automatic routing for surface water review.
EPA					
Pyrethroids Registration Review	✓	✓	✓	SWRCB SFBRWQCB CVRWQCB CCRWQCB BACWA NACWA Sacramento County	Pending. UP3 organized a series of conference calls between EPA and CASQA and other UP3 partners to (1) brief EPA on the CWA regulatory context and associated costs of pyrethroid water pollution to state and local governments, (2) explore mitigation options, and (3) to learn more about EPA's authorities and decision-making methodologies in pesticide registration review. CASQA's comment letter (due in July 2017) recommends further mitigation through product label enhancement and terminating urban uses of bifenthrin due to its usually high persistence.
Imidacloprid Registration Review	✓	✓			Pending. With the assistance of multiple UP3 partners, CASQA reviewed monitoring data, toxicity reference values, and imidacloprid uses in detail. CASQA developed an imidacloprid urban runoff conceptual model to support efforts to identify mitigation options. CASQA's comment letter (due in July 2017) recommends that EPA refine its risk assessment to include urban uses to inform identification of mitigation measures, including product label improvements and potential urban use restrictions.

Regulatory Action or Concern	CASQA Efforts			Partner Support	Results and notes
	Letter(s)	Call(s)	Mtg(s)		
Fipronil Registration Review		✓		UP3	Pending. CASQA is continuing to provide information and insight via teleconference meetings and emails. The preliminary risk assessment anticipated in December 2016 has been delayed until 2018.
Copper Registration Review Risk Assessment	✓			SFBRWQCB BACWA NACWA	Pending. CASQA is seeking risk mitigation for the use of copper-based root control products in storm drains; copper-containing roofing materials; and copper-containing swimming pool, spa, and fountain treatments.
Malathion Biological Evaluation (Registration Review risk assessment substitute document)	✓	✓		BACWA SFBRWQCB NACWA	Response unsatisfactory. Last year, CASQA cited numerous concerns with the EPA's use of a complex Biological Evaluation (part of an ESA consultation) as a replacement for the ecological risk assessment in Registration Review. EPA denied CASQA's request to conduct a risk assessment to address traditional water pollution, such as that reflected by 303(d) listings. EPA concluded that urban malathion uses – other than mosquito abatement agency applications – did not cause water pollution. Follow-up CASQA analysis of recent DPR urban monitoring data and existing and proposed California 303(d) listings shows that the probable source is ordinary urban malathion products – not mosquito abatement. Unless EPA's error is corrected, EPA will not propose risk mitigation for malathion in urban runoff in its upcoming draft decision. CASQA is following up informally.
Diuron Registration Review Preliminary Workplan	✓				Success! EPA revised a draft workplan that had virtually ignored diuron's urban uses. Based on DPR data, it appears that diuron's two major urban uses are rights-of-way applications (e.g., along roadsides) and incorporation into outdoor paint; both uses will be evaluated in EPA's upcoming risk assessment.
Lithium hypochlorite	✓	✓		BACWA SFBRWQCB NACWA	Success! As this was the first of several anticipated pesticides used in pools and spas, CASQA and its UP3 partners worked closely with EPA on proposed model language for pool discharges with the hope that such language could become uniform for all such uses. EPA's decision includes the new language
Chlorfenapyr Proposed Interim Reregistration Review Decision	✓			SFBRWQCB	Success! To prevent high-concentration discharges of chlorfenapyr from construction sites, CASQA requested that the label language developed for pyrethroid pre-construction termiticide products be added to chlorfenapyr product labels. EPA agreed to include this requirement in its decision.

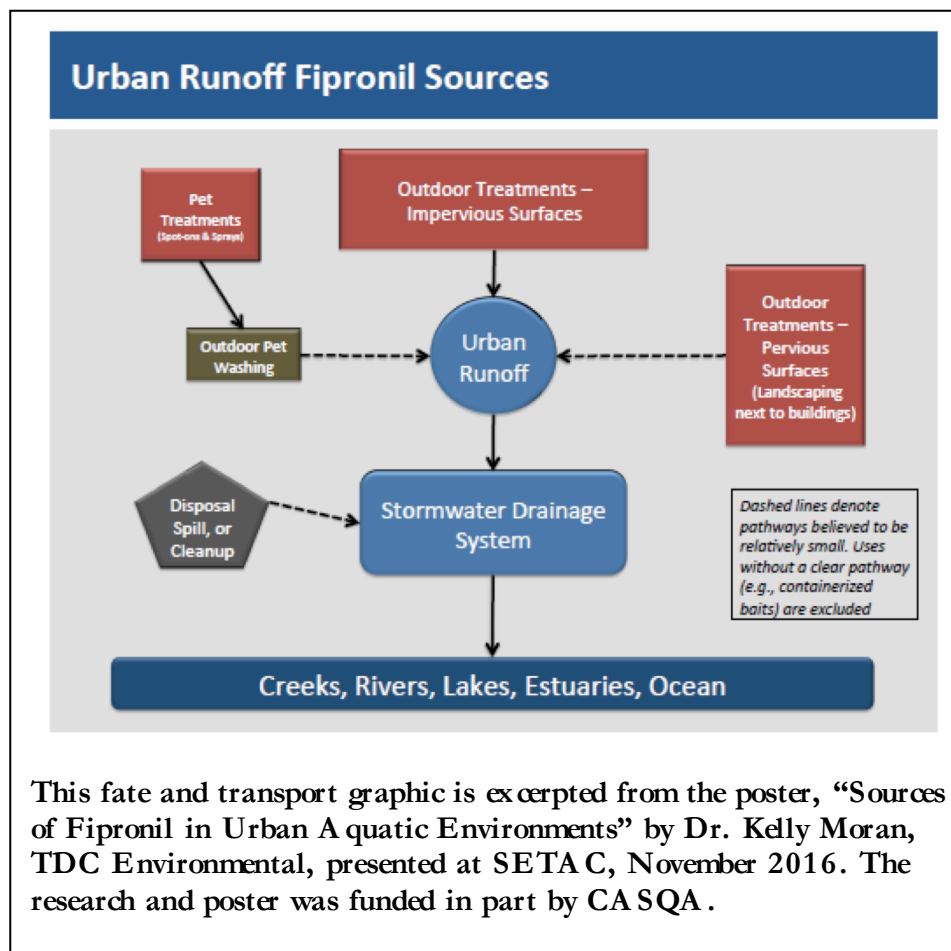
2.3 Long-Term Change in the Pesticides Regulatory Structure

CASQA continues to work towards a future in which the regulatory structure proactively restricts pesticide uses that have the potential to cause urban water quality problems.

There are several processes currently under way at both EPA and DPR that will move us closer to that future. Many of these processes were prompted by the persistent work of CASQA and the UP3 Partnership to educate regulators on the problems with current approaches. Table 4 presents a summary of 2016-17 outcomes achieved and identifies issues that need to be addressed to achieve CASQA's goals.

As part of restructuring efforts by the incoming federal administration, the OPP provided CASQA with a unique opportunity to engage in a regulatory reform dialogue, by asking stakeholders to identify specific opportunities to reduce regulatory burdens and to identify pesticide regulations that may be appropriate to repeal, replace, or modify. A summary of CASQA's recommendations is provided on the following page.

Table 5 presents 2016-17 communication, educational outreach, and advisory efforts, including participation at national conferences (see graphic at right). In the next year, CASQA will continue to educate diverse audiences on the nexus of urban pesticide regulation and water quality and the key scientific issues involved in identifying, addressing, and preventing pesticides water pollution.



CASQA's Response to EPA's Regulatory Reform Request

In early 2017, the OPP requested that stakeholders provide input on pesticide regulations that may be appropriate for repeal, replacement, or modification. CASQA provided detailed recommendations, a summary of which is below:

Regulations that Should Be Repealed or Modified

- **The Treated Article Exemption** (40 CFR Part 152, §152.25 (a)) is overly broad and burdensome for state and local governments. Due to this exemption, OPP does not assess the ecological risks of end-use treated articles, such as treated wood or building materials, when it registers pesticides. Further, the exemption blocks states' rights to control the sale and use of such pesticide treated articles. However, many treated articles, including treated wood, paint, and roofing materials leach pesticides into urban runoff through outdoor exposure. Leaching of pentachlorophenol, creosote, and arsenic wood treatments has been linked to urban pollution. Because treated articles can leach their pesticide content during use or at end of life, they definitely are of a character requiring FIFRA regulation.
- **Product performance data requirements** should be revised to require registrants to provide product performance testing data for all urban uses (40 CFR §158.400). As it stands, this regulation provides an overly broad exemption from data requirements pertaining to efficacy for individual pesticide registration applications, which is not required by the authorizing legislation (FIFRA 7 U.S.C. Part 136a [c] [5], and undermines the ability of EPA and the states to obtain data necessary to mitigate unnecessary environmental impacts. Efficacy data are critical for establishing application rates and mitigation measures that can reduce environmental impacts while still preserving the efficacy of the products. For example, labels for pyrethroid insecticides typically instructed users to spray a 7-10 foot band around a structure to control nuisance insects like ants while scientific studies have determined that using the same pesticide application concentration and treating a band of only 2 inches around a building would be sufficient to provide nuisance insect control, and reduce >95% in the amount pesticide used.

Make Pesticides Regulation Less Burdensome for State and Local Governments While Maintaining Environmental Protection

- **Scientific review procedures** need to be modified to completely analyze all urban pesticide uses, correctly identify exposure pathways, and improve models such that they accurately estimate pesticide releases into urban runoff.
- **Toxicity testing data requirements** (40 CFR Part 158: Subparts G and W) should be modified to ensure that minimum data requirements are harmonized with U.S. EPA OW testing requirements for NPDES permittees (i.e., same species, same time frames). Minimum required data sets should be sufficient to provide accurate species sensitivity distributions that are required for ESA consultations. This would lower the overall cost of the pesticides registration process by making the process more predictable and more scientifically reliable. This change would eliminate the regulatory gaps between the nation's pesticides, water, and endangered species regulatory programs that are costly and cumbersome for OPP, state and local governments, and registrants.
- **Benefits Assessments** should be modified to consider economic impacts on state and local governments such as costs arising from Clean Water Act compliance issues, and to include the costs of actual impacts on beneficial uses (e.g., drinking water and fisheries).

Regulations Causing Data to Not Be Publicly Available / Insufficient Transparency

One of OPP's regulations in 40 CFR Part 152, Subpart F (§152.199) keeps data in support of pesticide registration hidden until after the decision is finalized. CASQA's scientific reviewers have been unable to provide meaningful input to OPP on proposed new pesticide registration decisions because this information is unavailable.

Table 4. Latest Outcomes and Next Steps Regarding Long-Term Regulatory Change (5 pages)

Goal	Agency	Topics Influenced	Latest (2016/17) Outcomes	Remaining Issues to Address to Achieve CASQA Goals
1 – Effective, Proactive Evaluations of Pesticide Risks	DPR	Pesticide registration application routing for surface water evaluations	Most outdoor urban pesticide registration applications are automatically routed for surface water review, but storm drain products are not yet part of the automatic routing. DPR continued to route registration applications for surface water review in response to product-specific, written requests by CASQA/UP3.	Surface water evaluation automatically conducted for all outdoor, uncontained pesticides. More transparent DPR registration notices. Regulatory authority for outdoor pesticide-impregnated materials.
		Pesticide Registration Surface Water Evaluation	DPR announced that it will assess water quality impacts of pesticide degradation products when it reviews registration applications for new outdoor pesticides. DPR's Surface Water Protection Program (SWPP) will request acute aquatic toxicity tests and other data to characterize degradates. <i>(See Section 2.4)</i>	Aquatic toxicity and environmental fate data requirements that are sufficient to support quantitative evaluation of all antimicrobial pesticides and to address chronic toxicity as defined in CWA programs for all pesticides. Improved registration evaluation methods capable of addressing the full range of outdoor urban pesticide applications (see below).
		Urban Runoff Modeling	DPR understands that models that better estimate surface water pesticide concentrations from urban pesticide use are needed. Since OPP is not moving toward urban models, DPR continues to develop detailed runoff modeling.	Continued improvement to achieve even more accurate urban runoff modeling of all outdoor urban pesticide applications through the full life cycle of the pesticide and its environmentally relevant degradates. Consideration of product formulation.
		Chemical analysis methods	DPR updated its procedures for required chemical analysis methods for some new pesticides and continued work with state laboratories on new methods to support monitoring priorities.	Chemical analysis methods suitable for commercial laboratories measuring environmental samples for all currently registered UP3 priority pesticides and their stable degradates for which commercial lab methods are not available.

Goal	Agency	Topics Influenced	Latest (2016/17) Outcomes	Remaining Issues to Address to Achieve CASQA Goals
1 – Effective, Proactive Evaluations of Pesticide Risks	EPA	Pesticide environmental fate & aquatic toxicity data requirements	OPP updated toxicity testing guidelines for aquatic organisms and harmonized them with international standards, but did not harmonize the test species selection with OW.	Establish systems to require all data necessary to establish water quality criteria and protective levels for sediments, potentially through new water quality criteria development methodologies based on limited data sets or computational methods.
		Urban Runoff Modeling	No changes.	In the short-term, use the DPR California scenario when modeling urban runoff, and integrate all of the pathways by which a pesticide can reach MS4s into pesticide reviews for pesticides other than antimicrobials. In the long term, more accurately model all outdoor urban pesticide applications through the full life cycle of the pesticide and its environmentally relevant degradates.
		Effects Assessment	EPA has begun the process of revising the existing <i>Guidelines for Deriving Water Quality Criteria for the Protection of Aquatic Life and Their Uses</i> used to derive National Ambient Water Quality Criteria for the protection of aquatic life. The existing guidelines have not been updated since 1985.	
		Effects Assessment	OPP expanded use of monitoring data – particularly California data in DPR’s database — in its risk assessments.	Use the same methods that EPA OW uses for identifying surface water impairment as significance standards in pesticide environmental risk assessments.
		Risk Management Decisions	No changes.	Make Clean Water Act compliance a fundamental goal of OPP risk management decisions. Include water quality compliance costs in OPP’s cost-benefit analyses.

Goal	Agency	Topics Influenced	Latest (2016/17) Outcomes	Remaining Issues to Address to Achieve CASQA Goals
2 – Coordination Between Pesticide Regulators and Water Quality Regulators	DPR & Water Boards	Effects assessment	DPR has continued to state that exceedances of OPP benchmarks warrant mitigation responses.	Since some benchmarks are higher than water quality criteria, agreement is needed among DPR, Water Boards, and EPA OW on criteria for identifying surface water impairment requiring mitigation by pesticides regulators.
		Pesticide Management requirements in Permits	The State Water Board continues the Urban Pesticide Amendments project. By 2018, Board staff is poised to develop language for a Water Quality Control Plan amendment targeting urban pesticides. <i>(See Section 2.4.)</i>	CASQA needs to ensure that the Board continues to include “minimum source control efforts” for MS4s and recognizes the need for DPR and EPA to take the lead in addressing pesticides in urban water bodies.
		Pesticide TMDLs	TMDLs approved by Regional Water Boards (San Francisco Bay Diazinon/Pesticide Toxicity TMDL; Santa Maria River Pyrethroids TMDL; Central Valley pyrethroids TMDL, and Salinas River pyrethroids TMDL (awaiting State Water Board review) all recognize that DPR and EPA should be lead in addressing pesticides. Central Valley’s regulatory approach includes MS4 monitoring and numeric triggers that would require implementation of management plans, including education and outreach and coordination with DPR.	Ensure through the STORMS Urban Pesticides Amendments project that statewide water quality control plan requires that all future water board actions to address urban pesticide impacts (including TMDLs and permits) continue to recognize the need for DPR and EPA to take the lead in addressing pesticide water pollution and provide reasonable responsibilities for MS4s.
	EPA	Effects Assessment	The nearly completed OW-OPP Common Effects Assessment project remained stalled. Although OW kicked off a process to review its 1985 Guidelines for developing water quality criteria and invited OPP’s participation in 2015, OPP has not yet committed to engaging in that process, which OW proposed to serve as an alternative way to harmonize effects assessment methodologies among EPA offices. The latter process seems to be stalled due to the transition in presidential administrations.	Complete and implement common effects assessment methodology, which could be integrated into the OW water quality criteria methodology update process. Modify OPP and OW procedures to provide for consistent time frames for water quality assessments.

Goal	Agency	Topics Influenced	Latest (2016/17) Outcomes	Remaining Issues to Address to Achieve CASQA Goals
3 – Use of Regulations and Statutes to Solve Pesticide-Related Impairments	DPR	Pyrethroids	DPR continued monitoring and other work to evaluate the effectiveness and level of compliance with the regulations. This includes the Placer County bifenthrin study (highlighted in the 2015-16 Annual Report, Section 2.4) and the multi-year study evaluating the effectiveness of pyrethroid regulations (<i>See Section 2.4</i>)	Increased enforcement and follow up actions, including additional product mitigation requirements, as necessary to achieve water quality improvements and eventually end pyrethroids-caused toxicity in California urban watersheds
		Fipronil	DPR continues to move forward to reduce fipronil in urban runoff based on numeric modeling (DPR staff) and experimental studies (UC Riverside) that validated potential mitigation strategies. DPR announced label language for fipronil intended to reduce fipronil use on impervious surfaces directly flowing to gutters/storm drains. (<i>See details in Section 2.2</i>)	Complete implementation of mitigation actions to reduce concentrations of fipronil and degradates below benchmarks / toxic concentrations in California urban watersheds. Monitor water quality outcomes and, if necessary, make adjustments in the mitigation program.
	EPA	Pyrethroids, Imidacloprid, and Fipronil Registration Reviews	EPA's pyrethroids and imidacloprid risk assessments identify significant water quality risks in urban watersheds. EPA's fipronil assessment is delayed.	EPA implementation of actions to mitigate risks associated with products not readily regulated by DPR (consumer products, impregnated materials) and special measures for bifenthrin – potentially including termination of its urban use - due to its special persistence.









Goal	Agency	Topics Influenced	Latest (2016/17) Outcomes	Remaining Issues to Address to Achieve CASQA Goals
4 – Coordinated State Monitoring to Support Response to Emerging Problems	DPR & Water Boards	Coordinated Pesticides Monitoring in Urban Watersheds.	The State Water Board and DPR continued coordinated urban monitoring for pyrethroids and fipronil and are working on increasing imidacloprid monitoring. The scope for the State Water Board's Urban Pesticides Amendments project includes developing a coordinated pesticide/toxicity monitoring framework among DPR, the State Water Board and MS4s.	Full coordination of California's pesticides/toxicity monitoring programs at DPR and the Water Boards and direct linkage of these programs with reasonable MS4 pesticides monitoring requirements.

Table 5. Communication, Education, and Advisory Efforts to Support CASQA's Goals

Agency or Conference	Latest Outcomes
DPR's Pest Management Advisory Committee (PMAC)	Success! Participation on the PMAC has resulted in continued focus by DPR on urban pest management and water quality issues and generated funding for urban integrated pest management programs. DPR has begun a multi-stakeholder initiative entitled Pests, Pesticides, and Integrated Pest Management (PPI) to identify strategic actions to identify overcome barriers and establish widespread adoption of IPM; it includes urban pests as a key focus. A PSC member serves on the PPI steering committee as well as the Structural Pest working group.
State Water Board's Urban Pesticides Amendments Project	Promising. This project would integrate a water quality regulatory framework for urban pesticides reduction (the "Urban Pesticides Amendments") into statewide Water Quality Plans. In 2016-17, members of the PSC, along with DPR and Water Board staff, continued active involvement in the project. This included extensive PSC member participation in the "core group" of the project, in all of the project work groups tasked with developing the goals and conceptual framework for the Urban Pesticides Amendments, and in testimony to the State Water Board at the March 2017 CEQA scoping meetings. PSC members have also been invited to participate in the Technical Advisory Committee that the State Water Board established to provide input on the development of its statewide Water Plan amendment language. PSC has begun outreach to key stakeholder, including CASQA members, to educate them on the goals and benefits of the project. Anticipate the final outcome of amendments to the Water Quality Control Plan by 2018.
US EPA's advisory committee, Pesticide Program Dialogue Committee (PPDC)	Pending. PSC members presented testimony consistent with CASQA's written comments (see page 20) at a public hearing on pesticides regulatory reform hosted by this OPP external stakeholder advisory committee.
California Structural Pest Control Board (SPCB)	Success! A PSC member is an appointed member of the SPCB. The SPCB recognizes the potential for excessive pesticide application to impact water quality. The SPCB approved adoption of regulations to increase continuing education hours required for IPM. The effect newly adopted (2016) US EPA training requirements for applicators of restricted materials will be considered during the rulemaking process. The SPCB reconvened its Research Advisory Panel to solicit and evaluate proposals for research projects on urban pest management, to be supported by the SPCB research fund. Funded projects historically support advancements in urban integrated pest management.
University of California Statewide IPM (UCIPM)	Success! A PSC member continues to serve on UCIPM's Strategic Planning Committee, which met in 2017 to review progress in implementing the program's strategic plan. Consistent with the plan, UCIPM continues to provide resources, develop materials, and implement programs that support urban IPM. .
American Chemical Society	ACS Philadelphia Aug 21-25, 2016 – Attended, presented "Sources of Imidacloprid in Urban Aquatic Environments" ACS San Francisco April 2-6, 2017 – Attended, met informally with pesticide manufacturers, regulators, and research scientists.
SETAC	SETAC Orlando Nov. 6-10, 2016 – Attended, presented "Sources of Fipronil in Urban Aquatic Environments."

As presented in Tables 4 and 5, CASQA has been actively involved in efforts to improve pesticide regulations in order to protect urban water quality. While we have indeed witnessed some progress towards our four management goals, there are numerous gaps and barriers that remain. Figure 5 seeks to present CASQA's perception of the regulatory situation at the state and federal level, relative to each of CASQA's long-term goals. The PSC has witnessed great improvements in a collaborative approach to protect urban water quality, particularly at the state level. It appears that the primary challenges and opportunities for success lie at the federal level, facilitating communication between OPP and OW to dovetail each of their efforts into the coordinated efforts within the state.

Figure 6. CASQA's Assessment of Recent Progress and Remaining Gaps Relative to Long-Term Goals¹⁴

CASQA's Long-Term Goals	Progress Assessment	Assessment Basis
DPR and State Programs		
	Maximum possible: 5 drops	
1. Effective proactive evaluations		DPR is utilizing effective WQ modeling and screening mechanisms as part of its registration process. The overall process has a high likelihood of identifying problem chemicals in advance of registration.
2. Coordinated regulatory bodies		Via STORMS, State Water Board is developing an Urban Pesticide Reduction Plan to incorporate reliance on DPR and OPP as the primary mechanisms for addressing pesticide impacts. The Board's goals include minimum source control efforts for MS4s.
3. Effective use of regulations and statutes to solve and prevent pesticide impairment		In response to pyrethroids, DPR has established surface water protection regulations and is actively evaluating compliance and effectiveness. DPR is responding in a timely manner to identified fipronil issues.
4. Coordinated state monitoring		DPR established statewide surface water surveillance monitoring for timely detection of water quality problems, has begun coordination with State Water Board. The State Water Board's Urban Pesticide Reduction Plan is expected to further elucidate a coordinated monitoring approach.
EPA OPP and OW Programs		
1. Effective proactive evaluations		OPP has improved some of its registration processes (risk assessments, data requirements) for individual chemicals, but needs to make these improvements more consistent for all urban use chemicals, and for all divisions. OPP should adopt better modeling, similar to what DPR has developed. In making final registration decisions, OPP does not consistently give adequate weight to identified urban water quality impacts. OPP registration processes need to address the use phase of pesticide-impregnated materials (e.g., paint and other outdoor building materials).
2. Coordinated regulatory bodies		OPP has made significant progress with OW on common effects methodology (evaluation of toxic effects), but work on this has stalled for the last several years.
3. Effective use of regulations and statutes to solve and prevent pesticide impairment		OPP has accelerated and coordinated registration review for pyrethroids, although it has not yet committed to utilizing the best evaluation methods for this entire class, as recommended by CASQA.
LEGEND		
 The number of drops, out of 5 possible, is intended as a <i>qualitative</i> representation of our overall perception of progress in the regulation of pesticides, relative to CASQA's long-term goals.		

¹⁴ These goals have been adapted from the CASQA document, "End Goals for Pesticide Regulatory Activities," 2014. Goal 3, above, is directly tied to Goals 2, 4, and 5 of that document.

2.4 Highlights in California

The most significant changes in pesticide regulation have been with DPR and its coordination with the Water Boards, CASQA, and the UP3 Partnership. As examples of state resources now being devoted to both the management and scientific evaluation of pesticide impacts to urban waterways, the following projects are highlighted: (1) the state's Urban Pesticides Amendments Project, (2) DPR's review of the efficacy of pyrethroids regulations, and (3) DPR's inclusion of pesticide degradates in surface water protection reviews of pesticide registration applications.

Urban Pesticides Amendments Project

The State Water Board established an urban pesticides reduction project (now entitled the "Urban Pesticides Amendments") as a top priority project for 2016 under the comprehensive stormwater strategy it adopted in December 2015, known as "Strategy to Optimize Resource Management of Storm Water" or STORMS.¹⁵ In 2016-17, the State Water Board continued progress towards developing urban pesticides amendments for the Inland Surface Waters, the Enclosed Bays, and Estuaries Water Quality Control Plan, and the Water Quality Control Plan for Ocean Waters of California, anticipated for adoption in 2018, which are poised to incorporate CASQA's vision for pesticide control. During the past year, three work teams were created to develop the framework documents to inform the drafting of the Urban Pesticides Amendments:



- Element 1: Coordination framework for working with U.S. EPA and DPR on urban pesticide reduction
- Element 2: Minimum pesticides source control requirements for urban storm water permittees
- Element 3: Statewide urban pesticides/toxicity monitoring coordination framework

In spring of 2017, the State Water Board held two California Environmental Quality Act (CEQA) Scoping Meetings to seek input on the proposed Urban Pesticides Amendments.¹⁶ CASQA's feedback focused on opportunities to reduce impacts of pesticide toxicity on MS4 permit holders. CASQA supports the State Water Board's stated goal of implementing the Urban Pesticides Amendments *"as an alternative*

¹⁵ STORMS' overall mission is to "lead the evolution of storm water management in California by advancing the perspective that storm water is a valuable resource, supporting policies for collaborative watershed-level storm water management and pollution prevention, removing obstacles to funding, developing resources, and integrating regulatory and non-regulatory interests." (http://www.waterboards.ca.gov/water_issues/programs/stormwater/storms/)

¹⁶ http://www.waterboards.ca.gov/water_issues/programs/stormwater/storms/docs/ceqa_scoping_document_urban_pesticides.pdf

to TMDL development to address pesticide and pesticide-related toxicity impairments in individual water bodies.” Achievement of this goal would provide substantial savings of state and MS4 agency resources as compared to establishment of multiple TMDLs throughout the state.

CASQA supports the intent of the Urban Pesticides Amendments to establish a consistent set of “*minimum pesticides source control measures for MS4 dischargers.*” At this time, the list of potential minimum measures includes use of integrated pest management (IPM), education of and outreach to residents and professional pesticide applicators, encouraging participation in the pesticide regulatory process, limitations to dry weather runoff, and pesticide and toxicity monitoring. The State Water Board has indicated that “*permittees fully implementing these minimum pesticide control measures should be deemed in compliance during the term of the permit with receiving water limitations.*”

CASQA supports the stated goal to “*create a comprehensive, coordinated statewide monitoring framework for pesticides and toxicity in urban runoff and receiving water that improves resource efficiency, usefulness of data, and coordination of data collection to support management decisions.*” A well-designed and managed monitoring framework that is properly representative of urban areas can simultaneously provide more useful information and improve the utilization of resources by eliminating unnecessary MS4 monitoring requirements that do not contribute to effective management of pesticide issues.

CASQA, on invitation of State Water Board staff, has been an active participant in this effort. Water Board Regions 2 and 5, DPR, U.S. EPA Region 9, and CASQA all met regularly and frequently with the State Water Board to move the project along expeditiously. Because most participants have been working together effectively for years on this subject (prior to STORMS) the program is moving ahead rapidly and effectively. We are now at a critical point, at which continued effective engagement by CASQA PSC will help ensure that key elements of CASQA’s vision for pesticides are fully supported and institutionalized in state policy and procedures.

DPR Review of Pyrethroid Monitoring Data Triggers Exploration of Additional Mitigation Measures

Since 2009, the EPA and DPR have both implemented actions to reduce pyrethroids in urban runoff. EPA’s actions – product label changes – have yet to be fully implemented on all products. To obtain quicker action, in 2012 DPR adopted surface water protection regulations to reduce use of pyrethroids and obtained a voluntary agreement for special restrictions on the use of the most persistent pyrethroid – bifenthrin – that was implemented through legally enforceable product label changes for professional products. To track the outcome of the regulations, DPR expanded surface water pyrethroids monitoring in partnership with the State Water Board, and has annually evaluated monitoring data. Because the first few years of monitoring data did not reflect the anticipated decline in pyrethroids concentrations, in 2016, CASQA and its UP3 partners requested DPR evaluate the reasons for the lack of decline. In response, DPR initiated a special project to evaluate the regulations’ implementation by professional applicators, to examine other urban runoff pyrethroids sources, and to do preliminary investigations of potential additional mitigation measures. DPR presented results at the

American Chemical Society meeting¹⁷ that indicate that the regulations are having little, if any, effect on lowering pyrethroid concentrations in California surface waters:

DPR Northern California Findings

- Receiving waters did not show any significant decrease in bifenthrin concentrations during that six-year monitoring period.
- Samples collected at storm drains show a slight decrease in observed bifenthrin concentrations. Such decreases at storm drains *may* indicate improved adherence to the regulations by pest control operators in this region. However, the monitoring data were obtained during drought conditions when irrigation restrictions were implemented so it is not possible to attribute the decrease exclusively to label restrictions.

DPR Southern California Findings

- No observed decrease in bifenthrin concentrations in either storm drains or urban receiving waters.
- Increased detection frequency of cyfluthrin, cypermethrin, esfenvalerate, and lambda-cyhalothrin at all monitoring stations

In response to these findings and using detailed information from its special project, DPR continued its scientific exploration of potential additional mitigation options. CASQA and its UP3 partners are tracking and encouraging these efforts.

DPR Expands Water Quality Reviews to Include Degradates

Some newer pesticides (e.g., fipronil, indoxacarb, cyantraniliprole, and chlorantraniliprole) have multiple toxic degradates, some of which are more toxic and/or more stable than the parent chemical. Some older chemicals—such as the mosquito control chemical Naled and the turf treatment thiophanate methyl—degrade quickly into other chemicals that are equally or more toxic. These degradates sometimes contribute to the chemical's pest control function. Historically, pesticide registration has not considered the water quality implications of pesticide degradates.

Recognizing that a few pesticide degradates have significant environmental implications, in 2017, DPR expanded its surface water protection evaluation of new pesticide registration applications to address pesticide degradates.¹⁸ This improvement will help DPR avoid registering pesticides where degradates could cause or contribute to water pollution. Degradates have growing importance as manufacturers respond to pressures to ensure that pesticides are not persistent. The reduction in persistence of parent chemicals means that degradates

¹⁷ Budd, R., D. Wang, M. Ensminger, and K.S. Goh. 2017. An Evaluation of the Department of Pesticide Regulation's Surface Water Regulations for Pyrethroids: Are They Working? Poster presentation. Available at: http://www.cdpr.ca.gov/docs/emon/surfwtr/swposters/34_budd.pdf

¹⁸ http://www.cdpr.ca.gov/docs/emon/surfwtr/review/degrade_regEval_11_final.pdf

are increasingly part of the environmental picture for pesticides. This DPR procedure provides a practical scientific approach to identify degradates that may potentially be important for water quality and to evaluate those degradates.

The updated DPR procedure integrates new data requirements for some degradates, complementing U.S. EPA's recent expansion of data requirements for similar degradates of existing pesticide chemicals in the Registration Review process.

Section 3: CASQA's Approach Looking Ahead

At any given time, EPA and DPR may be in the process of evaluating and registering various pesticides for urban use. To address near-term concerns that may arise out of these ongoing pesticide regulatory processes, CASQA and the UP3 Partnership continuously track and engage in EPA and DPR activities. Typically, these efforts press for changes in an individual product's registration or request that regulators obtain more data from manufacturers. CASQA and the UP3 Partnership are also working on a parallel effort to effect long-term change in the regulatory process, often using specific regulatory actions as educational opportunities on long-term issues.

In the coming year, CASQA plans to undertake numerous activities to both address near-term pesticide concerns and seek long-term regulatory change.¹⁹ Meeting our end goals at the federal level continues to be critical to the achievement of our end goals for addressing pesticides. In FY 2017-2018, we propose to continue engagement on priority pesticides at the federal level while continuing our critical "end game" activities at the state level. This is in response to:

- 💧 the immediate need to participate in pyrethroid, fipronil, malathion, and imidacloprid regulatory actions (the only such opportunity for these chemicals the next 15 years);
- 💧 the opening of a strategic window of opportunity created by OPP's requirements to revise risk assessment procedures under the ESA;
- 💧 new data revealing the extent of urban pesticides water pollution and dozens of current and anticipated 303(d) listings / TMDLs for pyrethroids, fipronil, malathion, and imidacloprid, and
- 💧 a chance to leverage our recent success at the state level toward creating a realistic long-term pesticide management framework for MS4s.

CASQA's current priority activities are as follows:

(1) Continue collaboration with DPR to address near-term regulatory concerns, while seeking OPP and OW actions to reduce inconsistencies:

- Ensure DPR action on fipronil water pollution is completed, including professional user education about new restrictions on its outdoor urban use
- Ensure DPR enforces mitigation measures for pyrethroids and adopts additional measures as necessary

¹⁹ Activities in 2018 are subject to available funding.

- Ensure the state continues to conduct surveillance monitoring to evaluate pyrethroids (and fipronil) mitigation effectiveness
- If resources permit, initiate discussions with DPR on imidacloprid water pollution, using conceptual model of imidacloprid sources in urban runoff and information assembled by UP3 partners from scientific publications with relevant toxicity and monitoring data.
- Continue to encourage EPA to complete scientific groundwork and to identify and implement pyrethroids, fipronil, malathion, and imidacloprid mitigation measures, recognizing that it is likely that necessary mitigation cannot readily be implemented entirely by DPR.
 - Focus on providing EPA with detailed scientific information to support mitigation strategies
 - Seek to engage with the EPA about the risk associated with urban uses of malathion (and the associated 303(d) listings) and the need to include traditional water quality risk assessments in tandem with complying with the ESA

(2) Seek long-term changes in the pesticide regulatory structure:

- Leverage our success at the state level and continue to be a key stakeholder in the STORMS project that is developing statewide Water Quality Control Plan amendments for urban pesticides reduction. Through this process, seek restructuring of California's urban surface water pesticides monitoring to increase its effectiveness and improve coordination.
- Seek procedure changes such that EPA avoids approving new pesticides that cause urban water pollution and DPR continues to refine its registration procedures to address remaining gaps in water quality protection.
- Encourage EPA to develop robust urban surface water risk assessment procedures for pesticide reviews
 - Continue to advocate, as opportunities arise, for improving OPP urban runoff modeling procedures and for consistency with OW regarding effects assessment levels and risk assessment timeframes
 - Discourage OPP's apparent approach of substituting ESA consultation "Biological Evaluations" for water quality risk assessments addressing traditional water quality endpoints, but use the ESA Consultation process as an opportunity to improve OPP surface water risk assessment procedures

CASQA will continue to coordinate with the Water Boards through the UP3 Partnership to take advantage of efficiencies, increase effectiveness, and ensure that the water quality community has a consistent message. The details regarding the types of activities that CASQA and the UP3 Partnership engage on an ongoing basis in are presented Table 7. Table 8 presents upcoming regulatory action items that are likely to proceed in the coming year.

CASQA looks forward to working with our Partners to continue towards proactive management to protect water quality.

Table 6. Types of Activities Necessary to Address Immediate Pesticide Concerns and Long-term Regulatory Change (3 pages)

Activity		Purpose	Level of Effort
Regulatory Tracking	Track Federal Register notices	Identify regulatory actions that may require review.	Daily review; analyze EPA's scientific work and provide notification to CASQA members and partners as needed.
	Track DPR notices of registration applications and decisions	Identify pesticides meriting surface water review that are not within DPR's automatic routing procedures, identify gaps or potential problems with current DPR evaluation or registration plans other regulations, procedures & policies.	Weekly review; obtain water quality assessments from DPR through public record requests; analyze and provide notification to CASQA members and partners as needed.
	Track activities at the Water Boards	Identify opportunities for improvements in TMDLs, Basin Plan Amendments, and permits.	Often weekly phone calls with Water Board staff; weekly review of noticed proceedings; review scientific information.
	Review regulatory actions, guidance documents, and work plans	Identify potential problems with current EPA evaluation or registration plans, other regulations, procedures, and policies.	According to need as identified by tracking activities (average of 6 per month).
Regulatory Communications	Briefing phone calls, informal in-person meetings, teleconference meetings, and emails with EPA and DPR	Information sharing about immediate issues or ongoing efforts; educate EPA and DPR about issues confronting water quality community. Provide early communication on upcoming proceedings that help reduce the need for time-intensive letters.	As needed, but often several times per week. In-person meetings with DPR and EPA Region 9 approximately quarterly and OPP about 1-2 times per year (due to budget limitations, these are always in association with advisory committee meetings and scientific conferences).
	Convene formal meetings, write letters and track responses to letters	Ensure current pesticide evaluation or registration process addresses potential water quality concerns, and take advantage of opportunities to formally suggest solutions to shift regulatory process in the future. Request and maintain communication on mitigation actions addressing highest priority pesticides.	Typically engage with regard to a dozen or so pesticides annually that could pose threats to water quality if EPA or DPR does not initiate certain procedures. Letters vary in length, but often are many pages and require many hours to write. As dockets are updated, review responses to comments and identify next opportunities. 4-6 meetings per year with DPR on mitigation actions.
Advisory	Serve on EPA, DPR, and Water Board policy and scientific advisory committees	Provide information and identify data needs and collaboration opportunities toward development of constructive approaches for managing pesticides.	Two to six meetings per committee per year. The PSC is currently represented on DPR's external advisory committee and has sporadic representation on water board panels related to pesticides.

Activity		Purpose	Level of Effort
Educational	Presentations to and informal discussions with EPA, DPR, Water Board, CASQA members, pesticide manufacturers, water quality researchers, and other collaborators.	Educate EPA, DPR, Water Board, and CASQA members about the problems with existing pesticide regulatory process, encourage change, and report on achievements. Encourage research and monitoring programs to address urban runoff data needs and priorities. Stimulate academic, government, or private development of analytical and toxicity identification methods to address anticipated urban runoff monitoring needs. Inform development of new pesticides by manufacturers and selection of pesticides by professional users.	As many as a dozen opportunities to present at water quality, pesticides and chemical conferences nationally. Additional 8-10 opportunities per year for state and regional events. Informal interactions weekly. Budget limits participation to just a few formal events because preparation of presentations and coordination with water quality community can take as much as 40 hours per opportunity.
	Developing and delivering public testimony	Educate Water Board members about the problems with existing pesticide regulatory process, encourage change, and report on achievements.	Two to three times per year. Preparation and coordination can take as much as 40 hours per opportunity.
Monitoring and Science	Track major urban runoff monitoring and pesticide scientific studies; review scientific literature, monitoring data, and government reports; and maintain reference database	Stay abreast of the latest scientific findings in order to identify pesticide priorities for monitoring and mitigation, to improve methods for identifying sources of pesticides in urban runoff, and to support input and discussions with regulators toward improving pesticide regulation, which is science-based.	About 10 important publications per month and a dozen meetings per year.
	Peer review EPA, DPR, and Partner work plans and reports	Provide insights and ensure that work plans and reports are utilizing latest science regarding urban pesticide use, fate and transport, and water quality impacts and study designs focus on the most important information gaps about urban runoff pesticides water pollution.	About 6 peer reviews per year, which can take up to 8 hours each.
	Update Pesticide Watch List based on new scientific and regulatory information	The Pesticide Watch List (Table 2) serves as a management tool to prioritize and track pesticides used outdoors in urban areas.	2-3 updates per year
	Develop urban conceptual models and track urban runoff numeric model development	Identify major sources of pesticides in urban runoff to focus identification of mitigation and prevention opportunities. Encourage better EPA and DPR predictive modeling to improve pesticide registration decisions.	1-2 modeling publications per month. Develop one conceptual model annually (20-40 hours).

Activity		Purpose	Level of Effort
	Data analysis of DPR/SWAMP/USGS/MS4 monitoring, pesticide use data, and information from scientific literature	Summarize data to educate CASQA members and water quality community, Water Boards, DPR, and EPA.	Detailed analysis is infrequent because finding, compiling, and analyzing data requires very high level of effort and funding. CASQA undertook a detailed monitoring summary in 2013. Report is available at www.casqa.org .
Reporting	Prepare Monthly Action Plans	Coordinate CASQA's regulatory actions with Partners	3 hours/month
	Prepare PSC Annual Report to describe the year's status and progress, provide detail on stakeholder actions, and the context of prior actions as well as anticipated end goal of these activities.	Provide CASQA's members with focused information on its efforts to prevent pesticide pollution in urban waterways. The document serves annual compliance submittal for both Phase I and Phase II MS4s. It may also be used as an element of future effectiveness assessment annual reporting.	Preparation and coordination takes about 50 to 60 hours.

Table 7. Anticipated Opportunities for CASQA and the UP3 Partnership Pesticides Regulatory Engagement in 2017-2018

EPA Pesticide Registration Review (15-year cycle)
<p><i>Environmental Risk Assessments</i></p> <ul style="list-style-type: none"> • Priority 1 pesticides: Pyrethroids, and Imidacloprid (Fipronil delayed until late 2018) • Priority 2-4 pesticides: 2,4-D, Abamectin, Carbaryl (Endangered Species Act pilot), Dichlobenil, Hydramethylnon, Indoxacarb, Pendimethalin, Phenoxy herbicides (2,4-DP; MCPA), Piperonyl butoxide (PBO) (pyrethroids synergist), Thiamethoxam, Thiophanate methyl/Carbendazim • Other opportunities: Clothianidin, Dinotefuran, Dithiopyr, Glyphosate (Endangered Species Act pilot) <p><i>Endangered Species Act Biological Evaluation</i></p> <ul style="list-style-type: none"> • Malathion <p><i>Proposed Decisions</i></p> <ul style="list-style-type: none"> • Copper, Spinosad, 7 pyrethroids (Imiprothrin, Momfluothrin, Prallethrin, Sumethrin, Tau-fluvalinate, Tefluthrin, Tetramethrin); swimming pool products; others (schedule unknown)
DPR New Pesticide Registration Decisions
<ul style="list-style-type: none"> • Momfluorothrin (new pyrethroid, 5 products) • Storm drain antimicrobial and root control products (2 products, including first dichlobenil product) • New urban indoxacarb product (proposed new outdoor uses) • Four new fipronil products (proposed expanded fipronil use) • Fipronil professional product label changes to implement urban runoff protections (2 products)
Other DPR-related Items
<ul style="list-style-type: none"> • Fipronil mitigation measure implementation including outreach to professional applicators and effectiveness monitoring • Pyrethroids – possible updates to water quality protection regulations and/or implementation of other mitigation measures • Updates to Methodology for Evaluating Pesticide Registration Applications for Surface Water Protection – development of new and updated modules to continue to improve accuracy of urban evaluations. • Registration Application Surface Water Reviews – continue to follow up on communications requesting review of all storm drain products, outdoor antimicrobials, and swimming pool additives
Water Boards
<ul style="list-style-type: none"> • STORMS urban pesticides reduction draft language for a Basin Plan Amendment • Current-use urban pesticides TMDLs and Basin Plan Amendments: <ul style="list-style-type: none"> ○ Central Valley Water Board pyrethroids (approved by region; awaiting State Water Board approval), and diuron ○ Central Coast Lower Salinas River Watershed pyrethroids / toxicity TMDL • Pesticide TMDL implementation requirements for permittees

Appendix –Summary of STORMS Urban Pesticides Amendments Project²⁰

For more information about the Urban Pesticides Amendments Project, the latest web page and Factsheet are provided below.

Strategy

☐ Phase I

- [1a. Promote Storm Water Capture and Use](#)
- [1b. Identify and Eliminate Barriers to Storm Water Capture and Use](#)
- [3a. Develop Guidance for Alternative Compliance and Management Guidelines and Tools](#)
- [3b. Develop Watershed-Based Compliance and Management Guidelines and Tools](#)
- [4a. Implement Senate Bill 985 - Incorporate Principles of Storm Water Resource Plan Guidelines into Storm Water Programs](#)
- [4b. Eliminate Barriers to Funding Storm Water Programs and Identify Funding for Storm Water Capture and Use Projects](#)
- [5a. Create Storm Water Program Data and Information "Open Data"](#)
- [6a. Establish Statewide Framework for Urban Pesticide Reduction](#)
- [6b. Identify Opportunities for Source Control and Pollution Prevention](#)

☐ Phase II

☐ Phase III

FEEDBACK

You may provide feedback on the Storm Water Strategy by submitting the [STORMS Feedback Form](#).

WHAT'S NEW

Update: 04/27/2017

→ [Public Comments for the Urban Pesticides Amendments CEQA Scoping](#)

Update: 03/21/2017

→ Public comments for the Urban Pesticides Amendments CEQA Scoping are due by **Friday, March 31st**

→ [Comment submission instructions](#)

→ [View the recorded CEQA Scoping Meeting from March 14th](#)

→ [CEQA Scoping PowerPoint presentation](#)

Update: 02/06/2017 – Public Scoping Meetings for Proposed Urban Pesticides Amendments

→ The State Water Board will hold two California Environmental Quality Act (CEQA) Scoping Meetings to seek input on the proposed Urban Pesticides Amendments. More information can be found in the following Public Notice and Scoping Document:

→ [Notice](#)

→ [Scoping Document](#)

→ Meeting Dates and Locations:

- March 14th, 2017 in Sacramento
 - [Webcast Information](#)
- March 17th, 2017 in Alhambra

Update: 09/23/16

→ Three work teams have been created and are in the process of developing the following draft products:

→ Coordination framework for working with U.S. EPA and DPR on urban pesticide reduction

→ Statewide urban pesticides/toxicity monitoring coordination framework

→ Minimum pesticides source control requirements for urban storm water permittees

Update: 08/24/16

→ Statewide Urban Pesticides Reduction [Fact Sheet](#)

STORMS OBJECTIVE 6

Increase Source Control and Pollution Prevention

STORMS GOAL 4

Collaborate in Order to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches

PROJECT INFORMATION	
Start	2016
Completion	2018
Prerequisite	None
Executive Sponsors	Tom Mumley
Lead Staff	Noelle Patterson (916) 341-5280
Support Staff	Matthew Freese (916) 341-5485
Performance Metrics	Attachment

Factsheet provided on the following two pages

²⁰ http://www.swrcb.ca.gov/water_issues/programs/stormwater/storms/obj6_proj6a.shtml



Fact Sheet

p. 40

Statewide Urban Pesticides Reduction

What are the Urban Pesticides Amendments?

The [Strategy to Optimize Resource Management of Storm Water](#) (STORMS), adopted by the State Water Board in January 2016, aims to lead the evolution of storm water management in California by advancing the perspective that storm water is a valuable resource, supporting policies for collaborative watershed-level storm water management and pollution prevention, and integrating regulatory and non-regulatory interests. Under Objective 6 of STORMS (increase source control and pollution prevention), the State Water Board is developing a statewide framework for urban pesticides reduction (Urban Pesticides Amendments) that will employ a multi-agency approach calling on participation from the Water Boards, municipalities, and state and federal pesticide regulators.

A primary goal of the statewide Urban Pesticides Amendments is to improve collaboration among regulators, leading to better management of pesticides in urban runoff. The statewide Urban Pesticides Amendments will also organize coordinated pesticides and toxicity monitoring and data sharing, and establish consistent minimum pesticides control efforts for MS4 storm water permittees.

Why are the Urban Pesticides Amendments needed?

Pesticides applied on outdoor surfaces in urban areas have the potential to wash off during storm events or as a result of over-irrigation, and may end up in rivers, lakes, streams, and the ocean. Pesticides in urban runoff can be harmful to aquatic organisms, and could potentially contribute to human health risks if discharged in or near drinking water sources. The Water Boards have identified over 100 waterbodies on the 303(d) list of impaired waterbodies as exceeding pesticide water quality standards with urban runoff attributed as the potential source. As monitoring increases and monitoring methods improve, more waterbodies are expected to be listed as impaired for pesticides. These 303(d) listings generally require the development of Total Maximum Daily Loads or TMDLs, which are then incorporated in MS4 permits as an effort to attain water quality standards.

Control of pesticide discharges in urban runoff falls under the responsibility of the operators of municipal separate storm sewer systems (MS4s), whose discharges are regulated by the State and Regional Water Boards under Clean Water Act MS4 permits. However, State law does not allow local authorities to limit pesticides sale and use. Municipalities therefore must focus on source control and urban runoff reduction efforts to control pesticides in their discharges. While these efforts by MS4s may be able to reduce pesticides in runoff, they may not be able to reduce pesticide concentrations far enough to consistently meet water quality standards.

The most effective way to reduce urban pesticide-related impairments now and into the future is source control through coordination with state and federal pesticide regulators. It is important to note that these regulators have different legal mandates than the Water Boards in regulating pesticide use. While coordination with these agencies will require a commitment of time and resources, it will likely be the most effective pollution prevention measure. Successful coordination in the past between water quality regulators, pesticide regulators, municipalities, and others through partnerships such as the Urban Pesticides Pollution Prevention Partnership has led to significant improvements in pesticide use regulation for the protection of



CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD
1001 I Street, Sacramento, CA 95814 • Mailing Address: P.O. Box 100, Sacramento, CA 95812-0100 • www.waterboards.ca.gov





water quality. A statewide framework for working with pesticide regulators would ensure these efforts can continue to grow and provide a more efficient, effective, and consistent approach to addressing and preventing pesticides-related water quality pollution.

How are the Amendments being developed?

The Urban Pesticides Amendments team is a collaboration of representatives from the State Water Board, the San Francisco Bay and Central Valley Regional Water Quality Control Boards, U.S. EPA Region 9, the California Department of Pesticide Regulation, and municipality representatives from the California Stormwater Quality Association (CASQA). The project is additionally guided by the STORMS Implementation Committee, which includes representatives from the business community and environmental advocacy groups.

A statewide plan for urban pesticides reduction would be established through an Amendment to the Inland Surface Waters, Enclosed Bays, and Estuaries Water Quality Control Plan, and to the Water Quality Control Plan for Ocean Waters of California. The plan would include the following elements:

1. Coordination framework for working with U.S. EPA Office of Pesticide Programs and the Department of Pesticide Regulation to reduce and prevent pesticide impairments in urban water bodies;
2. Minimum pesticides control measures for municipal storm water permittees and model permit language; and,
3. Statewide monitoring coordination framework for pesticides and toxicity between the Water Boards, Department of Pesticide Regulation, and municipal storm water permittees, including improved data management that facilitates improved data flow.

Stakeholder Outreach

Stakeholder outreach will occur initially through the STORMS Implementation Committee of stakeholders, which includes primary participation by representatives from the California Stormwater Quality Association, the California Coast Keepers Alliance, the Association of California Water Agencies, and the California Council for Environmental and Economic Balance. Additional public stakeholder meetings and outreach will be held as needed. Public review and comments on the proposed Amendment will be solicited during CEQA Scoping and the public review period in spring of 2017. Following responses to comment the proposed Amendment will be brought to the Board in winter 2018 for potential adoption by the State Water Board at a public meeting.

Proposed Timeline

Spring 2016: Project work teams established
Fall 2016: CEQA Scoping
Spring 2017: Release documents for public review and comment
Winter 2018: Consideration for adoption by State Water Board

How Can Interested Persons Stay Updated and Be Involved

For more information about the project visit the State Water Board's [STORMS webpage](#) or contact Noelle Patterson, Noelle.Patterson@waterboards.ca.gov.

To receive update email notifications of project development and public notices and/or workshops, please sign up to the STORMS email [subscription list](#), select "Water Quality," and check the box for "Storm Water Planning."

This fact sheet was last updated on October 25, 2016.