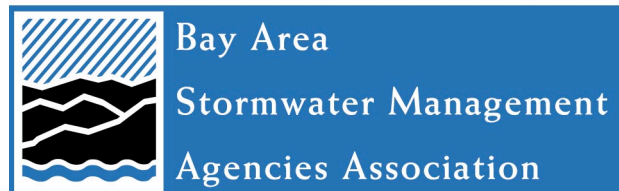


Annual Reporting for FY 2015-2016

Pesticide Toxicity Regulatory Modernization

San Francisco Bay Area Small MS4 Permit Implementation

B A S M A A



October 2016

Introduction

This report provides information on regionally implemented activities complying with portions of the Small Municipal Separate Storm Sewer System (MS4) [Phase II Permit](#) issued by the State Water Resources Control Board (Water Board). The Phase II Permit covers stormwater discharges from 23 municipalities and special districts (Permittees) in the North San Francisco Bay Area. This report covers pesticide toxicity regulatory modernization activities implemented through the Bay Area Stormwater Management Agencies Association (BASMAA) related to the following Phase II Permit provisions:

- E.7.a.(ii)(i) – Develop and convey messages specific to proper application of pesticides, herbicides, and fertilizers
- E.11.h. – Permittee Operations and Maintenance Activities (O&M)
- E.11.j. – Landscape Design and Maintenance
- E.15.a. / Attachment G – Implement Pesticide-Related Toxicity Control Program

Effecting regulatory modernization occurs at the State and Federal level. Recognizing that fact, the Permittees have taken an approach to modernizing pesticide regulations that involves cooperating with BASMAA, the California Stormwater Quality Association (CASQA), and/or the Urban Pesticide Pollution Prevention Project (UP3 Project). All of these entities have determined this cooperative approach is not only the most likely approach but is likely the only approach for local agencies to effect meaningful change in the State and Federal regulatory environments.

The actual work of tracking and participating in the ongoing regulatory efforts related to pesticides was accomplished through CASQA. The Phase II and Phase I Permittees made contributions to CASQA through BASMAA. CASQA conducted its activities on behalf of its contributors and its 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 2015-16 was another productive year for the Subcommittee. The CASQA Pesticides Subcommittee's annual report for FY 2015-16 (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.

Pesticides Subcommittee Annual Report and Effectiveness Assessment 2015 - 2016

California Stormwater Quality Association



Final Report
August 2016

Pesticides Subcommittee Annual Report and Effectiveness Assessment
2015-2016

California Stormwater Quality Association

August 4, 2016

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, assisted by Jamie Hartshorn, 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.

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Abbreviations Used in this Report

ACS – American Chemical Society

CASQA – California Stormwater Quality Association

CWA – Clean Water Act

DPR – California Department of Pesticide Regulation

EPA – United States Environmental Protection Agency

ESA – Endangered Species Act

FY – Fiscal Year (July 1 through June 30)

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

PEAIP – Program Effectiveness Assessment and Improvement Plan

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

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
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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 2015-16 activities and outcomes are described in Section 2. This year's highlights include the State Water Board's urban pesticide reduction 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 has conferred with manufacturers, announced plans to initiate formal regulatory action, and initiated both numeric modeling and experimental studies to validate potential mitigation strategies to reduce fipronil use on impervious surfaces directly flowing to gutters/storm drains. (See Table 3.)
- 💧 In direct response to continued communication from CASQA and UP3 regarding **pyrethroid** water pollution in urban areas, DPR is expanding its pyrethroid monitoring and enforcement programs, partnering with local governments 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). (See Table 3 and Section 2.4.)



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. The project recognizes "source control through pesticide regulatory authorities as a primary mechanism for addressing pesticide-caused water quality impairments," which has been a cornerstone of CASQA's goals for addressing pesticides in urban water bodies. As a priority project, it has executive level sponsorship, assigned staff support, and an aggressive timeline. The project is expected to culminate with a 2017 adoption of a statewide Water Quality Control Plan amendment for urban pesticides reduction. (See Section 2.4.)

- 💧 Based on information provided by CASQA, EPA’s review of the herbicide **triclopyr** will include urban use (previously overlooked) as well as sales and use data available from DPR. Further, EPA will consider a degradate in its analysis, which may be more toxic than the parent chemical. *(See Table 3.)*
- 💧 Based in part on a UP3 request, to support its review of the wood preservative **creosote**, EPA is requiring a “*Leaching study for release of creosote components from creosote impregnated wood*” to better identify the **polycyclic aromatic hydrocarbon (PAH)** species in leachate. *(See Table 3.)*
- 💧 In direct response to communication from CASQA and its UP3 Partners, DPR agreed to route three storm drain pesticide product registration applications to its surface water program for review. (While most outdoor urban pesticide registration applications automatically receive surface water review, storm drain antimicrobial products do not.) *(See Table 3.)*
- 💧 Due in part to information shared with EPA by CASQA and the Water Boards over the last decade, manufacturers have withdrawn all **tributyltin** products from the urban marketplace *(See Section 2.1.)*

(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?

- 💧 EPA is currently reworking its water quality risk assessment methods to integrate Endangered Species Act (ESA) compliance. CASQA representatives communicated to EPA the importance of retaining specific elements of a traditional risk assessment. Outcomes cannot yet be assessed. *(See Page 17.)*
- 💧 DPR’s special study on pyrethroids includes a detailed examination of its systems for regulating urban professional pesticide applicators, with the goal of determining if changes are needed to ensure their effectiveness.
- 💧 DPR and the State Water Board initiated an update to their Management Agency Agreement to improve and formalize the systems that the two agencies have in place to work together to prevent pesticide toxicity in California water bodies.
- 💧 CASQA prepared comment letters to EPA for 3 pesticide reviews, provided the Water Boards information that triggered 3 additional comment letters, wrote 2 letters to DPR on its registration processes, 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 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.)*
- 💧 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.)*

In FY 2016-2017, CASQA plans to undertake numerous activities 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:

- 💧 The immediate need to participate in pyrethroid, fipronil, and imidacloprid regulatory actions (the only such opportunity for these chemicals over the next 15 years).
- 💧 The opening of a strategic window of opportunity to improve urban water quality risk assessments created by EPA's revision of its pesticide risk assessment procedures to comply with the ESA.
- 💧 A chance to leverage our recent success at the state level and continue to be a key stakeholder in the development of a statewide Water Quality Control Plan amendment for urban pesticides reduction.

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 2015 through June 2016. 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.

Instead, EPA and DPR regulate pesticides, and their regulations in some cases have not adequately protected urban water bodies from adverse effects. Indeed, in 2013, CASQA compiled water and sediment sampling data that bears this out: pollution from some of the newer pesticides – pyrethroids and fipronil – is now present in nearly every urbanized area in California at concentrations above the EPA chronic Aquatic Life Benchmark for aquatic invertebrates in water.⁵

¹ Partners: USGS NACWA (national monitoring); other states; Water Board SWAMP (Statewide and 9 regions); DPR; POTWs; urban runoff programs; university researchers; pesticide manufacturers.

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.

⁵ Ruby, Armand. 2013. Review of Pyrethroid, Fipronil and Toxicity Monitoring from California Urban Watersheds.

Table 1. California TMDLs and Basin Plan Amendments Addressing Current-Use Pesticides in Urban Watersheds⁶

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	In preparation
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	In preparation
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

For years, CASQA members have creatively tried to work around their lack of regulatory authority over pesticide use by pioneering award-winning public outreach and integrated pest management programs that encourage less-toxic alternatives. Local agencies also conduct collection events for banned pesticide products at their own cost. These “source control” efforts have established an extremely important and growing movement toward less-toxic alternatives; however, these activities fail to sufficiently compensate for the root problem: as currently implemented, pesticide regulatory actions at the state and federal levels do not adequately account for and mitigate potential water quality impacts from urban pesticide uses.

Clearly, if we continue to conduct business as usual, more receiving waters will become impaired by urban pesticide use, and more local agencies will face increased monitoring, TMDLs, and permit requirements for pesticides (Figure 1). *CASQA is actively engaged with state and federal regulators in an effort to develop an effective regulatory system to identify urban uses of a pesticide that pose a threat to water quality and then restrict or disallow those uses proactively, thereby avoiding water quality impacts (Figure 2).*

⁶ 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.⁷

⁷ 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.

1.2 CASQA’s Goals and Application to PEAIIP Management Questions

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 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 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 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 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 MS4s’ Program Effectiveness Assessment and Improvement Plans (PEAIIP)⁸. 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’ PEAIPs:

⁸ The Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit Phase II (MS4 Permit) requires the development and implementation of a Program Effectiveness Assessment and Improvement Plan (PEAIIP).

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 PEAIIPs and future effectiveness assessment annual reporting.

Section 2: Results of CASQA 2015-2016 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.⁹ Two changes have been made since the Watch List was published in the 2014-15 PSC Annual Report – one indicating a rise in prioritization and one deletion.

Imidacloprid (in the “neonicotinoid” (neonic) family) was moved from Priority 4 to Priority 1. OPP is currently reviewing imidacloprid. New scientific information indicates that imidacloprid may have much greater toxicity to sensitive aquatic organisms than previously recognized. Meanwhile, imidacloprid use in California has increased substantially from 1996 through 2012 including products that are broadcast applied to outdoor impervious surfaces (e.g., a perimeter band around buildings to control ants).¹⁰

Tributyltin was deleted because manufacturers have withdrawn all products from the urban marketplace. Well known for the water pollution associated with its historic use in marine antifouling paint, tributyltin was also used as a preservative for indoor and outdoor

⁹ The first Watch List was published by the UP3 in 2010.

¹⁰ Simon-Delso, et al., Systemic insecticides (neonicotinoids and fipronil): trends, uses, mode of action and metabolites. *Env. Science and Poll. Research*, Vol. 22, 2015.

materials and a biocide with multiple applications. The only remaining federally approved use of tributyltin is for a very narrow application (preserving rubber in military sonar domes and oceanographic instruments). Old tributyltin products are likely to remain in the chain of commerce until used up, but these will eventually disappear.

Table 2. Current Pesticide Watch List (August 2016) ¹¹

Priority	Basis for Priority Assignment	Pesticides		
1	Monitoring data exceeding benchmarks; linked to toxicity in surface waters; urban 303(d) listings	Pyrethroids (20 chemicals ¹²)	Fipronil	Imidacloprid (neonic)
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 Chlorantranilprole Chlorothalonil (dioxins)	Copper pesticides Creosote (PAHs) Dacthal (dioxins) Indoxacarb	Malathion 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 DIDAC Dithiopyr Halohydantoins	Hydramethylnon Mancozeb MGK-264 Oxadiazon Oxyfluorfen Pendimethalin Phenoxy herbicides ¹³	Piperonyl butoxide Pyrethrins Spinosad/ Spinetoram Thiamethoxam (neonic) ¹⁴ Thiophanate-methyl Triclopyr Triclosan
New	New pesticides that may threaten water quality depending on the urban use patterns that are approved	Chlorfenapyr Clothianidin (neonic) Cyantranilprole	Cyclanilprole Dinotefuran (neonic) Flupyradifurone	Novaluron Thiacloprid (neonic)
None	No tracking trigger	Most of the 1,000 existing pesticides		
Unknown	Lack of information. No systematic screening has ever been completed for urban pesticides.	Unknown		

¹¹ The UP3 Partnership also watches two non-priorities pesticides (Glyphosate and Metaldehyde) due to frequent member questions about them.

¹² Allethrin, Bifenthrin, Cyfluthrin, Cyhalothrin, Cypermethrin, Cyphenothrin, Deltamethrin, Esfenvalerate, Etofenprox, Flumethrin, Imiprothrin, Metofluthrin, Momfluothrin, Permethrin, Prallethrin, Resmethrin, Sumethrin [d-Phenothrin], Tau-Fluvalinate, Tetramethrin, Tralomethrin.

¹³ MCPA and salts, 2,4-D, 2,4-DP, MCPP, dicamba

¹⁴ 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 as well as PEAIP Management Question 1 regarding observed pesticide-caused toxicity or exceedances of pesticide water quality objectives in surface waters receiving urban runoff.

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, this reduces the 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.¹⁵



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

¹⁵ See http://www.epa.gov/oppsrd1/registration_review/schedule.htm for schedule information.

While EPA must consider water quality in all of its pesticide registration decisions, a few outdoor urban pesticide registration applications are not yet routinely routed by DPR for surface water review. In 2015-16, CASQA and its members successfully requested that 3 storm drain products be routed by DPR for surface water review. DPR is considering CASQA's 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 reviews of pyrethroids and fipronil in urban runoff have occurred in response to CASQA and Water Board requests. These have involved ongoing communication with CASQA and the UP3 Partnership.

Table 3 presents a summary of recent UP3 activities and their associated results to address near-term regulatory concerns. All but two of the items listed in Table 3 represent activity conducted by CASQA and Partners during FY 2015-16. The triclopyr and creosote EPA registration review actions represent 2014-15 activities for which we have since obtained responses.

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. CASQA watches for 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 Board and DPR on the big picture (next section). Fewer letters were written than in past years, in part because the EPA review schedule did not include any public comment opportunities on the highest priority pesticides and because DPR now routinely routes most new outdoor urban pesticide registration applications for surface water review. The most significant comment letter may have been that for malathion, for which the EPA published a biological evaluation (in response to ESA litigation), rather than a traditional risk assessment. (*See page 17 for details.*) As our comments were just submitted in June, it is too early to discern any outcome.

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 that of working to influence EPA OPP to ensure positive outcomes from its registration reviews of the pyrethroids, fipronil, and imidacloprid.***

Table 3. Results of Recent Efforts Communicating Near-Term Regulatory Concerns¹⁶

Regulatory Action or Concern	CASQA Efforts			Partner Support	Outcomes and notes
	Letter(s)	Call(s)	Mtg(s)		
DPR					
Fipronil and Pyrethroids			✓		Promising. In February 2016, CASQA and Water Board representatives met with DPR for an update regarding its fipronil and pyrethroid activities. DPR has decided to pursue mitigation of fipronil during 2016. The next update will be in summer 2016.
Indoxacarb product application process				SFBRWQCB	Success! DPR agreed to route this registration application to its surface water program for review.
Oblitroot Dichlobenil storm drain product	✓				Success! DPR routed this registration application to its surface water program for review.
Fabguard registration application				SFBRWQCB	Success! DPR routed this registration application to its surface water program for review.
Registration applications – all storm drain products – request automatic routing for surface water review	✓				Pending
EPA					
Pyrethroids Registration Review				UP3	Pending. In September 2015, UP3 representative spoke with EPA to continue to share information and insights with OPP to assist it with developing a scientifically sound, complete, straightforward risk assessment that provides a solid basis for identification of specific risk management measures. (Instead of completing 18 separate water quality risk assessments for 18 pyrethroids, OPP will prepare a joint risk assessment that it anticipates releasing for public review in September 2016.)
Fipronil Registration Review		✓		UP3	Pending. CASQA is continuing to provide information and insight via teleconference meetings and emails; the preliminary risk assessment is anticipated in December 2016.

¹⁶ 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)		
Creosote Registration Review				SFBRWQCB	Partial Success. While the EPA originally focused on only 8 PAHs (and associated 303(d) listings), we requested that the toxicity associated with any PAHs be reviewed in order to better understand the water quality impacts of these chemical mixes. Based in part on our request, the EPA is requiring a “Leaching study for release of creosote components from creosote impregnated wood” to better identify leachate composition. The risk assessment will use the information from these studies as well as any relevant open literature to assess acute and chronic risks of creosote leached from wood structures. While this still does not address mixes of PAHs that may be in a water body due to a variety of sources, including creosote, EPA is attempting to more accurately characterize the leachate.
Ziram and Chromated Arsenicals Preliminary Workplan				SFBRWQCB	Negative outcome. While we requested that workplans for metal-based pesticides reflect the many related 303(d) listings and TMDLs associated with these metals, the EPA concluded that zinc is not a degradate of ziram so will not include zinc 303(d) listings. Further the EPA appears to only consider the locations where the wood product is treated with the chemical rather than the eventual location of the treated wood (e.g., treated wood placed in water).
Malathion Biological Evaluation (Registration Review risk assessment substitute document)	✓	✓		BACWA SFBRWQCB	Pending. We cited numerous concerns as it appears that the EPA intends to use an onerous and largely not replicable Biological Evaluation (part of an ESA consultation) as a replacement for the typical risk assessment in Registration Review. See the detailed discussion on page 17.
Diuron Registration Review Preliminary Workplan	✓				Pending. EPA virtually ignored urban uses despite DPR’s database indicating that urban uses, particularly for rights-of-way, are quite significant. We provided these data and further requested that use patterns and leaching rates from paints, caulks, and sealants be included in modeling, particularly for urban areas, so that mitigation opportunities can subsequently be identified. We also requested that urban uses be accurately modeled to assess their fate and transport from application sites to receiving waters.

Regulatory Action or Concern	CASQA Efforts			Partner Support	Outcomes and notes
	Letter(s)	Call(s)	Mtg(s)		
Triclopyr Registration Review Workplan	✓				Success. Triclopyr is among the most commonly detected pesticides in urban watersheds and is a DPR urban monitoring priority. The draft EPA work plan appeared to be unaware of urban uses and data available from DPR. The CASQA letter also drew attention to the issue of persistent toxic degradates. EPA's response indicates they will recognize the urban uses of triclopyr and look more thoroughly at its degradate, TCP, which may be more toxic than the parent chemical.
Chlorfenapyr Proposed Interim Reregistration Review Decision	✓			SFBRWQCB	Pending. We requested that the labeling be consistent with that of pyrethroids to avoid a pre-construction exposure pathway, and mitigate potential contamination from outdoor uses generally, while maintaining the chemical as a pest control option in urban areas.

EPA's Response to ESA Litigation May Impact Risk Assessment Process

In response to ESA litigation, the EPA released a set of documents in April for public comment: "Draft Biological Evaluations: Chlorpyrifos, Diazinon, and Malathion Registration Review." Such biological evaluations (BEs) are part of an ESA consultation process. CASQA is pleased that the EPA and the Fish and Wildlife Service (FWS) are cooperating to address endangered species in pesticide registration review but we have the following concerns that this may undermine the traditional risk assessment process:

1. **The BEs did not address sensitive aquatic species.** In a traditional risk assessment, sensitive non-endangered species (particularly aquatic invertebrates) are identified and considered in order to develop appropriate mitigation measures protective of all species.
2. **The BE approach may create a regulatory gap for agencies with CWA permits.** The EPA's OW develops water quality criteria to be protective of aquatic ecosystems, i.e., all organisms and their supportive habitat, including endangered and non-endangered species. Rather than use EPA's own water quality criterion, the malathion BE used an effects threshold well above it. Further, the EPA's water quality criterion is far lower than the estimated environmental concentration in virtually every model scenario in the draft BE and lower than surface water concentrations occasionally measured in both urban and agricultural areas.
3. **The BE approach does not provide an opportunity to publicly comment on environmental risks and subsequent mitigation analysis.** Typically a risk assessment is the last opportunity for public comment prior to the Registration Review decision. If EPA employs a BE in the place of a risk assessment, then it is possible that assessment of environmental risks (which forms the essential groundwork for development of mitigations) could be outside of a public discourse.
4. **The profoundly detailed analysis will not be replicable for the vast majority of urban pesticides.** EPA indicated that these BEs are meant to be the pilot for a new ESA consultation process. However, the analysis completed is unlikely to set the stage for future ESA pesticide consultations because the extent of the ecotoxicity data will not be matched for most other pesticides, for which only a small set of aquatic toxicity data are available.
5. **Urban uses were not handled in a manner that will lead to practical and effective mitigation measures.** In the BEs, urban and agricultural information were not addressed separately. Due to differences in use patterns and transport pathways, urban areas require customized risk assessments and mitigation strategies. Unless risk assessments separate urban and agricultural areas, EPA will not obtain an understanding of the factors in the use of a pesticide (e.g., application surface, quantity, timing) that link to instances of water pollution. Without this understanding, EPA lacks the scientific insights to support development of practical and effective urban mitigation strategies.

Since EPA has indicated it is considering modifying its Registration Review process based on its experience with these draft BEs, CASQA views this as a strategic opportunity to engage EPA in a dialogue regarding this pilot process and its relationship to OPP's Registration Review process.

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. These efforts directly relate to PEAIIP Management Question 2: “Do pesticides regulators have an effective system in place to exercise their regulatory authorities to prevent pesticide toxicity in urban water bodies?”

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 2015-16 outcomes achieved and identifies issues that need to be addressed to achieve CASQA’s goals.

Table 5 presents the communication, educational outreach, and advisory efforts of the past year. 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.

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

Goal	Agency	Topics Influenced	Latest (2015/16) 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 emailed or written requests by CASQA/UP3.	Surface water evaluation automatically conducted for all outdoor, uncontained pesticides. More transparent DPR registration notices. Aquatic toxicity and environmental fate data requirements sufficient to support quantitative evaluation of pesticides and degradates in water and sediment. Regulatory authority for outdoor pesticide-impregnated materials.
		Pesticide Registration Surface Water Evaluation	DPR added an urban module that explicitly addresses impervious surfaces and other key characteristics of urban environments. ¹⁷	Finalize methodology modifications to address stable, toxic degradates. Improve methods to model the full range of outdoor urban pesticide applications, and improve urban runoff modeling accuracy (see below).
		Urban Runoff Modeling	DPR published a California urban modeling scenario to use with existing EPA models and continued working on more detailed urban runoff modeling.	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 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.

¹⁷ Luo, Y. (2014). *Methodology for Evaluating Pesticides for Surface Water Protection III. Module for Urban Scenarios*. Calif. Department of Pesticide Regulation, Sacramento CA.

Goal	Agency	Topics Influenced	Latest (2015/16) 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 expanded requirements for sediment toxicity data, used predictive methods to justify important new requirements for environmental fate and toxicity data for key degradates, and required salt water aquatic toxicity data more often.	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	The EPA updated its water quality benchmarks and sediment toxicity concentration reference values for fipronil and degradates and for pyrethroids.	
		Effects Assessment	OPP started to include sediments in risk assessments on a routine basis.	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 (2015/16) Outcomes	Remaining Issues to Address to Achieve CASQA Goals
2 – Coordination Between Pesticide Regulators and Water Quality Regulators	DPR & Water Boards	Effects assessment	DPR determined 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 has initiated an urban pesticide reduction project. By December 2016, Board staff is poised to develop language for a Water Quality Control Plan amendment targeting urban pesticides.	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	Adopted Santa Maria River pyrethroids TMDL and proposed Salinas River and Central Valley pyrethroids TMDL recognize that DPR and EPA should be lead in addressing pesticides. Central Valley’s proposed regulatory approach includes MS4 monitoring and numeric triggers that would require implementation of management plans, including education and outreach and coordination with DPR.	Ensure that all future urban pesticide 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. OW kicked off a process to review its 1985 Guidelines for developing water quality criteria and invited OPP’s participation.	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 (2015/16) Outcomes	Remaining Issues to Address to Achieve CASQA Goals
3 – Use of Regulations and Statutes to Solve Pesticide-Related Impairments	DPR	Pyrethroids	DPR’s monitoring and enforcement programs are partnering with the Placer County Agricultural Commissioner and the City of Roseville to examine non-professional use of pyrethroids and DPR’s urban regulatory programs (<i>See Section 2.4</i>). DPR continued monitoring and other work to evaluate the effectiveness and level of compliance with the regulations.	Increased enforcement and follow up actions as necessary to achieve water quality improvements and eventually end pyrethroids-caused toxicity in California urban watersheds
		Fipronil	DPR has decided to take action to reduce fipronil in urban runoff. DPR has both numeric modeling (DPR staff) and experimental studies (UC Riverside) underway to validate potential mitigation strategies to reduce fipronil use on impervious surfaces directly flowing to gutters/storm drains. Although DPR has announced its intent to develop regulations, it is meeting with manufacturers and is still hopes that the two manufacturers of structural pest control products will voluntarily agree to change product labels.	Implementation of any mitigation actions necessary to reduce concentrations of fipronil and degradates below benchmarks / toxic concentrations in in California urban watersheds.
	EPA	Pyrethroids and Fipronil Registration Reviews	EPA is continuing its single risk assessment for all pyrethroids	EPA implementation of actions to mitigate risks associated with products not readily regulated by DPR (consumer products, impregnated materials). Clear label language consistent with DPR regulations and DPR’s agreement with bifenthrin manufacturers for extra mitigation measures.








Goal	Agency	Topics Influenced	Latest (2015/16) 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. The scope for the anticipated State Water Board’s Urban Pesticide Reduction Project includes coordinating pesticide/toxicity monitoring.	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’s Pest Management Alliance Grants, for which the PMAC reviews proposals, continues to include urban IPM as an eligible category. Two of the projects invited to submit full proposals focused on urban pest management issues (Argentine ant control and pollinator protection in urban landscape), although no urban projects were recommended by the PMAC for funding by DPR.
Cal-EPA’s Urban Pesticide Reduction Project	Promising. PSC is participating in on-going work-teams with DPR and Water Board staff to develop the statewide framework for urban pesticide reduction. Anticipate next steps in 2016 and final outcome in 2017.
US EPA’s advisory committee, Pesticide Program Dialogue Committee (PPDC)	A PSC member has served on this OPP external stakeholder advisory committee in the past; there is not currently a PSC member on the 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 rulemaking process is on hold pending evaluation of the effect of proposed US EPA training requirements for applicators of restricted materials. The SPCB also began consideration of mechanisms, such as increased auditing, to ensure the quality of continuing education courses
University of California Statewide IPM (UCIPM)	Success! A PSC member was appointed to UCIPM’s Strategic Planning Committee. Resulting final draft strategic plan includes key actions to “expand efforts to reach urban IPM clientele.” PSC member was appointed to selection committee for new UCIPM Director. Next steps to include meeting with incoming UCIPM director and Urban Associate Director to ensure awareness of and continued attention to CASQA issues regarding urban pesticides and pest management issues.
CASQA Conference	Presentation at conference by the City of Santa Barbara Creeks Division: " Neonicotinoid Pesticides: Not Just a Bee Problem " (Oct. 21) The objective was to inform members that neonicotinoid pesticides are widespread in urban runoff and potentially causing chronic, cumulative toxicity in receiving waters.
State of the Estuary Conference (SF)	Presented scientific poster: “Fipronil Water Pollution and Its Sources” (Sept. 17)

As presented in Tables 4 and 5, CASQA has been actively involved in guiding 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 5. CASQA’s Assessment of Recent Progress and Remaining Gaps Relative to Long-Term Goals¹⁸

CASQA’s Long-Term Goals	Progress Assessment	Assessment Basis
DPR and State Programs		
	<i>Maximum possible: 5 drops</i>	
1. Effective proactive evaluations		<i>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.</i>
2. Coordinated regulatory bodies		<i>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.</i>
3. Effective use of regulations and statutes to solve and prevent pesticide impairment		<i>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.</i>
4. Coordinated state monitoring		<i>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.</i>
EPA OPP and OW Programs		
1. Effective proactive evaluations		<i>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).</i>
2. Coordinated regulatory bodies		<i>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.</i>
3. Effective use of regulations and statutes to solve and prevent pesticide impairment		<i>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.</i>

LEGEND



The number of drops, out of 5 possible, is intended as a *qualitative* representation of our overall perception of progress in the regulation of pesticides, relative to CASQA’s long-term goals.

¹⁸ 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. In particular, the state's Urban Pesticide Reduction Project and DPR's review of the implementation of its urban surface water protection pyrethroids regulations are examples of state resources now being devoted to both the management and scientific evaluation of pesticide impacts to urban waterways.

Urban Pesticide Reduction Project

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.¹⁹ To date, the State Board is demonstrating commitment through policy as well as staffing, management support, executive sponsorship and involvement, and an aggressive timeline. This commitment by the State Water Board stems from a November 2014 workshop that it held, in response to CASQA's request, to review collaboration with DPR toward resolving and preventing adverse water quality impacts associated with urban-use pesticides.



*"The goal of this Urban Pesticides Reduction project is to establish statewide source control efforts for pesticides in urban storm water. The main project deliverable is a statewide Water Quality Control Plan amendment for urban pesticides reduction, which will establish a program of implementation for urban pesticide (and related toxicity) water quality standards (numerical and narrative water quality objectives and antidegradation) that will recognize source control through pesticide regulatory authorities as a primary mechanism for addressing pesticide-caused water quality impairments."*²⁰

The current project scope directly correlates to CASQA's goals illustrating that the State Water Board is poised to embrace CASQA's vision for pesticide control. The project is planned to culminate with a 2017 adoption of a statewide Water Quality Control Plan amendment for urban pesticides discharges that will:

- (1) Recognize one of the primary mechanisms for urban pesticide pollution prevention is through use management under the authority of agencies that regulate pesticide use.
- (2) Establish a framework for working with DPR and U.S. EPA OPP to improve pesticide evaluation and mitigation processes.

¹⁹ 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/)

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

- (3) Establish a framework for coordinating pesticide/toxicity monitoring by appropriate agencies.
- (4) Establish minimum source control efforts for urban storm water permittees.

CASQA, on invitation of State Water Board staff, is an active participant in a stakeholder committee tasked with fleshing out this project. Water Board Regions 2 and 5, DPR, U.S. EPA Region 9, and CASQA are all meeting regularly and frequently with the State Board to move this 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’s Review of Urban Surface Water Protection Pyrethroids Regulations Implementation

DPR has initiated a comprehensive effort to review and evaluate the implementation of its urban surface water protection pyrethroids regulations, including both the “preventive” components (such as local outreach and management practices to reduce runoff) and the “responsive” components (including mitigation options and regulatory approaches). A recent key part of these efforts is a special study in which DPR has partnered with the City of Roseville and the Placer County Agricultural Commissioner to evaluate urban bifenthrin use.²¹ The bifenthrin study focuses on all major aspects of DPR’s urban regulatory programs including use, compliance and enforcement, and reporting (Table 6). This focused project is expected to provide considerable insight on DPR’s urban programs that may lead to statewide actions.

Table 6. DPR’s Bifenthrin Study Is Evaluating Both Preventive and Responsive Approaches ²²

Identified Objectives of the DPR Bifenthrin Evaluation	Preventive Components (data quality, training, outreach)	Responsive Components (mitigation and enforcement)
1) Investigate potential errors in the Pesticide Use Reporting (PUR) bifenthrin data.	✓	
2) Determine trends in PCB bifenthrin use in urban Placer County.	✓	
3) Identify bifenthrin products available to non-professional users.	✓	
4) Identify and evaluate contributions of potential sources of bifenthrin not addressed by 3CCR 6970 to urban runoff load. ²³	✓	
5) Assess the level of 3CCR 6970 compliance by professional applicators.		✓
6) Assess consistency and adherence of bifenthrin labels to DPR’s MOA with registrants for designated bifenthrin products.		✓

²¹ Bifenthrin is the pyrethroid most frequently detected above toxicity thresholds in urban monitoring studies.

²² http://www.cdpr.ca.gov/docs/emon/pubs/protocol/study303_pyrethroids.pdf

²³ 3CCR 6790 refers to the California Code of Regulations, Surface Water Protection in Outdoor Nonagricultural Settings.

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.²⁴ Meeting our end goals at the federal level continues to be critical to the achievement of our end goals for addressing pesticides. In FY 2016-2017, we propose to increase engagement 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, 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; and
- 💧 a chance to leverage our recent success at the state level.

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:

- Obtain DPR action on fipronil water pollution
- Ensure DPR enforces mitigation measures for pyrethroids and adopts additional measures if necessary
- Ensure the state continues to conduct surveillance monitoring to evaluate pyrethroids (and fipronil) mitigation effectiveness
- Initiate discussions with DPR on imidacloprid water pollution. To support these discussions, develop a conceptual model of imidacloprid sources in urban runoff and work with UP3 partners to assemble scientific publications with relevant toxicity and monitoring data.

²⁴ Activities in 2017 are subject to available funding.

- Encourage EPA to establish scientific groundwork for implementation of pyrethroids, fipronil, and imidacloprid mitigation measures, in case necessary mitigation cannot be implemented entirely by DPR

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

- Leverage our recent success at the state level and continue to be a key stakeholder in the STORMS project that is developing a statewide Water Quality Control Plan amendment 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 refines its registration procedures to address gaps in water quality protection.
- Encourage EPA to develop robust urban surface water risk assessment procedures for pesticide reviews
 - Focus on priority pesticides, particularly the pyrethroid family, fipronil, and imidacloprid, for which there will be public input opportunities
 - Focus on completing effort to improve OPP urban runoff modeling procedures and continued efforts regarding consistency with OW regarding effects assessment and risk assessment timeframes
 - Discourage OPP’s apparent approach of substituting ESA consultation for a typical risk assessment, 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 7. Types of Activities Undertaken 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.
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, report on achievements. Encourage research and monitoring programs to address urban runoff data needs and priorities. Stimulate academic, government, or	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

Activity	Purpose	Level of Effort	
	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.	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, 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.	
	Peer review EPA, DPR, and Partner work plans and reports	About 10 important publications per month and a dozen meetings per year.	
	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).
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 . CASQA/UP3 summarized information on fipronil water pollution and its sources in 2014 and 2015 in a presentation and scientific poster.	

Activity	Purpose	Level of Effort
Prepare Monthly Action Plans	Coordinate CASQA's regulatory actions with Partners	3 hours/month
Reporting	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 PEAIPIs and future effectiveness assessment annual reporting.
	Preparation and coordination takes about 50 to 60 hours.	

Table 8. Anticipated Opportunities for CASQA and the UP3 Partnership Pesticides Regulatory Engagement in 2016-2017

EPA Pesticide Registration Review (15-year cycle)
<p><i>Environmental Risk Assessments</i></p> <ul style="list-style-type: none"> • Priority 1 pesticides: Pyrethroids, Fipronil, and Imidacloprid • Priority 2-4 pesticides: 2,4-D, Carbaryl Copper, Malathion, Simazine, Spinosad • Other opportunities: Dichlobenil (root control in storm drains), Lithium hypochlorite (model swimming pool discharge language); Endangered Species Act risk assessment methodology pilot pesticides (multiple pesticides)
<p><i>Proposed Decisions</i></p> <ul style="list-style-type: none"> • Malathion; others (schedule unknown)
DPR New Pesticide Registration Proposed Decisions
<ul style="list-style-type: none"> • Momfluorothrin (new pyrethroid) • Copper-silver-zinc marine antifouling paint • Storm drain antimicrobial and root control products (4 products) • New urban indoxacarb product (proposed new outdoor uses) • New fipronil foam product (proposed expanded fipronil use)
Other DPR-related Items
<ul style="list-style-type: none"> • Fipronil – possible water quality protection regulations • 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 pesticide reduction draft language for a Basin Plan amendment • Current-use urban pesticides TMDLs and Basin Plan Amendments: Central Valley Water Board pyrethroids and diuron and Central Coast Lower Salinas River Watershed pyrethroids / toxicity • Pesticide TMDL implementation requirements for Phase II permittees
Structural Pest Control Board
<ul style="list-style-type: none"> • Regulations to increase licensee continuing education requirements for IPM and water quality protection

Appendix – State’s Online Summary of STORMS Urban Pesticide Reduction Project²⁵

Project 6a: Establish Statewide Framework for Urban Pesticide Reduction

Priority:
High

Assessment:
Important,
achievable with
moderate barriers

Prerequisite:

None

Project Objective:

Establish statewide source control efforts for pesticides in urban storm water.

Scope:

Amend the statewide Water Quality Control Plans to account for urban pesticide discharges to: (1) recognize one of the primary mechanisms for urban pesticide pollution prevention is through use management under the authority of agencies that regulate pesticide use; (2) establish a framework for working with the Department of Pesticide Regulation (DPR) and U.S. EPA Office of Pesticide Programs (OPP) to improve pesticide evaluation and mitigation processes; (3) establish a framework for coordinating pesticide toxicity monitoring by appropriate agencies; and (4) establish minimum source control efforts for urban storm water permittees.

Background:

Pesticides continue to cause impairments to urban water bodies across the state, even as “old” pesticide uses are banned and replaced by new pesticides. Some practices and structures can reduce pesticide concentrations, but practically speaking, attaining reductions necessary to meet water quality standards through engineering changes to storm water systems and municipal discharger-led changes to pesticide use practices would likely be cost-prohibitive for two reasons: (1) the pesticides of interest are widely used and cause or contribute to toxicity at very low concentrations, and (2) state law does not allow local authorities to ban or limit pesticide sales and use. Accordingly, the most effective way to reduce urban pesticide-related impairments is through managing pesticide usage via existing state and federal pesticide regulatory authorities. Previous experiences suggest that resources focused on working with pesticide regulators (i.e., DPR and U.S. EPA OPP) to implement their authority will more effectively achieve our goals, as compared to attempting to control pesticides solely by using our own regulatory authorities on municipal dischargers.

A statewide framework for urban pesticide pollution control efforts, established via an amendment to the state’s Water Quality Control Plans, with a scope including the four elements listed above, could help more effectively and consistency control urban pesticides.

Regional Board staff, mainly from San Francisco Bay and Central Valley Regional Boards, in coordination with CASQA and other members of the Urban Pesticide Pollution Prevention Partnership, has invested significant efforts into working with DPR and U.S. EPA OPP with considerable success. A formal commitment by the Water Boards to implement a pollution

PHASE I

OBJECTIVE 6

Increase Source Control and
Pollution Prevention

GOAL 4

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

PROJECT INFORMATION

Name	Establish Statewide Framework for Urban Pesticide Reduction
Start	2016
Completion	2018
Progress	Finalizing workplan and timeline. Work on specific deliverables will begin in April.

(Continued on next page)

²⁵ http://www.swrcb.ca.gov/water_issues/programs/stormwater/storms/obj6_proj6a.shtml

prevention framework could strengthen these proactive efforts and relationships with pesticide regulators. A statewide plan would also encourage collective monitoring, data sharing, and education efforts by the regulated community, and establish consistent minimum pesticide source control efforts for urban storm water permittees.

This effort relates to increased use of storm water as a resource for groundwater recharge, as pesticide pollution prevention will benefit groundwater quality in areas where urban runoff is captured for groundwater recharge. Additionally, this project will contribute to the reduction and filtration of runoff, as well as conversion to sustainable landscapes that require fewer chemical inputs.

Products and Timelines:

6 Months: Develop a detailed project management and scoping plan.

1 Year: Draft staff report for a general framework to improve pesticide evaluation, establish mitigation processes, coordinate pesticide/toxicity monitoring, and establish minimum source control efforts for urban storm water permittees. This effort will include holding stakeholder meetings, approximately quarterly, during development.

6 Months: Develop Item for State Water Board consideration of adoption with proposed plan amendment language.

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Contract Information	
Performance Metrics	Project 6a
NPDES Storm Water Facilities annual Performance Report	

(Updated 4/13/16)

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