# Pesticides Subcommittee Annual Report and Effectiveness Assessment 2017 - 2018

California Stormwater Quality Association

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION®

Final Report

September 2018

# Pesticides Subcommittee Annual Report and Effectiveness Assessment

# 2017-2018

California Stormwater Quality Association

September 17, 2018

## 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 CASQA Pesticides Subcommittee Co-Chair Dave Tamayo, with substantial assistance from Co-Chair Katie Keefe and Dr. Kelly Moran of TDC Environmental who provided data, documents, guidance, and review.

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## Abbreviations Used in this Report

**BACWA** – Bay Area Clean Water Agencies
**CASQA** – California Stormwater Quality Association
**CCRWQCB** – Central Coast Regional Water Quality Control Board
**CEQA** – California Environmental Quality Act
**CVRWQCB** – Central Valley Regional Water Quality Control Board
**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)
**IPM** – Integrated Pest Management
**MAA** – Management Agency Agreement between DPR and the Water Boards
**MS4** – Municipal Separate Storm Sewer System
**NACWA** – National Association of Clean Water Agencies
**NPDES** – National Pollutant Discharge Elimination 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
**PMAC** – Pest Management Advisory Committee
**PSC** – CASQA Pesticides Subcommittee
**SFBRWQCB** – San Francisco Bay Regional Water Quality Control Board
**SPCB** – Structural Pest 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
**SWRCB** – State Water Resources Control Board or State Water Board
**TMDL** – Total Maximum Daily Load (regulatory plan for solving a water pollution problem)
**UC IPM** – University of California Integrated Pest Management Statewide Program
**UP3** – Urban Pesticides Pollution Prevention Partnership
**UPCMP** – Urban Pesticides Coordinated Monitoring Program
**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

## 2017-2018

*California Stormwater Quality Association*

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## Executive Summary

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 2017 through June 2018.

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 15 years of collaboration with UP3 Partners, as well as EPA and DPR staff, has resulted in significant changes in pesticide regulation. CASQA's activities and outcomes are described in Section 2. This year's highlights include continued progress on the State Water Board's Urban Pesticides Amendments project 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 formally approved label changes that it negotiated with registrants. The label changes are anticipated to reduce fipronil concentrations in California urban runoff by more than 90 percent. This mitigation precedes at least 22 303(d) listings of urban water bodies in northern and southern California that would be supported by current data. If successful, the mitigation could avoid establishment of fipronil TMDLs for those water bodies.
- In response to requests from CASQA, CASQA members, and UP3 partner requests, DPR routed at least 9 registration applications to its Surface Water Protection Program for review.
- DPR denied a registrant request to allow use of a toxic root control product in storm drains.
- CASQA shared its urban runoff expertise with pesticide regulators by preparing comment letters to EPA for 6 pesticide reviews, providing the Water Boards and other partners with information that triggered additional letters on 4 more pesticide reviews, and participating 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?

- The State Water Board continues to work toward adoption of the Urban Pesticide Amendments. These amendments would institutionalize the State's strategy of utilizing pesticide regulations as the primary mechanism for addressing pesticide water quality problems associated with urban runoff.
- DPR continues to demonstrate its commitment to addressing pesticide impacts on receiving waters through timely mitigation and implementation of improved evaluation procedures.
- In concert with the development of the Urban Pesticide Amendments, the State Water Board and DPR continued to work on an update of their Management Agency Agreement, to clarify their respective roles and achieve better coordination on addressing water quality impacts.
- Although many improvements by OPP have been made since the early 2000s, CASQA's previous annual pesticides reports have identified areas where improvement in scientific evaluations supporting OPP's regulatory efforts and better understanding of urban runoff management systems are still necessary to adequately protect urban surface waters from pesticide impairments. Unfortunately, the current regulatory climate at federal agencies generally is not supportive of progress by OPP in addressing these concerns.

In FY 2018-2019, 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, Tables 5 and 6. Key topics include:

- Development and adoption of the Urban Pesticide Amendments by the State Water Board
- Registration review-related activities at EPA for pyrethroids, fipronil, and imidacloprid (the only such opportunity for the next 15 years)
- DPR evaluation and potential additional action regarding pyrethroid and fipronil mitigation measures
- EPA risk mitigation for malathion and carbaryl in urban runoff in tandem with Endangered Species Act evaluations.
- DPR Registration Decisions for new products
- DPR methodology for surface water protection review of registration applications

# Section 1. Introduction

## 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. Currently used pesticides are the primary cause of toxicity in California surface waters.[1] 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 municipalities[2] 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 used[3] in order to proactively prevent pesticide pollution and avoid these costs.

**Table 1. California TMDLs and Basin Plan Amendments Addressing Current-Use Pesticides in Urban Watersheds[4]**

| 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 | Adopted; awaiting US EPA Region 9 review |
| **Los Angeles (4)** | Marina del Rey Harbor | Copper (Marine antifouling paint)[5] | 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)<br>Sacramento River and San Joaquin River Basins (Basin Plan Amendment) | Pyrethroids | Approved by region and State Water Board; awaiting US EPA Region 9 review |
| **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 |

[1] See reports from the California Surface Water Ambient Monitoring Program Sediment Pollution Trends Program including Anderson, B.S., Hunt, J.W., Markewicz, D., Larsen, K., 2011. Toxicity in California Waters, Surface Water Ambient Monitoring Program. California Water Resources Control Board. Sacramento, CA.
[2] 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.
[3] 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.
[4] Excludes pesticides that are not currently used in meaningful quantities in California urban areas, such as organochlorine pesticides and diazinon and chlorpyrifos.
[5] Includes pesticide uses that are not in stormwater (i.e., Copper (Marine antifouling paint)).

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, until 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. This situation is depicted in Figure 1.

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).

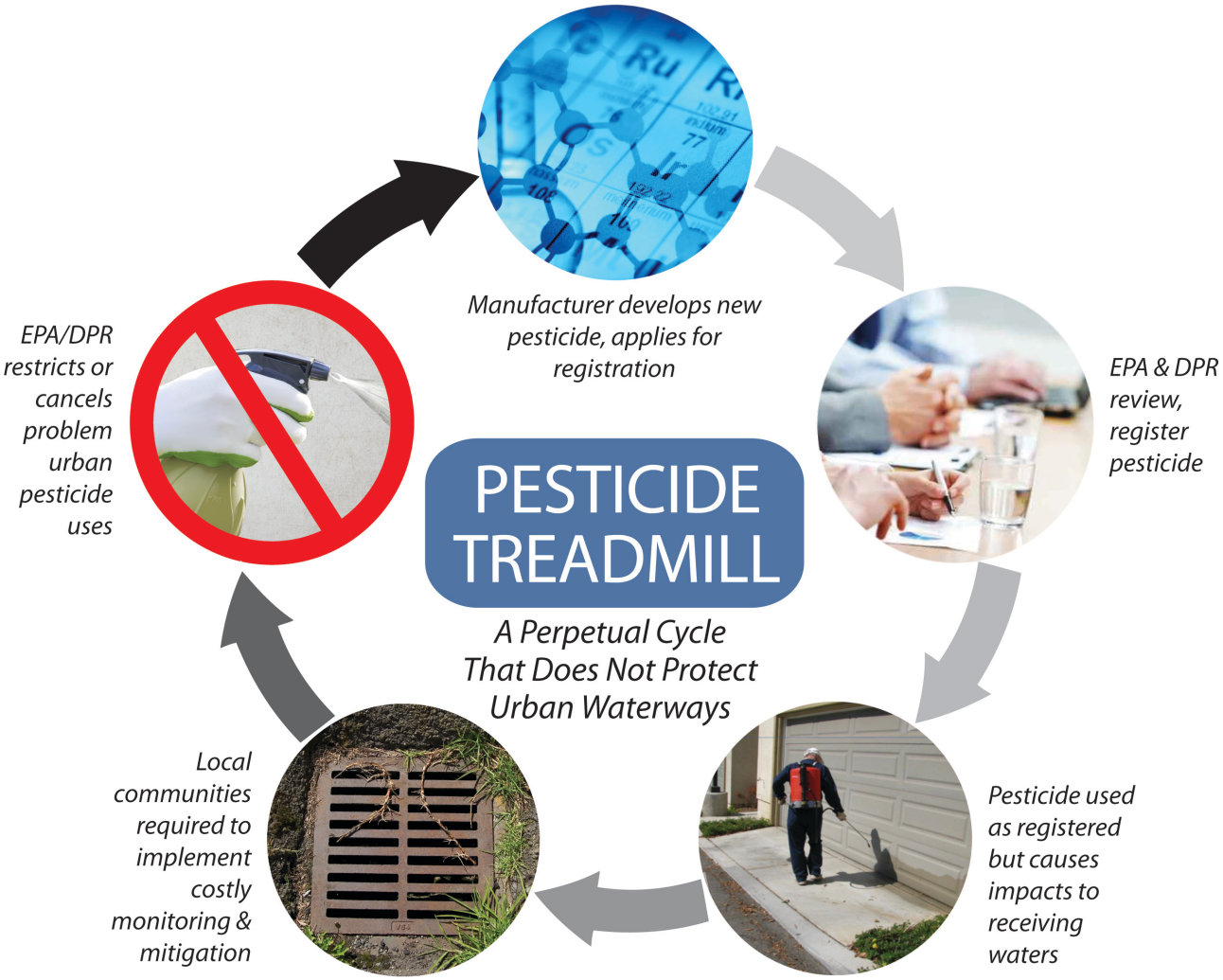



**Figure 1. Current Pesticide Regulatory System.**[6]

[6] Photos 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 Program Effectiveness Assessment

**The stated goal of CASQA's Vision, Action 1.4, is to "Develop a regulatory system implemented by EPA Office of Pesticide Programs (OPP), and California Department of Pesticides Regulation (DPR) to identify whether urban uses of a pesticide pose a threat to water quality, and then restrict or disallow those uses proactively so that water quality impacts are avoided".** To accomplish this goal, primarily through the work of its Pesticides Subcommittee, in engaging in pesticide-related regulatory activities is to protect water quality by eliminating problems stemming from urban pesticide use. In support of Action 1.4, the Vision identifies Proposed Effort Steps 1-4 below.

***Step 1. Work with EPA and DPR to develop a registration/reregistration process that clearly evaluates risks and potential water quality impacts of pesticides. The process for registration and registration review must include effective evaluations for the potential of all pesticide active ingredients and formulated products to impact urban waterways. The process must include consideration of all urban use patterns, and data required of manufacturers must support proactive evaluations. Cumulative risk assessments must be conducted, especially for pesticides with similar modes of action.***

***Step 2. Work with the Water Boards, DPR, EPA's Office of Water (OW) and OPP to develop a consistent definition of what comprises a water quality problem. CASQA will work with EPA's OW and OPP to develop consistent methodologies and approaches to allow evaluation of the potential impacts of pesticides on aquatic life.***

***Step 3. Develop recommendations for coordinating statewide pesticide monitoring efforts [that consider] monitoring requirements from DPR and the Water Boards and [that are] designed identify emerging pesticide problems in urban waterways before they become widespread and severe, and minimize duplication between the programs.***

***Step 4. For pesticides that are identified as a problem, identify mechanisms to use pesticide regulations and statutes, rather than total maximum daily loads (TMDLs) and permit requirements, to mitigate the problems. When needed, 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 the proposed efforts for CASQA Vision Action 1.4, 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? **Related to Action 1.4, Step 4.**
>
> 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? **Related to Action 1.4, Steps 1, 2, and 3.**

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 2017-2018 Efforts

To prevent urban water quality impacts from registered pesticide uses, CASQA's Vision Action 1.4 address both near-term regulatory concerns (Step 4), and seeks long term changes in the pesticide regulatory structure (Steps 1, 2, and 3).

At any given time, there are dozens of pesticides with current or pending actions from the EPA or DPR. Addressing near term regulatory concerns is important because some pesticides may pose immediate threat to water quality that can lead to compliance liability for MS4s, and because some of the regulatory decisions made by EPA and DPR will last many years. For example, pesticide registration decisions are intended to be revisited on a fifteen-year cycle. To inform its engagement on near-term regulatory concerns, CASQA uses the pesticide "Watch List" created by the PSC and the UP3 Partnership. The Watch List aids CASQA and the UP3 Partnership in their prioritization of near-term efforts (Section 2.1).

Meanwhile, CASQA and the UP3 Partnership are also working on a parallel effort to effect long-term systemic changes in the regulatory process itself. 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 (Section 2.2).

## 2.1 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 Vision Action 1.4, Step 4 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.

**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?

> **Answer:** As detailed below, at the State level, significant progress has been made by DPR in addressing near-term and current problems with pesticides in surface waters receiving urban runoff. DPR continues to implement improved registration processes and responses to observed water quality problems. DPR also continues to develop, implement and evaluate mitigation measures for observed problems with pyrethroids and fipronil.
>
> At the Federal level, less progress has been made at addressing near term problems. Some progress has been made in mitigating pyrethroid and fipronil problems at the urging of CASQA and DPR. For instance, EPA accepted label changes for fipronil that were negotiated by DPR and the registrants. In addition, EPA risk assessments do recognize some of risks to aquatic environments

posed by various urban use pesticides. However, EPA does not show a clear understanding of key urban uses in its analyses, and it is still unclear if its risk management decisions for pyrethroids, fipronil, and neonicotinoids will provide much protection of urban water bodies.

### 2.1.1 Updated Pesticide Watch List

A key tool for identifying near-term regulatory concerns is our 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 the most up-to-date understanding of urban uses, pesticide characteristics, monitoring, and surface water quality toxicity (for pesticides and their degradates). The PSC uses these insights to update the Watch List each year (Table 2), which serves as a management tool to help us focus our efforts on the most important pesticides from the perspective of MS4 agencies.[7]

Comparing the current Watch List to the version published in the 2016/17 PSC Annual Report, we see that the insecticides fipronil, imidacloprid, malathion, and pyrethroids remain as the Priority 1. In addition, the neonicotinoid insecticides acetamiprid, clothianidin, dinotefuran, and thiamethoxam (degrades into clothianidin) have been re-classified from Priority 4 to Priority 2, based on recent monitoring data. In addition, carbendazim, a registered fungicide (this chemical is also a degradate of the fungicide thiophanate-methyl) has been added to the list of Priority 2 pesticides, based on monitoring data.

[7] The first Watch List was published by the UP3 in 2005.

**Table 2. Current Pesticide Watch List (July 2018)** [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])<br>Fipronil<br>Imidacloprid (neonic)<br>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<br>Chlorantraniliprole<br>Chlorothalonil (dioxins)<br>Copper pesticides<br>Creosote (PAHs)<br>Dacthal (dioxins)<br>Indoxacarb<br>Other Neonics[10]<br>Pentachlorophenol (dioxins)<br>Polyhexamethylenebiguanide<br>Carbendazim (Thiophanate methyl)[11]<br>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<br>Chlorpyrifos<br>Chromium pesticides<br>Diazinon<br>Diuron<br>Naphthenates<br>Simazine<br>Silver pesticides<br>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<br>Chlorinated isocyanurates<br>Dichlobenil<br>Dithiopyr<br>Halohydantoins<br>Hydramethylnon<br>Mancozeb<br>MGK-264<br>Oxadiazon<br>Oxyfluorfen<br>Pendimethalin<br>Phenoxy herbicides[12]<br>Piperonyl butoxide<br>Pyrethrins<br>Spinosad/ Spinetoram<br>Triclopyr<br>Triclosan | | |
| **New** | New pesticides that may threaten water quality depending on the urban use patterns that are approved | Chlorfenapyr<br>Cyantraniliprole<br>Cyclaniliprole<br>Flupyradifurone<br>Novaluron | | |
| **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 | | |

### 2.1.2 Description of Near-Term Regulatory Processes

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

[8] The UP3 Partnership also watches two non-priorities pesticides (Glyphosate and Metaldehyde) due to frequent member questions about them.
[9] Allethrins, Bifenthrin, Cyfluthrin, Cyhalothrin, Cypermethrin, Cyphenothrin, Deltamethrin, Esfenvalerate, Etofenprox, Flumethrin, Imiprothrin, Metofluthrin, Momfluothrin, Permethrin, Prallethrin, Resmethrin, Sumethrin [d-Phenothrin], Tau-Fluvalinate, Tetramethrin, Tralomethrin.
[10] Acetamiprid, Clothianidin, Dinotefuran, Thiamethoxam (degrades into Clothianidin)
[11] Carbendazim is a registered pesticide, and also a degradate of thiophanate-methyl
[12] MCPA and salts, 2,4-D, 2,4-DP, MCPP, dicamba

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 Registration Process for New Pesticides**


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.[13]

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


While EPA must consider water quality in all of its pesticide registration decisions, at DPR this step is not yet fully established as standard (most outdoor urban pesticide registration applications are routinely routed by DPR for surface water review, but a few – notably antimicrobial products used in storm drains – do not automatically receive this 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.

### 2.1.3 Key Near-Term Regulatory Activities in 2017-18

In 2017-18, 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. Six other product applications were also routed for surface water review at the request of CASQA. 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.

[13] See https://www.epa.gov/pesticide-reevaluation/registration-review-schedules for schedule information.

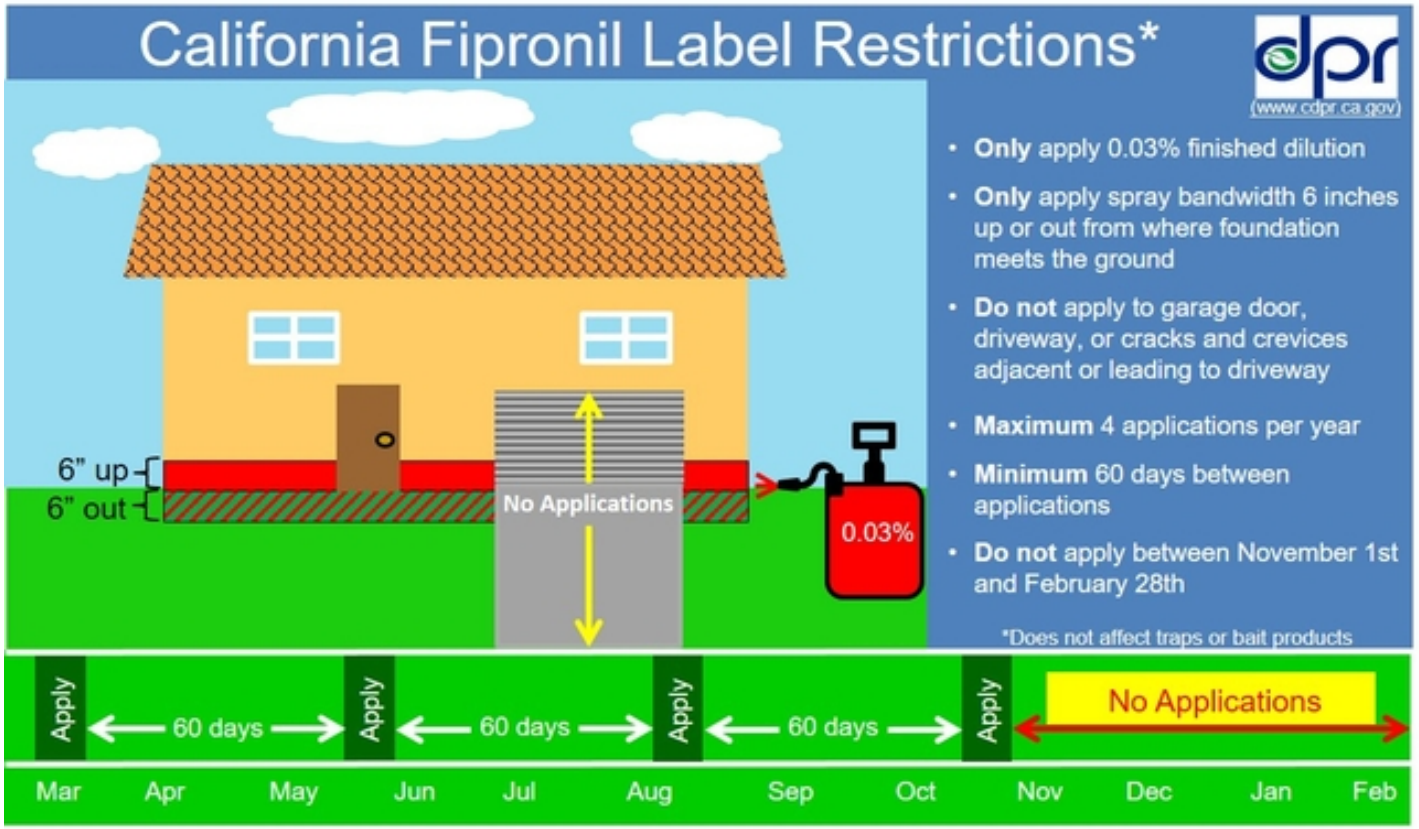
DPR also has an ongoing, but informal review process (called continuous evaluation) that can address pesticides water pollution. If it needs to obtain data from manufacturers, DPR can initiate a formal action, called "Reevaluation." DPR evaluations of pyrethroids and fipronil in urban runoff have occurred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

#### 2.1.3.1 Regulatory Progress on Fipronil

DPR's action to mitigate fipronil concentrations in urban water bodies, prior to any water bodies being placed on 303(d) lists, is an important demonstration of DPR's commitment and capacity for protecting water quality. Data compiled by DPR indicated occurrence of fipronil in storm drains and urban water bodies and storm drains in northern and southern California, with 48% of samples containing fipronil above EPA's chronic aquatic benchmark[14,15]. Informal application by CASQA of potential listing criteria to DPR's fipronil dataset indicates that numerous urban water bodies (located in northern and southern California) could be listed, although as of yet, there are no 303(d) listings for fipronil anywhere in the state. Based on the observed occurrence of fipronil, DPR initiated early action. Utilizing the results of numeric modeling and experimental studies of fipronil transport and efficacy, DPR negotiated an agreement with registrants on label changes that limit applications in a manner that provides for effective pest control while leading to anticipated reductions of fipronil concentrations in California urban runoff by more than 90 percent[16]. Following EPA approval of the California-specific label changes, DPR formally approved the changes in November 2017. A summary by DPR of the new label restrictions is provided in Figure 5. In addition, UC IPM has contributed to efforts to educate pest control licensees on the new requirements of the fipronil labels [17]

[14] Fipronil Monitoring and Model Scenarios. February 16, 2016. California Dept. of Pesticide Regulation. Robert Budd, Ph.D. and Yuzhou Luo, Ph.D.
[15] Addendum: Evaluation of Alternative Fipronil Use Scenarios: Modeling Results, Runoff Trials, and Product Efficacy. June 26, 2017. California Dept. of Pesticide Regulation. Robert Budd, Yuzhou Luo, and Nan Singhasemanon.
[16] Ibid.
[17] Fipronil Labels Have New Restrictions, in Pests in the Urban Landscape, July 6, 2018 UC ANR Blogs. http://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=27509

**Figure 5. DPR Summary of Fipronil Label Restrictions**




### 2.1.3.2 Progress on Near-Term Regulatory Concerns

Table 3 presents a summary of recent UP3 activities to address near-term regulatory concerns and their 2017-2018 results. 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.

This year CASQA concentrated efforts to affect near-term regulatory concerns on Priority 1 pesticides. CASQA has had considerable success in working with DPR and the Water Board. **A major challenge and opportunity in the upcoming fiscal year will be to continue to work to influence EPA OPP to ensure positive outcomes in the registration decisions resulting from its 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.**

**Table 3. Latest Results of Efforts Communicating Near-Term Regulatory Concerns (4 pages)[18]**

| Regulatory Action or Concern | CASQA Efforts | | | Partner Support | Outcomes and notes |
|---|---|---|---|---|---|
| | Letter(s) | Call(s) or emails | Mtg(s) | | |
| **DPR** | | | | | |
| Fipronil | | ✓ | ✓ | SWRCB<br>SFBRWQCB<br>CVRWQCB<br>BACWA | DPR and Water Boards are monitoring effectiveness of mitigation measures being implemented via enhanced label language. The mitigation measures implemented by DPR and registrants are anticipated to reduce the concentration of fipronil and degradates in urban runoff by more than 90 percent. |
| Fipronil foam registration application (Lnouvel) | | Email to DPR | | SFBRWQCB | Urban runoff information provided by CASQA to SF Bay Water Board<br><br>Outdoor uses removed from label prior to registration |
| Other fipronil products (6 products) | ✓ | ✓ | ✓ | SFBRWQCB | 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 | | | ✓ | SWRCB<br>SFBRWQCB<br>CVRWQCB | CASQA representatives periodically meet with DPR to discuss DPR's urban runoff monitoring data evaluation that is in progress and possible additional mitigation strategies for urban uses of pyrethroids. |
| Storm drain antimicrobial registration application (AbTech Smart Sponge) | | Email to DPR | | Sacramento County | DPR responded that this registration application will be routed to Surface water protection program for review.<br><br>Registration completed August 2018. |

[18] 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 | Outcomes and notes |
|---|---|---|---|---|---|
| | Letter(s) | Call(s) or emails | Mtg(s) | | |
| Fipronil proposed outdoor use expansion (Termidor HP II) | | Email to DPR | | Sacramento County | DPR responded that this registration application will be routed to Surface water protection program for review<br><br>Registration decision is pending. |
| Broflanilide registration application (multiple products) | | Email to DPR | | SFBRWQCB | Urban runoff information provided by CASQA to SFBRWQCB<br><br>DPR responded that this registration application will be routed to Surface water protection program for review.<br><br>Registration decision is pending. |
| Microparticle copper paint additive registration application | | Email to DPR | | Sacramento County | DPR responded that this registration application will be routed to Surface water protection program for review.<br><br>Registration decision is pending. |
| Fipronil proposed outdoor use expansion (Fendona CS) | | Email to DPR | | Sacramento County | DPR responded that this registration application will be routed to Surface water protection program for review<br><br>Registration decision is pending. |
| Indoxacarb product label modification question | | Email to DPR | | Sacramento County | Confirmed that outdoor use is not expanded by the revised product label language |
| Novaluron expanded outdoor use registration application | | Email to DPR | | Sacramento County | DPR responded that this registration application will be routed to Surface water protection program for review<br><br>Registration decision is pending. |
| Fipronil proposed outdoor use expansion (Fuse Foam) | | Email to DPR | | SFBRWCB | Urban runoff information provided by CASQA to SFBRWQCCB<br><br>DPR responded that this registration application will be routed to Surface water protection program for review<br><br>Registration decision is pending. |
| Deltamethrin window screen registration application | Email to DPR | | | Sacramento County | DPR responded that this registration application will be routed to Surface water protection program for review<br><br>Registration decision is pending. |
| Registrant request to allow use of dichlobenil (Oblitiroot) in storm drains (Oblitiroot) | Prior year letter | | | CASQA | In response to letter sent in fiscal year 15/16, DPR denied registrant request to allow use of a toxic root control product in storm drains. |

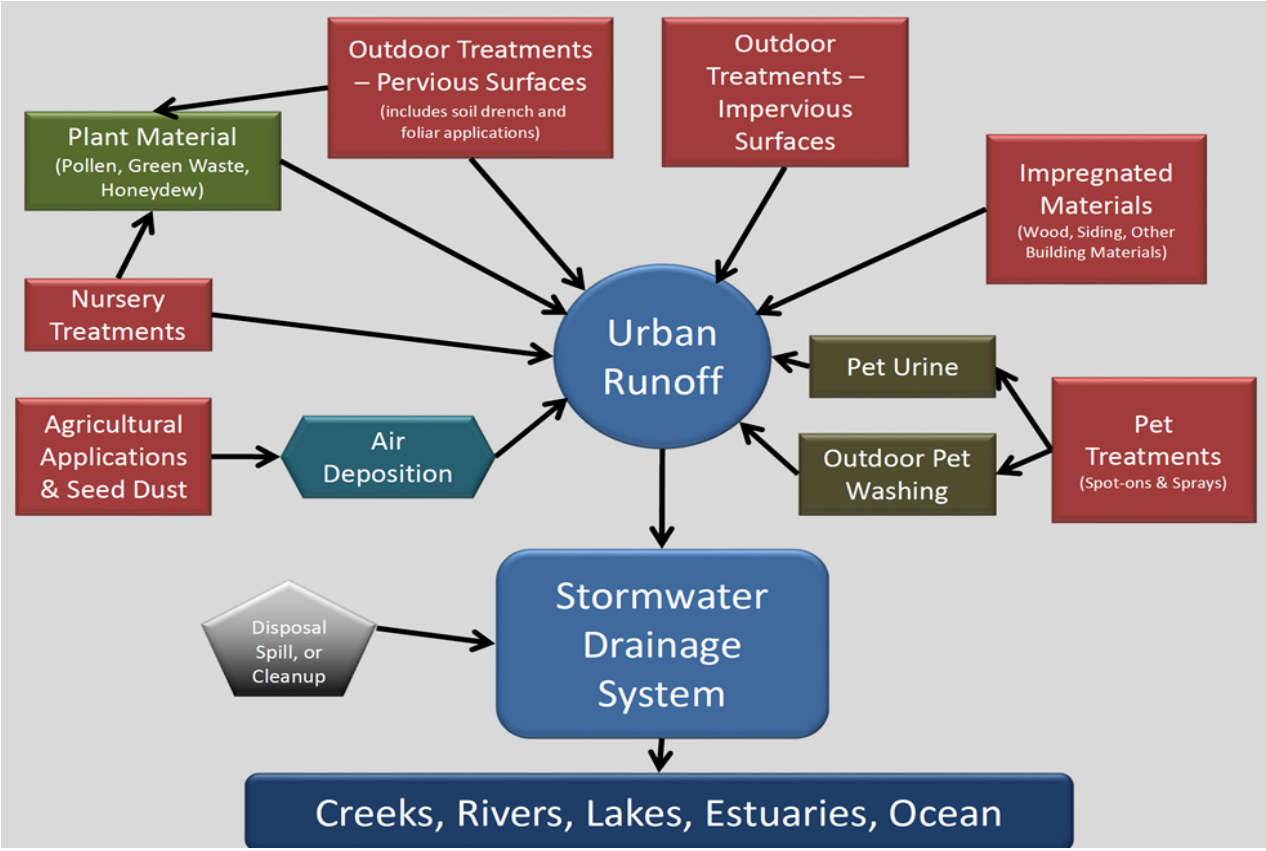
| Regulatory Action or Concern | CASQA Efforts | | | Partner Support | Outcomes and notes |
|---|---|---|---|---|---|
| | Letter(s) | Call(s) or emails | Mtg(s) | | |
| **EPA** | | | | | |
| Pyrethroids Registration Review Risk Assessments | ✓ | | | CASQA<br>State Water Board<br>CCRWQCB<br>SFBRWQCB<br>(DPR)<br>BACWA<br>NACWA | Pending |
| Malathion Registration Review/ESA Consultation | | Emails to EPA and Services | ✓ | CASQA (Sacramento County) | Information informally shared was not addressed in the next step in the consultation. At EPA's recommendation, the information has been updated and was formally submitted in July 2018. |
| Imidacloprid Registration Review Risk Assessment | ✓ | | | CASQA<br>CCRWQCB<br>SFBRWQCB<br>BACWA<br>NACWA | Pending |
| Boric Acid/Sodium Salts (swimming pool products) | ✓ | | | CASQA<br>SFBRWQCB<br>BACWA<br>NACWA | Language requested by CASQA and its UP3 Partners to address pool, spa, and fountain emptying will be required to be placed on all such product labels, as of August 2018 |
| Indoxacarb Registration Review Preliminary Risk Assessments | ✓ | | | CASQA<br>SFBRWQCB<br>BACWA<br>Tri-TAC | Pending |
| Copper Registration Review - Proposed Decision | ✓ | | | CASQA<br>SFBRWQCB<br>NSMA | Language requested by CASQA and its UP3 Partners to address pool, spa, and fountain emptying will be required to be placed on all such product labels. |
| Hypochlorites Registration Review - Proposed Decision | ✓ | | | CASQA<br>SFBRWQCB<br>NACWA | Language requested by CASQA and its UP3 Partners to address pool, spa, and fountain emptying will be required to be placed on all such product labels. |
| Dichlobenil Registration Review Preliminary Risk Assessments | ✓ | | | CASQA<br>SFBRWQCB<br>BACWA<br>NACWA | In response to request by CASQA and its UP3 Partners, EPA has proposed to prohibit use in storm drains (August 2018). |

| Regulatory Action or Concern | CASQA Efforts | | | Partner Support | Outcomes and notes |
|---|---|---|---|---|---|
| | Letter(s) | Call(s) or emails | Mtg(s) | | |
| Pyriproxyfen registration review preliminary risk assessments | ✓ | | | SFBRWQCB<br>BACWA<br>NACWA | Urban runoff information provided by CASQA to SFBRWQCB.<br><br>EPA did not address any of the urban runoff-related scientific gaps identified in the Water Board comments in its proposed decision. |
| Dinotefuran registration review preliminary risk assessments | ✓ | | | SFBRWQCB<br>BACWA<br>NACWA | Urban runoff information provided by CASQA to SFBRWQCB<br><br>EPA proposed decision is pending |
| Clothianidin registration review preliminary risk assessments | ✓ | | | SFBRWQCB<br>BACWA<br>NACWA | Urban runoff information provided by CASQA to SFBRWQCB<br><br>EPA proposed decision is pending |
| Thiamethoxam registration review preliminary risk assessments | ✓ | | | SFBRWQCB<br>BACWA<br>NACWA | Urban runoff information provided by CASQA to SFBRWQCB<br><br>EPA proposed decision is pending |

### 2.1.3.3 Imidacloprid Comments

CASQA's comments on EPA's preliminary risk assessments for the insecticide imidacloprid exemplify some of the deficiencies that we observe in EPA's scientific process for registration review. Although CASQA expressed concurrence with EPA's finding of significant risk to aquatic environments for this pesticide, we also conveyed to EPA our concern that EPA's efforts to address this risk would benefit from a better understanding of the sources of imidacloprid that has been observed in urban runoff, and suggested that "EPA coordinate with CDPR, professional applicators, and imidacloprid registrants to revise allowable imidacloprid urban product use patterns and label language with the goal of providing mitigation to protect water quality." To assist EPA, we provided them with additional information on imidacloprid uses, and the graphic conceptual model shown in Figure 6, of sources and transport pathways to surface water via urban runoff. This model is based on product labels and information in the literature. As seen in the figure, due to its myriad of uses, imidacloprid has many pathways by which it can be washed into urban runoff.

**Figure 6. Urban Runoff Imidacloprid Sources Conceptual Model**




## 2.2 Long-Term Change in the Pesticides Regulatory Structure

Since the mid-1990s, CASQA (and its predecessor organization the Storm Water Quality Task Force), have worked toward a future in which the pesticide regulatory structure at the state and federal level proactively restricts pesticide uses that have the potential to cause urban water quality problems. These efforts directly relate to PEAIP Management Question 2.

**Assessment 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?

Answer: Improvements in processes at EPA and especially at DPR have moved us closer to that future. Many of these improvements are linked to the persistent work of CASQA and the UP3 Partnership to educate regulators on how previous process deficiencies did not adequately address urban pesticide problems.

As detailed below, at the State level, significant progress has been made by DPR and the Water Boards in establishing a comprehensive statewide approach to utilizing pesticide regulatory authorities to prevent pesticide toxicity in urban water bodies. Overall, DPR has a system in place that is reasonably effective at addressing pesticide toxicity in urban water bodies, although improvement is needed to better coordinate this with the requirements of the Clean Water Act and NPDES MS4 permits. DPR and the Water Board, along with CASQA and other stakeholders, are working diligently to strengthen this system and to institutionalize it. This is primarily embodied in the State's effort to establish the Urban Pesticide Amendments and update the MAA between DPR and the State Water Board.

At the Federal level, OPP has implemented some improvements in how it evaluates and responds to water quality problems associated with pesticides, but it does not do this reliably and does not have a system in place to ensure that this will happen consistently and adequately. Although more effective regulation of pesticides by EPA is still an important goal for CASQA[19], due to the current regulatory climate at federal agencies, the CASQA does not expect OPP to be very responsive to requests for additional improvements. Specific examples include the current administration's orders for a blanket reduction in regulations, chronic under-staffing at OPP, and lack of accessibility to OPP staff to share scientific information and stormwater expertise.

As a result, CASQA has decided for the time being to limit its efforts to affect long-term systemic change by EPA and other federal agencies. Instead, CASQA has focused more on solidifying advances made at the state level, which will leverage the considerable authority held by the State of California for regulating the use of pesticides.

[19] Long-term regulatory goals at the state and federal level are described in detail in Section 1.2.

### 2.2.1 Focus on California's Urban Pesticide Amendments

At the urging of CASQA, in 2014 the State Water Board made a strategically important decision to institutionalize its commitment to work closely with DPR and EPA to utilize pesticide regulatory authority as the primary mechanism for preventing and responding to impairments of receiving waters linked to current use pesticides in urban runoff. To accomplish this, it 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.[20] In 2017-18, although it did not adopt the amendments as anticipated, the State Water Board continued working towards developing the Urban Pesticides Amendments which will be changes to the Inland Surface Waters, the Enclosed Bays, and Estuaries Water Quality Control Plan, and the Water Quality Control Plan for Ocean Waters of California. The amendments are now anticipated to be adopted in 2019. It is important to note that a critical factor in the State Water Board's decision to move in this direction was DPR's demonstrated commitment and significant progress in addressing urban water quality issues caused by pesticides[21].

CASQA representatives have been participating actively in the development of the Urban Pesticide Amendments since their inception, as members of the projects Core Team and various work groups, to ensure that they are consistent with CASQA's vision for pesticide control[22]. The key elements that we anticipate being in the amendments are listed below.

- Element 1: Establishment of a framework for the Water Boards to work with DPR and U.S. EPA to utilize pesticide regulatory authority as the primary means for addressing pesticides in urban runoff.
- Element 2: Monitoring program designed to support effective implementation of Element 1.
- Element 3. Requirements for MS4s to support Elements 1 and 2 by contributing expertise on how pollutants present in urban environments enter and behave in urban runoff and water bodies, and providing data and/or material support for monitoring.
- Element 4: Other actions that can reasonably be implemented by MS4s, such as IPM outreach, in support of pesticides reductions.

[20] 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/)

[21] As reported in previous CASQA Pesticide Subcommittee Annual Reports, DPR's accomplishments include improved modeling, active ingredient screening for urban water quality issues, monitoring, and regulatory mitigation of pyrethroids and fipronil.

[22] 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.

CASQA supports the State Water Board's stated goal of implementing the Urban Pesticides Amendments *"as an alternative 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.

Elements 1-3 are consistent with CASQA Vision Action 1.4. Water Board staff have indicated their intent that the Urban Pesticides Amendments, as shown in Element 4, should also establish a consistent set of "*minimum pesticides source control measures for MS4 dischargers."*

In response to CASQA concerns, 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."* In addition, CASQA representatives have worked with the Water Boards to ensure that such requirements are reasonable and consistent with similar measures already in place in some regions. 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, providing urban runoff scientific and management expertise to support pesticide regulatory processes, limitations to dry weather runoff, and pesticide and toxicity monitoring.

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 pesticides and pesticide-caused toxicity.

**Monitoring.** Through the spring of 2018, CASQA participated in a process to set up a statewide monitoring framework. In early 2018 the Water Boards, CASQA, DPR, and the environmental community representatives agreed to pursue a statewide Urban Pesticides Coordinated Monitoring Program (UPCMP). Key joint accomplishments on the establishment of the monitoring program:

1. Agency team formed (Pesticides Plan Amendments Core Team/Monitoring workgroup)
2. Cooperative relationships established among stakeholder partners
3. Monitoring Management Questions & Monitoring Objective identified
   - Core team approved MQs & MOs
   - Draft priority MQs prepared & reviewed by core team
4. Core team consensus on conceptual organizational structure for UPCMP
5. Developed workplan and budget for formation of UPCMP. The workplan includes developing a program Charter, establishing management and technical groups, and preparing funding plan and first year workplan
6. Grant for monitoring startup funding applied for by Water Board with CASQA support
7. Took first steps in establishing a "Formation Management Group" (including Water Boards, DPR, US EPA, MS4s, and environmental community representative) to guide the process of establishing the UPCMP

**Technical support.** CASQA continues to provide technical support to the Water Boards on numerous crucial and highly detailed items related to the Urban Pesticide Amendments, Staff Report, CEQA Document, monitoring program, model permit language, and the relationship of these to the Management Agency Agreement.

**MS4 input.** CASQA Pesticides Subcommittee initiated formation of a work group to obtain broad MS4 management-level support and guidance for ongoing participation in the adoption of the Urban Pesticide Amendments.

### 2.2.2 CASQA Participation in other State efforts

As presented in Tables 4, CASQA has been actively involved with various State agencies and advisory groups that affect pesticide use and pest management in urban areas.

**Table 4. Participation in other State Efforts to Support CASQA's Goals**

| Agency or Conference | Latest Outcomes |
|---|---|
| DPR's Pest Management Advisory Committee (PMAC) | Participation on the PMAC has resulted in expanded focus by DPR on urban pest management and water quality issues and generated funding for urban integrated pest management programs. DPR conducted 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 served on the PPI steering committee as well as the Structural Pest working group. |
| California Structural Pest Control Board (SPCB) | 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 is in the process of adopting regulations to increase continuing education hours required in the IPM category. The SPCB reconvened its Research Advisory Panel which solicited and recommended funding for proposals for research projects to advance the field of urban IPM. Selected projects will be supported by the SPCB research fund. The PSC member on the SPCB Board presented on recent advances in California in addressing urban pesticide issues at the Beyond Pesticides Organic Neighborhoods Conference in Irvine, CA, in April 2018. |
| University of California Statewide IPM (UCIPM) | 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, such as the ongoing blogs "Pests in the Urban Landscape"[23], and Retail Nursery & Garden Center IPM News[24] |

[23] http://ucanr.edu/blogs/UCIPMurbanpests/
[24] http://ipm.ucanr.edu/retail/retail-newsletter.html

## 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 improve ongoing pesticide regulatory processes, CASQA and the UP3 Partnership continuously track and engage in EPA and DPR activities, sharing their urban runoff and water-quality specific expertise with pesticides regulators. Typically, these efforts entail peer review of pesticides scientific assessments and risk management proposals, and sharing monitoring data, water quality regulatory background, and urban runoff agency compliance cost information. Sometimes, this involves recommending changes in an individual product's allowable uses or use instructions or requesting that regulators examine urban runoff discharges or fill critical data gaps by obtaining 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 activities to both address near-term pesticide concerns and seek long-term regulatory change.[25] Although changes at the federal level are important for fully achieving CASQA's goal of protecting water quality through the effective use of pesticide regulations, until there is a more favorable situation at that level, we will continue to focus our efforts on solidifying progress at the state level. In FY 2018-2019, we will continue engagement on specific actions for 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

[25] Activities in 2018 are subject to available funding.

- Ensure DPR enforces mitigation measures for pyrethroids and adopts additional measures as necessary
- Ensure the state continues to conduct surveillance monitoring to evaluate pyrethroids (and fipronil) mitigation effectiveness and to evaluate occurrence of new threats like imidacloprid and other neonicotinoid insecticides
- 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 appropriate in the urban context
    - 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, work with other stakeholders to implement the planned restructuring of California's urban surface water pesticides monitoring to increase its effectiveness and improve coordination.
- Seek procedure changes such that DPR continues to refine its registration procedures to address remaining gaps in water quality protection.

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 types of activities that CASQA and the UP3 Partnership engage on an ongoing basis in are summarized in Table 5.

**Table 5. Typical Ongoing CASQA Pesticide Committee Activities**

| 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 urban runoff-related 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 from scientific and urban runoff management perspective 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. |

| Activity | | Purpose | Level of Effort |
|---|---|---|---|
| | Review regulatory actions, guidance documents, and work plans | Identify potential urban runoff-related 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 accurately addresses urban runoff and urban pesticide use and management contexts, and take advantage of opportunities to formally provide information suggest more robust approaches to that could be used in future regulatory process. Request and maintain communication on mitigation actions addressing highest priority pesticides. | Typically provide information and recommendations 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 urban runoff-related shortcomings of existing pesticide regulatory process, educational efforts to support process improvements, 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. |

| Activity | | Purpose | Level of Effort |
|---|---|---|---|
| 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). |
| | 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 PEAIPs and future effectiveness assessment annual reporting. | Preparation and coordination takes about 50 to 60 hours. |

Table 6 summarizes upcoming regulatory action items that are likely to proceed and may require CASQA attention in FY 2018-19.

### Table 6. Anticipated Opportunities for CASQA and the UP3 Partnership Pesticides Regulatory Engagement in 2018-2019

| **EPA Pesticide Registration Review (15-year cycle)** |
|---|
| *Environmental Risk Assessments*<br>• Priority 1 pesticides: Fipronil<br>• Priority 2-4 pesticides: Dithiopyr, Hydramethylnon, Phenoxy herbicides (2,4-DP; MCPA), Thiophanate methyl/Carbendazim, Trifluralin, Zinc metal/salts; others (schedule unknown) |
| *Endangered Species Act Biological Evaluation*<br>• Carbaryl |
| *Proposed Decisions*<br>• Priority 1 pesticides: Pyrethroids and Imidacloprid<br>• Priority 2-4 pesticides: 2,4-D, Abamectin, Dichlobenil, Indoxacarb, Neonics (Clothianidin, Dinotefuran, Thiamethoxam), Zinc Borate; others (schedule unknown)<br>• Other opportunities: Glyphosate (Endangered Species Act pilot), Piperonyl butoxide (PBO) (pyrethroids synergist), Pyrethrins |
| **DPR New Pesticide Registration Decisions** |
| • Momfluorothrin (new pyrethroid, 5 products)<br>• Alpha Cypermethrin (new pyrethroid, 1 product)<br>• Transfluthrin (new pyrethroid, 1 product)<br>• Deltamethrin window screen (new use)<br>• Three new fipronil products (proposed expanded fipronil use)<br>• Copper-microparticle containing paint additive<br>• Broflanilide (proposed new insecticide/pyrethroid alternative)<br>• Novaluron (pyrethroid alternative/expanded use) |
| **Other DPR-related Items** |
| • Fipronil mitigation measure implementation including outreach to professional applicators and effectiveness monitoring<br>• Pyrethroids – possible updates to water quality protection regulations and/or implementation of other mitigation measures<br>• 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.<br>• 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** |
| • STORMS Urban Pesticides Plan Amendments<br>• Pesticides 303(d) listings<br>• Pesticide TMDL implementation requirements for permittees |