

2022

Pesticide Annual Report and Effectiveness Assessment

California Stormwater Quality Association



Final Report
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Preface

The California Stormwater Quality Association (CASQA) is comprised of stormwater quality management organizations and individuals, including cities, counties, federal agencies, state agencies, ports, universities and school districts, wastewater agencies, water suppliers, special districts, industries, and consulting firms throughout California. CASQA's membership provides stormwater quality management services to more than 26 million people in California.

This report provides CASQA's members with focused information on its efforts to prevent pesticide pollution in urban waterways. It is a component of CASQA's True Source Control Initiative, which seeks to address stormwater and urban runoff pollutants at their sources. This report was funded by CASQA, Alameda Countywide Clean Water Program, Contra Costa Clean Water Program, Fairfield-Suisun Urban Runoff Management Program, Marin County Stormwater Pollution Prevention Program, Napa Countywide Stormwater Pollution Prevention Program, Sacramento Stormwater Quality Partnership, San Mateo Countywide Water Pollution Prevention Program, Santa Clara Valley Urban Runoff Pollution Prevention Program, Sonoma County Water Agency, and Vallejo Flood & Wastewater District.

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Abbreviations Used in this Report

BACWA – Bay Area Clean Water Agencies

BO – Biological Opinion

CASQA – California Stormwater Quality Association

CEQA – California Environmental Quality Act

CWA – Clean Water Act

DPR – California Department of Pesticide Regulation

EMPM – Environmental Monitoring Public Meeting

EPA – United States Environmental Protection Agency

ESA – Endangered Species Act

FIFRA – Federal Insecticide, Fungicide, and Rodenticide Act

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

PID – Proposed Interim Decision

PMAC – Pest Management Advisory Committee

PPDC – EPA's Pesticide Program Dialogue Committee

SFBRWQCB – San Francisco Bay Regional Water Quality Control Board

SPM – Sustainable Pest Management Work Group (DPR)

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)

TSC – CASQA True Source Control Subcommittee

UP3 – Urban Pesticides Pollution Prevention Partnership

UPA – Urban Pesticide Amendments

USGS – U.S. Geological Survey

Water Boards – California State Water Resources Control Board together with the California Regional Water Quality Control Boards

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Executive Summary

This report by the True Source Control (TSC) Subcommittee of the California Stormwater Quality Association (CASQA) describes CASQA's activities related to the goal of preventing pesticide pollution in urban waterways for the period of July 2021 through June 2022.

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). 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 18 years of collaboration with Urban Pesticides Pollution Prevention (UP3) Partnership, as well as EPA and DPR staff, has resulted in significant changes in pesticide regulation. A summary of CASQA's activities to address key management questions are described below, with more details and outcomes provided in Section 2.

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

- 💧 CASQA shared its urban runoff expertise with pesticide regulators by preparing comment letters to EPA for eight pesticide reviews, providing the Water Boards and other partners with information that triggered additional letters on one pesticide. (See Table 3 and Appendix C.)
- 💧 CASQA and partners successfully lobbied the federal General Services Administration (GSA) to return functionality and transparency to the Regulations.Gov website, the public access point for federal agency rulemaking including EPA pesticide dockets.
- 💧 In response to requests from CASQA and partners, EPA proposed enhanced label language for pyrethrins.
- 💧 To mitigate risks to aquatic organisms and human health, EPA proposed substantial mitigation measures for the herbicide, oxyfluorfen.
- 💧 CASQA updated the Pesticide Watch List based on new EPA registrations and the State's update to the 303(d) list. The Watch List will be 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?

- 💧 DPR continues to demonstrate its commitment to addressing pesticide impacts on receiving waters through timely mitigation and implementation of improved evaluation procedures.
- 💧 The State Water Board continued to work toward development of the Urban Pesticide Amendments (UPA). The desired outcome for these amendments is to institutionalize the State's strategy of utilizing pesticide regulations as the primary mechanism for addressing pesticide water quality problems associated with urban runoff. In spring 2022, CASQA met with State Water Board staff to provide potential options for evaluating the effectiveness of the UPAs in addressing MS4 pesticide discharges, to support identification of compliance pathway options for municipal stormwater permits.
- 💧 To support the UPA, the State Water Board continued to work toward establishing a coordinated urban runoff monitoring program intended to coordinate with existing Water Board and DPR urban pesticides and toxicity monitoring programs. The State Water Board continued to draft a proposed monitoring program and expects to present a document for public comment in spring 2023. CASQA remains dedicated to supporting State Water Board staff.

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- 💧 In 2022, the EPA published a workplan to address the incorporation of their Endangered Species Act (ESA) obligation with pesticide registrations and re-registrations.
- 💧 Although many improvements have been made by EPA OPP since the early 2000s, improvement in scientific evaluations supporting EPA OPP's regulatory efforts and better understanding of urban runoff management systems are still necessary to adequately protect urban surface waters from pesticide impairments. The regulatory climate recently improved at the federal level and we will continue to work with EPA OPP to further our goals.
- 💧 In June, CASQA spoke at EPA's Environmental Monitoring Public Meeting to convey the importance of including urban uses in ESA mitigations, emphasizing that such mitigations are feasible and cost-effective.
- 💧 In spring 2022, Dave Tamayo, a longtime TSC member and recent retiree from Sacramento County, was appointed to EPA's Pesticide Program Dialog Committee (PPDC) representing an important opportunity to enhance urban stormwater discussions at the federal level. CASQA subsequently designated Mr. Tamayo as CASQA's official representative at the PPDC.

In the coming year, 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:

- 💧 Continued support of the eventual completion and adoption of the UPAs by the State Water Board;
- 💧 Continued development of a coordinated monitoring program in partnership with the Water Boards, DPR, and EPA Region 9;
- 💧 Registration review-related activities at EPA for pyrethroids and fipronil;
- 💧 Initiating discussion of urban water quality concerns at the EPA PPDC's future meetings;
- 💧 DPR registration applications and proposed decisions for new products.

Section 1. Introduction

1.1 IMPORTANCE OF CASQA'S EFFORTS TO IMPROVE PESTICIDE REGULATION

For decades, 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, including urban water bodies.¹ Under the Clean Water Act (CWA), when pesticides impact water bodies, local agencies may be held responsible for exceedances in surface waters, as well as costly monitoring and mitigation efforts. To date, some California municipalities² have incurred substantial costs to comply with pesticides-related Total Maximum Daily Loads (TMDLs) and additional permit requirements. In some cases (e.g., diazinon, chlorpyrifos), municipal compliance costs have continued more than a decade after termination of virtually all urban use. In the future, more municipalities throughout the state are expected to be subject to similar requirements, as additional TMDLs and Basin Plan Amendments are adopted (Table 1). Meanwhile, local agencies have no authority to restrict or regulate when or how pesticides are used³ in order to proactively prevent pesticide pollution and avoid these costs and liabilities.

Under federal and state statutes, EPA and DPR have the authority and responsibility to regulate pesticides and 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 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).

New Pesticide 303(d) Listings and Delistings Approved in 2022

In January 2022, the State Water Board adopted the 2020-2022 Integrated Report for which the Central Coast, Central Valley and San Diego Regions were scheduled for on-cycle 303(d) reviews. The report was subsequently submitted to and approved by EPA.

Listings: The report included numerous additional 303(d) pesticide listings for all three regions. While the most common listings were for pyrethroids (either specific individual pesticides or the overall pyrethroid group), other listings include imidacloprid, fipronil and diuron. Dichlorvos was also added for an urban creek in San Diego and Bensulide (an organophosphate pesticide) was added for an urban/rural mixed region in Monterey County.

Delistings: The report included 38 delistings from the 303(d) list, most of which were diazinon (urban uses already prohibited) and chlorpyrifos (no meaningful urban uses). Notably, organophosphate pesticides were delisted for an urban waterway in Sacramento and two urban waterways in Stockton due to attaining water quality standards.

[\(State Water Board's 2020-2022 Integrated Report, May 11, 2022\).](#)

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.

Table 1. California TMDLs, Statewide Water Quality Control Plans, and Basin Plan Amendments Addressing Currently Registered Pesticides and/or Toxicity in Urban Watersheds^{4, 5, 6}

Water Board Region	Water Body	Pesticide	Status
Statewide	All MS4s/All Urban Waterways: Statewide Water Quality Control Plan amendments for urban pesticides reduction [“Urban Pesticides Amendments”] (Inland Surface Waters, Enclosed Bays & Estuaries, and Ocean)	All Pesticides/All pesticide-related toxicity	In preparation
	Sediment Quality Objectives (Enclosed Bays & Estuaries)	Sediment Toxicity ⁷	Approved
	Toxicity Provisions (Inland Surface Waters and Enclosed Bays & Estuaries)	Toxicity ⁷	Adopted by State; awaiting EPA approval ⁸
San Francisco Bay (2)	All Bay Area Urban Creeks	All Pesticide-Related Toxicity	Approved
Central Coast (3)	Santa Maria River Watershed Lower Salinas River Watershed	Pyrethroids, Toxicity Pyrethroids, Toxicity Malathion, Chlorpyrifos, Diazinon ⁹	Approved Approved Adopted by Central Coast Water Board, June 2022 ¹⁰
	San Lorenzo River Watershed (Santa Cruz)	Chlorpyrifos ⁹	Approved
Los Angeles (4)	Marina del Rey Harbor	Copper (Marine antifouling paint) ¹¹	Approved
	Oxnard Drain 3 (Ventura County)	Bifenthrin, Toxicity	EPA-Adopted Technical TMDL
	Calleguas Creek, its Tributaries and Mugu Lagoon	Water & Sediment Toxicity ⁷ Diazinon & Chlorpyrifos ⁹	Approved
	McGrath Lake (Ventura County)	Sediment Toxicity ⁷	Approved
	Colorado Lagoon (Long Beach)	Sediment Toxicity ⁷	Approved
	Dominguez Channel; Greater Los Angeles & Long Beach Harbor Ballona Creek Estuary	Sediment Toxicity ⁷ Sediment Toxicity ⁷	Approved Approved

⁴ Excludes pesticides that are not currently registered in California, such as organochlorine pesticides.

⁵ https://www.waterboards.ca.gov/water_issues/programs/tmdl/

⁶ https://www.waterboards.ca.gov/water_issues/programs/tmdl/2020_2022state_ir_reports_final/apx_d_adopted_tmdls_list.pdf

⁷ These TMDLs/Plan provisions can trigger toxicity testing stressor source identification studies, and additional follow up, even when toxicity is linked to current pesticides.

⁸ https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html

⁹ Use prohibited in urban areas (diazinon) or no meaningful use due to use limitations (chlorpyrifos).

¹⁰ https://www.waterboards.ca.gov/centralcoast/board_info/agendas/2022/jun/item8_att1a.pdf

¹¹ Primarily addresses pesticides that are directly discharged and should not ordinarily appear in stormwater (marine antifouling paint).

Water Board Region	Water Body	Pesticide	Status
Central Valley (5)	Sacramento River and San Joaquin River Basins	Pyrethroids	Approved
	Sacramento-San Joaquin River Delta Waterways	Diazinon & Chlorpyrifos ⁹	Approved
	Sacramento & Feather Rivers	Diazinon & Chlorpyrifos ⁹	Approved
	Sacramento County Urban Creeks	Diazinon & Chlorpyrifos ⁹	Approved
	Lower San Joaquin River	Diazinon & Chlorpyrifos ⁹	Approved
Lahontan (6)	Pesticide Discharge Prohibition	All Pesticides	Approved
Santa Ana (8)	Newport Bay	Copper (Marine antifouling paint) ¹¹	In preparation ¹²
	San Diego Creek, and Upper and Lower Newport Bay	Toxicity (Diazinon & Chlorpyrifos) ⁹	EPA-Adopted Technical TMDL
San Diego (9)	Shelter Island Yacht Basin (San Diego Bay)	Copper (Marine antifouling paint) ¹¹	Approved
	Chollas Creek	Diazinon ⁹	Approved

¹² <https://www.newportbeachca.gov/government/departments/public-works/ocean-water-quality/newport-bay-copper>

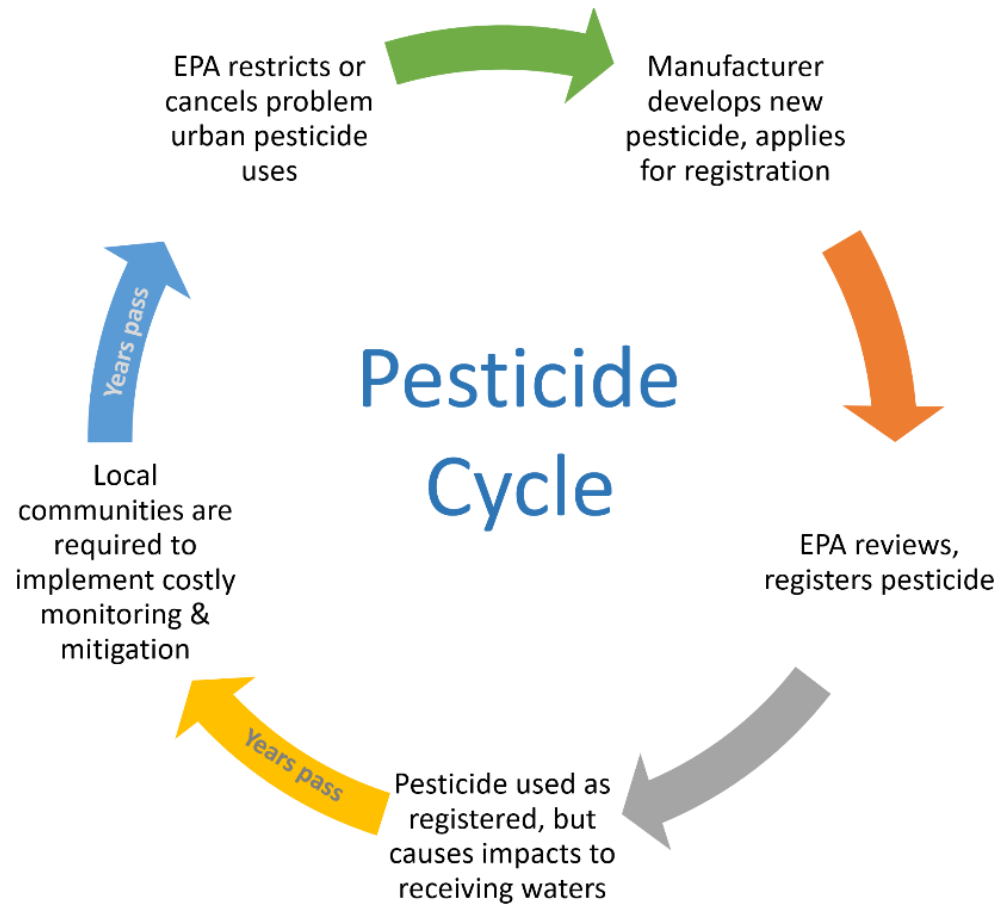


Figure 1. The Pesticide Regulatory System Can Lead to Harmful Outcomes to Surface Waters, Proving Costly to Municipalities.

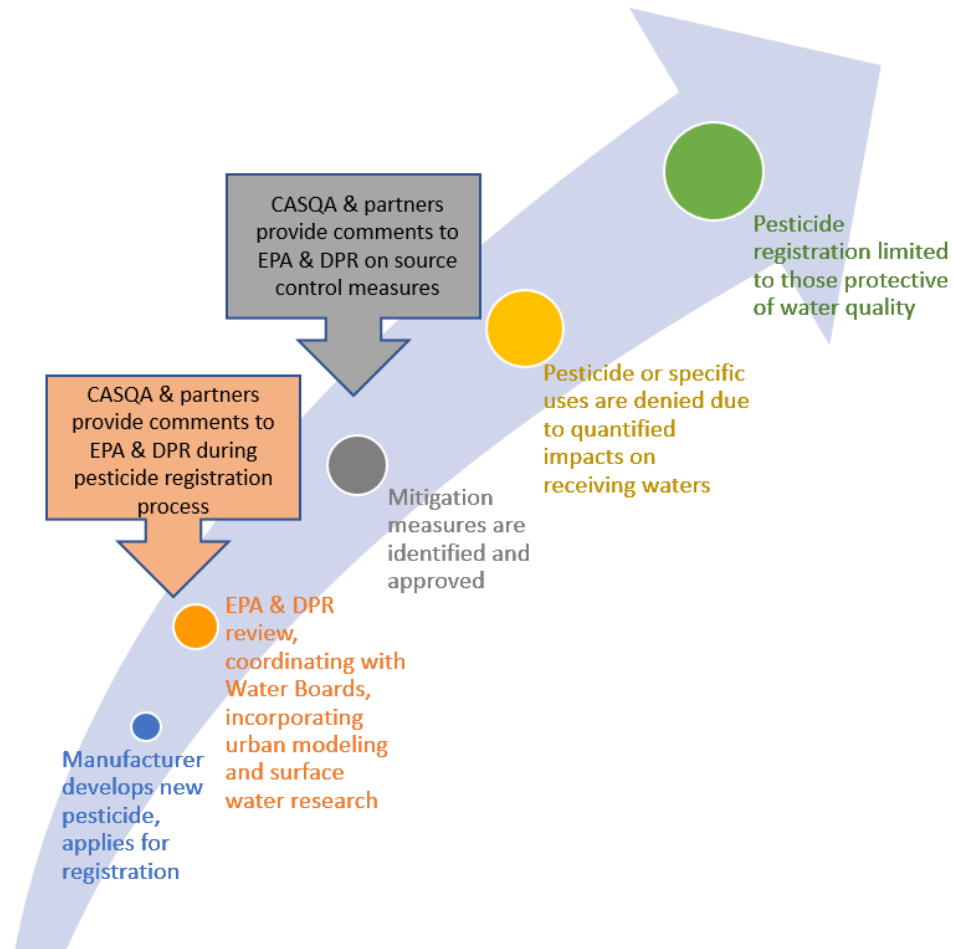


Figure 2. Via Proactive Use of the Pesticide Regulatory Structure, CASQA and Partners Seek to Restrict Pesticide Uses that have the Potential to Cause Urban Water Quality Problems.

1.2 CASQA'S GOALS AND APPLICATION TO PROGRAM EFFECTIVENESS ASSESSMENT

CASQA's *Vision for Stormwater*, first approved by the Board of Directors in 2015, is periodically updated to reflect developments in stormwater management. In October 2020, CASQA released the updated *Vision for Sustainable Stormwater Management*.¹³ Within CASQA's Vision, Action 1.2 is to "Minimize Pollution Through True Source Control." Among the objectives described within Action 1.2, Objective 2 has the following scope:

Objective 2: Implement an Urban Pesticide Program

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, including urban water bodies. 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.

Potential Collaborators: State Water Board, DTSC, EPA, DPR

The effectiveness of CASQA's efforts toward this scope can be expressed in relation to management questions established as part of Municipal Separate Storm Sewer Systems' (MS4s') program effectiveness assessments that are required in some MS4 permits. With respect to addressing urban pesticide impacts on water quality, the following two management questions 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?

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?

This report is organized to answer these management questions and is intended to support annual permit compliance requirements 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.

¹³ [https://www.casqa.org/sites/default/files/downloads/final - vision for sustainable stormwater management - 10-07-2020.pdf](https://www.casqa.org/sites/default/files/downloads/final_-_vision_for_sustainable_stormwater_management_-_10-07-2020.pdf)

Section 2. Latest Results of CASQA Efforts

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 in the prioritization of near-term efforts (Section 2.1).

Meanwhile, CASQA and BACWA continue to work on parallel efforts to effect long-term systemic changes in the regulatory process itself (see inset). 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 BACWA are gradually achieving results (Section 2.2).

2.1 NEAR-TERM REGULATORY CONCERNS

CASQA seeks to ensure that the Water Boards and EPA's Office of Water (OW) work with DPR and EPA's OPP to manage problem pesticides that are creating near-term water quality impairments. These efforts address CASQA Vision Action 1.2 as well as Phase II MS4 Program Effectiveness Assessment and Improvement Plan (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 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 early actions were taken to address pyrethroid and fipronil problems at the urging of CASQA and DPR. However, EPA does not show a clear understanding of key urban uses in its analyses, and it is still unclear if its upcoming risk management decisions for pyrethroids, fipronil, and imidacloprid and other neonicotinoids will provide any additional protection of urban water bodies.

CASQA and BACWA Continue to Coordinate Monitoring EPA and DPR Pesticide Regulatory Actions



There has been a long history of collaboration between CASQA, the Bay Area Clean Water Agencies (BACWA), and the State Water Board, as all entities seek to track and respond to pesticide regulatory actions, with the goal of avoiding pesticide-related toxicity.

CASQA and BACWA regularly track pesticide regulatory activities by EPA, DPR and other agencies. In 2021, CASQA and BACWA combined resources to track stormwater and wastewater priorities into a single Action Plan, updated monthly.

Together, CASQA and BACWA accomplish tasks that are impractical for individual member agencies. Both CASQA and BACWA are committed to continued collaborations to streamline our proactive regulatory approach. In 2022, a factsheet was developed to help member agencies understand the importance of this coordinated effort. (See Appendix A.)

2.1.1 Updated Pesticide Watch List

A key tool for identifying near-term regulatory concerns is CASQA’s Pesticide Watch List. As time permits, CASQA reviews scientific literature, government reports, 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). CASQA uses these insights to update the list each year (Table 2), which serves as a management tool to help focus efforts on the most important pesticides from the perspective of MS4 agencies.¹⁴ There are two upgrades in priority from 2021 to 2022. Dichlorvos is the basis for one new impairment in the most recent 303(d) list (spring 2022), moving it from Priority 4 to Priority 3. Naled, registered for mosquito abatements, degrades to dichlorvos (DDVP) post-application and remains at levels toxic to aquatic organisms; therefore it too has been upgraded to Priority 3. Bensulide (an organophosphate pesticide) was added as a Priority 3 due to the new 303(d) listing for an urban/rural mixed waterbody in Salinas. Bensulide has urban herbicide uses for landscaping and golf courses, is highly toxic to freshwater invertebrates, very highly toxic to marine and estuary invertebrates, and frequently sold in products in combination with oxadiazon (Priority 4 on the Watch List). There are a number of antimicrobial pesticides under review by EPA for uses in outdoor paints and coatings, the leaching of which can lead to water quality impacts; CASQA anticipates adding such pesticides to the Watch List in the coming months.

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 of active ingredients within 120 days.

Table 2. Current Pesticide Watch List (July 2022)

Priority	Basis for Priority Assignment	Pesticides		
1	Monitoring data exceeding benchmarks; linked to toxicity in surface waters; urban 303(d) listings	Pyrethroids (20 chemicals ¹⁵)	Fipronil	Imidacloprid 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	Carbendazim (Thiophanate methyl) ¹⁶ Chlorantraniliprole Copper pesticides *	Creosote (PAHs) Indoxacarb Neonicotinoids (other than Imidacloprid) ¹⁷ Pendimethalin	Pesticides with dioxins impurity ¹⁸ PHMB + Zinc pesticides (including Ziram) +
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 Bensulide	Diuron Naled Naphthenates	Simazine Silver pesticides + Trifluralin

¹⁴ The first Watch List was published by the UP3 in 2005.

¹⁵ Allethrin, Bifenthrin, Cyfluthrin, Cyhalothrin, Cypermethrin, Cyphenothrin, Deltamethrin, Esfenvalerate, Etofenprox, Flumethrin, Imiprothrin, Metofluthrin, Momfluothrin, Permethrin, Prallethrin, Resmethrin, Sumethrin [d-Phenothrin], Tau-Fluvalinate, Tetramethrin, Tralomethrin.

¹⁶ Carbendazim is a registered pesticide, and also a degradate of thiophanate-methyl

¹⁷ Acetamiprid, Clothianidin, Dinotefuran, Thiamethoxam (degrades into Clothianidin)

¹⁸ 2,4,-D, Chlorothalonil, Dacthal, Pentachlorophenol

* Used in pools, spas, and/or fountains

Priority	Basis for Priority Assignment	Pesticides		
		Chromium pesticides Dichlorvos (DDVP)		
4	High or unknown toxicity (parent or degradate) and urban use pattern associated with water pollution; synergist for higher tier pesticide; on DPR priority list	Abamectin ADBAC pesticides ¹⁹ + Antimicrobials in paints/coatings Azoxystrobin Bacillus sphaericus + Bacillus thuringiensis + Bromacil N-Bromosulfamates Busan-77 + Carbaryl Chlorinated isocyanurates+ Chlorine + Chlorine dioxide + Chlorfenapyr Chlorsulfuron DCOIT + DDAC +	Dichlobenil Dithiopyr Halohydantoins + Hydramethylnon Hypochlorites + Imazapyr Isoxaben Mancozeb Methomyl Methoprene + Methyl anthranilate + Mineral bases, weak + Mineral oil (aliphatic) + MGK-264 Novaluron Oryzalin Oxadiazon Oxyfluorfen	PCNB Peroxyacetic acid + Phenoxy herbicides ²⁰ Piperonyl butoxide (PBO) Prodiamine Propiconazole Pyrethrins Pyriproxyfen + Sodium bromide + Sodium chlorite + Sodium percarbonate + Sodium tetraborate + Spinosad + / Spinetoram Sulfometuron-methyl Tebuconazole Terbutylazine + Triclopyr Triclosan Trimethoxysilyl quats
5	Frequent questions from partners	Chloropyrifos (near zero urban use)	Diazinon (no urban use) Glyphosate	Metaldehyde
New	Priority determined on the basis of proposed urban use, aquatic toxicity, and other information in registration application.	Not known but may include the following:	Cyantraniliprole Cyclaniliprole Flupyradifurone	Nitenpyram (Neonic) Nithiazine (Neonic) Sulfoxaflor (Neonic)
None	Based on review of available data, no approved urban use or no tracking trigger as yet identified.	Most of the >1,000 existing pesticides		
Unknown	Lack of information. No systematic screening has been completed for the complete suite of urban pesticides.	Unknown		

¹⁹ Alkyl Dimethyl Benzyl Ammonium Chlorides (ADBAC) includes a family of 21 different quaternary ammonium pesticides.

²⁰ MCPA and salts, 2,4-D, 2,4-DP, MCPP, dicamba

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 five to eight years to complete the entire process. In addition to this process, pesticides are typically evaluated based on Endangered Species Act criteria. EPA regularly updates its schedule for approximately 50 pesticides that will begin the review process in a given year.²¹

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



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.” These evaluations, mitigation measure development, and mitigation effectiveness evaluation have involved ongoing communication with CASQA and partners.

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 and Progress

Table 3 presents a summary of recent CASQA and partner activities to address near-term regulatory concerns and the latest results; for additional insight regarding on-going pesticide registrations, see Appendix C. CASQA monitors the Federal Register and DPR’s website for notices of regulatory actions related to new pesticide registrations and registration reviews. This includes monitoring EPA’s dockets via the website [Regulations.Gov](https://www.epa.gov/regulations-gov) which had lost functionality during the previous administration and was recently restored thanks to CASQA and partners (see inset on next page). Since the Pesticide 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.

In addition, EPA’s OPP strives to update their Aquatic Life Benchmarks table on an annual basis.²² In August 2021, EPA’s Office of Pesticide Programs, Environmental Fate and Effects Division updated its pesticides Aquatic Life Benchmarks table.¹⁸ These updates included benchmarks for 9 newly registered

²¹ See <https://www.epa.gov/pesticide-reevaluation/registration-review-schedules> for schedule information.

²² <https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/aquatic-life-benchmarks-and-ecological-risk>

pesticides (and their degradates) and 81 previously registered pesticides (and their degradates) undergoing registration review. This included updates for 26 pesticides (and 16 associated degradates) on CASQA's Pesticide Watch List. Among those were the following CASQA Priority 1 pesticides:

- Fipronil
- Three fipronil degradates
- Eleven individual pyrethroids
 - Bifenthrin
 - Beta-Cyfluthrin
 - Cyfluthrin
 - Gamma-Cyhalothrin
 - Lambda-Cyhalothrin
 - Alpha-Cypermethrin
 - Beta-Cypermethrin,
 - Cypermethrin,
 - Deltamethrin
 - Esfenvalerate
 - Permethrin

CASQA and Partners Succeed in Returning Transparency to EPA's Pesticide Dockets

The federal General Services Administration (GSA) operates the website Regulations.Gov. The website has long been the primary public access point for federal agency rulemaking "e-dockets" and their contents, such as proposed and final rules, supporting data, and public comments. Despite its historical limitations, the website maintained e-docket information in a way that was organized and reasonably accessible to interested parties.

Beginning around 2019, the website began to be altered in such a way that it impaired CASQA's ability to interact with EPA pesticide dockets, including the ability to search for and receive information and to post comments. Among the issues impacting CASQA's ability to engage with EPA's dockets were as follows:

- **Subscription Service Termination:** The subscription services feature was essential to CASQA and countless interested parties attempting to track changes in federal rules and regulations. Subscribing to a docket has been the only reasonably efficient way to know when EPA posts something on the docket.
- **Search Non-Functional:** The previous version of the Regulations.Gov site was easy to search; the new version's search engine did not provide any results.
- **User Interface:** The user interface hid prior comments and obfuscated access to all documents in the dockets.

In May 2021 the Democracy Forward Foundation and eight other public interest organizations submitted a letter to GSA describing concerns with the website. This opened the door to additional comment letters from CASQA, BACWA, and the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). Subsequently, GSA invited CASQA and partners to online meetings in September 2021 and March 2022. During that time GSA made the following progress:

- **Subscription Services Restored:** GSA restored email subscriptions for updates on a specified docket.
- **User Interface:** One-stop access to all posted comments for a given docket.

CASQA continues to coordinate with GSA lead staff as they continue to make improvements and restore prior features. Their attention to our concerns this past year was encouraging.

Table 3. Latest Results of Efforts Communicating Near-Term Regulatory Concerns to EPA²³

Regulatory Action or Concern	CASQA Efforts			Partner Support (Letters)	Outcomes and notes
	Letter(s)	Call(s) or emails	Mtg(s)		
Cyhalothrins Proposed Interim Decision (PID)	✓			BACWA	Partial Success. In the PID, EPA concluded that outdoor / urban uses present substantial risks to freshwater and estuarine/marine fish and invertebrates. As mitigation, EPA proposed label language changes. CASQA sought enhancements to the proposed label language to include a graphic to prevent spilling or dumping into storm drains, to provide clear and consistent language regarding impervious and vertical surfaces, and provide California-specific labels for outdoor structural pest control. No such requests were granted. (See Appendix C for details.)
Pyrethroids and Pyrethrins Risk Mitigation Proposal for 23 Chemicals	✓			BACWA SFBRWQCB NACWA	CASQA noted that the risk/benefits should differentiate between the 23 chemicals and among the various outdoor uses. CASQA further argued that EPA should ban outdoor uses of bifenthrin. In a subsequent PID only for pyrethrins (not pyrethroids), EPA responded that their analysis was adequate and that <i>“bifenthrin is not outstanding among pyrethroids in terms of risk quotient exceedances, aquatic invertebrate toxicity, or environmental persistence.”</i>
Permethrin Draft Risk Assessment (Antimicrobial Uses)	✓				CASQA questioned the assumption that “exposure to aquatic areas from terrestrial uses is expected to be negligible,” and recommended modeling scenarios for existing terrestrial wood preservative uses – specifically fences and decks. EPA responded that the chemical parameters for permethrin suggest the leaching rate for those scenarios would lead to negligible exposure. EPA also referenced a 2020 document that indicates permethrin is not intended for such uses despite the fact that there are labeled permethrin-containing products for such uses. (See Appendix C for details.)
Malathion National Marine Fisheries Service ESA Biological Opinion (BO)	✓				CASQA sought significant mitigation measures such as restricting malathion use in non-agricultural settings to professional applicators and restricting urban applications to avoid impervious surfaces. While the BO includes significant language to limit application on impervious surfaces, the language only applies within 300 meters of ESA-listed species habitats. (See Appendix C for details.)

²³ Color coding in this table is meant to reflect the Pesticide Watch List prioritization color coding in Table 2.

Regulatory Action or Concern	CASQA Efforts			Partner Support (Letters)	Outcomes and notes
	Letter(s)	Call(s) or emails	Mtg(s)		
Chlorothalonil Draft Ecological Risk Assessment (Antimicrobial Uses)	✓				Pending. Asked that EPA perform surface water modeling for urban uses that were omitted from the Risk Assessment including commercial, industrial, and residential outdoor uses. For the uses EPA did include in the analysis (turf and nurseries), EPA concluded that the fungicide is highly toxic to freshwater and estuarine/marine fish, freshwater and estuarine/marine invertebrates, and amphibians. On that basis, CASQA requested that EPA (1) develop a comprehensive mitigation program to reduce potential negative impacts to aquatic organisms from non-agricultural uses, particularly those uses involving antimicrobial protection for building materials and (2) prioritize mitigation measures that reduce the transport of chlorothalonil to urban runoff.
Ziram Ecological Risk Assessment and Proposed Interim Decision	✓				Partial Success. For freshwater invertebrates, EPA cited several reasons why the calculated risks were likely to be overestimates leading to a conclusion that appeared to be speculative and arbitrary, the results of which may not be sufficiently protective of aquatic life. Therefore, CASQA asked that EPA modify its risk assessment analysis for freshwater invertebrates. In addition, CASQA requested that the risk assessment be amended to include consideration of the results of a sediment toxicity study for freshwater invertebrates. In the subsequent PID, EPA agreed that additional analysis would be beneficial but that the analysis is no longer needed. Due to human health effects, EPA is proposing cancellation of the paint preservative uses of ziram as well as additional controls for non-paint materials preservative uses of ziram. CASQA submitted a subsequent letter supporting product cancelations and controls. (See Appendix C for details.)
Creosote Proposed Interim Decision	✓				EPA's Decision was made without the benefit of an Ecological Risk Assessment. This was due to a lack of data despite multiple data requests by EPA to the registrants (dating back to 2011). Therefore, CASQA asked that an Ecological Risk Assessment be completed before publishing a registration review decision. EPA responded that they did not want to delay registration review to await ecological data given the need for mitigation for worker protection. CASQA further requested that EPA seek monitoring data given that PAHs found in creosote are commonly detected in urban runoff and receiving waters. EPA concurred that PAHs are common but that the registered upstream sources are so varied so as not to allow a correlation between creosote uses and PAH pollution. (See Appendix C for details.)

Regulatory Action or Concern	CASQA Efforts			Partner Support (Letters)	Outcomes and notes
	Letter(s)	Call(s) or emails	Mtg(s)		
Diuron Ecological Risk Assessment; Diuron Antimicrobial Use Risk Assessment and PID	✓				Partial Success. CASQA sought consistency in toxicity endpoints within EPA documentation. EPA concurred that the endpoints were inconsistent between the two risk assessments and that would be addressed in the amended Ecological Risk Assessment. CASQA requested that the risk assessment be amended to include sediment toxicity study for freshwater invertebrates. EPA noted that because they are cancelling all conventional herbicidal uses, such studies are not warranted. CASQA countered that such studies are still necessary due to the antimicrobial uses. (See Appendix C for details.)
Oxadiazon Draft Risk Assessment	✓				Partial Success. CASQA supported the termination of specific uses in the Draft Risk Assessment; some of which were removed from the subsequent PID. A prohibition of liquid applications is among the mitigations still in place in the PID. (See Appendix C for details.)
Pyrethrins PID	✓			BACWA SFBRWQCB NACWA	Success! CASQA recommended that the label language be updated to include water protection statements, definitions of spot-treatments, a reduction in height of building treatments (from 3 feet to 2 feet), weather prohibitions (rain and/or wind events), and a Spanish translation for the outdoor drain discharge prohibition. EPA concurred with these suggestions. CASQA also recommended that EPA include an outdoor drain graphic. The EPA responded that <i>“outdoor and agricultural product labels already have label statements to prevent these chemicals from reaching drainage systems.”</i> Instead, EPA added an indoor drain graphic which is still a valuable addition.(See Appendix C for details.)

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 Phase II MS4 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 closer to that future. Many of these improvements are linked to the persistent work of CASQA and partners 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 process 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. The goal is to embody this process in the State’s UPAs and the Management Agency Agreement (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 yet do this reliably and does not have a system in place to ensure that this will happen consistently and adequately. Meanwhile, scientific studies are being conducted by USGS and EPA’s Office of Research and Development to better understand the complexities of pollution in urban stormwater. In addition, another EPA branch, the Office of Chemical Safety and Pollution Prevention (OCSPP), tasked their Pesticide Programs staff with improving the integration of the EPA and Services implementation of the Endangered Species Act.

2.2.1 Focus on EPA’s Federal Endangered Species Act

In April 2022, EPA published their “first-ever comprehensive workplan to address the decades-old challenge of protecting endangered species from pesticides.”²⁴ The workplan presents a vision and four strategies to approach this challenging effort to protect endangered species while protecting public health (see callout box at right).²⁵

CASQA communicated directly with OCSPP’s Deputy Assistant Administrator for Pesticide Programs to advance the importance of urban stormwater uses and the need for mitigations to clearly tie to risk analysis findings, targeting specific uses and products.



EPA

**Balancing Wildlife Protection and Responsible Pesticide Use:
How EPA’s Pesticide Program Will Meet its Endangered Species Act Obligations
2022**

- Strategy 1: Meet ESA Obligations for FIFRA Actions
- Strategy 2: Improve Approaches to ESA Mitigation
- Strategy 3: Improve Interagency Consultation Process
- Strategy 4: Improve Stakeholder Engagement

²⁴ <https://www.epa.gov/newsreleases/epa-announces-plan-protect-endangered-species-and-support-sustainable-agriculture>

²⁵ For complete document see https://www.epa.gov/system/files/documents/2022-04/balancing-wildlife-protection-and-responsible-pesticide-use_final.pdf.

In addition, in June, EPA hosted an Environmental Monitoring Public Meeting (EMPM), the focus of which was the Endangered Species Act and solutions to avoid, minimize or offset potential effects from pesticides to endangered and threatened species and designated critical habitats. CASQA representatives prepared an abstract (see inset) and was subsequently invited to speak. More than 200 participants, including staff from OCSPP Pesticide Programs, convened for the online meeting.

The primary message CASQA representatives conveyed was that practical ESA mitigations specific to urban users are necessary, feasible, and cost-effective. CASQA's presence at the meeting was key, given that other presenters represented registrants and agricultural users. CASQA was the single presentation to make connections between urban uses and endangered species. The presentation included numerous examples of effective mitigations, including DPR's strict limitations to structural use of fipronil by licensed, trained users. The presenters concluded with the following:

- Endangered species are exposed to pesticides used in urban areas via wastewater and urban runoff;
- Desktop studies and modeling can identify and prioritize specific urban pesticide uses for mitigation actions;
- Advanced treatment of pesticides in wastewater and urban runoff is not a feasible mitigation strategy;
- Pesticide label changes are only effective for licensed & trained users; and
- Sale and use restrictions most effective mitigation option for products designed for unlicensed/untrained pesticide users.

CASQA sought to educate all participants, particularly EPA staff, that these mitigations cannot be initiated at the local level and thus require EPA to enact these source control measures (See Appendix B).

2.2.2 Focus on California's Urban Pesticides Amendments (UPA)

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.

CASQA Representatives Invited to Present at EPA's Environmental Modeling Public Meeting (EMPM) – Topic: Endangered Species Assessment, June 23, 2022



Tammy Qualls, M.S., P.E (Qualls Environmental Consulting); Kelly Moran, Ph.D (San Francisco Estuary Ins Stephanie Hughes, M.S., P.E. (Santa Clara University); and Armand Ruby, M.S. (Armand Ruby Consulting).

Abstract: State water regulators are required to ensure compliance with the Endangered Species Act (ESA) via authority allocated by the Clean Water Act (CWA) under the NPDES permit program. Local agencies must comply with the NPDES program. Since they cannot regulate the use and sale of pesticides in their local area, they have had to develop practical measures to avoid, minimize, or offset chemicals of concern. Advanced treatment of pesticides in wastewater and stormwater is costly and often unfeasible. Local agencies have instead focused on targeted mitigation of specific chemicals at their source. Source control has led to reduced concentrations of chemicals at publicly owned treatment works (POTWs) and in stormwater. The State of California Department of Pesticide Regulation (CA-DPR) has performed modeling of specific label language changes for the pesticide fipronil to evaluate how changing the width of the application spray or the frequency of application can alter the concentration of fipronil in surface water. This type of modeling of changes in label language allows CA-DPR to focus mitigations on quantifiable results that minimize the impact to aquatic life.

To accomplish this goal, the State Water Board established an urban pesticides reduction project (now titled the Urban Pesticides Amendments or UPA) as a top priority project under the comprehensive stormwater strategy it adopted in December 2015, known as “Strategy to Optimize Resource Management of Storm Water” or STORMS.²⁶ CASQA representatives have been participating actively in the development of the Urban Pesticide Amendments since their inception.

The State Water Board continues to work towards developing the UPA which may be developed as separate, standalone policy or, be incorporated into the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries, and the Water Quality Control Plan for Ocean Waters of California (once it is established). In mid-2019, DPR and the State Water Board signed a major update to their formal MAA that memorializes their existing systems and growing cooperation and lays out the steps they are taking toward a “unified and cooperative program to protect water quality related to the use of pesticides.” The State Water Board STORMS staff indicate that communication with DPR staff regarding the UPAs has been enhanced by the MAA and that the two agencies meet regularly.

CASQA continues to work closely with STORMS staff on the UPA as an effective path to solving urban toxicity and to support urban stormwater capture and use. In 2022, STORMS staff held several meetings with stakeholders, including CASQA representatives.. CASQA provided the STORMS staff with input regarding potential options for evaluating the effectiveness of the UPA in addressing MS4 pesticide discharges to support identification of compliance pathway options for municipal stormwater permits. STORMS staff presented at the October 2021 CASQA conference, and a STORMS staff member typically attends each TSC meeting, providing updates and accepting feedback.

According to STORMS staff, a draft UPA is expected to be issued and available for comment in spring 2023.

2.2.3 CASQA Participation in Federal and State Advisory Groups

As presented in Table 4, CASQA remains actively involved with various agencies and advisory groups that affect pesticide use and pest management in urban areas. CASQA’s long-time state-level leadership is now complemented by a new federal opportunity (see inset at right).

Urban Stormwater Representation at OPP

In 2022, Dave Tamayo, was appointed to the EPA’s Pesticide Program Dialogue Committee (PPDC), on which he previously served from 2010 to 2016. Mr. Tamayo is a long time member of the TSC subcommittee and CASQA and recently retired from Sacramento County. Mr. Tamayo has been approved by the CASQA Board as its official representative to this committee. The 40-person committee, chaired by the Director of OPP, includes representatives from growers, industry, environmental, public health, farmworkers, as well as state/local/tribal government. This is expected to be an important opportunity to include urban stormwater concerns in federal level dialogue. Mr. Tamayo has placed urban pesticide concerns on the PPDC’s list of potential future agenda items.

²⁶ 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/)

Table 4. Participation in Federal and State Efforts to Support CASQA's Goals

Agency or Conference	Latest Outcomes
EPA's Pesticide Program Dialogue Committee (PPDC)	<p>The PPDC holds biannual public meetings. At the May 2022 meeting, key CASQA topics included:</p> <ul style="list-style-type: none"> • A discussion of label reform, including digitization and standardization; • An update on the Endangered Species Act Workplan by the Deputy Assistant Administrator for Pesticide Programs for Office of Chemical Safety and Pollution Prevention.
DPR's Pest Management Advisory Committee (PMAC)	<p>Participation on the PMAC has resulted in expanded focus by DPR on urban pest management and water quality issues and generated funding for urban IPM research and implementation programs.</p>
DPR's Sustainable Pest Management Work Group (SPM)	<p>DPR formed this work group in 2021. The goal of the SPM is "to develop a recommended roadmap with ambitious, measurable goals to practically achieve the state's vision to accelerate a system-wide transition to safer, more sustainable pest management."²⁷ Two CASQA members serve as invited members of the Urban Subgroup of the SPM. Formal release of the SPM draft roadmap for public comment is expected to occur later in 2022.</p>

²⁷ https://www.cdpr.ca.gov/docs/pestmgmt/sustainable_pest_management_workgroup.htm

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. CASQA will continue to track and engage in EPA and DPR activities, with a focus on top priority active ingredients (as identified in the annual Pesticide Watch List) and sharing relevant urban runoff information and CASQA's water-quality specific expertise with pesticides regulators. Key documents to be reviewed will include risk assessments and risk management proposals with an eye toward ensuring that pesticide regulators have and consider accurate information on relevant factors in urban areas such as pesticide use patterns, urban pollutant transport mechanisms, and receiving water conditions. CASQA strives to ensure that pesticide regulators have access to relevant information such as monitoring data, water quality regulatory requirements, and urban runoff agency compliance liabilities and cost information. As necessary, CASQA will continue to recommend changes in an individual pesticide's allowable uses or use instructions, request consideration of impacts on water bodies receiving urban runoff, and/or ask that regulators fill critical data gaps by obtaining more data from manufacturers. As resources allow and circumstances warrant, CASQA will continue to collaborate with wastewater organizations (such as BACWA), other water quality stakeholders, and the Water Boards in commenting on EPA and DPR actions.

In the coming year, CASQA will continue to address near-term pesticide concerns and seek long-term regulatory change. 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 the coming year, CASQA will continue engagement on specific regulatory actions for priority pesticides at the federal level, while continuing the strategic focus on supporting State adoption of the UPAs. 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 effective professional user education about restrictions on its outdoor urban use.
 - 💧 Ensure DPR enforces mitigation measures for pyrethroids and fipronil, 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.
- (2) Seek long-term changes in the pesticide regulatory structure:
 - 💧 Leverage success at the state level and continue to be a key stakeholder in the STORMS project to adopt the statewide UPA. Through this process, CASQA will work with other stakeholders to implement the planned restructuring of California's urban surface water pesticides monitoring to increase its effectiveness and improve coordination.
 - 💧 Encourage and assist the Water Board to continue to implement its MAA with DPR and increase its leadership role in preventing and mitigating pesticide impairments through more effective pesticide regulation at the state and federal level.
 - 💧 Seek procedure changes such that DPR continues to refine its registration procedures to address remaining gaps in water quality protection.
 - 💧 Seek increased transparency of DPR regulatory activities, including timely access to scientific evaluation reports that are the basis of registration decisions.

CASQA will continue to seek opportunities to coordinate on high priority regulatory actions, with the Water Boards and other water quality stakeholders such as POTWs and non-profits, to take advantage of efficiencies, increase effectiveness, and ensure that the water quality community has a consistent message. Table 5 presents CASQA's activities anticipated for the coming year; CASQA will conduct these activities as priorities indicate and resources allow. Table 6 summarizes upcoming regulatory action items that are likely to proceed and may require CASQA attention in the coming year.

Table 5. CASQA Pesticide Activities

Activity	Purpose	
Regulatory Tracking	Track Federal Register notices	Identify regulatory actions for high priority active ingredients that may require review.
	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, and policies.
	Track activities at the Water Boards	Identify opportunities for improvements in TMDLs, Basin Plan Amendments, and permits.
	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.
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.
	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. Take advantage of opportunities to formally provide information and suggest more robust approaches that could be used in future regulatory processes. Request and maintain communication on mitigation actions addressing highest priority pesticides.
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.
Educational	Presentations to and informal discussions with EPA, DPR, Water Board, CASQA members,	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.
	Develop and deliver public testimony	Educate Water Board members about the problems with existing pesticide regulatory process, encourage change, and report on achievements.

Activity		Purpose
Monitoring and Science	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.
	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.
Reporting	Prepare Monthly Action Plans	Coordinate CASQA's regulatory actions with partners
	Prepare 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.

Table 6. Anticipated Upcoming Opportunities for Pesticides Regulatory Engagement

EPA Pesticide Registration Review (15-year cycle) (organized chronologically by anticipated next regulatory step) ²⁸			
Priority	Topic	Item	Urban Runoff Concern
unknown	New Antimicrobials	various	Varied; many of these pesticides are showing up for the first time at the PID level; review is needed to screen these for water quality issues
1	Fipronil	PID	Monitoring data; Anticipated 303(d) listings
2	Dacthal (DCPA)	RA	303(d) listings (dacthal, dioxins); Contains CWA Priority Pollutants (dioxins)
3	Sodium pyrethione	PID	Paint additive
4	Dicamba	RA	Phenoxy herbicide
1	Etofenprox	PID	Pyrethroid
2	Thiophanate methyl/ Carbendazim (MBC)	PID	Degradate toxicity, use patterns
4	2,4-D	PID	Phenoxy herbicide

²⁸ RA = Risk Assessment; PID = Proposed Interim Decision

4	Carbaryl	PID	Toxicity; monitoring data
4	Tebuconazole	PID	Fungicide
4	Chlorothalonil	PID	Central Valley Water Board high relative risk; 303(d) listings (dioxins); Contains CWA Priority Pollutant (Dioxins); DPR monitoring priority
4	Mancozeb	PID	Central Valley Water Board high relative risk
4	PCNB	PID	Dioxin impurity
4	Peroxy Compounds (peroxyacetic acid)	PID	Fountain chemical
2	Copper HDO	PID	303(d) listings (copper); TMDLs (copper); Contains CWA Priority Pollutant (Copper)
4	ADBAC group	RA	Antimicrobial
4	DDAC group	RA	Pool chemical
4	Isothiazolinones (includes DCOIT, BBIT, BIT, MIT, OIT)	RA	Antimicrobials. Uses include paints.

Other EPA-related Items

- U.S. EPA "[Increasing Consistency and Transparency in Considering Costs and Benefits in the Rulemaking Process](#)" affects how the U.S. EPA uses cost and benefit analysis in setting pollution standards. Rule proposal was expected in 5/19.
- Proposed rule to eliminate some OPP Federal Register Notices (was anticipated September 2018 according to U.S. EPA semi-annual regulatory agenda)
- U.S. EPA [Update to Guidelines for Deriving Aquatic Life Water Quality Criteria](#). Draft scoping document external peer review is next step. Seeking OPP engagement.

DPR New Pesticide Product Registration Decisions

New Product Applications (Active ingredient – product name)	Why tracking	Current Status
1R-Phenothrin - by MGK	Outdoor uses	Noted on EPA docket. Not yet in DPR Notice.
Tetraniliprole	Outdoor uses	Noted on EPA docket. Not yet in DPR Notice.
Momfluorothrin (and Phenothrin) - S-1563	New urban pyrethroid	2014: DPR confirmed that Surface Water would review.
Momfluorothrin (and Cypermethrin) - MGK Products	New urban pyrethroid	2014: DPR confirmed that Surface Water would review.
Alpha-cypermethrin - Fendona CS	New urban pyrethroid	2018: DPR confirmed that Surface Water would review.

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Transfluthrin - Bayer Product	New urban pyrethroid. Indoor and outdoor uses	Noted on EPA docket. Not yet in DPR Notice.
Fipronil and Bifenthrin - Taurus Trio G	Landscaping product	2017: DPR confirmed that Surface Water would review.
Fipronil - Termidor HP II	Termite product	2018: DPR confirmed that Surface Water would review.
Fipronil - MGK Formula 3115	Outdoor yellow jacket product	2019: DPR confirmed that Surface Water would review. 7/9/21: Notice of Final Decision posted. Product limited to bait stations.
Bifenthrin, Novaluron, and pyriproxyfen - Duraflex CS	Use on non-residential sites	2019: DPR confirmed that Surface Water would review.
Indoxacarb - Doxem Precise	New aerated indoxacarb powder	2019: DPR confirmed that Surface Water would review.
Zinc, Thiabendazole and 2-pyridinethiol-1-oxide – Ultra-Fresh DW-30	Potential use in vehicle tires	DPR is asking the registrant of that product that should not have been approved for use in rubber to change the product label to again say “not for use in California” with regard to the use in rubber.
Fipronil – Imidacloprid: Fuse Foam by Control Solutions, Inc.	Indoor/outdoor fipronil-imidacloprid foam	BACWA/CASQA have been tracking this product since 2017. 7/2/2021: DPR issues notice to deny, noting several problems with the label. 5/27/2022: DPR confirmed that the label that they are reviewing is the same as the label available on the EPA website.
Bifenthrin / Acetamiprid F9228-2 RTU insecticide / miticide by FMC	Outdoor and indoor uses. Label allows liberal spraying.	1/5/2022: DPR confirmed that the Surface Water Group would review.

Other DPR-related Items

- Registration Application Surface Water Reviews – continue to follow up on communications requesting review of all storm drain products and outdoor antimicrobials

Water Boards

- [State Water Board Urban Pesticides Amendments](#). State Water Board workshop/public comment period and decision expected in 2023.
- Pesticides 303(d) listings
- Pesticide TMDL implementation requirements for permittees

Other Statewide Items

- [**DPR Sustainable Pest Management Workgroup**](#). Workgroup has the goal of establishing measurable goals to achieve the state's vision of safer, more sustainable pest management. A subgroup is focusing on urban pesticides. The public will have opportunity to comment once the draft workplan is released in Summer 2022.
 - [**California Department of Food & Agriculture Program EIR on invasive species**](#) control covering potential broadcast pesticide applications urban areas of multiple priority pesticides. [**October 2021 update**](#): California's Court of Appeal has ruled that a statewide pesticide-spraying program violates the law by failing to study and minimize the threats from pesticides and to properly inform the public about the risks of spraying. The ruling noted that the department did not analyze or disclose the health and environmental harms of the more than 75 pesticides. The court decision also noted a lack of public notice. Furthermore, they did not evaluate local impacts or allow opportunity for affected communities to opt out. **June 2022 Update**: New ruling by Sacramento County Superior Court orders the state to halt spraying.
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Appendix A

CASQA / BACWA Fact Sheet

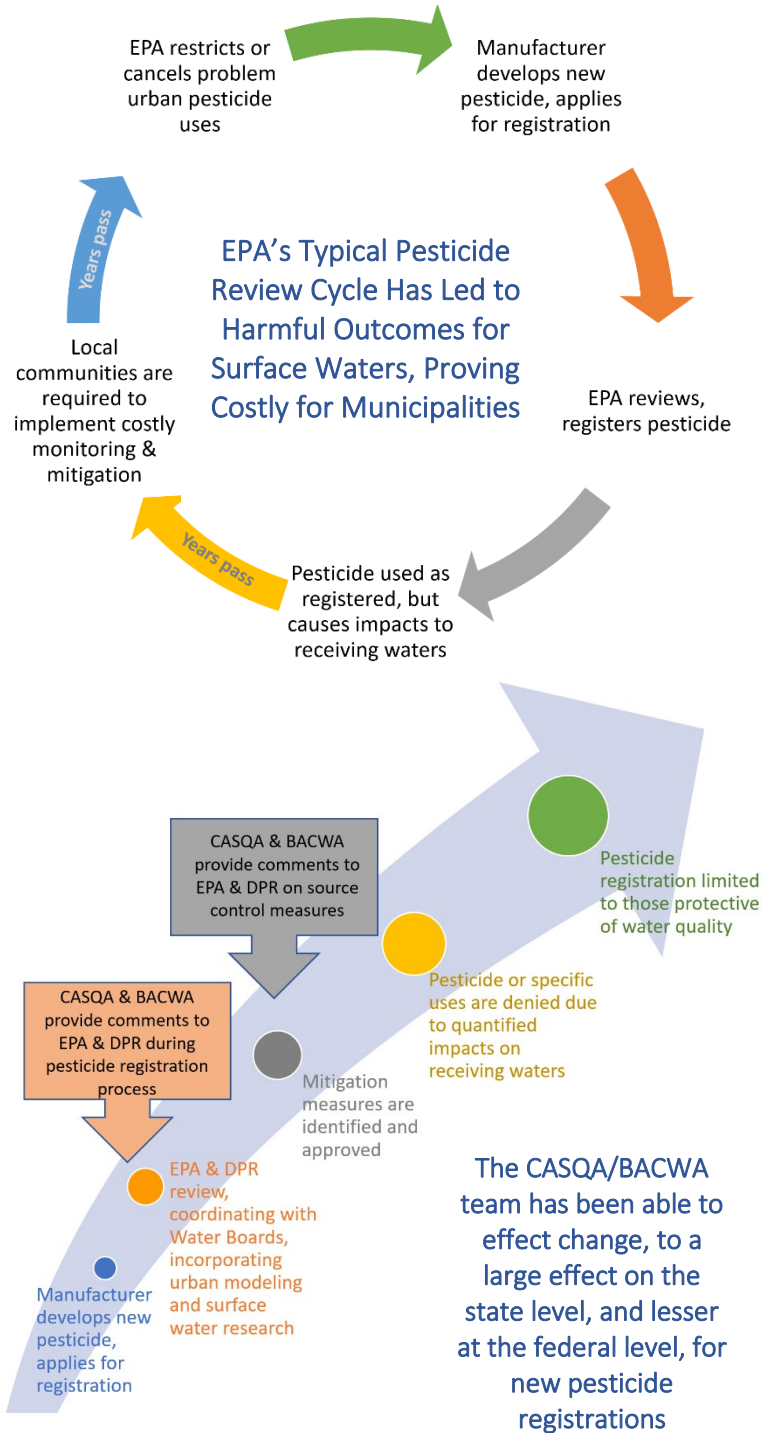
Urban Pesticides Threaten Ecosystem Health in California Watersheds

Pesticides including insecticides, herbicides, antimicrobials, fungicides, and rodenticides are a threat to aquatic ecosystems when they reach waterways through wastewater and stormwater. The Clean Water Act holds local agencies responsible for pollutant toxicity (including pesticides) in surface water, including the cost of monitoring and mitigation. Agencies also face substantial costs to comply with pesticides-related Total Maximum Daily Loads (TMDLs), Basin Plan Amendments, California State Water Board Toxicity Provisions, and additional permit requirements. Compliance costs for public agencies can continue years after a pesticide is banned (e.g. diazinon, chlorpyrifos) as the pesticides can remain in the aquatic environment long after they are used.

Unfortunately, local agencies only have authority over their own use of pesticides; they are pre-empted by state law from regulating pesticide sales or use by consumers and businesses. Instead, pesticides are regulated by the United States Environmental Protection Agency (EPA) and the California Department of Pesticides Regulation (DPR), which in some cases have not adequately protected urban discharges and water bodies from toxicity. Several pesticides are present in urban water bodies throughout California at concentrations above aquatic toxicity thresholds.¹

CASQA and BACWA Provide Input to EPA and DPR at Crucial Intersections

Since 2011, BACWA and CASQA have collaborated to educate EPA and DPR staff regarding wastewater and urban stormwater obligations. Such collaborations require information sharing, coordination of communications with pesticide regulators, and contributing staff time and other resources in support of the shared goal. Both organizations coordinate with the State and Regional Water Boards (Water Boards) to address the impacts of pesticides efficiently and proactively through the statutory authority of DPR and EPA. Furthermore, we share our findings with other partner agencies and stakeholders so that our voices are magnified.²



¹ California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report) https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2020_2022_integrated_report.html

² Partners include National Association of Clean Water Agencies and National Municipal Stormwater Alliance.

CASQA and BACWA Accomplish Tasks that are Impractical for Individual Member Agencies

Since local agencies cannot locally regulate pesticides, BACWA and CASQA work to reduce pesticides in the aquatic environment by:

- **Educating Regulators Regarding Wastewater and Urban Stormwater Issues.** Half of all pesticide use occurs in urban areas, yet pesticide work at EPA is largely focused on agricultural uses. We educate EPA on the impacts of indoor and outdoor urban uses, and call attention to the pesticide-related challenges facing local public agencies.
- **Tracking and Prioritizing Pesticide Regulatory Action.** We use a multifaceted method for pesticide tracking and action, with the goal of reducing the impact of priority pesticides on the aquatic environment.
- **Sharing Science.** CASQA and BACWA share new scientific studies and monitoring data with EPA and DPR, essential to science-based regulation.
- **Identifying Data Gaps and Faulty Assumptions.** Due to its agricultural focus, EPA frequently omits key outdoor uses or indoor sources with direct paths to the sewer. EPA's pesticide use assumptions are sometimes incongruent with known use practices in California. Omitting key urban uses and associated aquatic risks prevents regulatory actions that would reduce toxicity in wastewater and stormwater.
- **Analyzing Monitoring Data.** We review urban watershed and POTW effluent monitoring data to identify pesticides that are exceeding or approaching aquatic toxicity thresholds.
- **Recommending Source Control Strategies to Prevent Harm.** Once EPA identifies potential for harm to aquatic organisms, it is open to discuss source control alternatives (which EPA refers to as mitigation) to prevent such harm. At that point we identify and recommend source control measures that could reduce such impacts.

Working Together, BACWA and CASQA Get Results

- **Through our cross-agency collaboration, DPR has improved pesticide registration.** DPR now has permanent stormwater and wastewater monitoring programs, and a permanent process to protect both stormwater and wastewater when new pesticides are registered.³
- **We offer unique insights.** Without CASQA and BACWA on the pulse of DPR and EPA's data analysis and modeling, the only feedback might be from manufacturers unaware of the regulatory and water quality challenges posed by their products.
- **BACWA/CASQA feedback has led to improved assessments and improved source control:**
 - EPA improved label language for hundreds of pyrethroid products, including a pictogram provided by a BACWA member agency (at right) (stormwater and wastewater)
 - DPR adopted pyrethroids regulations, including restrictions on outdoor residential use (stormwater)
 - DPR adopted fipronil restrictions that are expected to reduce fipronil in urban runoff more than 90 percent (stormwater)
 - EPA labeling requirements that protect urban water quality are consistently being required for pool and spa treatments (stormwater and wastewater)
 - EPA developed root control chemical POTW notification requirements (wastewater)
 - DPR required manufacturers to fund the POTW pyrethroids survey, providing monitoring data necessary for EPA's first-ever POTW-specific detailed evaluation in its Pyrethroids Registration Review (wastewater)
 - EPA improved evaluations for hydramethylnon, which resulted in label language mitigations: environmental hazards, rain advisory, and avoidance of broadcast applications on impervious surfaces (stormwater)




This Work Remains Essential

CASQA and BACWA have spent more than a decade seeking restrictions for the highest priority pesticides. The pesticides review process—driven by EPA—often lasts more than a decade, with each pesticide open for re-registration every 15 years. California does not have a periodic review process. While our actions may take years to see results, these tasks demonstrate our effort to influence State and federal regulators to adequately protect California's urban waterways.

³Water Quality Impairments Due to Aquatic Life Pesticide Toxicity: Prevention and Mitigation in California, USA, Kelly Moran, Brian Anderson, Bryn Phillips, Yuzhou Luo, Nan Singhasemanon, Richard Breuer, Dawit Tadesse, *Environ Toxicol Chem* 2020;39:953–966. <https://setac.onlinelibrary.wiley.com/doi/abs/10.1002/etc.4699>


Appendix B: CASQA / BACWA Presentation at EPA Environmental Monitoring Public Meeting

Practical measures and mitigations to reduce pesticide effects on endangered and threatened species in urban areas



Tammy Qualls, M.S., P.E (Qualls Environmental Consulting); Kelly Moran, Ph.D. (San Francisco Estuary Institute); Stephanie Hughes, M.S., P.E. (Santa Clara University); and Armand Ruby, M.S. (Armand Ruby Consulting).


Our work on this topic is funded by the Bay Area Clean Water Agencies and the California Stormwater Quality Association



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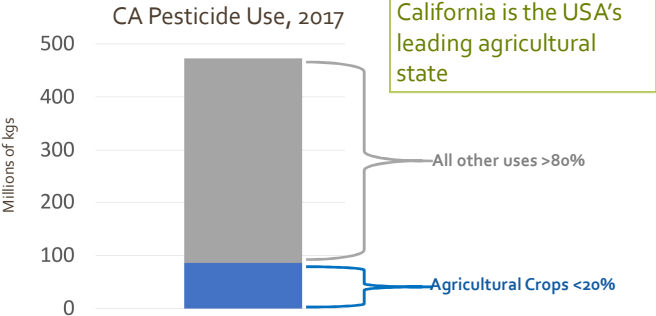
Endangered species habitat often overlaps with urban areas: **salmon example**

- Map shows urban areas on west coast of USA
- Darker brown areas are higher population density
- Green outline is Critical Habitat Designations for West Coast Salmon and Steelhead



Sources: NASA, NOAA Fisheries

Most pesticide use in California is **non-agricultural**



Category	Percentage
Agricultural Crops	<20%
All other uses	>80%

Sources: CDPR databases, Moran et al.(2020)

Non-agricultural uses of pesticides are ubiquitous

- Structural and landscape insecticides and herbicides
- Antimicrobial/ fungicides
- Industrial biocides
- Pesticides added to non-pesticide products, like building paint
- Disinfectants for drinking water and wastewater



Image credit: Tammy Qualls

Sources: CDPR databases, Moran et al. (2020)

Pesticides flow to surface waters through both indoor drains *and* outdoor runoff

Sewer



Storm Drain



Images sources: K. Moran, City of Palo Alto, and USGS

Pesticides create local agency liabilities

- Must comply with Clean Water Act
- Permit required for both wastewater and urban runoff discharges to Waters of the US
- Permit issuance requires ESA compliance

There are hundreds of current use pesticide impairments in CA alone, each requiring a Total Maximum Daily Load and discharge limit.



Ineffective mitigation example: Advanced water treatment

- Conventional treatment generally ineffective for pesticides
- Advanced treatment unrealistic
 - Costly and energy-intensive
 - No single treatment for all pesticides
 - Additional challenges with urban runoff due to large volume and episodic nature
 - Reverse osmosis concentrate can exceed toxicity thresholds for some pesticides, impacting disposal alternatives



Photo credits: City of Palo Alto

Sources: Sutton et al. (2019), UC Berkeley, Stanford, San Francisco Estuary Institute (2020).

Appendix B: CASQA / BACWA Presentation at EPA Environmental Monitoring Public Meeting



Ineffective mitigation example: product label changes for unlicensed/untrained users

- Unlicensed/untrained pesticide users typically don't read product labels
- Users that do read labels, usually don't read application instructions

Types of urban pesticide users	Percentage of pesticide use by user type (CA)
Licensed applicators	Small (<2%)
Trained applicators (e.g., water/wastewater treatment plant operators)	About half
Unlicensed/untrained applicators	About half

Sources: Dugger-Webster A, et al. (2018), Edworthy J, et al. (2004), Templeton, S., et al. (1998), Lockwood JA, et al (1994), Rother H-A, (2018), CDPR databases.



Mitigations that do work: targeted mitigation

- Pollution prevention is a common and effective mitigation approach
- Effective pollution prevention mitigation targets specific chemicals and particular users

Pollution Prevention means eliminating or reducing the amount and toxicity of potentially harmful substances at their sources, prior to generation, treatment, off-site recycling or disposal. It emphasizes preventing or minimizing pollution, rather than controlling it once it is generated.



Mitigation example 1: Fipronil for structural pest control CA Department of Pesticide Regulation

- Fipronil is toxic to aquatic invertebrates; monitoring data
- Modeled existing uses
 - Identified reductions needed to protect water quality
 - Identified primary source in urban runoff
 - Calculated reductions necessary
- Worked with users to confirm that proposed mitigation control pests



Image Source: Les Greenberg, UC Riverside

Focused, science-based label changes for licensed users expected to succeed

Source: Burant, A. et al. (2017).



Mitigation example 2: silver in wastewater effluent

- Silver impairment identified in San Francisco Bay and other CA waters
- Silver and other metals impact clam population and size
- Desktop studies found the main silver sources were discharges to wastewater treatment plants from photo processing and silver plating
- Wastewater agencies developed targeted mitigation:
 - Effluent limits and monitoring for large users
 - Silver waste recovery, onsite treatment/offsite disposal for small photo processors

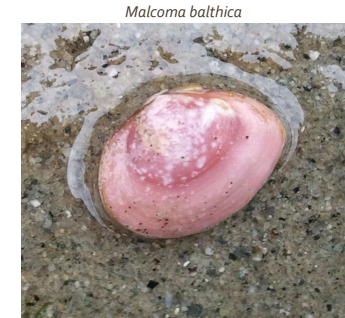
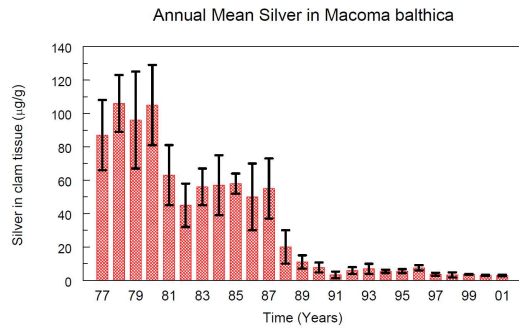


Image credit: Chanda Brietzke & Jessica Brown, <https://www.centralcoastbiodiversity.org/baltic-macoma-bull-macoma-balthica.html>

Appendix B: CASQA / BACWA Presentation at EPA Environmental Monitoring Public Meeting



Dramatic environmental response >95% silver reduction in clams and sediment near effluent discharge



Source: David, Carlos Primo C., et. al, (2002)



Mitigation example 3: Copper based root controls



- Copper impairment identified in the San Francisco Bay
- Single application **contaminates 20 million gallons of wastewater**
- Root control estimated at **5-12%** of the copper discharged to wastewater treatment plants.
- Mitigations and results:
 - ⊘ Point-of-sale public outreach generated no measurable copper reduction
 - CA DPR identified pesticide and non-pesticide alternatives
 - ✓ CA DPR prohibited sale and use of copper-based root killers in the San Francisco Bay Area.
 - Monitoring data showed a nearly 25% reduction in copper levels after prohibition enacted

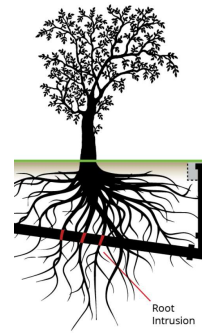


Image Source: Oro Loma Sanitary District



Mitigation example 4: tributyltin mitigation in cooling towers

- Wastewater effluent tributyltin (TBT) exceeded water quality standards in SF Bay
- TBT cooling tower biocide was only known wastewater discharge source
- Voluntary efforts unsuccessful as facilities managers proved unable to identify TBT products
- CA DPR identified many alternatives
- CA DPR prohibited sale and use of TBT cooling tower additives in the San Francisco Bay Area
- After implementation, wastewater TBT concentration below detection



Mitigation example 5: urban runoff copper and lead



- CA and WA legislation requires copper to be removed from brake pads by 2025; became de facto law for all 50 states
- 60 percent of brake pads compliant as of 2022



- Lead banned from gas in 1979 for air quality purposes
- Resulted in dramatic reductions in surface water concentrations

Appendix B: CASQA / BACWA Presentation at EPA Environmental Monitoring Public Meeting



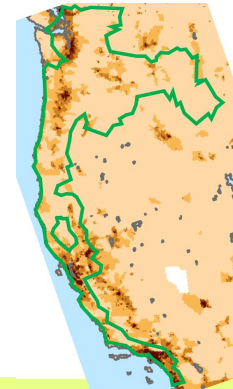
Numerous other examples of successful pollution protection programs

- **Pool, spa, and fountain maintenance** – eliminate fish kills by directing discharges to wastewater or open space like lawns
- **Dentists** – 45-75% reduction of mercury in wastewater biosolids after pollution prevention management practices program implemented in numerous US urban jurisdictions (locally-developed practices later became national EPA requirements)
- **Vehicle service facilities** – management practices to control metals, oils, solvents eliminated toxic stormwater and wastewater discharges
- **Restaurants** - grease traps eliminate sewage backups



Practical ESA mitigations specific to urban users are necessary, feasible, and cost-effective

- Endangered species are exposed to pesticides used in urban areas via wastewater and urban runoff
- Desktop studies and modeling can identify and prioritize specific urban pesticide uses for mitigation actions
- Advanced treatment of pesticides in wastewater and urban runoff is not a feasible pesticide mitigation strategy
- Pesticide label changes only effective for licensed & trained users
- Sale and use restrictions most effective mitigation option for products designed for unlicensed/untrained pesticide users



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Appendix C

Regulatory Participation Outcomes and Effectiveness Assessment Summary Tables

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Creosote

Cyhalothrins

Diuron

Malathion

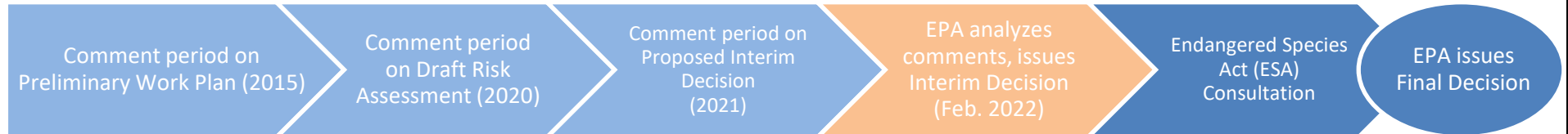
Oxadiazon

Permethrin

Pyrethrins

Ziram

Pesticide: Creosote – EPA-HQ-OPP-2014-0823
Why we care: 303(d) listings (PAHs); Contains CWA Priority Pollutants (PAHs); UP3 Priority (toxicity; use patterns)
Actions taken: CASQA sent a comment letter to EPA on the creosote Proposed Interim Decision (PID) on May 19, 2021.
Status: EPA released the Interim Registration Review Decision (ID) in February 2022.



Next steps: EPA will complete an endangered species determination and any necessary consultation with the Services.

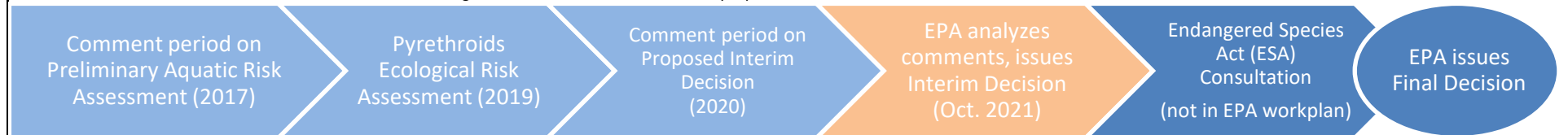
Recommendation: No action needed at this time as there is no open comment period.

CASQA 5/19/2021 Comments to EPA	EPA Response	Did EPA incorporate CASQA's comment?
EPA did not provide a draft ecological risk assessment for creosote, and did not produce required ecological studies that the EPA itself said were required. (see p.12 of EPA's Proposed Interim Decision)	<i>"The Agency does not support delaying the issuance of this interim registration review decision while ecological data are being generated, citing the important mitigation measures that will protect workers."</i> (Response to Public Comments on the Creosote Proposed Interim Decision, Dec 8, 2021, p.8)	No.
In addition to careful review and consideration of the required studies, the risk assessment should include surface water modeling using EPA's PRZM/VVWM runoff model, running under the current version of the Pesticide in Water Calculator (PWC), and including the right-of-way (ROW) scenario.	<i>"The Agency appreciates the suggestion; however, it believes there is no appropriate scenario available for the wood preservative use in the PWC. The Agency will consider the development of such a scenario in the future and is currently working on refining the modeling approaches used for estimating environmental exposures for antimicrobial pesticides."</i> (Response to Public Comments on the Creosote Proposed Interim Decision, Dec 8, 2021, p.8)	Partially, but only for consideration of future antimicrobial pesticide evaluations.
An updated ecological risk assessment for creosote should include a survey of available monitoring data for potentially toxic components of creosote, including PAHs. Such a survey should include data available from the Water Quality Data Portal (https://www.waterqualitydata.us/portal/), as well as additional data available from the California Department of Pesticide Regulation	<i>"The Agency acknowledges that PAHs are commonly detected in water monitoring data, but aquatic exposure of these compounds is associated with numerous sources including pavement, oil, and gas activities, use of coal tar sealants, storm sewer runoff, tire wear, and burning of fossil fuels and wood. As a result, the Agency cannot attribute water detections of</i>	No.

(CDPR) surface water ("SURF") database. PAH compounds are very commonly detected in samples of urban runoff and urban receiving waters.

PAHs to registered creosote uses in many cases, as was discussed in the DRA." (Response to Public Comments on the Creosote Proposed Interim Decision, Dec 8, 2021, p.8)

Pesticide: Cyhalothrins (Gamma and Lambda) – EPA–HQ–OPP–2010–0479 and EPA–HQ–OPP–2010–0480
Why we care: Priority pesticide due to toxicity, use, and monitoring data. Multiple 303(d) listings as well as adopted and pending TMDLs.
Actions taken: CASQA sent a comment letter to EPA on the cyhalothrins Proposed Interim Decision (PID) on January 11, 2021. In February 2020, CASQA also sent a comment letter to EPA on the Pyrethroids and Pyrethrins Ecological Risk Mitigation Proposal.
Status: EPA released the Interim Registration Review Decision (ID).



Next steps: EPA will complete an endangered species determination and any necessary consultation with the Services.

Recommendation: No action needed at this time as there is no open comment period.

CASQA 1/11/2020 Comments to EPA	EPA Response	Did EPA incorporate CASQA's comment?
CASQA strongly supports the "Required Label Language for Lambda-and Gamma-Cyhalothrin End-use products with outdoor, urban, non-agricultural uses". As defined in PID Appendix B, pp. 88-90, as a minimum level of mitigation required to address the known risks to aquatic species from outdoor / urban uses of cyhalothrins.	No direct response.	Yes, EPA kept the label language from the PID in the ID.
However, the Cyhalothrins PID does not provide any additional mitigation measures...to address the documented impacts of pyrethroid use in urban (non-agricultural) areas, and the risks to aquatic life of continued use of pyrethroid pesticides. This is despite significant evidence presented both in EPA's risk assessments and in our previous comment letters...consideration for possible additional mitigation measures should be afforded for each pyrethroid known through documented sources to contribute to surface water pollution.	"The Agency appreciates the comments from CASQA, SFBRWQCB, and BACWA. The Agency issued a single risk mitigation proposal to address ecological risks for 23 pesticides, which encompass the pyrethrins, synthetic pyrethroids, and pyrethroid-like insecticides, because they exhibit a common insecticidal mode of action and show similar ecological effects. Additionally, assessing these pesticides as a group would ensure a consistent approach to mitigating potential ecological risk, including providing equity to stakeholders, when implementing regulatory changes for pesticides in this group. EPA conducted a separate human health risk assessment for each chemical to account for different exposure pathways and human toxicity. The Agency has decided not to develop unique chemical-specific ecological risk mitigation for lambda-cyhalothrin and gamma-cyhalothrin at this time beyond what is already required as part of this ID. The Agency concludes that lambda-cyhalothrin and gamma-cyhalothrin provide high benefits for	No.

	controlling pests in indoor residential areas, outdoor urban areas, in agricultural crop production, and as an adult mosquito adulticide to control vectors for human disease. The Agency is requiring risk mitigation primarily to address risk to non-target invertebrates and fish. However, risks may remain to non-target organisms even after mitigation. Any remaining risks are outweighed by the benefits of lambda-cyhalothrin and gamma-cyhalothrin use.” (ID, pp. 14-15)	
<p>CASQA recommends the following enhancements to the proposed label language specified in Appendix B of the PID:</p> <ul style="list-style-type: none"> • design a clear schematic graphic for product labels to completely and effectively address prevention of product spilling or dumping into gutters and storm drains • review proposed label language text, and edit as needed to provide clear and consistent descriptions of pervious and impervious surfaces, to ensure clarity with respect to allowable exceptions, including with respect to applications to vertical surfaces, and • provide California-specific labels for outdoor structural pest control pyrethroids products that are completely consistent with California Surface Water Protection Regulations implemented by California Department of Pesticide Regulation. 	“...the Agency notes that all states, including California, are authorized to restrict pesticide use according to state requirements and standards.” (ID, pp. 15)	No.

Pesticide: Diuron – EPA–HQ–OPP– 2015–0077
Why we care: Fungicide/antimicrobial used in building products, including paint, caulks, and sealants. Also an herbicide. Highly toxic to aquatic life.
Actions taken: CASQA sent a comment letter to EPA on the Draft Ecological Risk Assessment (Draft RA) on May 7, 2021.
Status: EPA released the Proposed Interim Registration Review Decision (PID).



Next steps: EPA will issue an Interim Decision.
Recommendation: It is recommended that CASQA write a brief comment letter on the Diuron PID.

CASQA 5/7/2021 Comments to EPA (excerpt)	EPA Response	Did EPA incorporate CASQA's comment?
<p>A Chronic Sediment Toxicity Study Is Needed for Aquatic Invertebrates CASQA therefore requests that the risk assessment be amended to include consideration of the results of a sediment toxicity study for freshwater invertebrates.</p>	<p>EPA is cancelling all conventional (herbicidal) uses of diuron, so they state that this chronic sediment toxicity study is not needed.</p>	<p>No. While CASQA supports the cancellation of the conventional uses, it will remain important to complete the chronic sediment toxicity study for aquatic invertebrates due to the antimicrobial uses of diuron. EPA's evaluation of diuron for antimicrobial uses is continuing on a separate review schedule, for which CASQA last provided comments to the Draft RA in June 2021.</p>
<p>Monitoring Data Summaries Are Incomplete and Understate Diuron Surface Water Levels It is important for the risk assessments to include fully representative data for diuron in surface waters, particularly because the CDPR dataset includes a range of concentrations higher than those reported in EPA's monitoring summaries. We therefore request that the Draft ERA and Antimicrobials RA be amended to incorporate the CDPR SURF data for diuron.</p>	<p>None.</p>	<p>No.</p>

<p>Toxicity Endpoints Used in Diuron Risk Assessments Do Not Agree Across EPA Sources The toxicity endpoints used in EPA's modeling for the Draft ERA and Antimicrobials RA are not consistent, and the endpoints used in both documents are not in agreement with the Aquatic Life Benchmarks for Pesticides published on EPA's web site.</p>	<p><i>"The Agency appreciates the comments and acknowledges that there are inconsistencies in the Draft Risk Assessment for the antimicrobial uses of diuron. These inconsistencies will be addressed in the amended diuron risk assessment."</i> (Response to Public Comments on N'(3,4-dichlorophenyl)-N,N-dimethylurea (Diuron) Draft Risk Assessment on the Antimicrobial Use, p.6)</p>	<p>Yes.</p>
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Pesticide: Malathion – EPA-HQ-OPP-2009-0317
Use: Insecticide
Why we care: Malathion occurs in urban watersheds at concentrations above EPA’s malathion water quality criterion.
Actions taken: CASQA commented on the Draft Biological Evaluation on June 10, 2016, the National Marine Fisheries Service Biological Opinion on July 23, 2018, and the US Fish and Wildlife Service Draft Biological Opinion on June 18, 2021.
Status: The National Marine Fisheries Service Endangered Species Act Section 7 Conference and Revised Biological Opinion was released June 30, 2022.



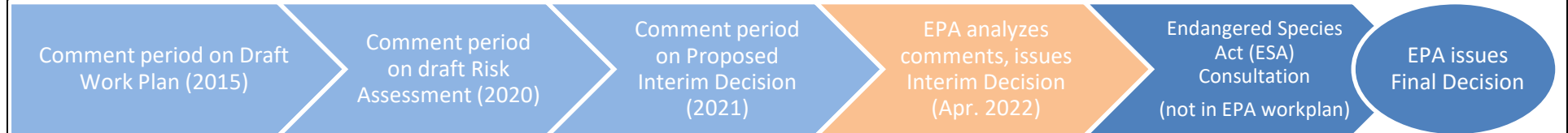
Recommendation: No action is needed at this time as there is no further opportunity for public comment.

CASQA Comments to EPA (June 2016, July 2018, and June 2021)	EPA Response (National Marine Fisheries Service Endangered Species Act Section 7 Conference and Revised Biological Opinion)	Did EPA incorporate CASQA’s comment?
Occurrence of malathion Clean Water Act 303(d) listings in urban water bodies is consistent with BiOp finding of adverse modification of critical habitat. Clean Water Act compliance assessments must be an integral part of BEs and Registration Review ecological risk assessments.	They acknowledged this linkage. (p. 718)	No.
<p>Evaluation of the proposed Reasonable and Prudent Alternatives (RPAs) in the context of urban (developed) areas. We highlight RPA approaches that are impractical or ineffective in the urban context and suggest alternatives. Mitigation is needed specifically for malathion impacts to aquatic life in developed watersheds. Suggested RPAs (through label modification) include:</p> <ul style="list-style-type: none"> • Restrict malathion use in non-agricultural settings to professional applicators. • Restrict applications in urban use sites to avoid impervious surfaces 	<p>“EPA and applicants agreed to modify the action to incorporate the draft RPA measures for all non-broadcast applications that occur within 300 m of specified ESA-listed species habitats.” (p. 897) They acknowledged that there is “limited use and exposure data on stressor of the action for non-agricultural uses of these pesticides” and “(u)ncertainty about pesticide concentrations resulting from non-agricultural uses”. (p. 1195) The report includes language to limit application on impervious surfaces (p. 131-132):</p> <ul style="list-style-type: none"> • Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, permanent streams, wetlands or natural ponds, estuaries, and commercial fish farm ponds). 	<p>Unclear. Although the language limiting the use of malathion on impervious surfaces is comprehensive, the language only applies within 300 meters of ESA-listed species habitats. It is unclear how EPA plans to implement this language. It is also not clear if the 300 meter limitation also includes non-agricultural sites,</p>

	<ul style="list-style-type: none"> • Do not apply directly to, or allow the product to enter sewers or storm drains, or to any area like a drain or gutter where drainage to sewers, storm drains, water bodies, or aquatic habitat can occur. • Do not apply directly to impervious horizontal surfaces such as sidewalks, driveways, and patios except as a spot or crack-and-crevice treatment. • Do not apply to vertical surfaces directly above pervious or impervious surfaces that drain into ditches, storm drains, gutters, or surface waters. • Do not apply or irrigate to the point of runoff. <p>However, this language appears to be limited to areas within 300m of specified ESA-listed species habitats.</p>	<p>and even if it is inclusive, it is not known how an unlicensed user would be able to determine if their location was within 300 meters of an ESA-listed habitat prior to using malathion.</p>
<p>Non-agricultural pesticide usage data. We share our analysis of California pesticide sales data, use data, and water quality monitoring data that suggests that most malathion in urban runoff likely stems from products sold at retail to non-professional users.</p>	<p>The report acknowledged CASQA's comment. (p.9) They reference CA DPR monitoring data, (p. 626 and p. 1344)</p>	<p>Partially</p>
<p>A BE is not a replacement for a Registration Review ecological risk assessment. An Ecological Risk Assessment is needed for malathion.</p>	<p>The document makes claims that they "followed an ecological risk assessment framework." (p.8)</p>	<p>No. The "framework" is not the same as an Ecological Risk Assessment.</p>
<p>The format of the public review documents was too complex, even for a nationwide BE.</p>	<p>No response.</p>	<p>No.</p>
<p>CASQA supports implementation of the Conservation Recommendations included in the FWS Biological Opinion, especially the following, which bear on issues relating to the presence and effects of malathion and other pesticides in the urban environment: 4. Work with other appropriate Federal, state, and local partners to study the efficacy of conservation practices in reducing pesticide loading to streams, lakes, wetlands, sinkholes, and other terrestrial and aquatic habitats from off-site transport.</p>	<p>It does not appear that they are going forward with any of these conservation measures. They cited other conservation measures, but did not reference these conservation measures (4-7) in the report.</p>	<p>No.</p>

<p>5. Develop methods and models that better describe and quantify pesticide persistence and fate and transport to assist in analyses for future pesticide consultations.</p> <p>6. Develop methods to better understand and quantify pesticide exposure from non-agricultural uses.</p> <p>7. Develop criteria that address when pesticide-contaminated sediment is an important route of exposure to aquatic or terrestrial organisms.</p> <p>[Biol. Op. pp. 519-520]</p>		
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Pesticide: Oxadiazon – EPA–HQ–OPP–2014–0782
Why we care: Herbicide applied in outdoor urban settings.
Actions taken: CASQA sent a comment letter to EPA on the Proposed Interim Decision (PID) on October 4, 2021.
Status: EPA released the Interim Registration Review Decision (ID) in April 2022.



Next steps: EPA will issue an Interim Decision.
Recommendation: CASQA will continue to monitor this pesticide. No opportunity for comment at this time.

CASQA 10/4/2021 Comments to EPA (excerpt)	EPA Response	Did EPA incorporate CASQA's comment?
<p>CASQA Supports Proposed Mitigation for Oxadiazon. These uses include terminating most turf applications, prohibiting liquid applications, reducing amount of remaining applications, adding a non-target organism advisor notice, updating and standardizing the environmental hazard and groundwater/ surface water advisory statements</p>	<p><i>"EPA thanks CASQA for its comments on the oxadiazon PID. In response to new information and proposals received during the public comment period, EPA has made several changes to the proposed mitigation originally presented in the PID and encourages CASQA to review these changes. Details of these changes are provided in Section IV.A. These updates provide additional flexibilities to users linked to additional requirements (e.g., classification of oxadiazon as an RUP and instructions directing the user to thoroughly irrigate after application as soon as possible on the same day of application) while still adequately protecting drinking water sources. EPA has determined that the revised mitigations would substantially reduce potential for surface water runoff and impacts to non-target aquatic organisms while still adequately preventing unreasonable adverse risks to human health."</i> (Oxadiazon Interim Registration Review Decision, Case Number 2485, March 2022, pp.15-16)</p> <p><i>"There were five mitigations proposed in the PID that EPA has determined are no longer needed in the ID. EPA originally proposed terminating all turf uses except for golf course fairways and sod farms to address post-application risks of concern. Due to the new label language needed that instructs the user to water-in as soon as possible after application, the anticipated requirement for new TTR data with watering-in, and the revised mitigation on golf courses allowing treatment on up to 30% of all managed turf surfaces, EPA will not require these proposed terminations at this time. EPA originally proposed cancelling the end use product registered for tees and greens (EPA Reg. No. 9198-176) to address drinking water risks of concern. EPA has decided on a 30% golf course turf area restriction instead (Mitigation #7), which will allow continued use on tees and greens, and therefore allow EPA Reg. No. 9198-176 to remain registered."</i> (Ibid. pp. 44-48)</p>	<p>Partially. Although they went back on several of the mitigations that they had proposed, including allowing some uses on turf, they did keep some of the mitigations that are significant to the urban environment, including the proposed ban on liquid applications in the urban environment.</p>

Pesticide: Permethrin (EPA–HQ–OPP–2011–0039),
Use: Insecticides
Why we care: Priority pesticide due to toxicity, use, and monitoring data. 303(d) listings as well as adopted and pending TMDLs.
Actions taken: In February 2020, CASQA sent a comment letter to EPA on the Pyrethroids and Pyrethrins Ecological Risk Mitigation Proposal. In May 2020, EPA released a Proposed Interim Decisions for permethrin. In December 2021, CASQA sent a comment letter on the antimicrobials draft risk assessment for permethrin.
Status: EPA issued the 2nd Amendment to the Permethrin Interim Registration Decision on March 16, 2022.



Next steps: The Endangered Species Act Consultation is the next step in the process.
Recommendation: CASQA will continue to monitor the permethrin docket. There is no opportunity for comment at this time.

CASQA 12/28/2021 Comments to EPA	EPA Response	Did EPA incorporate CASQA’s comment?
<p>“We question the assumption that “exposure to aquatic areas from terrestrial uses is expected to be negligible”. Permethrin can be transported to surface waters from terrestrial wood preservative uses – specifically fences and decks...” The CASQA comment goes on to document transport over pervious and impervious surfaces. “Assuming similar leaching rates during rainfall events, and efficient transport of suspended permethrin in runoff through the storm drain system directly to a surface water body, the risk to aquatic species from permethrin-treated wood structures in impervious surface settings could be similar to the risks identified in the Draft RA for the dock/lake scenario.”</p>	<p>“As described in Section 3.3.1 Terrestrial and Aquatic Exposure Profile in the DRA, “given the low leaching rate (0.0125 %/day, MRID 49638201) from treated wood that is limited by the water solubility (0.0055 mg/L, 5.5 ug/L, Table 1) and the expected sorption to soil (MRID 41868001), exposure to terrestrial and aquatic organisms is expected to be negligible if treated wood is used in a terrestrial setting.” (2nd Amendment to Permethrin Interim Registration Review Decision, Case Number 2510, March 16, 2022. p. 4)</p>	<p>Partially. EPA acknowledges CASQA’s comment on leaching, but did not model the specific scenario, relying on estimates based on the water solubility and expected sorption instead.</p>

<p>“Modeling is Needed for Terrestrial Wood Preservative Uses. CASQA recommends that EPA use available PWC scenarios to model the terrestrial wood preservative uses of permethrin prior to publishing a final risk assessment or proposed interim decision.”</p>	<p>“Additionally, guidance in the 2020 American Wood Protection Association (AWPA) Book of Standards indicates that permethrin is not intended for use in aquatic environments such as docks or for ground contact such as fences.” (2nd Amendment to Permethrin Interim Registration Review Decision, Case Number 2510, March 16, 2022. p. 4)</p>	<p>Partially. Although the American Wood Protection Association’s Book of Standards indicates that permethrin is not intended to be used for these uses, the fact remains that there are labeled permethrin pesticides for these uses. It is unclear if the registrants intend to withdraw these label uses but no further changes were listed in this 2nd Amendment to the EPA’s Permethrin ID.</p>
<p>“Mitigation Is Needed. CASQA requests that EPA develop a program of mitigation to reduce the potential for negative impacts to aquatic organisms from the terrestrial wood preservative uses of permethrin.”</p>	<p>See above.</p>	<p>Partially. If the registrants pull products that are of concern. (see above)</p>

Pesticide: Pyrethrins – EPA–HQ–OPP–2011–0885
Use: Insecticide
Why we care: Related to pyrethroids, but less toxic and less stable
Actions taken: CASQA commented on the Ecological Risk Mitigation Proposal (February 2020).
Status: EPA released the Proposed Interim Registration Review Decision (PID) (August 2021).



Next steps: ESA Consultation is required but unlikely to begin before 2022.
Recommendation: Send comment letter to EPA supporting the proposed mitigations to pesticide label language.

CASQA Comments to EPA	EPA Response	Did EPA incorporate CASQA's comment?
<p>EPA's risk / benefit finding should be revised to differentiate among the 23 pyrethroids and pyrethrins and among the various outdoor urban uses of the 23 chemicals</p>	<p>“The pyrethroids have many uses across agricultural, residential, commercial, indoor and outdoor sites, and were grouped into broad categories to compare the potential exposure for those active ingredients that were not quantitatively assessed in the 2016 Ecological Risk Assessment.... For the purposes of risk-benefit analysis, and EPA considers this approach to provide adequate differentiation among uses assessed for the group of 23 chemicals. Among outdoor uses, EPA is aware of the potential for applications to impervious surfaces to contribute to waterway pollution. The Agency's mitigation for outdoor non-agricultural use as a category is reflective of those risk contributions. The Agency disagrees that a separate analysis of each pyrethroid or each specific use is needed to support EPA's risk assessment and risk management conclusions”</p> <p>“EPA's risk assessment supports the conclusions that there are risks of concern for aquatic organisms from exposure to pyrethroids, which is supported by water monitoring data that indicate that pyrethroids are present in the environment that result in adverse effects to aquatic invertebrates. The benefits from the use of these chemicals for these uses is also very high.”</p>	<p>No.</p>

EPA should ban outdoor urban use of Bifenthrin (separate pesticide from pyrethrins, but CASQA's comments were in response to a Risk Assessment that include both pyrethrins and pyrethroids).	"EPA... disagrees that a representative analysis featuring bifenthrin is necessary, as bifenthrin is not outstanding among pyrethroids in terms of RQ exceedances, aquatic invertebrate toxicity, or environmental persistence."	No.
Label change: CASQA supports prohibition on applications during rain	EPA incorporated suggested comment.	Yes.
Label change: CASQA supports advisory statement to avoid applications if rain is forecast within 24 hours	EPA incorporated suggested comment (although CASQA would prefer an enforceable statement via a word such as "prohibition").	Yes.
Label change: CASQA supports addition of water protection statements	EPA incorporated suggested comment.	Yes.
Label change: CASQA supports definition of spot treatment (2 sq. ft.)	EPA incorporated suggested comment.	Yes.
Label change: CASQA supports requirement that product labels explicitly state whether particular products are allowed to be used indoors only, outdoors only, or both indoors and outdoors	EPA incorporated suggested comment.	Yes.
Label change: CASQA supports reduction in height above ground level of building treatments from 3 feet to 2 feet	EPA incorporated suggested comment.	Yes.
Label change: CASQA requests that EPA identify a specific outdoor drain graphic and require the same graphic be used on all products.	"Regarding the suggestion...to add the down-the-drain advisory statements to all pyrethroids/pyrethrins labels (both agricultural and non-agricultural), outdoor and agricultural product labels already have label statements to prevent these chemicals from reaching drainage systems. In contrast, products with indoor uses do not currently have this language. Therefore, EPA has determined that these down-the-drain advisory statements are only necessary on products with indoor uses. However, registrants have the option to consider including this language (i.e., "unless for use in pipes and sinks") to agricultural product labels at their discretion." (Pyrethroids and Pyrethrins Revised Ecological Risk Mitigation and Response to Comments on the Ecological Risk Mitigation Proposal For 23 Chemicals, p. 7)	No.

<p>Label change: CASQA requests that EPA establish minimum size for the outdoor graphic, to ensure that it is legible, i.e., no smaller than 1.5 square centimeters unless this size is greater than 10% of the size of the label.</p>	<p>EPA incorporated CASQA’s comment on graphic sizing for the <u>indoor</u> graphic, which helps fellow agencies such as BACWA.</p>	<p>Partially incorporated.</p>
<p>Label change: CASQA requests that EPA include Spanish translation for the outdoor drain discharge prohibition (“Do not allow the product to enter any drain during or after application.”), and include this language on all outdoor non-agricultural products.</p>	<p>EPA incorporated suggested comment.</p>	<p>Yes.</p>

Pesticide: Ziram – EPA-HQ-OPP-2015-0568
Why we care: Fungicide/antimicrobial used in building products, including paint, caulks, and sealants. Highly toxic to aquatic life.
Actions taken: CASQA sent a comment letter to EPA on the Draft Ecological Risk Assessment (Draft RA) on January 19, 2021.
Status: EPA released the Proposed Interim Registration Review Decision (PID).



Next steps: EPA will issue an Interim Decision.
Recommendation: It is recommended that CASQA write a brief letter of support of the cancelation of Ziram in all paint products as well as additional controls placed on the non-paint uses (caulks, sealants) of Ziram.

CASQA 1/19/2021 Comments to EPA	EPA Response	Did EPA incorporate CASQA's comment?
<p>Based on EPA's analysis, there is risk to freshwater invertebrates (and fish) when fairly small amounts of ziram are applied in a given watershed...If even a small fraction of those buildings are painted with paint containing ziram in a given year, and if even a fraction of the ziram contained in that paint leaches to a surface water body, freshwater invertebrate (and fish) life could be impacted. Rather than speculating, EPA should modify its risk assessment analysis for freshwater invertebrates analytically, and with full documentation. This may require acquisition of additional data to perform an accurate assessment.</p>	<p><i>"The Agency thanks CASQA for their comment. The Agency agrees that additional data would allow for a more refined assessment of risks to aquatic invertebrates from the use of ziram in paint. However, because the Agency relied on a screening-level risk assessment using conservative assumptions, additional analyses are not likely to result in a higher risk than determined in the DRA. Therefore, the Agency maintains its conclusions of no expected risks to aquatic invertebrates from the ziram paint use."</i> (Registration Review Response to Comments on the Ziram DRA for Antimicrobial Uses, March 9, 2021, p.2)</p>	<p>Partially. EPA agrees that additional study would be useful, but ignores CASQA's comment about the impact of Ziram-containing paint in urban environments. However, due to human health effects, EPA is proposing cancellation of the paint preservative uses of ziram as well as additional controls for non-paint materials preservative uses of ziram.</p>

<p>The potential risk to sediment-dwelling aquatic invertebrates is incomplete, as the Draft EPA contains...confusing and contradictory language. CASQA therefore requests that the risk assessment be amended to include consideration of the results of a sediment toxicity study for freshwater invertebrates.</p>	<p><i>“As mentioned in Section 1.5 of the draft risk assessment, a chronic spiked-sediment study with thiram (using either an amphipod or chironomid) could help to determine if added risk may also come from exposure to contaminated sediment. EFED acknowledges that chronic toxicity data for sediment (benthic) invertebrates were not available at the time of the assessment because sediment toxicity studies were not requested in the respective problem formulations. Potential chronic risk to benthic invertebrates were evaluated using water-column invertebrate toxicity data as surrogates and potential chronic risk was identified. Some uncertainty is acknowledged as to whether benthic aquatic invertebrates may need further evaluation using sediment-based toxicity data given the complex fate characteristics of the chemicals. However, because potential chronic risk based on sediment pore water exposure and surrogate toxicity data was identified, EFED acknowledges that the data would help inform future risk assessments.”</i> (Thiram, Ferbam, and Ziram: EFED Response to Comments on the Draft Ecological Risk Assessment, March 24, 2021, p.18)</p>	<p>Partially. EPA acknowledges that CASQA is correct but is not requiring the registrant to provide the needed data. However, due to human health effects, EPA is proposing cancellation of the paint preservative uses of ziram as well as additional controls for non-paint materials preservative uses of ziram.</p>
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