

Pesticide Regulation for Water Quality Protection



Annual BASMAA Participation Summary and Outcomes Assessment 2011

*Documentation of action taken to comply with San
Francisco Bay Area Municipal Regional Stormwater
NPDES Permit, Order R2-2009-0074, Section
C.9.e.i.(1), (2), and (4)*

*Prepared for the Bay Area Stormwater
Management Agencies Association*

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PREFACE

This is a report of research performed by TDC Environmental, LLC for the Bay Area Stormwater Management Agencies Association (BASMAA). This report was prepared to assist San Francisco Bay Area municipalities with documenting compliance with Municipal Regional Stormwater Permit Provision C.9.e.i.(1), (2), and (4). Preparation of this report was funded by BASMAA.

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EXECUTIVE SUMMARY

Sections C.9.e.i.(1), (2), and (4) of the San Francisco Bay Area Municipal Regional Stormwater NPDES Permit (MRP) requires tracking and participating in pesticide-related California and Federal regulatory processes and reporting on these activities. This regional report is intended to document actions taken to comply with Sections C.9.e.i.(1), (2), and(4) to fulfill the reporting requirement for these sections in Section C.9.e.ii. The time period covered by this report is July 1, 2010 through June 30, 2011 (fiscal year [FY] 2011).

During this time period, Bay Area Stormwater Management Agencies Association (BASMAA) members participated in pesticide regulatory activities through the California Stormwater Quality Association (CASQA). CASQA has a Pesticides Subcommittee that manages its day-to-day involvement in pesticide regulatory activities. The Subcommittee is supported by CASQA's statewide membership—including BASMAA agencies—in managing, staff and funding consultant support for pesticide regulatory engagement. Until January 2011, CASQA relied on the Urban Pesticide Pollution Prevention Project (UP3 Project) for tracking California and Federal pesticide regulatory activities, identifying priorities for municipality engagement, and coordinating CASQA's regulatory engagement with the pesticide regulatory activities of California municipal wastewater treatment plants and the State Water Resources Control Board and Regional Water Quality Control Boards. Until January 2011, all of these agencies relied on the UP3 Project to provide scientific information, regulatory analysis, and assistance in communicating with pesticide regulators. Starting in February 2011 when UP3 Project grant funding was exhausted, CASQA took on most of these functions.

The ultimate goals of CASQA's and BASMAA's pesticide regulatory engagement are to prevent surface water impairment and to prevent violations of stormwater NPDES permits (see Section 4.1). Major FY 2011 objectives were to end pyrethroid-related toxicity in California urban watersheds without transitioning to other harmful products and to encourage changes in California and Federal pesticide regulatory processes such that these processes effectively prevent future water quality and compliance problems.

CASQA's pesticide regulatory engagement prioritized the pesticides of concern listed in the MRP (see Section 3.2). Pyrethroid insecticides, which have been linked to widespread toxicity in creek waters and sediments, were the highest priority for pesticide regulatory involvement. CASQA wrote 10 letters and participated in seven regulatory process meetings to provide information and recommendations to pesticides regulators (see Section 3.3 and Table 2). CASQA also shared information with regulators and other stakeholders at three Urban Pesticides Committee meetings and through CASQA's and the UP3 Project's informal contacts with regulators (Table 2).

Although regulatory processes can take many years to reach outcomes, the results of pesticide regulatory engagement are starting to be evident, and show substantial progress toward the BASMAA, CASQA, and Water Board goals of preventing surface water impairment from pesticides, implementing the Diazinon and Pesticide-Related Toxicity in Bay Area Urban Creeks Water Quality Attainment Strategy and Total Maximum Daily Load, and preventing pesticide-related violations of stormwater NPDES permits (see Section 4 and Table 3). Nevertheless, additional work will be needed to end pyrethroid-related toxicity in urban watersheds, to prevent a transition to other harmful products, and to achieve the ultimate goal of ensuring that pesticides do not interfere with Clean Water Act compliance.

1.0 INTRODUCTION

1.1 Scope of This Report

The San Francisco Bay Area Municipal Regional Stormwater NPDES Permit includes the following provision for tracking and participating in pesticide-related regulatory processes and for reporting on these activities:

C. 9. e. Track and Participate in Relevant Regulatory Processes *(may be done jointly with other Permittees, such as through CASQA or BASMAA and/or the Urban Pesticide Pollution Prevention Project)*

i. Task Description

- (1) The Permittees shall track USEPA pesticide evaluation and registration activities as they relate to surface water quality, and when necessary, encourage USEPA to coordinate implementation of the Federal Insecticide, Fungicide, and Rodenticide Act and the CWA and to accommodate water quality concerns within its pesticide registration process;*
- (2) The Permittees shall track California Department of Pesticide Regulation (DPR) pesticide evaluation activities as they relate to surface water quality, and when necessary, encourage DPR to coordinate implementation of the California Food and Agriculture Code with the California Water Code and to accommodate water quality concerns within its pesticide evaluation process;*
- (3) The Permittees shall assemble and submit information (such as monitoring data) as needed to assist DPR and County Agricultural Commissioners in ensuring that pesticide applications comply with water quality standards; and*
- (4) As appropriate, the Permittees shall submit comment letters on USEPA and DPR re-registration, re-evaluation, and other actions relating to pesticides of concern for water quality.*

ii. Reporting – *In their Annual Reports, the Permittees who participate in a regional effort to comply with C.9.e. may reference a regional report that summarizes regional participation efforts, information submitted, and how regulatory actions were affected. All other Permittees shall list their specific participation efforts, information submitted, and how regulatory actions were affected.*

This regional report is intended to document actions taken to comply with Section C.9.e.i.(1), (2), and (4) to fulfill the reporting requirements for these sections in Section C.9.e.ii. The time period covered by this report is July 1, 2010 through June 30, 2011 (fiscal year [FY] 2011).

1.2 Report Organization

This report is organized as follows:

- Section 1 (this section) provides the scope and organization of the report.

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- Section 2 explains why BASMAA members have joined municipalities across California in participating in pesticide regulatory activities and summarizes the major California and Federal pesticide review processes.
- Section 3 summarizes FY 2011 pesticide regulatory engagement.
- Section 4 evaluates the outcomes of pesticide regulatory engagement to the extent that outcomes were known as of July 2011 (some pesticide regulatory processes of interest in FY 2011 are still underway).

2.0 BACKGROUND

2.1 Pesticides and Water Quality—A Regulatory Gap

Numerous scientific studies have demonstrated that use of some pesticides registered in accordance with Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements can adversely affect aquatic species. Those impacts can, in turn, cause violations of water quality standards. As a result of discharges containing pesticides registered for use by the U.S. Environmental Protection Agency (U.S. EPA), many surface waters in California have been designated as “impaired” in accordance with Federal Clean Water Act §303(d). This finding means that the surface waters do not meet water quality standards. These listings demonstrate that current U.S. EPA and California Environmental Protection Agency (Cal-EPA) procedures for regulating pesticides are insufficient to ensure that pesticide use does not cause violations of the Federal Clean Water Act and California Porter-Cologne Water Quality Control Act.

Federal law provides U.S. EPA with the ability to protect surface water from pesticides. California law technically provides two parts of the California Environmental Protection Agency (Cal-EPA), the California Department of Pesticide Regulation (DPR) and California state water quality regulators, with the ability to protect surface water from pesticides. Except in extraordinary circumstances, California Water Boards defer pesticides regulation to DPR.

While the mandates of these pesticide and water quality laws differ slightly, the approaches to implementing these two groups of laws are very different and have important ramifications for pesticides and water quality. In general, pesticide regulatory programs are structured to respond slowly when water quality problems occur—and without financial penalties to pesticide manufacturers or users. In contrast, water quality programs are generally structured to react quickly when water quality problems occur—with immediate financial consequences, particularly for municipalities. Pesticide regulators and water quality regulators employ very different procedures to manage pesticides. While these differences sometimes seem arcane, they create regulatory gaps that leave states and municipalities responsible for solving water quality problems that could have been prevented at the time a pesticide was registered or re-registered.

Three groups of agencies that manage California’s water quality are working with pesticide regulators to address this regulatory gap: the State Water Resources Control Board and Regional Water Quality Control Boards (“Water Boards”), municipal wastewater treatment plants (also known as sewage treatment plants or publicly-owned treatment works [POTWs]), and urban runoff management agencies (including BASMAA members). This report refers to these three groups of agencies collectively as “California water quality agencies.”

Urban runoff management agencies—including BASMAA’s members—have conducted their portion of this effort through their statewide organization, the California Stormwater Quality Association (CASQA).

Why California Municipalities Are Working with Pesticide Regulators

California municipalities began regular engagement in pesticide regulatory processes because they had concluded that the most cost-effective approach to protecting surface water from pesticide-related toxicity is to prevent pesticide uses that have significant potential to cause water quality impairment or that cause violations of NPDES permits.

Preventing water quality problems at the source is well known to be more effective—and far less costly—than alternatives.

In the mid-2000s, the scientific finding that pyrethroid insecticides are linked to widespread toxicity to sediment-dwelling organisms in California urban creeks¹ increased the importance of active California municipality participation in California and Federal pesticide regulatory processes. Since California law precludes local regulation of pesticides, municipal urban runoff programs must rely on pesticide regulators to solve this problem.

Role of the Urban Pesticide Pollution Prevention Project (UP3 Project)

Because understanding and participating in regulatory activities is complex and time-intensive, CASQA, the Water Boards, and POTWs found that they needed scientific and regulatory support to participate in pesticide regulatory processes. The Urban Pesticide Pollution Prevention (UP3) Project was established in mid-2004 specifically to provide this much-needed support. From its inception through January 2011, a State Water Resources Control Board grant administered by the San Francisco Estuary Partnership (SFEP) funded the UP3 Project. TDC Environmental provided technical support for the project.

To maximize the effectiveness of their pesticide regulatory involvement and minimize cost, CASQA, the Water Boards, and POTWs have organized their pesticide regulatory involvement efforts jointly. Between mid-2004 and January 2011, the UP3 Project took on the role of coordinating the joint cooperative regulatory involvement effort. Starting in February 2011 when UP3 Project grant funding was exhausted, CASQA took on most these functions. Starting July 1, 2011, this role is being transitioned to a jointly funded partnership between CASQA and California POTWs.

The UP3 Project supported California water quality agency participation in pesticide regulatory actions by identifying and tracking pesticide regulatory processes of significant interest for water quality, analyzing pesticide regulatory documents to identify water quality protection gaps, and reviewing scientific studies to assemble the information needed to fill the identified gaps. The UP3 Project assists water quality agencies with communicating this information directly to regulators at U.S. EPA and the California Department of Pesticide Regulation (DPR) through letters, meetings, informal communications, and presentations. The CASQA-POTW partnership intends to continue to provide these services.

To coordinate agency activities and facilitate dialog, the UP3 Project also:

- Managed the Urban Pesticides Committee (UPC), which served as a center for information exchange, coordination, and collaboration among local, regional, and state agencies and other stakeholders seeking to end pesticide-related surface water toxicity problems;
- Operated an announcement-only e-mail list for UPC members to keep them up to date on regulatory, scientific, and educational program developments; and
- Maintained a web site (www.up3project.org) that provided documents and other resources to assist agencies with implementing programs to prevent pesticide-related water quality problems.

¹ The many scientific studies documenting this toxicity are summarized in TDC Environmental (2008). *Pesticides in Urban Surface Water: Annual Review of New Scientific Findings 2008*, prepared for the UP3 Project. April.

Although its State Water Board grant funding will soon be exhausted, SFEP hopes to be able to continue managing UPC meetings, the email list, and the website.

2.2 U.S. EPA and DPR Pesticide Review Processes

California water quality agencies primarily engage with pesticide regulators within the existing regulatory processes established by U.S. EPA and DPR. Both U.S. EPA and DPR have processes to review pesticides prior to their first use and processes to respond to human health and environmental problems that occur after a pesticide is approved for use. Both agencies also have the responsibility to review all pesticides periodically. Table 1 (on the next two pages) provides a brief description of the various pesticide review processes conducted by U.S. EPA and DPR and identifies the public input opportunities associated with each process.

If a pesticide-related water quality problem (like the problems with diazinon, chlorpyrifos, and the pyrethroids) is documented in the environment, the DPR regulatory process offers the most immediate response mechanisms. DPR's pesticide "reevaluation" process is structured to respond to environmental problems more rapidly than the "special review" process at U.S. EPA. If water quality problems are associated with professional pesticide applications, DPR also has the authority to adopt regulations requiring that professional pesticide applicators implement water quality protection measures.

On the basis of the structure of the public involvement processes and the nature of pesticide regulatory agency authorities, two pesticide regulatory processes have been the focus of regulatory engagement: U.S. EPA Pesticide Registration Review and California DPR pesticide reevaluation. While the focus is on engagement in formal regulatory processes, the participation has extended to less formal situations, to facilitate a sharing of scientific information and to increase mutual understanding of the regulatory context provided by California and Federal pesticide and water quality legal frameworks.

Table 1: Summary of U.S. EPA and DPR Pesticide Review Processes

Agency	Process	Description	Overview of Public Input Opportunities
U.S. EPA	Registration	New pesticides must be registered or exempted by U.S. EPA before they may be sold. New uses of existing pesticides must also be registered. During registration, U.S. EPA evaluates effects on humans and the environment (including surface water).	U.S. EPA has limited public involvement processes for pesticide registration. It makes a registration workplan available (but does not keep it up to date), ² provides brief announcements of registration applications (these lack sufficient detail to determine water quality implications), and occasionally provides very brief public comment opportunities on registration decisions.
	Registration review	All currently registered pesticides are planned for review on a 15-year cycle. ³ Each pesticide’s review process starts with a “docket opening,” which is an opportunity to submit scientific information and to comment on the registration review workplan. Subsequent steps are established by the workplan.	Public involvement opportunities after the docket opening depend on the workplan; these may include opportunities to review U.S. EPA-prepared risk assessments, to provide recommendations for risk reduction options, and to comment on U.S. EPA’s proposed registration review decision.
	Special review	U.S. EPA has the power to initiate special review when it discovers that the use of a registered pesticide may result in unreasonable adverse effects on humans or the environment; however, it very rarely uses this authority, preferring to address problems through other means such as Registration Review or voluntary agreements. The special review process usually involves intensive review of a specific problem. During special review, U.S. EPA may review scientific information, re-evaluate the identified risk, and select risk reduction measures.	Processes vary. At a minimum, the public is offered the opportunity to comment on the decision proposed by U.S. EPA on the basis of its special review.

² Conventional pesticides – new pesticides <http://www.epa.gov/opprd001/workplan/newchem.html> new uses - <http://www.epa.gov/opprd001/workplan/newuse.htm> ; Biopesticides - http://www.epa.gov/pesticides/biopesticides/regtools/biopesticides_2011_workplan.html ; Antimicrobial pesticides - <http://www.epa.gov/oppad001/>

³ Schedules are available on the Internet: http://www.epa.gov/opsrrd1/registration_review/schedule.htm

Table 1: Summary of U.S. EPA and DPR Pesticide Review Processes (Continued)

Agency	Process	Description	Overview of Public Input Opportunities
DPR	Registration	California has a state requirement for pesticide registration. Like U.S. EPA, it evaluates effects on humans and the environment. Unlike U.S. EPA (which reviews products containing the same active ingredient as group) DPR registers each pesticide product individually. DPR determines whether to evaluate a pesticide product’s potential to cause surface water quality or wastewater discharge impacts on a case-by-case basis.	Other than making lists of products entering review available, DPR has no public involvement process for pesticide registration. By providing these lists to its interagency advisory committee (the Pesticide Registration and Evaluation Committee), DPR provides an opportunity for interagency consultation.
	Annual Registration Renewal	California law requires annual renewal of all pesticide registrations. This review is very brief; ordinarily, registrations are renewed if fees are paid and if registrants certify compliance with the requirement to disclose factual or scientific evidence of any adverse effect or risk of the pesticide to human health or the environment.	DPR issues a formal notice of the proposed annual renewal for all pesticides and provides a comment period. Because the notice does not include pesticide-specific information, the process serves as an annual opportunity for the public to provide DPR with information about adverse effects of pesticides.
	Reevaluation	If DPR finds that a significant adverse impact has occurred or is likely to occur from the use of a pesticide, it initiates a reevaluation. During reevaluation, DPR reviews existing data and may require development of additional data related to the impacts of the pesticide. DPR’s goal is to identify ways to reduce or eliminate confirmed problems.	DPR has no formal public involvement process for reevaluation; however, it has offered selected stakeholders opportunities to meet with DPR and to review various documents associated with the reevaluation of pyrethroid insecticides. DPR usually consults with its interagency advisory committee (the Pesticide Registration and Evaluation Committee) when approaching major reevaluation decisions.

3.0 PESTICIDE REGULATORY ENGAGEMENT SUMMARY

3.1 BASMAA Participated through CASQA and UP3 Project

Since 2005, urban runoff management agencies—including BASMAA’s members—have conducted their engagement in pesticide regulatory activities through their statewide organization, the California Stormwater Quality Association (CASQA). In keeping with this strategy, the BASMAA Board of Directors established that BASMAA’s FY 2011 pesticide regulatory involvement would be conducted via CASQA. In FY 2011, MRP Permittees participated in pesticide regulatory processes through CASQA.

CASQA has a Pesticides Subcommittee that manages its day-to-day involvement in pesticide regulatory activities. In fiscal year 2011, the subcommittee had two co-chairs: Jamison Crosby of the Contra Costa Clean Water Program (CCCWP) and Dave Tamayo of the Sacramento County Stormwater Quality Program. Six teleconference meetings were held in FY 2011. Staff of agencies in the Alameda Countywide Clean Water Program (ACCWP) and the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) are also on the subcommittee roster. Both CCCWP and ACCWP participated in subcommittee meetings in FY 2011.

The CASQA Pesticides Subcommittee coordinates stormwater agency participation in pesticide regulatory activities. The subcommittee determines the actions to be taken by CASQA, provides direction to its representatives for participation in agency meetings, peer reviews draft correspondence, and shares information among members. As co-chair, Ms. Crosby has assumed a role in identifying financial resources necessary to support CASQA’s activities (which are obtained not only from CASQA but also through contributions from member agencies) and in managing committee-related contracts.

Ms. Crosby provides the linkage between CASQA and the BASMAA Board of Directors.

3.2 Engagement Prioritized Pesticides of Concern in the MRP

U.S. EPA and DPR regulatory processes involve thousands of pesticides each year. Only a small fraction of these pesticides pose significant threats to the quality of urban runoff. CASQA has focused its participation in pesticide regulatory processes on pesticides identified by the UP3 Project as most likely to threaten urban surface water quality through urban runoff.⁴ Of these pesticides, the highest priorities are the same current-use pesticides listed as pesticides of concern in the MRP (pyrethroids, fipronil, carbamates, and organophosphorous pesticides).

On the basis of urban watershed monitoring data from across California and urban pesticide use estimates assembled by the UP3 Project, when further prioritization is necessary, CASQA has followed the UP3 Project recommendation to prioritize fipronil and the following pyrethroids: bifenthrin, cyfluthrin, beta-cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, lambda-cyhalothrin, permethrin, and tralomethrin.⁵ Among the pyrethroids, those most commonly linked to aquatic toxicity (bifenthrin, cyfluthrin [including beta-cyfluthrin], and cypermethrin) are the top priorities.

According to UP3 Project analysis, organophosphates (chlorpyrifos, diazinon, and malathion) and carbamates (carbaryl) are lower priorities than the pyrethroids and

⁴ For the most recent list see TDC Environmental (2010). *Pesticides in Urban Runoff, Wastewater, and Surface Water. Annual Review of new Scientific Findings 2010*. Prepared for the UP3 Project. March.

⁵ TDC Environmental (2008). *Pesticides of Interest for Urban Surface Water Quality. Urban Pesticides Use Trends Annual Report 2008*. Prepared for the UP3 Project. July 30; Moran, K. D. (2007). “Urban Use of the Insecticide Fipronil—Water Quality Implications.” Memorandum prepared for the UP3 Project. June 18.

fipronil. Neither diazinon nor chlorpyrifos pose a continuing threat to urban watersheds now that U.S. EPA has prohibited almost all urban use.⁶ Similarly, urban watersheds are benefitting from significant reductions in use of both carbaryl and malathion, likely the consequence of U.S. EPA regulatory requirements.⁷

3.3 Engagement Summary for Fiscal Year 2011

CASQA and UP3 Project Conducted All Tasks Listed in MRP Section C.9.e.i. (1), (2), and (4)

CASQA encouraged U.S. EPA and DPR to coordinate implementation of pesticide and water laws to accommodate water quality concerns as required under MRP sections C.9.e.i.(1) and (2) and submitted comment letters as required under C.9.e.i.(4). Table 2 (on the following pages) lists specific CASQA and BASMAA member actions, including meetings and correspondence.

Until January 2011, CASQA relied on the UP3 Project to complete the pesticide evaluation and registration activities tracking required under C.9.e.i.(1) and (2). Starting in February 2011, CASQA took on these functions. [UP3 Project regulatory tracking tables](#) for fall 2010 are available on the UP3 Project website together with other Urban Pesticides Committee (UPC) meeting materials.

California Pyrethroid Reevaluation / DPR Surface Water Regulations and U.S. EPA Bifenthrin Registration Review Were 2011 Priorities

Responding to widespread toxicity in California surface waters linked to pyrethroid insecticides, in August 2006 DPR initiated regulatory action (“reevaluation”) to identify mitigation measures to address the toxicity. DPR has offered California water quality agencies—including CASQA—opportunities to provide information at various junctures in the pyrethroid reevaluation. Participating in DPR’s pyrethroid reevaluation was the top pesticide priority for CASQA at the start of FY 2011. In fall 2010, after conducting a series of stakeholder meetings to explore the pyrethroid problem, its sources and potential solutions, DPR decided to prepare regulations to control the major source of pyrethroids in urban runoff—professional structural pest control applications. Working with DPR on these regulations became CASQA’s highest pesticide priority for the remainder of FY 2011.

In FY 2011, U.S. EPA moved rapidly forward with its Registration Review process for all of the priority pyrethroids, including bifenthrin, the major cause of pyrethroid-related toxicity in California urban waterways. Educating U.S. EPA about urban runoff and providing input into the design of U.S. EPA’s pyrethroids registration review was CASQA’s second priority for FY 2011.

⁶ For this reason they were dropped from the UP3 List of pesticides of concern in urban runoff (see TDC Environmental (2010). *Pesticides in Urban Runoff, Wastewater, and Surface Water. Annual Review of new Scientific Findings 2010*. Prepared for the UP3 Project. March.)

⁷ TDC Environmental (2010). *Pesticides in Urban Runoff, Wastewater, and Surface Water. Annual Urban Pesticide Use Data Report 2010*. Prepared for the UP3 Project. June 28.

Table 2: Pesticide Regulatory Process Participation in FY 2011

Organization	Process	Action	Desired Outcome from Process
U.S. EPA	Bifenthrin Registration Review	<p><u>CASQA letter – August 23, 2010</u> Explained urgent need for U.S. EPA action to end pyrethroid-related toxicity and costs associated with current toxicity problem. Requested specific changes to the environmental risk assessment workplan, including an exposure assessment for urban uses that addresses intentional applications on impervious surfaces, both water column and sediments, both acute and chronic toxicity, and cumulative risks with other pyrethroids in urban watersheds. Supported U.S. EPA’s proposed environmental risk assessment data request list. Recommended utilization of existing information from the scientific literature, from surface water monitoring programs, and from the DPR pyrethroid reevaluation.</p>	<p>End to pyrethroid-related toxicity in California urban watersheds. Changes to the registration review process to better identify and mitigate urban water quality impacts and adoption of these changes as part of U.S. EPA’s overall approach to the registration review process for all pesticides with urban use patterns.</p>
	Carbaryl Registration Review	<p><u>CASQA letter – November 22, 2010</u> Requested specific changes to the environmental risk assessment workplan, including an exposure assessment for urban uses of carbaryl that is based on modeling appropriate for urban watersheds. Recommended utilization of existing information from surface water monitoring programs. Requested use restrictions to prevent water quality impacts.</p>	<p>Prevent carbaryl problems in urban watersheds. Changes to the registration review process to better identify and mitigate urban water quality impacts and adoption of these changes as part of U.S. EPA’s overall approach to the registration review process for all pesticides with urban use patterns.</p>
	Copper Compounds Registration Review	<p><u>CASQA letter – November 22, 2010</u> Requested specific changes to the environmental risk assessment workplan, including an exposure assessment for all urban uses of copper that is based on modeling appropriate for urban watersheds and includes all urban copper pesticide uses. Recommended utilization of water quality criteria in the effects assessment. Requested that U.S. EPA obtain existing information from surface water monitoring programs. Requested use restrictions to prevent water quality impacts.</p>	<p>Reduction of copper levels in urban watersheds. Changes to the registration review process to better identify and mitigate urban water quality impacts and adoption of these changes as part of U.S. EPA’s overall approach to the registration review process for all pesticides with urban use patterns.</p>

Table 2: Pesticide Regulatory Process Participation in FY 2011 (Continued)

Organization	Process	Action	Desired Outcome from Process
U.S. EPA	Cyfluthrin Registration Review	<p><u>CASQA letter - November 22, 2010</u> Explained the urgent need for U.S. EPA action to end pyrethroid-related toxicity. Requested specific changes to the environmental risk assessment workplan, including an exposure assessment for urban uses that addresses intentional applications on impervious surfaces and that is based on modeling appropriate for urban watersheds, both water column and sediments, both acute and chronic toxicity, and cumulative risks with other pyrethroids in urban watersheds. Recommended utilization of existing information from the scientific literature, from surface water monitoring programs, and from the DPR pyrethroid reevaluation.</p>	<p>End pyrethroid-related toxicity in California urban watersheds. Changes to the registration review process to better identify and mitigate urban water quality impacts and adoption of these changes as part of U.S. EPA’s overall approach to the registration review process for all pesticides with urban use patterns.</p>
	Gamma and Lambda-Cyhalothrin Registration Review	<p><u>CASQA letter – February 22, 2011</u> Provided support for the environmental risk assessment work plan and thanked U.S. EPA for substantial improvements in work plan design. Requested that the OPP/OW Common Effects Assessment Methodology be used and that modeled exposure time periods be consistent with OW standards. Requested urban runoff modeling improvements and offered specific suggestions for how these might be achieved.</p>	<p>End pyrethroid-related toxicity in California urban watersheds. Improvements in the registration review process to better identify and mitigate urban water quality impacts and adoption of these changes as part of U.S. EPA’s overall approach to the registration review process for all pesticides with urban use patterns.</p>
	Piperonyl Butoxide Registration Review	<p><u>CASQA letter – February 22, 2011</u> Provided support for the environmental risk assessment work plan, particularly for the plan to assess the cumulative impacts of piperonyl butoxide with other pesticides in the aquatic environment.</p>	<p>Support elements of the proposed the registration review work plan that better identify and mitigate urban water quality impacts and encourage adoption of these changes as part of U.S. EPA’s overall approach to the registration review process for all pesticides with urban use patterns.</p>

Table 2: Pesticide Regulatory Process Participation in FY 2011 (Continued)

Organization	Process	Action	Desired Outcome from Process
U.S. EPA	Office of Pesticide Programs (OPP) and Office of Water (OW) Effects Assessment Methodology Reconciliation Project	<p><u>CASQA letter – January 14, 2011</u> Thanked U.S. EPA for conducting the project, supported the expedited schedule, requested project methodologies be checked to ensure that the methodologies develop values that are below concentrations toxic to standard aquatic toxicity testing species, and asked that the U.S. EPA project team do its work in the context that U.S. EPA pesticide regulations—rather than Clean Water Act mechanisms—are the appropriate mechanisms to address water pollution from pesticides.</p>	Ensure project outcome fully coordinates OPP’s effects assessments with the OW-approved toxicity testing procedures. Revise U.S. EPA regulatory processes so that they trigger actions to prevent pesticide-related toxicity before water pollution occurs.
U.S. EPA	Advanced Notice of Proposed Rulemaking – Delta Aquatic Resource Protection	<p><u>CASQA letter – April 25, 2011</u> Described municipality roles in controlling pesticides in urban runoff and explained how legal frameworks and treatment infeasibility preclude local control of pesticides discharges. Recommended improvements in pesticide regulatory programs to better protect the Delta, including specific improvements needed in urban runoff modeling for pesticides.</p> <p><u>CASQA, Water Boards, and DPR Meeting with U.S. EPA – April 5, 2011</u> Shared information about California water quality agency teamwork to work with pesticide regulators to address pesticide-related water pollution and (in collaboration with DPR) described anticipated benefits of DPR plans for surface water protection regulations to reduce pyrethroids in urban runoff.</p>	U.S. EPA Region 9 assistance with efforts to address current pesticide-related water pollution problems and prevent new ones. Educate Region 9 as to why working with pesticide regulators to address the FIFRA/Clean Water Act regulatory gap is more likely to increase Delta protection than expanding Clean Water Act permitting.

Table 2: Pesticide Regulatory Process Participation in FY 2011 (Continued)

Organization	Process	Action	Desired Outcome from Process
U.S. EPA	None	<p>The UP3 Project provided the following information to U.S. EPA:</p> <ul style="list-style-type: none"> • Paper on pesticide (nanosilver) washing out of building paint into urban runoff – August 2010 • Presentation on urban pesticide use and water pollution at U.S. EPA training for pesticides regulators, explaining conceptual models, urban pesticide use patterns, recent water pollution problems, and regulatory gaps – September 2010 • Met with U.S. EPA OPP modeler to discuss scientific challenges with U.S. EPA’s urban runoff modeling capabilities – September 2010 • Conference presentation to audience with many U.S. EPA employees and met with U.S. EPA staff to provide further information on pyrethroid urban use and urban watershed aquatic toxicity problems, including details on bifenthrin use – November 2010 • Paper on pyrethroid washoff from impervious surfaces - December 2010 	<p>Improve U.S. EPA’s scientific understanding of pesticides in urban runoff such that U.S. EPA has sufficient scientific information to structure regulatory processes to ensure that pesticide applications comply with water quality standards.</p>

Table 2: Pesticide Regulatory Process Participation in FY 2011 (Continued)

Organization	Process	Action	Desired Outcome from Process
DPR	Pyrethroid Reevaluation	<p><u>DPR Pyrethroid Reevaluation Stakeholder Meetings (PRSM meetings) – July, August, and October 2010</u></p> <p>Participated in a series of meetings among DPR, CASQA, the Water Boards, POTWs, pyrethroid pesticide manufacturers, and professional pest control applicators to improve communications, to conduct joint fact finding, to identify priority data gaps requiring additional information to be generated, and to identify mitigation strategies to end pyrethroid-related toxicity in urban watersheds.</p> <p>In FY 2011, the stakeholder group concluded its meetings after educating DPR and each other about pyrethroids in urban runoff and municipal wastewater treatment plants, pyrethroid urban use patterns, pyrethroid-related toxicity in water and sediment, and the regulatory and environmental consequences thereof. DPR announced its intent to pursue regulations to reduce pyrethroids in urban runoff. CASQA and the UP3 Project provided the following information to DPR at FY 2011 meetings:</p> <ul style="list-style-type: none"> • Evaluation of the feasibility of various mitigation options. • Scientific rationale for taking action to reduce pyrethroids in urban runoff without conducting additional scientific studies. • Estimates of pyrethroid use in California urban areas, identification of major and minor users and use patterns for each pyrethroid, and identification of pyrethroids commonly used outdoors and those commonly used indoors. 	<p>End pyrethroid-related toxicity in California urban watersheds without transitioning to other harmful products.</p> <p>Educate DPR about pesticide-related toxicity in urban watersheds. Ask DPR to change its regulatory processes so that it identifies and prevents such toxicity.</p>
		<p><u>CASQA meeting with DPR – October 20, 2010</u></p> <p>DPR shared its strategy for responding to pyrethroid-related toxicity in urban watersheds (adopting regulations to reduce pyrethroid use on outdoor impervious surfaces). CASQA briefed DPR on the reasons that action is urgent (compliance, cost, legal liability, and environmental stewardship responsibilities of municipalities) and the anticipated time frames for higher levels of regulatory consequences for municipalities.</p>	

Table 2: Pesticide Regulatory Process Participation in FY 2011 (Continued)

Organization	Process	Action	Desired Outcome from Process
DPR	Pyrethroid Reevaluation	<p><u>PWG Pathways Study Proposal – Letter to DPR, December 13, 2010</u> Recommended that DPR prioritize completion of the surface water protection regulations and other mitigation actions instead of this study proposal, recommended abandoning this study proposal in favor of a more targeted research approach informed by a panel of independent technical advisors, and provided a detailed scientific critique of the project proposal.</p>	See above
	Surface Water Protection Regulations	<p><u>Letter to DPR – August 11, 2010</u> Thanked DPR and supported adoption of surface water protection regulations. Requested that regulations cover all pesticides with the potential to cause or contribute to surface water toxicity and recommended specific changes to clarify exemptions and to improve controls for pre-construction termiticide applications.</p> <p><u>Meeting with DPR – February 11, 2011</u> Thanked DPR for prioritizing urban runoff regulations and supported the general regulatory approach. Requested clarification of pin-stream application exemption, consideration of further limitations for impervious surface applications and all bifenthrin applications, addition of additional pesticides, and minor wording changes.</p> <p><u>Email to DPR – February 12, 2011</u> Provided list of pesticide priorities in urban runoff and detailed rationale for CASQA request that several pyrethroids be added to regulations.</p> <p><u>Email to DPR – March 24, 2011</u> Provided suggested language for clarification of the aquatic pesticide application exemption.</p> <p><u>Meeting with DPR – May 23, 2011</u> Thanked DPR for its proposal and its thorough consideration of CASQA comments. Clarified schedule, technical issues, and bifenthrin mitigation plan.</p> <p><u>Email to DPR – May 24, 2011</u> To support requested minor modification of regulatory language for creek buffer zones, provided examples of how water quality agencies and municipalities regulate activities based on distances from urban creeks.</p>	Implement effective measures to prevent water pollution associated with professional urban pesticide use. Include in regulatory structure the ability to control pesticides most likely to threaten urban surface water quality through urban runoff, including pesticides that might be registered in the future.

Table 2: Pesticide Regulatory Process Participation in FY 2011 (Continued)

Organization	Process	Action	Desired Outcome from Process
DPR	Pest Management Advisory Committee (PMAC)	<p><u>DPR PMAC meetings - Quarterly</u> DPR has one general external stakeholder advisory group, called the Pest Management Advisory Committee. A CASQA representative (Dave Tamayo of the Sacramento County Stormwater Quality Program) participates in most meetings and is formally an alternate member of the committee (the lead member in the seat is a POTW representative).</p>	Educate DPR and other urban pest management stakeholders.
	None	<p>The UP3 Project provided the following information to DPR:</p> <ul style="list-style-type: none"> • Paper on pesticide (nanosilver) washing out of building paint into urban runoff – August 2010 • Briefing on urban pyrethroid use and copy of UP3 Project Urban Pesticide Use Data Report – August 2010 	Improve DPR’s scientific understanding of pesticides in urban runoff such that DPR has sufficient scientific information to structure regulatory processes to ensure that pesticide applications comply with water quality standards.
UP3 Project	Urban Pesticides Committee (UPC) Meetings	<p><u>UPC meetings - Three meetings in FY 2011</u> The UPC serves as a center for information exchange, coordination, and collaboration among local, regional, and state agencies and other stakeholders seeking to end pesticide-related surface water toxicity problems. Examples of information and insights shared by CASQA in 2011 include:</p> <ul style="list-style-type: none"> • Concerns with ongoing pyrethroid-related toxicity, including the high costs for municipalities and the ongoing threat of third-party lawsuits. • Pyrethroids and toxicity monitoring data from the San Diego area. • Updates on participation in California and Federal pesticide regulatory activities. 	Educating other stakeholders through informal interactions. Become informed about issues relevant to the development of regulatory and non-regulatory measures to prevent pesticide-related water pollution.

4.0 EVALUATION OF 2011 OUTCOMES

4.1 Goals and Objectives for Pesticide Regulatory Engagement

The goals of CASQA's and BASMAA's engagement in pesticide regulatory processes are:

1. To prevent surface water impairment.
2. To prevent violations of stormwater NPDES permits.

To achieve these goals, CASQA has three long-term objectives for its participation in pesticide regulatory processes:

- A. Improve design of pesticide water quality impact evaluations. Pesticide water quality impact evaluations conducted by U.S. EPA and DPR should be based on all available scientific information, assess the impacts of pesticides transported to surface water via all pathways (including urban runoff), fully address all urban use patterns, and incorporate evaluation endpoints consistent with Clean Water Act regulatory endpoints.
- B. Encourage pesticide regulators to address urban surface water quality in pesticide risk management decisions and to do so in a timely manner. Pesticide risk management decisions should address all significant surface water quality risks including those posed by urban pesticide use patterns, consider costs to water quality agencies, be implemented quickly when water quality problems occur, and prevent new environmental or health impacts from future pesticide market shifts.
- C. Seek meaningful public participation opportunities for water quality agencies. To achieve the above objectives, pesticide regulatory decisions relevant to water quality need to include public participation processes that make all relevant information available for water quality agency review and provide opportunity for water quality agencies to share information to ensure that decisions are based on accurate scientific and management information and include practical and effective risk management strategies.

Major FY 2011 objectives were:

- To end pyrethroid-related toxicity in California urban watersheds without transitioning to other harmful products.
- To encourage changes in pesticide regulatory processes such that these processes effectively prevent future water quality and compliance problems.

4.2 Overview of Past Outcomes

Regular interagency dialogue about pesticide-related water quality problems started with the formation of the Urban Pesticides Committee (UPC) in the mid-1990s. By the late 1990s, California water quality agencies recognized that while the information-exchange forum provided by the UPC is valuable, informal dialogue with pesticide manufacturers and pesticide regulators was not a sufficient means to achieve the changes needed to ensure long-term water quality protections from the impacts of urban pesticide use.

In 1999, California water quality agencies started to engage in pesticide regulatory processes on an ongoing basis. In 2003, the scope of the effort was increased in recognition of the water quality threat posed by the market shift to pyrethroid insecticides

that occurred as a consequence of the phase out of most urban uses of diazinon and chlorpyrifos. Beginning in mid-2004, the effort was further strengthened due to State Water Board grant funding to the UP3 Project, which provided California water quality agencies with an ongoing base of scientific and regulatory support for their individual engagement with pesticide regulators.

Although the process was slow at first, by 2005 staff from both pesticide and water quality regulatory agencies had recognized the importance of pesticide-related water quality issues. By 2007, pesticide regulators had recognized and acknowledged that gaps in their regulatory processes—particularly gaps related to urban pesticide use—were connected to urban water quality problems from pesticides.

In 2006, pesticide regulatory agencies began to take specific steps to address pesticide-related urban surface water quality problems. At the Federal level, U.S. EPA changed allowable uses for several pesticides due to water quality problems. California DPR initiated the pyrethroid reevaluation in response to water quality problems and created an Urban Pest Management Workgroup to give it advice on development of management strategies specific to pesticide use in urban areas.

In 2007-2010, further changes continued. Federal regulators required a few initial measures to prevent washoff of pyrethroids into urban runoff. The first federal pyrethroid Registration Review workplans acknowledged the need to address urban runoff. Federal regulators also initiated the Office of Pesticide Programs (OPP) and Office of Water (OW) Effects Assessment Methodology Reconciliation Project to address a regulatory gap highlighted in California water quality agency comments. California regulators started work on surface water protection regulations, including measures to protect urban runoff. In 2010, DPR accelerated the pace of the pyrethroid reevaluation and expanded communications with water quality stakeholders, including CASQA.

4.3 FY 2011 Outcomes

Table 3 (on pages 21-26) summarizes the outcomes of CASQA's recent pesticide regulatory engagement, which was conducted in collaboration with other California water quality agencies. These outcomes reflect the teamwork of all of the partners. Outcomes since the last BASMAA pesticide regulatory outcomes evaluation in August 2010⁸ are included in the table.

In FY 2011 the persistence of CASQA and its partners began to pay off:

- DPR began laying the groundwork for regulatory solutions to the pyrethroid toxicity problem. DPR drafted regulations that would substantially reduce levels of pyrethroids in urban runoff. DPR also announced plans to work with bifenthrin manufacturers to add additional restrictions to bifenthrin product labels. The regulations and label changes may be finalized before the end of FY 2012.
- U.S. EPA modified its Registration Review workplans to improve its evaluation of the water quality impacts of urban pyrethroid use:
 - All urban pyrethroids uses—most importantly outdoor impervious surface applications—will be addressed in environmental risk assessments.
 - Both water column and sediment toxicity will be endpoints in environmental risk assessments.

⁸ TDC Environmental (2010). Pesticide Regulation for Water Quality Protection. Annual BASMAA Participation Summary and Outcomes Assessment 2011. Prepared for BASMAA. August 30.

Pesticide Regulation for Water Quality Protection - BASMAA Participation Summary and Outcomes Assessment

- Both acute and chronic toxicity data will be required to be generated by pyrethroid manufacturers and will be used by U.S. EPA in its risk assessments.
- Risks to both salt water and fresh water organisms will be assessed.

The modified work plans will allow U.S. EPA to create the scientific basis for implementation of measures that may be needed to solve the pyrethroid toxicity problem (e.g., restrictions on use of non-professional products).

- Pesticides regulators at both U.S. EPA and DPR continued slow progress toward implementing operational changes that better integrate water quality protection into pesticide regulatory processes.
- U.S. EPA pesticides regulators have begun consulting their Office of Water colleagues with regard to water quality modeling, effects assessment, aquatic toxicity data, and urban water pollutant transport pathways.

U.S. EPA's responses to CASQA and California Water Board comments on bifenthrin (see Table 4 on pages 27-28) illustrate the changes that regulatory engagement has achieved. The table lists specific changes in U.S. EPA's Bifenthrin Registration Review workplan; these changes have been reflected in all subsequent pyrethroid workplans. The responses also reflect a more positive U.S. EPA approach toward the responsibility to manage pesticide-related water pollution in urban areas. Although these changes have not been reflected in most non-pyrethroid U.S. EPA registration review work plans to date, CASQA's and its partners' input prompted similar revision of the carbaryl and copper registration review work plans.

In evaluating regulatory outcomes, it is important to recognize that water quality is but one of many economic, social, and environmental factors that U.S. EPA and DPR consider when making regulatory decisions.

Improved communications with pesticide regulators helped CASQA focus its engagement more productively. CASQA and its partners developed a better understanding of California and Federal pesticide regulatory processes, obtained a greater appreciation for the constraints faced by pesticide regulators, and learned more about the specific types of information that pesticide regulators need to improve their ability to use their existing regulatory authorities to protect water quality.

While the specific outcomes listed above reflect meaningful progress toward achieving the goals of California water quality agency engagement in pesticide regulatory processes, these goals have not yet been fully achieved. The record shows that the engagement of California water quality agencies has significantly improved water quality protection since their initial engagement in the 1990s.

This evaluation is necessarily an interim evaluation. The types of processes that CASQA and other California water quality agencies have engaged in take years to complete—and the systemic changes desired will probably take many years to implement fully. Due to the complexity of pesticide regulatory processes, responses to comments may not be issued for more than one year after comments are submitted and outcomes often occur years after comments are made.

Table 3. FY 2011 Pesticide Regulatory Engagement Outcomes

Regulatory Process	Desired Outcome from FY 2010 & 2011 Engagement	Actual Outcome	Assessment of Relationship of Water Quality Agency Involvement to Outcome
<i>U.S. EPA Deltamethrin Registration Review</i>	Specific changes to the Registration Review workplan, including an exposure assessment for urban uses of deltamethrin that addresses both water column and sediments as well as cumulative risks with other pyrethroids in urban watersheds. Utilization of existing information from surface water monitoring programs and from the DPR pyrethroid reevaluation.	Applications onto impervious surfaces will be included in the environmental risk assessment. Both water column and sediments will be addressed. U.S. EPA added requirements for manufacturers to conduct <i>Hyalella azteca</i> water column toxicity testing. U.S. EPA will examine ways to address cumulative pyrethroid risks qualitatively; no method exists for a quantitative assessment. U.S. EPA will use information from “pertinent” monitoring sources and from the DPR pyrethroid reevaluation.	<u>High</u> . Without active involvement by CASQA and other California water quality agencies, U.S. EPA would not have made these revisions to its workplans. No other commenters addressed these topics.
<i>U.S. EPA Esfenvalerate Registration Review</i>	Specific changes to the Registration Review workplan, including an exposure assessment for urban uses of esfenvalerate that addresses both water column and sediments as well as cumulative risks with other pyrethroids in urban watersheds. Utilization of existing information from the scientific literature, from surface water monitoring programs, and from the DPR pyrethroid reevaluation.	Due to problems with the U.S. EPA docket, CASQA's letter was not addressed in the final Registration Review workplan; however, letters from other California water quality agencies containing similar comments were received and triggered significant workplan revisions to better address urban runoff and receiving water quality.	<u>High</u> . Without active involvement by California water quality agencies, U.S. EPA would not have made these revisions to its workplans. The glitch with the CASQA letter submittal emphasizes the importance of teamwork with other agencies.

Table 3. FY 2011 Pesticide Regulatory Engagement Outcomes (Continued)

Regulatory Process	Desired Outcome from FY 2010 & 2011 Engagement	Actual Outcome	Assessment of Relationship of Water Quality Agency Involvement to Outcome
<i>U.S. EPA Bifenthrin Registration Review</i>	Specific changes to the environmental risk assessment workplan, including an exposure assessment for urban uses that addresses intentional applications on impervious surfaces, both water column and sediments, both acute and chronic toxicity, and cumulative risks with other pyrethroids in urban watersheds. Utilization of existing information from the scientific literature, from surface water monitoring programs, and from the DPR pyrethroid reevaluation.	Major revisions to the environmental risk assessment workplan addressing all comments (though not always exactly as requested). See details in Table 4.	<u>High</u> . Without active involvement by CASQA and other California water quality agencies, U.S. EPA would not have made these revisions to its workplans. No other commenters addressed these topics.
<i>U.S. EPA Carbaryl Registration Review</i>	Specific changes to the environmental risk assessment workplan, including an exposure assessment for urban uses of carbaryl that is based on modeling appropriate for urban watersheds. Utilization of existing information from surface water monitoring programs. Use restrictions to prevent water quality impacts.	The environmental risk assessment workplan will be modified to include outdoor carbaryl urban use (including applications onto impervious surfaces and slug-snail applications) and urban runoff transport pathways. U.S. EPA did not agree to take a more active role in obtaining monitoring data from states and municipalities. At the appropriate time in the Registration Review process, U.S. EPA will attempt to model risk mitigation measures that are needed for aquatic life protection.	<u>High</u> . Without active involvement by CASQA and other California water quality agencies, U.S. EPA would not have made these revisions to its workplans. No other commenters addressed these topics.

Table 3. FY 2011 Pesticide Regulatory Engagement Outcomes (Continued)

Regulatory Process	Desired Outcome from FY 2010 & 2011 Engagement	Actual Outcome	Assessment of Relationship of Water Quality Agency Involvement to Outcome
<i>U.S. EPA Cyfluthrin Registration Review</i>	Specific changes to the environmental risk assessment workplan, including an exposure assessment for urban uses that addresses intentional applications on impervious surfaces and that is based on modeling appropriate for urban watersheds, both water column and sediments, both acute and chronic toxicity, and cumulative risks with other pyrethroids in urban watersheds. Utilization of existing information from the scientific literature, from surface water monitoring programs, and from the DPR pyrethroid reevaluation.	Major revisions to the environmental risk assessment workplan addressing all comments in the same manner as the bifenthrin comments were addressed (see Table 4). U.S. EPA is continuing to explore how cumulative environmental risks from pyrethroids can be addressed.	<u>High</u> . Without active involvement by CASQA and other California water quality agencies, U.S. EPA would not have made these revisions to its workplans. No other commenters addressed these topics.
<i>U.S. EPA Gamma and Lambda Cyhalothrin Registration Reviews</i>	Urban runoff modeling improvements. Commitment to use the OPP/OW Common Effects Assessment Methodology. Ensure modeled exposure time periods are consistent with OW standards.	Minor improvements to the workplan, which was relatively well designed. U.S. EPA is working on how it will address urban runoff, but has not acknowledged the shortcomings of its current urban modeling scenario. OPP has not yet committed to using the outcome of the OPP/OW Common Effects Assessment Methodology project in its pesticide risk assessments.	<u>High</u> . Without active involvement by CASQA and other California water quality agencies, U.S. EPA would not have made these revisions to its workplans. No other commenters addressed these topics.

Table 3. FY 2011 Pesticide Regulatory Engagement Outcomes (Continued)

Regulatory Process	Desired Outcome from FY 2010 & 2011 Engagement	Actual Outcome	Assessment of Relationship of Water Quality Agency Involvement to Outcome
<i>U.S. EPA Copper Registration Review</i>	Specific changes to the environmental risk assessment workplan, including an exposure assessment for all urban uses of copper that is based on modeling appropriate for urban watersheds and includes all urban copper pesticide uses. Utilization of water quality criteria in the effects assessment. Obtain existing information from surface water monitoring programs. Use restrictions to prevent water quality impacts.	The environmental risk assessment workplan will be revised to include all registered uses of copper as a pesticide. U.S. EPA is struggling with how to conduct watershed modeling on a national scale; it may not be able to address problems that only occur in a few watersheds. U.S. EPA will enter into a dialog with stakeholders to determine if a swimming pool discharge assessment is needed. U.S. EPA intends to evaluate impacts on the basis of values generated by the Biotic Ligand Model (BLM) for fresh water rather than the water quality criteria adopted by U.S. EPA for California. (OPP does not understand that California did not select its non-BLM water quality criteria). U.S. EPA will not go to state resources to obtain monitoring data. U.S. EPA would welcome the opportunity to engage in a dialog with stakeholders to discuss issues related to copper assessment during Registration Review.	<u>High</u> . Without active involvement by CASQA and other California water quality agencies, U.S. EPA would not have most of these revisions to its workplans. Except for DPR, no other commenters addressed most of these topics.
<i>U.S. EPA Piperonyl Butoxide Registration Review</i>	Support elements of the proposed the registration review workplan that better identify and mitigate urban water quality impacts and encourage adoption of these changes as part of U.S. EPA's overall approach to the registration review process for all pesticides with urban use patterns.	CASQA and Water Board comments in support of cumulative environmental risk assessments of this synergist were used by U.S. EPA to respond to other comments questioning U.S. EPA's election to conduct a precedent-setting cumulative environmental risk assessment.	<u>Moderate</u> . Without active involvement by CASQA and other California water quality agencies, U.S. EPA would have had greater difficulty defending its cumulative risk assessment workplan.

Table 3. FY 2011 Pesticide Regulatory Engagement Outcomes (Continued)

Regulatory Process	Desired Outcome from FY 2010 & 2011 Engagement	Actual Outcome	Assessment of Relationship of Water Quality Agency Involvement to Outcome
<i>U.S. EPA Office of Pesticide Programs (OPP) and Office of Water (OW) Effects Assessment Methodology Reconciliation Project</i>	Ensure project outcome fully coordinates OPP's effects assessments with the OW-approved toxicity testing procedures. Revise U.S. EPA regulatory processes so that they trigger actions to prevent pesticide-related toxicity before water pollution occurs.	Project-specific outcome unknown. Waiting for U.S. EPA to take next step in project. Initial educational goals achieved in FY 2010.	Project-specific relationship cannot yet be determined <u>High</u> for education goals.
<i>Delta ANPR</i>	U.S. EPA Region 9 assistance with efforts to address current pesticide-related water pollution problems and prevent new ones. Educate Region 9 as to why working with pesticide regulators to address the FIFRA/Clean Water Act regulatory gap is more likely to increase Delta protection than expanding Clean Water Act permitting.	Unknown. Waiting for U.S. EPA to issue the draft regulation.	To be determined
<i>U.S. EPA Antimicrobials Data Rule</i>	Require manufacturers to provide all data necessary for a complete evaluation of urban runoff impacts when a pesticide is registered or is subject to registration review.	Unknown. Waiting for U.S. EPA to finalize the regulation.	To be determined
<i>U.S. EPA Advanced Notice of Proposed Rulemaking – Pesticide Inert Ingredients Disclosure</i>	Disclosure of pesticide inert ingredient identities to assist with efforts to prevent water pollution.	Unknown. Waiting for U.S. EPA to issue the draft regulation.	To be determined

Table 3. FY 2011 Pesticide Regulatory Engagement Outcomes (Continued)

Regulatory Process	Desired Outcome from FY 2010 & 2011 Engagement	Actual Outcome	Assessment of Relationship of Water Quality Agency Involvement to Outcome
<i>DPR Pyrethroid Reevaluation</i>	<p>End pyrethroid-related toxicity in California urban watersheds without transitioning to other harmful products.</p> <p>Educate DPR about pesticide-related toxicity in urban watersheds. Ask DPR to change its regulatory processes so that it identifies and prevents such toxicity.</p>	<p>As of August 2011, DPR was about to propose regulations designed to reduce the amount of pyrethroids in urban runoff. In parallel, DPR is seeking special restrictions on bifenthrin use that would be implemented through product label changes.</p> <p>DPR senior management has developed an understanding of the causes and consequences of pyrethroid-related toxicity in urban watersheds. DPR regulatory processes sometimes have identified and prevented such toxicity and sometimes have failed to do so.</p>	<p><u>High.</u> Without active involvement by CASQA and other California water quality agencies, regulations would not have been identified as the best strategy to use to reduce pyrethroids in urban runoff.</p>
<i>DPR Surface Water Protection Regulations</i>	<p>Implement effective measures to prevent water pollution associated with professional urban pesticide use. Include in regulatory structure the ability to control pesticides most likely to threaten urban surface water quality through urban runoff, including pesticides that might be registered in the future.</p>	<p>For pyrethroids, goal may soon be achieved (see above).</p> <p>Additional work will be necessary to control other currently registered pesticides. Other mechanisms (i.e., not registering highly toxic pesticides in California for applications linked to urban runoff pollution) might better address future pesticides.</p>	<p><u>High.</u> DPR's decision to make regulations addressing pyrethroids in urban runoff its highest priority was a direct result of CASQA/Water Board engagement and UP3 Project scientific information linking professional pesticide applications to water pollution.</p>

Source: TDC Environmental evaluation of U.S. EPA and DPR regulatory documents and meetings.

Table 4. Bifenthrin Registration Review Comment and Response Summary

General Comment	U.S. EPA Response
Pyrethroids are causing costly non-compliance with the Clean Water Act.	OPP acknowledges the costs of non-compliance with the Clean Water Act and is making every effort to ensure that it adequately identifies and mitigates ecological risks from use of bifenthrin and other pyrethroids during registration review.
Urban Runoff Comments	U.S. EPA Response
Recognize intentional applications to impervious surfaces.	Will do.
Modify outdoor runoff conceptual model to include impervious surfaces & flow through pipes.	Will do.
Do real urban runoff modeling. Modeling does not account for impervious surface.	Our existing models will be set up to address impervious surfaces. Will use the impervious scenario we developed.
Pyrethroid transport is not only via particles, could also be washed in water; modeling needs to account for both possibilities.	Exposure modeling will reflect the potential for both water and sediment transport.
Need formulation-specific washoff data for urban runoff modeling.	Product-specific washoff data will not be required, but we will use the recent published studies on washoff, studies required in the DPR pyrethroid reevaluation, plus any other relevant open literature.
Pyrethroid Use Data Comments	U.S. EPA Response
Examine both professional and non-professional urban use.	Will do.
Urban use can be estimated from available data.	DPR pesticide use report data, the professional structural applicator survey, and other available data will be used. We will consider the UP3 Project report estimating urban pyrethroid use.
Cumulative Risk Comments	U.S. EPA Response
Assess cumulative risks with other pyrethroids.	We don't have a modeling approach we can use, but we will consider open literature, modeling and other lines of evidence (including monitoring data) as available to address the potential for cumulative effects in the risk description portion of the forthcoming risk assessment.
Please assess cumulative risks with synergists.	U.S. EPA intends to assess cumulative risks with piperonyl butoxide (PBO), which is the only synergist in multiple pyrethroid products. We have included this in the PBO Registration Review workplan and have proposed data requirements to support this analysis.
Aquatic Toxicity Comments	U.S. EPA Response
Use open literature for the aquatic portion of the risk assessment.	U.S. EPA did a partial literature search; will do an updated literature search in the future.
Assess both water column and sediment exposures.	This has always been our intent. We have clarified this in the workplan.

Table 4. Bifenthrin Registration Review Comment and Response Summary (Continued)

Aquatic Toxicity Comments	U.S. EPA Response
Please used agency-wide ECOTOX database, not just the OPP version.	Will do.
Add immobilization as a sublethal endpoint, could have population implications.	Already included. We consider immobilization equivalent to mortality.
Need to assess affects at colder temperatures. This will entail requiring toxicity data at 13-15 °C.	Will not require testing, but will consider available and submitted literature on the temperature effects on pyrethroid toxicity as part of the risk assessment. We will take into account this factor in its characterization of risk (e.g., potentially as part of a sensitivity analysis).
Water column <i>H. azteca</i> toxicity data are available for some pyrethroids.	Registrants are free to request use of the open literature data instead of doing new tests. We will review the open literature.
Please use open available data on toxicity to <i>Eohaustorius estuarius</i> .	<i>L. plumulosus</i> (an east coast species), which is the only species for which we have an approved chronic toxicity methodology, has similar sensitivity to <i>Eohaustorius</i> . We will also use data for other species from the open literature.
Need chronic water column toxicity data.	These data are required for both <i>H. azteca</i> (fresh water) and <i>A. bahia</i> (salt water).
Salt-water acute and chronic water column toxicity data are needed.	These data are required.
Use outcome of OPP/OW Common effects assessment methodology.	OPP intends to work with OW.
Other Comments	U.S. EPA Response
Please coordinate with California DPR pyrethroid reevaluation and get all relevant information from them.	Will do. Coordination has already started.
Monitoring data submitted; more exists.	Will use monitoring data that was submitted and we will do an open literature search. U.S. EPA is also requiring manufacturers to submit any existing monitoring data known to them.
Information on pyrethroid 303(d) listings is not up to date.	New 303(d) listings are not included because U.S. EPA hasn't finalized its approval of the most recent California list. We will update this information in the risk assessment.
No U.S. EPA-approved chemical analysis methods exist for pyrethroids. Chemical analytical methods should have d.l. <0.1 ng/L. Should include wastewater influent, effluent, and biosolids.	We have required some methods and expect that requested methods be developed to fulfill our data requirements. ⁹
U.S. EPA issues too many data waivers for aquatic toxicity data.	No waivers have been issued for bifenthrin.

Source: TDC Environmental paraphrasing of CASQA, Water Board and U.S. EPA documents.

⁹ OPP is unaware that U.S. EPA-approved chemical analysis methods are not the same as methods that OPP asks pesticide manufacturers to develop.

Acronyms

- ACCWP** – Alameda Countywide Clean Water Program
- BASMAA** – Bay Area Stormwater Management Agencies Association
- Cal-EPA** – California Environmental Protection Agency
- CASQA** – California Stormwater Quality Association
- CCCWP** – Contra Costa Clean Water Program
- DPR** – California Department of Pesticide Regulation
- FIFRA** – Federal Insecticide, Fungicide, and Rodenticide Act
- FY** – Fiscal Year (July 1 through June 30)
- MRP** – Municipal Regional Permit (NPDES permit for urban runoff from Bay Area municipalities)
- NPDES permit** – National Pollutant Discharge Elimination System permit (permit for discharge of wastewater or urban runoff to surface waters)
- OPP** – U.S. EPA Office of Pesticide Programs
- OW** – U.S. EPA Office of Water
- PBO** – Piperonyl Butoxide
- PMAC** – DPR Pest Management Advisory Committee
- POTW** – Publicly-Owned Treatment Works (municipal wastewater treatment plant)
- PRSM** – Pyrethroid Reevaluation Stakeholder Meetings hosted by DPR
- PWG** – Pyrethroid Working Group (organization of pyrethroid insecticide manufacturers)
- SCVURPPP** – Santa Clara Valley Urban Runoff Pollution Prevention Program
- SFEP** – San Francisco Estuary Partnership
- TMDL** – Total Maximum Daily Load (regulatory plan for solving a water pollution problem)
- UP3 Project** – Urban Pesticides Pollution Prevention Project
- UPC** – Urban Pesticides Committee
- U.S. EPA** – United States Environmental Protection Agency