Table A.1. Stormwater Programs' Pesticide Regulatory Process Participation and Outcomes in 2012

Outcome in 2012	CASQA Participation Actions*
A.1.1 Adoption of California regulations, "Surface Water Protection in Outdoor Nonagricultural Settings." Regulations were completed in June 2012 and became effective July 19, 2012. The regulations reduce the quantities of pyrethroids applied on outdoor impervious surfaces by professional applicators, thus reducing the quantity of pyrethroids that can be washed directly into gutters and storm drains when it rains or when water like irrigation overflow runs across treated surfaces. Together, the regulations and new bifenthrin labeling (see below) are anticipated to reduce the amount of pyrethroid insecticides in urban stormwater runoff by 80-90%.[2] UP3 Project analysis—based on pyrethroid monitoring data, pyrethroid use data, and urban runoff modeling by U.C. Davis—suggests that the regulations (in combination with label changes described below) will largely, but not completely, end widespread water and sediment toxicity from pyrethroids in San Francisco Bay Area urban watersheds. In some watersheds, lower levels of toxicity may continue. In a larger number of watersheds, pyrethroid concentrations will continue to exceed aquatic life protection benchmarks such as the values developed by U.C. Davis with funding from the Central Valley Water Board.	Letter to DPR 12/12/11** Since the early-2000s, multiple meetings, letters, and ongoing communications with California DPR.

*The San Francisco Bay Regional Water Quality Control Board also participated in almost all of these regulatory processes, providing input that paralleled CASQA's. The State Water Resources Control Board, the Central Valley Regional Water Quality Control Board, and California municipal wastewater treatment plants also joined CASQA and the San Francisco Bay Water Board in participating in many of these processes. Outcomes should be attributed to the combined communications of all participants.
**The table lists FY 2011/12 actions and summarizes past actions that relate directly to the outcome.

[2] Jorgenson, B. C. (2011). Off-Target Transport of Pyrethroid Insecticides in the Urban Environment: An Investigation into Factors Contributing to Washoff and Opportunities for Mitigation. Ph.D. Thesis, University of California, Davis.

Table A.1. Stormwater Programs' Pesticide Regulatory Process Participation and Outcomes in 2012 (continued)

Outcome in 2012	CASQA Participation Actions*
A.1.2 California Professional Bifenthrin Product Application Limitations Implemented through Product Label Changes. DPR agreed with water quality agencies that additional reductions in outdoor bifenthrin use—beyond what is required in the surface water regulations—are warranted because of bifenthrin's significant contribution to aquatic toxicity. At manufacturers' request, DPR allowed bifenthrin-specific restrictions to be implemented through label changes on bifenthrin professional product labels rather than through bifenthrin-specific regulations. For professional applicators, restrictions on pesticide labels are enforceable. New bifenthrin labels will prohibit applications to any exposed horizontal impervious surface and any building wall that abuts impervious surfaces that drain to storm drains. In fall 2011, bifenthrin manufacturers set out a relatively rapid schedule for bringing the newly labeled products to the California marketplace by summer 2012. Manufacturers jointly committed to the label changes and the aggressive implementation schedule in a Memorandum of Agreement (MOA), which signed by all manufacturers of bifenthrin professional products. In a letter concurring with the MOA, DPR promised not to include special bifenthrin restrictions in its regulations if the MOA is implemented as promised. Available evidence indicates that the label changes are occurring as promised in the MOA. For example, in May 2012, FMC, the manufacturer of one of the most popular professional bifenthrin products announced that it was shipping products reflecting the new labeling.	Since the mid 2000s, multiple meetings and ongoing communications with California DPR about bifenthrin water pollution.

Table A.1. Stormwater Programs' Pesticide Regulatory Process Participation and Outcomes in 2012 (continued)

Outcome in 2012	CASQA Participation Actions*
A.1.3 Water Quality Protection Label Changes for All Types of Pyrethroid Products—Including Consumer Products—Start to Appear on Product Shelves But Are Being Implemented Slowly. In 2009, USEPA began working with pyrethroid manufacturers to modify pyrethroid product labels with instructions that provide additional water quality protections. The instructions direct users to apply only spot or "crack and crevice" treatments on impervious surfaces and contain other recommendations, such as to avoid applications when rain is forecast in the next 24 hours. USEPA required these changes for pyrethroids that went through re-registration (cypermethrin, permethrin, resmethrin, tetramethrin, sumithrin, and allethrins). For all other pyrethroids (e.g., bifenthrin, cyfluthrin, esfenvalerate), the changes are voluntary until Registration Reviews are completed late this decade. EPA's initial goal was to achieve 100% voluntary label changes and to approve both voluntary and mandatory label changes in 2010. The reality has fallen short of this goal. The first modified consumer product labels began appearing on retail shelves in fall 2011. In spring 2012, manufacturers started to ship professional products with the new labels. In May 2012, USEPA admitted that there is no current target implementation date for the new labels and that not all manufacturers are voluntarily making the label changes. DPR's adoption of the Surface Water Protection regulations was partially motivated by the delays and limited adoption of these product labels. Since DPR regulations can only address professional applicators, the USEPA label change program is the only effort underway to reduce pyrethroid water pollution from non-professional (consumer) products. For most of the pyrethroids linked to water pollution, non-professional use is relatively small. The exception is bifenthrin, for which non-professional use comprises about 20% of the market.[3]	Since the mid 2000s, multiple meetings and ongoing communications with California DPR and USEPA about pyrethroid insecticide water pollution and specific early mitigation actions, including product label language improvements. The label change process was initiated by DPR in response to October 2007 letters from CASQA and the Water Boards requesting early mitigation actions for pyrethroids in urban runoff.

[3] TDC Environmental (2010). Pesticides in Urban Runoff, Wastewater, and Surface Water: Annual Urban Pesticide Use Data Report 2010. Prepared for the San Francisco Estuary Partnership.

Table A.1. Stormwater Programs' Pesticide Regulatory Process Participation and Outcomes in 2012 (continued)

Outcome in 2012	CASQA Participation Actions*
A.1.4 DPR Incorporated Surface Water Into Registration Process for Most New Pesticide Chemicals Intended for Use Outdoors in Urban Areas. On September 16, 2011, DPR announced a formal procedure to ensure that pesticides with potential to pollute surface water will be identified when they enter DPR's registration process and will be routed to DPR's Surface Water Program for review. Past DPR registration process shortcomings have allowed at least one problem pesticide (fipronil) to slip through and have constrained the quality of DPR's evaluations. DPR's new procedure should identify most pesticides likely to be water quality problems (however, there are a few critical gaps in the program, such as swimming pool chemicals). When registration is approved, DPR will have the necessary scientific basis to require appropriate mitigation measures. In parallel, DPR has established procedures to create a surface water quality "watch list," to require analytical methods when it registers pesticides on this watch list, and to track usage and annually reevaluate its monitoring program to respond to changes in use of watch list pesticides. In July 2011, just as DPR was finalizing its procedure, DPR demonstrated how the new process would work when it denied the application to register a product called Abtech Smart Sponge. The "Smart Sponge" is designed to kill bacteria in storm drains with a biocide that may also be toxic to aquatic organisms. Although USEPA's Antimicrobials Division gave minimal review of water quality implications when approving this product, DPR (in an early implementation of its new procedure) ensured that the product was fully reviewed by DPR's Surface Water Program. Because DPR Surface Water Program reviewers determined that there was insufficient information available to determine if the product would adversely impact water quality, DPR denied the registration application.	Since the early 2000s, multiple meetings, letters, and ongoing communications with California DPR.

Table A.1. Stormwater Programs' Pesticide Regulatory Process Participation and Outcomes in 2012 (continued)

Outcome in 2012	CASQA Participation Actions*
A.1.5 USEPAFormally Proposed Pesticides-Water Common Effects Assessment Methodologies, Obtains Scientific Review, and Takes Other Steps Toward Pesticides-Water Harmonization. Several years ago, California input to USEPA (in combination with input from a few other states) caused USEPA to initiate a cooperative effort between the Office of Water (OW) and the Office of Pesticide Programs (OPP) to "harmonize" EPA's approach to assessing the impacts of pesticides. This project has come to be called the "OPP/OW Common Effects Assessment Project." For the last two years, the focus of the project has been work on methods to develop numbers that are scientifically similar to water quality criteria, but are developed only with the data that are typically available for most pesticides (typically a much smaller aquatic toxicity data set than would be required to develop water quality criteria). USEPA published three white papers examining various facets of this topic, which it had peer reviewed by a Scientific Advisory Panel at the end of January 2012. EPA is reviewing the Science Advisory Panel's generally supportive report, which was finalized in May, and is determining its next steps toward implementation of a common effects assessment methodology. The joint project has already opened communication between OW and OPP and generated much greater cooperation between the two offices. For example, in summer 2011, OW and OPP published a joint procedure for evaluation of aquatic toxicity data.[4] For the first time, both offices will come to the same conclusion about data acceptability. Past OPP data acceptance procedures often precluded use of studies that were not generated by pesticide manufacturers.	National Association of Clean Water Agencies (NACWA) letter to USEPA (supported by CASQA scientific work) 3/8/12 Mentioned in nearly every comment letter to USEPA about pesticide Registration Review Since 1999, letters, workshop testimony, and multiple informal meetings and telephone calls with EPA.

[4] Brady, D. Director, Environmental Fate and Effects Division, Office of Pesticide Programs, U.S. USEPA (2011). "Evaluation Guidelines for Ecological Toxicity Data in the Open Literature." Memorandum to All Managers and Staff of the Environmental Fate and Effects Division.

Table A.1. Stormwater Programs' Pesticide Regulatory Process Participation and Outcomes in 2012 (continued)

Outcome in 2012	CASQA Participation Actions*
A.1.6 DPR and USEPA to Improve Ability to Model Pesticides in Urban Runoff. California input to USEPA and DPR has long encouraged development of modeling methods that USEPA and DPR can use to evaluate water quality risks associated with pesticide use in urban areas. In 2011, U.S. USEPA formalized plans to modify its pesticide runoff model (PRSM/EXAMS) to account for both pervious and impervious surfaces, to use washoff data, and to develop multiple urban modeling scenarios. In late 2011, DPR initiated a project to fill a key gap in urban runoff modeling by developing a computational model for pesticide wash-off from impervious surfaces. In June 2012, DPR provided funding to U.C. Davis to extend an existing pesticide environmental fate and transport model (HYDRUS 2/3D) to address urban runoff. Developing these improved models will help protect water quality because DPR and USEPA will be better able to predict water pollution before it occurs.	Since the early-2000s, multiple meetings, letters, and ongoing communications with USEPA and DPR about the need for predictive modeling tools to inform pesticide registration decisions.
A.1.7 USEPA Modified Fipronil Registration Review Work Plan. California agencies jointly requested that USEPA revise its preliminary work plan for fipronil registration review, which did not address urban fipronil use. The input to USEPA included specific recommendations for work plan improvements to evaluate urban fipronil uses that may entail releases into urban runoff, descriptions of the details of urban fipronil urban use, information about fipronil sources and pathways to urban runoff and surface waters, an explanation of the regulatory consequences and costs of pesticide water pollution, and a summary of fipronil monitoring data that documents increasing concentrations that are reaching levels that are toxic to sensitive aquatic organisms. In response, USEPA committed to modifying its fipronil Registration Review work plan to adopt the data requirements and review process that USEPA is using for the pyrethroids. In addition, USEPA intends to assess the cumulative impacts of fipronil's three major toxic degradates.	Teleconference meeting with USEPA 8/18/11; letter to EPA, including monitoring data summary, 8/29/11
A.1.8 USEPA Modified Permethrin Registration Review Work Plan. California agencies jointly supported EPA's general approach for permethrin registration review, while requesting improvements related to the urban runoff assessment. USEPA modified the work plan to improve the watershed modeling approach and committed to consider exposure time frames through the effort to integrate assessment methods with USEPA Office of Water.	Letter to USEPA 8/29/11

Table A.1. Stormwater Programs' Pesticide Regulatory Process Participation and Outcomes in 2012 (continued)

Outcome in 2012	CASQA Participation Actions*
A.1.9 USEPA Modified Spinosad Registration Review Work Plan. California agencies jointly requested that USEPA revise its preliminary work plan for Spinosad registration review, which did not address urban spinosad use. Spinosad, an alternative to pyrethroids, is highly toxic to aquatic organisms and has toxic and persistent degradates. The input to USEPA included specific recommendations for work plan improvements to evaluate urban spinosad uses that may entail releases into urban runoff. USEPA modified the work plan to include urban uses, to explicitly address impervious surfaces, and to add an evaluation of applications in storm drain catch basins.	Letter to USEPA 11/29/11
A.1.10 USEPA Modified Imiprothrin Registration Review Work Plan. California agencies jointly requested that USEPA revise its preliminary work plan for imiprothrin registration review, which did not fully address urban imiprothrin use. Imiprothrin is a pyrethroid insecticide that currently has a limited market share. USEPA modified the work plan to explicitly address impervious surfaces and to change aquatic toxicity data requirements such that they are more complete and consistent with requirements for other pyrethroids.	Letter to USEPA 11/29/11
A.1.11 USEPA Did Not Modify Sumithrin (d-Phenothrin) Registration Review Work Plan. California agencies jointly requested that USEPA revise its preliminary work plan for Sumithrin registration review to improve urban runoff related risk assessment methodologies. EPA's responses, which were inconsistent with past commitments, clarified the need to work more broadly with USEPA address methodologies for evaluating the water quality risk associated with outdoor urban pesticide use.	Letter to USEPA 2/21/12
A.1.12 USEPA Proposed Special Regulation of Nanoparticle Pesticides. In fall 2011, USEPA proposed a policy for regulating nanoparticle pesticides based on a rebuttable presumption that nanoparticles are different than the non-nanoparticle versions of the same pesticide. Requiring separate registration of nanoparticle pesticides would provide U.S. USEPA with the ability to obtain data to characterize their potential water quality impacts. USEPA is currently considering public comments on the proposed policy, but has signaled its intent to regulate nanoparticle pesticides separately through product-specific decisions on nanosilver pesticides.	Letter to USEPA 8/17/11

Table A.1. Stormwater Programs' Pesticide Regulatory Process Participation and Outcomes in 2012 (continued)

Outcome in 2012	CASQA Participation Actions*
A.1.13 DPR Will Evaluate Water Quality Risks from Proposed Silver-Containing Biocide Paint Before Making a Registration Decision. In November 2011, DPR announced its receipt of an application to register a product called Bactiblock 101, which is a silver-containing paint that product educational materials imply contains nanosilver. Comments requested a careful evaluation of the potential water quality risks associated with all proposed urban uses. The request was successful; DPR routed the application to its Surface Water program for review and will consider urban runoff and POTW discharges. DPR is currently reviewing the registration application.	Letter to DPR from Sacramento County, (supported by CASQA scientific work) 12/8/11
A.1.14 USEPA Begins Public Notification and Comment Period for Pesticide Registration Decisions. In March 2012, due in part to California communications—particularly input (completed jointly with NACWA) on the poor public notification process for the first nanosilver pesticide registration—EPA established the first-ever process to provide public notice and public input on pesticide registration decisions. Although USEPA will offer only a 30-day comment period, agencies will be able to access USEPA water quality risk assessments and will have the opportunity to offer information and guidance to address deficiencies. In the past, USEPA announced registration applications, but not decisions.	Since the late 1990s, multiple meetings and ongoing communications with USEPA expressing interest in providing information related to new pesticide registration decisions.
A.1.15 Pyrethroids Reevaluation – DPR Required the Pyrethroid Working Group (PWG) to Conduct an Urban Runoff "Pathways" Study. In summer 2011, DPR directed PWG to proceed with a small number of field-scale measurements of pyrethroids in urban runoff from single-family home facades with idealized landscaping. CASQA questioned the scientific value of the study and advised DPR to prioritize other activities. According to a May 2012 PWG progress report, the PWG's experiments, which compared pyrethroid washoff from pervious and impervious surfaces around the model facades, measured the greatest reductions in pyrethroid levels in runoff when the quantities applied on directly connected impervious surfaces were reduced.	Letter to DPR in 2010

Table A.1. Stormwater Programs' Pesticide Regulatory Process Participation and Outcomes in 2012 (continued)

Outcome in 2012	CASQA Participation Actions*
A.1.16 Application to Register Potential Pyrethroid Substitute Cyantraniliprole – Based on the limited information in EPA's and DPR's registration application public notices, it appears that cyantraniliprole could substitute for pyrethroids, and thereby could potentially see widespread use in urban areas if USEPA and DPR register it. Although there are no publicly available aquatic toxicity data for cyantraniliprole, a related chemical, (chlorantraniliprole) is very highly toxic to aquatic invertebrates and has multiple stable (and similarly toxic) degradates. Comments requested a careful evaluation of the potential water quality risks associated with all proposed urban uses of this new insecticide. Both USEPA and DPR are currently reviewing the registration application.	Letter to DPR 9/30/11; Letter to USEPA 3/26/12
A.1.17 Other Comments Were Submitted and Are Awaiting Responses. USEPA is currently considering public comments and revising its Registration Review work plans for: • Cypermethrin (a pyrethroid that is commonly detected in urban creeks) • Chlorothalonil (a fungicide that contains dioxins and hexachlorobenzene)	Two Letters to USEPA on 5/29/12