



**PESTICIDE REGISTRATION
AND EVALUATION COMMITTEE (PREC)
Meeting Minutes –January 20, 2017**

Committee Members/Alternates in Attendance:

Charles Salocks, Office of Environmental Health Hazard Assessment (OEHHA)
Crystal Reul-Chen, Department of Resources Recycling and Recovery (CalRecycle)
Eric Lauritzen, CA Agricultural Commissioners and Sealers Association (CACASA)
James Seiber, University of California, Department of Environmental Toxicology
Liz Pelham, Department of Pesticide Registration (DPR)
Lynn Baker, Air Resources Board (ARB)
Patti TenBrook, U.S. Environmental Protection Agency, Region 9 –via webcast
Perry Poe, California Department of Food and Agriculture (CDFA) –via webcast
Rebecca Sisco, University of California, IR-4 Program
Rich Breuer, State Water Resources Control Board (SWRCB)
Tom Ineichen, Structural Pest Control Board

Visitors in Attendance:

Annalisa Kihara, SWRCB
Dave Tamayo, Sacramento County Water Agency
Heather Healy, CACASA
Jean-Mari Peltier, Environmental Solutions Group LLC
Jodi Pontureri, SWRCB
Matt Freese, SWRCB
Michael Hanks, SWRCB
Noelle Patterson, SWRCB
Rachel Kubiak, Western Plan Health Association (WPHA)

DPR Staff in Attendance:

Ann Hanger, Pesticide Registration Branch
Carlos Gutierrez, Pesticide Registration Branch
Chris Collins, Environmental Monitoring Branch
Dan Wang, Environmental Monitoring Branch
Denise Alder, Pesticide Registration Branch
Edgar Vidrio, Environmental Monitoring Branch
Emily Bryson, Worker Health and Safety Branch
George Farnsworth, Pesticide Programs Division
Jeanne Martin, Enforcement Branch
Jennifer Teerlink, Environmental Monitoring Branch
Jolynn Mahmoudi-Haeri, Pesticide Registration Branch



Cont. DPR Staff in Attendance:

Mike Zeiss, Worker Health and Safety Branch
Nan Singhasemanon, Environmental Monitoring Branch
Pam Wofford, Environmental Monitoring Branch
Robert Budd, Environmental Monitoring Branch
Russell Darling, Pesticide Registration Branch
Scott Wagner, Environmental Monitoring Branch
Teresa Coe, Pesticide Registration Branch

1. Introductions and Committee Business –Liz Pelham, Acting Chair, DPR

About 35 people attended the meeting and 29 webcast viewers.

2. Strategy to Optimize Resource Management of Storm Water (STORMS) Urban Pesticide Amendments Project –Noelle Patterson, SWRCB

SWRCB's mission statement is "to preserve, enhance, and restore the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use, for the benefit of present and future generations." Storm Water is sustainably managed and utilized in California to support water quality and water availability for human uses as well as the environment. The Strategy to Optimize Resource Management of Storm Water (STORMS) is to lead the evolution of storm water management in California by advancing the perspective that storm water is a valuable resource, supporting policies for collaborative watershed-level storm water management and pollution prevention, removing obstacles to funding, developing resources, and integrating regulatory and non-regulatory interests.

STORMS strategy goals are to act as a water resource paradigm for storm water, ensure storm water quality protection, ensure effective regulatory programs, and to collaborate on water quality issues. STORMS objectives are to increase and improve storm water capture and use, stakeholder collaboration, permit pathways for compliance, financial sustainability of storm water programs, data management, and source control and pollution prevention. STORMS include 23 projects split into three phases of implementation. Placement into the phases was dependent on relative project priority, scope, and available resources. Urban Pesticides Amendments are being implemented as part of Phase I. Three-phased project implementation includes project priority, scope, and available resources.

STORMS plans to increase source control and pollution prevention by establishing a statewide framework for urban pesticide reduction and identifying opportunities for source control and pollution prevention. Conventional storm water management involves the use of expensive equipment to eliminate contaminants in storm water before they enter a water body. These projects stem from the recognition that the most effective way to protect water quality is to prevent pollutants from initially entering storm water. This is known as source control. The first

project (Project 6A) addresses source control with a specific focus on pesticides originating from the urban environment in collaboration with DPR. The second project (Project 6B) will include a range of source control initiatives and may include participation in efforts for source control of zinc. This project may include collaboration with DTSC.

Project 6A goal is to achieve water quality objectives for pesticides and pesticide-caused toxicity in urban receiving waters while preventing future impairments through implementation of a statewide program based on urban pesticides source control. This goal will be achieved with amendments to statewide water quality control plans.

Pesticide toxicity in surface water is a statewide problem. Some high priority pesticides exceeding U.S. EPA Aquatic Life Benchmarks in pyrethroids (permethrin and bifenthrin) and fipronil (including degradates). Pesticides applied in urban areas for structural control and landscaping may wash off directly into receiving waters. There are multiple legal mandates on both the state and federal level regulating pesticides and pesticide impacts on water quality. SWRCB is authorized by Porter Cologne and parts of Clean Water Act to protect water quality. U.S. EPA and DPR also regulate pesticide impacts on the environment, including water. SWRCB participation with pesticide regulators helps ensure protection of water quality from pesticides pollution.

Proposed pesticide source control requirements for municipal separate storm sewer systems (MS4) permittees include focus on implementation of Integrated Pest Management and educational outreach. Source control through pest management alternatives is an overarching strategy of the Urban Pesticides Amendments. The proposed monitoring coordination framework creates consistency among MS4 monitoring programs to better align MS4 permitted monitoring with SWRCB and DPR's Surface Water Protection Program. This will improve efficiency, cost of compliance, and coordination between pesticides databases.

STORMS has been creating a framework for a coordinated monitoring program with an associated cost estimate. The challenge is to identify pesticide monitoring requirements in each MS4 permit for the cost estimate. For more information on STORMS, please visit http://www.waterboards.ca.gov/water_issues/programs/stormwater/storms/. For questions, contact Noelle Patterson at Noelle.Patterson@cdpr.ca.gov.

3. Proposed Copper Antifouling Paint Rulemaking –Carlos Gutierrez and Nan Singhasemanon, DPR

DPR's mission is to protect human health and the environment by regulating sales and the use of pesticides. Pesticide products used in California must be registered with DPR. DPR's mandate is to ensure there are no significant adverse environmental effects with the use of these pesticide products. Copper is a common active ingredient in pesticide products and is used as an algaecide, fungicide, antimicrobial, and antifouling agent. Copper has an ambient water quality standards established in the form of the California Toxics Rule (CTR), which is enforceable.

In the late 1980s, the U.S. restricted the use of antifouling paints (AFPs) containing tributyltin (TBT). By the late 1990s, TBT AFPs were no longer registered by DPR. AFPs shifted to copper as a biocide as one of the only effective alternatives for broad spectrum control of aquatic fouling organisms. This elevated copper concentrations in marinas.

In the late 1990's, Total Maximum Daily Loads (TMDLs) were established for copper in the Shelter Island Yacht Basin, San Diego County to prevent passive leaching and in-water hull cleaning. In 2004, DPR initiated an investigation and developed a copper AFP sub-workgroup to gather existing data, identify gaps, and coordinate California studies. DPR then started a Multi-Regional Study (Summer/Fall 2006) for AFPs. The study objectives were to assess the occurrences of AFP biocide indicators (copper, zinc, and irgarol) and the magnitude of their concentrations in California marinas. The goal of the study was to determine if concentrations exceed water quality standards or other relevant benchmarks, was the cause from the marina or background, and if there was a difference between fresh water, brackish, and salt water marinas. Additionally, the goal of the study was to measure the toxicity of marina waters confirm the identity of toxicant, and apply predictive toxicity models to ascertain potential copper toxicity on a larger scale.

For the Multi-Regional Study, 517 samples from were taken from 15 saltwater marinas, 4 brackish water marinas and 4 freshwater marinas. Fifty-one percent of the salt and brackish marina samples were greater than CTR 3.1 parts per billion (chronic) and thirty percent were greater than CTR 4.8 parts per billion (acute). The Biotic Ligand Model predicted toxicity in eighteen percent of total salt/brackish samples. The salt and brackish water had greater dissolved copper concentrations than freshwater and the ecological impacts from dissolved copper concentrations are unlikely in fresh water marinas. Boat AFPs are a significant source of copper and other biocides in marinas during dry periods.

Table 1. Copper Antifouling Paint Concentrations in California Marinas.

Marina	Median Concentration	LRS Median Concentration (ug/L)	Estimated Number of Slips	Water Type
Folsom Lake	0.5	0.3	675	Fresh
Tahoe Keys	0.6	0.2	250	Fresh
San Francisco	1.1	0.4	700	Salt
Alamitos Bay	1.2	0.3	1,191	Salt
Coyote Point	2.1	1.3	565	Salt
Antioch	2.2	1.5	310	Brackish
Pittsburg	2.1	1.5	486	Brackish
South Beach Harbor	2.2	0.7	700	Salt
Clipper Yacht Harbor	2.4	0.8	735	Salt
Marina Bay Yacht Harbor	2.6	1.7	850	Salt
Benicia	2.7	1.7	320	Brackish
Sacramento	3.0	0.7	547	Fresh
Ballena Isla	2.8	1.4	504	Salt
Village West	3.4	1.8	700	Fresh
Vallejo	3.4	1.5	800	Brackish
Berkeley	3.3	0.7	1,052	Salt
Santa Cruz	4.3	0.3	1,000	Salt
Monterey	4.9	0.2	413	Salt
Santa Barbara	5.7	0.1	1,133	Salt
Loch Lomond	5.8	1.7	517	Salt
Downtown Shoreline	6.6	0.7	1,800	Salt
Marina del Rey Front Basins	12.4	1.0	~3,000	Salt
Marina del Rey Back Basins	13.6	1.0	~2,000	Salt

Use of copper AFPs is a significant source of copper in marinas due to a high density of boats and the frequency of in-water hull cleaning. In-water hull cleaning uses abrasive and aggressive practices. This creates a spike in leaching, increasing dissolved copper and releases paint particulates. In addition, there is often poor flushing and circulation of water in marinas. Copper AFPs appear to mainly be a California issue.

Before California registration and after U.S. EPA registration, DPR thoroughly reviews each application for registration under California Food and Agriculture Code guidelines to ensure pesticide products are safe, effective, and will not adversely affect human health and the environment. After a product is registered, several DPR programs continuously evaluate use practices to detect possible problems. DPR is required to investigate all reports of actual or potentially significant adverse effects from the use of a pesticide [Title 3 of the California Code of Regulation (3 CCR) section 6220]. If DPR determines a pesticide may cause, or is likely, to

cause unreasonable adverse effects to human health or the environment, a reevaluation is formally initiated.

Reevaluation initiated June 1, 2010, based on copper water quality issues in marinas. The reevaluation data requirements included paint type, leach rate data, mitigation strategies, marina monitoring data (post-mitigation implementation), and in-water hull cleaning studies. DPR determined the ISO Method 10890:2010 is the best available method to calculate daily mean copper release rate. DPR verifies the ISO leach rate calculation submitted by the registrant and uses a correction factor of 2.9 to calculate a daily mean copper leach rate that is more representative of real-world conditions.

In 2013, during the course of the reevaluation, California Legislature introduced Assembly Bill (AB) 425. AB 425 directed DPR to set max leach rate for copper AFPs and make recommendations to protect aquatic environments from the effects of exposure by February 2014. AB 425 became law in October 2013. On February 1, 2014, DPR proposed establishment of two maximum allowable leach rates depending on cleaning practice and made several recommendations: (1) 9.5 $\mu\text{g}/\text{cm}^2/\text{day}$ if cleaning is limited to no more than once per month and follow best management practices using soft-pile carpet; and, (2) 13.4 $\mu\text{g}/\text{cm}^2/\text{day}$ for products that prohibit in-water hull cleaning. DPR further proposed a reformulation of existing paints higher than max leach rate, establishment of a program to manage in-water hull cleaning, consideration of capping cleaning frequency to once/month, including hull maintenance info on AFP labels, development of hull maintenance brochures for boatyards, increasing boater awareness and acceptance of alternatives, foster new and support existing incentive programs to convert, and consideration of site specific objectives for extreme cases.

Hull cleaning can contribute to about half of copper loading to marina waters. DPR evaluated five marina scenarios and generated a leach rate matrix. DPR made risk management decisions based on this matrix. DPR presented the maximum allowable leach rates and mitigation recommendations to registrants, government agencies, and other stakeholders at several meetings. After discussions with stakeholders and accounting for enforcement challenges, DPR determined one maximum allowable leach rate of 9.5 $\mu\text{g}/\text{cm}^2/\text{day}$ would be the most effective way to reduce copper contamination in surface waters.

On January 26, 2016, DPR submitted the methodology for establishing maximum allowable leach rates for copper AFPs for external scientific peer review (HSC section 57004). Reviewers were supportive of DPR's methodology and commented that DPR's "approaches are in line with accepted approaches and expert judgement." DPR began public outreach on the rulemaking process in early 2016. On November 18, 2016, DPR noticed proposed copper AFP regulations for a 45-day public comment period.

Under the proposed regulations, each copper AFP product registration would be required to submit ISO leach rate data for DPR review. Effective July 1, 2018, no new or currently registered copper AFP product above 9.5 $\mu\text{g}/\text{cm}^2/\text{day}$ would be registered, except when labeled for commercial vessel use only or when labeled prohibited from use on recreational vessels. A

significant reduction in copper loading is expected to occur as a result of this proposed regulation, along with an increase in the protection of aquatic organisms in all California marinas. Dissolved copper concentrations in the largest saltwater marinas may occasionally exceed the chronic CTR criterion.

The comment period for the proposed regulations closed on January 4, 2016. DPR received 44 comments and is in the process of reviewing submitted comments. In the meantime, DPR continues to forward newly registered products into reevaluation for compliance with the required data. The copper AFP product list by leach rate category is posted on DPR's Reevaluation Web page.

In addition to the proposed rulemaking, DPR is actively engaged in promoting and implementing voluntary mitigation recommendations, such as encouraging boat owners and cleaners to use best management practices or certification programs, encouraging copper AFP registrants to develop hull cleaning brochures, increasing awareness of copper AFP alternatives and efficacy, and fostering new and supporting existing incentive programs to hull conversions.

For more information regarding reevaluation, visit <http://cdpr.ca.gov/docs/registration/reevaluation/reevals.htm> or contact Environmental Scientist, Carlos Gutierrez at Carlos.Gutierrez@cdpr.ca.gov or by telephone at 916-445-2885. For more information on DPR's Surface Water Protection Program, contact Nan Singhasemanon at Nan.Singhasemanon@cdpr.ca.gov or by telephone at 916-324-4122.

4. Committee Comment

Tom Ineichen asked for clarification on the monitoring incorporated in STORMS. Noelle Patterson stated in each of the MS4 permits, there are requirements for constituents to monitor how many and season. STORMS hope to create a program with a coordinated approach. Tom Ineichen further asked how the monitoring will be conducted, either by water or pesticide use. Rich Breuer stated SWRCB is focusing on the water quality monitoring.

Crystal Reul-Chen inquired what the Phase I projects include. Noelle Patterson stated in Phase I, there are two projects focused on storm water financial sustainability programs and two projects looking at permit compliance pathways. The projects are listed on SWRCB's Web site at http://www.waterboards.ca.gov/water_issues/programs/stormwater/storms/.

Crystal Reul-Chen asked if why glyphosate was not a high priority. Glyphosate is a lower priority because the physio-chemical properties suggest the chemical breaks down quickly. Furthermore, glyphosate has not exceeded benchmark standards.

Charles Salocks inquired if STORMS was using analytical methods of analysis and if pesticide based toxicity would yield bioassay type results. Noelle Patterson stated the testing is analytical testing and species specific testing. Charles Salocks further inquired how SWRCB plans on testing for pesticide based toxicity and not petroleum based toxicity. Noelle Patterson stated a

toxicity identification evaluation is used to factor out petroleum. Rich Breuer stated the toxicity identification evaluation is a series of analytical separations to determine the cause of toxicity.

Tom Ineichen asked if STORMS will be looking at the source of contamination. Jennifer Teerlink stated this is outside of the scope of the STORMS project and DPR's Surface Water Protection Program investigates sources of contamination through in-house research and contracts. Dave Tamayo stated a clear example is the occurrence of fipronil showing up in urban water bodies. For the most part, fipronil only applies to structural applicators with the exception of a few containerized baits.

Lynn Baker inquired if ocean-going vessels use copper antifouling paints. Nan Singhasemanon stated yes, however, DPR's mitigation is focused on recreational vessels and recreational boat basins. Lynn Baker further inquired if the cleaning of commercial vessels would occur in California ports. Nan Singhasemanon stated the States Lands Commission handles the cleaning of commercial vessels and most cleaning is conducted on dry dock. Lynn Baker commented that DPR may want to consider monitoring ports.

Crystal Reul-Chen asked if the copper antifouling paint prevents organisms from attaching, why would there need to be a cleaning. Nan Singhasemanon stated fouling will occur even with copper. In some areas, the standard for boats is spotless, which will require frequent cleaning. Crystal Reul-Chen further asked why copper leaching into marinas is a negative. Nan Singhasemanon stated toxicity studies show adverse and ecological effects to organisms such as the mussel larvae. Furthermore, copper will remain in the sediment.

Rebecca Sisco inquired why other states are not having the same issues. Nan Singhasemanon stated some states are not monitoring for copper and California has the largest marinas. Furthermore, in-water hull cleaning is a large industry in California and is not a large industry in other states.

Charles Salocks commented since the in-water hull cleaning is generating a waste, it would seem DTSC would have jurisdiction in regards to improper disposal of a hazardous waste. Charles Salocks inquired if DTSC has been involved in mitigation of copper antifouling paints. Nan Singhasemanon stated DTSC was involved early on but only considered the application of the paint. DPR has been working with SWRCB to mitigate copper antifouling paints as a discharge into California waterways.

Tom Ineichen asked if invasive species are affecting California. Nan Singhasemanon stated that DPR received comments regarding invasive species concerns if the use of copper antifouling paints were restricted. Conversely, there are comments stating if copper antifouling paints are effective, why are there aquatic invasive species issues. There are a number of species that are tolerant to copper.

5. Public Comment

Dave Tamayo commented California Stormwater Quality Association relies on the regulatory pesticide apparatus to address urban pesticide problems.

Mike Zeiss inquired how identifying pesticide monitoring requirements in MS4 permits is a challenge. Noelle Patterson stated each permit is created by the Regional Quality Control Boards with different monitoring requirements and there is additional monitoring for total maximum daily load.

6. Agenda Items for Next Meeting

Patti TenBrook stated she could present Region 9 activities related to new Worker Protection Standard and Certification Rule, mitigation decision on paraquat dichloride, policy to Mitigate the Acute Risk to Bees from Pesticide Products, and updates related to transition to the new administration.

The next meeting will be on Friday, March 17, 2017 at 10:00 a.m. in the Sierra Hearing Room on the second floor of the Cal/EPA building, located at 1001 I Street, Sacramento, California.

7. Adjourn