

Meeting Notes
Pyrethroids TMDL and Basin Plan Amendment Stakeholder Meeting
30 November 2015, Rancho Cordova, CA.

Attendees:

Jim Wells, Environmental Solutions Group on behalf of the Pyrethroid Working Group
Stephanie Fong, State and Federal Contractors Water Association (SFCWA)
Dave Tamayo, Sac County Storm Water
Stephen Louie, California Department of Fish and Wildlife (CDFW)
Gorman Lau, Larry Walker Associates (LWA)
Brian Lawrenson, LWA
Michael Bryan, Robertson-Bryan Inc. (RBI)
Tom Grovhoug, LWA
Robin Charlton, Valent USA Corp
Nasser Dean, Bayer
Malanie Okoro, National Oceanic and Atmospheric Administration (NOAA) Fisheries
Tess Dunham, Somach, Simmons, and Dunn on behalf of the Pyrethroid Working Group
Jennifer Teerlink, Department of Pesticide Regulation (DPR)
Scott Wagner, DPR
Rachel Kubiak, Western Plan Health Association
Debbie Webster, Central Valley Clean Water Association
Armand Ruby, Armand Ruby Consulting on behalf of Sacramento Stormwater Partnership
Vyomini Upadhyay, Sacramento County Regional Sanitation District
Paul Bedore, RBI
Ashley Shaddy, Central Valley Water Board
Danny McClure, Central Valley Water Board
Jeanne Chilcott, Central Valley Water Board
Adam Laputz, Central Valley Water Board
Melissa Dekar, Central Valley Water Board
Debra Denton, USEPA
Kelly Moran, TDC Environmental
Chris Valadez, Fresh Fruit Association
Brian Jorgenson, Pacific Eco Risk

The purpose of the meeting was to discuss the external scientific peer review comments, project alternatives under consideration as a result of both the peer reviews and several discussions with USEPA and Water Board legal counsel and next steps. The meeting agenda and status/briefing document can be found under the Public Meetings heading at the following website:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/central_valley_pesticides/pyrethroid_tmdl_bpa/index.shtml

1st v. 5th Percentile

Most stakeholders stated that the 5th percentile numbers were better than the 1st percentile of species sensitivity for the derivation of aquatic life criteria; they believe that the 5th percentile is more consistent with USEPA methods than the 1st percentile and agreed with 2 of the scientific peer reviewers who noted that the use of the 5th percentile would be more consistent with other methods and represents a more robust statistic. Nevertheless the dischargers were concerned with the attainability of any very low criteria, including those based on the 5th percentile. NOAA wanted assurance that the 5th percentile numbers were adequately low to protect vulnerable life stages of salmon and their food sources and habitats as well as other at-risk species and their habitats.

CDFW is concerned with increasing the value to the 5th percentile because models indicate that as little as a 6% reduction in fish size (a potential impact if food sources are reduced by pyrethroids) could result in nearly a 50% reduction to the salmon population.

Ecological Relevance of Proposed Criteria

Stakeholders cited population resistance to pesticides as a result of repeat exposure and recommended that resistance should be considered when developing values to be used in any control program. Specifically, stakeholders indicated that the very low values of the proposed numeric criteria are driven by the measurement of toxicity thresholds using laboratory cultures of *Hyalella azteca*, a benthic macroinvertebrate native to the project area. Laboratory reared *H. azteca* is 10-100 times more sensitive than other aquatic species used in the development of the proposed numeric criteria. As indicated in the draft Staff Report, native populations of *H. azteca* from areas known to experience elevated pyrethroid levels have been shown to be much more tolerant of pyrethroids than laboratory organisms, while populations of *H. azteca* from areas with less exposure have similar sensitivity to the laboratory reared *H. azteca*. Given that the low values of the proposed numeric criteria are driven by the pyrethroid sensitivity of laboratory-reared *H. azteca*, stakeholders suggested that the pyrethroid tolerance of native populations should be considered when developing numeric criteria to be used in the control program.

Additionally, some stakeholders suggested other means of determining acceptable levels of pyrethroids, while still maintaining a native population of *H. azteca* and other aquatic species that results in the attainment of beneficial uses, such as rapid bioassessment, should be considered.

Bioavailability

Stakeholders were supportive of using the bioavailable portion of pyrethroids to determine compliance with the numbers proposed. Stakeholders wanted clarification that if analytical methods are available that can measure the bioavailable fraction; such methods could be used instead of estimating the freely dissolved concentration.

POTW stakeholders feel that the partition coefficient (Koc) dataset for wastewater effluent is limited and the values seemed low (based on data from one treatment plant). They would like to be able to use a wider dataset or their own Koc.

Triggers v. Water Quality Objectives

Most stakeholders are generally supportive of proposing triggers instead of water quality objectives, however, a few stakeholders wanted assurance that a 13241 economic analysis would still be done if triggers are proposed.

Stormwater dischargers were supportive of the use of triggers if they would help avoid unnecessary regulatory action by the Board.

NOAA was generally supportive of this approach as well but wanted to make sure that this change wouldn't result in drastic changes to implementation that would result in the trigger/objective being less likely to be met.

Development of a Realistic Implementation Program. Focus on “true source control” since the effectiveness of traditional BMPs or treatment technologies to reduce pyrethroid discharges is limited or would be extremely expensive.

Storm water dischargers were concerned that they are already implementing the recommended BMPs and are unable to meet the potential triggers. Concern was also expressed that studies show that traditional education and outreach efforts often do not result in measurable improvement in water quality. Similarly, wastewater stakeholders were concerned that without extremely expensive plant upgrades (i.e., reverse osmosis) or resorting to land discharge, they would not be able to implement measures that would be effective enough to achieve the proposed triggers.

Both storm water and wastewater stakeholders maintain that without “true source control” (i.e., registration changes by DPR or USEPA) and a holistic approach to addressing pesticides, they would not be able to achieve the pyrethroid triggers. Both groups expressed frustration over the fact that the Water Board's authority to address the problem is limited to controlling resulting discharges and not application of material, and that local agencies do not have the authority to control pesticides applications, even if those applications cause regulatory compliance issues. Storm water dischargers noted that DPR has begun to implement true source control for pyrethroids through its Surface Water Quality Protection Regulations, which targeted measures to reduce applications that impact urban water quality. Such measures are believed to provide the best hope for substantive reductions in urban pesticide discharges.

Most stakeholders were supportive of the Water Board's commitment to notify and support agencies with the authority to control pesticide use (i.e., DPR and USEPA). Stakeholders representing pesticide registrants did not believe involvement in registration processes was appropriate as part of this Basin Plan Amendment. These stakeholders believe that the 5th

percentile numbers represent concentrations that would not be achievable unless pyrethroids were no longer used, and that water quality objectives are supposed to be reasonably achievable under State law.

Stormwater dischargers expressed that there are times when pesticides are used inappropriately, and that they believe the registrants have the ability to change formulations and application methods to reduce discharges in ways that would still allow reasonable pesticide applications needed for pest control.

Stormwater dischargers mentioned their support for the direction the State Water Board is going in regards to pesticides in storm water as contained in the draft Storm Water Strategic Initiative workplan that is scheduled to be considered by State Board in the near future. The draft (approved on 6 January) Strategy to Optimize Resource Management of Storm Water (STORMS)¹ contains an element to work toward a statewide framework for addressing pesticides that recognizes the need for water quality regulators to “recognize one of the primary mechanisms for urban pesticide pollution prevention is through use management under the authority of agencies that regulate pesticide use; and establish a framework for working with the Department of Pesticide Regulation (DPR) and U.S. EPA Office of Pesticide Programs.”

DPR mentioned that the Department is following up on wastewater concerns, including conducting a study in 2016 to characterize pesticide sources within the sewershed catchment that contribute to wastewater treatment plant influent. Currently, very little information is available on relative contribution of pyrethroid sources to wastewater influent.

Acute to Chronic Ratio (ACR) Comments:

One stakeholder mentioned concerns that the acute to chronic ratios (ACRs) used in the pyrethroid criteria derivation were not extensively discussed in the Peer Reviews, and expressed concerns about the use of default acute to chronic ratios that were derived using data from different classes of pesticides. ACRs were discussed by two peer-reviewers (J Jenkins and K Armbrust), and both expressed the sentiment that use of ACRs was not ideal, but was acceptable given the lack of chronic toxicity data.

The most detailed feedback on this topic was provided by one peer reviewer (J Jenkins), and whose comments indicated that use of a default ACR does not account for the variable potency of the six different pyrethroids. The reviewer provided recommendations on how the staff report and objectives should address this factor.

Additionally, J Jenkins noted a difference in how a final ACR was calculated for some of the pyrethroids. The UC Davis methodology’s default ACR was used to develop the bifenthrin chronic criteria, while the default ACR and pyrethroid-specific ACRs (for cyfluthrin and lambda-

¹ http://www.waterboards.ca.gov/water_issues/programs/stormwater/strategy_initiative.shtml

cyhalothrin) were used to calculate the final ACRs for cypermethrin, esfenvalerate, and permethrin, since they had more paired acute and chronic toxicity data.

One stakeholder mentioned that acute and chronic values from static renewal tests are available for each pyrethroid for *H. Azteca*. The stakeholder stated that it would be appropriate to use the ACRs from tests with acute values closer to the acute criteria. Therefore those data should be used to derive ACRs instead of using default ACRs or waiting for data for all three species to be available to calculate a pyrethroid-specific ACR according to the UCD method. The stakeholder also recommended that it might make sense to not establish chronic targets/objectives until the data are available to calculate pyrethroid-specific ACRs, since the most recent acute toxicity test results from flow through systems were lower than any chronic values in the data set.

USEPA responded that they prefer the adoption of both acute *and* chronic numbers and that the use of default ACRs is appropriate based on EPA guidance. Stakeholders clarified that the chronic criteria could be set equivalent to the acute criteria, and adjusted at a later time, if necessary.

Holistic Approach to Reasonable Protection of Beneficial Uses

One stakeholder was concerned that replacement pesticides, hydromodifications, or other factors result or will result in the same or greater impacts on aquatic life than pyrethroids, and that the focus on one chemical or class of chemicals may not achieve protection of the beneficial uses. Several stakeholders asked for a definition of “reasonable protection of beneficial uses” (e.g., no toxics in toxic amounts; protection of *all* species; protection of 95% of the species, 95% of the time; a water body that sustains all functional feeding groups, etc.).

Several stakeholders promoted the use of bioassessment as a tool to assess the level of protection of beneficial uses. One stakeholder mentioned the use of aluminum criteria by the Board in NPDES permits ten years ago as a case where investigation into criteria and effects could have helped inform regulatory decisions.

CDFW commented that extinction of any species is not permissible under the law, and that the Board should consider food web effects as well.

How should we move forward?

POTW stakeholders recommended the development of an Action Plan to fill in data gaps before an amendment is adopted. Several stakeholders recommended that the Basin Plan Amendment should identify current science gaps.

Stakeholders representing state and federal resources agencies did not support putting off amendment adoption and maintained that unless some kind of target is established, then little or no improvement in water quality would occur in the interim. In addition, these stakeholders prefer clear numeric goals are established that require dischargers to take action to reduce

pyrethroid discharges in the interim. In addition, CDFW is concerned that not setting a numeric trigger could result in continued water quality impairment which is a concern because of the impact it could have on populations of species of concern.

Dischargers stated that without understanding whether BUs are impacted by pyrethroids at or near the numeric targets, it is unreasonable to promulgate potentially (very) over-protective pyrethroid water quality objectives. Additionally, some POTW and MS4 stakeholders indicated that without changing the registered uses of pyrethroid pesticides by DPR or USEPA, the Basin Plan will result in little or no improvement in water quality, and the numeric targets would not be achieved.

Storm water stakeholders generally supported the use of triggers, a BMP-based approach, and explicit inclusion of the importance of the roles of DPR and USEPA toward “true source control”. Some storm water dischargers identified that after adoption, the scientific data gaps be identified and filled and that the triggers be revisited to incorporate new information, when appropriate. Other stakeholders supported the idea of developing an action plan to identify and fill the scientific data gaps before numeric targets/water quality objectives are adopted.

One stakeholder suggested that the need for pest management should be considered by the Board in terms of determining “reasonable protection” of beneficial uses.

Next Steps/Action Items

Stakeholders will review this summary and provide comments to Board staff by the end of December on the summary and other informal comments to be considered by staff moving forward.

A Board workshop is scheduled to be held during the February Board meeting to give stakeholders a chance to discuss their concerns with the Board and for staff to receive Board input on the Pyrethroids TMDL and BPA.

A follow-up stakeholder meeting will be held in January to discuss these and possibly other issues that will be brought to the Board in February, and to plan for the February Board workshop.