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Central Valley Pesticide TMDL and Basin Plan Amendment - Water Quality Criteria Method Development



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New! (October 2016) Water Quality Criteria Reports Currently Under Development

The Central Valley Water Board has contracted with UC Davis to develop five pesticide water quality criteria by April 2017. For continued updates on this project please subscribe to the lyris list using the link at the top of this page. For additional information, please contact Tessa Fojut at Tessa.Fojut@waterboards.ca.gov or Danny McClure at Daniel.McClure@waterboards.ca.gov.

For background information on the development and potential use of water quality criteria and the relationship between water quality criteria and water quality objectives please see staff's 2009 letter entitled [Pesticide Water Quality Criteria Derivation for the Protection of Aquatic Life in the Sacramento and San Joaquin River Basins](#), 70 KB, PDF ([PDF info](#)).

Four of the pesticides under criteria development are herbicides that are indicated on the 303(d) list for impairing water bodies in the Central Valley region (oxyfluorfen, prometryn, simazine, trifluralin). Staff are not currently developing control programs for any of these four herbicides. These criteria may be used to assess monitoring data and provide information on whether these herbicides are priorities for developing control programs or if the impairments may be addressed through other means.

Fipronil is an insecticide that has not been identified on the 303(d) list of impaired waters, but monitoring data indicate that there is a risk of impairments in urban watersheds. Staff is not currently developing a specific control program for fipronil. Fipronil water quality criteria may be used to assess monitoring data and provide information on the environmental fate of this compound.

Draft Criteria Reports - Oxyfluorfen, Prometryn, Simazine, Trifluralin

- »» [Draft Peer Review Request for the four herbicide criteria reports](#), 517 KB, PDF ([PDF info](#))
- »» [Draft Oxyflurofen Criteria Report](#), **1.45 MB***, PDF ([PDF info](#))
- »» [Draft Prometryn Criteria Report](#), **1.77 MB***, PDF ([PDF info](#))
- »» [Draft Simazine Criteria Report](#), **2.09 MB***, PDF ([PDF info](#))
- »» [Draft Trifluralin Criteria Report](#), **1.84 MB***, PDF ([PDF info](#))

Comments on the peer review topics identified in the Draft Peer Review Request are due 15 July 2016. Comments on the four draft herbicide criteria reports are due 16 September 2016. Send comments to Tessa Fojut at Tessa.Fojut@waterboards.ca.gov.

Draft Fipronil Criteria Report

- »» [Draft Peer Review Request for Fipronil Criteria Report](#), 478 KB, PDF ([PDF info](#))
- »» [Draft Fipronil Criteria Report](#), **3.23 MB***, PDF ([PDF info](#))

Comments on the peer review topics identified in the Draft Peer Review Request are due 11 November 2016. Comments on the draft Fipronil criteria report are due 20 January 2017. Send comments to Tessa Fojut at Tessa.Fojut@waterboards.ca.gov or Danny McClure at Daniel.McClure@waterboards.ca.gov.

Criteria Development Schedule

The schedule for water quality criteria development and public outreach and input is shown in the table below. The draft water quality criteria reports will be posted for public viewing prior to peer review so that the public may submit informal comments on

which scientific topics and conclusions should be highlighted in the request for peer review. The public will have approximately 90 days to view the draft reports before comments on the criteria reports are due; this comment period will occur simultaneously with the peer review. When the contract is finalized, the final reports including the peer review and public comments and the responses to all comments will be posted.

Action	
Tentative Schedule	
Discuss project at Pyrethroid Stakeholder meeting	
1 June 2016	
Herbicides Criteria	
	Four draft herbicide reports (oxyfluorfen, prometryn, simazine, trifluralin) posted for public review
17 June 2016	
	Informal comments on peer review topics due for four herbicide reports
15 July 2016	
	Send four herbicide reports for peer review
1 September 2016	
	Public comments due for four herbicide reports
16 September 2016	
Fipronil Criteria	
	Draft fipronil report posted for public review
21 October 2016	
	Informal comments on peer review topics due for fipronil report
11 November 2016	
	Send fipronil report for peer review
15 November 2016	
	Public comments due for fipronil report
20 January 2017	
Contract ends	
31 March 2017	
	Final reports posted with peer reviews, public comments, and responses
April 2017	

2015 Pyrethroids Water Quality Criteria Reports

- Water quality criteria for six pyrethroids were updated in 2015 by Regional Board staff to include recent studies. Criteria were derived by following the UC Davis Methodology for Derivation of Pesticide Water Quality Criteria for the Protection of

Aquatic Life ([Final Phase II Report](#)). These reports are currently undergoing peer review. A public comment period related to the [Pyrethroid TMDL and Basin Plan Amendment](#) will follow the peer review.

- » [2015 Bifenthrin Water Quality Criteria Report, 1.23 MB*](#), PDF ([ZIP info](#))
- » [2015 Cyfluthrin Water Quality Criteria Report, 1.38 MB*](#), PDF ([PDF info](#))
- » [2015 Cypermethrin Water Quality Criteria Report, 2.50 MB*](#), PDF ([PDF info](#))
- » [2015 Esfenvalerate Water Quality Criteria Report, 1.33 MB*](#), PDF ([PDF info](#))
- » [2015 Lambda-cyhalothrin Water Quality Criteria Report, 1.49 MB*](#), PDF ([PDF info](#))
- » [2015 Permethrin Water Quality Criteria Report, 4.24 MB*](#), PDF ([PDF info](#))

Water Quality Criteria Reports (UC Davis Phase III)

- » [Final Permethrin Criteria Report, 511 KB, PDF \(\[PDF info\]\(#\)\)](#)

This final report describes the derivation of water quality criteria for the insecticide permethrin.

- » [Appendix B1 - Data summary sheets for studies rated RR, RL, LR, LL, 1.81 MB*](#), PDF ([PDF info](#))
- » [Appendix B2 - Data summary sheets for studies rated RN, LN, N, 998 KB, PDF \(\[PDF info\]\(#\)\)](#)
- » [Responses to comments and peer reviews on the March 2011 Draft Pemethrin Cirtteria Report, 196 KB, PDF \(\[PDF info\]\(#\)\)](#)
- » Public Comments:
 - [Jeffrey Giddings & Jeffrey Wirtz, Compliance Services International on behalf of FMC Corporation, 230 KB, PDF \(\[PDF info\]\(#\)\)](#)
 - [Kelye McKinney, City of Roseville, Michael Bryan, Brant Jorgenson, & Ben Giudice, Robertson-Bryant, Inc., 1014 KB, PDF \(\[PDF info\]\(#\)\)](#)
 - [Debbie Webster, Central Valley Clean Water Association, 95 KB, PDF \(\[PDF info\]\(#\)\)](#)
 - [Linda Dorn, Sacramento Regional County Sanitation District, 1.51 MB*, PDF \(\[PDF info\]\(#\)\)](#)
- » Peer Reviews:
 - [John Knezovich, Lawrence Livermore National Laboratory, 96 KB, PDF \(\[PDF info\]\(#\)\)](#)
 - [Stella McMillan, California Department of Fish and Game, 142 KB, PDF \(\[PDF info\]\(#\)\)](#)
 - [Xin Deng, California Department of Pesticide Regulation, 35 KB, PDF \(\[PDF info\]\(#\)\)](#)

- » [Final Cypermethrin Criteria Report, 427 KB, PDF \(\[PDF info\]\(#\)\)](#)

- » [Appendix B1 - Data summary sheets for studies rated RR, RL, LR, LL, 787 KB, PDF \(\[PDF info\]\(#\)\)](#)
- » [Appendix B2 - Data summary sheets for studies rated RN, LN, N, 423 KB, PDF \(\[PDF info\]\(#\)\)](#)
- » [Responses to Comments on the March 2011 Draft Cypermethrin Criteria Report, 273 KB, PDF \(\[PDF info\]\(#\)\)](#)

- » Public Comments:
 - [Jeffrey Giddings & Jeffrey Wirtz, Compliance Services International on behalf of FMC Corporation, 828 KB, PDF \(\[PDF info\]\(#\)\)](#)
 - [Christopher Davis, FMC Corporation, 527 KB, PDF \(\[PDF info\]\(#\)\)](#)
 - [Kelye McKinney, City of Roseville, Michael Bryan, Brant Jorgenson, & Ben Giudice, Robertson-Bryant, Inc., 1014 KB, PDF \(\[PDF info\]\(#\)\)](#)
 - [Debbie Webster, Central Valley Clean Water Association, 214 KB, PDF \(\[PDF info\]\(#\)\)](#)
 - [Linda Dorn, Sacramento Regional County Sanitation District, 878 KB, PDF \(\[PDF info\]\(#\)\)](#)

- » Peer Reviews:

- [John Knezovich, Lawrence Livermore National Laboratory, 100 KB, PDF \(\[PDF info\]\(#\)\)](#)
- [Stella McMillan, California Department of Fish and Game, 142 KB, PDF \(\[PDF info\]\(#\)\)](#)
- [Xin Deng, California Department of Pesticide Regulation, 114 KB, PDF \(\[PDF info\]\(#\)\)](#)

- » [Final Cyfluthrin Criteria Report, 1.19 MB*, PDF \(\[PDF info\]\(#\)\)](#)

This final report describes the derivation of water quality criteria for the insecticide cyfluthrin.

- » [Response to Comments on Draft Cyfluthrin Criteria Report, 278 KB, PDF \(\[PDF info\]\(#\)\)](#)

⇒ Public Comments on Draft Cyfluthrin Criteria Report:

- [Karen Cain, Bayer Crop Science, 101 KB, PDF \(PDF info\)](#)
- [Kelye McKinney, City of Roseville; Michael Bryan, Brant Jorgenson, and Ben Guidance, Robertson-Bryan, Inc., 3.08 MB*, PDF \(PDF info\)](#)
- [Debbie Webster, Central Valley Clean Water Association, 82 KB, PDF \(PDF info\)](#)
- [Henry Buckwalter, Western Plant Health Association, 114 KB, PDF \(PDF info\)](#)

⇒ Peer Reviews of the Draft Cyfluthrin Criteria Report

- [John Knezovich, Lawrence Livermore National Laboratory, 95 KB, PDF \(PDF info\)](#)
- [Evan Gallagher, University of Washington, 91 KB, PDF \(PDF info\)](#)
- [Xin Deng, California Department of Pesticide Regulation, 56 KB, PDF \(PDF info\)](#)

⇒ [Final Lambda-Cyhalothrin Criteria Report, 1.48 MB*](#), PDF ([PDF info](#))

This report describes the derivation of water quality criteria for the insecticide lambda-cyhalothrin.

⇒ [Response to Comments on Draft Lambda-Cyhalothrin Criteria Report, 342 KB, PDF \(PDF info\)](#)

⇒ Public Comments on Draft Lambda-Cyhalothrin Criteria Report:

- ⇒ [Jeffrey M. Giddings, Compliance Services International; Kevin S. Henry, Syngenta Crop Protection, Inc., 444 KB, PDF \(PDF info\)](#)
- ⇒ [Kelye McKinney, City of Roseville; Michael Bryan, Brant Jorgenson, and Ben Giudice, Robertson-Bryan, Inc., 3.08 MB*, PDF \(PDF info\)](#)
- ⇒ [Lenwood Hall, University of Maryland, 32 KB, PDF \(PDF info\)](#)
- ⇒ [Renee Pinel, Western Plant Health Association, 38 KB, PDF \(PDF info\)](#)
- ⇒ [Jason Loft, Sacramento Regional County Sanitation District, 1.75 MB*, PDF \(PDF info\)](#)

⇒ Peer Reviews of the Draft Lambda-Cyhalothrin Criteria Report

- ⇒ [John Knezovich, Lawrence Livermore National Laboratory, 99 KB, PDF \(PDF info\)](#)
- ⇒ [Stella McMillan, California Department of Fish and Game, 108 KB, PDF \(PDF info\)](#)
- ⇒ [Xin Deng, California Department of Pesticide Regulation, 79 KB, PDF \(PDF info\)](#)

⇒ [Final Bifenthrin Criteria Report, 402 KB, PDF \(PDF info\)](#)⇒ [Appendix, 695 KB, PDF \(PDF info\)](#)

This report describes the derivation of water quality criteria for the insecticide bifenthrin.

⇒ [Response to Comments on Draft Bifenthrin Criteria Report, 516 KB, PDF \(PDF info\)](#)

⇒ Public Comments on Draft Bifenthrin Criteria Report:

- ⇒ [Jeffrey M. Giddings, Compliance Services International; Kevin S. Henry, Syngenta Crop Protection, Inc., 452 KB, PDF \(PDF info\)](#)
- ⇒ [Kelye McKinney, City of Roseville; Michael Bryan, Brant Jorgenson, and Ben Giudice, Robertson-Bryan, Inc., 730 KB, PDF \(PDF info\)](#)
- ⇒ [Sherrill Huun and Dan Gwaltney, Sacramento Stormwater Quality Partnership, 469 KB, PDF \(PDF info\)](#)
- ⇒ [Nasser Dean, Western Plant Health Association, 236 KB, PDF \(PDF info\)](#)
- ⇒ [Linda Dorn, Sacramento Regional County Sanitation District, 1.98 MB*, PDF \(PDF info\)](#)
- ⇒ [Debbie Webster, Central Valley Clean Water Association, 2.07 MB*, PDF \(PDF info\)](#)

⇒ Peer Reviews of the Draft Bifenthrin Criteria Report

- ⇒ [John Knezovich, Lawrence Livermore National Laboratory, 95 KB, PDF \(PDF info\)](#)
- ⇒ [Stella McMillan, California Department of Fish and Game, 88 KB, PDF \(PDF info\)](#)
- ⇒ [Xin Deng, California Department of Pesticide Regulation, 38 KB, PDF \(PDF info\)](#)

⇒ [Final Malathion Criteria Report, 949 KB, PDF \(PDF info\)](#)

This report describes the derivation of water quality criteria for the insecticide malathion.

⇒ [Response to Comments on Draft Malathion Criteria Report, 234 KB, PDF \(PDF info\)](#)

- » Public Comments on Draft Malathion Criteria Report:
 - [Paul Whatling, Cheminova, Inc., 1.33 MB*](#), PDF ([PDF info](#))
 - [Cheminova Attachment, 5.92 MB*](#), PDF ([PDF info](#))
 - [Kelye McKinney, City of Roseville; Michael Bryan, Brant Jorgenson, and Ben Giudice, Robertson-Bryan, Inc., 730 KB](#), PDF ([PDF info](#))
 - [Nasser Dean, Western Plant Health Association, 235 KB](#), PDF ([PDF info](#))

» [Final Diazinon Criteria Report](#), 1007 KB, PDF ([PDF info](#))

- » [Appendix, 3.1 MB*](#), PDF ([PDF info](#))

This report describes the derivation of water quality criteria for the insecticide diazinon.

- » [Response to Comments on Draft Diazinon Criteria Report](#), 254 KB, PDF ([PDF info](#))

- » Public Comments on Draft Diazinon Criteria Report:

- [Lenwood Hall, University of Maryland, 23 KB](#), PDF ([PDF info](#))
- [Nasser Dean, Western Plant Health Association, 237 KB](#), PDF ([PDF info](#))
- [Daniel McClure, Central Valley Regional Water Quality Control Board, 35 KB](#), PDF ([PDF info](#))

» [Final Diuron Criteria Report](#), 582 KB, PDF ([PDF info](#))

- » [Appendix, 2.2 MB*](#), PDF ([PDF info](#))

This report describes the derivation of water quality criteria for the herbicide diuron.

- » [Response to Comments on Draft Diuron Criteria Report](#), 333 KB, PDF ([PDF info](#))

- » Public Comments on Draft Diuron Criteria Report:

- [Lenwood Hall, University of Maryland, 22 KB](#), PDF ([PDF info](#))
- [Nasser Dean, Western Plant Health Association, 240 KB](#), PDF ([PDF info](#))
- [Daniel McClure, Central Valley Regional Water Quality Control Board, 27 KB](#), PDF ([PDF info](#))
- [Aldos Barefoot, DuPont Crop Protection, 33 KB](#), PDF ([PDF info](#))
- [Stephan L. Clark and Scott Ogle, Pacific EcoRisk, 192 KB](#), PDF ([PDF info](#))

For additional information on the Phase III Reports, please contact Danny McClure at dmcclure@waterboards.ca.gov or (916) 464-4751.

Final Phase II Report

» [Regional Board Staff Statement on the Release of the Final Phase II Report](#), 70 KB, PDF ([PDF info](#))

» Methodology for Derivation of Pesticide Water Quality Criteria for the Protection of Aquatic Life - Phase II, Methodology Development and Derivation of Chlorpyrifos Criteria

- » [Entire Report, 8.33 MB*](#), ZIP ([ZIP info](#))

- » [Cover/Executive Summary/Table of Contents](#), 170 KB, PDF ([PDF info](#))

- » [Chapter 1. Introduction and Approach](#), 160 KB, PDF ([PDF info](#))

- » [Chapter 2. Evaluation and Selection of Methods](#), 686 KB, PDF ([PDF info](#))

- » [Chapter 3. Methodology](#), 494 KB, PDF ([PDF info](#))

- » [Appendix 3A. Software](#), 6.66 MB*, PDF ([PDF info](#))

- » [Chapter 4. Chlorpyrifos Criteria Derivation](#), 1.77 MB*, PDF ([PDF info](#))

- » [Peer Review Addendum](#), 517 KB, PDF ([PDF info](#))

Responses to Public Comments on Phase I and II Reports

» [Response to public comments on Phase I and II Reports](#), 445 KB, PDF ([PDF info](#))

Public Comments on Phase I and II reports.

- » [Roberta Fivored](#), California Rice Commission, 149 KB, PDF ([PDF info](#))
- » [Dee Ann Staats](#), Croplife America, 326 KB, PDF ([PDF info](#))
- » [Warren Tellefson](#), Central Valley Clean Water Agency, 351 KB, PDF ([PDF info](#))
- » [Nick Poletika](#), Dow AgroSciences, 41 KB, PDF ([PDF info](#))
- » [William Thomas](#), Dow AgroSciences, 21 KB, PDF ([PDF info](#))
- » [William Warren-Hicks](#), EcoStat, 49 KB, PDF ([PDF info](#))
- » [Stephen Clark](#), Pacific EcoRisk, 203 KB, PDF ([PDF info](#))
- » [Allen Short](#), San Joaquin Tributary Association, 51 KB, PDF ([PDF info](#))
- » [Wendell Kido](#), Sacramento Regional County Sanitation District, 290 KB, PDF ([PDF info](#))
- » [Lenwood Hall](#), University of Maryland, 48 KB, PDF ([PDF info](#))
- » [Debra Denton](#), U.S. Environmental Protection Agency, 28 KB, PDF ([PDF info](#))
- » [Joe Beaman](#), U.S. Environmental Protection Agency, 24 KB, PDF ([PDF info](#))
- » [Nassar Dean](#), Western Plant Health Association, 171 KB, PDF ([PDF info](#))
- » [Renee Pinel](#), Western Plant Health Association, 1 MB*, PDF ([PDF info](#))

Phase II report

The Phase II report details a method to derive pesticide water quality criteria for the protection of aquatic life. The report also includes a derivation of water quality criteria for chlorpyrifos using the methodology. The Phase II Peer Review Addendum describes the peer review process and provides the peer review comments and the responses to those comments. For additional information, please contact Danny McClure at dmclure@waterboards.ca.gov or (916) 464-4751.

- » [Executive Summary and Table of Contents](#), 39 KB, PDF ([PDF info](#))
- » [Chapter 1 - Introduction and Approach](#), 26 KB, PDF ([PDF info](#))
- » [Chapter 2 - Evaluation and Selection of Methods](#), 366 KB, PDF ([PDF info](#))
- » [Chapter 3 - Methodology](#), 153 KB, PDF ([PDF info](#))
- » [Appendix 3C \(Part I\)](#), 2.78 MB*, PDF ([PDF info](#))
- » [Appendix 3C \(Part II\)](#), 2.6 MB*, PDF ([PDF info](#))
- » [Chapter 4 - Chlorpyrifos Criteria Derivation](#), 380 KB, PDF ([PDF info](#))
- » [Peer Review Addendum](#), 517 KB, PDF ([PDF info](#))

Phase I report

The Phase I Method Evaluation Report provides a comparison and evaluation of existing water quality criteria derivation methodologies from around the world. The Phase I Peer Review Addendum describes the peer review process and provides the peer review comments and the responses to those comments. For additional information, please contact Danny McClure at dmclure@waterboards.ca.gov or (916) 464-4751, or Joshua Grover at jgrover@waterboards.ca.gov or (916) 464-4691.

- » [Phase I Method Evaluation Report](#), 1.1 MB*, PDF ([PDF info](#))
- » [Phase I Report Peer Review Addendum](#), 281 KB, PDF ([PDF info](#))

[UC Davis Contract, Scope of Work](#), 42 KB, PDF ([PDF info](#))

Provides the scope of work for the contract between the Central Valley Water Board and UC Davis to perform research into potential methods to establish numerical water quality criteria that can be used as the basis for pesticide water quality objectives in the Central Valley. For additional information, please contact Danny McClure at dmclure@waterboards.ca.gov or (916) 464-4751.

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the authority of the California Environmental Protection Agency

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