

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401-7906**

**PUBLIC COMMENTS AND STAFF RESPONSES
FOR
TOTAL MAXIMUM DAILY LOAD FOR CHLORPYRIFOS AND DIAZINON IN THE
PAJARO RIVER WATERSHED
MONTEREY, SAN BENITO, SANTA CLARA, AND SANTA CRUZ COUNTIES
(DRAFT PROJECT REPORT - MARCH 2013)**

Central Coast Water Board staff implemented a process to inform and engage interested persons about this proposed total maximum daily load (TMDL). Central Coast Water Board staff's efforts to inform the public and solicit comments included a public notice and written comment period. Public notice of this proposed Basin Plan amendment provided interested parties a public comment opportunity preceding the Central Coast Water Board hearing regarding this matter. The public comment period for these TMDLs commenced on March 27, 2013, and extended through April 29, 2013. Central Coast Water Board staff received comments from:

1. Ms. Abby Taylor-Silva, Vice President, Policy & Communications, Grower-Shipper Association of Central California, in an email attachment received April 29, 2013.
2. Ms. Janet Parrish, TMDL Liaison, US EPA, in an email attachment received April 29, 2013.
3. Ms. Janet Parrish, TMDL Liaison, US EPA, detailed comments included in an email attachment, received April 29, 2013.

The Central Coast Water Board appreciates the comments provided by these interested parties. Their comments have prompted us to clarify information in the TMDL project as noted herein.

Staff responses to these comments are provided in the "Comments and Responses" section beginning on page 2. Note that we reproduce direct transcriptions of the comments from each commenter and insert staff responses using **bold**, *blue*, *italic text*.

Comments and Staff Responses

1. Ms. Abby Taylor-Silva, Vice President, Grower-Shipper Association of Central California

Comment 1.1

Please accept these comments in response to the Central Coast Regional Board's proposed resolution to adopt a total maximum daily load (TMDL) for Chlorpyrifos and Diazinon in the Pajaro River Watershed. We believe this action is unnecessary and an unnecessary use of time and resources due to the points outlined below.

The samples collected to establish this TMDL are as many as seven years old in some cases. As your Draft Final Project Report notes (page 29), the application of these materials in agricultural areas has decreased dramatically, with application rates in 2011 representing 7.2% of what they were in 2000. Basing this TMDL on collections in 2006 does not take into consideration this dramatic decline in use. We encourage the Regional Board to delay implementation of this TMDL until more samples can be collected. It is our belief that a few more sample points could result in delisting of this watershed for Chlorpyrifos. We also believe this data could eliminate the need to list the Pajaro River and the Pajaro River Estuary as impaired due to Diazinon, thereby rendering a TMDL and Clean Water Act 303 (d) listing unnecessary.

Staff response: Some samples used to evaluate the Pajaro River, Llagas Creek, and the Pajaro River Estuary are as old as seven years (2006) and some of the samples are as recent as September 2011 (now 2012 based on recent DOW AgroSciences samples). Please see Appendix C for a graphical display of the age of the data organized by waterbody and pollutant. To summarize, the Pajaro River exceeded the chlorpyrifos criteria most recently in June 2009 and for diazinon in February 2011, while Llagas Creek has not had an exceedance since 2006. The Pajaro River Estuary showed exceedances in January and February 2008 for diazinon.

The samples taken represent the condition of the waterbody during the time of sample collection. As per the Listing Policy¹, Table 4 states there are a certain number of samples that need to be collected in order to remove a waterbody from the list. Again, please see Appendix C for exactly how many samples need to be collected in each waterbody in order to qualify for delisting. Staff did take into consideration the dramatic decline in use of chlorpyrifos and diazinon, which was why we analyzed both Department of Pesticide Regulation's Pesticide Use Reporting and pesticide use reporting from all four counties and reported the information in Figure 4-2. As stated in Section 6.7, "Based on [these] labeling changes, prohibitions, and reduced application of these pesticides, staff expects growers have already taken many, if not all, of the necessary steps in order to meet this TMDL in the near future."

Staff is not recommending delay or deferral of the TMDL. Staff is required to develop TMDLs in accordance with the federal Clean Water Act in a timely manner on the basis of available data. The proposed TMDL does not impose additional requirements on

¹ Water Quality Control Policy For Developing California's Clean Water Act Section 303(d) List, commonly known as the "Listing Policy," adopted September 2004.
http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/ffed_303d_listingpolicy093004.pdf

agricultural stakeholders above and beyond what they are already required to do pursuant to the existing Agricultural Order, or future revisions of the Agricultural Order. TMDLs are strategies, or plans, to assist the state in implementing existing water quality standards and do not create new bases for enforcement apart from the existing standards they implement. Staff does not typically consider the existence of future sampling efforts to be the basis for deferring a TMDL, nor have we been informed by management or by USEPA to delay TMDLs on the basis of future sampling. Future sampling can be incorporated into TMDL implementation.

The commenter states, "It is our belief that a few more sample points could result in delisting of this watershed for Chlorpyrifos." Staff pointed out in the Project Report and Appendix C exactly how many samples would need to be collected in order to qualify for delisting. Staff repeats the information here:

- Pajaro River for chlorpyrifos – 4 additional samples below the water quality criteria (this is a change as of May 8, 2013, because DOW AgroSciences sent us four more samples and a qualifying QA/QC plan that showed non-detectable levels of chlorpyrifos in the river).*
- Llagas Creek for chlorpyrifos – 19 additional samples below the water quality criteria.*
- Pajaro River for diazinon – 3 additional samples below the water quality criteria (this is a change as of May 8, 2013, because DOW AgroSciences sent us four more samples and a qualifying QA/QC plan that showed non-detectable levels of diazinon in the River).*
- Pajaro River Estuary for diazinon – 7 additional samples below the water quality criteria.*

Regarding the Pajaro River and Pajaro River Estuary and diazinon and eliminating the need to list them, based on the number of samples and the number of exceedances, at this time these two waterbodies are considered impaired by diazinon. As stated in the Project Report and in this response to comment, staff anticipates future sampling will produce results below the criteria. Should staff find that additional samples show no impairment for diazinon, staff will pursue delisting during a future listing cycle. However, staff anticipates that the current Clean Water Act section 303(d) listing effort will not be completed until 2014, and no new data is being accepted for the current listing cycle. Clean Water Act 303(d) listing cycles are typically taking four years to complete. Therefore, staff anticipates that the soonest these waters could be delisted, if data indicate they are no longer exceeding the target concentrations for these pesticides, is 2018.

Comment 1.2

This fall, Central Coast Water Quality Preservation, Inc. will be taking additional samples in this watershed. We suggest the Regional Board wait to adopt this TMDL until these samples have been taken, in an effort to use their staff time and monetary resources wisely. We encourage the Board to take into account the true cost of adopting this TMDL as a basin plan amendment if it's actually unnecessary due to decreased use of these materials. Not only will this result in a waste of your staff's time and resources, it will likely affect other programs, such as the Ag Waiver, and specifically tier designations for growers along this watershed. That determination will compound Regional Board staff and grower responsibilities and resource expenditure, for a likely unnecessary TMDL determination. In an effort to be mindful of your resources and those of our members, please delay implementation until these samples are taken.

Staff response: Staff has been in contact with the Cooperative Monitoring Program and is aware that they are planning on taking additional samples, most likely beginning in the fall of 2013. Please see above comment (1.1) with regards to delaying this TMDL.

This TMDL is not a basin plan amendment but being adopted as a resolution. The State Board's Impaired Waters Guidance² states that if a solution to water quality impairment can be implemented with a single vote of the Water Board, it may be implemented by that vote. When the implementation plan can be adopted in a single regulatory action, in this case the Agricultural Order, there is no legal requirement to first adopt the plan through a Basin Plan amendment. This type of approach saves time and money.

Staff has already collected data from various entities, held two public meetings, and created a report (TMDL Project Report) documenting their findings. Staff concludes their analysis in the Pajaro Watershed was not a "waste" of time for our program or our agency. On the contrary, through staff's analysis of water quality data, pesticide use reporting, conversations with individuals in the area, and public meetings, staff was able to more accurately portray the status of chlorpyrifos/diazinon concentrations in the Pajaro watershed as opposed to assuming it is the same as the Salinas or Santa Maria, for example. Additionally, this research helps inform staff in the agricultural program that growers in the Pajaro appear to be both reducing the amount of chlorpyrifos and diazinon applied in the watershed and are implementing management practices that are successful in retaining the pesticides on site. Staff finds their analysis is actually more helpful to the growers in the Pajaro than harmful because it takes into account the progress that growers have made.

Regarding tier designations, the Pajaro River and Llagas Creek are already listed for chlorpyrifos on the 2008-2010 303(d) list. Having a TMDL will not change their tier designations as the tier designations are based on the impaired waterbodies list and not whether that waterbody has an approved TMDL associated with it³. The TMDL process determined that Millers Canal and Furlong Creek were not impaired which could have changed tier designations for some growers to a less stringent tier if those waterbodies were not already listed for other impairments. However, Furlong Creek is listed for nutrients and turbidity and Millers Canal is listed for turbidity and temperature so they still qualify as impaired waterbodies. Additionally, staff pointed out that only eight (now only four) samples may be needed in order to qualify Pajaro River for delisting for chlorpyrifos.

Again, please see comment 1.1 in response to delaying a TMDL. A TMDL is a plan and does not require anything more than the Agricultural Order already requires.

Comment 1.3

Additionally, we believe the assessment that "professional uses in the urban environment are not a source causing impairment" (Draft Final Project Report, page 4) may be ill-founded. Upon our review of the raw data, it seems that many of the exceedances occurred in winter months, at a time of year when there's little agricultural production necessitating the use of these products, and a number of storm events. It's highly likely that Chlorpyrifos and Diazinon-based products purchased at retail were still being used at homes or business parks years past their

² State of California, S.B. 469 TMDL Guidance, A Process for Addressing Impaired Waters in California, June 2005 http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/iw_guidance.pdf

³ Agricultural Order No. R3- 2012-0011, findings 15-17.

http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/ag_order/final_agorder_atta_032612.pdf

purchase date, and could have likely contributed to these exceedances. Urban use as a contributor shouldn't be ruled out during wet winter months.

Staff response: Staff directs the commenter to Tables 4-1 and 4-2 in the Project Report which detail the date the sampling site exceeded criteria and shows the date chlorpyrifos or diazinon was applied on nearby agricultural operations. The commenter states that, "many of the exceedances occurred in winter months, at a time of year when there's little agricultural production necessitating the use of these products." For agricultural application of chlorpyrifos, upon review of data from 2000-2010, chlorpyrifos was applied every single month out of every year, with the exception of 2004 when there was no application in November (but there was in 10/20/2004 and 12/2/2004) and 2003 where there was no December application. Similarly for diazinon, upon review of data from 2000-2010, it too was applied on agricultural operations consistently every month out of the year with the exceptions of 2008 and 2009 when it was not applied in November and 2001 and 2005 when it was not applied in December. Therefore, based on nearly year-round application and application in the proximity of the sampling sites, staff concluded that it was likely the detections of these chemicals were due to agricultural application.

As noted in the Project Report (Ensminger, 2012), "California Department of Pesticide Regulation took samples in urban areas that had no agricultural input in Sacramento, San Francisco, Orange County, and San Diego areas. From 2008 to 2012 DPR detected chlorpyrifos in urban runoff 1.9% of the time (8 detections out of 414 samples) and diazinon 6% of the time (25 out of 414 samples). Detection of the chemical does not mean that the chemical was necessarily detected above a water quality criteria." There is a small possibility that a residential user had some chlorpyrifos or diazinon left over after it was banned in 2001 (chlorpyrifos) and 2002 (diazinon) and applied it. However, that possibility is small and the chances of residential users applying these chemicals to the extent that the resulting receiving water exceeds the target concentration becomes smaller and smaller each passing year.

Comment 1.4

We also request a review and further details regarding the numeric criteria used to establish this TMDL. From Table 1 (p. 8) of the project report, Allocations 1 and 2 seem to be duplicative of Allocation 3 in tandem, and taken individually seem to be overly stringent. This is because the CMC is set at half the LC50, and the CCC is set further below that. We understand that Chlorpyrifos and Diazinon should not BOTH be present at the "half the LC50" level because of potential additive toxicity. But for one to be present (without the other), below the half-LC50 level, would not seem to produce a demonstrable effect to aquatic life. We request a review of this issue. Further, while the report cites Department of Fish and Game and USEPA studies to support selection of the CMC and CCC criteria, the report does not provide support for introducing these for use in regulation. We are concerned that the introduction of these numeric criteria pushes ahead of State and Federal policies, and believe it would be inappropriate to adopt the TMDL as written in that case.

Staff response: The allocations (numeric targets) proposed in the TMDL have been adopted by the Central Valley Water Board (Region 5) and have been adopted by the Central Coast Water Board in several TMDLs (Salinas, San Antonio, and Arroyo Paredon). Furthermore, it is important to note that these concentrations have been incorporated into the Central Valley Region's Basin Plan as water quality objectives. The numeric targets have undergone scientific peer review and Region 5 staff prepared a

report⁴ that details the results of their calculations. Finally, the proposed targets are included in the Central Coast Water Board's Agricultural Order as indicators of whether the narrative toxicity objective is being achieved.

A numeric target is an interpretation of existing water quality standards and is not a water quality standard itself. A TMDL's numeric target is not directly enforceable against dischargers absent a corresponding permit provision. The numeric targets were selected to protect the beneficial use of aquatic habitat. Federal regulations require that a TMDL be based on a quantitative value or target⁵. Having numeric criteria in the TMDL follows federal regulations and does not push ahead of state and federal policies.

Comment 1.5

Due to the concerns outlined in this letter, please delay implementation of the Pajaro Valley Watershed for Chlorpyrifos and Diazinon until more samples have been collected, in an effort to determine whether a TMDL is in fact necessary. Please feel free to contact me at 831-422-8844 or abby@growershipper.com with any questions.

Staff response: Staff thanks the commenter for her comments but does not recommend delaying adoption of the TMDL as mentioned in response to comment no. 1.1.

2. Ms. Janet Parrish, TMDL Liaison, US EPA, summary comments

Comment 2.1

U.S. Environmental Protection Agency (EPA) recommends and supports your Board's adoption of the proposed Chlorpyrifos and Diazinon Total Maximum Daily Loads (TMDLs) for the Pajaro River Watershed. We applaud the inclusion of toxicity targets and TMDLs for the water column, sediment, and fish tissue, to address known, unknown and future impairments due to pesticides and other pollutants. We appreciate that you have included numeric targets equivalent to the water quality objectives for acute and chronic conditions, and for additive conditions (i.e., adding the effects of two or more pesticides when present concurrently in a water body). Extensive scientific evidence shows pesticide compounds within the same class will have a combined, additive effect. Therefore, it is necessary and important to address these issues.

Staff response: This comment is supportive of the proposal.

Comment 2.2

These TMDLs are toxicity- and concentration-based, which is appropriate for these compounds. EPA supports the scientifically sound analysis used to develop the TMDLs, which are consistent with EPA water quality guidelines for the pesticides identified. We have some suggestions, include in the enclosure, that we believe will strengthen the TMDLs and clarify some statements in the supporting documents.

⁴ Please find the link to Region 5's "Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and chlorpyrifos Runoff into the Lower San Joaquin River," Appendix E – Criteria Calculations for Diazinon and Chlorpyrifos. http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/san_joaquin_op_pesticide/final_staff_report/appendix_e.pdf

⁵ Memo from Office of Chief Counsel, June 12, 2002, The Distinction Between a TMDL's Numeric Target and Water Quality Standards. http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/iwguide_apxb.pdf

We look forward to reviewing your final TMDLs when they are submitted to EPA. If you have additional questions or need clarification on the comments above, please call me at (415) 972-3456.

Staff response: Please see responses to specific comments in section 3, detailed comments.

3. Ms. Janet Parrish, TMDL Liaison, US EPA, detailed comments (enclosure)

Comment 3.1

Waterbodies Addressed and TMDLs Proposed

There is some confusion about the specific waterbodies for which TMDLs been proposed. For example, in some sections, it appears that TMDLs have been assigned to the Pajaro River, Pajaro Estuary, Llagas Creek, and all tributaries to those waterbodies; whereas, in other sections, it seems to be only Pajaro River and Llagas Creek. It appears that in the analysis, Millers Canal and Furlong Creek have been identified as not impaired for chlorpyrifos, and that new impairments have been identified for most or all of the waterbodies for diazinon and unknown toxicity.

Please clarify:

- Which waterbodies for which TMDLs are proposed were identified as impaired, and for which pollutant(s), on the 2008-2010 303(d) list;
- Which waterbodies for which TMDLs are not proposed (because your analysis shows that the impairment no longer exists) were identified as impaired, and for which pollutant(s), on the 2008-2010 303(d) list;
- Which waterbodies have been identified as newly impaired, and for which pollutant(s), since the 2008-2010 303(d) list, for which TMDLs are proposed; and
- Which waterbodies have been assigned chlorpyrifos and/or diazinon TMDLs and allocations, and/or toxicity TMDLs and allocations;

Clarifications and/or corrections to improve internal consistency could be made in the Resolution (p. 1, Items 4 through 6); in the Project Report (pp. 6, 11, 14, 20-23, and 34-37); and in the Staff Report (p.1).

Staff response: Staff added Table 2-7 to the Project Report which should clarify the bulleted points outlined above. Staff also made clarifications to the Project Report and the Staff Report. Staff did not find any discrepancy with the language in the Resolution. The TMDL finds that the Pajaro River and Llagas Creek are impaired by chlorpyrifos and the Pajaro River and the Pajaro River Estuary are impaired by diazinon. The TMDL Report assigns allocations to these waterbodies and all reaches and tributaries. For example, staff did not find that the San Benito River was impaired by chlorpyrifos. However, if staff finds that this waterbody is impaired by chlorpyrifos in the future, San Benito River will be covered by this TMDL. This approach will save time and resources.

Comment 3.2

Numeric Targets, TMDLs, and Load Allocations

The Project Report, p. 8, Table 1, lists Numeric Targets, TMDLs, and Load Allocations. For Allocation 3, which addresses the additive toxicity of diazinon and chlorpyrifos when both are present, we would recommend that the numeric targets, TMDLs and Allocations not exceed 1.0 at any time. Table 1 currently states, "Value of S cannot exceed 1.0 more than once in any consecutive three year period." We recommend removing this statement, which also appears in Table 5-2, Load Allocations (p. 37), and in the Staff Report (p. 3). Removing the statement would be consistent with other chlorpyrifos and diazinon TMDLs that EPA has approved, and it would be internally consistent (for example, the Numeric Targets section on p. 26 does not include that statement). This consistency would also strengthen the Linkage Analysis section.

It would be helpful for your staff to work with EPA offices to clarify the method for determining toxicity, and to specify an endpoint. We also suggest the following technical edits: 1) the Ceriodaphnia is a 6-8 day test and 2) we suggest adding Hyalella toxicity testing; the endpoint is survival and growth. Please make similar corrections to the TMDLs and Allocations.

We encourage and support the individual pesticide numeric targets, the use of the additive formula and the evaluation of the Basin Plan's narrative toxicity objective, with test results being evaluated following the test of significant toxicity (TST) according to USEPA (2010) and Denton et al. (2011). We support the use of pesticide numeric targets as concentration-based waste load allocations and load allocations.

Staff response: The statement "Value of S cannot exceed 1.0 more than once in any consecutive three year period," is consistent with other TMDLs the USEPA has approved, both in our Region (3) and in Region 5. The statement is derived from USEPA methodology⁶ for protection of aquatic life organisms. Staff's omission on pg. 26 was an error and "Value of S cannot exceed 1.0 more than once in any consecutive three year period" was added.

Staff added Hyalella azteca to the standard toxicity test. Adding this organism is consistent with the Agricultural Order. Staff finds that the Ceriodaphnia test is often referred to as a 7-day chronic test and is consistent with EPA method 1002.0.

Comment 3.3

Loading Capacity, TMDLs and Allocations

We suggest identifying Section 5 as "Loading Capacity, TMDLs, and Allocations" and Section 5.2 as "Loading Capacity and TMDLs" (i.e., add "and TMDLs" to the titles)

Staff response: "TMDLs" added to the titles.

Comment 3.4

Implementation and Monitoring

⁶ Guidelines for Deriving Numerical Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses. USEPA, 1985.
<http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/upload/85guidelines.pdf>

General

We appreciate the ambitious timeline of October 2016 identified for achieving the TMDL. This suggests that water quality improvements can be made relatively quickly.

Staff response: As staff mentioned in section 6.7, Existing Implementation Efforts, staff found that growers are likely already meeting the numeric targets or are very close to meeting them.

Comment 3.5

Implementation and Monitoring (cont.)

“California Department of Fish and Game” or “CDFG” should now be identified as “California Department of Fish and Wildlife” or “CDFW” due to the Jan 1, 2013 name change. See page 25 of the Project Report as an example of where the name change should be identified.

Staff response: Staff added language that states, “now referred to as California Department of Fish and Wildlife.” The references to California Department of Fish and Game were 2000 and 2004 references and refer to the time period when the agency was called California Department of Fish and Game.

Comment 3.6

Implementation and Monitoring (cont.)

Monitoring and Reporting (p. 41, Section 6.3)

We suggest recommending that dischargers conduct the necessary toxicity tests to determine compliance with the pesticide/toxicity TMDLs. These should be the aquatic toxicity tests as described in Section 3.

Staff response: As stated in section 6.4, Determination of Compliance with Load Allocations, staff may assess compliance with load allocations by via toxicity tests.

Comment 3.7

Implementation and Monitoring (cont.)

Timeline and Milestones (p. 42, Section 6.5)

“The Agricultural Order should establish timeframes for individual dischargers to achieve water quality standards; achieving water quality standards will result in achieving TMDL allocations.” It would be helpful to clarify if this means that the Agricultural Order timeframes will be established and set earlier than the TMDL target date of October 2016, or afterwards. Will the Water Board set timeframes now in the Agricultural Order; or will the Water Board use the CMP 2014 data and CCMP 2016 data to inform these Agricultural Order timeframes for individual dischargers? An earlier timeframe would be preferred to assure TMDL targets will be met.

“Water Board staff will reevaluate impairments... when monitoring data is submitted and during renewals of the Agricultural Order.”

To better understand the time sequence, please clarify:

- When will the monitoring data referred to on page 42 be submitted? Is this the annual CMP data collection referred to on page 41 of the TMDL, or more frequently-collected data? Is it part of the 2014 CMP data (page 41) or the 2016 CCAMP data (page 41)?
- When do you anticipate renewals or modifications of the Agricultural Order? What factors, if any, determine when such renewals or modifications occur?

Staff response: Staff advised USEPA regarding the following. CMP plans to begin collecting this data in the fall of 2013. CCAMP plans to collect data from January 2016 to December 2016; data is typically available for analysis within a year following collection.

The Agricultural Order is a waiver of waste discharge requirements and expires after five years. Since the Order was adopted on March 15, 2012, it will expire in 2017.

Comment 3.8

Implementation and Monitoring (cont.)

Existing Implementation Efforts (p. 43, Section 6.7)

“...Staff expects growers have already taken many, if not all, of the necessary steps in order to meet this TMDL in the near future.”

If the 2016 TMDL timeline is not met, what implementation measures will then be required? It may be helpful to include a statement that revised implementation measures would be reconsidered (in a future TMDL Project and Agricultural Order Renewal).

We appreciate the comprehensive and practical approach taken to addressing pesticides impairments. Although EPA does not approve TMDL implementation plans, we applaud the approach, which appears to strive for efficiencies and to make use of multiple programs that are ongoing statewide and in the region.

Staff response: If the 2016 TMDL is not met, staff will re-evaluate what implementation measures would be required at that time. Staff incorporated language in the Final Project report to clarify this point.