STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF JULY 28-29, 2016
Prepared on July 5, 2016

ITEM NUMBER: **8**

SUBJECT: **Adopting Total Maximum Daily Loads for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed**

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THIS ACTION: **Adopt Resolution No. R3-2016-0003**

SUMMARY

This item is a continuation of Item 18 from the May 13, 2016 Central Coast Regional Water Quality Control Board (Central Coast Water Board) hearing. At the close of the hearing, the Central Coast Water Board continued the item to a future hearing and directed staff to address several issues and to continue engaging with stakeholders. This staff report addresses the key issues, summarizes staff's discussions with stakeholders, and recommends changes to clarify language in the Water Quality Control Plan for the Central Coastal Basin (Basin Plan) Amendment (Attachment 1) and TMDL Technical Project Report: Total Maximum Daily Loads for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed (Attachment 2).

DISCUSSION

Key Board Hearing Issues and Additional Outreach to Stakeholders

At the close of the May 13, 2016 Central Coast Water Board hearing, the Central Coast Water Board directed staff to address several key issues. Staff addresses these key issues in Table 1, below. Staff also contacted each stakeholder who spoke at the hearing to discuss and compile a list of their key comments. Staff discussed two objectives with stakeholders during the calls. The first objective was to learn from each stakeholder what their key issues were so staff could add to and supplement the key issues identified by the Central Coast Water Board. The second objective was to discuss the key issues with stakeholders and to share information that would help clarify and possibly resolve the issues. The stakeholder meetings are listed below and stakeholder comments are integrated into Table 1.

- May 23, 2016 - Conference call with Mr. Kirk Schmidt, Executive Director, Central Coast Water Quality Preservation, Inc. and Ms. Sarah G. Lopez, Technical Program Manager, Central Coast Water Quality Preservation, Inc.

- May 25, 2016 – Conference call with Mr. Armand Ruby, Armand Ruby Consulting, representing California Stormwater Quality Association (CASQA).
- May 26, 2016 – Conference call with agricultural stakeholders: Ms. Abby Taylor-Silva, Vice-President, Policy & Communications, Grower-Shipper Association of Central California; Ms. Kay Mercer, KMI Consulting; and Ms. Mary Zischke, independent consultant for Grower-Shipper Association and member of the Grower-Shipper Association Pest Management Committee.
- June 6, 2016 – Conference call with Ms. Theresa A. Dunham, Somach, Simmons and Dunn Attorneys at Law, and Ms. Jean-Mari Peltier, Environmental Solutions, representing the Pyrethroid Working Group.
- June 8, 2016 – Conference call with Mr. Steve Shimek, Executive Director, The Otter Project.

In addition, staff corresponded with Theresa Dunham, Sarah Lopez, and Kirk Schmidt via phone or email to follow up on items discussed during the above referenced conference calls. Attachment 3 contains a copy of email correspondence between Central Coast Water Board staff and Theresa Dunham. Attachment 4 contains a copy of email correspondence between Central Coast Water Board staff and Sarah Lopez.

List of Key Issues

Table 1. List of key issues from the Central Coast Water Board hearing and staff responses

Key Issue Number	Source	Question or Issue	Staff Responses
1	Central Coast Water Board, Mr. Schmidt	Clarify the differences in how the Santa Maria and Salinas TMDLs were scoped for pyrethroids, specifically in relation to water column and sediment toxicity. The Salinas TMDL was scoped as a TMDL for sediment and pyrethroids in sediment and there is no basis for a TMDL for pyrethroids in water.	This project does not contain a TMDL for pyrethroids in water. The TMDLs are proposed for "sediment toxicity" and "pyrethroids in sediment". However, the TMDL project does include pyrethroid numeric targets for pyrethroid concentrations in water. These targets are necessary to protect water quality because pyrethroids partition from sediment to water. Since pyrethroids strongly bind to sediment and are transported in the watershed bound to sediment, the TMDLs are linked to sediment. In the waterbodies, pyrethroids partition from sediment to water phases and vice versa. This is the same approach taken in the Santa Maria TMDL adopted by the Central Coast Water Board. Both TMDL projects were scoped similarly for pyrethroids. The Salinas TMDL was scoped as "TMDLs for Sediment Toxicity and Pyrethroid Pesticides in the Lower Salinas River Watershed." The Santa Maria TMDL was scoped as "Total Maximum Daily Loads for Toxicity and Pesticides in the Santa Maria Watershed." Both projects have TMDLs for sediment toxicity and pyrethroids in sediment and have targets for sediment toxicity, pyrethroids in sediment, and pyrethroids in the water column.

Key Issue Number	Source	Question or Issue	Staff Responses
2	Central Coast Water Board, Agricultural Stakeholders	Is it possible to complete a TMDL for turbidity in the Salinas watershed in an accelerated fashion so that it would provide this TMDL the benefit of targeting pyrethroid testing and ultimately get a better result for this TMDL? Agricultural stakeholders prefer that the TMDL for turbidity be developed before or concurrent to the TMDL for sediment toxicity and pyrethroids in sediment.	It is not possible to complete a TMDL for turbidity in the Salinas watershed in an accelerated manner. Staff began preliminary data analysis for turbidity in the Salinas River watershed last year will continue working on the project later this year. This would be the first turbidity TMDL in our region and its development requires a systematic approach and would likely take significant time and effort. The Salinas River watershed is a complex and highly modified hydrologic system, and it will take time to appropriately characterize and understand the turbidity dynamics. Also, completion of a TMDL for turbidity in the Salinas watershed prior to the completion of this toxicity TMDL would not significantly improve or change this TMDL. Addressing turbidity and sediment toxicity impairments require some similar implementation methods, but the specific targets and TMDLs are very different. Toxicity is linked to concentrations of pesticides in sediment and turbidity is a measure of the clarity of water. Tying the TMDLs together would provide little or no benefit, but would cause extensive delays in the toxicity TMDL currently before the Central Coast Water Board. Additionally, the development of a turbidity TMDL would require updating the turbidity objectives in the Basin Plan, which use outdated units of measurement. This will require additional time. Therefore, staff recommends proceeding with the current TMDL for sediment toxicity and pyrethroids in sediment, followed by development of the turbidity TMDL.

Key Issue Number	Source	Question or Issue	Staff Responses
3	Central Coast Water Board, Mr. Shimek	Is there way to annually evaluate Department of Pesticide Regulation pesticide use reporting data for agricultural applications in the watershed and then use an adaptive management strategy to change the watershed monitoring to include a suite of tests for the actual pesticides currently being used? This would provide a broader look at pesticides used and not just specific pesticides (like pyrethroids) that might decline in use in the future. If the TMDL implementation focuses on testing that looks narrowly for only specific chemicals, then the testing may not discover and identify a toxic condition that is the result of different chemicals. This could also encourage dischargers to change to chemicals that are not being tested.	The concern regarding different pesticides being used over time is valid. Central Coast Water Board staff and Department of Pesticide Regulation staff routinely review the pesticides being used, shifts in pesticide use, and the potential for toxicity due to new chemicals as we implement our regulatory programs. Fortunately, the Basin Plan prohibits toxicity regardless of the chemical causing the toxicity, which provides the Central Coast Water Board with authority to regulate any and all such chemicals. Our greatly improved working relationship with the Department of Pesticide Regulation helps us to identify and resolve toxicity issues when they occur, and our shared goal is to prevent new toxicity problems before they happen. We understand that changes in pesticide use occur, and we look for the changes and design sampling programs and follow up efforts accordingly with the Department of Pesticide Regulation. This includes modifying our state, regional, and permit monitoring programs as needed, and developing appropriate permit requirements to identify and control chemicals of concern (see also our response to Issue 4, below). This is all part of implementing our regulatory programs, and is not the purpose of a TMDL. By law, the purpose of a TMDL is to restrict loading from a known pollutant causing a known water quality impairment. We cannot legally develop TMDLs for unknown pollutants or potential toxicity problems. Accordingly, the toxicity TMDL currently before the Central Coast Water Board addresses pyrethroid pesticides that are known to be causing toxicity. However, our ongoing regulatory efforts will identify additional problems and causes of toxicity and we will develop TMDLs to address those problems as they occur. In addition, the Central Coast Water Board can adopt permit requirements that address all types of chemical constituents and potential water quality problems, regardless of whether a TMDL has been adopted. We have multiple avenues to identify and address water quality problems, including potential or emerging problems.

Key Issue Number	Source	Question or Issue	Staff Responses
4	Central Coast Water Board, Ms. Lopez	Concerns were raised about calculating the dissolved fraction of pyrethroids from whole water concentration samples.	Ms. Lopez represents Preservation Inc., an industry non-profit organization that conducts surface water monitoring related to the Central Coast Water Board's Agricultural Order. Since the agricultural dischargers do not have allocations in the TMDL for pyrethroids in the water column, the TMDL does not require or recommend that agricultural dischargers monitor water chemistry for pyrethroids. Therefore, they do not need to calculate the dissolved fraction of pyrethroids from whole water concentration samples. The TMDL recommends that statewide programs such as SWAMP (State Water Resources Control Board's Surface Water Ambient Monitoring Program) /CCAMP (Central Coast Water Boards' Ambient Monitoring Program) evaluate concentrations of pyrethroids in water and calculate the dissolved fractions of pyrethroids in water. In addition, the Department of Pesticide Regulation has an existing ongoing agricultural monitoring program in the watershed that annually monitors pyrethroids and other pesticides in the water column. The data from these programs will be available to all stakeholders. Staff is proposing additional language in the monitoring section of the updated Basin Plan Amendment and TMDL Technical Project Report to clarify these points.
5	Central Coast Water Board, Mr. Shimek	Should we rely on toxicity testing rather than the water chemistry monitoring for pyrethroids?	Please see responses to Issues 3 and 4. As discussed in the response for Issue 4, staff is proposing clarifications in the updated Basin Plan Amendment and TMDL Technical Project Report to clearly state that the TMDL recommends dischargers monitor for toxicity and concentrations in sediment only; the TMDL *does not* recommend the dischargers monitor for pyrethroids in the water column.
6	Central Coast Water Board, Agricultural Stakeholders	Concerns were raised about increased worker safety risks from farming operations switching to alternative pesticides.	These concerns were considered in the California Environmental Quality Act (CEQA) analysis, which determined that the potential impacts could be mitigated if TMDL implementation focuses on the implementation of management practices to reduce and treat pyrethroids in runoff and not on practices and policies that severely limit or lead to the discontinued use of pyrethroids. Also, see response to Issue 21.

Key Issue Number	Source	Question or Issue	Staff Responses
7	Central Coast Water Board, Agricultural Stakeholders	What is the maximum pyrethroid load (in mass) that could come off each field that would achieve the TMDL allocations? If this load is small enough, then the TMDL is essentially a prohibition on using pyrethroids.	The Central Coast Water Board's Basin Plan has prohibited toxicity for decades, so this limitation is not new, and is not an issue before the Central Coast Water Board. When a known chemical compound, such as pyrethroids, is causing toxicity, a TMDL must be developed to limit loading such that the existing Basin Plan requirements regarding toxicity are achieved. That is, the TMDL must implement the existing Basin Plan requirements. If the chemical compound is so toxic that even slight loading causes toxicity in sediment or water, then the existing Basin Plan limitation (prohibiting toxicity) could in effect be a prohibition on the use of that particular chemical compound. If the chemical cannot be used in a manner that does not cause toxicity, the solution would be for the Agricultural industry to develop alternatives. The solution cannot be to allow toxicity in violation of the existing and long-standing Basin Plan requirements regarding toxicity. Also, TMDL allocations can be expressed as mass or concentration loadings. Staff has not calculated mass allocations on a field basis. Staff determined that assigning concentration-based allocations (measured in the receiving water based on sediment toxicity and pyrethroid sediment concentration toxicity) was the best approach for this TMDL. If the TMDL instead assigned a mass allocation for each field, edge of field monitoring would be required to determine compliance. Agricultural stakeholders have stated that an implementation approach that requires edge of field monitoring would be very costly and difficult to implement.
8	Central Coast Water Board	Is it beneficial to monitor for pyrethroids in the water column and is the cost warranted?	Testing for pyrethroids in the water column is valuable because it is an important part of the picture and informs the Central Coast Water Board, the agricultural industry, and the public regarding the water quality aspects of this chemical, and we anticipate the sampling will be done as part of state and regional monitoring programs rather than by dischargers. See response to Issue 4.

Key Issue Number	Source	Question or Issue	Staff Responses
9	Central Coast Water Board, Ms. Dunham	What was the peer review process for the UC Davis criteria and was it adequate?	The UC Davis criteria were developed over a ten-year period in a three-phase process with peer review from a panel of scientific experts at each phase. Reports from the peer review process are available on the Central Valley Regional Water Quality Control Board's (Central Valley Water Board) project website. The peer-review panels included representatives from toxicology programs of major universities outside of California and partner agencies such as the Department of Pesticide Regulation. This extensive peer review process is documented on the project website and was managed to produce unbiased evaluations. Along with scientific peer review, the criteria have undergone an extensive public comment and response processes at each phase. We consider this peer review process to be more than adequate. A report on the criteria was published in a peer-reviewed journal. The criteria were used as targets in the Santa Maria TMDL and underwent additional scientific peer review with that TMDL.
10	Central Coast Water Board, Mr. Schmidt	Is everything proposed in the TMDL within the original scope? Was there a deviation in the scope?	Yes, everything proposed in the TMDL is within the scoping of the original TMDL and the scoping is consistent with the other TMDLs developed in the region. There was no deviation in the scope. Also, see response to Issue 1.
11	Ms. Lopez	Ms. Lopez raised concerns about the appropriateness of including water column targets in a TMDL titled *TMDLs for Sediment Toxicity and Pyrethroid Pesticides in Sediment*.	The titles for TMDL projects generally only reference the TMDLs and do not mention targets. The Central Coast Water Board has the discretion to identify and monitor multiple targets that inform progress towards and/or achievement of the TMDLs, meaning achievement of legal water quality standards. Since the water column targets are not TMDLs, they are not included in the title.
12	Central Coast Water Board, Mr. Shimek	Is it within the scope of the TMDL to require broad toxicity testing of pesticides currently in use (testing for a broad suite of pesticides and not just pyrethroids) as described by Steve Shimek's proposal for an annual review?	No, it would be beyond the scope of the TMDL to require broad toxicity testing. See responses to Issues 3 and 4. The proposed monitoring is appropriate for the pollutants being addressed in the TMDL. The TMDL is focused on sediment toxicity and pyrethroids in sediment; the major source of sediment toxicity was identified as the currently used pyrethroid pesticides. Therefore, TMDL monitoring recommendations are focused on the sediment toxicity testing and pyrethroids.

Key Issue Number	Source	Question or Issue	Staff Responses
13	Central Coast Water Board	What are the similarities and differences between the sediment toxicity TMDLs for the Salinas watershed versus the Santa Maria River watershed?	The TMDL projects address TMDLs for sediment toxicity and pyrethroid pesticides in sediment in the same way. The TMDLs, the wasteload and load allocations, the water numeric targets, the sediment toxicity numeric targets, and the pyrethroid sediment concentration toxicity unit numeric targets found in the Salinas River TMDL project are all identical to those found in the Santa Maria River TMDL. See Table 2 for a comparison of the two projects.
14	Ms. Lopez	Ms. Lopez is concerned that by using the UC Davis criteria as targets, the TMDL is establishing standards protective of sub-lethal effects of pesticides, which she also referred to as "no observable effect concentrations" (NOEC) and this is a shift away from more commonly used median lethal effect standards and bioassays (toxicity tests).	TMDLs develop targets to determine when the Basin Plan's water quality standards are achieved in impaired waterbodies. The Basin Plan water quality objective for toxicity states, in part: *All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal, or aquatic life.* (Emphasis added). The water quality objective for pesticides states, in part: *No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses.* (Emphasis added). These two objectives require broad protection of species, not just protection against lethal effects of pesticides. The TMDL targets, based on the UC Davis criteria for pyrethroids, protect aquatic life from sub-lethal effects of pesticides and are consistent with the level of protection required in the Basin Plan and other approved toxicity and pesticide TMDLs.
15	Ms. Lopez	To address data gaps, estimates were used in the development of the UC Davis criteria to derive the chronic criteria, which are protective of lethal and sub-lethal effects. Ms. Lopez believes that these criteria were estimated conservatively.	Staff reviewed the approach used by UC Davis and finds it appropriate. Chronic-toxicity data gaps were addressed by using an acute-to-chronic ratio of paired acute and chronic toxicity values for particular species. The ratio was then applied to the acute criterion to calculate a chronic criterion. In some instances a default ratio was used. Estimates were not used for the acute criteria. The approach was documented in the UC Davis criteria reports and they were extensively peer reviewed and reviewed by the stakeholders during development (refer to the response to Issue 9 for a discussion of the peer review process).

Key Issue Number	Source	Question or Issue	Staff Responses
16	Ms. Lopez	The TMDL has several different targets and it is possible that one target could be met and not the others. Has this distinction and the implications of meeting some/all targets been considered in the TMDL and by the Central Coast Water Board?	The distinctions and implications of meeting some but not all of the targets have been considered by staff. Dischargers have allocations to meet for the sediment toxicity numeric targets (Basin Plan Amendment Table 1) and pyrethroid sediment concentration toxicity unit numeric targets (Basin Plan Amendment Table 2) and do not have allocations for the numeric targets for concentrations of pyrethroids in water (Basin Plan Amendment Table 3). If the sediment toxicity numeric targets and pyrethroid sediment concentration toxicity unit numeric targets are met, the discharger will have met their allocation. In addition, the timelines specified for achieving the allocations and targets differ. The allocations, which are based on both the sediment lethal concentrations and toxicity testing, have shorter timeframes than the numeric targets for concentrations of pyrethroids in water, which address lethal and sub-lethal effects. The TMDL provides a range of targets to ensure broad protection of water quality. Each target has different utility. The sediment toxicity targets ensure broad protection from multiple pollutants, the numeric targets for concentrations of pyrethroids in water ensure protection from specific chemicals, and the pyrethroid sediment concentration toxicity unit numeric targets provide feedback on specific pyrethroids impacting water quality. For waterbodies identified as impaired for pyrethroids, both the numeric targets for concentrations of pyrethroids in water and pyrethroid sediment concentration toxicity unit numeric targets need to be achieved to meet water quality standards. Since the sediment toxicity numeric targets address pollutants that are independent of pyrethroid impairments, waterbodies identified as impaired for sediment toxicity must only achieve the sediment toxicity numeric targets to meet water quality standards.

Key Issue Number	Source	Question or Issue	Staff Responses
17	Ms. Lopez	Ms. Lopez considers bioassays (toxicity tests), a more holistic approach to protect water quality as opposed to chemical testing that focuses on specific pesticides. Water chemistry testing may not identify toxicity if a change in pesticide has occurred.	Staff agrees that bioassays (toxicity tests) are an important evaluation technique. However, water chemistry testing is also important to identify specific pesticides causing impairment so that management practice implementation can be directed at them. The TMDL utilizes a mix of bioassays (toxicity tests), toxicity units, and concentration-based numeric targets to protect water quality. Having a mix of targets and assessment techniques allows for flexibility in assessing compliance and should help identify if pesticide switching has occurred.
18	Central Coast Water Board	How is the Central Valley Water Board planning to use the UC Davis criteria for pyrethroids?	The Central Valley Water Board is still determining how it will use the UC Davis criteria for pyrethroids. The Central Valley Water Board has been working for several years to develop a basin-wide pyrethroid pesticide control program. Initially, the Central Valley Water Board considered developing Basin Plan water quality objectives from the UC Davis criteria for pyrethroids; however, now it is considering other alternatives. Alternatives being considered include TMDLs, conditional prohibitions, phased adoption of numeric discharge limits, and variances for waste water treatment plant discharges.
19	Central Coast Water Board	Will the current USEPA registration evaluation process for pyrethroids change the TMDL?	No, the current USEPA registration evaluation will not change the TMDL. The USEPA registration review process is slow, and if water quality problems are identified, it can take many years for USEPA implement any changes resulting from the evaluation. Additionally, the review is based on the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) standard for registration and not federal Clean Water Act water quality standards. FIFRA water quality benchmarks are generally much less protective than the water quality standards in the Basin Plan. The TMDL will likely provide a higher level of water quality protection than possible mitigation measures developed through the registration evaluation and possible changes resulting from the USEPA evaluation.
20	Mr. Ruby	To address municipal impacts to water quality, the TMDL utilizes a statewide approach for monitoring and controlling pesticides at the source. This strategy is supported by CASQA.	The support from CASQA on the TMDL approach is noted.

Key Issue Number	Source	Question or Issue	Staff Responses
21	Agricultural Stakeholders	Pyrethroids are very important materials for growers and pest control advisors and they are concerned the TMDL could lead to discontinued use.	The Central Coast Water Board's Basin Plan prohibits toxicity, but does not prohibit the use of pesticides. The issue is whether pyrethroids can be used in a manner that does not cause toxicity in violation of the Basin Plan. This remains to be determined, but cannot preclude the development and adoption of a TMDL. The TMDL recommends implementation strategies to reduce discharge of pyrethroids from farms. They are not designed to eliminate pyrethroid use. The TMDL time schedule allows time for agricultural programs to develop and enhance best management practices. The TMDL timeline acknowledges it may take 10 years to achieve the agricultural allocations. Staff is proposing changes to the language in the time schedule table in the updated Basin Plan Amendment and TMDL Technical Project Report to clarify that it may take 10 years for agricultural dischargers to achieve their allocations. Additional resources are available to assist growers to address toxicity and loading without eliminating use. For example, approval of the TMDL enhances grant fund opportunities to develop and implement management practices. Additionally, the Department of Pesticide Regulation is funding research on management practices in the watershed.
22	Agricultural Stakeholders	How will the TMDL inform the next Agricultural Order? Will the pyrethroid water numeric targets end up in the next Agricultural Order?	The Central Coast Water Board (not staff) will decide if and how the TMDL informs the next Agricultural Order and whether numeric targets will be included in the Order during the Agricultural Order renewal process. The TMDL makes recommendations for implementation and monitoring to achieve the TMDLs. However, the renewal of the Agricultural Order is a separate regulatory process that will determine the specific implementation, monitoring, and reporting requirements. Adopting this TMDL does not constrain or limit the Central Coast Water Board's future options to decide what the new Agricultural Order or any future iteration of the Agricultural Order will contain.

Key Issue Number	Source	Question or Issue	Staff Responses
23	Agricultural Stakeholders	How will the UC Davis pyrethroid criteria be applied to agricultural dischargers?	The UC Davis criteria are applied as receiving water numeric targets in the TMDL and are not allocated to irrigated agriculture. The targets, compared to monitoring results, will inform the Central Coast Water Board, Agricultural stakeholders, and the public regarding concentrations of pyrethroids in water and progress in achieving protection of beneficial uses. The allocations assigned to the dischargers in the TMDL are for sediment toxicity and concentrations in sediment and are not based on the UC Davis criteria.
24	Agricultural Stakeholders	Effective management measures are limited and costly. It is unknown if it is possible to meet the TMDL allocations by implementation of management measures.	See response to Issue 21.
25	Pyrethroid Working Group	Clarify in the TMDL that the Test of Significant Toxicity (TST) component of the sediment toxicity targets is a recommended option and not a requirement.	Staff is proposing clarified language in the updated Basin Plan Amendment and TMDL Technical Project Report.
26	Pyrethroid Working Group	The numeric targets for concentrations of pyrethroid in water based on the UC Davis criteria should be removed from the TMDL.	Pyrethroid pesticides readily partition from sediment to water and achieve equilibrium in streams. The UC Davis criteria were developed to ascertain when the water quality objects for pesticide and toxicants such as pyrethroids are met. They provide scientifically defensible levels of protection of water quality. Therefore, the criteria are reasonable as targets. Note that targets are not water quality objectives or water quality standards and cannot be enforced as such. However, the targets are necessary to inform us as to whether protection of water quality is being achieved over time. Conversely, removing the targets is not reasonable given the severity of toxicity in our Region.
27	Pyrethroid Working Group	The TMDL targets based on the UC Davis criteria for pyrethroids should be compared to freely dissolved bioavailable fraction of pyrethroids in water sample and not a whole water sample, which will overestimate the amount bioavailable.	Staff agrees and is proposing updated language in the Basin Plan Amendment and the TMDL Technical Project Report to further support this point.

Key Issue Number	Source	Question or Issue	Staff Responses
28	Pyrethroid Working Group	Ms. Dunham is concerned that the TMDL timelines will be abbreviated when they are incorporated into the permits and orders.	Timelines are determined by the Central Coast Water Board (not staff), and the Central Coast Water Board retains its authority to modify timelines in any of its regulatory mechanisms. The TMDL timelines are estimates for achieving TMDLs and the Central Coast Water Board may modify the timelines in future permits and orders. When staff develops any regulatory mechanisms (i.e., permits, orders) that incorporate this TMDL, they will review information contained in the TMDL and consider comments from stakeholders and the public. The Central Coast Water Board will also consider any comments prior to adoption of any regulatory mechanism.
29	Ms. Lopez	Ms. Lopez is concerned that if this TMDL is adopted with targets based on the UC Davis criteria that the criteria will be used to determine that waterbodies are impaired for California's Clean Water Act section 303(d) list of impaired waterbodies (303(d) list).	The UC Davis criteria have already been used in the 303(d) listing process. For example, the Colorado River Basin Regional Water Quality Control Board used the UC Davis criteria to list for the pyrethroid bifenthrin. This list has been approved by both the State Water Resources Control Board and USEPA.
30	Mr. Schmidt	No studies have shown pyrethroid impairment in water.	Mr. Schmidt provided a similar comment in a written letter that he submitted during the public comment period. In response to this comment, staff provided a summary of Department of Pesticide Regulation pesticide water quality monitoring data in the Salinas River watershed. The data shows numerous pyrethroid detections in water and exceedances of USEPA benchmarks. Staff also referenced a recent CASQA study that found extensive pyrethroid water quality exceedances in water at a statewide level. These studies were not included in the original TMDL technical report but were included in the response to comments and staff report for the May board meeting because Mr. Schmidt concluded that no such data or studies existed.
31	Mr. Schmidt	In the Santa Maria TMDL, the Central Coast Water Board did not adopt a new standard for pyrethroids in water but we are trying to do that for the Salinas TMDL.	The proposed Salinas TMDL does not include new water quality standards. Water quality standards and water quality objectives are in the Basin Plan, along with the anti-degradation policy. The TMDL must implement the existing Basin Plan requirements, standards, and objectives. This TMDL proposes the same targets and allocations to meet existing water quality standards as the Santa Maria TMDL.

Key Issue Number	Source	Question or Issue	Staff Responses
32	Mr. Shimek	For implementation, the TMDL points to the Agricultural Order, which has been legally challenged and it alone will not be enough to solve the problem.	Staff acknowledges the importance of this comment. The Agricultural Order was petitioned to the State Water Resources Control Board. The State Water Resources Control Board responded to the petition by issuing order WQ-2013-0101, which was subsequently challenged in a civil suit, the ruling of which is now in appeal. The ruling of the appeal will determine whether the current Agricultural Order requirements are consistent with law and policy, and if not consistent, will require agricultural order requirements be developed that are consistent with applicable policy and law.

TMDL Project Comparison

Table 2. Comparison of the similarities and differences of the Santa Maria and Salinas TMDL projects

TMDL Component	Same	Different	Description
Impairments	✓		Waterbodies identified as impaired for sediment toxicity on the 303(d) list. TMDL identified additional waterbodies as impaired for pyrethroids.
Source analysis	✓		Sources of impairment identified as irrigated agriculture and municipal stormwater.
Sediment toxicity numeric target	✓		Based on standard aquatic sediment toxicity test using *Hyalella azteca*.
Pyrethroid sediment concentration toxicity unit numeric target	✓		Based on concentrations of pyrethroids in water and sediment.
Numeric targets for concentrations of pyrethroids in water	✓		Based on the UC Davis criteria.
Sediment toxicity TMDLs	✓		Based on a sediment toxicity numeric target.
Pyrethroid in sediment TMDLs	✓		Based on pyrethroid sediment concentration toxicity unit numeric targets and not on concentration of pyrethroids in the water column.
Wasteload allocations	✓		Allocated to municipalities in the watersheds.
Load allocation	✓		Allocated to owners and operators of irrigated farming operations in the watersheds.
Municipal stormwater implementation	✓		Municipalities are required to submit a wasteload allocation plan. The TMDL recommends reliance on statewide implementation through Department of Pesticide regulation.
Irrigated agricultural implementation	✓		Implementation through compliance with the agricultural order and recommended coordination with Department of Pesticide Regulation.
Methodology for determining pyrethroid pesticide impairments.		✓	In the Santa Maria River TMDL, staff used both water column and sediment concentration monitoring data to identify pyrethroid impaired waterbodies. In the Salinas TMDL only pyrethroid sediment concentration monitoring data for were used. For the Santa Maria TMDL, a combination of water and sediment samples was needed to meet the listing requirements. For the Salinas TMDL there were sufficient sediment samples to make the impairment determinations and it was not necessary to use water sample.

Changes to the TMDL

Considering the feedback provided by stakeholders and Central Coast Water Board comments, staff is proposing changes to the TMDL Basin Plan Amendment (see a summary in Table 3) with corresponding changes to the TMDL Technical Project Report. In addition to the changes noted in Table 3, staff made some minor edits to the Resolution and Basin Plan Amendment. In the Resolution and Basin Plan Amendment, all changes are shown in red text.

Table 3. Description and location of changes in the updated Basin Plan Amendment

Description of Change	Location of Change in Basin Plan Amendment	Key Issue Numbers
Additional clarification on the pyrethroid water column monitoring recommendations for concentrations of pyrethroids in water.	Page 6 (agricultural implementation monitoring sections)	4, 5, and 8
Additional clarification to the sediment toxicity numeric target sections that the TST is a recommended statistical approach for the sediment toxicity numeric target. Ms. Dunham has reviewed this proposed language and has stated that her concern has been resolved.	Page 2	25
Edits to the wasteload and load allocation tables to clarify the allocations are "Equal to" TMDLs. This was in response to a request by USEPA and was presented during the staff presentation at the May 13, 2016 hearing.	Pages 4 and 5 (Table 5)	
Edits to the numeric targets for pyrethroid concentrations in water to further clarify that these targets should be compared to freely dissolved concentration of pyrethroids and not whole water samples.	Page 3	27
Updated Basin Plan Amendment language describing the determination of progress and attainment of load allocations. This was in response to a question raised by the board at the May 13, 2016 hearing.	Pages 6, 7, and 8	
Additional clarification was made to the TMDL time schedule.	Page 8 (Table 6)	21

Central Coast Water Board staff concludes that the above changes in Table 2 are non-substantive based on evaluation of the changes regarding project scope and description and/or assumptions and conclusions of the CEQA analysis. For the project's CEQA analysis, the above changes are considered non-substantive.

RECOMMENDATION

Adopt Resolution No. R3-2016-0003 as proposed to approve the Total Maximum Daily Loads for Sediment Toxicity and Pyrethroids in Sediment in the Lower Salinas River Watershed.

ATTACHMENTS

1. Resolution R3-2016-0003 and Basin Plan Amendment – updated July 5, 2016 (with changes shown in red text)

2. TMDL Technical Project Report: Total Maximum Daily Loads for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed (includes Appendices A - D). Updated July 5, 2016
    A. Summary of Sediment Toxicity Listing Decisions
    B. Summary of Studies and Reports
    C. Additional Sediment Toxicity Data Analysis
    D.1 SPoT Project Pyrethroid Sediment Chemistry Data
    D.2 Cooperative Monitoring Program Pyrethroid Sediment Chemistry Data
3. Email correspondence with Ms. Dunham
4. Email correspondence with Ms. Lopez
    A. DPR & USGS detection limits for pyrethroids in water
    B. Pyrethroids analysis in water
    C. Follow-up from TMDL call (comment clarification)
    D. Follow-up from TMDL call (comment clarification) to H. Packard
    E. Clarification of email

The following attachments from the May 13, 2016 Central Coast Water Board hearing are unchanged and are available on the TMDL project website:
http://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/salinas/sed_tox/index.shtml

- CEQA Checklist and Analysis
- Public Comments and Staff Responses
- Notice of Opportunity for Public Comment
- Notice of Public Hearing
- Department of Pesticide Regulation Memo: Review of the Draft Technical Project Report