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

PUBLIC COMMENTS AND STAFF RESPONSES

FOR

TOTAL MAXIMUM DAILY LOADS FOR SEDIMENT TOXICITY AND PYRETHROID PESTICIDES IN SEDIMENT IN THE LOWER SALINAS RIVER WATERSHED IN MONTEREY COUNTY, CALIFORNIA (DRAFT TECHNICAL PROJECT REPORT AND CALIFORNIA ENVIRONMENTAL QUALITY ACT CHECKLIST AND ANALYSIS - JANUARY 2016)

Central Coast Regional Water Quality Control Board (Central Coast Water Board) staff implemented a process to inform and engage interested persons about these proposed total maximum daily loads (TMDLs). 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 amendment to the Water Quality Control Plan for the Central Coastal Basin (Basin Plan) provided interested parties a public comment opportunity preceding a Central Coast Water Board hearing regarding this matter. The public comment period for these TMDLs commenced on January 20, 2016, and extended through March 7, 2016. Central Coast Water Board staff received comments from:

1. Mr. Kirk Schmidt, Executive Director, Central Coast Water Quality Preservation Inc., in an email attachment received March 7, 2016.
2. Ms. Sarah G. Lopez, Technical Program Manager, Central Coast Water Quality Preservation Inc., in an email attachment received March 7, 2016.
3. Ms. Abby Taylor-Silva, Vice-President, Policy & Communications, Grower-Shipper Association of Central California, and Mr. Norman C. Groot, Executive Director, Monterey County Farm Bureau, in an email attachment received March 7, 2016.
4. Ms. Theresa A. Dunham, Somach, Simmons and Dunn Attorneys At Law, representing the Pyrethroid Working Group, a coalition of pyrethroids pesticide manufacturers, in an email attachment received March 7, 2016.
5. Mr. Steve Shimek, Executive Director, The Otter Project, in an email attachment received March 7, 2016.
6. Mr. William Elliott, 1117 Margarita Avenue, Grover Beach, California 93433, in an email attachment received March 7, 2016

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

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

Summary of Changes Made to TMDL Draft Technical Project Report and California Environmental Quality Act (CEQA) Checklist and Analysis Based on Public Comments

Changes to Technical Project Report

- The monitoring recommendations for pyrethroid pesticides in the water column were changed from Annually concurrent with sediment toxicity sampling to Annually in coordination with DPR at existing DPR sites in the watershed (refer to Table 7-2).
- Clarification was added to the sediment toxicity numeric target's statistical approach for sediment that the Test of Significant Toxicity (also referred to as the TST) is a recommended method and not a requirement (refer to section 4-1).
- The grower voluntary action recommendations to achieve the TMDL were changed from verification of implementation effectiveness to evaluation of implementation effectiveness (refer to section 7.1).
- The waterbodies identified as impaired for pyrethroids in TMDL was clarified to include: Alisal Creek, Natividad Creek, Salinas Reclamation Canal, Salinas River (lower), and Tembladero Slough (refer to sections 1.3 and 3.2).
- The timeline for achieving the Agricultural TMDLs was changed from a range of 8 to 10 years to 10 years after approval of the TMDLs by the Office of Administrative Law. The time line for achieving Targets in receiving waters was changed from a range of 12 to 15 years to 15 years after approval of the TMDLs by the Office of Administrative Law (refer to section 7.4).

Changes to Attachment 3, CEQA Checklist and Analysis

- CEQA noise impacts XII(b) and XII(d) were changed from Less than significant to Less than significant with mitigation incorporation.
- CEQA mandatory findings of significance impact XVIII was changed from Less than significant to Less than significant with mitigation incorporation.

List of Acronyms and Abbreviations

303(d) list	Federal Clean Water Act Section 303(d) List
Agricultural Order	Agricultural Order (Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands)
Basin Plan	Water Quality Control Plan for the Central Coastal Basin
CCAMP	Central Coast Ambient Monitoring Program
CCWQP	Central Coast Water Quality Preservation Inc.
Central Coast Water Board	Central Coast Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CMP	Cooperative Monitoring Program for Irrigated Agriculture
CASQA	California Stormwater Quality Association
DPR	California Department of Pesticide Regulation
GSA	Grower-Shipper Association of Central California
Listing Policy	The Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List
MCFB	Monterey County Farm Bureau
NPDES	National Pollutant Discharge Elimination System

NRCS	Natural Resources Conservation Service
SED	Supplemental Environmental Document
State Water Board	State Water Resources Control Board
SWAMP	Surface Water Ambient Monitoring Program
TST	Test of Significant Toxicity
USEPA	U.S Environmental Protection Agency
WDR	Waste Discharge Requirements

Comments and Staff Responses

1. Kirk Schmidt, Executive Director, Central Coast Water Quality Preservation Inc. (CCWQP)

1.1 Mr. Kirk Schmidt, CCWQP

Central Coast Water Quality Preservation, Inc. (CCWQP), manages the surface cooperative monitoring program (CMP) pursuant to the current Ag Order. CCWQP has conducted surface water monitoring at 50 sites in Region 3 for over ten years. The monitoring includes sediment toxicity sampling in the lower Salinas River area, the subject of this TMDL.

CCWQP staff has participated in the development of the Salinas Sediment TMDL, attending each scoping session and providing both oral and written comments. The scoping process for this TMDL was very open and RWQCB staff has made numerous changes which are reflected in the current Staff Report and draft Resolution.

As CCWQP deals with the technical aspects of surface water monitoring our comments are limited to the implementation recommendations dealing with water quality and sediment toxicity analysis. Besides this comment, Sarah Lopez, the CCWQP Technical Program Manager, is submitting a more detailed analysis of a narrow scope.

The sediment toxicity numeric targets, pyrethroid sediment concentration toxicity unit numeric targets in Attachment A to the Resolution (page 2-3) have already been incorporated into the Basin Plan pursuant to Resolution No. R3-2014-0009, the Santa Maria TMDL for Toxicity and Pesticides (Santa Maria TMDL). The Santa Maria TMDL adopting these targets but did not make any recommendations as to monitoring in agricultural areas. This is undoubtedly because the purpose of the TMDL is to set standards and not to lay out prescriptions for their achievement, which is appropriately left to WDRs, or in this case the Ag Order.

1.2 Mr. Kirk Schmidt, CCWQP

Monitoring: The Salinas Sediment TMDL proposes extensive changes to the Monitoring and Reporting Programs as set forth as part of the current Ag Order in Orders R3-2012-0011-01, 02 and 03. (Staff Report, pages 8-10, and the Draft Technical Project Report, page 56) The key issue regarding each of these proposed monitoring recommendations is there is no showing in the TMDL and supporting appendices that the increase in monitoring will demonstrate changes in water and sediment quality compared with the existing CMP.

1. Pyrethroids Pesticides in Water Column: None of the cited studies or research, shows toxicity in the water column due to pyrethroids. Pyrethroids, almost exclusively, adhere to sediment and are seldom found in the water column. Testing for pyrethroids in the water column is also very expensive compared to other chemicals due both to the very low concentrations and tendency to adhere to test equipment. This test is both unnecessary and there is no benefit received compared to the expense associate with the tests.

Staff Response: As noted by Mr. Schmidt, the Draft Technical Project Report does not include studies or research on water column toxicity from pyrethroids or water column concentrations of pyrethroids. However, the California Department of Pesticide Regulation (DPR) monitors streams in the TMDL project area for pesticides in the water column including pyrethroids. Staff requested a summary of their monitoring results, which includes pyrethroid pesticides. The DPR monitoring found frequent water column detections and exceedances of USEPA aquatic life benchmarks for pyrethroids in the watershed. The DPR monitoring data from 2011-2014 in the Salinas River watershed is summarized below in Table 1. The table shows that 72 samples were analyzed for pyrethroids and the pyrethroid bifenthrin was detected in 63% of samples and 58% of the samples exceed USEPA aquatic life benchmarks. Additionally, the samples were also analyzed for the pyrethroids permethrin and lambda-cyhalothrin. 31% of the samples exceeded the USEPA benchmarks for permethrin and 28% of the samples exceed the USEPA benchmarks for lambda-cyhalothrin. Given the extensive presence of pyrethroids in the water column, along with the ability of pyrethroids to partition from sediment to water, water column monitoring of pyrethroids is justified for the TMDLs.

Table 1. DPR agricultural water monitoring in the Salinas River watershed from 2011-2014. Pyrethroids are highlighted.

Chemical	Sample Count	Detections	Detection %	Exceedances*	Exceedances %
chlorpyrifos	227	55	24%	23	10%
diazinon	195	56	29%	10	5%
dimethoate	227	51	22%	9	4%
malathion	227	40	18%	34	15%
Methidathion	227	0	0%	0	0%
Carbaryl	38	2	5%	0	0%
methomyl	90	68	76%	28	31%
imidacloprid	207	168	81%	31	15%
methoxyfenozide	72	41	57%	0	0%
Tebufenozide	72	0	0%	0	0%
Bifenthrin	72	45	63%	42	58%
cypermethrin	72	2	3%	0	0%
fenvalerate/esfenvalerate	72	2	3%	0	0%
permethrin	72	22	31%	22	31%
Lambda-cyhalothrin	72	20	28%	20	28%
Cyfluthrin	72	0	0%	0	0%

chlorantraniliprole	40	17	43%	0	0%
bensulide	176	118	67%	0	0%
Benfluralin	63	1	2%	0	0%
Ethalfluralin	63	0	0%	0	0%
pendimethalin	63	1	2%	0	0%
Prodiamine	63	0	0%	0	0%
Oryzalin	63	2	3%	0	0%
trifluralin	63	0	0%	0	0%
oxyfluorfen	58	21	36%	0	0%
azoxystrobin	34	24	71%	0	0%
pyraclastrobin	35	11	31%	0	0%
Kresoxim-methyl	35	0	0%	0	0%
Trifloxystrobin	35	0	0%	0	0%
Aldicarb	38	0	0%	0	0%
Chlorothalonil	30	0	0%	0	0%
3-hydroxycarbofuran	37	0	0%	0	0%
Carbofuran	38	0	0%	0	0%
DDVP	37	0	0%	0	0%
Ethoprop	37	0	0%	0	0%
Methiocarb	38	0	0%	0	0%
Methyl parathion	37	0	0%	0	0%
Oxamyl	38	0	0%	0	0%

*Exceedances are based on a comparison to USEPA aquatic life benchmarks

In addition to the DPR study, the California Stormwater Quality Association (CASQA) and the County of Sacramento funded an investigation and report on statewide pyrethroid detections (CASQA, 2013). CASQA reported on over 9200 samples for pyrethroids from a ten-year period (2003-2012). Bifenthrin was detected in over 69% of the sediment samples and 64% of the water column samples. Analysis of all pyrethroid samples found pyrethroids in 31% of the sediment and 24% in the water column samples. The investigation also found sediment and water column toxicity associated with pyrethroids in streams throughout the state.

2. Fall sampling of pyrethroids in five waterbodies: The Staff Report proposes that the entire suite of sediment toxicity and pyrethroid monitoring be conducted a second time each year, in the fall, for the Old Salinas River, Tembladero Slough, Merrit Ditch, Espinosa Slough and the Reclamation Canal. Currently sediment toxicity monitoring takes place in April or May each year. No research is cited to support this suggestion. Indeed, the Draft Technical Project Report states:

> "There were insufficient monitoring data for pyrethroids for staff to conclude seasonality of impairment in the project area. However, in an urban pesticide monitoring study conducted by DPR in northern California, DPR found that rainstorms drive more pesticides in to urban surface waters and that, generally,

more pesticides are detected in first flush rain storms than during later dry season flow or a late spring rainstorms. (sic) Also more pesticides were detected in spring rainstorms than during dry season flow (Ensminger, 2011). This anecdotal evidence suggests that implementation efforts, particularly for sediment-bound pesticides, should include focus on wet weather loading." (page 46)

Given the lack of studies and reports to support additional monitoring at these five sites and the associated expense of additional monitoring this recommendation should be deleted.

Staff Response: The streams recommended for additional fall monitoring (Old Salinas River, Tembladero Slough, Merrit Ditch, Espinosa Slough and the Reclamation Canal) have perennial flow and are identified as impaired for turbidity. Staff reviewed turbidity and flow data from CCWQP and these streams have high year-round turbidity, which contributes to year-round sediment deposition and loading of pollutants in sediments in these streams. An example of the flow and turbidity monitoring data for Tembladero Slough is shown in Figure 1. The purpose of the fall monitoring is to determine the level of pyrethroid loading subsequent to the spring toxicity monitoring; the TMDL does not propose fall sediment toxicity monitoring.

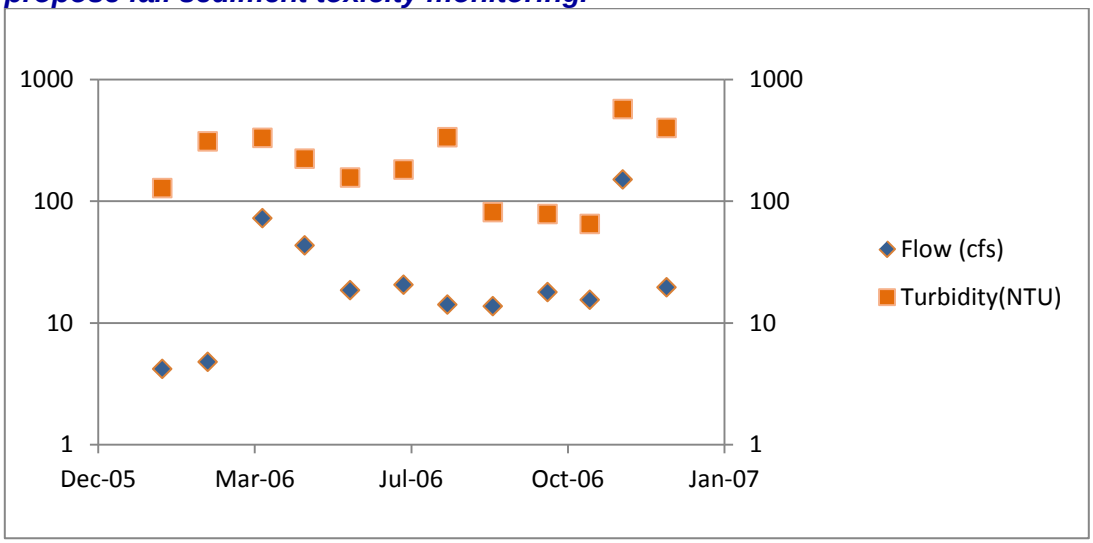

Figure 1. CCWQP flow and turbidity monitoring data from site 309TEM, Tembladero Slough.

3. Increase frequency of monitoring Pyrethroids in Sediment and Total Organic Carbon: Sediment is not as transitory as the water column and the pyrethroid pesticides in question are almost exclusively found in sediment. None of the references cited in the Summary of Studies and Reports (Appendix B) recommended annual monitoring, and the results cited do no show appreciable change over the timeframe of the studies.

Staff Response: Staff recommends monitoring pyrethroid concentrations on an annual basis to coincide with the current annual sediment toxicity monitoring by the CMP. The purpose of adding pyrethroid sediment chemistry monitoring is to identify the specific pyrethroids associated with the sediment toxicity samples. In the Draft Technical Project

Report it is noted that in watersheds, specific pyrethroids were applied to specific crops. For example, bifenthrin in agricultural watersheds was found to have only been applied to strawberry crops and Lambda-cyhalothrin was applied to lettuces. By identifying the specific pyrethroid, management practice implementation can be focused on addressing the specific crops and production methods linked to toxicity. Staff recommends increasing the level of chemistry monitoring to provide feedback to growers on an annual basis on the specific pyrethroids present. Many of the CMP monitoring sites are located in agriculture drainages that may see annual changes in sediment composition and the increased frequency of monitoring would detect these changes.

1.3 Mr. Kirk Schmidt, CCWQP

Numeric Targets for Concentrations of Pyrethroids in Water: The proposed numeric targets (Draft Resolution, page 3, Technical Report, page 36) are not appropriate. "The UC Davis Criteria represents a concentration of pyrethroids in water that *should not affect aquatic life in the lower Salinas River*…"(emphasis added) This is not the standard for any other pesticide in any TMDL. For aquatic and sediment toxicity monitoring, indeed as used in this TMDL, the standard is "known LC50 concentrations". (see Technical Report page 37) LC50 standards represent the measurement of "Lethal Concentration" (LC) that causes mortality of 50% of the test species within the duration of the exposure. This is the same standard used by DPR. Clearly 50% mortality is different from "should not affect aquatic life." If a target is used for pyrethroids in water it should be the equivalent of the existing LC50 standard used for other chemicals.

Staff Response: LC50 concentrations recommended by Mr. Schmidt are not considered fully protective targets. At the LC50 concentrations, a sample is toxic to 50% of the populations, which would not meet the toxicity water quality standards. The UC Davis criteria provide assurance that water quality standards are met. The UC Davis criteria are used in two other TMDLs as numeric targets. The UC Davis criteria are used as targets in the TMDLs for toxicity and pesticides in the Santa Maria River watershed (RWQCB, 2014) and in the TMDLs for pesticides in the Oxnard Drain (USEPA, 2011).

1.4 Mr. Kirk Schmidt, CCWQP

Timelines: The draft Resolution proposes limited timelines to achieve the TMDL target standards. The purpose of the TMDL is to set objectives. Subsequent WDRs or the Ag Order are the regulatory method of achieving these targets. Adoption of a new Ag Order or WDR will require extensive participation by the regulated parties and public hearings. Adoption of a timeline is more appropriate at that time and should not be included in an amendment to the Basin Plan.

Staff Response: Timelines are a required TMDL component and must be included in the Basin Plan amendment. The TMDL provides water quality goals for the entire impaired watershed and sets timelines for the various sources in the watershed. The timelines are recommendations to meet watershed goals and may differ from the regulatory requirements of the Agricultural Order and WDRs, which are more site specific.

2. Ms. Sarah G. Lopez, Technical Program Manager, Central Coast Water Quality Preservation Inc.,

2.1 Ms. Sarah G. Lopez, CCWQP

This letter is to provide supplemental technical comments on the proposed TMDL for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed, as it pertains to monitoring of agricultural water bodies.

2.2 Ms. Sarah G. Lopez, CCWQP

1) Page 4 of the Staff Report indicates that toxicity determinations for the 10-day Hyalella survival test will be made using the Test of Significant Toxicity (TST) approach. This would be a departure from the statistical methods currently used to interpret toxicity bioassays for the CMP. The CMP adheres to SWAMP and/or CEDEN data formatting procedures which have included a recent shift to reporting "% Effect" in lieu of the previous "% Control," as well as adopting SWAMP guidelines for interpreting bioassay results for significant effect (and assigning the appropriate SigEffect Codes). However, the CMP does not use the TST statistical method to determine significance, relying instead upon methods supported by the CETIS statistical software package, which have been in place for the CMP and numerous other monitoring programs since 2005.

As future CMP toxicity monitoring is invoked in the Draft Technical Project Report, it is important that analytical methods and reporting conventions remain comparable over time. Trend detection is an important component of both the Ag Order and this TMDL, and a shift in statistical methodology will compromise the ability to detect trends.

Staff Response: The Test of Significant Toxicity (TST) is a recommended statistical approach and staff added clarification in the Draft Technical Project Report that it is a recommended approach. Staff supports the goal of the CMP to evaluate trends and have comparable data over time. Staff has forwarded Ms. Lopez's concerns to Central Coast Water Board monitoring staff.

2.3 Ms. Sarah G. Lopez, CCWQP

Page 5 of the Staff Report discusses pyrethroid concentrations in water. A general comment is that this section should be re-written with greater clarity as to the need for pyrethroid monitoring in the water column, monitoring objectives, and relationships between water column and sediment toxicity and pesticide concentrations. For example, it is currently unclear why water column toxicity and pesticide concentrations are being addressed in a concentration-based TMDL for "sediment toxicity and pyrethroid pesticides in sediment." Water is certainly a key transport mechanism for sediment with sorbed pesticides, however that issue would seem better addressed by a more load-oriented discussion. Furthermore, concerns about pyrethroids de-sorbing from benthic sediment and entering the water column seem a) better addressed by sediment tests which more closely reflect the benthic environment, and b) poorly addressed by standard water column monitoring protocols which draw samples from within inches of the surface and would not be expected to reflect the benthic environment.

Staff Response: Further clarification was added to the Draft Technical Project Report on the inclusion of pyrethroid water concentration targets and pyrethroid water column monitoring. The primary justification for including water column concentrations of pyrethroids as targets is that pyrethroids readily partition from sediment to water phases in streams (Liu et al., 2004). These freely dissolved pyrethroids are bioavailable and potentially toxic to aquatic amphipods such as Hyalella azteca, which is the species

used in the sediment toxicity tests. Additionally, water quality monitoring from the DPR noted above in Table 1, indicates that pyrethroids are frequently detected in streams in the Salinas River watershed.

The water column UC Davis criteria and targets along with the sediment toxicity numeric target and the pyrethroids in sediment concentration toxicity unit target are needed to assure that the Basin Plan narrative pesticide and toxicity objectives are achieved. The UC Davis criteria are based on a broad evaluation of toxicity studies of a variety of aquatic organisms to derive protective values that meet water quality standards. In addition, the UC Davis criteria reports state that that the criteria appear to be protective of endangered species, ecosystem toxicity, and bioaccumulation. The sediment toxicity targets are very valuable but are based on tests to a single test organism. Therefore, they do not fully or adequately express the water quality objective for toxicity that requires water to be free of toxicity for humans, plants, animals, and aquatic life.

Additionally as noted by Ms. Lopez, other methods to evaluate the benthic environment would provide a more holistic metric of aquatic health. Staff encourages the development of such tests. However, they are outside the scope of this TMDL project.

The Report does not cite current literature or monitoring results in support of water column pyrethroid sampling. Of the three studies cited, only one (Starner et al. 2006) discusses any water column pyrethroid detections. Those data were collected over 10 years ago and demonstrate only a minor detection pattern for pyrethroids in the Salinas Valley (see Table 4 of that report). A more current citation, and preferably one with a more compelling detection pattern, would seem appropriate given the annual monitoring recommendation in this TMDL. Absent those, a better use of resources would be to perform a review of more current literature or perform sampling on an exploratory basis prior to implementing an annual monitoring plan.

Staff Response: More current water quality monitoring studies that support water column sampling are noted above in section 1.2 and in section 4.2.

The Report lays out concentration-based, numeric targets for water column toxicity developed by UC Davis for freely dissolved pyrethroids in water, but suggests that whole water concentrations could be used instead for compliance assessment. The authors of those criteria note in their report that “the bioavailable fraction may be overestimated with this method” (Fojut 2010). In addition, the external peer review of those criteria yielded comments from a reviewer that “this would likely be overly conservative and grossly overestimate exposure,” and that “the use of freely dissolved concentrations are appropriate, the most scientifically justified and should result in adequate protection of beneficial uses” (Armbrust 2015).

Staff Response: Staff concurs that the use of freely dissolved concentration are the most appropriate. However, there are situations in which whole water samples may be of value and the TMDL reiterates the recommendation by UC Davis to allow environmental managers the discretion to use the most appropriate measurement (Palumbo et al., 2010).

The suggested numeric targets for pyrethroids in water are based on “no effects” levels, which is a departure from the LC50-based criteria laid out for sediment, and which (i.e. LC50-based

criteria) have also been a more common method of evaluating specific pesticides' contributions to aquatic toxicity. One concern is whether a toxicity bioassay for sub-lethal effects in water is commercially available, as the 10-day water exposure for Hyalella (the species most sensitive to pyrethroids) includes only the survival endpoint. As such, these criteria would not be useful in the context of existing regional monitoring programs to evaluate the relationship between exceedences of "no effects" based criteria and organism performance in survival-based toxicity bioassays. Conversely, there is a decade-long track record in this region demonstrating the utility of comparing measured pesticide concentrations with LC50's. Though sub-lethal effects obviously can and do occur, LC50-based criteria are more straightforward in concept and hence have greater stakeholder buy-in and greater outreach value. For example, statistically significant reductions in organophosphate concentrations have been demonstrated on the Central Coast using an approach to data interpretation and outreach based almost entirely on LC50's and lethal bioassay endpoints.

Staff Response: As noted by Ms. Lopez, LC50-based targets are more straightforward and that is one reason they are used as allocations for dischargers instead of the UC Davis water column criteria. Staff recommends that CMP continue to focus their monitoring evaluations on LC50-based targets and allocations. The LC50-based targets and allocations are effective tools along with toxicity tests for data interpretation and outreach to growers and to assist with the implementation of management practices.

Another concern about the proposed targets for pyrethroids in water is that laboratory tests for measuring freely dissolved pyrethroids are not commercially available at present. The use of a formula to estimate the freely dissolved fraction from the whole water concentration would introduce mathematical uncertainty into the results, as partitioning coefficients are site-specific but in practice could not be established with that level of specificity. The (mathematical) uncertainty in using a blanket partitioning coefficient in such an exercise would likely exceed the level of precision needed to evaluate compliance in the low part per trillion range required by these targets.

Staff Response: Staff finds the use of the equation from the UC Davis Criteria to estimate the freely dissolved fraction of pyrethroids is an adequate approach. Staff reviewed the equation to translate a total bifenthrin concentrations measured in whole water to the associated dissolved bifenthrin concentrations found in the UC Davis Criteria report (Palumbo et al., 2010) and consulted with Central Valley Water Board pesticide TMDL staff on the equation. The Central Valley Water Board is proposing a Basin Plan amendment to establish pyrethroid water quality objectives based on the UC Davis criteria and has developed additional technical information on the calculations (CVRWCB, 2015). The basic equation for calculating the dissolved fraction of pyrethroids is relatively straight forward. The equation requires inputs of partitioning coefficients and the Central Valley Water Board has proposed "default" partition coefficients for use in the equation. Therefore, laboratories would not have to determine site-specific partition coefficients. For pyrethroid water concentration monitoring, water would need to be sampled for pyrethroids, dissolved organic carbon, and total organic carbon. These parameters would need to be entered in the equation along with the partition coefficients, which are reasonable analytical procedures. Additionally, the Central Valley Water Board underwent scientific peer review for the use of partition coefficients to calculate freely dissolve pyrethroids. The three scientific peer reviewers agreed that it is a valid approach.

A final comment on the proposed pyrethroid in water criteria would just be to acknowledge the delicate balance between establishing criteria that are protective of aquatic life while maintaining a modicum of consideration for the in situ reality. The proposed criteria were developed using the most sensitive species known for pyrethroids – a laboratory born and bred Hyalella azteca. Some native populations of Hyalella have been shown to adapt to chronic, low levels of pyrethroids by developing resistance over time, so the use of laboratory-bred organisms is already conservative relative to potential environmental conditions. Due to a lack of available data, the criteria were also developed using a partially estimated Species Sensitivity Distribution (SSD), and were recently adjusted downward from a 5th percentile basis to a 1st percentile basis. Both the estimation techniques and downward adjustment in percentile basis introduce further conservatism into the criteria, and one external peer-review commented that this "would appear to be overly protective based upon the conservatism already in place." Though no slight to the scientific rigor used in establishing the standards is intended, they are not necessarily the best tool for the resource management job at hand.

Staff Comments: The TMDL numeric targets for concentrations of pyrethroids in the water column are based on the earlier UC Davis criteria that were approved as the numeric targets in the Santa Maria River TMDLs for pyrethroids. The targets have not been adjusted downward. Regarding the sensitivity of laboratory populations of Hyalella azteca and the resistance of wild populations to pyrethroids, the TMDL must be protective of aquatic life beneficial uses and cannot develop targets that are only protective of resistant aquatic species. Population resistance was addressed in a study by Dr. Donald Weston.

A study published in the Proceeding of the National Academy of Science by Dr. Donald Weston reported that some populations of Hyalella azteca in urban and agricultural areas with high pesticide loading have developed genetic resistance to pyrethroids (Weston et al., 2013). This was indicated by genetic sequencing and some of the mutations that they identified in this aquatic species are the same ones seen in pyrethroid-resistant agricultural pests. Typically, a population can develop resistance when they are regularly exposed to high levels of a chemical, as occurs with agricultural pests when a pesticide or class of pesticides is used repeatedly on the same crop. This study is one of the first to document resistance in non-target aquatic organisms exposed primarily through runoff. Dr. Weston's study also reported that wild populations collected from undeveloped areas with few pesticide inputs were equally sensitive to pyrethroids as laboratory cultures and these sensitive populations did not have the genetic mutations seen in the resistant populations. This indicates that repeated exposure is a difference between developing resistance and being sensitive. Adaptations, such as development of pyrethroid resistance, may reduce the genetic and biological diversity of these populations, and as such reduce their ability to adapt to other stressors.

The UC Davis criteria are an appropriate interpretation of the toxicity objective because they are based on the response of sensitive indicator organisms. The goal of toxicity testing is to use the organisms as a biological indicator of contaminants, not to determine whether field populations have developed resistance. The UCD criteria were developed with the goal of protecting aquatic ecosystems, thus, it is appropriate that the criteria are protective of non-resistant Hyalella azteca populations found in areas with

little pesticide contamination, rather than only protecting those populations that have adapted to live in waterbodies degraded by pyrethroids.

3. Ms. Abby Taylor-Silva, Vice-President, Policy & Communications, Grower-Shipper Association of Central California, and Mr. Norman C. Groot, Executive Director, Monterey County Farm Bureau

3.1 Ms. Abby Taylor-Silva and Mr. Norman C. Groot, Grower-Shipper Association of Central California and Monterey County Farm Bureau

Thank you for making several presentations to stakeholders about the Lower Salinas River Sediment Toxicity Total Maximum Daily Load (TMDL). Thank you for patiently responding to questions and comments. We appreciate your willingness and patience to work with the agricultural community.

As per discussions between the Agricultural Community and Water Board Staff in the past year, we have fulfilled your request to engage the Agricultural Community in this issue. The activities that we have undertaken since April 2015 include, but are not limited to, the following:

- RWQCB Staff has been invited to make multiple presentations to the GSA and MCFB Water Committees.

- We are trying to engage the California Leafy Greens Research Board (CLGRB) to become involved in procuring research projects to answer scientific questions relating to pyrethroid transport mechanisms in the sediment systems and management practice implementation and development. This type of research does not easily fit within the traditional scope of CLGRB mission and program and presents multiple challenges.

- We have reached out to the Pyrethroid Working Group for assistance with sediment toxicity and pyrethroid research. Tess Dunham, representing the Pyrethoid Working Group, has presented to a combined meeting of the Grower-Shipper Association and Monterey County Farm Bureau Water and Pest Management Committees.

- We continue to try to engage the Pyrethroid Working Group to help with research on transport mechanisms, management practices effectiveness measurement and management practice development.

- We have reviewed pyrethroid pesticide label vegetated buffer requirements and identified challenges in interpreting and implementing those labels.

- We reached out to the Monterey County Ag Commissioner's office for assistance with interpreting pyrethroid pesticide vegetated buffer labels.

- We have requested assistance from the Monterey County Ag Commissioner to help identify CDPR grant funds for pyrethroid pesticide research to better understand transport mechanisms and management practice effectiveness, as well as develop innovative management practices.

- We have conducted a review of PolyAcrylamide (PAM) literature, including created a list of potential agricultural and non-agricultural vendors.

- We have committed to conducting focus groups with cool season vegetable growers to design a PAM program template that growers can then tweak for their individual operations to effectively manage sediment movement under the most common conditions.

- We have initiated meetings with US Natural Resource Conservation Services (NRCS) to explore how the Universal Soil Equation tool (RUSLE 2) might be modified as a tool for sediment management on the Central Coast. This would require specialized technical skills and time, but it is worth investigation.

As you can see, we have been busy over the past 11 months. It should be noted these activities have occurred without dedicated funding, staff, or resources for this issue. These efforts demonstrate our commitment to address pyrethroid pesticide and sediment off-site movement. Pyrethroid products are an important component of the Central Coast's pest management portfolio and have many merits. The pesticidal mode of action of pyrethroid pesticides is unique in that they inhibit nerve transmission *only* in insects. Therefore, there is no mammalian toxicity. Unlike other environmentally toxic insecticides, such as Organo phosphate or Carbamate pesticides, Pyrethroid pesticides have intrinsic value in that they do not pose worker safety issues when properly used and applied. They are commonly used around human dwellings, institutions, and public buildings to safely control pests that pose threats to human health such as cockroaches and termites. There are no known child development issues associated with these pesticides. Agriculturally, they are effective on a variety of pests and are widely used on a number of crops. The benefits are worth the effort to save the products.

In addition to working with the Agricultural Community on this issue, we encourage the Regional Board Staff to work with CDPR to conduct an analysis of the unintended consequences of losing this valuable pest management tool. The impact of using alternative products or eliminating pyrethroid pesticides needs to be evaluated to determine if there are greater environmental or human health risks associated with severely restricting or eliminating these tools than learning to properly manage them. We strongly encourage this assessment.

Grower-Shipper Association (GSA) and Monterey County Farm Bureau (MCFB) are providing the following comments on the Central Coast Water Board TMDL Staff Report on behalf of our grower members.

Staff Response: Staff would like to acknowledge the productive steps the Grower-Shipper Association and Monterey County Farm Bureau have taken to engage the agricultural community in the development of the TMDL and their commitment to address these water quality problems. The specific comments from Grower-Shipper Association (GSA) and Monterey County Farm Bureau (MCFB) are addressed below.

3.2 Ms. Abby Taylor-Silva and Mr. Norman C. Groot, Grower-Shipper Association of Central California and Monterey County Farm Bureau

Numeric Targets

Question: Can you please provide more detail about the enforceability of the numeric targets? Are they enforceable? If not, what is enforceable?

Staff Response: TMDL numeric targets are water quality goals and are not directly enforceable but are used to assess progress towards the attainment of water quality standards. The TMDL will be implemented through regulatory mechanisms such as the Agricultural Order and the municipal stormwater permits that are enforceable.

There appears to be inconsistency between the uses of sediment water quality standards for pyrethroid pesticides expressed as LC50 concentrations versus freely dissolved concentrations of pyrethroid pesticides in water expressed as "no observable effects" in ppm concentrations.

We do not remember a discussion of the use of freely dissolved concentrations of pyrethroid pesticides as a water quality standard during stakeholder meetings, and quite honestly, do not understand the explanation given in the Staff Report. We are unsure of the medium that is being measured? Is it whole water, filtered water, or some other medium?

Staff Response: UC Davis developed water criteria for pyrethroids that are used as numeric targets for concentrations of pyrethroids in water. The UC Davis criteria were established for freely dissolved concentrations of pyrethroids, which they found to be the most accurate predictor of toxicity. However, UC Davis also notes in the criteria reports that:

> ***Environmental managers may choose an appropriate method for determination of the concentration of freely dissolved bifenthrin, or they may also choose to base compliance on whole water concentrations.***

Staff recognizes that having options for compliance may be confusing but it is also best to give managers flexibility to determine the best method for compliance, which is consistent with the UC Davis pyrethroid criteria reports. Regarding the sample media, the TMDL does not designate specific water quality sampling protocols. Such technical monitoring details are generally beyond the scope of a TMDL. Pyrethroids are generally collected as whole water samples and are not filtered, which would remove the pyrethroids.

The Sediment Aquatic Toxicity tests are published and heavily vetted. However, we have questions about the numeric targets of pyrethroid Concentrations in Water. We assume the research has been peer reviewed and published? How widely accepted is this approach as a water quality standard? Is this a unique approach advanced by the Central Coast Regional Board Staff? Is this approach being utilized in any other TMDLs in California or the U.S.?

Staff Response: The numeric targets for concentrations of pyrethroid in water are based on criteria developed by UC Davis. The UC Davis pyrethroid criteria were used for a TMDL developed and adopted by USEPA in Ventura County (USEPA, 2011) and for a toxicity and pesticide TMDL in the Santa Maria River watershed (RWQCB, 2014). The Central Valley Water Board is in the process of developing pyrethroid Basin Plan water quality objectives based on the UC Davis criteria. If adopted by the Central Valley Water

Board, the criteria would become water quality standards for the first time. The UC Davis criteria and methodology were peer reviewed during their development by UC Davis and by the Central Valley Water Board. They were also peer reviewed for the development of the Santa Maria River watershed TMDL.

It would be helpful if a more involved explanation of the purpose and use of the "no observable effects" water quality standards would be provided. What does this water quality standard achieve? Does it increase data reliability? What does "no observable effects" actually signify?

Staff Response: TMDL targets should be set for surface receiving waters at levels that are fully protective and appropriately translate the narrative water objective for toxicity in this case. The UC Davis criteria represent levels in which no effect should occur to aquatic species or as stated in the UC Davis criteria report aquatic life should not be affected unacceptably. The purpose of a no observable effect is that it represents a level in which the beneficial uses of water are protected and concentrations do not impair aquatic life. This is consistent with the Basin Plan toxicity objective which states:

> ***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.***

With regard to data reliability, the goal of no effects is similar to the existing Basin Plan objective for toxicity and it should not have an impact on the reliability of data collected upon approval of the TMDL.

Has Staff calculated the "no observable effects" numeric targets in practical terms? In other words, have they calculated the pounds (or ounces?) of a specific pyrethroid pesticide that may enter the receiving water of the Lower Salinas River watershed, or for the sake of simplicity, a subwatershed, before the pyrethroid concentrations in water or "no observable effects" numeric targets are exceeded? This is an important point, as there remains concern about the achievability of the pyrethroid concentrations water numeric targets. If it only takes a few ounces or a few pounds before the numeric targets are exceeded, then, these targets are equivalent are tantamount to a pesticide use restriction.

Staff Response: The goal of the TMDL is to protect water quality, not to restrict the use of a pesticide. Staff recognizes that the targets are very low, however the criteria developed by UC Davis is sound and appropriately protective of beneficial uses because it translates the narrative water quality objective. Growers have options to control pesticides so they can demonstrate progress towards meeting allocations and implementing the iterative process required by the Agricultural Order.

As expressed, repeatedly, in earlier TMDL programs, we are concerned about adoption of potentially unachievable numeric targets into the Basin Plan as those targets will likely be incorporated into the next Irrigated Lands Regulatory Program permit.

Staff Response: Staff acknowledges your concerns; however, targets are water quality goals and are not directly enforceable.

3.3 Ms. Abby Taylor-Silva and Mr. Norman C. Groot, Grower-Shipper Association of Central California and Monterey County Farm Bureau

Sediment Toxicity / Pyrethroid Pesticide and Turbidity TMDLs are out of sequence

It is puzzling how sediment toxicity or water column pyrethroid toxicity can be fully evaluated or how load can be calculated without estimating turbidity. We know that soil erodibility and turbidity vary dramatically among subwatersheds. Therefore, without having this information available, it is virtually impossible to determine which subwatersheds are most vulnerable and to prioritize where work needs to done. We are aware that any suggestion that this TMDL be delayed is perceived as "stonewalling"; however, there is a technical argument to be made that the sediment toxicity and the turbidity TMDLs should be developed either in a different sequence, or simultaneously, or in tandem.

Staff Response: Staff is in the process of evaluating data for turbidity TMDLs in the Salinas River watershed and concurs that turbidity and sediment toxicity and pyrethroids are interrelated water quality problems. Suspended sediments in turbid water can have pesticides and other pollutants bound to them. Although they are interrelated and may require similar implementation, the TMDLs would be very different. Sediment toxicity impairments are linked to concentrations of pyrethroids in the sediment and this TMDL addresses these concentrations. This TMDL establishes numeric targets on toxicity in the sediment and pyrethroids in sediment and does not set limits on turbidity. Turbidity impacts to water quality are associated with water clarity, which has much different impacts on the aquatic environment than toxicity. The commenter suggests that TMDLs for turbidity be developed either before or simultaneously to the TMDLs for sediment toxicity and pyrethroids in sediment. Staff considered these options and determined that this would cause an unnecessary significant delay for this TMDL and implementation. Since sediment toxicity is related to the concentration in sediment and not on water clarity, it is unnecessary develop the TMDLs concurrently or to develop turbidity TMDLs prior to sediment toxicity TMDLs.

3.4 Ms. Abby Taylor-Silva and Mr. Norman C. Groot, Grower-Shipper Association of Central California and Monterey County Farm Bureau

Sources of Impairments and Transport Mechanisms are unclear

The Source Analysis in the Staff Report does not list urban use of pyrethroid pesticides as a potential source. We recognize that the California Department of Pesticide Regulation requirements for urban applications of pyrethroid pesticides have resulted in reduced urban run-off. Nevertheless, residential uses are not regulated. It is unlikely that pyrethroid pesticide loading from urban and residential uses has been eliminated.

Staff Response: Urban sources of pyrethroids are identified and described starting on Page 39 of the Draft Technical Project Report. Discharge from urban areas is regulated through NPDES stormwater permits.

The basis for the Total Maximum Daily Load seems to be more correlative than causative. It appears to follow the following line of reasoning: There are agricultural and urban uses of pyrethroid pesticides > pyrethroid pesticides adhere to soil > Eroded soil becomes sediment > There is a high degree of Hyallela toxicity in sediment on the Central Coast > Therefore,

sediment toxicity results from pyrethroid pesticides in sediment > farmers use pyrethroid pesticides > therefore, agricultural use of pyrethroid pesticides is largely responsible for sediment toxicity. Hence, this reasoning establishes a linkage between pyrethroids and sediments. However, this linkage, in and of itself, does not definitively establish the sources (i.e., the who, what, when, where and how much) of sediment toxicity. In TMDL Fact Sheets that Staff often uses for stakeholder meetings, there is a cartoon labeled "TMDL components", which differentiates between linkages and sources. We do not believe that the project, as presented, establishes sources. Rather, it only provides potential linkages.

Staff Response: As you acknowledge above, the TMDL establishes a linkage between the agricultural use of pyrethroids, pyrethroids in sediment, and sediment toxicity. Due in part to the lengthy persistence of some pyrethroids in the environment, it is difficult to trace pollution to specific application. Detailed source analysis is presented in the Draft Technical Project Report and was presented to agricultural stakeholders. For example, staff presented a detailed source analysis on sediment toxicity and pyrethroids in sediment in the Alisal Creek subwatershed in the Draft Technical Project Report and at one of the stakeholder meetings. This is an area east of the City of Salinas dominated with agricultural land use. The analysis linked toxicity and pyrethroids in sediment to specific crop types.

It is easy to surmise who the regulated communities are; but it is much more difficult to determine the timing or mode of transport from those communities into the sediment system. Hence, there is not enough detail for an effective TMDL program. The project does not differentiate or determine the degree of impairment resulting from the following:

- Agricultural versus urban or urban/rural residential sources;
- Off-site movement during application of pesticides;
- Inadequate sediment management practices during standard farming operations;
- Sediment deposition and redistribution resulting from stormwater events; or
- The impacts of other sediment-borne fabricated and naturally occurring toxicants. For example, there are organic chemistries, nutrients, and naturally occurring elements that may contribute or entirely cause Hyallela toxicity.

Staff Response: These are important study questions but are beyond the scope of this TMDL. The TMDL has broadly identified sources of pollution in the watershed and now specific responsible parties need to identify the specific activities at the site level for management practice implementation and pollution load reduction.

3.5 Ms. Abby Taylor-Silva and Mr. Norman C. Groot, Grower-Shipper Association of Central California and Monterey County Farm Bureau

<u>Knowing Exact Transport Mechanism is Critical for Mitigation</u>
Knowing the sources of toxicants in sediment is critical for identifying the proper mitigative actions and implementing appropriate management practices to address the impairment. Without specific information, there is doubt as to whether appropriate management practices or mitigative efforts will be selected. Consequently, regulated communities may spend money needlessly without truly addressing the problem. For example, if pyrethroid pesticides are introduced into the sediment system during heavy storm events rather from routine farming operations, then farming sediment management practices may have little value to reduce sediment toxicity. This is an important point because sediment management practices are

expensive. They may require permits. They may require engineering design. They require a lot of time to design and may require years before they are effective. Typically, they must be specifically designed for the landscape in which they are used. Choosing the wrong practice could be a futile and costly error.

Staff Response: Staff acknowledges your concerns regarding the difficulty in identifying proper mitigation measures to control sediment, pyrethroids, and sediment toxicants. Mitigation measures need to be planned and engineered thoughtfully at the site level to be effective.

3.6 Ms. Abby Taylor-Silva and Mr. Norman C. Groot, Grower-Shipper Association of Central California and Monterey County Farm Bureau

Additional Data Needs to be collected and analyzed

Since the data presented is not conclusive about the sources and transport mechanisms of sediment toxicity, we suggest that the Water Board conduct further studies. There needs to be a better understanding of the timing, mode of transport, timing of deposition, and distribution of pyrethroid pesticides and other toxicants into the Salinas River sediment system.

Staff Response: The evidence in the TMDL is conclusive about the sources of sediment toxicity and transport mechanisms. Data in the Draft Technical Project Report links sediment toxicity to the agricultural and urban use of pyrethroid pesticides. Along with the data analyzed in the report, several special studies are summarized in Appendix B of the report that link sediment toxicity to pyrethroids and specific uses of pyrethroids. As described in the Draft Technical Project Report and discussed in stakeholder presentations, pyrethroids are hydrophobic and in the environment are bound to sediment. They are transported from fields bound to sediment into streams, they have long half-lives, and they can be transported offsite for a considerable time after an application. The level of data analysis Draft Technical Project Report is consistent with recommendations in the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (SWRCB, 2004) and the TMDL Guidance, A Process for Addressing Impaired Waters in California (SWRCB, 2005).

During 2015 TMDL Stakeholder presentations, the question was asked, "If pyrethroid pesticide use were eliminated tomorrow, how long would sediment toxicity continue?" Unfortunately, this could not be answered. Likewise, there was no indication of how much time would be required to meet TMDL water quality objectives. This seems to indicate that the "time" component of the TMDL has not been thoroughly analyzed. This, in and of itself, should be sufficient reason to NOT adopt this TMDL, as written.

Staff Response: Following the stakeholder presentation, staff developed a conceptual model (Page 65 of the Draft Technical Project Report) to estimate the time need to meet water quality objectives. Statewide urban pyrethroid stakeholders have been considering the persistence of pyrethroids and the time needed to meet water quality goals with the adoption of regulations. Since copper is also a stable pollutant, a model of copper transport was used as tool to estimate the persistence of pyrethroids in the environment. The basic assumption is that pyrethroids in streams are very persistent and to achieve water quality goals, loading must be greatly reduced and residue in the channels must be flushed or otherwise physically removed from the system. The copper transport model predicted that once copper loading was controlled it would take 1 to 5 years

depending on the channel make-up to flush copper sediments out of the system. In the TMDL, staff estimates that within 5 years of adoption of the TMDL urban load reductions would be achieved and with 8 to 10 years agricultural load reductions would be achieved. After loading is controlled, it could then take 1 to 5 years for pyrethroids accumulated in the streams to flush out. In summary, staff estimated that it would take approximately 12 to 15 years after approval of the TMDLs to achieve the TMDL targets.

The consistent message when discussing agricultural water quality improvement is "One size does not fit all". It was clear from the presentation on April 21, 2015, that the connections between storm events, soil type, and sedimentation rates have not been thoroughly analyzed. In the Salinas Valley there can be dramatic differences in stormwater events at a subwatershed basis. For example, in Chualar, the December 2012, and December 2014, storms had greater than 4 and 5 inches, respectively while nearby Gonzales and Soledad watersheds only received 1-1.5 inches of rain. We would like to suggest that Staff perform an analysis of precipitation amounts, duration and intensity as well as soil erodibility on a subwatershed basis. These should then be modeled to determine which subwatersheds might be more susceptible to the erosion of sediment containing pyrethroid pesticides or other toxicants. This would allow for a more focused and effective TMDL.

Staff Response: An erosion model would provide insight into the sediment dynamics of the watershed and would provide information on subwatersheds susceptible to erosions and loading of pesticides in sediment. While a model would indicate susceptible watersheds, the monitoring data presented in the TMDL already indicates extensive sediment toxicity in subwatersheds in the lower Salinas River watershed and therefore, staff determined that a model was not necessary to develop the TMDLs.

Likewise, there are long stretches of the Salinas River where levees prevent tailwater or stormwater discharges and sediment from entering the watershed. Those stretches should be identified and the TMDL should carve out exceptions, where possible.

Staff Response: The impaired waters are identified and mapped in the Draft Technical Project Report.

3.7 Ms. Abby Taylor-Silva and Mr. Norman C. Groot, Grower-Shipper Association of Central California and Monterey County Farm Bureau

Effectiveness evaluation

During the April 21, 2015 presentation, pointed questions were asked about how to address sediment toxicity. Water Board Staff responses were an ambiguous recital of potential practices. In general, it was the same list of practices we have been hearing for a year and despite years of discussion, TMDL Staff seems to be oblivious to the doubtful merits and/or practicability of many of these practices.

- Some practices, such as vegetated ditches, have been shown to have limited efficacy on the Central Coast.
- Research has shown PolyAcrylamide (PAM) to be highly effective at reducing both sediment and turbidity; however, there has been limited product development. No one can tell growers when, where, and how to apply the product. What formulation should be used? Should it be applied through irrigation systems or applied directly to the furrow? How much will it cost? This is the type of research that should be facilitated by the

Central Coast Regional Water Quality Board to actually address water quality improvements rather than continuous monitoring to develop unachievable water quality standards.

- Some of these practices conflict with food safety requirements that are governed by private contracts, the Leafy Green Marketing Agreement and/or the USDA Food Safety Modernization Act

Staff Response: The above comments on management practice effectiveness are noted by staff. The TMDL implementation plan requires and promotes a suite of programs and processes to effectively achieve the TMDL and allocations, rather than on implementation of any specific type of management practice. This implementation strategy in this TMDL acknowledges that "one size does not fit all" and accounts for the complexities of farming in the Salinas Valley, uncertainties about application of any particular practice in the field, and the need for development of management practices relevant to specific farm site characteristics.

3.8 Ms. Abby Taylor-Silva and Mr. Norman C. Groot, Grower-Shipper Association of Central California and Monterey County Farm Bureau

<u>TMDL implementation</u>

Implementation Plan for Irrigated Agricultural Operations

The industry has many unanswered questions about the circular regulatory enforcement scheme that has been constructed between the TMDL and the Irrigated Lands Regulatory Permits. This TMDL states:

> *"Implementation by growers to achieve the TMDL allocations for owners/operators of irrigated agricultural lands will largely be required through the current and future replacements of the Agricultural order.*"

The TMDL states that you are compliant as long as you meet the requirements of the existing Ag Waiver. But then is goes on to say:

> *"In addition to requirements described in the Agricultural Order, this implementation plan recommends establishing new requirements focused on solving the water quality issues addressed in this TMDL. The recommended requirements could be established through future replacements of the Agricultural Order or additional orders, such as through Water Code section 13267."*

Consequently, we have uncertainty as to what is actually being adopted because it could all be changed tomorrow. The Agricultural Community wonders if this as a "bait and switch" approach to regulation?

Staff Response: The staff report recommends adoption of the TMDL and associated documentation. As noted in the above comment, the TMDL implementation makes recommendations for potential new requirements. Adoption of the TMDL does not create any new regulations for the agricultural community, it only makes recommendations.

The current Ag Waiver states:

> *24. Dischargers must comply with applicable Total Maximum Daily Loads (TMDLs), including any plan of implementation for the TMDL, commencing with the effective date or other date for compliance stated in the TMDL. A list of TMDLs adopted by the Central Coast Water Board is available on the Central Coast Water Board website at:*
>
> http://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/index.shtml.

The Agricultural Regulated Community is uncertain what program is controlling, what is enforceable and what is a guideline, or what the actual individual grower is required to do as the TMDL and the Ag Waiver are integrated.

Staff Response: The Agricultural Order states that growers must comply with water quality standards and implement management practices to control discharges to meet water quality standards. Growers are required to implement practices to achieve the TMDLs for the watersheds addressed in the TMDL. The Agricultural Order is the enforceable mechanism.

3.9 Ms. Abby Taylor-Silva and Mr. Norman C. Groot, Grower-Shipper Association of Central California and Monterey County Farm Bureau

The iterative process

We are supportive of the iterative process and appreciate that it is emphasized in this TMDL program.

The iterative approach as described in the Draft Technical Project Report and the May 12-13, 2016, Staff report is confusing. We understand that a grower should implement management practices to achieve TMDL numeric targets; however, we are confused about the geographical point that achievement, or conversely, exceedance, are determined. Does this occur at the edge-of-field, edge-of-ranch, edge-of-operation, in an irrigation tailwater ditch, in an Ag drain shared among neighbors, in the county flood control ditch, or in receiving water?

Clarification on this point is important because it informs how the iterative process will be implemented. If the point of achievement is determined through receiving water monitoring; then, the iterative process becomes collective, rather than an individual process. We support a collective approach using receiving water monitoring to determine achievement of this TMDL.

Staff Response: The Draft Technical Project Report outlines receiving water monitoring sites on pages 60 and 61 and recommends compliance monitoring for the TMDL at these sites. Additionally, individual operations must demonstrate they are meeting allocations by implementing and adopting management practices and reporting their effectiveness.

The May 12-13, 2016, Staff Report states:

> *"Central Coast Water Board staff will use the information above to verify that the iterative process is being implemented by growers. If staff finds that a grower is not implementing the iterative process, staff will progressively implement enforcement.*

> *…Staff will also use this information to track progress toward achieving numeric targets described in this TMDL."*

We support the use of existing reporting tools to verify whether a grower is implementing the iterative process as long as those tools reflect reasonable measures and there is consistency in what is expected of individual growers. We also encourage continuous dialog between the Agricultural community and Water Board Staff as to what constitutes the best measures of the implementation of the iterative approach.

Staff Response: Comment noted and staff supports continued constructive communication between the agricultural community and staff.

3.10 Ms. Abby Taylor-Silva and Mr. Norman C. Groot, Grower-Shipper Association of Central California and Monterey County Farm Bureau

Monitoring

We support a properly designed and executed monitoring program that assists with determining the sources and practice effectiveness of pyrethroid pesticides. We do not support monitoring programs that are conducted solely to demonstrate exceedances in order to implicate agriculture or other regulatory schemes that are designed to present a worst case scenario in the guise of a risk analysis.

The May 12-13, 2016, Staff report reads:

> *"If, during the implementation phase of the TMDL, staff determines that additional information is needed to assess sources and track progress, staff will consider expanding the following requirements to ranches that are not currently required to submit the information."*

We remain concerned about the ambiguity of this statement and the continued uncertainty about what the monitoring and reporting requirements are for this program and the ILRP due to the unrestricted discretion bestowed upon Water Board Staff.

Staff Response: The entire paragraph referenced above from the Draft Staff Report is as follows:

> ***If, during the implementation phase of the TMDL, staff determines that additional information is needed to assess sources and track progress, staff will consider expanding the following requirements to ranches that are not currently required to submit the information. The Executive Officer may require the following through a California Water Code section 13267 order:***
>
> ***• Annual Compliance Form***
> ***• Individual Discharge Monitoring***
> ***• Water Quality Buffer Plan***

The purpose of including this statement in the Draft Staff Report is to discuss mechanisms Central Coast Water Board staff may use to gather additional information if the available information is not demonstrating water quality improvements are being made. This type of information may be needed to better identify sources of pollution and

the levels of management practice implementation, as well as to identify areas for additional implementation. In addition to considering California Water Code section 13267 authorities, staff will consider other sources of information available through technical service providers and agricultural stakeholder groups.

3.11 Ms. Abby Taylor-Silva and Mr. Norman C. Groot, Grower-Shipper Association of Central California and Monterey County Farm Bureau

Voluntary Action Recommendations to Achieve the TMDL

In general, we commend Water Board Staff for including Voluntary Actions in the TMDL as a demonstration of the iterative process. We would encourage Staff to include language that allows for "functional equivalents" as alternative, but equally effective, practices, may be developed in the future. For example, it is our understanding that work continues on the development of enzymatic breakdown products for pyrethroid pesticides.

We have the following questions regarding the Staff recommended voluntary actions:

> 1. "Pyrethroid Pesticide Control Plans: Growers should develop ranch specific pyrethroid pesticide control plans with a risk analysis and management practice implementation and effectiveness plan for each pyrethroid used."

Could Water Board Staff provide more detail to the Regional Board and the Agricultural Community as to what would constitute a "Risk Analysis" and the elements of this risk analysis?

Staff Response: For clarification and consistency, "risk analysis" was changed to "reduced-risk application analysis" in the Draft Technical Project Report. Pyrethroid pesticides are used on farms to control insect pests; however they can move off farms into surface water bound to sediment and pollute streams. The goal of including the reduced-risk application analysis in a farm plan is to evaluate the risk to water quality that each specific pyrethroid application poses. Key elements to control a pesticide and preventing runoff are understanding its persistence and how it moves offsite. Is it bound to sediment like pyrethroids or water soluble? This analysis also involves tying the pesticide properties to the farming practices and the characteristics of a site. Some specific elements of the reduced-risk application analysis could include: site drainage patterns, pesticide properties, soils, crops, and irrigation practices. By putting all of these pieces together, a grower should be able to evaluate risks to water quality from pesticide applications and implement the best strategies (management practices) for control.

> "The pyrethroid pesticide plan should describe how and where pyrethroids are applied on a farm, how long they persist in the environment, where they could be transported in spray drift or runoff, and what practices will be implemented for pollution control."

Why are growers being asked to provide persistence information when that is described in the TMDL Technical Project Plan? What is the value of this information in a Pyrethroid Pesticide Control Plan?

Staff Response: The growers are asked to state in their farm plan how long pyrethroids persist in the environment because this information will help inform their choice of practices for pollution control.

We have previously stated multiple times in this letter that little is known about the transport mechanisms of pyrethroid pesticides in the Salinas Valley, except that they adhere to sediment. It is our position that more research needs to be done on transport mechanisms. In fact, it is our opinion that the lack of knowledge about how Pyrethroid pesticides move and are distributed throughout the Salinas River sediment system is the greatest weakness of this TMDL. How can we ask growers to include this information in a Pyrethroid Pesticide Control Plan when the various PhD Researchers who have conducting a variety of research specifically on Pyrethroid Pesticides cannot answer these questions?

Staff Response: The commenter states that growers are required to provide information on the mechanisms that pyrethroid pesticides are transported and distributed throughout the Salinas River watershed. This is not a recommendation of the TMDL. In the Draft Technical Project Report, it is recommended that growers develop plans containing onsite ranch information on pyrethroid fate and transport such as the following items (a - d).

> "For each ranch, the plan should include the following:
> a. A list of all pyrethroids used on the ranch;
> b. A description of the crops and pests being treated and production practices;
> c. A description of pyrethroids fate processes: volatilization, photodegradation, microbial or chemical degradation, sorption to soil particles, half- life, etc.;
> d. A site plan showing the ranch irrigation and drainage systems;

What is the intended purpose of requiring a grower to gather this information? Regional Board Staff already has access to this information listed in items a-c through a variety of other government or grower reports. Growers' time, money, and resources would be better spent focusing on reducing and/or eliminating sediment and pyrethroid pesticides movement.

Staff Response: Staff recommends growers compile the information noted in items a – c because it is part of the information that is needed by growers and technical assistance providers to develop their plan to reduce and/or eliminate pyrethroid pesticide movement from their ranches.

The site plan that you are proposing in item d. constitutes trade secret or proprietary information. It is disingenuous of Regional Board Staff to ask growers to include this information in a Pyrethroid Pesticide Control Plan, which might be potentially requested by the Water Board Executive Officer, and subsequently, subjected to public scrutiny. The State and Central Coast Regional Water Boards have shown no regard for growers' trade secrets, confidential business information, or proprietary information. Growers' irrigation and drainage system information is not necessary to protect the public's interest.

Staff Response: The site plan information described by the commenter is already a required component of the Agricultural Order. Note that Condition-44 of the Agricultural Order requires growers to develop a farm water quality management plan (Farm Plan). Item "c" of the Farm Plan requires growers to identify the irrigation and stormwater

runoff discharge locations. If the grower believes this information is a trade secret, they can identify it as a trade secret in their Farm Plan. If Water Board staff receives a public records act request for this information, staff will coordinate with the grower and legal counsel will review the trade secret justification before releasing the information in response to the public records act request. It is important to note that claiming information is a trade secret does not make it a trade secret and therefore exempt from public disclosure; the claim of trade secret must be consistent with trade secret law.

> e. "An implementation plan with the location of management practices, a description of treatment methods, and verification that practices are consistent with pesticide label requirements required by other agencies"

How does verification occur? Label restrictions typically are listed on all Pest Control Advisor recommendations. If there is an inspection by either CDPR or Central Coast Water Board Staff, that would constitute verification. However, inspections are not routine. We presented third party verification audits as an option during the 2012 Ag Waiver negotiations and were told they were insufficient to meet Water Code and Policy requirements. So, what other verification processes would suffice as verification of label compliance?

Staff Response: The term "verification" was changed in the TMDL to "evaluation," which could be implemented by the grower.

> f. "A plan for assessing the effectiveness of pesticide management practices."

Quite simply, we do not understand what constitutes management practice effectiveness.

Staff Response: Management practice effectiveness is the effectiveness of a practice at reducing or eliminating pollution.

> 2. "Farm Sediment Control and Evaluations: The primary route of pyrethroids into surface waters is the binding to fine soil particles and dissolved organic matter. All growers in the TMDL watershed should evaluate management practices and sediment discharge from their farms. Evaluations could include visual observations and photo documentation of management practices, discharge flow analysis, and measurements of turbidity or suspended
> sediment."
>
> 3. Subwatershed Regional Treatment Systems: Growers should evaluate the potential risk to receiving waters in the watershed from the use of pyrethroids and work with other growers and stakeholders to develop a plan for regional watershed treatment and pollutant assimilation. Staff recommends that growers work collaboratively on regional wetland and vegetative treatment systems to supplement onsite management practices***.***

The Greater Monterey Integrated Water Management Program is pursuing Stormwater Management Project Prop 1 Grant Funding. We propose that Central Coast Water Board Staff work with the INM Program to ensure that agricultural watershed projects are a part of the INMP grant bundle. These types of projects exceed the organization infrastructure and expertise of average growers, even working through watershed working groups.

Staff Response: Water Board grant management staff coordinates with members of the Greater Monterey Integrated Water Management Group on stormwater and agricultural grants. Staff encourages and fully supports the integrated watershed management approach and actively works to support on-farm and regional treatment. It is very encouraging that agricultural community supports integrated watershed planning.

3.12 Ms. Abby Taylor-Silva and Mr. Norman C. Groot, Grower-Shipper Association of Central California and Monterey County Farm Bureau

Conclusion

We appreciate the opportunity to provide feedback. Sediment toxicity is a serious concern and we support a process that addresses this impairment with thorough analysis and evaluation of intended outcomes and unintended consequences. We are very interested in being a part of the solution and hope that you find our feedback useful.

Unfortunately, we do not believe that the TMDL program, as presented, will address sediment toxicity.

More needs to be known about the toxicants, transport mechanisms, and sources in order to allocate loads and to select appropriate practices.

Staff Response: The based on several studies, such as the assessment conducted by the CMP, the primary source of toxicity appears to be pyrethroid pesticides (CCWQP, 2010). Pyrethroid pesticides strongly bind to sediment and are transported with sediment. Pyrethroid pesticides are commonly used to control agricultural and urban insect pests and TMDLs for sediment toxicity and pyrethroids in sediment are allocated to municipal stormwater programs and irrigated agricultural operators and landowners in the lower Salinas River watershed.

More needs to be known the varying levels of sedimentation in subwatersheds in order to determine where system vulnerabilities reside.

Staff Response: The commenter's interest in additional information on subwatershed sedimentation is noted. The primary concern in the TMDL is sediment toxicity and existing monitoring data indicates widespread sediment toxicity in the lower Salinas River watershed. Subwatersheds impaired with sediment toxicity include: Alisal Creek, Alisal Slough , Blanco Drain, Chualar Creek, Espinosa Slough, Gabilan Creek, Merrit Ditch, Natividad Creek, Old Salinas River, Quail Creek, Salinas Reclamation Canal, Salinas River (Lower), and Tembladero Slough. Pyrethroid pesticides are widely used in urban areas and on agricultural crops and the system is broadly vulnerable to sediment toxicity.

More effort needs to be made to understand the practicability and effectiveness of various management practices.

Staff Response: Staff acknowledges the need for additional information on practical and effective management practices for agricultural implementation. In particular, the mandatory USEPA pyrethroid label requirements for vegetative buffers and filters strips

may not be adequate to control concentrated runoff and may need to be adapted for central coast agricultural conditions.

More needs to be known about the effects of turbidity on loading pyrethroid pesticides or other toxicants in the sediment and/or in the water column.

Staff Response: Central Coast Water Board TMDL staff are in the early stages of a TMDL project to address turbidity in the Salinas Valley. The effects of pollutant loading from turbidity will be a consideration in developing turbidity TMDLs and targets.

We strongly recommend that Staff pause the current TMDL trajectory and initiate more productive discussions about how to properly steward pyrethroid pesticides and how to address sediment toxicity. We would like to encourage TMDL Staff to continue to facilitate meaningful discussions about agricultural and urban sediment management and holistic stormwater management before adopting this TMDL.

Staff Response: Staff recognizes the thoughtful concerns brought forward by the GSA and MCFB and their feedback is very helpful. Central Coast Water Board staff will continue to engage in discussions about agricultural and urban sediment and holistic stormwater management practices after approval of the TMDL.

4. Ms. Theresa A. Dunham, Somach, Simmons and Dunn Attorneys At Law, Representing the Pyrethroid Working Group (PWG)

4.1 Ms. Theresa A. Dunham, PWG

Our firm represents the Pyrethroid Working Group (PWG), which is a coalition of registrants of pyrethroid pesticides. We appreciate the opportunity to comment on the Proposed Approval of an Amendment to the Water Quality Control Plan for the Central Coast Basin to Establish Total Maximum Daily Loads for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed in Monterey County, California (Draft TMDL). The PWG submits these comments because of several concerns with the Draft TMDL.

The primary areas of concern we have identified are as follows: (1) the Draft TMDL does not contain consistent information and its approach is unclear; (2) the Central Coast Regional Water Quality Control Board (Regional Board) has failed to comply with the State Water Resources Control Board's (State Board) *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List* (State Listing Policy) in making determinations of impairment; (3) the Draft TMDL has developed numeric targets that are based on improper criteria; (4) the Draft TMDL uses freely dissolved water quality criteria developed by the University of California, Davis (UCD) as numeric water quality targets, but suggests that compliance determinations may be made by comparing results from whole water samples; (5) the Draft TMDL would mandate use of the Test of Significant Toxicity (TST) (i.e., TST statistical approach); and, (6) the Draft TMDL provides a range of dates for achieving the Draft TMDL instead of providing a specific compliance date. Because of these significant errors, the Draft TMDL must be revised and re-circulated prior to consideration by the Regional Board.

4.2 Ms. Theresa A. Dunham, PWG

I. The Draft TMDL Contains Inconsistent Information and is Not Clear in Its Approach

As a preliminary matter, we have significant concerns with the information (or lack thereof) and inconsistencies contained in the Draft TMDL and its various components. Specifically, the information provided in the Draft Staff Report, as compared to information contained in the Draft Attachment A and the Draft Technical Project Report, is unclear and inconsistent. For example, on page 2 of the Draft Staff Report, five waterbodies are identified as being impaired for pyrethroid pesticides. In the Draft Resolution on page 2, four waterbodies are identified as being impaired for pyrethroids. On page 1 of the Draft Attachment A, three waterbodies are identified as being impaired for pyrethroids. Then, on page 33 of the Draft Technical Project Report, four waterbodies are identified (or five if you consider Alisal Creek and Reclamation Canal as being separate waterbodies) as being impaired based on a pyrethroid toxicity unit analysis. Additionally, the four waterbodies listed in the Draft Resolution and the Draft Technical Project Report are not the same waterbodies. Due to this inconsistent information, it is difficult to determine which waterbodies the Regional Board has intended to identify as being impaired for both pyrethroids and sediment toxicity and those which it has intended to identify as being impaired for only sediment toxicity.

Staff Response: The inconsistencies in the TMDL documents have been corrected. The waterbodies impaired for pyrethroids are Alisal Creek, Natividad Creek, Reclamation Canal, lower Salinas River, and Tembladero Slough. The Alisal Creek and the Reclamation Canal are hydrologically connected and are evaluated together in Table 3-3 of the Draft Technical Project Report but are listed separately in the other documents.

Further, we are concerned that the Draft TMDL does not provide transparency with respect to the data used. For example, the Draft TMDL does not clearly indicate if the 303(d) listing data are limited to sediment toxicity data, or if it includes some water column toxicity data. Also, Appendix C includes a summary for additional sediment toxicity data but the source (or sources) of the data is not included on the table summaries. Due to the inconsistencies and lack of transparency, it is difficult for the public to fully evaluate and understand the Draft TMDL and the underlying evidence on which it is based.

Staff Responses: Only sediment toxicity data were analyzed for the TMDL and the source data are provided in Appendix C to the Draft Technical Project Report. Appendix C listed only the project identification codes but did not list the specific projects. Project descriptions have been added to Appendix C to provide clarity.

4.3 Ms. Theresa A. Dunham, PWG

I. Impairment Determination Made Simultaneously with TMDL Development for Pyrethroid Did Not Comply With the State Listing Policy

The State Board adopted the State Listing Policy in 2004 and updated it in 2015 to ensure consistent compliance with section 303(d) of the Clean Water Act (CWA). Section 303(d)(1)(A) requires states to identify waters that are not meeting water quality standards (i.e., that are impaired), and to schedule those waters for TMDL development. (33 U.S.C. § 1313(d)(1)(A).) Then TMDLs are prepared for such waters found to be impaired under section 303(d)(1)(A). Federal regulations further require that states describe the methodology used for development of the list—that is, the methodology used for finding of impairment. (40 C.F.R. § 130.7(b)(6)(i).)

The State Listing Policy provides that "this State policy . . . describes the process by which the State Water Resources Control Board [] and Regional Water Quality Control Boards [] *will* comply with the listing requirements of section 303(d) of the [] Clean Water Act." (State Listing Policy, p. 1 [emphasis added].) In other words, the Policy includes a standard methodology for making determinations of impairment, which then triggers the requirement of TMDL development. (*Ibid.*) The PWG recognizes that the Regional Board has the discretion to simultaneously list a waterbody as impaired and adopt a TMDL. (*City of Arcadia v. State Water Resources Control Bd.* (2006) 135 Cal.App.4th 1392, 1419 (*Arcadia*).) That discretion does not allow the Regional Board to make impairment determinations in a manner that does not comply with the State Listing Policy.

Staff Response: The TMDL does not add waterbodies to the 303(d) list; therefore the Listing Policy is not applicable. It has identified waterbodies that do not meet water quality standards, or in other words, are impaired. Based on watershed studies cited and water quality monitoring data, staff determined that along with sediment toxicity, surface waters in the lower Salinas River watershed are impaired for pyrethroid pesticides. This is a standard practice for TMDL adoption. Although the Listing Policy does not apply in this TMDL, the newly identified impaired waterbodies do meet the criteria in the Listing Policy for inclusion on the 303(d) list. The Central Coast Water Board is developing the 2016 303(d) list that will be submitted to the State Water Board for approval. Alisal Creek, Blanco Drain, Chualar Creek, and Lower Salinas River will be included in the draft 2016 303(d) list for sediment toxicity. As well, the Salinas Reclamation Canal will also be included for permethrin. The other waterbody/Pyrethroid combinations do meet the criteria for inclusion but some of the data relied upon by staff occurred after the cutoff for scientific data in the 2016 303(d) list. Therefore staff is asking the State Water Board to consider also adding those waterbody/Pyrethroid combinations to the 2016 303(d) list.

Furthermore, this TMDL is also adopted under the Central Coast Water Board's authority to adopt programs of implementation to meet water quality objectives under Water Code sections 13050, subdivision (j) and 13242. Thus, if the board finds that water quality objectives are not being met, regardless of whether the impairment is on the 303(d) list or meets the requirements of the* Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List*, then the Central Coast Water Board may adopt a TMDL to address the water quality impacts. Since the Central Coast Water Board has found that water quality objectives are not being met due to sediment toxicity and Pyrethroids, this TMDL is appropriate under state law irrespective of Clean Water Act requirements.

The State Water Board Impaired Waters Guidance and Water Quality Control Policy (guidance) provides a consistent state framework for developing TMDLs to meet federal regulations and address water quality impairments (State Water Board, 2005). According to the guidance impaired waters addressed may or may not be on the 303(d) list. The2guidance states that "The water currently may not be meeting state water quality standards or may be determined to be threatened and the potential to not meet standards in the future."

According to statements in the Draft TMDL, the State Listing Policy was used to confirm impairments for sediment toxicity, "and to evaluate subsequent sediment toxicity and pyrethroid impairments in sediment." (See, e.g., Draft Technical Project Report, p. 10.) Notably, however,

statements in the Draft TMDL characterize the State Listing Policy as guidance. (See, e.g., *ibid.*, ["The . . . (listing policy) provides guidance on identifying waters that do not meet water quality standards." "The listing policy has different guidance for different types of pollutants."]) The Draft TMDL's reference to the State Listing Policy being guidance is fundamentally wrong and must be corrected. The Regional Board must comply with the State Listing Policy when making impairment determinations, even when such determinations are made concurrently when developing and adopting a TMDL.

With respect to determining listings of impairment, the State Listing Policy mandates that data and information from waterbodies be analyzed pursuant to the Policy using a "weight-of-evidence" approach. (State Listing Policy, p. 1.) At a high level, the weight-of-evidence approach in the State Listing Policy includes three tasks: (1) soliciting and assembling data and information; (2) evaluating data and information using the decision rules specifically contained within the State Listing Policy; and (3) presenting an assessment in fact sheets. Assuming that the impairment determinations in the Draft Staff Report are the Regional Board staff's actual intent, as opposed to the other supporting documents listing other impairment determinations, the Draft TMDL identifies five waterways as being impaired for pyrethroid pesticides: Alisal Creek, Reclamation Canal, Natividad Creek, Old Salinas River, and Tembladero Slough. (Draft Staff Report, p. 2.) Regional Board staff's identification of impairment by pyrethroid pesticides for these specified waterbodies fails to comply with the weight-of-evidence steps required by the State Listing Policy, particularly in regard to tasks one and two.

Staff Response: Ms. Dunham's comments pertain to the 303(d) listing process and policy. The TMDL is not adding waterbodies to the 303(d) list; therefore, Ms. Dunham's comments are not relevant to the TMDL. The 303(d) listing process occurs separate from TMDL development and approval. During TMDL development, staff verified the 303(d) listings that are the basis of the TMDL and analyzed subsequent water quality data for additional exceedances of water quality criteria. Ms. Dunham's comments on the Listing Policy should be directed to the 303(d) listing process. Staff clarified in the Draft Technical Project Report that the TMDL is not adding impaired waters to the 303(d) list but evaluating additional exceedances of water quality criteria based on violations of water quality standards for pesticides in surface waters.

However, as stated above, staff does believe that the newly identified impaired waterbodies do meet the criteria for inclusion in the 303(d) list. Staff invites Ms. Dunham to participate in the 2016 303(d) listing process and provide public comments on the inclusion of these waterbodies at that time.

4.4 Ms. Theresa A. Dunham, PWG

A. The Regional Board Did Not Properly Solicit and Assemble Data

The first task in determining impairment requires that "all data and information for existing listings shall be solicited and assembled as appropriate." (State Listing Policy, §§ 6.1.1 and 6.1.2.1.) Waterbody fact sheets describing the assessments shall be prepared. (*Id.* at § 6.1.2.2.) Evaluation guidelines shall be selected as needed, and the quality and quantity of data shall be assessed. (*Id.* at §§ 6.1.3-6.1.5.) Regional Board staff's process as described in the Draft Technical Project Report does not comply with these provisions for several reasons. First, to our knowledge, the Regional Board did not actively solicit for data regarding this impairment

decision, as required by the State Listing Policy. Additionally, while the Draft Technical Project Report states that staff evaluated data from three monitoring studies, the Regional Board did not specifically solicit data with respect to the impaired waterbodies, particularly for determining whether these waterbodies were impaired by pyrethroid pesticides.

Staff Response: The above comments on data solicitation pertain to the Listing Policy. Staff did not add waterbodies to the 303(d) list; therefore, the Listing Policy is not applicable. The comments are outside the scope of the TMDL.

As stated above, staff invites Ms. Dunham to participate in the 2016 303(d) Listing process and provide public comments on the inclusion of these waterbodies at that time. As part of the 303(d) listing process this year, staff will be soliciting data with respect the impaired waterbodies.

4.5 Ms. Theresa A. Dunham, PWG

B. The Regional Board Did Not Properly Evaluate and Process Data and Information

The State Listing Policy requires that all data and information be evaluated using the decision rules listed in section 3 of the Policy when making listing decisions or determinations of impairment—assuming that the data and information meet the quality and quantity requirements. (State Listing Policy, p. 3.) The determinations of impairment as specified in Table 3-1 of the Draft Technical Project Report do not comply with section 3 of the State Listing Policy. First, and as indicated generally above, there is a problem with data transparency. For example, raw data for all the *Hyalella* sediment toxicity tests should be provided (e.g., survival for each replicate). These data are important to review to determine if the TST is driving the significant toxicity test results and the listings. Unlike the traditional t-test, the TST assumes the sample is toxic until the statistical analysis shows it is non-toxic. The TST is very sensitive to variability among replicates. Thus, without the raw data for *Hyalella* sediment toxicity tests, the public cannot determine how the listing decision was reached and whether the data meet the quality requirements in the State Listing Policy
section 3.6.

Second, some of the data used for impairment determination are very old (2005), and not relevant to current use patterns. For the Draft TMDL, the Regional Board should use only the most recent data, or put a greater emphasis on more recent data. In particular, we are concerned that the data used for this Draft TMDL were all collected prior to 2010 (most of the data used were gathered prior to 2010 but some of the data in Appendix C are from dates after 2010), which is now six years old. (See Draft Technical Project Report, p. 30.) More importantly, data collected prior to 2010 does not represent current practices for both urban stormwater and irrigated agriculture. Specifically, permitting restrictions on urban stormwater and irrigated agricultural discharges have undergone significant changes since 2010. In 2012, the Regional Board adopted the Conditional Waiver for Discharges from Irrigated Agriculture that is very restrictive in that it requires additional monitoring, implementation of additional management practices, implementation of buffer strips, and compliance with water quality standards. Then, in 2012, the Regional Board adopted a new Phase I stormwater permit for the City of Salinas, and in 2013 the State Board adopted the new NPDES stormwater permit for Phase II communities. Moreover, the Department of Pesticide Regulation adopted new urban surface water protection

regulations for use of pyrethroid pesticides in 2012. Considering the age of the data used, and the change in regulatory programs, the data and information relied on in the Draft TMDL are not representative or relevant of current circumstances. The weight-of-evidence approach in the State Listing Policy requires that the decision be supported by scientifically defensible data. (State Listing Policy, p. 8.) The use of these data without acknowledging the changes since the data were gathered is not defensible and thus does not comply with the State Listing Policy.

With respect to specific impairment determinations made in the Draft TMDL, many are made for specific waterbodies based primarily on older data. For example, significant toxicity is reported from Alisal Slough from a sample collected on 5/24/2006 but no significant toxicity is reported for more recent samples collected from 2007 to 2011. A similar result is also reported for Blanco Drain. Five samples collected from 2008 to 2013 showed that only one sample was toxic. Absent inclusion of the older data, this would not result is a determination of impairment under the State Listing Policy because two toxic samples are required. However, Blanco Drain is still identified as impaired. The Salinas River (lower) is also identified as impaired based on data from three sites (309DAV, 309SAC, and 309SSP). There was no toxicity reported from 2006 to 2011 based on six samples collected from 309SAC and 309SSP. There was also no toxicity reported from five samples collected from 2010 to 2013 at site 309DAV. However, the Salinas River (lower) is still identified as impaired. It is important to note from a spatial scale perspective that toxicity is not reported from various sites in the Salinas River as shown in Appendix C. The Salinas River (mid) sites showed no toxicity from 2006 to 2011 and the Salinas River (upper) showed no toxicity in 2008. Again, using these data without acknowledging that significantly less toxicity is found in recent years does not comply with the weight-of-evidence approach in the State Listing Policy.

Moreover, the determination of pyrethroid impairments presented in the Draft TMDL is inconsistent with the State Listing Policy because they, too, do not properly consider the weight-of-evidence. Specifically, determinations here are based on field measurements of pyrethroids in sediment with laboratory toxicity data from lab-reared *Hyalella* to develop toxic units (TUs). What is lacking in this determination of pyrethroid impairment is actual field data that are more ecologically relevant to determine if resident biota are really impacted by pyrethroids. For example, recent studies with native cultures of *Hyalella* show that *Hyalella* in the environment are not as sensitive as laboratory-reared *Hyalella*. (See, e.g., Attachment 1, Clark, S.L., et al., 2015.)

Also, work by Dr. Lenwood Hall in the Salinas area provides additional ecologically relevant information with respect to determining the impact of pyrethroids on resident biota. In 2011, a mapping study in four urban streams in Salinas (the same general area addressed in this TMDL) was conducted to determine the spatial extent of depositional and nondepositional areas in concert with pyrethroid measurements and benthic community assessments. (Attachment 2, Hall et al., 2013.) Key results from this study provided insight indicating that pyrethroids do not play a significant rule as stressors for benthic communities. Specifically, the study found as follows: (1) only 24 percent of the sites sampled during the mapping work were depositional (fine grain) areas where pyrethroids may be found if sources exist; (2) pyrethroid concentrations were 2 times to 61 times higher in depositional areas compared with non-depositional areas; and (3) ten different benthic metrics, representing richness, composition, tolerance/intolerance, and trophic measurements, were similar for depositional areas where pyrethroids consistently exceeded laboratory based toxicity thresholds and non-depositional areas where pyrethroid concentrations were much lower or non-detected. (Attachment 3, Hall et

al., 2013b.) In contrast to the TU approach used in the Draft Technical Project Report for determining pyrethroid impairment, the results from this field study suggest that factors other than pyrethroids are responsible for impacting benthic communities in these Salinas streams.

In sum, the failure to rely on more recent data, combined with the failure to consider other ecology relevant information (i.e., percentage of depositional areas, presence of native *Hyalella*, and results from field studies), shows how the Regional Board failed to comply with the State Listing Policy and properly consider the weight-of-the-evidence.

Staff Response: The comments in this section regarding compliance with the listing policy are addressed in sections 4.3 and 4.4.

Additional comments on the TST are addressed above in section 2.2 and below in section 4.8.

Regarding comments on evaluating more recent data, staff evaluated recent toxicity data below in section 6.1, and recent pyrethroid in water column data above in section 1.2. A recent study on statewide urban pyrethroid detections is also discussed in section 1.2. Staff also reviewed the data in the report from Dr. Lenwood Hall on pyrethroid monitoring in the lower Salinas River watershed (refer to Table 2) (Hall et al., 2013). The samples were collected in 2011 and indicate pyrethroids in sediment at toxic concentrations. As noted above by Ms. Dunham, the work by Mr. Lenwood Hall found higher concentrations of pyrethroids in depositional areas and factors other than pyrethroids are significantly impacting benthic communities in the watershed. Ms. Dunham also suggests that these other factors may be a greater impact than pyrethroids on the ecosystem. Biological indicators are an important tool for evaluating impacts to beneficial uses; however staff was not able to evaluate them for this TMDL project. Although depositional areas had the greatest concentrations, pyrethroids were detected in all samples and the data shows extensive impairment from pyrethroids with 19 of 24 samples (80%) exceeding 1 toxic unit.

Table 2. Pyrethroid toxicity units sampled by Dr. Lenwood Hall in the Salinas River watershed. Toxic unit (TU) calculations of pyrethroids based on 1% Total Organic Carbon (TOC) normalized by site.

Sample ID	*% TOC*	*Bifen TU*	*Fen TU*	*Lam-cy TU*	*Perm TU*	*Cyflu TU*	*Cyper TU*	*Esfen TU*	*Delta TU*	*Sum TU*
MC186D	1.960	0.33	NA	0.25	0.11	0.03	0.71	0.03	0.34	**1.8**
MC462ND	1.895	0.27	NA	0.14	0.06	0.03	0.31	0.01	0.13	0.95
MC1459ND	1.625	0.58	NA	0.29	0.15	0.05	0.58	0.03	0.06	**1.74**
MC1874D	2.005	0.73	NA	0.37	0.17	0.08	0.80	0.04	0.03	**2.22**
MC1975D	2.290	0.48	NA	0.26	0.13	0.05	0.62	0.02	0.05	**1.61**
*MC2994ND	1.695	**1.71**	NA	0.70	0.59	0.03	**1.32**	0.08	0.10	**4.53**
GC1567D	2.730	0.65	NA	0.13	0.05	0.07	0.17	0.006	0	**1.08**
GC1585D	2.985	0.55	NA	0.17	0.05	0.02	0.14	0.005	0.01	0.95
GC1629ND	0.212	0.20	NA	0.08	0.02	0.008	0.04	0.003	0	0.35
GC2424D	3.825	0.76	NA	0.27	0.07	0.02	0.22	0.007	0.01	**1.36**
GC2485ND	0.332	0.12	NA	0.05	0.01	0.006	0.03	0.001	0	0.22
GC2974ND	0.123	0.64	NA	0.38	0.07	0.02	0.18	0.007	0	**1.3**
NC1778ND	0.663	0.34	NA	0.06	0.02	0.02	0.13	0.005	0	0.58
NC2271D	1.355	**2.7**	NA	0.35	0.08	0.16	0.36	0.01	0.09	**3.75**
NC2342ND	0.405	0.74	NA	0.11	0.02	0.02	0.11	0.005	0.12	**1.13**
NC2856D	1.760	**3.27**	NA	0.38	0.21	0.15	0.55	0.06	0.25	**4.87**
NC2978ND	0.488	0.80	NA	0.16	0.06	0.03	0.18	0.008	0.10	1.34
NC3799D	1.860	**1.49**	NA	**7.0**	**17.6**	0.04	0.74	0.003	0.01	**26.9**
AC2117D	2.125	**1.77**	NA	**2.01**	0.91	0.11	**6.26**	0.16	0.04	**11.26**
AC2380ND	0.222	0.93	NA	**1.09**	0.21	0.03	**1.41**	0.04	0	**3.71**
AC2988ND	0.255	0.79	NA	0.66	0.16	0.06	**1.26**	0.07	0	**3**
AC3852D	2.190	**1.56**	NA	**2.32**	0.42	0.05	**4.77**	0.14	0	**9.26**
AC4544D	1.360	**1.71**	NA	**2.26**	0.52	0.06	4	0.12	0.02	**8.69**
AC4828ND	0.660	0.77	NA	**1.34**	0.24	0.03	**2.17**	0.08	0	**4.63**

Depositional (D) and Non-Depositional (ND) samples are noted in the sample ID column. The sum of TUs by site is also included. Toxic Units > 1.0 are in bold type.
*This site is a depositional area based on grain size analysis.

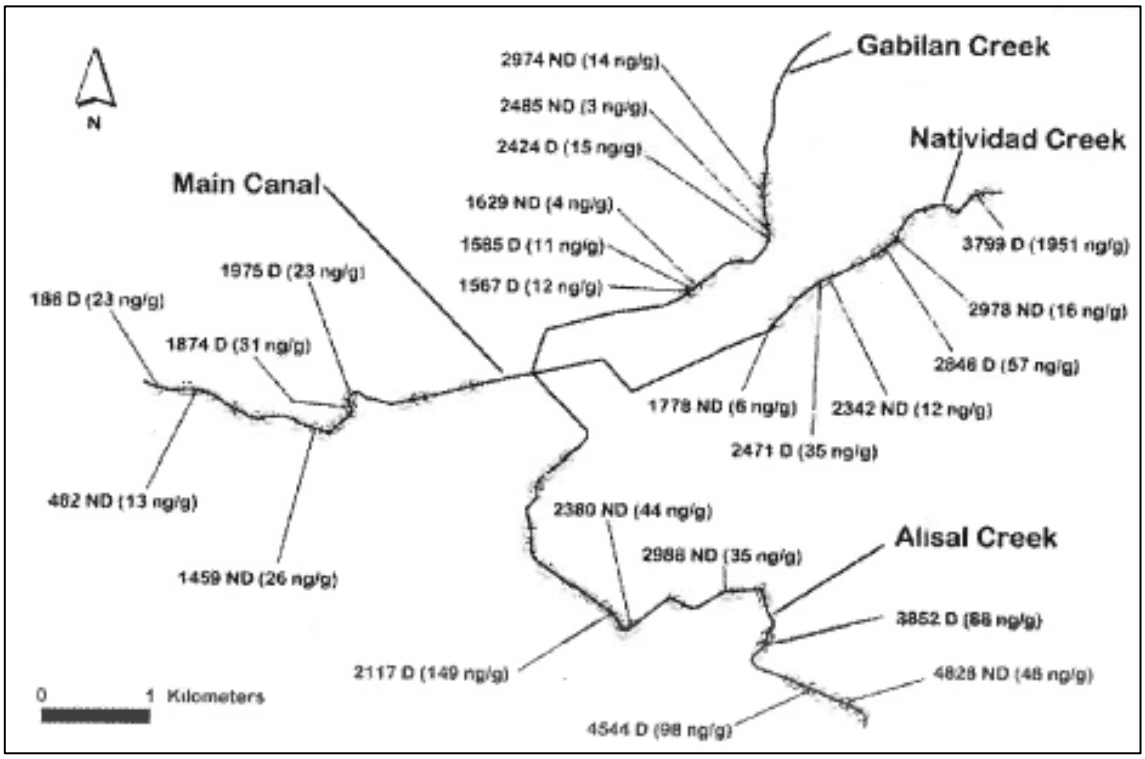

Figure 2. Sites sampled by Dr. Lenwood Hall in the lower Salinas River watershed.

4.6 Ms. Theresa A. Dunham, PWG

III. The Draft TMDL Includes Improper Numeric Targets Based on Improper Criteria

The Draft TMDL includes proposed numeric targets for the following synthetic pyrethroid pesticides in the water column: bifenthrin, cyfluthrin, and lambda-cyhalothrin. According to the Proposed Amendment, the numeric targets in the TMDLs are numeric interpretations of two narrative water quality objectives (WQOs) contained in the Water Quality Control Plan for the Central Coast Basin (Basin Plan): (1) "*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*," and (2) "*No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses*." (Draft Staff Report, p. 3.) The Draft TMDL alleges that the water column targets are needed "to address the partitioning of pyrethroids from sediment to water phase in the aquatic environment . . . ." (Draft Technical Project Report, p. 36.) However, there are no references in the Draft Technical Project Report, or appendices to the Draft TMDL that provide evidence with respect to the necessity of needing water column targets to address partitioning. Rather, the PWG contends that the sediment target is sufficient for sediment toxicity, and that the water column targets are unnecessary and unfounded.

Further, the Draft TMDL states that total water sample measurements (or "whole water concentrations") can be properly compared to the water column criteria developed by the University of California, Davis (UCD criteria). (Draft Staff Report, p. 5.) These criteria were developed as freely dissolved criteria. The Draft Staff Report states that the UCD criteria recognize that total water samples are valid and can be used at the discretion of environmental managers to determine compliance. However, the Draft Staff Report fails to mention that the UCD criteria emphasize that using a whole water sample will overestimate the bioavailable (or dissolved) fraction of pyrethroids in the water column. (Fojut, T.L. and Tjeerdema, R.S., *Lambda-cyhalothrin Water Quality Criteria Report* (2010) at p. 10 [prepared for the Central Valley Regional Water Quality Control Board]; Fojut, T.L. et al., *Cyfluthrin Water Quality Criteria Report* (2010) at p. 10 [prepared for the Central Valley Regional Water Quality Control Board]; Palumbo, A.J., et al., *Bifenthrin Water Quality Criteria Report* (2010) at pp. 10-11 [prepared for the Central Valley Regional Water Quality Control Board].) Nor does the Draft Staff Report provide an equation for environmental managers to calculate the dissolved fraction of pyrethroids, which was included in the UCD criteria studies. (*Ibid.*) Thus, the water column targets for pyrethroids in the Salinas Valley TMDL are arbitrary and capricious because the Draft Staff Report and the Draft Technical Project Report fail to support the need for such targets, and the documents fail to accurately interpret and apply the UCD criteria.

Staff Response: Pyrethroids can exist in multiple phases in the streams; adsorbed to suspended solids, adsorbed to dissolved organic matter, and freely dissolved in water. Correctly noted above by Ms. Dunham, the UC Davis criteria emphasize that a whole water sample will overestimate the bioavailable fraction. Staff has updated the Draft Technical Project Report to include this information. The TMDL targets for pyrethroids in water are consistent with the UC Davis criteria, which allow environmental managers the option to use whole water samples at their discretion and this is also noted in the TMDL. The option for using whole water samples maybe of value to environmental managers when the whole water samples are below thresholds and the effort to determine the bioavailable fraction would be unnecessary. Additionally, whole water samples may be adequate for evaluating water quality when concentrations of pollutants greatly exceed

whole water criteria, such as EPA benchmarks, and it would be unnecessary to further refine the analysis to a bioavailable fraction.

Ms. Dunham questions the necessity of water column targets in a TMDL for sediment toxicity and pyrethroids in sediment. They are included because pyrethroids partition from sediments to the water column and as she notes, the bioavailable fraction is the fraction dissolved in water. In the UC Davis criteria report, it states: "the toxicity is believed to occur primarily from the fraction of the compound that is dissolved in the water, not from the compound that is associated with the particle phase" (Palumbo, et al., 2010).

Ms. Dunham also states that sediment toxicity targets are sufficient for sediment toxicity and the water column targets are unnecessary. The water concentration targets provide added assurance that water quality standards for pesticides are achieved. The Basin Plan narrative objective for pesticides states the following:

> ***No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life.***

The sediment toxicity targets evaluate the effects to a specific indicator species, Hyalella azteca. The numeric targets for concentrations of pyrethroids in water based on the UC Davis criteria are broader indications that concentrations of pyrethroid do not adversely affect aquatic life beneficial uses and not a single species. For example, the UC Davis criteria for bifenthrin included studies conducted on the effects of pyrethroids on amphipods, midges, bluegill, trout, mayflies, and flathead minnows. In addition, the criteria reports consider factors such as human and wildlife dietary values, mixtures with other pyrethroids, temperature, pH, threatened and endangered species, and bioaccumulation.

Ms. Dunham states there are no references in the Draft Technical Project Report that provide evidence supporting the necessity of needing water column targets to address partitioning. Staff added references to the report.

4.7 Ms. Theresa A. Dunham, PWG

IV. The Draft TMDL Improperly Uses UCD Criteria to interpret Narrative Toxicity Objective

The Draft TMDL also uses the UCD criteria to interpret the narrative toxicity objective. Its use here is the second time the Regional Board has attempted to use these criteria in a regulatory manner[i1]. Recently, the Regional Board used these criteria in their Santa Maria Pesticide TMDL, which is currently being contested in Sacramento County Superior Court due to, among other things, the use of the UCD criteria as regulatory targets. To provide a brief background, the UCD criteria were developed by UCD through a contract with the Central Valley Regional Water Quality Control Board (Central Valley Water Board). Although funding was provided by the Central Valley Water Board, that board has not fully evaluated the UCD criteria to determine

[1] The UCD criteria were also used by the U.S. Environmental Protection Agency (U.S. EPA in their development of the Oxnard Drain TMDL. However , as stated this is only the second time that this Regional Board, or any regional board in California, has use these criteria.

if they are appropriate as WQOs. Adoption of these criteria by the Central Valley Water Board has not yet occurred and is not a given.

More importantly, the Central Valley Water Board (the entity that contracted for the development of the criteria) is currently in the process of developing a basin plan amendment that will likely consider and evaluate the UCD and other criteria to determine if they are appropriate for adoption as WQOs and/or as water quality targets. Through the Central Valley Water Board's process, there is rigorous discussion on issues associated with the criteria, including with respect to how they should be applied (e.g., total versus dissolved).

Unlike the Central Valley Water Board's process, however, the Regional Board's Draft Staff Report merely adopted the criteria without discussion of why they were appropriate[2]. This is not a proper basis for using the UCD criteria as regulatory targets, as the decision to do so is wholly unsupported by evidence in the Draft Staff Report and Draft

Technical Project Report. Additionally, to the extent that the Regional Board intends to use the criteria essentially to determine if aquatic life beneficial uses are being impacted, then the Regional Board should consider such criteria to be de facto WQOs, and should comply with the provisions in the Porter-Cologne Water Quality Control Act applicable to WQOs. (See Wat. Code, § 13241.) WQOs must be reasonable, taking into consideration economics and all demands on the waters of the state. (*Ibid.*) The Regional Board has not considered economics and attainability in regard to using the UCD criteria as essentially WQOs, and thus has not complied with Porter-Cologne.

Another key factor, mentioned previously, is that Regional Board staff determined that it is appropriate to compare total water sample measurements to the criteria (which are dissolved water measurements) at the environmental manager's discretion. The UCD criteria studies correctly note that, with respect to pyrethroid pesticides, the issue of concern is the amount that is bioavailable. Even though Regional Board staff is aware of this fact—as is shown by statements in the Draft Staff Report—it allows for comparison of total water samples against the dissolved criteria, because the UCD criteria documents state that total water samples are "valid." As stated previously, using a total water sample will overestimate the amount of pyrethroids that are bioavailable. This overestimation is compounded by the fact that the UCD criteria themselves are very conservative and provide several levels of margins of safety. Yet, the Regional Board provides no justification or rationale as to why using whole water samples for measuring pyrethroid is valid and appropriate.

There are two additional reasons why mandating the use of the TST is inappropriate. First, the State Board is in the process of adopting a statewide Toxicity Policy that may include the use of the TST. However, the policy has not yet been adopted. Thus, mandating the use of the TST here is premature until the Toxicity Policy is adopted and in effect. Second, the TST is currently subject to litigation. At this time, the federal Environmental Protection Agency has withdrawn its approval of the TST as an approved alternative test procedure. Until the State Board adopts the Toxicity Policy, and the TST is an appropriately approved test procedure, it is inappropriate to

[2] When the Regional Board adopted its Santa Maria Pesticide TMDL, it based its decision to use the UCD criteria on the fact that the Central Valley Water Board supported the criteria. (See Final Project Report on the Santa Maria Pesticide TMDL, Appendix C-3, pp. 3-4.) Even if the Regional Board did the same for the Salinas Valley TMDL, this is not a proper legal or technical basis for using these criteria, especially since the Central Valley Water Board is subjecting the criteria to further review.

mandate its use here in the Draft TMDL. Thus, the Regional Board must remove language regarding the mandatory use of the TST in the Draft Technical Project Report in order for it to accurately reflect the status of the TST as an optional method for determining toxicity.

In light of the serious concerns with the UCD criteria and how they are applied in this Draft TMDL, the Regional Board should not approve this TMDL as it currently reads.

Staff Response: Ms. Dunham states that UC Davis criteria are "defacto" water quality objectives and should be treated as such. The UC Davis criteria are specifically used in the TMDL as targets and TMDLs and TMDL targets are not water quality objectives. The Central Valley Water Board is considering the adoption of the UC Davis criteria as water quality objectives and that process is different than the TMDL process.

Ms. Dunham states in footnote 2 that the Central Coast Water Board's decision to adopt UC Davis criteria as targets in the Santa Maria pesticide TMDL was based on the fact that the Central Valley Water Board supported the criteria. Ms. Dunham references the Final Project Report on the Santa Maria Pesticide TMDL, Appendix C-3, pp. 3-4. Her statement warrants addition clarification. The reference cited fully states that the Central Valley Board supported the development of the criteria. In other words, the Central Valley Water Board provided financial support for the development of the criteria. Ms. Dunham comments that the decision to adopt the UC Davis criteria as targets in the Santa Maria pesticide TMDL was based on this financial support and that the process undertaken by the Central Coast Water Board lacked adequate discussion on the appropriateness of the criteria. Staff would like to reiterate that the UC Davis criteria have been fully evaluated and discussed. During the criteria development process, the UC Davis criteria underwent extensive public and scientific review. Additionally, the UC Davis criteria underwent extensive public and scientific peer review during the Santa Maria pesticide TMDL process before they were adopted as TMDL targets by the Central Coast Water Board and the State Water Board, and approved as targets by USEPA. During the Santa Maria pesticide TMDL development and approval process, the UC Davis criteria were presented and discussed with the Central Coast Water Board, the State Water Board, and the public.

Ms. Dunham's comments regarding the TST are addressed below in section 4.8 with her additional comments on the TST. For the comment on use of whole water versus freely dissolved concentrations, please see Staff Response above in sections 2.3 and 4.6.

4.8 Ms. Theresa A. Dunham, PWG

V. The Draft TMDL Improperly Mandates Use of the Test of Significant Toxicity for Determing Sediment Toxicity to *Hyalella*

The Draft Technical Project Report for the Draft TMDL requires the use of the TST to implement the Draft TMDL for sediment toxicity. (Draft Technical Project Report, p. 35.) Use of the TST is mandated even though the State Board has already stated that the TST cannot be so required, as it is currently only a guidance document. During the State Board's hearing on the Santa Maria TMDL, State Board staff along with Regional Board staff acknowledged that the TST could not be a mandatory method of implementing the TMDL and may only properly be included as a *recommended* method. (Attachment 4, Transcript of State Board Meeting/Hearing (July 2, 2014) pp. 76-77.) In fact, the State Board agreed to change the language of the

resolution for the Santa Maria Pesticide TMDL to reflect that use of the TST was only a recommendation and not a requirement. (*Id.* at p. 78.) Because the State Board has recently recognized that it is improper to mandate the use of the TST in determining toxicity, the TST should not now be required in the Draft TMDL.

There are two additional reasons why mandating the use of the TST is inappropriate. First, the State Board is in the process of adopting a statewide Toxicity Policy that may include the use of the TST. However, the policy has not yet been adopted. Thus, mandating the use of the TST here is premature until the Toxicity Policy is adopted and in effect. Second, the TST is currently subject to litigation. At this time, the federal Environmental Protection Agency has withdrawn its approval of the TST as an approved alternative test procedure. Until the State Board adopts the Toxicity Policy, and the TST is an appropriately approved test procedure, it is inappropriate to mandate its use here in the Draft TMDL. Thus, the Regional Board must remove language regarding the mandatory use of the TST in the Draft Technical Project Report in order for it to accurately reflect the status of the TST as an optional method for determining toxicity.

Staff Response: The TST is a recommendation and the TMDL does not mandate its use. Staff added language to the Draft Technical Project Report to clarify that the TST is a recommendation and not a requirement.

4.9 Ms. Theresa A. Dunham, PWG

V. The Time Schedules for Achieving Load

The Draft TMDL provides a time schedule that states a range of years by which TMDL compliance must be achieved. Specifically, the Draft TMDL states that agricultural TMDLs will be achieved eight to ten years after the Draft TMDL's approval. The Draft TMDL also states that the targets in receiving water will be achieved twelve to fifteen years after the Draft TMDL is approved. The Draft TMDL is, ultimately, a regulation, which must comply with the California Administrative Procedure Act (APA). The APA requires that all regulations be sufficiently clear. (Gov. Code, § 11349.1) This means that regulations must be "easily understood by those persons directly affected by them" and may not be, on their face, susceptible to multiple interpretations. (*Id.* at § 11349(c); *Sims v. Dept. of Corrections & Rehabilitation* (2013) 216 Cal.App.4th 1059, 1080.) By giving a range of years in which the Draft TMDL is scheduled to be achieved, Regional Board staff have made it unclear to the regulated community when exactly the TMDLs are to be achieved. Eight years after adoption? Nine years? Ten? This is an impermissible lack of clarity.

In order for the Office of Administrative Law to adopt the Draft TMDL as a binding regulation, the time schedule for achieving the Draft TMDL must be clear and specific. There is no reason why the Draft TMDL could not just specify that the agricultural TMDLs will be achieved ten years after approval and the targets achieved in receiving water in fifteen years, since Regional Board staff indicate in the Draft TMDL that these two milestones may take as long to achieve. The Draft TMDL should be modified to reflect a clear date by which the load allocations and targets expected to be achieved.

Staff Response: Staff acknowledges Ms. Dunham's request for clarity. The TMDL documents have been revised to set the TMDL milestones to 10 years to achieve agricultural TMDLs and 15 years to achieve targets in receiving waters.

4.10 Ms. Theresa A. Dunham, PWG

VI. Conclusion

The PWG appreciates the opportunity to provide these comments on the Draft TMDL and associated documents. As shown above, the inclusion of pyrethroid pesticides in the Draft TMDL is an arbitrary and capricious action that lacks evidentiary support. As a fundamental matter, the Regional Board has not properly applied the State Listing Policy for determining if there is in fact impairment caused by such pesticides. This alone makes the determinations of impairment arbitrary as a matter of law. Additionally, the data used for impairment determinations are flawed, in that they are outdated, not representative of water quality under current regulatory controls, and not transparent. Finally, the Draft TMDL seeks to apply the UCD criteria in a manner that is not wholly consistent with the criteria as developed, and for an unsubstantiated purpose. As a result, the Regional Board must remove pyrethroid pesticides from the proposed amendment as there is no basis for their inclusion, or at the very least, revise and re-circulate the Draft TMDL for further review.

Staff Response: Staff recognizes the comments from Ms. Dunham and has addressed them above and in the TMDL. Staff therefore recommends that the TMDL move forward with approval and not be recirculated.

5. Mr. Steve Shimek, Executive Director, The Otter Project

5.1 Mr. Steve Shimek, The Otter Project

Thank you for the opportunity to comment on the proposed TMDL for Sediment Toxicity and Pyrethroid pesticides in the Lower Salinas Watershed (proposed TMDL). We are enthusiastically supportive of staff's efforts to research, rollout, and implement TMDLs in the Lower Salinas and Lower Santa Maria watersheds. When staff identified these two areas as priorities several years ago we were encouraged but did not know if it could happen. We want to support your good efforts.

Pesticides are ever advancing and ever-changing. Some changes are due to advances in efficacy or even environmental protection. However, many, if not most, changes are in reaction and to avoid regulation. The proposed TMDL does not recognize that the use of pyrethroid pesticides is in reaction to the focus of the 2012 Ag Order on chlorpyrifos and diazinon (organophoshates) and with literally hundreds, if not thousands, of pesticides available, regulation of pyrethroids will miss the ever-moving target.

As noted in the staff report (pg. 3), the narrative water quality objective for pesticides states, in part:

> *"No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses."*

We urge staff to focus the TMDL on toxicity and not on a particular class of pesticides. The impact of this change will result in dischargers dealing with the issue instead of simply avoiding it by switching pesticides.

Staff Response: Mr. Shimek's comment is addressed below in section 5.3.

5.2 Mr. Steve Shimek, The Otter Project

Rationale

The choice of pesticides is constantly changing in response to regulation and advancements in efficacy and environmental impacts. Over the past decade diazinon and chlorpyrifos, both organophoshates, have been replaced by pyrethroids and neonicotinoids.

		Agricultural pounds applied					
Chemical	**Class**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Chlorpyrifos	organophosphate	69,616	50,009	49,870	38,314	24,084	13,894
Diazinon	organophosphate	117,923	51,256	38,367	19,791	11,874	2,815
Imidicloprid	neonicitinoid	15,358	15,639	18,568	20,174	22,052	20,071
Permethrin	pyrethroid	18,009	20,133	22,290	31,666	33,470	37,652

Figure 1 - Agricultural use of select pesticides in Monterey County by year. Source: California Department of Pesticide Regulation, Pesticide Use Annual Summaries, found at http://www.cdpr.ca.gov/docs/pur/purmain.htm. Note: The efficacy of one pound of one pesticide is not comparable to one pound of another pesticide.

Pyrethroid pesticides such as permethrin are far less soluble in water than organophosphates. Pyrethroids are toxic to bees, fish and aquatic insects. See http://npic.orst.edu/factsheets/Permtech.html

Much of the increase in neonicotinoids on the Central Coast is due to the increased use of "neonics" by the strawberry industry. Evidence suggests that neonicotinoids contribute to honey-bee Colony Collapse Disorder (see Congressional Research Service review at http://www.fas.org/sgp/crs/misc/RL33938.pdf). According to the National Institute of Health (see http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4284396/):

> "Their [neonicotinoids] popularity is largely due to their high toxicity to invertebrates, the ease and flexibility with which they can be applied, their long persistence, and their systemic nature, which ensures that they spread to all parts of the target crop. However, these properties also increase the probability of environmental contamination and exposure of nontarget organisms… Persistence in soils, waterways, and nontarget plants is variable but can be prolonged; for example, the half-lives of neonicotinoids in soils can exceed 1,000 days, so they can accumulate when used repeatedly… Breakdown results in toxic metabolites, though concentrations of these in the environment are rarely measured."

Also see the imidacloprid fact sheet at http://npic.orst.edu/factsheets/imidacloprid.pdf .

There is no basis to believe that the use of particular pesticides will stop evolving in response to new product developments and regulation. Regulating particular pesticides or even classes of pesticides is akin to playing a game of whack-a-mole; we urge the Board to focus on the issue – **toxicity.**

Toxicity of surface waters is underestimated. The grower's monitoring program that the Regional Board has previously relied on for water quality data and to determine regulatory compliance with the Ag Order uses a small crustacean, minutely visible to the naked eye, *Ceriodaphnia dubia* (commonly known as a water flea) for toxicity testing; *Ceriodaphnia* is not

native to the Central Coast Region and when tested side-by-side in Quail Creek in the Salinas Valley against a native crustacean, *Hyalella azteca*, also an EPA approved test organism, the results were often different with samples more often meeting water quality standards when using *Ceriodaphnia* and often failing when using *Hyalella*. The native *Hyalella* is an important food for fishes including the ESA listed "endangered" South Central Coast steelhead trout.

Sample	Ceriodaphnia Survival Percentage	Hyalella Survival Percentage
untreated	80	86
untreated	100	54
untreated	96	98
untreated	96	0
untreated	0	0
untreated	96	50
Samples meeting toxicity standards	**5 of 6**	**2 of 6**

Figure 2 - Extracted from Phillips, B.M et al, 2015, The Effects of the Landguard A900 Enzyme on the Macroinvertebrate Community in the Salinas River, California, United States of America. Arch Environ Contam and Toxicol, Vol. 69, Number 1. The purpose of the study was to measure the efficacy of Landguard treatment; "untreated" refers to samples taken before treatment (treated samples are omitted in this table).

A follow-up study was conducted with the express purpose of determining the accuracy of the toxicity test the growers were using. The results of that test are reported in the May 2015 Executive Officer's Report to the Central coast RWQCB. The following table is clipped from that report:

FALL 2014: DPR/SWAMP/CMP Region 3

Salinas and Santa Maria Valley Sites	*Hyalella* 10d water	*Chironomus* 10d water	EPA 3 species chronic
Water Sample	SWAMP		CMP
Alisal Slough @ Hartnell Rd	T	T	-
Chualar Creek @ Chualar River Road*	T	NT	NT
Main St. Ditch @ Main St.	NT	NT	NT
Orcutt Creek @ West Main	T	T	NT
Oso Flaco Creek @ OF Lake Rd	T	T	NT
Quail Creek @ SR-101	T	T	NT
Rec Ditch III (Near Airport Blvd)	T	T	NT
Solomon Creek @ SR-1	NT	T	NT
Tembladero Slough @ Haro	T	NT	NT
Percent Toxic	78%	67%	0%
Combined Percent Toxic	89%		

Figure 3 - The fourth column (EPA /CMP) lists the results of the grower's toxicity test. NT stands for "not toxic." Columns two and three represent results when other EPA approved tests are used. T stands for "toxic." The grower's testing found no toxicity at any of the listed sites. Independent testing, using both Hyalella (a native amphipod) and Chironomus (a midge) found 89% of the same sites to be toxic.

Generally, *Ceriodaphnia* used in the grower's testing is sensitive to organophosphate pesticides such as chlorpyrifos and diazinon; *Hyalella* is sensitive to pyrethroid pesticides, and *Chironomus* is sensitive to neonicotinoid pesticides.

We note that the proposed TMDL requires toxicity testing with *Hyalella*, a change we support.

The 2012 Ag Order is insufficient to implement regulation of agricultural application of pesticides. As noted above, the use of pyrethroid pesticides increased – unabated – during the rollout of the Ag Order while the use of organophosphate pesticides declined, there is no basis to believe that further implementation of the Ag Order will reduce Pyrethroid pesticide use. In

addition, the court has determined the Ag Order is insufficient to regulate agricultural discharges. The court found:

- The Order violates Water Code Section 13269 by not being consistent with the applicable basin plan because it lacks specific, enforceable measures to meet water quality objectives.
- The Order did not comply with the nonpoint source pollution control program.
- The Water Boards failed to conduct a thorough anti-degradation analysis that complies with a recent Central Valley court decision (AGUA).
- The Order does not contain adequate monitoring provisions to verify that management practices are effectively controlling pollution.
- The Order is not in the public interest, as required by Section 13269, because there was no evidence that it will lead to quantifiable improvements in water quality.

Given these findings, it seems inappropriate to rely on the Ag Order to implement this TMDL.

Staff Response: Mr. Shimek states that it is inappropriate to rely on the Agricultural Order to implement the TMDL. Although the TMDL utilizes the Agricultural Order for agricultural implementation, it also relies on a variety of other mechanisms for implementation. Urban stormwater is identified as a significant source and the City of Salinas and the County of Monterey will be implementing the TMDL through their stormwater permits. In addition to Water Board Regulatory tools, the TMDL relies on statewide implementation through urban pesticide regulations by the DPR. The Water Board is also actively coordinating on agricultural implementation and monitoring with DPR as part of the Management Agency Agreement between DPR and the Water Boards. In addition, the TMDL recommends future modifications to the Agricultural Order to ensure that compliance with the TMDL is achieved within the stated timelines.

5.3 Mr. Steve Shimek, The Otter Project

Suggested Changes

- As noted, we suggest the TMDL focus on toxicity rather than a specific pesticide or class of pesticides.

Staff Response: The TMDL does both, it has allocations for pyrethroids in sediment and for sediment toxicity. Focusing on the specific pesticides causing impairments, helps ensure that the specific management practices needed to control a pesticide are implemented. Since different pesticides have different uses and environmental fate and transport properties, to be effective, management practices should be implemented that match these properties. The TMDL also has an allocation for toxicity to assure that surface waters are broadly protected from various individual and mixtures of pesticides.

- We suggest that agriculture and municipal permitees covered by the proposed TMDL be required to test for toxicity using a panel of test organisms including *Ceriodaphnia*, sensitive to organophosphate pesticides; *Hyalella,* sensitive to pyrethroid pesticides; and *Chironomus*, sensitive to neonicotinoid pesticides.

Staff Response: Mr. Shimek's comments were forwarded to staff in the stormwater program and in the Irrigated Lands Regulatory Program. Staff will consider your recommendation as a suggested change to the monitoring and reporting requirements of the associated permits and order.

- We suggest that the TMDL require specific reductions in toxicity rather than numeric standards for specific pesticides or classes of pesticides.

Staff Response: The TMDL aims for a balance of toxicity and pyrethroid specific TMDLs and targets. The rationale for this approach is described above.

- We suggest that the timeline for compliance with the TMDL be tightened up to not more than five years for elimination of toxic surface waters. Given the short half-life of modern pesticides, we see no reason why this shorter timeline in not achievable.

Staff Response: Pyrethroid pesticides are very stable in the environment and even after loading is controlled, it will take longer than five years for pyrethroids to leave the system. In Mr. Shimek's discussion above he advocates that growers control pesticides and not switch to others. Staff supports this approach but also recognized that developing and implementing control measures for one pesticide takes much more time than switching pesticides and subsequently will take longer to achieve the TMDLs water quality goals.

We urge staff to focus the TMDL on *toxicity* and not on a particular class of pesticides. The impact of this change will result in dischargers dealing with the issue instead of simply avoiding it by switching pesticides.

Staff Response: Current data demonstrates that waterbodies in the lower Salinas River watershed are impaired for sediment toxicity and pyrethroid pesticides. This TMDL addresses those impairments. If future changes in practices in the watershed result in additional or different impairments, Central Coast Water Board staff will address those impairments as well.

6. William Elliott, Grover Beach CA.

6.1 William Elliott, Grover Beach CA.

This letter sets forth comments and observations concerning proposed Resolution No. R3-2016-003 (as well as its various attachments including, but not limited to, substitute environmental documentation ("SED") which has been proffered in place of the requisite environmental impact report). These documents, of course, all. relate to the proposed setting of Total Maximum Daily Load ("TMDL") for the lower Salinas River watershed through amendment to the Water Quality Control Plan for the Central Coastal Region ("Basin Plan") so that it incorporates the proposed TMDLs for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the lower Salinas River watershed. The comments herein are directed to the agricultural - rather than the municipal - components of the proposed Resolution. A review of the documentation reveals two overarching deficiencies: (1) the dated and time-untested contamination levels of various "endangered" water bodies in the lower Salinas River

watershed is not representative of the current conditions of these water bodies; and, (2) the choice of an SED rather than environmental impact statement as well as deficiencies in the facts and conclusions reached by it (primarily the absence of any reliable evidence in support of the recommended determination concerning lack of significant impact on the environment..

Staff Response: The comments above related to CEQA are addressed below in section 6.2.

A. The Information Concerning Contamination/Pollution Levels Upon Which The Resolution Is Based Is Outdated And Unrepresentative Of Current Conditions Of The Section 303(d) Impaired Waterbodies

Addressing these matters in the order presented, the first debilitating insufficiency is that the current Resolution is defective and otherwise inadequate because it is based on outdated information concerning pollution/contamination levels and other matters in the lower Salinas River watershed (most of which existed and/or were prepared prior to and, indeed, in preparation for the 2012 adoption and implementation of Resolution No. R3.-2012-0011 (Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands). As a result, the current TMDL proposal fails to take into account improvements in contamination levels of the listed endangered water bodies that has been accomplished by, among other things, agriculture's compliance with the Conditional Waiver. That such improvements have been made has previously been lauded by the Regional Board and it's Staff. The proposal and supporting documents gloss over this glaring deficiency with such amorphous statements as, set forth at page 3 of the proposed Resolution, "Staff developed the TMDLs based on the listings of impaired waters ... along with the additional water quality monitoring data and information obtained from the Central Coast Ambient Monitoring Program (CCAMP)..." However, a review of the official Internet website pertaining to the CCAMP reveals that the latest "monitoring data and information" was reported in 2011 and that most of the information pertaining to CCAMP deals with much earlier time periods. See ccamp.us/ccamp_org. (also obtainable from this Board's website). The paucity of information and scientific support for the proposed TMDLs is also made clear by the statement contained in page 5 of the Resolution to the effect that "Sediment toxicity was found throughout the lower Salinas River and Reclamation Canal watersheds in streams adjacent to urban and agricultural lands. The impaired waterbodies were sampled 159 times from 2004 to 2010 for sediment toxicity...."

The Resolution, of course references purportedly "new" information concerning the Section 303(d) listed water bodies. See Finding No. 4 ("Additionally, multiple impairments not identified on the current section 303(d) List were identified during the development of the TMDL"), Finding No. 5 (footnote 1 to section 303(d) list states ""Additional impairments or exceedances if water quality objectives in waterbodies identified during TMDL development and subsequent to the most recent 2010 303(d) listing cycle"; Finding No. 6 ("The additional impairments are not waters currently listed as impaired .. .. However, the additional impairments qualify for inclusion on the 303(d) List ... and the Central Coast Water Board will ask the State Water Resources Control Board (State Water Board) to include these impairments on the 303(d) List." But it does not convincingly or at all list and discuss just what this purported additional information is, how it was compiled, whether it is scientifically sound, and other matters necessary to a determination of its correctness and instant applicability. Indeed, the fact that the State Water Board has not been officially advised of this purported "additional information" and has not vetted it speaks volumes. The Resolution at Finding No. 12 seeks, albeit in a flawed and incorrect manner, to

paper over this lack of current information and its effects: i.e., the federal Environmental Protection Agency ("EPA) has purportedly issued "guidance" that "implementation of TMDLs and water quality-based controls should not be delayed due to lack of information and uncertainties about pollution problems..." That is not quite correct. The Resolution referenced "Guidance for Water Quality-Based Decisions: The TMDL Process" explicitly states that it "provides guidance only. It does not establish or affect legal rights or obligations." Moreover, rather than "explicitly" stating that which is set forth in Finding No. 12, the EPA's Guidance actually states that "the lack of information about certain types of pollution problems (for example, those associated with nonpoint sources) should not be used as a reason to delay implementing of water quality-based controls." The Guidance most assuredly does not provide a carte blanche for the Board to overlook the absence of representative current condition numbers and proceed to approval of a TMDL based on outdated ancient information. This is particularly so where, as here, it is admitted by the Staff that the TMDLs will have a significant negative impact on numerous of the categories listed in California's Environmental Quality Act (as set forth in Attachment 3 to the instant proposed Resolution).

The take away from all of this is that the information upon which the TMDLs are based is too dated to support any of the findings that rest on the extent of the contaminants/pollutants presently in the listed water bodies. Without that these findings are simply unsupported and unsupportable and the Board, accordingly, cannot accurately or at all meet its duty to "development and implement a plan to reduce pollutants so that the waterbody is no longer impaired and can be de-listed."

Staff Response: Mr. Elliott is concerned about the vetting of 'additional information' used for the additional impairments identified in the TMDL. The data for additional sediment toxicity impairments are included in Appendix C and the Spot and CMP monitoring data used for the pyrethroids in sediment impairments are in Appendix D. Additional information is also included in the monitoring studies and reports found in Appendix B.

Mr. Elliott also states that the sediment toxicity and pyrethroid pesticide impairments in the TMDL are not supported because the monitoring data is outdated. To address this concern, Staff reviewed more recent sediment toxicity monitoring data collected in the Salinas River watershed by the CCWQP and reported in the 2013 and 2014 Annual Reports (CCWQP, 2015). The reports summarize data for the annual monitoring spring sediment toxicity monitoring in the watershed at the monitoring sites included in the TMDL. In 2013, 13 sites were sampled for sediment toxicity to invertebrate species and toxicity was observed at 12 sites. In 2014, 11 sites were sampled for sediment toxicity to invertebrate species and toxicity was observed at all 11 sites. These monitoring results further support the conclusion that surface waters are currently impaired for sediment toxicity in the watershed.

Mr. Elliott states that the State Water Board has not been officially advised of the additional information and vetted it. As stated above, some of the newly identified impaired waterbodies are being added to the 2016 Central Coast Water Board 303(d) list and will be submitted to the State Water Board for approval. For those waterbodies where the data is too new and does not meet the August 2010 cutoff, this TMDL asks that the State Water Board add those waterbodies to the 303(d) list as well.

6.2 William Elliott, Grover Beach CA.

B. The SED Is Improper And Fails To Comply With The Requirements Of California's Environmental Quality Act.

A review of the SED (Attachment 3 to the Staff Report) reveals that it is improper and inadequate relative to numerous of the 2012 CEQA guidelines check list concerning the environmental impact of the Resolution and its implementation.

1. Air Quality

Relative to Air Quality Issue (c) (cumulatively considerable net increase of any criteria pollutant to which the project region is not in attainment), the SED concludes that the proposed Resolution and its implementation will have a "less than significant" impact:

> "Some of the management practices identified in Section 5 could potentially result in short-term net increase of these pollutants [ozone and fine particulate matter] during construction. Vehicle emissions are a major source of ozone precursor emissions (reactive organic compounds and nitrogen oxides) and grading and agricultural filling are sources of fine particulate matter. These impacts are expected to be insignificant given the size of the project area which is the lower Salinas Valley watershed. .... The project should not result in long- term impacts to air quality since the project should increase vegetation on bare ground along farms and in drainage channels. Also there should not be any long- term increases in emissions because implementation project construction would occur for a short period of time."

Attachment 3 pages 43-44. Any number of problems exist with this statement. For instance, it has been repeatedly mentioned (most usually when problems have arisen concerning the means for implementing the Conditional Waiver by given farmers, for instance) that the Board cannot prescribe what management practices must be implemented. See Water Code sect. 13360. And yet the environmental impact as described in Attachment A is based on a given management practice being implemented (increase of vegetation on bare ground along farms and in drainage channels), apparently by all farmers in the lower Salinas River watershed. But equally, if not more, damaging is the fact that little or no evidence is given that supports the conclusions relating to air quality: e.g., what and how much would the contribution of air pollution be, is the air basin in attainment, or in compliance with all the pollutants of concern that could be generated. The discussion of these impacts is far too conclusory and lacks substantial evidence to support the conclusions of less than significant impact.

The insufficiency of the "less than significant impact" conclusion here is borne out by reference to the changes made in the SED prepared relative to Attachment 6 to the Staff Report concerning the Santa Maria Watershed Pesticides TMDL dated January 30, 2014 at pages 40-41 (a copy of which is Exhibit 1 hereto for the Board's convenience). There too a finding of "no significant impact" was made. However, faced with similar initial findings and concerns as raised here, the Staff admitted its error and determined, as stated on page 41 that

> "Staff acknowledges the City's concerns regarding the adequacy [of] air quality impact analysis in the SED and staff prepared additional analysis in the SED. Based on the additional analysis, staff conclude that the project would have potentially significant

> short-term impacts to air quality. ... Due to the close proximity of agricultural and urban lands, construction of structural BMPs could also result in potentially significant impacts to sensitive receptors such as schools, residents and hospitals."

The same proximity of agricultural lands to the urban areas of Salinas and other towns in the lower Salinas River watershed (such as Gonzales, Chualar, and Soledad) exists. Accordingly, the Staff- consistent with its prior practices in the same or similar situations such as the Santa Maria Watershed TMDLs- should revisit this element and modify its conclusions.

Staff Response: As noted above by Mr. Elliott, the CEQA air quality analysis found that "The project should not result in long-term impacts to air quality since the project should increase vegetation on bare ground along farms and in drainage channels." Mr. Elliott expressed concerns with this statement since, according to the Water Code, the Water Board cannot prescribe management practices. However, vegetative buffer strips are not being prescribed by the Central Coast Water Board. Their use is prescribed through the USEPA pyrethroid mandatory label requirements to protect water quality. The label requirements are described in the Draft Technical Project Report and apply to all agricultural use pyrethroids. The labels include the following language:

> ***Vegetative Buffer Strip***
> ***Construct and maintain a minimum 10-foot-wide vegetative filter strip of grass or other permanent vegetation between the field edge and down gradient aquatic habitat (such as but not limited to, lakes; reservoirs; permanent stream; marshes or natural ponds; estuaries; and commercial fish farm ponds).***
>
> ***Only apply products containing (name of pyrethroid) onto fields where a maintained vegetative buffer strip of at least 10 feet exists between the field and down gradient aquatic habitat. For guidance, refer to the following publications on constructing and maintaining effective buffers Conservation Buffers to Reduce Pesticide Losses. Natural Resources Conservation Services. USDA, NRCS. 2000. Fort Worth, Texas. 21 pp.***

Based on the additional comments above by Mr. Elliott, staff further reviewed the CEQA air quality conclusions for the TMDL and reevaluated the potential air quality impacts using the CEQA Air Quality Guidelines developed by the Monterey Bay Unified Air Pollution Control District (MBUAPCD, 2008). The air quality guidelines have CEQA threshold guidelines for ozone and fine particular matter-PM_{10}. During this analysis it was determined that the primary source of air quality impacts would be the construction of management practices. Air quality guidelines note that the use of typical construction equipment such as dump trucks, scrappers, bulldozers, compactors, and front end loaders would emit ozone emissions but they are accounted for in state and federal plans. Therefore, ozone emissions from TMDL implementation would not be a significant impact.

The air quality guidelines for fine particular matter-PM_{10} state that construction site threshold of significance is 82 lbs/day from direct emissions. The guidelines further state that construction sites with less than 2.2 acres/day grading meet the thresholds. The size of potential management practices identified in the CEQA document are far below 2.2 acres/day threshold in the air quality guidelines. The two largest types of

management practices identified in the CEQA documentation are constructed wetlands and woodchip nitrate bioreactor treatment systems. A large bioreactor was recently constructed for a grant project in the watershed and the total size was approximately half an acre. There is an existing large constructed wetland in the lower Salinas River watershed at the confluence of Tembladero Slough and the Old Salinas River channel and the total area is less than 1.25 acres.

This additional evidence further supports the air quality conclusions, Items b) and c) as shown the table below from the CEQA checklist findings of less than significant impacts to air quality.

Table 3. Unedited excerpt from the draft CEQA checklist and analysis prepared January 2016

III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is not attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☒	☐	☐

Mr. Elliott states above that item d) from the air quality CEQA checklist should be changed to a finding of potentially significant impact to sensitive receptors such as schools and hospitals in urban areas. However, the CEQA checklist already contains a finding of potentially significant impact and no change is necessary in the CEQA findings.

2. Noise

This same result and conclusion obtain to the Staff conclusions concerning noise pollution. As with the Santa Maria Watershed Pesticides TMDL SED, the instant SED determines that the instant project will have "less than significant" impact regarding noise levels, excessive

groundborne vibration or groundborne noise levels, ambient noise levels, excessive noise levels within 2 miles of an airport or private landing strip. (See Attachment 6 to Staff Report re. Santa Maria Watershed Pesticides TMDL at pp. 44-45, a true copy of which is Exhibit 2 hereto for the Board's convenience). The same reasons given for the instant project mirror those given by the Staff for the Santa Maria watershed project. For instance, it is admitted here and with regard to Santa Maria that noise will be "temporarily" increased due to foreseeable compliance methods:

> "The implementation of some structural management practices may result in localized increased groundborne vibration or ground-borne noise levels. Such increased level would likely be associated with heavy equipment operation associated with construction of management practices. These impacts would, however, be temporary and associated directly with the use of heavy equipment and consistent with . current onsite agricultural operations. Therefore, staff concludes that the impact would [be] [sic] less than significant."

Attachment 4 to Staff Report on current proposed Resolution at p. 63. When it was pointed out that there is no support for the proposition that temporary impacts camnot be significant, that increased noise levels are less than significant simply because they are caused by heavy machinery, and that the staffs conclusion was support by no evidence, the Staff changed the Santa Maria conclusion from less than significant impact to having a potentially significant impact. Santa Maria Watershed Pesticides TMDL Attachment 6 at p. 44. The same result should obtain here.

Staff Response: Mr. Elliott's initial comments on the noise impacts are regarding CEQA noise impact items (b) Exposure of persons to or generation of excess groundborne vibration or groundborne noise levels? and item (d)-A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? The determination in the draft CEQA analysis was that the TMDL project would have less than significant impacts. Staff has performed additional analysis and has modified the CEQA checklist for these two items to less than significant with mitigation. This change is based on the potential noise impacts from construction and excavation of large management practices such as woodchip bioreactors and constructed wetlands. Staff reviewed the CEQA analysis of similar construction projects and found that some projects had potential noise impacts from the onsite operation of equipment to nearby residences. However these projects were able to mitigate the potential impacts. In, one example a project was near a school and construction was scheduled during summer months when classes were not in session. In another project near residences, work was scheduled during standard business hours when most residents were at work. Staff also researched planning requirements for construction projects within the City of Salinas and found that the city has plans in place to address and mitigate impacts from construction projects such as proposed in the TMDL.

Staff also reevaluated the CEQA noise impact item (e) –For a project located within airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? In the draft CEQA analysis staff found that impacts would be less than significant. The Salinas Municipal Airport is within the project area and adjacent to the Reclamation Canal, which is impaired for sediment

toxicity and pyrethroid pesticides in sediment (refer to Figure 3). Farms and urban areas are also within two miles of the airport and these areas and the Reclamation Canal could have management practices implemented to meet the TMDL that would cause noise during construction. The concern with noise in the vicinity of the airport is that noises are additive and construction noise added to the existing airport noise could be an impact. Staff reviewed the City of Salinas General Plan and the Airport Land Use plan and found that the plans address noise from construction with conditions that avoid noise impacts (City of Salinas, 2002)(SCDD, 1982). Additionally, the TMDL project identifies a wide range of potential management practices, many of which do not involve extensive construction and would not cause any noise impacts. Therefore, staff's reevaluation agrees with the initial finding of less than significant impact for noise in proximity to the airport.

Figure 3. Map with aerial photo showing the Salinas Municipal Airport and adjacent land use.

6.3 William Elliott, Grover Beach CA.

The same is true down the line. No basis for the inconsistency between the findings relating to the instant proposed Resolution and the Santa Maria Watershed Pesticide TMDL exists. For the reasons stated above, the Resolution is inadequate and should be denied.

Staff Response: Staff acknowledges Mr. Elliott's concern about inconsistencies in the TMDL CEQA analysis with the previous Santa Maria River watershed TMDLs for toxicity and pesticides. Staff compared and reviewed the CEQA impacts from the two projects and outside of the changes noted above, determined that the analysis were consistent and adequate.

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