

**STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

STAFF REPORT FOR REGULAR MEETING OF MAY 12 - 13, 2016

Prepared on April 19, 2016

ITEM NUMBER: 18

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

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This Action: Adopt Resolution No. R3-2016-0003

SUMMARY

The federal Clean Water Act requires the State of California to identify waterbodies within its jurisdiction that are impaired and to develop Total Maximum Daily Loads (TMDLs) to address the impairments. The purpose of a TMDL project is to identify the pollutants causing impairment, to identify the sources of the impairment, and to allocate pollutant loads to sources of discharge. In the TMDL, load allocations are assigned to nonpoint sources of pollution and waste load allocations are assigned to point sources. Allocations are assigned at levels to eliminate the impairments and restore the beneficial uses of surface waterbodies. TMDLs developed by the state also generally include implementation programs with a schedule to attain the TMDLs.

Staff recommends adoption of the proposed TMDLs for sediment toxicity and pyrethroids in sediment in the lower Salinas River watershed in Monterey County as an amendment to the Water Quality Control Plan for the Central Coastal Region (Basin Plan). The proposed TMDLs will result in meeting the Basin Plan narrative water quality objectives for toxicity and pesticides in the lower Salinas River watershed. Eleven surface waterbodies were identified on the 2010 Clean Water Act section 303(d) List (303(d) List) as impaired for sediment toxicity. During TMDL development another two additional waterbodies were identified as impaired for sediment toxicity. Staff summarized 159 sediment samples for the TMDL and 111 (or 70%) were toxic. Pyrethroid pesticides were linked to sediment toxicity in the TMDL analysis and in independent watershed studies and reports. The TMDL analysis identified five surface waters as impaired for pyrethroid pesticides in sediment that are not on the 303(d) List. Adoption of the TMDLs includes establishment of pollutant numeric targets for the impaired surface waters. The proposed resolution includes adoption of the TMDL Basin Plan amendment and California Environmental Quality Act (CEQA) environmental documents.

Waterbodies identified as impaired for sediment toxicity in the lower Salinas River watershed include:

- Alisal Creek
- Alisal Slough
- Blanco Drain
- Chualar Creek
- Espinosa Slough
- Gabilan Creek
- Merritt Ditch
- Natividad Creek
- Old Salinas River
- Quail Creek
- Salinas Reclamation Canal
- Salinas River (Lower)
- Tembladero Slough

The five waterbodies underlined above are also identified as impaired for pyrethroid pesticides and according to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List, meet the listing criteria for toxicants, which includes pesticides. Further information on how the additional impairments meet the listing criteria can be found in the Technical Project Report (attachment 2). The California Court of Appeals has made it clear that a regional board may simultaneously identify an impaired waterbody and establish a TMDL for it. (*City of Arcadia v. State Water Resources Control Board* (2006) 135 Cal.App.4th 1392, 1418-19.) The Central Coast Regional Water Quality Control Board (Central Coast Water Board) is requesting that the State Water Resources Control Board (State Water Board) recommend these additional impairments for inclusion on the 303(d) List. Furthermore, the Central Coast Water Board is undertaking this action under its authority to develop a program of implementation to achieve water quality objectives in Porter-Cologne. (California Water Code section 13242.)

The Basin Plan has a narrative objective for pesticides. Interpretation of this narrative objective is based on toxicity unit numeric analysis of concentrations of pyrethroid pesticides in sediment. This impairment analysis is equal to the pyrethroid sediment concentration toxicity unit targets.

The lower Salinas River watershed is an approximately 250,000-acre watershed at the bottom of the Salinas Valley (refer to Figure 1). The lower Salinas River watershed is transected by the Salinas River, which enters the watershed near the town of Gonzales and flows north to Monterey Bay and the Pacific Ocean. The other major stream in the watershed is the Reclamation Canal, which flows from the Gabilan Hills in the east through the City of Salinas and agricultural lands to Tembladero Slough and eventually Moss Landing (refer to Figure 2). The lower Salinas River watershed valley is dominated by intensive irrigated agricultural and urban land uses; the upland hills are mostly undeveloped grasslands, native scrub, and forest. The major urban area is the City of Salinas with smaller unincorporated communities (Castroville and Spreckels) that are in the jurisdiction of Monterey County. The major crops in the watershed are cool season vegetables such as lettuce and cole crops (broccoli, cabbages and cauliflower) and strawberries. TMDL source analysis links sediment toxicity and pyrethroid pesticide impairments to applications of pyrethroids used to control insect pests on major irrigated agricultural crops and to urban insect pest control.

The technical basis of the TMDL is provided in the Technical Project Report (attachment 2). The Technical Project Report is available on the Central Coast Water Board website:

http://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/salinas/sed_tox/index.shtml

DISCUSSION

Project Development for TMDLs

Staff developed the TMDLs based on the listings of impaired waters identified on the 303(d) List, along with additional water quality monitoring data and information obtained from the Central Coast Ambient Monitoring Program (CCAMP). Staff developed a geographic information system (GIS) for the TMDLs and used the GIS to map and analyze water quality impairments, hydrologic features, and land uses. Pesticide use in the watershed is reported to the County Agricultural Commissioner and to the California Department of Pesticide Regulation (DPR). Pesticide use report data are available from DPR and staff analyzed these data along with other watershed GIS data for land use sources of pesticide impairment.

The Basin Plan has narrative objectives to protect beneficial uses from toxicity and pesticides. For the TMDL, staff developed numeric targets for sediment toxicity and pyrethroid pesticides. The targets were developed from appropriate water quality criteria that ensure the beneficial uses of impaired surface waters are protected. The TMDL allocates loads to achieve targets, and identifies point and non-point source dischargers and assigns them allocations. Implementation is the responsibility of dischargers and staff developed an implementation and monitoring plan for dischargers to meet allocations and achieve targets. Timelines and milestones are included with the TMDLs.

Development of the TMDLs includes public outreach and environmental review process according to basin planning and CEQA guidelines. The public provided comments at public outreach meetings and through written comments.

Numeric Targets

Numeric targets were developed for the TMDL to determine when sediment toxicity and pyrethroid pesticide impaired receiving waters meet the water quality standards contained in the Basin Plan. The Basin Plan contains narrative toxicity and pesticide water quality objectives that apply to all inland surface waters, enclosed bays, and estuaries. The narrative water quality objective for toxicity states, in part:

“All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal, or aquatic life.”

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.”

The Basin Plan does not contain numeric objectives for sediment toxicity and pyrethroid pesticides; therefore the TMDL sets numeric targets based on established water quality criteria and other numeric endpoints. The numeric targets are numeric interpretations of these two narrative water quality objectives and are derived from several sources.

Sediment Toxicity Numeric Target: Sediment toxicity will be tested using standard USEPA test methods for measuring toxicity of sediment contaminants with the amphipod *Hyalella azteca* (refer to ty (TST) statistical approach.

Table 1). Toxicity shall be tested using a 10-day sediment exposure chronic toxicity test. The toxicity determination shall be based on a comparison of the test organisms' response to the receiving water sample compared to the control using the recommended Test of Significant Toxicity (TST) statistical approach.

Table 1. Sediment toxicity numeric target

Parameter	Test	Biological Endpoint Assessed
Sediment Toxicity	<i>Hyalella azteca</i> (10-day chronic)	Survival

Pyrethroid Sediment Concentration Toxicity Unit Targets: The pyrethroid sediment concentration toxicity unit (TU) targets are a comparison of toxic levels of pyrethroids in sediment to published criteria median lethal concentrations (LC50) (refer to Table 2). Samples and criteria are for organic carbon normalized concentrations (oc). The pyrethroid TU formula is as follows:

$$\text{Pyrethroid TU} = \frac{\text{sample concentration (oc)}}{\text{known LC50 concentrations values (oc)}}$$

Pyrethroid TUs for the pyrethroid concentrations measured in sediment are summarized using the following formula. The summary is for two toxicity unit formulas but it could be applied to additional pyrethroids found in Table 2:

$$\text{Sum Pyrethroid TUs} = \text{Pyrethroid TU (1)} + \text{Pyrethroid TU (2)}$$

The numeric target for the sum pyrethroid TUs is where:

$$\text{Sum Pyrethroid TUs} < 1.0$$

Table 2. Pyrethroid sediment criteria

Chemical	LC50 ¹ ng/g ² (ppb ³)	LC50 ug/g ⁴ oc ⁵ (ppm ⁶)	Reference
Bifenthrin	12.9	0.52	(Amweg et al., 2005)
Cyfluthrin	13.7	1.08	(Amweg et al., 2005)
Cypermethrin	14.87	0.38	(Maund et al., 2002) mean value
Esfenvalerate	41.8	1.54	(Amweg et al., 2005)
Lambda-Cyhalothrin	5.6	0.45	(Amweg et al., 2005)
Permethrin	200.7	10.83	(Amweg et al., 2005)

¹Median lethal concentration (LC50) for amphipods (*Hyalella azteca*), ² nano grams per gram (ng/g), ³ parts per billion, ⁴ microgram per gram (ug/g), ⁵ organic carbon normalized concentrations (oc), ⁶ parts per million (ppm)

Numeric Targets for Pyrethroid Concentrations in Water: To protect aquatic life from the effects of pyrethroids that partition from sediment phase to the water phase, staff developed water concentration numeric targets based on criteria developed by UC Davis (refer to Table 3). The UC Davis criteria were developed as criteria protective of aquatic life using a transparent and scientific methodology of statistically evaluating toxicity data for multiple species. The criteria were established for freely dissolved concentrations of the pyrethroids and not concentrations bound to suspended solids and dissolved organic material. However, whole water concentrations are noted by UC Davis as also valid for compliance assessment and may be used at the discretion of the environmental managers to determine if targets are achieved. The UC Davis criteria are concentrations of pyrethroids in water that should result in no observable effect on aquatic life in the lower Salinas River watershed and either whole water or freely dissolved concentrations are acceptable as numeric targets.

Table 3. Pyrethroid water numeric targets – UC Davis criteria

Chemical	Concentration µg/L ¹ (ppb)	Target Type
Bifenthrin	0.004	CMC ²
Bifenthrin	0.0006	CCC ³
Cyfluthrin	0.0003	CMC
Cyfluthrin	0.00005	CCC
Lambda-Cyhalothrin	0.001	CMC
Lambda-Cyhalothrin	0.0005	CCC

¹ microgram per liter (µg/L),

² CMC – Criterion Maximum Concentration (Acute: 1- hour average). Not to be exceeded more than once in a three-year period.

³ CCC – Criterion Continuous Concentration (Chronic: 4-day [96-hour] average). Not to be exceeded more than once in a three-year period.

Source Analysis

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 and 111 samples (or 70%) were toxic. Staff determined that 13 waterbodies are impaired for sediment toxicity. Some of the monitoring was part of special studies, which found that the most likely source of sediment toxicity is pyrethroid pesticides. TMDL toxicity unit analysis further supports the linkage between sediment toxicity and pyrethroid pesticides with several sites having concentrations of pyrethroids above known toxic levels.

In the TMDL, agricultural and urban pesticide uses are identified as sources of the pyrethroid pollution in the watershed. Pyrethroids commonly detected in urban monitoring samples are bifenthrin, permethrin, cyfluthrin, lambda-cyhalothrin, and cypermethrin. Pyrethroids detected at agricultural monitoring sites are bifenthrin, cypermethrin, esfenvalerate, and lambda-cyhalothrin. Pyrethroids are used on a variety of agricultural crops in the lower Salinas River watershed. Some pyrethroids are applied to specific crop sources; for example bifenthrin is applied almost exclusively to control pests on strawberry and artichoke crops (refer to Table 4).

Table 4. Pyrethroid pesticide crop sources

Chemical	Crop Sources
Bifenthrin	Strawberries and Artichokes
Cypermethrin	Lettuce, Spinach, Broccoli, Celery, and Peas
Esfenvalerate	Artichoke, Broccoli, Lettuce
Lambda-Cyhalothrin	Lettuce, Broccoli

TMDLs

The sediment toxicity and pyrethroid in sediment loading capacities or TMDLs are the amount of pollutants that can be received in surface waters without exceeding the Basin Plan's toxicity and pesticide narrative water quality objectives. TMDLs are calculated as the sum of waste load allocations and load allocation along with a margin of safety. The TMDL for sediment toxicity is equivalent to the sediment toxicity numeric target and the pyrethroid in sediment TMDL is equal to the pyrethroid sediment concentration toxicity unit numeric target (refer to Table 5).

Table 5. TMDLs

TMDL	Criteria
Sediment toxicity	Sediment toxicity numeric target
Pyrethroids in sediment	Pyrethroid sediment concentration toxicity unit numeric target
Note: The criteria are described in the previous section on numeric targets	

Allocations and Responsible Parties

The TMDLs are allocated to point source and non-point sources in the watershed. The TMDL source analysis determined irrigated agricultural and municipal stormwater are the sources of sediment toxicity and pyrethroid impairments in the watershed. Point source dischargers receive waste load allocations and non-point source dischargers receive load allocations. The waste load allocations are assigned to the City of Salinas and County of Monterey with National Pollutant Discharge Elimination System (NPDES) permitted Municipal Separate Storm Sewer Systems (MS4s) (refer to Table 6). Load allocations are assigned to irrigated agricultural operations and land owners.

Table 6. Wasteload allocations and load allocations

Waste Load Allocations		
Responsible Party	Source	Allocation
City of Salinas - NPDES No. CA00049981	Municipal stormwater	1 & 2
County of Monterey - NPDES No. CAS000004	Municipal stormwater	1 & 2
Load Allocations		
Responsible Party	Source	Allocation
Owners/operators of irrigated agricultural lands in the lower Salinas River watershed	Discharges from irrigated lands	1 & 2
<u>Allocation-1</u> : Sediment Toxicity TMDLs		
<u>Allocation-2</u> : Pyrethroids in Sediment TMDLs		

Implementation

The TMDL project takes an interagency approach to comprehensively address water quality problems. Since pesticides and water quality are regulated differently for municipalities than for agriculture, the TMDL has separate implementation plans for each. For example, the Central Coast Water Board regulates agriculture through the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands, Order R3-2012-0011 (Agricultural Order), and urban discharges are regulated through municipal stormwater permits. Also DPR has their own regulations for urban use of pyrethroids and on the agricultural side there are USEPA label restrictions that DPR enforces.

The interagency approach is based in part on the California Pesticide Management Plan for Water Quality (California Pesticide Plan), which is an implementation plan of the Management Agency Agreement signed between DPR and the State Water Board. The Water Boards and DPR both have responsibilities to protect water quality from the potential adverse effects of pesticides, and the Management Agency Agreement was established to provide a unified cooperative program to protect water quality related to the use of pesticides. The TMDL implementation plan in part utilizes actions identified in the California Pesticide Plan to minimize the potential movement of pesticides to waters of the state.

Discharges from Irrigated Lands: 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.

In addition to requirements described in the Agricultural Order, the 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.

Current and anticipated requirements regulated by other agencies will play a role in achieving this TMDL.

Finally, staff recommends that growers implement voluntary actions to implement this TMDL.

Current Requirements in the Agricultural Order Implementing this TMDL: Implementing parties will comply with the Agricultural Order, and the associated Monitoring and Reporting Programs in accordance with Orders R3-2012-0011-01, R3-2012-0011-02, and R3-2012-0011-03 to meet load allocations and achieve the TMDLs.

The Agricultural Order requires compliance with water quality standards. Dischargers must implement, and where appropriate update or improve management practices, which may include local or regional control or treatment practices and changes in farming practices to effectively control discharges, meet water quality standards and achieve compliance with the Agricultural Order. The purpose of this requirement, in part, is for growers to implement management practices to achieve water quality standards, along with these TMDL allocations and numeric targets. The grower then assesses whether those implemented management practices are effective and will ultimately achieve water quality standards. If the grower determines through the assessment that the management practices will not achieve water quality standards, then the grower tries other, improved, management practices. The grower implements this trial-assessment, or iterative process, until he or she finds and implements practices that will achieve water quality standards, TMDL allocations, and numeric targets. The Agricultural Order contains reporting requirements that Central Coast Water Board staff will use to verify that the iterative process is being implemented.

Central Coast Water Board staff will track implementation of management practices and the iterative process through the following existing Agricultural Order requirements.

1. Annual Compliance Form requirement. Tier-2 and Tier-3 ranches are required to submit and keep current an Annual Compliance Form. The Annual Compliance Form includes grower-reported implemented management practices.
2. Water Quality Monitoring requirements. All growers are required to conduct surface water quality monitoring. This is a receiving water monitoring requirement. This requirement includes sediment toxicity monitoring and pyrethroid chemistry monitoring in sediment. Some Tier-3 ranches with discharges to receiving waters are required to conduct outfall monitoring. The monitoring requirement includes water toxicity monitoring using *Hyalella azteca* and *Ceriodaphnia* sp., the former of which is sensitive to pyrethroids.
3. Water Quality Buffer Plans. All Tier-3 ranches adjacent to or containing a waterbody impaired for turbidity, sediment, or temperature must develop and then immediately implement a Water Quality Buffer Plan by October 1, 2016. The Water Quality Buffer Plan must include the listed waterbody as well as tributaries to the listed waterbody. The purpose of the Water Quality Buffer Plan, and therefore the Water Quality Buffer Plan design, is to control discharges causing or contributing to exceedance of water quality standards, including from pyrethroid pesticides.
4. Farm Water Quality Management Plans. All growers are required to develop, implement, and keep current a Farm Water Quality Management Plan (Farm Plan). The Farm Plan must include: treatment or control measures to comply with the Agricultural Order, which includes progress towards achieving water quality standards; management practices related to pesticide, sediment, and erosion control management and protection of aquatic habitat; and a description and schedule for assessing effectiveness and management practices.

If staff finds that a grower is not implementing the iterative process, staff will progressively implement enforcement authority to achieve grower compliance. Staff will also use this information to track progress toward achieving numeric targets described in this TMDL

Recommended Agricultural Monitoring Requirements: Irrigated agricultural operations are required to monitor receiving water sites in the watershed for sediment toxicity and pyrethroids to comply with the Agricultural Order Monitoring and Reporting Program. In addition, staff recommends the following water quality monitoring requirements described in Table 7. If implemented, the data generated from the monitoring requirements will be used in conjunction with the existing Agricultural Order requirements outlined above to track progress toward achieving TMDL allocations to owners/operators of irrigated agricultural lands.

Table 7. Existing Agricultural Order and TMDL recommended monitoring frequencies

Sediment Sampling	Monitoring Frequency	
	Existing Ag Order	TMDL Recommended Monitoring
Sediment Toxicity – <i>Hyalella azteca</i> 10-day	Annually	Annually
Pyrethroid Pesticides in Sediment	Once during the second or third year, concurrent with sediment toxicity sampling	Annually, concurrent with sediment toxicity sampling
Total Organic Carbon	Once during the second or third year, concurrent with sediment toxicity sampling	Annually, concurrent with sediment toxicity sampling
Pyrethroid Pesticides in Water Column	Not required	Annually in coordination with DPR, at existing DPR sites in the watershed

In addition to the monitoring outlined in the table above, staff recommends annual pyrethroid pesticide sediment monitoring in the fall, along with total organic carbon, in the following waterbodies:

- Old Salinas River
- Tembladero Slough
- Merrit Ditch
- Espinosa Slough
- Reclamation Canal

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

Regulatory Requirements of Other Agencies for Agricultural Implementation: The DPR requires management measures for the application of agricultural pyrethroid pesticides to protect aquatic life. All surface waterbodies in the Central Coast Region are designated with aquatic life beneficial use designations. The requirements are described as label requirements on agricultural pyrethroid pesticide packaging and include vegetative buffer strip requirements.

Staff has conducted several field visits in the watershed and found a lack of required implementation of buffer zones. Label requirements are enforced by the DPR and Monterey County Agricultural Commissioner. Staff will coordinate with the DPR and the Monterey County Agricultural Commissioner's office during the implementation phase of the TMDL to motivate enforcement of the label requirements. Additionally, staff will assess compliance with label requirements when conducting site visits, when feasible, and will share pertinent findings with the Monterey County Agricultural Commissioner.

DPR and the Monterey County Agricultural Commissioner administer pyrethroid label requirements for buffer zones to protect aquatic habitats. Surface waters are designated with aquatic beneficial uses in the Basin Plan. Surface waterbodies in the watershed are in proximity of agricultural operations in the lower Salinas River watershed and are specifically designated with aquatic habitat beneficial use protections in Table 2-1 of the Basin Plan; therefore, growers operating adjacent to designated waterbodies or their tributaries must protect aquatic habitats from pyrethroids.

In addition, the Basin Plan states that surface waterbodies within the region that do not have a beneficial use designated for them in Table 2-1 of the Basin Plan are automatically assigned aquatic life protection.

The Central Coast Water Board and the DPR are jointly responding to the presence of pesticides in surface waters. Violations of water quality objectives are documented in this TMDL. This TMDL technical report was transmitted to DPR and the Monterey County Agricultural Commissioner. The Director of DPR responded by sending a memo to the Central Coast Water Board requesting a collaborative response to the presence in of pyrethroids in surface waters. The memo from DPR and the Central Coast Water Board transmittal letter are found in Attachment 7.

DPR and the Monterey County Agricultural Commissioner are responsible for enforcing label requirements. Label restrictions are the responsibility of USEPA but are enforced by DPR and the Monterey County Agricultural Commissioner.

Voluntary Action Recommendations to Achieve the TMDL: In addition to the existing Agricultural Order requirements, staff recommends the following:

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.
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.
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.

4. Subwatershed Water Quality Improvement Reporting: Staff recommends that agricultural dischargers verify water quality improvements by evaluating crops, insect pest population patterns, pesticide use, water quality monitoring data, and management practice implementation in agricultural subwatersheds.
5. Education and Outreach: Staff recommends that agricultural operations and pest control advisors and applicators that use pyrethroid pesticides annually complete Central Coast Water Board and/or Monterey County Agricultural Commissioner approved pesticide water quality education courses.

Determination of Compliance with Load Allocations for Irrigated Lands: Demonstration of compliance with the load allocations is consistent with compliance with the Agricultural Order. Load allocations will be achieved through a combination of implementation of management practices and strategies to reduce pesticide loading and water quality monitoring.

To allow for flexibility, Central Coast Water Board staff will assess compliance with load allocations using one or a combination of the following:

1. Attaining the load allocations in the receiving water.
2. Attaining numeric targets in receiving water.
3. Implementing management practices that are capable of achieving interim and final load allocations identified in this TMDL.
4. Providing sufficient evidence to demonstrate that they are and will continue to be in compliance with the load allocations; such evidence could include documentation submitted by the owner or operator of irrigated lands, to the Executive Officer that the owner or operator is not causing waste to be discharged to impaired waterbodies resulting or contributing to violations of the load allocations.

Municipal Stormwater Discharge: The Central Coast Water Board will require MS4 entities, the City of Salinas and Monterey County, to each develop and submit for Executive Officer approval a Wasteload Allocation Attainment Program. The Wasteload Allocation Attainment Program will be submitted within one year of approval of the TMDL by the Office of Administrative Law, or within one year of a stormwater permit renewal, whichever occurs first. The Wasteload Allocation Attainment Program will include descriptions of the actions that will be taken by the MS4 entity to attain the TMDL waste load allocations.

Urban stormwater pesticide problems are not unique to the MS4s in the Salinas River watershed, but are problems faced by MS4s throughout the state. Staff recognizes that attainment of water quality goals in the TMDL will rely on the effectiveness of statewide pesticide programs and regulations by DPR to control pesticides. The MS4s are encouraged to participate in statewide programs and regulations to help attain the TMDL and describe in the Waste Load Allocation Attainment Program how the MS4s plan to support and engage in the statewide efforts. MS4s are encouraged to use mitigation measures developed in the DPR surface water regulations as stormwater Best Management Practices (BMPs) in the Waste Load Allocation Attainment Program. The statewide program is described in the California Pesticide Plan.

Waste load allocations will be achieved through implementation of management practices and strategies to reduce pesticide loading, and wasteload allocation attainment will be demonstrated through water quality monitoring. Implementation can be conducted by MS4s specifically and/or through statewide programs addressing urban pesticide water pollution. The Waste Load Allocation Attainment Program may include participation in statewide efforts, by organizations such as the California Stormwater Quality Association (CASQA), that coordinate with DPR and other organizations taking actions to protect water quality from the use of pesticides in the urban environment.

MS4 Stormwater Monitoring: The MS4s are required to develop and submit monitoring programs as part of their Waste Load Allocation Attainment Program. The goals of the monitoring programs are described in the requirements of the Waste Load Allocation Attainment Program.

The MS4s must prepare a detailed description, including a schedule, of a monitoring program the MS4 will implement to assess discharge and receiving water quality, BMP effectiveness, and progress towards any interim targets and ultimate attainment of the MS4s' wasteload allocations. The monitoring program shall be designed to validate BMP implementation efforts and quantitatively demonstrate attainment of interim and final wasteload allocations. The Central Coast Water Board may approve participation in statewide or regional monitoring programs as meeting all, or a portion of monitoring requirements.

Staff encourages the implementing parties to develop and submit creative and meaningful monitoring programs. Monitoring strategies can use a phased approach, for example, whereby outfall or receiving water monitoring is phased in after best management practices have been implemented and assessed for effectiveness. Pilot projects where best management practices are implemented in well-defined areas covering a fraction of the MS4 that facilitate accurate assessment of how well the best management practices control pollution sources are acceptable, with the intent of successful practices then being implemented in other or larger parts of the MS4.

Determination of Compliance with Wasteload Allocations for Storm Water Dischargers: Waste load allocations will be achieved through a combination of implementation of management practices and strategies to reduce pesticide loading, and water quality monitoring. To allow for flexibility, Central Coast Water Board staff will assess compliance with waste load allocations using one or a combination of the following:

1. Attaining the waste load allocations in the receiving water.
2. Demonstrating compliance by measuring pesticide concentrations and sediment toxicity at stormwater outfalls.
3. Any other effluent limitations and conditions that are consistent with the assumptions and requirements of the waste load allocations.
4. MS4 entities may be deemed in compliance with waste load allocations through implementation and assessment of pollutant loading reduction projects, capable of achieving interim and final waste load allocations identified in this TMDL in combination with water quality monitoring for a balanced approach to determining program effectiveness.

Actions can also be demonstrated through participation in statewide efforts, through organizations such as California Stormwater Quality Association that coordinate with DPR and other organizations to protect water quality from the use of pesticides.

Time Schedule for Tracking Progress and Achieving the TMDLs

After approval of the TMDL by Office of Administrative Law, staff proposes the following non-regulatory milestones to achieve the TMDLs (refer to Table 8). The milestones are estimates of TMDL implementation, load reductions, and watershed responses.

Table 8. Time schedule for achieving the TMDLs

Year After Approval	Milestone
Current	Existing DPR urban pyrethroid regulations that were adopted in 2012.
3 Years	Agricultural program developed to address sediment toxicity and pyrethroids in sediment
5 Years	Urban TMDLs achieved
10 years	Agricultural TMDLs achieved
15 Years	Targets achieved in receiving waters

ENVIRONMENTAL SUMMARY

The California Resources Agency has certified the basin planning process in accordance with section 21080.5 of the Public Resources Code and therefore the process is exempt from Chapter 3 of the CEQA. If Chapter 3 applied to the TMDL, an Environmental Impact Report may have been required for the TMDL project. The analysis contained in the Technical Project Report (attachment 2), the CEQA Checklist and Analysis (attachment 3), and the responses to comments (attachment 4) comply with the requirements of the State Water Board's certified regulatory CEQA Substitute Environmental Documents process, as set forth in California Code of Regulations, Title 23, section 3775 et seq. Furthermore, the analysis fulfills the Central Coast Water Board's obligations attendant with the adoption of regulations "requiring the installation of pollution control equipment, or a performance standard or treatment requirement," as set forth in section 21159 of the Public Resources Code. All public comments were considered.

Public Resources Code section 21159 provides that an agency shall perform, at the time of the adoption of a rule or regulation requiring the installation of pollution control equipment or a performance standard or treatment requirement:

1. An environmental analysis of the reasonably foreseeable methods of compliance;
2. An analysis of the reasonably foreseeable environmental impacts of the methods of compliance;
3. An analysis of reasonably foreseeable mitigation measures to lessen the adverse environmental impacts; and
4. An analysis of reasonably foreseeable alternative means of compliance with the rule or regulation that would have less significant adverse impacts.

Section 21159(c) requires that the environmental analysis take into account a reasonable range of environmental, economic, and technical factors; population and geographic areas; and specific sites.

The CEQA Checklist and Analysis (attachment 3) provides the environmental analysis required by Public Resources Code section 21159. The CEQA Checklist and Analysis identifies reasonably foreseeable methods of compliance with the TMDL and specifies whether there are any anticipated impacts to the environment associated with the reasonably foreseeable methods of compliance.

The CEQA Environmental Checklist and associated analysis provide the necessary information pursuant to state law to conclude that the proposed TMDL, implementation plan, and the associated reasonably foreseeable methods of compliance will not have a significant adverse effect on the environment. Water Board staff has made this determination based on best available information in an effort to fully inform the interested public and the decision makers of potential environmental impacts.

Potentially Significant Environmental Impacts

A significant effect on the environment is defined in regulation as “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project.”¹ The CEQA Checklist and Analysis report (attachment 3) provides the necessary information pursuant to state law to conclude that the proposed TMDLs, implementation plan, and the associated reasonably foreseeable methods of compliance (management practices) have potentially significant environmental impacts.

The project could have potentially significant impacts in the CEQA areas of Agricultural Resources, Air Quality, Hydrology and Water Quality, and Land Use and Planning. In addition there are potential cumulative impacts from the connection of this project to the previously adopted TMDLs for chlorpyrifos and diazinon in the watershed due to the potential increased reliance on alternative pesticides and associated water quality problems. Potential environmental impacts are also associated with the construction of management practices to treat water quality such as, vegetative buffers, wetlands, and sediment basins. Construction of such practices could remove prime agricultural land from production and be in conflict with local planning policies.

Central Coast Water Board staff has made this determination based on best available information in an effort to fully inform the interested public and the decision makers of potential environmental impacts.

Alternative Analysis

The TMDL CEQA environmental analysis also includes consideration of alternatives to the TMDLs. The program alternatives considered are: a) no action alternative, b) aquatic toxicity numeric criteria TMDL alternative, and c) TMDLs for sediment toxicity and pyrethroid pesticides.

Statement of Overriding Considerations and Determinations

The Central Coast Water Board, when considering approval Basin Plan amendments will balance the economic, legal, social, technological, or other benefits of TMDL implementation against the potentially significant adverse effects when determining whether to approve the Basin Plan amendment, and has the authority, pursuant to CEQA guidelines Section 15093 (14 CCR § 15093), to make a statement of overriding considerations, if it finds that the adverse environmental effects are acceptable given the identified benefits.

For this agenda item, staff recommends that the Central Coast Water Board approve a statement of overriding consideration (as articulated in Section 8 of the CEQA Checklist and Analysis Report, attachment 3). The statement of overriding consideration finds that the benefits of the *Total Maximum Daily Loads for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed* (Resolution No. R3-2016-0003) override and outweigh

¹ Title 14 California Code of Regulations section 15382

the potential significant adverse impacts of these TMDLs, for the reasons more fully set forth in the staff report and attachments.

ANTI-DEGRADATION

The basin plan amendment is consistent with the provisions of the State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California" and 40 CFR 131.12. The adoption of the proposed Basin Plan amendment and TMDL implementation plan will not de-designate or limit beneficial use designations, will not relax any water quality standard, and will not result in lowering of water quality. The proposed Basin Plan amendment will result in water quality improvements; therefore, state and federal anti-degradation analyses are not required.

SCIENTIFIC PEER REVIEW

Health and Safety Code section 57004 requires external scientific peer review for certain water quality control policies. Policy and guidance for peer review states that scientific review is not required if a new application of an adequately peer reviewed work product does not significantly depart from the reviewed approach.² The State of California and USEPA have approved several TMDLs where the scientific basis was drawn from previously reviewed TMDLs, thereby negating the need for further review; such a practice is in the best interest of conserving and efficiently utilizing state resources.

The scientific portions of this TMDL are drawn exclusively from the TMDLs for Toxicity and Pesticides in the Santa Maria River Watershed, that underwent the required external scientific peer review. As a result, the scientific portions of this TMDL have already undergone external, scientific peer review. Consequently, the Central Coast Water Board has fulfilled the requirements of Health and Safety Code section 57004, and the proposed amendment does not require further peer review.

PUBLIC INVOLVEMENT AND COMMENTS

Staff conducted stakeholder outreach efforts throughout the project process. Staff conducted a project kick-off meeting on January 22, 2015 and a CEQA stakeholder scoping meeting on March 3, 2015. Staff also gave a presentation on the TMDLs to the water committee of Grower-Shipper Association of Central California on April 21, 2015 and held a public meeting on December 8, 2015 in Salinas. The input from the stakeholders was particularly valuable in the development of the implementation plan and management practices.

Staff made contact with and/or persons from the following list attended the meetings:

- Irrigated agriculture representatives
- Central Coast Water Quality Preservation Inc.
- Monterey County Farm Bureau
- Grower-Shipper Association of Central California
- Monterey County Agricultural Commissioner's Office
- San Luis Obispo County Agricultural Commissioner's Office
- The Otter Project
- The Pyrethroid Working Group
- Wilbur Ellis

² State of California: Unified California Environmental Protection Agency Policy and Guiding Principles For External Scientific Peer Review, March 13, 1998.

- Crop Production Services
- University of California Davis
- University of California Cooperative Extension
- Somach Simmons & Dunn, Attorneys at Law
- Monterey Bay National Marine Sanctuary
- The City of Salinas
- The County of Monterey
- Monterey County Water Resources Agency
- Monterey Regional Water Pollution Control Agency
- Tanimura and Antle Farms
- Rio Farms
- Rincon Farms
- Costa Farms Inc.
- The Nature Conservancy
- KMI
- Mission Ranches
- California Department of Transportation

This staff report, the resolution, and other attachments were made available for formal public comment on January 20, 2016, to meet the required 45-day public comment period.

Comments were received from:

1. Mr. Kirk Schmidt, Executive Director, Central Coast Water Quality Preservation Inc.
2. Ms. Sarah G. Lopez, Technical Program Manager, Central Coast Water Quality Preservation Inc.
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
4. Ms. Theresa A. Dunham, Somach, Simmons and Dunn Attorneys At Law, Representing the Pyrethroid Working Group, a coalition of pyrethroids pesticide manufacturers
5. Mr. Steve Shimek, Executive Director, The Otter Project
6. Mr. William Elliott, 1117 Margarita Avenue, Grover Beach, California 93433

Staff made changes to the proposed Basin Plan amendment documents as a result of these comments.

RECOMMENDATION

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

FIGURES

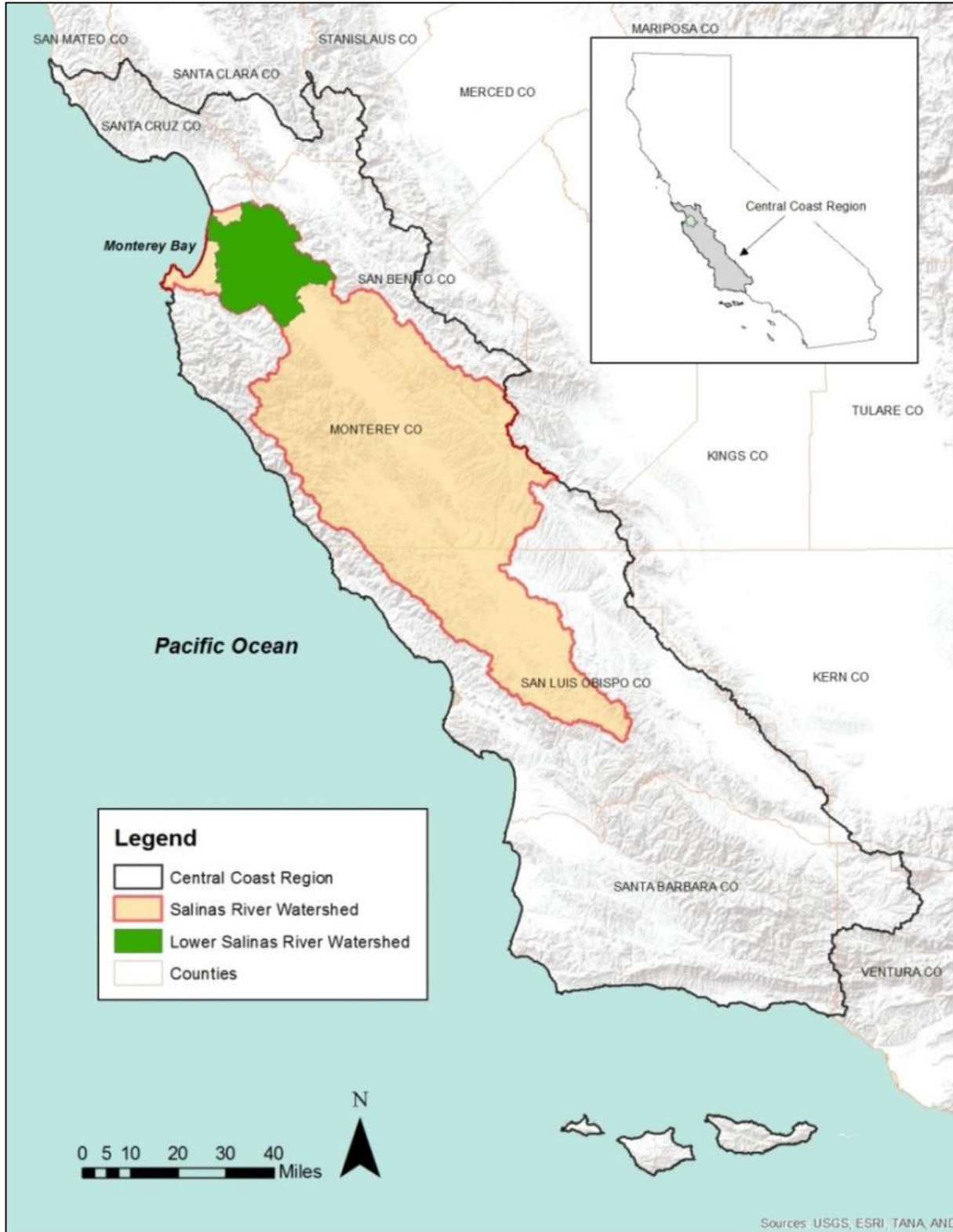


Figure 1. Vicinity map of the TMDL project area

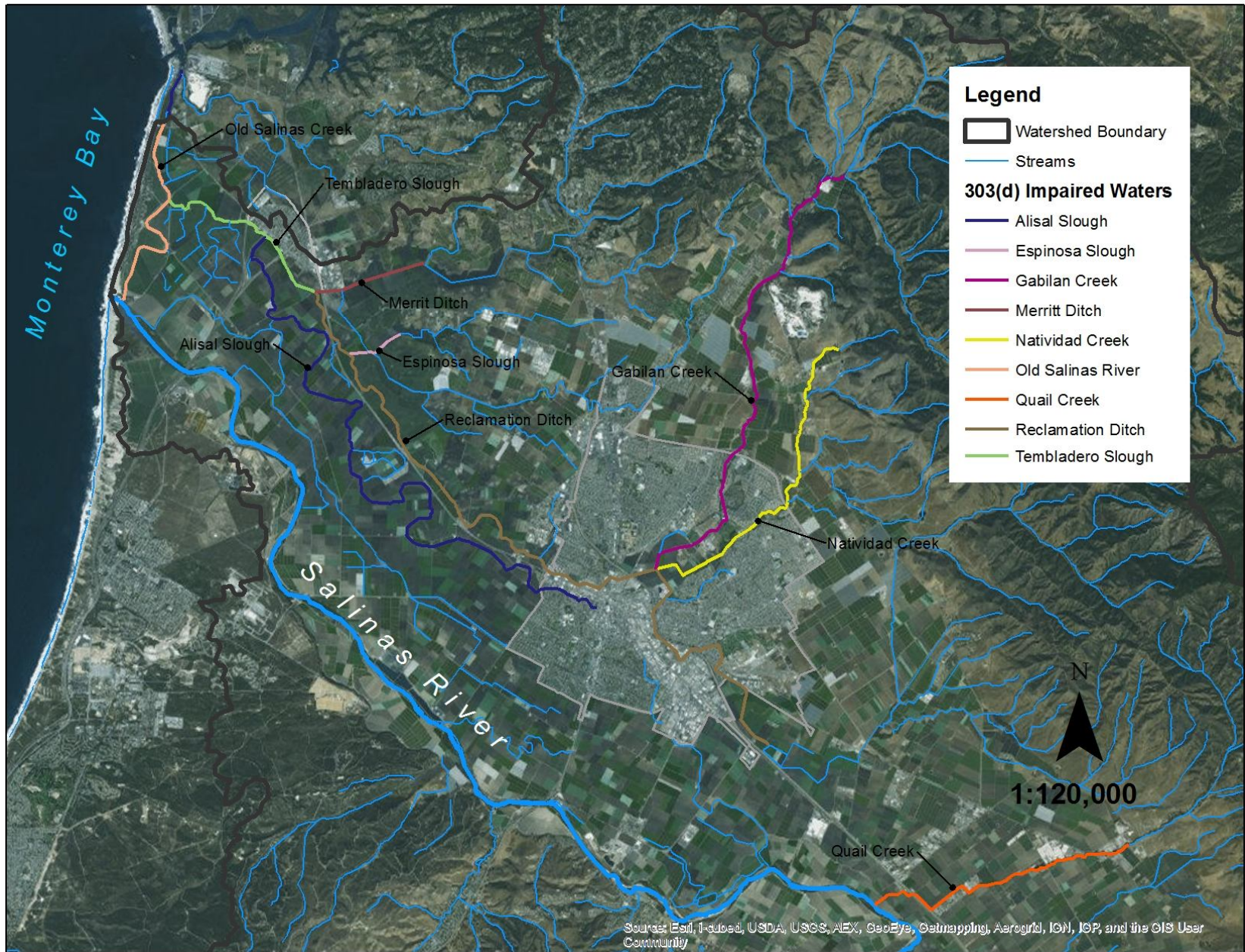


Figure 2. Map of surface waters in the lower Salinas River watershed

ATTACHMENTS

The attachments are available on the TMDL project website:

http://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/salinas/sed_tox/index.shtml

1. Resolution R3-2016-0003 and Basin Plan Amendment
2. TMDL Technical Project Report: Total Maximum Daily Loads for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed (includes Appendices A - D)
 - A. Summary of Sediment Toxicity Listing Decisions
 - B. Summary of Studies and Reports
 - C. Additional Sediment Toxicity Data Analysis
 - D. (1) Pyrethroid Sediment Chemistry Data – Swamp SPoT Project
 - D. (2) Pyrethroid Sediment Chemistry Data - CCWQP
3. CEQA Checklist and Analysis
4. Public Comments and Staff Responses
5. Notice of Opportunity for Public Comment
6. Notice of Public Hearing
7. DPR Memo: Review of the Draft Technical Project Report