STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF JULY 14, 2011
Prepared June 14, 2011

ITEM NUMBER: 15

SUBJECT: TMDL Program Update

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DISCUSSION

2010-2011 TMDL Work Plan Results

TMDL Development:

The TMDL Program develops an annual work plan beginning each February and begins implementing that work plan on July 1st. The TMDL work plan is somewhat detailed, relative to some other programs. We commit to completing specified tasks by certain dates within the fiscal year, with the goal of developing and implementing TMDLs.

For fiscal year 2010-2011, we committed to three TMDL approvals. These projects are: 1) the Lower Salinas River Chlorpyrifos and Diazinon TMDL, 2) the Lower Salinas River Fecal Coliform TMDL, and 3) the Santa Maria Watershed Fecal Indicator Bacteria TMDL technical report. The combined number of 303(d) listings that we committed to addressing is 52.

We were able to meet and exceed our TMDL approval commitments. We obtained approval of eight TMDLs, addressing a total of 84 impairments. The TMDLs approved during fiscal year 2010-2011 are:

1. The Lower Salinas River Watershed TMDL for Chlorpyrifos and Diazinon (35 impairments addressed)
2. The Lower Salinas River TMDL for Fecal Coliform (20 impairments addressed)
3. Arroyo de la Cruz Fecal Indicator Bacteria TMDL (1 impairment addressed)
4. Cholame Creek Fecal Indicator Bacteria TMDL (2 impairments addressed)
5. San Antonio River Fecal Indicator Bacteria TMDL (2 impairments addressed)
6. San Lorenzo Creek Fecal Indicator Bacteria TMDL (2 impairments addressed)
7. Tularcitos Creek Fecal Indicator Bacteria TMDL (1 impairment addressed)
8. Santa Maria Watershed Fecal Indicator Bacteria TMDL (21 impairments)

We were able to exceed our approval commitments by looking for and seizing opportunities for alternative methods of TMDL approval. It will be helpful to briefly describe the mechanisms by which TMDLs can be approved. The state's *Water Quality Control Policy for Addressing Impaired Waters* (TMDL Policy) describes mechanisms staff can pursue for TMDL implementation and approval. The mechanisms include:

1. Basin Plan Amendment. Staff must use the basin plan amendment approach when multiple actions by the Regional Board are required to address impairments. When staff develops a plan to address impairments, and that plan incorporates multiple regulatory actions, such as WDRs, waivers, NPDES permits, etc., the plan itself must be approved through the basin plan amendment process. We've taken this approval approach for several TMDLs, including the Lower Salinas River Fecal Coliform TMDL approved by the Regional Board in September 2010.
2. Single Vote of the Regional Board. When an impairment can be addressed by implementing a single action by the Regional Board, e.g., approval and implementation of an NPDES permit, WDR, waiver, etc., then that single vote by the Regional Board can approve the regulatory mechanism *and* the TMDL. In some cases, the permit, WDR, waiver, or other single regulatory mechanism exists prior to development of a TMDL. In these cases, the Regional Board can approve a *resolution* stating that the existing regulatory mechanism will address the impairment. This is the approach we took for approval of the Lower Salinas River Chlorpyrifos and Diazinon TMDL.
3. Certification that a non-regulatory program is being implemented by another entity and will correct the impairment. In some cases, a non-regulatory program of another agency or entity is in place that will correct the impairment. In these cases, the Regional Board can certify that the non-regulatory action will correct the impairment. Staff must develop a TMDL, along with its required components, and make the justification that the non-regulatory program will indeed correct the impairment. Furthermore, if the TMDL is non-controversial, the executive officer of the Regional Board can make the certification, if the Regional Board has delegated authority to the Executive Officer. The State of California has approved this and other mechanisms for a more streamlined approach to TMDL approval to avoid regulatory redundancy and inefficient resource use.

We used the certification approach to approve the five fecal indicator bacteria TMDLs in bullets 3-7 above on page 1: Arroyo de la Cruz, Cholame Creek, San Antonio River, San Lorenzo Creek, and Tularcitos Creek. The executive officer certified that an existing non-regulatory program would implement the TMDLs. The non-regulatory program is the *California Rangeland Water Quality Management Plan*.

The *California Rangeland Water Quality Management Plan* was developed by the Rangeland Management Advisory Committee; a statutory committee that advises the California Board of Forestry on rangeland resources. The plan concludes that ranches should develop Rangeland Water Quality Management Plans, also called rangeland plans, for their respective ranches. The State Board accepted the plan in 1995 (SWRCB Resolution No. 95-43). It summarizes authorities and mandates for water quality and watershed protection on non-federal rangelands, and specifies a framework for the cooperative development of ranch management strategies for water quality protection. The plan also describes sources of technical and financial assistance available to ranch owners. The plan is supported by the grazing industry.

The *California Rangeland Water Quality Management Plan* states that where beneficial uses of waters are impaired or threatened by rangeland operations as determined by the

Water Board, land owners shall assess the impact of their operations on beneficial uses, show the existence of a viable rangeland plan with implementation underway, prepare and implement a nonpoint source management plan, or contact the NRCS, RCD, UC Cooperative Extension, or a qualified resource professional of their choice, to schedule an assessment and begin development of a rangeland plan.

Staff developed TMDL project reports for each of the five TMDLs, held stakeholder workshops, solicited public comment and responded to comments, complying with federal and state requirements for public outreach and TMDL approval. All public comments received were from stakeholders supporting grazing activities. Staff forwarded the TMDL project reports and certification letters to the executive officer for consideration. The executive officer signed the certifications on May 17, 2011, thereby approving the TMDLs. On May 18, 2011, staff forwarded a *Notice of Certification of Total Maximum Daily Loads* to interested parties for the five TMDLs, notifying them that the executive officer had certified the TMDLs. A web-link directing stakeholders to the certifications was provided in the notice. Certifications can be petitioned to the State Board; stakeholders did not petition any of the certified TMDLs.

Staff submitted the Santa Maria Watershed Fecal Indicator Bacteria TMDL Technical Report to USEPA for review and approval. This TMDL is one of four technical modules staff is developing for the Santa Maria Watershed TMDL. The Santa Maria Watershed TMDL addresses all the impairments in the Santa Maria Watershed. There is a bacteria module, nutrients module, pesticides module, and salts module. Staff is forwarding the technical modules to USEPA for approval, and will then develop a master implementation plan incorporating all the modules. The master implementation plan will be approved through the basin plan amendment process. We expect to receive USEPA approval within the next 18 months.

The table at the end of this report summarizes all TMDLs developed to date.

TMDL Implementation:

The TMDL program relies heavily on our regulatory programs to implement TMDLs. Many of the approved implementation plans in our TMDLs rely on the Irrigated Agricultural Program and Stormwater Program to ensure follow through on TMDL required actions. It is vital to TMDL implementation, and therefore to addressing water quality impairments, that these and other regulatory programs are funded, staffed, and robust.

The Stormwater Program has implemented TMDLs by requiring municipal stormwater dischargers to develop, submit, and implement wasteload allocation attainment programs. Recall that TMDLs assign wasteload allocations to point sources; the wasteload allocations identify the maximum amount of a pollutant that the discharger can discharge and still achieve water quality objectives. The wasteload allocation attainment program, developed and submitted to staff by the municipality, identifies actions the discharger will take, such as pollutant source identification, prioritization, management practice identification, implementation, assessment, and reporting. The reporting includes self-assessment as to whether the municipality is progressing towards achieving its assigned wasteload allocation. Examples of watersheds with approved TMDLs where wasteload allocation attainment programs are required include the San Lorenzo, Aptos, Pajaro, Watsonville, and San Luis Obispo. Several municipalities are

enrolled in the phase 2 stormwater permit in these watersheds and are required to submit and implement their wasteload allocation attainment programs.

The Irrigated Agricultural Program (Ag Program) implements TMDLs though implementation of the Ag Order. During fiscal year 2010-2011, Ag Program staff was heavily involved in drafting components for a renewed agricultural order. Additionally, the Ag Program developed and implemented a web-based electronic enrollment system. Both the agricultural order renewal and electronic enrollment efforts will result in greater clarity of water quality problems and priorities, as well as higher resolution site information that can be used to address the water quality problems. We anticipate that Ag Program staff will utilize this and other information in the coming fiscal year to address impairments where agricultural discharges are contributing to the impairment.

In some cases a TMDL report identifies a source of impairment as a land use activity, the discharges of which are not currently regulated by one of our regulatory programs. An example of this is grazing operations identified in some of our pathogen and sediment TMDLs. We can potentially address some of these discharges with waste discharge requirements, waivers, or other regulatory mechanisms, but must first identify the individual owners or operators, i.e., the implementing parties. TMDL Program staff has taken on the task of identifying potential implementing parties in some of our bacteria and sediment impaired watersheds. This effort is not without considerable expenditure of staff resources. For example, we've developed a geographic information systems approach to identifying potential TMDL implementing parties in two subwatersheds of the Pajaro watershed for our sediment TMDL. Our contact list contains over 1000 addresses in the two subwatersheds. Developing this list and following up with correspondence took several hundred hours of staff time. We are now engaged in follow-up with these potential implementing parties to determine if their activities are a threat to water quality, and if they are, we will assign requirements and track progress. At this time, we believe TMDL Program staff will continue their involvement in this effort and implementation follow-up because the ground work and regulatory mechanisms to address these discharges fall outside currently established regulatory programs.

Achieving TMDLs

The Clear Creek and Hernandez Reservoir Mercury TMDL was adopted by the Regional Board in 2004. Staff concluded in the TMDL report that mercury was being discharged to Clear Creek from historic mercury mines. Clear Creek was loading mercury to its receiving waterbody, Hernandez Reservoir, by transporting mercury-laden sediment downstream to the reservoir. The United States Bureau of Land Management (USBLM) was the implementing party responsible for addressing discharges of mercury to Clear Creek from the abandoned mercury mines. USBLM implemented mine cleanup activities and monitored mercury levels in Clear Creek and Hernandez Reservoir. To be considered a success, the TMDL required 17 consecutive quarterly samples in compliance with the TMDL numeric targets. USBLM submitted data showing that, following mine cleanup efforts, Clear Creek met the TMDL numeric target for 17 consecutive quarters; therefore, this is a successful TMDL implementation effort. Hernandez Reservoir, the downstream waterbody, continues to exceed the numeric targets. However, it appears that USBLM has addressed the source of mercury to Hernandez Reservoir from Clear Creek.

The Regional Board approved the Chorro Creek Nutrient and Dissolved Oxygen TMDL in 2006. Staff concluded in the TMDL report that low dissolved oxygen was being driven by algal levels, which was driven by high water temperature, solar radiation, nutrient loading, and a lack of complicated stream flow pattern. Several implementation activities to address sediment impairment in the watershed were already in place, including livestock exclusion and streamside vegetation projects. Additionally, the TMDL required lower nutrient loading from a wastewater treatment facility. The combined results of implementation efforts resulted in Chorro Creek achieving the numeric target for dissolved oxygen. Chorro Creek was delisted as impaired for low dissolved oxygen on the 2010 303(d) list.

2011-2012 TMDL Work Plan

In 2011-2012 we will continue to balance the need to implement the ever-increasing number of approved TMDLs with our obligation to develop and approve new TMDLs. To accomplish this, we will continue to prioritize our work and maximize resource efficiency. In 2011-2012 we will continue to seize opportunities to approve TMDLs through resolutions and certifications by the Regional Board or the executive officer, as well as through the basin plan amendment process. Taking a multi-faceted approach to TMDL development and approval is necessary if we are to address the greater than 700 303(d) listings in the central coast region.

We will work with our staff partners in the regulatory programs to further build those programs; doing so will address impairments addressed in approved TMDLs as well as impairments not specifically addressed in an approved TMDL. USEPA allows a process to address listings where TMDL development is not necessary, if we can clearly demonstrate that *real and ongoing* implementation efforts are likely to address the impairment. This is yet another reason why we must support the regulatory programs that address our 303(d) listed impairments, giving them the tools and resources they need to implement measures that result in measured water quality success.

The 2011-2012 TMDL work plan will include such projects as the:

- Salinas Nutrient TMDL, where we will develop numeric targets for nitrogen and phosphorus protective of aquatic life.
- Santa Maria Watershed TMDL, where we will address over 100 impairments driven by nutrient, pesticide, salts, and bacteria loading. Like the Salinas Nutrient TMDL, we will develop and propose numeric targets protective of a spectrum of beneficial uses, including aquatic life.
- Single-Action TMDLs for chlorpyrifos, diazinon, and toxicity in watersheds dominated by irrigated agricultural activities. Regional Board, State Board, and USEPA have approved numeric targets for this group of pesticides, and we have a regulatory program in place working with growers in the central coast region. We will utilize this to streamline TMDL development and approval.

Approved and Developing TMDLs in the Central Coast Region

Project Name (Final approval date)	Pollutants considered	Waterbodies Included	Status
TMDLS WITH FINAL APPROVAL			
San Lorenzo River Watershed (1/2003)	Nitrate	San Lorenzo River, Carbonera Cr. Branciforte Cr., Shingle Mill Cr.	General decreasing trend of annual nitrate concentration, but summer and fall concentrations remain the same. Episodic nitrate concentration increases during low-flows in recent years.
San Lorenzo River; including Carbonera Creek, Lompico Creek, and Shingle Mill Creek) (12/18/2003)	Sediment	San Lorenzo River and Carbonera, Lompico, and Shingle Mill Creeks	Staff contracted data collection and assessment work. Contractor delivered report in December 2010. Staff is developing progress report.
Morro Bay, including Chorro Creek, Los Osos Creek (1/20/2004)	Sediment	Morro Bay, and Los Osos, Chorro, Dairy, Pennington, San Luisito, San Bernardo, Warden Creeks.	Many implementation projects implemented in the watershed. Monitoring efforts aimed at characterizing sediment loading are in place; it will take years of varying rain years and events to assess trend. Staff continues to consult with Morro Bay National Estuary Program.

Project Name (Final approval date)	Pollutants considered	Waterbodies Included	Status
Clear Creek and Hernandez Reservoir (6/21/2004)	Total Mercury	Hernandez Reservoir, Clear Creek	Success story; Clear Creek achieving numeric targets.
Morro Bay and Chorro and Los Osos Creeks (11/20/2004)	Fecal coliform	Morro Bay, and Chorro Los Osos Creek, Pennington, San Bernardo, San Luisito, Walters, and Warden Creeks	BMP implementation continues in the watershed. Bacteria concentrations continue to exceed targets. Los Osos sewer project still not online, although Board approved WDRs.
Dairy Creek (12/03/2004)	Dissolved Oxygen	Dairy Creek	Exceendances of TMDL target persists. Implementation projects to address TMDL implemented in watershed. Staff anticipates vegetation projects will have a positive affect over time.
Los Osos Creek, Warden Creek, and Warden Lake Wetland (3/1/2005)	Nitrate	Warden Creek	TMDL is not on path to being achieved. Exceedances of the TMDL target persist, especially downstream of agricultural land uses; working with Ag Program staff.
San Luis Obispo Creek (9/23/2005)	Fecal Coliform	San Luis Obispo Creek Stenner Creek Brizziolari Creek	Exceedances of TMDL targets persist in downtown area. The City of San Luis Obispo has concentrated efforts on eliminating human sources; they believe they have eliminated human sources, but animal sources persist. Implementation continuing.

Project Name (Final approval date)	Pollutants considered	Waterbodies Included	Status
Pajaro River and Llagas Creek (10/13/2006)	Nitrate	Pajaro River Llagas Creek	Exceedances of TMDL targets persist. Implementation continues. Success will depend on Ag Program efforts.
San Luis Obispo Creek (1/10/2007)	Nitrate	San Luis Obispo Creek Prefumo Creek	Exceedances of the TMDL target persist driven by nitrate discharges from City of San Luis Obispo WWTP. The City of San Luis Obispo continuing their effort to delist the MUN beneficial use from San Luis Obispo Creek.
Pajaro River; including Llagas Creek, Rider Creek, and San Benito River (5/3/2007)	Sediment	Tres Pinos, San Benito, Llagas, Uvas, Upper Pajaro, Corralitos (including Rider Creek), Mouth of Pajaro River	Staff devoting significant resources to identification of implementing parties in the project area, e.g. from livestock activities. Staff currently engaging these responsible parties. Success will also depend on BMPs in irrigated agricultural areas.
Chorro Creek (7/19/2007)	Nitrate Dissolved oxygen Sodium TDS Temperature Orthophosphorus	Chorro Creek	Dissolved oxygen TMDL target achieved. CMC upgraded WWTP to address nitrate loading.
Watsonville Slough (7/19/2007)	Fecal Coliform	Watsonville Sl.. Struve Sl., Harkins Sl.,	Exceedances of TMDL target persist. TMDL implementation requirements written into and approved in MS4 permits.

Project Name (Final approval date)	Pollutants considered	Waterbodies Included	Status
		Gallighan Sl., Hanson Sl.	
Soquel Lagoon Watershed (November 17, 2010)	Fecal Coliform	Soquel Lagoon, Soquel Creek, Noble Gulch	Staff is incorporating TMDL requirements into stormwater permits.
Aptos Creek, Valencia Creek, and Trout Gulch (January 20, 2011)	Fecal Coliform	Aptos Creek, Valencia Creek, Trout Gulch	Staff is incorporating TMDL requirements into stormwater permits.
Pajaro River Watershed (August 3, 2010)	Fecal Coliform	Pajaro River, San Benito River, Llagas Creek, Tequesquita Slough, San Juan Creek, Carnadero/Uvas Creek, Bird Creek, Pescadero Creek, Tres Pinos Creek, Furlong (Jones) Creek, Santa	Staff is incorporating TMDL requirements into stormwater permits.

Project Name (Final approval date)	Pollutants considered	Waterbodies Included	Status
		Ana Creek, Pachecho Creek	
PENDING APPROVALS			
San in San Lorenzo River Estuary Watershed	Fecal Coliform	San Lorenzo River Estuary, San Lorenzo River, Branciforte Creek, Camp Evers Creek, Carbonera Creek, and Lompico Creek	OAL approval June 8, 2011; USEPA approval pending. Staff incorporated TMDL requirements into stormwater permits.
Corralitos and Salsipuedes Creeks	Fecal Coliform.	Corralitos Creek, Salsipuedes Creek	State Water Board approved April 19, 2011, OAL and USEPA approvals pending. Staff has incorporated TMDL requirements into stormwater permits.
Arroyo de la Cruz	Pathogens	Arroyo de la Cruz	Pending USEPA approval
Cholame Cr.	Pathogens	Cholame Cr.	Pending USEPA approval
San Antonio River	Pathogens	San Antonio River	Pending USEPA approval

Project Name (Final approval date)	Pollutants considered	Waterbodies Included	Status
San Lorenzo Cr.	Pathogens	San Lorenzo Cr.	Pending USEPA approval
Tularcitos Cr.	Pathogens	Tularcitos Cr.	Pending USEPA approval
Lower Salinas River	Chlorpyrifos and Diazinon	17 waterbodies	Pending USEPA approval
Lower Salinas River	Pathogens	12 waterbodies	Pending State Board approval
TMDLs IN DEVELOPMENT			
Santa Maria River Watershed TMDL	Multiple listings (~100) for nutrients, pesticides, salts, bacteria	15 waterbodies included in the project	TMDL program staff coordinating with other programs during TMDL development to inform and implement ongoing efforts.
Lower Salinas River Watershed	Nutrients	Multiple waterbodies in the Lower Salinas River Watershed	TMDL program staff coordinating with other programs during TMDL development to inform and implement ongoing efforts.
Single-Action TMDL	Chlorpyrifos/ Diazinon/ Toxicity	Waterbodies to be determined	Project underway in FY 2011-2012