

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

STAFF REPORT FOR REGULAR MEETING OF JULY 11, 2008

Prepared on May 27, 2008

ITEM NUMBER: 16

SUBJECT: Status of Total Maximum Daily Load (TMDL) Development and Implementation

SUMMARY

This Staff Report identifies and describes aspects of all the TMDLs that have been approved by the Central Coast Water Board. Staff discusses how these TMDLs are being implemented and when staff, stakeholders and dischargers will implement various activities (schedules). Staff also explains how staff and the Water Board track progress and effectiveness of implementation. Finally, staff summarized the specific implementation plans in progress for the approved TMDLs.

DISCUSSION

Introduction

Board members Monica Hunter and Daniel Press requested a summary of the Total Maximum Daily Load projects that have been approved to date, and the status of implementation of these TMDLs. Staff prepared this staff report as a response to Ms. Hunter's and Mr. Press's request.

Summary of Approved TMDLs

The Central Coast Water Board has approved 15 TMDL projects. Of these 15, USEPA has reviewed and approved 12 TMDL projects, with three remaining projects pending USEPA approval. Staff anticipates USEPA will approve the pending three TMDL projects in early 2009.

Table-1 is tabulation of the TMDLs approved and in development, by TMDL Project name. The 15 approved TMDL projects assign TMDLs to 57 water bodies in the region; all but a couple of these 57 were listed as impaired on the 303d list of impaired waters (staff determined impairment for a couple water bodies during TMDL development). Table-2 shows the number of TMDL projects and water bodies assigned TMDLs by pollutant. For example, notice that the Water Board approved six fecal coliform TMDL projects, and of these six projects, 28 water bodies were assigned a TMDL for fecal coliform.

Table-1

TMDL Projects with Final Approval by the California Office of Administrative Law or the US Environmental Protection Agency	TMDL Projects with Regional Board Approval
San Lorenzo River Nitrate	San Lorenzo River Estuary, San Lorenzo River, Branciforte Creek, Camp Evers Creek, Carbonera Creek, and Lompico Creek Pathogens
Morro Bay, Chorro Creek and Los Osos Creek Pathogen	Soquel Lagoon, Soquel Creek, and Noble Gulch Pathogens
Morro Bay Estuary, Chorro Creek, Los Osos Creek Sediment	Aptos Creek, Valencia Creek, and Trout Gulch Pathogens
San Lorenzo River, Carbonera Creek, Lompico Creek, and Shingle Mill Creek Sediment	<u>TMDLs in Development</u>
Clear Creek and Hernandez Reservoir Mercury	Lower Salinas River, Old Salinas River Estuary, Tembladero Slough, Salinas Reclamation Canal, Alisal Creek, Gabilan Creek, Salinas River Lagoon (North), Santa Rita Creek, Quail Creek, and Towne Creek Fecal Coliform
Los Osos Creek, Warden Creek and Lake Nutrient	Pajaro River, San Benito River, Llagas Creek, and Tequisquita Slough Fecal Coliform
San Luis Obispo Creek Pathogen	Corralitos Creek and Salsipuedes Creek Pathogen
Pajaro River and Llagas Creek Nitrate	Lower Salinas River and Elkhorn Slough Pesticides
Chorro Creek Nutrients and Dissolved Oxygen	Santa Barbara County Beaches Bacteria
San Luis Obispo Creek Nutrient	Santa Maria River and Santa Maria River Estuary Pesticides
Pajaro River, San Benito River, Rider Creek Sediment	Santa Maria River Watershed and Oso Flaco Lake Fecal Coliform
Watsonville Slough Pathogens	Santa Maria River Watershed Nitrate

Table-2

Pollutant	No. of TMDL Projects	No. of Waterbodies Assigned TMDL
Fecal Coliform	6	28
Nitrate	4	8
Sediment	3	18
Mercury	1	2
Nutrients	1	1
Dissolved Oxygen	*	1

*: not a separate TMDL project; part of a nutrient TMDL project.

Staff is currently developing TMDLs for fecal coliform, nutrients, and pesticides. Staff anticipates bringing two fecal coliform TMDLs to the Water Board for approval in early 2009, two more before the Board in mid-2009, and a pesticide TMDL in mid-late 2009.

Implementing TMDLs

TMDLs are implemented by responsible parties through actions required in permits, waste discharge requirements, waivers of waste discharge requirements, and compliance with prohibitions. In some cases, the regulatory mechanism, such as a permit, already exists and the TMDL implementation plan simply states requirements of the existing permit that a responsible party must fulfill. In other cases, staff commits to developing new requirements by modifying an existing permit or establishing a new regulatory mechanism, such as a prohibition. In those cases, the TMDL implementation plan explains how and when the staff will develop a recommendation for the new requirement or regulation, how and when the Executive Officer or Water Board will approve it, and how and when the responsible party will comply. Additionally, in some cases, staff identifies implementation actions that are carried out (or will be) by implementing parties through grant resources, other agencies and voluntary actions. An implementing party (as opposed to a responsible party) carries out actions that the Water Board is not requiring through a regulatory mechanism, but nevertheless are actions that are reliable. For example, staff might identify a well-established volunteer monitoring program as a source of data needed to assess progress towards achieving the TMDL. Staff has identified both responsible parties, and implementing parties in TMDL implementation plans.

Regulatory mechanisms most often used by staff to require implementation actions include:

- National Pollutant Discharge Elimination System (NPDES) permits
- Waste Discharge Requirements (WDR)
- Waivers of Waste Discharge Requirements
- Prohibitions
- Conditional Prohibitions

Responsible parties are typically required to report their implementation activities along with reporting requirements associated with the NPDES permits, WDRs, Waivers of WDRs, etc. For example, a discharger with a regulated discharge typically has monitoring and reporting requirements in an NPDES permit. Staff utilizes this reporting mechanism to require monitoring or TMDL implementation actions.

In some cases, neither the Executive Officer nor the Central Coast Water Board have established implementation or reporting requirements to rely on for TMDL implementation. An example of this includes individual dischargers who have not previously been identified. For example, some approved TMDLs have assigned load allocations to grazing operations in a watershed or subwatershed, although staff has not identified the individual landowners. In these cases, the landowners first need to be identified, then the Executive Officer or the Central Coast Water Board can establish implementation or reporting requirements as set forth in the TMDL.

Implementation

Responsible and implementing parties engage in implementation actions before, during, and after TMDL adoption. Implementation *before* TMDL adoption refers to before Water Board approval. Implementation *during* approval refers to that period of time between Water Board and final approval, (final approval is USEPA or the Office of Administrative Law approval). Implementation after adoption refers to that period of time after final approval.

Early implementation is typical. For example, some municipalities were aware of elevated bacteria concentrations in their urban streams. Some municipalities proactively established ordinances aimed at controlling pet waste.

In other cases, staff requires early implementation. For example, staff discovered an unregulated point source while conducting field reconnaissance during TMDL development. Staff subsequently drafted an NPDES permit for this discharge. Similarly, staff is currently identifying landowners of grazing lands contributing to impairment from fecal coliform in the Salinas and Santa Maria watersheds; these watersheds do not have adopted TMDLs at this time. Staff intends to have the Executive Officer or the Central Coast Water Board establish regulation of these sources before recommending the TMDL for adoption.

An example of implementation actions during TMDL approval is the current effort to enroll municipalities who own and operate separate storm drain systems in the Phase-II Storm Water General Permit. Staff has applied TMDL resources to expedite this enrollment process in areas such as Santa Cruz County where several TMDLs for pathogens have been approved by the Central Coast Water Board with storm water control requirements, but have not yet been approved by the State Water Resources Control Board, California Office of Administrative Law or the US Environmental Protection Agency.

Implementation activities occurring after TMDL adoption are activities not carried out before or during TMDL adoption, but required in the TMDL implementation Plan. An example of implementation activities carried out by staff after TMDL adoption is the current effort to identify the many responsible parties subject to an approved land disturbance prohibition in the Pajaro River watershed. The basin plan amendment associated with the Pajaro River Sediment TMDL included a conditional land disturbance prohibition applying to a spectrum of activities and responsible parties, e.g. pasture and range lands, croplands and orchards, owners of unpaved roads, and persons engaged in hydromodification. The conditions of the prohibition require land owners to demonstrate to the Central Coast Water Board (through reporting) that their land use is not contributing to sediment impairment or to submit and implement a plan to control sediment discharges or impacts from their land use. The TMDL Implementation Plan specifies that the land disturbance prohibition will become effective three years after USEPA approval (May 2007), allowing staff time to conduct outreach to responsible parties, and allowing responsible parties time to comply with the conditions of the prohibition.

Tracking TMDL Implementation and TMDL Achievement

Staff has developed, and the Central Coast Water Board has approved, implementation plans with schedules for responsible and implementing parties that staff predicts will result in TMDL achievement or meeting water quality standards within a specified timeframe. Staff utilizes reports, and other information required and available, to conduct reviews of implementation activities and resulting water quality. As discussed above, many of the reporting requirements are coincident with reporting required in existing or newly written permits and WDRs. When no reporting requirements exist, staff recommends that the Executive Officer or the Central Coast Water Board establish these requirements; staff schedules these recommendations so responsible parties will implement, monitor and report on progress and effectiveness soon enough for staff to receive and evaluate reports and information within the specified timeframe for TMDL achievement or to meet water quality standards.

Staff has scheduled triennial reviews in most of the TMDL implementation plans to evaluate progress toward TMDL achievement or to meet water quality standards. Staff conducts triennial reviews every three years, beginning three years after TMDL adoption. Staff reviews reports of implementation and monitoring activities, and makes a determination of how implementation is proceeding, and whether the current actions are likely to achieve the TMDL. Staff memorializes the findings of a triennial review in TMDL Progress Reports. Staff then recommends or makes adjustments to the following if warranted: requirements, monitoring and reporting for responsible parties, level of staff oversight of some or all implementation activities, filling data gaps by adjusting ambient or watershed monitoring and reporting programs, compliance determinations or enforcement for failure to implement or failure to implement adequately.

TMDL Development Versus TMDL Implementation

The TMDL program is a newer program, relative to many programs at the Water Board. More staff resources have historically been used to develop TMDLs, rather than to establish new implementation requirements, regulations or programs, or track TMDL implementation and progress towards TMDL achievement or meeting water quality standards. However, as TMDLs are developed and approved by the Water Board, more resources will need to be expended on TMDL implementation and tracking. This, of course, leaves fewer resources for TMDL development. As we move forward in the TMDL program, staff will need to strike a balance between TMDL development, and TMDL implementation and tracking.

Summary of Implementation Activities for Individual TMDL Projects

This section contains a brief summary of each TMDL project approved, and the implementation activities that have been accomplished. In some cases, implementation actions have not yet been initiated and triennial reviews are overdue. This is a result of the balance between TMDL development, implementation and tracking that must be done with the resources available. Staff has made an attempt to prioritize which TMDLs to implement and track with the resources available.

TMDL for Nitrate in San Lorenzo River Watershed

The USEPA approved this TMDL in January 2003. The TMDL nitrate concentration is 1.5 mg/L-N. The TMDL requires a 15-20% reduction in nitrate concentration in the San Lorenzo River and several of its tributaries over the first 10 years of implementation (by 2013), and another 10% reduction during the ten years following to achieve the TMDL by 2023. Staff concluded that reducing nitrate concentration during summer months was critical because it was driving elevated algal density and causing taste and odor problems of drinking water supply.

Staff drafted a Progress Report in June 2005 after receiving reporting and monitoring information from the County of Santa Cruz. Staff concluded in the Progress Report that:

- Annual nitrate concentrations were falling, relative to pre-implementation concentrations.
- Nitrate concentration during the summer months was not decreasing over the period tracked, and increased at one monitoring location. This may have been due to decreased summer flow, thereby decreasing dilution affects.
- There were no reports of taste or odor problems in drinking water supplies.
- Based on information available, the milestone nitrate reductions described in the TMDL would not be achieved if the trend of static or increasing summer month nitrate concentration continued.
- Implementation activities should continue along their present course. However, if summer month nitrate concentrations do not show a declining trend by 2010, staff will recommend or require that the County of Santa Cruz revise specific management activities.

County of Santa Cruz recently submitted their Wastewater Management Plan Status Report. Staff has not completed a full review of the report; however, the report indicates that there has been about an 11% reduction of nitrate concentration over the past 15-years. Staff will continue to review status reports from County of Santa Cruz on implementation and effectiveness of their Waste Water Management Plan and Nitrate Management Plan when submitted, and will use this information to draft another Progress Report in 2010.

Morro Bay and Chorro and Los Osos Creeks Pathogen TMDL

The USEPA approved this TMDL in January 2004. The TMDL requires gradual reduction of fecal coliform concentration over a 10-year period to achieve the TMDL by November 2013. The TMDL is expressed in terms of fecal coliform concentration protective of the shell fishing beneficial use in Morro Bay (log mean of 14 MPN/100mL and 43 MPN/100mL maximum), and water contact recreation in the tributary creeks (log mean of 200 MPN/100mL and 400 MPN/100mL max).

Staff drafted a Progress Report in April 2007. Staff made conclusions based on monitoring data submitted by the Volunteer Monitoring Program associated with the Morro Bay National Estuary Program (MBNEP) and conversations with MBNEP staff and other entities, including Department of Health Services. Staff concluded in the Progress Report that:

- Fecal coliform concentrations had not declined in Morro Bay or its tributaries from 2002 to 2007.
- Implementing parties had installed management practices aimed at reducing fecal coliform concentration. Implemented measures included cattle exclusion, re-vegetation projects, fencing of riparian areas, and removal of un-permitted moorings in Morro Bay.
- The full-effect of the management measures implemented had not yet been realized.
- Implementing parties will implement more management measures in the future, e.g. through storm water permitting efforts, and an upgrade of the wastewater treatment plant in the watershed.
- No change in course of implementation efforts is warranted, but they should proceed as rather planned.

Staff has scheduled development of another Progress Report in 2010.

Morro Bay TMDL for Sediment (including Chorro Creek, Los Osos Creek, and the Morro Bay Estuary)

The USEPA approved this TMDL in January 2004. The TMDL requires a gradual reduction of sediment load to achieve the allocations by 2053. Several numeric targets are used as indicators of sediment load; the numeric targets also indicate protection of beneficial uses associated with aquatic life.

Staff drafted a Progress Report in April 2007. Staff concluded in the Progress Report that:

- Data were insufficient to determine changes in sediment loading since implementation of the TMDL
- Staff has contracted with UC Santa Barbara for additional data collection; this data will be available in early 2009. (Staff expects the new data will improve our ability to gauge the progress of the TMDL.)
- Implementing parties have implemented management measures to reduce sediment loading, and more measures to reduce loading are imminent.
- No change in course of implementation efforts is warranted.

Several restoration projects have been implemented or planned by agencies and stakeholders in the watershed. Department of Fish and Game (DFG) purchased a 580-acre ranch; DFG intends to install a floodplain restoration project in 2008-2009 that will help capture sediment in the lowest part of the watershed. The Coastal San Luis Resource Conservation District purchased and implemented a floodplain restoration project in the Los Osos subwatershed. Project Clearwater is leading several project efforts aimed at decreasing erosion. Armed with over \$500,000 in grant and other funding, Project Clearwater has helped a spectrum of implementing parties plan and execute conservation projects and best management practices of over 70 projects over thousands of acres. Additionally, implementing parties have implemented and will continue to implement other measures, such as public outreach/education and water quality management plans that address sediment control.

Staff has scheduled an assessment of implementation actions for December 2009. Staff will consider recommending modifications to existing actions, if warranted.

San Lorenzo River TMDL for Sediment (Including Carbonera Creek, Lompico Creek, and Shingle Mill Creek)

The USEPA approved this TMDL in February 2004. The TMDL requires a gradual reduction of sediment load to achieve the allocations by 2028. Several numeric targets are used as indicators of sediment load; the numeric targets also indicate protection of beneficial uses associated with aquatic life.

Staff and implementing parties formed a technical advisory committee (TAC) and a working group of federal, State, and local agencies to implement and track progress of the TMDL. In addition, staff prioritized inspections of timber harvest operations and directed more resources to storm water permitting in the watershed to expedite and track TMDL implementation. Staff and implementing parties developed a reporting form to track implementation actions. In January 2007, staff collected the completed forms and drafted a Project Report of TMDL implementation. Implementing parties submitted information for all 21 implementation actions identified in the TMDL implementation plan. The information provided is summarized in a Progress Report drafted by staff in June 2007. Staff concluded the following in the Progress Report:

- Implementing parties made significant progress towards implementing the actions identified in the TMDL.
- Implementing parties were continuing to execute actions required in the TMDL; work is on-going.
- Overall progress of the identified actions ranged from "some progress" to "significant progress."

Staff reprioritized work or directed additional resources to implement the actions in the implementation plan. For example, staff has increased the number of pre and post-timber harvest inspections. In 2005, Water Board staff developed a Coordinated Monitoring Plan (CMP). The CMP called for the monitoring a narrow range of sediment-related numeric targets indicating physical habitat health. In 2007, staff secured contract resources and contracted with the University of California-Santa Barbara (UCSB) to investigate a broad range sediment-related metrics; the metrics would potentially be used for the San Lorenzo River Sediment TMDL, as well as other sediment TMDLs in the region. UCSB subsequently conducted monitoring in May 2007, and will conduct more monitoring in 2008. An additional contract allocation of \$30,000 was approved in February 2008.

Staff plans to conduct another assessment of implementation actions along with a first-time evaluation of data (as we did not have any for the first assessment) in fall of 2010. Staff will consider recommending modifications to existing actions or monitoring strategy, if warranted.

For more information, please see the Executive Officer Report of this Central Coast Water Board meeting titled: *Control Actions and Planned Approach to Triennial Review In Santa Cruz County- Actions With Short-Term Water Quality Improvements; Approach To Determine Total Maximum Daily Load Progress And Achievement; And Resource Conservation District Of Santa Cruz County Rural Roads Program.*

TMDL and Implementation Plan for Mercury in Clear Creek and Hernandez Reservoir

The USEPA approved this TMDL in June 2004. The target date to achieve the TMDL is July 2009. Staff concluded in the TMDL analysis that no further implementation efforts were necessary to achieve the TMDL. This conclusion was based on a steady trend of decreasing mercury concentration, and the fact the mercury loading was driven from sediment transport from abandoned mines; controlling erosion would control the sediment loading. However, the TMDL implementation plan established implementation reporting and monitoring requirements for the primary cause of the impairment, which is erosion from abandoned mine sites. The United States Bureau of Land Management (USBLM) is the sole owner of these mine sites and is the responsible party for implementing the TMDL. USBLM has contracted with United States Geological Survey (USGS) to conduct quarterly monitoring at a USGS gage station site on Clear Creek. USBLM is required to submit monitoring results to the Water Board. Staff did not receive the monitoring results for 2008, and is currently following-up on this omission.

Staff will conduct analysis in March 2009 of all data compiled to determine if the numeric targets, and therefore the TMDL, for Hernandez Reservoir and Clear Creek will likely be achieved by the target date of July 2009.

TMDL and Implementation Plan for Nutrients in Los Osos Creek, Warden Creek, and Warden Lake Wetland

The USEPA approved this TMDL in March 2005. The TMDL requires gradual reduction of nitrate concentration over a 10-year period to achieve the TMDL by 2015. Staff developed a TMDL for a single constituent of nitrate. Staff concluded that further analysis of impairment driven by nutrients (e.g. impairments associated with elevated algal density) will be taken up at such a time that the science and regulatory mechanisms to address such impairment, and staff resources, become available.

Staff determined that the single cause of impairment from nitrate was due to agricultural discharges. Staff therefore concluded that the TMDL should be implemented through efforts described and required by the Conditional Waivers of Waste Discharge Requirements for Discharges from Irrigated Lands (Agricultural Discharges Order). Staff is tracking success toward achieving the TMDL through the reporting and monitoring efforts required by the Agricultural Discharges Order. Staff is also using data provided by the Volunteer Monitoring Program affiliated with the Morro Bay National Estuary Program to track TMDL success.

Staff has scheduled triennial reviews to assess implementation actions, resulting water quality, and potential success at achieving the TMDL. Staff has scheduled the first triennial review for January 2009.

San Luis Obispo Creek Total Maximum Daily Load and Implementation Plan for Pathogens

The USEPA approved this TMDL in September 2005. The TMDL requires a gradual reduction of fecal coliform concentration in San Luis Obispo Creek, Stenner Creek, and

Brizzolari Creek to achieve the TMDL by November 2015. The TMDL is expressed in terms of fecal coliform concentration protective of water contact recreation (log mean of 200 MPN/100mL and 400 MPN/100mL maximum).

Staff identified regulatory measures to achieve and track implementation progress, including measures associated with Phase-II Storm Water General Permit, waste discharge requirements, and an NPDES permit for a sewage collection system. Implementation will, in part, be tracked and required pursuant to storm water permits for the City of San Luis Obispo (City) and Cal Poly State University; neither the City nor Cal Poly are yet enrolled in the Phase-II Storm Water General Permit.

Staff originally (shortly after TMDL adoption) scheduled the first triennial review and associated report for July 2008. However, staff subsequently concluded that the review should occur after implementation actions have been implemented, which will not fully occur until the City of San Luis Obispo is implementing a storm water management plan. Staff anticipates that the City of San Luis Obispo will be covered by the Phase-II Storm Water General Permit in 2009, and will reschedule a review of TMDL implementation and monitoring at that time.

TMDL and Implementation Plan for Nitrate in Pajaro River and Llagas Creek

The USEPA approved this TMDL in October 2006. The TMDL requires a gradual reduction of nitrate concentration in the Pajaro River and Llagas Creek to achieve the TMDL by 2026. Staff developed this nutrient TMDL for a single constituent of nitrate protective of the municipal water supply beneficial use; the TMDL nitrate concentration is 10 mg/L-N.

Staff determined that the single cause of impairment was due to agricultural discharges. Staff therefore concluded that the TMDL should be implemented through efforts described and required by the Conditional Waivers of Waste Discharge Requirements for Discharges from Irrigated Lands (Agricultural Requirements Order). Staff will track success toward achieving the TMDL through the reporting and monitoring efforts required by the Agricultural Requirements Order.

Staff has scheduled a triennial review for June 2009. The review will assess implementation of management measures according to the Agricultural Requirements Order and water quality monitoring results. The TMDL proposed that staff would assess potential impairment related to biostimulation due to elevated nutrient concentration. At the time the Water Board adopted the TMDL, staff anticipated that a protocol for assessing impairment due to biostimulation would be developed before the first triennial review. Staff is working towards such a protocol in conjunction with work related to assessment of the Healthy Aquatic Habitat measurable goal associated with the Central Coast Water Board's Vision (see www.waterboards.ca.gov/centralcoast/Vision/vision.htm).

TMDL and Implementation Plan for Nutrients and Dissolved Oxygen in Chorro Creek

The USEPA approved this TMDL in July 2007. The TMDL requires a gradual reduction of sodium, total dissolved solids, nitrate, orthophosphorus, temperature, and an increase in stream shading to achieve the TMDLs in Chorro Creek by 2017. The TMDLs were set at levels necessary to protect the aquatic life-related beneficial uses, and the municipal drinking water supply beneficial use.

Staff will track success toward achieving the TMDLs through the monitoring and reporting efforts required of the California Men's Colony wastewater treatment plant (NPDES permit). Staff will also evaluate progress of the revegetation project in Chorro Flats to increase stream shading. Staff will also track success toward achieving the TMDLs by assessing data provided by the Voluntary Monitoring Program associated with the Morro Bay National Estuary Program.

To date, the California Men's Colony (CMC) has completed the required upgrade to their wastewater treatment facility. Reduced nitrate loading from the CMC facility has resulted in a decrease in nitrate concentration in Chorro Creek, but problems with other constituents prevail. There have been several restoration projects in the watershed. The revegetation project in Chorro Flats is showing progress in increasing stream shading and the potential for increased dissolved oxygen in lower Chorro Creek. Staff has scheduled a triennial review and associated report for November 2009.

San Luis Obispo Creek TMDL and Implementation Plan for Nitrate-Nitrogen

The USEPA approved this TMDL in January 2007. The TMDL requires a gradual reduction of nitrate concentration in San Luis Obispo Creek and Prefumo Creek (a tributary to San Luis Obispo Creek) to achieve the TMDLs within by 2017. Staff developed this nutrient TMDL for nitrate protective of the municipal water supply beneficial use; the TMDL nitrate concentration is 10 mg/L-N.

Staff determined that impairment was mostly due to the discharge from the City of San Luis Obispo's wastewater treatment plant and from agricultural discharges located in the Prefumo Creek subwatershed. The City of San Luis Obispo is currently in the planning stages of installing a technological upgrade to the wastewater treatment plant to achieve the nitrate allocation. Some growers remain in the Prefumo Creek area, but their impact on nitrate is uncertain; staff will track this source through information made available through the Agricultural Requirements Order.

Staff is tracking success toward achieving the TMDLs through the monitoring and reporting efforts required in existing and anticipated NPDES permits, and activities associated with the Agricultural Requirements Order. Discharge of wastewater from the City of San Luis Obispo's (City) wastewater treatment plant is regulated through an existing NPDES permit. The City is also developing a storm water management plan for compliance with the Phase-II Storm Water General Permit. Cal Poly State University and the County of San Luis Obispo are also in the process of enrolling in the Phase-II Storm Water General Permit. Each of these entities has been allocated a nitrate load in the TMDL. Staff expects the TMDL to be achieved once the City of San Luis Obispo has

completed the upgraded wastewater facility to reduce the nitrate load, as that is the primary source of nitrate impairment.

Staff has scheduled a triennial review for July 2009.

Pajaro River TMDL and Implementation Plan for Sediment including Llagas Creek, Rider Creek, and San Benito River

The USEPA approved this TMDL in May 2007. The TMDL requires a gradual reduction of sediment load to achieve the allocations by 2052. Several numeric targets are used as indicators of sediment load; the numeric targets also indicate protection of beneficial uses associated with aquatic life.

Staff identified several sources of sediment in the TMDL analysis, including agriculture and timber activities, activities associated with grazing and road development, storm water, and mining operation. The identified sources (primarily non-point sources) fall into groups of land use activities for which staff has not yet identified multiple individual land owners. Many of the individual land owners will be required to comply with the conditional prohibition adopted as part of the basin plan amendment approving the TMDL. However, the yet un-identified land owners have not yet been contacted and made aware of the conditional prohibition.

Staff has budgeted significant staff resources in the coming fiscal year to begin tracking progress of the TMDL. Efforts will include identification of responsible parties, developing monitoring strategies, and stakeholder outreach. Staff will begin this process by doing the following:

- Determine high priority area(s) within Pajaro River Watershed to use as model(s).
- Acquire ownership information through assessor parcel data for suspected dischargers.
- Conduct outreach via various methods including pre-notification and education by staff and/or third parties to landowner groups and/or individual landowners suspected of discharging.
- Establish communication with suspected dischargers and collaborate through a technical advisory committee, and
- Continue to collaborate with staff in the Watershed Assessment Unit and other programs at the Central Coast Water Board to evaluate the best methods to ensure staff adequately identifies all sediment dischargers in the Pajaro Watershed.
- Develop monitoring strategies that adequately track progress towards achieving the TMDL.

Staff will draft a progress report in June 2009, after the tasks described above are completed.

Watsonville Slough Total Maximum Daily Load and Implementation Plan for Pathogens

The USEPA approved this TMDL in July 2007. The TMDL requires gradual reduction of fecal coliform concentration over a 10-year period to achieve numeric targets by November 2017. The TMDL is expressed in terms of fecal coliform concentration protective of the water contact recreation beneficial use (log mean of 200 MPN/100mL and 400 MPN/100mL maximum).

Staff will track of implementation measures and progress towards achieving the TMDL for the Watsonville Slough beginning July 2008. The Stormwater Management Plan for the City of Watsonville is scheduled to be approved by March 2009. The Stormwater Management Plan will indicate, among other items, how and when the City of Watsonville will conduct public participation and outreach regarding specific actions that individuals can take to reduce pathogen loading and will indicate how and when they will develop and implement an enforceable means of reducing fecal coliform loading from pet waste (e.g., an ordinance).

Santa Cruz County Total Maximum Daily Loads for Pathogens, including: 1) San Lorenzo River Estuary, San Lorenzo River, Branciforte Creek, Camp Evers Creek, Carbonera Creek, and Lompico Creek, 2) Soquel Lagoon, Soquel Creek, and Noble Gulch, and 3) Aptos Creek, Valencia Creek, and Trout Gulch

The Regional Board adopted these TMDLs at the March 2008 Board Meeting. Staff expects these TMDLs to go before the Office of Administrative Law for approval in the spring of 2009, then to USEPA for approval shortly thereafter. The target date to achieve these TMDL is 2022.

Staff determined that impairment was due to several sources of fecal indicator bacteria, including storm water, onsite wastewater disposal systems (septic systems), homeless persons, domesticated animals, and leaks from wastewater collection systems. Similar to the Pajaro River Sediment TMDL, staff will regulate many of the non-point sources using a newly approved conditional prohibition. Staff will first conduct outreach to yet identified responsible parties, e.g. those with grazing operations, to begin the process of regulating these sources through compliance with the conditional prohibition.

The Storm Water Management Plans (SWMP) for the City of Santa Cruz, the County of Santa Cruz and the City of Capitola are being developed now and are scheduled to be considered by the Water Board in March 2009. The Phase-II Storm Water General Permit and their associated SWMPs were identified in the TMDLs as one of the regulatory mechanisms relied upon to reduce fecal coliform loading in these watersheds. Storm water staff is currently working with these enrollees as their SWMPs are being developed. Staff is informing the enrollees of the requirements described in the TMDL, e.g. monitoring and management practices implementation, and the need to incorporate a *load reduction plan* in their SWMPs that specifically addresses the TMDLs and allocations.

In the case of these three TMDLs in Santa Cruz County, the Water Board approved the TMDLs prior to completion of the SWMPs. In some cases, the enrollee is discharging to an impaired water body where a TMDL is not yet approved by the Water Board. In these

cases, storm water staff is communicating the need for the enrollee to address these pollutants of concern in their SWMP. Staff will then evaluate the probable effectiveness of the measures described in the SWMPs at addressing the pollutants of concern prior to TMDL development and approval by the Water Board. If staff determines that the measures described in the SWMPs do not adequately address the pollutants of concern, staff will require modification of the SWMPs before their approval by the Water Board. Following Water Board adoption of TMDLs for these pollutants of concern, staff will continue to work with the enrollees to ensure their SWMPs address the pollutants of concern and meet the requirements of the TMDLs.

CONCLUSION

Staff has developed and the Central Coast Water Board approved nitrate, fecal coliform, sediment, mercury, nutrient, and dissolved oxygen TMDLs. USEPA approved the first TMDL for the Central Coast Region in 2003, and there has been a steady flow of TMDLs approved subsequent to the first. Consequently, the first triennial reviews are due, some have been completed, and more will be done soon. Staff will need to direct more resources at implementation and tracking in the future because there will be more approved TMDLs and associated scheduled tracking than in the past. If TMDL staff resources do not increase in the future, then the staff resources expended on implementation and tracking will come at the expense of those currently expended on TMDL development. Staff anticipates that a balance between resources devoted to implementation/tracking *and* to TMDL development, will be necessary to maximize the effectiveness of the TMDL program as a whole.

Many of the approved TMDL projects are in the early implementation phases of long anticipated timelines for achieving the TMDLs; in most cases, staff and the Central Coast Water Board anticipated it would take a decade or more to achieve the TMDLs. This fact, and the fact that there is not yet a large amount of water quality or implementation data, leads staff to conclude that it is too early to say how close we are to achieving TMDLs or meeting water quality standards.

However, staff is continually evaluating the best ways to see signs of and to demonstrate progress towards TMDL achievement. Staff is also improving ways to prioritize TMDL projects, develop TMDLs, and recommend TMDL implementation plans to resolve watershed and water body impairments related to healthy aquatic habitat, sustainable land management and clean groundwater.