

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

RESOLUTION NO. R5-2008-0030

ESTABLISHMENT OF TOTAL MAXIMUM DAILY LOADS (TMDLs) FOR
PATHOGENS IN STOCKTON URBAN WATERWAYS

WHEREAS:

1. Five-Mile Slough, Lower Calaveras River, Mormon Slough, Mosher Slough, Smith Canal, and Walker Slough have been identified under the Federal Clean Water Act (Clean Water Act) §303(d) (33 U.S.C. §1313(d)) as impaired water bodies due to elevated concentrations of pathogens, which are assessed using indicator organisms.
2. The Clean Water Act §303(d) requires the State to establish the total maximum daily load (TMDL) for those pollutants causing the impairment.
3. The California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) adopted Order R5-2007-0173, NPDES No. CAS083470, which established an NPDES MS4 stormwater permit and monitoring and reporting requirements for stormwater discharges in the City of Stockton.
4. The City of Stockton submitted a *City of Stockton San Joaquin County Pathogen Plan* (Pathogen Plan) on 18 August 2004. Monitoring under this plan is ongoing, as required in NPDES permit Order No. R5-2007-0173, NPDES No. CAS083470 and Central Valley Water Board's *Requirement For Technical Report Pursuant to California Water Code Section 13267*, issued to the City of Stockton on 14 November 2007.
5. NPDES permit Order No. R5-2007-0173, NPDES No. CAS083470 requires the Pathogen Plan to be completed by the end date specified in the plan, at which point water quality objectives for bacteria should be met. Should the water body still fail to meet water quality objectives, the TMDL will be reevaluated to determine what additional measures need to be taken.
6. NPDES permit Order No. R5-2007-0173, NPDES No. CAS083470 provides numerical water quality targets for fecal coliform and *E. coli* to assess the effectiveness of the pathogen pollution prevention plan. These targets are based on the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, fourth edition (Basin Plan) water quality objective for fecal coliform and the U.S. Environmental Protection Agency's (US EPA) freshwater criteria for *E. coli*. The fecal coliform water

- quality objective specifies that fecal coliform concentrations based on a minimum of five samples taken during any 30-day period shall not exceed a geometric mean of 200/100mL, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100mL. (Basin Plan, III-3.00.) US EPA's *E. coli* criteria is a geometric mean concentration of 126/100mL of a statistically sufficient number of samples (generally not less than five samples equally spaced over a 30-day period); and no sample should exceed a single sample maximum allowable concentration of 235 MPN/100mL. (US EPA, 1986.)
7. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) includes a narrative toxicity objective that states "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life" that applies to pathogens in the Stockton urban waterways. US EPA's *E. coli* criteria are used to evaluate the Basin Plan narrative toxicity objective.
 8. The City of Stockton's August 2004 Pathogen Plan, which was approved by the Executive Officer, includes the above referenced *E. coli* levels as a target for the control effort.
 9. The TMDL Report, *Total Maximum Daily Load (TMDL) Report for Pathogens in: Five-Mile Slough, Lower Calaveras River, Mormon Slough, Mosher Slough, Smith Canal, and Walker Slough; San Joaquin County, California*, February 2008, includes an analysis of existing Central Valley Water Board and federal requirements and anticipated water quality improvements associated with those requirements.
 10. The TMDL (Attachment 1) is established in accordance with federal regulations and is established at a level necessary to attain the applicable water quality objectives with respect to pathogens while taking into account seasonal variations and any lack of knowledge concerning the relationship between effluent limitations and water quality. (40 CFR 130.7(c)(1).)
 11. Based on the analysis in the TMDL Report, the Central Valley Water Board concludes that existing Central Valley Water Board and federal regulatory requirements are sufficient to attain water quality objectives in Five-Mile Slough, Lower Calaveras River, Mormon Slough, Mosher Slough, Smith Canal, and Walker Slough with respect to bacteria.
 12. The Central Valley Water Board finds that the data collected upstream of the Stockton urban area does not meet the requirements of the State Water Board's *Water Quality Control Policy for Developing California's*

- Clean Water Act Section 303(d) List* (September 2004) to be considered impaired for pathogens. Therefore, the assumption is being made that there is insufficient information to determine if upstream sources of pathogens are at levels high enough to significantly contribute to the impairment in the listed reaches.
13. The Central Valley Water Board finds that existing regulatory requirements make any further regulatory action to implement this TMDL (i.e., any “project”) unnecessary.
 14. This action is not a “project” that requires compliance with the California Environmental Quality Act (California Public Resources Code § 21000 et seq.) and the Central Valley Water Board is not directly undertaking an activity, funding an activity or issuing a permit or other entitlement for use by this action (Cal. Pub. Res. Code §21065); 14 Cal. Code of Regs. §15378).
 15. The Central Valley Water Board is not approving any activity, but merely finding that ongoing activities and regulatory requirements also satisfy other legislative requirements.
 16. The TMDL does not allow degradation or lower water quality, and does not approve any activity that produces or may produce a waste or increased volume or concentration of waste or an activity that discharges or proposes to discharge to existing high quality waters and, therefore, complies with the State Water Resources Control Board Resolution No. 68-16 and 40 C.F.R. §131.12.
 17. The Central Valley Water Board can amend the Basin Plan or use its other authorities to address localized sources of pathogens should existing regulatory requirements prove insufficient to attain water quality objectives.
 18. Water Board staff released a Draft TMDL Report for public comment on 8 January 2008. The Draft TMDL Report was made available concurrently with the publication of the notice of public meeting.
 19. The Central Valley Water Board held a public meeting on 14 March 2008, for the purpose of receiving testimony on the proposed TMDL. Notice of the public meeting was sent to all interested persons and published in accordance with California Water Code §13244.

THEREFORE BE IT RESOLVED:

1. Pursuant to the Clean Water Act §303(d), the Central Valley Water Board, after considering the entire record, including oral testimony at the meeting, hereby establishes total maximum daily loads of pathogens in Five-Mile Slough, Lower Calaveras River, Mormon Slough, Mosher Slough, Smith Canal, and Walker Slough, as set forth in Attachment 1.
2. The Executive Officer is directed to forward copies of this Resolution and the TMDL Report to the US EPA for approval in accordance with the Clean Water Act §303(d)(2).
3. The Central Valley Water Board will establish no new regulatory requirements based on this TMDL.
4. Any further regulatory action by the Central Valley Water Board to adopt a program of implementation through a Basin Plan Amendment to implement this TMDL is unnecessary.
5. The Central Valley Water Board may amend the Basin Plan or use its other authorities to address localized sources of pathogens should current regulatory requirements prove insufficient to attain water quality objectives.
6. Implementation of the NPDES stormwater permit requirements and Section 13267 of the Porter-Cologne Water Quality Control Act will result in the 303(d) listed Stockton urban waterways meeting the applicable pathogen water quality objectives by the conclusion of the Pathogen Plan.
7. If during its approval process, the US EPA determines that minor, non-substantive corrections to the language of the TMDL are needed for clarity or consistency, the Executive Officer may make such changes, and shall inform the Central Valley Water Board of any such changes.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Central Valley Region, on 14 March 2008.

Original signature on file

PAMELA C. CREEDON, Executive Officer

Attachment 1

Total Maximum Daily Load (TMDLs) for Pathogens in Five-Mile Slough, Lower Calaveras River, Mormon Slough, Mosher Slough, Smith Canal, and Walker Slough

The loading capacity for pathogens in the six Stockton Sloughs is the same as the Numeric Targets, which are protective of the water contact recreation (REC-1) beneficial use. Concentration-based loads are proposed for this TMDL. The concentration-based load allocations do not add up to the total loading capacity. Instead, each individual source (i.e. single discharge points) must meet the required load allocation. The Waste Load Allocations are equal to the Load Allocations, which are equal to the Loading Capacity (see Equation 1 and Table 1). These allocations will be applicable year-round. This formula represents the concentration of pathogen indicators fecal coliform and *E. coli* that can be in the stormwater that runs off or is discharged into any of the six urban waterways. Central Valley Water Board Resolution R5-2008-0030 states that the criteria used for the Numeric Target will be used to evaluate the effectiveness of the Stockton area storm water permittees' pathogen reduction efforts through their Pathogen Plan.

$$LC=WLA=LA=Numeric\ Target \quad (EQ\ 1)$$

Where:

LC = Loading Capacity

WLA = Waste Load Allocation

LA = Load Allocation

Numeric Target = Fecal coliform Water Quality Objective and
US EPA *E. coli* criteria

Each of the listed waterbodies has its own specific waste load allocation (see Table 2). Five-Mile Slough and Smith Canal are entirely impaired waterbodies that are surrounded by urban area. Therefore, these two waterbodies are given a loading capacity and waste load allocation only. Mosher Slough and Walker Slough are impaired within the urban area, but also have urban reaches that are not listed as impaired. Mosher Slough and Walker Slough also have upstream reaches outside of the urban area. At this time, there is not enough information available to determine if non-point sources upstream are significant contributors to pathogen load. Upon completion of the Pathogen Plan, Central Valley Water Board staff will re-evaluate the need for load allocations. The waterbodies are, therefore, assigned a loading capacity and waste load allocation only.

Mormon Slough is impaired from the Deep Water Ship Channel (DWSC) to Commerce Street and from Commerce Street to the Stockton Diverting Canal. The first reach (DWSC to Commerce Street) is assigned a loading capacity and

waste load allocation. As with Mosher and Walker Sloughs, though there are upstream segments of the waterbodies above the urban area, there is insufficient data to conclude, at this time, that the upstream sources are significant enough to justify a load allocation. Thus, upon completion of the Pathogen Plan, Central Valley Water Board staff will re-evaluate the need for load allocations in Mormon Slough from the DWSC to Commerce Street. The second reach (Commerce Street to Stockton Diverting Canal) is not addressed by this TMDL since a portion of the impairment lies outside the city limits and would require a Basin Plan amendment, and will be addressed at another time.

The final waterbody addressed by this TMDL is the lower portion of the Calaveras River. The entire urban portion of the Calaveras River is impaired (from the DWSC to the Stockton Diverting Canal). Upstream of the Stockton Diverting Canal is outside the urban area. The Calaveras River is assigned a loading capacity and a waste load allocation. There are reaches of the Calaveras River upstream of the urban area, however the significance of loading from upstream non-point sources has not yet been determined. Upon completion of the Pathogen Plan, Central Valley Water Board staff will re-evaluate if load allocations are appropriate for the Calaveras River from the DWSC to the Stockton Diverting Canal.

Table 1: Waste Load Allocations for Pathogens in the Stockton Urban Waterways

Allocations	Fecal Coliform Allocation	<i>E. coli</i> Allocation
Waste Load Allocations	200/100 mL Geometric Mean ¹ , nor 400/100 mL for 10% of samples ²	126/100 mL Geometric Mean ³ , and 235/100 mL single sample maximum
Load Allocations	200/100 mL Geometric Mean ¹ , nor 400/100 mL for 10% of samples ²	126/100 mL Geometric Mean ³ , and 235/100 mL single sample maximum

¹ Geometric mean concentration of not less than five samples for any 30-day period

² During any 30-day period

³ Geometric mean concentration of a statistically sufficient number of samples (generally not less than five samples equally spaced over a 30-day period)

Table 2: Waterbody Allocations

Waterbody	Waste Load Allocation	Load Allocation
Five-Mile Slough Smith Canal	X	
Mosher Slough Walker Slough	X	See footnote below¹
Mormon Slough (DWSC to Commerce Street)	X	See footnote below¹
Calaveras River	X	See footnote below¹

¹ The Central Valley Water Board staff does not have sufficient data to assign load allocations to these waterbodies at this time, but acknowledges that each of these water bodies has upstream reaches outside of the urban area. The load contribution from these upstream reaches will be re-evaluated after completion of the Pathogen Plan.

Margin of Safety

For this TMDL, the Margin of Safety is an implicit Margin of Safety. Pathogens cannot survive for long periods of time outside of the host body (human or other). Because of this, pathogen concentrations are expected to decrease as they move away from the source due to factors that influence their die-off rate. These factors include parameters such as sunlight, temperature, and predation (U.S. EPA, 2001). Additionally, the *E. Coli* single sample numeric target (235/100 mL) is based on the most conservative recreational use frequency. Therefore an implicit Margin of Safety is provided for the TMDL and an additional explicit Margin of Safety is not required.

Seasonal Variations

Currently there is a lack of adequate data on frequency of recreational use and how background levels vary by season. Until such a time when sufficient information is developed to justify otherwise, and since the TMDL is concentration-based, the level necessary to attain water quality objectives is the same throughout the year.