



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

SEP 21 2007

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Ms. Dorothy Rice
Executive Director
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Dear Ms. Rice:

Thank you for submitting a total maximum daily load (TMDL) to address nutrients in Clear Lake. The submittal was dated June 18, 2006. The submittal included scientific analysis evaluating two nutrient parameters and determined that addressing elevated phosphorus loads would resolve water quality problems in Clear Lake. California adopted the TMDL to address phosphorus in Clear Lake which is a reasonable interpretation of "nutrients" identified on the State's 2006 Clean Water Act Section 303(d) list.

Based on EPA's review, I have concluded the TMDL adequately addresses the pollutant of concern, and will, upon implementation, result in attainment of applicable water quality standards. The TMDL includes allocations as needed, takes into consideration seasonal variations and critical conditions, and provides an adequate margin of safety. The State provided adequate opportunities for the public to review and comment on the TMDL. All required elements are adequately addressed; therefore, the TMDL is hereby approved pursuant to Clean Water Act Section 303(d)(2).

The State's submittal also contains a detailed plan for implementing the TMDL. Current federal regulations do not define TMDLs as containing implementation plans; therefore, EPA is not taking action on the implementation plan provided with the TMDL. However, EPA generally concurs with the State's proposed implementation approaches.

The enclosed review discusses the basis for this approval decision. We appreciate the State and Regional Boards' work to complete and adopt the TMDL and look forward to our continuing partnership in TMDL development. If you have questions concerning this approval, please call me at (415) 972-3572 or Debra Denton at (916) 341-5520.

Sincerely yours,

Alexis Strauss 31 Sept. 2007
Alexis Strauss, Director
Water Division

Enclosure

cc: Pamela Creedon, Central Valley RWQCB

TMDL Review Checklist

State: California

Waterbodies: Clear Lake

Pollutant(s): Nutrients (phosphorus)

Date of Initial Submission: June 18, 2007

Date Received By EPA: July 5, 2007

EPA Reviewer: Debra Denton

1. Submittal Letter:

State submittal letter indicates final TMDL(s) for specific water(s)/pollutant(s) were adopted by state and submitted to EPA for approval under 303(d). Acknowledge if any supplemental material was provided and receipt date.

Submittal letter dated June 18, 2007.

The Central Valley RWQCB adopted the nutrients TMDL for Clear Lake on June 23, 2006 (RWQCB Resolution # R5-2006-0060). The California State Board (SWRCB) approved this TMDL on April 3, 2007 (SWRCB Resolution # 2007-0012). The State Office of Administrative Law approved the TMDL on June 19, 2007 (OAL file # 07-0510-01 S). The submittal addresses the Clear Lake as identified on the State's 2002 and 2006 CWA Section 303(d) list for nutrients.

The submittal contained the TMDL staff report dated June 2006 and other documents described above.

EPA finds the State's analysis concerning water body impairment associated with elevated nutrients in Clear Lake to be reasonable and consistent with the requirements of Section 303(d).

2. TMDLs Included:

The submittal clearly identifies the water segments and pollutants or stressors for which TMDLs were developed. The submittal should include the water segment identifier (e.g., NHD code) for each segment addressed. The submittal should clearly identify the TMDLs adopted for currently 303(d) listed waterbody-pollutant combinations. It should also clarify if TMDLs were adopted for new impairment findings (by waterbody-pollutant combinations) that do not exist on the current 303(d) list. If appropriate, the submittal should describe any assessment decisions that may have resulted in non-impairment status for water/pollutant combinations that exist on State's most current 303(d) list.

The submittal addressed one segment of Clear Lake identified on the State's 2002 and 2006 CWA Section 303(d) list for nutrients. The submittal included scientific analysis evaluating both nitrogen and phosphorus levels and determined that addressing elevated phosphorus loads would resolve water quality problems in Clear Lake.

3. Water Quality Standards Attainment: *TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.*

(TMDL report, page 14-15)

The TMDL is designed to achieve the narrative objective for "biostimulatory substances" which states that "Water shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses."

The State reasonably concluded that attainment of the numeric targets and associated TMDLs, waste load allocations, and load allocations will result in attainment of the applicable numeric water quality objectives.

4. Numeric Target(s): *Submission describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria. Numeric water quality target(s) for TMDL identified, and adequate basis for target(s) as interpretation of water quality standards is provided.*

(TMDL report, page 14-15)

The numeric target is expressed as chlorophyll-a, not to exceed 73 ug/L. This numeric target was determined to address the narrative objective for biostimulatory substances for aquatic life use support. This TMDL clearly defines the beneficial uses and the applicable water quality objectives to be achieved.

EPA concludes that the State's approach to apply the existing narrative water quality objective is reasonable, environmentally protective, and consistent with existing standards.

5. Source Analysis: *Point, non-point, and background sources of pollutants of concern are described, including the magnitude and location of sources. Submittal demonstrates all significant sources have been considered. Point, nonpoint, and background sources of pollutants of concern are described, including the magnitude and location of sources. The submittal demonstrates all significant sources have been considered.*

(TMDL report, pages 15-16)

Studies indicate that excess phosphorus is the primary driver of nuisance blue green algae blooms in Clear Lake. This TMDL identifies and describes the activities which are most likely sources of excess phosphorus to Clear Lake. These include activities such as erosion from paved and unpaved roads, agricultural activities, construction, timber harvesting, gravel mining, dredging, urban stormwater runoff and sewage in septic overflows.

The submittal adequately considered all significant sources of phosphorus in Clear Lake.

6. Loading Capacity Linkage Analysis: *Submittal describes relationship between numeric target(s) and identified pollutant sources. Submittal clearly identifies loading capacity. For each pollutant, describes analytical basis for conclusion that sum of allocations and margin of safety does not exceed the loading capacity of the receiving water(s).*

(TMDL report, pages 16-18)

The linkage analysis for this TMDL is intended to demonstrate the waste load allocations and load allocations will result in attainment of the water quality objectives. The modeling studies predict a 40% reduction in average phosphorus loading will significantly reduce the incidence of algal blooms. The submittal adequately describes the relationship between the numeric targets, pollutant sources and the total assimilative capacity (loading capacity) of the waterbody.

7. TMDL and Allocations:

TMDL—Submittal identifies the total allowable load, which is set equal to or less than the loading capacity. TMDL is expressed in terms of mass-based, concentration-based or other equivalent approaches that are consistent with federal requirements. If TMDL has seasonal features then please describe. TMDLs and allocations should be expressed in terms of daily time steps. If the TMDL and/or allocations are also expressed in terms other than mass loads per day, the submittal explains why it is reasonable and appropriate to express the TMDL in those terms.

Allocations—Submittal identifies appropriate waste load allocations for all point sources and load allocations for all non-point sources. Allocations are expressed in terms of mass-based, concentration-based or other equivalent approaches, the submittal explains why it is reasonable and appropriate to express in those terms. If point sources are present, submittal identifies existing NPDES permits by name and number. More discussion of point sources in watershed. If no point sources are present, waste load allocations are zero. More discussion of non-point sources. If no non-point sources are present, then load allocations are zero.

(TMDL report pages 14-16)

Total Waste Load and Load Allocations:

The submittal defines the allowable total phosphorus loading as 87,100 kg/yr.

Waste Load Allocations for Point sources:

The TMDL is allocated to the NPDES facilities discharging to the lake which include:

- a) Lake County stormwater permittees (Lake County, City of Clear Lake, City of Lakeport) – 2,000 kg phosphorus/yr. NPDES CAS000004
- b) California Department of Transportation (Caltrans) – 100 kg phosphorus/yr. NPDES No. CAS000003

Load Allocations for Nonpoint sources:

The load allocation for nonpoint source discharges is 85,000 kg phosphorus/yr average annual load (five year rolling average). The US Bureau of Land Management, U.S. Forest Service, Lake County, and irrigated agriculture are responsible for controlling phosphorus discharges from these portions of the watershed within their respective authority. Regional Water Board staff will work with responsible parties to develop and implement a plan to collect information needed to determine what factors are important in controlling nuisance blooms and to recommend what control strategy should be implemented. The responsible parties will submit the plan to the Regional Board by one year after approval by Office of Administrative Law.

EPA concludes the TMDL includes appropriate load allocations and waste load allocations for the water body and the pollutant of concern and is consistent with the provisions of CWA and federal regulations. See 40 CFR 130.2(i). These allocations may be interpreted on a daily basis by converting the annual loads into average daily loads.

8. Margin of Safety: *Submission describes explicit and/or implicit margin of safety for each pollutant.*

(TMDL report, page 18)

The TMDL incorporates an implicit margin of safety by using conservative assumptions in the model development and an explicit 10% margin of safety.

EPA considers this an appropriate approach for dealing with uncertainty concerning the relationship between TMDL, wasteload allocations, load allocations, and water quality conditions.

9. Seasonal Variations and Critical Conditions: *Submission describes method for accounting for seasonal variations and critical conditions in the TMDL(s).*

The submittal relies on water quality targets which are applicable year-round. This TMDL takes into account annual variations through an evaluation of an extensive data set of water quality, land use and meteorological data to model the Clear Lake aquatic system. The model was calibrated and validated using streamflow and water quality data from three stream gages in the watershed over a period from 1985 to 1992 which accounted for seasonal variation.

The State's analysis adequately accounts for seasonal variations and critical conditions.

10. Public Participation: *Submission documents provision of public notice and public comment opportunity; and explains how public comments were considered in the final TMDL(s).*

The Central Valley Regional Water Board adequately held public meetings and responded to written and oral comments from the public. The Central Valley Regional Water Board's public hearing was held on June 23, 2006 for the purpose of receiving testimony on the proposed basin plan amendment. California SWRCB also held a public hearing on April 3, 2007 for approval of this TMDL. Stakeholder comments were addressed during and after these workshops and hearings.

The State demonstrated that it provided sufficient opportunities for public comments and considered public comments in its final decision by providing reasonably detailed responsiveness summaries.

11. Technical Analysis: *Submission provides appropriate level of technical analysis supporting TMDL elements.*

The TMDL analysis provides an acceptable review and summary of available information about nutrients and a sufficiently clear discussion of analytical methods used to calculate this TMDL.

EPA concludes the State was reasonably diligent in its technical analysis.

12. Reasonable Assurances: *If waste load allocations are made less stringent based on inclusion of load allocations that reflect nonpoint source reductions, submission describes how there are reasonable assurances necessary nonpoint source reductions will occur.*

Not applicable.

13. Other: *table for clarifying submittal for TMDL waterbody-combinations for corresponding 303(d) listing, new impairment findings or non-impairment findings.*

Not applicable.