

# **Guidance for Developing TMDLs in California**

## **EPA Region 9**

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## Disclaimer

This document provides guidance to the State of California concerning its responsibility under section 303(d) of the Clean Water Act concerning the development of TMDLs for water quality-limited segments listed under section 303(d). It also provides guidance to the public and the regulated community on how EPA intends to exercise its discretion in implementing section 303(d) and its regulations regarding TMDLs. The guidance is designed to implement national regulations and policies on these issues. The document does not, however, substitute for section 303(d) of the Clean Water Act or EPA's regulations; nor is it a regulation itself. Thus, it does not impose legally-binding requirements on EPA, the State of California, or the regulated community, and may not apply to a particular situation based upon the circumstances. EPA and State decision makers retain the discretion to adopt approaches on a case-by-case basis that differ from this guidance where appropriate and consistent with the requirements of section 303(d) and EPA's regulations. EPA may change this guidance in the future.

## **1. What does this guidance address?**

Clean Water Act Section 303(d) establishes a water quality assessment and planning process through which states, territories, and authorized tribes are required to identify polluted waterbodies, set priorities for addressing these polluted waters, and write pollutant control plans called Total Maximum Daily Loads (TMDLs) in order to attain state water quality standards, including water quality standards promulgated by EPA for California. This process, known generally as the TMDL process, provides an effective mechanism for determining the causes of waterbody impairment and allocating responsibility among different pollutant discharge sources for reducing pollutant emissions to achieve water quality standards. The TMDL process affords the public the opportunity to participate in decisions about these pollutant control plans. States are generally responsible for developing TMDLs, and EPA reviews and approves TMDLs. If EPA disapproves a TMDL, EPA is responsible for establishing the TMDL for the State. In some cases, EPA may also establish TMDLs when the State has not yet adopted and submitted a required TMDL. TMDLs are implemented through existing regulatory and non-regulatory programs to control pollutant discharges from point sources (e.g. discharges from wastewater treatment plants) and nonpoint sources (e.g. polluted runoff from agricultural lands).

The goal of a Total Maximum Daily Load (TMDL) is to attain state water quality standards including water quality standards promulgated by EPA for California. A TMDL is a written, quantitative assessment of water quality problems and contributing pollutant sources. It identifies one or more numeric targets based on applicable water quality standards, specifies the maximum amount of a pollutant that can be discharged (or the amount of a pollutant that needs to be reduced) to meet water quality standards, allocates pollutant loads among sources in the watershed, and provides a basis for taking actions needed to meet the numeric target(s) and implement water quality standards.

This guidance describes the minimum federal requirements for developing TMDLs as well as additional requirements for establishing TMDLs in California which must be met in order to comply with State legal and administrative procedures.<sup>1</sup> It is important that TMDLs include all the required elements and comply with federal and state procedural requirements in order to ensure that the TMDLs include information needed to implement effective pollutant controls, provide meaningful opportunities for public input, and are legally and technically defensible. More than 500 waterbodies or segments have been identified as needing TMDLs in California, many for multiple pollutants. Therefore, a great deal of work needs to be done by the State, EPA, and interested stakeholders to develop and implement TMDLs. This guidance, which is tailored to California's unique legal and administrative process, should assist in completing this work in a timely manner.

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<sup>1</sup> This guidance reports EPA's understanding of requirements which stem from State statutes, regulations, or policies, based on information furnished by the State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards (RWQCBs). Interested parties should contact the SWRCB or RWQCBs to obtain definitive guidance concerning State-related requirements.

This guidance is based on existing federal and state requirements in effect in January, 2000. The guidance does not address proposed changes in federal TMDL requirements or possible changes in California's TMDL program being considered in the State legislature. The guidance also does not address the process for identifying waterbodies that do not meet Water Quality Standards after application of technology-based and other required controls (the Section 303(d) list). The guidance does not discuss TMDL implementation requirements in detail since TMDL implementation plans are currently governed by regulatory provisions which are separate from TMDL development requirements. Finally, the guidance focuses upon legal and procedural requirements and does not provide technical guidance concerning scientific methodologies for developing TMDLs.

In August 1999, EPA published proposed revisions to the TMDL regulations and national TMDL guidance. This California guidance will remain in effect unless EPA determines that it is superseded by new regulations and/or guidance.

## **2. Minimum Required Elements of TMDLs**

### **2.1 Federal Requirements**

State TMDL SUBMITTAL and TMDLs established by EPA **must** contain the following elements indicated in bold type in order to be approvable under the Clean Water Act (CWA) and associated federal regulations<sup>2</sup>:

#### **1. Submittal Letter**

**A letter must be submitted by the State providing notification that the final TMDL(s) for specific water(s)/pollutant(s) were adopted by the State and submitted to EPA for approval under Section 303(d) of the CWA [40 CFR 130.7(d)].**

#### **2. Water Quality Standards Attainment**

**The TMDL and associated waste load and load allocations must be set at levels necessary to result in attainment of all applicable water quality standards, including designated beneficial uses, narrative water quality objectives<sup>3</sup>, numeric water quality objectives, and State anti-degradation policies [40 CFR 130.7(c)(1)].**

#### **3. Numeric Target(s)**

**The TMDL document describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative objectives, and antidegradation**

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<sup>2</sup>In this document, the term "must" is used to describe a federal requirement. The terms "may" or "should" are used to describe recommended program actions or elements.

<sup>3</sup> In California, the term "water quality objective" is equivalent to the federal "water quality criteria".

**policies. Numeric water quality target(s) for TMDL must be identified, and an adequate basis for target(s) as interpretation of water quality standards must be specifically documented in the submittal. [40 CFR 130.7(c)(1)]** TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure.

These targets identify the specific instream (and potentially hillslope) goals or endpoints for the TMDL which equate to attainment of the water quality standard. In some cases, multiple indicators and associated numeric target values may be needed to interpret an individual water quality standard (e.g. multiple fish habitat indicators to interpret acceptable sediment levels). In addition, some TMDLs may incorporate multiple numeric targets to account for seasonal differences in acceptable pollutant levels in a particular water body.

In many cases where applicable standards are expressed in numeric terms, it is appropriate to set the numeric target equal to the numeric water quality standard. However, it may be desirable to interpret a numeric standard in terms other than the method through which the standard is expressed as long as the target(s) can be shown to relate back to achieving the water quality standard(s). For some pollutants (e.g., bioaccumulative toxins or salts) or receiving water settings (e.g. lakes or poorly mixed waters), it makes more sense from the standpoint of source control and impact assessment to focus the TMDL on reductions of pollutant mass loads than solely on avoidance of exceedences of concentration-based standards.

In situations where applicable water quality standards are expressed in narrative terms or where 303(d) listings were prompted primarily by beneficial use or antidegradation concerns, it is necessary to develop a quantitative interpretation of narrative standards. Since a TMDL is an inherently quantitative analysis, it is necessary to determine appropriate quantitative indicators of the water quality problem of concern in order to calculate a TMDL. It is sometimes possible to supplement instream indicators and targets with hillslope targets-- measures of conditions within the watershed which are directly associated with waterbodies meeting their water quality standards for the pollutant(s) of concern.

The numeric targets section generally includes the following elements:

- ▶ identification of one or more instream indicators (and possibly hillslope indicators) and the basis for using the indicator(s) to interpret or apply applicable water quality standards
- ▶ identification of target levels for each indicator and the technical basis for the targets
- ▶ comparison of historical or existing conditions and target conditions for the indicators selected for the TMDL.

If it is determined that water quality standards are now being met throughout the year taking into account seasonal variations and other critical conditions, and are not expected to be exceeded by the next listing cycle, then the TMDL is not required (although it can be developed to support permit issuance or for informational purposes pursuant to Clean Water Act Section 303(d)(3)). If the State determines a TMDL is not necessary after the TMDL development process has begun, the State would normally stop work on the TMDL and identify the waterbody as a candidate for removal from the 303(d) list at the time of the next listing cycle. EPA

encourages the State to notify interested members of the public of this finding and potentially provide an opportunity for public review of the State's analysis. For TMDLs required under consent decrees, the State should notify EPA immediately of any finding that the TMDL is not necessary in order for EPA to ensure that consent decree requirements are met.

#### **4. Source Analysis**

**Point, nonpoint, and background sources of pollutants of concern must be described, including the magnitude and location of sources. The TMDL document demonstrates all sources have been considered [40 CFR 130.2(i) and 40 CFR 130.7(c)(1)].**

An understanding of pollutant loading sources and the amounts and timing of pollutant discharges is vital to the development of effective TMDLs. The TMDL document must provide estimates of the amounts of pollutants entering the receiving water of concern or, in some cases, the amount of pollutant that is bioavailable based on historic loadings stored in the aquatic environment. These pollutant sources or causes of the problem need to be documented based on studies, literature reviews or other sources of information. Because the source analysis provides the key basis for determining the levels of pollutant reductions needed to meet water quality standards, and the allowable assimilative capacity, TMDL, wasteload allocations, and load allocations, quantified source analyses are required. Sources can be categorized in many ways, including but not limited to discharge source, land use category, ownership, pollutant production process (e.g. sedimentation processes), and/or tributary watershed areas. The source analysis must discuss in detail the data and methods used to estimate source contributions.

#### **5. Link Between Numeric Target(s) and Pollutant(s) of Concern**

**The TMDL document must describe the relationship between numeric target(s) and identified pollutant sources, and estimate total assimilative capacity (loading capacity) of the waterbody for the pollutant of concern [40 CFR 130.7(d) and 40 CFR 130.2 (i) and (f)].**

The loading capacity is the critical quantitative link between the applicable water quality standards (as interpreted through numeric targets) and the TMDL. Thus, a maximum allowable pollutant load must be estimated to address the site-specific nature of the impairment. The loading capacity reflects the maximum amount of a pollutant that may be delivered to the waterbody and still achieve water quality standards. A number of different loading capacity approaches have been approved as part of TMDLs.

The loading capacity section must discuss the methods and data used to estimate loading capacity. A range of methods can be used from predictive water quality models to inferred linkages based on comparison of local reference conditions with existing conditions in the watershed of concern. In some cases, loading capacity may vary within the watershed of concern (e.g., toxics loading capacity may be higher in areas with high water mixing rates than in backwater areas with poor water exchange), and in different time periods (e.g. nutrient loading capacity may be lowest during high temperature summer low flow periods). The basis for spatial and temporal variations in loading capacity estimates should be discussed in detail.

## **6. TMDLs and Individual Load and Wasteload Allocations**

**The document must identify the TMDL (total allowed pollutant amount) and its components: appropriate wasteload allocations for point sources and load allocations for nonpoint sources and natural background. If no point sources are present or anticipated, wasteload allocations are zero. If no nonpoint sources are present or anticipated, load allocations are zero. TMDLs and associated wasteload and load allocations must be expressed in quantitative terms [40 CFR 130.2 (e-i) and 40 CFR 130.7(c)].**

The method of TMDL calculations must be discussed in detail. In some cases it will be appropriate to reserve (i.e., not allocate) a portion of the allowable loading capacity as part of the TMDL and its associated allocations. Such reserves may address the margin of safety requirement, account for sources which do not receive specific allocations, and/or to provide for future sources (although EPA advises providing for future sources through establishment of load allocations for future loading sources where feasible).

Separate wasteload and load allocations are needed for point and nonpoint sources, respectively. In cases where it is feasible, individual wasteload allocations should be established for each existing or anticipated future point source discharge, including NPDES-permitted stormwater discharges. However, circumstances may arise in which it is appropriate to set wasteload allocations that cover more than one discharge (e.g., discharges covered by a general permit). The State should coordinate with EPA prior to proposing a wasteload allocation which addresses more than one discharge, and clearly explain how the group wasteload allocation would be implemented.

Load allocations for nonpoint sources may be expressed as specific allocations for specific dischargers or as “gross allotments” to nonpoint source discharger categories. Separate nonpoint source allocations should be established for background loadings. Allocations may be based on a variety of technical, economic, and political factors. The methodology used to set allocations should be discussed in detail. It is advisable to include some assessment of the feasibility of the allocations in order to increase the likelihood that the TMDL can actually be attained through implementation actions and, accordingly, is sufficient to be approved by EPA.

TMDLs (and thus, load allocations and wasteload allocations) can be expressed as “*mass per time, toxicity, or other appropriate measure*”, depending on the type of waterbody and the sources that contribute to impairment. When using allocations in some “*other appropriate measure*” a discussion of why the “*other appropriate measure*” was used is necessary. “*Other appropriate measures*” may include an estimate of the percent reduction in discharge of the pollutant of concern which is needed to attain water quality standards. Where the percent reduction approach is used, the specific pollutant loading baseline against which the reductions are to be measured must be specified. For example, if the water quality impairment is due to excessive sedimentation from upland conditions, then the allocations may relate to the decrease in amount of erosion from uplands. If the problem is sedimentation related to channel conditions, then the allocations may relate to the decrease in the amount of bank erosion or the increase in stream stability.

Load allocations can be expressed in many ways. It is important to express load allocations in ways that can be implemented and monitored effectively. Where feasible, load allocations should be expressed in terms of:

- ▶ individual discharge location,
- ▶ individual land ownership, or
- ▶ individual land area subject to management jurisdiction by a single entity.

Where it is infeasible to set load allocations in these terms, load allocations may be expressed in the following ways:

- ▶ by pollutant discharge process (e.g. landslides),
- ▶ by land use type (e.g., rangeland),
- ▶ by land characteristics (e.g., geologic type)
- ▶ by discharger group (e.g. construction sites),
- ▶ by tributary subbasin area,
- ▶ by waterbody segment, or
- ▶ other discreet source description method approved by EPA.

In some TMDLs, it will be appropriate to express load allocations in terms of multiple classifications. Examples may include:

- ▶ lands managed for timber harvest with slopes greater than X% or less than X%,
- ▶ row crop lands located within 1000 feet of perennial streams or outside that zone, or
- ▶ unpaved roads within the A, B, and C subbasins of a larger watershed.

Federal regulations do not establish specific criteria which must be considered in dividing and allocating any available loading capacity between contributing sources. The State may consider a mix of the following allocation criteria (see Technical Support Document for Water Quality Based Permit Decisions (EPA, 1991) for more information):

- ▶ technical and engineering feasibility,
- ▶ cost or relative cost,
- ▶ economic impacts/benefits,
- ▶ cost effectiveness,
- ▶ fairness/equity,
- ▶ ability to monitor implementation and effectiveness,
- ▶ assurance and timeliness of attainment of the TMDL and water quality standards,
- ▶ relative source contributions, and/or
- ▶ other appropriate criteria.

## **7. Margin of Safety**

**The TMDL document must describe an explicit and/or implicit margin of safety for each pollutant [40 CFR 130.7(c)].**



An explicit margin of safety can be provided by reserving (not allocating) a portion of the loading capacity identified for the waterbody for the pollutant of concern. An implicit margin of safety can be provided by making and documenting conservative assumptions used in the TMDL analysis. The TMDL submittal must provide a detailed explanation of the basis for margin of safety which shows why it is adequate to account for uncertainty in the TMDL. Where an implicit margin of safety is provided, the submittal should include a specific discussion of sources of uncertainty in the analysis and how individual analytical assumptions or other provisions adequately account for these specific sources of uncertainty.

Different analysis steps in TMDL development will involve different levels of uncertainty in the accuracy of results. TMDL developers should consider and document the types of uncertainty involved in each step of the analysis. Because TMDLs must account for uncertainties in the analysis, the different sources of uncertainty should be summarized. A margin of safety is required in the TMDL to account for uncertainty in the understanding of the relationship between pollutant discharges and water quality impacts. In any case, assumptions must be stated and the basis behind the margin of safety must be documented. The margin of safety is not meant to compensate for a failure to consider known sources.

## **8. Seasonal Variations and Critical Conditions**

**The TMDL document must describe the method used to account for seasonal variations and critical conditions (e.g., stream flows, pollutant loadings, and other water quality parameters) in the TMDL(s) [40 CFR 130.7(c)].**

Pollutant discharges and associated effects on beneficial uses may vary in different years and at different times of the year. The TMDL developer should evaluate how seasonal or interannual variations in loadings, flows, pollutant fate and transport, pollutant effects, ecological conditions or other factors affect the waterbody of concern in TMDL. TMDLs are required to demonstrate how seasonal variations and critical conditions were accounted for in the TMDL analysis in order to ensure that the TMDL results in attainment of water quality standards throughout the year. The TMDL document must show how the TMDL accounts for seasonal variations and critical conditions concerning receiving water flow (e.g. low flow during drought periods), receiving water conditions (e.g. temperature), beneficial use impacts (e.g., key aquatic life stages), pollutant loadings (e.g., high flow nonpoint source runoff), and other environmental factors which affect the relationship between pollutant loading and water quality impacts. This element is required in order to ensure that the TMDL will protect the receiving water during the periods in which it is most sensitive to the impacts associated with the pollutant(s) of concern.

## **9. Public Participation**

**The TMDL package must document the provision of public notice and public comment opportunity concerning TMDL calculations; and explains how public comments were considered in the final TMDL(s) [40 CFR 130.7(c)(1)].**

Minimum requirements for public participation for state adopted and EPA established TMDLs are discussed in the following section. However, there are additional ways of providing for public participation in TMDL development beyond the minimum. Table 1 on the following page summarizes three models of stakeholder participation and discusses some advantages and disadvantages of each model. These examples do not cover all approaches to providing for public participation but are intended to illustrate a range of viable public participation models. Although the State can address minimum federal requirements concerning public participation by providing a 30 day notice and comment period and preparing a comment responsiveness summary, EPA encourages that, where feasible, the State communicate with the public earlier in the process of developing a particular TMDL to discuss the TMDL approach and stakeholder involvement opportunities.

## **10. Technical Analysis**

**The TMDL document must provide an appropriate level of technical analysis supporting all TMDL elements [40 CFR 130.2(i) and 40 CFR 130.7(c)].**

The State may include needed technical analysis in the TMDL document, submit copies of supporting documentation providing technical analysis supporting the TMDL, or cite documents in the State's administrative record which discuss the supporting technical analysis in detail. If the State cites documents as the basis for technical findings in the TMDL which are not submitted with the TMDL package, the TMDL document must clearly summarize the technical analysis supporting the findings concerning individual TMDL elements. In addition, the State should maintain these documents in its administrative record for review by EPA on request.

**Table 1: Public Participation Models**

Model	Characteristics	Advantages	Disadvantages
Public Notice and Comment	<ul style="list-style-type: none"> <li>- provides formal opportunity to review proposed TMDL, may include public hearings</li> <li>- responses are provided to public comments in final TMDL or in a responsiveness summary</li> <li>- State or EPA explain how comments were considered in the final decision</li> </ul>	<ul style="list-style-type: none"> <li>- less time and resource intensive</li> <li>- satisfies minimum public participation requirements</li> <li>- avoids repetition of effort where TMDL based on previous, uncontroversial decisions</li> </ul>	<ul style="list-style-type: none"> <li>- interested parties will not hear about TMDL</li> <li>- reduces chance of local support and buy-in</li> <li>- developing comment responses can be time consuming and difficult</li> <li>- may be dissatisfying to stakeholders who want more involvement</li> </ul>
Stakeholder Consultation Plus Public Comment Period	<ul style="list-style-type: none"> <li>- developer meets several times with stakeholders during TMDL development</li> <li>- developer informs group of progress and draft analysis, seeks input</li> </ul>	<ul style="list-style-type: none"> <li>- involved stakeholders not taken by surprise</li> <li>- increases chances for local support/buy in</li> <li>- earlier identification of tough or contentious issues</li> </ul>	<ul style="list-style-type: none"> <li>- moderately time/resource intensive</li> <li>- may be dissatisfying to stakeholders who want more involvement</li> <li>- difficult to manage expectations</li> </ul>
Extensive Stakeholder Collaboration Plus Public Comment Period	<ul style="list-style-type: none"> <li>- stakeholders involved from outset in different TMDL elements</li> <li>- stakeholders may do substantial analysis, not just review state work</li> <li>- stakeholders may attempt to seek agreement on TMDL content</li> </ul>	<ul style="list-style-type: none"> <li>- best chances for local support/buy in</li> <li>- improves ability to identify and evaluate implementation measures</li> <li>- may reduce resources needed for analysis since other parties do some analysis</li> </ul>	<ul style="list-style-type: none"> <li>- very time/resource intensive</li> <li>- may be unrealistic to get consensus or agreement on TMDL content</li> <li>- problematic for TMDLs with tight, inflexible deadlines</li> <li>- may be unsatisfying to interested stakeholders-- extensive time commitments required may be infeasible for many interested groups</li> </ul>

### Requirements For The Phased Approach To TMDLs

EPA has described an approach to TMDL development in situations where data and information needed to determine the TMDL and associated allocations are limited. This “phased approach” to TMDLs enables States to adopt TMDLs and begin implementation while collecting additional information needed to review and, if necessary, revise TMDL elements based on new information (see Guidance for Water Quality Based Decisions-- The TMDL Process (EPA, 1991) for more information). For TMDLs developed under the “phased approach”, the following additional element must be included in the TMDL submittal:

### 11. Monitoring and Review Plan

**TMDLs developed under phased approach must identify specific implementation actions, monitoring plans and a schedule for considering revisions to the TMDLs.**

EPA also recommends that any TMDL include a monitoring and review process whether it is developed pursuant to the phased approach or not.

#### Requirement Concerning Point/Nonpoint Source Allocation Practicability

For waters affected by both point source and nonpoint source discharges, TMDL documents must address the following additional requirement. Note that EPA has also established national policies concerning reasonable assurances as part of TMDL implementation plans, which are discussed in the implementation section of this guidance.

### **12. Showing of Practicability of Nonpoint Source Load Allocations**

**Where point source(s) receive less stringent wasteload allocations because nonpoint source reductions are expected and reflected in load allocations, the TMDL must include a demonstration that nonpoint source loading reductions needed to implement load allocations are actually practicable [40 CFR 130.2(i) and 122.44(d)].**

This means that the load allocations are technically feasible and reasonably assured of being implemented in a reasonable period of time. Reasonable assurances may be provided through use of regulatory, non-regulatory, or incentive based implementation mechanisms as appropriate but must include an actual demonstration that the measures identified will actually obtain the predicted reductions and that the State is able to assure this result.

## **2.2 Other EPA Guidance Concerning TMDL Content**

In addition to these minimum required elements, EPA recommends that all TMDLs should contain the following elements in order to facilitate public and EPA review of the TMDL:

### **Problem Statement**

The process of problem definition identifies the context for TMDL development and describes the water quality standards issue(s) which prompted development of the TMDL. The problem statement should identify:

- ▶ name(s) and location(s) of waterbody segments for which the TMDL is being developed,
- ▶ the pollutant(s) for which the TMDL is being developed and information about why the pollutant(s) are being addressed,
- ▶ the specific applicable water quality standard(s) for those pollutants,
- ▶ a description of the water quality impairment or threat which necessitated TMDL development, and
- ▶ adequate background information about the watershed setting for the TMDL to help the reader understand the key water quality, pollutant discharge, land use, and resource protection issues in the watershed.

## **Administrative Record Keeping**

An administrative record that supports development and approval of the TMDL should also be prepared. Components of the administrative record should include all materials used to develop the TMDL and make decisions, including any data or references that were used, records of any correspondence, and other background materials. Such a record is needed in order to ensure that the public has the opportunity to review documents which formed the basis for the TMDL. In addition, EPA may request access to documents upon which the State relied in developing a TMDL if necessary to determine whether a TMDL submittal complies with federal requirements. As discussed above under Technical Analysis, the State should maintain in its administrative record copies of technical documents which serve as the basis for one or more findings contained in the TMDL submittal to EPA.

## **2.3 Federal Requirements and Guidance Concerning TMDL Implementation**

States are not currently required to include implementation plans as part of the TMDL submittal. However, federal regulations require States to incorporate TMDLs in the State Water Quality Management Plan along with adequate implementation measures to implement all aspects of the plan (including the TMDLs) [40 CFR 130.6]. Therefore, TMDL implementation measures must be identified by the State and submitted for EPA's review, either concurrent with the TMDL or afterward. EPA suggests that the implementation plan should be prepared and submitted concurrent with the TMDL. If the State plans to prepare the implementation plan after the TMDL, the State's TMDL submittal should provide a schedule for developing the implementation plan.<sup>4</sup> Federal regulations do not currently provide that EPA will establish an implementation plan for TMDLs established by EPA. However, EPA may make implementation recommendations as part of TMDLs it establishes. States should consider EPA's implementation recommendations at the time the State develops its implementation measures for the TMDL and should adopt these measures into the Basin Plan unless the State identifies alternative measures which are sufficient to implement the TMDL.

The State's TMDL implementation plan submittal should describe planned implementation actions or, where appropriate, specific process(es) and schedule(s) for determining future implementation actions. The implementation plan needs to be sufficient to implement all wasteload and load allocations in a reasonable period of time. TMDL(s) and implementation measures are formally incorporated into the water quality management plan through the state's established process for amending that plan. Water quality management plan revisions must be consistent with other existing provisions of the water quality management plan [40 CFR 130.6].

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<sup>4</sup> As discussed in Section 2.4 below, the State of California's position is that State law usually requires the Regional Boards to adopt implementation provisions concurrent with TMDLs in order to meet State Basin Planning requirements for TMDL adoption.

## **Reasonable Assurances Concerning Implementation**

EPA's national policy is that all TMDLs are expected to provide reasonable assurances that they can and will be implemented in a manner that results in attainment of water quality standards (EPA, 1997). This means that the wasteload and load allocations are technically feasible and reasonably assured of being implemented in a reasonable period of time. Reasonable assurances may be provided through use of regulatory, non-regulatory, or incentive based implementation mechanisms as appropriate.

## **TMDLs and NPDES Permits**

Discharge permits issued under Clean Water Act Section 402 (the NPDES program) contain effluent limitations for individual pollutants. These effluent limitations must be consistent with any wasteload allocations developed as part of TMDLs approved or established by EPA. This provision applies to all types of NPDES permits (including stormwater and general permits). If these procedures are not addressed in the TMDL, the NPDES permit writer determines the specific method of assuring that a new or revised permit is consistent with its wasteload allocation at the time the permit is scheduled for issuance.

To avoid permitting problems, EPA recommends that the State evaluate how waste load allocations will be translated into NPDES permit limits as part of developing the TMDL implementation plan. EPA believes it is useful to do this concurrent with TMDL development. Consideration of permitting issues will also assist in evaluating the practicability of WLAs during the allocation step of TMDL development. Permitting issues which the State should consider in establishing WLAs include:

- ▶ whether WLAs and effluent limits will be expressed on a concentration and/or mass basis,
- ▶ whether pollutant trading is contemplated as part of the TMDL and WLAs,
- ▶ appropriate permit averaging periods,
- ▶ whether mixing zones are appropriate, and, if so, how they would be delineated, and
- ▶ ambient monitoring provisions.

## **TMDLs and Nonpoint Sources**

There are few specific federal requirements concerning implementation of nonpoint source controls pursuant to load allocations. As discussed above, the State must demonstrate reasonable assurances that the load allocations will be (1) set at sufficient levels to attain Water Quality Standards and (2) implemented, if wasteload allocations were relaxed based on the expectation of nonpoint source reductions. EPA's national policy is that all implementation plans for all TMDLs will provide reasonable assurances that all wasteload and load allocations will be implemented in a timely manner. EPA recommends evaluating at a specific level how load allocations will be implemented as part of the TMDL implementation plan, and believes it is useful to do this concurrent with TMDL development. Consideration of potential nonpoint source management approaches and the effectiveness of available management practices will

assist in evaluating the practicability of load allocations and assessing whether there is reasonable assurance that the TMDL will be implemented and result in attainment of water quality standards.

## 2.4 State of California-Related Requirements

In addition to federal requirements, the Regional Water Quality Control Boards and State Water Resources Control Board are required to comply with various additional requirements under State law in order to develop, adopt, and submit a TMDL and associated implementation measures to EPA. These State-related requirements are summarized below in table 2, based on material provided to EPA by the State. The process through which the State develops these required materials is discussed in the following section. In addition, Appendix A to this guidance provides a legal opinion from the Office of Chief Counsel, State Water Resources Control Board, which describes economic considerations in TMDL development and basin planning which stem from State law.

EPA does not review TMDL submittals for compliance with State-related requirements, and they are listed here for information purposes only. Interested parties should contact the State or Regional Board TMDL contacts for more definitive guidance concerning State-related requirements.

**Table 2: State Basin Planning Required Elements**

<b>Requirements For Basin Plan Amendment</b>	<b>Summary</b>
Administrative Record	Record of information used to make the staff decision and only admissible evidence during legal challenge
Notification	Provide State Board staff of draft amendment for review of state board and Office of Administrative Law (OAL) requirements, State Board and EPA review of TMDL staff report draft
Index	List of contents, and number pages
Public Process	Evidence of meetings, sign in sheets, mailing lists
Public Comment	Comment letters from 45 days between Public draft presentation and Board presentation
Records cited	List of records on which amendment is based
Peer Review and report	Route through Division of Water Quality (DWQ) coordinator, allow time for technical peer review
TMDL introduction	Confirm that supporting material in chapter introduction is sufficient and diagrams and basin plan material are updated
CEQA check list	Documents no environmental impact assumption
Amendment	Copy as presented for Regional Board consideration (may be the same as required for printing and distribution below)
Transcript	Of regional board meeting where amendment was approved

<b>Requirements For Basin Plan Amendment</b>	<b>Summary</b>
Exhibit	Copies of those exhibits presented at hearing by staff and public
Late Public Comments	Summary of verbal responses to comments made at hearing and to those received after formal comment period
Economic Cost Analysis	Analysis of costs of agricultural controls, performance standards, and/or treatment requirements mandated by amendment (see Appendix A for details.)
Staff Report/TMDL	Rationale for amendment
Adopted Amendment	Adopted amendment and signed resolution
Printing and Distribution	Basin Plan update inserts mailed to current holders and updated 'record of amendments' page for insertion
<b>Required Approvals and Concurrences</b>	
Regional Water Board	approves TMDL and basin plan amendment
State Water Board	approves TMDL and basin plan amendment following Regional Board action
Office of Administrative Law	concurs that basin plan amendment meets State Administrative Procedures Act requirements
U.S. EPA	approves state submitted TMDL and basin plan amendment

### **3. Steps in TMDL Development and Approval**

There are likely to be three approaches through which TMDLs are completed in California— (1) State adoption, (2) EPA establishment, and (3) State adoption following extensive 3<sup>rd</sup> party assistance in developing TMDL component parts. This section describes the procedural steps in completing TMDLs through these 3 approaches.

#### **3.1 State-Adopted TMDLs**

This approach entails preparation of a TMDL by Regional Board staff, approval by the Regional Board, approval by State Board, approval by Office of Administrative Law, and approval by U.S. EPA. The steps in this process are summarized in table 3 below.



**Table 3: Steps in Developing and Adopting State-Adopted TMDLs**

Step	Timing	Responsible Party
Develop draft TMDL/ Basin Plan Amendment(BPA) - usually involves detailed workplan and may involve significant stakeholder involvement	varies	Regional Board staff (often with substantial assistance from other parties)
Provide TMDL/BPA and record for peer review	varies	Regional Board staff
Peer review completed	within 60 days	Peer reviewer(s)
Respond to peer review	varies	Regional Board staff
Provide draft TMDL/BPA to EPA for review	varies	Regional Board and EPA staff
Open public comment period	45 days	Regional Board staff
Hold public hearing	varies	Regional Board
Adopt TMDL, considering public comments	varies	Regional Board
Transmit BPA/TMDL and record to State Board	varies	Regional Board staff
Prepare approval package for State Board	varies	State Board staff
Open comment period	30 days	State Board staff
Hold meeting to hear public comments	varies	State Board
Approve TMDL considering public comments	varies	State Board
Transmit BPA/TMDL and supporting record to Office of Administrative Law	varies	State Board Staff
Review BPA/TMDL for consistency with State Administrative Procedures Act	within 60 days	OAL staff
Transmit concurrence/comments to State Board	within 60 days	OAL staff
(If needed) Resolve OAL comments	varies	State and Regional Board staff
(If needed) obtain OAL concurrence	varies	State Board staff, OAL staff
Transmit final TMDL/BPA and record to EPA	varies	State Board staff
Approve or disapprove TMDL	30 days	EPA
If disapprove, establish TMDL	within 30 days after disapproval	EPA
Open comment period	30 days min.	EPA
Transmit final TMDL to State for inclusion in Basin Plan after considering public comments and making changes if needed	within 30 days after comment period	EPA

### 3.2 EPA-Established TMDLs

EPA's process for establishing a TMDL is more straightforward than the State's process and is summarized in table 4.

**Table 4: EPA's Process for Establishing TMDLs**

Step	Timeline	Responsible Party
Develop draft TMDL	varies	EPA staff, often with help from State or other parties
Public notice draft TMDL	30 day minimum	EPA staff
Hold public hearing if warranted	varies	EPA staff
Develop final TMDL, considering public comment	varies	EPA staff
Establish and transmit final TMDL to State for inclusion in Basin Plan with implementation measures	immediately upon establishment	EPA Division Director

### 3.3 Process Steps for Third Party Involvement in TMDL Development

Several TMDLs have been developed in California for which third parties (e.g., dischargers, land managers, or citizen groups) have prepared significant portions of the TMDL analysis or provided support for TMDL development. Third parties can assist in TMDL development in several capacities. They may include:

- ▶ developing significant work products with State and/or EPA oversight,
- ▶ administering stakeholder meetings and organizations,
- ▶ providing technical support for individual components of the TMDL,
- ▶ providing specific funding assistance for individual TMDL analysis elements, and
- ▶ providing expert review of specified components of TMDLs.

Table 5 suggests steps for more intensive involvement of third parties in TMDL development. EPA strongly recommends that these steps be followed in order to ensure that intensive third party involvement in TMDL development is productive. Only the State water quality agency or EPA are authorized to actually adopt or establish TMDLs, but third parties can assist a great deal in TMDL work in a well-managed process. Where a particular stakeholder group or discharger plays an enhanced role in TMDL development, the TMDL development process should provide specific opportunities for the Regional Board and other interested stakeholders to participate in the selection and application of the methods used to develop TMDL components. These extra opportunities for involvement in review of 3<sup>rd</sup> party efforts are needed to ensure that the selected approaches are valid and balanced.

**Table 5: Steps for Involving Third Parties in TMDL Analysis**

Step	Timeframe	Responsible Party
Contact Regional Board to discuss potential TMDL-related work (also contact EPA if consent decree TMDL involved)	as soon as possible	Third party organization with work conducted as part of a public process
Regional Board and Third Party establish written agreement specifying resource commitments, work to be done by third party, technical workplan,	as soon as possible	Regional Board and Third Party (and EPA if consent decree TMDLs involved)

Step	Timeframe	Responsible Party
milestones, interim deliverables, schedules, public involvement provisions, and project dependencies.		
Designate State staff contact who will work with Third Party throughout project to ensure work products are consistent with all TMDL requirements	as soon as possible	Regional Board staff
Neutral peer reviewers review technical approach	as soon as possible (can be done earlier)	peer reviewers identified and overseen by Regional Board, (also EPA if consent decree involved), third party funds
Adjust approach as needed to address peer review comments	varies	Third Party, with Regional Board oversight
Perform activities/analysis per workplan	per schedule	Third party with Regional Board staff oversight
Deliver interim/final products to Regional Board (and EPA if consent decree TMDLs involved)	per schedule	Third party with Regional Board oversight
Public review/adoption process as described above	see above	see above

### 3.4 How Does EPA Review and Establish TMDLs?

EPA Region 9 staff usually review draft TMDLs and provide comments to the State before the State adopts the TMDLs, in order to help ensure that the TMDLs include all federally-required elements.

The Clean Water Act and EPA regulations require EPA to review State-adopted TMDLs and either approve or disapprove the TMDLs within 30 days of final submission. EPA reviews TMDL submissions to ensure that:

- ▶ all TMDL elements required by the Clean Water Act and EPA regulations are present,
- ▶ adequate explanations and documentation are provided for each element, and
- ▶ the TMDL will result in attainment of applicable State water quality standards.

EPA Region 9 generally uses a checklist prepared by Region 9 to document its review of the TMDL submission (see Appendix B). The checklist identifies each TMDL element required by the Clean Water Act or EPA's regulations, briefly describes the element, and provides a brief explanation of EPA's analysis indicating that the element is or is not consistent with federal requirements. The checklist also addresses TMDL implementation elements in order to assist in review of State TMDL submissions which include implementation measures.

If EPA finds that all required elements are present and are adequately documented, and that the TMDL is therefore expected to result in attainment of water quality standards, EPA approves the TMDL. If any required element is missing or insufficiently documented, EPA attempts to clarify the submission during the 30 day review period. If the State does not provide

the missing TMDL element(s) or does not clarify or document the basis for its findings, EPA disapproves the TMDL.<sup>5</sup> If EPA disapproves the TMDL, it has 30 days to establish a TMDL which meets federal requirements.

EPA is not required to provide for public review and comment on its decision to approve or disapprove a State-established TMDL because the State provides the public with the opportunity to review and comment on the TMDL prior to State adoption of the TMDL. If EPA establishes a TMDL, EPA provides the public with an opportunity to review and comment on the TMDL, considers public comments concerning the EPA-established TMDL, and makes changes to the TMDL if warranted based on comments received from the public.

After EPA completes its review of the final TMDL submittal, staff complete a staff report, checklist, and decision letter. The Water Division Director is the official who actually makes the final decisions concerning TMDL submissions. The decision letter signed by the Water Division Director is transmitted along with the staff report and checklist to the Executive Director of the State Water Resources Control Board with a copy to the Executive Officer of the appropriate Regional Water Quality Control Board.

EPA sometimes establishes TMDLs without having disapproved a State TMDL submission (e.g., to meet court-ordered schedules or at the request of the State). EPA-established TMDLs must contain the minimum federally required elements mandated by the Clean Water Act and EPA regulations, and result in attainment of water quality standards. When EPA establishes a TMDL, it provides an opportunity for public review and comment on the TMDL, prepares a public comment responsiveness summary, and makes changes in the TMDL if needed based on comments received. The TMDL is established through the action of the Water Division Director. The final TMDL is transmitted to the Executive Director of the State Water Resources Control Board with a copy to the Executive Officer of the appropriate Regional Water Quality Control Board for inclusion in the Basin Plan by the State.

## **4. Additional Guidance for TMDL Development**

### **4.1 Water Quality Standards and TMDLs**

Under the Clean Water Act and EPA's regulations, the TMDL process is designed to implement existing water quality standards in waters where water quality is not good enough to meet those standards. In most situations, existing water quality standards will need to be applied in developing TMDLs. For many TMDLs, the State will need to interpret narrative objectives,

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<sup>5</sup> If the State provides insufficient opportunities for public participation or does not describe how public comments were considered in the final TMDL, EPA may open a comment period and make its final decision following the close of the comment period, after considering comments received from the public.

use nonattainment, or (possibly) antidegradation policies quantitatively to develop TMDL numeric targets if no numeric standards are in effect or numeric standards are not designed to address the impairment of concern. Federal regulations do not require the state to adopt TMDL numeric targets as state water quality standards. To assist in interpreting narrative objectives, beneficial use designations, and/or antidegradation policies, TMDL writers should consult applicable California implementation procedures for water quality standards.

In some cases, it may be appropriate to reevaluate the appropriateness of water quality standards for the targeted waters. Separate federal regulations provide for modifying water quality standards for individual water bodies when specified showings can be made. Additional guidance documents concerning modification of water quality standards are listed in the references. As early in the process as possible, parties who are interested in seeking revisions of water quality standards on a site-specific basis should consult with Water Quality Standards program staff at EPA Region 9, the State Water Resources Control Board, and the appropriate Regional Water Quality Control Board to discuss the suitability of standards modifications in particular situations.

## **4.2 TMDL Planning and Project Management**

Each TMDL project is different. Planning and managing a complex TMDL project can be difficult. The following checklist summarizes factors TMDL analysts should consider in initiating a TMDL project:

- ▶ How long do you have to complete the TMDL?
- ▶ Do you face resource constraints? What staff, contractor, or stakeholder resources are available? Are resources assured for future years?
- ▶ Can other agencies, stakeholders, or programs help you do the TMDL?
- ▶ How complex are the watershed setting and pollutant issues of concern?
- ▶ What information, data, and prior efforts are available regarding the watershed setting and pollutant of concern?
- ▶ What is the scope of the TMDL? What area and what pollutants are to be addressed?

EPA strongly encourages the State to develop detailed workplans to guide the technical analysis and stakeholder participation aspects of the TMDL before starting the TMDL. The State should distribute workplans to stakeholders for input if time and resources allow. The workplans should include specific information on technical methods, interim milestones in TMDL development, responsible parties, schedules, interim deliverables, and project dependencies. It is often useful to plan a TMDL timeline by working backwards from an existing decision deadline to determine how much time is actually available to develop the TMDL. In addition, the workplans should:

- ▶ include estimated resources/costs of the project and the specific method of funding to be used, including provisions for contract assistance where needed,
- ▶ factor in time for review of the draft TMDL by EPA and interested stakeholders,

- ▶ provide some flexibility to account for unforeseen events, and
- ▶ provide for each step prescribed in the State and federal administrative processes.

TMDL planners should assess whether it is feasible to coordinate with related program decisions/activities to reduce the amount of work done solely to support the TMDL decision. Examples of coordination opportunities include:

- ▶ standards revisions already planned or underway,
- ▶ discharge permitting decisions,
- ▶ rotating basin management approaches or other watershed management planning (if any),
- ▶ development of environmental impact statements or reports for planned projects, and
- ▶ other activity in watershed (e.g., hydropower licenses issued by Federal Energy Regulatory Commission, habitat conservation plans developed pursuant to Federal Endangered Species Act, Section 319 nonpoint source management projects).

In many locations in California, there is considerable interest in developing TMDLs through a “watershed approach”. The State should consider the following factors which, in EPA’s experience, are key to effectively melding TMDL development and locally focused watershed management planning:

- ▶ Regional Boards should clarify that TMDL (and perhaps other regulatory) decisions that will need to be made and establish timeframes (if any) for making these decisions.
- ▶ These efforts should start several years before a TMDL is scheduled for adoption because this approach generally takes substantial time to complete.
- ▶ The State should obtain agreement to ground rules by all participants, including ground rules with respect to regulatory deadlines.
- ▶ The State should secure firm commitments from stakeholders concerning participation, funding support, etc.
- ▶ The State should use existing stakeholder groups where feasible, if those groups are interested in working on TMDL issues.
- ▶ The group should develop a detailed schedule which contemplates key decisions and dependencies related to the minimum TMDL requirements and how they are completed.
- ▶ State water quality staff should participate fully as stakeholders and have the time and resources available which are necessary to do so.

## **5. Sources of Additional Information and Guidance**

Further information concerning TMDL development can be obtained from EPA Region 9 by visiting the Region 9 web site at [www.epa.gov/region09/water/tmdl](http://www.epa.gov/region09/water/tmdl) or by calling the Region 9 Water Division office at (415) 744-2012. In addition, information concerning the national TMDL program and national reference documents can be obtained by visiting the EPA Headquarters web site at [www.epa.gov/OWOW/tmdl](http://www.epa.gov/OWOW/tmdl). Several cited references which provide useful guidance concerning TMDLs and related programs are listed below, and can be obtained or will soon be available through the EPA Headquarters web site.

EPA, 1990. *Technical Support Document for Water Quality-Based Toxics Control*. EPA 505-2-90-001.

EPA, 1991. *Guidance for Water Quality-Based Decisions: The TMDL Process*. EPA 440/4-91-001.

EPA, 1996. *Catalog of Publications: Office of Science and Technology*. EPA-820-R-96-001. (Wasteload Allocation Guidance Series).

EPA, 1997. New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs). Memorandum from Robert Perciasepe to Regional Administrators, August 8, 1997.

EPA, 1999. *Protocol for Developing Sediment TMDLs*. EPA 841-B-99-004, October, 1999.

EPA, 1999. *Protocol for Developing Nutrient TMDLs*. EPA 841-B-99-007, November, 1999.

Documents which should assist in considering modifications of water quality standards on a site specific basis include:

EPA 1983-84. *Technical Support Manual: Waterbody Surveys and Assessments for Conducting Use Attainability Analyses* Vol. 1, EPA 440/4-86-037, 1983; Vol. 2 Estuarine Systems, EPA 440/4-86-038, 1984; Vol. 3: Lake Systems, EPA 440/4-86-039, 1984.

EPA Region 9, 1992. *Guidance for Modifying Water Quality Standards and Protecting Effluent-Dependent Ecosystems*. Interim Final, June 1992.

EPA, 1993. *Water Quality Standards Handbook*. 2<sup>nd</sup> Edition. EPA 823-B-93-002, September 1993.

EPA, 1994. *Interim Guidance on Determination and Use of Water Effect Ratios for Metals*. EPA 823-B-94-001, February 1994.

EPA, 1995. *Interim Economic Guidance for Water Quality Standards: Workbook*. EPA 823/B-95-002.

**Appendix A: “Economic Considerations in TMDL Development and Basin Planning”-- An Opinion From Office of the Chief Counsel, California State Water Resources Control Board**

TMDL analysts with the State and Regional Water Boards and other interested stakeholders have requested clarification concerning economic analysis considerations in the TMDL process. Neither the federal Clean Water Act nor EPA regulations require that any particular form of economic analysis must be conducted to meet federal requirements for TMDL adoption. The Office of Chief Counsel, State Water Resources Control Board, issued the following memorandum addressing economic analysis requirements under State law. The Office of Chief Counsel is solely responsible for the content of the memorandum. EPA had no role in its preparation, and we are including it with the guidance solely to convey the State’s legal analysis of State requirements.





**Winston H. Hickox**  
*Secretary for  
Environmental  
Protection*

# State Water Resources Control Board

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## Office of Chief Counsel

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**Gray Davis**  
*Governor*

**TO:** Stefan Lorenzato  
TMDL Coordinator  
Division of Water Quality

**FROM:** Sheila K. Vassey  
Senior Staff Counsel  
**OFFICE OF CHIEF COUNSEL**

**DATE:**

**SUBJECT:** ECONOMIC CONSIDERATIONS IN TMDL DEVELOPMENT AND  
BASIN PLANNING

## ISSUE

When are the Regional Water Quality Control Boards (Regional Water Boards or Boards) legally required to consider economics in Total Maximum Daily Load (TMDL)<sup>1</sup> development and water quality control planning (basin planning)?<sup>2</sup>

## CONCLUSION

The Regional Water Boards, in general, adopt TMDLs as basin plan amendments. Under state law, there are three triggers for Regional Water Board consideration of economics or costs in basin planning. These are:

- The Regional Water Boards must estimate costs and identify potential financing sources in the basin plan before implementing any agricultural water quality control program.
- The Boards must consider economics in establishing water quality objectives that ensure the reasonable protection of beneficial uses.

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<sup>1</sup> See 33 U.S.C. § 1313(d); 40 C.F.R. § 130.7.

<sup>2</sup> See Wat. Code §§ 13240-13247.

- The Boards must comply with the California Environmental Quality Control Act (CEQA)<sup>3</sup> when they amend their basin plans. CEQA requires that the Boards analyze the reasonably foreseeable methods of compliance with proposed performance standards and treatment requirements. This analysis must include economic factors.

Economic factors come into play under federal law when the Regional Water Boards designate uses. Specifically, the Boards can decide not to designate, dedesignate, or establish a subcategory of, a potential use where achieving the use would cause substantial and widespread economic and social impact.

## DISCUSSION

### I. STATE LAW

Under federal and state law, the Regional Water Boards are required to include TMDLs in their basin plans.<sup>4</sup> There are three statutory triggers for an economic or cost analysis in basin planning. These triggers are:

- adoption of an agricultural water quality control program;
- adoption of water quality objectives; and
- adoption of a treatment requirement or performance standard (CEQA).

Each category is briefly discussed below.

#### A. Agricultural Water Quality Control Program

Agricultural activities are significant sources of nonpoint source pollution. Many waterbodies in the state are impaired due to one or more agricultural operations. As a result, the Regional Water Boards will be faced with developing programs to control agricultural activities, as part of TMDL development.

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne),<sup>5</sup> before a Regional Water Board implements an agricultural water quality control program, the Board must identify

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<sup>3</sup> Pub. Resources Code § 21000 et seq.

<sup>4</sup> See 33 U.S.C. § 1313(d); 40 C.F.R. § 130.7(d)(2) (TMDLs must be incorporated into the state's water quality management plan. In California the basin plans are part of the state's water quality management plan.); Wat. Code §§ 13050(j), 13242.

<sup>5</sup> Wat. Code § 13000 et seq.

the total cost of the program and potential sources of financing.<sup>6</sup> This information must be included in the basin plan.

The statute does not define “agricultural” programs. The Legislature has, however, defined agricultural activities elsewhere to mean activities that generate “horticultural, viticultural, forestry, dairy, livestock, poultry, bee, or farm product[s].”<sup>7</sup> Because “agricultural” programs under Porter-Cologne are not restricted to particular activities, presumably, the Legislature intended that the term be interpreted broadly. Thus, the Regional Water Boards should identify costs and financing sources for agricultural water quality control programs” covering not only typical farming activities but also silviculture, horticulture, dairy, and the other listed activities.

The statute focuses only on costs and financing sources. The statute does not require the Regional Water Boards to do, for example, a cost-benefit analysis or an economic analysis.

#### B. Water Quality Objectives

Porter-Cologne requires that the Regional Water Boards take “economic considerations”, among other factors, into account when they establish water quality objectives.<sup>8</sup> The objectives must ensure the reasonable protection of beneficial uses and the prevention of nuisance.<sup>9</sup>

Attached to this memorandum is a 1994 memorandum containing guidance on the consideration of economics in the adoption of water quality objectives.<sup>10</sup> The key points of this guidance are:

- The Boards have an affirmative duty to consider economics when adopting water quality objectives.
- At a minimum, the Boards must analyze: (1) whether a proposed objective is currently being attained; (2) if not, what methods are available to achieve compliance with the objective; and (3) the costs of those methods.

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<sup>6</sup> *Id.* § 13141.

<sup>7</sup> Food & Agr. Code §§ 564(a), 54004.

<sup>8</sup> Wat. Code § 13241. The other factors include the past, present, and probable future beneficial uses of water; environmental characteristics of the hydrographic unit under consideration; water quality conditions that could reasonably be achieved through the coordinated control of all factors affecting water quality in the area, the need for developing housing, and the need to develop and use recycled water.

<sup>9</sup> *Ibid.*

<sup>10</sup> Memorandum, dated January 4, 1994, from William R. Attwater, Chief Counsel, to Regional Water Board Executive Officers and Attorneys, entitled “Guidance on Consideration of Economics in the Adoption of Water Quality Objectives”.

- If the economic consequences of adoption of a proposed objective are potentially significant, the Boards must state on the record why adoption of the objective is necessary to ensure the reasonable protection of beneficial uses or the prevention of nuisance.
- The Regional Water Boards can adopt objectives despite significant economic consequences.
- The Boards are not required to do a formal cost-benefit analysis.

### C. CEQA

The Regional Water Boards must comply with CEQA when they amend their basin plans.<sup>11</sup> The State Resources Agency has certified the basin-planning program as exempt from the requirement to prepare environmental documents under CEQA.<sup>12</sup> In lieu of preparing an environmental impact report or negative declaration, the Boards must comply with the State Water Resources Control Board's regulations on exempt regulatory programs when they amend their basin plans.<sup>13</sup> These regulations require the Boards to prepare a written report that analyzes the environmental impacts of proposed basin plan amendments.<sup>14</sup> In general, CEQA requires the Regional Water Boards to consider economic factors only in relation to physical changes in the environment.<sup>15</sup>

CEQA also has specific provisions governing the Regional Water Boards' adoption of regulations, such as the regulatory provisions of basin plans that establish performance standards or treatment requirements. The Boards must do an environmental analysis of the reasonably foreseeable methods of compliance with those standards or requirements.<sup>16</sup> They must consider economic factors in this analysis.

CEQA does not define "performance standard"; however, the term is defined in the rulemaking provisions of the Administrative Procedure Act.<sup>17</sup> A "performance standard" is a regulation that describes an objective with the criteria stated for achieving the objective.<sup>18</sup>

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<sup>11</sup> See Pub. Resources Code § 21080.

<sup>12</sup> See Cal. Code Regs., tit. 14, § 15251(g).

<sup>13</sup> See Cal. Code Regs., tit. 23, §§ 3775-3782.

<sup>14</sup> *Id.* § 3777.

<sup>15</sup> See Cal. Code Regs., tit. 14, § 15064(e).

<sup>16</sup> Pub. Resources Code § 21159.

<sup>17</sup> Gov. Code §§ 11340-11359.

<sup>18</sup> *Id.* § 11342(d).

TMDLs will typically include performance standards. TMDLs normally contain a quantifiable target that interprets the applicable water quality standard. They also include wasteload<sup>19</sup> allocations for point sources, and load allocations<sup>20</sup> for nonpoint sources and natural background to achieve the target.<sup>21</sup> The quantifiable target together with the allocations may be considered a performance standard. Thus, the Regional Water Board must identify the reasonably foreseeable methods of compliance with the wasteload and load allocations and consider economic factors for those methods. This economic analysis is similar to the analysis for water quality objectives discussed above. That is, the Regional Water Board should determine: (1) whether the allocations are being attained; (2) if not, what methods of compliance are reasonably foreseeable to attain the allocations; and (3) what are the costs of these methods.

## II. FEDERAL LAW

Under federal law, economics can be considered in designating potential beneficial uses. Specifically, the federal water quality standards regulations allow a state to dedesignate, to decide not to designate, or to establish a subcategory of a potential beneficial use on economic grounds. To rely on this basis, the state must demonstrate that attaining the use is infeasible because the controls necessary to attain the use “would result in substantial and widespread economic and social impact.”<sup>22</sup>

The states can take this action only for potential uses. These are uses that do not meet the definition of an “existing use”. Existing uses are those uses actually attained in the water body on or after November 28, 1975.<sup>23</sup>

Attachment

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<sup>19</sup> See 40 C.F.R. § 130.2(g). A wasteload allocation is the portion of the receiving water’s loading capacity that is allocated to one of its existing or future point sources of pollution.

<sup>20</sup> See *id.* § 130.2(g). A load allocation is the portion of the receiving water’s loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources.

<sup>21</sup> See *id.* § 130.2(i). A TMDL is the sum of the individual wasteload and load allocations.

<sup>22</sup> See *id.* § 131.10(g)(6).

<sup>23</sup> *Id.* § 131.3(e).

## **Appendix B: EPA Region 9 TMDL Review Checklist**

EPA Region 9 uses this checklist to review TMDLs submitted for EPA Region 9 approval to ensure that the TMDLs meet all the requirements of the Clean Water Act and EPA's regulations concerning TMDL content. Because many TMDL submissions from California and other states also include TMDL implementation measures pursuant to EPA's regulatory requirements at 40 CFR 130.6, the checklist also includes review criteria for TMDL implementation measures. EPA regulations do not require the submission of implementation measures at the same time as TMDLs are submitted.

**State:**

**Pollutant(s):**

**Date Received By EPA:**

**Waterbodies:**

**Date of State Submission:**

**EPA Reviewer:**

<b>TMDL Review Criteria (per Clean Water Act Section 303(d) and 40 CFR 130.2 and 130.7)</b>	<b>Approved</b>	<b>Comments</b>
<b>1. Submittal Letter:</b> 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).		
<b>2. Water Quality Standards Attainment:</b> TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.		
<b>3. Numeric Target(s):</b> 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.		
<b>4. Source Analysis:</b> Point, nonpoint, and background sources of pollutants of concern are described, including the magnitude and location of sources. Submittal demonstrates all significant sources have been considered.		
<b>5. Allocations:</b> Submittal identifies appropriate wasteload allocations for point sources and load allocations for nonpoint sources. If no point sources are present, wasteload allocations are zero. If no nonpoint sources are present, load allocations are zero.		
<b>6. Link Between Numeric Target(s) and Pollutant(s) of Concern:</b> Submittal describes relationship between numeric target(s) and identified pollutant sources. For each pollutant, describes analytical basis for conclusion that sum of wasteload allocations, load allocations, and margin of safety does not exceed the loading capacity of the receiving water(s).		
<b>7. Margin of Safety:</b> Submission describes explicit and/or implicit margin of safety for each pollutant.		

<b>8. Seasonal Variations and Critical Conditions:</b> Submission describes method for accounting for seasonal variations and critical conditions in the TMDL(s)		
<b>9. Public Participation:</b> Submission documents provision of public notice and public comment opportunity; and explains how public comments were considered in the final TMDL(s).		
<b>10. Technical Analysis:</b> Submission provides appropriate level of technical analysis supporting TMDL elements.		
<b>Note:</b> <b>The following criteria do not apply to all TMDLs, but must be applied in the situations noted.</b>		
<b>11. Monitoring Plan for TMDLs Under Phased Approach (where phased approach is used):</b> TMDLs developed under phased approach identify implementation actions, monitoring plan and schedule for considering revisions to TMDL.		
<b>12. Reasonable Assurances (for waters affected by both point and nonpoint sources):</b> Where point source(s) receive less stringent wasteload allocations because nonpoint source reductions are expected and reflected in load allocations, implementation plan provides reasonable assurances that nonpoint implementation actions are sufficient to result in attainment of load allocations in a reasonable period of time. Reasonable assurances may be provided through use of regulatory, non-regulatory, or incentive based implementation mechanisms as appropriate.		
<b>Implementation Plan Review Criteria (per Clean Water Act Section 303(e) and 40 CFR 130.6)</b>		
<b>13. Clear Implementation Plan:</b> Submittal describes planned implementation actions or, where appropriate, specific process and schedule for determining future implementation actions. Plan is sufficient to implement all wasteload and load allocations in reasonable period of time. TMDL(s) and implementation measures are incorporated into the water quality management plan. Water quality management plan revisions are consistent with other existing provisions of the water quality management plan.		