



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

# State Water Resources Control Board

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## Division of Water Quality

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**Gray Davis**  
*Governor*

August 1, 2000

Members and Alternates:

### MEETING OF THE AB 982 PUBLIC ADVISORY GROUP

The AB 982 Public Advisory Group (PAG) will meet on Friday, August 11, 2000 in the Hearing Room of the State Water Resources Control Board, 901 P Street, Sacramento, California.

Please find enclosed the meeting agenda and the documents prepared to support many of the agenda items. If you are planning to have handouts, please bring at least 50 copies for the PAG members and audience.

If you have any questions regarding the PAG or the meeting, please call me at (916) 657-1108. You may also call Gita Kapahi, the staff liaison to the PAG, at (916) 657-0883.

Sincerely,

Craig J. Wilson, Chief  
Bays and Estuaries Unit  
Division of Water Quality

Enclosures

cc: Interested Parties

# AB 982 Public Advisory Group

Friday, August 11, 2000, 9 a.m. to 5 p.m.

Hearing Room  
State Water Resources Control Board  
901 P Street  
Sacramento, California

## A G E N D A

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1. *Convene Meeting – Co-Chairs*
2. *July 13-14, 2000 Meeting Summary*  
Action Item: Consider approval of Meeting Summary (Attached)
3. *Proposal for a Comprehensive Ambient Surface Water Quality Monitoring Program*
  - Update on the results of the Scientific Advisory Group meeting (5 minutes)
4. *Workplan to Organize the PAG Review of the SWRCB Activities*
  - Draft Workplan (August-October, 2000) (Attached)
  - Updated List of Issues (Attached)Action Item: Consider approval of the workplan to track PAG progress.
5. *Presentation by EPA staff on their “California TMDL Program Review”*
  - David W. Smith (20 minutes) plus PAG Discussion (up to 40 minutes)
6. *Draft staff report on the structure and effectiveness of the State’s Water Quality Program as it relates to implementation of Clean Water Act Section 303(d)*
  - Draft Staff Report (Attached)
7. *Continued Discussion of Issues Related to Total Maximum Daily Loads*
  - Role of science in preparing TMDLs
  - Implementation plan to achieve pollutant reductions
  - Stakeholder and technical advisory groups
  - Public participation in the development of TMDLs
8. *Public Forum* (Any person may address the PAG on issues not on the Agenda.)
9. *Adjourn*

## AB 982 Public Advisory Group

Meeting Held July 13 and 14 , 2000  
Joint Administrative Office  
Sanitation Districts of Los Angeles County  
1955 Workman Mill Road  
Whittier, CA

### Meeting Summary

July 13, 2000

**Welcome and Convene Meeting:** Co-chairs David Beckman and Craig Johns convened the meeting at 9:20 am and declared a quorum.

**Summary of June 16, 2000 meeting:** The summary was approved by consensus.

**Draft Proposal for a Comprehensive Surface Water Quality Monitoring Program:** Craig Wilson noted that several Public Advisory Group (PAG) members submitted comments on the first draft, issued in June, covering a wide range of interests and concerns. Many of these comments were incorporated into the second draft.

Members were also reminded of the Scientific Advisory Group (SAG) meeting scheduled for August 10, 2000 in Sacramento. Twelve scientists were recommended by PAG members (six from the environmental community, six from the regulated community); staff added a few extra names, as was agreed upon at the June PAG meeting. All PAG members and interested parties are welcome to attend the SAG meeting. (REMINDER: PAG will meet the next day, August 11.)

**Review of Consensus Points and Issues and Development of a Workplan:** No PAG members asked to review any of the items arrived at by consensus or vote from previous meetings.

It was agreed that it would be wise to develop a workplan to guide the efforts of PAG in the remaining months before the State Water Resources Control Board's (SWRCB's) reports (the monitoring proposal and structure and effectiveness report) are submitted to the Legislature (end of November, 2000). The workplan would specify the topics that needed attention for each of PAG meetings through October. There was general agreement that having a workplan was a good idea. Procedurally, it was agreed that members should submit their workplan ideas to their respective co-chairs. Following this input a phone conference will be scheduled (co-chairs, Craig Wilson, Steve Ekstrom, and any other interested PAG members) to develop a final plan. These activities should be completed prior to the August PAG meeting.

**Continued Discussion of Issues Related to Total Maximum Daily Loads:**

Craig Wilson distributed a draft outline of the Structure and Effectiveness Report for the PAG's consideration. Members agreed to review the plan and have a full discussion on it the next morning.

Concern was expressed by both co-chairs that the SWRCB, perhaps because of other priorities, hasn't had an effective Total Maximum Daily Load (TMDL) program and that this needs to be acknowledged in the report and in other venues. Acknowledging this will advance the argument that an effective TMDL program must be developed and that it will carry a significant price tag.

For the remainder of the day there was dialogue on several TMDL-related topics. These topics were chosen from lists distributed the previous week by email from the regulated and environmental caucuses. The descriptions that follow capture themes and the range of comments made by PAG members on these topics. It was agreed that staff will take these comments into consideration as they prepare the TMDL structure and effectiveness report. The first draft of that report will be available for review at the August PAG meeting. There will be an ongoing dialogue between PAG and staff between August and October that will generate subsequent draft reports and will culminate in a final report to the Legislature in late November.

The following topics were discussed in some detail. The statements provide a summary of the range of issues that were discussed. The points presented were not approved by consensus.

Legacy Contributions of Pollutant Loads

It is very important to address legacy sources of pollution or contamination in the Regional Board's decision process in developing waste load allocations and load allocations.

## Range of Options:

1. Include legacy contamination in establishing waste load allocations and load allocations (split load among nonpoint source/point source).
2. Address legacy contamination as a separate source. If responsible discharger is unknown, government agencies should address the problem.

Establishing Targets, Waste Load Allocations and Load Allocations

There is an absolute requirement for considering economics in the implementation of agriculture program and water quality objectives.

"Economics" needs to be considered in development of TMDLs.

Range of Options:

1. Do not consider economics (to do so would make adoption of TMDLs too slow, not a part of the Clean Water Act (CWA) process for developing TMDLs).
2. Reconsider adopted water quality objectives with respect to Water Code Section 13241.
3. Consider economics (Section 13241) for water quality objectives when the TMDL target is developed.
4. Consider economics in the development of targets, waste load allocations, and load allocations.
5. Consider economics at the implementation stage. No economics analysis in TMDL (if to be considered at all, belongs at end of process).

Confirmation of Impairment

The SWRCB should develop specific guidance on TMDL problem statements.

Range of Considerations:

1. If the data are old, make sure the impairment is still there.
2. If the listing is based on a small amount of information, reaffirm the problem in the problem statement.
3. The problem statement should substantiate/discuss the water quality impairment determination.

Need clear, consistent listing criteria Policy in the future. The Policy should contain pre-TMDL delisting criteria to allow the regulated and environmental communities to evaluate the existence of the water quality problem.

The TMDL process is established in the CWA and cannot be used for all purposes. The TMDL process is separate from other processes such as triennial review, site-specific objectives, and use attainability analysis.

**Public Forum:** Members of the public were asked to comment. None chose to do so.

**Adjourn:** The meeting was adjourned at 4:10 p.m.

July 14, 2000

**Reconvene the Meeting:** Co-chairs David Beckman and Craig Johns reconvened the meeting at 8:40 am and declared a quorum.

**Letter to the SWRCB:** With respect to the conversation the previous day regarding the need to acknowledge that there currently is not an effective TMDL program, the co-chairs read a draft letter they had composed stressing this point. It was agreed by consensus to submit the letter.

**Comments on the Outline of the TMDL Structure and Effectiveness Report:** A substantial portion of the morning was used to review the outline. Comments made will shape the writing of the first draft of the report to be reviewed at the August PAG meeting. It was agreed that two new sections needed to be added, one titled “Assessment of Effectiveness” that would incorporate several parts currently in the TMDL Development section; and another titled, “Implementation.” There was discussion about whether PAG should write a separate TMDL report, or include comments in this report, or say nothing. It was decided by consensus that PAG’s comments should be in the report, not in the appendix, but in a separate chapter prior to the “Conclusions” section. Additionally, the PAG chapter should cite consensus areas as well as areas where consensus was not reached, and why it wasn’t reached. The important point here was to keep the comments in the chapter at a higher level, citing issues where consensus wasn’t reached and not detailing specific positions of either caucus.

Finally there were comments about what should be contained in the Appendix. The PAG said the Appendix could also contain: (1) a list of PAG members; (2) names of regional TMDL staff and how to reach them; and (3) reference to a website that will show a list of TMDLs needing to be completed.

**Continued Discussion of Issues Related to Total Maximum Daily Loads:** Continued from the previous day, there was dialogue on a range of topics.

Appropriate Time Periods to Develop TMDLs

1. Long timeframes in the new TMDL rule are too long.
2. Need to carefully lay out schedule to get TMDLs completed (may not have time for a stakeholder process).
3. Could use stakeholder process during implementation phase.
4. Cannot compromise good scientific peer review process though.
5. Use appropriate stakeholder process (1-2 meetings).

6. Approximately 1,400 TMDL's must be completed. RWQCBs beginning to group pollutants for TMDLs (e.g., Los Angeles Region has grouped pollutants into 60-70 groups).
7. Full stakeholder process takes a tremendous amount of time but that's how cities and counties do business in the 21<sup>st</sup> century.
8. PAG may be able to develop consensus on pollutant grouping (addressing multiple pollutants in one TMDL) so TMDLs can be done more quickly.
9. Complexity of TMDLs requires input of interested parties (but stakeholder consensus not required or frequent group meetings are not required).
10. Stakeholder process could be based on CEQA approach.
11. Proposal: The Boards would take comments on a scoping document on the TMDL, then the Board would develop and then take comment on the actual TMDL.
12. TMDLs should not be based on consensus, but everyone needs to be heard.
13. Stakeholder processes have a strong "public outreach" benefit.
14. Other way to assist in completing TMDLs more quickly:
  - A. Training (such as EPA's Water Quality Academy),
  - B. "Tech Centers" (which would allow RWQCBs to share information and approaches), remove the SWRCB from the TMDL approval list,
  - C. "Strike forces" or teams of SWRCB staff with specific expertise (e.g., nutrients, metals, sedimentation, etc.) that could address TMDL development in Regions,
  - D. Bring in staff from other agencies to assist in TMDL development (e.g., on pesticide issues), and
  - E. Start some difficult TMDLs early as opposed to tackling the easy ones only at first (makes schedule more realistic).

#### Offset Programs

1. Both the environmental and regulatory communities do not like Offset Programs but for different reasons.
2. Offset Programs can be a voluntary option.

3. Many accountability issues need to be resolved: How do they work? If goals are not met, who receives enforcement action?
4. The State should not propose any specific offset program but should not hobble RWQCBs from using them.
5. State should be “constructively silent” with respect to offset programs.
6. Dairy industry apprehensive but will look at it.
7. An agency needs to manage offset program.
8. Offsets should focus on the “orphan share” pollutants or problems. Should not be able to offset the share an individual discharger is responsible for anyway, i.e., you would not be getting “something extra” if this were allowed.
9. If done at all, offset program should be in the same watershed.

**Public Forum:** Members of the public were asked to comment. None chose to do so.

**Adjourn:** The meeting was adjourned at 3:00 p.m.



## **AB 982 PUBLIC ADVISORY GROUP**

### **WORKPLAN**

#### **AUGUST-OCTOBER, 2000**

##### ***Goals***

1. Provide comments and advice to the State Water Resources Control Board on the structure and effectiveness of the State's efforts to implement Clean Water Act Section 303(d).
2. Provide timely written input to the SWRCB on the structure and effectiveness report.
3. Provide timely input to the SWRCB on the proposal for a comprehensive ambient surface water monitoring program.

##### ***Tasks***

Each of the following tasks will be implemented between August and October. The tasks to be accomplished are:

1. At the August meeting (August 11, 2000 in Sacramento), review the first draft of the SWRCB's report on the structure and effectiveness of the implementation of Section 303(d). Provide comments and feed back on listing, TMDL elements, process for developing TMDLs, TMDL implementation, and assessment of TMDL effectiveness.
2. At the August meeting, establish a PAG subcommittee to write the PAG findings and recommendations to the SWRCB.
3. At August meeting, develop comments, consensus points, and/or options on the following issues:

Role of science in preparing TMDLs  
Implementation Plan to Achieve Pollutant Reductions  
Stakeholder and Technical Advisory Groups  
Public Participation in the development of TMDLs

4. At September meeting (September 14-15, 2000 in San Diego), review the final draft of the SWRCB's proposal for a comprehensive ambient surface water monitoring program.
5. At September meeting, review the second draft of the SWRCB's report on the structure and effectiveness of the implementation of Section 303(d). Provide comments and feed back on elements of the report.

6. At September meeting, review comments developed for the following issues:
  - Legacy contamination
  - Offset Programs
  - Targets, Wasteload Allocations, Load Allocations
  - Appropriate timeframes for completion of TMDLs
  - Role of science in preparing TMDLs
  - Implementation Plan to Achieve Pollutant Reductions
  - Stakeholder and Technical Advisory Group
  - Public Participation
7. At September meeting, review draft of PAG findings, recommendations, and/or conclusions to be submitted to the SWRCB and included in the State's report.
8. In October (meeting scheduled for October 12 and 13), submit final recommendations and review final draft of the State's Report.

## **AB 982 Public Advisory Group**

Discussed March 3, March 23-24,  
May 4-5, ~~and~~ June 16, and July 13-14, 2000

### ***Issues addressing the structure and effectiveness of the SWRCB Water Quality Program as it relates to Clean Water Act Section 303(d)***

#### **Introduction**

The State Water Resources Control Board (SWRCB) is required to report to the Legislature on the structure and effectiveness of its water quality control program as it relates to Section 303(d) of the Clean Water Act. The Public Advisory Group (PAG) has begun discussions on the issues that should be addressed by the SWRCB in reviewing the State's program. This is a compilation of the issues identified by the PAG.

This document is separated into ~~three~~ four sections: (1) an Introduction, (2) Consensus Points, (3) Discussion of Issues Related to Total Maximum Daily Loads and ~~(3) (4)~~ (4) Issues yet to be discussed fully. In parts (2) and ~~(3) (4)~~ the issues are organized under four headings: monitoring, listing, consistent Total Maximum Daily Load (TMDL) process, and consistent TMDL elements.

~~Any issues that are marked with strikeout have been: (1) discussed and moved to the points of consensus or points approved by vote, or (2) included or addressed in the SWRCB's proposals.~~

Please note: This document is subject to revision.

## Points of Consensus

### Monitoring

1. The State Water Resources Control Board should develop an umbrella program that monitors and interprets that data for each hydrologic unit at least one time every five years. By umbrella program, we mean a minimum baseline monitoring program that focuses on all waters of the State and does not focus on individual discharges or problems.
2. The Program will have consistent monitoring methods with respect to sampling and analysis, data quality objectives, and centralized reporting requirements.
3. The Regional Water Quality Control Boards should be able to conduct additional monitoring for Regional priorities and that monitoring shall be done in accordance with protocols and methodologies laid out in the Program. The Regional Boards shall utilize Statewide templates and protocols in developing their monitoring programs.
4. The Program shall require that to the extent possible, all existing data is verified, useable, and accessible to the public through a centralized location. Future data collected will be recorded along with methods and QA/QC documentation through some State issued template so that it is coordinated.

### Point Approved by Vote

The program for monitoring and TMDLs should include a component that identifies pollutants created or mobilized in areas that effect each waterbody.

### Listing

1. The State Water Resources Control Board should formally adopt a Policy, and a means to implement the Policy, for the Regional Water Quality Control Boards on what constitutes reasonable minimum acceptable credible information. The Policy should also include the methods for determining whether to list or delist water segments on the Section 303(d) list consistent with Federal law.
2. The State Water Resources Control Board should formally adopt a Policy to maximize the Regional Water Quality Control Boards consideration of existing data during the 303(d) process.

### Consistent TMDL Process

1. TMDLs should be established and implemented in accordance with the Clean Water Act, and where applicable, the Porter Cologne Water Quality Control Act and other relevant state and federal laws.

2. State and Regional Boards should accelerate the development of high priority TMDLs and the legislature should provide adequate funding to accomplish that goal.
3. PAG finds that there are inadequate resources for the state to fulfill its obligation under the TMDL program. Therefore, PAG recommends there be adequate resources for the development and implementation of effective TMDLs statewide. Further, PAG recommends that the Regional Boards assess and request resource needs for an adequate 303(d) listing process and TMDL development/implementation through the State Board from the Legislature.
4. Regional Water Quality Control Boards must maintain active oversight over TMDL development sufficient to assure unbiased technical assessment.
5. Encourage, where appropriate, early external peer review.
6. Develop a mechanism, including funding, to encourage and maintain balanced stakeholder representation, and assure that stakeholders are afforded the opportunity to participate meaningfully, in accordance with TMDL deadlines.
7. The PAG encourages the RWQCBs to consider TMDL development when approving Supplemental Environmental Projects (SEPs) not otherwise legally required of dischargers.
8. The SWRCB and RWQCBs should allocate adequate resources and staff positions to develop and maintain appropriate TMDL expertise in-house.
9. The SWRCB should establish an integrated, complementary and not conflicting approach to implement the State's Section 303(d) responsibilities and to attain water quality standards.

#### Point Approved by Vote

PAG supports immediate establishment of high priority TMDLs in accordance with law, and requests appropriate funding from the Legislature.

## Discussion of Issues Related to Total Maximum Daily Loads

The descriptions that follow capture themes and the range of comments made by PAG members on these topics. The topics have been discussed by the PAG in some detail. The points presented were not approved by consensus.

### Legacy Contributions of Pollutant Loads

It is very important to address legacy sources of pollution or contamination in the Regional Board's decision process in developing waste load allocations and load allocations.

#### Range of Options:

1. Include legacy contamination in establishing waste load allocations and load allocations (split load among nonpoint source/point source).
2. Address legacy contamination as a separate source. If responsible discharger is unknown, government agencies should address the problem.

### Establishing Targets, Waste Load Allocations and Load Allocations

There is an absolute requirement for considering economics in the implementation of agriculture program and water quality objectives.

"Economics" needs to be considered in development of TMDLs.

#### Range of Options:

1. Do not consider economics (to do so would make adoption of TMDLs too slow, not a part of the Clean Water Act (CWA) process for developing TMDLs).
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The SWRCB should develop specific guidance on TMDL problem statements.

### Range of Considerations:

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Need clear, consistent listing criteria Policy in the future. The Policy should contain pre-TMDL delisting criteria to allow the regulated and environmental communities to evaluate the existence of the water quality problem.

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## Appropriate Time Periods to Develop TMDLs

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## Offset Programs

1. Both the environmental and regulatory communities do not like Offset Programs but for different reasons.
2. Offset Programs can be a voluntary option.
3. Many accountability issues need to be resolved: How do they work? If goals are not met, who receives enforcement action?
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9. If done at all, offset program should be in the same watershed.

## Issues Yet to be Discussed Fully

### Monitoring

Objectives of a Statewide monitoring program

- The right questions
- Ambient vs. TMDL monitoring (source identification and effectiveness monitoring)
- Use monitoring to find solutions and to find the root cause
- Pollution prevention monitoring
- Effectiveness monitoring
- Source prevention/monitoring should have equal time allotted to them
- Goal is to have a plan that will achieve clean water in California
- Monitoring objective for TMDL development

Monitoring to support Basin Planning efforts including development of water quality objectives

Monitoring for Stormwater/NPS discharges to fill data gaps

Require federal government to monitor all or high risk waterbodies

Setting priorities for monitoring

Monitoring: where, when?

Involve UC/Cal State to help fill in data gaps where feasible

Scientific and statistically significant protocols

- Accurate indicators
- Indicators in people
- Aquatic life references should be consistent

Background levels/reference conditions

Data management

- Baseline Protocol for database
- Data accessibility
- Approach for making data accessible
- Minimum statewide data requirements (Baseline benchmark)
- Consolidating existing data sets from agencies

- All data collected will be recorded along with its supporting methods and QA/QC documentation (metadata) through a State template

Use of Geographical Information System

Funding sources for monitoring

Public involvement in monitoring activities

Voluntary proactive approaches

Integration of monitoring requirements with scientific advisory group

Legal authority to take access on private property or to engage monitoring or take samples

Are data taken from private property considered public information?

Assessment of overall resource needs for monitoring

Levels of implementation (RWQCBs, landowners/municipalities, and citizen)

## Listing

Establishment of “warning levels”

Monitoring program support of listing determinations

Setting priorities:

- Within Watersheds
- Regional
- Statewide

Retroactive use of monitoring data

Funding sources for evaluating listing and delisting

## Consistent TMDL Process

How do State and Federal laws integrate?

Look at other State programs dealing with water quality issues

Multi-jurisdictional coordination of agencies and regions

Adaptive Management Process

Implementation Plans

Implementation Schedules

Private sector involvement

TMDL education

- Development
- Implementation

Funding for stakeholder processes

Federal/State buyoff on stakeholder processes

Interim Permit Limits Pending TMDL Adoption

[Economic Impact Analysis](#)

Environmental Benefits Analysis

TMDL Enforceability

Legal compliance with other statutes (e.g., CEQA)

## Consistent TMDL Elements

Ensure Beneficial Uses adequately protected

TMDL Guidelines and Schedule

Waste Load Allocation

- Methods (data/model/best professional judgement)
- Linkage between water quality control measures, water quality impairment and expected benefits
- Stormwater downstream from sources
- Point, nonpoint, historical, local/global, atmospheric natural sources
- Unregulated sources
- [Natural loading](#)

Link between SWRCB NPS program and TMDLs

Point/nonpoint/historical sources

- Source identification

- Watershed Management Approach

Persistent Bioaccumulative Toxics

- Strategy for what PBTs to monitor for and where to monitor in all branches of the food web

The relationship between “watershed management” and TMDLs

[Economic impact analysis](#)

Pollution prevention

**DRAFT – AUGUST 1, 2000**

**Staff Report by the Division of Water Quality**

**Structure and Effectiveness of the State's Water Quality Program:  
Section 303(d) of the Federal Clean Water Act and  
Total Maximum Daily Loads (TMDLs)**

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**1. Executive Summary**

**(to be completed)**

**2. Background and Introduction**

On September 27, 1999 the legislature enacted AB 982. This bill requires the State Water Resources Control Board (State Board) to convene advisory groups to assist in the evaluation of the structure and effectiveness of the State Board's programs related to Section 303(d) of the federal Clean Water Act. Pursuant to California Water Code (CWC) 13191 and 13192, the State Board has convened a Public Advisory Group (PAG) and a Scientific Advisory Group (SAG). AB 982 also requires reports to the legislature. One report is an evaluation of Total Maximum Daily Load (TMDL) efficacy (this report), and the second report describes current and planned monitoring programs that support 303(d) listing and TMDL development.

Section 303(d) of the Federal Clean Water Act requires states to identify those waters within its boundaries for which effluent limitations are not stringent enough to implement any applicable water quality standard. These are waters that exceed water quality standards for specific physical, chemical and biological criteria. The states are required to compile a list of these water bodies. Once these impaired waters have been identified, states must rank them by priority, and establish plans to improve water quality. These plans are called Total Maximum Daily Loads or TMDLs.

TMDLs are to be established at the level necessary to implement the applicable water quality standards. A TMDL requires that all sources of pollution and all aspects of a watershed's drainage system be reviewed, not just the pollution coming from discrete conveyances (known as point sources), such as a discharge pipe from a factory. Point sources are defined in the Clean Water Act, Section 502.

“Nonpoint source” pollution is the release of pollutants from everything other than point sources. These include landscape scale sources such as storm water and agricultural runoff, and dust and air pollution that find their way into water bodies. Nonpoint source pollution (also called polluted runoff) is not typically associated with discrete conveyances. Nonpoint sources are not defined in statute, but are considered everything that is not covered under the point source definition.

The requirement to develop TMDLs has been in the Clean Water Act since 1972. In the 1970's, point source pollution was by far the most significant problem affecting water quality in rivers and streams. The innovations in the Clean Water Act established extensive programs to address point sources, and the vast majority of federal dollars went to implement point source controls. State funding priorities mirrored the federal effort. In California, the State and Regional Water Quality Control Boards (Regional Boards) also used state authorities to implement smaller scale corrective actions (under the umbrella of the Section 319 Nonpoint Source Program) for polluted runoff problems. Most of these

efforts were not formally submitted to the U.S. Environmental Protection Agency (USEPA) as TMDLs.

To date, more than 40 lawsuits have been filed nationwide contesting either the listing of impaired waters or the lack of development of TMDLs. Three suits brought in California resulted in consent decree settlements. In an effort to stave off further lawsuits, USEPA determined that a more deliberate effort to develop TMDLs was needed.

### **3. California's Water Quality Efforts**

The Clean Water Act contains two strategies for assuring that water quality is maintained. One approach requires that performance standards for pollution control technology be developed and applied to industrial and municipal discharges. The second strategy is a water quality-based approach. This approach requires that water quality be evaluated to determine if it is capable of supporting the identified uses of the water (beneficial uses).

#### **Technology-based Approach**

The technology-based approach came with substantial federal grant money to build water treatment plants. The Clean Water Act established the National Pollutant Discharge Elimination System (NPDES) permit system as the mechanism to assign performance standards to individual facilities. California's NPDES permit system now encompasses nearly 2300 facilities permits statewide, close to 50 general permits and four types of stormwater permits.

#### **Water Quality-based Approach**

Under the water quality-based approach, water quality standards are established at levels that protect the beneficial uses. Water Quality Control Plans (known as Basin Plans) are developed as a repository for the standards, and to establish methods to achieving standards that require more than simply implementing the technology-based approach. Development of Basin Plans is a requirement of state law (Porter Cologne Act). Section 303(d) of the Clean Water Act requires that a list of waters not attaining standards after the application of the technology-based approach be developed. Generally, for waters on this list, Section 303(d) requires that TMDLs be developed.

Since the passage of the Clean Water Act in 1972, California has maintained this dual approach to water management. The water quality-based approach has been addressed through several programs and processes that are described below.

#### **Basin Planning**

Initially, the state maintained an active Basin Planning process that included financial support for water quality assessments and special investigations. In the late 70's and into the 80's, economic factors and the established priority to emphasize treatment plant construction and the technology-based approach caused the water quality-based efforts to



diminish. Even during this period and continuing through the 90's the state undertook water quality-based management. Examples include the rice herbicide control program in the Sacramento Valley Region; the south San Francisco Bay copper and nickel control program; the Laguna de Santa Rosa TMDL; the Stemple Creek and Garcia River watershed strategies in the North Coast Region; the Morro Bay and Chorro Creek sediment management efforts in the Central Coast Region; the Malibu Creek nutrient management efforts in the Los Angeles Region; sediment control in Newport Bay; Eliso and San Juan Creek management plans in the San Diego Region; sediment control in the Salton Sea drainage, and erosion control management around Lake Tahoe. While by no means exhaustive, this list does indicate that nonpoint source water quality-based management has been pursued in all regions for some time.

### **Watershed Management**

At the same time as better control of NPDES discharges was being realized, the extent and intensity of overall land use was increasing, due to population pressures. Beginning in the 1970's, urban and suburban land use rapidly expanded. Irrigated agriculture, road building, recreational and forest uses all increased, making both the total impact from these diffuse sources greater and adding significantly to the complexity of pollutant dynamics. In FY 1999-00 the first state resources [\$6 million total, \$3.9 million to the State Board and \$2.1 million to the Department of Pesticide Regulation (DPR)] were targeted at TMDLs. FY 2000 saw an additional increase of nearly \$11 million. These monies have been provided to develop integrated solutions that produce TMDLs from a watershed management perspective.

The watershed management approach acknowledges that:

- Impairments arise from the varied and multiple effects of land management (nonpoint source) and discrete discharges of pollution (point source).
- To minimize impairment requires:
  - a good sense of watershed conditions
  - a collaborative response by land managers
  - effective pollution control capabilities
- Managing watersheds requires extensive public outreach and involvement
- Local needs and capabilities are merged with State and National interests
- Information is shared
- Responsibility is distributed among all parties
- Water quality improvement and restoration of beneficial uses determines success

#### **4. What Does the Clean Water Act, Section 303(d) Require?**

Section 303(d) of the Clean Water Act requires states to compile a list of impaired waters, prioritize the listed water bodies and develop TMDLs as plans to bring about attainment of water quality standards. State law (Porter Cologne Act, Water Code Sec. 13000 et. seq.)

requires that Implementation Plans be developed that identify the types of activities that will be undertaken to alleviate impairments. Section 303(d) addresses only the listing and priority setting for impaired waters, the identification of total loads, and allocations of loads to sources. Section 303(d) is in essence a planning requirement. Section 303(e) requires that approved TMDLs be incorporated into water quality control plans. USEPA has established regulations (40 CFR 122) that require that NPDES permits be revised to be consistent with any approved TMDL.

### **Listing of Impaired Waters**

As previously stated, Section 303(d) of the Clean Water Act requires the states to identify and compile a list of water bodies which do not meet water quality standards. California's current (1998) list has 509 water bodies listed, many for multiple pollutants. The list is usually revised every two years, however a federal rule suspended the 2000 submittal, therefore the next revision of the list is due in April of 2002.

The listing of waters pursuant to Section 303(d) has evolved over time. Initially only a few waters were identified and they were included in the 305(b) report. In 1990, the first separate list of impaired waters was developed. Formal involvement of the water boards was limited until 1998, when staff presented the proposed regional 303(d) lists to their respective Regional Boards. The State Board also considered the 303(d) list for the first time in 1998. Previous to this time, the 303(d) list had been developed as an administrative action and submitted to USEPA without formal public hearings.

The approach to listing has been to include both threatened and impaired waters on the list. This has produced a list that requires confirmation of impairment as a step in the TMDL process. In some cases sufficient information exists to provide the confirmation from the record. In other cases more assessment is required. In some cases models, professional judgement, or land uses analyses formed the basis of the listing. There was no distinction between impaired and threatened waters within the list.

### **Development of TMDLs**

Once the list has been compiled, the Clean Water Act requires that a priority ranking be developed, considering the severity of pollution and beneficial uses of each water body. Currently TMDLs are required for all waters and pollutants on the 303(d) list, taking into account seasonal variation and a margin of safety. Waters are also to be identified where controls on thermal discharges are not stringent enough to assure protection and propagation of a balanced population of shellfish, fish and wildlife. The complete TMDL requirements of the Clean Water Act are attached as Appendix A.

TMDLs must consider and include allocations to both point sources and nonpoint sources of listed pollutants, unless information indicates that a different pollutant is responsible for the impairment. Although the abbreviation stands for "Total Maximum Daily Load", the limitations contained in a TMDL may be other than "daily load" limits (i.e. 4-day average). There also can be multiple TMDLs on a particular water body, or there can be one TMDL

that addresses numerous pollutants. The basis for grouping is whether or not there can be a common management response.

## **5. What Does State Law Require?**

### **Implementation of TMDLs**

The Clean Water Act requires that completed TMDLs be incorporated into the State water quality plans, called Basin Plans. Each of the nine Regional Boards has its own Basin Plan. State law (Porter Cologne Act, Water Code Sec. 13000 et. seq.) requires that an Implementation Plan for the TMDL be developed.

Consistent with current practice, point sources will continue to require NPDES permits. As previously mentioned, USEPA has established regulations (40 CFR 122) that require NPDES permits be revised to be consistent with any approved TMDL. Consistent with the Nonpoint Source Management Plan, California is using a 3-tiered approach to TMDL implementation for nonpoint sources. In the 1999 legislative session the Governor signed SB227 formally establishing the 3-tier approach.

- Tier 1: collaborative, self-determined implementation of best management practices by watershed stakeholders.
- Tier 2: regulatory incentives using authorities of the Water Board and cooperating agencies
- Tier 3: regulation through permits and orders.

On July 13, 2000 the USEPA issued a Final Rule to revise the National TMDL Program. The Final Rule will identify pollution reductions necessary to meet clean water goals, provide for a comprehensive listing of the Nation's polluted waters, encourage cost-effective clean-up by considering all sources of pollutants, and assure that TMDLs include specific implementation plans and schedules for meeting clean water goals. The new rule does not take force until 2001 unless Congress acts to expedite its implementation.

### **Cost Considerations**

Under state law, there are three triggers for Regional Board consideration of economics or costs in basin planning. These are:

- The Regional Boards must estimate costs and identify potential financing sources in the Basin Plan before implementing any agricultural water quality control program. Many waterbodies in the state are impaired due to agriculture. As a result, the Regional Boards will be developing programs to control agricultural activities as part of TMDL development. The statute focuses only on costs and financing sources. The law does not require the Regional Boards to do a cost-benefit analysis or an economic analysis. (CWC 13000 et. seq.)

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- The Boards must consider economics in establishing water quality objectives that ensure the reasonable protection of beneficial uses, and the prevention of nuisance. 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. 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 (CWC 13141). The Regional Boards can adopt objectives despite significant economic consequences.
- The Boards must comply with the California Environmental Quality Control Act (CEQA) when they amend their Basin Plans (Public Resources Code 21080). In general, CEQA requires the Regional Boards to consider economic factors only in relation to physical changes in the environment [CCR title 14, 15064(e)]. The State Resources Agency has certified the basin planning process as exempt from the requirement to prepare environmental documents under CEQA [CCR title 14 15251 (g)]. In lieu of preparing an environmental impact report or negative declaration, the Boards must comply with the State Board's regulations on exempt regulatory programs when they amend their Basin Plans (CCR title 3775-3782). These regulations require the Board to prepare a written report that analyzes the environmental impacts of proposed Basin Plan amendments (CCR title 23, 3777). CEQA requires that the Boards analyze the reasonably foreseeable methods of compliance with proposed performance standards and treatment requirements (Public Resources Code 21159). This analysis must include economic factors. TMDLs will typically include performance standards. TMDLs normally contain a quantifiable target that interprets the applicable water quality standard. They also include wasteload allocations for point sources and load allocations for nonpoint sources and natural background to achieve the target. The quantifiable target together with allocations may be considered a performance standard. Thus the Regional Boards must identify the reasonably foreseeable methods of compliance with the wasteload and load allocations, and consider economic factors for those methods. The Regional Board would determine: (1) whether the allocations are being attained; (2) if not, what methods of compliance are reasonably foreseeable to attain the allocations; and (3) the costs of these methods.

Economic factors come into play under federal law when the Regional Boards designate uses. Specifically the Boards can decide to designate, dedesignate, or establish a subcategory of a potential use where achieving the use would cause substantial and widespread economic and social impact [40 CFR 131.10 (g)(6)]. The states can take this action only for potential uses. These are uses that do not meet the definition of "existing use". Existing uses are those uses actually attained in the water body on or after November 28, 1975 [40 CFR 131.3(e)].

## **6. Methodology for Compiling the California Section 303(d) list and TMDL Priority Schedule**

### **Summary**

The nine Regional Boards assemble water quality data and other types of information, and use it to compile the regional 303(d) lists. They each conduct a 30-day public review process. They submit their lists to the State Board for review and merging into the statewide 303(d) list. The State Board conducts a public workshop on the statewide list, followed by a public meeting for approval of the list. The State submits the statewide list to USEPA, who reviews the State's list and can approve or disapprove it. If USEPA disapproves the state's list, it must substitute its own list.

Regional Board staff assigns priorities to the listed waterbodies and develops a schedule for the development of TMDLs, based on the assigned priorities. Regional Board staff writes TMDLs, containing the required elements, based on stakeholder input and available information. If new information is required in order to complete a TMDL, those needs are identified. Once a TMDL is completed and approved, it is adopted as a Basin Plan amendment through a public process.

### **Compiling the California Section 303(d) list and TMDL Priority Schedule**

The California Section 303(d) list and TMDL Priority Schedule are compiled from information submitted to the State Water Resources Control Board (State Board) by the nine Regional Water Quality Control Boards (Regional Boards), with any modifications made by the State Board. The list includes pollutants and stressors (factors other than pollutants, which have a detrimental effect on beneficial uses - i.e. water flow), probable sources, TMDL priorities and schedules for completion. It is prepared using data from the State Board's Georeferenced Waterbody System (GeoWBS) database. This database is a catalogue of the State's major water bodies and contains information about water body size, specific pollutants, sources of pollutants, and affected uses. It identifies the general condition of the uses supported by each water body. The Regional Boards provide all the information in this database.

### **1998 Update of the 303(d) List**

State Board staff prepared guidance in 1998 (Appendix B) to assist the Regional Boards in conducting their review during the periodic update of the 303(d) list. This review included reexamining the previously listed water bodies, reviewing all readily available monitoring information, soliciting information from other state and federal agencies, and inviting the public to participate. The guidance also included the State's most current Listing Guidelines (see Appendix B). These guidelines were developed by a task force of USEPA, State Board and Regional Board staff, and are used by Regional Board staff as a basis for listing and delisting water bodies, prioritizing and scheduling TMDLs, and public noticing.

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Regional Board staff followed the following steps to develop and complete the 303(d) list.

1. Solicited governmental agencies and the public for available information on water bodies in the Region.
2. Reviewed available information and decided which water bodies to list or delist, using State Board Listing Guidelines.
3. Assigned priorities of high, medium or low for completion of TMDLs for the pollutants or stressors of the listed water bodies. Assigned dates for TMDL completion. Prepared a proposed 303(d) list and TMDL priority schedule.
4. Invited public comments in a public notice period of at least 30 days. Public notice was provided through newspapers and/or through each Regional Board's public hearing process.
5. Prepared responses to comments received during the public review. Revised the proposed list as needed, based on public input.
6. Submitted the proposed list to the Board for review, revision if needed and approval.
7. Transmitted the Regional Board approved list to the State Board for consolidation, approval and final submittal to USEPA for approval. The Regional Board submittals to the State Board included copies of public notices, resolutions and staff reports. The staff report contained the 303(d) list, the rationale for listing and delisting, public comments and staff responses.

The State Board provided public notice of a workshop to review comments on the nine Regional Board lists. At the workshop the State Board heard public comments and responses from Regional Board staff. After the workshop, State Board staff summarized oral and written comments, and made recommendations for discussion at a subsequent public meeting. Approval of the statewide 303(d) list for submittal to USEPA occurred at a State Board public meeting.

For all updates, USEPA reviews the State's list and approves or disapproves it. If the list is disapproved, USEPA proposes a modified list with a 30-day public comment period. The USEPA final list becomes the State's list for the next two years.

### **New State Board Listing Process Guidance**

The State Board will adopt a policy outlining the listing and delisting criteria for establishing the Section 303(d) list and ranking. This document will be a Water Quality Control Policy (CWC 13140, 13142) that contains specific listing and delisting criteria, criteria to assist the State Board and the Regional Boards in establishing priorities for developing TMDLs, and other measures necessary to facilitate the completion of TMDLs. The Policy will be accompanied by a functional equivalent document (FED) to facilitate CEQA and Office of Administrative Law compliance and to provide technical justification to withstand peer review (as required by the Health and Safety Code). For adoption of the Policy, the State Board will use the procedures for adopting and revising Water Quality Control Plans (Basin Plans).

**7. Criteria for Determining the Effectiveness of State Listing Efforts (to be completed)**

How effectively have the Boards collected and used the following types of information to list impaired waters:

- Water quality measurements (chemical, biological, physical, land use)
- Geographic coverage
- Use of existing and readily available information
- Public participation
- Definitions of threat and impairment and use in prioritization
- Consistent approach among Regional Boards
- Data quantity and quality

What processes did the Boards use to address the criteria?

Areas needing improvement.

Changes we intend to implement.

**8. Total Maximum Daily Load (TMDL) Development**

**What is a TMDL?**

A TMDL is a plan written by Regional Board staff that describes how a specific water body must be managed to attain water quality standards. TMDLs assign proportional responsibility for attainment of water quality standards to all pollutant sources. If the state fails to develop TMDLs, USEPA must establish them. The USEPA must give final approval to all TMDLs.

There are five steps in producing a TMDL:

- *Involve Stakeholders:* Stakeholders can be the general public, business interests, government entities, local agencies, environmental groups, or anyone concerned with a particular water body. Stakeholders are involved at the beginning of the process in order to provide input to the Regional Boards on the development of TMDLs.
- *Assess water body:* In this step, pollution sources and amounts, or “loads”, are identified for various times of the year. Then the overall effect of these loads on the water body is determined.
- *Develop allocations:* To ensure water quality standards are met and beneficial uses are maintained, allocations of pollutant load to all sources are established for the pollutant(s) in question. TMDLs can address single pollutants or combinations of pollutants. The sum of the allocations must result in the water body attaining the applicable water quality standards.

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- *Develop implementation plan:* This step is a description of the approach and activities to be undertaken to ensure the allocations are met.
- *Amend the Basin Plan:* Federal law requires that TMDLs be part of the Basin Plans. The Basin Plan is a legal document that describes how a Regional Board will manage water quality. The TMDL must be formally incorporated into the Basin Plan to be part of the basis for Regional Board actions. Basin Plan amendments are adopted through a public process that requires approval of the TMDL by a Regional Board, the State Board, the Office of Administrative Law, and USEPA Region 9. Once a TMDL is incorporated in a Basin Plan as an amendment, state law requires that implementation programs be developed.

### **TMDL Elements**

A complete TMDL must contain the following elements in order to be approved by the USEPA:

#### Problem Statement:

Describes which water quality standards are not being attained, which beneficial uses are impaired, and what is the nature of the impairment.

#### Numeric Targets: The Desired Future Condition:

Defines measurements that will ensure recovery of the beneficial uses that are impaired, and attainment of standards. Numeric targets are usually not directly enforceable but are used to assess progress towards or attainment of standards.

#### Source Analysis:

Identifies the amount, timing, and point of origin of pollutants of concern. May be based on field measurements and/or models and estimations.

#### Allocations:

Allocates responsibility, and identifies who is to take the specified actions. May be specific to agencies or persons (businesses) or generally by source category or sector. Allocations of allowable pollutant burdens define TMDL endpoints (e.g., total sediment load from urban runoff). Sum of individual allocations must equal total allowable pollutant burden.

#### Implementation Plan:

Describes what is to be done, and what actions will be undertaken to alleviate the impairments. Identifies enforceable features (e.g. prohibition), triggers for Regional Board action (e.g. performance standards)

#### Linkage Analysis: How the Numeric Targets relate to the Problem:

Relates how the actions to be taken will result in achievement of the relevant standards.



Monitoring/ Re-evaluation:

Describes the monitoring strategy that will be used to develop more refined information for performance evaluation and consideration of TMDL revisions, for phased TMDLs.

Margin of Safety:

Describes how the required margin of safety was incorporated into the TMDL. The margin of safety may be implicit, i.e. using conservative assumptions, or explicit, i.e. a discrete allocation assigned to the margin of safety.

An example of a Final TMDL (Selenium in Salt Slough) containing these elements is attached as Appendix C.

**TMDL Priorities and Scheduling**

The Clean Water Act requires that a priority ranking for TMDLs be developed. In California the Regional Boards rank TMDLs as high, medium or low priority. The ranking is based on water body significance, degree of impairment or threat, conformity with related activities in the watershed, potential for beneficial use protection or recovery, degree of public concern and available information. The Regional Boards develop schedules for TMDLs that serve as planning tools, and identify the order in which TMDLs will be completed. These schedules are contained in the Regional Boards' Watershed Management Initiative (WMI) work plans.

**Current TMDL Status**

The Regional Boards are currently developing over 100 TMDLs (see Appendix D). TMDLs have been adopted into Basin Plans for the following water bodies and pollutants:

<u>Water Body</u>	<u>Pollutant</u>
Newport Bay/San Diego Creek	nitrogen
Newport Bay/San Diego Creek	phosphorus
Newport Bay/San Diego Creek	sediment
Salt Slough	selenium

The TMDLs for Newport Bay/ San Diego Creek have superceded the TMDLs developed for this waterbody by USEPA.

The following four TMDLs are pending adoption:

<u>Water Body</u>	<u>Pollutant</u>
Garcia River	sediment
Upper San Gabriel River	trash
Alamo River	sediment
Calleguas Creek	chloride

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USEPA has established the following TMDLs:

<b><u>Water Body</u></b>	<b><u>Pollutant</u></b>
South Fork Eel River	sediment, temperature
Noyo River	sediment
Van Duzen River/Yager Creek	sediment
South Fork Trinity River/Hayfork Creek	sediment
Redwood Creek	sediment
Garcia River	sediment

USEPA is currently developing TMDLs for Ten Mile River and Navarro River for sediment.

**TMDL Development - Effectiveness Criteria (to be completed)**

Water Quality Improvements

- Decrease in number of listed waters due to improvement in water quality
- Decrease in number of beach closures
- Decrease in number of health advisories
- Restoration of beneficial uses

TMDL Task Performance

- Number of TMDLs under development, completed, approved by USEPA and adopted as Basin Plan amendments.
- Public understanding and involvement (numbers of stewardship groups working with Boards, number of citizen monitoring and school groups, number of lawsuits, number and dollar amounts of 319(h) grants).
- Outreach strategy (website, publications, media productions)
- BMP implementation and effectiveness

Administrative Task Performance

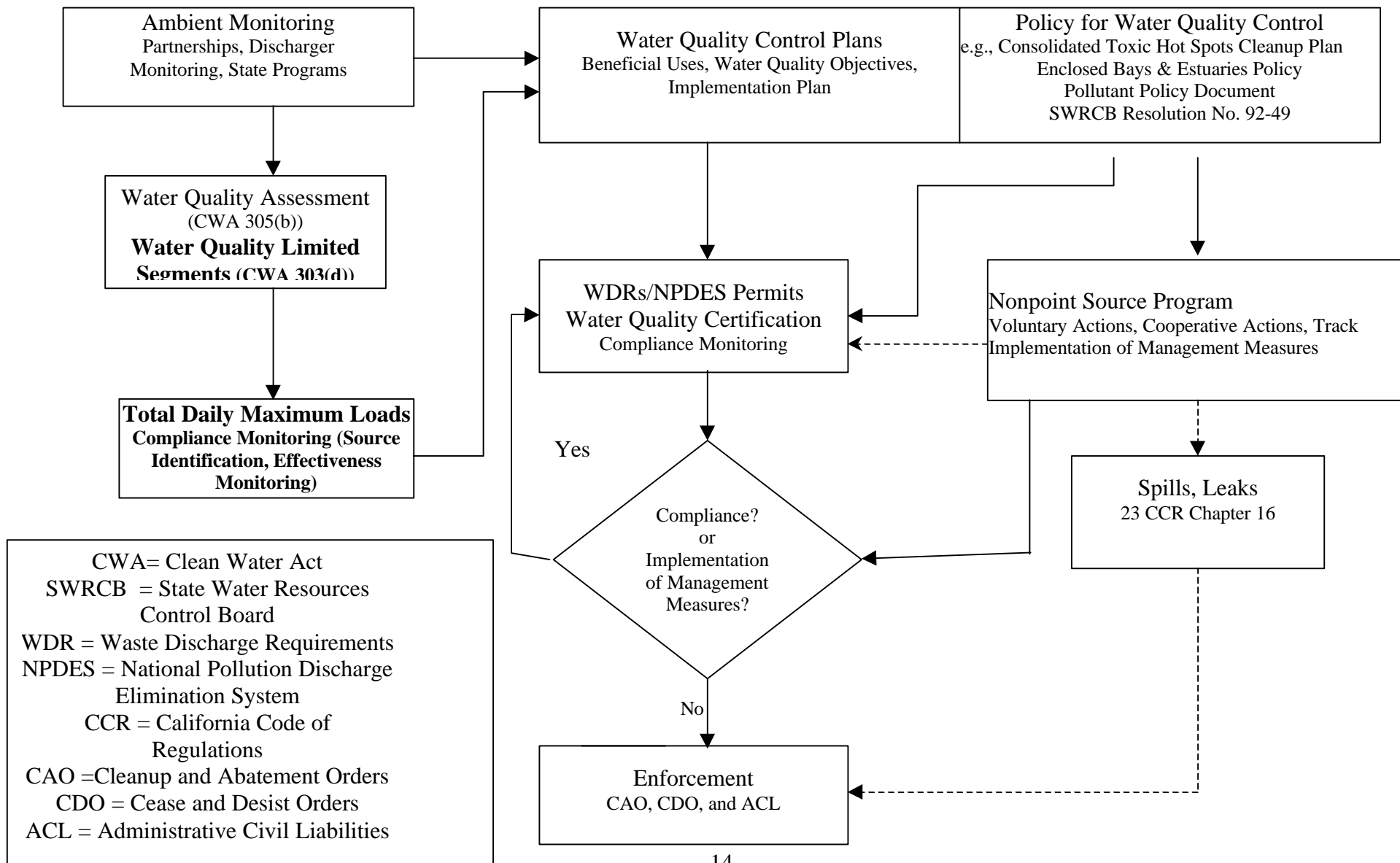
- Watershed Management Initiative (WMI) chapters
- State and Federal workplans
- Budget requests
- Budgets and accounting
- Hiring and retaining staff
- Interagency consultations

What did the Water Boards do?  
Areas needing improvement.  
Changes we intend to implement.

**9. Relationship of TMDLs to Existing Water Quality Programs**

Once a TMDL has been incorporated into a Basin Plan, it will be linked to existing and planned ambient monitoring programs, point source permitting and compliance programs (i.e. WDRs, NPDES facilities and stormwater permits), and to the nonpoint source management program. Figure 1 illustrates the relationships among these programs. These programs will provide the basic structure for the implementation of TMDLs.

**FIGURE 1: RELATIONSHIP OF THE 303(D) LIST AND TOTAL MAXIMUM DAILY LOADS (TMDLS) TO THE STATE’S WATER QUALITY AND MONITORING PROGRAMS**



**10. TMDL Assessment and New Monitoring Proposal**

(to be completed)

**11. AB 982 Public Advisory Group Recommendations**

(to be completed)

**12. Conclusions and State Board Recommendations**

(to be completed)

**13. Appendices**

Appendix A - TMDL Requirements of the Clean Water Act

Appendix B - 1998 Listing Guidelines

Appendix C - Final TMDL for Selenium in Salt Slough

Appendix D – TMDL Schedule (to be completed)

# **Appendix A**

**TMDL Requirements (Clean Water Act and 40 CFR citations)  
and Recommended Elements.**

Clean Water Act

§ 303(d)(1)(A):

Each state shall identify those waters within its boundaries for which the effluent limitations required by section 301(b)(1)(A) and section 301(b)(1)(B) are not stringent enough to implement any water quality standard applicable to such waters. The State shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters.

§ 303(d)(1)(C):

Each state shall establish for the waters identified in paragraph (1)(A) of this subsection, and in accordance with the priority ranking, the total maximum daily load, for those pollutants which the Administrator identifies under section 304(a)(2) as suitable for such calculation. Such load shall be established at the level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety, which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.

§ 303(d)(1)(B):

Each state shall identify those waters or parts thereof within its boundaries for which controls on thermal discharges under section 301 are not stringent enough to assure protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife.

§ 303(d)(1)(D)

Each state shall estimate for the waters identified in paragraph (1)(B) of this subsection the total maximum thermal load required to assure protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife. Such estimates shall take into account the normal water temperatures, flow rates, seasonal variations, existing sources of heat input, and the dissipative capacity of the identified waters or parts thereof. Such estimates shall include a calculation of the maximum heat input that can be made into each such part and shall include a margin of safety which takes into account any lack of knowledge concerning the development of thermal water quality criteria for such protection and propagation in the identified waters or parts thereof.

Note: Administrator refers to the administrator of U.S. EPA. § 301 references relate to technology based effluent limits required for point sources. § 502 of the Act defines point sources. Nonpoint sources are not explicitly defined in the Act. § 304 requires the Administrator to publish water quality criteria and to identify pollutants suitable for TMDL development.

Code of Federal Regulations, Part 40 (paraphrased, actual text not included):

§ 130.2(f), Loading Capacity:

The greatest amount of loading (introduction of a pollutant) that a water can receive without violating water quality standards.

§ 130.2(d), Water Quality Standards:

Provisions of state or federal law, which consist of designated uses or existing uses and water quality criteria for those uses in those waters. Standard must be designed to protect the public health or welfare, restore and maintain the biological, physical, and chemical integrity of the waters, and enhance water quality.

§ 130.2(i), Total Maximum Daily Load (TMDL):

The sum of the individual Waste Load Allocations and Load Allocations and natural background. Can be expressed in mass per time, toxicity, or other appropriate measure. Waste load allocations (and therefore effluent limits) can be made less stringent (than application of standards using existing formulas might suggest) if implementing Load Allocations can provide sufficient reductions to assure attainment of standards.

§ 130.2(g), Load Allocations:

The portion of a receiving water's loading capacity attributed to natural background or present or future nonpoint sources.

§ 130.2(h), Wasteload Allocations:

The portion of a receiving water's loading capacity allocated to one or more of its existing or future point sources.

§ 130.7(a), TMDLs, General:

The states continuing planning process shall describe the process for identifying water quality limited segments needing TMDLs, priority setting, and how the TMDLs are developed and implemented (including public participation). [Note: 40 CFR § 130.5 states that the state may determine the format of its CPP as long as the minimum requirements are met. California has used a CPP document, written reports, conferences, workgroups, program workplans, and ongoing management discussions to fulfill CPP requirements.)

§ 130.7(b), Identifying and priority setting for water quality limited segments:

Requires states to identify and rank in priority all water bodies not attaining standards due to pollutants and thermal discharges. Standards include numeric or narrative criteria, beneficial uses and antidegradation (see § 303 and 40 CFR 131). List must identify suspected pollutant of concern. Priority must take account of severity of pollution and beneficial uses. In developing the list, states must assemble and evaluate readily available information; i.e. from § 305(b) report or § 319 (nonpoint source) assessment, files, agency or university reports, or reports from the public. Listing decisions must be documented. Must explain any non-listing where readily available information suggests a problem (e.g. bad QA, countervailing information, etc.)



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§ 130.7(c), Development of TMDLs:

A TMDL is required for each listed water body. The TMDL must be set at a level sufficient to attain and maintain applicable standards with seasonal variation and a margin of safety. TMDLs must account for critical conditions. May use pollutant specific or cumulative (i.e. biomonitoring) approach and must account for all pollutants suspected of preventing attainment of standards.

§ 130.7(d), Submission of lists and TMDLs to USEPA for approval:

List of water quality limited segments must be submitted to USEPA for approval once every two years (by April 1 of even numbered years). EPA must make any changes it deems appropriate then send the list and TMDLs back to the State for incorporation into Basin Plans.

§ 130.6(c), Water Quality Management Plans:

Basin Plans serve as California's Water Quality Management Plans (i.e., § 130.7(c), applies to Basin Plans for purposes of implementing the Clean Water Act). Several elements are required to be included directly or by reference including any TMDLs approved by USEPA.

## **Appendix B**

1998 Listing Guidelines

**1998 CLEAN WATER ACT (CWA) SECTION 303(d)  
LISTING GUIDELINES FOR CALIFORNIA  
(August 11, 1997)**

**A. Introduction**

The Total Maximum Daily Load (TMDL) Workgroup<sup>1</sup> identified the need to develop statewide consistency on 303(d) listing issues. At its roundtable meeting on April 30, 1997, the workgroup decided to develop 303(d) listing guidelines that would be acceptable to the Regional Water Quality Control Boards (RWQCB), State Water Resources Control Board (SWRCB), and U.S. Environmental Protection Agency (U.S. EPA). Three work teams were formed to address various 303(d) listing issues. Each team met several times to develop a draft work team product. The work team products were circulated for comment from the TMDL workgroup and the drafts were revised by the work teams. The TMDL workgroup held a second roundtable meeting on July 28, 1997 to review the integrated product of the three work teams, and revisions to the listing guidelines were made (a list of attendees at the TMDL roundtable meetings and work team members is attached).

The guidelines address the following topics: listing/ delisting factors, scheduling and prioritization, public notice procedures, the 303(d) list submittal package, and coordination with the Watershed Management Initiative (WMI).

**B. Listing Factors**

The following factors were developed to provide for consistent statewide decisions on listing California surface water bodies under CWA Section 303(d). However, they are meant to be flexible, and the RWQCBs should exercise judgment based on the specific circumstances for each water body. The listing factors will be reviewed periodically and may be revised to reflect new scientific information or newly developed water quality criteria (e.g., sediment criteria, criteria for evaluation of wetland functions). Information sources which should be considered include sources listed in 40 CFR 130.7(b)(5) and sources found in Appendix D of the 1996 305(b) Guidance from U.S. EPA.

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<sup>1</sup> An ad hoc workgroup of staff from the Regional Water Quality Control Boards, State Water Resources Control Board, and U.S. EPA that have an interest in 303(d) issues.

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Water bodies may be listed if any one of these factors is met<sup>2</sup>:

1. Effluent limitations or other pollution control requirements [e.g., Best Management Practices (BMPs)] are not stringent enough to assure protection of beneficial uses and attainment of SWRCB and RWQCB objectives, including those implementing SWRCB Resolution Number 68-16 “Statement of Policy with Respect to Maintaining High Quality of Waters in California” [see also 40 CFR 130.7(b)(1)].
2. Fishing, drinking water, or swimming advisory currently in effect. This does not apply to advisories related to discharge in violation of existing WDR’s or NPDES permit.
3. Beneficial uses are impaired or are expected to be impaired within the listing cycle (i.e. in next two years). Impairment is based upon evaluation of chemical, physical, or biological integrity. Impairment will be determined by “qualitative assessment”<sup>3</sup>, physical/ chemical monitoring, bioassay tests, and/or other biological monitoring. Applicable Federal criteria and RWQCB Water Quality Control Plans determine the basis for impairment status.
4. The water body is on the previous 303(d) list and either: (a) “monitored assessment”<sup>4</sup> continues to demonstrate a violation of objective(s) or (b) “monitored assessment” has not been performed.
5. Data indicate tissue concentrations in consumable body parts of fish or shellfish exceed applicable tissue criteria or guidelines. Such criteria or guidelines may include SWRCB Maximum Tissue Residue Level values, FDA Action Levels, NAS Guidelines, and U.S. EPA tissue criteria for the protection of wildlife as they become available.
6. The water quality is of such concern that the RWQCB determines the water body needs to be afforded a level of protection offered by a 303(d) listing.

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<sup>2</sup> U. S. EPA's national policy is that water bodies impaired by natural conditions should be listed. In light of this policy, the RWQCBs should consider designating such water bodies as a low priority for establishing TMDLs.

<sup>3</sup> Qualitative Assessment: An assessment based upon information other than ambient monitoring data. Information used may include land use data, water quality impacts, predictive modeling using estimated input variables, or fish and game biologist surveys. A sole reliance on professional judgment, literature statements (often judgment based), or public comments should not be the only basis for listing.

<sup>4</sup> Monitored Assessment: For aquatic life uses, monitored assessment should be based upon a minimum of Level 2 information, as indicated in the 1996 305(b) guidance [Guidelines for Preparation of the 1996 State Water Quality Assessments (“305(b) Reports”), EPA 841 B-95-001, May 1995; Pages 5-6 through 5-10, Tables 5-2 & 5-3]. There is a need to develop guidance for Minimum Data Requirements for assessing other beneficial uses.

**C. Delisting Factors**

Water bodies may be delisted for specific pollutants or stressors if any one of these factors is met:

1. Objectives are revised (for example, Site Specific Objectives), and the exceedence is thereby eliminated.
2. A beneficial use is de-designated after U.S. EPA approval of a Use Attainability Analysis, and the non-support issue is thereby eliminated.
3. Faulty data led to the initial listing. Faulty data include, but are not limited to, typographical errors, improper quality assurance/quality control (QA/QC) procedures, or Toxic Substances Monitoring/State Mussel Watch EDLs which are not confirmed by risk assessment for human consumption.
4. It has been documented that the objectives are being met and beneficial uses are not impaired based upon “Monitored Assessment” criteria.
5. A TMDL has been approved by the U.S. EPA.
6. There are control measures in place which will result in protection of beneficial uses. Control measures include permits, clean up and abatement orders, and watershed management plans which are enforceable and include a time schedule.

**D. Priority Ranking, Targeting, and Scheduling**

**Priority Ranking**

A priority ranking should be provided for listed waters to guide TMDL planning pursuant to 40 CFR 130.7. RWQCBs should apply the following criteria in ranking TMDLs in high (H), medium (M), and low (L) priority categories:

- water body significance (such as importance and extent of beneficial uses, threatened and endangered species concerns and size of water body)
- degree of impairment or threat (such as number of pollutants/stressors of concern, and number of beneficial uses impaired or threatened)
- conformity with related activities in the watershed (such as existence of watershed assessment, planning, pollution control, and remediation, or restoration efforts in the area)
- potential for beneficial use protection or recovery

- degree of public concern
- available information

All water bodies should be ranked in one of the three categories (H, M and L). Not all high priority waters need to be targeted in the next two years for TMDLs.

### **Scheduling and Targeting**

Schedules for starting, completing and submitting TMDLs should be provided for all listed waters/pollutants pursuant to 40 CFR 130.7(d)(1). The schedules should provide for submittal of all TMDLs for all listed waters/pollutants on the 1998 list. Given the difficulty of estimating TMDL development time frames, RWQCBs should make best estimates based on TMDL resource planning efforts being conducted pursuant to the WMI process. The schedules should be presented in three levels to reflect degree of certainty regarding the attainability of the schedules.

Level 1: Next Two Years: Some waters should be targeted for TMDL development over the next two years pursuant to 40 CFR 130.7. Waters should be targeted in cases where substantial work on TMDL development is expected during the next two years, even if the TMDL is not scheduled for completion until after the next two years. The schedules for targeted waters should be consistent with the RWQCB's WMI planning chapter. The rationale for targeting a particular set of waters should be documented.

Level 2: Five Year Time Frame: RWQCBs should provide schedules for TMDLs to be initiated over the next five years, resource needs for which should be reflected in the RWQCB's WMI planning chapter (see section G) and addressed in WMI resource allocation decision-making. Schedules should be based on those TMDL activities for which RWQCBs are actively seeking funding support and should include TMDLs for which funding is reasonably likely to become available through other state, federal, or third party (e.g., discharger) sources.

Level 3: Years 5-13: RWQCBs should provide tentative schedules for completing TMDLs for the remaining waters over a period not to exceed 13 years. Schedules should be based on those TMDL activities for which RWQCBs are planning to seek funding support, with appropriate caveats stating that these provisional schedules are dependent on resource availability and further evaluation of TMDL applicability and feasibility.

### **E. Public Notice Procedures**

**At a minimum, each RWQCB shall conduct the following public participation activities:**

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1. Provide a 30-day comment period with public notice of the proposed 303(d) list. The RWQCB should consider the following options to fulfill the public notice requirements:

Option A. RWQCB workshop and adoption of the draft 303(d) list at a public hearing

The RWQCB may conduct a workshop to consider the draft 303(d) list followed by a public hearing to adopt the 303(d) list. A 30-day public notice shall be provided for the workshop and 45-day public notice shall be provided for the public hearing. Written comments should be submitted 15 days prior to the public hearing.

Option B. RWQCB adoption of the draft 303(d) list at a regular Board meeting

The RWQCB may adopt the 303(d) list at a regular Board meeting. A 30-day public notice of the RWQCB's intent to consider adoption of the draft 303(d) list, TMDL priority ranking and scheduling should be provided. The public notice shall solicit written comments on the draft 303(d) list. Written comments should be submitted 7 days prior to the RWQCB meeting.

Option C. RWQCB adoption of the draft 303(d) list at a public hearing (no workshop)

The RWQCB may adopt the 303(d) list at a duly noticed public hearing (45-day public notice). The public notice shall solicit written comments on the draft 303(d) list. Written comments should be submitted 15 days prior to the RWQCB meeting.

2. Prepare a responsiveness summary (40 CFR part 25) responding to all written comments on the draft 303(d) list received by the cut-off date.

**The RWQCB should consider the following:**

Provide 90-day public notice of RWQCB's intent to consider revisions to 303(d) list, establish TMDL priority ranking and development schedule. This notice should outline the criteria used for listing decisions and which watersheds will be assessed in this listing cycle. The notice shall solicit information, data, and other relevant factors to assist RWQCB staff in the preparation of the draft 303(d) list and TMDL priority ranking/schedule.

**F. 303(d) List Submittal Package**

**At a minimum, each RWQCB should submit to the SWRCB the following information with the 303(d) list submittal:**

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1. 303(d) list of water bodies (referenced on maps, if feasible), pollutant or stressors, pollutant sources, extent of impairment (e.g. miles of stream, acres of estuary), TMDL priority ranking and schedule for TMDL development for all listed water bodies by the RWQCB; and
2. list of water bodies and associated watersheds (referenced on maps, if feasible) which were assessed in the current cycle; and
3. factors used to list or delist specific waterbodies (see sections **B** and **C**). Criteria used to prioritize TMDL development (see section **D.1.**). Criteria used to generate TMDL development schedules (see section **D.2.**); and
4. documentation for TMDL priority ranking and scheduling decisions, which may include an estimate of resource needs for high priority water bodies for TMDL development; and
5. documentation of the public participation process
  - a. public notice(s)
  - b. responsiveness summary; and
6. list of RWQCB file(s) which contain the individual water body assessment data, information, etc. upon which the listing decision was made (note: a RWQCB may choose to submit the data assessment information in lieu of the minimum list of files to the SWRCB as part of the submittal package. This may be warranted for some water bodies where there is significant controversy).

**G. Coordination with the Watershed Management Initiative (WMI)**

RWQCBs should conduct the 303(d) assessment consistent with each region's schedule outlined in the WMI chapter for updating the Water Quality Assessment (WQA). The WQA includes the 303(d) listing. The TMDL priority ranking and scheduling shall also be consistent with the WMI chapter. In order to assure this consistency, each RWQCB should:

1. include the 303(d) listing/review schedule for each watershed in the regions' WMI chapter; and
2. include the TMDL priority ranking and scheduling in the regions' WMI chapter; and
3. include resource allocation projections for conducting the 303(d) listing assessment in the regions' WMI chapter; and



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4. in cases where the RWQCB focused the 303(d) listing/review on a subset of watersheds in the region, public comments on water bodies outside of targeted watersheds will be directed to the WMI process for prioritization.

## **Appendix C**

**Selenium TMDL for Salt Slough**

**Summary of TMDL Action**

TMDL (Loading Capacity)	2 ppb Selenium as a monthly mean
<b>Load Allocation</b> Subsurface Drainage from Drainage Problem Area	2 ppb Selenium as a monthly mean
<b>Waste Load Allocation</b> (no NPDES sources)	0 lbs Selenium

**Problem Description**

Salt Slough is listed in accordance with Section 303(d) of the Clean Water Act for exceeding selenium water quality objectives. It is one of the principal drainage arteries for the Grassland Watershed in the Western portion of the San Joaquin Valley (Attachment 1). The soils in the watershed are derived from the marine sediments of the Coast Range which are high in salts and selenium. Major land uses in the watershed include agriculture and wildlife refuge wetlands. There are no NPDES permitted sources that drain to Salt Slough.

Dry conditions make irrigation necessary for nearly all crops grown commercially in the watershed. Irrigation of soils derived from marine sediments leaches selenium into the shallow groundwater. Subsurface drainage is produced when farmers drain the salty groundwater from the root zone to protect their crops, and a portion of the Grassland Watershed that generates subsurface drainage has been designated as the Drainage Project Area (DPA). The discharge of subsurface drainage from that area resulted in violations of selenium water quality objectives in Salt Slough and other water bodies within the watershed and downstream. Selenium is a highly bioaccumulative trace element which, under certain conditions, can be mobilized through the food chain and cause both acute and chronic toxicity to fish and wildlife. Deformities and deaths of aquatic birds have been linked to toxic concentrations of selenium.

Salt Slough discharges to the San Joaquin River upstream of the Merced River near the northern boundary of the Grassland watershed. It has undergone dramatic changes in hydrology and water quality due to agricultural development. Prior to September 1996, subsurface drainage from the DPA flowed through the Grassland wetlands and Salt Slough on its way to the San Joaquin River (Attachment 2). There was concern that the elevated selenium concentrations in the subsurface drainage would cause problems for the aquatic birds and wildlife that utilize the Grassland wetlands. Salt Slough was placed on the Section 303(d) list in 1990 for exceeding the selenium water quality objective established to protect waterfowl and other wildlife uses.

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The Clean Water Act mandates that States establish Total Maximum Daily Loads (TMDL) for waterbodies on the Section 303(d) list. The following are the required TMDL elements developed for Salt Slough by the California Regional Water Quality Control Board, Central Valley Region (Regional Board).

### **Numeric Target**

In 1996, the Regional Board adopted a Basin Plan Amendment for the Regulation of Agricultural Subsurface Drainage. The amendment contained a selenium water quality objective for wetlands water supply channels and Salt Slough. This objective, which was approved by the State Board and the Office of Administrative Law, is a monthly mean concentration of 2 ppb. It was made more stringent than the selenium objective for other waterbodies to offer added protection to the waterfowl using the wetlands. Based on a review of the available scientific literature, the Regional Board determined that a 2 ppb monthly mean selenium objective would be protective of waterfowl (California Regional Water Quality Control Board, Central Valley Region; 1996; pg. 61).

Consideration was given to translating the selenium water quality objective into a load limit, but water quality data collected in Salt Slough in the late 1980's through early 1990's showed little change in concentration even in response to significant load reductions (California Regional Water Quality Control Board, Central Valley Region; 1995; pp. 5-7). Based on this information, the Regional Board concluded that removal of untreated subsurface agricultural drainage was required to meet water quality objectives (California Regional Water Quality Control Board, Central Valley Region; 1996; pp. 67-68). Therefore, a concentration based objective was determined to be the best measure of success at protecting beneficial uses and achieving water quality improvements. The numeric target for the Salt Slough TMDL is the adopted Basin Plan selenium water quality objective of 2 ppb (monthly mean).

### **Source Analysis**

Although selenium exists naturally in the soils of this watershed, some land use practices accelerate its movement to ground water and surface water. The major components of the historical flow in Salt Slough are subsurface and surface drainage from the DPA and wetlands discharge. Subsurface drainage, specifically from the tile drains in the DPA, is the most significant source of selenium to Salt Slough. Selenium concentrations in tile drainage ranged from 25 to 500 ppb, far above that for the other two components of flow in the Slough. The Regional Board has conducted over a decade of water quality sampling at a site on Salt Slough upstream of historical inputs from the Drainage Problem Area. This site represents background contributions to Salt Slough (i.e. including wetland drainage flows and agricultural return flows outside of the DPA). The median value of selenium was 0.9 ppb and the mean was 1.1 ppb for over 200 samples collected (California Regional Water Quality Control Board, Central Valley Region; February, 1998; pg. 171). Recent data also shows (attachment 4) that in the absence of agricultural subsurface

drainage water from the DPA, concentrations in Salt Slough are under 2 ppb. This data confirms that “background” sources of selenium in Salt Slough are not significant.

### **Implementation Plan**

In 1996, the Regional Board amended its Basin Plan for control of agricultural subsurface drainage discharges. This Basin Plan Amendment prohibits discharge of subsurface drainage water to Salt Slough and the Grassland wetlands if it results in concentrations exceeding the water quality objective, and therefore eliminates the largest loading of selenium to Salt Slough. Since September 1996, tile drainage from the DPA has been rerouted through the Grasslands Bypass Structure which is a portion of the former San Luis Drain and away from the Grassland wetlands on its way to the San Joaquin River (Attachment 3).

The other sources of water to Salt Slough are the wetlands discharge and surface drainage, and groundwater accretion. The selenium concentrations of those sources commonly fall well below 2 ppb, as discussed above; therefore, no implementation provisions are necessary to ensure sources, other than agricultural subsurface drainage from the DPA, remain below the numeric target.

### **Allocations**

Subsurface drainage is prohibited from discharge into Salt Slough if it results in concentrations exceeding the water quality objective; therefore, the subsurface drainage allocation is expressed as the water quality concentration of 2 ppb as a monthly. As discussed in the “Source Analysis” section above, load allocations for the surface drainage and wetlands discharge and groundwater accretion are not necessary since they are not significant sources and are consistently found to be less than 2 ppb.

### **Performance Measures & Feedback**

Monitoring conducted since the use of the Grasslands Bypass Project was initiated indicates that the diversion of the tile drainage away from the Grassland wetlands and Salt Slough has enabled Salt Slough to attain the selenium water quality objective except during the El Nino storm events (Attachment 4). In January 1997, there was one sample with a selenium concentration above 2 ppb, but the monthly mean water quality objective was met. During the El Nino storms in February and March of 1998, the water quality objective was exceeded. During this period, the San Luis Delta-Mendota Water Authority was not able to contain the flood flows and violated the Basin Plan by discharging subsurface drainage into the Grassland wetlands. These violations of the Basin Plan have been addressed by the Water Authority through the development of a stormwater management plan.

The Regional Board has monitored selenium levels in waters of the Grassland watershed since 1985. One monitoring station is located in Salt Slough at Lander Avenue. Water

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quality data including selenium concentration is collected on a weekly basis at this station. Monitoring reports are published monthly and available on the internet for public review as a part of the Grassland Bypass Project ([www.mp.usbr.gov/mp400/irrdn/grasslnd](http://www.mp.usbr.gov/mp400/irrdn/grasslnd)).

Regional Board staff will review the monitoring data and consider revising the TMDL or taking other appropriate action if the numeric target is not met.

### **Margin of Safety and Seasonal Variation**

The Clean Water Act requires that a margin of safety be included with TMDL development. This TMDL incorporates a margin of safety by prohibiting the discharge of subsurface drainage into Salt Slough if it results in selenium concentrations exceeding the water quality objective. The removal of agricultural subsurface drainage from Salt Slough (see discussion in Performance Measures and Feedback) provides the necessary margin of safety to ensure that the numeric target is consistently met. In addition, the removal of agricultural subsurface drainage originating from the DPA should result in average conditions in Salt Slough that are well below the numeric target (see discussion under Source Analysis).

Prior to the 1996 amendments to the Basin Plan, wetland water supplies had generally been protected seasonally during the fall flood-up. The availability of more water for wetland uses meant that such limited, seasonal protection was no longer protective of beneficial uses (California Regional Water Quality Control Board, Central Valley Region; 1996; pp. 9-11). Since waterfowl are most sensitive to selenium and wetland water supplies may now be delivered from Salt Slough to wildlife refuges at any time during the year, there is no seasonal adjustment in the numeric target (which is the water quality objective).

### **Public Participation**

The Regional Board held workshops and public hearings for the 1988 and 1996 Basin Plan Amendments for the Control of Agricultural Subsurface Drainage Discharges. The State Board also held approval hearings. The adoption of the Basin Plan Amendment in 1996 enabled the implementation of the Salt Slough TMDL; therefore, the public hearings held for the Amendment will be used to fulfill the public participation requirements of this TMDL. The administrative record for the workshops and public hearings held for the Amendment are on file at the Regional Board in five 3.5 inch binders. The index for the administrative record is included as Attachment 5. The letters received during the comment periods are included in Attachment 6; the responses to the letters and the comments made during the workshops are included in Attachment 7.

This TMDL will be incorporated into the Regional Board's Water Quality Control Plan during the next Basin Plan Update, and Salt Slough will be taken off the Section 303(d) list during the next Section 303(d) update.

## References

California Regional Water Quality Control Board, Central Valley Region; 1995. *Staff Report on the Beneficial Uses Designations and Water Quality Criteria to be Use(d) for the Regulation of Agricultural Subsurface Drainage Discharges in the San Joaquin Basin (5c)*; June, 1995.

California Regional Water Quality Control Board, Central Valley Region; 1996; *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Agricultural Subsurface Drainage Discharges*; Staff Report; March, 1996.

California Regional Water Quality Control Board, Central Valley Region; 1998; *Compilation of Electrical Conductivity, Boron, and Selenium Water Quality Data for the Grassland Watershed and San Joaquin River; May 1985-September 1995*; February, 1998.

# **Appendix D**

**(to be completed)**