

**California Regional Water Quality Control Board
Santa Ana Region**

RESOLUTION NO. R8-2003-0039

Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to
Incorporate a Diazinon and Chlorpyrifos Total Maximum Daily Load for San Diego
Creek and Upper Newport Bay

WHEREAS, the California Regional Water Quality Control Board, Santa Ana Region (hereinafter, Regional Board), finds that:

1. An updated Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) was adopted by the Regional Board on March 11, 1994, approved by the State Water Resources Control Board (SWRCB) on July 21, 1994, and approved by the Office of Administrative Law (OAL) on January 24, 1995.
2. The Basin Plan specifies the narrative water quality objective for San Diego Creek and Upper Newport Bay that toxic substances shall not cause adverse impacts to beneficial uses.
3. The narrative objective for toxic substances is not being achieved in San Diego Creek and Upper Newport Bay due to persistent aquatic toxicity, as demonstrated by monitoring data collected from these waterbodies. Beneficial uses adversely impacted by aquatic life toxicity include WILD and WARM in San Diego Creek and BIOL, COMM, EST, MAR, RARE, and SPWN in Upper Newport Bay.
4. Investigations conducted in San Diego Creek demonstrate that persistent aquatic toxicity is caused largely by diazinon and chlorpyrifos. Investigations conducted in Upper Newport Bay demonstrate that persistent aquatic toxicity is caused largely by chlorpyrifos.
5. In response to the findings of aquatic toxicity, the Regional Board listed San Diego Creek and Newport Bay as water quality limited in accordance with Section 303(d) of the Clean Water Act. Section 303(d) requires the establishment of a Total Maximum Daily Load (TMDL) for the pollutant(s) causing the toxicity (diazinon and chlorpyrifos). Section 303(d) also requires the allocation of the TMDL among sources of diazinon and chlorpyrifos. State law requires an implementation plan and schedule to ensure that the TMDL is met and compliance with water quality standards is achieved.
6. On June 14, 2002, the U.S. Environmental Protection Agency (U.S. EPA) established a TMDL for diazinon and chlorpyrifos in San Diego Creek, and for chlorpyrifos in Upper Newport Bay. The U.S. EPA TMDL did not include an implementation plan.

7. The Basin Plan amendment shown in the attachment to this Resolution was developed in accordance with Water Code Section 13240 *et seq.* The amendment is proposed for incorporation into Chapter 5 “Implementation”, of the Basin Plan. The amendment specifies a TMDL that includes an implementation plan but is otherwise identical to the TMDL established by the U.S. EPA with respect to the numeric targets and load allocations. The proposed Basin Plan amendment also provides background information concerning the water quality impairment being addressed, and the sources of diazinon and chlorpyrifos in the Newport Bay watershed. The proposed TMDL is supported by a detailed report prepared by Regional Board staff and titled “Diazinon and Chlorpyrifos TMDL, Upper Newport Bay and San Diego Creek, April 4, 2003 (hereinafter, “TMDL Report”).
8. The process of basin planning has been certified by the Secretary of Resources as functionally equivalent to the preparation of an Environmental Impact Report or Negative Declaration, as required by the California Environmental Quality Act (Public Resources Code Section §21000 *et seq.*). The Basin Plan amendment package includes an Environmental Checklist and staff reports that include an assessment of the potential environmental impacts of the Basin Plan amendment and a discussion of alternatives. The amended Basin Plan, Environmental Checklist, staff reports, and supporting documentation are functionally equivalent to an Environmental Impact Report or Negative Declaration.
9. The proposed amendment will result in no potential for adverse effect, either individually or cumulatively, on wildlife, or the habitat upon which the wildlife depends.
10. The Regional Board has considered federal and state anti-degradation policies and other relevant water quality control policies and finds the amendment consistent with those policies.
11. The TMDL Report was scientifically peer reviewed in January and February, 2003. In response to the comments received, additional data concerning degradation pathways for diazinon and chlorpyrifos were added to the TMDL Report. No changes to the proposed Basin Plan amendment shown in the Attachment to this Resolution were required.
12. In February, 2003, a Notice of Filing, the TMDL Report, environmental checklist, and the draft amendment were prepared and distributed to interested individuals and public agencies for review and comment, in accordance with state and federal regulations (23 CCR §3775, 40 CFR 25 and 40 CFR 131).
13. On February 21, 2003, the Regional Board held a Public Workshop to consider the Basin Plan amendment. This meeting served as Public Scoping meeting, as required by the California Environmental Quality Act. Notice of the workshop was given to all interested persons.

14. Notice of the public hearing to consider adoption of the proposed Basin Plan amendment was published in accordance with Water Code Section §13244.
15. This amendment will affect all dischargers in the Newport Bay Watershed by requiring them to institute monitoring programs for diazinon and chlorpyrifos, and imposing limits on discharges of these compounds.

The Regional Board has considered the costs of implementing the amendment and finds these costs to be reasonable. The costs associated with the reductions in diazinon and chlorpyrifos required by the TMDL will result largely from the re-registration agreements for these compounds, and not the TMDL.


16. The Basin Plan amendment must be submitted for review and approval by the SWRCB, OAL, and the U.S. Environmental Protection Agency (U.S. EPA). Once approved by the SWRCB, the amendment is submitted to OAL. A Notice of Decision will be filed after the SWRCB, OAL, and U.S. EPA have acted on this matter. The SWRCB will forward the approved amendment to U.S. EPA for review and approval.
17. For the purposes of specifying compliance schedules in NPDES permits for effluent limitations necessary to implement this TMDL, the schedule(s) specified in this TMDL shall govern, notwithstanding other compliance schedule authorization language in the Basin Plan.
18. The adoption of this TMDL is necessary to reduce loadings of diazinon and chlorpyrifos, and to address water quality impairments that arise therefrom.

NOW, THEREFORE BE IT RESOLVED THAT:

1. The Regional Board adopts the amendment to the Water Quality Control Plan for the Santa Ana River Basin (Region 8), as set forth in the attachment.
2. The Executive Officer is directed to forward copies of the Basin Plan amendment to the SWRCB in accordance with the requirements of Section §13245 of the California Water Code.
3. The Regional Board requests that the SWRCB approve the Basin Plan amendment, in accordance with Sections §13245 and §13246 of the California Water Code, and forward it to the OAL and U.S. EPA for approval.
4. If, during its approval process, the SWRCB or OAL determines that minor, non-substantive corrections to the language of the amendment are needed for clarity or consistency, the Executive Officer may make such changes, and shall inform the Board of any such changes.

5. The Executive Officer is authorized to sign a Certificate of Fee Exemption in lieu of payment of the California Department of Fish and Game filing fee.

I, Gerard J. Thibeault, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of a resolution adopted by the California Regional Water Quality Control Board, Santa Ana Region, on April 4, 2003.



Gerard J Thibeault
Executive Officer

ATTACHMENT TO RESOLUTION NO. R8-2003-0039

(added language is underlined, deleted language is struck out or otherwise identified)

Amendment to the Santa Ana Region Basin Plan

Chapter 5 - Implementation Plan, Discussion of Newport Bay Watershed (page 5-39 *et seq*)

Delete the existing discussion entitled: "Toxic Substance Contamination" on pages 5-41 and 5-42 of the Basin Plan:

~~Toxic Substance Contamination~~

~~As described in Chapter 6 (Monitoring and Assessment), a number of monitoring programs are conducted by the Regional Board and local agencies to determine the presence and sources of toxic substances in Newport Bay and its watershed. These studies have shown high levels of certain trace metals and organics in San Diego Creek and at certain locations in the Bay itself. As a result of these findings, the Board has designated San Diego Creek as a water quality limited segment. Further evaluation of toxic constituents in the Upper and Lower Newport Bay is being addressed by the Bay Protection and Toxic Cleanup Program, which is discussed later in this chapter.~~

~~Sources of these trace metals and organics include past and present agricultural activities, erosion and transport of soils to which toxicants are bound, boatyard operations, and stormwater runoff.~~

~~The efforts described earlier to reduce erosion and siltation and to control nutrient inputs in agricultural irrigation tailwaters should also result in reduced loadings of toxics to the Bay and its tributaries.~~

~~Boatyard operations in the Region are regulated by the Regional Board under NPDES permits. Each operator is required to develop and implement a Pollution Control Plan (PCP) to prevent discharges of pollutants to the Bay. In 1989-90, the Regional Board conducted a study to evaluate the effectiveness of the PCPs utilized by boatyards in Newport Bay (and Anaheim Bay-Huntington Harbour) [Ref. 15]. The study found that some boatyard waste collection and treatment practices are not effective in reducing the discharge of heavy metals to the Bay. Specific recommendations for necessary improvements were provided and are generally being implemented. Where necessary, enforcement actions will be taken by the Board to address continuing problems.~~

~~During 1992-93, the Regional Board contracted with local universities to further evaluate the occurrence and impacts of toxics in the Newport Bay watershed. The results are contained in final reports prepared by UC Irvine and UC Davis [Ref 16, 17]. The results of the study indicated that metal concentrations in Newport Bay and its watershed have generally improved, with the exception of locations near boatyard facilities. This confirms the data used to designate Lower Newport Bay as a Toxic Hot Spot (see following discussion). Endosulfan was found to be ubiquitous in the watershed. DDT also persists in the Bay and watershed. In most cases, endosulfan and DDT levels exceeded established water quality criteria.~~

The chronic toxicity bioassays on the freshwater samples indicated no toxicity due to metals. Some toxicity was observed, apparently caused by one or more nonpolar organic compounds. Additional efforts should focus on a more specific identification of the toxic compound(s). Additional discussion of the Newport Bay Coordinating Council and their activities in Newport Bay, is provided in Chapter 7.

Add the following:

4 Toxic Substances Contamination

San Diego Creek and Newport Bay are not attaining water quality standards with respect to certain classes of toxic pollutants. On June 14, 2002, USEPA established Total Maximum Daily Loads (TMDLs) for selenium, heavy metals (cadmium, copper, lead, and zinc), organochlorine pesticides (chlordane, dieldrin, DDT, and toxaphene), PCBs, and organophosphate pesticides (diazinon and chlorpyrifos). In addition, USEPA established a separate TMDL for the Rhine Channel in Lower Newport Bay. Table 5-9i shows these TMDLs, the constituents addressed, and the waterbodies affected.

USEPA's TMDLs do not specify implementation plans, which are the responsibility of the Regional Board. The Regional Board has adopted or will adopt Basin Plan amendments to incorporate the USEPA TMDLs, revised if and as appropriate, into the Basin Plan. These amendments will include implementation plans. The anticipated schedule for these Basin Plan amendments is also shown in Table 5-9i.

Table 5-9i. USEPA TMDLs Established June 14, 2002

TMDL	Basin Plan Schedule	Location	Constituents
Organophosphate Pesticides	2003	SDC	Diazinon, chlorpyrifos
		UNB	Chlorpyrifos
Selenium	2007	SDC, UNB LNB	Selenium
Metals	2007	SDC	Cd, Cu, Pb, Zn
		UNB	Cd, Cu, Pb, Zn
		LNB	Cu, Pb, Zn
Organochlorine Compounds	2007	SDC	Chlordane, dieldrin, DDT, PCBs, toxaphene
		UNB	Chlordane, DDT, PCBs
		LNB	Chlordane, dieldrin, DDT, PCBs
Rhine Channel	2007	Rhine Channel	Se, Cr, Hg, Cu, Pb, Zn Chlordane, dieldrin, DDT, PCBs

SDC= San Diego Creek; UNB=Upper Newport Bay; LNB=Lower Newport Bay

4.a Diazinon and Chlorpyrifos TMDL

Aquatic toxicity in San Diego Creek and Upper Newport Bay causes adverse impacts to the established beneficial uses of those waterbodies.

A report prepared by Regional Board staff describes the aquatic life toxicity problems in San Diego Creek and Upper Newport Bay in greater detail and discusses the technical basis for

the TMDL that follows¹. This TMDL is the same as that promulgated by the USEPA on June 14, 2002, but an implementation plan is also specified (see Section 4.a.i.). The USEPA TMDL was, in fact, based on a draft TMDL prepared by Regional Board staff. The TMDL addresses toxicity due to diazinon and chlorpyrifos in San Diego Creek and chlorpyrifos in Upper Newport Bay. Implementation of this TMDL is expected to address, to a significant extent, the occurrence of aquatic life toxicity in these waterbodies. Reduction in aquatic life toxicity will help assure attainment of water quality standards; that is, compliance with water quality objectives and protection of beneficial uses.

Table 5-9j shows the TMDL and the allocations for diazinon and chlorpyrifos in San Diego Creek.

Table 5-9j. Diazinon and Chlorpyrifos Allocations for San Diego Creek

Category	Diazinon (ng/L)		Chlorpyrifos (ng/L)	
	Acute	Chronic	Acute	Chronic
Wasteload Allocation	72	45	18	12.6
Load allocation	72	45	18	12.6
MOS	8	5	2	1.4
TMDL	80	50	20	14

MOS = Margin of Safety; Chronic means 4-consecutive day average

Table 5-9k shows the TMDL and the allocations for chlorpyrifos in Upper Newport Bay.

Table 5-9k. Chlorpyrifos Allocations for Upper Newport Bay

Category	Acute (ng/L)	Chronic (ng/L)
Wasteload allocation	18	8.1
Load allocation	18	8.1
MOS	2	0.9
TMDL	20	9

MOS = Margin of Safety; Chronic means 4-consecutive day average

The TMDL and its allocations contain an explicit 10% margin of safety. In addition, a substantial margin of safety is implicitly incorporated in the TMDL through use of conservative assumptions.

4.a.i TMDL Implementation

Table 5-9l outlines the tasks and schedules to implement the TMDL.

¹ Diazinon and Chlorpyrifos TMDL, Upper Newport Bay and San Diego Creek, April 4, 2003

Table 5-91. TMDL Task Schedule

Task No.	Task	Schedule	Description
1	USEPA Re-Registration Agreements	12/2001 to 12/2006	Phase-out of uses specified in the re-registration agreements. Should end over 90% of usage. ²
2	Revise Discharge Permits	2005	WDR and NPDES permits will be revised to include the TMDL allocations, as appropriate.
3	Pesticide Runoff Management Plan	2004	A pesticide runoff management plan will be developed
4	Monitoring	2003	Modify existing regional monitoring program to include analysis for organophosphate pesticides and toxicity
	Special Studies		
5a	Atmospheric deposition	2003	Quantify atmospheric deposition of chlorpyrifos loading to Upper Newport Bay
5b	Mixing volumes in Upper Newport Bay	2003	Model mixing and stratification of chlorpyrifos in Upper Newport Bay during storm events

Task 1: USEPA Re-Registration Agreements

The re-registration agreements negotiated by USEPA with the manufacturers of diazinon and chlorpyrifos are the most significant factor affecting the implementation plan. Usage of both diazinon and chlorpyrifos in the Newport Bay Watershed is expected to be reduced by over 90 percent.

Task 2: Revise Discharge Permits

The TMDL allocates wasteloads to all dischargers in the watershed. Since the TMDL is concentration-based, these wasteloads are concentration limits. The concentration limits will be incorporated into existing and future discharge permits in the watershed. Compliance schedules would be included in permits only if they are demonstrated to be necessary. Compliance would be required as soon as possible, but no later than December 1, 2007.

Task 3: Pesticide Runoff Management Plan

A pesticide runoff management plan will be developed for the watershed as a cooperative project between the Regional Board and stakeholders.

Task 4: Monitoring

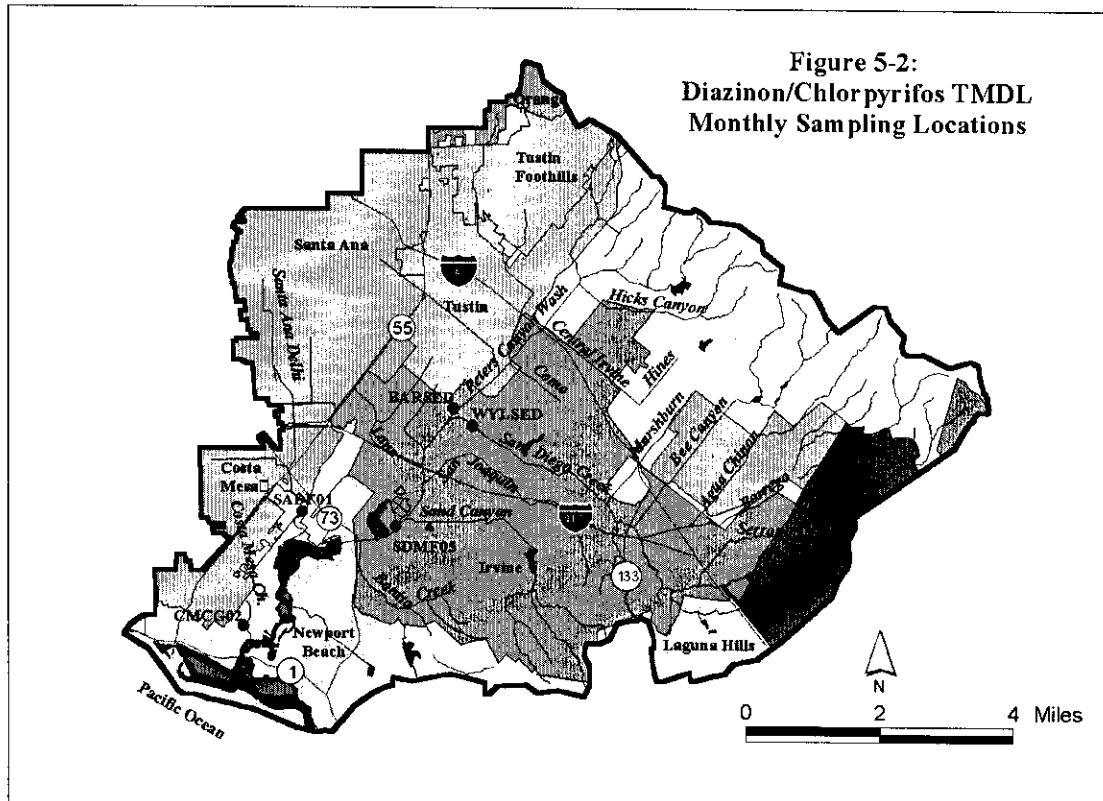
Routine monitoring is necessary to assess compliance with the allocations specified in the TMDL. The County of Orange, the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest and Newport Beach, and the agricultural operators in the Newport Bay

² This task is not within the purview of the Regional Board, but is nevertheless of critical significance for implementation of the TMDL.

watershed will be required to propose a plan by January 30, 2004 for routine monitoring to determine compliance with the TMDL allocations for diazinon and chlorpyrifos. At a minimum, the proposed plan must include the collection of monthly samples at the stations specified in Table 5-9m and shown in Figure 5-2 and analysis of the samples for diazinon and chlorpyrifos. Monthly toxicity tests should also be conducted at several locations in the watershed. Data summaries will be required monthly. An annual report summarizing the data collected for the year and evaluating compliance with the TMDL will be required to be submitted by November 30 of each year.

Table 5-9m. Minimum Required Monthly Sampling Stations

Station Code	Location
BARSED	Peters Canyon Wash
WYLSER	San Diego Creek at Harvard Dr.
SDMF05	San Diego Creek at Campus Dr.
SADF01, or CMCG02	Santa Ana Delhi Channel, or Costa Mesa Channel



In lieu of this coordinated, regional monitoring plan, one or more of the parties identified in the preceding paragraph may submit an individual or group plan to conduct routine monitoring in areas solely within their jurisdiction to determine compliance with the TMDL. Any such individual or group plans must also be submitted by January 30, 2004. Reports of the data collected pursuant to approved individual/group plan(s) will be required to be submitted monthly, and an annual report summarizing the data and evaluating compliance with the TMDL will be required to be submitted by November 30 of each year.

It is likely that implementation of these requirements will be through the issuance of Water Code Section 13267 letters to the affected parties. The monitoring plan(s) will be considered by the Regional Board and implemented upon the Regional Board's approval.

Task 5: Special Studies

With the anticipated assistance of stakeholders in the watershed, the Regional Board will conduct investigations to (1) quantify the significance of atmospheric deposition of chlorpyrifos to Upper Newport Bay, and (2) determine the adequacy of the freshwater allocations for chlorpyrifos in the tributaries to Upper Newport Bay in achieving the lower saltwater allocations. The existing hydrodynamic model for Newport Bay is being used to perform simulations that predict contaminant concentrations in the Bay based on various flow and management scenarios. The model results will be used to verify whether the TMDL allocations for chlorpyrifos in the watershed will be sufficient to achieve the TMDL allocations in Upper Newport Bay. One of the questions to be addressed is the magnitude of toxic exposure that could result from development of a freshwater lens associated with the discharge of stormwater to Upper Newport Bay.

4.a.ii Adjust TMDL

Based on the results of the special studies and recommendations made in the Pesticide Runoff Monitoring reports, changes to the TMDL may be warranted. Such changes would be considered through the Basin Plan Amendment process.

The Regional Board is committed to the review of this TMDL every three years, or more frequently if warranted by these or other studies.

**California Regional Water Quality Control Board
Santa Ana Region**

April 4, 2003

ITEM: 14

SUBJECT: Basin Plan Amendment Hearing: Incorporation of Diazinon and Chlorpyrifos
Total Maximum Daily Load for Upper Newport Bay and San Diego Creek

DISCUSSION

On February 21, 2003 the Regional Board conducted a Water Quality Control Plan [Basin Plan] amendment workshop regarding the diazinon and chlorpyrifos Total Maximum Daily Load (TMDL) for the Newport Bay watershed. Upper Newport Bay and San Diego Creek have been identified as water quality impaired and included on California's 1998 Clean Water Act Section 303(d) list due, in part, to aquatic life toxicity. The toxicity has been attributed largely to diazinon and chlorpyrifos.

Development of a TMDL for diazinon and chlorpyrifos in San Diego Creek, and for chlorpyrifos in Upper Newport Bay was initiated in 2001 as part of the TMDLs for toxic pollutants in the Newport Bay Watershed. The United States Environmental Protection Agency (USEPA) worked jointly with Santa Ana Regional Board staff to develop these TMDLs. On June 14, 2002, the USEPA established TMDLs for 14 toxic pollutants, including chlorpyrifos and diazinon. The TMDLs established by USEPA did not include implementation plans.

Subsequent to the establishment of the USEPA TMDLs, Regional Board staff prepared a draft amendment to incorporate the diazinon and chlorpyrifos TMDL, including an implementation plan, into the Basin Plan. The draft amendment was presented as an attachment to draft Resolution No. R8-2003-039 for approval of the proposed amendment (the draft Resolution was identified as Appendix C to the February 21, 2003 staff report; the draft amendment was identified as Appendix D to that report). As discussed below, some changes are recommended to the proposed amendment in response to comments received. The final proposed Basin Plan amendment is shown in the attachment to Resolution No. R8-2003-039.

Changes to the February 21, 2003 draft Basin Plan amendment

Revisions have been made to the draft Basin Plan Amendment. The revisions are shown in the document "Revisions to the February 21, 2003 Draft Attachment to Resolution No. R8-2003-039"(Appendix A). The changes are noted below with an explanation for each revision.

1. Introductory text has been added for the section titled "Toxics Substance Contamination" under the Newport Bay Watershed discussion in Chapter 5 of the Basin Plan. The existing text in this section of the Basin Plan is recommended for deletion because it is outdated and does not reflect the development of the Toxics TMDLs. The proposed introductory text includes a new table

2. The USEPA re-registration agreements have been added to the implementation tasks in Table 5-91 in order to maintain consistency with Table 9-1 in the TMDL report (Appendix A to the February 21, 2003 staff report).
3. The date for submission of an annual monitoring report has been changed from September 1 to November 30 in order to make the reporting schedule consistent with existing reporting schedules under the Newport Bay Watershed nutrient TMDL Regional Monitoring Program and the Orange County Municipal Stormwater Permit. This change was requested by Orange County Public Facilities and Resources Department (see Appendix B).
4. Table 5-91 and Figure 5-2 were inadvertently omitted from the February 21, 2003 draft amendment. The table and figure indicate the minimum required monthly sampling locations and have been incorporated in the proposed amendment.
5. The text describing Task 5 (Special Studies) has been revised to clarify that the Regional Board will conduct the studies, with the anticipated assistance from stakeholders in the watershed.
6. The phrase “numeric targets” in the paragraph describing Task 5 (Special Studies) has been replaced by the more accurate terminology of “allocations.”

California Environmental Quality Act (CEQA) Requirements

The basin planning process has been certified by the Secretary of Resources as functionally equivalent to the requirement of the California Environmental Quality Act (Public Resources Code Section 21000 *et seq.*) for preparation of an Environmental Impact report or Negative Declaration.

The February 21, 2003 public workshop also served as a public scoping meeting to discuss the proper scope and content of the functional equivalent environmental document to be prepared for this proposed amendment.

The Regional Board is required to complete an environmental assessment of any changes the Board proposes to make to the Basin Plan. The Environmental Checklist (Appendix E to the February 21, 2003 staff report) determines that there are no significant adverse environmental impacts from the proposed Basin Plan Amendment. This report, the February 21, 2003 staff report, and the Environmental Checklist attached to the February 21, 2003 report are functionally equivalent to an Environmental Impact Report or Negative Declaration.

Public Participation

Federal regulations at 40 CFR 130.7 require that TMDLs be subject to public review. The Regional Board, in its consideration and adoption of this proposed TMDL, is following the Basin Planning public review process. A public workshop and CEQA scoping meeting was held during the Board meeting on February 21, 2003. The draft TMDL Basin Plan amendment was also presented to stakeholders at a meeting of the Newport Bay Watershed Management Committee on February 26, 2003.

Specific public notice requirements pertaining to this Basin Plan amendment have been fulfilled. A Notice of Public Hearing and Notice of Filing were published in a newspaper of wide circulation in Orange County at least 45 days prior to the hearing. These notices were also mailed to all interested

persons and agencies on the Regional Board Basin Plan mailing list. The notices, along with the draft resolution, amendment, environmental checklist, and TMDL report, were also made available on the Regional Board website at least 45 days prior to the hearing.

A Notice of Decision will be filed after the Regional Board, the State Board, the Office of Administrative Law and the U.S. Environmental Protection Agency act on this matter.

Comments and Responses

The February 21, 2003 staff report includes a discussion of the comments provided by the scientific peer reviewers, and the changes made in the TMDL report (Appendix A to the February 21, 2003 staff report) on the basis of those comments. The peer review comments and responses are included in Appendix B to the February 21, 2003 staff report.

As of March 20, 2003, comments have been received on the draft Basin Plan amendment from the County of Orange Public Facilities and Resources Department (OCPFRD). The comments and responses are summarized in Appendix B. OCPFRD recommended changes to the TMDL report, as well as to the proposed Basin Plan amendment. In response, staff recommends that certain changes to that report be made, as shown in Appendix C.

RECOMMENDATION

Adopt Resolution No. R8-2003-039, incorporating the amendment shown in the attachment to the Resolution, into Chapter 5 of the Basin Plan.

APPENDICES

This staff report contains the following appendices:

- Appendix A: Revisions to the February 21, 2003 draft Basin Plan Amendment
- Appendix B: Public Comments and Responses
- Appendix C: Revisions to the February 21, 2003 draft TMDL Report