

US EPA ARCHIVE DOCUMENT

California Regional Water Quality Control Board  
Santa Ana Region

**RESOLUTION NO. 98-101**

Resolution Revising the Amendment to the  
Water Quality Control Plan for the Santa Ana River Basin  
Incorporating a Total Maximum Daily Load for Sediment  
in the Newport Bay/San Diego Creek Watershed (Resolution No. 98-69)

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


1. On April 17, 1998, the Regional Board adopted an amendment to the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) establishing a Total Maximum Daily Load (TMDL) for sediment for the Newport Bay/San Diego Creek Watershed (Resolution No. 98-69);
2. On May 13, 1998, the State Water Resources Control Board (SWRCB) approved the TMDL for sediment for the Newport Bay/San Diego Creek Watershed (SWRCB Resolution No. 98-37);
3. The Office of Administrative Law (OAL) recommended that certain portions of the Sediment TMDL should be clarified. This resolution amends Resolution No. 98-69 to clarify those elements of the sediment TMDL;
4. The Regional Board prepared and distributed a written report (staff report) regarding adoption of revisions to the Basin Plan amendment in compliance with applicable state and federal environmental regulations (California Code of Regulations, Section 3775, Title 23, and 40 CFR Parts 25 and 131);
5. The process of basin planning has been certified by the Secretary for Resources as exempt from the requirements of the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) to prepare an Environmental Impact Report or Negative Declaration. The Basin Plan amendment package includes an Environmental Checklist, an assessment of the 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;
6. On October 9, 1998, the Regional Board held a Public Hearing to consider revisions to the sediment TMDL/Basin Plan amendment. Notice of the Public Hearing was given to all interested persons and published in accordance with Water Code Section 13244;

7. The revisions to the sediment TMDL/Basin Plan amendment must be submitted for review and approval by the SWRCB, and the revised amendment must be submitted for consideration by the Office of Administrative Law (OAL) and the U.S. Environmental Protection Agency (U.S. EPA). A Notice of Decision will be filed after the SWRCB and OAL have acted on this matter. The SWRCB will forward the approved amendment to the U.S. Environmental Protection Agency for review and approval.

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The Regional Board adopts the revisions 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 revised Basin Plan amendment to the SWRCB in accordance with the requirement of Section 13245 of the California Water Code.
3. The Regional Board requests that the SWRCB approve the revisions to the Basin Plan amendment in accordance with Sections 13245 and 13246 of the California Water Code and forward the revised Basin Plan Amendment to the Office of Administrative Law and U.S. EPA for approval.

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 October 9, 1998.

  
\_\_\_\_\_  
Gerard J. Thibeault  
Executive Officer

**Attachment to Resolution No. 98-101****Revision of the Amendment to the Santa Ana Region Basin Plan Incorporating a Total Maximum Daily Load for sediment into Newport Bay/San Diego Creek Watershed (Resolution No. 98-69)**

Chapter 5-Implementation Plan, Page 5-39

## 1. Siltation

Erosion in the watershed and the resultant siltation in the Bay are a continual threat to the Bay's designated uses. Sediment loads result from erosion of open space lands in foothill areas and from man's activities in the watershed, including: 1) extensive grading for development; 2) increased runoff and channel erosion due to urbanization; and 3) erosion of agricultural lands. San Diego Creek, the largest drainage system in the watershed, accounts for approximately 94 percent of the sediment delivered to the Bay. Most deposition occurs during major storm events, although low-level transport occurs year-round.

In 1982, the Southern California Association of Governments (SCAG) completed the "San Diego Creek Comprehensive Stormwater Sedimentation Control Plan" (Plan) as part of an areawide planning process conducted pursuant to Section 208 of the Clean Water Act. The Plan recommended a two-part approach to management of the erosion-siltation problem. The first part is the reduction of erosion at the source through the implementation of agricultural and construction best management practices (BMPs) and resource conservation plans (RCPs). The second part of the Plan is to intercept as much of the remaining sediment as possible in sediment traps in San Diego Creek and in excavated basins in the upper Bay.

Intensive and well-coordinated efforts to implement the recommendations of the 208 Plan have been and are being made by the state, local agencies and The Irvine Company, the largest private landowner in the watershed. In the past, construction and maintenance of in-channel and in-bay basins was achieved through cooperative agreements among the California Department of Fish and Game, the County of Orange (County), the Cities of Newport Beach, Irvine and Tustin, and The Irvine Company (collectively known as the Sediment Executive Committee). This committee, which recently broadened its focus and now includes the City of Lake Forest, Irvine Ranch Water District and the Santa Ana Regional Water Quality Control Board, has changed its name to the Newport Bay Watershed Executive Committee. Between 1982 and 1988, about 2.4 million cubic yards of sediments were removed from the Bay, at a cost of about \$13 million. The location and design of the in-bay basins are carefully coordinated with the Department of Fish and Game's management plan for the Upper Newport Bay Ecological Reserve, so that the basins

serve not only to trap sediment but also to preserve habitat for many rare and endangered species.

**1.a Phase 1 of the TMDL for Sediment**

The Total Maximum Daily Load for sediment in the Newport Bay/San Diego Creek Watershed includes the following quantifiable targets and Load Allocations that shall be implemented by the Cities (Irvine, Tustin, Lake Forest, Costa Mesa, Santa Ana and Newport Beach) and County responsible for the sediment discharged into stormwater and flood control conveyances under their control which discharge into San Diego Creek and/or Newport Bay.

1. Sediment control measures shall be implemented and maintained to ensure that sediment discharges into Newport Bay will not significantly change the existing acreages of aquatic, wildlife, and rare and endangered species habitat, and to maintain the navigational and non-contact recreational beneficial uses of the bay. The existing aquatic and wildlife habitat of the Upper Bay, which is comprised of approximately 210 acres of marine aquatic habitat, 214 acres of mudflat habitat, 277 acres of salt marsh, and 31 acres of riparian habitat within, and adjacent to, the 700 acre Upper Newport Bay Ecological Reserve and the existing navigational and recreational uses of Newport Bay, will be used by the Regional Board as a performance standard of the effectiveness of the sediment TMDL. If these acreages are changed by more than 1% as the result of sediment deposition, if the in-bay sediment basins or the in-channel sediment basins are not maintained, or if there are impacts to navigational and recreational uses, this will indicate that the local sediment control measures are not adequate to protect the beneficial uses provided by these areas, and the Board will reevaluate the sediment TMDL for Newport Bay and San Diego Creek. Since the intent of the sediment TMDL is to protect these beneficial uses, this quantifiable target will be used as the primary measurement of the success of the TMDL. In order to maintain the marine aquatic habitat of the Unit 1 and 2 Sediment Basins in Upper Newport Bay, a minimum depth of 7 feet below mean sea level shall be maintained. The Cities and County, acting through cooperative agreements under the Newport Bay Watershed Executive Committee, shall conduct bathymetric and vegetation surveys of Newport Bay no less than once every three years or as agreed upon by the Executive Officer. This information will be used to evaluate compliance with the acreage and depth targets. If these acreages are changed by more than 1% as the result of sediment deposition, if the minimum depth is not maintained, and if the 50% target sediment reduction described below is not achieved, the Regional Board may consider appropriate enforcement action.
2. It is recognized that the Department of Fish and Game, which is responsible for the management of the Reserve, may wish to modify the habitat composition and acreages

of the Reserve to address wildlife needs. The habitat acreages identified above will be revised accordingly through the Basin Plan Amendment process.

3. The second quantifiable target is to reduce the annual average sediment load in the watershed from a total of approximately 250,000 tons per year to 125,000 tons per year, thereby reducing the sediment load to Newport Bay to approximately 62,500 tons per year and limiting sediment deposition in the drainages to approximately 62,500 tons per year. Sediment control measures shall be implemented and maintained to result in a 50% reduction in the current load of sediment in the Newport Bay/San Diego Creek Watershed within 10 years. The Regional Board will determine compliance with this target by calculating the annual average amount of suspended solids measured in San Diego Creek at Jamboree Boulevard and Campus Drive over a ten year period, and by evaluating the scour studies of the creek channels and topographic surveys of all the sediment control basins in the watershed to estimate the amount of deposition. Given that annual sediment deposition can vary widely based on weather and other conditions, it is appropriate to evaluate compliance with the sediment reduction target as a 10 year running annual average of the suspended solids load measured in San Diego Creek at Jamboree Boulevard and Campus Drive. The Regional Board will compare this information to the bathymetric and scour studies information to determine if the monitoring data accurately reflects sediment deposition in the bay and creek channels and to determine compliance with this target.
4. Sediment control measures shall be implemented and maintained to comply with the following Load Allocations (implemented as 10-year running annual averages) for discharges of sediment to Newport Bay: 1) no more than 28,000 tons per year of sediment shall be discharged to Newport Bay from open space areas within the watershed, 2) no more than 19,000 tons per year shall be from agricultural land, 3) no more than 13,000 tons per year from construction sites, 4) no more than 2,500 tons per year discharged from urban areas. The Cities and County, acting through cooperative agreements under the Newport Bay Watershed Executive Committee, shall be required to provide a proposal for evaluating compliance with these individual land use type load allocations that is subject to the approval of the Executive Officer. This proposal shall be implemented upon approval of the Executive Officer.
5. Sediment control measures shall be implemented and maintained to comply with the following Load Allocations (implemented as 10-year running annual averages) in addition to the load allocations specified above for Newport Bay for discharges of sediment to tributaries of Newport Bay: 1) no more than 28,000 tons per year of sediment shall be discharged to San Diego Creek and its tributaries from open space areas within the watershed, 2) no more than 19,000 tons per year shall be discharged to San Diego Creek and its tributaries from agricultural land, 3) no more than 13,000 tons per year discharged to San Diego Creek and its tributaries from construction sites, 4) no

more than 2,500 tons per year discharged to San Diego Creek and its tributaries from urban areas. The Cities and County, acting through cooperative agreements under the Newport Bay Watershed Executive Committee, shall be required to provide a proposal for evaluating compliance with these individual land use type load allocations that is subject to the approval of the Executive Officer. This proposal shall be implemented upon approval of the Executive Officer.

6. Sediment control measures shall be implemented such that Upper Newport Bay, including In-Bay Sediment Basins 1 and 2, need not be dredged more frequently than about once every 10 years, and the long term goal of Phase 1 of the TMDL for sediment is to reduce the frequency of dredging to once every 20 to 30 years. It is recognized that extreme rainfall conditions may necessitate more frequent dredging of the in-bay basins. The Regional Board will adopt waste discharge requirements for such dredging projects as the means of recommending Clean Water Act Section 401 Water Quality Certification for the dredging, and to ensure proper disposal of the dredged sediment.
7. Waste Discharge Requirements will be waived for maintenance dredging of flood control channels and drainages throughout the watershed in order to maintain flood control capacity, under the following conditions; 1) any vegetation removal or earthwork conducted between March 1 and September 1 shall be supervised by a qualified biologist, approved by the Department of Fish and Game, to ensure compliance with the Endangered Species Act and Migratory Bird Treaty Act (this monitor shall have the authority to the stop or divert work to avoid impacts as necessary); and 2) the information in a complete application (report of waste discharge) demonstrates that the waiver criteria specified herein and in Regional Board Resolution No. 96-9, Waiver of Waste Discharge Requirements for Certain Types of Discharges, are met.
8. All in-channel and foothill sediment control basins throughout the drainages in the watershed shall be maintained to have at least 50% of design capacity available prior to November 15 of each year. Waste Discharge Requirements will be waived for sediment control basin maintenance activities under the following conditions: 1) any vegetation removal or earthwork conducted between March 1 and September 1 shall be supervised by a qualified biologist, approved by the Department of Fish and Game, to ensure compliance with the Endangered Species Act and Migratory Bird Treaty Act (this monitor shall have the authority to the stop or divert work to avoid impacts as necessary); 2) the use of herbicides for the control of vegetation within channels shall be avoided to the greatest extent practicable; and 3) the information in a complete application (report of waste discharge) demonstrates that the waiver criteria specified herein and in Regional Board Resolution No. 96-9, Waiver of Waste Discharge Requirements for Certain Types of Discharges, are met.

9. Waste Discharge Requirements will be waived for drainage channelization and stabilization projects on drainages within the watershed between the foothill sediment basins and Upper Newport Bay, under the following conditions: 1) while modifying the channels, no native riparian wetland vegetation shall be removed from within the basins or adjacent to the basins during the period between April 1 and September 1 of each year, in order to protect the federally listed least Bell's vireo, unless one to one mitigation is provided for the loss of the riparian and aquatic habitat; 2) any vegetation removal or earthwork conducted between March 1 and September 1 shall be supervised by a qualified biologist, approved by the Department of Fish and Game, to ensure compliance with the Endangered Species Act and Migratory Bird Treaty Acts (this monitor shall have the authority to stop or divert work to avoid impacts as necessary); and 3) the information in a complete application (report of waste discharge) demonstrates that the waiver criteria specified herein and in Regional Board Resolution No. 96-9, Waiver of Waste Discharge Requirements for Certain Types of Discharges, are met. The Regional Board will continue to work with the U.S. Army Corps of Engineers and other appropriate agencies towards the adoption of a Special Area Management Plan (or comparable plan) and General Permit for channel stabilization and flood control projects in accordance with Section 404 and 401 of the Clean Water Act. If a plan for completing the Special Area Management Plan by June 1, 1999 is not submitted to the Executive Officer by January 1, 1999, then the Executive Officer is directed to require, as an additional condition for obtaining a waiver, the completion of a comprehensive delineation of all the wetlands in the watershed and an evaluation of the cumulative impacts of projects to control sediment and the build-out of the watershed on the beneficial uses of these waters of the State. This evaluation of the cumulative impacts must be completed, according to a plan acceptable to the Executive Officer, by June 1, 1999. Staff intends to use the delineation to propose a general permit to the Regional Board that will cover the kind of activities described in the amendment. Until the SAMP, or, alternatively, the comprehensive delineation described above, is completed, staff will continue to process individual permit applications for each project.
10. The Cities and County, acting through cooperative agreements under the Newport Bay Watershed Executive Committee, shall evaluate: 1) the amount of sediment being discharged from areas that contribute sediment to the total load discharged to Newport Bay; and 2) the effectiveness of the local sediment control plan (the 208 Plan). Where areas that contribute sediment are not under the jurisdiction of entities that are currently part of the Newport Bay Watershed Executive Committee, the Cities and County shall recommend to the Regional Board, if necessary, a new formula for allocating sediment loads and sharing of the costs of implementing the sediment control measures that will provide a 50% reduction in the current load of sediment. This evaluation shall, at a minimum, address the sediment loads from the Santa Ana-Delhi Channel, Bonita Creek, the federal lands within the watershed, and the City of Lake Forest.



These conditions shall not supersede more restrictive conditions of other agencies, such as the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, the State Department of Fish and Game, or other local agencies.

**1.b Phase 2 of the TMDL for Sediment: Monitoring and Reassessment**

The Newport Bay Watershed Executive Committee has developed an agreement whereby the County of Orange conducts the monitoring of sediment discharge within the watershed, with the costs shared by all parties, except the Department of Fish and Game. There has been no site specific monitoring of the various sources of sediment, so it is impossible to determine the effectiveness of specific BMPs. It is also too soon to reach any conclusions about the overall effectiveness of the local sediment control measures.

Since 1983, the County has monitored flow and total suspended solids at three locations and conducts periodic scour studies to evaluate sediment transport and deposition in the drainages within the watershed. In addition, the County has conducted two topographic surveys of the Upper Bay to determine sediment accumulation in the Upper Bay. The County intends to continue this monitoring program on behalf of the Newport Bay Watershed Executive Committee.

In addition, the Newport Bay Watershed Executive Committee shall:

1. Propose monitoring stations and schedules to be established to monitor the discharge of sediment from the Santa Ana-Delhi Channel and Bonita Canyon Creek into the Upper Bay and to evaluate the effectiveness of the BMPs being implemented in the watershed. This monitoring plan shall also propose monitoring to evaluate compliance with the Load Allocations for various land use types. This monitoring plan will not become effective until approved by the Regional Board at a duly noticed public hearing as specified in Chapter 1.5, Division 3, Title 23 of the California Code of Regulations (Section 647 et seq.).
2. Propose monitoring stations and schedules to conduct the scour studies for the drainages in the watershed to be conducted annually. These surveys shall determine the amount of sediment accumulated in San Diego Creek and its tributaries, the in-channel sediment basins, the foothill sediment basins, and any other sediment basins in the watershed. The survey report shall be used to demonstrate whether the sediment basins have at least 50% capacity prior to November 15 of each year. This monitoring plan will not become effective until approved by the Regional Board at a duly noticed public hearing as specified in Chapter 1.5, Division 3, Title 23 of the California Code of Regulations (Section 647 et seq.).

3. Conduct topographic and vegetation surveys of Upper Newport Bay at least every three years, or as agreed upon by the Executive Officer, and after any year in which the monitoring for total suspended solids at Campus Drive shows that more than 250,000 tons of sediment were discharged to the Bay. In any year in which these surveys are required, the surveys shall be conducted by July 1. The results of these surveys shall be submitted as part of an annual report by December 31 of each year. The topographic and vegetation surveys shall be conducted to determine the amount of sediment deposition in the two In-Bay basins and the other marine aquatic habitat areas and to determine changes in the areal extent of the existing aquatic, wildlife and endangered species habitat areas.
4. Submit an annual report by December 31 of each year providing the monitoring data and information collected by the Newport Bay Watershed Executive Committee, including the flow and suspended solids monitoring data, the scour studies, the bathymetric and vegetation surveys, (and any additional information collected by the Committee). The monitoring shall be completed prior to July 1 of each year and this information shall be used to determine the maintenance requirements of all sediment basins in the watershed. Additionally, the Newport Bay Watershed Executive Committee shall submit a report by November 15 of each year certifying whether the sediment basins in the watershed have at least 50% capacity. The Regional Board will use the information collected by this monitoring program to evaluate the effectiveness of the sediment TMDL and will reevaluate the sediment TMDL as part of the Regional Board's Basin Planning process.
5. The monitoring data and information collected by the Newport Bay Watershed Executive Committee, including the flow and suspended solids monitoring data, the scour studies, the bathymetric surveys and the vegetation surveys, (and any additional information collected by the Newport Bay Watershed Executive Committee) shall be submitted in an annual report by December 31 of each year. The monitoring shall be completed prior to July 1 of each year and this information shall be used to determine the maintenance requirements of all sediment basins in the watershed. Additionally, the Newport Bay Watershed Executive Committee shall submit a report by November 15 of each year certifying whether the sediment basins in the watershed have at least 50% capacity. The Regional Board will use the information collected by this monitoring program to evaluate the effectiveness of the sediment TMDL and will reevaluate the sediment TMDL as part of the Board's Basin Planning process.

California Regional Water Quality Control Board  
Santa Ana Region

October 9, 1998

ITEM: 6

SUBJECT: Revisions to the Basin Plan Amendment Establishing a Total Maximum Daily Load (TMDL) for Nutrients in the Newport Bay/San Diego Creek Watershed

DISCUSSION:

On April 17, 1998 the California Regional Water Quality Control Board, Santa Ana Region (Regional Board) approved a Basin Plan amendment establishing a nutrient TMDL for the Newport Bay/San Diego Creek Watershed (Attachment to Resolution No. 98-9). On May 13, 1998, the State Water Resources Control Board approved the Basin Plan amendment. The Basin Plan amendment was then forwarded to the Office of Administrative Law (OAL) for review. OAL staff reviewed the Nutrient TMDL and recommended areas of the Basin Plan amendment that needed further clarification. Several of these comments are being addressed by State Board staff in correspondence with OAL. However, additional clarifying language needs to be added to the Basin Plan amendment to satisfy OAL.

The recommended changes are discussed below. It should be emphasized that these are minor changes and will not affect the Regional Board's implementation of the TMDL or the regulatory requirements imposed on the nutrient dischargers in the watershed. These changes also do not affect the Environmental Assessment of the nutrient TMDL (See Attachment B, Environmental Checklist)

Implementation of Monitoring Programs

The nutrient TMDL requires the development and implementation of a nutrient management program for agricultural activities. This program is anticipated to include a monitoring component. The TMDL also requires the Regional Board to establish a Regional Monitoring Program (RMP) to evaluate various elements of the TMDL. Pursuant to the TMDL approved by Resolution No. 98-9, these management and monitoring programs were to be implemented upon approval by the Executive Officer; however, OAL staff advised us that the management and monitoring programs are regulatory provisions that need to be approved by the Regional Board in a public hearing.

To address this concern, staff is recommending the additional clarifying language as shown in Attachment A to Resolution No. 98-100, which simply states that the watershed agricultural nutrient management plan and the Regional Monitoring Program will not become effective until approved by the Regional Board.

This report includes the following attachments:

- Attachment A -Revisions to the Basin Plan Amendment Establishing a Total Maximum Daily Load (TMDL) for Nutrients in the Newport Bay/San Diego Creek Watershed
- Attachment B -Environmental Checklist

**STAFF RECOMMENDATION:**

Adopt Resolution No. 98-100, amending Resolution No. 98-9, as shown in Attachment A to this staff report.

California Regional Water Quality Control Board  
Santa Ana Region

**RESOLUTION NO. 98-100**

Resolution Revising the Amendment to the Water Quality Control Plan for the  
Santa Ana River Basin Incorporating a Nutrient TMDL for the  
Newport Bay/San Diego Creek Watershed (Resolution No. 98-9)

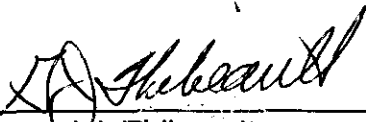
WHEREAS, the California Regional Water Quality Control Board, Santa Ana Region (hereinafter Regional Board), finds that:

1. On April 17, 1998, the Regional Board adopted an amendment to the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) establishing a Total Maximum Daily Load for nutrients for the Newport Bay/San Diego Creek Watershed (Resolution No. 98-9).
2. On May 13, 1998, the State Water Resources Control Board approved the Total Maximum Daily Load for nutrients for the Newport Bay Watershed (SWRCB Resolution No. 98-38).
3. The Office of Administrative Law (OAL) recommended that language regarding the management and monitoring activity approval process should be clarified. This resolution amends Resolution No. 98-9 to provide clarification.
4. The Regional Board prepared and distributed a written report (staff report) regarding the adoption of revisions to the Basin Plan amendment in compliance with the applicable state and federal environmental regulations (California Code of Regulations, Section 3775, Title 23, and 40 CFR , Parts 25 and 131).
5. The process of basin planning has been certified by the Secretary of Resources as exempt from the Requirements of the California Environmental Quality Act (Public Resources Code, Section 21000 *et seq.*) for preparing an Environmental Impact report or Negative Declaration. The Basin Plan amendment package includes an Environmental Checklist, an assessment of the 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.
6. On October 9, 1998 the Regional Board held a Public Hearing to consider the Basin Plan amendment. Notice of the Public Hearing was given to all interested persons and published in accordance with Water Code Section 13244.

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The Regional Board adopts the revisions to the Newport Bay/San Diego Creek Watershed Nutrient TMDL Basin Plan amendment as set forth in the attachment.
2. The Executive Officer is directed to forward copies of the revised 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 revised 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.

I, Gerard J. Thibeault, Executive Officer, do hereby certify that the foregoing is full, true, and correct copy of a resolution adopted by the California Regional Water Quality Control Board, Santa Ana Region, on October 9, 1998.

  
\_\_\_\_\_  
Gerard J. Thibeault  
Executive Officer

Attachment to Resolution No. 98-100

**Resolution Revising the Amendment to the Water Quality Control Plan for the Santa Ana River Basin Incorporating a Nutrient TMDL for the Newport Bay/San Diego Creek Watershed (Resolution No. 98-9)**

The proposed changes to the Basin Plan are presented in the following pages. The additions are highlighted (**highlighted**) and the deletions are marked in ~~strikeout~~ (~~strikeout~~).

CHAPTER 5 - IMPLEMENTATION PLAN, Page 5-39

2. Eutrophication (Page 5-41)

2.b. Phase I of the Nutrient TMDL

4. Agricultural Activities

A watershed-wide nutrient management program for agricultural activities shall be developed by the Orange County Farm Bureau, University of California Cooperative Extension, and the affected growers, in conjunction with Regional Board staff. The proposed management program shall be submitted by July 1, 1999. ~~and shall be implemented upon the approval of the Executive Officer.~~ **The nutrient management program will not become effective until approved by the Regional Water Quality Control Board at a duly noticed public meeting.**

5. Urban Stormwater

Co-permittees of the Orange County Areawide Urban Stormwater Permit (Order No. 96-31) shall be required to submit for approval by the Regional Board's Executive Officer an analysis of appropriate Best Management Practices which will be additionally implemented through the Drainage Area Management Plan (DAMP) to achieve the short term (5-year) interim targets and final nutrient load reduction targets for the Newport Bay Watershed. The co-permittees shall also be required to provide a proposal for 1) evaluating the effectiveness of control actions implemented, and 2) evaluating compliance with the nutrient load allocation. The analyses shall be submitted by July 1, 1999, and shall be implemented upon approval of the Executive Officer.

US EPA ARCHIVE DOCUMENT

## 6. Phosphorus

The primary reduction of phosphorus loading is expected to be achieved by the implementation of the total maximum daily load for sediment in the Newport Bay/San Diego Creek watershed. The sediment TMDL is incorporated into the nutrient TMDL for the Newport Bay/San Diego Creek watershed by reference (Note - the sediment TMDL will be appropriately referenced once it is approved by OAL). Limits on phosphorus discharges shall be incorporated into the new and revised Waste Discharge Requirements previously listed, as necessary.

### 2.c. Phase II of the Nutrient TMDL

#### 1. Monitoring

The Regional Board will establish and oversee a regional monitoring program (RMP) for the Newport Bay watershed. The new and revised WDRs, NPDES permits, DAMP, and agricultural nutrient management plans shall ~~have~~ include requirements to conduct self-monitoring, or in lieu of self-monitoring, to participate in the RMP. Participation in the RMP could result in the reduction of self-monitoring requirements. **The RMP will not become effective until approved by the Regional Water Quality Control Board at a duly noticed public meeting.**

The RMP shall be designed by the Regional Board to assess the attainment of the goals of the nutrient TMDL. The objectives of the monitoring program shall be the quantification of the three endpoints of the nutrient TMDL: (1) the seasonal nutrient loading from the watershed; (2) the nutrient concentration in San Diego Creek, Reaches 1 and 2; and (3) the extent, magnitude, and duration of algal blooms in San Diego Creek and Newport Bay. The monitoring plan shall be implemented by March 1999.

The Regional Board will initiate investigations into the currently unknown sources of nutrients in the Newport Bay Watershed. The Regional Board, in cooperation with other agencies and entities, will investigate the occurrence of rising shallow groundwater in the Newport Bay Watershed. The study will focus on the contributions of rising groundwater to the loading of nutrients to drainage channels which are tributary to Newport Bay. Additionally, the study of the nutrient and algae processes of Newport Bay and San Diego Creek will be encouraged and supported by the Regional Board. Regional Board support could include financial resources, personnel, agency coordination, and scientific review.



## ATTACHMENT B

## ENVIRONMENTAL CHECKLIST

## I. BACKGROUND

1. Name of Proponent:  
California Regional Water Quality Control Board, Santa Ana Region.
2. Address and Phone Number of Proponent:  
3737 Main St., Suite 500, Riverside CA 92503, (909)782-4130
3. Date Checklist Submitted: October 11, 1997
4. Name of Proposal:  
Basin Plan Amendment - Revision of Implementation Plan to Incorporate a Nutrient Total Maximum Daily Load for the Newport Bay/San Diego Creek Watershed.

## II. ENVIRONMENTAL IMPACTS

(All "yes" and "maybe" answers are explained on attached sheets.)

		<u>Yes</u>	<u>Maybe</u>	<u>No</u>
1.	<b>Earth.</b> Will the proposal result in:			
	a. Unstable earth conditions or changes in geologic substructures?	___	___	<u>X</u>
	b. Disruptions, displacements, compaction or overcoming of the soil?	___	___	<u>X</u>
	c. Change in topography or ground surface relief features?	___	___	<u>X</u>
	d. The destruction, covering or modification of any unique geologic or physical features?	___	___	<u>X</u>
	e. Any increase in wind or water erosion of soils, either on or off the site?	___	___	<u>X</u>
	f. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of river or stream or the of the ocean or any bay, inlet or lake?	___	___	<u>X</u>

Environmental Checklist

Yes Maybe No

- g. Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards? \_\_\_ \_\_\_ X
  
- 2. **Air.** Will the proposal result in:
  - a. Substantial air emissions or deterioration of ambient air quality? \_\_\_ \_\_\_ X
  - b. The creation of objectionable odors? \_\_\_ \_\_\_ X
  - c. Alteration of air movement, moisture, or temperature, or any change in climate either locally or regionally? \_\_\_ \_\_\_ X
  
- 3. **Water.** Will the proposal result in:
  - a. Changes in current, or the course of direction of water movements, in either marine or fresh waters? \_\_\_ \_\_\_ X
  - b. Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff? X \_\_\_ \_\_\_
  - c. Alterations to the course or flow of flood waters? \_\_\_ \_\_\_ X
  - d. Change in the amount of surface water in any water body? \_\_\_ X \_\_\_
  - e. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity? X \_\_\_ \_\_\_
  - f. Alteration of the direction or rate of flow of groundwater? \_\_\_ X \_\_\_
  - g. Change in the quantity of groundwaters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations? \_\_\_ X \_\_\_

Environmental Checklist

Yes Maybe No

- h. Substantial reduction in the amount of water otherwise available for public water supplies? \_\_\_ \_\_\_ X
    - i. Exposure of people or property to water related hazards such as flooding or tidal waves? \_\_\_ \_\_\_ X
  - 4. **Plant Life.** Will the proposal result in:
    - a. Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants)? X \_\_\_ \_\_\_
    - b. Reduction of the numbers of any unique, rare or endangered species of plants? \_\_\_ \_\_\_ X
    - c. Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species? \_\_\_ \_\_\_ X
    - d. Reduction in acreage of any agricultural crop? \_\_\_ \_\_\_ X
  - 5. **Animal Life.** Will the proposal result in:
    - a. Change in the diversity of species, or numbers of any species of animals (birds, land animals, including reptiles, fish and shellfish, benthic organisms or insects?) \_\_\_ X \_\_\_
    - b. Reduction of the numbers of any unique, rare or endangered species of animals? \_\_\_ \_\_\_ X
    - c. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals? \_\_\_ \_\_\_ X
    - d. Deterioration to existing fish or wildlife habitat? \_\_\_ \_\_\_ X
  - 6. **Noise.** Will the proposal result in:
    - a. Increases in existing noise levels? \_\_\_ \_\_\_ X

Environmental Checklist

Yes Maybe No

- b. Exposure of people to severe noise levels? \_\_\_ \_\_\_ X
- 7. **Light and Glare.** Will the proposal produce new light or glare? \_\_\_ \_\_\_ X
- 8. **Land Use.** Will the proposal result in a substantial alteration of the present or planned land use of the area? \_\_\_ \_\_\_ X
- 9. **Natural Resources.** Will the proposal result in:
  - a. Increase in the rate of use of any natural resources? \_\_\_ \_\_\_ X
  - b. Substantial depletion of any non-renewable natural resources. \_\_\_ \_\_\_ X
- 10. **Risk of Upset.** Will the proposal involve:
  - a. A risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions? \_\_\_ \_\_\_ X
  - b. Possible interference with an emergency response plan or an emergency evaluation plan? \_\_\_ \_\_\_ X
- 11. **Population.** Will the proposal alter the location, distribution, density, or growth rate of the human population of an area? \_\_\_ \_\_\_ X
- 12. **Housing.** Will the proposal affect housing, or create a demand for additional housing? \_\_\_ \_\_\_ X
- 13. **Transportation/Circulation.** Will the proposal result in:
  - a. Generation of substantial additional vehicular movement? \_\_\_ \_\_\_ X
  - b. Effects on existing parking facilities, or demand on new parking? \_\_\_ \_\_\_ X
  - c. Substantial impact upon existing transportation systems? \_\_\_ \_\_\_ X

Environmental Checklist

Yes Maybe No

- d. Alterations to prevent patterns of circulation or movement of people and/or goods? \_\_\_ \_\_\_ X
- e. Alterations to waterborne, rail or air traffic? \_\_\_ \_\_\_ X
- f. Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians? \_\_\_ \_\_\_ X
- 14. **Public Services.** Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:
  - a. Fire Protection? \_\_\_ \_\_\_ X
  - b. Police Protection? \_\_\_ \_\_\_ X
  - c. Schools? \_\_\_ \_\_\_ X
  - d. Parks or other recreational facilities? \_\_\_ \_\_\_ X
  - e. Maintenance of public facilities, including roads? \_\_\_ \_\_\_ X
  - f. Other governmental services? \_\_\_ \_\_\_ X
- 15. **Energy.** Will the proposal result in:
  - a. Use of substantial amounts of fuel or energy? \_\_\_ \_\_\_ X
  - b. Substantial increase in demand upon existing sources or energy, or require the development of new sources of energy? \_\_\_ \_\_\_ X
- 16. **Utilities.** Will the proposal result in a need for new systems, or substantial alterations to the following utilities?
  - a. Power or Natural Gas? \_\_\_ \_\_\_ X
  - b. Communications systems? \_\_\_ \_\_\_ X
  - c. Water? \_\_\_ \_\_\_ X

Environmental Checklist

Yes Maybe No

- d. Sewer or septic tanks? \_\_\_ X \_\_\_
- e. Storm water drainage? \_\_\_ X \_\_\_
- f. Solid waste and disposal? \_\_\_ \_\_\_ X
- 17. **Human Health.** Will the proposal result in:
  - a. Creation of any health hazard or potential health hazard (excluding mental health)? \_\_\_ \_\_\_ X
  - b. Exposure of people to potential health hazards? \_\_\_ \_\_\_ X
- 18. **Aesthetics.** Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view? \_\_\_ \_\_\_ X
- 19. **Recreation.** Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities? \_\_\_ \_\_\_ X
- 20. **Cultural Resources.** Will the proposal result in:
  - a. The alteration of or the destruction of a prehistoric or historic archaeological site? \_\_\_ \_\_\_ X
  - b. Adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object? \_\_\_ \_\_\_ X
  - c. The potential to cause a physical change which would effect unique ethnic cultural values? \_\_\_ \_\_\_ X
  - d. Restricting existing religious or sacred uses within the potential impact area? \_\_\_ \_\_\_ X

Yes Maybe No

21. **Mandatory Findings of Significance.**

- a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habit of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? \_\_\_ \_\_\_ X
- b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.) \_\_\_ \_\_\_ X
- c. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.) \_\_\_ \_\_\_ X
- d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? \_\_\_ \_\_\_ X

III. **Discussion of Environmental Evaluation** (see attached sheets)

IV. **Determination** On the basis of this initial evaluation:

X I find that the proposed project **COULD NOT** have a significant adverse effect on the environment.

\_\_\_ I find that the proposed project **MAY** have a significant adverse effect on the environment; however, there are feasible alternatives and/or mitigation measures available which will substantially lessen any significant adverse impact. These alternatives and mitigation measures are discussed in the attached written report.

\_\_\_ I find the proposed project **MAY** have a significant adverse effect on the environment. There are no feasible alternatives and/or feasible mitigation measures available which would substantially lessen any significant adverse impact. See the attached written report for a discussion of this determination.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Gerard J. Thibeault - Executive Officer

**Discussion of Environmental Evaluation**

III. Water

The proposed regulatory actions address water quality issues in the Newport Bay Watershed and will have a direct and indirect impact on the rate and amount of surface runoff, surface water, and groundwater quality. The implementation of the elements of the TMDL will control and regulate the discharge of nutrients to surface and groundwaters. These controls will improve the water quality in the Newport Bay/San Diego Creek Watershed.

IV. Plant Life

The proposed regulatory actions address water quality issues in the Newport Bay Watershed and will decrease the abundance of nuisance macrophyte algae in Newport Bay. The high macrophyte abundance is the result of anthropogenic nutrient enrichment and currently impairs fish and wildlife habitat.

V. Animal Life

The proposed regulatory actions address water quality issues in the Newport Bay Watershed and is expected to increase the diversity of animal species by reducing the amount of macrophyte algae in Newport Bay. The pervasive algae currently impairs fish and wildlife habitat.

XVI. Utilities

The proposed regulatory actions and possible response from local entities, in order to comply with water quality objectives, will not result in an increased use of existing utilities. The regulations could necessitate the alteration of the storm water conveyance system and sewer system.



Attachment to Resolution 98-100

**Resolution Revising the Amendment to the Water Quality Control Plan for the Santa Ana River Basin Incorporating a Nutrient TMDL for the Newport Bay/San Diego Creek Watershed (Resolution No. 98-9)**

CHAPTER 5 - IMPLEMENTATION PLAN, Page 5-39

2. Eutrophication (Page 5-41)

2.b. Phase I of the Nutrient TMDL

4. Agricultural Activities

A watershed-wide nutrient management program for agricultural activities shall be developed by the Orange County Farm Bureau, University of California Cooperative Extension, and the affected growers, in conjunction with Regional Board staff. The proposed management program shall be submitted by July 1, 1999. **The nutrient management program will not become effective until approved by the Regional Water Quality Control Board at a duly noticed public meeting as specified in Chapter 1.5, Division 3, Title 23 of the California Code of Regulations (Section 647 et seq.).**

5. Urban Stormwater

Co-permittees of the Orange County Areawide Urban Stormwater Permit (Order No. 96-31) shall be required to submit for approval by the Regional Board's Executive Officer an analysis of appropriate Best Management Practices which will be additionally implemented through the Drainage Area Management Plan (DAMP) to achieve the short term (5-year) interim targets and final nutrient load reduction targets for the Newport Bay Watershed. The co-permittees shall also be required to provide a proposal for 1) evaluating the effectiveness of control actions implemented, and 2) evaluating compliance with the nutrient load allocation. **The proposal and analysis shall be submitted by July 1, 1999, and shall be implemented upon approval of the Executive Officer as specified by Section IV.1.a.ii.A of Order No. 96-31.**

## 6. Phosphorus

The primary reduction of phosphorus loading is expected to be achieved by the implementation of the total maximum daily load for sediment in the Newport Bay/San Diego Creek watershed. The sediment TMDL is incorporated into the nutrient TMDL for the Newport Bay/San Diego Creek watershed by reference (Note - the sediment TMDL will be appropriately referenced once it is approved by OAL). Limits on phosphorus discharges shall be incorporated into the new and revised Waste Discharge Requirements previously listed, as necessary.

### 2.c. Phase II of the Nutrient TMDL

#### 1. Monitoring

The Regional Board will establish and oversee a regional monitoring program (RMP) for the Newport Bay watershed. The new and revised WDRs, NPDES permits, DAMP, and agricultural nutrient management plans shall include requirements to conduct self-monitoring, or in lieu of self-monitoring, to participate in the RMP. Participation in the RMP could result in the reduction of self-monitoring requirements. **The RMP will not become effective until approved by the Regional Water Quality Control Board at a duly noticed public meeting as specified in Chapter 1.5, Division 3, Title 23 of the California Code of Regulations (Section 647 et seq.).**

The RMP shall be designed by the Regional Board to assess the attainment of the goals of the nutrient TMDL. The objectives of the monitoring program shall be the quantification of the three endpoints of the nutrient TMDL: (1) the seasonal nutrient loading from the watershed; (2) the nutrient concentration in San Diego Creek, Reaches 1 and 2; and (3) the extent, magnitude, and duration of algal blooms in San Diego Creek and Newport Bay. The monitoring plan shall be implemented by March 1999.

The Regional Board will initiate investigations into the currently unknown sources of nutrients in the Newport Bay Watershed. The Regional Board, in cooperation with other agencies and entities, will investigate the occurrence of rising shallow groundwater in the Newport Bay Watershed. The study will focus on the contributions of rising groundwater to the loading of nutrients to drainage channels which are tributary to Newport Bay. Additionally, the study of the nutrient and algae processes of Newport Bay and San Diego Creek will be encouraged and supported by the Regional Board. Regional Board support could include financial resources, personnel, agency coordination, and scientific review.

California Regional Water Quality Control Board  
Santa Ana Region

April 17, 1998

ITEM: 5

SUBJECT: Basin Plan Amendment Establishing a Total Maximum Daily Load (TMDL)  
for Nutrients in the Newport Bay/San Diego Creek Watershed.

DISCUSSION:

On January 23, 1998 the California Regional Water Quality Control Board, Santa Ana Region (Regional Board) conducted a public hearing to consider a proposed nutrient TMDL for the Newport Bay/San Diego Creek watershed for incorporation into the Basin Plan (Attachment to Resolution No. 98-9). The Regional Board continued the public hearing to March 6, 1998 to allow consideration of comments received on January 23rd. The Board directed staff to consider the comments and to bring an appropriately revised TMDL for the Board's subsequent consideration.

On March 6, 1998 the Board heard staff's proposed revisions to the TMDL. Concurrently, the US Environmental Protection Agency (USEPA) had prepared a nutrient TMDL for the Newport Bay watershed pursuant to the terms of a consent decree entered into with Defend the Bay. For the most part, USEPA relied on the Regional Board's proposed TMDL in developing their TMDL. However, there were a number of inconsistencies between the Regional Board and USEPA TMDLs. As a result of discussions between USEPA, Regional Board, and State Water Resources Control Board staffs, Regional Board staff revised certain elements of the proposed nutrient TMDL. These revisions were presented to the Regional Board at the March 6, 1998 public hearing. In order to allow sufficient time for public review of the staff's proposed revisions, the Regional Board continued the public hearing to April 17, 1998.

Revision of the Nutrient TMDL

As described below, revisions were made to the following: 1) load and wasteload allocations added to the phosphorus TMDL; 2) a total nitrogen TMDL developed for San Diego Creek, Reach 2; 3) a change in storm definitions; and 4) a change in compliance schedules.

1. Total Phosphorus Allocations

The total phosphorus TMDL for the Newport Bay watershed was also given formal load and wasteload allocations to make it consistent with the sediment TMDL for the Newport Bay watershed. These allocations were based on the same general land use

categories that were used in the sediment TMDL. The total annual target was divided proportionally among the four land use categories.

## 2. San Diego Creek, Reach 2 TMDL

An annual total nitrogen TMDL for San Diego Creek, Reach 2, is proposed to ensure that the total inorganic nitrogen water quality objective of 5 mg/L would be achieved. This TMDL was developed assuming a non-storm discharge rate of 0.5 cubic feet per second (cfs) in San Diego Creek at Culver. Monitoring data show that 0.5 cfs is the average non-storm discharge at this location, 90% or more of the time. The load and wasteload allocations are general to allow for flexibility in allocating specific loads to individual dischargers. The compliance date for this TMDL would be no later than December 31, 2012.

## 3. Storm Definitions

There is widespread consensus among stakeholders, including the USEPA, that the nitrogen loads in storm flows that remain essentially at the surface of, and then exit the Bay, should be excluded from the TMDL, since such loads do not contribute to eutrophication problems in the Bay. Board staff proposed in the January 23, 1998 staff report that the storm flows (and loads) to be excluded from the TMDL should be defined as those resulting from any measurable precipitation, and also one day following precipitation of more than 0.3 inches. This has been revised to reflect stakeholder consensus that the definition should be flow-based, rather than precipitation-based. Based on evaluation of relevant data, staff now proposes that the nitrogen loads from storms that result in flows of 50 mean daily cfs or more in San Diego Creek at Campus Drive be excluded from the Newport Bay watershed TMDL, and that the nitrogen loads from storms that result in flows of 25 mean daily cfs or more in San Diego Creek at Culver Drive be excluded from the San Diego Creek, Reach 2 TMDL. The available data indicate that storm flows of these magnitudes are in compliance with the respective total inorganic nitrogen objectives for Reach 1 and Reach 2. Again, these storm flows are not expected to add nitrogen loads that would contribute to eutrophication. Therefore, these flows do not need to be included in the TMDL. These definitions could be revised in the future based on additional monitoring and modeling of the hydrodynamic processes of Newport Bay.

## 4. Compliance Schedules

Changes were made in the timing of compliance with the seasonal nitrogen loading targets. The winter season total nitrogen TMDL compliance date was extended from ten years to fifteen years (See Attachment A). This was based on the uncertainty of the effectiveness of regulating winter season loading in controlling algae problems in Newport Bay.

Revisions were also made to the implementation and compliance dates for different elements of the TMDLs. This was necessary due to the further continuance of the public hearing. These date changes include:

- Revise existing WDRs for nursery operations. June 30, 1998 to December 31, 1998.
- Revise existing NPDES permits. June 30, 1998 to December 31, 1998.
- Revise existing NPDES permits and WDRs for groundwater dewatering and cleanup operations. December 31, 1998 to March 31, 1999.
- Agricultural nutrient management plans. January 1, 1999 to July 1, 1999.
- Urban nutrient management plans. January 1, 1999 to July 1, 1999.
- Regional monitoring program. September 1988 to March 1999.

This report includes the following attachments:

- Attachment A - Errata sheet showing changes to the January 23, 1998 proposed Basin Plan Amendment
- Attachment B - Tentative Resolution No. 98-9, including the proposed Basin Plan Amendment
- Attachment C - Response to comments received at the March 6, 1998 Public Hearing

**STAFF RECOMMENDATION:**

Adopt Resolution No. 98-9, as shown in Attachment B to this staff report, and as amended by the errata sheet, as shown in Attachment A.

California Regional Water Quality Control Board  
Santa Ana Region

**RESOLUTION NO. 98-9**

Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Incorporate a Nutrient TMDL for the Newport Bay/San Diego Creek Watershed

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 contains a numeric water quality objective of 13 mg/L total inorganic nitrogen for San Diego Creek, Reach 1, and 5 mg/L total inorganic nitrogen for San Diego Creek, Reach 2.
3. The Basin Plan contains a narrative water quality objective for algae that specifies that waste discharges shall not contribute to excessive algal growth in inland surface receiving waters and enclosed bays and estuaries. A narrative objective for dissolved oxygen specifies that levels shall not be depressed to levels that adversely affect beneficial uses as a result of controllable water quality factors in inland surface receiving waters and enclosed bays and estuaries.
4. The numeric and narrative water quality objectives are not met because of excessive nutrients in San Diego Creek and Newport Bay. The Regional Board has 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 nutrients that can be discharged while still ensuring compliance with water quality standards. Section 303(d) also requires the allocation of the TMDL among sources of nutrients, together with an implementation plan and schedule that will ensure the TMDL is met and compliance with water quality standards is achieved.
5. The adoption of the Basin Plan amendment attached to this resolution is intended to meet the requirements of Section 303(d) of the Clean Water Act through the implementation of control measures to control sources of nutrients that provides a reasonable assurance that water quality standards will be met.

6. The Regional Board discussed this matter at public workshops held on September 12, 1997 and December 5, 1997, after notice was given to all interested persons in accordance with Section 13244 of the California Water Code. Based on the discussion and the testimony received, the Board directed staff to prepare the appropriate Basin Plan amendment and related documentation to establish a TMDL for nutrients in the Newport Bay Watershed.
7. The Regional Board prepared and distributed written reports (staff reports) regarding the adoption of the Basin Plan amendment in compliance with the applicable state and federal environmental regulations (California Code of Regulations, Section 3775, Title 23, and 40 CFR , Parts 25 and 131).
8. The process of basin planning has been certified by the Secretary of Resources as exempt from the Requirements of the California Environmental Quality Act (Public Resources Code, Section 21000 *et seq.*) for preparing an Environmental Impact report or Negative Declaration. The Basin Plan amendment package includes an Environmental Checklist, an assessment of the 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 Regional Board has considered federal and state antidegradation policies and other relevant water quality control policies and finds the Basin Plan amendment consistent with those policies.
10. On January 23, 1998, the Regional Board held a Public Hearing, which was continued to March 6, 1998 and April 17, 1998, to consider the Basin Plan amendment. Notice of the Public Hearing was given to all interested persons and published in accordance with Water Code Section 13244.
11. 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 and OAL have acted on this matter. The SWRCB will forward the approved amendment to EPA for review and approval.
12. The U.S. EPA is in the process of promulgating a nutrient TMDL for the Newport Bay/San Diego Creek Watershed. The U.S. EPA TMDL is expected to become effective prior to full approval of the Regional Board TMDL specified by this Basin Plan amendment. The U.S. EPA TMDL is patterned after and relies to a large extent on the Regional Board TMDL, but it is more general and does not include the implementation measures and schedules specified in this amendment. The Regional Board must define, and implement, the measures necessary to carry out TMDLs. The Regional Board TMDL specifies the implementation measures and schedules by which the Regional Board TMDL, and the U. S. EPA TMDL, will be implemented. Until the

Regional Board TMDL becomes effective, the Regional Board will implement the U.S. EPA TMDL. Implementation of the U.S. EPA TMDL will be accomplished through the use of best professional judgment, using the Regional Board TMDL as guidance.

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.

I, Gerard J. Thibeault, Executive Officer, do hereby certify that the foregoing is full, true, and correct copy of a resolution adopted by the California Regional Water Quality Control Board, Santa Ana Region, on April 17, 1998.

  
\_\_\_\_\_  
Gerard J. Thibeault  
Executive Officer



## Attachment to Resolution No. 98-9

### Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Incorporate a Nutrient TMDL for the Newport Bay/San Diego Creek Watershed

The proposed changes to the Basin Plan are presented in the following pages. The additions are highlighted (**highlighted**) and the deletions are marked in ~~strikeout~~ (~~strikeout~~).

#### CHAPTER 5 - IMPLEMENTATION PLAN, Page 5-39

##### **2. Eutrophication ~~Eutrophication~~** (Page 5-41)

Nutrient loading to the Bay, particularly from the San Diego Creek watershed, contributes to seasonal algal blooms which create a recreational and aesthetic nuisance. These algal blooms may also adversely affect wildlife.

**The TMDL distributes the portions of the waterbody's assimilative capacity to various pollution sources so that the waterbody achieves its water quality standards. The Regional Board supports the trading of pollutant allocations among sources where appropriate. Trading can take place between point/point, point/nonpoint, and nonpoint/nonpoint pollutant sources. Optimizing alternative point and nonpoint control strategies through allocation tradeoffs may be a cost effective way to achieve pollution reduction benefits.**

While there are a number of sources of nutrient input, tailwaters from the irrigation of agricultural crops and from several commercial nurseries in the watershed have been the predominant source. The Regional Board issued Waste Discharge Requirements to the three nurseries, requiring substantial reductions in their nutrient loads. Significant improvements have been achieved by these nurseries, largely due to the implementation of drip irrigation systems (which greatly reduce the amount of tailwater) and/or recycle systems. Installation of drip irrigation systems for other agricultural crops has also significantly reduced the volume of nutrient-laden tailwaters. These improvements, coupled with the increased tidal flushing caused by the in-bay basins, appears to have resulted in a substantial downward trend in nitrate concentrations in the Bay. **However, algal blooms are still occurring in Newport Bay and San Diego Creek. As a result, Newport Bay and San Diego Creek are listed as water quality impaired due to nutrients pursuant to Section 303(d) of the Clean Water Act. A nutrient TMDL to address this problem for Newport Bay and San Diego Creek is described in the following sections.**

**The hydrodynamic, sediment transport, and water quality models of Newport Bay being jointly developed by the U.S. Army Corps of Engineers and the Regional Board will be used in the future to further refine the algae and nutrient relationships in the Bay. These refinements will be considered in future reviews and revisions of the nutrient TMDL.**

Further progress to address the nutrient problem is expected as a requirements of Orange County's stormwater permit are implemented. It is recognized, however, that the eutrophication problem in the Bay has been developing over many years and that correcting this problem is also likely to be a long term process.

**2.a. Quantifiable Nutrient Targets**

The annual loading of total nitrogen and phosphorus to Newport Bay shall be reduced by 50% by 2012. The seasonal loading targets are listed in Table 5-9a.

**Table 5-9a Summary of Loading Targets and Compliance Time Schedules.**

TMDL	December 31, 2002 <sup>5</sup>	December 31, 2007 <sup>5</sup>	December 31, 2012 <sup>5</sup>
Newport Bay Watershed Total Nitrogen - Summer Load <sup>1</sup>	200,097 lbs.	153,861 lbs.	
Newport Bay Watershed Total Nitrogen - Winter Load <sup>2</sup>			144,364 lbs.
Newport Bay Watershed Total Phosphorus - Annual Load <sup>3</sup>	86,912 lbs.	62,080 lbs.	
San Diego Creek, Reach 2 Total Nitrogen - Daily Load <sup>4</sup>			14 lbs.

- <sup>1</sup> Total nitrogen summer loading limit applies between April 1 and September 30.
- <sup>2</sup> Total nitrogen winter loading limit applies between October 1 and March 31 when the mean daily flow rate at San Diego Creek at Campus Drive is below 50 cubic feet per second (cfs), and when the mean daily flow rate in San Diego Creek at Campus Drive is above 50 cubic feet per second (cfs), but not as the result of precipitation.
- <sup>3</sup> Total phosphorus annual loading is the sum of summer and winter loading during all daily flow rates.
- <sup>4</sup> Total nitrogen daily loading limit applies when the mean daily flow rate at San Diego Creek at Culver Drive is below 25 cubic feet per second (cfs), and when the mean daily flow rate in San Diego Creek at Culver Drive is above 25 cubic feet per second (cfs), but not as the result of precipitation.
- <sup>5</sup> Compliance to be achieved no later than this date. The Regional Board may require earlier compliance with these targets when it is feasible and reasonable.

The margin of safety of the nutrient TMDL is implicit through the use of conservative assumptions. These conservative assumptions include controlling all forms of nitrogen and phosphorus and controlling seasonal and annual loading.

**Load Allocations**

The 5, 10, and 15 year seasonal load allocations of total nitrogen for the Newport Bay Watershed are presented in Table 5-9b. The 5 and 10 year annual total

Table 5-3b Seasonal Load Allocations of Total Nitrogen for the Newport Bay Watershed.

Nutrient TMDL	1990-1997 Loading	2002 Allocation <sup>8</sup>	2002 Summer Allocation (April-Sept) <sup>8</sup>	2007 Allocation <sup>8</sup>	2007 Summer Allocation (April-Sept) <sup>8</sup>	2012 Allocation <sup>8</sup>	2012 Winter Allocation (Oct-Mar) <sup>7, 8, 11</sup>
Newport Bay Watershed	lbs/year TN <sup>2</sup>	lbs/day TN <sup>10</sup>	lbs/season TN	lbs/day TN <sup>10</sup>	lbs/season TN	lbs/day TN <sup>10</sup>	lbs/season TN
<b>Wasteload Allocation</b>							
Hines Nurseries	96,360 TIN <sup>1</sup>	224	40,992	211	38,613	211	14,227
Bordiers Nursery	30,660 TIN	71	12,993	67	12,261	67	4,518
El Modena Gardens	18,250 TIN	43	7,869	40	7,320	40	2,697
Unpermitted nurseries	---	30	5,490	24	4,392	24	1,618
Nursery subtotal			67,344		62,586		23,060
IRWD WWSP (permanent discharge) <sup>9</sup>	0	62		62		62	4,181
Silverado Constructors ETC <sup>4</sup>	0	141	25,671	141	25,671	141	9,459
Urban runoff	277,131 <sup>5</sup>		20,785		16,628		55,442
Wasteload Allocation			113,800		104,885		92,142
<b>Load Allocation</b>							
Agricultural discharges	328,040 <sup>5</sup>		22,963		11,481		38,283
Undefined sources (Open space, atmospheric deposition, rising groundwater, groundwater cleanup/dewatering, in-bay nitrogen)	---		63,334		37,495		13,939
Load Allocation			86,297		48,976		52,222
<b>Total</b>	<b>1,087,000<sup>5</sup></b>		<b>200,097</b>		<b>153,861</b>		<b>144,364</b>
			5 year target		10 year target		15 year target

<sup>1</sup> TIN = (NO3+NH3).

<sup>2</sup> TN = (TIN + Organic N).

<sup>3</sup> Unknown.

<sup>4</sup> Wasteload allocation of a 50% reduction in nitrogen concentration upon commencement of discharge

<sup>5</sup> 1990-1997 annual average (summer loading and winter loading).

<sup>6</sup> Estimated annual average (summer and winter loading).

<sup>7</sup> Total nitrogen winter loading limit applies between October 1 and March 31 when the mean daily flow rate at San Diego Creek at Campus Drive is below 50 cubic feet per second (cfs), and when the mean daily flow rate in San Diego Creek at Campus Drive is above 50 cubic feet per second (cfs), but not as the result of precipitation.

<sup>8</sup> Compliance to be achieved no later than this date. The Regional Board may require earlier compliance with these targets when it is feasible and reasonable.

<sup>9</sup> Daily load limit applies upon commencement of discharge.

<sup>10</sup> Lbs/day TN (monthly average).

<sup>11</sup> Assumes 67 non-storm days.

phosphorus load allocations for the Newport Bay Watershed are presented in Table 5-9c. The 15 year daily total nitrogen load allocations for San Diego Creek, Reach 2 are presented in Table 5-9d. The nutrient load reduction targets will be incorporated into waste discharge requirements as effluent limits, load allocations, and wasteload allocations as necessary to ensure that:

- a. the total inorganic nitrogen and narrative water quality objectives for Newport Bay and San Diego Creek are achieved
- b. Clean Water Act requirements for the implementation of a TMDL are satisfied

**Table 5-9c Annual Total Phosphorous Load Allocations For The Newport Bay Watershed.**

	2002 Allocation lbs/year TP <sup>1</sup>	2007 Allocation lbs/year TP <sup>1</sup>
<b>TMDL</b>	<b>86,912</b>	<b>62,080</b>
Urban areas	4,102	2,960
Construction sites	17,974	12,810
<b>Waste Load Allocation</b>	<b>22,076</b>	<b>15,770</b>
Agricultural areas	26,196	18,720
Open space	38,640	27,590
<b>Load Allocation</b>	<b>64,836</b>	<b>46,310</b>

<sup>1</sup> Compliance to be achieved no later than this date. The Regional Board may require earlier compliance with these targets when it is feasible and reasonable.

**Table 5-9d Annual Total Nitrogen Load Allocations For San Diego Creek, Reach 2 During Non-Storm Conditions.<sup>1</sup>**

	2012 Allocation lbs/day TN <sup>2</sup>
<b>TMDL</b>	<b>14 lbs/day (TN)</b>
<b>Waste Load Allocation (Urban runoff)</b>	<b>5.5 lbs/day (TN)</b>
<b>Load Allocation (Nurseries, agriculture, undefined sources)</b>	<b>8.5 lbs/day (TN)</b>

<sup>1</sup> Total nitrogen loading limit applies when the mean daily flow rate at San Diego Creek at Culver Drive is below 25 cubic feet per second (cfs), and when the mean daily flow rate in San Diego Creek at Culver Drive is above 25 cubic feet per second (cfs), but not as the result of precipitation.

<sup>2</sup> Compliance to be achieved no later than this date. The Regional Board may require earlier compliance with these targets when it is feasible and reasonable.

## **2.b. Phase I of the Nutrient TMDL**

### **1. Review and Revision of Water Quality Objectives**

By December 31, 2000, the Regional Board shall review, and revise as necessary, the numeric water quality objectives for total inorganic nitrogen for San Diego Creek, Reaches 1 and 2. The Regional Board shall also examine the appropriateness of establishing numeric water quality objectives for phosphorus for San Diego Creek, Reaches 1 and 2.

### **2. Establish New Waste Discharge Requirements**

By December 31, 1999, the Regional Board shall issue new Waste Discharge Requirements (WDRs) to nursery operations of 5 acres or greater which currently are not regulated by WDRs (as of the effective date of this amendment) but discharge nutrients in excess of 1 mg/L TIN to storm channels which are tributary to Newport Bay. The new WDRs shall incorporate the appropriate wasteload, load, and margin of safety allocations identified in the nutrient load targets for the Newport Bay Watershed. Appropriate monitoring programs to evaluate compliance with load targets and allocations shall be required and incorporated into the WDRs

### **3. Revision of Existing Waste Discharge Requirements**

a. By December 31, 1998, the Regional Board shall revise existing WDRs for nursery operations which currently (as of the effective date of this amendment) discharge nutrients in excess of 1 mg/L TIN to drainages which are tributary to Newport Bay. The revised WDRs shall incorporate the appropriate wasteload, load, and margin of safety allocations identified in the nutrient load reduction targets for the Newport Bay Watershed. Appropriate monitoring programs to evaluate compliance with load targets and allocations shall be required and incorporated into the WDRs.

b. By December 31, 1998, the Regional Board shall revise existing NPDES permits for discharges which currently (as of the effective date of this amendment) discharge nutrients in excess of 1 mg/L TIN to drainages which are tributary to Newport Bay. The revised NPDES permits shall incorporate the appropriate wasteload, load, and margin of safety allocations identified in the nutrient load reduction targets for the Newport Bay Watershed. Appropriate monitoring programs to evaluate compliance with load targets and allocations shall be required and incorporated into the NPDES permits.

c. By March 31, 1999, the Regional Board shall revise the Monitoring and Reporting Programs of existing NPDES permits and WDRs for groundwater dewatering and cleanup operations which discharge to drainages which are tributary to Newport Bay to include requirements for phosphorus and total nitrogen sampling and analysis. This monitoring will generate the data necessary to develop appropriate wasteload allocations for these discharges.

#### 4. Agricultural Activities

A watershed-wide nutrient management program for agricultural activities shall be developed by the Orange County Farm Bureau, University of California Cooperative Extension, and the affected growers, in conjunction with Regional Board staff. The proposed management program shall be submitted by July 1, 1999 and shall be implemented upon the approval of the Executive Officer.

#### 5. Urban Stormwater

Co-permittees of the Orange County Areawide Urban Stormwater Permit (Order No. 96-31) shall be required to submit for approval by the Regional Board's Executive Officer an analysis of appropriate Best Management Practices which will be additionally implemented through the Drainage Area Management Plan (DAMP) to achieve the short term (5-year) interim targets and final nutrient load reduction targets for the Newport Bay Watershed. The co-permittees shall also be required to provide a proposal for 1) evaluating the effectiveness of control actions implemented, and 2) evaluating compliance with the nutrient load allocation. The analyses shall be submitted by July 1, 1999, and shall be implemented upon approval of the Executive Officer.

#### 6. Phosphorus

The primary reduction of phosphorus loading is expected to be achieved by the implementation of the total maximum daily load for sediment in the Newport Bay/San Diego Creek watershed. The sediment TMDL is incorporated into the nutrient TMDL for the Newport Bay/San Diego Creek watershed by reference (Note - the sediment TMDL will be appropriately referenced once it is approved by OAL). Limits on phosphorus discharges shall be incorporated into the new and revised Waste Discharge Requirements previously listed, as necessary.

## **2.c. Phase II of the Nutrient TMDL**

### **1. Monitoring**

The Regional Board will establish and oversee a regional monitoring program (RMP) for the Newport Bay watershed. The new and revised WDRs, NPDES permits, DAMP, and agricultural nutrient management plans shall include requirements to conduct self-monitoring, or in lieu of self-monitoring, to participate in the RMP. Participation in the RMP could result in the reduction of self-monitoring requirements.

The RMP shall be designed by the Regional Board to assess the attainment of the goals of the nutrient TMDL. The objectives of the monitoring program shall be the quantification of the three endpoints of the nutrient TMDL: (1) the seasonal nutrient loading from the watershed; (2) the nutrient concentration in San Diego Creek, Reaches 1 and 2; and (3) the extent, magnitude, and duration of algal blooms in San Diego Creek and Newport Bay. The monitoring plan shall be implemented by March 1999.

The Regional Board will initiate investigations into the currently unknown sources of nutrients in the Newport Bay Watershed. The Regional Board, in cooperation with other agencies and entities, will investigate the occurrence of rising shallow groundwater in the Newport Bay Watershed. The study will focus on the contributions of rising groundwater to the loading of nutrients to drainage channels which are tributary to Newport Bay. Additionally, the study of the nutrient and algae processes of Newport Bay and San Diego Creek will be encouraged and supported by the Regional Board. Regional Board support could include financial resources, personnel, agency coordination, and scientific review.

### **2. Actions and Schedule to Achieve Water Quality Objectives**

The actions and schedule to achieve water quality objectives is outlined in Table 5-9e. Meeting load reduction targets is highly dependent upon the effectiveness of individual actions, therefore, the Regional Board will review the TMDL, WDRs and compliance schedule at least once every 3 years. Any or all of these may be revised in order to meet water quality standards.

## **2.d. Estimated Costs of Agricultural Water Quality Control Programs and Potential Sources of Financing**

The estimates of capital and operational costs to achieve the nutrient targets of the nutrient TMDL for the San Diego Creek/Newport Bay watershed range from \$0.69 million/year to \$4.73 million/year.

Table 5-9e Schedule of Actions to Achieve Water Quality Objectives.

Program Actions	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Review and revision of water quality objectives			X													
New nursery permits		X														
Revise existing permits	X															
Nurseries	X															
NPDES permit	X															
Groundwater cleanup/dewatering		X														
Agricultural nutrient management plans		X														
Urban runoff BMP plan		X														
Sediment TMDL implementation	X	→														
Monitoring		X	→													
Newport Bay Watershed total nitrogen - summer TMDL targets					X						X					
Newport Bay Watershed total nitrogen - winter TMDL target															X	
Newport Bay Watershed total phosphorus - annual TMDL targets					X						X					
San Diego Creek, Reach 2 total nitrogen - daily target															X	
Evaluation of TMDL			X			X			X		X			X		X



Potential funding sources include:

1. Private financing by individual sources.
2. Bonded indebtedness or loans from governmental institutions.
3. Surcharge on water deliveries to lands contributing to the drainage problem.
4. Ad Valorem tax on lands contributing to the drainage problem.
5. State or federal grants or low-interest loan programs.
6. Single-purpose appropriations from federal or State legislative bodies (including land retirement programs).

Attachment to Resolution No. 98-9, as amended by Resolution No. 98-100

Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Incorporate a Nutrient TMDL for the Newport Bay/San Diego Creek Watershed

CHAPTER 5 - IMPLEMENTATION PLAN, Page 5-39

2. Eutrophication (Page 5-41)

Nutrient loading to the Bay, particularly from the San Diego Creek watershed, contributes to seasonal algal blooms which create a recreational and aesthetic nuisance. These algal blooms may also adversely affect wildlife.

~~These algal blooms may also adversely affect wildlife.~~

The TMDL distributes the portions of the waterbody's assimilative capacity to various pollution sources so that the waterbody achieves its water quality standards. The Regional Board supports the trading of pollutant allocations among sources where appropriate. Trading can take place between point/point, point/nonpoint, and nonpoint/nonpoint pollutant sources. Optimizing alternative point and nonpoint control strategies through allocation tradeoffs may be a cost effective way to achieve pollution reduction benefits.

While there are a number of sources of nutrient input, tailwaters from the irrigation of agricultural crops and from several commercial nurseries in the watershed have been the predominant source. The Regional Board issued Waste Discharge Requirements to the three nurseries, requiring substantial reductions in their nutrient loads. Significant improvements have been achieved by these nurseries, largely due to the implementation of drip irrigation systems (which greatly reduce the amount of tailwater) and/or recycle systems. Installation of drip irrigation systems for other agricultural crops has also significantly reduced the volume of nutrient-laden tailwaters. These improvements, coupled with the increased tidal flushing caused by the in-bay basins, appears to have resulted in a substantial downward trend in nitrate concentrations in the Bay. **However, algal blooms are still occurring in Newport Bay and San Diego Creek. As a result, Newport Bay and San Diego Creek are listed as water quality impaired due to nutrients pursuant to Section 303(d) of the Clean Water Act. A nutrient TMDL to address this problem for Newport Bay and San Diego Creek is described in the following sections.**

The hydrodynamic, sediment transport, and water quality models of Newport Bay being jointly developed by the U.S. Army Corps of Engineers and the Regional Board will be used in the future to further refine the algae and nutrient relationships in the Bay. These refinements will be considered in future reviews and revisions of the nutrient TMDL.

~~Further progress to address the nutrient problem is expected as a requirement of Orange County's stormwater permit are implemented. It is recognized, however, that the eutrophication problem in the Bay has been developing over many years and that correcting this problem is also likely to be a long-term process.~~**2.a. Quantifiable Nutrient Targets**

The annual loading of total nitrogen and phosphorus to Newport Bay shall be reduced by 50% by 2012. The seasonal and annual loading targets are listed in Table 5-9a.

**Table 5-9a Summary of Loading Targets and Compliance Time Schedules.**

TMDL	December 31, 2002 <sup>5</sup>	December 31, 2007 <sup>5</sup>	December 31, 2012 <sup>5</sup>
Newport Bay Watershed Total Nitrogen - Summer Load <sup>1</sup>	200,097 lbs.	153,861 lbs.	
Newport Bay Watershed Total Nitrogen - Winter Load <sup>2</sup>			144,364 lbs.
Newport Bay Watershed Total Phosphorus - Annual Load <sup>3</sup>	86,912 lbs.	62,080 lbs.	
San Diego Creek, Reach 2 Total Nitrogen - Daily Load <sup>4</sup>			14 lbs.

- <sup>1</sup> Total nitrogen summer loading limit applies between April 1 and September 30.
- <sup>2</sup> Total nitrogen winter loading limit applies between October 1 and March 31 when the mean daily flow rate at San Diego Creek at Campus Drive is below 50 cubic feet per second (cfs), and when the mean daily flow rate in San Diego Creek at Campus Drive is above 50 cubic feet per second (cfs), but not as the result of precipitation.
- <sup>3</sup> Total phosphorus annual loading is the sum of summer and winter loading during all daily flow rates.
- <sup>4</sup> Total nitrogen daily loading limit applies when the mean daily flow rate at San Diego Creek at Culver Drive is below 25 cubic feet per second (cfs), and when the mean daily flow rate in San Diego Creek at Culver Drive is above 25 cubic feet per second (cfs), but not as the result of precipitation.
- <sup>5</sup> Compliance to be achieved no later than this date. The Regional Board may require earlier compliance with these targets when it is feasible and reasonable.

The margin of safety of the nutrient TMDL is implicit through the use of conservative assumptions. These conservative assumptions include controlling all forms of nitrogen and phosphorus and controlling seasonal and annual loading.

**Load Allocations**

The 5, 10, and 15 year seasonal load allocations of total nitrogen for the Newport Bay Watershed are presented in Table 5-9b. The 5 and 10 year annual total

**Table 5-9b Seasonal Load Allocations of Total Nitrogen for the Newport Bay Watershed.**

Nutrient TMDL	1990-1997 Loading	2002 Allocation <sup>8</sup>	2002 Summer Allocation (April-Sept) <sup>8</sup>	2007 Allocation <sup>8</sup>	2007 Summer Allocation (April-Sept) <sup>8</sup>	2012 Allocation <sup>8</sup>	2012 Winter Allocation (Oct-Mar) <sup>7, 8, 11</sup>
Newport Bay Watershed	lbs/year TN <sup>2</sup>	lbs/day TN <sup>10</sup>	lbs/season TN	lbs/day TN <sup>10</sup>	lbs/season TN	lbs/day TN <sup>10</sup>	lbs/season TN
<b>Wasteload Allocation</b>							
Hines Nurseries	96,360 TIN <sup>1</sup>	224	40,992	211	38,613	211	14,227
Bordiers Nursery	30,660 TIN	71	12,993	67	12,261	67	4,518
El Modeno Gardens	18,250 TIN	43	7,869	40	7,320	40	2,697
Unpermitted nurseries	----- <sup>3</sup>	30	5,490	24	4,392	24	1,618
Nursery subtotal			67,344		62,586		23,060
<b>IRWD WWSP (permanent discharge)<sup>9</sup></b>							
Silverado Constructors ETC <sup>4</sup>	0	141	25,671	141	25,671	141	9,459
Urban runoff	277,131 <sup>5</sup>		20,785		16,628		55,442
Wasteload Allocation			113,800		104,885		92,142
<b>Load Allocation</b>							
Agricultural discharges	328,040 <sup>6</sup>		22,963		11,481		38,283
Undefined sources (Open space, atmospheric deposition, rising groundwater, groundwater cleanup/dewatering, in-bay nitrogen)	----- <sup>3</sup>		63,334		37,495		13,939
Load Allocation			86,297		48,976		52,222
<b>Total</b>	<b>1,087,000<sup>5</sup></b>		<b>200,097</b>		<b>153,861</b>		<b>144,364</b>
			5 year target		10 year target		15 year target

<sup>1</sup> TIN = (NO3+NH3).

<sup>2</sup> TN = (TIN + Organic N).

<sup>3</sup> Unknown.

<sup>4</sup> Wasteload allocation of a 50% reduction in nitrogen concentration upon commencement of discharge

<sup>5</sup> 1990-1997 annual average (summer loading and winter loading).

<sup>6</sup> Estimated annual average (summer and winter loading).

<sup>7</sup> Total nitrogen winter loading limit applies between October 1 and March 31 when the mean daily flow rate at San Diego Creek at Campus Drive is below 50 cubic feet per second (cfs), and when the mean daily flow rate in San Diego Creek at Campus Drive is above 50 cubic feet per second (cfs), but not as the result of precipitation.

<sup>8</sup> Compliance to be achieved no later than this date. The Regional Board may require earlier compliance with these targets when it is feasible and reasonable.

<sup>9</sup> Daily load limit applies upon commencement of discharge.

<sup>10</sup> Lbs/day TN (monthly average).

<sup>11</sup> Assumes 67 non-storm days.

phosphorus load allocations for the Newport Bay Watershed are presented in Table 5-9c. The 15 year daily total nitrogen load allocations for San Diego Creek, Reach 2 are presented in Table 5-9d. The nutrient load reduction targets will be incorporated into waste discharge requirements as effluent limits, load allocations, and wasteload allocations as necessary to ensure that:

- a. the total inorganic nitrogen and narrative water quality objectives for Newport Bay and San Diego Creek are achieved
- b. Clean Water Act requirements for the implementation of a TMDL are satisfied

**Table 5-9c Annual Total Phosphorous Load Allocations For The Newport Bay Watershed.**

	2002 Allocation lbs/year TP <sup>1</sup>	2007 Allocation lbs/year TP <sup>1</sup>
<b>TMDL</b>	<b>86,912</b>	<b>62,080</b>
<b>Urban areas</b>	<b>4,102</b>	<b>2,960</b>
<b>Construction sites</b>	<b>17,974</b>	<b>12,810</b>
<b>Waste Load Allocation</b>	<b>22,076</b>	<b>15,770</b>
<b>Agricultural areas</b>	<b>26,196</b>	<b>18,720</b>
<b>Open space</b>	<b>38,640</b>	<b>27,590</b>
<b>Load Allocation</b>	<b>64,836</b>	<b>46,310</b>

<sup>1</sup> Compliance to be achieved no later than this date. The Regional Board may require earlier compliance with these targets when it is feasible and reasonable.

**Table 5-9d Annual Total Nitrogen Load Allocations For San Diego Creek, Reach 2 During Non-Storm Conditions.<sup>1</sup>**

	2012 Allocation lbs/day TN <sup>2</sup>
<b>TMDL</b>	<b>14 lbs/day (TN)</b>
<b>Waste Load Allocation (Urban runoff)</b>	<b>5.5 lbs/day (TN)</b>
<b>Load Allocation (Nurseries, agriculture, undefined sources)</b>	<b>8.5 lbs/day (TN)</b>

<sup>1</sup> Total nitrogen loading limit applies when the mean daily flow rate at San Diego Creek at Culver Drive is below 25 cubic feet per second (cfs), and when the mean daily flow rate in San Diego Creek at Culver Drive is above 25 cubic feet per second (cfs), but not as the result of precipitation.

<sup>2</sup> Compliance to be achieved no later than this date. The Regional Board may require earlier compliance with these targets when it is feasible and reasonable.

## **2.b. Phase I of the Nutrient TMDL**

### **1. Review and Revision of Water Quality Objectives**

By December 31, 2000, the Regional Board shall review, and revise as necessary, the numeric water quality objectives for total inorganic nitrogen for San Diego Creek, Reaches 1 and 2. The Regional Board shall also examine the appropriateness of establishing numeric water quality objectives for phosphorus for San Diego Creek, Reaches 1 and 2.

### **2. Establish New Waste Discharge Requirements**

By December 31, 1999, the Regional Board shall issue new Waste Discharge Requirements (WDRs) to nursery operations of 5 acres or greater which currently are not regulated by WDRs (as of the effective date of this amendment) but discharge nutrients in excess of 1 mg/L TIN to storm channels which are tributary to Newport Bay. The new WDRs shall incorporate the appropriate wasteload, load, and margin of safety allocations identified in the nutrient load targets for the Newport Bay Watershed. Appropriate monitoring programs to evaluate compliance with load targets and allocations shall be required and incorporated into the WDRs

### **3. Revision of Existing Waste Discharge Requirements**

a. By December 31, 1998, the Regional Board shall revise existing WDRs for nursery operations which currently (as of the effective date of this amendment) discharge nutrients in excess of 1 mg/L TIN to drainages which are tributary to Newport Bay. The revised WDRs shall incorporate the appropriate wasteload, load, and margin of safety allocations identified in the nutrient load reduction targets for the Newport Bay Watershed. Appropriate monitoring programs to evaluate compliance with load targets and allocations shall be required and incorporated into the WDRs.

b. By December 31, 1998, the Regional Board shall revise existing NPDES permits for discharges which currently (as of the effective date of this amendment) discharge nutrients in excess of 1 mg/L TIN to drainages which are tributary to Newport Bay. The revised NPDES permits shall incorporate the appropriate wasteload, load, and margin of safety allocations identified in the nutrient load reduction targets for the Newport Bay Watershed. Appropriate monitoring programs to evaluate compliance with load targets and allocations shall be required and incorporated into the NPDES permits.

c. By March 31, 1999, the Regional Board shall revise the Monitoring and Reporting Programs of existing NPDES permits and WDRs for groundwater dewatering and cleanup operations which discharge to drainages which are tributary to Newport Bay to include requirements for phosphorus and total nitrogen sampling and analysis. This monitoring will generate the data necessary to develop appropriate wasteload allocations for these discharges.

#### 4. Agricultural Activities

A watershed-wide nutrient management program for agricultural activities shall be developed by the Orange County Farm Bureau, University of California Cooperative Extension, and the affected growers, in conjunction with Regional Board staff. The proposed management program shall be submitted by July 1, 1999. The nutrient management program will not become effective until approved by the Regional Water Quality Control Board at a duly noticed public meeting as specified in Chapter 1.5, Division 3, Title 23 of the California Code of Regulations (Section 647 et seq.).

#### 5. Urban Stormwater

Co-permittees of the Orange County Areawide Urban Stormwater Permit (Order No. 96-31) shall be required to submit for approval by the Regional Board's Executive Officer an analysis of appropriate Best Management Practices which will be additionally implemented through the Drainage Area Management Plan (DAMP) to achieve the short term (5-year) interim targets and final nutrient load reduction targets for the Newport Bay Watershed. The co-permittees shall also be required to provide a proposal for 1) evaluating the effectiveness of control actions implemented and 2) evaluating compliance with the nutrient load allocation. The proposal and analysis shall be submitted by July 1, 1999, and shall be implemented upon approval of the Executive Officer as specified by Section IV.1.a.ii.A of Order No. 96-31.

#### 6. Phosphorus

The primary reduction of phosphorus loading is expected to be achieved by the implementation of the total maximum daily load for sediment in the Newport Bay/San Diego Creek watershed. The sediment TMDL is incorporated into the nutrient TMDL for the Newport Bay/San Diego Creek watershed by reference (Note - the sediment TMDL will be appropriately referenced once it is approved by OAL). Limits on phosphorus discharges shall be incorporated into the new and revised Waste Discharge Requirements previously listed, as necessary.

## 2.c. Phase II of the Nutrient TMDL

### 1. Monitoring

The Regional Board will establish and oversee a regional monitoring program (RMP) for the Newport Bay watershed. The new and revised WDRs, NPDES permits, DAMP, and agricultural nutrient management plans shall have include requirements to conduct self-monitoring, or in lieu of self-monitoring, to participate in the RMP. Participation in the RMP could result in the reduction of self-monitoring requirements. The RMP will not become effective until approved by the Regional Water Quality Control Board at a duly noticed public meeting as specified in Chapter 1.5, Division 3, Title 23 of the California Code of Regulations (Section 647 et seq.).

The RMP shall be designed by the Regional Board to assess the attainment of the goals of the nutrient TMDL. The objectives of the monitoring program shall be the quantification of the three endpoints of the nutrient TMDL: (1) the seasonal nutrient loading from the watershed; (2) the nutrient concentration in San Diego Creek, Reaches 1 and 2; and (3) the extent, magnitude, and duration of algal blooms in San Diego Creek and Newport Bay. The monitoring plan shall be implemented by March 1999.

The Regional Board will initiate investigations into the currently unknown sources of nutrients in the Newport Bay Watershed. The Regional Board, in cooperation with other agencies and entities, will investigate the occurrence of rising shallow groundwater in the Newport Bay Watershed. The study will focus on the contributions of rising groundwater to the loading of nutrients to drainage channels which are tributary to Newport Bay. Additionally, the study of the nutrient and algae processes of Newport Bay and San Diego Creek will be encouraged and supported by the Regional Board. Regional Board support could include financial resources, personnel, agency coordination, and scientific review.

### 2. Actions and Schedule to Achieve Water Quality Objectives

The actions and schedule to achieve water quality objectives is outlined in Table 5-9e. Meeting load reduction targets is highly dependent upon the effectiveness of individual actions, therefore, the Regional Board will review the TMDL, WDRs and compliance schedule at least once every 3 years. Any or all of these may be revised in order to meet water quality standards.



Table 5-9e Schedule of Actions to Achieve Water Quality Objectives.

Program Actions	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Review and revision of water quality objectives			X													
New nursery permits		X														
Revise existing permits	X															
Nurseries	X															
NPDES permit	X															
Groundwater cleanup/dewatering		X														
Agricultural nutrient management plans		X														
Urban runoff BMP plan		X														
Sediment TMDL implementation	X	_____														
Monitoring		X	_____													
Newport Bay Watershed total nitrogen - summer TMDL targets					X					X						
Newport Bay Watershed total nitrogen - winter TMDL target															X	
Newport Bay Watershed total phosphorus - annual TMDL targets					X					X						
San Diego Creek, Reach 2 total nitrogen - daily target															X	
Evaluation of TMDL			X			X			X		X			X		X

## **2.d. Estimated Costs of Agricultural Water Quality Control Programs and Potential Sources of Financing**

The estimates of capital and operational costs to achieve the nutrient targets of the nutrient TMDL for the San Diego Creek/Newport Bay watershed range from \$0.69 million/year to \$4.73 million/year.

Potential funding sources include:

- 1. Private financing by individual sources.**
- 2. Bonded indebtedness or loans from governmental institutions.**
- 3. Surcharge on water deliveries to lands contributing to the drainage problem.**
- 4. Ad Valorem tax on lands contributing to the drainage problem.**
- 5. State or federal grants or low-interest loan programs.**
- 6. Single-purpose appropriations from federal or State legislative bodies (including land retirement programs).**