Attachment A to Resolution No. R4-2005-XXXX

Proposed Amendment to the Water Quality Control Plan – Los Angeles Region

to Incorporate a

Total Maximum Daily Load for
Organochlorine (OC) Pesticides,
Polychlorinated Biphenyls (PCBs) and Siltation in
Calleguas Creek, Its Tributaries, and Mugu Lagoon

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Proposed for adoption by the California Regional Water Quality Control Board, Los Angeles Region on [Insert Date].

Amendments

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Chapter 7. Total Maximum Daily Loads (TMDLs)
Calleguas Creek Watershed OC Pesticides and PCBs TMDL

This TMDL was adopted by:

The Regional Water Quality Control Board on [Insert date].

This TMDL was approved by:

The State Water Resources Control Board on [Insert date].
The Office of Administrative Law on [Insert date].
The U.S. Environmental Protection Agency on [Insert date].

Table 7-17.1. Calleguas Creek Watershed OC Pesticides, PCBs, and Siltation TMDL: Elements

TMDL Element	Calleguas Creek Watershed OC Pesticide, PCBs, and Siltation TMDL
Problem Statement	Eleven of fourteen reaches in the Calleguas Creek Watershed (CCW) were identified on the 2002 303(d) list of water-quality limited segments as impaired due to elevated levels of organochlorine (OC) pesticides and/or polychlorinated biphenyls (PCBs) in water, sediment, and/or fish tissue. Additionally, Mugu Lagoon was listed as impaired for sedimentation/siltation. OC pesticides and PCBs can bioaccumulate in fish tissue and cause toxicity to aquatic life in estuarine and inland waters. Siltation may transport OC Pesticides and PCBs to surface waters and impair aquatic life and wildlife habitats.
Numeric Targets	The following tables provide the numeric targets for water, fish tissue, and sediment for this TMDL. Water column targets were derived from the California Toxics Rule (CTR) water quality criteria for protection of aquatic life. Chronic criteria (Criteria Continuous Concentration, or CCC) were applied unless otherwise noted in the table below:

	Water Quality Targets (µg/L)	
Constituent	Freshwater	Marine
Aldrin	3.0[1]	1.3[1]
Chlordane	0.0043	0.0040
Dacthal	3500[2]	NA[2]
4,4'-DDD	NA	NA
4,4'-DDE	NA	NA
4,4'-DDT	0.001	0.001
Dieldrin	0.056	0.0019
Endosulfan I	0.056	0.0087
Endosulfan II	0.056	0.0087
Endrin	0.036	0.0023
HCH (alpha-BHC)	NA	NA
HCH (beta-BHC)	NA	NA
HCH (delta-BHC)	NA	NA
HCH (gamma BHC)	0.95[1]	0.16[1]
Heptachlor	0.0038	0.0036
Heptachlor Epoxide	0.0038	0.0036
PCBs	0.014[3]	0.030[3]
Toxaphene	0.00020	0.00020

[1] No chronic criteria exist; acute criteria are used.
[2] No chronic or acute criteria exist, drinking water standard of 3500 ug/L adopted by Florida and Arizona is applied for freshwater.
[3] PCBs in water are measured as sum of seven Aroclors.
NA No applicable standards exist.

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Fish tissue targets are derived from CTR human health criteria for consumption of organisms. The calculational methodology is described in the TMDL Technical Report.

Constituent	Fish Tissue Targets (µg/Kg)
Aldrin	0.050
Chlordane	8.3
Dacthal	NA
4,4'-DDD	45
4,4'-DDE	32
4,4'-DDT	32
Dieldrin	0.65
Endosulfan I	65,000
Endosulfan II	65,000
Endrin	3,200
HCH (alpha-BHC)	1.7
HCH (beta-BHC)	6.0
HCH (delta-BHC)	NA
HCH (gamma BHC)	8.2
Heptachlor	2.4
Heptachlor Epoxide	1.2
PCBs	5.3 [1]
Toxaphene	9.8

[1] Applies to sum of all congener or isomer or homolog or Aroclor analyses.
NA No applicable standards exist.

Sediment targets were derived from sediment quality guidelines contained in National Oceanographic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQRT, Buchman, 1999). SQRTs were developed for internal NOAA use only. Regional Board staff find they represent the best science available for sediment targets to protect beneficial uses. The State Water Resources Control Board may adopt sediment quality objectives (SQOs) during the Implementation Plan of this TMDL, at which time the Regional Board may revise the TMDL to include those standards.

Constituent	Sediment Targets (ug/dry kg) [1] Freshwater, TEL	Marine, ERL
Aldrin	NA	NA
Chlordane	4.5	0.5

[4] NOAA Screening Quick Reference Tables

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	Dacthal NA NA 4,4'-DDD 3.5 2.0 4,4'-DDE 1.4 2.2 4,4'-DDT NA 1.0 Dieldrin 2.9 0.02 Endosulfan I NA NA Endosulfan II NA NA Endrin 2.7 NA HCH (alpha-BHC) NA NA HCH (beta-BHC) NA NA HCH (delta-BHC) NA NA HCH (gamma BHC) 0.94 NA Heptachlor NA NA Heptachlor Epoxide 0.6 NA PCBs 34 23 Toxaphene NA NA [1] TEL = Threshold Effects Level; ERL = Effects Range-Low. [NA] No applicable standards exist. This TMDL also includes two numeric targets for siltation reduction and maintenance of existing habitat in Mugu Lagoon. The first is an annual average reduction in the import of silt of 3000 tons/year, which will be measured at the US Naval Base total suspended sediment gauge at the entrance to Mugu Lagoon. The second is the preservation of the existing 1400 acres of habitat in Mugu Lagoon.
Source Analysis	Monitoring data from major NPDES discharges and land use runoff were analyzed to estimate the magnitude of OC pesticides and PCBs loads to Calleguas Creek, its tributaries and Mugu Lagoon. The largest source of OC pesticides in the listed waters is agricultural runoff. Most PCB residues are due to past use of PCBs as coolants and lubricants in transformers, capacitors, and other electrical equipment. Atmospheric deposition is also a potential source of PCBs. Urban runoff and POTWs are minor sources of OC pesticides and PCBs. Data analysis suggests that groundwater, atmospheric deposition, and imported water are not significant sources of OC pesticides, PCBs, or sediment. Further evaluation of these sources is set forth in the Implementation Plan.
Linkage Analysis	The linkage analysis is based on a conceptual model for the fate, transformation, and uptake of OC pesticides and PCBs and a mass-balance model that connects the sources of OC pesticides and PCBs to their fate and transport in Calleguas Creek, its tributaries, segments and Mugu Lagoon. The linkage analysis indicates: 1) OC pesticides and PCBs concentrations in tissue are proportional to OC

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	pesticides and PCBs concentrations in sediments; 2) OC pesticides and PCBs concentrations in water are a function of OC concentrations in sediment; and 3) OC pesticides and PCBs concentrations in sediment are a function of OC pesticides and PCBs loading and sediment transport. Because sediments store, convey and serve as a source of OC pesticides and PCBs, a reduction of OC pesticides and PCBs in sediment will result in a reduction of OC pesticides and PCBs in the water column and fish tissue. In this linkage analysis, DDE is used as a representative constituent, because DDE is consistently detected in monitoring and exceeds numeric targets in water, sediment, and tissue samples. Also, other OC Pesticides and PCBs possess similar physical and chemical properties to DDE.
Wasteload Allocations	Wasteload allocations are assigned to the Hill Canyon Wastewater Treatment Facility, Camarillo Wastewater Treatment Plant, Camrosa Wastewater Reclamation Facility, Simi Valley Water Quality Control Plant, Ventura County Wastewater Treatment Plant, NPDES stormwater permittees (including MS4, Caltrans, industrial stormwater, and construction stormwater permittees), and other NPDES permittees. For the POTWs and NPDES permittees other than stormwater permittees, daily and monthly concentration based allocations for water are developed based on requirements to meet acute and chronic in-stream targets in accordance with guidance provided in the State Implementation Plan (SIP). The Regional Board may revise final WLAs and LAs based on special studies included in the Implementation Plan. Interim wasteload allocations for water are developed based on POTW performance data as reported by the POTW NPDES monitoring programs. There is an insufficient number of detected values in the POTW NPDES data sets for statistical analysis and calculation of percentiles. Consequently, daily and monthly interim allocations are based on the maximum detected concentration of NPDES effluent data for each POTW and constituent. If there are no detected data, the interim allocation is based on the Minimum Level defined in the State Implementation Plan. For NPDES permittees, other than POTWs and stormwater permittees, waste loads are allocated as presented below. For MS4 and other stormwater permittees, concentration based allocations for sediment are developed based on CTR aquatic life criteria and fish tissue concentrations which are also based on the CTR.

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Compliance with sediment based WLAs is measured as an in-stream annual average at the base of each subwatershed where the discharges are located.

Interim waste load allocations for stormwater permittees are developed on the 95th percentile of sediment-based concentrations collected from surface waters in the Calleguas Creek watershed. When the data set for a constituent is not adequate for statistical analysis, the maximum value detected in each subwatershed is used. If there are no detected data, the interim allocation is based on the interim allocation for the downstream subwatershed. For stormwater permittees, sediment based interim wasteload allocations are allocated in accordance with the subwatersheds where the discharges are located and are applied as annual averages.

1. Interim and Final WLAs for POTWs

a) Interim Effluent WLAs (ng/L)

Constituent	POTW				
	Hill Canyon	Simi Valley	Moorpark	Camarillo	Camrosa
Chlordane	2400 [1]	100	100	100	100
4,4-DDD	20 [1]	50	50	6	50
4,4- DDE	260 [1]	5 [1]	1 [1]	188 [1]	50
4,4-DDT	10	10	10	10	10
Dieldrin	10	10	10	10	10
PCBs	500	500	500	31 [1]	500
Toxaphene	500	500	500	500	500

[1]Interim wasteload allocations are based on the maximum detected value.

b) Final EffluentWLAs (ng/L)

Constituent	POTW									
	Hill Canyon		Simi Valley		Moorpark		Camarillo		Camrosa	
	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly
Chlordane	1.2	0.59	1.2	0.59	1.2	0.59	1.2	0.59	1.2	0.59
4,4-DDD	1.7	0.84	1.7	0.84	1.7	0.84	1.7	0.84	1.7	0.84
4,4- DDE	1.2	0.59	1.2	0.59	1.2	0.59	1.2	0.59	1.2	0.59
4,4-DDT	1.2	0.59	1.2	0.59	1.2	0.59	1.2	0.59	1.2	0.59
Dieldrin	0.28	0.14	0.28	0.14	0.28	0.14	0.28	0.14	0.28	0.14
PCBs	0.34	0.17	0.34	0.17	0.34	0.17	0.34	0.17	0.34	0.17
Toxaphene	0.33	0.16	0.33	0.16	0.33	0.16	0.33	0.16	0.33	0.16

The final WLAs will be included in NPDES permits. The Regional

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Board may revise final WLAs prior to the dates they are placed into permits and/or prior to the dates of final WLA achievement based on special studies and monitoring of this TMDL.

2. Interim and Final WLAs for Stormwater Permittees

WLAs for stormwater permittees are provided in the Tables below. The Mugu Lagoon subwatershed includes Duck Pond/Agricultural Drain/Mugu/Oxnard Drain #2 .

a) Interim Sediment WLAs (ng/g)

Constituent	Subwatershed					
	Mugu Lagoon	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek
Chlordane	25	17	48	3.3	3.3	3.4
4,4-DDD	69	66	400	290	140	5.3
4,4- DDE	300	470	1600	950	170	20
4,4-DDT	39	110	690	670	25	2
Dieldrin	19	3	5.7	1.1	1.1	3
PCBs	180	3800	7600	25700	25700	3800
Toxaphene	22900	260	790	230	230	260

b) Final Sediment WLAs (ng/g) [1]

Constituent	Subwatershed					
	Mugu Lagoon	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek
Chlordane	3.3	3.3	0.9	3.3	3.3	3.3
4,4-DDD	1.2 [2]	1.2 [2]	1.2 [2]	1.2 [2]	1.2 [2]	1.2 [2]
4,4- DDE	2.1 [2]	1.4 [2]	1.4 [2]	1.4 [2]	1.4 [2]	1.4 [2]
4,4-DDT	0.3	0.3	0.3	0.3	0.3	0.3
Dieldrin	4.3	0.2	0.1	0.2	0.2	0.2
PCBs	180	120	130	120	120	120
Toxaphene	360	0.6	1	0.6	0.6	0.6

[1] Final allocations set according to percent reduction required for achievement of fish tissue and water column targets, unless otherwise noted
[2] Final allocation set equal to the sediment guideline value (TEL or ERL)

3. Wasteload Allocations for minor point sources

Waste loads for the water column are allocated to minor point sources enrolled under NPDES permits or WDRs, which discharge to Calleguas Creek. The latter includes, but is not limited to, the following: individual NPDES permittees and dischargers enrolled under General Permits.

a) Final Monthly Average Water Column WLAs (ng/L)

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	Constituent Daily Monthly Chlordane 1.2 0.59 4,4-DDD 1.7 0.84 4,4- DDE 1.2 0.59 4,4-DDT 1.2 0.59 Dieldrin 0.28 0.14 PCBs 0.34 0.17 Toxaphene 0.33 0.16
Load Allocations	For agricultural and other nonpoint sources, sediment concentration load allocations are based on CTR aquatic life criteria and fish tissue concentrations which are also based on the CTR. Compliance with sediment based LAs is measured as an in-stream annual average at the base of each subwatershed where the discharges are located. Interim load allocations are developed on the 95th percentile of sediment-based concentrations collected from surface waters in the Calleguas Creek watershed. When the data set for a constituent is not adequate for statistical analysis, the maximum value detected in each subwatershed is used. If there are no detected data, the interim allocation is based on the interim allocation for the downstream subwatershed. For nonpoint sources, sediment based interim load allocations are allocated as noted in the table below and are applied as annual averages. **1. Interim and Final Load Allocations** WLAs for nonpoint discharges are provided in the Tables below. The Mugu Lagoon subwatershed includes Duck Pond/Agricultural Drain/Mugu/Oxnard Drain #2. **a) Interim Sediment LAs (ng/g)** Constituent Subwatershed Mugu Lagoon / Calleguas Creek / Revolon Slough / Arroyo Las Posas / Arroyo Simi / Conejo Creek Chlordane 25 / 17 / 48 / 3.3 / 3.3 / 3.4 4,4-DDD 69 / 66 / 400 / 290 / 140 / 5.3 4,4- DDE 300 / 470 / 1600 / 950 / 170 / 20 4,4-DDT 39 / 110 / 690 / 670 / 25 / 2 Dieldrin 19 / 3 / 5.7 / 1.1 / 1.1 / 3 PCBs 180 / 3800 / 7600 / 25700 / 25700 / 3800 Toxaphene 22900 / 260 / 790 / 230 / 230 / 260 **b) Final Sediment LAs (ng/g) [1]** Constituent Subwatershed

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	Mugu Lagoon	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek
Chlordane	3.3	3.3	0.9	3.3	3.3	3.3
4,4-DDD	1.2 [2]	1.2 [2]	1.2 [2]	1.2 [2]	1.2 [2]	1.2 [2]
4,4- DDE	2.1 [2]	1.4 [2]	1.4 [2]	1.4 [2]	1.4 [2]	1.4 [2]
4,4-DDT	0.3	0.3	0.3	0.3	0.3	0.3
Dieldrin	4.3	0.2	0.1	0.2	0.2	0.2
PCBs	180	120	130	120	120	120
Toxaphene	360	0.6	1	0.6	0.6	0.6

[1] Final allocations set according to percent reduction required for achievement of fish tissue and water column targets, unless otherwise noted
[2] Final allocation set equal to the sediment guideline value (TEL or ERL)

2. Siltation LAs

Agricultural dischargers will receive an allocation of 3,000 tons/yr reduction in sediment yield to Mugu Lagoon. The baseline from which the load reduction will be evaluated will be determined by a special study of this TMDL. The load allocation will apply after the baseline is established, as described in the Implementation Plan.

Margin of Safety	This TMDL relies on an implicit margin of safety, by incorporating conservative assumptions throughout its development, including: ▪ Basing percent reductions on the historical data set of water and fish tissue concentrations, which do not include the effects of attenuation the over the past ten years, determining the percent reduction in sediment, by basing it on the greater percent reduction of either water or fish tissue concentrations. ▪ Reducing the allowable concentration for upstream subwatersheds, to ensure protection of those subwatersheds downstream from upstream inputs. ▪ Choosing Threshold Effects Levels (TELs) and Effects Range Lows (ERLs) as numeric targets for sediment, which are the most protective applicable sediment guidelines. ▪ Selecting the more stringent of the allowable concentration (as calculated by percent reduction methodology) or the numeric target for sediment (TEL or ERL), when available, as the WLA and LA for all reaches with 303(d) listings for sediment.
Future Growth	Ventura County accounts for slightly more than 2% of the state's residents with a population of 753,197 (US Census Bureau, 2000). GIS analysis of the 2000 census data yields a population estimate of 334,000 for the CCW, which equals about 44% of the county population. According to the Southern California Association of Governments (SCAG), growth in Ventura County averaged about

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	51% per decade from 1900-2000; with growth exceeding 70% in the 1920s, 1950s, and 1960s. Significant population growth is expected to occur within and near present city limits until at least 2020. Since most of the listed OCs in the CCW are banned, this growth is not expected to increase current loads. Urban application for those OC pesticides which are still legal (dacthal and endosulfan) may increase, but overall use may decrease because urban expansion tends to reduce total acreage of agricultural land. Population growth may result in greater OC loading to POTW influent. This loading may be proportional, if per capita domestic water use and pesticide load per household remain constant. Increased flow from POTWs should not result in impairment of the CCW as long as effluent concentration standards are met for each POTW. As urban development occurs, construction activities may have a range of effects upon OC loading to the CCW. Exposure of previously vegetated or deeply buried soil might lead to increased rates of degradation and volatilization. Conversely, urbanization of open space and/or agriculture areas will bury potential sources of OC bound to sediments. Future growth may result in increased OC concentrations in groundwater in the CCW. This is a potential concern for dacthal, which is still used and has been found in groundwater (although current levels of datchal are significantly lower than all available targets). The effects of future growth upon PCB loads are unknown, but not likely to prove significant, since atmospheric deposition and accidental spills were the primary loading pathways. Any increase in OCs due to population growth may be offset by decreased inputs from banned OCs, as their presence attenuates due to fate and transport processes.
Critical Conditions	The linkage analysis found correlation between concentrations of OC pesticides and PCBs in water and total suspended solids (TSS), and a potential correlation between OC pesticides and PCBs concentrations in water and seasonality (wet vs. dry season). A similar correlation between sediment loading and wet weather is also noted. OC pollutants are of potential concern in the Calleguas Creek Watershed due to possible long term loading and food chain bioaccumulation effects. There is no evidence of short term

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	potential effects. However, pollutant loads and transport within the watershed may vary under different flow and runoff conditions. Therefore the TMDLs consider seasonal variations in loads and flows but are established in a manner which accounts for the longer time horizon in which ecological effects may occur. Wet weather events, which may occur at any time of the year, produce extensive sediment redistribution and transport downstream. This would be considered the critical condition for loading. However, the effects of organochlorine compounds are manifested over long time periods in response to bioaccumulation in the food chain. Therefore, short term loading variations (within the time scale of wet and dry seasons each year) are not likely to cause significant variations in beneficial use effects.
Implementation Plan	The final WLAs will be included in NPDES permits in accordance with the compliance schedules provided in Table 7-17.2. The Regional Board may revise these WLAs based on additional information developed through Special Studies and/or Monitoring of this TMDL. WLAs established for the five major POTWs in this TMDL will be implemented through NPDES permit limits. The proposed permit limits will be applied as end-of-pipe concentration-based effluent limits for POTWs. Compliance will be determined through monitoring of final effluent discharge as defined in the NPDES permit. The implementation plan for POTWs focuses on implementation of source control activities. Consideration of annual averaging of compliance data will be evaluated at the time of permit renewal based on available information, Regional Board policies addressing objectives averaging in place at the time of permit renewal, and US EPA approval. In accordance with current practice, a group concentration-based WLA has been developed for MS4s. The grouped allocation will apply to all NPDES-regulated municipal stormwater discharges in the CCW. Stormwater WLAs will be incorporated into the NPDES permit as receiving water limits measured at the downstream points of each subwatershed and will be achieved through the implementation of BMPs as outlined in the implementation plan. Should federal, state, or regional guidance or practice for implementing WLAs into permits is revised, the Regional Board may revise the TMDL to incorporate such guidance.

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	LAs will be implemented through the State's Nonpoint Source Pollution Control Program (NPSPCP). The LARWQCB is developing a Conditional Waiver for Irrigated Lands, which includes monitoring at sites subject to approval by the Executive Officer of the Regional Board. Should adoption of the Conditional Waiver be delayed, monitoring will be required as part of this TMDL. Studies are currently being conducted to assess the effectiveness of BMPs for reduction of pollutants from agricultural operations. Results will be used to develop Agricultural Water Quality Management Plans, including the implementation of agricultural BMPs. Additionally, an agricultural education program will be developed to inform growers of the recommended BMPs and the Management Plan. As shown in Table 7-17.2, the implementation actions will be taken by agriculture dischargers located in the CCW. The implementation of agricultural BMPs will be based on a comprehensive approach to address pollutant loads discharged from agricultural operations. The Regional Board may revise these LAs based on the collection of additional information developed through special studies and/or monitoring conducted as part of this TMDL. A number of provisions in this TMDL might provide information that could result in revisions to the TMDL. Additionally, the development of sediment quality criteria and other water quality criteria revisions may require the reevaluation of this TMDL. Finally, the use of OC pesticides in other countries, compounded with the persistence of OC pesticides and PCBs in the environment indicate efforts to control sources and transport of OCs to receiving waters may not result in attainment of targets and allocations due to activities that are outside the control of local agencies and agriculture. For these reasons, the Implementation Plan includes this provision for reevaluating the TMDL to consider revised water quality objectives and the results of implementation studies, if appropriate.

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Table 7-17.2 Implementation Schedule

Item	Implementation Action [1]	Responsible Party	Tentative Date
1	Effective date of interim OC waste load allocations. [2]	POTW Permittees, MS4 Permittees	Effective date
2	Effective date of interim OC load allocations. [2]	Agricultural Dischargers	Effective date
3	Effective date of siltation load allocation	Agricultural dischargers, US Navy, MS4 permittees	9 years after effective date
4	Finalize and submit workplan for integrated Calleguas Creek Watershed OC Monitoring Program for approval by the Executive Officer. Monitoring workplan will include, but not be limited to, appropriate water, sediment, biota and conformational monitoring to verify compliance with targets and protection of beneficial uses.	POTW Permittees, MS4 Permittees and Agricultural Dischargers	6 months after effective date
5	Initiate Calleguas Creek Watershed OC Monitoring Program developed under Task 3 and approved by Executive Officer.	POTW Permittees, MS4 Permittees and Agricultural Dischargers	1 year after effective date
6	Submit a workplan to identify sources, including sources outside the control of local agencies, and reasonable control methods and to implement a collection program for OC pesticides and PCBs for approval by Executive Officer.	POTW Permittees, MS4 Permittees	1 year after effective date.
7	Implement a collection program and source control measures based on Task 5 study approved by the Executive Officer.	POTW Permittees, MS4 Permittees	Within 3 years of effective date.
8	Special Study #1 – Submit a workplan to quantify sedimentation in the CCW, and sediment transport to Mugu Lagoon; evaluate management methods to control siltation and contaminated sediment transport to CC, identify appropriate BMPs to reduce sediment loadings, and evaluate the effect of sediment on habitat preservation in Mugu Lagoon for approval by the Executive Officer. Additionally, this special study will evaluate the concentration of OC pesticides and PCBs in sediments from various sources/land use types. [3]	POTW Permittees, MS4 Permittees and Agricultural Dischargers Naval Base, Point Mugu	Within 3 years of effective date.
9	Identify and implement appropriate BMPs and other methods to reduce sediment and contaminated sediment loading to Calleguas Creek and Mugu Lagoon in accordance with Task 7.	POTW Permittees, MS4 Permittees and Agricultural Dischargers Naval Base, Point Mugu	Within 3 years of effective date
10	Special Study #2 At discharger discretion, submit a workplan for executive officer approval to evaluate numeric targets for siltation/sedimentation to support habitat related beneficial uses in Mugu Lagoon. [3]	Naval Base, Point Mugu	Within 8 years of effective date
11	Consider revision of the TMDL numeric target for siltation/sedimentation to support habitat-related beneficial uses for habitat based on Task 9.	Regional Board	Within 9 years of effective date.
12	Special study #3 – Identify Areas of High OC Concentrations Areas and Evaluate the Effects of Watershed Protection and Land Use Practices on Water Quality. Such practices include but are not limited to management of sediment reduction practices and structures, streambank stabilization, and other projects related to stormwater conveyance and flood control	Agricultural Dischargers, MS4 Permittees	Within 5 years of effective date.

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	improvements in the Calleguas Creek watershed. [3]		
13	If high concentration areas and land use practices resulting in excessive OC pesticide and PCB loads are identified, in accordance with approved Special Study #3 (Task 11), implement additional erosion control measures and removal actions in those areas.	MS4 Permittees	Within 7 years of effective date.
14	Development of an Agricultural Water Quality Management Plan in conjunction with the Conditional Waiver for Irrigated Lands, or (if the Conditional Waiver is not adopted in a timely manner) the development of an Agricultural Water Quality Management Plan as part of the Calleguas Creek WMP. Implement educational program on BMPs identified in the Agricultural Water Quality Management Plan.	Agricultural Dischargers	Within 3 years of effective date.
15	Special Study #4 – Evaluation of siltation load allocations. Convene a Science Advisory Panel, to be approved by the Executive Officer, to evaluate the effectiveness of the siltation load allocation in protecting the beneficial uses of Mugu Lagoon. Science Advisory Panel will evaluate the historic and current habitat in Mugu Lagoon, and recommend a biological and habitat condition to protect habitat related beneficial uses. Study will include, but not be limited to, evaluation of appropriate habitat baseline, effectiveness of siltation load allocations on a subwatershed basis, methods to restore habitat, and effectiveness of load allocated on a subwatershed basis, if required. [3]	MS4 Permittees, US Naval Base	Within 8 years of the effective date.
16	Regional Board consideration of Special Study #4 to revise the TMDL, allocations, and schedule for the siltation TMDL.	Regional Board	Within 10 years of the effective date
17	Special Study #5 – Evaluation of natural attenuation rates; evaluation of measures to enhance OC Pest and PCB removal from CCW and attainability of WLAs and LAs. [3]	POTWs Agricultural Dischargers MS4 Permittees, US Naval Base	12 years after effective date
18	Special Study #6 (optional) – Examination of food web and bioconcentration relationships throughout the watershed to evaluate assumptions contained in the Linkage Analysis and ensure protection of wildlife is achieved. [3]	Interested Parties	12 years after effective date
19	Based on the results of Implementation Items 1-18, if sediment guidelines are promulgated or water quality criteria are revised, and/or if fish tissue and water column targets are achieved without attainment of WLAs or LAs Regional Board will consider revisions to the TMDL targets, allocations, and schedule for expiration of Interim Wasteload and Interim Load Allocations.	Regional Board	13 years after effective date
20	Achievement of Final WLAs and LAs	Agricultural Dischargers, POTW Permittees, and MS4 Permittees	2025 [3]

TENTATIVE

[1] The Regional Board regulatory programs addressing all discharges in effect at the time this implementation task is due may contain requirements substantially similar to the requirements of these implementation tasks. If such requirements are in place in another regulatory program including other

TMDLs, the Executive Officer may revise or eliminate this implementation task to coordinate this TMDL implementation plan with other regulatory programs.

[2] Interim WLAs and Interim LAs are effective immediately upon TMDL Adoption. WLAs will be placed in POTW NPDES permits as effluent limits. WLAs will be placed in stormwater NPDES permits as in-stream limits. LAs will be implemented using applicable regulatory mechanisms.

[3] Special studies included in the Implementation Plan are based on the TMDL Technical Documents.
[4] Date of achievement of WLAs and LAs based on the estimated timeframe for educational programs, special studies, implementation of appropriate BMPs, and predicted trends of natural attenuation. The conditional waiver will set the timeframes for the BMP management plans.