

**ATTACHMENT P – TMDLS IN THE DOMINGUEZ CHANNEL AND GREATER HARBOR WATERS
WATERSHED MANAGEMENT AREA**

I. LOS ANGELES HARBOR BACTERIA TMDL (INNER CABRILLO BEACH AND MAIN SHIP CHANNEL)

- A.** Permittees subject to the provisions below are identified in Attachment J, Table J-9.
- B.** Permittees shall comply with the following water quality-based effluent limitations for discharges to the Los Angeles Harbor Main Ship Channel, Los Angeles Inner Harbor, and Inner Cabrillo Beach as of the effective date of the Order:

Constituent	Effluent Limitations (MPN or cfu)	
	Daily Maximum	Geometric Mean
Total coliform ¹	10,000/100 mL	1,000/100 mL
Fecal coliform	400/100 mL	200/100 mL
<i>Enterococcus</i>	104/100 mL	35/100 mL

C. Receiving Water Limitations

- 1.** Permittees shall comply with the following single sample bacteria receiving water limitations for monitoring locations in the Los Angeles Harbor Main Ship Channel, Los Angeles Inner Harbor², and Inner Cabrillo Beach³ as of the effective date of the Order:

Time Period	Receiving Water	Compliance Monitoring Location	Annual Allowable Exceedance Days of the Single Sample Objective ⁴	
			Daily sampling	Weekly sampling
Winter Dry-Weather (November 1 to March 31)	Inner Cabrillo Beach	CB01	0	0
	Main Ship Channel	HW07	8	1
Summer Dry-Weather (April 1 to October 31)	Inner Cabrillo Beach	CB01	0	0
	Main Ship Channel	HW07	0	0
Wet Weather ⁵ (November 1 to October 31)	Inner Cabrillo Beach	CB01	0	0
	Main Ship Channel	HW07	15	3

¹ Total coliform density shall not exceed a daily maximum of 1,000/100 mL, if the ratio of fecal-to-total coliform exceeds 0.1.

² For the main ship channel and Los Angeles Inner Harbor the City of Los Angeles, the County of Los Angeles, and the Los Angeles County Flood Control District are responsible agencies.

³ For Inner Cabrillo Beach the City of Los Angeles is the responsible agency.

⁴ The single sample objectives are equivalent to the daily maximum values listed in subpart B above.

⁵ Wet weather is defined as days with 0.1 inch of rain or greater and the three days following the rain event.

2. Permittees shall comply with the following geometric mean receiving water limitations for monitoring locations in the Los Angeles Harbor Main Ship Channel, Los Angeles Inner Harbor, and Inner Cabrillo Beach, calculated weekly as a rolling geometric mean using five or more samples, for six-week periods starting all calculation weeks on Sunday, as of the effective date of the Order:

Constituent	Geometric Mean
Total coliform	1,000 MPN/100 mL
Fecal coliform	200 MPN/100 mL
<i>Enterococcus</i>	35 MPN/100 mL

II. DOMINGUEZ CHANNEL AND GREATER LOS ANGELES AND LONG BEACH HARBOR WATERS TOXIC POLLUTANTS TMDL

- A. Permittees subject to the provisions below are identified in Attachment J, Tables J-9 and J-10.
- B. Permittees shall comply with the interim water quality-based effluent limitations listed below, as of the effective date of the Order:
 1. Permittees shall comply with the following freshwater interim water quality-based effluent limitations for discharges to Dominguez Channel during wet weather:
 - a. The freshwater toxicity interim water quality-based effluent limitation is 2 TUc. The freshwater interim effluent limitation shall be implemented as a trigger requiring initiation and implementation of the TRE/TIE process as outlined in US EPA's "Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the National Pollutant Discharge Elimination System Program" (2000).
 - b. Permittees shall comply with the following freshwater interim metals water quality-based effluent limitations for discharges to the Dominguez Channel and Torrance Lateral during wet weather:

Metals	Interim Effluent Limitation Daily Maximum (µg/L)
Total Copper	207.51
Total Lead	122.88
Total Zinc	898.87

2. Permittees shall comply with the following interim concentration-based water quality-based effluent limitations for sediment-bound pollutants discharged to the Dominguez Channel Estuary and Greater Los Angeles and Long Beach Harbor Waters:

Water Body	Interim Effluent Limitations Three-year Average (mg/kg sediment)					
	Copper	Lead	Zinc	Total DDTs	Total PAHs	Total PCBs
Dominguez Channel Estuary (below Vermont Avenue)	220.0	510.0	789.0	1.727	31.60	1.490
Long Beach Inner Harbor	142.3	50.4	240.6	0.070	4.58	0.060
Los Angeles Inner Harbor	154.1	145.5	362.0	0.341	90.30	2.107

Water Body	Interim Effluent Limitations Three-year Average (mg/kg sediment)					
	Copper	Lead	Zinc	Total DDTs	Total PAHs	Total PCBs
Long Beach Outer Harbor (inside breakwater)	67.3	46.7	150	0.075	4.022	0.248
Los Angeles Outer Harbor (inside breakwater)	104.1	46.7	150	0.097	4.022	0.310
Los Angeles River Estuary	53.0	46.7	183.5	0.254	4.36	0.683
San Pedro Bay Near/Off Shore Zones	76.9	66.6	263.1	0.057	4.022	0.193
Los Angeles Harbor - Cabrillo Marina	367.6	72.6	281.8	0.186	36.12	0.199
Los Angeles Harbor - Consolidated Slip	1470.0	1100.0	1705.0	1.724	386.00	1.920
Los Angeles Harbor - Inner Cabrillo Beach Area	129.7	46.7	163.1	0.145	4.022	0.033
Fish Harbor	558.6	116.5	430.5	40.5	2102.7	36.6

3. Permittees shall be in compliance with the interim concentration-based water quality-based effluent limitations for sediment-bound pollutants as listed in subpart B.2 above by demonstrating any one of the following methods:
 - a. Demonstrate that the sediment quality condition of Unimpacted or Likely Unimpacted via the interpretation and integration of multiple lines of evidence as defined in the Sediment Quality Objectives (SQO) Part 1, is met; or
 - b. Meet the interim water quality-based effluent limitations in bed sediment over a three-year averaging period; or
 - c. Meet the interim water quality-based effluent limitations in the storm-borne sediment discharge over a three-year averaging period.
- C. Permittees shall comply with the final water quality-based effluent limitations as listed below no later than March 23, 2032, and every year thereafter:
 1. **Dominguez Channel Freshwater WQBELs during Wet Weather**
 - a. Freshwater Toxicity Effluent Limitation shall not exceed the monthly median of 1 TUc.
 - b. Permittees shall comply with the following final grouped⁶ mass-based water quality-based effluent limitations for discharges to Dominguez Channel and all upstream reaches and tributaries of Dominguez Channel above Vermont Avenue:

⁶ The effluent limitations are group-based and shared among all MS4 Permittees within the Dominguez Channel drainage area above Vermont Avenue.

Metals	Water Column Mass-Based Final Effluent Limitation Daily Maximum⁷ (g/day)
Total Copper	1,300.3
Total Lead	5,733.7
Total Zinc	9,355.5

2. Torrance Lateral Freshwater and Sediment WQBELs during Wet Weather

- a. Permittees shall comply with the following final concentration-based water quality-based effluent limitations for discharges to the Torrance Lateral:

Metals	Water Column Effluent Limitations Daily Maximum⁸ (unfiltered, µg/L)
Total Copper	9.7
Total Lead	42.7
Total Zinc	69.7

- b. Permittees shall comply with the following final concentration-based water quality-based effluent limitations for sediment-bound pollutants discharged to the Torrance Lateral:

Metals	Effluent Limitations Daily Maximum (mg/kg dry sediment)
Total Copper	31.6
Total Lead	35.8
Total Zinc	121

3. Permittees shall be in compliance with the final freshwater metals water quality-based effluent limitations for discharges to Dominguez Channel and the Torrance Lateral as listed in subparts C.1.b and C.2.a above by demonstrating any one of the following methods:
- a. Final metals water quality-based effluent limitations are met; or
 - b. CTR total metals criteria are met instream; or
 - c. CTR total metals criteria are met in the discharge.

⁷ Effluent limitations are based on total recoverable metals targets, a hardness of 50 mg/L, and 90th percentile of annual flow rates (62.7 cfs) in Dominguez Channel. Recalculated mass-based effluent limitations using ambient hardness and flow rate at the time of sampling are consistent with the assumptions and requirements of the TMDL. In addition to the effluent limitations above, samples collected during flow conditions less than the 90th percentile of annual flow rates must demonstrate that the acute and chronic hardness dependent water quality criteria provided in the California Toxics Rule (CTR) are achieved.

⁸ Effluent limitations are based on a hardness of 50 mg/L. Recalculated concentration-based effluent limitations using ambient hardness at the time of sampling are consistent with the assumptions and requirements of the TMDL. In addition to the effluent limitations above, samples collected during flow conditions less than the 90th percentile of annual flow rates must demonstrate that the acute and chronic hardness dependent water quality criteria provided in the CTR are achieved.

4. Dominguez Channel Estuary and Greater Los Angeles and Long Beach Harbor Waters WQBELs

- a. Permittees shall comply with the following final grouped⁹ mass-based water quality-based effluent limitations, expressed as an annual loading of sediment-bound pollutants discharged to Dominguez Channel Estuary, Los Angeles River Estuary, and the Greater Los Angeles and Long Beach Harbor Waters:

Permittee	Water Body	Annual Effluent Limitations (kg/yr)			
		Total Cu	Total Pb	Total Zn	Total PAHs
Los Angeles County MS4 Permittees	Dominguez Channel Estuary	22.4	54.2	271.8	0.134
City of Long Beach	Dominguez Channel Estuary	0.6	1.52	7.6	0.0038
Los Angeles County MS4 Permittees	Consolidated Slip	2.73	3.63	28.7	0.0058
Los Angeles County MS4 Permittees	Inner Harbor	1.7	34.0	115.9	0.088
City of Long Beach	Inner Harbor	0.463	9.31	31.71	0.024
Los Angeles County MS4 Permittees	Outer Harbor	0.91	26.1	81.5	0.105
City of Long Beach	Outer Harbor	0.63	18.1	56.4	0.073
Los Angeles County MS4 Permittees (Port of LA)	Fish Harbor	0.00017	0.54	1.62	0.007
Los Angeles County MS4 Permittees (Port of LA)	Cabrillo Marina	0.0196	0.289	0.74	0.00016
Los Angeles County MS4 Permittees	San Pedro Bay	20.3	54.7	213.1	1.76
City of Long Beach	San Pedro Bay	137.9	372.2	1449.7	12.0
Los Angeles County MS4 Permittees	LA River Estuary	35.3	65.7	242.0	2.31
City of Long Beach	LA River Estuary	375.8	698.9	2572.7	24.56

- b. Permittees shall comply with the following final concentration-based water quality-based effluent limitations for sediment-bound pollutants discharged to the Dominguez Channel Estuary, Consolidated Slip, and Fish Harbor:

⁹ The final grouped mass-based effluent limitations assigned to the Los Angeles County MS4 Permittees are shared among all the MS4 Permittees within the Dominguez Channel drainage area, except for the City of Long Beach. Individual mass-based effluent limitations are assigned to the City of Long Beach.

Water Body	Effluent Limitations Daily Maximum (mg/kg dry sediment)		
	Cadmium	Chromium	Mercury
Dominguez Channel Estuary	1.2	--	--
Consolidated Slip	1.2	81	0.15
Fish Harbor	--	--	0.15

5. Permittees shall be in compliance with the final water quality-based effluent limitations for sediment-bound pollutants as listed in subpart C.4 above by demonstrating any one of the following methods:
- Final water quality-based effluent limitations for sediment-bound pollutants are met; or
 - The qualitative sediment condition of Unimpacted or Likely Unimpacted via the interpretation and integration of multiple lines of evidence as defined in the SQO Part 1, is met, with the exception of chromium, which is not included in the SQO Part 1; or
 - Sediment numeric targets, listed below, are met in bed sediments over a three-year averaging period.

Constituent	Sediment Numeric Target
Cadmium	1.2 mg/kg
Copper	34 mg/kg
Lead	46.7 mg/kg
Mercury	0.15 mg/kg
Zinc	150 mg/kg
Chromium	81 mg/kg
Total PAHs	4,022 µg/kg

6. Permittees shall comply with the following final grouped¹⁰ mass-based water quality-based effluent limitations, expressed as an annual loading of sediment-bound total DDT and total PCBs discharged to Dominguez Channel Estuary, Los Angeles River Estuary, and the Greater Los Angeles and Long Beach Harbor Waters:

Permittee	Water Body	Annual Effluent Limitations (g/yr)	
		Total DDTs	Total PCBs
Los Angeles County MS4 Permittees	Dominguez Channel Estuary	0.250	0.207
City of Long Beach	Dominguez Channel Estuary	0.007	0.006
Los Angeles County MS4 Permittees	Consolidated Slip	0.009	0.004

¹⁰ Ibid.

Permittee	Water Body	Annual Effluent Limitations (g/yr)	
		Total DDTs	Total PCBs
Los Angeles County MS4 Permittees	Inner Harbor	0.051	0.059
City of Long Beach	Inner Harbor	0.014	0.016
Los Angeles County MS4 Permittees	Outer Harbor	0.005	0.020
City of Long Beach	Outer Harbor	0.004	0.014
Los Angeles County MS4 Permittees	Fish Harbor	0.0003	0.0019
Los Angeles County MS4 Permittees	Cabrillo Marina	0.000028	0.000025
Los Angeles County MS4 Permittees	Inner Cabrillo Beach	0.0001	0.0003
Los Angeles County MS4 Permittees	San Pedro Bay	0.049	0.44
City of Long Beach	San Pedro Bay	0.333	3.01
Los Angeles County MS4 Permittees	LA River Estuary	0.100	0.324
City of Long Beach	LA River Estuary	1.067	3.441

7. Permittees shall be in compliance with the final water quality-based effluent limitations for sediment-bound total DDTs and total PCBs as listed in subpart C.6 above by demonstrating any one of the following methods:

- a. Fish tissue numeric targets, listed below, are met in species resident to the specified water bodies¹¹; or

Constituent	Fish Tissue Numeric Target (µg/kg wet)
Total DDTs	21
Total PCBs	3.6

- b. Final water quality-based effluent limitations for sediment-bound pollutants are met; or

- c. Sediment numeric targets to protect fish tissue, listed below, are met in bed sediments over a three-year averaging period; or

Constituent	Sediment Numeric Target (µg/kg dry)
Total DDTs	1.9
Total PCBs	3.2

¹¹ A site-specific study to determine resident species shall be submitted to the Los Angeles Water Board Executive Officer for approval.

- d. Demonstrate that the sediment quality condition protective of fish tissue is achieved per the State Water Board's Statewide Enclosed Bays and Estuaries Plan, as amended to address contaminants in resident finfish and wildlife.
- D. Permittees shall determine their preferred compliance method(s) to demonstrate compliance with the interim and final water quality-based effluent limitations and shall monitor accordingly.
- E. Los Angeles County Permittees responsible for the Los Angeles River Metals TMDLs are responsible for conducting and reporting water and sediment monitoring above the Los Angeles River Estuary to determine the Los Angeles River's contribution to the impairments in the Greater Los Angeles and Long Beach Harbor waters.
- F. Los Angeles County Permittees responsible for the San Gabriel River Metals TMDLs are responsible for conducting and reporting water and sediment monitoring at the mouth of the San Gabriel River to determine the San Gabriel River's contribution to the impairments in the Greater Los Angeles and Long Beach Harbor waters.

III. MACHADO LAKE TRASH TMDL

- A. Permittees subject to the provisions below are identified in Attachment J, Table J-9.
- B. Permittees shall comply with the water quality-based effluent limitation of zero trash discharged to Machado Lake as of the effective date of the Order and every water year thereafter.
- C. Permittees shall comply with the water quality-based effluent limitations for trash per the provisions in Part IV.B.3 of the Order.

IV. MACHADO LAKE EUTROPHIC, ALGAE, AMMONIA, AND ODORS (NUTRIENT) TMDL

- A. Permittees subject to the provisions below are identified in Attachment J, Table J-9.
- B. Permittees shall comply with the following water quality-based effluent limitations for discharges to Machado Lake as of the effective date of the Order:

Constituent	Effluent Limitations Monthly Average (mg/L)
Total Nitrogen ¹²	1.0
Total Phosphorus	0.10

C. Compliance Determination

- 1. Permittees may comply with the water quality-based effluent limitations by actively participating in a Lake Water Quality Management Plan (LWQMP) and attaining the receiving water limitations for Machado Lake. The City of Los Angeles has entered into a Memorandum of Agreement with the Los Angeles Water Board to implement the LWQMP and reduce external nutrient loading to attain the following receiving water limitations as of the effective date of the Order.

Constituent	Receiving Water Limitations Monthly Average (mg/L)
Total Nitrogen ¹³	1.0
Total Phosphorus	0.10

¹² Total Nitrogen is the sum of TKN plus Nitrate-N plus Nitrite-N.

¹³ Ibid.

2. Permittees may comply with water quality-based effluent limitations by demonstrating reduction of total nitrogen and total phosphorous on an annual mass basis measured at the storm drain outfall of the Permittee's drainage area. The annual mass-based allocation shall be equivalent to a monthly average concentration of 1.0 mg/L total nitrogen and 0.1 mg/L total phosphorus based on approved flow condition¹⁴ of 8.45 hm³ (cubic hectometers). Permittees must demonstrate total nitrogen and total phosphorous load reductions to be achieved in accordance with a special study workplan approved by the Los Angeles Water Board Executive Officer.
- a. The County of Los Angeles submitted a special study work plan, which was approved by the Los Angeles Water Board Executive Officer. The County of Los Angeles shall attain the following annual mass-based water quality-based effluent limitations as of the effective date of the Order.

Constituent	Effluent Limitations Annual Load (kg/yr)
Total Nitrogen ¹⁵	710
Total Phosphorus	71

- b. The City of Torrance submitted a special study work plan, which was approved by the Los Angeles Water Board Executive Officer. The City of Torrance shall attain the following annual mass-based water quality-based effluent limitations as of the effective date of the Order.

Constituent	Effluent Limitations Annual Load (kg/yr)
Total Nitrogen ¹⁶	3008
Total Phosphorus	301

- c. The County of Los Angeles and the City of Torrance shall report the flow measured at the storm drain outfalls of the Permittees' respective drainage areas.

V. MACHADO LAKE PESTICIDES AND PCBS TMDL

- A. Permittees subject to the provisions below are identified in Attachment J, Table J-9.
- B. Permittees shall comply with the following water quality-based effluent limitations for storm-borne sediments discharged to Machado Lake, as of the effective date of the Order:

Pollutant	Effluent Limitations Three-Year Average (µg/kg dry weight)
Total PCBs	59.8
DDT (all congeners)	4.16
DDE (all congeners)	3.16
DDD (all congeners)	4.88

¹⁴ The approved flow condition is the average annual runoff from the Machado Lake sub-watershed as presented in the Technical Memo for Machado Lake Eutrophic, Algae, Ammonia, and Odors (Nutrient) TMDL, dated May 1, 2008.

¹⁵ Total Nitrogen is the sum of TKN plus Nitrate-N plus Nitrite-N.

¹⁶ Ibid.

Pollutant	Effluent Limitations Three-Year Average (µg/kg dry weight)
Total DDTs	5.28
Total Chlordane	3.24
Dieldrin	1.9

- C. To determine compliance with the water quality-based effluent limitations, Permittees shall monitor pollutant concentrations of the storm-borne sediment discharged from Project 77 storm drain, Project 510 storm drain and Wilmington Drain storm drain outfalls to Machado Lake.