Coordinated Integrated Monitoring Program (CIMP)

for the Upper Los Angeles River Watershed

Prepared for

Upper Los Angeles River Watershed Management Group

Preparation Lead

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Table 2. TMDLs Applicable to the Upper Los Angeles River Watershed EWMP

TMDL	Regional Board Resolution Number(s)	Effective Date and/or EPA Approval Date
LA River Nitrogen Compounds and Related Effects (LAR Nitrogen TMDL)	2003-009	03/23/2004
	2012-010	08/07/2014
Legg Lake Trash TMDL	2007-010	03/06/2008
Los Angeles River Trash TMDL	2007-012	09/23/2008
Los Angeles River and Tributaries Metals TMDL (LAR Metals TMDL)	2007-014	10/29/2008
	2010-003	11/03/2011
	2015-XXX	Not Yet Effective
Los Angeles River Bacteria TMDL (LAR Bacteria TMDL)	2010-007	03/23/2012
Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL (Harbors Toxics TMDL)	2011-008	03/23/2012
Los Angeles Area Lakes TMDLs for Lake Calabasas, Echo Park Lake, and Legg Lake (Lakes TMDLs)	NA (USEPA TMDL)	03/26/2012

Table 4. Receiving Water Monitoring Sites

Site ID	Waterbody/Location	Previous Site Name Used in TMDL Monitoring Programs	Coordinates		Monitoring Type	
			Latitude	Longitude	LTA	TMDL
LAR_02_WAS	LA River Reach 2 upstream of Washington Blvd	LAR1-8	34.018436	-118.223499	X	X
LAR_03_FIG	LA River Reach 3 at Figueroa St	LAR1-7; LARB-03	34.081249	-118.227546		X
LAR_03_ZOO[1]	LA River Reach 3 at Zoo Dr	LAR1-6	34.155683	-118.281270		X
LAR_04_TUJ	LA River Reach 4 at Tujunga Ave	LAR1-4; LARB-04	34.140977	-118.379127	X	X
LAR_05_SEP[2]	LA River Reach 5 at Sepulveda Blvd	LAR1-2	34.161559	-118.465969		X
LAR_06_WHI	LA River Reach 6 at White Oak Ave	LAR1-1	34.185076	-118.518735		X
CC_ELS	Compton Creek upstream of El Segundo Blvd	N/A	33.917332	-118.249956		X
RH_SLA	Rio Hondo at Slauson Ave	N/A	33.975272	-118.118805		X
AS_SAN	Arroyo Seco at San Fernando Rd	LAR2-3; LARB-08	34.080470	-118.224970		X
VW_CON	Verdugo Wash at Concord St	LAR2-2; LARB-09	34.156724	-118.271240		X
BWC_RIV[3]	Burbank Western Channel at Riverside Dr	LAR1-5; LARB-10	34.160714	-118.305020		X
TW_MOO	Tujunga Wash at Moorpark St	LAR1-3; LARB-11	34.151206	-118.395564		X
BUL_VIC[4]	Bull Creek at Victory Blvd	LARB-12	34.186770	-118.497780		X
ACW_VAN	Aliso Canyon Wash at Vanowen St	LARB-13	34.193615	-118.543966		X
MCC_VAL	McCoy Canyon Creek at Valley Circle Blvd	LARB-14	34.163094	-118.637946		X
DCC_VEN	Dry Canyon Creek at Ventura Blvd	LARB-15	34.161533	-118.634355		X
BEL_FAL	Bell Creek at Fallbrook Ave	LARB-16	34.197489	-118.623553		X
EPL_1	Echo Park Lake	N/A	34.073056	-118.260783		X
EPL_2			34.071242	-118.260734		X
LEG_LAK	Legg Lake	N/A	Varies	Varies		X
CAL_LAK	Lake Calabasas	N/A	Varies	Varies		X

1. For improved coordination, this site could be moved to Colorado Blvd co-located with a site currently monitored by the LA-Glendale (LAG) Water Reclamation Plant (WRP).
2. For improved coordination, this site could be moved to be co-located with a site currently being monitored by the Donald C. Tillman (DCT) WRP.
3. For improved coordination, this site could be moved to be co-located with a site currently being monitored by the Burbank WRP.
4. For improved coordination, this site is co-located with a receiving water site currently being monitored by the DCT WRP.

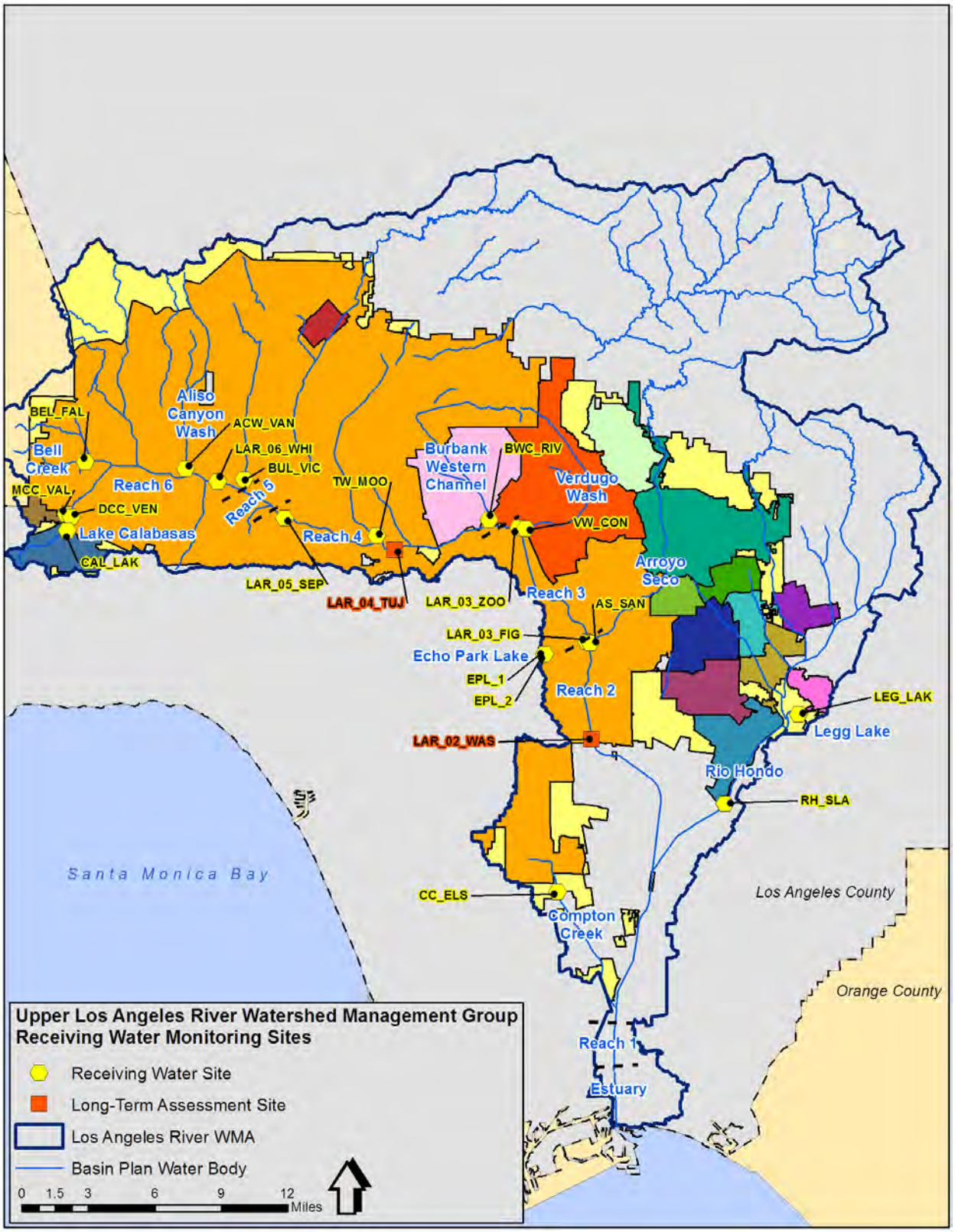

Figure 2. Overview of Receiving Water Monitoring Sites

Table 5. Summary of Parameters to be Monitored at Receiving Water Monitoring Sites and Annual Frequency (wet/dry)[1]

Parameters	Los Angeles River Reaches					
	2	3 (below LAG WRP)	3 (above LAG WRP)	4	5	6
Site ID	LAR_02_WAS	LAR_03_FIG	LAR_03_ZOO	LAR_04_TUJ	LAR_05_SEP	LAR_06_WHI
Flow and field parameters[2]	Frequency is equal to the number of times a site is visited for monitoring					
Pollutants identified in Table E-2 of the MRP[3] and not otherwise addressed below	1[4]/1[4]			1[4]/1[4]		
Aquatic Toxicity and Toxicity Identification Evaluation (TIE), if necessary	2/1			2/1		
E. Coli	3/12	0/12[5]		3/12[5]	0/12[5]	0/12
Hardness[6]	3/4	3/4	0/4	3/4	0/4	3/4
Total Suspended Sediment (TSS)	Frequency is equal to the number of times a site is visited for monitoring					
Cadmium (total and dissolved)	3/0					
Copper (total and dissolved)[6]	3/4	3/4	0/4	3/4	0/4	3/4
Lead (total and dissolved)[6]	3/4	3/4	0/4	3/4	0/4	3/4
Selenium (total)[6]						0/4
Zinc (total and dissolved)[6]	3/4	3/4	0/4	3/4	0/4	3/4
Mercury (total)	3/2	3/2[5]	0/2[5]	3/2[5]	0/2[5]	3/2
Suspended Sediment: Copper, Lead, Zinc, Chlordane[7], DDT[8], PCBs[9], PAHs[10], and Suspended Sediment Concentration (SSC)	2/1[5]					
Ammonia as N, Nitrate as N, Nitrite as N, Nitrate+Nitrite, Nitrogen (NO3-N+NO2-N)	3/2	0/2[5]	0/2[5]	3/2[5]	0/2[5]	
2,3,7,8-TCDD (Dioxin)		0/2[5]				0/2[5]
Diazinon				0/2[5]	0/2[5]	
DDT[8]					0/2[5]	
Chloride					0/2[5]	0/2[5]
Sulfate				0/2[5]	0/2[5]	0/2[5]
TDS					0/2[5]	0/2[5]

1. Annual frequency listed as number of wet/dry-weather events per year, respectively (e.g., 3/2 signifies three wet and two dry weather events per year).
2. Field parameters are defined as DO, pH, temperature, and specific conductivity.
3. All pollutants identified in Table E-2 of the MRP not already explicitly addressed by monitoring at this site.

4. Monitoring frequency only applies during the first year of monitoring. For constituents identified in Table E-2 of the MRP that are not detected at the Method Detection Limit (MDL) or the result is below the lowest applicable water quality objective, additional monitoring will not be conducted (i.e., the monitoring frequency will become 0/0). For constituents detected above the lowest applicable water quality objective, future monitoring will be conducted at the frequency specified in the MRP (i.e., the monitoring frequency will become 3/2).
5. Data to be obtained through non-direct measurements as described in **Section 10**.
6. Monitoring sites monitored quarterly during dry weather (i.e., annual frequency is listed as X/4) for monitoring related to the Metals TMDL, will be monitored monthly (i.e., annual frequency will become X/9) if there are two consecutive exceedances observed during dry weather at the monitoring site and would continue until the deactivation criterion is triggered. The deactivation criterion is two consecutive samples that do not exceed RWLs during dry weather. The same activation/deactivation criteria were utilized in the LA River Metals CMP.
7. As outlined in **Attachment D**, chlordane includes analyses for the following species: alpha-chlordane, gamma-chlordane, oxychlordane, cis-Nonachlor, and trans-Nonachlor.
8. DDT includes analyses for the following species: 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.
9. As outlined in **Attachment D**, PCBs includes analyses for all aroclor species when analyzed in water and the following 54 PCB congeners when analyzed in water or suspended solids: 8, 18, 28, 31, 33, 37, 44, 49, 52, 56, 60, 66, 70, 74, 77, 81, 87, 95, 97, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132, 138, 141, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 174, 177, 180, 183, 187, 189, 194, 195, 201, 203, 206, and 209.
10. As outlined in **Attachment D**, PAHs includes analyses for the following species: acenaphthene, anthracene, biphenyl, naphthalene, 2,6-dimethylnaphthalene, fluorene, 1-methylnaphthalene, 2-methylnaphthalene, 1-methylphenanthrene, phenanthrene, benzo(a)anthracene, benzo(a)pyrene, benzo(e)pyrene, chrysene, dibenz(a,h)anthracene, fluoranthene, perylene, and pyrene.

Table 6. Summary of Constituents to be Monitored at ULARWMAG Los Angeles River Tributary Receiving Water Monitoring Sites and Annual Frequency (wet/dry)[1]

Constituents	Compton Creek	Rio Hondo	Arroyo Seco	Verdugo Wash	Burbank Western Channel	Tujunga Wash	Bell Creek	Bull Creek	Aliso Canyon Wash	McCoy Canyon Creek	Dry Canyon Creek
Site ID	CC_ELS	RH_SLA	AS_SAN	VW_CON	BWC_RIV	TW_MOO	BEL_FAL	BUL_VIC	ACW_VAN	MCC_VAL	DCC_VEN
Flow and field parameters[2]	Frequency is equal to the number of times a site is visited for monitoring										
TSS	Frequency is equal to the number of times a site is visited for monitoring										
Aquatic Toxicity and TIE, if necessary		2/1									
E. Coli	0/12	0/12	0/12	0/12	0/12	0/12	0/12	0/12	0/12	0/12	0/12
Hardness[3]	0/4	0/9			0/4	0/9					
Copper (total and dissolved)[3]	0/4	0/9			0/4	0/9					
Lead (total and dissolved)[3]	0/4	0/9			0/4	0/4					
Zinc (total and dissolved)[3]	0/4	0/4			0/4	0/4					
Bis(2-ethylhexyl) Phthalate		0/2[4]	0/2		0/2			0/2	0/2		
2,3,7,8-TCDD (Dioxin)					0/2[4]						
Chlorpyrifos	0/2										
Diazinon		0/2[4]							0/2		
Chloride	0/2	0/2[4]			0/2[4]	0/2					
Sulfate									0/2		
TDS					0/2[4]	0/2			0/2		
Cyanide (total)		0/2[4]									
Chrysene		0/2[4]									
Dibenzo(a,h) Anthracene		0/2[4]									
Indeno (1,2,3-cd)Pyrene		0/2[4]									
Benzo(a)Pyrene		0/2[4]			0/2[4]						
Benzo(b) Fluoranthene		0/2[4]			0/2[4]						

1. Annual frequency listed as number of wet-weather/dry-weather events per year, respectively (e.g., 3/2 signifies three wet weather and two dry weather events per year).

2. Field parameters are defined as DO, pH, temperature, and specific conductivity. Flow and field parameters will not be monitored when *E. coli* is the only constituent monitored at a site.
3. Monitoring sites monitored quarterly during dry weather (i.e., annual frequency is listed as X/4) for monitoring related to the Metals TMDL, will be monitored monthly (i.e., annual frequency will become X/9) if there are two consecutive exceedances observed during dry weather at the monitoring site and would continue until the deactivation criterion is triggered. The deactivation criterion is two consecutive samples that do not exceed RWLs during dry weather. The same activation/deactivation criteria were utilized in the LA River Metals CMP.
4. Data to be obtained through non-direct measurements as described in **Section 10**.

Table 7. Annual Frequency of Receiving Water Monitoring for ULARWMAG Area Lakes

Constituent	Calabasas Nutrient TMDL	Echo Park Lake Nutrient, Trash, PCBs, and OC Pesticide TMDLs	Legg Lake Nutrient TMDL & Legg Lake Trash TMDL
In-lake Water Quality Monitoring			
TSS, TDS, Temperature, Dissolved Oxygen, pH, Electrical Conductivity, and Secchi Depth	2/summer 1/winter	2/summer 1/winter	2/summer 1/winter
Ammonia, TKN or Organic N, Nitrate+Nitrite, Orthophosphate, Total Phosphorus, Chlorophyll a	2/summer 1/winter	2/summer 1/winter	2/summer 1/winter
Total PCBs(1), Total Chlordane(2), Dieldrin		1/winter	
Sediment Quality Monitoring			
Total Organic Carbon, Total PCB(3), Total Chlordane(2), Dieldrin		1/winter	
Fish Tissue Monitoring(4)			
Total PCB(5), Total Chlordane(2), Dieldrin		Once every three years	
Trash Monitoring			
Trash Quantity			Monthly

1. As outlined in **Attachment D**, PCBs includes analyses for all aroclor species and the following 54 PCB congeners when analyzed in water: 8, 18, 28, 31, 33, 37, 44, 49, 52, 56, 60, 66, 70, 74, 77, 81, 87, 95, 97, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 132, 138, 141, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 174, 177, 180, 183, 187, 189, 194, 195, 201, 203, 206, and 209.
2. As outlined in **Attachment D**, chlordane includes analyses for the following species: alpha-chlordane, gamma-chlordane, oxychlordane, cis-Nonachlor, and trans-Nonachlor.
3. As outlined in **Attachment D**, PCBs includes analyses for the following 19 congeners when analyzed in sediment: 8, 18, 28, 44, 52, 66, 101, 105, 118, 128, 138, 153, 170, 180, 187, 189, 195, 206, and 209.
4. Composite sample of skin-off fillets from at least five common carp > 350 mm in length.
5. As outlined in **Attachment D**, PCBs includes analyses for the following 41 congeners when analyzed in tissue: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.

Table 11. Stormwater Outfall Monitoring Sites

Subwatershed	Site Name	Drain Name	Jurisdiction Where Site is Located	Jurisdictions Draining to the Site	Size	Shape	Latitude	Longitude
LA River Reach 2	LAR_02_SW_MAI	BI 0062 – Line A	City of LA	City of LA	147”	Rectangular	34.06720	-118.22424
LA River Reach 3	LAR_03_SW_COL	BI 9506 U01	City of LA	City of LA, Glendale	144”	Rectangular	34.13668	-118.27477
LA River Reach 4	LAR_04_SW_BUE	BI 0168 – Frederick St Drain	Burbank	Burbank	72”	Round	34.15319	-118.32545
LA River Reach 6	LAR_06_SW_WIN	BI 0477	City of LA	City of LA	108”	Rectangular	34.19097	-118.57072
LA River Reach 6	LAR_06_SW_OLD	PD 0778	Calabasas	Calabasas	45”	Round	34.14422	-118.63045
Compton Creek	CC_SW_LAN	BI 0073 – U1 Line C	City of LA	City of LA, County of LA	108”	Rectangular	33.93540	-118.25479
Rio Hondo	RH_SW_LER	BI 1213 - Line A	South El Monte	South El Monte	45”	Rectangular	34.04209	-118.05170
Rio Hondo	RH_SW_ROB	Rubio Drain	San Marino	County of LA, Pasadena, San Marino	234”	Rectangular	34.12867	-118.10036
Arroyo Seco	AS_SW_SEC	Seco St Drain	Pasadena	Pasadena, County of LA	81”	Rectangular	34.15511	-118.16757
Verdugo Wash	VW_SW_CAN	BI 0434 Northeast Glendale	Glendale	County of LA, Glendale, La Cañada Flintridge	126”	Rectangular	34.18991	-118.22734
Burbank Western Channel	BWC_SW_MAI	BI 0169	Burbank	Burbank	72”	Rectangular	34.16096	-118.30999
Tujunga Wash	TW_SW_BUR	BI 0091 (F1046)	City of LA	City of LA	81”	Round	34.17019	-118.41335

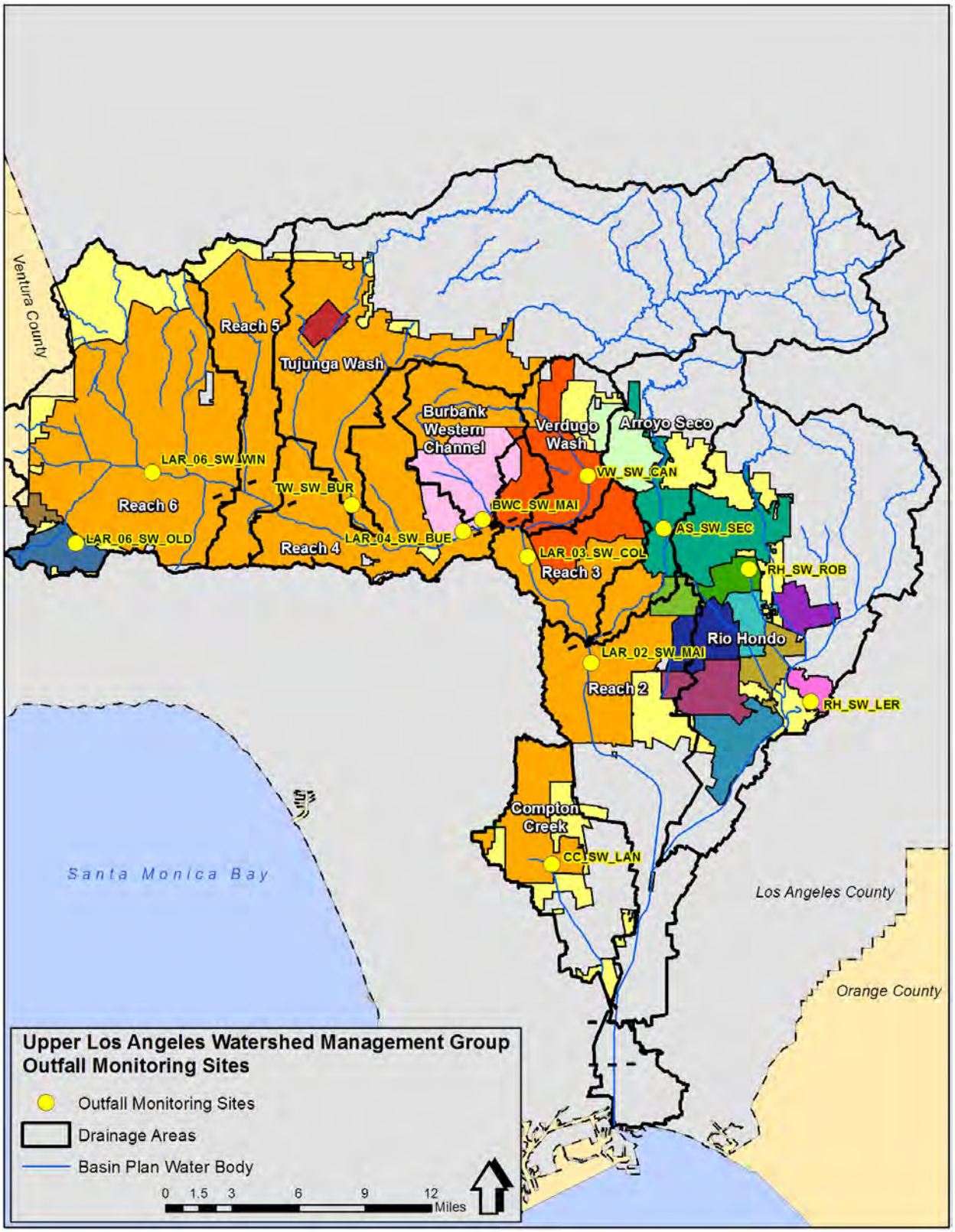

Figure 3. Stormwater Outfall Monitoring Locations Overview

Table 14. List of Parameters for Stormwater Outfall Monitoring[1]

Parameters	Subwatershed[2]											
	Reach 2	Reach 3	Reach 4	Reach 6	Reach 6	CC	RH	RH	AS	VW	BWC	TW
Site ID	LAR_02_SW_MAI	LAR_03_SW_COL	LAR_04_SW_BUE	LAR_06_SW_WIN	LAR_06_SW_OLD	CC_SW_LAN	RH_SW_LER	RH_SW_ROB	AS_SW_SEC	VW_SW_CAN	BWC_SW_MAI	TW_SW_BUR
Flow, hardness, pH, dissolved oxygen, temperature, and specific conductivity	X	X	X	X	X	X	X	X	X	X	X	X
TSS	X	X	X	X	X	X	X	X	X	X	X	X
Table E-2 pollutants of the MRP detected above relevant objectives and not otherwise addressed below	X	X	X	X	X	X	X	X	X	X	X	X
Cadmium (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X	X
Copper (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X	X
Lead (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X	X
Zinc (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X	X
Mercury (total)	X	X	X	X	X	X	X	X	X	X	X	X
Suspended Sediment: Chlordane[3], PCBs[3], and Dieldrin	X[4]											
SSC	X											

Parameters	Subwatershed[2]											
	Reach 2	**Reach 3**	**Reach 4**	**Reach 6**	**Reach 6**	**CC**	**RH**	**RH**	**AS**	**VW**	**BWC**	**TW**
Site ID	LAR_02_SW_MAI	LAR_03_SW_COL	LAR_04_SW_BUE	LAR_06_SW_WIN	LAR_06_SW_OLD	CC_SW_LAN	RH_SW_LER	RH_SW_ROB	AS_SW_SEC	VW_SW_CAN	BWC_SW_MAI	TW_SW_BUR
Ammonia as N, Nitrate as N, Nitrite as N, and Nitrate+Nitrite Nitrogen (NO3-N+NO2-N), TKN or Organic Nitrogen, Orthophosphate, Total Phosphorus, and TDS	X[4]				X[4]		X[4]					

1. As described in **Section 11**, data collected as part of the ULARWMAG CIMP will be reviewed and changes to the constituents and frequencies as a result of exceedances in the receiving waters or as a result of toxicity testing will be discussed in the annual report and implemented starting no later than the first CIMP event of the next monitoring year (i.e., the first event after July 1 of the year following the annual report submittal).
2. CC (Compton Creek), RH (Rio Hondo), AS (Arroyo Seco), VW (Verdugo Wash), BWC (Burbank Western Channel), and TW (Tujunga Wash)
3. See **Table 5** for a summary of the constituents that comprise chlordane and PCBs.
4. Nutrients and TDS to be monitored twice per year and suspended sediment to be monitored once per year to satisfy the Los Angeles Area Lakes TMDLs monitoring requirements specified in Part XIX.D of the MRP.

Table 19. List of NSW Outfall Monitoring Parameters[1]

Parameters	Subwatershed[2]										
	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	CC	RH	AS	VW	BWC	TW
Flow, hardness, pH, dissolved oxygen, temperature, and specific conductivity	X	X	X	X	X	X	X	X	X	X	X
TSS	X	X	X	X	X	X	X	X	X	X	X
Table E-2 pollutants detected above relevant objectives	X	X	X	X	X	X	X	X	X	X	X
E. Coli	X	X	X	X	X	X	X	X	X	X	X
Copper (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X
Lead (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X
Zinc (total and dissolved)	X	X	X	X	X	X	X	X	X	X	X
Selenium (total)					X						
Mercury (total)	X	X	X	X	X	X	X	X	X	X	X
Bis(2-ethylhexyl)Phthalate					X		X	X		X	
2,3,7,8-TCDD (Dioxin)		X	X	X	X				X	X	X
Diazinon			X	X	X		X				X
Cyanide (total)							X				
Chloride				X	X	X	X			X	X
Sulfate			X	X	X						X
TDS				X	X					X	X
Chlorpyrifos						X					

1. As described in **Section 11**, data collected as part of the ULARWMAG CIMP will be reviewed and changes to the constituents and frequencies as a result of exceedances in the receiving waters or as a result of toxicity testing will be discussed in the annual report and implemented starting no later than the first CIMP event of the next monitoring year (i.e., the first event after July 1 of the year following the annual report submittal).
2. CC (Compton Creek), RH (Rio Hondo), AS (Arroyo Seco), VW (Verdugo Wash), BWC (Burbank Western Channel), and TW(Tujunga Wash)