

April 14, 2017  
Revised October 9, 2017

**VENTURA COUNTY AGRICULTURAL  
IRRIGATED LANDS GROUP (VCAILG)**

---

## Water Quality Management Plan

*submitted to:*

**LOS ANGELES REGIONAL WATER QUALITY  
CONTROL BOARD**

*prepared by:*

**LARRY WALKER ASSOCIATES**

*On behalf of the:*

**VENTURA COUNTY AGRICULTURAL  
IRRIGATED LANDS GROUP (VCAILG)**



~Page intentionally left blank~

# Table of Contents

---

<b>List of Tables</b> .....	<b>iii</b>
<b>List of Figures</b> .....	<b>ix</b>
<b>List of Appendices</b> .....	<b>xix</b>
<b>Responsibility Area Name Key</b> .....	<b>xix</b>
<b>Document Overview</b> .....	<b>1</b>
Waiver Requirements for the First 2016 Conditional Waiver WQMP.....	1
WQMP Structure .....	1
<b>Introduction</b> .....	<b>3</b>
<b>Group Membership and Setting</b> .....	<b>4</b>
Irrigated Agriculture in Ventura County.....	6
Calleguas Creek Watershed .....	8
Santa Clara River Watershed .....	10
Ventura River Watershed.....	12
<b>WQMP Development Process</b> .....	<b>14</b>
Responsibility Areas .....	14
Management Practice Survey Process .....	17
Water Quality Benchmark Exceedance Evaluation Process.....	18
Water Quality Benchmarks.....	18
Benchmark Exceedance Evaluation Process .....	30
<b>Summary of Existing Conditions by Responsibility Area</b> .....	<b>35</b>
Mugu Lagoon Responsibility Area.....	36
Etting-Wood Responsibility Area.....	56
Lower Calleguas Creek Responsibility Area .....	76
South Revolon Responsibility Area.....	94
LaVista Drain Responsibility Area.....	112
Beardsley Wash Responsibility Area.....	132
Arroyo Conejo Responsibility Area.....	151
Arroyo Simi Responsibility Area.....	162
Las Posas Responsibility Area.....	175
Tapo Canyon Responsibility Area .....	186
Boulder Creek Responsibility Area .....	201

Bardsdale Responsibility Area.....	211
Santa Paula Creek Responsibility Area .....	221
Todd Barranca Responsibility Area.....	230
Ellsworth Barranca Responsibility Area.....	243
Ventura River Inland Responsibility Area.....	253
Ventura River Coastal Responsibility Area.....	261
San Antonio Creek Responsibility Area.....	269
McGrath Lake Coastal Responsibility Area .....	274
Malibu Responsibility Area .....	289
Pesticide Use Evaluation.....	299
<b>Schedule .....</b>	<b>302</b>
<b>Outreach Plan.....</b>	<b>305</b>
Communications .....	305
Education .....	306
<b>Explanation of Compliance List Appendices .....</b>	<b>306</b>

## List of Tables

---

Table 1. VCAILG Steering Committee Membership .....	5
Table 2. VCAILG Membership Statistics as of December 2016.....	5
Table 3. Ventura County’s Leading Agricultural Commodities–2015.....	8
Table 4. Responsibility Areas and Associated HUC-12s and VCAILG Monitoring Sites .....	16
Table 5. Conditional Waiver Appendix 4 Standard Water Quality Benchmarks Derived From Narrative Objectives .....	20
Table 6. Conditional Waiver Appendix 4 Standard Water Quality Benchmarks for Salts and Nutrients (Basin Plan Table 3-8 Numeric Water Quality Objectives) .....	21
Table 7. Conditional Waiver Appendix 4 Standard Water Quality Benchmarks for Copper.....	22
Table 8. Conditional Waiver Appendix 4 Standard Water Quality Benchmarks for Current Use Pesticides (Organophosphorus and Pyrethroid Pesticides).....	22
Table 9. Conditional Waiver Appendix 4 Water Quality Benchmarks for Legacy Pesticides (Organochlorine Pesticides).....	22
Table 10. TMDL Water Quality Benchmarks Compliance Dates .....	23
Table 11. CCW OC Pesticides and PCBs Sediment Allocations .....	24
Table 12. CCW Toxicity, Chlorpyrifos, and Diazinon Load Allocations .....	25
Table 13. CCW Salts TMDL Dry Weather Load Allocations.....	25
Table 14. CCW Metals TMDL Load Allocations for Total Recoverable Metals and Selenium.	26
Table 15. CCW Metals TMDL Load Allocations for Mercury in Suspended Sediment .....	26
Table 16. CCW Nitrogen TMDL Load Allocations .....	26
Table 17. Santa Clara River Nitrogen TMDL Load Allocation .....	27
Table 18. Upper Santa Clara River Chloride TMDL Load Allocation.....	27
Table 19. Santa Clara River Estuary Toxaphene TMDL Load Allocations .....	27
Table 20. McGrath Lake PCBs, Pesticides, and Sediment Toxicity TMDL Load Allocations ...	28
Table 21. Oxnard Drain #3 Pesticides, PCBs, and Sediment Toxicity TMDL Load Allocations	29
Table 22. Mugu Lagoon Responsibility Area Enrollment and Survey Acreage Summary .....	37
Table 23. Mugu Lagoon Responsibility Area Crop Types and General Production Practices.....	38
Table 24. Mugu Lagoon Responsibility Area Grower BMPs.....	39
Table 25. Summary of Benchmark Exceedance Evaluation for Mugu Lagoon Responsibility Area (outside the Oxnard Drain #3 TMDL area).....	49
Table 26. Summary of Benchmark Exceedance Evaluation for Mugu Lagoon Responsibility Area (within the Oxnard Drain #3 TMDL area).....	50

Table 27. BMPs for Additional Implementation in the Mugu Lagoon Responsibility Area (outside the Oxnard Drain #3 TMDL area) .....	51
Table 28. BMPs for Additional Implementation in the Mugu Lagoon Responsibility Area (within the Oxnard Drain #3 TMDL area).....	52
Table 29. Proposed Best Management Practices for the Mugu Lagoon Responsibility Area within the Oxnard Drain #3 TMDL Area .....	53
Table 30. Proposed Best Management Practices for the Mugu Lagoon Responsibility Area.....	54
Table 31. Etting-Wood Responsibility Area Enrollment and Survey Acreage Summary.....	57
Table 32. Etting-Wood Responsibility Area Crop Types and General Production Practices .....	58
Table 33. Etting-Wood Responsibility Area Grower BMPs .....	59
Table 34. Summary of Benchmark Exceedance Evaluation for Etting-Wood Responsibility Area .....	72
Table 35. BMPs for Additional Implementation in the Etting-Wood Responsibility Area.....	73
Table 36. Proposed Best Management Practices for the Etting-Wood Responsibility Area.....	74
Table 37. Lower Calleguas Creek Responsibility Area Enrollment and Survey Acreage Summary .....	77
Table 38. Lower Calleguas Creek Responsibility Area Crop Types and General Production Practices .....	78
Table 39. Lower Calleguas Creek Responsibility Area Grower BMPs.....	79
Table 40. Summary of Graphed Benchmark Exceedances for Lower Calleguas Creek Responsibility Area.....	90
Table 41. BMPs for Additional Implementation in the Lower Calleguas Creek Responsibility Area.....	91
Table 42. Proposed Best Management Practices for the Lower Calleguas Creek Responsibility Area.....	92
Table 43. South Revolon Responsibility Area Enrollment and Survey Acreage Summary.....	95
Table 44. South Revolon Responsibility Area Crop Types and General Production Practices ...	96
Table 45. South Revolon Responsibility Area Grower BMPs .....	97
Table 46. Summary of Benchmark Exceedance Evaluation for South Revolon Responsibility Area.....	108
Table 47. BMPs for Additional Implementation in the South Revolon Responsibility Area ...	109
Table 48. Proposed Best Management Practices for the South Revolon Responsibility Area...	110
Table 49. LaVista Drain Responsibility Area Enrollment and Survey Acreage Summary.....	113
Table 50. LaVista Drain Responsibility Area Crop Types and General Production Practices...	114
Table 51. LaVista Drain Responsibility Area Grower BMPs.....	115

Table 52. Summary of Benchmark Exceedance Evaluation for LaVista Drain Responsibility Area.....	128
Table 53. BMPs for Additional Implementation in the 05_LAVD Responsibility Area .....	129
Table 54. Proposed Best Management Practices for the La Vista Drain Responsibility Area...	130
Table 55. Beardsley Wash Responsibility Area Enrollment and Survey Acreage Summary ....	133
Table 56. Beardsley Wash Responsibility Area Crop Types and General Production Practices	134
Table 57. Beardsley Wash Responsibility Area Grower BMPs .....	135
Table 58. Summary of Benchmark Exceedance Evaluation for Beardsley Wash Responsibility Area.....	147
Table 59. BMPs for Additional Implementation in the Beardsley Wash Responsibility Area .	148
Table 60. Proposed Best Management Practices for the Beardsley Wash Responsibility Area.	149
Table 61. Arroyo Conejo Responsibility Area Enrollment and Survey Acreage Summary .....	152
Table 62. Arroyo Conejo Responsibility Area Crop Types and General Production Practices .	153
Table 63. Arroyo Conejo Responsibility Area Grower BMPs .....	154
Table 64. Summary of Benchmark Exceedance Evaluation for Arroyo Conejo Responsibility Area.....	159
Table 65. BMPs for Additional Implementation in the Arroyo Conejo Responsibility Area ...	160
Table 66. Proposed Best Management Practices for the Arroyo Conejo Responsibility Area...	161
Table 67. Arroyo Simi Responsibility Area Enrollment and Survey Acreage Summary .....	163
Table 68. Arroyo Simi Responsibility Area Crop Types and General Production Practices .....	164
Table 69. Arroyo Simi Responsibility Area Grower BMPs .....	165
Table 70. Summary of Benchmark Exceedance Evaluation for Arroyo Simi Responsibility Area .....	171
Table 71. BMPs for Additional Implementation in the Arroyo Simi Responsibility Area .....	172
Table 72. Proposed Best Management Practices for the Arroyo Simi Responsibility Area.....	173
Table 73. Las Posas Responsibility Area Enrollment and Survey Acreage Summary.....	176
Table 74. Las Posas Responsibility Area Crop Types and General Production Practices .....	177
Table 75. Las Posas Responsibility Area Gower BMPs.....	178
Table 76. Summary of Benchmark Exceedance Evaluation for Las Posas Responsibility Area .....	183
Table 77. BMPs for Additional Implementation in the Las Posas Responsibility Area.....	184
Table 78. Proposed Best Management Practices for the Las Posas Responsibility Area.....	185
Table 79. Tapo Canyon Responsibility Area Enrollment and Survey Acreage Summary .....	187
Table 80. Tapo Canyon Responsibility Area Crop Types and General Production Practices....	188

Table 81. Tapo Canyon Responsibility Area Grower BMPs.....	189
Table 82. Summary of Benchmark Exceedance Evaluation for Tapo Canyon Responsibility Area.....	197
Table 83. BMPs for Additional Implementation in the Tapo Canyon Responsibility Area.....	198
Table 84. Proposed Best Management Practices for the Tapo Canyon Responsibility Area.....	199
Table 85. Boulder Creek Responsibility Area Enrollment and Survey Acreage Summary .....	202
Table 86. Boulder Creek Responsibility Area Crop Types and General Production Practices ..	203
Table 87. Boulder Creek Responsibility Area Grower BMPs .....	204
Table 88. Summary of Benchmark Exceedance Evaluation for Boulder Creek Responsibility Area.....	208
Table 89. BMPs for Additional Implementation in the Boulder Creek Responsibility Area ....	209
Table 90. Proposed Best Management Practices for the Boulder Creek Responsibility Area ...	210
Table 91. Bardsdale Responsibility Area Enrollment and Survey Acreage Summary.....	212
Table 92. Bardsdale Responsibility Area Crop Types and General Production Practices .....	213
Table 93. Bardsdale Responsibility Area Grower BMPs .....	214
Table 94. Summary of Benchmark Exceedance Evaluation for Bardsdale Responsibility Area .....	218
Table 95. BMPs for Additional Implementation in the Bardsdale Responsibility Area .....	219
Table 96. Proposed Best Management Practices for the Bardsdale Responsibility Area.....	220
Table 97. Santa Paula Creek Responsibility Area Enrollment and Survey Acreage Summary .	222
Table 98. Santa Paula Creek Responsibility Area Crop Types and General Production Practices .....	223
Table 99. Santa Paula Creek Responsibility Area Grower BMPs .....	224
Table 100. Summary of Benchmark Exceedance Evaluation for Santa Paula Creek Responsibility Area.....	227
Table 101. BMPs for Additional Implementation in the Santa Paula Creek Responsibility Area .....	228
Table 102. Proposed Best Management Practices for the Santa Paula Creek Responsibility Area .....	229
Table 103. Todd Barranca Responsibility Area Enrollment and Survey Acreage Summary.....	231
Table 104. Todd Barranca Responsibility Area Crop Types and General Production Practices	232
Table 105. Todd Barranca Responsibility Area Grower BMPs .....	233
Table 106. Water Column Survival Toxicity at Waiver Benchmark Site S02T_TODD.....	235
Table 107. Summary of Benchmark Exceedance Evaluation for Todd Barranca Responsibility Area.....	239



Table 108. BMPs for Additional Implementation in the Todd Barranca Responsibility Area..	240
Table 109. Proposed Best Management Practices for the Todd Barranca Responsibility Area.	241
Table 110. Ellsworth Barranca Responsibility Area Enrollment and Survey Acreage Summary .....	244
Table 111. Ellsworth Barranca Responsibility Area Crop Types and General Production Practices .....	245
Table 112. Ellsworth Barranca Responsibility Area Grower BMPs .....	246
Table 113. Summary of Benchmark Exceedance Evaluation for Ellsworth Barranca Responsibility Area.....	250
Table 114. BMPs for Additional Implementation in the Ellsworth Barranca Responsibility Area .....	251
Table 115. Proposed Best Management Practices for the Ellsworth Barranca Responsibility Area .....	252
Table 116. Ventura River Inland Responsibility Area Enrollment and Survey Acreage Summary .....	254
Table 117. VRT-THACH-Inland Responsibility Area Crop Types and General Production Practices .....	255
Table 118. Ventura River Inland Responsibility Area Grower BMPs .....	256
Table 119. Summary of Benchmark Exceedance Evaluation for Ventura River Inland Responsibility Area.....	258
Table 120. BMPs for Additional Implementation in the Ventura River Inland Responsibility Area.....	259
Table 121. Proposed Best Management Practices for the Ventura River Inland Responsibility Area.....	260
Table 122. Ventura River Coastal Responsibility Area Enrollment and Survey Acreage Summary .....	262
Table 123. Ventura River Coastal Responsibility Area Crop Types and General Production Practices .....	263
Table 124. Ventura River Coastal Responsibility Area Grower BMPs.....	264
Table 125. Summary of Benchmark Exceedance Evaluation for Ventura River Coastal Responsibility Area.....	266
Table 126. BMPs for Additional Implementation in the Ventura River Coastal Responsibility Area.....	267
Table 127. Proposed Best Management Practices for the Ventura River Coastal Responsibility Area.....	268
Table 128. VRT_SANTO Drainage Area Enrollment and Survey Acreage Summary.....	270
Table 129. VRT_SANTO Drainage Area Crop Types and General Production Practices .....	271

Table 130. VRT_SANTO Drainage Area Grower BMPs .....	272
Table 131. BMPs for Additional Implementation in the San Antonio Creek Responsibility Area .....	273
Table 132. McGrath Lake Coastal Responsibility Area Enrollment and Survey Acreage Summary .....	275
Table 133. McGrath Lake Coastal Responsibility Area Crop Types and General Production Practices .....	276
Table 134. McGrath Lake Coastal Responsibility Area Grower BMPs .....	277
Table 135. Summary of Benchmark Exceedance Evaluation for McGrath Lake Coastal Responsibility Area.....	285
Table 136. BMPs for Additional Implementation in the McGrath Lake Coastal Responsibility Area.....	286
Table 137. Proposed Best Management Practices for the McGrath Lake Coastal Responsibility Area.....	287
Table 138. Malibu Responsibility Area Enrollment and Survey Acreage Summary .....	290
Table 139. Malibu Responsibility Area Crop Types and General Production Practices.....	291
Table 140. Malibu Responsibility Area Grower BMPs.....	292
Table 141. Summary of Benchmark Exceedance Evaluation for Malibu Responsibility Area.	296
Table 142. BMPs for Additional Implementation in the Malibu Responsibility Area.....	297
Table 143. Proposed Best Management Practices for the Malibu Responsibility Area .....	298
Table 144. Chlorpyrifos, Diazinon, and Bifenthrin Applications and Benchmark Exceedances by Monitoring Site for 2015-2016 .....	301
Table 145. BMP Implementation Schedule for Each Responsibility Area .....	303
Table 146. Courses Approved for Education Credit.....	307

# List of Figures

---

Figure 1. Ventura County Watersheds.....	7
Figure 2. Calleguas Creek and Oxnard Coastal Watersheds Agricultural Land Use .....	9
Figure 3. Santa Clara River Watershed Agricultural Land Use.....	11
Figure 4. Ventura River Watershed Agricultural Land Use .....	13
Figure 5. Process for Comparing VCAILG Monitoring Data to Standard Water Quality Benchmarks and Triggering Concentration Graphs .....	31
Figure 6. Process for Comparing TMDL Monitoring Data Collected by VCAILG to TMDL LA Benchmarks and Triggering Concentration Graphs .....	33
Figure 7. Process for Comparing Monitoring Data Collected by the CCW TMDL Monitoring Program to CCW TMDL LA Benchmarks and Triggering Concentration Graphs.....	34
Figure 8. Mugu Lagoon Responsibility Area Map .....	36
Figure 9. Dry Weather Nitrate-N Concentrations at Waiver Benchmark Site 01T_ODD3_ARN .....	40
Figure 10. Dry Weather Dissolved Copper Concentrations at Waiver Benchmark Site 01T_ODD3_ARN.....	40
Figure 11. Dry Weather DDD Concentrations at Waiver Benchmark Site and TMDL LA Site 01T_ODD3_ARN.....	41
Figure 12. Dry Weather DDE Concentrations at Waiver Benchmark Site and TMDL LA Site 01T_ODD3_ARN.....	41
Figure 13. Dry Weather DDT Concentrations at Waiver Benchmark Site and TMDL LA Site 01T_ODD3_ARN.....	42
Figure 14. Dry Weather Toxaphene Concentrations at Waiver Benchmark Site 01T_ODD3_ARN.....	42
Figure 15. Dry Weather Nitrate-N Concentrations at TMDL LA Site 01_RR_BR .....	43
Figure 16. Dry Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 01T_ODD2_DCH.....	43
Figure 17. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 01_RR_BR .	44
Figure 18. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 01T_ODD2_DCH.....	44
Figure 19. Dry Weather DDE Concentrations at TMDL LA Site 01_BPT_14.....	45
Figure 20. Dry Weather Toxaphene Concentrations at TMDL LA Site 01T_ODD3_ARN.....	45
Figure 21. Wet Weather Nitrate-N Concentrations at TMDL LA Site 01_RR_BR.....	46
Figure 22. Wet Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 01T_ODD2_DCH.....	46
Figure 23. Wet Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 01_RR_BR.	47

Figure 24. Wet Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 01T_ODD2_DCH.....	47
Figure 25. Wet Weather Chlorpyrifos Concentrations at TMDL LA Site 01_RR_BR.....	48
Figure 26. Wet Weather Chlorpyrifos Concentrations at TMDL Ag Land Use Site 01T_ODD2_DCH.....	48
Figure 27. Etting-Wood Responsibility Area Map .....	56
Figure 28. Dry Weather Nitrate-N Concentrations at Waiver Benchmark Site 04D_ETTG .....	60
Figure 29. Dry Weather Dissolved Copper Concentrations at Waiver Benchmark Site 04D_ETTG .....	60
Figure 30. Dry Weather DDD Concentrations at Waiver Benchmark Site 04D_ETTG .....	61
Figure 31. Dry Weather DDE Concentrations at Waiver Benchmark Site 04D_ETTG .....	61
Figure 32. Dry Weather DDT Concentrations at Waiver Benchmark Site 04D_ETTG .....	62
Figure 33. Dry Weather Toxaphene Concentrations at Waiver Benchmark Site 04D_ETTG ....	62
Figure 34. Wet Weather Nitrate-N Concentrations at Waiver Benchmark Site 04D_ETTG.....	63
Figure 35. Wet Weather Dissolved Copper Concentrations at Waiver Benchmark Site 04D_ETTG .....	63
Figure 36. Wet Weather DDD Concentrations at Waiver Benchmark Site 04D_ETTG.....	64
Figure 37. Wet Weather DDE Concentrations at Waiver Benchmark Site 04D_ETTG .....	64
Figure 38. Wet Weather DDT Concentrations at Waiver Benchmark Site 04D_ETTG .....	65
Figure 39. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 04D_ETTG .....	65
Figure 40. Wet Weather Toxaphene Concentrations at Waiver Benchmark Site 04D_ETTG ...	66
Figure 41. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 04D_ETTG.	66
Figure 42. Wet Weather Diazinon Concentrations at Waiver Benchmark Site 04D_ETTG.....	67
Figure 43. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 04D_ETTG.....	67
Figure 44. Dry Weather Nitrate-N Concentrations at TMDL LA Site 04_WOOD.....	68
Figure 45. Dry Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 04D_WOOD..	68
Figure 46. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 04_WOOD..	69
Figure 47. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 04D_WOOD .....	69
Figure 48. Dry Weather DDE Concentrations at TMDL LA Site 01_BPT_15.....	70
Figure 49. Wet Weather Chlorpyrifos Concentrations at TMDL LA Site 04_WOOD .....	70
Figure 50. Wet Weather Chlorpyrifos Concentrations at TMDL Ag Land Use Site 04D_WOOD .....	71
Figure 51. Lower Calleguas Creek Responsibility Area Map .....	76

Figure 52. Dry Weather Nitrate-N Concentrations at Waiver Benchmark Site 04D_ETTG .....	80
Figure 53. Dry Weather Dissolved Copper Concentrations at Waiver Benchmark Site 04D_ETTG .....	80
Figure 54. Dry Weather DDD Concentrations at Waiver Benchmark Site 04D_ETTG .....	81
Figure 55. Dry Weather DDE Concentrations at Waiver Benchmark Site 04D_ETTG .....	81
Figure 56. Dry Weather DDT Concentrations at Waiver Benchmark Site 04D_ETTG .....	82
Figure 57. Dry Weather Toxaphene Concentrations at Waiver Benchmark Site 04D_ETTG....	82
Figure 58. Wet Weather Nitrate-N Concentrations at Waiver Benchmark Site 04D_ETTG .....	83
Figure 59. Wet Weather Dissolved Copper Concentrations at Waiver Benchmark Site 04D_ETTG .....	83
Figure 60. Wet Weather DDD Concentrations at Waiver Benchmark Site 04D_ETTG.....	84
Figure 61. Wet Weather DDE Concentrations at Waiver Benchmark Site 04D_ETTG .....	84
Figure 62. Wet Weather DDT Concentrations at Waiver Benchmark Site 04D_ETTG .....	85
Figure 63. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 04D_ETTG .....	85
Figure 64. Wet Weather Toxaphene Concentrations at Waiver Benchmark Site 04D_ETTG ...	86
Figure 65. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 04D_ETTG.	86
Figure 66. Wet Weather Diazinon Concentrations at Waiver Benchmark Site 04D_ETTG.....	87
Figure 67. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 04D_ETTG.....	87
Figure 68. Dry Weather DDE Concentrations at TMDL LA Site 01_BPT_15.....	88
Figure 69. Wet Weather Chlorpyrifos Concentrations at TMDL LA Site 03_UNIV .....	88
Figure 70. Wet Weather Chlorpyrifos Concentrations at TMDL Ag Land Use Site 02D_BROOM.....	89
Figure 71. South Revolon Responsibility Area Map.....	94
Figure 72. Dry Weather Nitrate-N Concentrations at Waiver Benchmark Site 04D_LAS.....	98
Figure 73. Dry Weather Dissolved Copper Concentrations at Waiver Benchmark Site 04D_LAS .....	98
Figure 74. Dry Weather DDE Concentrations at Waiver Benchmark Site 04D_LAS .....	99
Figure 75. Dry Weather Toxaphene Concentrations at Waiver Benchmark Site 04D_LAS.....	99
Figure 76. Wet Weather Nitrate-N Concentrations at Waiver Benchmark Site 04D_LAS.....	100
Figure 77. Wet Weather Dissolved Copper Concentrations at Waiver Benchmark Site 04D_LAS .....	100
Figure 78. Wet Weather DDD Concentrations at Waiver Benchmark Site 04D_LAS .....	101
Figure 79. Wet Weather DDE Concentrations at Waiver Benchmark Site 04D_LAS.....	101

Figure 80. Wet Weather DDT Concentrations at Waiver Benchmark Site 04D_LAS.....	102
Figure 81. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 04D_LAS .....	102
Figure 82. Wet Weather Toxaphene Concentrations at Waiver Benchmark Site 04D_LAS ...	103
Figure 83. Wet Weather Chlopyrifos Concentrations at Waiver Benchmark Site 04D_LAS...	103
Figure 84. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 04D_LAS .....	104
Figure 85. Dry Weather Nitrate-N Concentrations at TMDL LA Site 04_WOOD.....	104
Figure 86. Dry Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 04D_WOOD	105
Figure 87. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 04_WOOD	105
Figure 88. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 04D_WOOD .....	106
Figure 89. Dry Weather DDE Concentrations at TMDL LA Site 01_BPT_15.....	106
Figure 90. Wet Weather Chlorpyrifos Concentrations at TMDL LA Site 04_WOOD .....	107
Figure 91. Wet Weather Chlorpyrifos Concentrations at TMDL Ag Land Use Site 04D_WOOD .....	107
Figure 92. LaVista Drain Responsibility Area Map .....	112
Figure 93. Wet Weather Dissolved Copper Concentrations at Waiver Benchmark Site 05D_LAVD.....	116
Figure 94. Wet Weather DDD Concentrations at Waiver Benchmark Site 05D_LAVD.....	116
Figure 95. Wet Weather DDE Concentrations at Waiver Benchmark Site 05D_LAVD .....	117
Figure 96. Wet Weather DDT Concentrations at Waiver Benchmark Site 05D_LAVD .....	117
Figure 97. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 05D_LAVD.....	118
Figure 98. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 05D_LAVD .....	118
Figure 99. Wet Weather Diazinon Concentrations at Waiver Benchmark Site 05D_LAVD....	119
Figure 100. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 05D_LAVD	119
Figure 101. Dry Weather Nitrate-N Concentrations at TMDL LA Site 05_CENTR.....	120
Figure 102. Dry Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 05D_SANT_VCWPD.....	120
Figure 103. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 05_CENTR .....	121
Figure 104. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 05D_SANT_VCWPD.....	121
Figure 105. Dry Weather Total Selenium Concentrations at TMDL LA Site 04_WOOD .....	122

Figure 106. Dry Weather Total Selenium Concentrations at TMDL Ag Land Use Site 05D_SANT_VCWPD.....	122
Figure 107. Dry Weather DDE Concentrations at TMDL LA Site 04_WOOD.....	123
Figure 108. Dry Weather DDT Concentrations at TMDL LA Site 04_WOOD.....	123
Figure 109. Dry Weather Toxaphene Concentrations at TMDL LA Site 04_WOOD .....	124
Figure 110. Wet Weather Nitrate-N Concentrations at TMDL LA Site 05_CENTR .....	124
Figure 111. Wet Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 05D_SANT_VCWPD.....	125
Figure 112. Wet Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 05_CENTR .....	125
Figure 113. Wet Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 05D_SANT_VCWPD.....	126
Figure 114. Wet Weather Chlorpyrifos Concentrations at TMDL LA Site 04_WOOD .....	126
Figure 115. Wet Weather Chlorpyrifos Concentrations at TMDL Ag Land Use Site 05D_SANT_VCWPD.....	127
Figure 116. Beardsley Wash Responsibility Area Map.....	132
Figure 117. Wet Weather DDD Concentrations at Waiver Benchmark Site 05T_HONDO.....	136
Figure 118. Wet Weather DDE Concentrations at Waiver Benchmark Site 05T_HONDO .....	136
Figure 119. Wet Weather DDT Concentrations at Waiver Benchmark Site 05T_HONDO .....	137
Figure 120. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 05T_HONDO.....	137
Figure 121. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 05T_HONDO .....	138
Figure 122. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 05T_HONDO .....	138
Figure 123. Dry Weather Nitrate-N Concentrations at TMDL LA Site 05_CENTR.....	139
Figure 124. Dry Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 05D_SANT_VCWPD.....	139
Figure 125. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 05_CENTR .....	140
Figure 126. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 05D_SANT_VCWPD.....	140
Figure 127. Dry Weather Total Selenium Concentrations at TMDL LA Site 04_WOOD .....	141
Figure 128. Dry Weather Total Selenium Concentrations at TMDL Ag Land Use Site 05D_SANT_VCWPD.....	141
Figure 129. Dry Weather DDE Concentrations at TMDL LA Site 04_WOOD.....	142

Figure 130. Dry Weather DDT Concentrations at TMDL LA Site 04_WOOD.....	142
Figure 131. Dry Weather Toxaphene Concentrations at TMDL LA Site 04_WOOD .....	143
Figure 132. Wet Weather Nitrate-N Concentrations at TMDL LA Site 05_CENTR .....	143
Figure 133. Wet Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 05D_SANT_VCWPD.....	144
Figure 134. Wet Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 05_CENTR .....	144
Figure 135. Wet Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 05D_SANT_VCWPD.....	145
Figure 136. Wet Weather Chlorpyrifos Concentrations at TMDL LA Site 04_WOOD .....	145
Figure 137. Wet Weather Chlorpyrifos Concentrations at TMDL Ag Land Use Site 05D_SANT_VCWPD.....	146
Figure 138. Arroyo Conejo Responsibility Area Map.....	151
Figure 139. Wet Weather DDD Concentrations at Waiver Benchmark Site 06T_LONG2 .....	155
Figure 140. Wet Weather DDE Concentrations at Waiver Benchmark Site 06T_LONG2.....	155
Figure 141. Wet Weather DDT Concentrations at Waiver Benchmark Site 06T_LONG2.....	156
Figure 142. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 06T_LONG2.....	156
Figure 143. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 06T_LONG2 .....	157
Figure 144. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 06T_LONG2 .....	157
Figure 145. Dry Weather DDE Concentrations at TMDL LA Site 9B_ADOLF .....	158
Figure 146. Dry Weather DDT Concentrations at TMDL LA Site 9B_ADOLF .....	158
Figure 147. Arroyo Simi Responsibility Area Map.....	162
Figure 148. Wet Weather DDD Concentrations at Waiver Benchmark Site 06T_LONG2 .....	166
Figure 149. Wet Weather DDE Concentrations at Waiver Benchmark Site 06T_LONG2.....	166
Figure 150. Wet Weather DDT Concentrations at Waiver Benchmark Site 06T_LONG2.....	167
Figure 151. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 06T_LONG2.....	167
Figure 152. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 06T_LONG2 .....	168
Figure 153. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 06T_LONG2 .....	168
Figure 154. Dry Weather Nitrate-N Concentrations at TMDL LA Site 07_HITCH.....	169



Figure 155. Dry Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 07D_HITCH _LEVEE_2.....	169
Figure 156. Dry Weather Nitrate-N +Nitrite-N Concentrations at TMDL LA Site 07_HITCH	170
Figure 157. Dry Weather Nitrate-N +Nitrite-N Concentrations at TMDL Ag Land Use Site 07D_HITCH_LEVEE_2.....	170
Figure 158. Las Posas Responsibility Area Map.....	175
Figure 159. Wet Weather DDD Concentrations at Waiver Benchmark Site 06T_LONG2.....	179
Figure 160. Wet Weather DDE Concentrations at Waiver Benchmark Site 06T_LONG2.....	179
Figure 161. Wet Weather DDT Concentrations at Waiver Benchmark Site 06T_LONG2.....	180
Figure 162. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 06T_LONG2.....	180
Figure 163. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 06T_LONG2 .....	181
Figure 164. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 06T_LONG2 .....	181
Figure 165. Dry Weather DDE Concentrations at TMDL LA Site 06_SOMIS.....	182
Figure 166. Tapo Canyon Responsibility Area Map.....	186
Figure 167. Dry Weather Total Dissolved Solids Concentrations at Waiver Benchmark Site S04T_TAPO.....	190
Figure 168. Dry Weather Sulfate Concentrations at Waiver Benchmark Site S04T_TAPO....	190
Figure 169. Dry Weather Chloride Concentrations at Waiver Benchmark Site S04T_TAPO..	191
Figure 170. Dry Weather Nitrate-N Concentrations at Waiver Benchmark Site S04T_TAPO	191
Figure 171. Dry Weather DDE Concentrations at Waiver Benchmark Site S04T_TAPO.....	192
Figure 172. Dry Weather DDT Concentrations at Waiver Benchmark Site S04T_TAPO.....	192
Figure 173. Wet Weather Sulfate Concentrations at Waiver Benchmark Site S04T_TAPO....	193
Figure 174. Wet Weather DDD Concentrations at Waiver Benchmark Site S04T_TAPO.....	193
Figure 175. Wet Weather DDE Concentrations at Waiver Benchmark Site S04T_TAPO.....	194
Figure 176. Wet Weather DDT Concentrations at Waiver Benchmark Site S04T_TAPO.....	194
Figure 177. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site S04T_TAPO.....	195
Figure 178. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site S04T_TAPO	195
Figure 179. Dry Weather Chloride Concentrations at TMDL LA Site S04T_TAPO.....	196
Figure 180. Dry Weather Nitrogen Compounds Concentrations at TMDL Ag Land Use Site S04T_TAPO.....	196
Figure 181. Boulder Creek Responsibility Area Map.....	201

Figure 182. Wet Weather Nitrate-N Concentrations at Waiver Benchmark Site S03T_BOULD .....	205
Figure 183. Wet Weather DDE Concentrations at Waiver Benchmark Site S03T_BOULD....	205
Figure 184. Wet Weather DDT Concentrations at Waiver Benchmark Site S03T_BOULD....	206
Figure 185. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site S03T_BOULD .....	206
Figure 186. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site S03T_BOULD .....	207
Figure 187. Wet Weather Nitrogen Compounds Concentrations at TMDL Ag Land Use Site S03T_BOULD .....	207
Figure 188. Bardsdale Responsibility Area Map.....	211
Figure 189. Wet Weather DDD Concentrations at Waiver Benchmark Site S03D_BARDS ...	215
Figure 190. Wet Weather DDE Concentrations at Waiver Benchmark Site S03D_BARDS....	215
Figure 191. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site S03D_BARDS .....	216
Figure 192. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site S03D_BARDS .....	216
Figure 193. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site S03D_BARDS .....	217
Figure 194. Santa Paula Creek Responsibility Area Map.....	221
Figure 195. Wet Weather Total Dissolved Solids Concentrations at Waiver Benchmark Site S03T_TIMB .....	225
Figure 196. Wet Weather Sulfate Concentrations at Waiver Benchmark Site S03T_TIMB ....	225
Figure 197. Wet Weather DDT Concentrations at Waiver Benchmark Site S03T_TIMB .....	226
Figure 198. Todd Barranca Responsibility Area Map.....	230
Figure 199. Dry Weather Total Dissolved Solids Concentrations at Waiver Benchmark Site S02T_TODD.....	234
Figure 200. Dry Weather Sulfate Concentrations at Waiver Benchmark Site S02T_TODD....	234
Figure 201. Wet Weather DDD Concentrations at Waiver Benchmark Site S02T_TODD .....	235
Figure 202. Wet Weather DDE Concentrations at Waiver Benchmark Site S02T_TODD .....	236
Figure 203. Wet Weather DDT Concentrations at Waiver Benchmark Site S02T_TODD .....	236
Figure 204. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site S02T_TODD.....	237
Figure 205. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site S02T_TODD .....	237

Figure 206. Fish Tissue Toxaphene Concentrations at TMDL LA Site Santa Clara River Estuary .....	238
Figure 207. Ellsworth Barranca Responsibility Area Map .....	243
Figure 208. Wet Weather Chloride Concentrations at Waiver Benchmark Site S02T_ELLS ..	247
Figure 209. Wet Weather DDE Concentrations at Waiver Benchmark Site S02T_ELLS .....	247
Figure 210. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site S02T_ELLS .....	248
Figure 211. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site S02T_ELLS .....	248
Figure 212. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site S02T_ELLS	249
Figure 213. Fish Tissue Toxaphene Concentrations at TMDL LA Site Santa Clara River Estuary .....	249
Figure 214. Ventura River Inland Responsibility Area Map .....	253
Figure 215. Wet Weather DDE Concentrations at Waiver Benchmark Site VRT_THACH ....	257
Figure 216. Ventura River Coastal Responsibility Area Map .....	261
Figure 217. Wet Weather DDE Concentrations at Waiver Benchmark Site VRT_THACH ....	265
Figure 218. San Antonio Creek Responsibility Area Map .....	269
Figure 219. McGrath Lake Coastal Responsibility Area Map .....	274
Figure 220. Dry Weather Nitrate-N Concentrations at Waiver Benchmark Site OXD_CENTR .....	278
Figure 221. Wet Weather Nitrate-N Concentrations at Waiver Benchmark Site OXD_CENTR .....	278
Figure 222. Wet Weather Dissolved Copper Concentrations at Waiver Benchmark Site OXD_CENTR.....	279
Figure 223. Wet Weather DDD Concentrations at Waiver Benchmark Site OXD_CENTR....	279
Figure 224. Wet Weather DDE Concentrations at Waiver Benchmark Site OXD_CENTR ....	280
Figure 225. Wet Weather DDT Concentrations at Waiver Benchmark Site OXD_CENTR ....	280
Figure 226. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site OXD_CENTR.....	281
Figure 227. Wet Weather Toxaphene Concentrations at Waiver Benchmark Site OXD_CENTR .....	281
Figure 228. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site OXD_CENTR.....	282
Figure 229. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site OXD_CENTR .....	282
Figure 230. Wet Weather DDD Concentrations at TMDL LA Site OXD_CENTR .....	283

Figure 231. Wet Weather DDE Concentrations at TMDL LA Site OXD\_CENTR ..... 283

Figure 232. Wet Weather DDT Concentrations at TMDL LA Site OXD\_CENTR ..... 284

Figure 233. Wet Weather Total Chlordane Concentrations at TMDL LA Site OXD\_CENTR 284

Figure 234. Malibu Responsibility Area Map ..... 289

Figure 235. Wet Weather DDD Concentrations at Waiver Benchmark Site 05T\_HONDO ..... 293

Figure 236. Wet Weather DDE Concentrations at Waiver Benchmark Site 05T\_HONDO ..... 293

Figure 237. Wet Weather DDT Concentrations at Waiver Benchmark Site 05T\_HONDO ..... 294

Figure 238. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site  
05T\_HONDO ..... 294

Figure 239. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 05T\_HONDO  
..... 295

Figure 240. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 05T\_HONDO  
..... 295

## List of Appendices

---

- Appendix A. Grower Survey of Best Management Practices
- Appendix B. Maps Showing Relationship Between Responsibility Areas and HUC-12 Watersheds
- Appendix C. Maps of Enrolled and Not Enrolled Agricultural Parcels by Responsibility Area
- Appendix D. VCAILG Members' Status in Completing Education Requirements
- Appendix E. Parcel List Detailing VCAILG Membership Status, BMP Survey Completion and Payment of Fees

GIS shapefiles organized as follows:

- HUC Boundary Shapefile
- Monitoring Site Drainage Area Shapefile
- Monitoring Site Shapefile
- Parcels with Membership Status Shapefile
- Responsibility Area Boundary Shapefile

## Responsibility Area Name Key

---

<b>RA #</b>	<b>RA Name in April 2017 WQMP</b>	<b>RA Name in Revised WQMP and Outreach Documents</b>
1	04D_ETTG-Revolon Responsibility Area	Etting-Wood
2	04D_ETTG-Calleguas Responsibility Area	Lower Calleguas Creek
3	04D_LAS Responsibility Area	South Revolon
4	05D_LAVD Responsibility Area	LaVista Drain
5	01T_ODD3_ARN Responsibility Area	Mugu Lagoon
6	05T_HONDO Responsibility Area	Beardsley Wash
7	06T_LONG2-Conejo Responsibility Area	Arroyo Conejo
8	06T_LONG2-Simi Responsibility Area	Arroyo Simi
9	06T_LONG2-Las Posas Responsibility Area	Las Posas
10	05T_HONDO-Malibu Responsibility Area	Malibu
11	OXD_CENTR Responsibility Area	McGrath Lake Coastal
12	S04T_TAPO Responsibility Area	Tapo Canyon
13	S02T_TODD Responsibility Area	Todd Barranca
14	S02T_ELLS Responsibility Area	Ellsworth Barranca
15	S03D_BARDS Responsibility Area	Bardsdale
16	S03T_BOULD Responsibility Area	Boulder Creek
17	S03T_TIMB Responsibility Area	Santa Paula Creek
18	VRT_THACH-Inland Responsibility Area	Ventura River Inland
19	VRT_THACH-Coastal Responsibility Area	Ventura River Coastal
20	VRT_SANTO Responsibility Area	San Antonio Creek

# Document Overview

---

The 2016 *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Agricultural Lands within the Los Angeles Region* (“Conditional Waiver”, Order No. R4-2016-0143) includes the requirement for discharger groups to develop a water quality management plan (WQMP) to address exceedances of water quality benchmarks. The WQMP is an iterative process which includes plans for additional or upgraded management practices to achieve water quality benchmarks. This is the first WQMP submitted for compliance with the 2016 Conditional Waiver, on behalf of the Ventura County Agricultural Irrigated Lands Group (VCAILG). The plan is based on water quality monitoring data from 2007 through June 2016.

## **WAIVER REQUIREMENTS FOR THE FIRST 2016 CONDITIONAL WAIVER WQMP**

Appendix 3 of the Conditional Waiver details the monitoring and reporting requirements for any Ventura County discharger group, with section 2 outlining WQMP requirements. The major elements are as follows:

- Summary of Existing Conditions (organized by monitoring site) and to include: maps, graphs of constituents that exceed the exceedance threshold for the associated water quality benchmark, a report of the management practices currently implemented, a comparison of the graphs/exceeded constituents to the level of management practice implementation and a pesticide use evaluation.
- Proposal for Additional or Upgraded Management Practices
- Outreach Plan

## **WQMP STRUCTURE**

To meet the requirements of a WQMP, this plan is organized into the following sections:

- Introduction
- Group Membership and Setting
  - Description of VCAILG governance and membership at the time when management practice surveys were completed to produce this WQMP; general overview of agriculture in Ventura County.
- WQMP Development Process
  - This includes defining responsibility areas that associate VCAILG monitoring sites with pertinent HUC-12 watersheds.
- Summary of Existing Conditions by Responsibility Area
  - General map of each responsibility area associated with a VCAILG monitoring site. More detailed maps with HUC-12 watershed boundaries and showing enrolled and non-enrolled agricultural parcels can be found in Appendix B and C, respectively.
  - Best Management Practice (BMP) survey results by responsibility area.
  - Exceedance graphs and summary table of constituent exceedances for each responsibility area.
  - Proposal for additional management practices presented as tables that bring together benchmark exceedances, applicable BMPs to address those exceedances,

current level of BMP adoption, and designation of whether additional implementation of each BMP is being recommended.

- Pesticide use evaluation for the three current use pesticides with water quality benchmarks
- Schedule
  - Initial schedule with target adoption rates for applicable BMPs in each responsibility area for this Conditional Waiver term
- Outreach Plan
  - Description of VCAILG's approach to informing its members of the benchmark exceedances within their responsibility area and the applicable BMPs required for implementation.
- Explanation of Compliance List Appendices
  - The Conditional Waiver requires that the compliance status of VCAILG members be reported as part of the WQMP. This includes membership in VCAILG and payment of fees, survey completion, and education credits.

# Introduction

---

On April 14, 2016, the Los Angeles Regional Water Quality Control Board adopted the *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region* (“Conditional Waiver”, Order No. R4-2016-0143). The purpose of the Conditional Waiver is to assess the effects of, and control discharges from irrigated agricultural lands in Los Angeles and Ventura Counties, including irrigation return flows, flows from tile drains, and storm water runoff. These discharges can affect water quality by transporting nutrients, pesticides, sediment, salts, and other pollutants from cultivated fields into surface waters, potentially impairing designated beneficial uses. Owners and operators of agricultural lands in Ventura and Los Angeles Counties must comply with provisions contained in the Conditional Waiver or be regulated under other Regional Board programs. The 2016 Order was the third iteration of the Conditional Waiver adopted for the Los Angeles Region.

The Conditional Waiver allows individual landowners and growers to comply with its provisions by working collectively as a Discharger Group, or as an individual. A Discharger Group is defined by the Conditional Waiver as “any group of dischargers and/or organizations that forms to comply with this Order. Discharger Groups can be, but are not limited to, organizations formed on a geographic basis or formed with other factors in common such as commodities.” The primary purpose of allowing Discharger Groups is to encourage collaboration on monitoring and reporting and to increase the effectiveness of management practices throughout a watershed to attain water quality benchmarks. Those landowners and growers choosing to comply with the Conditional Waiver as a Discharger Group must signify by submitting a Group Notice of Intent and by developing a Discharger Group monitoring program.

To assist agricultural landowners and growers that farm within the boundaries of Ventura County, various agricultural organizations, water districts and individual farmers joined together in 2006 to form the Ventura County Agricultural Irrigated Lands Group (VCAILG), which is intended to act as one unified “Discharger Group” for those agricultural landowners and growers that wish to participate. A Notice of Intent (NOI) to comply was submitted to the Regional Board by the VCAILG under the two previous Conditional Waivers and on October 14, 2016 an NOI for compliance with the 2016 Conditional Waiver was submitted. The NOI included the VCAILG membership roster, as well as the required Quality Assurance Project Plan (QAPP) and Monitoring and Reporting Program Plan (MRP), which detail the water quality monitoring and reporting procedures being conducted in compliance with the terms of the Conditional Waiver.

Following the completion of each monitoring year, VCAILG submits Annual Monitoring Reports (AMR) that provide a detailed summary of activities conducted by the VCAILG during the past year, including, among other things, a discussion of monitoring results that exceeded water quality benchmarks. The AMR for data collected between July 2015 and June 2016, was submitted on December 15, 2016. Data contained in this AMR was collected while the 2010 Conditional Waiver was in effect and prior to approval of the MRP and QAPP submitted to meet the requirements of the 2016 Conditional Waiver.

The data compilation and identification of benchmark exceedances in the AMR, lends itself to the work of developing a Water Quality Management Plan (WQMP), which serves to evaluate long-term water quality in the context of on-farm management practices, and develop a plan to implement additional and upgraded practices in order to achieve water quality benchmarks, as well as the approach of VCAILG to inform and provide outreach to its members regarding the



outcome and need for additional management practices. This document serves as the WQMP to meet the requirements of the 2016 Conditional Waiver and considers water quality monitoring data collected from 2007 to 2016 (ending with the data reported in the 2016 AMR).

## Group Membership and Setting

---

VCAILG oversight is provided by a 17-member Steering Committee and a 6-member Executive Committee (also members of the Steering Committee). Steering Committee membership consists of agricultural organization representatives, agricultural water district representatives, landowners and growers from the three primary watersheds in Ventura County (Calleguas Creek, Santa Clara River, and Ventura River). Steering Committee membership also represents the major commodities grown in Ventura County (strawberries, nursery stock, citrus, vegetables, and avocados). The Steering Committee roster is presented in Table 1.

Because the VCAILG is an unincorporated organization, the Farm Bureau of Ventura County acts as the responsible entity for the collection of funds, contracting with consultants, and other fiscal and/or business matters that require an organization with some form of tax status; the Farm Bureau is a non-profit 501(c)(5) organization.

Table 2 contains a summary of the VCAILG membership statistics, including the number of landowners and parcels enrolled, as well as irrigated acreage enrolled in each watershed. All membership statistics represent group status in December of 2016. Membership information is reported for this time frame because it reflects group enrollment at the time that the management practice survey was conducted, with the survey results being a foundation of this WQMP. At the time of surveying its members, the VCAILG represented 1,107 Ventura County agricultural landowners and 72,571 irrigated acres. According to the Ventura County Assessor's records, there were an estimated 775 landowners not enrolled in the VCAILG. Therefore, the VCAILG represented 59 percent of agricultural landowners in Ventura County covering approximately 79 percent of the estimated irrigated acreage. In March 2017, the Los Angeles Regional Water Quality Control Board (Regional Board) mailed notices of violation to those landowners not enrolled in VCAILG, which has led to a significant increase in membership. The recent increase in membership is captured in the Appendix E parcel list.

**Table 1. VCAILG Steering Committee Membership**

<b>Member, Organization <sup>1</sup></b>	<b>Crop(s) Represented</b>	<b>Watershed(s) Represented</b>
Edgar Terry, Terry Farms, Inc. (Committee Chair)	Strawberries, Vegetables	Calleguas Creek, Santa Clara River
Jonathan Chase, Hailwood, Inc.	Strawberries, Vegetables	Calleguas Creek
Jerry Conrow, Ojai Basin GMA*	Citrus	Ventura River
Robert Crudup, BrightView Tree Company	Nursery Stock	Santa Clara River
Paul DeBusschere, DeBusschere Ranch	Strawberries, Avocados	Calleguas Creek
Mike Friel, Laguna Grove Service	Citrus	Calleguas Creek
Jesse Gomez, Newhall Land & Farming	Citrus, Hay, Nursery Stock, Vegetables, Sod, Pasture	Santa Clara River
Jurgen Gramckow, Southland Sod Farms	Sod, Hay, Oats, Vegetables	Calleguas Creek, Santa Clara River, Ventura River
Gus Gunderson, Limoneira Company	Avocado, Citrus	Santa Clara River
John Krist, Farm Bureau of Ventura County*	N/A	N/A
John Mathews, Arnold, Bleuel, LaRochelle, et al.*	N/A	N/A
Doug O'Hara, Somis Pacific Ag Management Company	Avocado, Citrus	Calleguas Creek, Santa Clara River
Kelle Pistone, Assoc. of Water Agencies of Ventura County*	N/A	N/A
Rob Roy, Ventura County Agricultural Association*	N/A	N/A
Dave Souza, Pleasant Valley County Water District*	N/A	N/A
Craig Underwood, Underwood Ranches	Avocado, Citrus, Vegetables	Calleguas Creek, Santa Clara River
Jason Vis, Lloyd Butler Ranch	Avocado, Citrus	Calleguas Creek, Santa Clara River

N/A = Not Applicable

1. An asterisk denotes Executive Committee membership

**Table 2. VCAILG Membership Statistics as of December 2016**

<b>Watershed</b>	<b>Landowner Count</b>	<b>Parcel Count</b>	<b>Irrigated Acres</b>
Calleguas Creek	513	1,191	37,437
Oxnard Coastal	48	104	3,917
Santa Clara River	431	1,047	27,340
Ventura River	161	343	3,878
<i>Total</i>	<i>1,153</i>	<i>2,685</i>	<i>72,571</i>

1. There are 1,107 unique landowners enrolled, a number of whom own property in more than one watershed.

## IRRIGATED AGRICULTURE IN VENTURA COUNTY

Ventura County covers 1,843 square miles (approximately 1.2 million acres) with 43 miles of coastline (Figure 1). The Pacific Ocean forms its southwestern boundary, with Los Angeles County to the southeast, Kern County to the north and Santa Barbara County to the west. The Los Padres National Forest accounts for the northern half of the county, with residential, agricultural and business uses in the southern portion. Of the estimated 293,549 acres of agricultural land in the county, there are approximately 95,802 acres of irrigated cropland.<sup>1</sup> The Calleguas Creek Watershed contains the highest number of irrigated acres (approximately 51,000), followed by the Santa Clara River Watershed (approximately 33,000), the Oxnard Plain and Coastal Watersheds (approximately 6,200), and finally the Ventura River Watershed (approximately 3,400).<sup>2</sup>

Agriculture is a major industry in Ventura County, generating over \$2 billion in gross sales for 2015, placing the county 8<sup>th</sup> in a statewide ranking of California's 58 counties.<sup>3</sup> This gross value is up almost three percent from 2014.<sup>1</sup> Strawberries are the number one grossing crop type in Ventura County, and experienced a 1.6 percent decrease in gross sales between 2014 and 2015.<sup>1</sup> Table 3 lists Ventura County's ten leading crops in gross value for 2015. Characteristics of each of the three main watersheds in Ventura County are discussed in more detail in the following sections.

---

<sup>1</sup> Ventura County Agricultural Commissioner. *Ventura County's Crop and Livestock Report 2015*. December 13, 2016.

<sup>2</sup> Estimates of irrigated agricultural acreage by watershed are based on the VCAILG membership database and also includes estimated irrigated acreage for parcels not enrolled in VCAILG.

<sup>3</sup> California Department of Food and Agriculture. *California Agricultural Statistics Review 2015-2016*. Agricultural Statistics Overview.

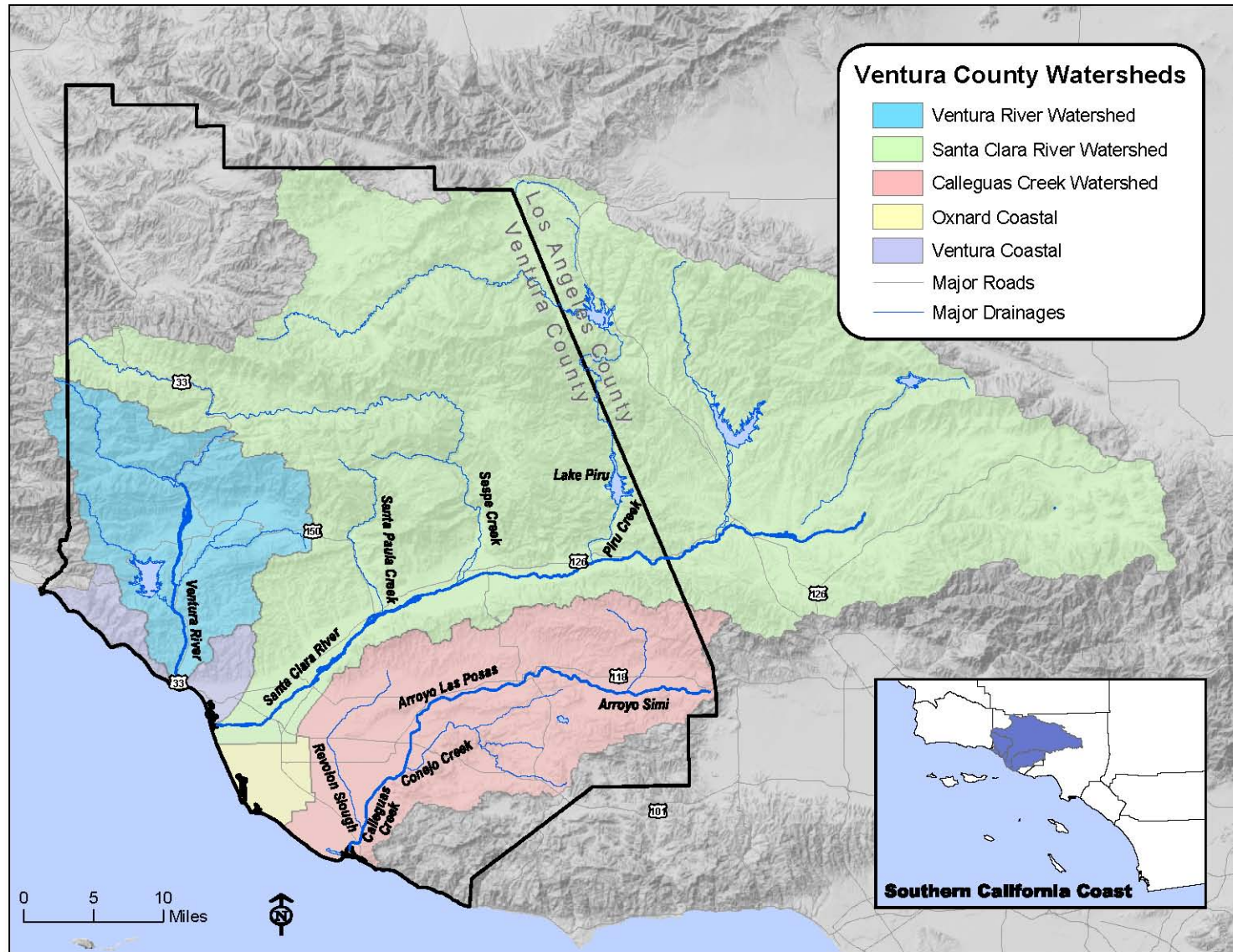


Figure 1. Ventura County Watersheds

**Table 3. Ventura County’s Leading Agricultural Commodities–2015**

<b>Commodity</b>	<b>Gross Value (\$)</b>
1. Strawberries	617,832,000
2. Lemons	259,539,000
3. Raspberries	228,217,000
4. Nursery Stock	195,817,000
5. Celery	194,756,000
6. Avocados	188,818,000
7. Peppers	54,163,000
8. Tomatoes	50,474,000
9. Cut Flowers	48,522,000
10. Kale	38,088,000

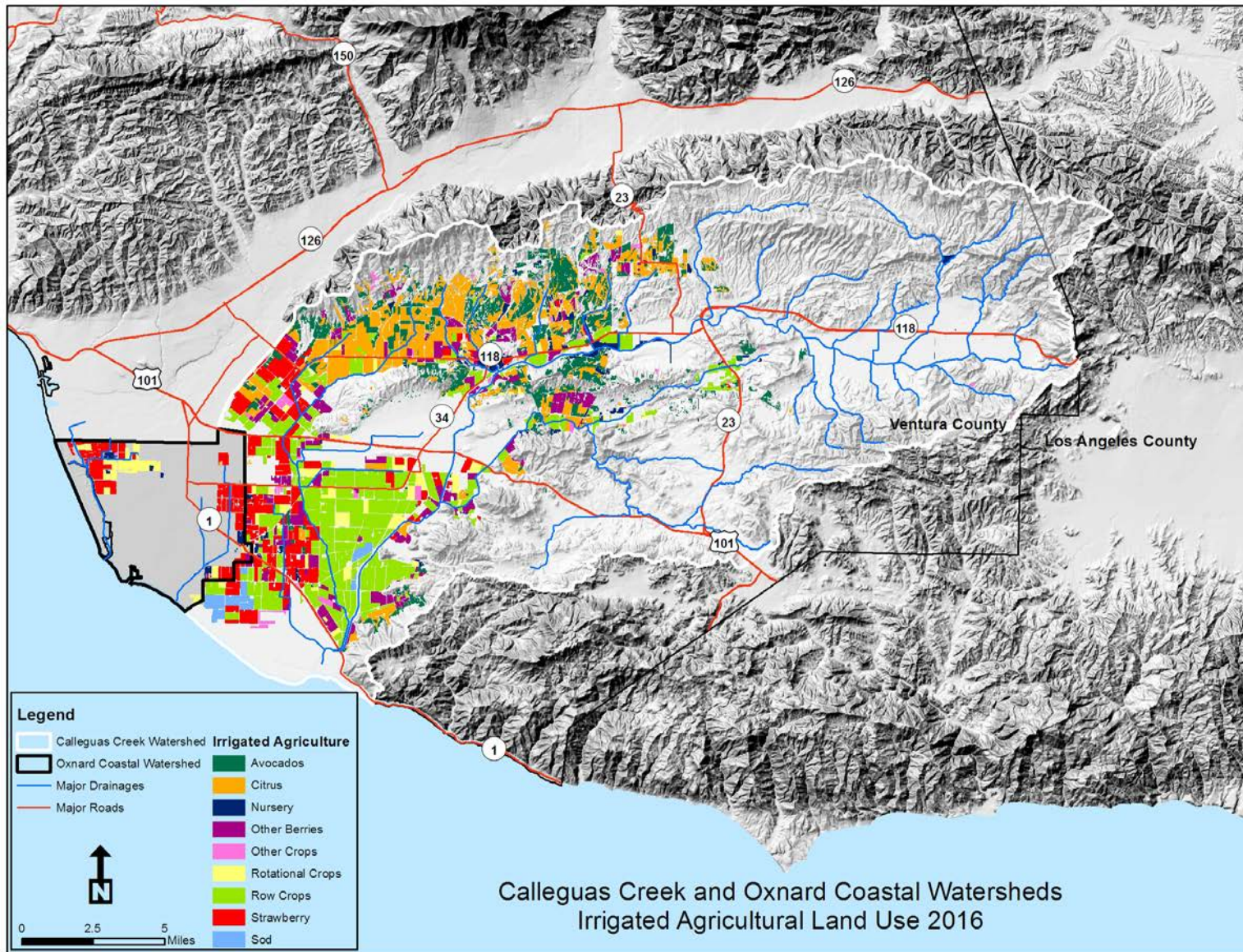
Source: Ventura County Agricultural Commissioner. *Ventura County’s Crop and Livestock Report 2015*. December 13, 2016.

### **Calleguas Creek Watershed**

The Calleguas Creek Watershed (Figure 2) is approximately 30 miles long, 14 miles wide, and drains an area of approximately 343 square miles or 219,520 acres. Cities within the watershed include Camarillo, Thousand Oaks, Moorpark, and Simi Valley. The main surface water system drains from the mountains in the northeast part of the watershed toward the southwest, where it flows through the Oxnard Plain before emptying into the Pacific Ocean through Mugu Lagoon. The main waterbodies in the watershed include Calleguas Creek, Revolon Slough, Beardsley Channel, Conejo Creek, Arroyo Santa Rosa, Arroyo Las Posas and Arroyo Simi. All of these waterbodies appear on the federal 303(d) list of impaired waterbodies, triggering the requirement to develop Total Maximum Daily Loads (TMDLs) for specified pollutants identified as causing impairments. Runoff from irrigated agricultural lands has been identified as one of the sources of these water quality impairments for specified pollutants. To date, TMDLs have been adopted for Nitrogen Compounds, Trash, Organochlorine Pesticides, Polychlorinated Biphenyls (PCBs) and Siltation, Toxicity, Metals and Selenium, and Salts.

At the northwest end of the Oxnard Plain lies a small coastal watershed that drains to McGrath Lake. A TMDL has been adopted to address pesticides and PCBs impairments in the lake. This TMDL applies to the area within the Oxnard Coastal watershed that drains to the Central Ditch at Harbor Boulevard.

Avocados and citrus crops such as lemons and oranges are typically grown in flat or gently sloping foothill areas in the watershed. Agricultural land located on the Oxnard Plain is planted predominately in a wide variety of truck crops, including strawberries, raspberries, peppers, green beans, celery, and onions, as well as sod farms and nurseries. Many farms located in the watershed grow multiple crops during a single calendar year. This multi-cropping technique is most common in the lower parts of the watershed, adjacent to Revolon Slough and Lower Calleguas Creek. Figure 2 shows the distribution of crop types throughout the Calleguas Creek and Oxnard Coastal Watersheds.

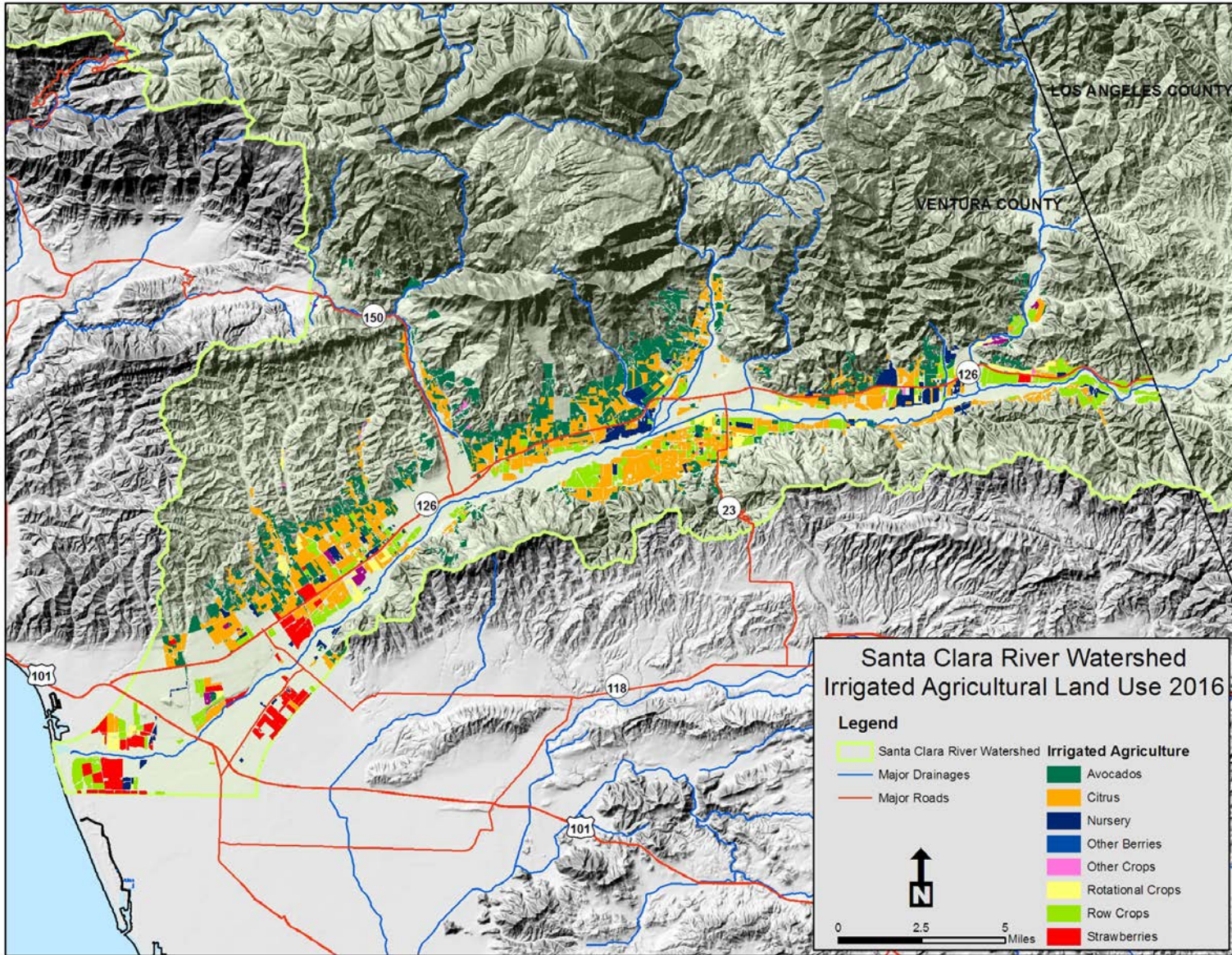


**Figure 2. Calleguas Creek and Oxnard Coastal Watersheds Agricultural Land Use**

## **Santa Clara River Watershed**

The Santa Clara River is the largest river system in southern California remaining in a relatively natural state. The river originates in the northern slope of the San Gabriel Mountains in Los Angeles County, traverses Ventura County, and flows into the Pacific Ocean halfway between the cities of San Buenaventura and Oxnard. The Santa Clara River and tributary system has a watershed area of about 1,634 square miles (Figure 3). Cities within the watershed include Ventura, Santa Paula, Fillmore, Piru, Santa Clarita, and Newhall. Within Ventura County, major tributaries the Sespe, Piru, and Santa Paula Creeks. Approximately 60 percent of the watershed is located in Ventura County. The most prevalent land use in the 500-year flood plain of the Santa Clara River is agriculture (62 percent), followed by industry (22 percent). Row crops and orchards are planted across the valley floor primarily in Ventura County and extend up adjacent slopes.

Several Santa Clara River reaches and tributaries appear on the federal 303(d) list of impaired waterbodies due to salts, nitrogen compounds, bacteria, and pesticides. TMDLs have been adopted for Nitrogen Compounds (upper and lower Santa Clara River reaches), Chloride (Reach 4B) and Bacteria (Estuary and Reaches 3, 5, 6, and 7). A TMDL for toxaphene in the Santa Clara River Estuary was incorporated in the 2010 Conditional Waiver as a single regulatory action and is also included in the 2016 Conditional Waiver.



**Figure 3. Santa Clara River Watershed Agricultural Land Use**



## **Ventura River Watershed**

The Ventura River and its tributaries drain a coastal watershed in western Ventura County. The watershed covers a fan-shaped area of 235 square miles, which is located within the western Transverse Ranges and is 31 miles long from upper Matilija Canyon to the Pacific Ocean (Figure 4). From the upper slopes of the Transverse Ranges, the surface water system in the Ventura River Watershed generally flows in a southerly direction to the estuary, located at the mouth of the Ventura River. Main tributaries in the watershed include Matilija Creek, Coyote Creek and San Antonio Creek. The City of Ojai and communities of Meiners Oaks, Oak View and Casitas Springs are located in the watershed, with surrounding suburban and agricultural areas comprising the Ventura River, Santa Ana, and Upper Ojai Valleys. Portions of the City of San Buenaventura border the lower reaches of the Ventura River. Irrigated agriculture constitutes approximately five percent of land uses in the watershed, with avocado and citrus as the predominant crops grown.

Several Ventura River reaches and tributaries appear on the federal 303(d) list of impaired waterbodies due to Algae/Eutrophic Conditions, Bacteria, Pumping/Water Diversion, and Trash. The Ventura River Estuary Trash TMDL became effective in 2008. A TMDL for algae, eutrophic conditions, and nutrients became effective in July 2013 (Algae TMDL). In its approval notice for the Algae TMDL, the USEPA determined that the Algae TMDL addresses the beneficial use impairments on the 303(d) list identified as being caused by pumping and water diversions. Consequently, a separate TMDL for pumping and water diversions is not expected to be adopted.

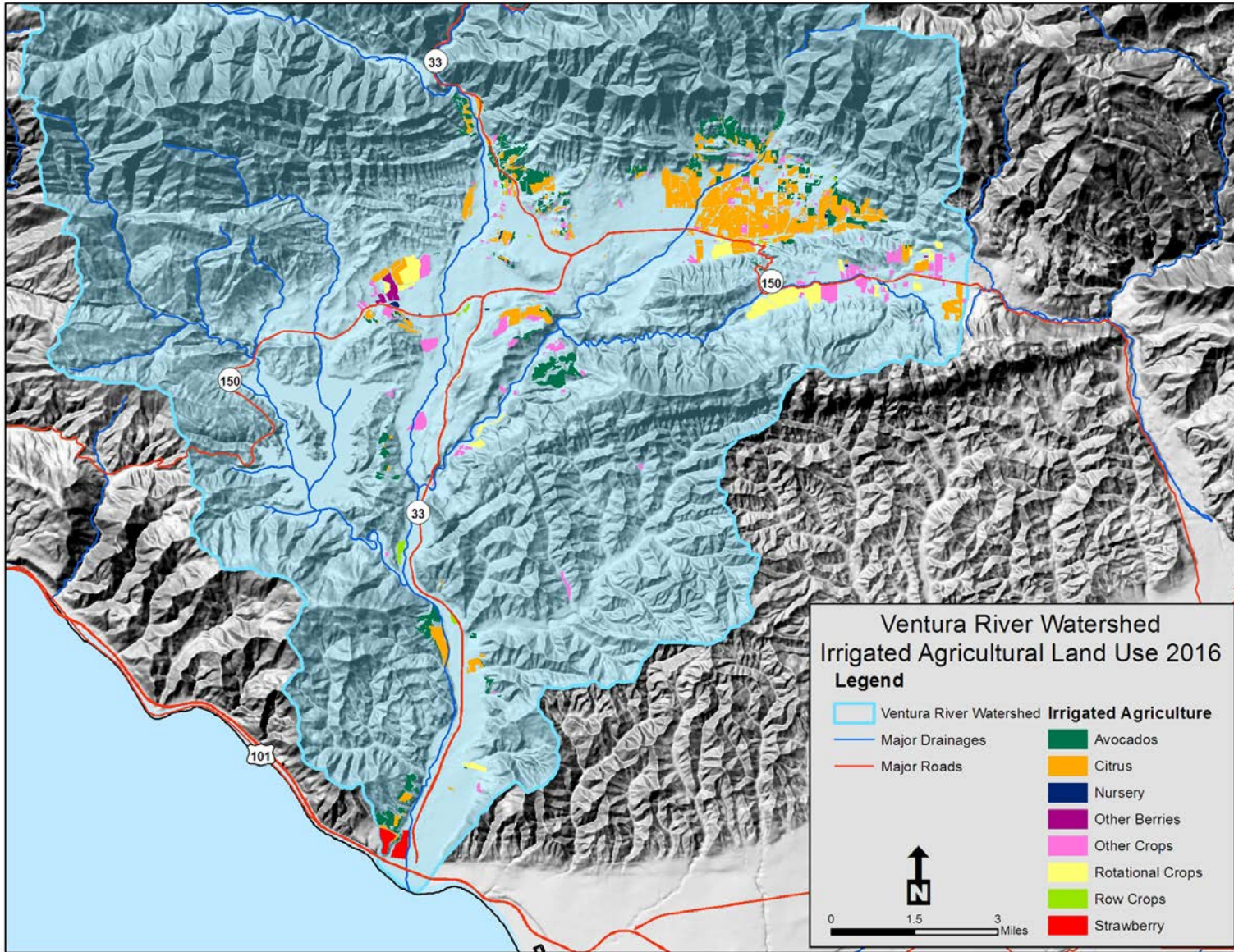


Figure 4. Ventura River Watershed Agricultural Land Use

# WQMP Development Process

---

Completion of this WQMP involved three distinct processes that joined together to result in area specific best management practice (BMP recommendations) in order to meet water quality benchmarks by their specified compliance dates. This is the first WQMP to utilize this process and is considered an adaptive management plan, which will be revised and modified with each iteration as additional survey and monitoring data is available and as additional BMPs are implemented by VCAILG members. The three processes of assigning responsibility areas, compiling management practice surveys, and evaluating benchmark exceedances are described below.

## RESPONSIBILITY AREAS

Appendix 3, Section 2.a.i. of the Conditional Waiver specifies:

*“The WQMP shall be organized by monitoring site. For each monitoring site provide:*

*i. A map showing the monitoring site, the land area draining to the monitoring site, the HUC-12 watershed in which the monitoring site is located, any adjacent HUC-12 watersheds that do not include a monitoring site<sup>6</sup>, and the enrolled and non-enrolled irrigated agricultural parcels with the HUC-12 watersheds.....*

***<sup>6</sup>Discharger groups shall propose a method for associating adjacent HUC-12 watersheds with monitoring sites in the WQMP.***” (emphasis added)

HUC-12 watersheds (hereinafter “HUC12s”) with monitoring sites were associated with adjacent HUC12s by defining twenty “responsibility areas,” covering all of Ventura County, which resulted in associations between HUC12s, VCAILG monitoring sites, TMDL compliance sites and TMDL Ag Land Use Sites (in the CCW), and TMDL assessment sites (for TMDLs outside of the CCW). Responsibility areas consist (with minor variations) of one or more HUC12s, or partial HUC12s - and were designed to be consistent with drainage patterns, regulatory reaches and TMDL responsibilities. In three cases, a HUC12 contained land that drains to different regulatory reaches. This meant that not all of the growers in those HUC12s are responsible for water quality outcomes at the same monitoring sites and the growers might also have different TMDL obligations. In these three cases, ArcGIS was used to divide the HUC12 into partial HUC12s to separate the land areas draining to different regulatory reaches, as follows:

The “Revolon Slough-Calleguas Creek” HUC12 was divided into two partial HUC12s:

- “Revolon Slough-Calleguas Creek (Revolon)” encompassing land draining to Revolon Slough (Reach 4)
- Revolon Slough-Calleguas Creek (Calleguas)” encompassing land draining to Calleguas Creek (Reaches 2 and 3)

The “Mugu Lagoon” HUC12 was divided into two partial HUC12s:

- “Mugu Lagoon-South” encompassing land draining to Mugu Lagoon
- “Mugu Lagoon-North” encompassing land draining to Beardsley Wash

The “Las Posas Arroyo” HUC12 was divided into two partial HUC12s:

- “Las Posas Arroyo-Reach 6” encompassing land draining to Arroyo Las Posas (Reach 6)

- “Las Posas Arroyo-Reach 7” encompassing land draining to Arroyo Simi (Reach 7)

Most responsibility areas include a nested VCAILG monitoring site drainage. In these cases, the VCAILG monitoring site at the base of the drainage was assigned as the Conditional Waiver benchmark “beacon site” for that responsibility area, and exceedances of benchmarks at that VCAILG monitoring site were used, in part, together with monitoring data from TMDL-related monitoring sites and BMP survey results to inform selection of BMPs for increased future implementation. A nested VCAILG monitoring site was not available for some responsibility areas (for example, responsibility areas containing the HUC12s draining to Conejo Creek, Calleguas Creek reaches 2 and 3, the Malibu Creek watershed, and several coastal watersheds). For these responsibility areas, crop percentages were evaluated and used to select the most representative VCAILG monitoring site from a neighboring responsibility area to serve as the Conditional Waiver benchmark beacon site. Despite its location in the Beardsley Wash subwatershed, 05T\_HONDO was assigned as a benchmark beacon site for the responsibility area containing the Malibu Creek Watershed because this monitoring site was chosen by Regional Board staff as a proxy VCAILG monitoring site for enrolled parcels in the Malibu Creek watershed.

In the following four cases, a HUC12 (or partial HUC12, see above) contained two nested VCAILG monitoring site drainages:

- San Antonio Creek HUC12 contained drainages for both VRT\_THACH and VRT\_SANTO monitoring sites
- Adams Canyon-Santa Clara River HUC12 contained drainages for both S02T\_TODD and S02T\_ELLS monitoring sites
- Revolon Slough - Calleguas Creek (Revolon) partial HUC12 contained drainages for both 04D\_ETTG and 04D\_LAS monitoring sites
- Timber Canyon-Santa Clara River HUC12 contained drainages for both S03T\_TIMB and S03D\_BARDS monitoring sites

In these cases, crop percentages were derived for each of the nested monitoring site drainages and the surrounding HUC12 (or partial HUC12). The VCAILG monitoring site drainage whose agricultural land use most closely matched the rest of the HUC12 was retained as part of the associated responsibility area. In the following three cases the less-suited VCAILG monitoring site drainage was defined as a stand-alone responsibility area with no external surrounding land:

- San Antonio Creek (VRT\_SANTO) responsibility area
- Ellsworth Barranca (S02T\_ELLS) responsibility area
- South Revolon responsibility area

In the fourth case, S03T\_TIMB was identified as the benchmark beacon site for a responsibility area involving a neighboring HUC12 that is non-contiguous with the drainage area for S03T\_TIMB. The responsibility areas and associated HUC12s and Waiver Benchmark beacon sites are listed in Table 4.

ArcGIS was used to permanently assign each irrigated agricultural parcel in the County (known to VCAILG as of December 2016) to one of the twenty responsibility areas and to VCAILG monitoring site drainages (the latter, where pertinent). Parcels were located using a Ventura County Assessors Parcel map shapefile downloaded in November 2016. For parcels that

straddled the boundary of a responsibility area and/or a VCAILG monitoring site drainage, the parcel was assigned to the area which contained  $\geq 50\%$  of its assessed acreage.

Forty-three of the agricultural parcels in Ventura County (known to VCAILG as of December 2016) were not present in the November 2016 Ventura County Assessor Parcel shapefile. Of these, 21 parcels were enrolled in VCAILG as of December 2016, 10 parcels are considered exempt from the Conditional Waiver (because the owner has reported to the Regional Board that no irrigation takes place), and 12 are un-enrolled. BMP surveys were submitted in 2017 for 12 of the 21 enrolled parcels. To make sure that all available survey results were assigned to responsibility areas, pdfs of Assessor parcel maps and Google Earth were consulted to assign the 12 parcels to responsibility areas. None of the 43 parcels missing from the Assessor Parcel shapefile are included in the shapefiles submitted with this WQMP.

*A map for each responsibility area illustrating the information in Table 4 is included in Appendix B. A map illustrating enrolled, un-enrolled, and exempt (not irrigated) parcels for each responsibility area is provided in Appendix C. Maps showing responsibility area and monitoring site drainage area boundaries, and all monitoring sites used for evaluation of water quality (benchmark waiver sites and TMDL-related monitoring sites), are provided later in the document. Summaries of the enrolled, un-enrolled and exempt acreage are tabulated for each responsibility area later in the document.*

**Table 4. Responsibility Areas and Associated HUC-12s and VCAILG Monitoring Sites**

<b>Responsibility Area</b>	<b>Associated VCAILG Monitoring Site</b>	<b>Included HUC-12s</b>
Mugu Lagoon	01T_ODD3_ARN	<ul style="list-style-type: none"> <li>• Partial HUC-12 Mugu Lagoon-South</li> </ul>
Etting-Wood	04D_ETTG	<ul style="list-style-type: none"> <li>• Partial HUC-12 Revolon Slough-Calleguas Creek (Revolon) minus the drainage area of monitoring site 04D_LAS</li> </ul>
Lower Calleguas Creek	04D_ETTG	<ul style="list-style-type: none"> <li>• Partial HUC-12 Revolon Slough-Calleguas Creek (Calleguas)</li> </ul>
South Revolon	04D_LAS	<ul style="list-style-type: none"> <li>• none</li> </ul>
LaVista Drain	05D_LAVD	<ul style="list-style-type: none"> <li>• Partial HUC-12 Mugu Lagoon-North</li> </ul>
Beardsley Wash	05T_HONDO	<ul style="list-style-type: none"> <li>• Beardsely Wash HUC-12</li> </ul>
Malibu	05T_HONDO	<ul style="list-style-type: none"> <li>• Potrero Valley Creek HUC-12</li> <li>• Medea Creek HUC-12</li> <li>• Las Virgenes Creek HUC-12</li> <li>• Cold Creek-Malibu Creek HUC-12</li> </ul>
Arroyo Conejo	06T_LONG2	<ul style="list-style-type: none"> <li>• Lower Conejo Arroyo HUC-12</li> <li>• Upper Conejo Arroyo HUC-12</li> </ul>
Las Posas	06T_LONG2	<ul style="list-style-type: none"> <li>• Partial HUC-12 Las Posas Arroyo-Reach 6</li> </ul>
Arroyo Simi	06T_LONG2	<ul style="list-style-type: none"> <li>• Partial HUC-12 Las Posas Arroyo-Reach 7</li> <li>• Lower Simi Arroyo HUC-12</li> <li>• Upper Simi Arroyo HUC-12</li> </ul>

<b>Responsibility Area</b>	<b>Associated VCAILG Monitoring Site</b>	<b>Included HUC-12s</b>
McGrath Lake Coastal	OXD_CENTR	<ul style="list-style-type: none"> <li>• Arundell Barranca-Frontal Pacific Ocean HUC-12</li> <li>• McGrath Lake-Frontal Pacific Ocean HUC-12</li> <li>• the portion of Harmon Canyon-Santa Clara River HUC-12 falling within the OXD-CENTR monitoring site drainage area</li> </ul>
Todd Barranca	S02T_TODD	<ul style="list-style-type: none"> <li>• Harmon Canyon-Santa Clara River HUC-12, minus the portion in the OXD_CENTR monitoring site drainage area</li> <li>• Adams Canyon-Santa Clara River HUC-12, minus the drainage area of monitoring site S02T_ELLS</li> </ul>
Ellsworth Barranca	S02T_ELLS	<ul style="list-style-type: none"> <li>• none</li> </ul>
Bardsdale	S03D_BARDS	<ul style="list-style-type: none"> <li>• Timber Canyon-Santa Clara River HUC-12, minus the drainage area of monitoring site S03T_TIMB</li> </ul>
Santa Paula Creek	S03T_TIMB	<ul style="list-style-type: none"> <li>• Santa Paula Creek HUC-12</li> <li>• plus the drainage area of monitoring site S03T_TIMB in neighboring HUC-12</li> </ul>
Boulder Creek	S03T_BOULD	<ul style="list-style-type: none"> <li>• Boulder Creek-Sespe HUC-12</li> <li>• Hopper Canyon HUC-12</li> <li>• Pole Creek-Santa Clara River HUC-12</li> </ul>
Tapo Canyon	S04T_TAPO	<ul style="list-style-type: none"> <li>• Lake Piru-Piru Creek HUC-12</li> <li>• Hosler Canyon-Piru Creek HUC-12</li> <li>• Salt Canyon-Sant Clara River HUC12</li> </ul>
Ventura River Inland	VRT_THACH	<ul style="list-style-type: none"> <li>• Matilija Creek HUC-12</li> <li>• North Fork Matilija Creek HUC-12</li> <li>• Upper Ventura River HUC-12</li> <li>• Coyote Creek HUC-12</li> <li>• Lower Ventura River HUC-12</li> <li>• San Antonio Creek HUC-12 minus the drainage area for monitoring site VRT_SANTO</li> </ul>
Ventura River Coastal	VRT_THACH	<ul style="list-style-type: none"> <li>• Rincon Creek HUC-12</li> <li>• Los Sauces Creek-Frontal Pacific Ocean HUC12</li> </ul>
San Antonio Creek	VRT_SANTO	<ul style="list-style-type: none"> <li>• none</li> </ul>

## **MANAGEMENT PRACTICE SURVEY PROCESS**

Appendix 3, Section 2.a.iii. of the Conditional Waiver specifies that the WQMP contain a report of existing management practices being implemented. A management practice survey template was due to the Regional Board Executive Officer for review and approval August 12, 2016. The VCAILG received approval of the survey October 10, 2016. In compliance with the requirement to make the survey available to its members within eight months of Conditional Waiver

adoption, the VCAILG sent notification letters to its members and opened the survey website in December 2016.<sup>4</sup>

Because separate surveys were submitted for individual parcels, and because each surveyed member parcel was unambiguously assigned to a responsibility area (and a VCAILG monitoring site drainage, where pertinent), it was a straightforward procedure to tally up the acres, or linear feet, upon which practices or BMPs were indicated as in use for individual responsibility areas and VCAILG monitoring sites. In addition, it was straightforward to tally the total irrigated acreage that applied to each survey question. Aggregate survey results were reported in two ways:

- Surveyed units (acres or linear feet) meeting criterion
- Percent of total applicable surveyed units meeting criterion (can be considered an estimated adoption rate)

Following the request of Regional Board staff, survey results were tabulated separately for VCAILG monitoring site drainages and the non-overlapping remainder of the associated responsibility area acreage. In some cases, adoption rates >100% were obtained. This is an artifact of the process by which survey respondents could adjust their irrigated parcel acreage ‘on-the-fly’ during their online sessions, a process that occurred after the output for irrigated acreage was generated from the VCAILG database for the membership year.

## **WATER QUALITY BENCHMARK EXCEEDANCE EVALUATION PROCESS**

### **Water Quality Benchmarks**

This section presents the water quality benchmarks as specified in the 2016 Conditional Waiver, used to evaluate the VCAILG monitoring data. Additional standard water quality benchmarks (Conditional Waiver Appendix 4) were added in 2016 for bifenthrin and *E. coli*. Bifenthrin data is available as it is included in the pyrethroid pesticides analysis suite and an exceedance analysis is included in this WQMP. *E. coli* testing was not required until the approval of the 2016 MRP and QAPP, so a data analysis was not performed.<sup>5</sup> The standard water quality benchmarks are presented below, followed by water quality benchmarks based upon total maximum daily load (TMDL) load allocations (LAs) for agricultural discharges (Conditional Waiver Appendix 5). Due to the complexity of appropriately comparing TMDL LAs to the proper location, site type, sample media, and sampling condition, these benchmarks are described separately. However, when presenting the benchmark exceedance graphs for each responsibility area, all applicable benchmarks are considered and shown together.

#### ***Standard Water Quality Benchmarks (Conditional Waiver Appendix 4)***

“Standard water quality benchmarks” in the Conditional Waiver include numeric and narrative water quality objectives contained in Appendix 4, and include several narrative and numeric Basin Plan objectives and water quality standards from the California Toxics Rule (CTR). In cases where the Conditional Waiver, in Appendix 4, references the Basin Plan or CTR, without specifying a benchmark number, the lowest applicable number was selected for each watershed.

---

<sup>4</sup> Hard copy versions of the survey were available upon request. The survey is included herein as Appendix A.

<sup>5</sup> Conditional approval of the VCAILG MRP and QAPP was received December 16, 2016.

The Conditional Waiver specifies the goal for attaining these benchmarks as ten years from WQMP submittal.

Several of the narrative water quality objectives contained in the Basin Plan specify that discharges of wastes to receiving waters cannot alter “natural” or “ambient” conditions above or below a stated level. Many of the VCAILG monitoring sites are located on agricultural drains that discharge to receiving waters. Because “natural” and “ambient” conditions have not been established in receiving waters or are non-existent on agricultural drains and ephemeral streams, monitoring data from sites located on agricultural drains are evaluated based on the assumption that if benchmarks are not exceeded in the agricultural drain, it is unlikely that the discharge from that drain will cause benchmark exceedances in the receiving water.



**Table 5. Conditional Waiver Appendix 4 Standard Water Quality Benchmarks Derived From Narrative Objectives**

Constituent	Watershed <sup>1</sup>	Narrative Objective <sup>2</sup>	Applicable Benchmark
pH	CC, OXD, SCR, VR	The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges. Ambient pH levels shall not be changed by more than 0.5 pH units from natural conditions as a result of waste discharges.	6.5 ≤ pH ≤ 8.5 Changes to ambient receiving water conditions are not assessed; “ambient” or “natural” conditions have not been established
Temperature	CC, OXD, SCR, VR	For waters designated WARM, water temperature shall not be altered by more than 5°F above the natural temperature. At no time shall WARM-designated waters be raised above 80°F as a result of waste discharges.	WARM: ≤ 80°F Changes to ambient receiving water conditions are not assessed; “ambient” or “natural” conditions have not been established
	SCR, VR	For waters designated COLD, water temperature shall not be altered by more than 5°F above the natural temperature.	COLD: No numeric benchmark. Changes to ambient receiving water conditions are not assessed; “ambient” or “natural” conditions have not been established
Dissolved Oxygen	OXD	No single dissolved oxygen determination shall be less than 5 mg/L, except when natural conditions cause lesser concentrations.	≥ 5 mg/L
	CC, SCR, VR	The dissolved oxygen content of all surface waters designated as WARM shall not be depressed below 5 mg/L as a result of waste discharges.	WARM: ≥ 5 mg/L
	SCR, VR	The dissolved oxygen content of all surface waters designated as COLD and SPWN shall not be depressed below 7 mg/L as a result of waste discharges.	COLD, SPWN: ≥ 7 mg/L
Turbidity	CC, OXD, SCR, VR	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in natural turbidity attributable to controllable water quality factors shall not exceed the following limits: <ul style="list-style-type: none"> <li>▪ Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20%;</li> <li>▪ Where natural turbidity is greater than 50 NTU, increases shall not exceed 10%.</li> </ul>	No numeric benchmarks. Changes to ambient receiving water conditions are not assessed; “ambient” or “natural” conditions have not been established
Total Suspended Solids (TSS)	CC, OXD, SCR, VR	Wastes shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.	No numeric benchmarks.
Toxicity	CC, OXD, SCR, VR	All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal or aquatic life. There shall be no chronic toxicity in ambient waters outside mixing zones.	≤ 1.0 TUc <sup>3</sup> Benchmarks for specific potentially toxic constituents are listed in Tables 16 through 20.

1. CC = Calleguas Creek Watershed OXD = Oxnard Coastal Watershed SCR = Santa Clara River Watershed VR = Ventura River Watershed
2. Source: Water Quality Control Plan, Los Angeles Region (Basin Plan), 1994.
3. Source: “Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands,” Order No. R4-2016-0143, Los Angeles Regional Water Quality Control Board, adopted April 14, 2016.

**Table 6. Conditional Waiver Appendix 4 Standard Water Quality Benchmarks for Salts and Nutrients (Basin Plan Table 3-8 Numeric Water Quality Objectives)**

Watershed / Reach	Reach Description	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Nitrogen (mg/L)	Ammonia <sup>1</sup> (mg/L)	Phosphate (mg/L)
CC below Potrero Rd.	-----	-----	-----	-----	10 <sup>2</sup>	pH, temperature dependent	-----
CC above Potrero Rd.	-----	150	250	850	10 <sup>3</sup>	pH, temperature dependent	-----
OXD	-----	-----	-----	-----	10 <sup>2</sup>	pH, temperature dependent	-----
SCR Reach 1	Tidally-influenced mouth of Santa Clara River upstream to 101 Bridge	-----	-----	-----	10 <sup>2</sup>	pH, temperature dependent	-----
SCR Reach 2	Upstream of Hwy 101 Bridge to Freeman Diversion	150	600	1200	10 <sup>2</sup>	pH, temperature dependent	-----
SCR Reach 3	Upstream of Freeman Diversion to A Street Bridge in Fillmore	100 <sup>4</sup>	650	1300	5 <sup>3</sup>	pH, temperature dependent	-----
SCR Reach 4	Upstream of A Street Bridge in Fillmore to Blue Cut Gaging Station	100	600	1300	5 <sup>3</sup>	pH, temperature dependent	-----
VR Reach 4	Between Camino Cielo Rd. and Casitas Vista Rd.	60	300	800	5 <sup>3</sup>	pH, temperature dependent	-----

Watersheds: CC = Calleguas Creek OXD = Oxnard Coastal SCR = Santa Clara River VR = Ventura River

1. Ammonia benchmarks are based on 1) freshwater ammonia objectives as calculated according to LARWQCB Resolutions 2002-011 and 2005-014, and 2) saltwater ammonia objectives as calculated according to LARWQCB Resolution 2004-022. Ammonia objectives are calculated based on the pH and temperature of the receiving water measured at the time of sample collection for ammonia analysis. Ammonia objectives used as benchmarks are chronic, 30-day averages.
2. There is no site-specific nitrogen objective in the Basin Plan (Table 3-8) applicable to this reach. The Basin Plan objective of 10 mg/L Nitrate-N was used for comparison with VCAILG data collected at monitoring sites in this reach.
3. The Nitrogen benchmark listed is as Nitrate-N plus Nitrite-N.
4. The 100 mg/L benchmark for chloride is the revised water quality objective adopted by the Regional Board in Resolution 2003-015.

**Table 7. Conditional Waiver Appendix 4 Standard Water Quality Benchmarks for Copper**

Constituent	Freshwater <sup>1, 2</sup>		Brackish or Saltwater <sup>1</sup>	
	Benchmark (µg/L)	Benchmark Source	Benchmark (µg/L)	Benchmark Source
Copper	= $0.96e^{[0.8545(\ln hardness)+(-1.702)]}$	CTR CCC <sup>3</sup>	3.1	CTR CCC <sup>3</sup>

1. Freshwater benchmark applies to discharges to waters with salinities <1 ppt at least 95% of the time. Saltwater benchmark applies when salinities are ≥10 ppt at least 95% of the time. For discharges between these categories, or tidally influenced freshwater that supports EST beneficial uses, the lower criteria of the two shall be used; which is the saltwater benchmark.
2. As per footnote “m” to the Table in Paragraph (b)(1) of the CTR; “The freshwater criteria for metals are expressed in terms of the dissolved fraction of the metal in the water column.” In instances where the measured hardness is >400 mg/L as CaCO<sub>3</sub>, a hardness of 400 is used to calculate the benchmark. This was done in accordance with CTR §31692, f. Hardness.
3. CTR = California Toxics Rule (USEPA, May 18, 2000).  
CCC = Criteria Continuous Concentration

**Table 8. Conditional Waiver Appendix 4 Standard Water Quality Benchmarks for Current Use Pesticides (Organophosphorus and Pyrethroid Pesticides)**

Constituent	CC, OXD, SCR, VR Watersheds
	Benchmark (µg/L)
Chlorpyrifos	0.025
Diazinon	0.10
Bifenthrin	0.0006

Watersheds: CC = Calleguas Creek OXD = Oxnard Coastal SCR = Santa Clara River VR = Ventura River

**Table 9. Conditional Waiver Appendix 4 Water Quality Benchmarks for Legacy Pesticides (Organochlorine Pesticides)**

Constituent	CC, OXD, SCR, VR Watersheds	
	Benchmark (µg/L)	Benchmark Source <sup>1</sup>
Chlordane, sum	0.00059	CTR HHO
4,4'-DDD	0.00084	CTR HHO
4,4'-DDE	0.00059	CTR HHO
4,4'-DDT	0.00059	CTR HHO
Dieldrin	0.00014	CTR HHO
Toxaphene	0.00075	CTR HHO

Watersheds: CC = Calleguas Creek OXD = Oxnard Coastal SCR = Santa Clara River VR = Ventura River

1. CTR = California Toxics Rule (USEPA, May 18, 2000).  
HHO = Human Health for Consumption of Organisms Only (30-day average)  
HHWO = Human Health for Consumption of Water and Organisms (MUN-designation) (30-day average)

### **Water Quality Benchmarks Based Upon TMDL LAs (Conditional Waiver Appendix 5)**

Effective TMDL monitoring requirements were incorporated into both the 2010 and 2016 Conditional Waivers (Order No. R4-2010-0186 and R4-2016-0143, respectively). VCAILG coordinates with established TMDL monitoring programs or conducts additional monitoring where necessary in order to meet TMDL requirements. Several TMDLs became effective during the 2010 waiver period and were later added to the 2016 Conditional Waiver. Monitoring approaches to meet the requirements of all effective TMDLs were included in the 2016 VCAILG MRP and QAPP. Therefore, monitoring and an analysis of exceedances based on newly incorporated TMDL LAs cannot be performed since monitoring data is unavailable. In some cases, the constituent for which a load allocation is established was already a part of VCAILG monitoring, and in those situations compliance with the TMDL LA benchmark was evaluated. Summaries of each TMDL including the LA benchmarks and sites used to evaluate benchmark attainment are provided in this section. Along with the specific benchmarks, the Conditional Waiver also includes deadlines for achieving them as listed in Table 10.

**Table 10. TMDL Water Quality Benchmarks Compliance Dates**

<b>TMDLs</b>	<b>Compliance Date</b>
Calleguas Creek Watershed and Mugu Lagoon Siltation TMDL <sup>[1]</sup>	March 24, 2015
Revolon Slough and Beardsley Wash Trash TMDL	October 14, 2020
Calleguas Creek Watershed and Mugu Lagoon Toxicity, Chlopyrifos, and Diazinon TMDL	March 24, 2022
Calleguas Creek Watershed and Mugu Lagoon Metals and Selenium TMDL	March 26, 2022
Calleguas Creek Watershed Boron, Chloride, Sulfate and TDS (Salts) TMDL	December 23, 2023
Calleguas Creek Nitrogen Compounds and Related Effects TMDL	October 14, 2025
Calleguas Creek Watershed and Mugu Lagoon OC Pesticides and PCBs TMDL	March 24, 2026
Oxnard Drain #3 Pesticides, PCBs, and Sediment Toxicity TMDL	April 14, 2026
Upper Santa Clara River Chloride TMDL	October 14, 2020
Santa Clara River Nitrogen Compounds TMDL	October 14, 2022
Santa Clara River Estuary Toxaphene TMDL	October 7, 2025
Santa Clara River Bacteria TMDL	March 21, 2023 / 2029 <sup>[2]</sup>
Ventura River Algae TMDL	June 28, 2019
Ventura River Estuary Trash TMDL	October 14, 2020
McGrath Lake OC Pesticides and PCBs TMDL	June 30, 2021
Malibu Creek Watershed Sedimentation and Nutrients TMDL	June 2, 2021
Malibu Creek Watershed Nutrients TMDL	October 14, 2022

1. Additional time may be added to this TMDL deadline should a TMDL reconsideration revise the implementation schedule based on the results of special studies.

2. March 21, 2023 for dry weather and March 21, 2029 for wet weather.

#### ***Calleguas Creek Watershed and Mugu Lagoon OC Pesticides and PCBs TMDL***

Interim sediment LAs are currently in effect for this TMDL with final LAs to be achieved by March 24, 2026. A conservative analysis was performed by comparing monitoring data to the final LAs rather than only the interim LAs since sediment sampling is performed on an annual

basis as compared to quarterly dry weather water quality monitoring. Compliance with these LAs is measured at the base of the subwatershed in the receiving water. The receiving water compliance sites associated with at least one responsibility area are: 01\_BPT\_14, 01\_BPT\_15, 03\_UNIV, 04\_WOOD, 06\_SOMIS/UPLAND, 07\_HITCH, and 9B\_ADOLF.

**Table 11. CCW OC Pesticides and PCBs Sediment Allocations**

Interim Sediment LAs							
Constituent	Units <sup>1</sup>	Subwatershed					
		Mugu Lagoon <sup>2</sup>	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek
Chlordane	ng/g	25	17	48	3.3	3.3	3.4
4,4'-DDD	ng/g	69	66	400	290	14	5.3
4,4'-DDE	ng/g	300	470	1,600	950	170	20
4,4'-DDT	ng/g	39	110	690	670	25	2
Dieldrin	ng/g	19	3	5.7	1.1	1.1	3
PCBs	ng/g	180	3,800	7,600	25,700	25,700	3,800
Toxaphene	ng/g	22,900	260	790	230	230	260
Final Sediment LAs							
Chlordane	ng/g	3.3	3.3	0.9	3.3	3.3	3.3
4,4'-DDD	ng/g	2.0	2.0	2.0	2.0	2.0	2.0
4,4'-DDE	ng/g	2.2	1.4	1.4	1.4	1.4	1.4
4,4'-DDT	ng/g	0.3	0.3	0.3	0.3	0.3	0.3
Dieldrin	ng/g	4.3	0.2	0.1	0.2	0.2	0.2
PCBs	ng/g	180.0	120.0	130.0	120.0	120.0	120.0
Toxaphene	ng/g	360.0	0.6	1.0	0.6	0.6	0.6

1. ng/g = nanograms/ gram

2. The Mugu Lagoon subwatershed includes Duck Pond/Agricultural Drain/Mugu/Oxnard Drain #2.

*Calleguas Creek Watershed and Mugu Lagoon Toxicity, Chlorpyrifos, and Diazinon TMDL*

Interim LAs are currently in effect for this TMDL with final LAs to be achieved by March 24, 2022. A conservative analysis for benchmark compliance was performed applying the allowable exceedance rate to the final LAs to ensure proactive BMP implementation. Compliance with these LAs is measured at the base of each subwatershed. The Toxicity TMDL receiving water compliance monitoring sites associated with at least one responsibility area include: 01\_RR\_BR, 04\_WOOD, 03\_UNIV, 9B\_ADOLF, 07\_HITCH, 06\_SOMIS/UPLAND. CCW TMDL Monitoring Program agricultural land use site data within the same subwatershed was then used to verify exceedances were the result of ag discharges.

**Table 12. CCW Toxicity, Chlorpyrifos, and Diazinon Load Allocations**

Constituent	Interim LA <sup>1</sup>		Final LA <sup>1</sup>
	Acute (1 hour) (µg/L) <sup>2</sup>	Chronic (4 day) (µg/L) <sup>3</sup>	Acute and Chronic (µg/L) <sup>2</sup>
Chlorpyrifos	2.57	0.81	0.014 / 0.0133 <sup>4</sup>
Diazinon	0.278	0.138	0.1
Toxicity	1 TU <sub>c</sub>	1 TU <sub>c</sub>	1 TU <sub>c</sub>

1. These TMDL LAs apply to the receiving water at the base of each subwatershed.
2. Acute LAs are used for assessing wet-weather data.
3. Chronic LAs are used for assessing dry-weather data.
4. Final chlorpyrifos LA of 0.014 applies to the Arroyo Simi, Arroyo Las Posas, Conejo, and Mugu Lagoon subwatersheds; 0.0133 applies to Calleguas and Revolon subwatersheds.

### *Calleguas Creek Watershed Boron, Chloride, Sulfate, and TDS (Salts) TMDL*

Interim dry weather LAs are measured as in-stream monthly averages at the base of each subwatershed, except for chloride which is measured as an instantaneous maximum. Dry weather LAs apply when flow rates are below the 86<sup>th</sup> percentile and there was no measurable precipitation in the previous 24 hour period. Final LAs are to be achieved by December 23, 2023. The Salts TMDL receiving water compliance monitoring sites associated with at least one responsibility area include: 04\_WOOD, 03\_UNIV, 9B\_BARON, and 07\_TIERRA. CCW TMDL Monitoring Program agricultural land use site data within the same subwatershed was then used to verify exceedances were the result of ag discharges.

**Table 13. CCW Salts TMDL Dry Weather Load Allocations**

Constituent	Interim Dry Weather LA (mg/L)
Boron Total	1.8
Chloride Total	230
Sulfate Total	1,962
TDS Total	3,995

### *Calleguas Creek Watershed and Mugu Lagoon Metals and Selenium (Metals) TMDL*

Interim LAs are currently in effect for this TMDL with final LAs to be achieved by March 26, 2022. Dry weather LAs apply to days when flows in the stream are less than the 86<sup>th</sup> percentile flow rate for the subwatershed. Wet weather LAs apply to days when flows in the stream exceed the 86<sup>th</sup> percentile flow rate for the subwatershed. The LAs for total recoverable metals and selenium are applied in the receiving water at the compliance points (04\_WOOD for Revolon Slough and 03\_UNIV for Calleguas Creek). CCW TMDL Monitoring Program agricultural land use data was used to verify exceedances were the result of ag discharges.

**Table 14. CCW Metals TMDL Load Allocations for Total Recoverable Metals and Selenium**

Constituent	Calleguas and Conejo Creeks			Revolon Slough		
	Dry Daily Max (µg/L)	Dry Monthly Avg. (µg/L)	Wet Daily Max (µg/L)	Dry Daily Max (µg/L)	Dry Monthly Avg. (µg/L)	Wet Daily Max (µg/L)
Copper	24	19	1,390	24	19	1,390
Nickel	43	42	---	43	42	---
Selenium	---	---	---	6.7 <sup>1</sup>	6 <sup>1</sup>	---

1. Attainment of interim LAs will be evaluated in consideration of background loading data, if available.

Interim LAs for mercury are evaluated based on suspended sediment measured in-stream at the base of Revolon Slough and Calleguas Creek.

**Table 15. CCW Metals TMDL Load Allocations for Mercury in Suspended Sediment**

Flow Range (Million gallons/year)	Calleguas Creek (lbs/yr)	Revolon Slough (lbs/yr)
0-15,000	3.9	2
15,000-25,000	12.6	4.8
>25,000	77.5	12.2

*Calleguas Creek Watershed Nitrogen TMDL*

LAs for the CCW Nitrogen TMDL are to be achieved by October 14, 2025. The CCW TMDL Monitoring Program measures compliance in the receiving water and the contribution of agriculture is evaluated at the ag land use sites within the same reach as the receiving water site.

**Table 16. CCW Nitrogen TMDL Load Allocations**

Constituent	Load Allocation (mg/L)
Nitrate-N + Nitrite-N	9

*Revolon Slough and Beardsley Wash Trash TMDL*

The LA for this TMDL is zero trash. Dischargers may achieve compliance with the LAs by implementing a minimum frequency of assessment and collection/best management practice (MFAC/BMP) program. The final compliance date specified in the Conditional Waiver is October 14, 2020. VCAILG members are complying with the Trash TMDL requirements through a MFAC/BMP Program. The MFAC program includes regular collection and assessment of trash. VCAILG members are in compliance with the TMDL requirement to ensure zero trash immediately after each MFAC event. Additionally, VCAILG has implemented additional BMPs to control trash and reduce the accumulation of trash between collection events. The importance of collecting and properly disposing of trash has also been a reoccurring topic at multiple VCAILG education classes. No further evaluation has been performed for this TMDL.

### *Santa Clara River Nitrogen Compounds TMDL*

The LA for the SCR Nitrogen Compounds TMDL is to be achieved by October 14, 2022. Monitoring data collected at the VCAILG monitoring program sites located within the SCR watershed is compared to the LA.

**Table 17. Santa Clara River Nitrogen TMDL Load Allocation**

<b>Constituent</b>	<b>Load Allocation (mg/L)<sup>1</sup></b>
Ammonia-N + Nitrate-N + Nitrite-N	10

1. The specified LA applies to all Santa Clara River reaches within Ventura County.

### *Upper Santa Clara River Chloride TMDL*

The chloride LA applies to reaches 4B, 5, and 6 of the SCR and there is one VCAILG monitoring site that drains to reach 4B (S04T\_TAPO). The Conditional Waiver compliance date for this TMDL is October 14, 2020.

**Table 18. Upper Santa Clara River Chloride TMDL Load Allocation**

<b>Constituent</b>	<b>Load Allocation (mg/L)<sup>1</sup></b>
Chloride	100

1. Allocation applies as a 3-month rolling average.

### *Santa Clara River Estuary Toxaphene TMDL*

The SCR Estuary Toxaphene TMDL applies to reaches 1 and 2 of the SCR. LAs were established for toxaphene measured in fish tissue collected in the estuary and suspended sediment discharges. Suspended sediment is measured at two TMDL assessment sites, one in reach 1 (S01D\_MONAR) and another in reach 2 (S02T\_ELLS). The Conditional Waiver compliance date for this TMDL is October 7, 2025.

**Table 19. Santa Clara River Estuary Toxaphene TMDL Load Allocations**

<b>Reach</b>	<b>Toxaphene in Fish Tissue (µg/kg)</b>	<b>Toxaphene in Suspended Sediment (µg/kg)</b>
Santa Clara River Estuary	6.1	0.1

### *Santa Clara River Bacteria TMDL*

The SCR Bacteria TMDL was newly incorporated in the 2016 Conditional Waiver and the monitoring strategy was approved as part of the VCAILG MRP and QAPP. Monitoring for this TMDL began in 2017 and a compliance evaluation will be done as a part of future WQMPs. Final compliance dates for this TMDL are March 21, 2023 for dry weather and March 21, 2029 for wet weather.



### *Ventura River Estuary Trash TMDL*

The LA for this TMDL is zero trash. Dischargers may achieve compliance with the LAs by implementing a minimum frequency of assessment and collection/best management practice (MFAC/BMP) program. The final compliance date specified in the Conditional Waiver is October 14, 2020. VCAILG members are complying with the Trash TMDL requirements through a MFAC/BMP Program. The MFAC program includes regular collection and assessment of trash. VCAILG members are in compliance with the TMDL requirement to ensure zero trash immediately after each MFAC event. Additionally, VCAILG has implemented additional BMPs to control trash and reduce the accumulation of trash between collection events. The importance of collecting and properly disposing of trash has also been a reoccurring topic at VCAILG education classes. No further evaluation has been performed for this TMDL.

### *Ventura River Algae TMDL*

The VR Algae TMDL LAs were incorporated into the 2016 Conditional Waiver as benchmarks. Monitoring for this TMDL began following the approval of the VCAILG MRP and QAPP. However, nitrate-N monitoring data from the two existing VR sites was available and compared to the wet weather LA for nitrate-N + nitrite-N of 5 mg/L, which is the concentration applicable to the sites. The data did not exceed the exceedance threshold at either site and no further analysis was performed. The final compliance date for this TMDL is June 28, 2019.

### *McGrath Lake PCBs, Pesticides, and Sediment Toxicity TMDL*

Compliance with the McGrath Lake TMDL is evaluated through monitoring of the Central Ditch at VCAILG monitoring site OXD\_CENTR, which eventually discharges to McGrath Lake. The Conditional Waiver compliance date is June 30, 2021 and LAs are included for water column and suspended sediment concentrations. This is one of the TMDLs newly incorporated into the 2016 Conditional Waiver. For this WQMP OC pesticides water column concentrations have been evaluated for exceedances since past data is available. Suspended sediment and PCBs began when the 2016 MRP and QAPP went into effect; therefore, no data is available within the evaluation period of this WQMP.

**Table 20. McGrath Lake PCBs, Pesticides, and Sediment Toxicity TMDL Load Allocations**

<b>Constituent</b>	<b>Water Column Load Allocation (µg/L)</b>	<b>Suspended Sediment Load Allocation (µg/dry kg)</b>
Chlordane	0.00059	0.5
Dieldrin	0.00014	0.02
4,4'-DDD	0.00084	2
4,4'-DDE	0.00059	2.2
4,4'-DDT	0.00059	1
Total DDT	---	1.58
Total PCBs	0.00017	22.7

*Oxnard Drain #3 Pesticides, PCBs, and Sediment Toxicity TMDL*

The Oxnard Drain #3 Pesticides TMDL was incorporated into the 2016 Conditional Waiver and additional monitoring to evaluate attainment of TMDL LA benchmarks was included in the MRP and QAPP. Monitoring for this TMDL will be performed at site 01T\_ODD3\_ED1. A previously existing VCAILG monitoring site, 01T\_ODD3\_ARN, is located within the TMDL drainage area and monitoring data was available for comparison to all water column LAs, with the exception of total PCBs. An exceedance evaluation was performed and graphs of exceedances are included in this WQMP as necessary. Future WQMPs will include an evaluation of TMDL LA attainment for the additional sediment LAS and PCBs in the water column. The following table lists all LA benchmarks for this TMDL. The final compliance date for the Oxnard Drain #3 Pesticides TMDL is April 14, 2026.

**Table 21. Oxnard Drain #3 Pesticides, PCBs, and Sediment Toxicity TMDL Load Allocations**

<b>Constituent</b>	<b>Water Allocations (chronic) (µg/L)</b>	<b>Sediment Allocations<sup>1,2</sup> (µg/dry kg)</b>	<b>Alternate Sediment Allocations<sup>1,3</sup> (µg/dry kg)</b>
Bifenthrin <sup>4</sup>	0.0006	--	--
Chlordane, total	0.00059	0.5	3.3
Chlorpyrifos <sup>4</sup>	0.0056	--	--
4,4'-DDT	0.00059	1.0	0.3
4,4'-DDE	0.00059	2.2	2.2
4,4'-DDD	0.00084	2.0	2.0
Dieldrin	0.00014	0.02	4.3
PCBs, total	0.00017	22.7	180
Sediment Toxicity	--	No significant chronic sediment toxicity	--
Toxaphene	0.0002	0.1	360

1. Sediment concentrations associated with suspended sediment and Oxnard Drain #3 bottom sediment.
2. Sediment allocations apply if there are fish tissue or sediment toxicity exceedances. All sediment allocations are ERLs, except toxaphene. Toxaphene does not have an ERL, so the TEL concentration was selected.
3. The alternate sediment allocation applies when the fish tissue target and the sediment toxicity allocation are achieved in Oxnard Drain #3. The alternate sediment allocation concentrations match the Mugu Lagoon TMDL allocations.
4. Bifenthrin and chlorpyrifos allocations included to address the sediment toxicity impairment.

*Malibu Creek and Lagoon TMDLs for Sedimentation and Nutrients to Address Benthic Community Impairments and Malibu Creek Watershed Nutrients TMDL*

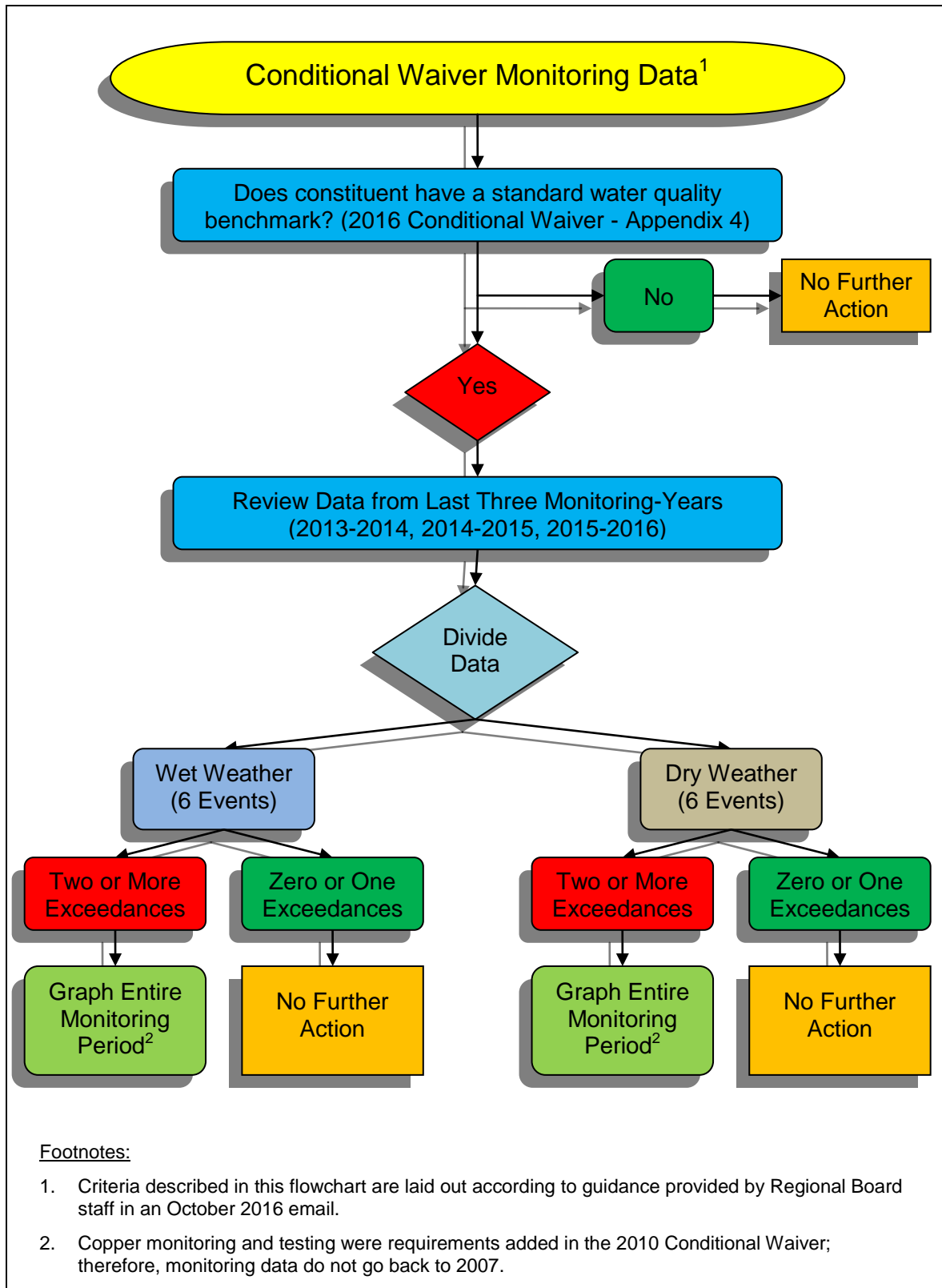
There is minimal agricultural acreage within the small portion of the Malibu Creek watershed that is also within Ventura County. A proxy site (05T\_HONDO) was selected based on similar crop types in the adjacent Calleguas Creek watershed to evaluate TMDL LA benchmark compliance with the two Malibu Creek TMDLs. These TMDLs were newly incorporated into the 2016 Conditional Waiver and an exceedance evaluation will be performed in future iterations of the WQMP. Compliance dates for these TMDLs are July 2, 2021 for the Sedimentation and Nutrients TMDL and October 14, 2022 for the Nutrients TMDL.

## **Benchmark Exceedance Evaluation Process**

Monitoring data must be evaluated in comparison to the standard water quality benchmarks and TMDL LA benchmarks specified in the 2016 Conditional Waiver. Appendix 3, Section 2.a.ii specifies that, “for each constituent that has exceeded a Water Quality Benchmark (considering applicable averaging periods), a graph showing the concentrations of the constituent over time since 2007. The VCAILG received directions from Regional Board staff regarding the averaging period and exceedance threshold for generating a graph in the WQMP on October 28 and November 2, 2016. Directions for data and exceedance evaluation were as follows:

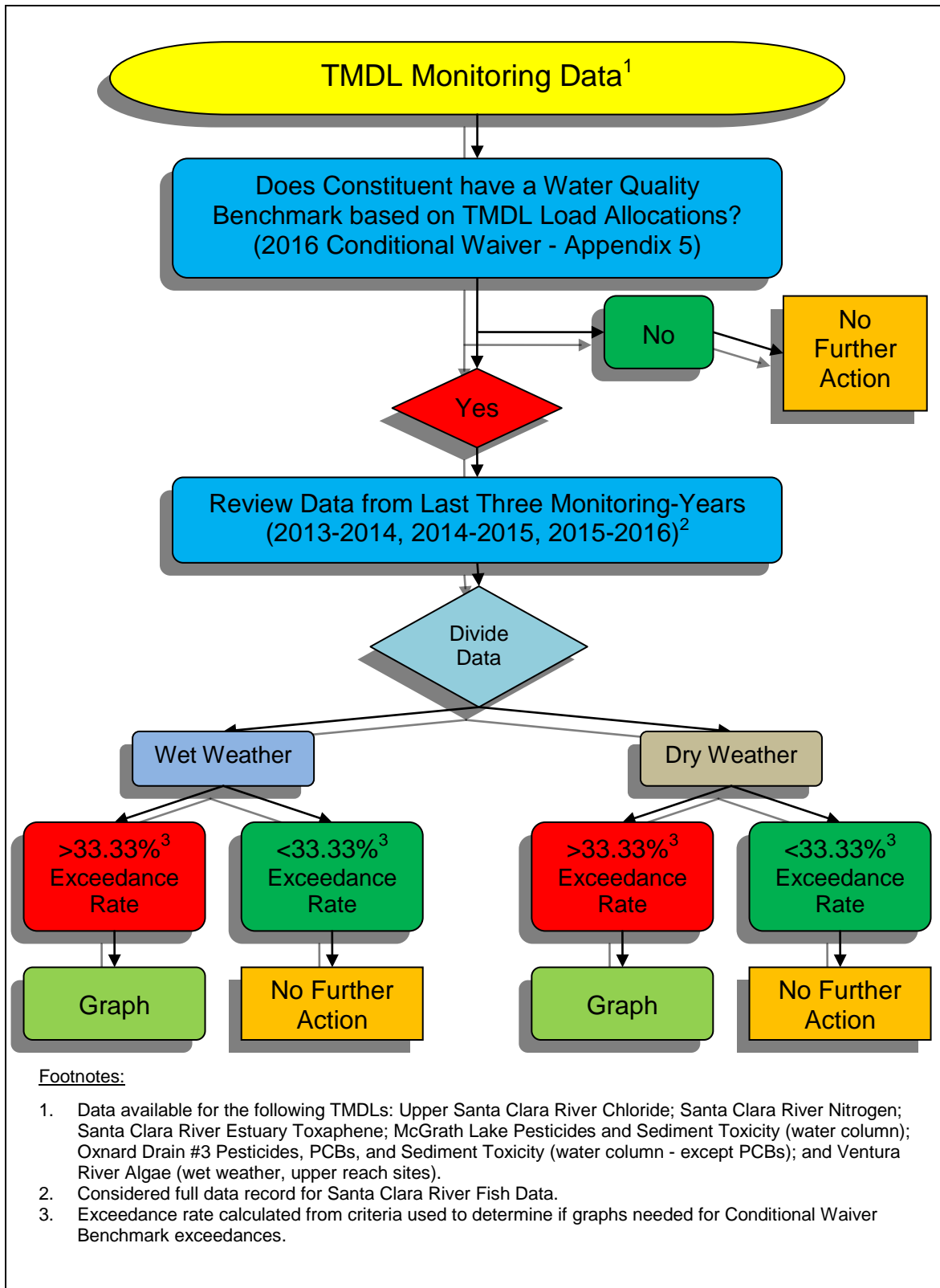
- Separate monitoring data by wet and dry weather samples.
- Consider the most recent three years of monitoring.
- The recurrence frequency to trigger a graph should be more than one exceedance of a benchmark in a three-year period.

The following flow chart outlines the process used to evaluate monitoring data compared to the standard water quality benchmarks.

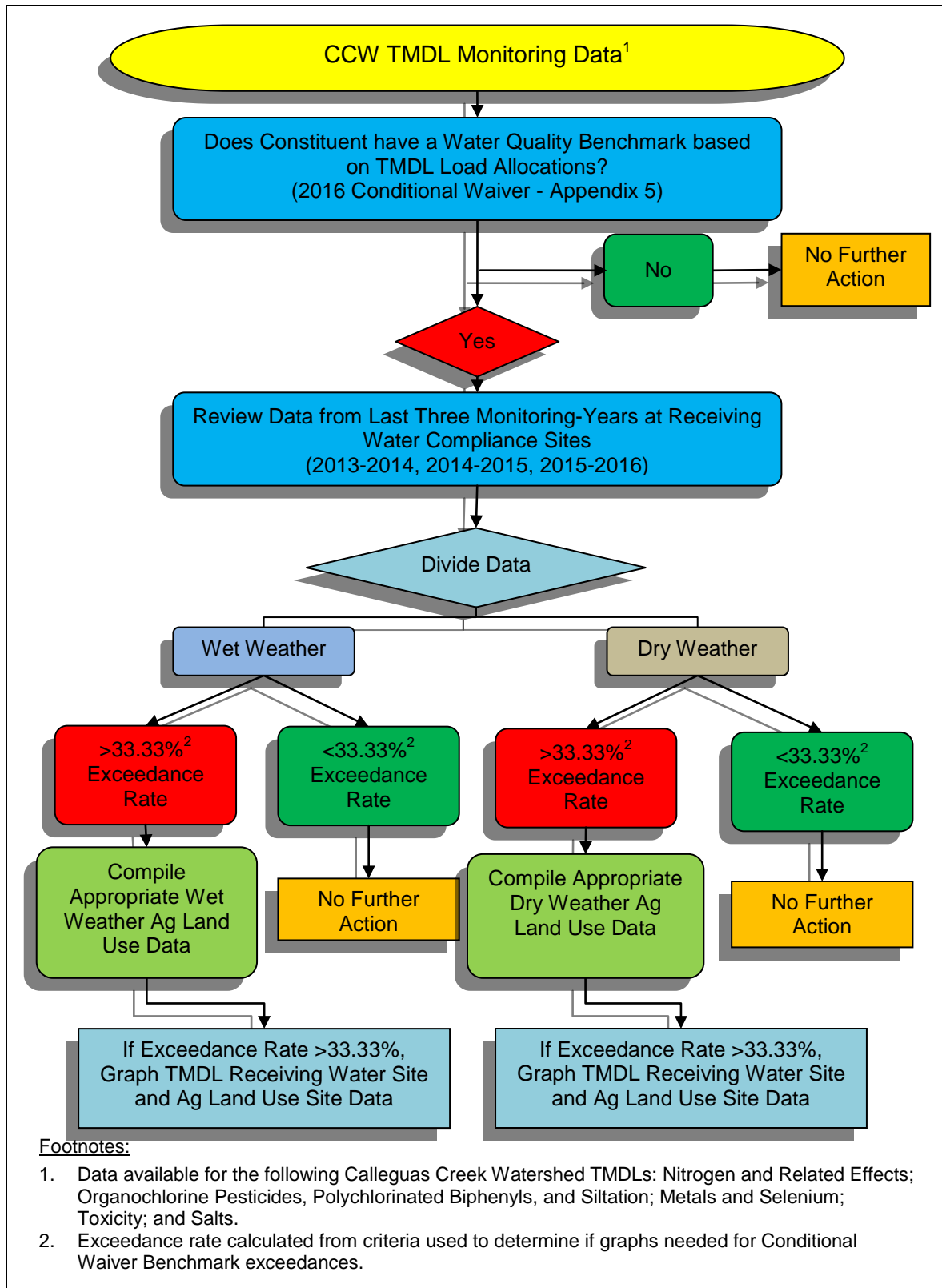


**Figure 5. Process for Comparing VCAILG Monitoring Data to Standard Water Quality Benchmarks and Triggering Concentration Graphs**

The two following flowcharts detail the data evaluation process used for data compared to TMDL LAs. Figure 6 demonstrates the handling of monitoring data collected by the VCAILG. The evaluation of monitoring data collected under the CCW TMDL Monitoring program is provided in Figure 7. Since the number of monitoring events varies for certain TMDLs, the exceedance rate of 33%, calculated from the criteria specified by the Regional Board was applied.



**Figure 6. Process for Comparing TMDL Monitoring Data Collected by VCAILG to TMDL LA Benchmarks and Triggering Concentration Graphs**



**Figure 7. Process for Comparing Monitoring Data Collected by the CCW TMDL Monitoring Program to CCW TMDL LA Benchmarks and Triggering Concentration Graphs**

## Summary of Existing Conditions by Responsibility Area

---

This section presents the requisite WQMP content described in Conditional Waiver Appendix 3, Sections 2.a and b. All information is presented according to responsibility area. Each responsibility area is named for the VCAILG monitoring site that serves as its benchmark beacon site. In some cases data from the VCAILG monitoring site is also used to evaluate attainment of TMDL LAs. Any additional monitoring sites referred to in maps or text are for TMDL assessment purposes. The HUC12s and VCAILG monitoring sites belonging to the responsibility areas were listed above in Table 4. As previously described, maps showing the component HUC12s for each responsibility area are provided in Appendix B, and maps identifying the enrolled, un-enrolled, and exempt parcels for each responsibility area are provided in Appendix C.

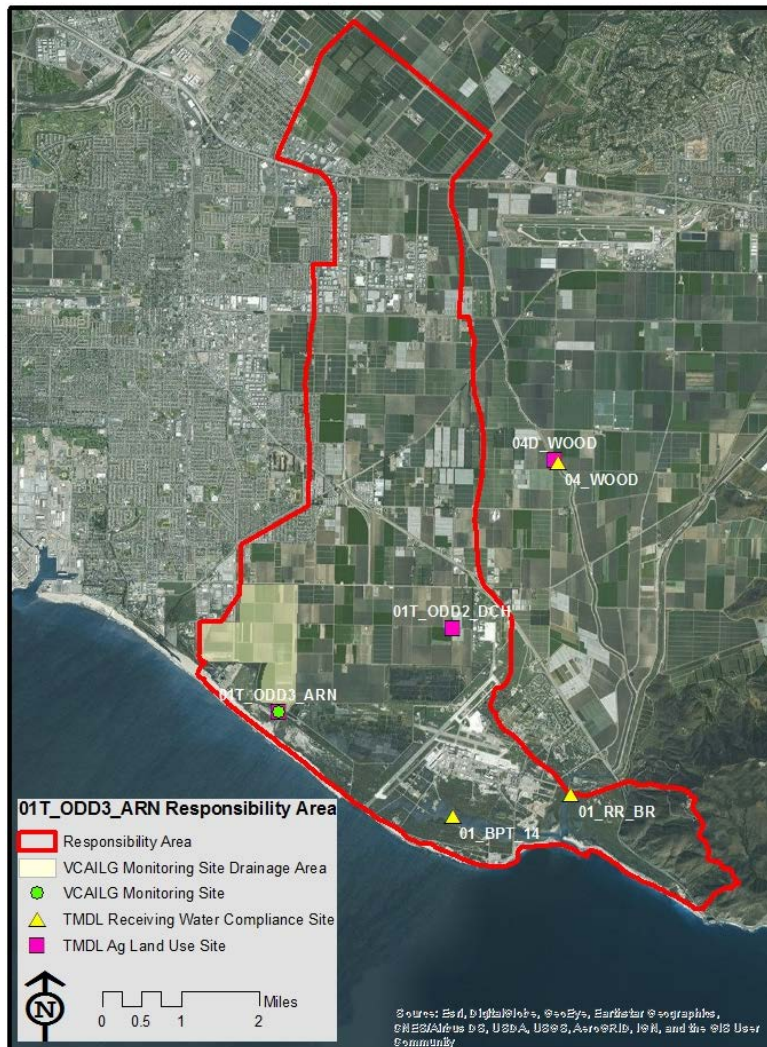
For each responsibility area, the following information is presented below:

- General map of the responsibility area and applicable monitoring sites for evaluating benchmark exceedances.
- Management practice survey results
- Graphs triggered by benchmark exceedances
- Table summarizing the benchmark exceedance evaluation
- Table combining the benchmark exceedance evaluation, applicable BMPs, and current BMP adoption rates to identify where additional implementation of specific BMPs is warranted. Per communications with Regional Board staff, a BMP is considered fully adopted at a 98% adoption rate. TMDL-specific BMPs specified in the Conditional Waiver are also identified.

The pesticide use evaluation assessment concludes this section of the WQMP.



## Mugu Lagoon Responsibility Area



**Figure 8. Mugu Lagoon Responsibility Area Map**

The monitoring sites used to evaluate attainment of Conditional Waiver benchmarks and/or TMDL LAs for the Mugu Lagoon responsibility area are illustrated in Figure 8. TMDL monitoring sites and their designations for evaluating attainment of various TMDL LA benchmarks are as follows:

- 01T\_ODD3\_ARN is an Oxnard Drain #3 Pesticides, PCBs, and Sediment Toxicity TMDL Assessment Site
- 04\_WOOD is a CCW Salts TMDL Receiving Water Compliance Site
- 04D\_WOOD is a CCW Salts TMDL Ag Land Use Site
- 01\_BPT\_14 is a CCW OC Pesticides and PCBs TMDL Receiving Water Compliance Site
- 01\_RR\_BR is a CCW Nitrogen, Toxicity, and Metals TMDL Receiving Water Compliance Site
- 01T\_ODD2\_DCH is a CCW Nitrogen, Toxicity, and Metals TMDL Ag Land Use Site

**Table 22. Mugu Lagoon Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Entire Responsibility Area</b>	<b>Drainage Area Monitoring Site 01T_ODD3_ARN</b>	<b>Responsibility Area Minus Nested 01T_ODD3_ARN Site Drainage</b>
<b>Assessed Acreage Information</b>			
Total Assessed Acres from Agricultural Parcel List	10,109	711	9,398
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	0	0	0
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	7,902	711	7,191
Assessed Acres from Agricultural Parcel List belonging to Non Members	2,207	0	2,207
<b>Irrigated Acreage Information</b>			
VCAILG Member Acreage Reported as Irrigated	7,176	634	6,542
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.9	0.9	0.9
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	2,004	0	2,008
Total Estimated Irrigated Acres (Member plus Non Member)	9,180	634	8,550
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	78%	100%	77%
<b>Survey Response Information</b>			
Sum Surveyed Irrigated Acres	5,250	533	4,697
Percent of Total Estimated Irrigated Acres that were Surveyed	57%	84%	55%
Percent of VCAILG Member Irrigated Acres that were Surveyed	73%	84%	72%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 23. Mugu Lagoon Responsibility Area Crop Types and General Production Practices**

Crop or Practice	01T_ODD3_ARN Site Drainage Only		Responsibility Area Minus Nested 01T_ODD3_ARN Site Drainage	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	0	0%	2,073	44%
Berry	0	0%	289	6%
Row Crop	0	0%	1,425	30%
Orchard	0	0%	429	9%
Nursery	0	0%	18	0.4%
Flower	0	0%	49	1%
Sod	553	100%	349	7%
Other	0	0%	65	1%
<b>Overhead Cover in Production Areas</b>				
Hoop House	2	0.4%	1,227	26%
No Cover	708	128%	5,093	108%
Greenhouse	0	0%	145	3%
Shade	0	0%	54	1%
Other	0	0%	2	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	0	0%	2,135	45%
Cover Crop	0	0%	267	6%
Plastic	0	0%	2,090	44%
Weed Cloth	0	0%	75	2%
Mulch	0	0%	290	6%
Gravel	0	0%	0	0%
Other	0	0%	86	2%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	0	0%	1,444	31%
Microsprinkler/Drip	0	0%	859	18%
Microsprinkler	0	0%	295	6%
Overhead Sprinkler	553	100%	382	8%
Overhead/Drip	0	0%	1,980	42%
Furrow Flood	0	0%	52	1%
Hand Watering	0	0%	9	0.2%
Other	0	0%	0	0%

**Table 24. Mugu Lagoon Responsibility Area Grower BMPs**

Survey Question	Units	01T_ODD3_ARN Site Drainage Only		Responsibility Area Minus Nested 01T_ODD3_ARN Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	553	100%	4,112	88%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	553	100%	3,242	69%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	553	100%	2,842	61%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	0	0%	2,016	43%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	0	0%	1,296	28%
Q5a: Are soil residual nitrate tests done?	Acres	553	100%	3,758	80%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	553	100%	3,758	80%
Q6: Are leaf/petiole tests conducted?	Acres	553	100%	3,944	84%
Q7a: Is nitrate measured in fertigation water?	Acres	553	100%	3,224	69%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	553	100%	3,224	69%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	0	N/A	2,077	70%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	0	0%	298	6%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	0	N/A	343	115%
Q11: How much non-cropped area is bare soil?	Acres	27	5%	224	5%
Q12a: How many feet of ditch exist?	Feet	26,200	N/A	229,945	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	0	0%	31,596	14%
Q13a: Are grassed waterways present?	Acres	0	0%	212	5%
Q13b: How many acres drain to grassed waterways?	Acres	0	0%	212	5%
Q14: How many acres are treated by vegetated filter strips?	Acres	0	0%	300	6%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	553	100%	4,697	100%
Q16: Is an IPM Plan being implemented?	Acres	553	100%	4,563	97%
Q17a: How many acres are organically farmed?	Acres	0	0%	486	10%
Q17b: How many acres are conventionally farmed?	Acres	553	100%	4,211	90%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	553	100%	1,533	33%
Q19: Runoff from how many acres is treated or detained?	Acres	114	21%	717	15%

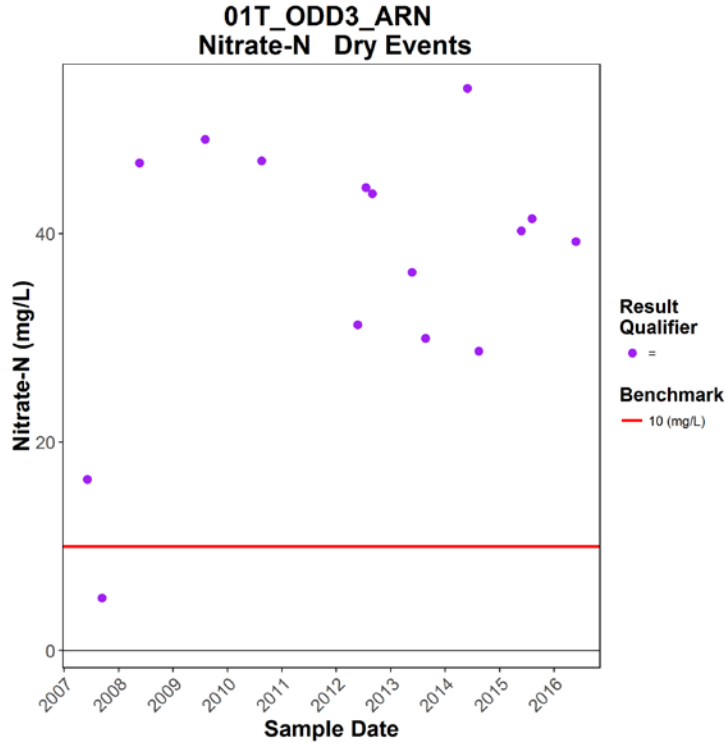


Figure 9. Dry Weather Nitrate-N Concentrations at Waiver Benchmark Site 01T\_ODD3\_ARN

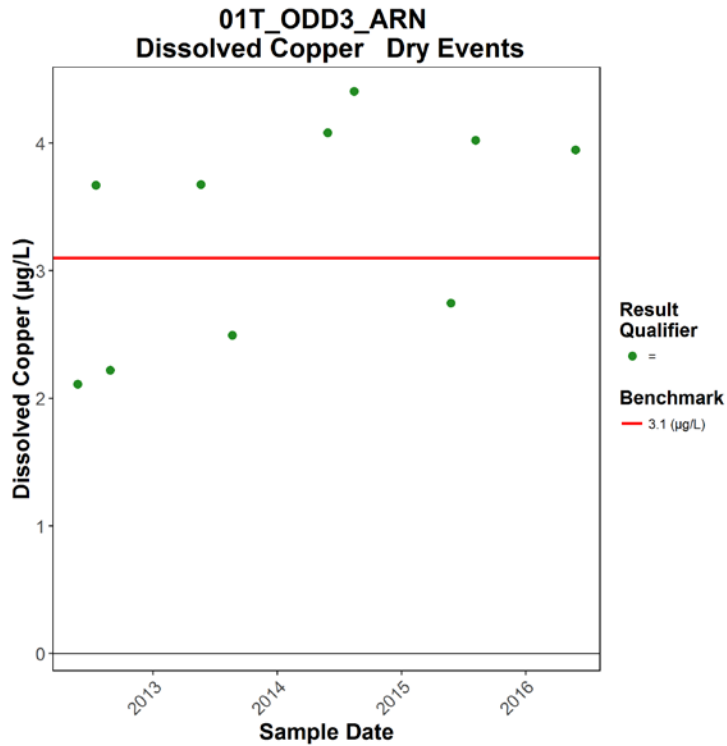
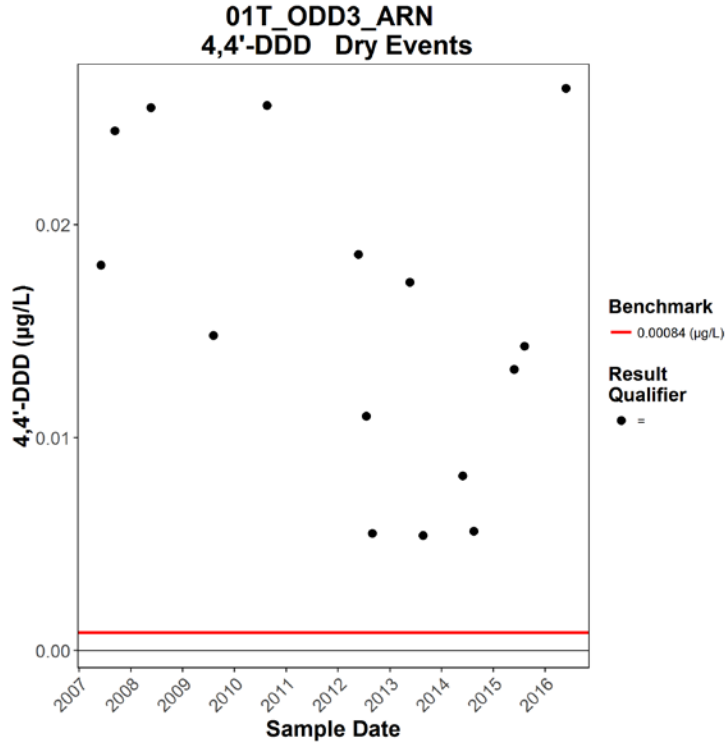
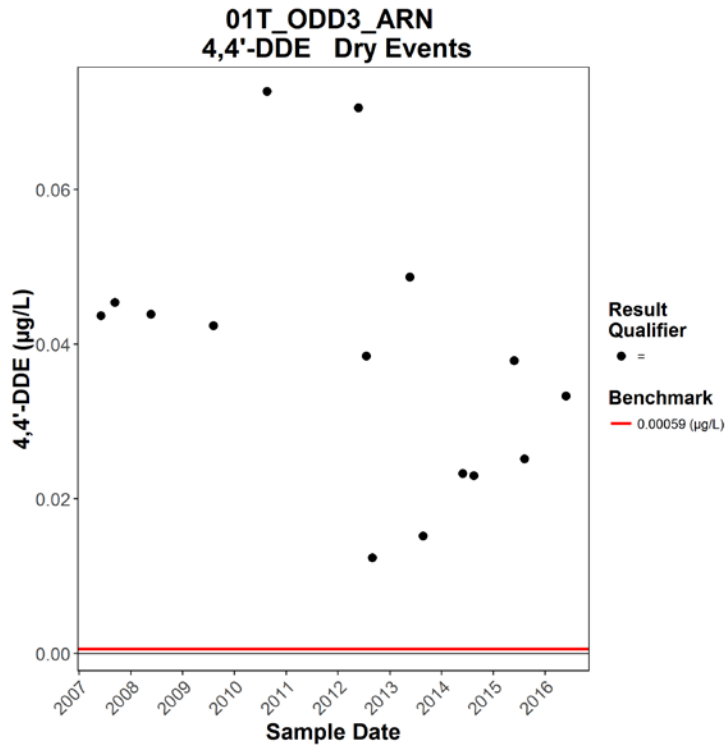


Figure 10. Dry Weather Dissolved Copper Concentrations at Waiver Benchmark Site 01T\_ODD3\_ARN



**Figure 11. Dry Weather DDD Concentrations at Waiver Benchmark Site and TMDL LA Site  
01T\_ODD3\_ARN**



**Figure 12. Dry Weather DDE Concentrations at Waiver Benchmark Site and TMDL LA Site  
01T\_ODD3\_ARN**

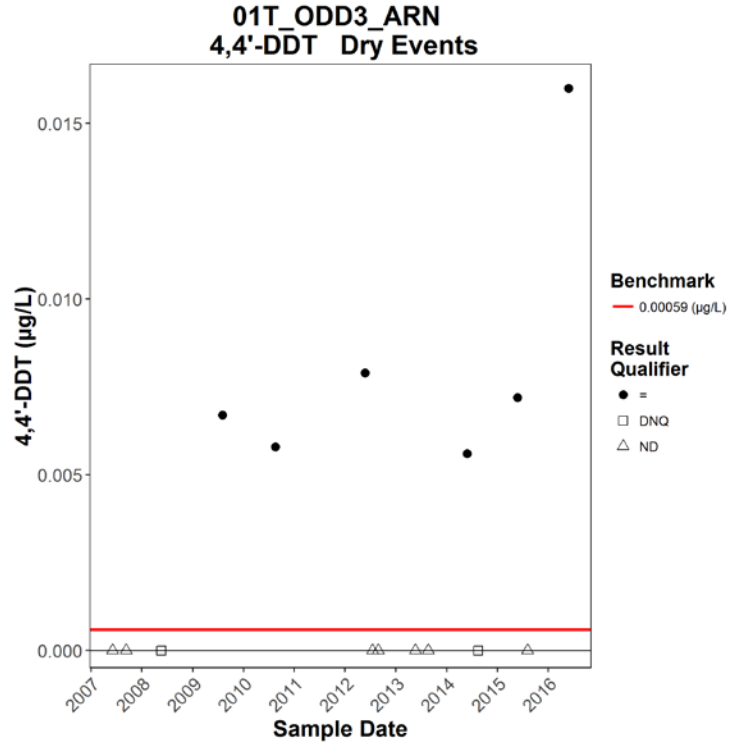


Figure 13. Dry Weather DDT Concentrations at Waiver Benchmark Site and TMDL LA Site 01T\_ODD3\_ARN

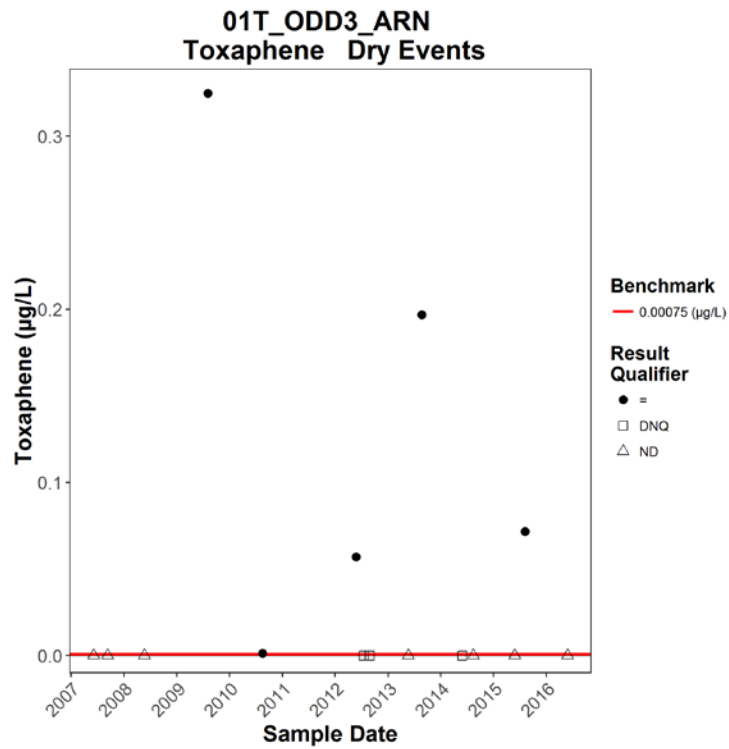


Figure 14. Dry Weather Toxaphene Concentrations at Waiver Benchmark Site 01T\_ODD3\_ARN

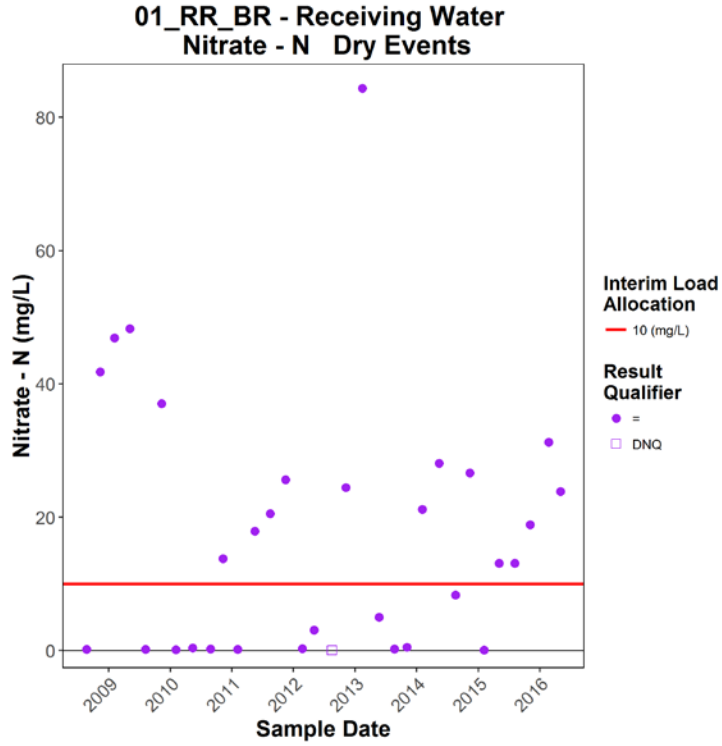


Figure 15. Dry Weather Nitrate-N Concentrations at TMDL LA Site 01\_RR\_BR

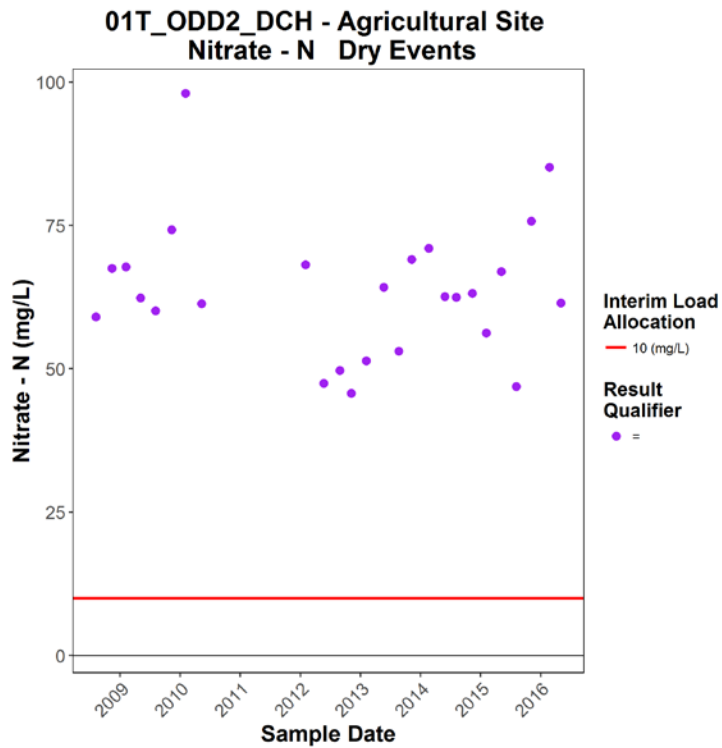


Figure 16. Dry Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 01T\_ODD2\_DCH



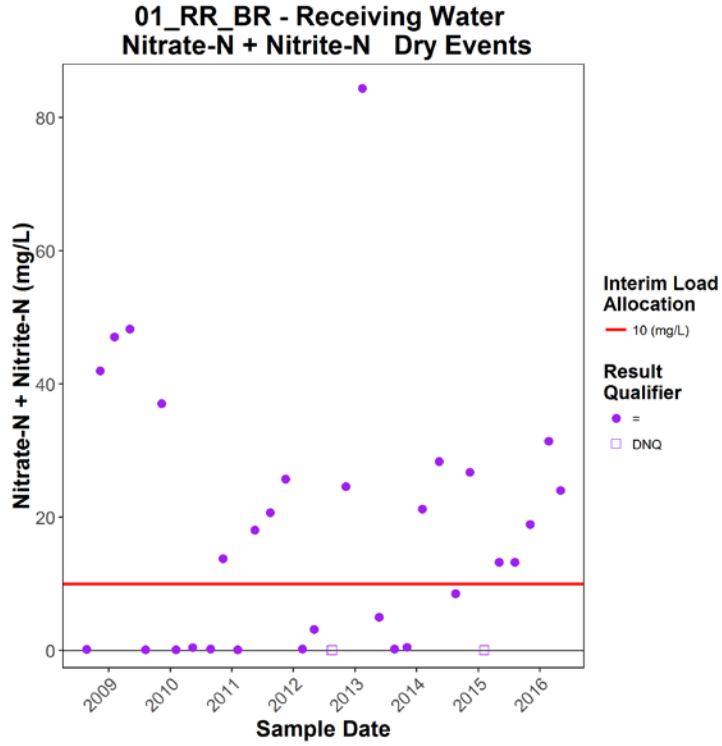


Figure 17. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 01\_RR\_BR

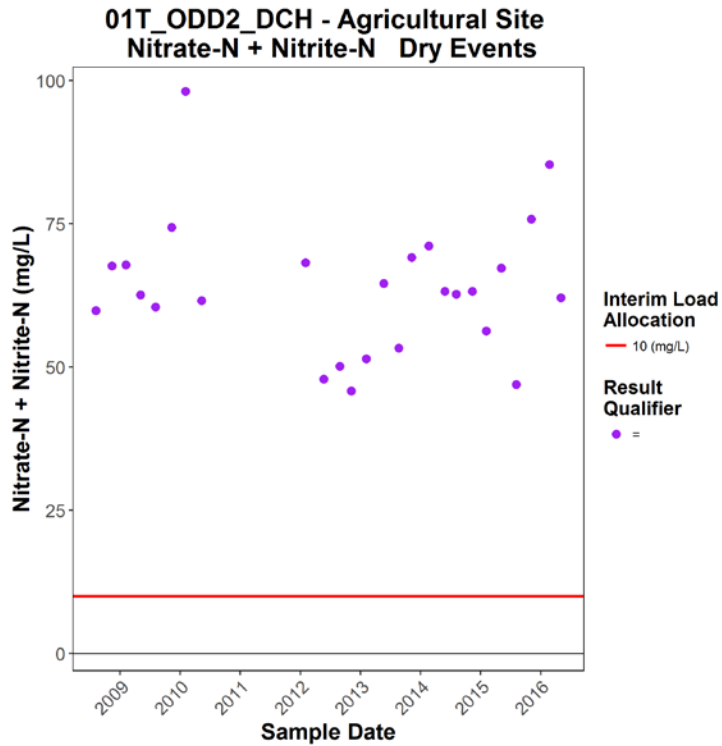


Figure 18. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 01T\_ODD2\_DCH

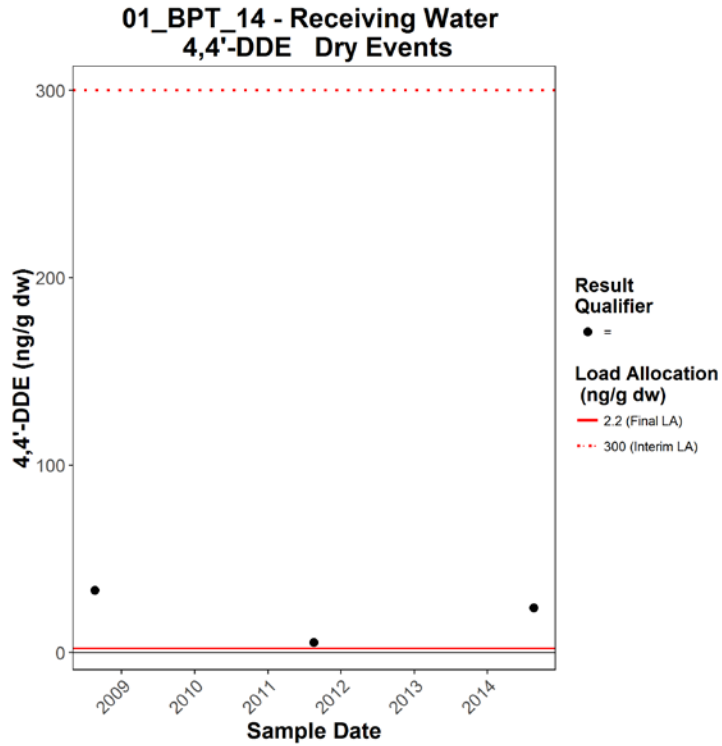


Figure 19. Dry Weather DDE Concentrations at TMDL LA Site 01\_BPT\_14

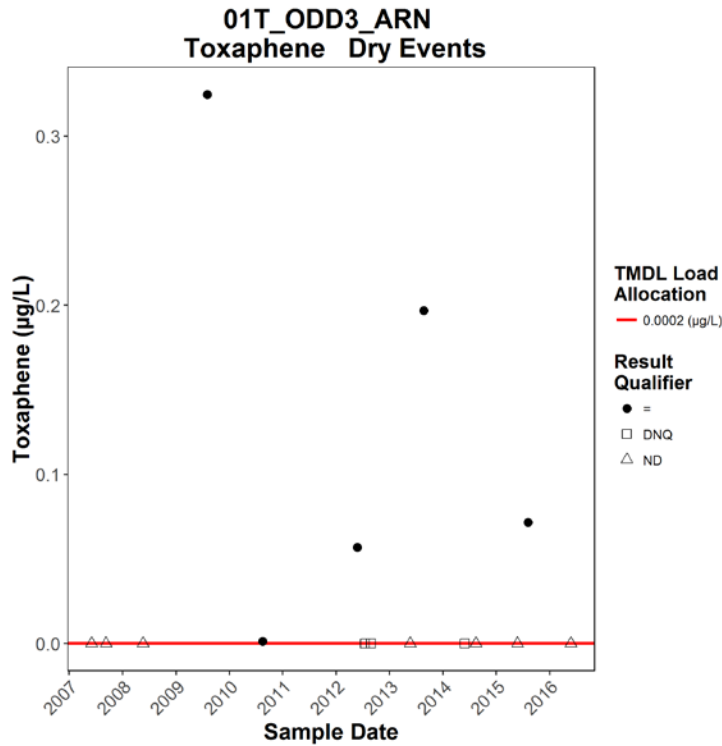


Figure 20. Dry Weather Toxaphene Concentrations at TMDL LA Site 01T\_ODD3\_ARN

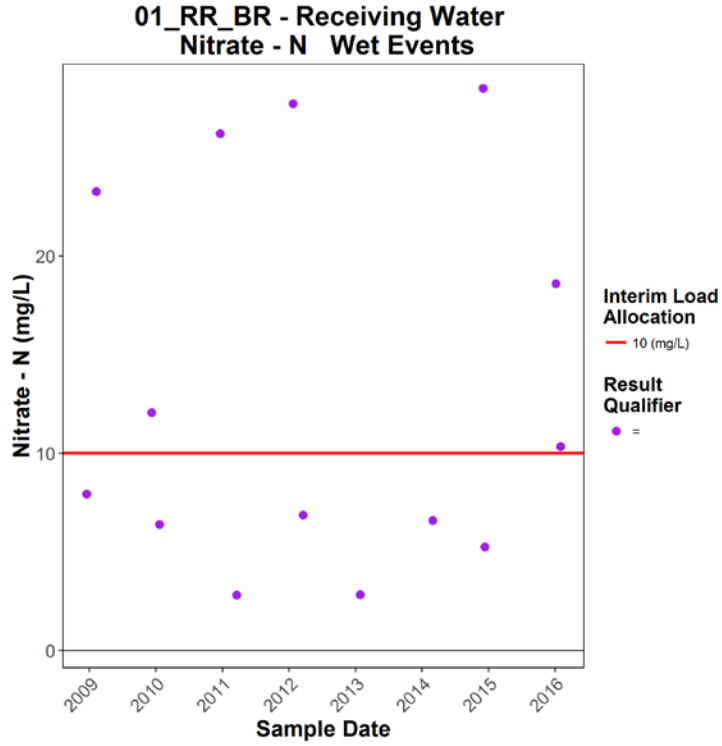


Figure 21. Wet Weather Nitrate-N Concentrations at TMDL LA Site 01\_RR\_BR

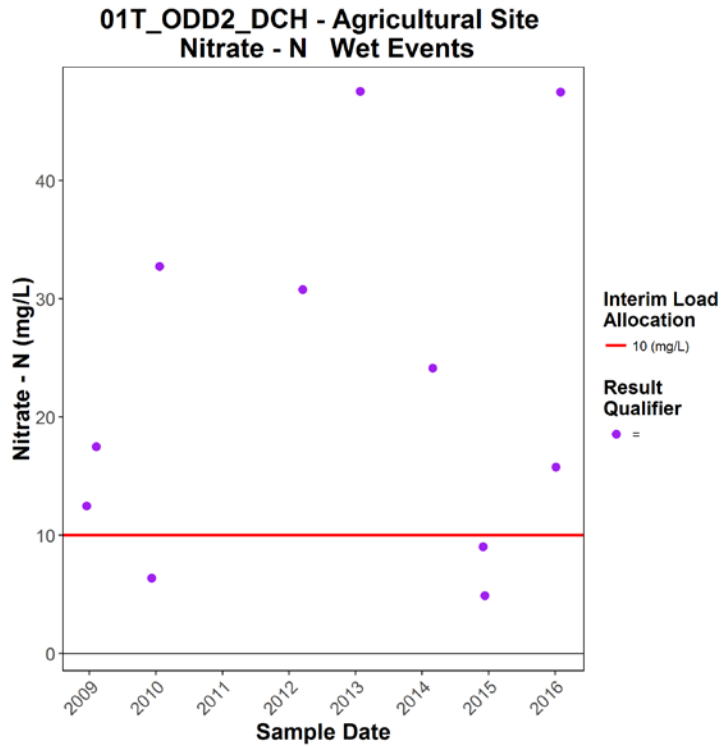


Figure 22. Wet Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 01T\_ODD2\_DCH

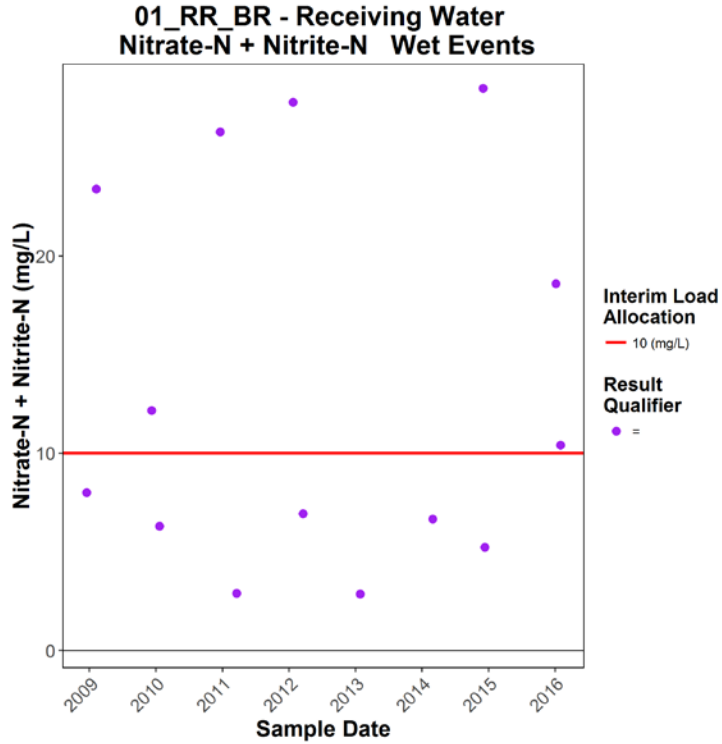


Figure 23. Wet Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 01\_RR\_BR

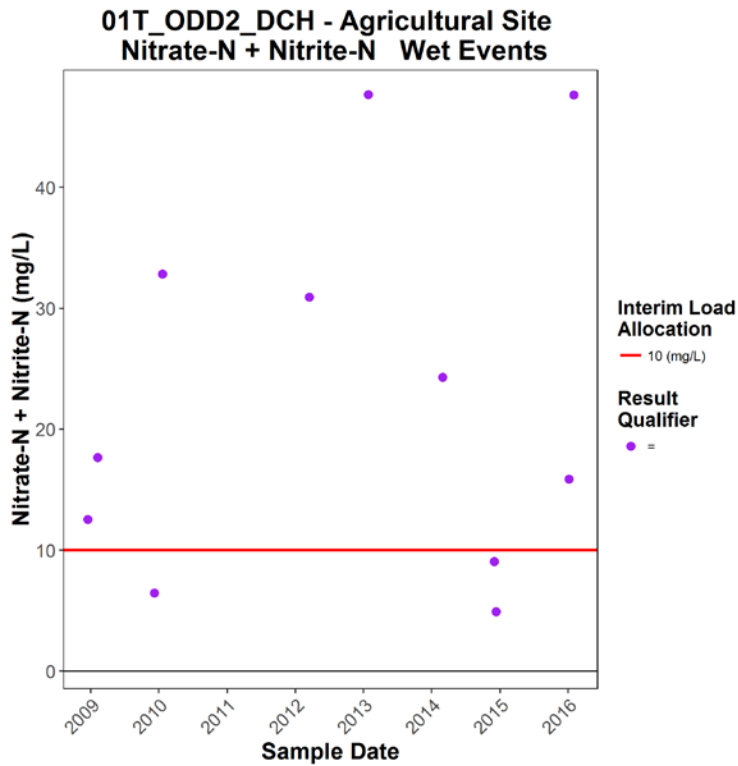


Figure 24. Wet Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 01T\_ODD2\_DCH

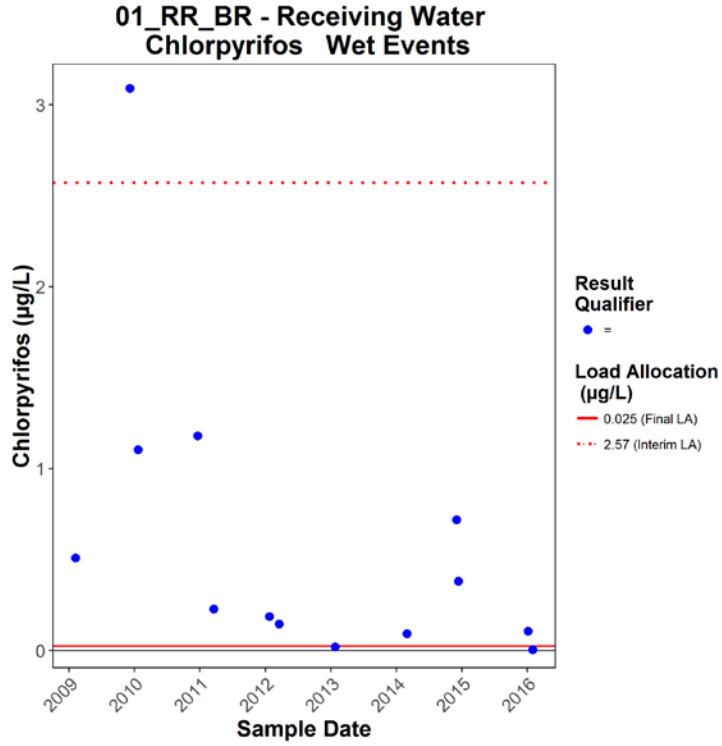


Figure 25. Wet Weather Chlorpyrifos Concentrations at TMDL LA Site 01\_RR\_BR

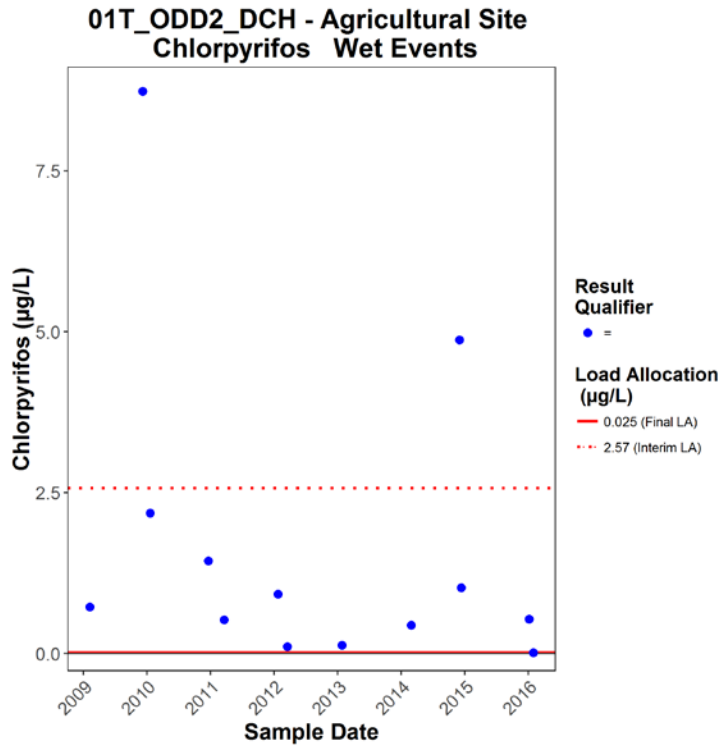


Figure 26. Wet Weather Chlorpyrifos Concentrations at TMDL Ag Land Use Site 01T\_ODD2\_DCH

**Table 25. Summary of Benchmark Exceedance Evaluation for Mugu Lagoon Responsibility Area (outside the Oxnard Drain #3 TMDL area)**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather				Wet Weather			
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs
<b>Salts</b>								
Boron		● <sup>1</sup>	2	3				
<b>Nutrients</b>								
Nitrate-N	●	● <sup>4</sup>	● <sup>5</sup>	☑	● <sup>4</sup>	● <sup>5</sup>		☑
Nitrate-N + Nitrite-N		● <sup>4</sup>	● <sup>5</sup>	☑	● <sup>4</sup>	● <sup>5</sup>		☑
<b>Metals and Selenium</b>								
Dissolved Copper	●			☑				
<b>OC Pesticides (Legacy)</b>								
DDD	●			☑				
DDE	●	● <sup>6,7</sup>		☑	● <sup>6,7</sup>			☑
DDT	●			☑				
Toxaphene	●			☑				
<b>OP and Pyrethroid Pesticides (Current)</b>								
Chlorpyrifos					● <sup>4,7</sup>	● <sup>5,7</sup>		☑

1. CCW Salts TMDL receiving water site is 04\_WOOD and actions only apply to Salts TMDL area.
2. Agricultural land use site for the CCW Salts TMDL is 04D\_WOOD.
3. Agricultural land use data is below the LA so additional management practices in agriculture aren't necessary at this time.
4. CCW Nitrogen, Toxicity, and Metals TMDL receiving water site is 01\_RR\_BR.
5. Agricultural land use site for the Nitrogen, Toxicity, and Metals TMDLs is 01T\_ODD2\_DCH.
6. CCW OC Pesticides TMDL receiving water site is 01\_BPT\_14. TMDL compliance is measured in sediment in receiving water and this location is downstream of the responsibility area discharges. Though sediment is collected during dry weather, the results are applied to both wet and dry weather to ensure management practices minimize sediment transport year-round.
7. Does not exceed interim load allocation but exceeds final load allocation that will need to be achieved by the timeline provided in the Waiver.

**Table 26. Summary of Benchmark Exceedance Evaluation for Mugu Lagoon Responsibility Area (within the Oxnard Drain #3 TMDL area)**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather				Wet Weather			
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs
<b>Nutrients</b>								
Nitrate-N	●	● <sup>1</sup>	● <sup>2</sup>	☑	● <sup>1</sup>	● <sup>2</sup>		☑
Nitrate-N + Nitrite-N		● <sup>1</sup>	● <sup>2</sup>	☑	● <sup>1</sup>	● <sup>2</sup>		☑
<b>Metals and Selenium</b>								
Dissolved Copper	●			☑				
<b>OC Pesticides (Legacy)</b>								
DDD	●	● <sup>3</sup>		☑				
DDE	●	● <sup>3</sup>		☑				
DDT	●	● <sup>3</sup>		☑				
Toxaphene	●	● <sup>3</sup>		☑				

1. CCW Nitrogen, Toxicity, and Metals TMDL receiving water site is 01\_RR\_BR.
2. Agricultural land use site for the Nitrogen, Toxicity, and Metals TMDLs is 01T\_ODD2\_DCH.
3. Oxnard Drain #3 TMDL LAs were compared to data from 01T\_ODD3\_ARN. LAs for DDD, DDE, and DDT are equivalent to the Waiver benchmarks. The LAs for toxaphene and chlorpyrifos are lower than the Waiver benchmarks. Sediment data has not yet been collected to evaluate compliance with those allocations.

**Table 27. BMPs for Additional Implementation in the Mugu Lagoon Responsibility Area (outside the Oxnard Drain #3 TMDL area)**

Exceedance Condition						Survey Question #	BMP	% of Total Applicable Surveyed Units Mugu Lagoon Responsibility Area Minus 01T_ODD3_ARN Site Drainage	Additional Implementation Needed?
Nutrients		Metals	Legacy Pesticides		Current Pesticides				
Dry	Wet	Dry	Dry	Wet	Wet				
x	x	x	x	x	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	60%	Yes
x	x	x	x	x		Irrigation system type	Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	55%	Yes
x	x	x	x	x		1	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	88%	Yes
x	x	x				2	Irrigation practices are based on soil moisture measurements and/or crop evapotranspiration	69%	Yes
x	x					3	Soil solution electrical conductivity measurements are used to determine when salt leaching is necessary	61%	Yes
x	x					4	Certified nutrient management plan has been prepared for the property	28%	Yes
x	x					5	Soil residual nitrate tests are conducted and used to adjust fertilizer applications	80%	Yes
x	x					6	Leaf/petiole tests are conducted and used to apply the minimum necessary amount of fertilizer	84%	Yes
x	x					7	Irrigation water nitrate is analyzed and the results are used to adjust fertilizer applications.	69%	Yes
x	x					8	Fertilizer applications are adjusted to account for nutrients provided by cover crops	70%	Yes
x	x	x	x	x	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	115%	No
	x		x	x	x	11	How much non-cropped area is bare soil	14%	Yes
x	x	x	x	x	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	14%	Yes
x	x	x	x	x	x	13	Grassed waterways are used	5%	Yes
x	x	x	x	x	x	14	Vegetated filter strips are used	6%	Yes
					x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	100%	No
					x	16	An integrated pest management plan is implemented	97%	Yes
x	x	x	x	x		18	How many acres produce irrigation runoff	33%	Yes
x	x	x	x	x	x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	15%	Not at this time
		x			x	[a]	Pesticide management plan is used		Yes

[a] Waiver specified practice for exceedances of copper and current use pesticides.



**Table 28. BMPs for Additional Implementation in the Mugu Lagoon Responsibility Area (within the Oxnard Drain #3 TMDL area)**

Exceedance Condition				Survey Question #	BMP	% of Total Applicable Surveyed Units		Additional Implementation Needed?
Nutrients		Metals	Legacy Pesticides			01T_ODD3_ARN Site Drainage Only		
Dry	Wet	Dry	Dry					
		x	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	NA <sup>[c]</sup>		No
x	x	x	x	Irrigation system type	Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	0%		Yes
x	x	x	x	1	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	100%		No
x	x	x		2	Irrigation practices are based on soil moisture measurements and/or crop evapotranspiration	100%		No
x	x			3	Soil solution electrical conductivity measurements are used to determine when salt leaching is necessary	100%		No
x	x			4	Certified nutrient management plan has been prepared for the property	0%		Yes
x	x			5	Soil residual nitrate tests are conducted and used to adjust fertilizer applications	100%		No
x	x			6	Leaf/petiole tests are conducted and used to apply the minimum necessary amount of fertilizer	100%		No
x	x			7	Irrigation water nitrate is analyzed and the results are used to adjust fertilizer applications.	100%		No
x	x			8	Fertilizer applications are adjusted to account for nutrients provided by cover crops	N/A		No
		x	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	NA <sup>[a]</sup>		No
		x	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	0%		Yes
x	x	x	x	13	Grassed waterways are used	0%		Yes
x	x	x	x	14	Vegetated filter strips are used	0%		Yes
x	x	x	x	18	How many acres produce irrigation runoff	100%		Yes
x	x	x	x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	21%		Not at this time
		x		<sup>[b]</sup>	Pesticide management plan is used			Yes

[a] Zero acres reported as sloped within the surveyed site drainage.

[b] Waiver specified practice for exceedances of copper and current use pesticides.

[c] Zero acres reported as available for surface treatments in the production area.

**Table 29. Proposed Best Management Practices for the Mugu Lagoon Responsibility Area within the Oxnard Drain #3 TMDL Area**

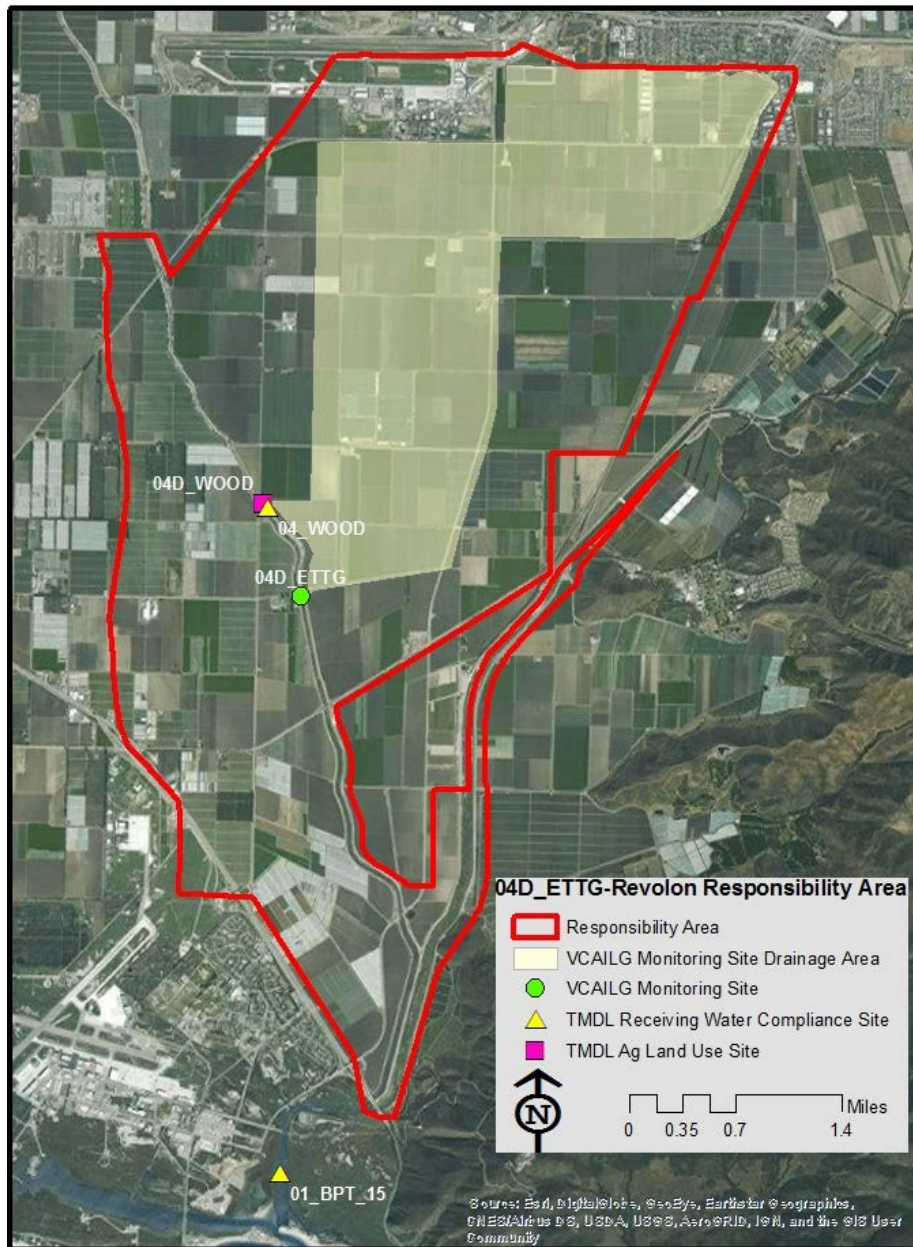
Water Quality Issues				BMPs
Nutrients		Metals	Legacy Pesticides	
Dry Weather	Wet Weather	Dry Weather	Dry Weather	
<i>Source Control BMPs</i>				
x	x	x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x		x	x	Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)
x		x	x	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years
x		x		Implement irrigation practices that are based on soil moisture measurements and/or crop evapotranspiration
x				Use soil solution electrical conductivity measurements to determine when salt leaching is necessary
x	x			Prepare a certified nutrient management plan for the property (required)
x	x			Conduct soil residual nitrate tests and use results to adjust fertilizer application
x	x			Conduct leaf/petiole tests and use results to apply the minimum necessary amount of fertilizer
x	x			Analyze irrigation water nitrate and use results to adjust fertilizer application
x	x			Adjust fertilizer application to account for nutrients provided by cover crops
x	x	x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
	x			Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
x		x	x	Avoid/prevent irrigation runoff
		x		Use a pesticide management plan (template available at a future date)
<i>Structural Non-Treatment BMPs</i>				
x	x	x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	x	x	x	Use grassed waterways
x	x	x	x	Use vegetated filter strips

**Table 30. Proposed Best Management Practices for the Mugu Lagoon Responsibility Area**

Water Quality Issues						BMPs
Nutrients		Metals	Legacy Pesticides		Current Use Pesticides	
Dry Weather	Wet Weather	Dry Weather	Dry Weather	Wet Weather	Wet Weather	
<i>Source Control BMPs</i>						
x	x	x	x	x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x		x	x			Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)
x		x	x			Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.
x		x				Implement irrigation practices that are based on soil moisture measurements and/or crop evapotranspiration
x						Use soil solution electrical conductivity measurements to determine when salt leaching is necessary
x	x					Prepare a certified nutrient management plan for the property
x	x					Conduct soil residual nitrate tests and use results to adjust fertilizer application
x	x					Conduct leaf/petiole tests and use results to apply the minimum necessary amount of fertilizer
x	x					Analyze irrigation water nitrate and use results to adjust fertilizer application
x	x					Adjust fertilizer application to account for nutrients provided by cover crops
x	x	x	x	x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
	x			x	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
					x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
					x	Implement an integrated pest management plan
x		x	x			Avoid/prevent irrigation runoff
		x			x	Use a pesticide management plan
<i>Non-Structural Treatment BMPs</i>						
x	x	x	x	x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals

Water Quality Issues						BMPs
Nutrients		Metals	Legacy Pesticides		Current Use Pesticides	
Dry Weather	Wet Weather	Dry Weather	Dry Weather	Wet Weather	Wet Weather	
x	x	x	x	x	x	Use grassed waterways
x	x	x	x	x	x	Use vegetated filter strips

## Etting-Wood Responsibility Area



**Figure 27. Etting-Wood Responsibility Area Map**

The monitoring sites used to evaluate attainment of Conditional Waiver benchmarks and/or TMDL LAs for the Etting-Wood responsibility area are illustrated in Figure 27. The monitoring sites that serve to evaluate TMDL LA benchmark attainment are as follows:

- 01\_BPT\_15 is a CCW OC Pesticides and PCBs TMDL Receiving Water Compliance Site
- 04\_WOOD is a CCW Salts, Nitrogen, Toxicity, and Metals TMDL Receiving Water Compliance Site
- 04D\_WOOD is a CCW Salts, Nitrogen, Toxicity, and Metals TMDL Ag Land Use Site

**Table 31. Etting-Wood Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Entire Responsibility Area</b>	<b>Drainage Area Monitoring Site 04D_ETTG</b>	<b>Responsibility Area Minus Nested 04D_ETTG Site Drainage</b>
<b>Assessed Acreage Information</b>			
Total Assessed Acres from Agricultural Parcel List	9,182	3,251	5,931
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	1	0	1
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	7,872	3,172	4,700
Assessed Acres from Agricultural Parcel List belonging to Non Members	1,309	79	1,230
<b>Irrigated Acreage Information</b>			
VCAILG Member Acreage Reported as Irrigated	7,193	2,973	4,220
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.9	0.9	0.9
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	1,196	74	1,104
Total Estimated Irrigated Acres (Member plus Non Member)	8,389	3,047	5,324
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	86%	98%	79%
<b>Survey Response Information</b>			
Sum Surveyed Irrigated Acres	4,779	1,881	2,898
Percent of Total Estimated Irrigated Acres that were Surveyed	57%	62%	54%
Percent of VCAILG Member Irrigated Acres that were Surveyed	66%	63%	69%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 32. Etting-Wood Responsibility Area Crop Types and General Production Practices**

Crop or Practice	04D_ETTG Site Drainage Only		Etting-Wood Responsibility Area Minus Nested 04D_ETTG Site Drainage	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	251	13%	264	9%
Berry	0	0%	275	9%
Row Crop	1,353	72%	2,247	77%
Orchard	144	8%	69	2%
Nursery	132	7.0%	8	0.3%
Flower	0	0%	35	1%
Sod	0	0%	0	0%
Other	2	0.1%	0	0%
<b>Overhead Cover in Production Areas</b>				
Hoop House	0	0%	15	0.5%
No Cover	219	12%	118	4%
Greenhouse	0	0%	0	0%
Shade	0	0%	0	0%
Other	0	0%	0	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	1,106	59%	2,632	91%
Cover Crop	351	19%	1	0%
Plastic	262	14%	333	11%
Weed Cloth	0	0%	0	0%
Mulch	0	0%	40	1%
Gravel	0	0%	0	0%
Other	295	16%	0	0%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	1,221	65%	1,360	47%
Microsprinkler/Drip	198	11%	109	4%
Microsprinkler	114	6%	70	2%
Overhead Sprinkler	122	6%	180	6%
Overhead/Drip	279	15%	1,281	44%
Furrow Flood	0	0%	0	0%
Hand Watering	0	0%	0	0%
Other	0	0%	7	0.2%

**Table 33. Etting-Wood Responsibility Area Grower BMPs**

Survey Question	Units	04D_ETTG Site Drainage Only		Etting-Wood Responsibility Area Minus Nested 04D_ETTG Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	1,396	74%	2,129	78%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	1,212	64%	1,475	51%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	460	26%	1,011	35%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	688	37%	1,192	41%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	661	35%	1,159	40%
Q5a: Are soil residual nitrate tests done?	Acres	991	53%	2,224	77%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	963	51%	2,224	77%
Q6: Are leaf/petiole tests conducted?	Acres	1,243	66%	2,156	74%
Q7a: Is nitrate measured in fertigation water?	Acres	617	33%	870	30%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	617	33%	763	26%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	581	46%	787	56%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	0	0%	0	0%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	71	0%	159	0%
Q11: How much non-cropped area is bare soil?	Acres	84	4%	147	5%
Q12a: How many feet of ditch exist?	Feet	61,342	N/A	119,643	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	1,850	3%	38,954	0%
Q13a: Are grassed waterways present?	Acres	132	7%	0	0%
Q13b: How many acres drain to grassed waterways?	Acres	5	0.3%	0	0%
Q14: How many acres are treated by vegetated filter strips?	Acres	2	0.1%	0	0%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	1,881	100%	2,898	100%
Q16: Is an IPM Plan being implemented?	Acres	1,881	100%	2,863	99%
Q17a: How many acres are organically farmed?	Acres	42	2%	134	5%
Q17b: How many acres are conventionally farmed?	Acres	1,840	98%	2,765	95%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	525	28%	876	30%
Q19: Runoff from how many acres is treated or detained?	Acres	493	26%	80	3%



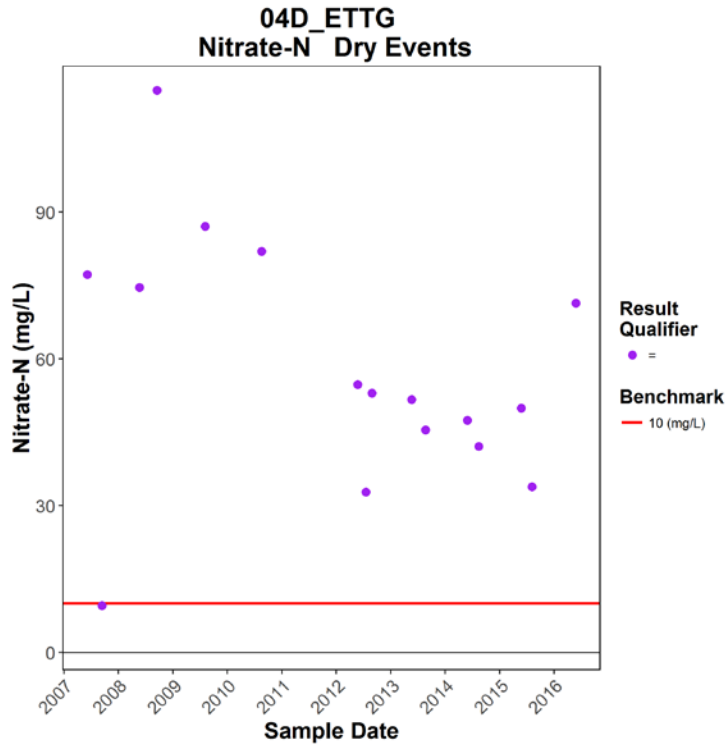


Figure 28. Dry Weather Nitrate-N Concentrations at Waiver Benchmark Site 04D\_ETTG

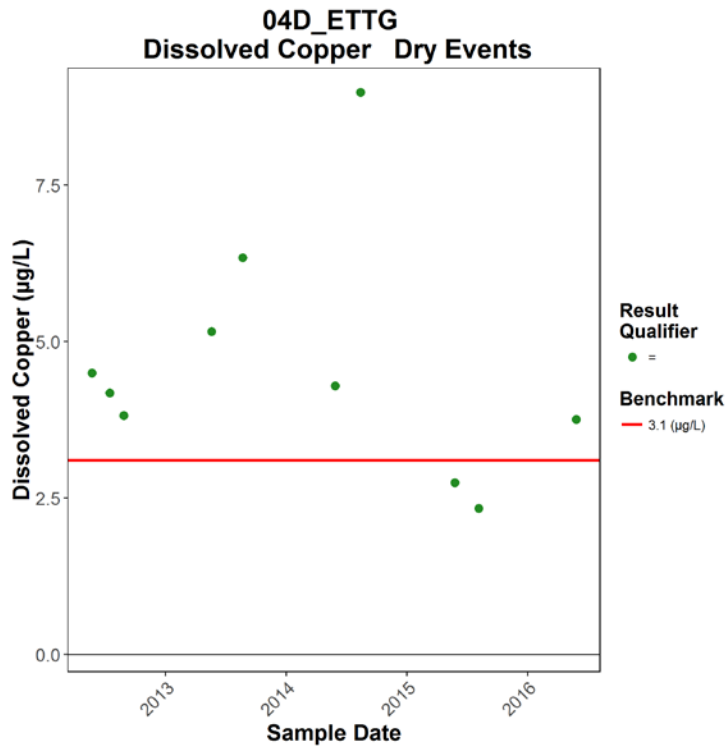


Figure 29. Dry Weather Dissolved Copper Concentrations at Waiver Benchmark Site 04D\_ETTG

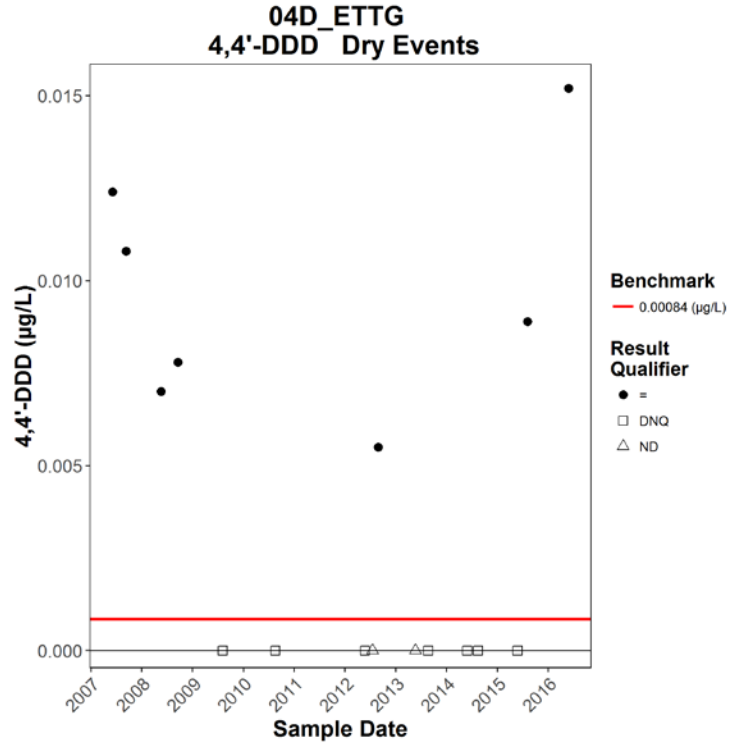


Figure 30. Dry Weather DDD Concentrations at Waiver Benchmark Site 04D\_ETTG

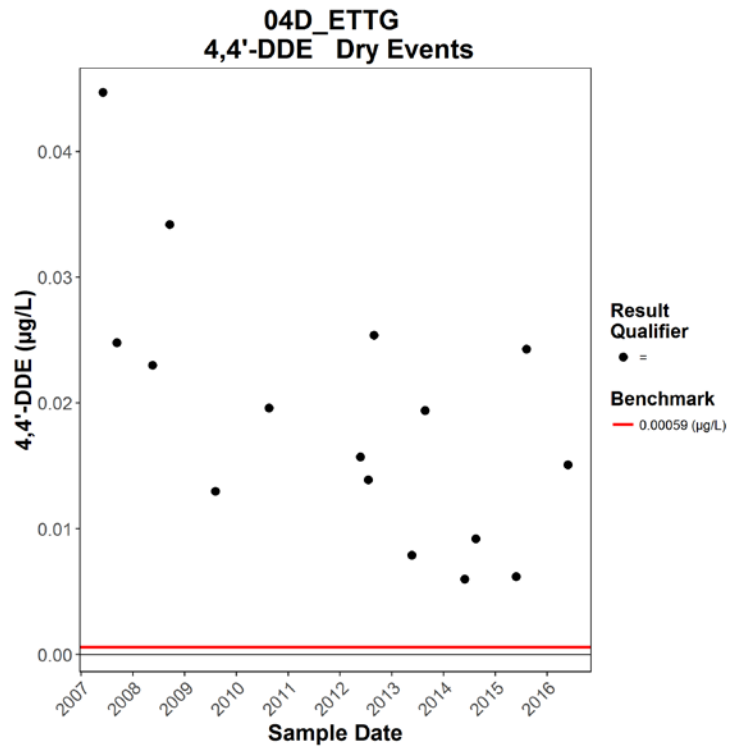


Figure 31. Dry Weather DDE Concentrations at Waiver Benchmark Site 04D\_ETTG

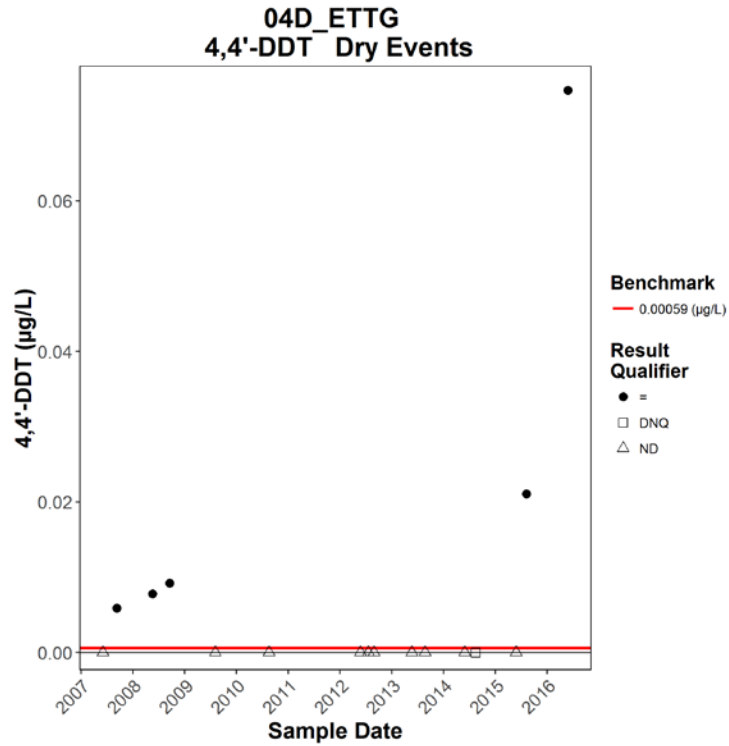


Figure 32. Dry Weather DDT Concentrations at Waiver Benchmark Site 04D\_ETTG

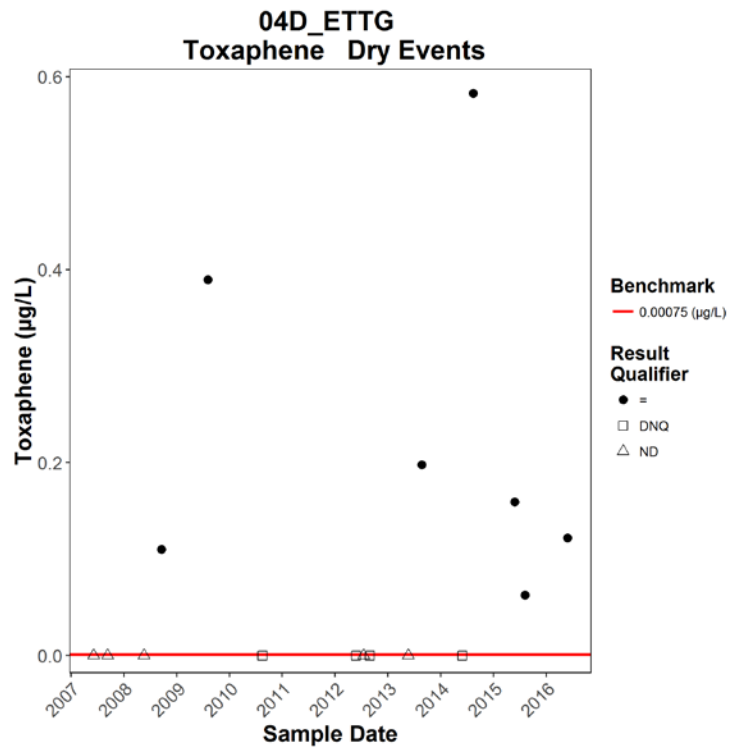


Figure 33. Dry Weather Toxaphene Concentrations at Waiver Benchmark Site 04D\_ETTG

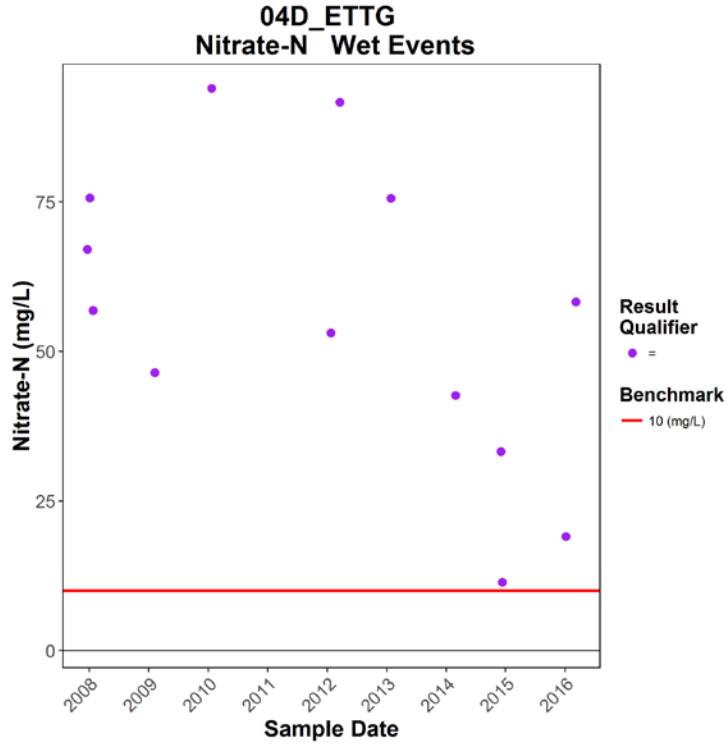


Figure 34. Wet Weather Nitrate-N Concentrations at Waiver Benchmark Site 04D\_ETTG

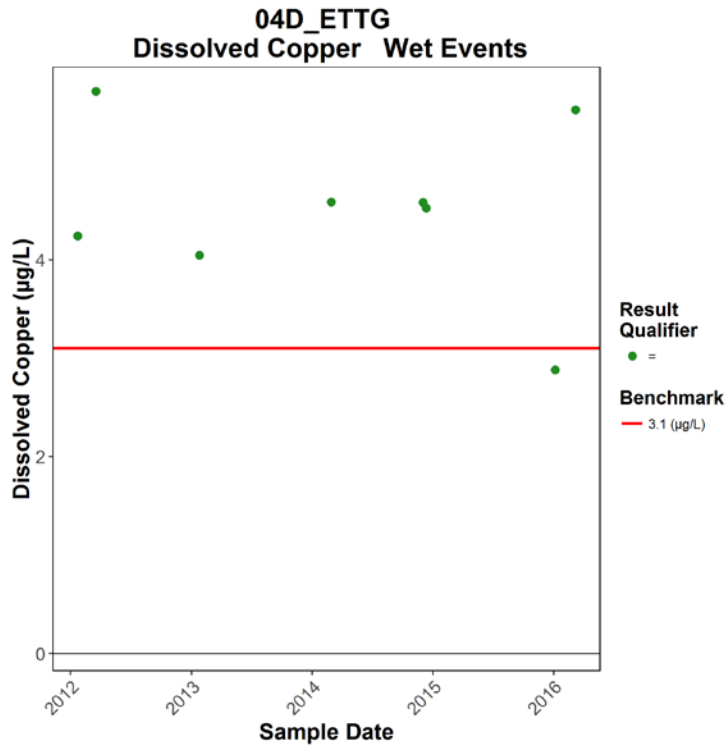


Figure 35. Wet Weather Dissolved Copper Concentrations at Waiver Benchmark Site 04D\_ETTG

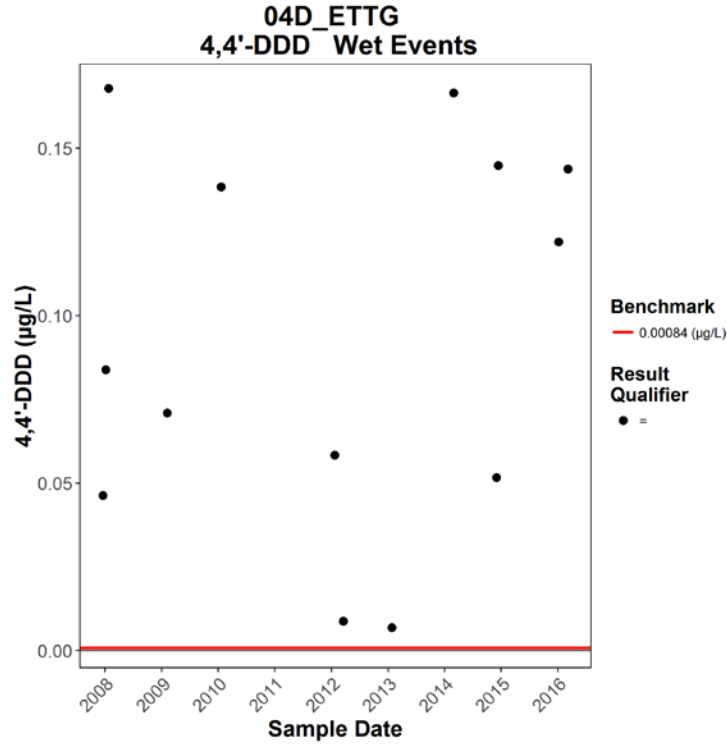


Figure 36. Wet Weather DDD Concentrations at Waiver Benchmark Site 04D\_ETTG

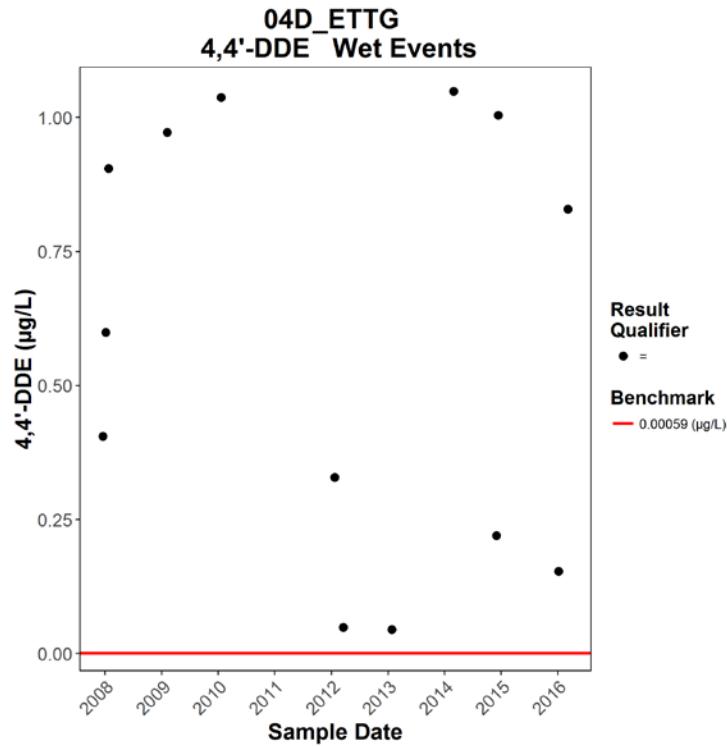


Figure 37. Wet Weather DDE Concentrations at Waiver Benchmark Site 04D\_ETTG

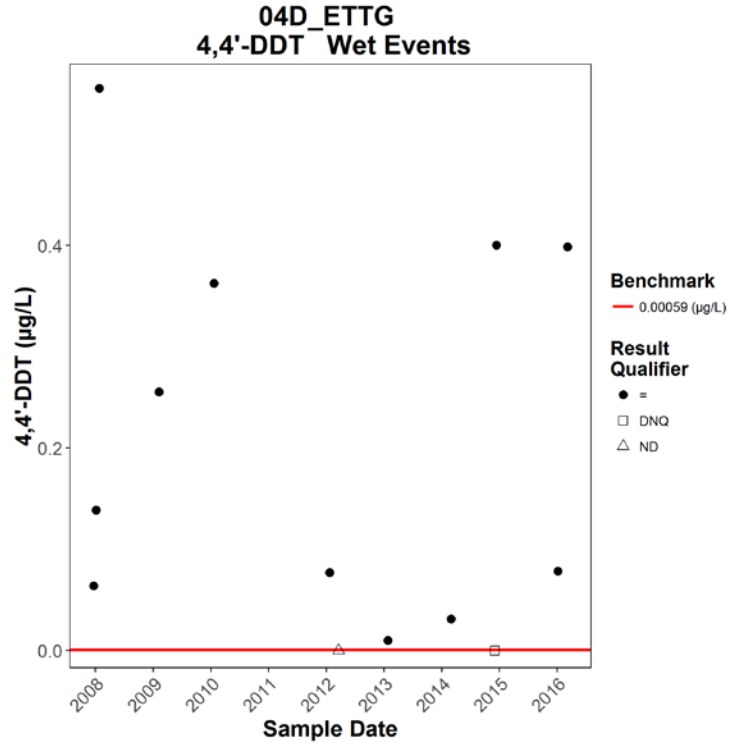


Figure 38. Wet Weather DDT Concentrations at Waiver Benchmark Site 04D\_ETTG

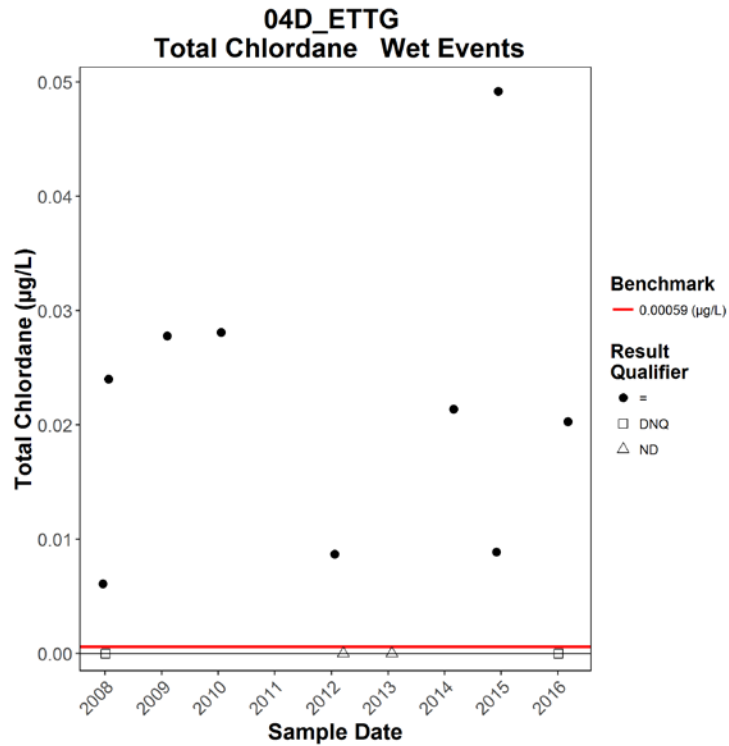


Figure 39. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 04D\_ETTG

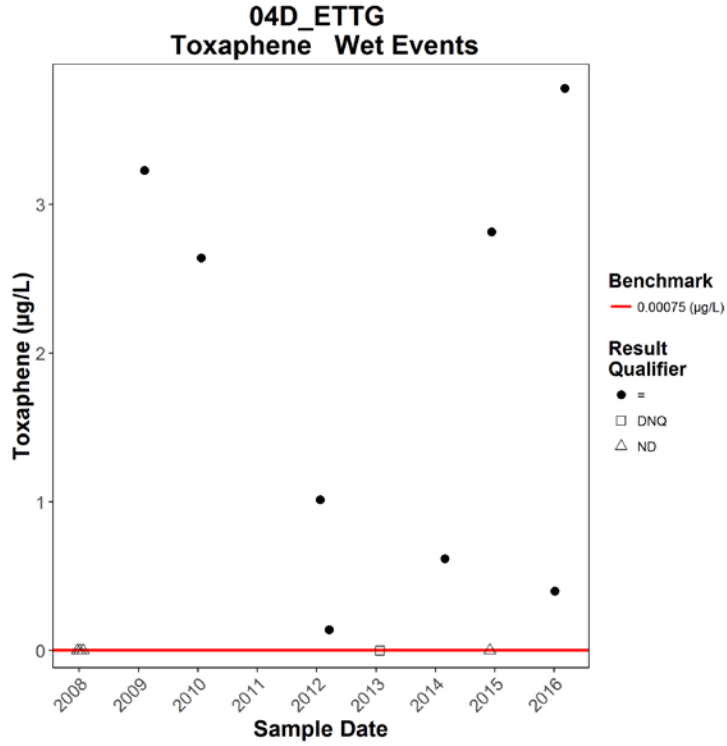


Figure 40. Wet Weather Toxaphene Concentrations at Waiver Benchmark Site 04D\_ETTG

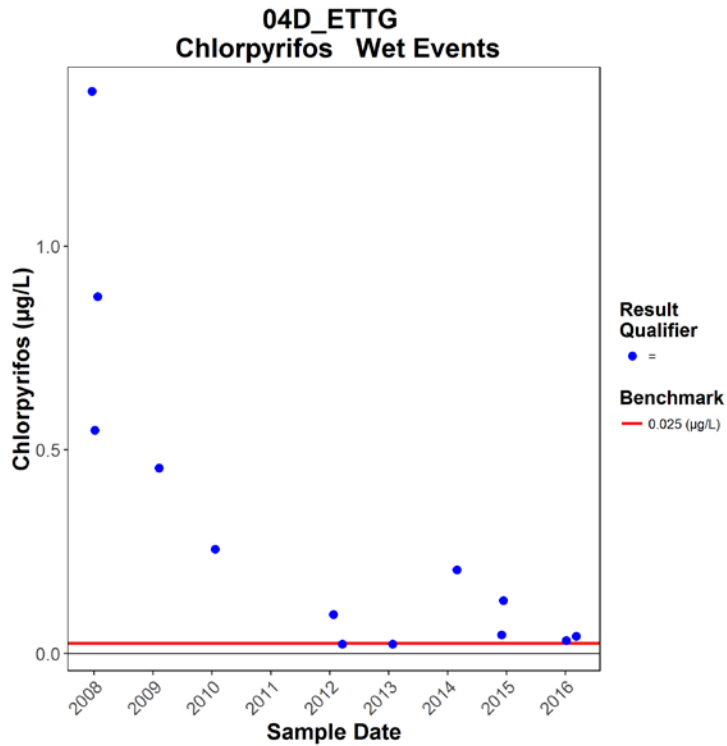


Figure 41. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 04D\_ETTG

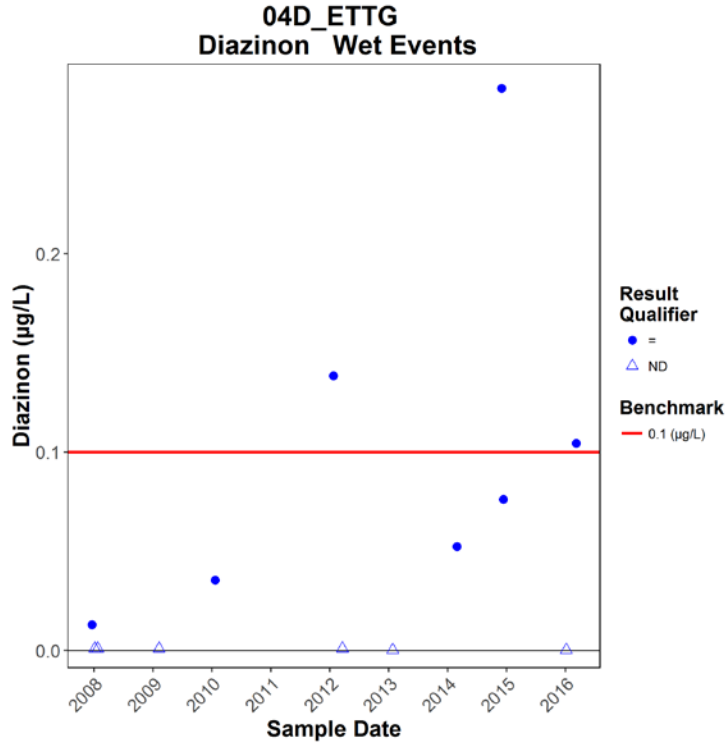


Figure 42. Wet Weather Diazinon Concentrations at Waiver Benchmark Site 04D\_ETTG

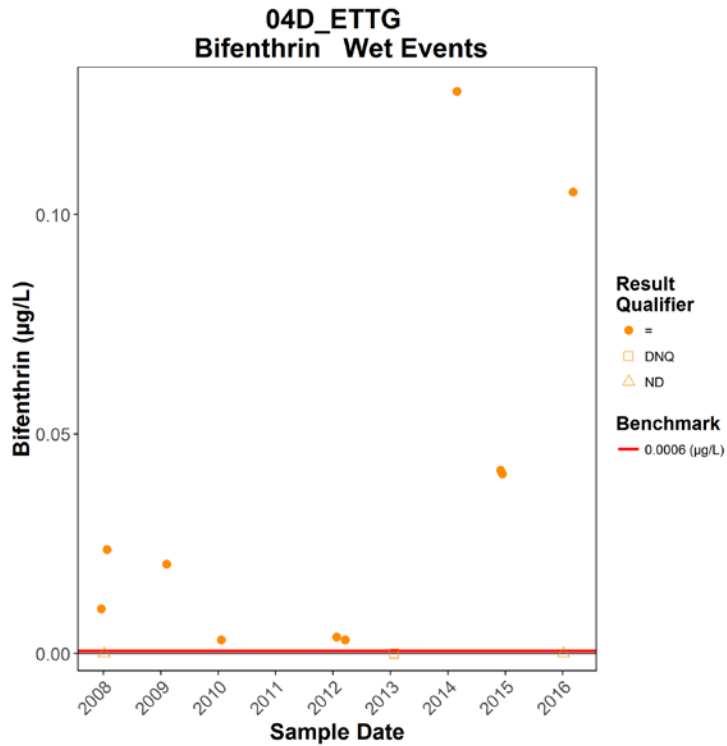


Figure 43. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 04D\_ETTG



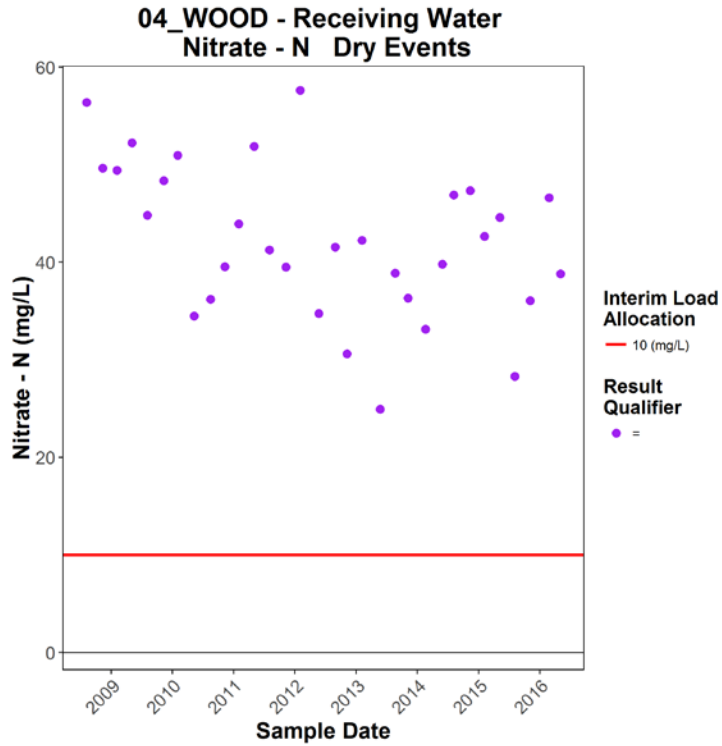


Figure 44. Dry Weather Nitrate-N Concentrations at TMDL LA Site 04\_WOOD

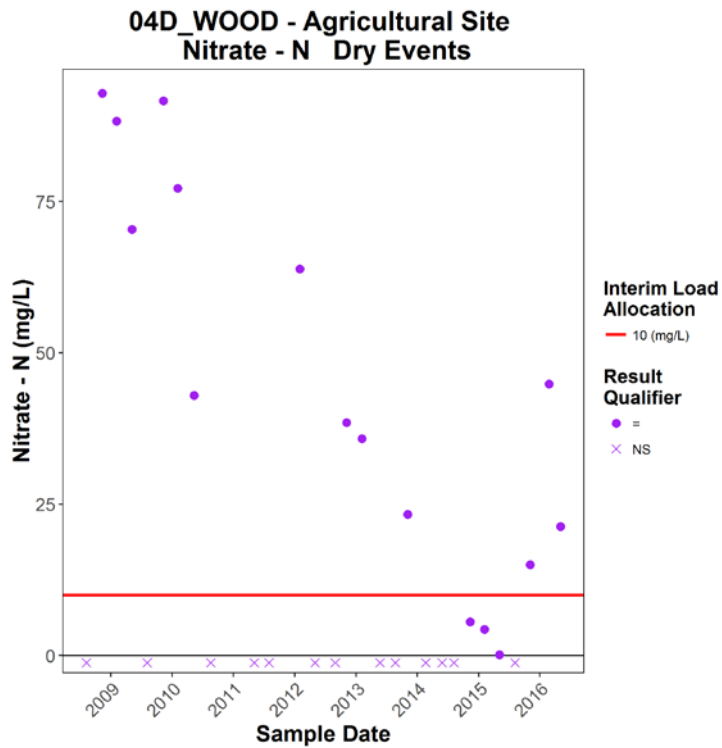


Figure 45. Dry Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 04D\_WOOD

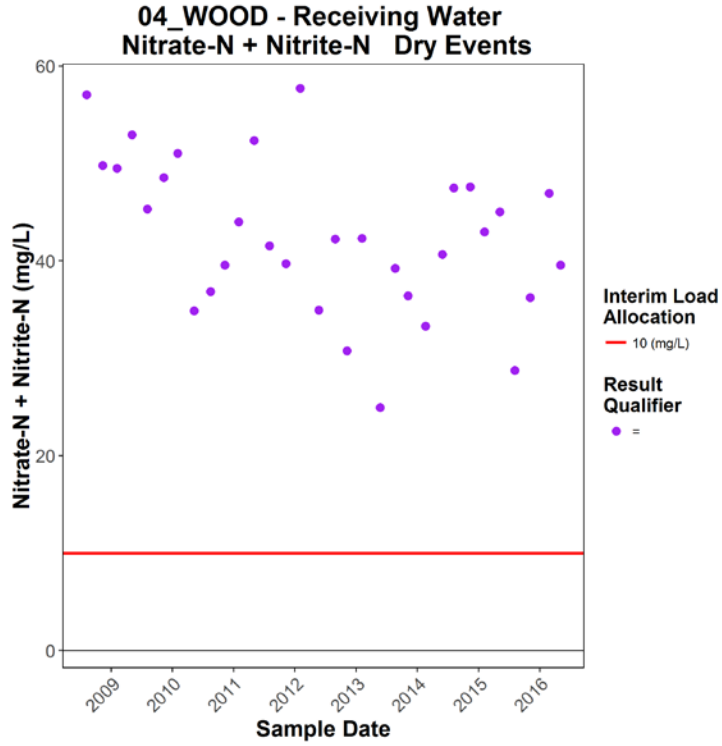


Figure 46. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 04\_WOOD

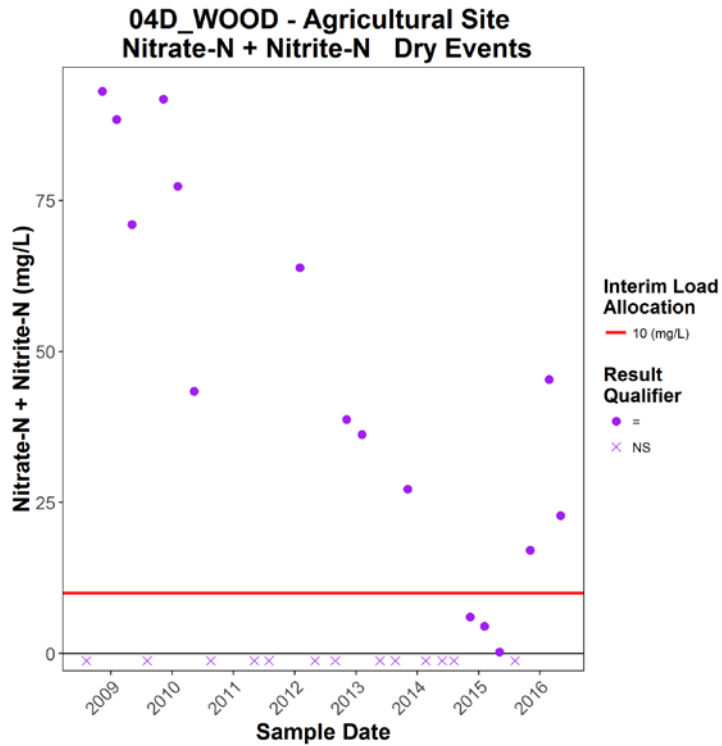


Figure 47. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 04D\_WOOD

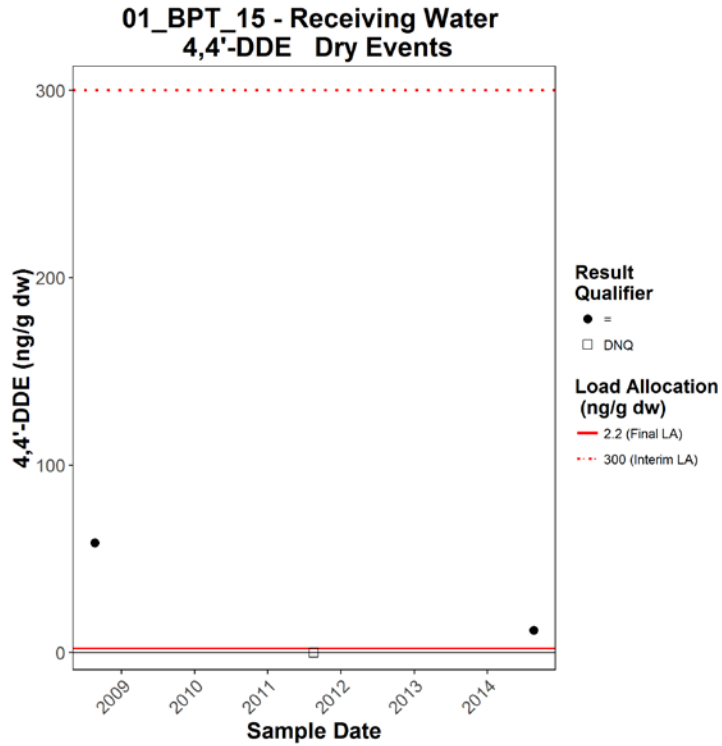


Figure 48. Dry Weather DDE Concentrations at TMDL LA Site 01\_BPT\_15

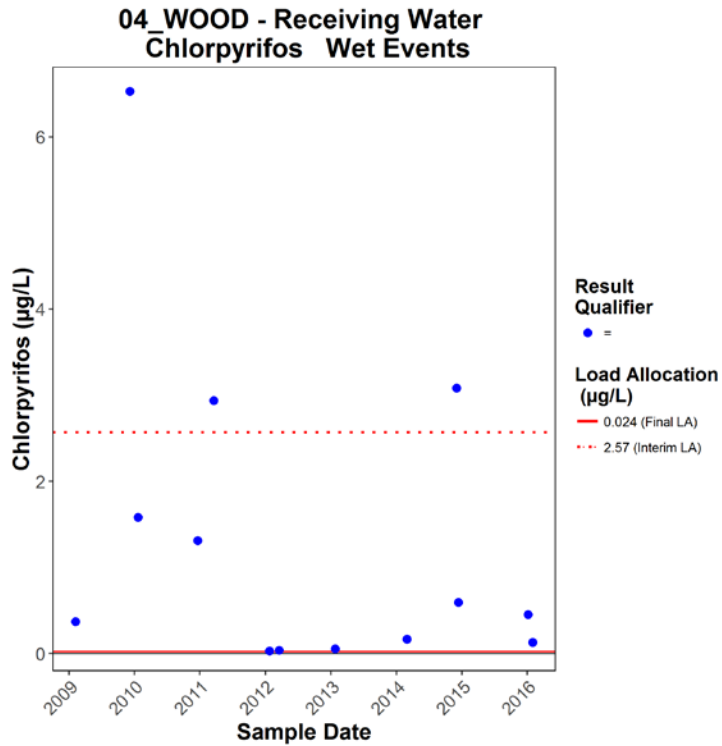


Figure 49. Wet Weather Chlorpyrifos Concentrations at TMDL LA Site 04\_WOOD

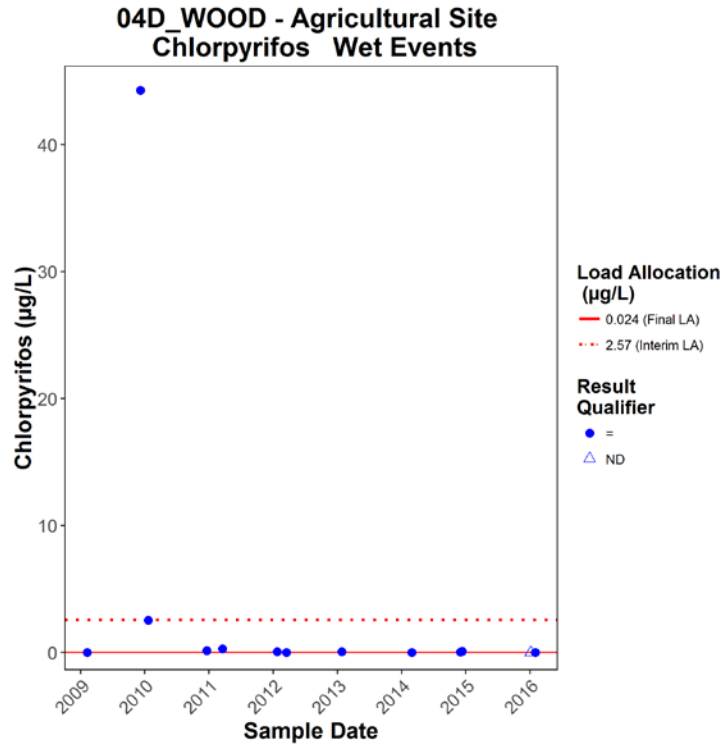


Figure 50. Wet Weather Chlorpyrifos Concentrations at TMDL Ag Land Use Site 04D\_WOOD

**Table 34. Summary of Benchmark Exceedance Evaluation for Etting-Wood Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather				Wet Weather			
	Waiver Benchmark Site Exceedances <sup>1</sup>	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances <sup>1</sup>	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs
<b>Salts</b>								
Boron		● <sup>2</sup>	3	4				
<b>Nutrients</b>								
Nitrate-N	●	● <sup>5</sup>	● <sup>3</sup>	☑	●			☑
Nitrate-N + Nitrite-N		● <sup>5</sup>	● <sup>3</sup>	☑				
<b>Metals and Selenium</b>								
Dissolved Copper	●			☑	●			☑
Total Selenium		● <sup>5</sup>	3	4				
<b>OC Pesticides (Legacy)</b>								
DDD	●			☑	●			☑
DDE	●	● <sup>6,7</sup>		☑	●	● <sup>6,7</sup>		☑
DDT	●			☑	●			☑
Chlordane					●			☑
Toxaphene	●			☑	●			☑
<b>OP and Pyrethroid Pesticides (Current)</b>								
Chlorpyrifos					●	● <sup>5,7</sup>	● <sup>3,7</sup>	☑
Diazinon					●			☑
Bifenthrin					●			☑

1. VCAILG monitoring site for Waiver benchmark exceedances is 04D\_ETTG.
2. CCW Salts TMDL receiving water site is 04\_WOOD and actions only apply to the Salts TMDL area.
3. Agricultural land use site for the CCW Salts, Nitrogen, Metals, and Toxicity TMDLs is 04D\_WOOD.
4. Agricultural land use data is below the LA so additional management practices in agriculture aren't necessary at this time.
5. TMDL receiving water site for the CCW Nitrogen, Metals, and Toxicity TMDLs is 04\_WOOD.
6. CCW OC Pesticides TMDL receiving water site is 01\_BPT\_15. TMDL compliance is measured in sediment in receiving water and this location is downstream of where the entire responsibility area discharges. Though sediment is collected during dry weather, the results are applied to both wet and dry weather to ensure management practices minimize sediment transport year-round.
7. Does not exceed interim load allocation but exceeds final load allocation that will need to be achieved by the timeline provided in the Waiver.

**Table 35. BMPs for Additional Implementation in the Etting-Wood Responsibility Area**

Exceedance Condition							Survey Question #	BMP	% of Total Applicable Surveyed Units		Additional Implementation Needed?
Nutrients		Metals		Legacy Pesticides		Current Pesticides			04D_ETTG Site Drainage Only	Etting-Wood Responsibility Area Minus 04D_ETTG Site Drainage	
Dry	Wet	Dry	Wet	Dry	Wet	Wet					
x	x	x	x	x	x	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	49%	12%	Yes
x	x	x	x	x	x		Irrigation system type	Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	82%	53%	Yes
x	x	x	x	x	x		1	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	74%	78%	Yes
x	x	x	x				2	Irrigation practices are based on soil moisture measurements and/or crop evapotranspiration	64%	51%	Yes
x	x						3	Soil solution electrical conductivity measurements are used to determine when salt leaching is necessary	26%	35%	Yes
x	x						4	Certified nutrient management plan has been prepared for the property	35%	40%	Yes
x	x						5	Soil residual nitrate tests are conducted and used to adjust fertilizer applications	51%	77%	Yes
x	x						6	Leaf/petiole tests are conducted and used to apply the minimum necessary amount of fertilizer	66%	74%	Yes
x	x						7	Irrigation water nitrate is analyzed and the results are used to adjust fertilizer applications.	33%	26%	Yes
x	x						8	Fertilizer applications are adjusted to account for nutrients provided by cover crops	46%	56%	Yes
x	x	x	x	x	x	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	NA <sup>[b]</sup>	NA <sup>[b]</sup>	No
	x	x	x	x	x	x	11	How much non-cropped area is bare soil	4%	5%	Yes
x	x	x	x	x	x	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	3%	0%	Yes
x	x	x	x	x	x	x	13	Grassed waterways are used	7%	0%	Yes
x	x	x	x	x	x	x	14	Vegetated filter strips are used	0.1%	0%	Yes
						x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	100%	100%	No
						x	16	An integrated pest management plan is implemented	10%	99%	Yes
x	x	x	x	x	x		18	How many acres produce irrigation runoff	28%	30%	Yes
x	x	x	x	x	x		19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	26%	3%	Not at this time
		x	x			x	[a]	Pesticide management plan is used			Yes

[a] Waiver specified practice for exceedances of copper and current use pesticides.

[b] Zero acres reported as sloped within the surveyed site drainage and responsibility area.

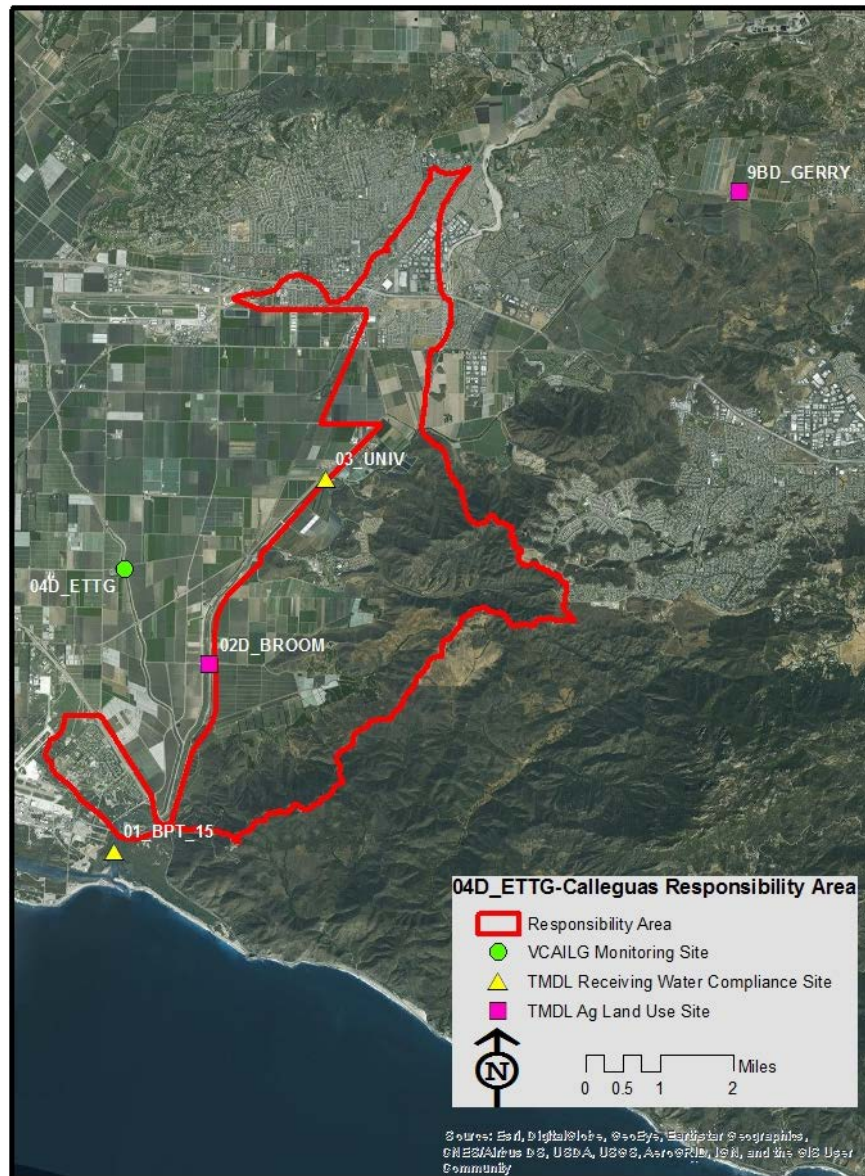
**Table 36. Proposed Best Management Practices for the Etting-Wood Responsibility Area**

Water Quality Issues							BMPs
Nutrients		Metals		Legacy Pesticides		Current Use Pesticides	
Dry Weather	Wet Weather	Dry Weather	Wet Weather	Dry Weather	Wet Weather	Wet Weather	
							<i>Source Control BMPs</i>
x	x	x	x	x	x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x		x		x			Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)
x		x		x			Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years
x		x					Implement irrigation practices that are based on soil moisture measurements and/or crop evapotranspiration
x							Use soil solution electrical conductivity measurements to determine when salt leaching is necessary
x	x						Prepare a certified nutrient management plan for the property
x	x						Conduct soil residual nitrate tests and use results to adjust fertilizer application
x	x						Conduct leaf/petiole tests and use results to apply the minimum necessary amount of fertilizer
x	x						Analyze irrigation water nitrate and use results to adjust fertilizer application
x	x						Adjust fertilizer application to account for nutrients provided by cover crops
x	x	x	x	x	x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
	x		x		x	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
						x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
						x	Implement an integrated pest management plan
x		x		x			Avoid/prevent irrigation runoff
		x	x			x	Use a pesticide management plan
							<i>Structural Non-Treatment BMPs</i>

Water Quality Issues							BMPs
Nutrients		Metals		Legacy Pesticides		Current Use Pesticides	
Dry Weather	Wet Weather	Dry Weather	Wet Weather	Dry Weather	Wet Weather	Wet Weather	
x	x	x	x	x	x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	x	x	x	x	x	x	Use grassed waterways
x	x	x	x	x	x	x	Use vegetated filter strips



## Lower Calleguas Creek Responsibility Area



**Figure 51. Lower Calleguas Creek Responsibility Area Map**

The monitoring sites used to evaluate attainment of Conditional Waiver benchmarks and/or TMDL LAs for the Lower Calleguas Creek responsibility area are illustrated in Figure 51. The monitoring sites that serve to evaluate TMDL LA benchmark attainment for this responsibility area are as follows:

- 01\_BPT\_15 is a CCW OC Pesticides and PCBs TMDL Receiving Water Compliance Site
- 03\_UNIV is a CCW Salts, Nitrogen, Toxicity, and Metals TMDL Receiving Water Compliance Site
- 9BD\_GERRY is a CCW Salts TMDL Ag Land Use Site
- 02D\_BROOM is a CCW Nitrogen, Toxicity, and Metals TMDL Ag Land Use Site

**Table 37. Lower Calleguas Creek Responsibility Area Enrollment and Survey Acreage Summary**

Enrollment and Survey Information	Drainage Area Monitoring Site 04D_ETTG [a]	Responsibility Area [a]
<b>Assessed Acreage Information</b>		
Total Assessed Acres from Agricultural Parcel List	3,251	6,056
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver <sup>[b]</sup>	0	153
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	3,172	5,074
Assessed Acres from Agricultural Parcel List belonging to Non Members	79	829
<b>Irrigated Acreage Information</b>		
VCAILG Member Acreage Reported as Irrigated	2,973	2,956
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.94	0.58
Estimated Irrigated Acres in Non Member Agricultural Parcels <sup>[c]</sup>	74	483
Total Estimated Irrigated Acres (Member plus Non Member)	3,047	3,439
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	98%	86%
<b>Survey Response Information</b>		
Sum Surveyed Irrigated Acres	1,881	2,597
Percent of Total Estimated Irrigated Acres that were Surveyed	62%	76%
Percent of VCAILG Member Irrigated Acres that were Surveyed	63%	88%

[a] Responsibility area does not include the beacon monitoring site drainage area

[b] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[c] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 38. Lower Calleguas Creek Responsibility Area Crop Types and General Production Practices**

Crop or Practice	04D_ETTG Site Drainage [a]		Lower Calleguas Creek Responsibility Area [a]	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	251	13%	0	0%
Berry	0	0%	257	10%
Row Crop	1,353	72%	1,490	57%
Orchard	144	8%	523	20%
Nursery	132	7%	0	0%
Flower	0	0%	75	3%
Sod	0	0%	0	0%
Other	2	0.1%	252	10%
<b>Overhead Cover in Production Areas</b>				
Hoop House	0	0%	132	5%
No Cover	219	12%	1,795	69%
Greenhouse	0	0%	3	0.1%
Shade	0	0%	0	0%
Other	0	0%	0	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	1,106	59%	2,195	85%
Cover Crop	351	19%	0	0%
Plastic	262	14%	71	3%
Weed Cloth	0	0%	221	9%
Mulch	0	0%	234	9%
Gravel	0	0%	0	0%
Other	295	16%	18	0.7%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	1,221	65%	1,089	42%
Microsprinkler/Drip	198	11%	0	0%
Microsprinkler	114	6%	221	9%
Overhead Sprinkler	122	6%	116	4%
Overhead/Drip	279	15%	1,260	48%
Furrow Flood	0	0%	0	0%
Hand Watering	0	0%	0	0%
Other	0	0%	0	0%

[a] Responsibility area does not include the beacon monitoring site drainage area.

**Table 39. Lower Calleguas Creek Responsibility Area Grower BMPs**

Survey Question	Units	04D_ETTG Site Drainage [a]		Lower Calleguas Creek Responsibility Area [a]	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	1,396	74%	2,492	96%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	1,212	64%	1,165	45%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	460	26%	2,331	90%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	688	37%	1,285	49%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	661	35%	497	19%
Q5a: Are soil residual nitrate tests done?	Acres	991	53%	1,611	62%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	963	51%	1,611	62%
Q6: Are leaf/petiole tests conducted?	Acres	1,243	66%	2,597	100%
Q7a: Is nitrate measured in fertigation water?	Acres	617	33%	1,219	47%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	617	33%	755	29%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	581	46%	1,412	100%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	0	0%	413	16%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	71	0%	616	>100%
Q11: How much non-cropped area is bare soil?	Acres	84	4%	491	19%
Q12a: How many feet of ditch exist?	Feet	61,342	N/A	139,998	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	1,850	3%	61,882	44%
Q13a: Are grassed waterways present?	Acres	132	7%	175	7%
Q13b: How many acres drain to grassed waterways?	Acres	5	0.3%	156	6%
Q14: How many acres are treated by vegetated filter strips?	Acres	2	0.1%	6	0.2%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	1,881	100%	2,597	100%
Q16: Is an IPM Plan being implemented?	Acres	1,881	100%	2,597	100%
Q17a: How many acres are organically farmed?	Acres	42	2%	269	10%
Q17b: How many acres are conventionally farmed?	Acres	1,840	98%	2,328	90%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	525	28%	106	4%
Q19: Runoff from how many acres is treated or detained?	Acres	493	26%	830	32%

[a] Responsibility area does not include the beacon monitoring site drainage area

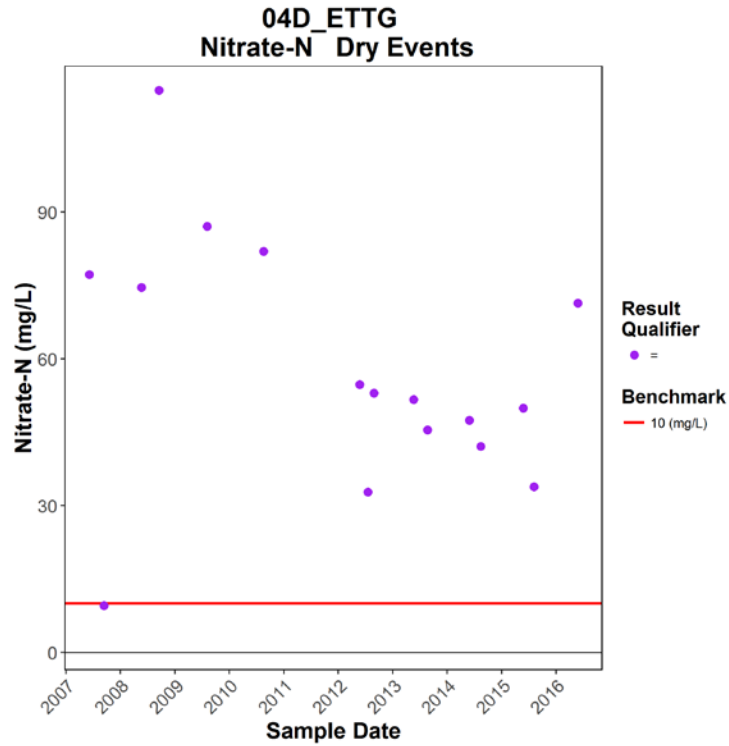


Figure 52. Dry Weather Nitrate-N Concentrations at Waiver Benchmark Site 04D\_ETTG

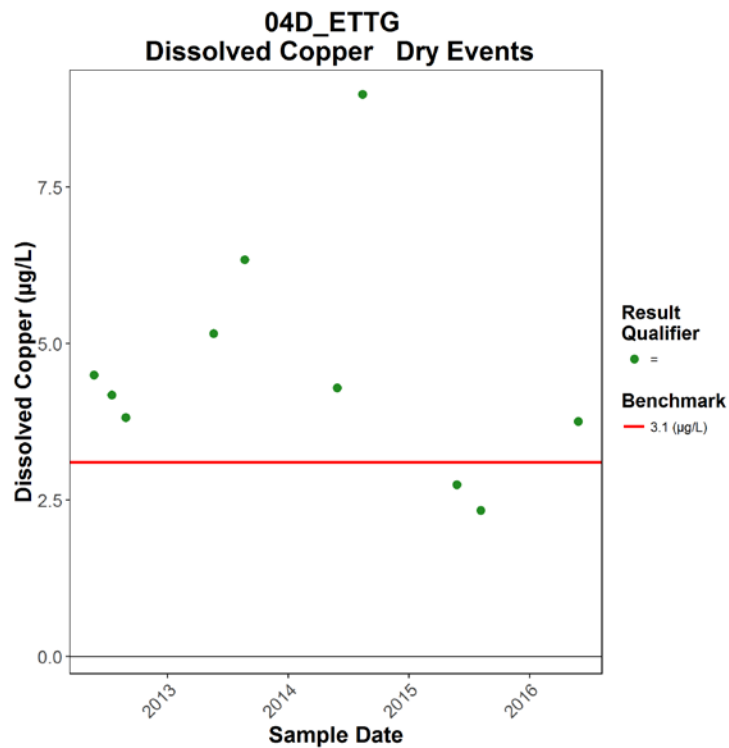


Figure 53. Dry Weather Dissolved Copper Concentrations at Waiver Benchmark Site 04D\_ETTG

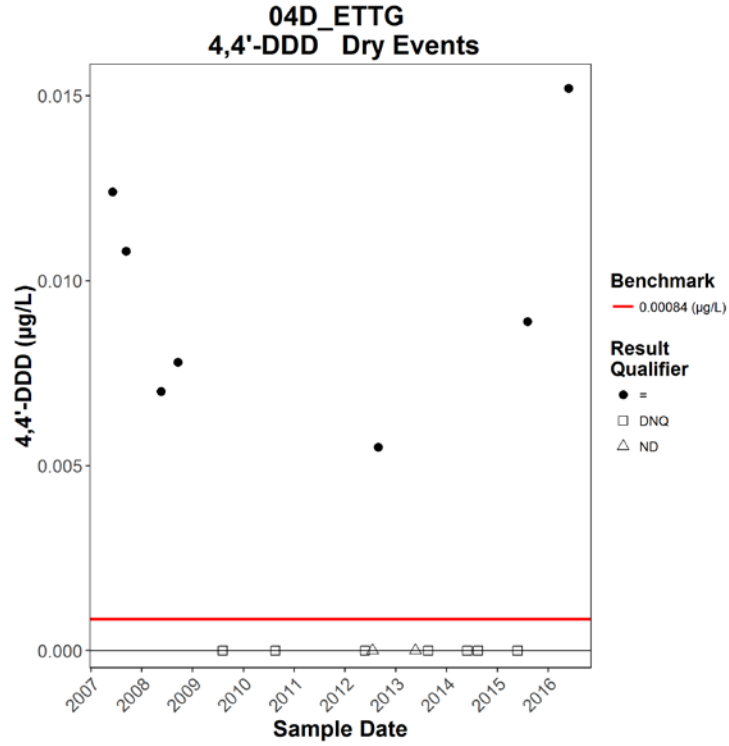


Figure 54. Dry Weather DDD Concentrations at Waiver Benchmark Site 04D\_ETTG

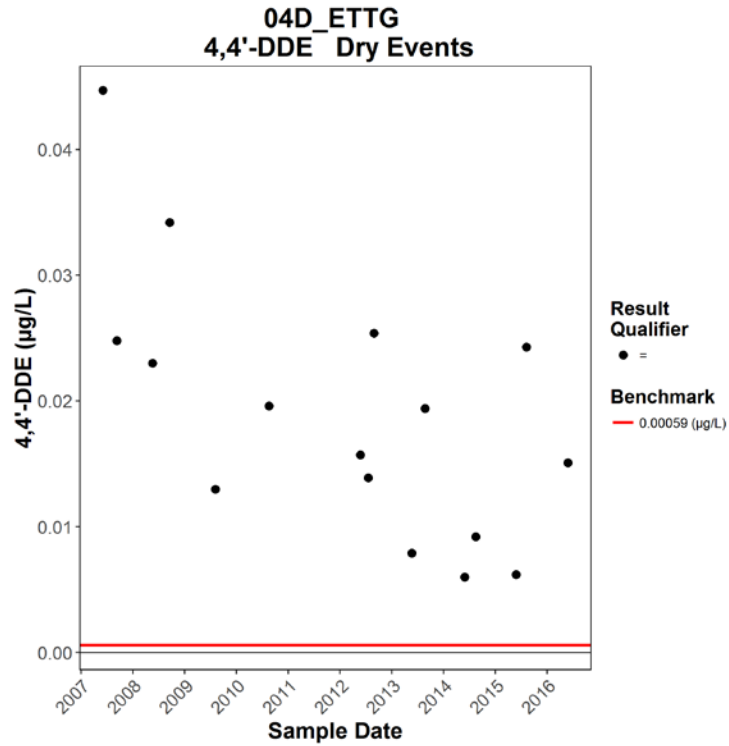


Figure 55. Dry Weather DDE Concentrations at Waiver Benchmark Site 04D\_ETTG

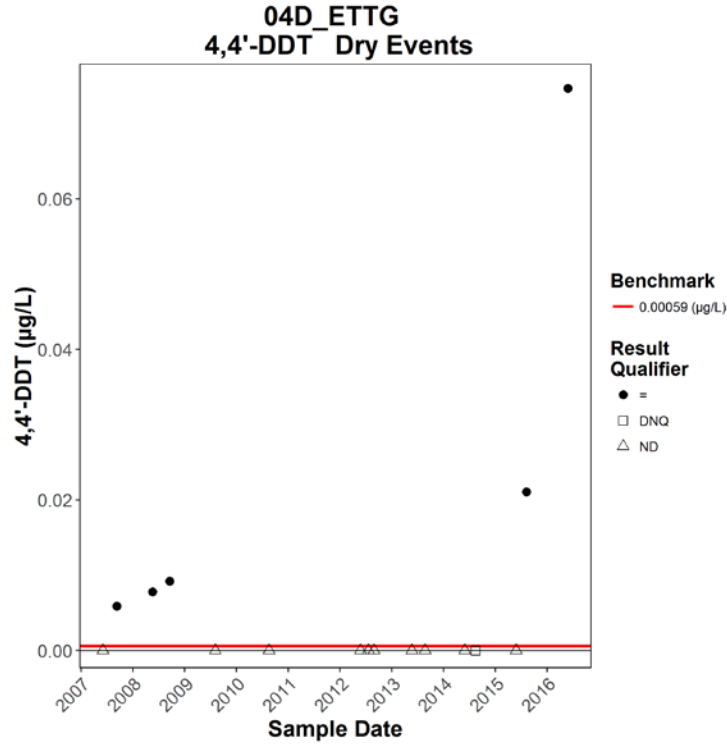


Figure 56. Dry Weather DDT Concentrations at Waiver Benchmark Site 04D\_ETTG

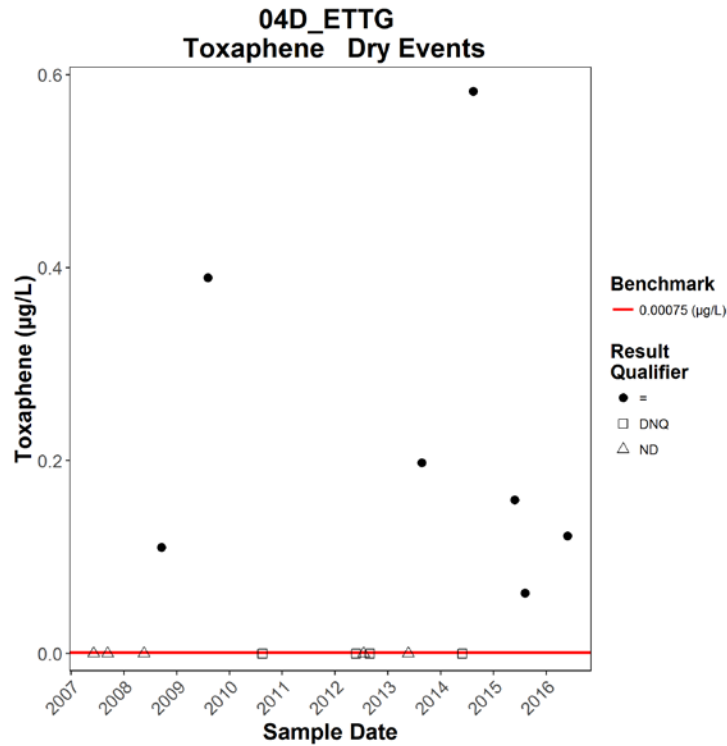


Figure 57. Dry Weather Toxaphene Concentrations at Waiver Benchmark Site 04D\_ETTG

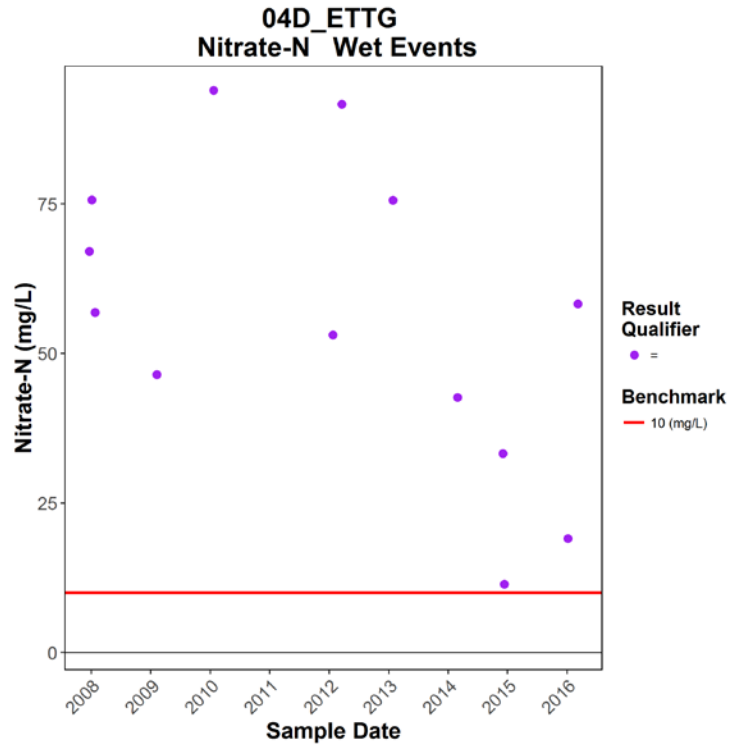


Figure 58. Wet Weather Nitrate-N Concentrations at Waiver Benchmark Site 04D\_ETTG

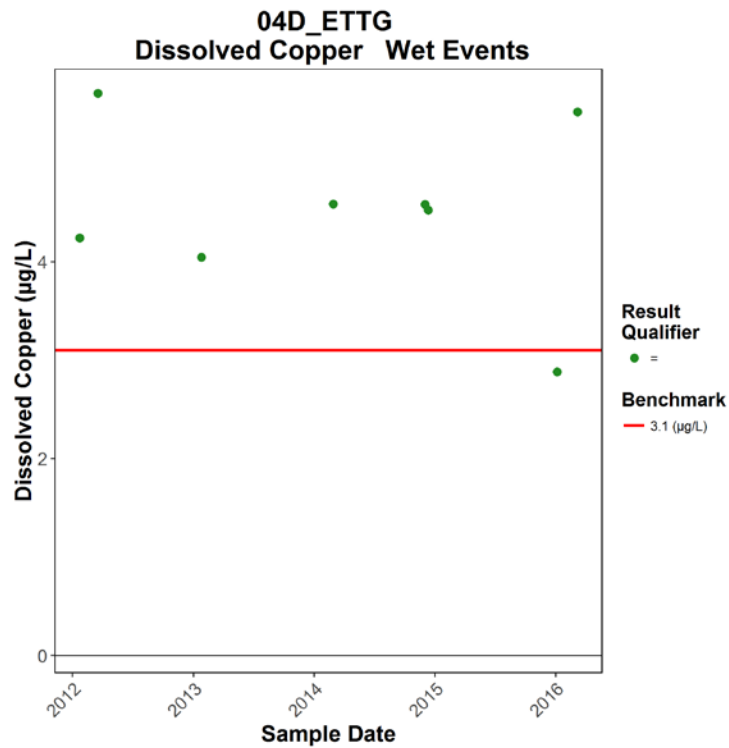


Figure 59. Wet Weather Dissolved Copper Concentrations at Waiver Benchmark Site 04D\_ETTG



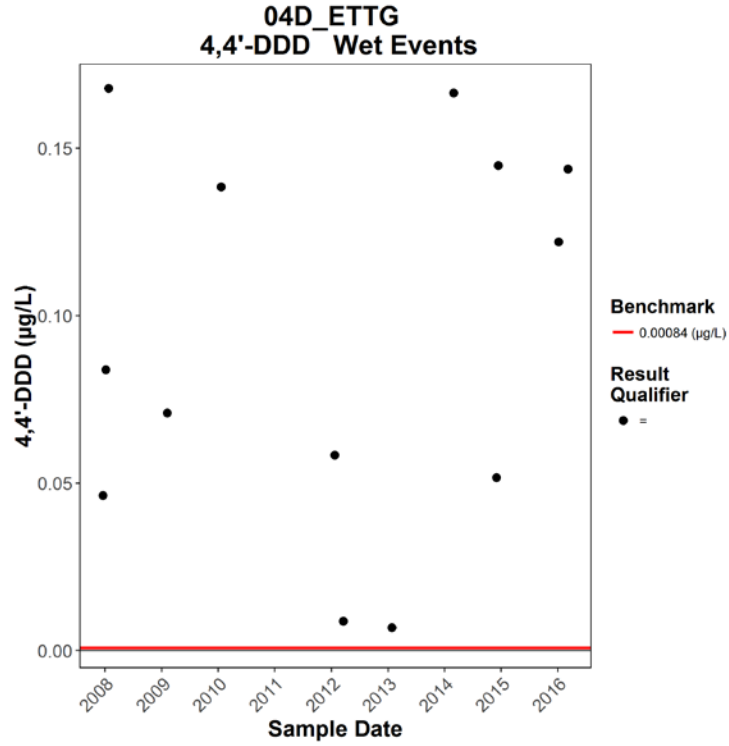


Figure 60. Wet Weather DDD Concentrations at Waiver Benchmark Site 04D\_ETTG

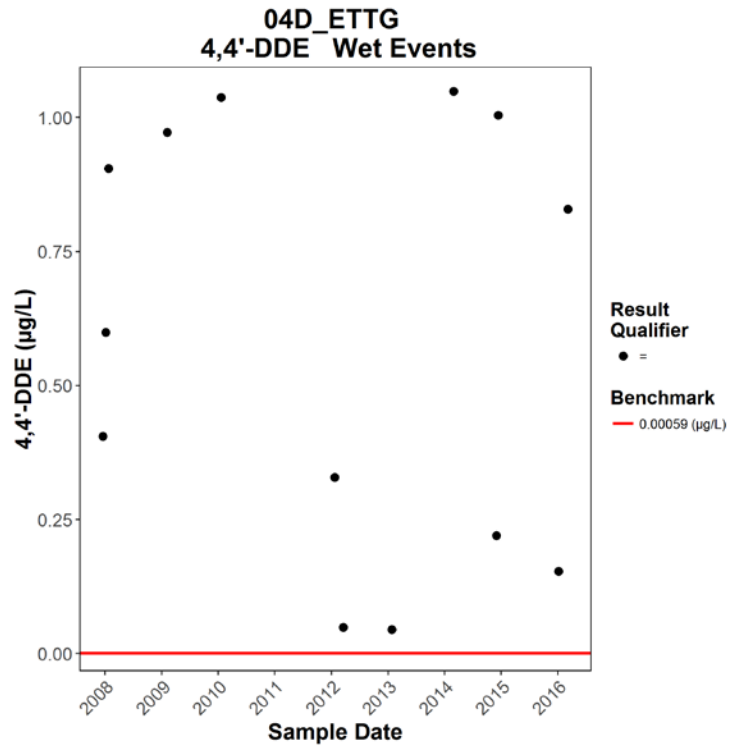


Figure 61. Wet Weather DDE Concentrations at Waiver Benchmark Site 04D\_ETTG

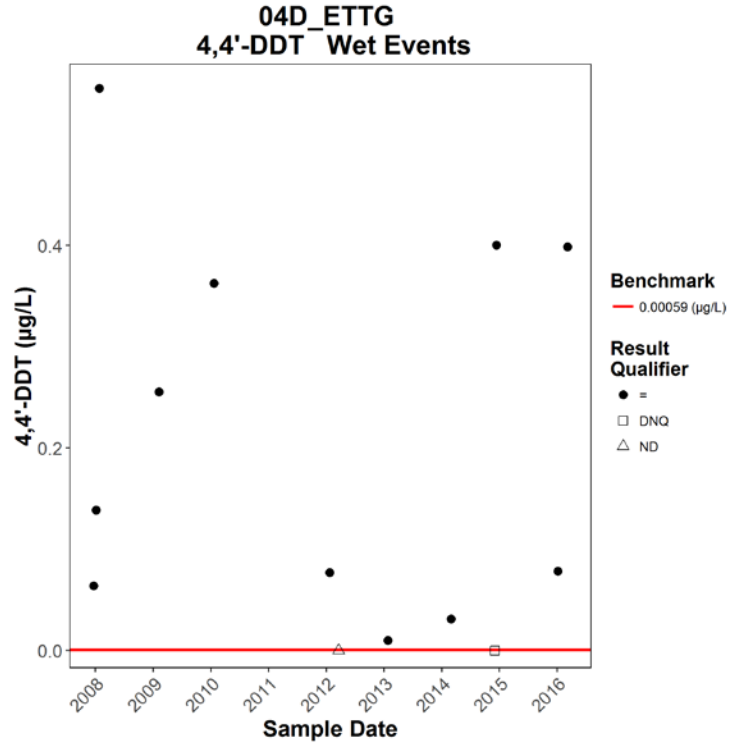


Figure 62. Wet Weather DDT Concentrations at Waiver Benchmark Site 04D\_ETTG

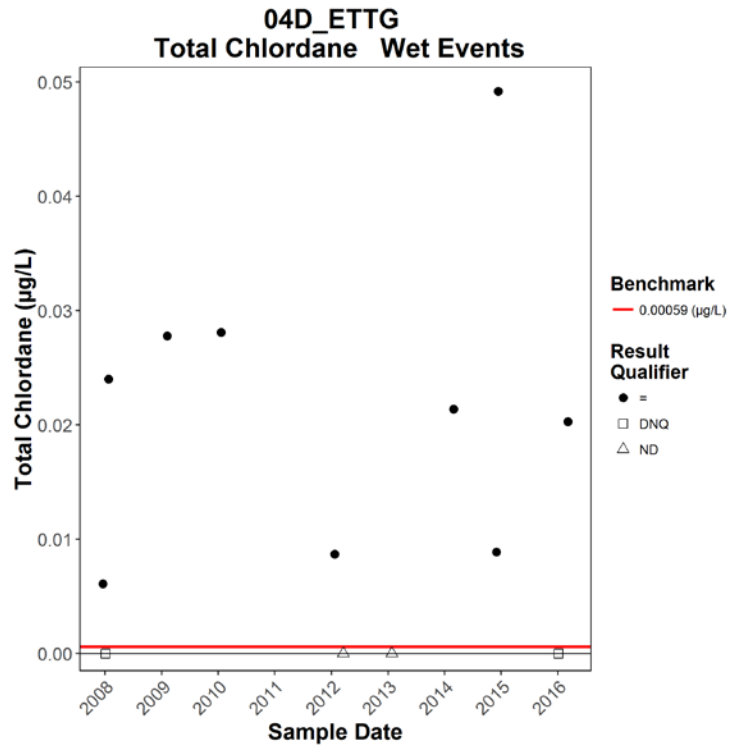


Figure 63. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 04D\_ETTG

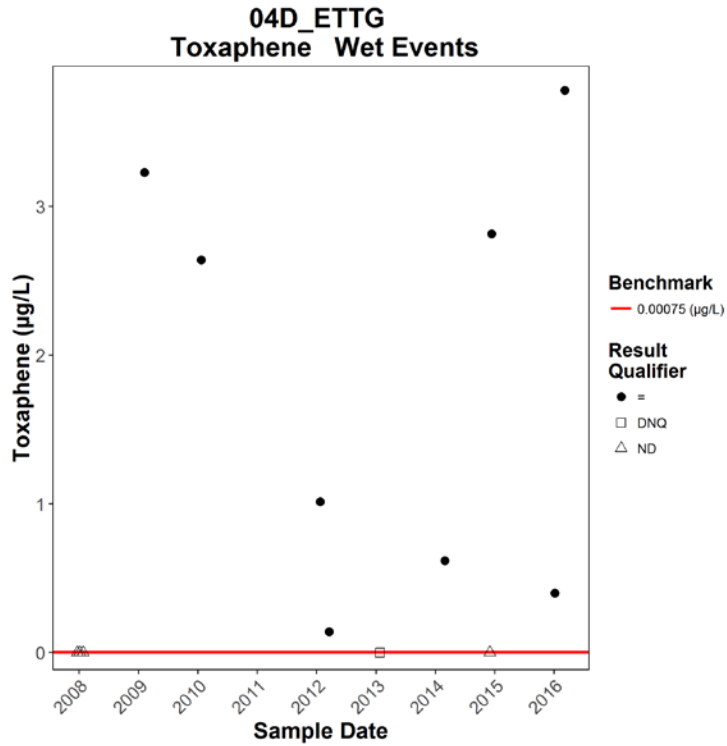


Figure 64. Wet Weather Toxaphene Concentrations at Waiver Benchmark Site 04D\_ETTG

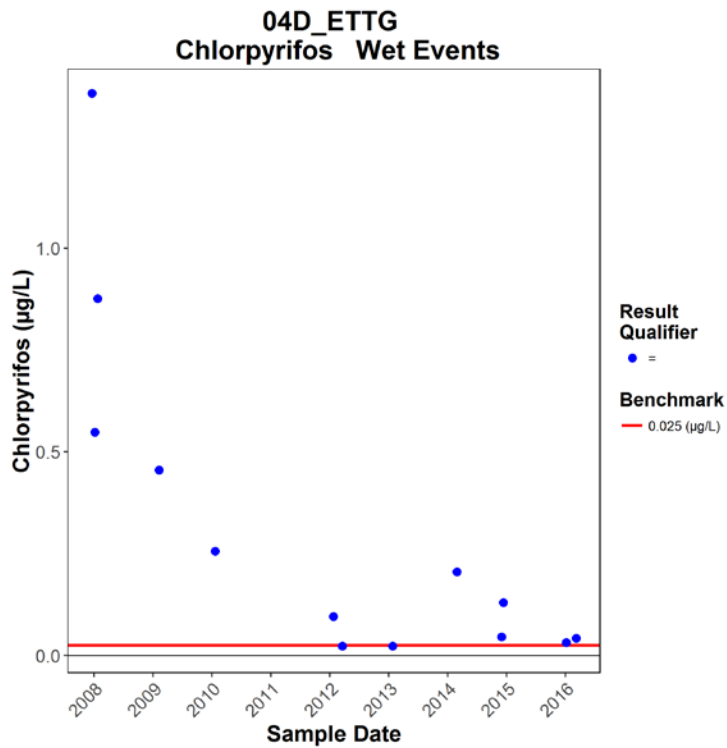


Figure 65. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 04D\_ETTG

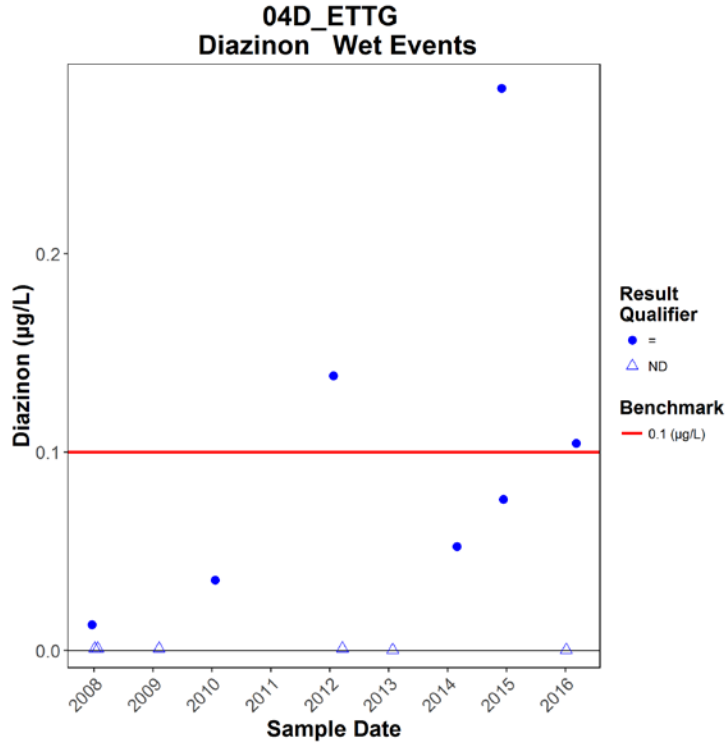


Figure 66. Wet Weather Diazinon Concentrations at Waiver Benchmark Site 04D\_ETTG

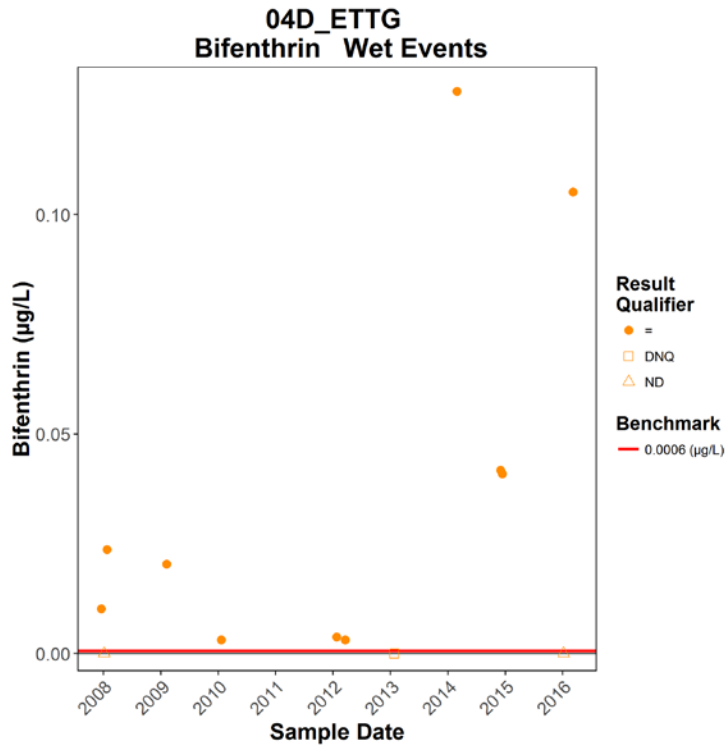


Figure 67. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 04D\_ETTG

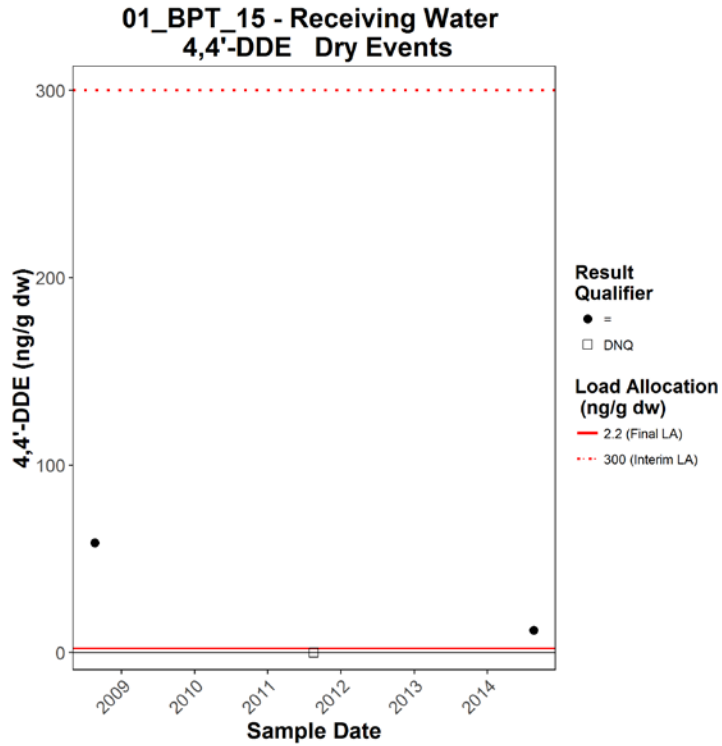


Figure 68. Dry Weather DDE Concentrations at TMDL LA Site 01\_BPT\_15

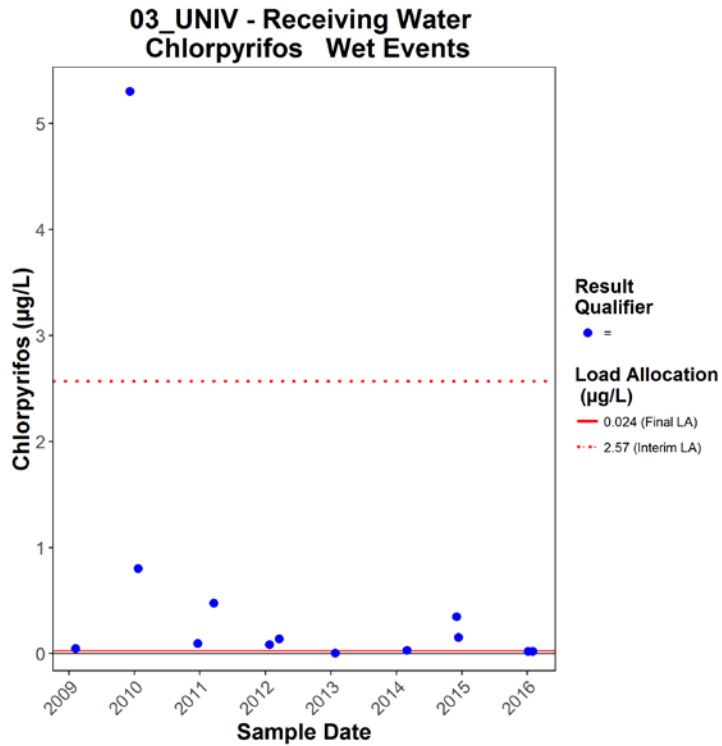


Figure 69. Wet Weather Chlorpyrifos Concentrations at TMDL LA Site 03\_UNIV

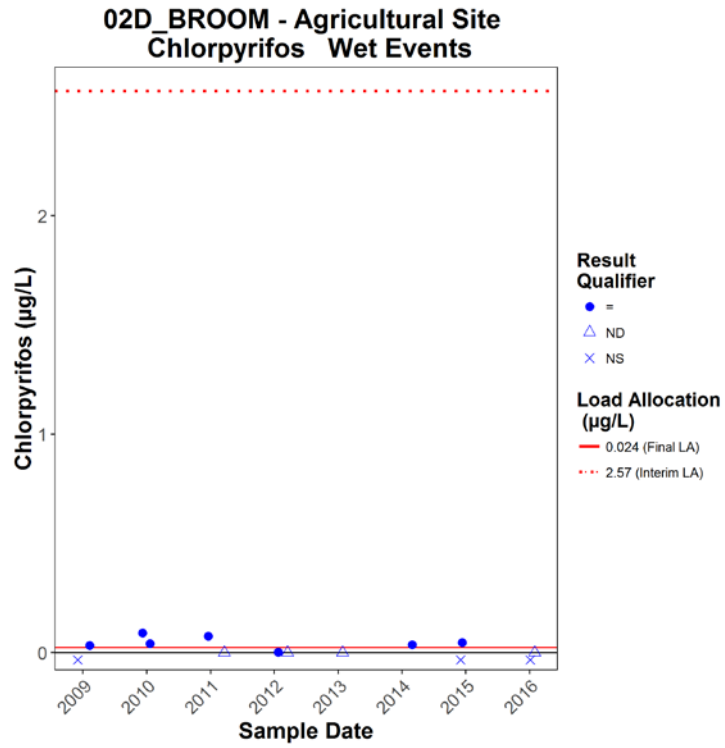


Figure 70. Wet Weather Chlorpyrifos Concentrations at TMDL Ag Land Use Site 02D\_BROOM

**Table 40. Summary of Graphed Benchmark Exceedances for Lower Calleguas Creek Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather				Wet Weather			
	Waiver Benchmark Site Exceedances <sup>1</sup>	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances <sup>1</sup>	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs
<b>Nutrients</b>								
Nitrate-N	●			☑	●			☑
<b>Metals and Selenium</b>								
Dissolved Copper	●			☑	●			☑
<b>OC Pesticides (Legacy)</b>								
DDD	●			☑	●			☑
DDE	●	● <sup>2,3</sup>		☑	●	● <sup>2,3</sup>		☑
DDT	●			☑	●			☑
Chlordane					●			☑
Toxaphene	●			☑	●			☑
<b>OP and Pyrethroid Pesticides (Current)</b>								
Chlorpyrifos					●	● <sup>3,4</sup>	● <sup>3,5</sup>	☑
Diazinon					●			☑
Bifenthrin					●			☑

1. VCAILG monitoring site for Waiver benchmarks is 04D\_ETTG
2. CCW OC Pesticides TMDL receiving water site is 01\_BPT\_15. TMDL compliance is measured in sediment in receiving water and this location is downstream of where the entire responsibility area discharges. Though sediment is collected during dry weather, the results are applied to both wet and dry weather to ensure management practices minimize sediment transport year-round.
3. Does not exceed interim load allocation but exceeds final load allocation that will need to be achieved by the timeline provided in the Waiver.
4. CCW Toxicity TMDL receiving water site is 03\_UNIV.
5. Agricultural land use site for the CCW Toxicity TMDL is 02D\_BROOM.

**Table 41. BMPs for Additional Implementation in the Lower Calleguas Creek Responsibility Area**

Exceedance Condition							Survey Question #	BMP	% of Total Applicable Surveyed Units		
Nutrients		Metals		Legacy Pesticides		Current Pesticides			04D_ETTG Site Drainage [a]	Lower Calleguas Creek Responsibility Area [a]	Additional Implementation Needed? [b]
Dry	Wet	Dry	Wet	Dry	Wet	Wet					
x	x	x	x	x	x	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	49%	22%	Yes
x	x	x	x	x	x		Irrigation system type	Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	82%	51%	Yes
x	x	x	x	x	x		1	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	74%	96%	Yes
x	x	x	x				2	Irrigation practices are based on soil moisture measurements and/or crop evapotranspiration	64%	45%	Yes
x	x						3	Soil solution electrical conductivity measurements are used to determine when salt leaching is necessary	26%	90%	Yes
x	x						4	Certified nutrient management plan has been prepared for the property	35%	19%	Yes
x	x						5	Soil residual nitrate tests are conducted and used to adjust fertilizer applications	51%	62%	Yes
x	x						6	Leaf/petiole tests are conducted and used to apply the minimum necessary amount of fertilizer	66%	100%	Yes
x	x						7	Irrigation water nitrate is analyzed and the results are used to adjust fertilizer applications.	33%	29%	Yes
x	x						8	Fertilizer applications are adjusted to account for nutrients provided by cover crops	46%	100%	Yes
x	x	x	x	x	x	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	NA <sup>[d]</sup>	100%	No
	x	x	x	x	x	x	11	How much non-cropped area is bare soil	4%	19%	Yes
x	x	x	x	x	x	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	3%	44%	Yes
x	x	x	x	x	x	x	13	Grassed waterways are used	7%	7%	Yes
x	x	x	x	x	x	x	14	Vegetated filter strips are used	0.1%	0.2%	Yes
						x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	100	100	No
						x	16	An integrated pest management plan is implemented	100	100	No
x	x	x	x	x	x		18	How many acres produce irrigation runoff	28%	4%	Yes
x	x	x	x	x	x	x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	26%	32%	Yes
		x	x			x	<sup>[c]</sup>	Pesticide management plan is used			Yes

[a] Responsibility area does not include the beacon monitoring site drainage area.

[b] Only BMP implementation in the responsibility area is considered because the beacon site drainage is not included in the responsibility area

[c] Waiver specified practice for exceedances of copper and current use pesticides.

[d] Zero acres reported as sloped within the surveyed site drainage and responsibility area.

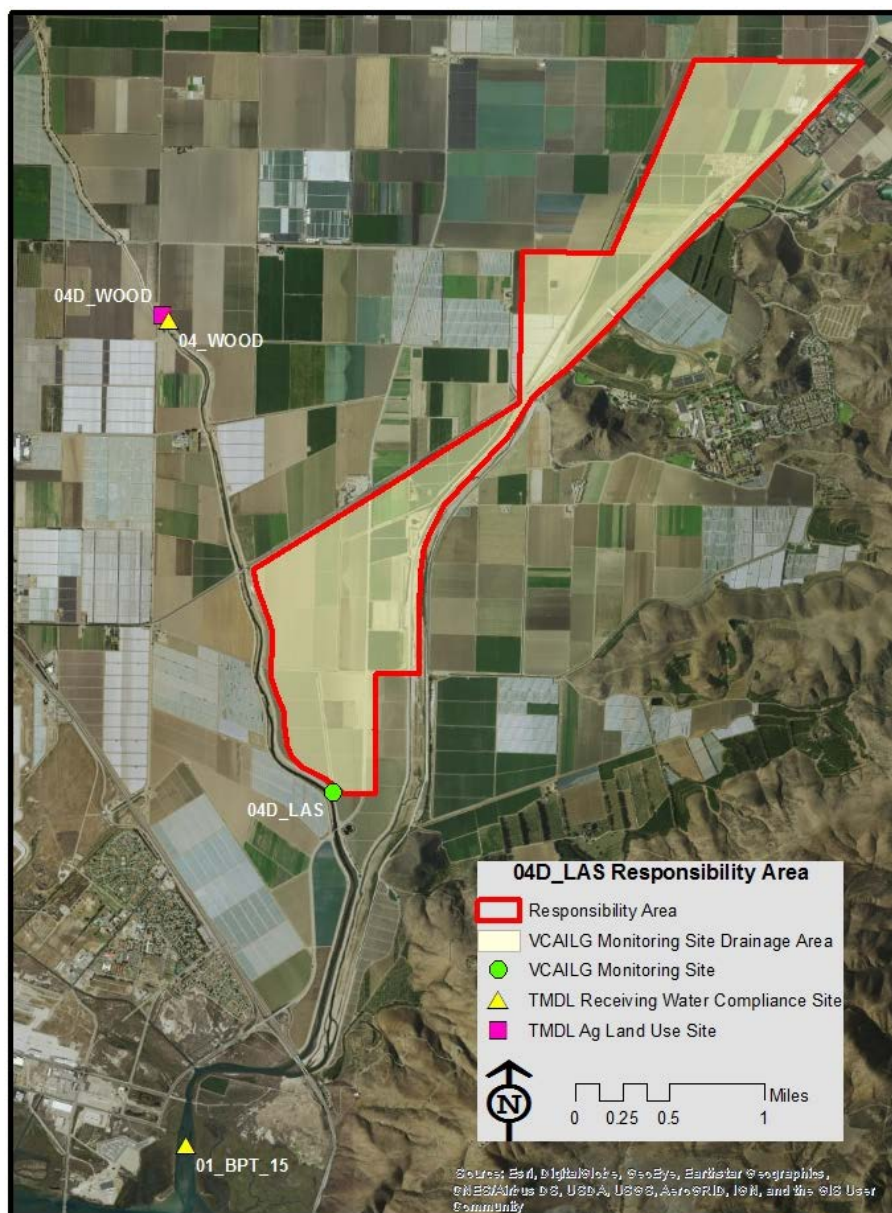


**Table 42. Proposed Best Management Practices for the Lower Calleguas Creek Responsibility Area**

Water Quality Issues							Current Use Pesticides	BMPs
Nutrients		Metals		Legacy Pesticides				
Dry Weather	Wet Weather	Dry Weather	Wet Weather	Dry Weather	Wet Weather	Wet Weather		
x	x	x	x	x	x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.	
x		x		x			Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)	
x		x		x			Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years	
x		x					Implement irrigation practices that are based on soil moisture measurements and/or crop evapotranspiration	
x							Use soil solution electrical conductivity measurements to determine when salt leaching is necessary	
x	x						Prepare a certified nutrient management plan for the property	
x	x						Conduct soil residual nitrate tests and use results to adjust fertilizer application	
x	x						Conduct leaf/petiole tests and use results to apply the minimum necessary amount of fertilizer	
x	x						Analyze irrigation water nitrate and use results to adjust fertilizer application	
x	x						Adjust fertilizer application to account for nutrients provided by cover crops	
x	x	x	x	x	x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	
	x		x		x	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel	
						x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions	
						x	Implement an integrated pest management plan	
x		x		x			Avoid/prevent irrigation runoff	
		x	x			x	Use a pesticide management plan	

Water Quality Issues							Current Use Pesticides	BMPs
Nutrients		Metals		Legacy Pesticides				
Dry Weather	Wet Weather	Dry Weather	Wet Weather	Dry Weather	Wet Weather	Wet Weather		
x	x	x	x	x	x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	
x	x	x	x	x	x	x	Use grassed waterways	
x	x	x	x	x	x	x	Use vegetated filter strips	

## South Revolon Responsibility Area



**Figure 71. South Revolon Responsibility Area Map**

The monitoring sites used to evaluate attainment of Conditional Waiver benchmarks and/or TMDL LAs for the South Revolon responsibility area are illustrated in Figure 71. The monitoring sites that serve to evaluate TMDL LA benchmark attainment for this responsibility area are as follows:

- 01\_BPT\_15 is a CCW OC Pesticides and PCBs TMDL Receiving Water Compliance Site
- 04\_WOOD is a CCW Salts, Nitrogen, Toxicity, and Metals Receiving Water Compliance Site
- 04D\_WOOD is a CCW Salts, Nitrogen, Toxicity, and Metals TMDL Ag Land Use Site

**Table 43. South Revolon Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Drainage Area Monitoring Site 04D_LAS</b>
<b>Assessed Acreage Information</b>	
Total Assessed Acres from Agricultural Parcel List	1,309
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	0
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	1,278
Assessed Acres from Agricultural Parcel List belonging to Non Members	31
<b>Irrigated Acreage Information</b>	
VCAILG Member Acreage Reported as Irrigated	1,074
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.84
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	26
Total Estimated Irrigated Acres (Member plus Non Member)	1,100
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	98%
<b>Survey Response Information</b>	
Sum Surveyed Irrigated Acres	398
Percent of Total Estimated Irrigated Acres that were Surveyed	36%
Percent of VCAILG Member Irrigated Acres that were Surveyed	37%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 44. South Revolon Responsibility Area Crop Types and General Production Practices**

Crop or Practice	04D_LAS Site Drainage [a]	
	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>		
Strawberry	0	0%
Berry	0	0%
Row Crop	398	100%
Orchard	0	0%
Nursery	0	0%
Flower	0	0%
Sod	0	0%
Other	0	0%
<b>Overhead Cover in Production Areas</b>		
Hoop House	0	0%
No Cover	0	0%
Greenhouse	0	0%
Shade	0	0%
Other	0	0%
<b>Surface Treatments in Production Areas</b>		
Bare Soil	398	100%
Cover Crop	0	0%
Plastic	0	0%
Weed Cloth	0	0%
Mulch	0	0%
Gravel	0	0%
Other	0	0%
<b>Irrigation Systems in Production Areas</b>		
Drip Only	63	16%
Microsprinkler/Drip	0	0%
Microsprinkler	0	0%
Overhead Sprinkler	0	0%
Overhead/Drip	335	84%
Furrow Flood	0	0%
Hand Watering	0	0%
Other	0	0%

[a] Monitoring site drainage area serves as a complete Responsibility Area

**Table 45. South Revolon Responsibility Area Grower BMPs**

Survey Question	Units	04D_LAS Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>			
Q1: Is the irrigation system tested for distribution uniformity?	Acres	335	84%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	227	57%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	335	84%
<b>Nutrient Management</b>			
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	164	41%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	164	41%
Q5a: Are soil residual nitrate tests done?	Acres	164	41%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	164	41%
Q6: Are leaf/petiole tests conducted?	Acres	335	84%
Q7a: Is nitrate measured in fertigation water?	Acres	0	0%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	0	0%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	335	100%
<b>Sediment Management</b>			
Q9: How many cropped acres are sloped?	Acres	63	16%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	0	0%
Q11: How much non-cropped area is bare soil?	Acres	21	5%
Q12a: How many feet of ditch exist?	Feet	15,870	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	0	0%
Q13a: Are grassed waterways present?	Acres	0	0%
Q13b: How many acres drain to grassed waterways?	Acres	0	0%
Q14: How many acres are treated by vegetated filter strips?	Acres	0	0%
<b>Pest Management</b>			
Q15: Are PCAs used for pesticide management decisions?	Acres	398	100%
Q16: Is an IPM Plan being implemented?	Acres	398	100%
Q17a: How many acres are organically farmed?	Acres	0	0%
Q17b: How many acres are conventionally farmed?	Acres	398	100%
<b>Runoff Management/Treatment</b>			
Q18: How many acres produce irrigation runoff?	Acres	227	57%
Q19: Runoff from how many acres is treated or detained?	Acres	0	0%

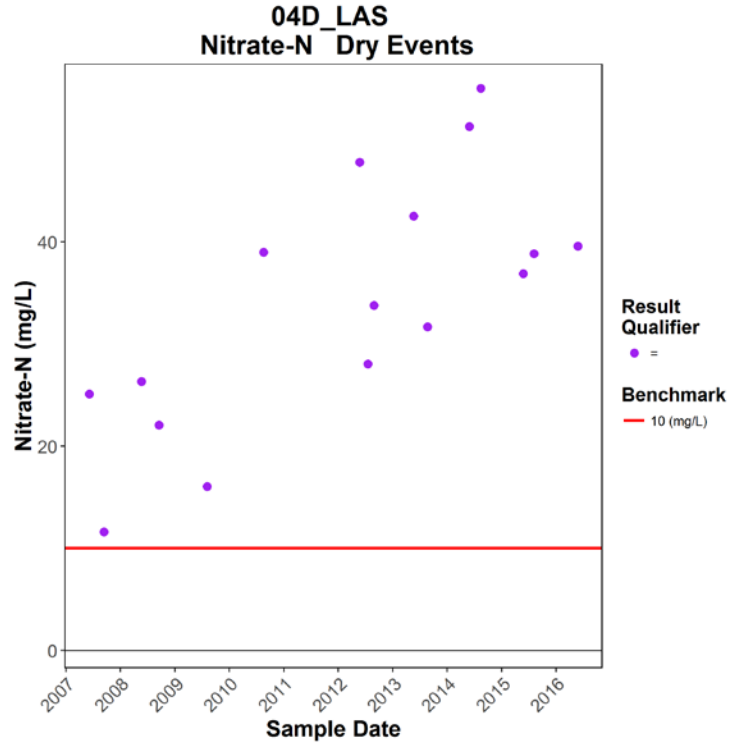


Figure 72. Dry Weather Nitrate-N Concentrations at Waiver Benchmark Site 04D\_LAS

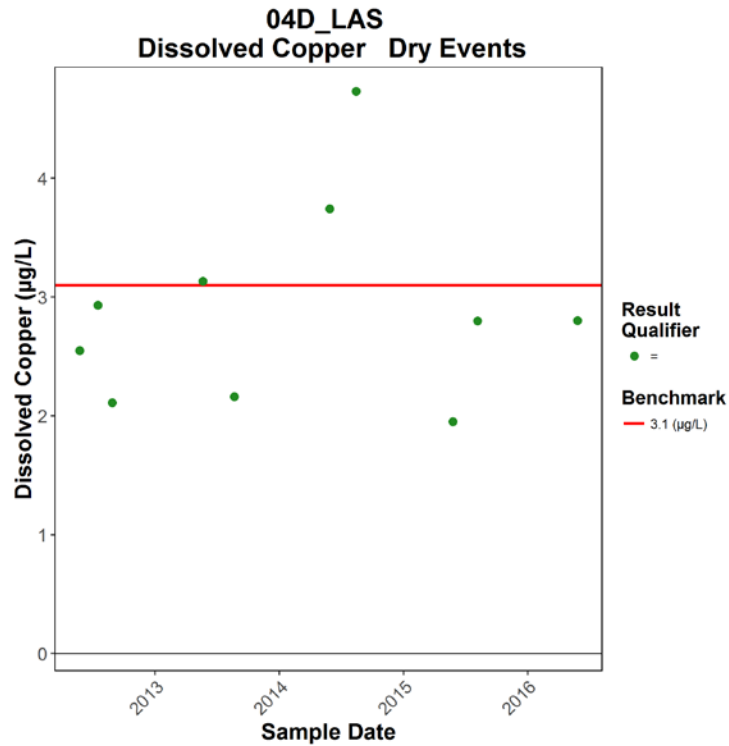


Figure 73. Dry Weather Dissolved Copper Concentrations at Waiver Benchmark Site 04D\_LAS

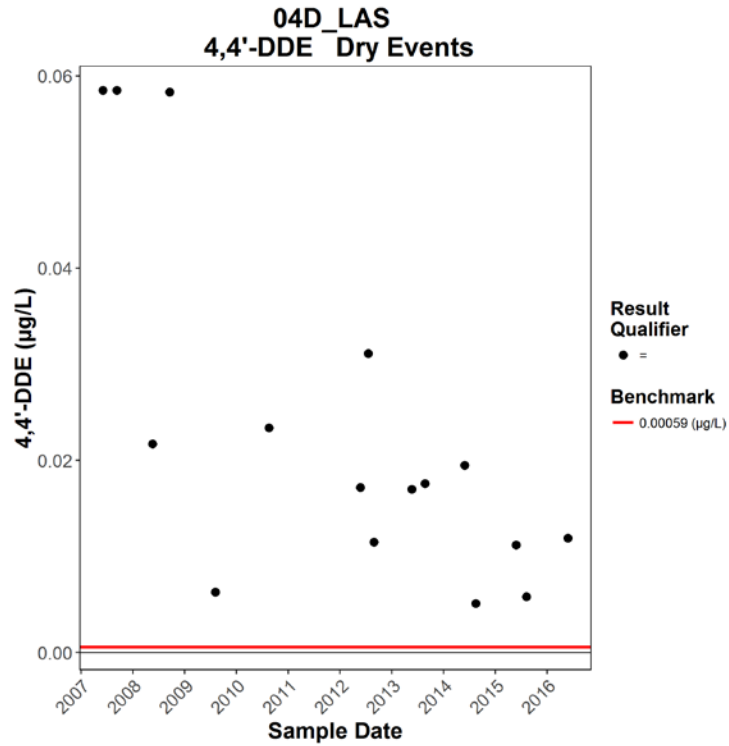


Figure 74. Dry Weather DDE Concentrations at Waiver Benchmark Site 04D\_LAS

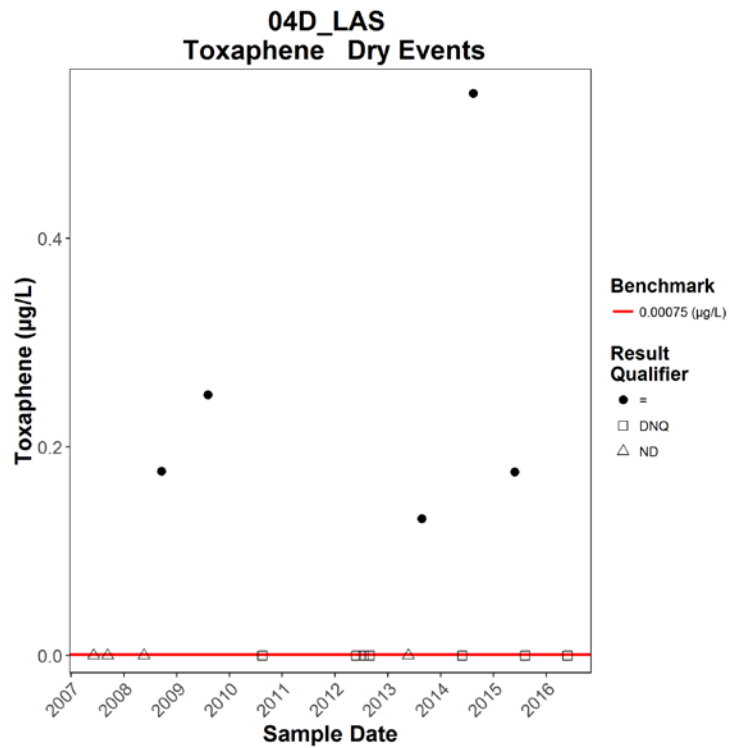


Figure 75. Dry Weather Toxaphene Concentrations at Waiver Benchmark Site 04D\_LAS



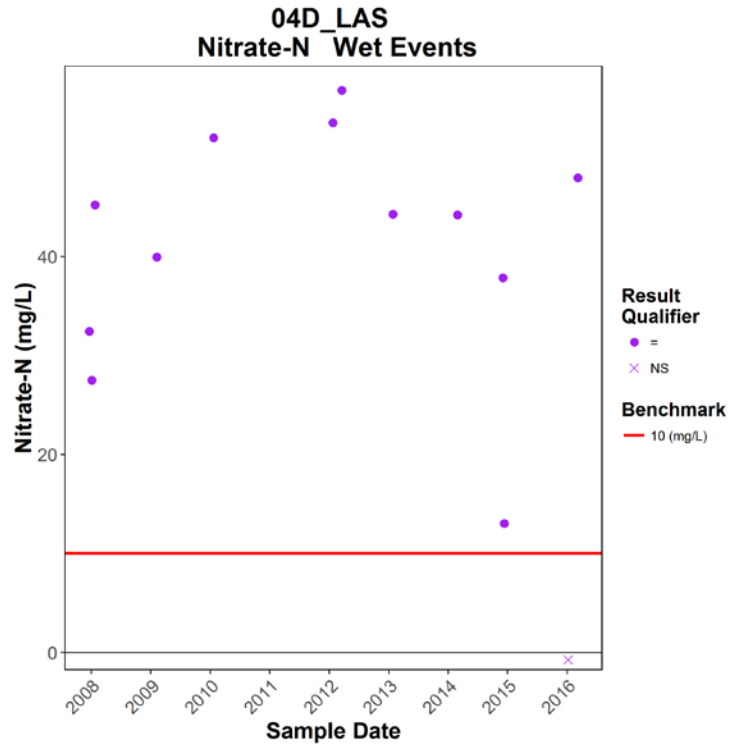


Figure 76. Wet Weather Nitrate-N Concentrations at Waiver Benchmark Site 04D\_LAS

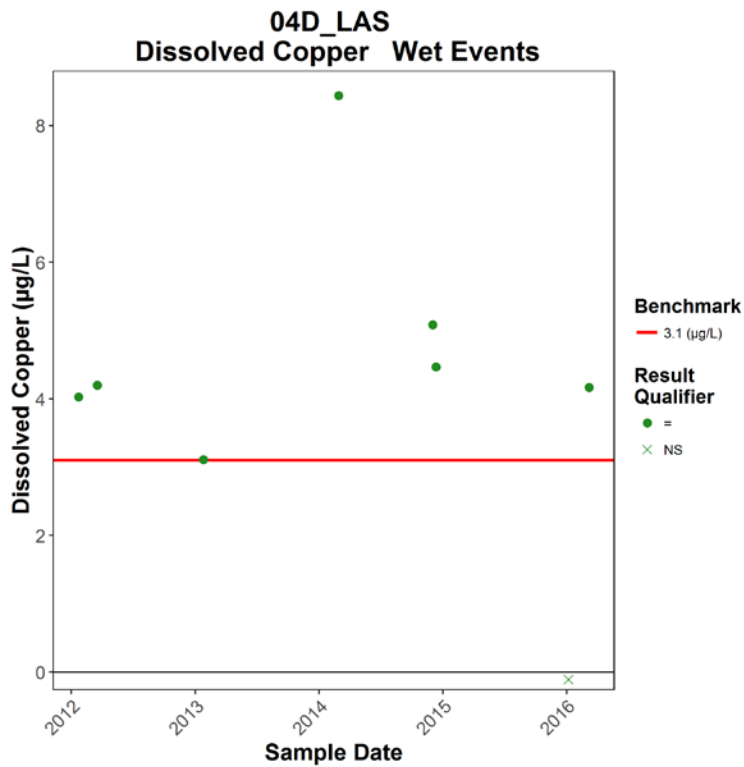


Figure 77. Wet Weather Dissolved Copper Concentrations at Waiver Benchmark Site 04D\_LAS

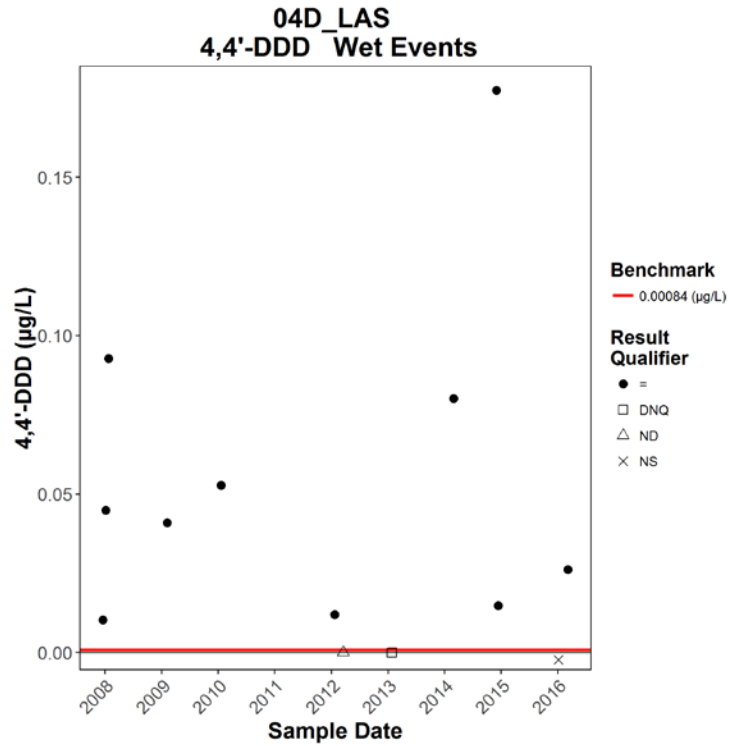


Figure 78. Wet Weather DDD Concentrations at Waiver Benchmark Site 04D\_LAS

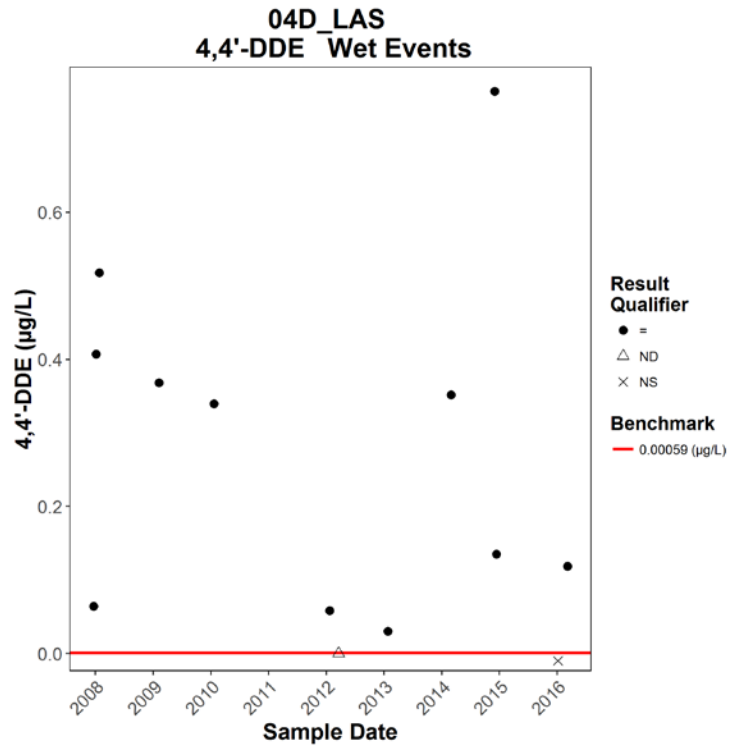


Figure 79. Wet Weather DDE Concentrations at Waiver Benchmark Site 04D\_LAS

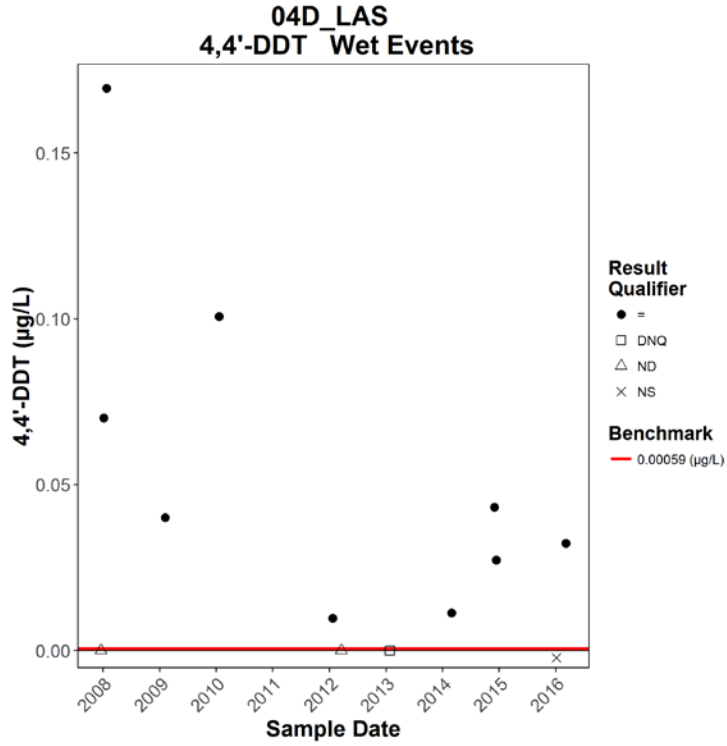


Figure 80. Wet Weather DDT Concentrations at Waiver Benchmark Site 04D\_LAS

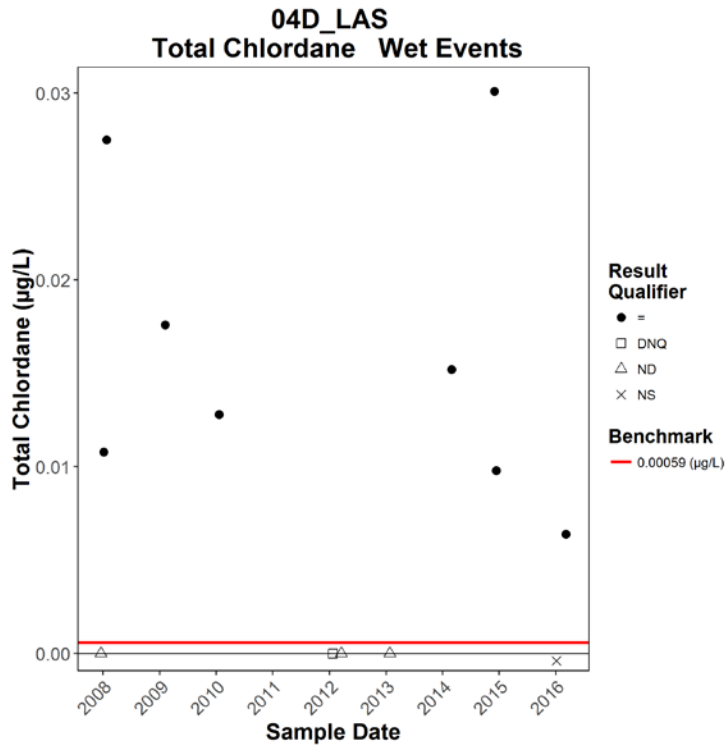


Figure 81. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 04D\_LAS

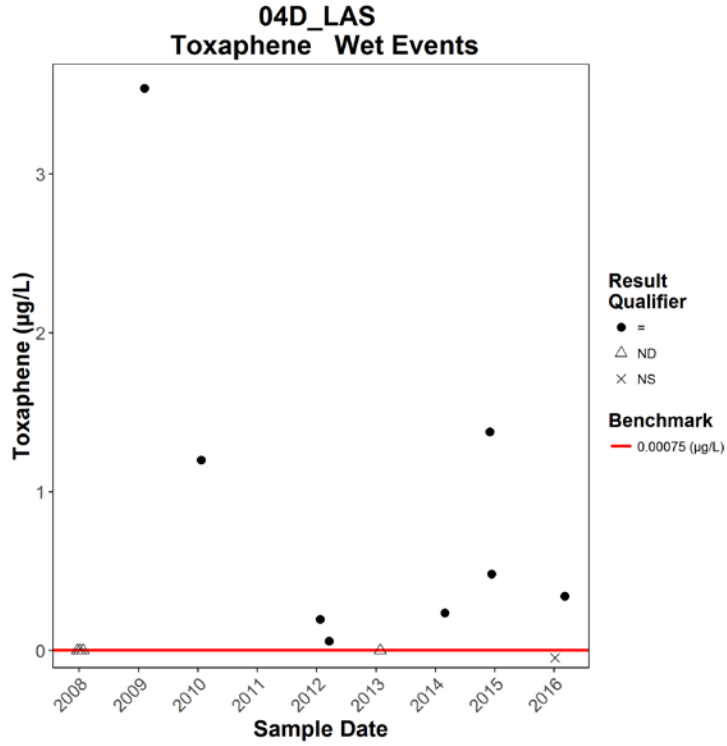


Figure 82. Wet Weather Toxaphene Concentrations at Waiver Benchmark Site 04D\_LAS

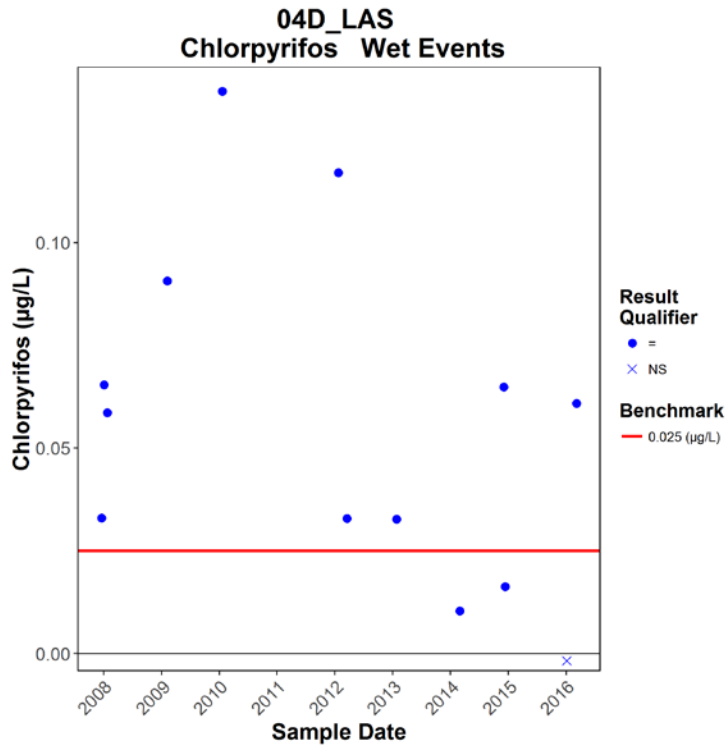


Figure 83. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 04D\_LAS

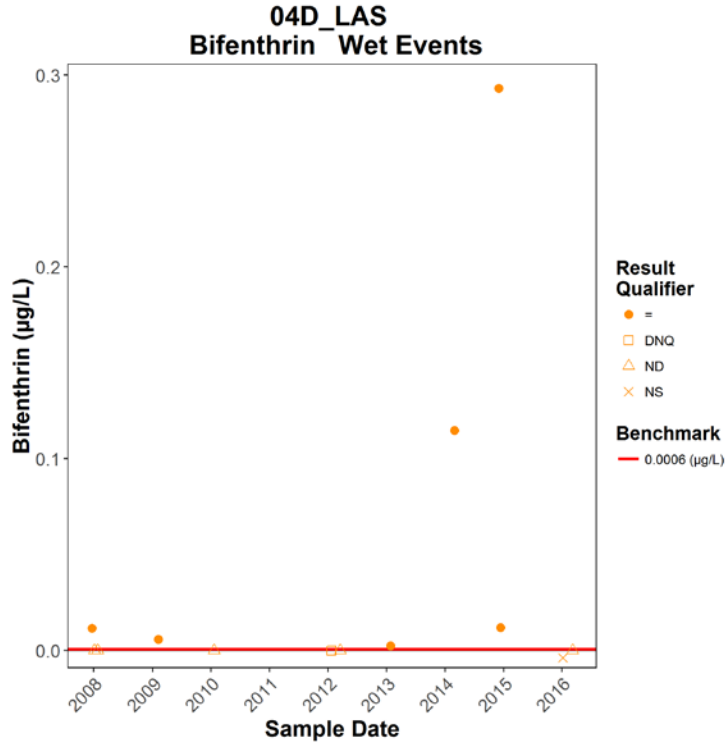


Figure 84. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 04D\_LAS

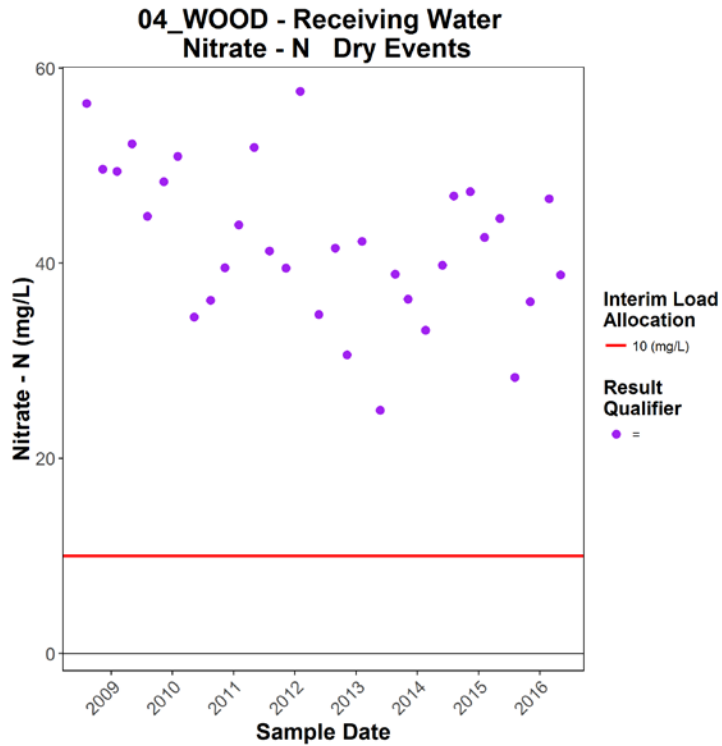


Figure 85. Dry Weather Nitrate-N Concentrations at TMDL LA Site 04\_WOOD

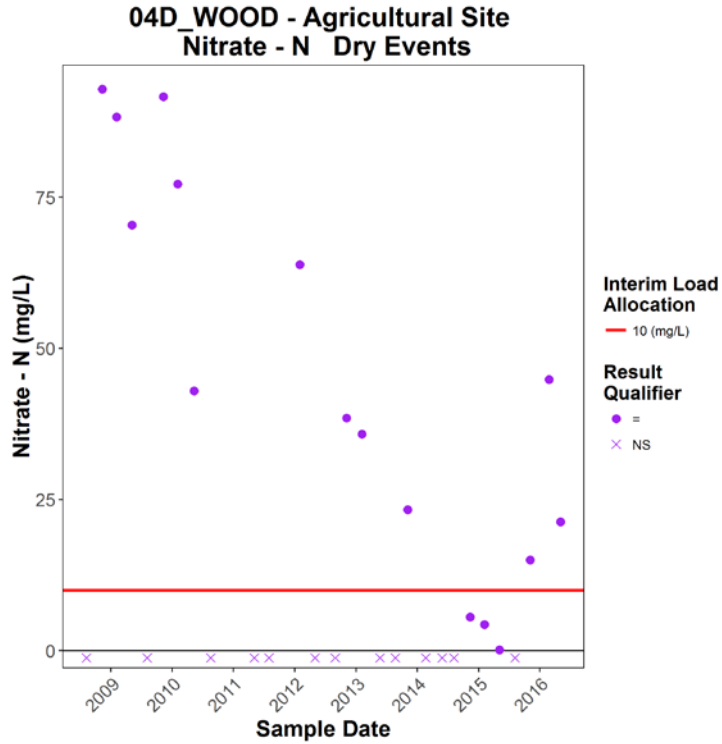


Figure 86. Dry Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 04D\_WOOD

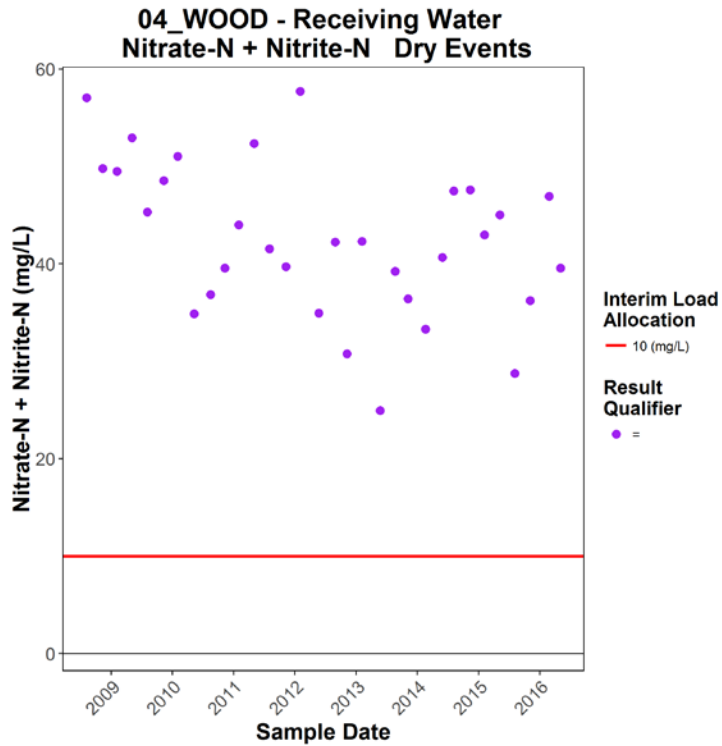


Figure 87. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 04\_WOOD

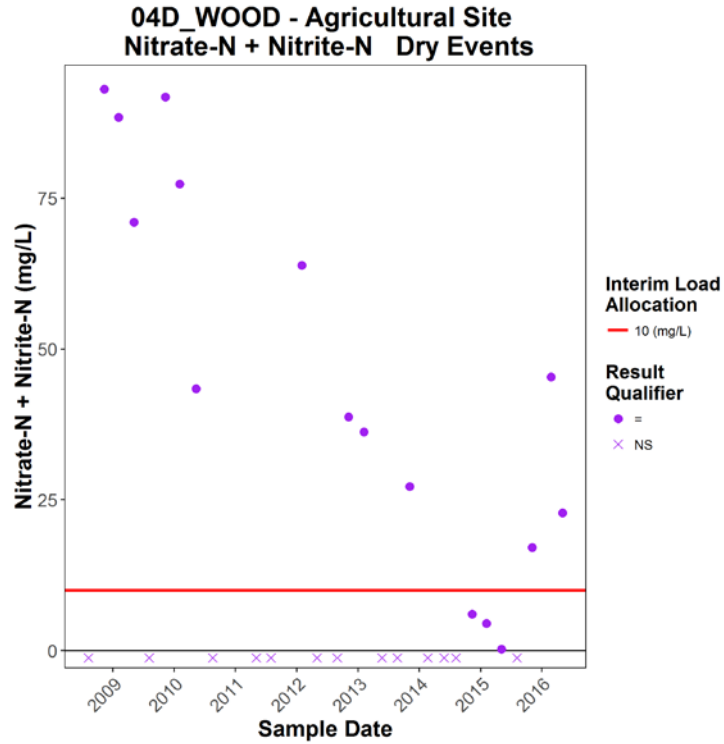


Figure 88. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 04D\_WOOD

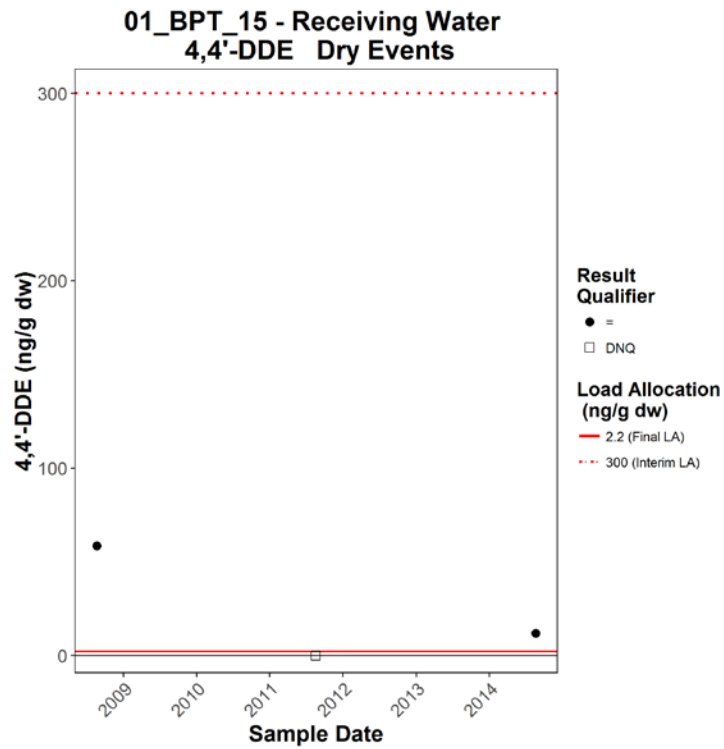


Figure 89. Dry Weather DDE Concentrations at TMDL LA Site 01\_BPT\_15

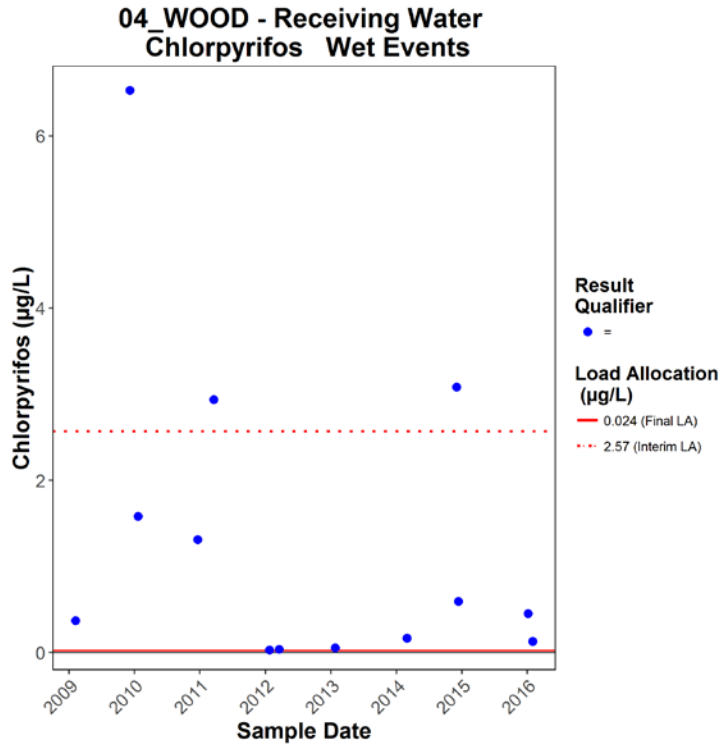


Figure 90. Wet Weather Chlorpyrifos Concentrations at TMDL LA Site 04\_WOOD

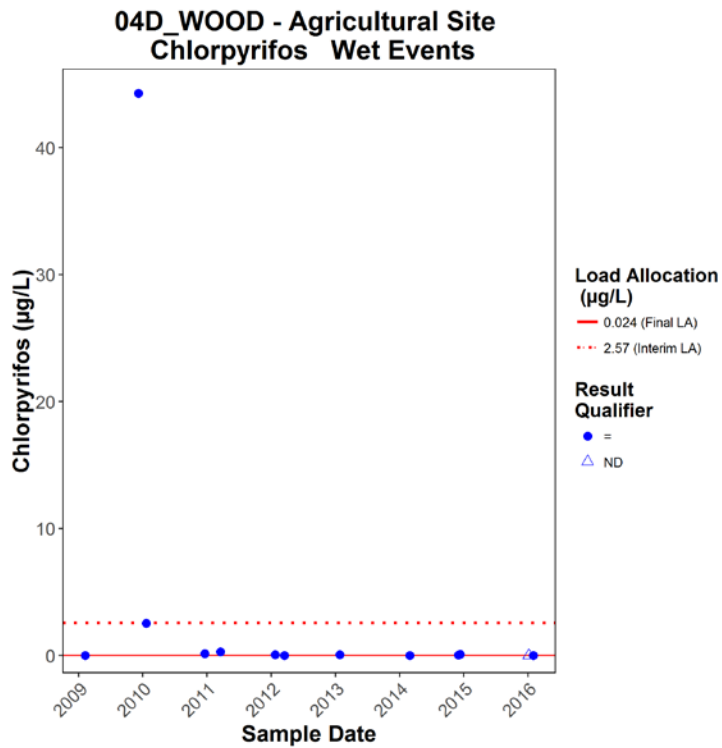


Figure 91. Wet Weather Chlorpyrifos Concentrations at TMDL Ag Land Use Site 04D\_WOOD



**Table 46. Summary of Benchmark Exceedance Evaluation for South Revolon Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather				Wet Weather			
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs
<b>Salts</b>								
Boron		● <sup>1</sup>	● <sup>2</sup>	● <sup>3</sup>				
<b>Nutrients</b>								
Nitrate-N	●	● <sup>1</sup>	● <sup>2</sup>	☑	●			☑
Nitrate-N + Nitrite-N		● <sup>1</sup>	● <sup>2</sup>	☑				
<b>Metals and Selenium</b>								
Dissolved Copper	●			☑	●			☑
Total Selenium		● <sup>1</sup>	● <sup>2</sup>	● <sup>3</sup>				
<b>OC Pesticides (Legacy)</b>								
DDD					●			☑
DDE	●	● <sup>4,5</sup>		☑	●	● <sup>4,5</sup>		☑
DDT					●			☑
Chlordane					●			☑
Toxaphene	●			☑	●			☑
<b>OP and Pyrethroid Pesticides (Current)</b>								
Chlorpyrifos					●	● <sup>1,5</sup>	● <sup>2,5</sup>	☑
Bifenthrin					●			☑

1. CCW Salts TMDL receiving water site is 04\_WOOD and actions only apply to Salts TMDL area. TMDL receiving water site for the CCW Nitrogen, Metals, and Toxicity TMDLs is also 04\_WOOD.
2. Agricultural land use site for the Salts, Nitrogen, Metals, and Toxicity TMDL is 04D\_WOOD.
3. Agricultural land use data is below the LA so additional management practices in agriculture aren't necessary at this time.
4. CCW OC Pesticides TMDL receiving water site is 01\_BPT\_15. TMDL compliance is measured in sediment in receiving water and this location is downstream of where the entire responsibility area discharges. Though sediment is collected during dry weather, the results are applied to both wet and dry weather to ensure management practices minimize sediment transport year-round.
5. Does not exceed interim load allocation but exceeds final load allocation that will need to be achieved by the timeline provided in the Waiver.

**Table 47. BMPs for Additional Implementation in the South Revolon Responsibility Area**

Exceedance Condition							Survey Question #	BMP	% of Total Applicable Surveyed Units	Additional Implementation Needed?
Nutrients		Metals		Legacy Pesticides		Current Pesticides				
Dry	Wet	Dry	Wet	Dry	Wet	Wet				
x	x	x	x	x	x	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	0%	Yes
x	x	x	x	x	x		Irrigation system type	Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	16%	Yes
x	x	x	x	x	x		1	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	84%	Yes
x	x	x	x				2	Irrigation practices are based on soil moisture measurements and/or crop evapotranspiration	57%	Yes
x	x						3	Soil solution electrical conductivity measurements are used to determine when salt leaching is necessary	84%	Yes
x	x						4	Certified nutrient management plan has been prepared for the property	41%	Yes
x	x						5	Soil residual nitrate tests are conducted and used to adjust fertilizer applications	41%	Yes
x	x						6	Leaf/petiole tests are conducted and used to apply the minimum necessary amount of fertilizer	84%	Yes
x	x						7	Irrigation water nitrate is analyzed and the results are used to adjust fertilizer applications.	0%	Yes
x	x						8	Fertilizer applications are adjusted to account for nutrients provided by cover crops	100%	No
x	x	x	x	x	x	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	0%	Yes
	x	x	x	x	x	x	11	How much non-cropped area is bare soil	11%	Yes
x	x	x	x	x	x	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	0%	Yes
x	x	x	x	x	x	x	13	Grassed waterways are used	0%	Yes
x	x	x	x	x	x	x	14	Vegetated filter strips are used	0%	Yes
						x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	100%	No
						x	16	An integrated pest management plan is implemented	100%	No
x	x	x	x	x	x		18	How many acres produce irrigation runoff	57%	Yes
x	x	x	x	x	x	x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	0%	Not at this time
		x	x			x	[a]	Pesticide management plan is used		Yes

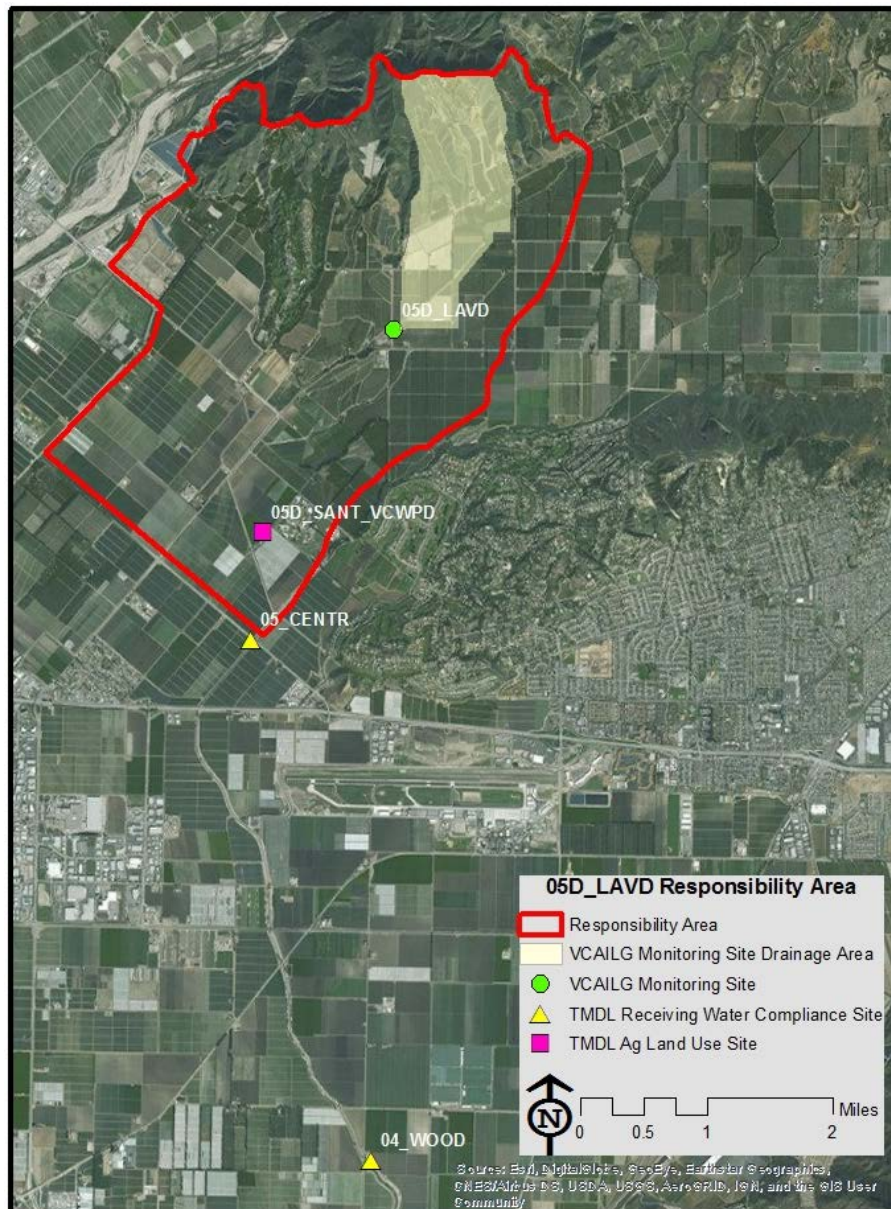
[a] Waiver specified practice for exceedances of copper and current use pesticides.

**Table 48. Proposed Best Management Practices for the South Revolon Responsibility Area**

Water Quality Issues							BMPs
Nutrients		Metals		Legacy Pesticides		Current Use Pesticides	
Dry Weather	Wet Weather	Dry Weather	Wet Weather	Dry Weather	Wet Weather	Wet Weather	
							<i>Source Control BMPs</i>
x	x	x	x	x	x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x		x		x			Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)
x		x		x			Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years
x		x					Implement irrigation practices that are based on soil moisture measurements and/or crop evapotranspiration
x							Use soil solution electrical conductivity measurements to determine when salt leaching is necessary
x	x						Prepare a certified nutrient management plan for the property
x	x						Conduct soil residual nitrate tests and use results to adjust fertilizer application
x	x						Conduct leaf/petiole tests and use results to apply the minimum necessary amount of fertilizer
x	x						Analyze irrigation water nitrate and use results to adjust fertilizer application
x	x						Adjust fertilizer application to account for nutrients provided by cover crops
x	x	x	x	x	x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
	x		x		x	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
						x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
						x	Implement an integrated pest management plan
x		x		x			Avoid/prevent irrigation runoff
		x	x			x	Use a pesticide management plan

Water Quality Issues							BMPs
Nutrients		Metals		Legacy Pesticides		Current Use Pesticides	
Dry Weather	Wet Weather	Dry Weather	Wet Weather	Dry Weather	Wet Weather	Wet Weather	
							<i>Structural Non-Treatment BMPs</i>
x	x	x	x	x	x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	x	x	x	x	x	x	Use grassed waterways
x	x	x	x	x	x	x	Use vegetated filter strips

## LaVista Drain Responsibility Area



**Figure 92. LaVista Drain Responsibility Area Map**

The monitoring sites used to evaluate attainment of Conditional Waiver benchmarks and/or TMDL LAs for the LaVista Drain responsibility area are illustrated in Figure 92. The monitoring sites that serve to evaluate TMDL LA benchmark attainment for this responsibility area are as follows:

- 04\_WOOD is a CCW Salts, OC Pesticides and PCBs, Toxicity, and Metals TMDL Receiving Water Compliance Site
- 05\_CENTR is a CCW Nitrogen TMDL Receiving Water Compliance Site
- 05D\_SANT\_VCWPD is a CCW Salts, Nitrogen, Toxicity, and Metals TMDL Ag Land Use Site

**Table 49. LaVista Drain Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Entire Responsibility Area</b>	<b>Drainage Area Monitoring Site 05D_LAVD</b>	<b>Responsibility Area Minus Nested 05D_LAVD Site Drainage</b>
<b>Assessed Acreage Information</b>			
Total Assessed Acres from Agricultural Parcel List	5,921	809	5,112
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	131	0	131
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	4,936	579	4,357
Assessed Acres from Agricultural Parcel List belonging to Non Members	854	230	624
<b>Irrigated Acreage Information</b>			
VCAILG Member Acreage Reported as Irrigated	3,985	407	3,578
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.8	0.7	0.8
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	689	162	512
Total Estimated Irrigated Acres (Member plus Non Member)	4,674	569	4,090
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	85%	72%	87%
<b>Survey Response Information</b>			
Sum Surveyed Irrigated Acres	3,253	564	2,690
Percent of Total Estimated Irrigated Acres that were Surveyed	70%	99%	66%
Percent of VCAILG Member Irrigated Acres that were Surveyed	82%	139%	75%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 50. LaVista Drain Responsibility Area Crop Types and General Production Practices**

Crop or Practice	05D_LAVD Site Drainage Only		Responsibility Area Minus Nested 05D_LAVD Site Drainage	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	0	0%	585	22%
Berry	101	18%	22	0.8%
Row Crop	50	9%	278	10%
Orchard	392	70%	1,805	67%
Nursery	0	0%	0	0%
Flower	0	0%	0	0%
Sod	0	0%	0	0%
Other	20	4%	0	0%
<b>Overhead Cover in Production Areas</b>				
Hoop House	0	0%	0	0%
No Cover	0	0%	256	9%
Greenhouse	0	0%	0	0%
Shade	0	0%	0	0%
Other	0	0%	0	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	276	49%	448	17%
Cover Crop	90	16%	79	3%
Plastic	0	0%	585	22%
Weed Cloth	0	0%	0	0%
Mulch	135	24%	1,497	56%
Gravel	0	0%	0	0%
Other	63	11%	118	4%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	188	33%	1,100	41%
Microsprinkler/Drip	0	0%	426	16%
Microsprinkler	326	58%	844	31%
Overhead Sprinkler	0	0%	0	0%
Overhead/Drip	50	9%	339	13%
Furrow Flood	0	0%	0	0%
Hand Watering	0	0%	0	0%
Other	0	0%	0	0%

**Table 51. LaVista Drain Responsibility Area Grower BMPs**

Survey Question	Units	05D_LAVD Site Drainage Only		LaVista Drain Responsibility Area Minus 05D_LAVD Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	375	67%	2,550	96%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	534	95%	2,255	84%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	239	45%	772	30%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	375	67%	2,182	81%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	275	49%	1,949	72%
Q5a: Are soil residual nitrate tests done?	Acres	563	100%	2,419	90%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	563	100%	2,419	90%
Q6: Are leaf/petiole tests conducted?	Acres	375	67%	2,598	97%
Q7a: Is nitrate measured in fertigation water?	Acres	476	84%	2,141	80%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	476	84%	2,141	80%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	261	54%	806	58%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	158	28%	400	15%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	294	186%	527	132%
Q11: How much non-cropped area is bare soil?	Acres	59	11%	164	6%
Q12a: How many feet of ditch exist?	Feet	20,640	N/A	67,681	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	15,140	73%	45,694	68%
Q13a: Are grassed waterways present?	Acres	0	0%	251	9%
Q13b: How many acres drain to grassed waterways?	Acres	0	0%	67	3%
Q14: How many acres are treated by vegetated filter strips?	Acres	100	18%	122	5%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	564	100%	2,690	100%
Q16: Is an IPM Plan being implemented?	Acres	564	100%	2,690	100%
Q17a: How many acres are organically farmed?	Acres	104	19%	63	2%
Q17b: How many acres are conventionally farmed?	Acres	459	81%	2,627	98%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	161	29%	557	21%
Q19: Runoff from how many acres is treated or detained?	Acres	172	31%	624	23%



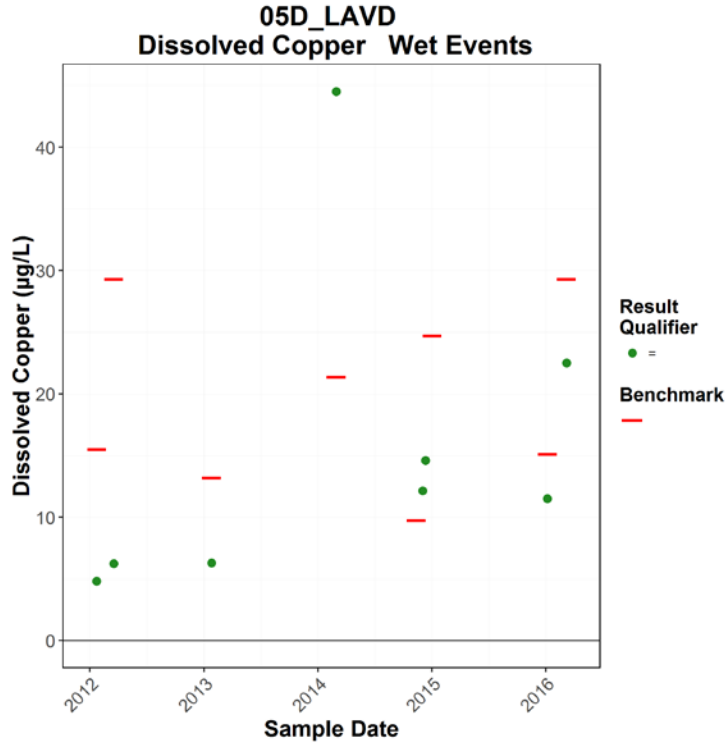


Figure 93. Wet Weather Dissolved Copper Concentrations at Waiver Benchmark Site 05D\_LAVD

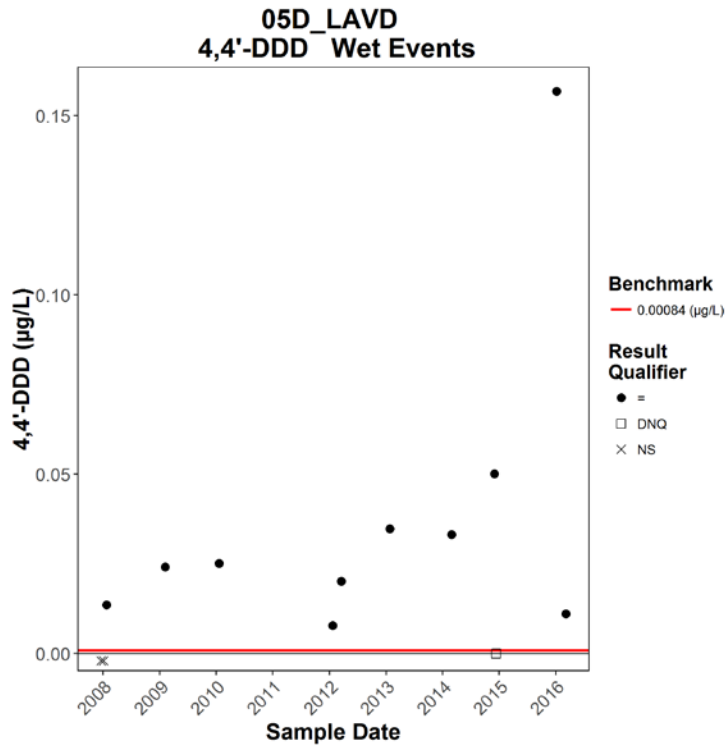


Figure 94. Wet Weather DDD Concentrations at Waiver Benchmark Site 05D\_LAVD

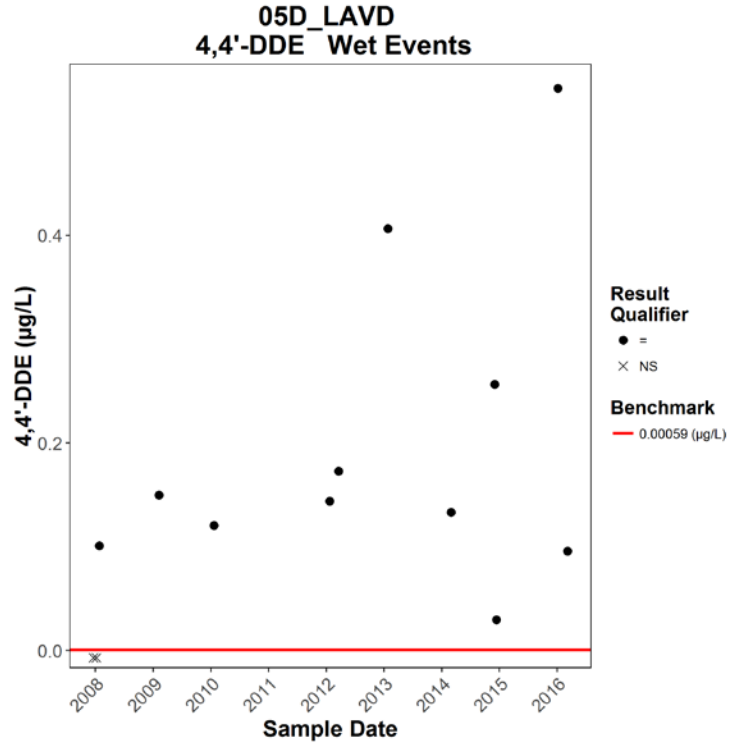


Figure 95. Wet Weather DDE Concentrations at Waiver Benchmark Site 05D\_LAVD

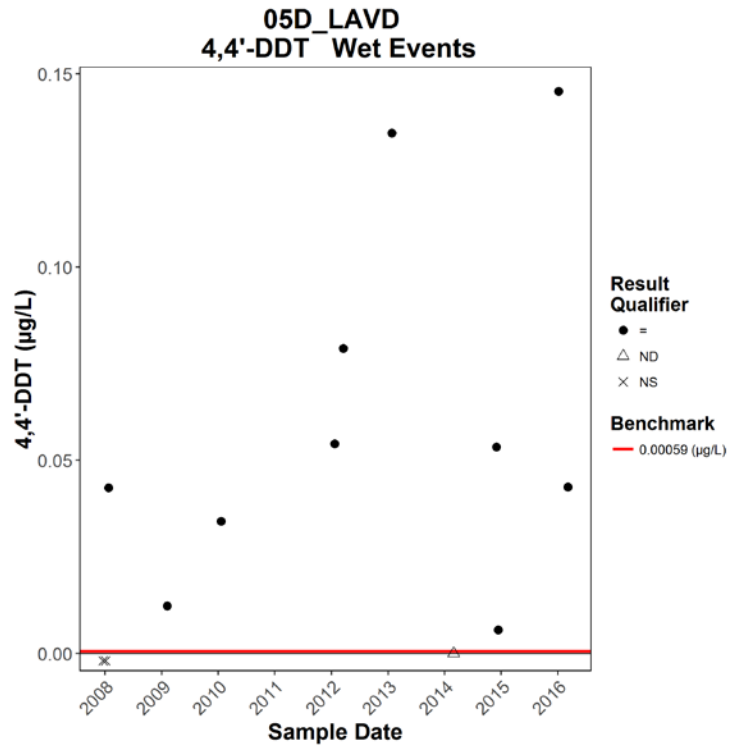


Figure 96. Wet Weather DDT Concentrations at Waiver Benchmark Site 05D\_LAVD

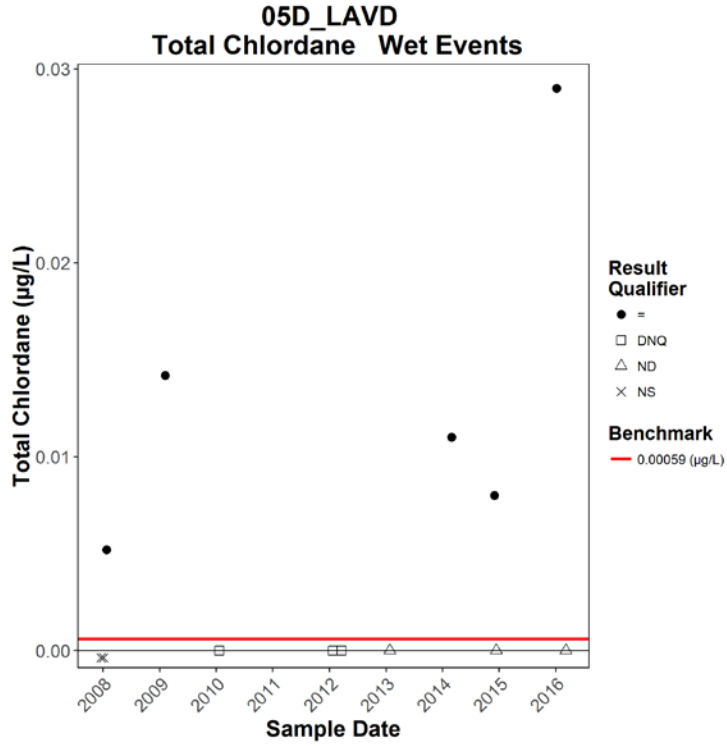


Figure 97. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 05D\_LAVD

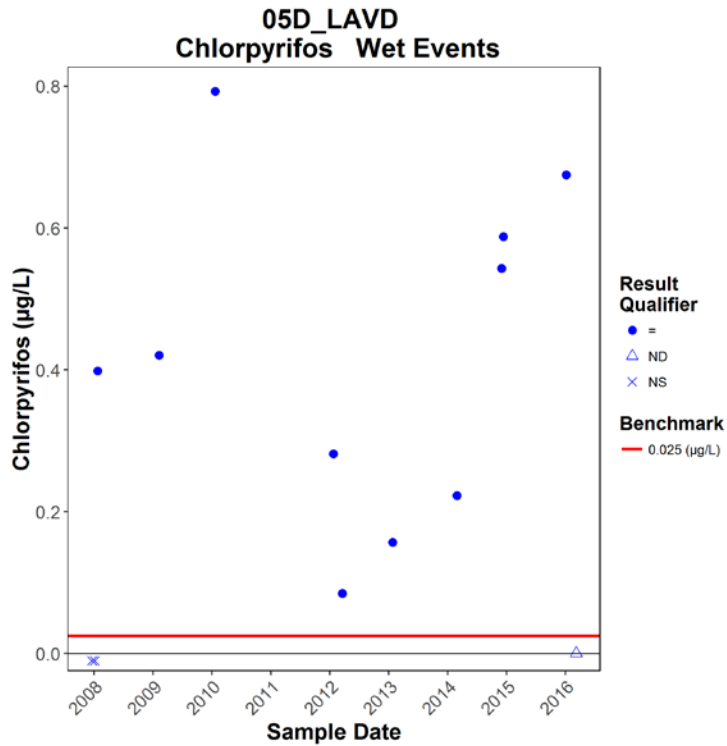


Figure 98. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 05D\_LAVD

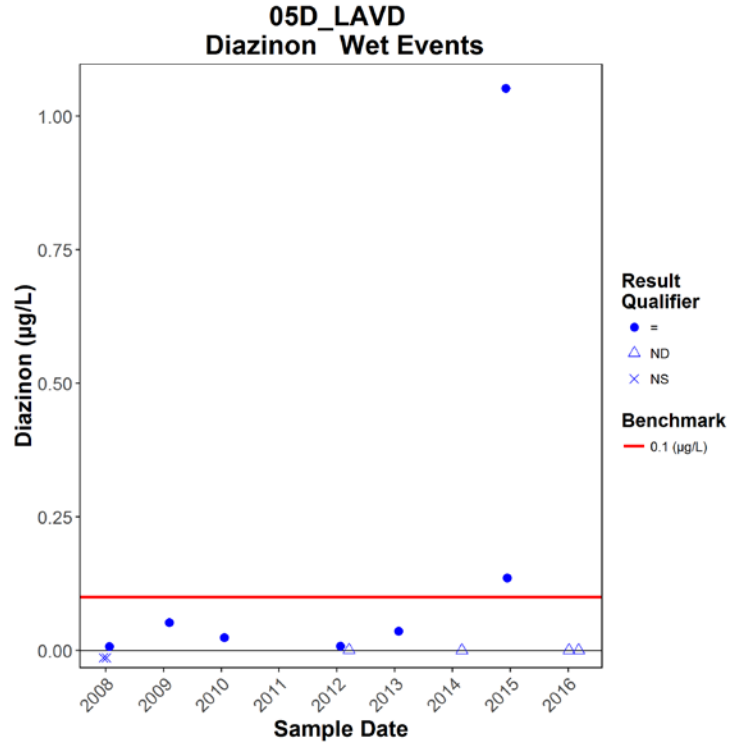


Figure 99. Wet Weather Diazinon Concentrations at Waiver Benchmark Site 05D\_LAVD

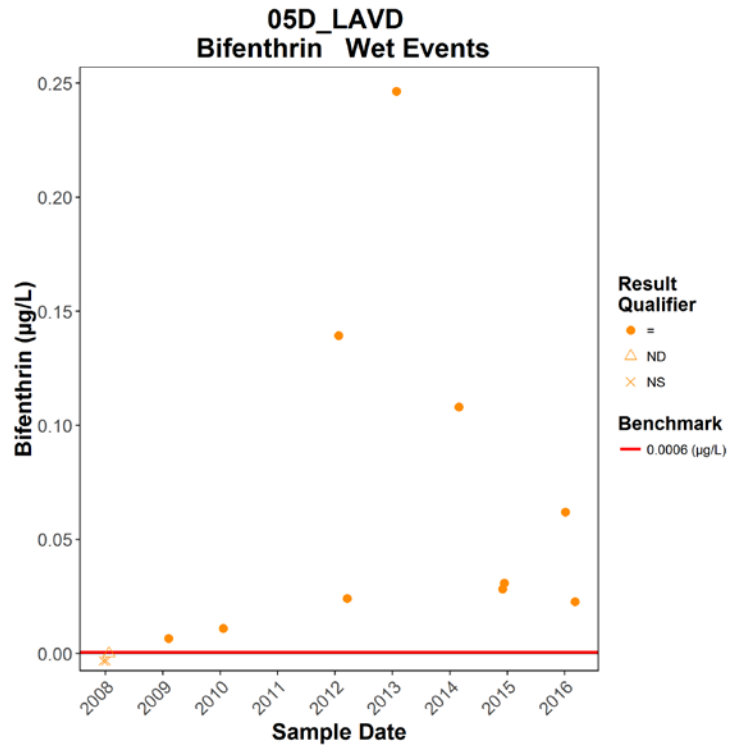


Figure 100. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 05D\_LAVD

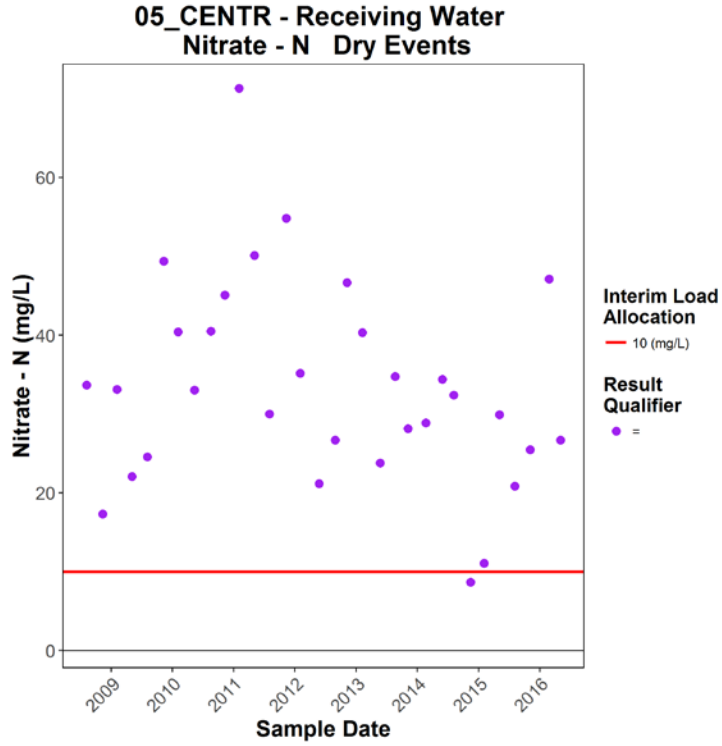


Figure 101. Dry Weather Nitrate-N Concentrations at TMDL LA Site 05\_CENTR

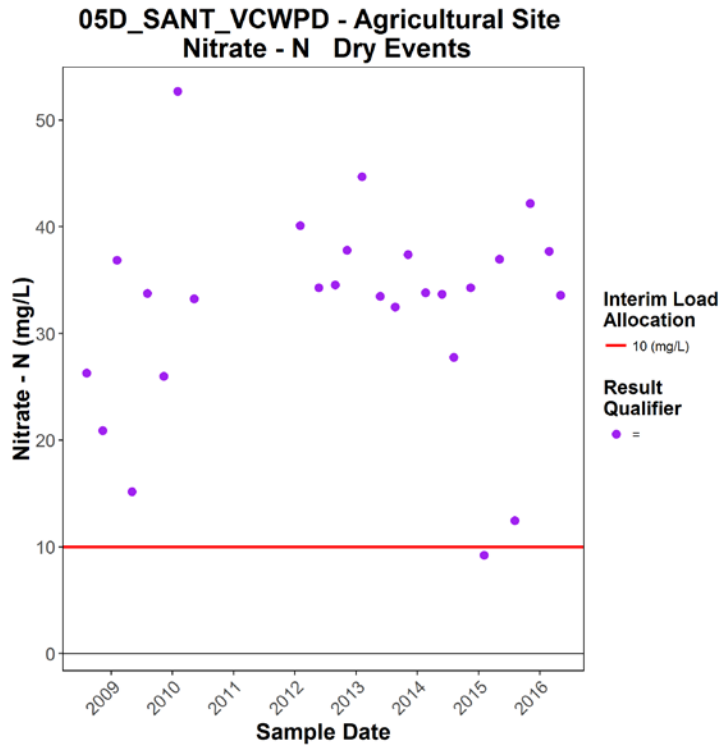


Figure 102. Dry Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 05D\_SANT\_VCWPD

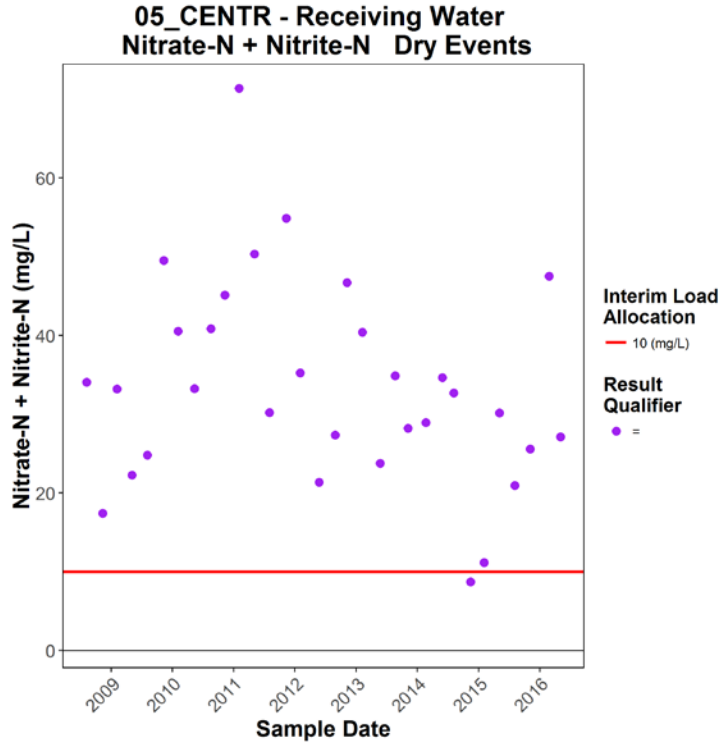


Figure 103. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 05\_CENTR

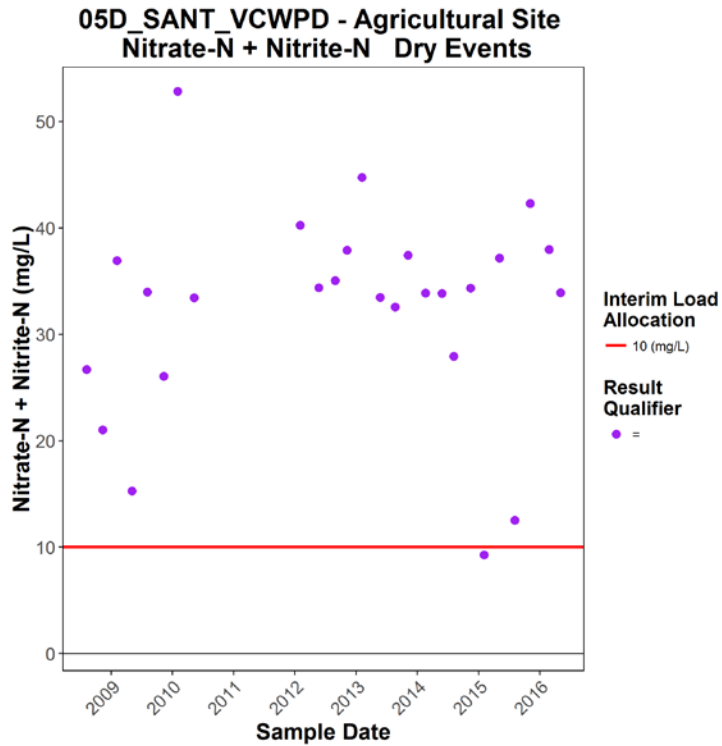


Figure 104. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 05D\_SANT\_VCWPD

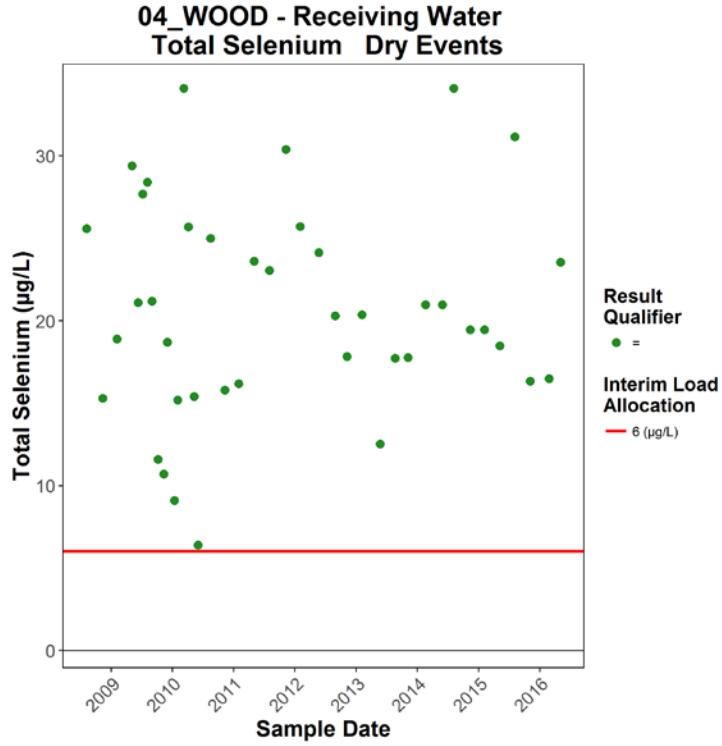


Figure 105. Dry Weather Total Selenium Concentrations at TMDL LA Site 04\_WOOD

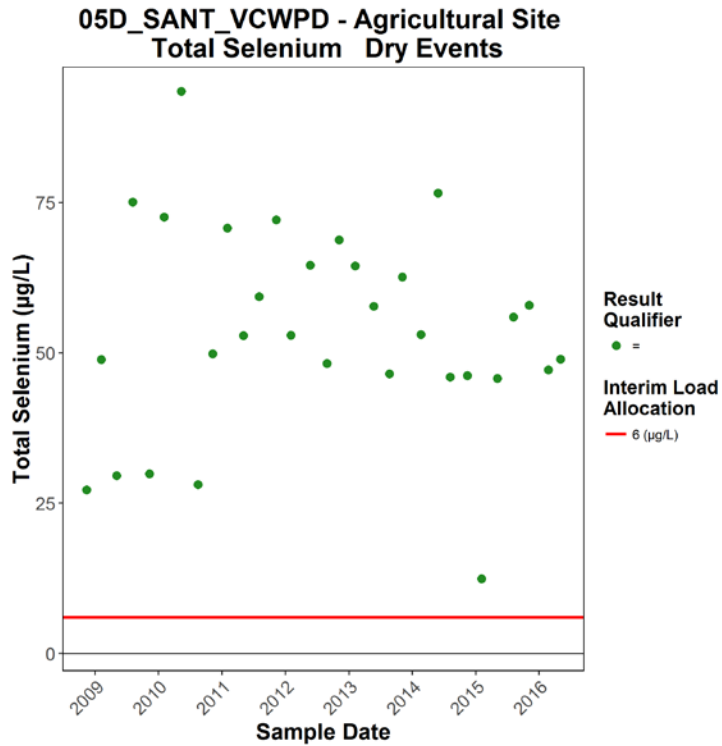


Figure 106. Dry Weather Total Selenium Concentrations at TMDL Ag Land Use Site 05D\_SANT\_VCWPD

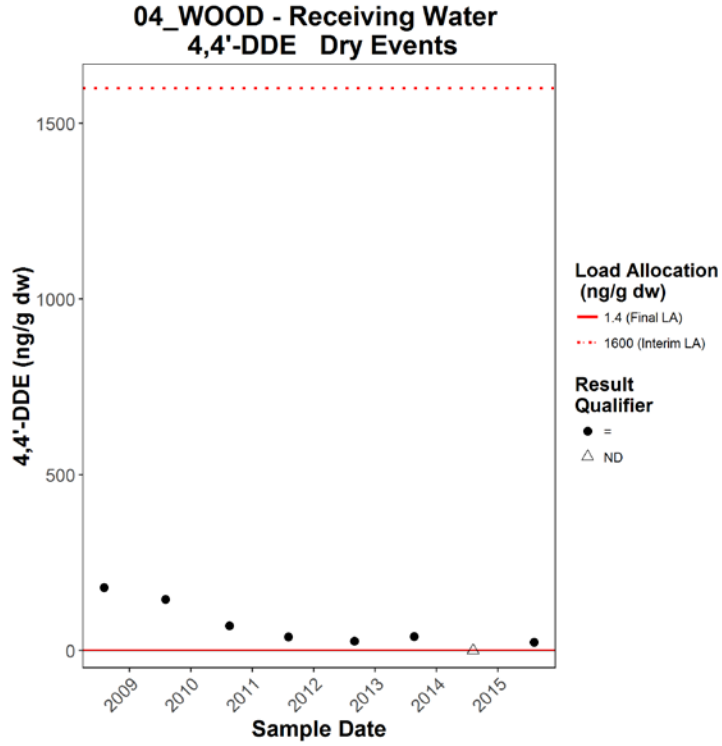


Figure 107. Dry Weather DDE Concentrations at TMDL LA Site 04\_WOOD

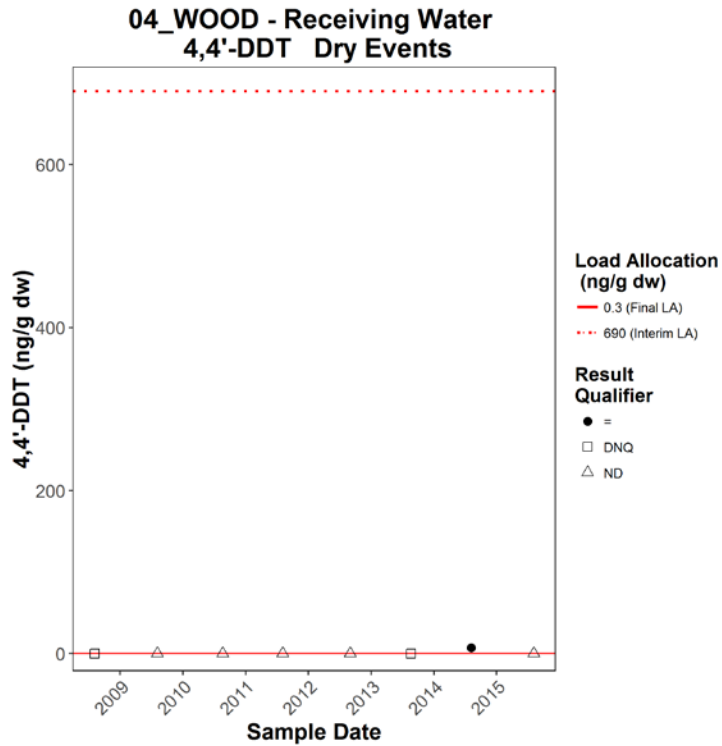


Figure 108. Dry Weather DDT Concentrations at TMDL LA Site 04\_WOOD



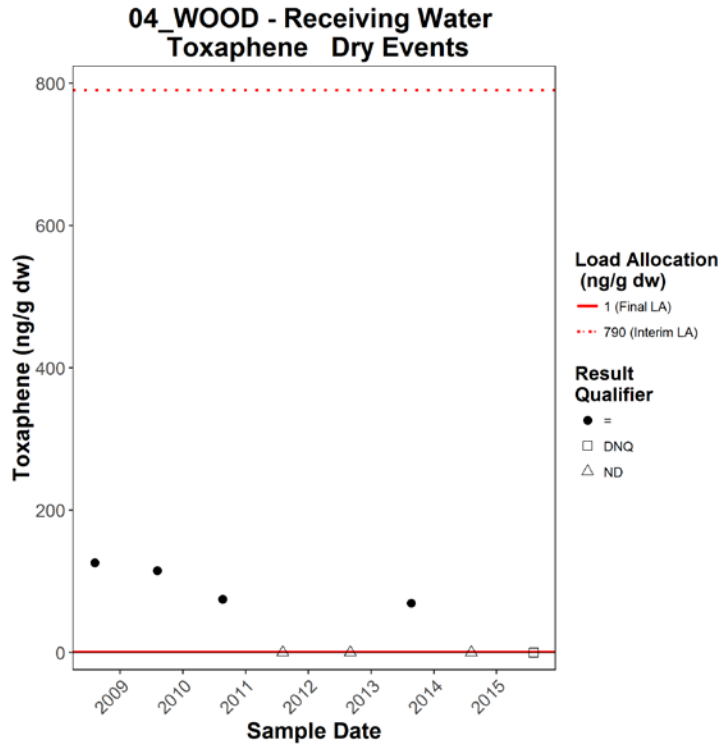


Figure 109. Dry Weather Toxaphene Concentrations at TMDL LA Site 04\_WOOD

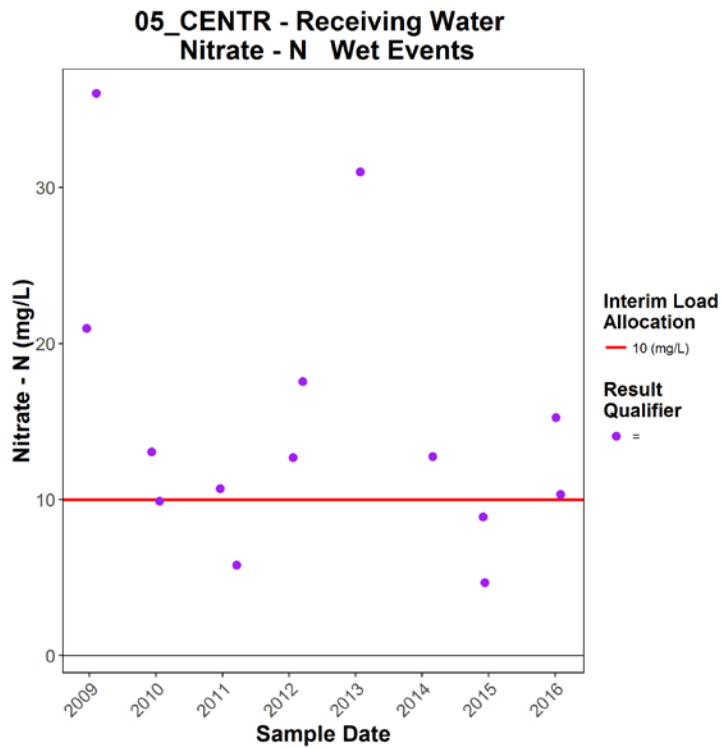


Figure 110. Wet Weather Nitrate-N Concentrations at TMDL LA Site 05\_CENTR

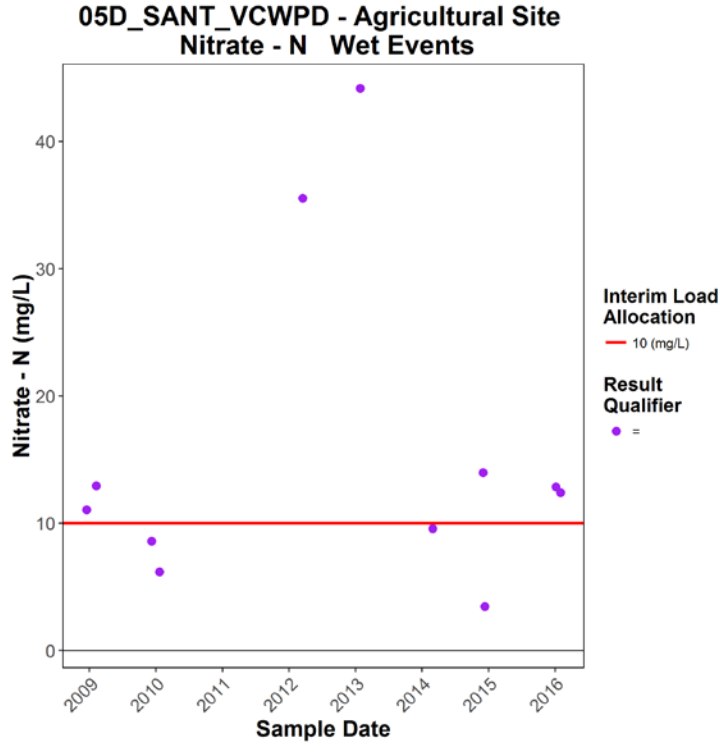


Figure 111. Wet Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 05D\_SANT\_VCWPD

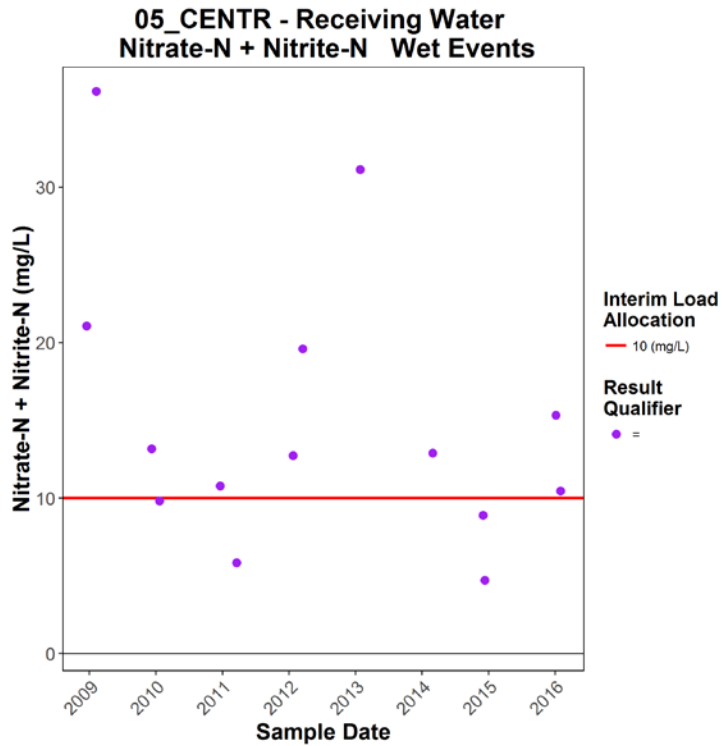
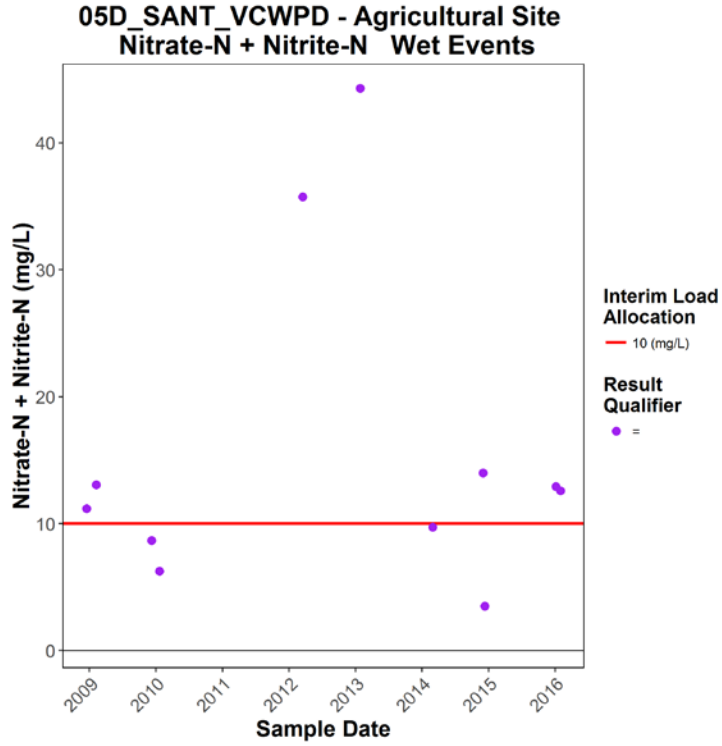
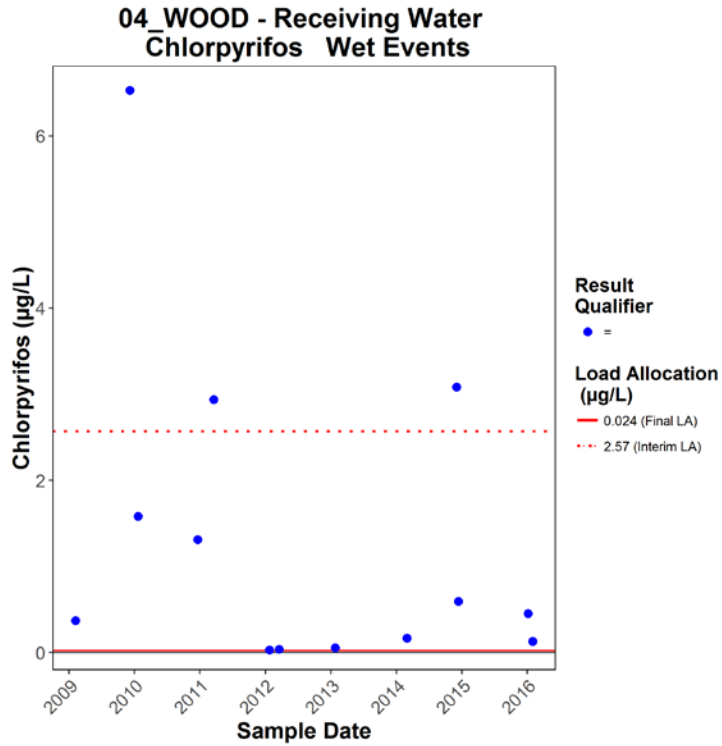


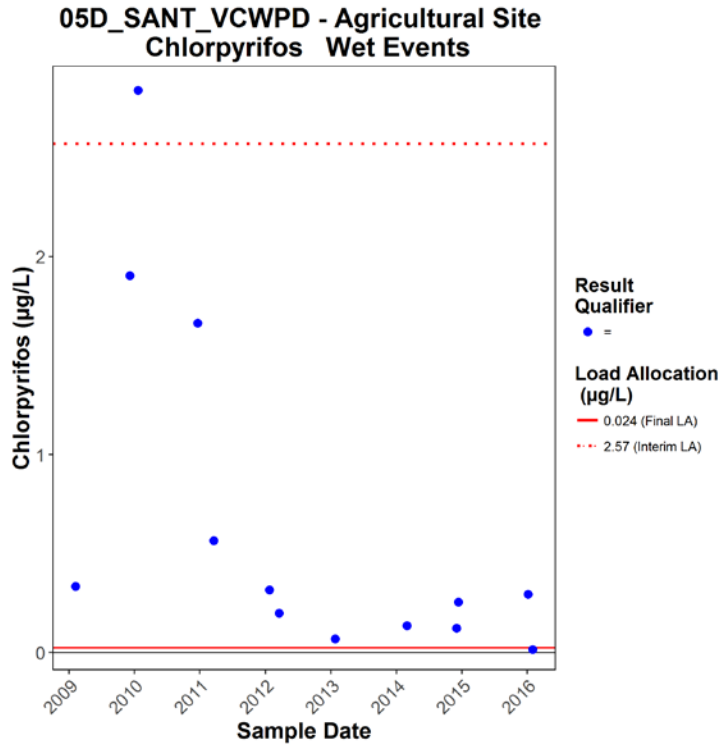
Figure 112. Wet Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 05\_CENTR



**Figure 113. Wet Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 05D\_SANT\_VCWPD**



**Figure 114. Wet Weather Chlorpyrifos Concentrations at TMDL LA Site 04\_WOOD**



**Figure 115. Wet Weather Chlorpyrifos Concentrations at TMDL Ag Land Use Site 05D\_SANT\_VCWPD**

**Table 52. Summary of Benchmark Exceedance Evaluation for LaVista Drain Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather				Wet Weather			
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs
<b>Salts</b>								
Boron		● <sup>1</sup>	● <sup>2</sup>	● <sup>3</sup>				
<b>Nutrients</b>								
Nitrate-N		● <sup>4</sup>	● <sup>2</sup>	☑	● <sup>4</sup>	● <sup>2</sup>	☑	☑
Nitrate-N + Nitrite-N		● <sup>4</sup>	● <sup>2</sup>	☑	● <sup>4</sup>	● <sup>2</sup>	☑	☑
<b>Metals and Selenium</b>								
Dissolved Copper					●			☑
Total Selenium		● <sup>1</sup>	● <sup>2</sup>	☑				
<b>OC Pesticides (Legacy)</b>								
DDD					●			☑
DDE		● <sup>5,6</sup>		☑	●	● <sup>5,6</sup>		☑
DDT		● <sup>5,6</sup>		☑	●	● <sup>5,6</sup>		☑
Chlordane					●			☑
Toxaphene		● <sup>5,6</sup>		☑		● <sup>5,6</sup>		☑
<b>OP and Pyrethroid Pesticides (Current)</b>								
Chlorpyrifos					●	● <sup>1,6</sup>	● <sup>2,6</sup>	☑
Diazinon					●			☑
Bifenthrin					●			☑

1. CCW Salts TMDL receiving water site is 04\_WOOD and actions only apply to Salts TMDL area. TMDL receiving water site for Metals, OC Pesticides, and Toxicity TMDL is also 04\_WOOD.
2. TMDLs agricultural land use site is 05D\_SANT\_VCWPD.
3. Agricultural land use data is below the LA so additional management practices in agriculture aren't necessary at this time.
4. CCW Nitrogen TMDL receiving water site is 05\_CENTR.
5. CCW OC Pesticides TMDL receiving water site is 04\_WOOD. TMDL compliance is measured in sediment in receiving water and this location is downstream of where the entire responsibility area discharges. Though sediment is collected during dry weather, the results are applied to both wet and dry weather to ensure management practices minimize sediment transport year-round.
6. Does not exceed interim load allocation but exceeds final load allocation that will need to be achieved by the timeline provided in the Waiver.

**Table 53. BMPs for Additional Implementation in the 05\_LAVD Responsibility Area**

Exceedance Condition							Survey Question #	BMP	% of Total Applicable Surveyed Units		
Nutrients		Metals		Legacy Pesticides		Current Pesticides			05D_LAVD Site Drainage Only	LaVista Drain Responsibility Area Minus 05D_LAVD Site Drainage	Additional Implementation Needed?
Dry	Wet	Dry	Wet	Dry	Wet	Wet					
x	x	x	x	x	x	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	51%	75%	Yes
x	x	x	x	x	x		Irrigation system type	Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	91%	88%	Yes
x	x	x	x	x	x		1	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	67%	96%	Yes
x	x	x	x				2	Irrigation practices are based on soil moisture measurements and/or crop evapotranspiration	95%	84%	Yes
x	x						3	Soil solution electrical conductivity measurements are used to determine when salt leaching is necessary	45%	30%	Yes
x	x						4	Certified nutrient management plan has been prepared for the property	49%	42%	Yes
x	x						5	Soil residual nitrate tests are conducted and used to adjust fertilizer applications	100%	90%	Yes
x	x						6	Leaf/petiole tests are conducted and used to apply the minimum necessary amount of fertilizer	67%	97%	Yes
x	x						7	Irrigation water nitrate is analyzed and the results are used to adjust fertilizer applications.	84%	80%	Yes
x	x						8	Fertilizer applications are adjusted to account for nutrients provided by cover crops	54%	58%	Yes
x	x	x	x	x	x	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	186%	132%	No
	x	x	x	x	x	x	11	How much non-cropped area is bare soil	11%	6%	Yes
x	x	x	x	x	x	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	73%	68%	Yes
x	x	x	x	x	x	x	13	Grassed waterways are used	0%	9%	Yes
x	x	x	x	x	x	x	14	Vegetated filter strips are used	18%	5%	Yes
						x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	100%	100%	No
						x	16	An integrated pest management plan is implemented	100%	100%	No
x	x	x	x	x	x		18	How many acres produce irrigation runoff	29%	21%	Yes
x	x	x	x	x	x	x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	31%	23%	Not at this time
		x	x			x	[a]	Pesticide management plan is used			Yes

[a] Waiver specified practice for exceedances of copper and current use pesticides.

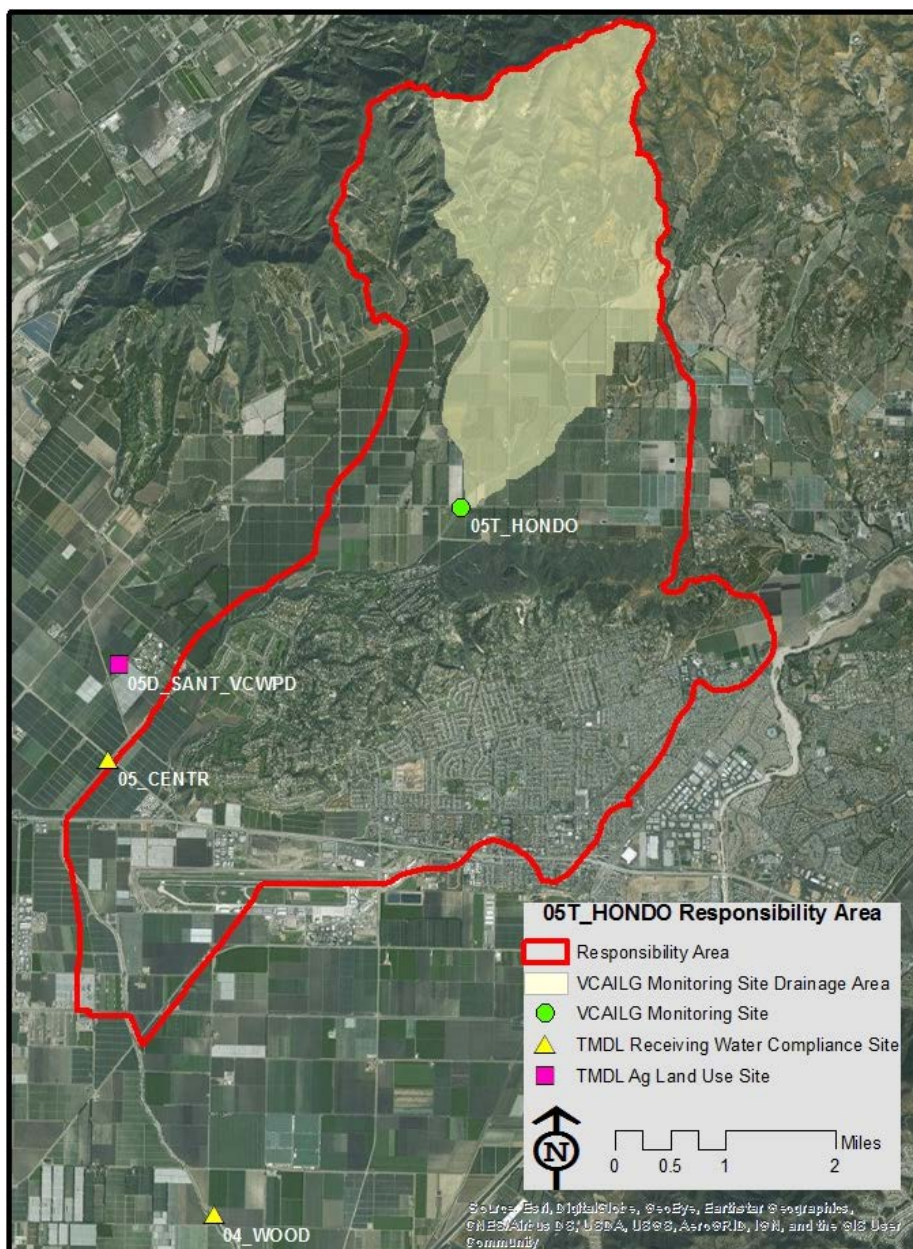
**Table 54. Proposed Best Management Practices for the La Vista Drain Responsibility Area**

Water Quality Issues							BMPs
Nutrients		Metals		Legacy Pesticides		Current Use Pesticides	
Dry Weather	Wet Weather	Dry Weather	Wet Weather	Dry Weather	Wet Weather	Wet Weather	
							<i>Source Control BMPs</i>
x	x	x	x	x	x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x		x		x			Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)
x		x		x			Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years
x		x					Implement irrigation practices that are based on soil moisture measurements and/or crop evapotranspiration
x							Use soil solution electrical conductivity measurements to determine when salt leaching is necessary
x	x						Prepare a certified nutrient management plan for the property
x	x						Conduct soil residual nitrate tests and use results to adjust fertilizer application
x	x						Conduct leaf/petiole tests and use results to apply the minimum necessary amount of fertilizer
x	x						Analyze irrigation water nitrate and use results to adjust fertilizer application
x	x						Adjust fertilizer application to account for nutrients provided by cover crops
x	x	x	x	x	x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
	x		x		x	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
						x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
						x	Implement an integrated pest management plan
x		x		x			Avoid/prevent irrigation runoff
		x	x			x	Use a pesticide management plan

Water Quality Issues							BMPs
Nutrients		Metals		Legacy Pesticides		Current Use Pesticides	
Dry Weather	Wet Weather	Dry Weather	Wet Weather	Dry Weather	Wet Weather	Wet Weather	
							<i>Structural Non-Treatment BMPs</i>
x	x	x	x	x	x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	x	x	x	x	x	x	Use grassed waterways
x	x	x	x	x	x	x	Use vegetated filter strips



## Beardsley Wash Responsibility Area



**Figure 116. Beardsley Wash Responsibility Area Map**

The monitoring sites used to evaluate attainment of Conditional Waiver benchmarks and/or TMDL LAs for the Beardsley Wash responsibility area are illustrated in Figure 116. The monitoring sites that serve to evaluate TMDL LA benchmark attainment for this responsibility area are as follows:

- 04\_WOOD is a CCW Salts, OC Pesticides and PCBs, Toxicity, and Metals TMDL Receiving Water Compliance Site
- 05\_CENTR is a CCW Nitrogen TMDL Receiving Water Compliance Site
- 05D\_SANT\_VCWPD is a CCW Salts, Nitrogen, Toxicity, and Metal TMDL Ag Land Use Site

**Table 55. Beardsley Wash Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Entire Responsibility Area</b>	<b>Drainage Area Monitoring Site 05T_HONDO</b>	<b>Responsibility Area Minus Nested 05T_HONDO Site Drainage</b>
<b>Assessed Acreage Information</b>			
Total Assessed Acres from Agricultural Parcel List	8,663	2,660	6,003
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	24	0	24
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	7,130	2,499	4,631
Assessed Acres from Agricultural Parcel List belonging to Non Members	1,509	161	1,348
<b>Irrigated Acreage Information</b>			
VCAILG Member Acreage Reported as Irrigated	5,250	1,608	3,642
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.7	0.6	0.8
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	1,111	104	1,060
Total Estimated Irrigated Acres (Member plus Non Member)	6,361	1,712	4,702
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	83%	94%	77%
<b>Survey Response Information</b>			
Sum Surveyed Irrigated Acres	4,158	1,467	2,691
Percent of Total Estimated Irrigated Acres that were Surveyed	65%	86%	57%
Percent of VCAILG Member Irrigated Acres that were Surveyed	79%	91%	74%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 56. Beardsley Wash Responsibility Area Crop Types and General Production Practices**

Crop or Practice	05T_HONDO Site Drainage Only		Responsibility Area Minus Nested 05T_HONDO Site Drainage	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	0	0%	127	5%
Berry	0	0%	340	13%
Row Crop	10	0.7%	526	20%
Orchard	1,447	99%	1,623	60%
Nursery	0	0%	26	1%
Flower	10	0.7%	4	0.1%
Sod	0	0%	0	0%
Other	0	0%	45	2%
<b>Overhead Cover in Production Areas</b>				
Hoop House	96	7%	46	2%
No Cover	85	6%	153	6%
Greenhouse	0	0%	3	0.1%
Shade	20	1%	0	0%
Other	0	0%	0	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	80	5%	1,341	50%
Cover Crop	103	7%	94	4%
Plastic	0	0%	122	5%
Weed Cloth	0	0%	7	0.3%
Mulch	1,288	88%	1,218	45%
Gravel	0	0%	5	0.2%
Other	0	0%	0	0%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	881	60%	1,237	46%
Microsprinkler/Drip	0	0%	77	3%
Microsprinkler	586	40%	980	36%
Overhead Sprinkler	0	0%	51	2%
Overhead/Drip	0	0%	349	13%
Furrow Flood	0	0%	0	0%
Hand Watering	0	0%	0	0%
Other	0	0%	0	0%

**Table 57. Beardsley Wash Responsibility Area Grower BMPs**

Survey Question	Units	05T_HONDO Site Drainage Only		05T_HONDO Responsibility Area Minus 05T_HONDO Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	1,382	94%	2,109	79%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	1,344	92%	2,076	77%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	43	3%	1,104	42%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	1,389	95%	2,128	79%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	1,215	83%	1,458	54%
Q5a: Are soil residual nitrate tests done?	Acres	1,279	87%	1,790	67%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	1,279	87%	1,790	67%
Q6: Are leaf/petiole tests conducted?	Acres	1,394	95%	2,599	97%
Q7a: Is nitrate measured in fertigation water?	Acres	1,380	94%	1,515	56%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	1,360	93%	1,515	56%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	108	29%	506	84%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	368	25%	541	20%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	519	141%	566	105%
Q11: How much non-cropped area is bare soil?	Acres	277	19%	151	6%
Q12a: How many feet of ditch exist?	Feet	42,143	N/A	309,471	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	29,110	69%	57,889	19%
Q13a: Are grassed waterways present?	Acres	93	6%	323	12%
Q13b: How many acres drain to grassed waterways?	Acres	0	0%	160	6%
Q14: How many acres are treated by vegetated filter strips?	Acres	99	7%	90	3%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	1,447	99%	2,691	100%
Q16: Is an IPM Plan being implemented?	Acres	1,447	99%	2,669	99%
Q17a: How many acres are organically farmed?	Acres	0	0%	148	6%
Q17b: How many acres are conventionally farmed?	Acres	1,467	100%	2,543	94%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	0	0%	73	3%
Q19: Runoff from how many acres is treated or detained?	Acres	156	11%	570	21%

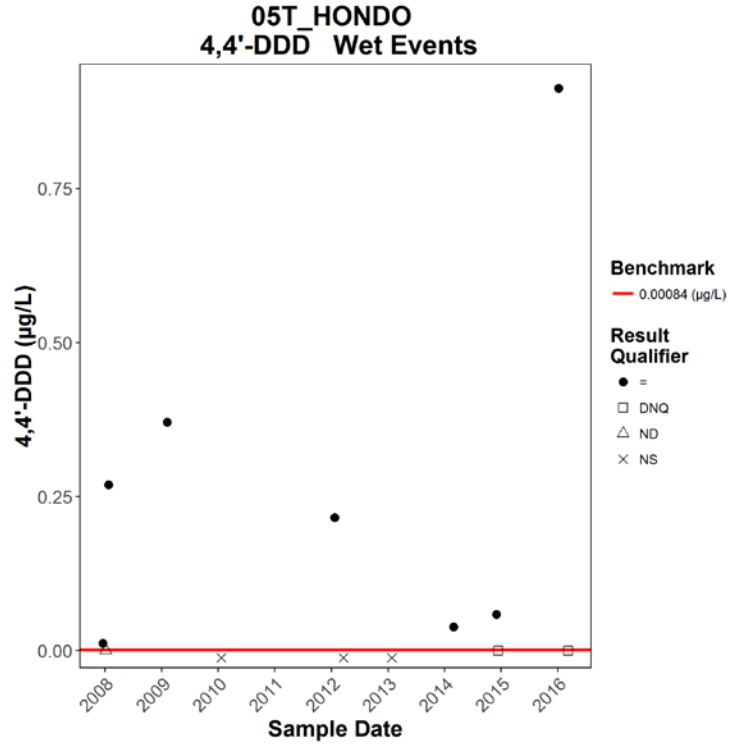


Figure 117. Wet Weather DDD Concentrations at Waiver Benchmark Site 05T\_HONDO

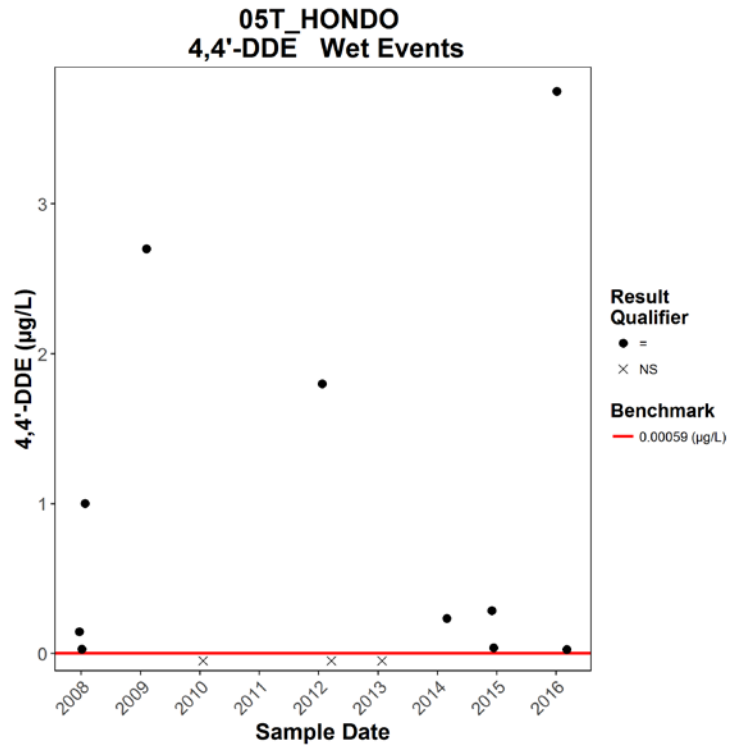


Figure 118. Wet Weather DDE Concentrations at Waiver Benchmark Site 05T\_HONDO

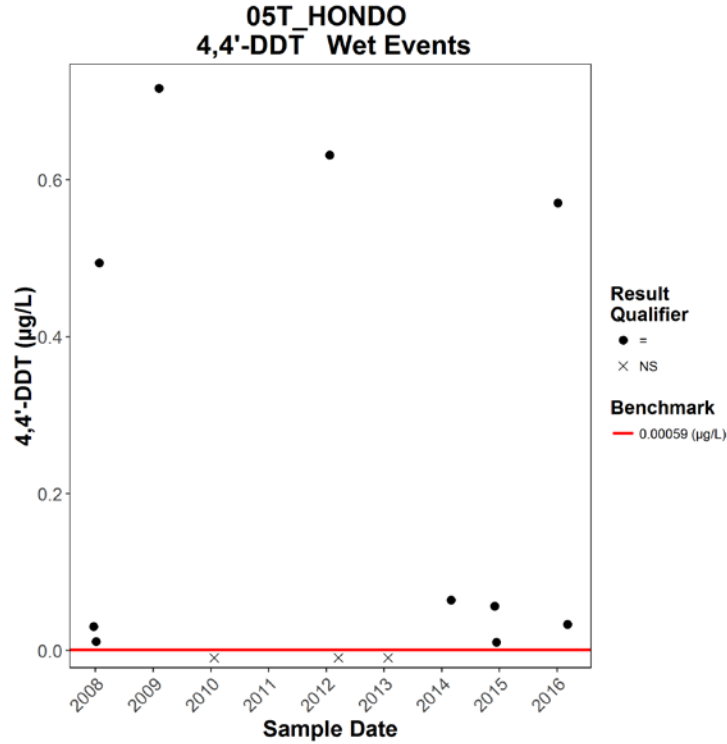


Figure 119. Wet Weather DDT Concentrations at Waiver Benchmark Site 05T\_HONDO

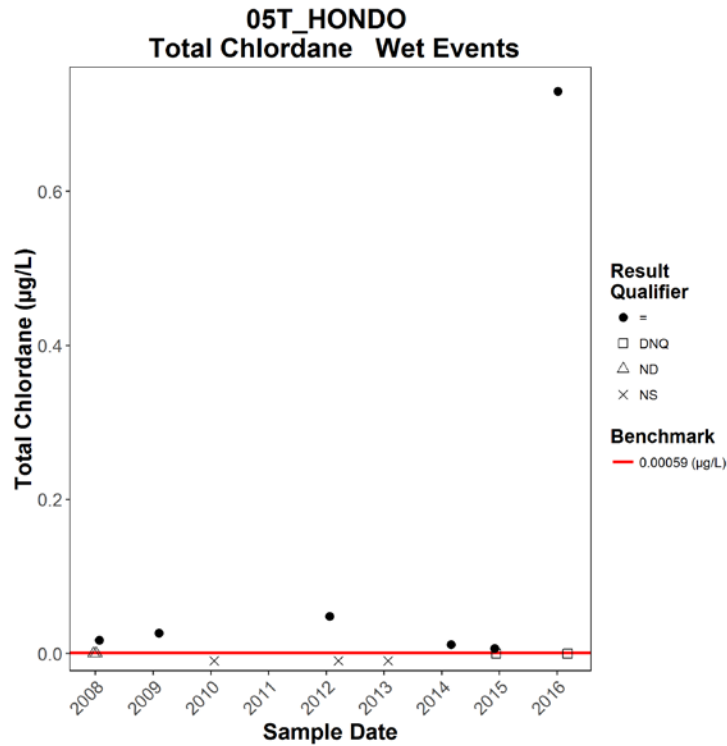


Figure 120. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 05T\_HONDO

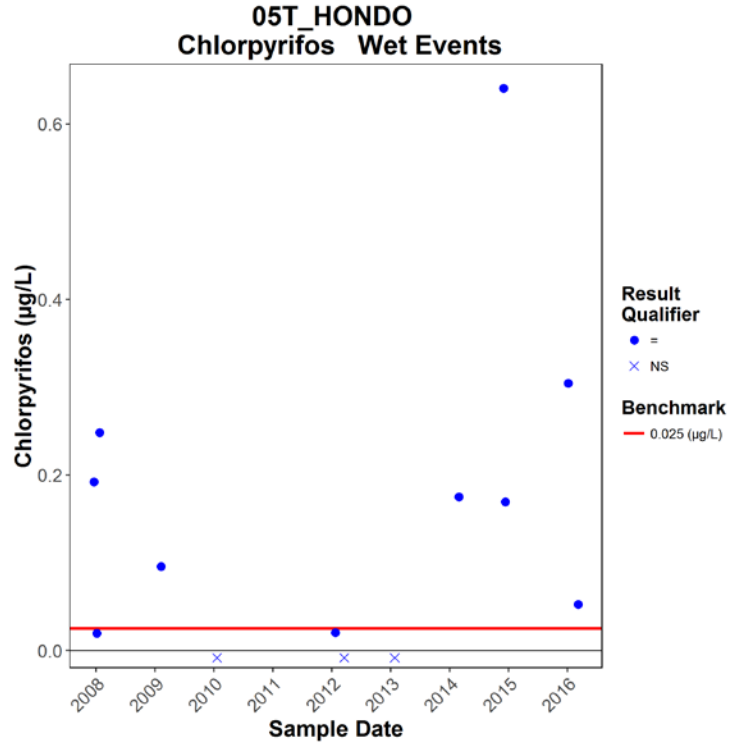


Figure 121. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 05T\_HONDO

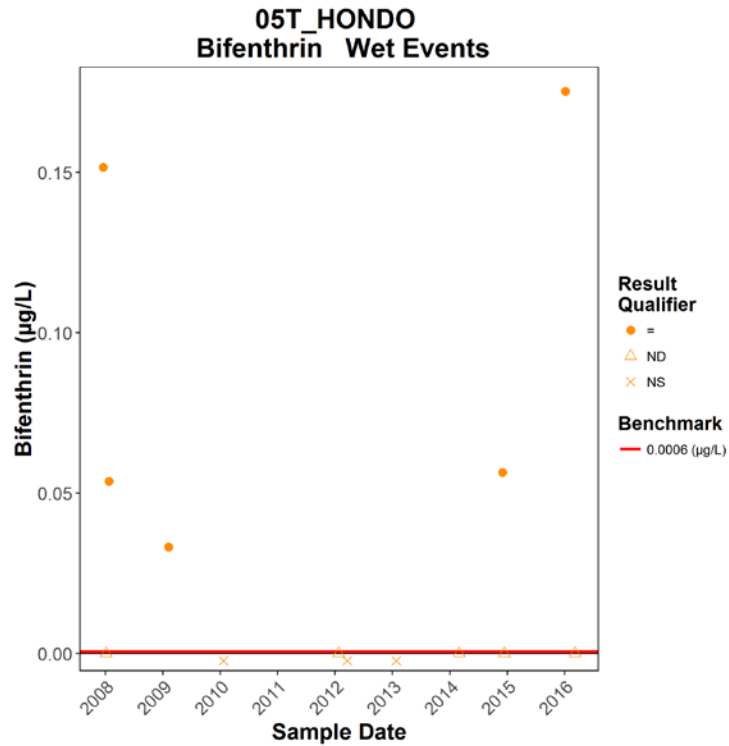


Figure 122. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 05T\_HONDO

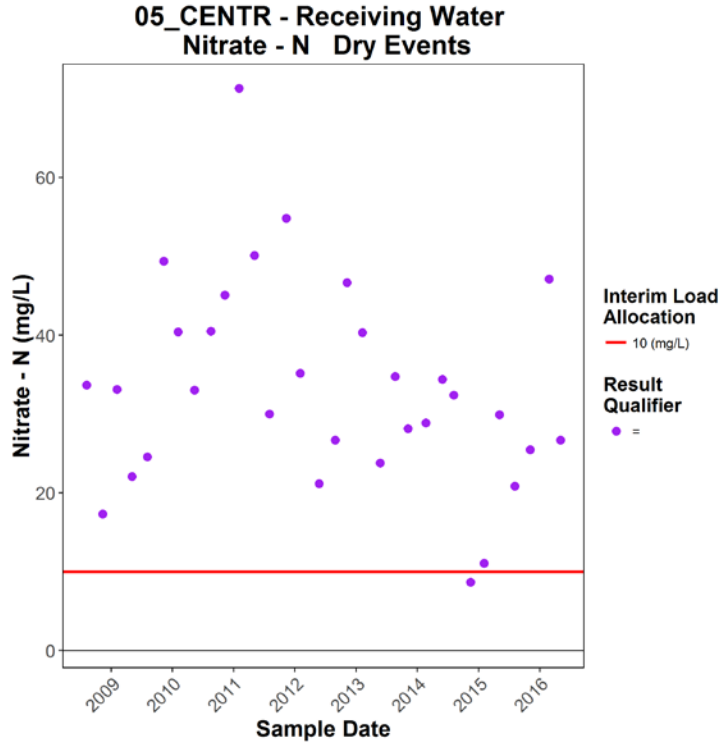


Figure 123. Dry Weather Nitrate-N Concentrations at TMDL LA Site 05\_CENTR

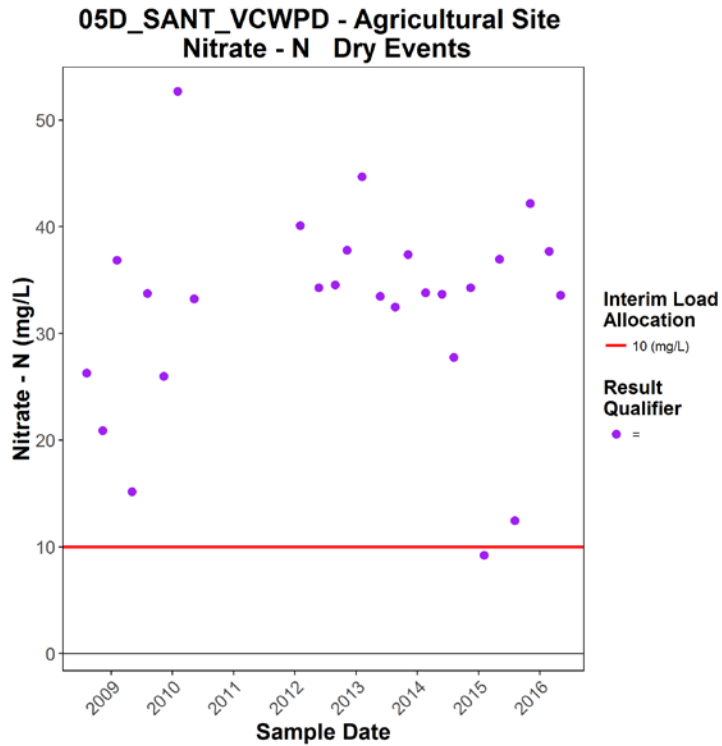


Figure 124. Dry Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 05D\_SANT\_VCWPD



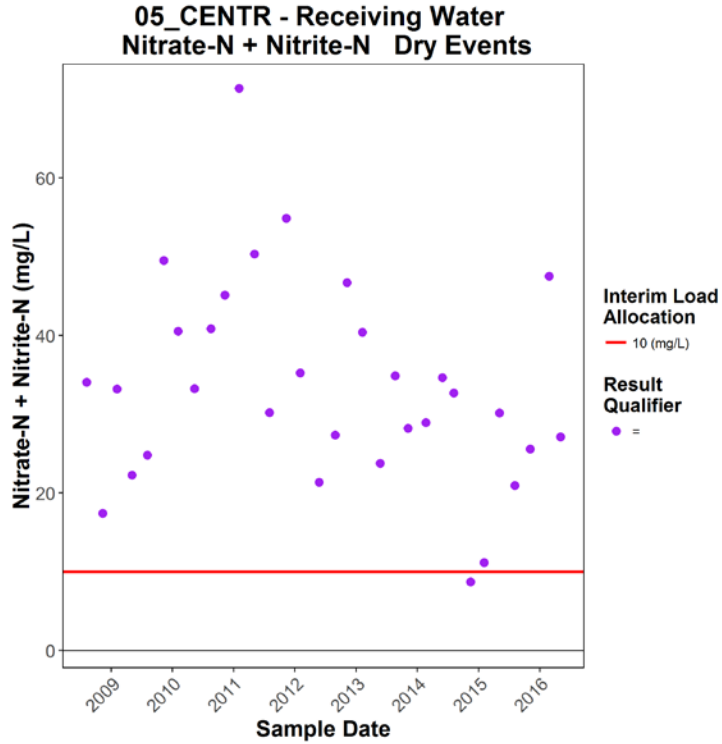


Figure 125. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 05\_CENTR

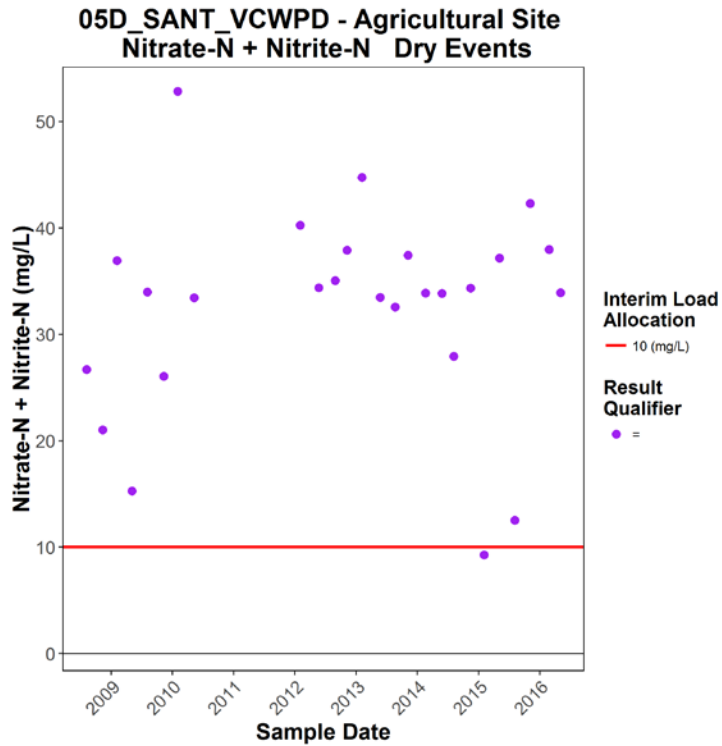


Figure 126. Dry Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 05D\_SANT\_VCWPD

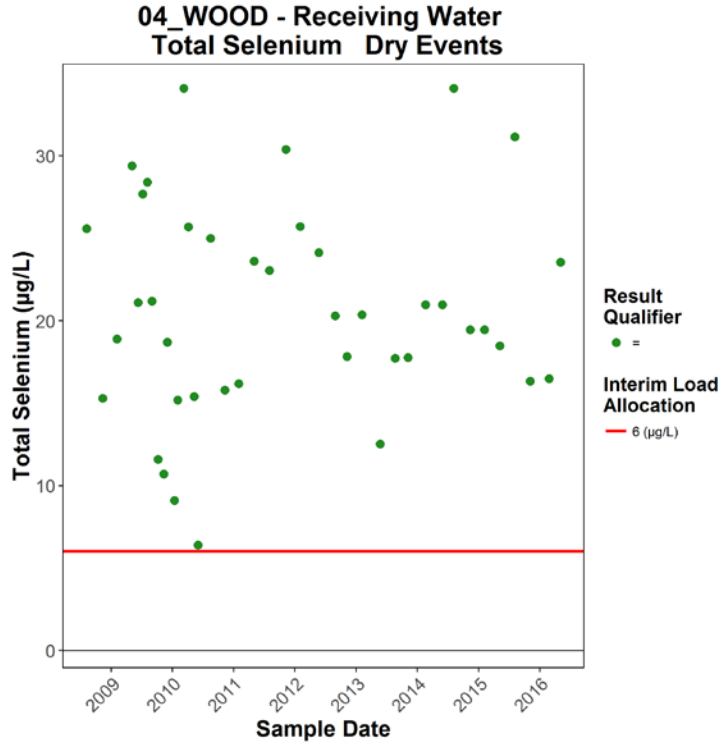


Figure 127. Dry Weather Total Selenium Concentrations at TMDL LA Site 04\_WOOD

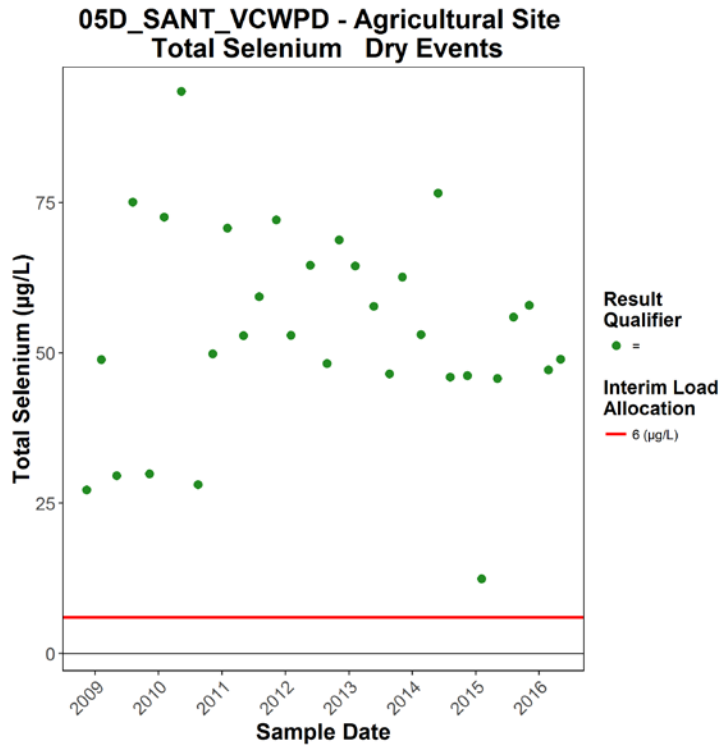


Figure 128. Dry Weather Total Selenium Concentrations at TMDL Ag Land Use Site 05D\_SANT\_VCWPD

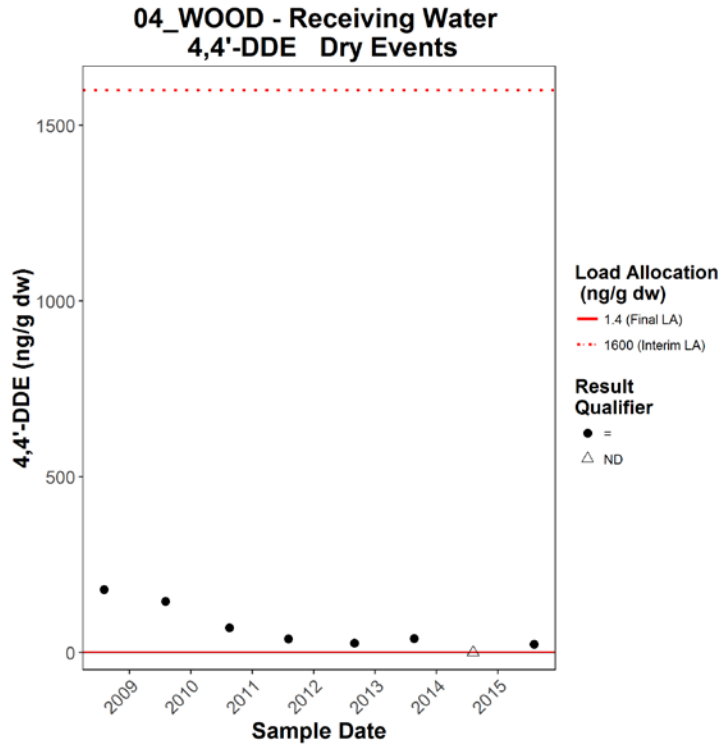


Figure 129. Dry Weather DDE Concentrations at TMDL LA Site 04\_WOOD

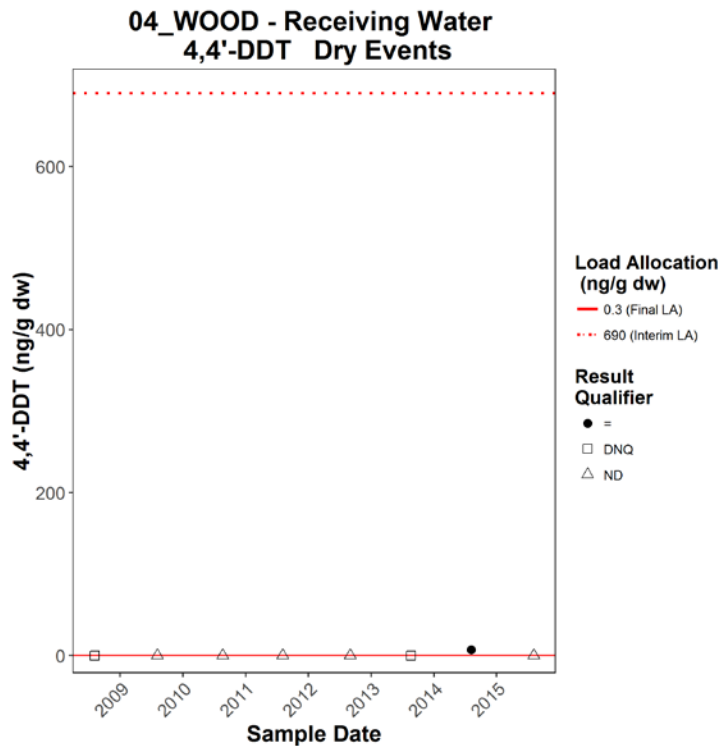


Figure 130. Dry Weather DDT Concentrations at TMDL LA Site 04\_WOOD

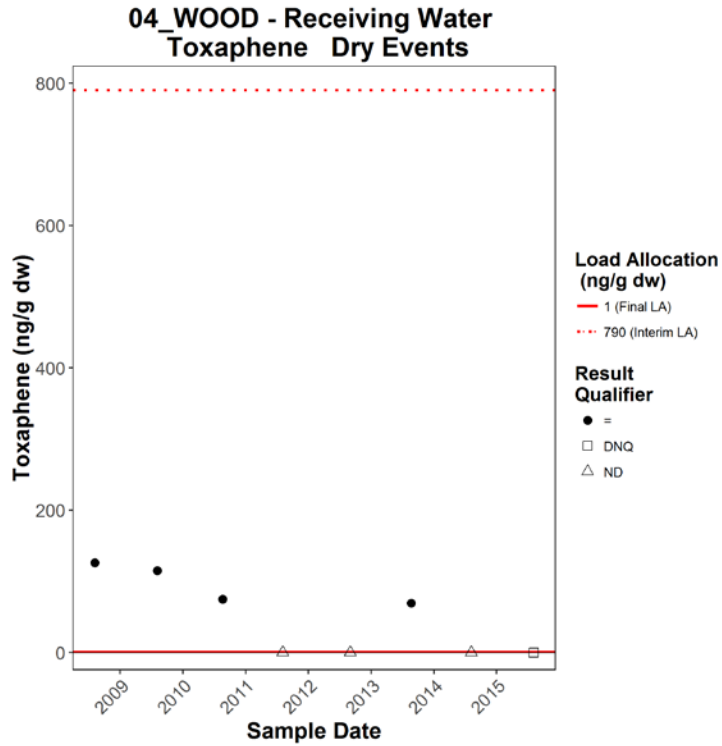


Figure 131. Dry Weather Toxaphene Concentrations at TMDL LA Site 04\_WOOD

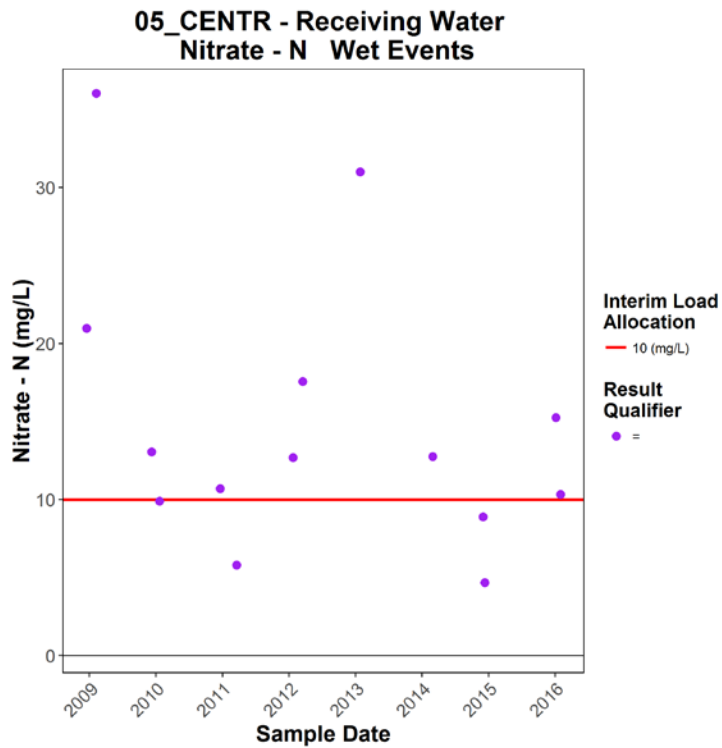


Figure 132. Wet Weather Nitrate-N Concentrations at TMDL LA Site 05\_CENTR

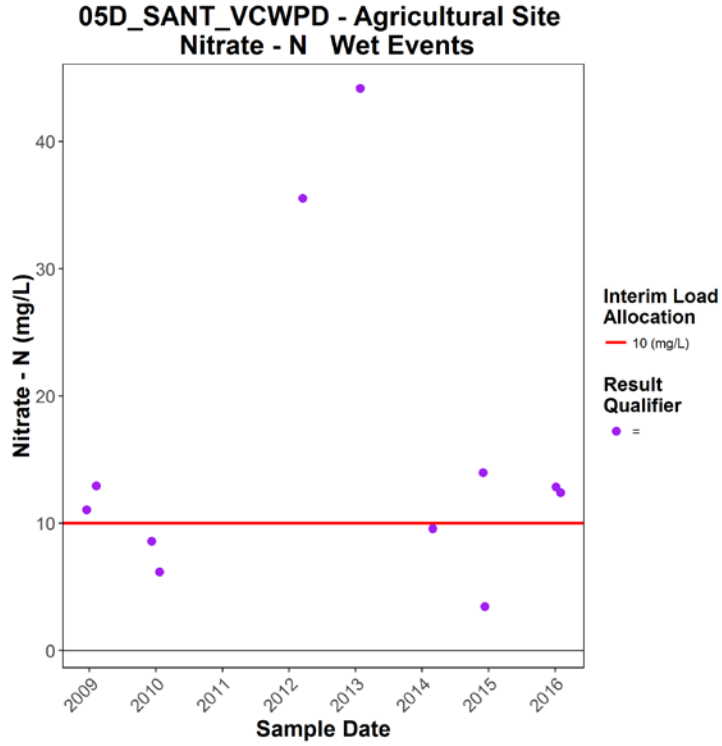


Figure 133. Wet Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 05D\_SANT\_VCWPD

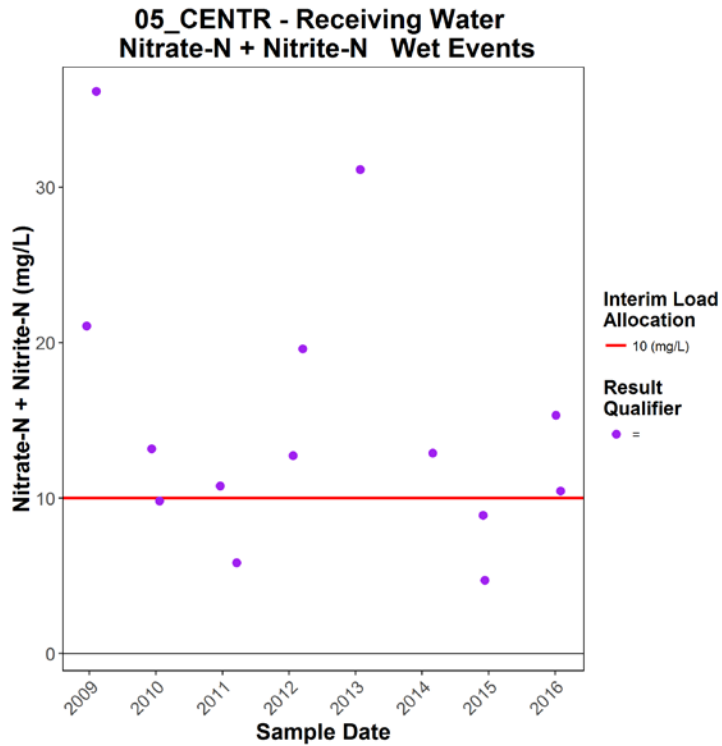
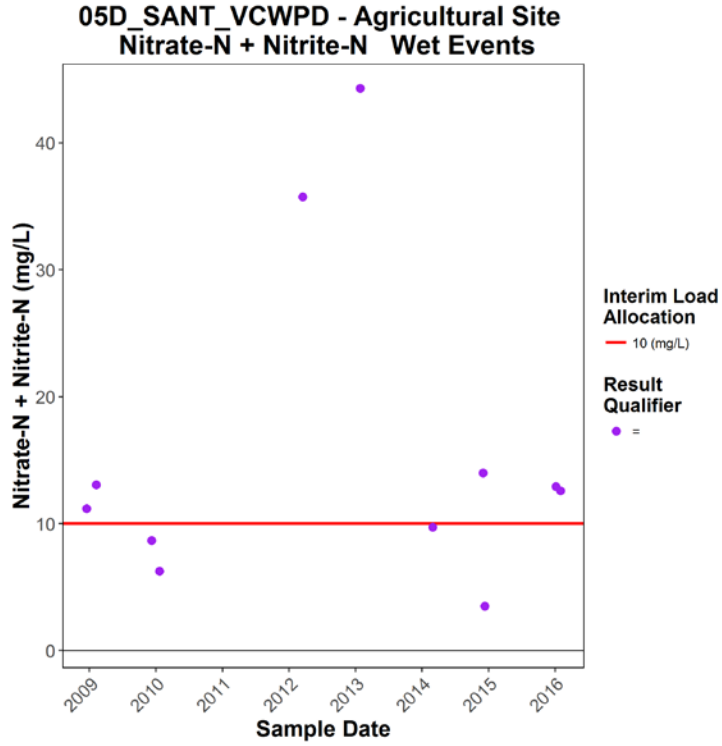
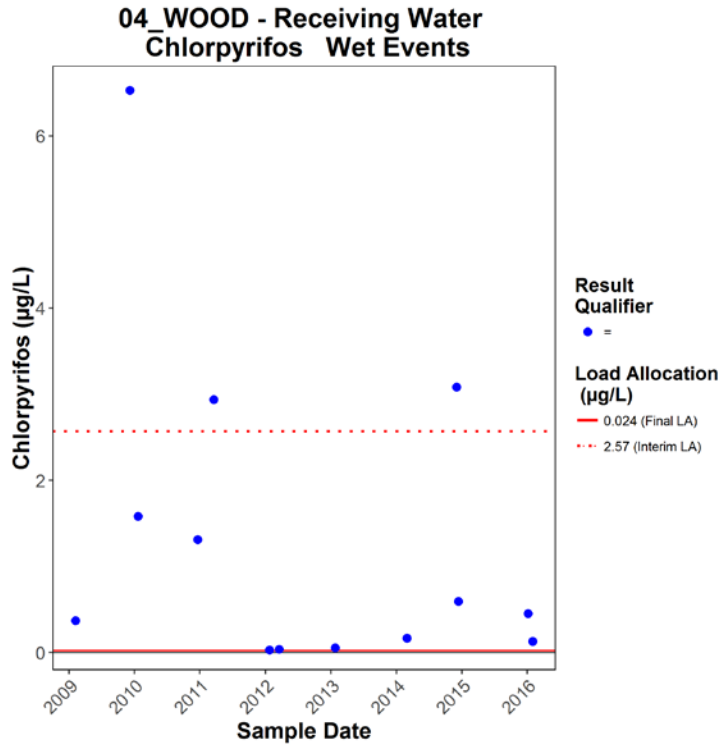


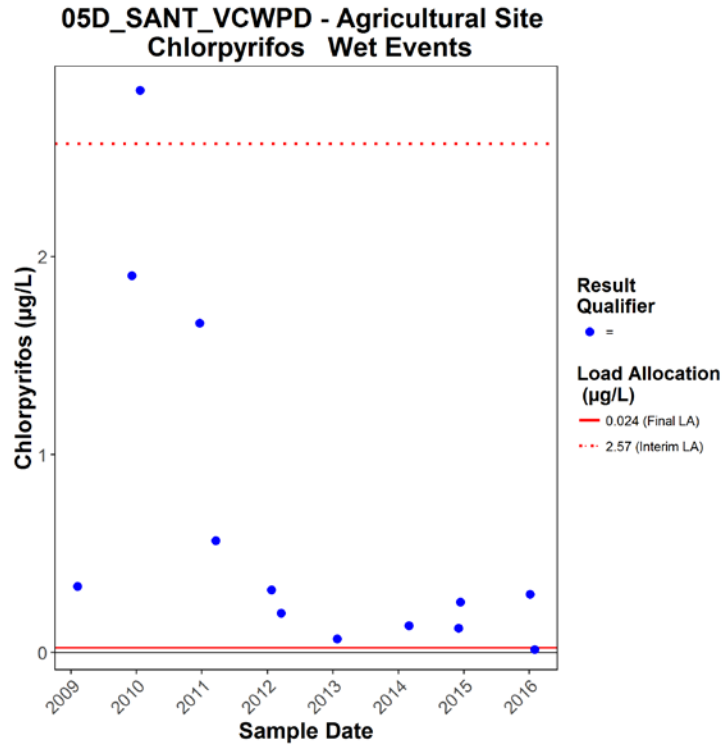
Figure 134. Wet Weather Nitrate-N + Nitrite-N Concentrations at TMDL LA Site 05\_CENTR



**Figure 135. Wet Weather Nitrate-N + Nitrite-N Concentrations at TMDL Ag Land Use Site 05D\_SANT\_VCWPD**



**Figure 136. Wet Weather Chlorpyrifos Concentrations at TMDL LA Site 04\_WOOD**



**Figure 137. Wet Weather Chlorpyrifos Concentrations at TMDL Ag Land Use Site 05D\_SANT\_VCWPD**

**Table 58. Summary of Benchmark Exceedance Evaluation for Beardsley Wash Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather				Wet Weather			
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs
<b>Salts</b>								
Boron		● <sup>1</sup>	● <sup>2</sup>	● <sup>3</sup>				
<b>Nutrients</b>								
Nitrate-N		● <sup>4</sup>	● <sup>2</sup>	☑	● <sup>4</sup>	● <sup>2</sup>	☑	☑
Nitrate-N + Nitrite-N		● <sup>4</sup>	● <sup>2</sup>	☑	● <sup>4</sup>	● <sup>2</sup>	☑	☑
<b>Metals and Selenium</b>								
Dissolved Copper								
Total Selenium		● <sup>1</sup>	● <sup>2</sup>	☑				
<b>OC Pesticides (Legacy)</b>								
DDD					●			☑
DDE		● <sup>5,6</sup>		☑	●	● <sup>5,6</sup>		☑
DDT		● <sup>5,6</sup>		☑	●	● <sup>5,6</sup>		☑
Chlordane					●			☑
Toxaphene		● <sup>5,6</sup>		☑		● <sup>5,6</sup>		
<b>OP and Pyrethroid Pesticides (Current)</b>								
Chlorpyrifos					●	● <sup>1</sup>	● <sup>2,6</sup>	☑
Bifenthrin					●			☑

1. CCW Salts, Metals, and Toxicity TMDLs receiving water site is 04\_WOOD.
2. TMDLs agricultural land use site is 05D\_SANT\_VCWPD.
3. Agricultural land use data is below the LA so additional management practices in agriculture aren't necessary at this time.
4. Nitrogen TMDL receiving water site is 05\_CENTR.
5. CCW OC Pesticides TMDL receiving water site is 04\_WOOD. TMDL compliance is measured in sediment in receiving water and this location is downstream of where the entire responsibility area discharges. Though sediment is collected during dry weather, the results are applied to both wet and dry weather to ensure management practices minimize sediment transport year-round.
6. Does not exceed interim load allocation but exceeds final load allocation that will need to be achieved by the timeline provided in the Waiver.



**Table 59. BMPs for Additional Implementation in the Beardsley Wash Responsibility Area**

Exceedance Condition						Survey Question #	BMP	% of Total Applicable Surveyed Units		
Nutrients		Metals <sup>[b]</sup>	Legacy Pesticides		Current Pesticides			05T_HONDO Site Drainage Only	Beardsley Wash Responsibility Area Minus 05T_HONDO Site Drainage	Additional Implementation Needed?
Dry	Wet	Dry	Dry	Wet	Wet					
x	x	x	x	x	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	95%	54%	Yes
x	x	x	x	x		Irrigation system type	Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	100%	85%	Yes
x	x	x	x	x		1	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	94%	79%	Yes
x	x	x				2	Irrigation practices are based on soil moisture measurements and/or crop evapotranspiration	92%	77%	Yes
x	x					3	Soil solution electrical conductivity measurements are used to determine when salt leaching is necessary	3%	42%	Yes
x	x					4	Certified nutrient management plan has been prepared for the property	83%	54%	Yes
x	x					5	Soil residual nitrate tests are conducted and used to adjust fertilizer applications	87%	67%	Yes
x	x					6	Leaf/petiole tests are conducted and used to apply the minimum necessary amount of fertilizer	95%	97%	Yes
x	x					7	Irrigation water nitrate is analyzed and the results are used to adjust fertilizer applications.	93%	56%	Yes
x	x					8	Fertilizer applications are adjusted to account for nutrients provided by cover crops	29%	84%	Yes
x	x	x	x	x	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	141%	105%	No
	x		x	x	x	11	How much non-cropped area is bare soil	19%	6%	Yes
x	x	x	x	x	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	69%	19%	Yes
x	x	x	x	x	x	13	Grassed waterways are used	6%	12%	Yes
x	x	x	x	x	x	14	Vegetated filter strips are used	7%	3%	Yes
					x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	99%	100%	No
					x	16	An integrated pest management plan is implemented	99%	99%	No
x	x	x	x	x		18	How many acres produce irrigation runoff	0%	3%	No
x	x	x	x	x	x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	11%	21%	Not at this time
					x	[a]	Pesticide management plan is used			Yes

[a] Waiver specified practice for exceedances of copper and current use pesticides.

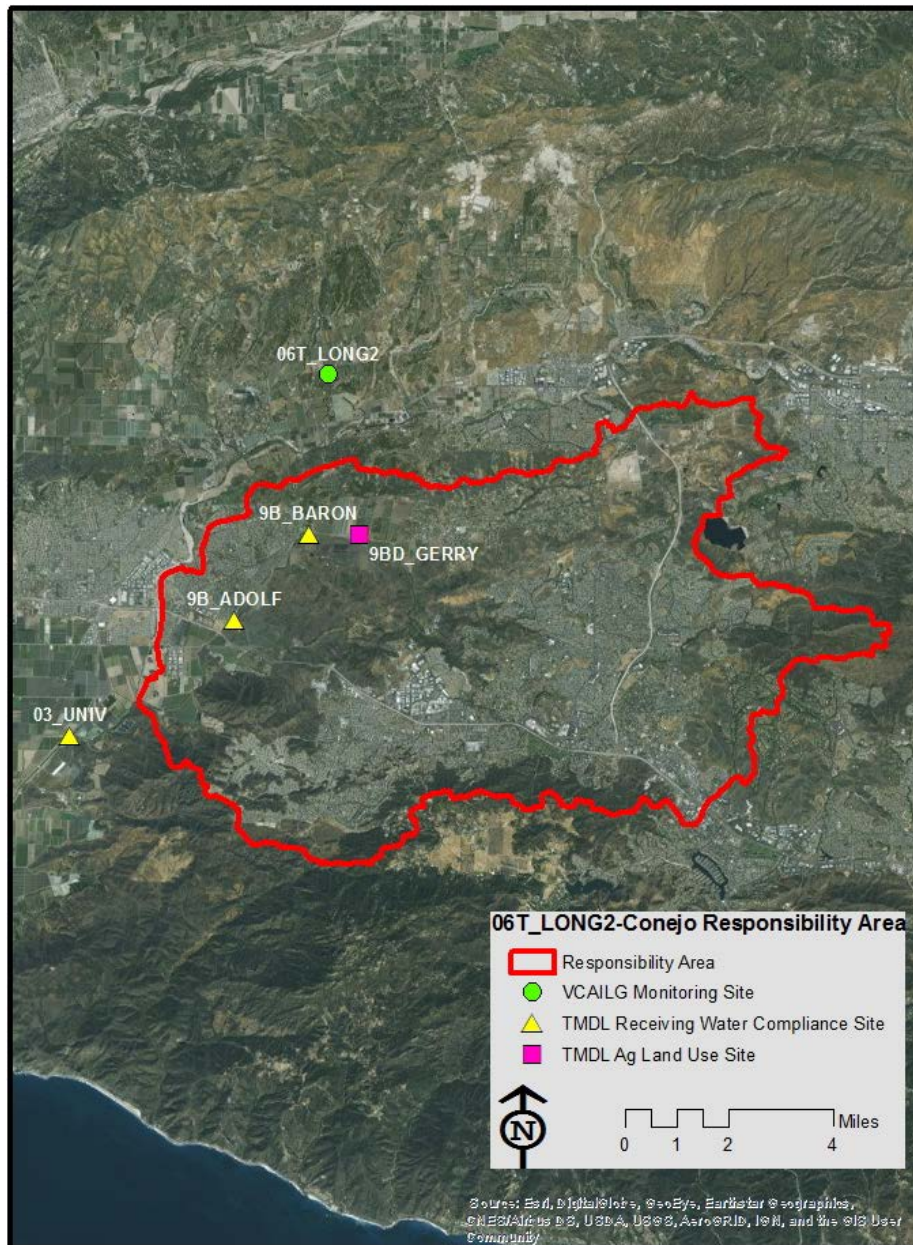
[b] Exceedances for selenium.

**Table 60. Proposed Best Management Practices for the Beardsley Wash Responsibility Area**

Water Quality Issues						BMPs
Nutrients		Metals	Legacy Pesticides		Current Use Pesticides	
Dry Weather	Wet Weather	Dry Weather	Dry Weather	Wet Weather	Wet Weather	
						<i>Source Control BMPs</i>
x	x	x	x	x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x		x	x			Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)
x		x	x			Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.
x		x				Implement irrigation practices that are based on soil moisture measurements and/or crop evapotranspiration
x						Use soil solution electrical conductivity measurements to determine when salt leaching is necessary
x	x					Prepare a certified nutrient management plan for the property
x	x					Conduct soil residual nitrate tests and use results to adjust fertilizer application
x	x					Conduct leaf/petiole tests and use results to apply the minimum necessary amount of fertilizer
x	x					Analyze irrigation water nitrate and use results to adjust fertilizer application
x	x					Adjust fertilizer application to account for nutrients provided by cover crops
x	x	x	x	x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
	x			x	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
					x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
					x	Implement an integrated pest management plan
x		x	x			Avoid/prevent irrigation runoff
					x	Use a pesticide management plan

Water Quality Issues						BMPs
Nutrients		Metals	Legacy Pesticides		Current Use Pesticides	
Dry Weather	Wet Weather	Dry Weather	Dry Weather	Wet Weather	Wet Weather	
						<i>Structural Non-Treatment BMPs</i>
x	x	x	x	x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	x	x	x	x	x	Use grassed waterways
x	x	x	x	x	x	Use vegetated filter strips

## Arroyo Conejo Responsibility Area



**Figure 138. Arroyo Conejo Responsibility Area Map**

The monitoring sites used to evaluate attainment of Conditional Waiver benchmarks and/or TMDL LAs for the Arroyo Conejo responsibility area are illustrated in Figure 138. The monitoring sites that serve to evaluate TMDL LA benchmark attainment for this responsibility area are as follows:

- 9B\_BARON is a CCW Salts TMDL Receiving Water Compliance Site
- 9B\_ADOLF is a CCW OC Pesticides and PCBs, Nitrogen, and Toxicity TMDL Receiving Water Compliance Site
- 03\_UNIV is a CCW Metals TMDL Receiving Water Compliance Site
- 9BD\_GERRY is a CCW Salts, Nitrogen, Toxicity, and Metals TMDL Ag Land Use Site

**Table 61. Arroyo Conejo Responsibility Area Enrollment and Survey Acreage Summary**

Enrollment and Survey Information	Responsibility Area [a]	Drainage Area 06T_LONG2 Monitoring Site [a]
<b>Assessed Acreage Information</b>		
Total Assessed Acres from Agricultural Parcel List	8,758	1,857
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [b]	44	12
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	5,745	1,264
Assessed Acres from Agricultural Parcel List belonging to Non Members	2,969	581
<b>Irrigated Acreage Information</b>		
VCAILG Member Acreage Reported as Irrigated	3,124	994
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.5	0.8
Estimated Irrigated Acres in Non Member Agricultural Parcels [c]	1,614	457
Total Estimated Irrigated Acres (Member plus Non Member)	4,738	1,451
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	66%	69%
<b>Survey Response Information</b>		
Sum Surveyed Irrigated Acres	1,968	393
Percent of Total Estimated Irrigated Acres that were Surveyed	42%	27%
Percent of VCAILG Member Irrigated Acres that were Surveyed	63%	40%

[a] Responsibility area does not include the beacon monitoring site drainage area.

[b] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[c] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 62. Arroyo Conejo Responsibility Area Crop Types and General Production Practices**

Crop or Practice	06T_LONG2 Site Drainage [a]		Responsibility Area [a]	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	0	0%	81	4%
Berry	15	4%	178	9%
Row Crop	0	0%	570	29%
Orchard	356	91%	1,071	54%
Nursery	0	0%	55	3%
Flower	0	0%	5	0.3%
Sod	0	0%	0	0%
Other	22	6%	8	0.4%
<b>Overhead Cover in Production Areas</b>				
Hoop House	74	19%	0	0%
No Cover	653	166%	289	15%
Greenhouse	0	0%	0	0%
Shade	0	0%	1	0.1%
Other	0	0%	0	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	105	27%	1,674	85%
Cover Crop	54	14%	64	3%
Plastic	0	0%	0	0%
Weed Cloth	0	0%	17	0.9%
Mulch	202	51%	185	9%
Gravel	0	0%	1	0%
Other	31	8%	40	2%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	50	13%	822	42%
Microsprinkler/Drip	0	0%	0	0%
Microsprinkler	321	82%	857	44%
Overhead Sprinkler	0	0%	54	3%
Overhead/Drip	0	0%	153	8%
Furrow Flood	0	0%	40	2%
Hand Watering	0	0%	15	0.8%
Other	22	6%	29	1%

[a] Responsibility area does not include the beacon monitoring site drainage area.

**Table 63. Arroyo Conejo Responsibility Area Grower BMPs**

Survey Question	Units	06T_LONG2 Site Drainage [a]		06T_LONG2-Conejo Responsibility Area [a]	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	282	74%	1,593	87%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	312	79%	1,265	64%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	177	46%	280	15%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	182	46%	1,146	58%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	132	34%	485	25%
Q5a: Are soil residual nitrate tests done?	Acres	225	57%	1,013	51%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	225	57%	1,011	51%
Q6: Are leaf/petiole tests conducted?	Acres	310	79%	1,499	77%
Q7a: Is nitrate measured in fertigation water?	Acres	135	34%	1,017	52%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	107	27%	1,016	52%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	171	60%	734	83%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	161	41%	566	29%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	118	73%	305	54%
Q11: How much non-cropped area is bare soil?	Acres	37	9%	730	37%
Q12a: How many feet of ditch exist?	Feet	10,375	N/A	322,764	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	7,800	75%	55,146	17%
Q13a: Are grassed waterways present?	Acres	0	0%	165	8%
Q13b: How many acres drain to grassed waterways?	Acres	0	0%	19	1%
Q14: How many acres are treated by vegetated filter strips?	Acres	0	0%	51	3%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	390	99%	1,932	98%
Q16: Is an IPM Plan being implemented?	Acres	295	75%	1,915	97%
Q17a: How many acres are organically farmed?	Acres	171	44%	64	3%
Q17b: How many acres are conventionally farmed?	Acres	222	56%	1,904	97%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	42	11%	363	18%
Q19: Runoff from how many acres is treated or detained?	Acres	109	28%	157	8%

[a] Responsibility area does not include the beacon monitoring site drainage area.

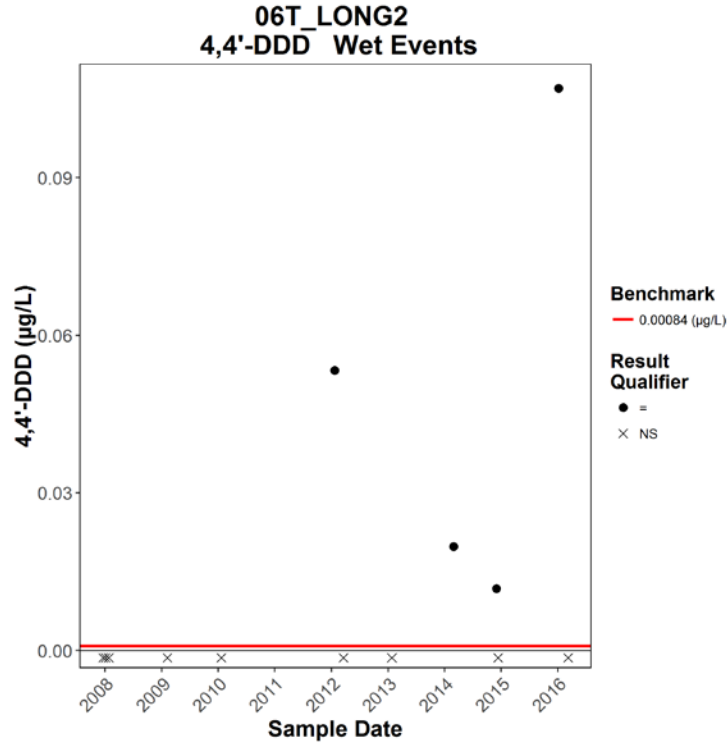


Figure 139. Wet Weather DDD Concentrations at Waiver Benchmark Site 06T\_LONG2

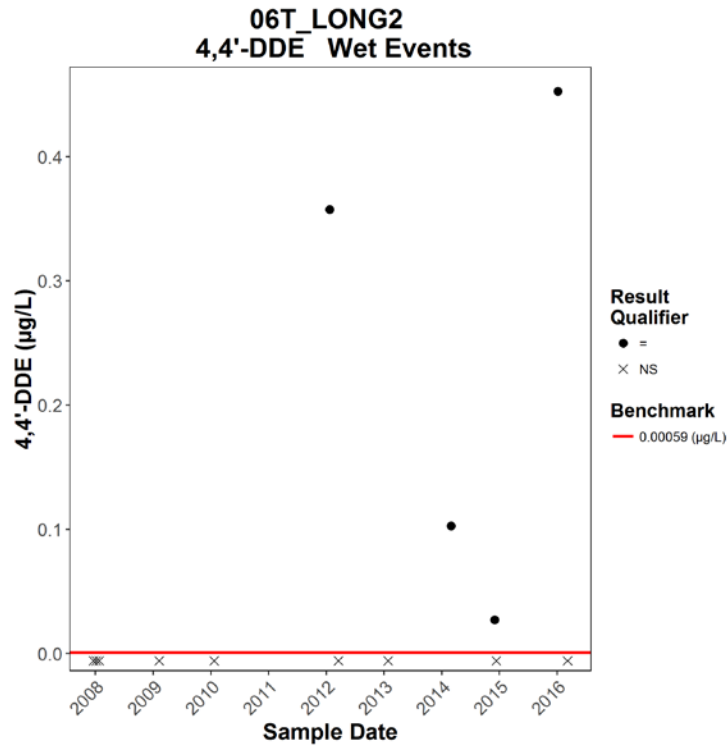


Figure 140. Wet Weather DDE Concentrations at Waiver Benchmark Site 06T\_LONG2



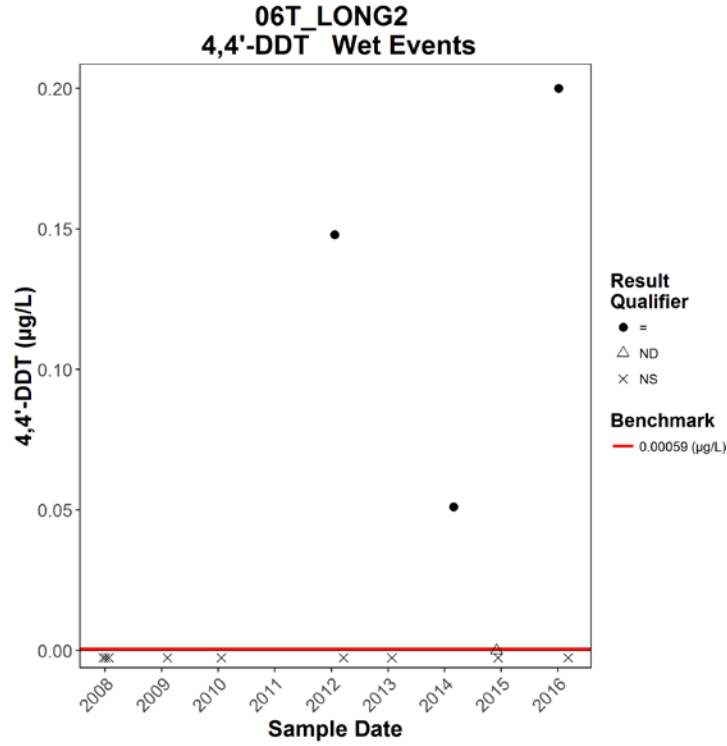


Figure 141. Wet Weather DDT Concentrations at Waiver Benchmark Site 06T\_LONG2

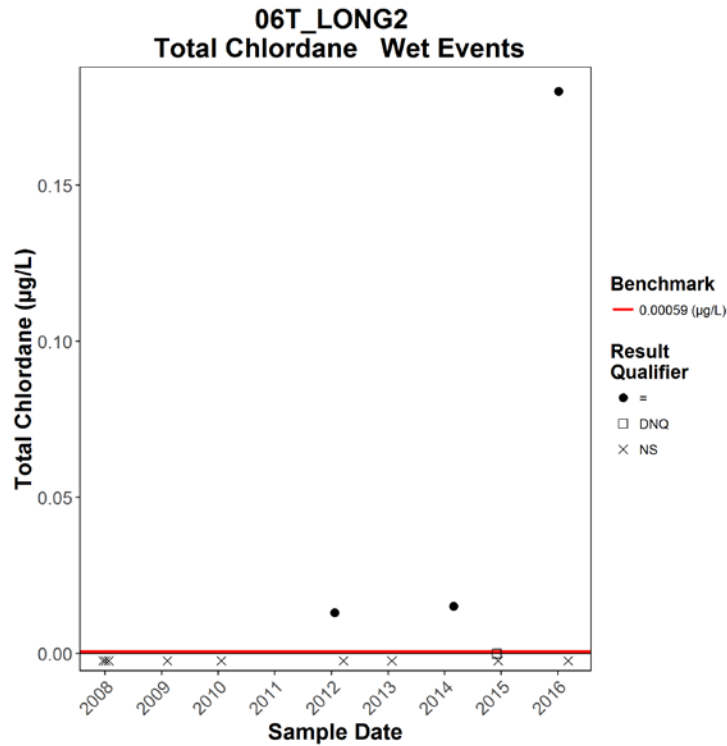


Figure 142. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 06T\_LONG2

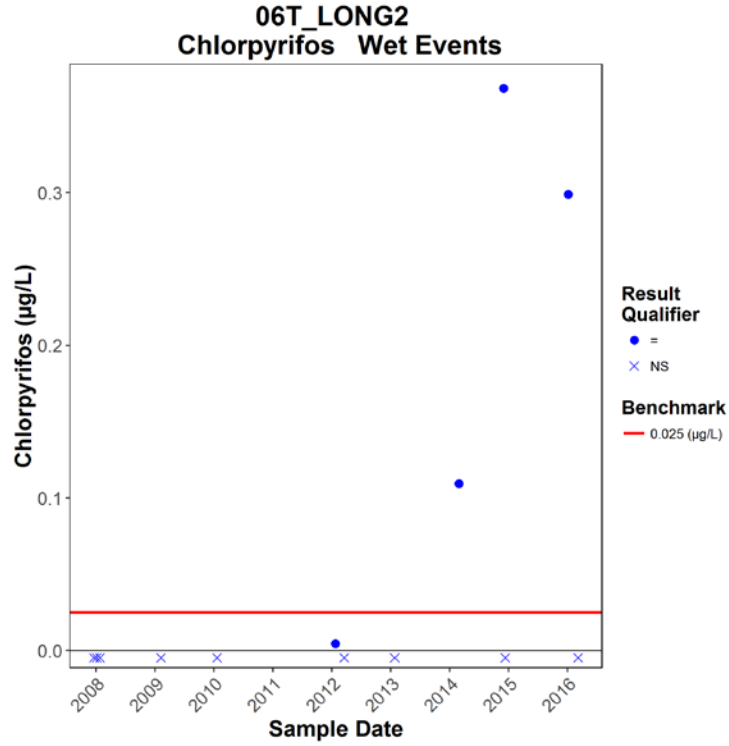


Figure 143. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 06T\_LONG2

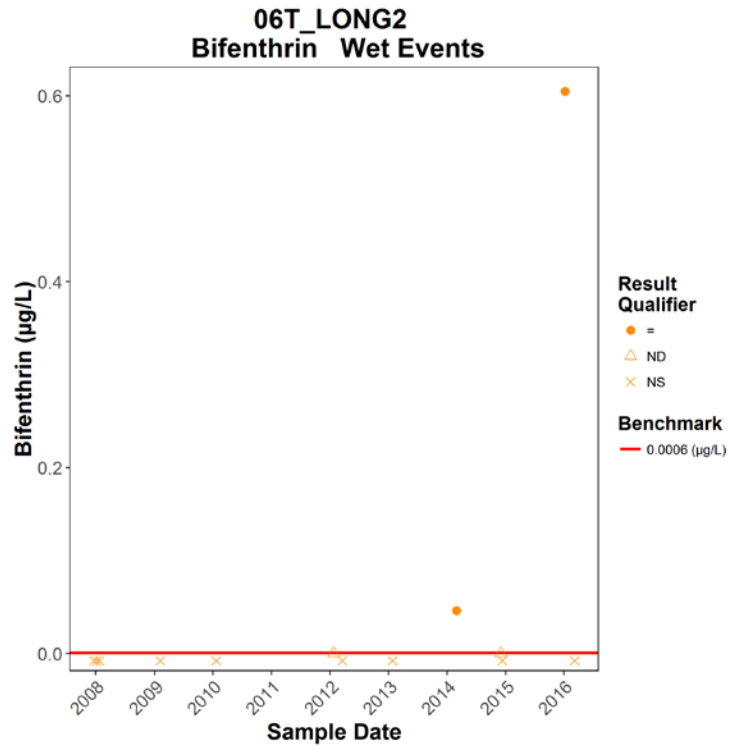


Figure 144. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 06T\_LONG2

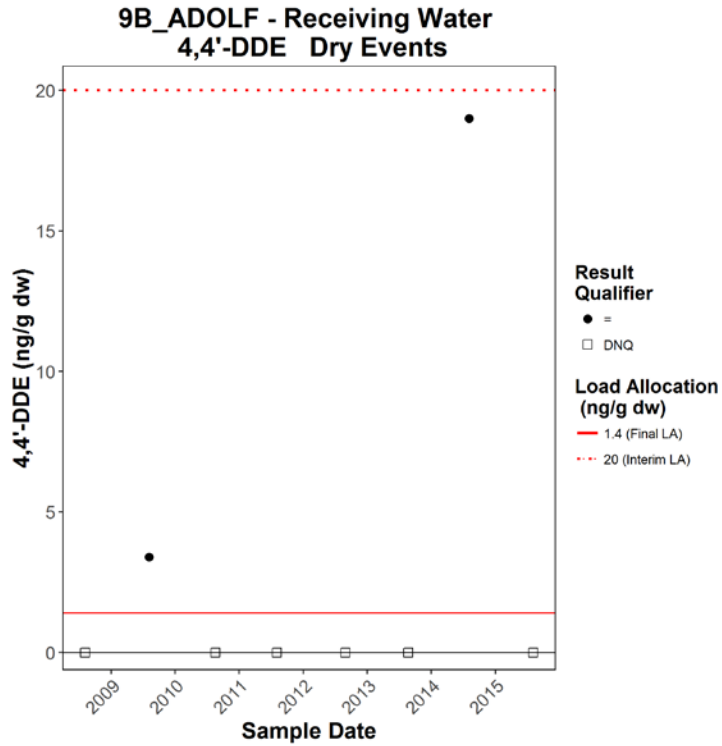


Figure 145. Dry Weather DDE Concentrations at TMDL LA Site 9B\_ADOLF

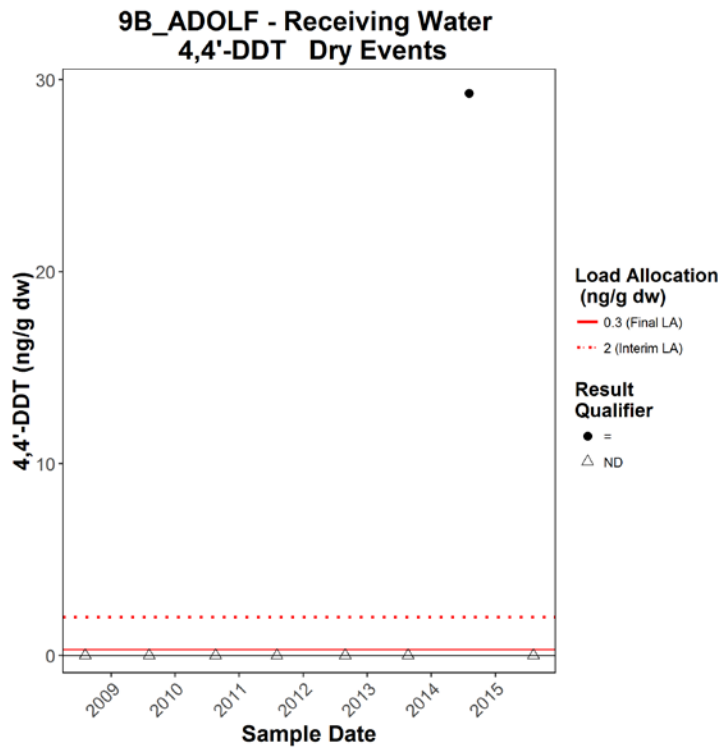


Figure 146. Dry Weather DDT Concentrations at TMDL LA Site 9B\_ADOLF

**Table 64. Summary of Benchmark Exceedance Evaluation for Arroyo Conejo Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather				Wet Weather			
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs
<b>OC Pesticides (Legacy)</b>								
DDD					•			<input checked="" type="checkbox"/>
DDE		• 1,2		<input checked="" type="checkbox"/>	•	• 1,2		<input checked="" type="checkbox"/>
DDT		• 1		<input checked="" type="checkbox"/>	•	• 1		<input checked="" type="checkbox"/>
Chlordane					•			<input checked="" type="checkbox"/>
<b>OP and Pyrethroid Pesticides (Current)</b>								
Chlorpyrifos					•			<input checked="" type="checkbox"/>
Bifenthrin					•			<input checked="" type="checkbox"/>

1. CCW OC Pesticides TMDL receiving water site is 9B\_ADOLF. TMDL compliance is measured in sediment in receiving. Though sediment is collected during dry weather, the results are applied to both wet and dry weather to ensure management practices minimize sediment transport year-round.
2. Does not exceed interim load allocation but exceeds final load allocation that will need to be achieved by the timeline provided in the Waiver.

**Table 65. BMPs for Additional Implementation in the Arroyo Conejo Responsibility Area**

Exceedance Condition			Survey Question #	BMP	% of Total Applicable Surveyed Units		Additional Implementation Needed? [b]
Legacy Pesticides	Current Pesticides				06T_LONG2 Site Drainage [a]	Arroyo Conejo Responsibility Area [a]	
Dry	Wet	Wet					
x	x	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	73%	15%	Yes
x	x		Irrigation system type	Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	95%	86%	Yes
x	x		1	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	74%	87%	Yes
x	x	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	73%	54%	Yes
x	x	x	11	How much non-cropped area is bare soil	9%	37%	Yes
x	x	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	75%	17%	Yes
x	x	x	13	Grassed waterways are used	0%	8%	Yes
x	x	x	14	Vegetated filter strips are used	0%	3%	Yes
		x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	99%	98%	No
		x	16	An integrated pest management plan is implemented	75%	97%	Yes
x	x		18	How many acres produce irrigation runoff	11%	18%	Yes
x	x	x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	28%	8%	Not at this time
		x	[c]	Pesticide management plan is used			Yes

[a] Responsibility area does not include the beacon monitoring site drainage area.

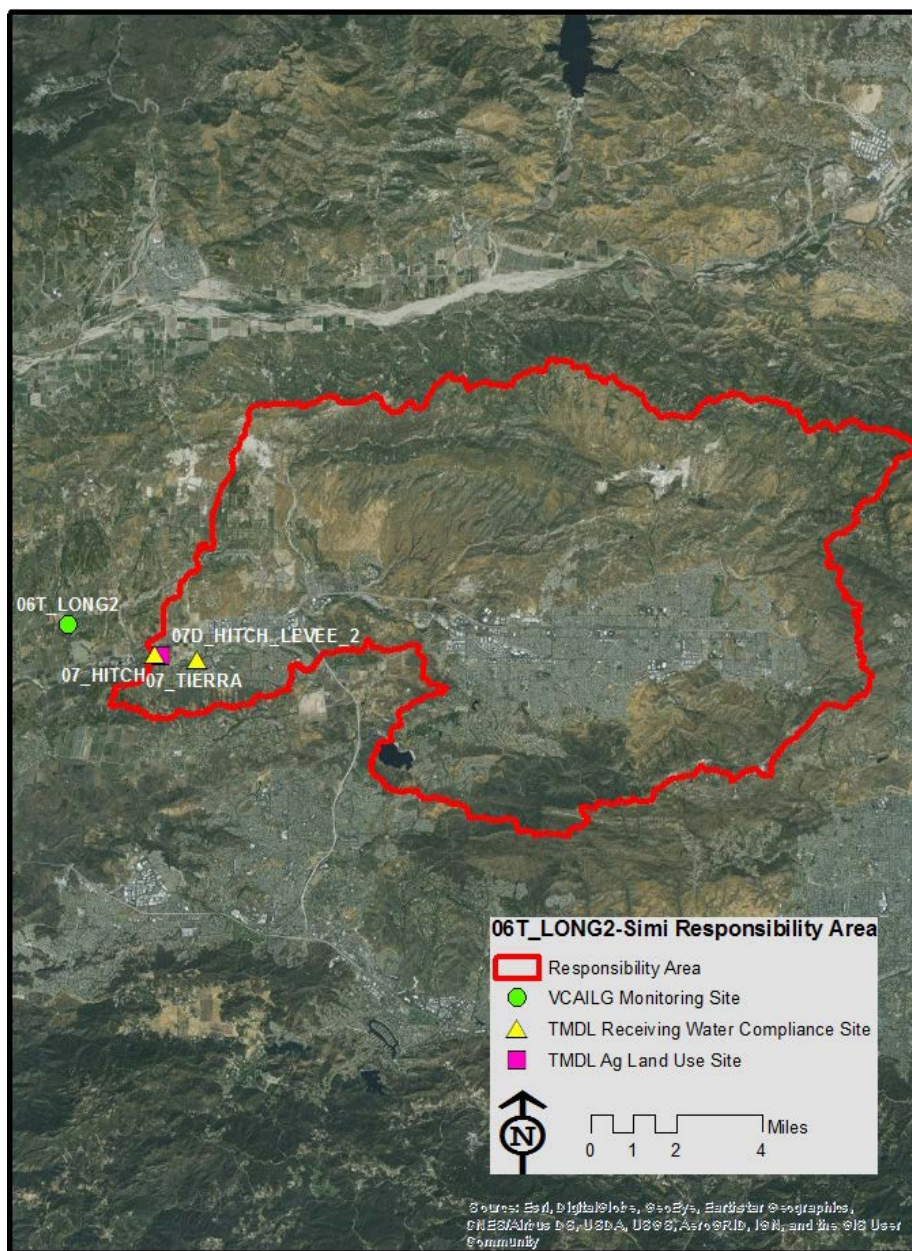
[b] Only BMP implementation in the responsibility area is considered because the beacon site drainage is not included in the responsibility area

[c] Waiver specified practice for exceedances of copper and current use pesticides.

**Table 66. Proposed Best Management Practices for the Arroyo Conejo Responsibility Area**

Water Quality Issues			BMPs
Legacy Pesticides		Current Use Pesticides	
Dry Weather	Wet Weather	Wet Weather	
<i>Source Control BMPs</i>			
x	x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x			Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)
x			Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.
x	x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
	x	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
		x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
		x	Implement an integrated pest management plan
x			Avoid/prevent irrigation runoff
		x	Use a pesticide management plan
<i>Structural Non-Treatment BMPs</i>			
x	x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	x	x	Use grassed waterways
x	x	x	Use vegetated filter strips

## Arroyo Simi Responsibility Area



**Figure 147. Arroyo Simi Responsibility Area Map**

The monitoring sites used to evaluate attainment of Conditional Waiver benchmarks and/or TMDL LAs for the Arroyo Simi responsibility area are illustrated in Figure 147. The monitoring sites that serve to evaluate TMDL LA benchmark attainment for this responsibility area are as follows:

- 07\_TIERRA is a CCW Salts TMDL Receiving Water Compliance Site
- 07\_HITCH is a CCW OC Pesticides and PCBs, Nitrogen, and Toxicity TMDL Receiving Water Compliance Site
- 07D\_HITCH\_LEVEE\_2 is a CCW Salts, Nitrogen, and Toxicity TMDL Ag Land Use Site

**Table 67. Arroyo Simi Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Responsibility Area [a]</b>	<b>Drainage Area Monitoring Site 06T_LONG2 [a]</b>
<b>Assessed Acreage Information</b>		
Total Assessed Acres from Agricultural Parcel List	3,570	1,857
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [b]	362	12
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	2,467	1,264
Assessed Acres from Agricultural Parcel List belonging to Non Members	741	581
<b>Irrigated Acreage Information</b>		
VCAILG Member Acreage Reported as Irrigated	1,805	994
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.7	0.8
Estimated Irrigated Acres in Non Member Agricultural Parcels [c]	542	457
Total Estimated Irrigated Acres (Member plus Non Member)	2,347	1,451
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	77%	69%
<b>Survey Response Information</b>		
Sum Surveyed Irrigated Acres	992	393
Percent of Total Estimated Irrigated Acres that were Surveyed	42%	27%
Percent of VCAILG Member Irrigated Acres that were Surveyed	55%	40%

[a] Responsibility area does not include the beacon monitoring site drainage area.

[b] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[c] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.



**Table 68. Arroyo Simi Responsibility Area Crop Types and General Production Practices**

Crop or Practice	06T_LONG2 Site Drainage [a]		Responsibility Area [a]	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	0	0%	0	0%
Berry	15	4%	0	0%
Row Crop	0	0%	0	0%
Orchard	356	91%	910	92%
Nursery	0	0%	54	5%
Flower	0	0%	0	0%
Sod	0	0%	0	0%
Other	22	6%	27	3%
<b>Overhead Cover in Production Areas</b>				
Hoop House	74	19%	16	2%
No Cover	653	166%	926	93%
Greenhouse	0	0%	0	0%
Shade	0	0%	0	0%
Other	0	0%	0	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	105	27%	226	23%
Cover Crop	54	14%	60	6%
Plastic	0	0%	28	3%
Weed Cloth	0	0%	1	0.1%
Mulch	202	51%	789	80%
Gravel	0	0%	0	0%
Other	31	8%	1	0.1%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	50	13%	58	6%
Microsprinkler/Drip	0	0%	0	0%
Microsprinkler	321	82%	933	94%
Overhead Sprinkler	0	0%	109	11%
Overhead/Drip	0	0%	0	0%
Furrow Flood	0	0%	0	0%
Hand Watering	0	0%	1	0.1%
Other	22	6%	0	0%

[a] Responsibility area does not include the beacon monitoring site drainage area.

**Table 69. Arroyo Simi Responsibility Area Grower BMPs**

Survey Question	Units	06T_LONG2 Site Drainage [a]		06T_LONG2-Simi Responsibility Area [a]	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	282	74%	909	92%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	312	79%	772	78%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	177	46%	133	14%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	182	46%	751	76%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	132	34%	153	15%
Q5a: Are soil residual nitrate tests done?	Acres	225	57%	768	77%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	225	57%	768	77%
Q6: Are leaf/petiole tests conducted?	Acres	310	79%	809	82%
Q7a: Is nitrate measured in fertigation water?	Acres	135	34%	753	76%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	107	27%	740	75%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	171	60%	40	6%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	161	41%	773	78%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	118	73%	763	99%
Q11: How much non-cropped area is bare soil?	Acres	37	9%	287	29%
Q12a: How many feet of ditch exist?	Feet	10,375	N/A	164,567	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	7,800	75%	157,427	96%
Q13a: Are grassed waterways present?	Acres	0	0%	6	0.6%
Q13b: How many acres drain to grassed waterways?	Acres	0	0%	1	0.1%
Q14: How many acres are treated by vegetated filter strips?	Acres	0	0%	2	0.2%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	390	99%	960	97%
Q16: Is an IPM Plan being implemented?	Acres	295	75%	961	97%
Q17a: How many acres are organically farmed?	Acres	171	44%	27	3%
Q17b: How many acres are conventionally farmed?	Acres	222	56%	965	97%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	42	11%	45	5%
Q19: Runoff from how many acres is treated or detained?	Acres	109	28%	59	6%

[a] Responsibility area does not include the beacon monitoring site drainage area.

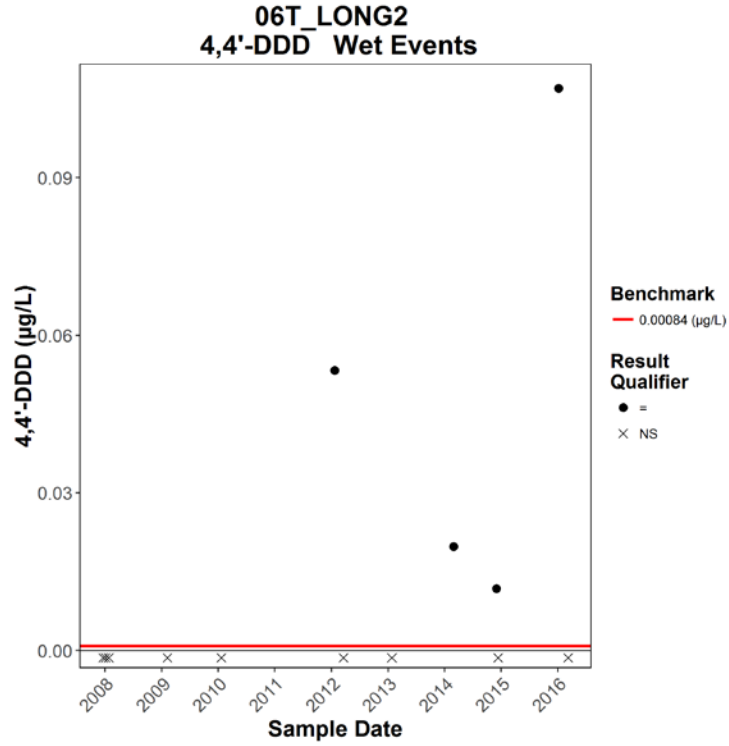


Figure 148. Wet Weather DDD Concentrations at Waiver Benchmark Site 06T\_LONG2

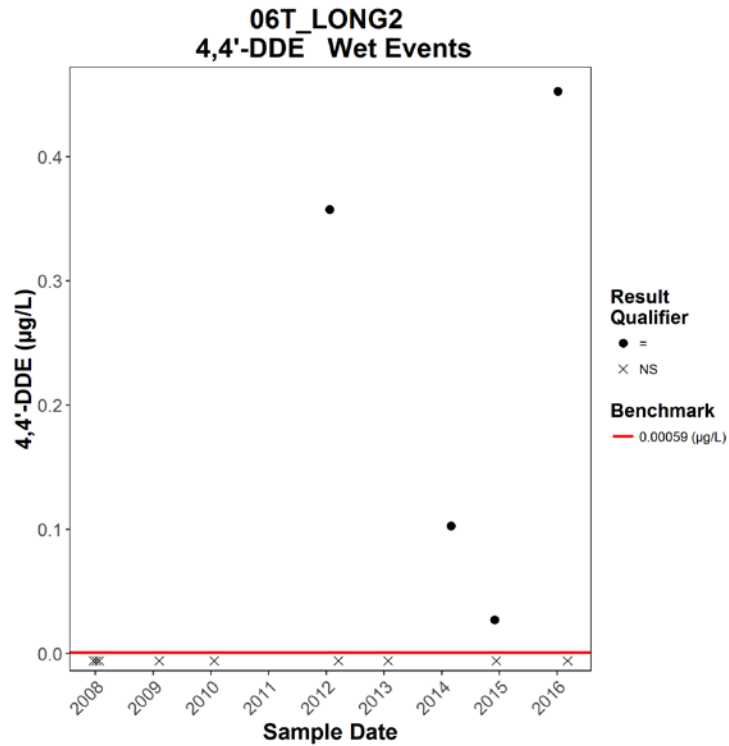


Figure 149. Wet Weather DDE Concentrations at Waiver Benchmark Site 06T\_LONG2

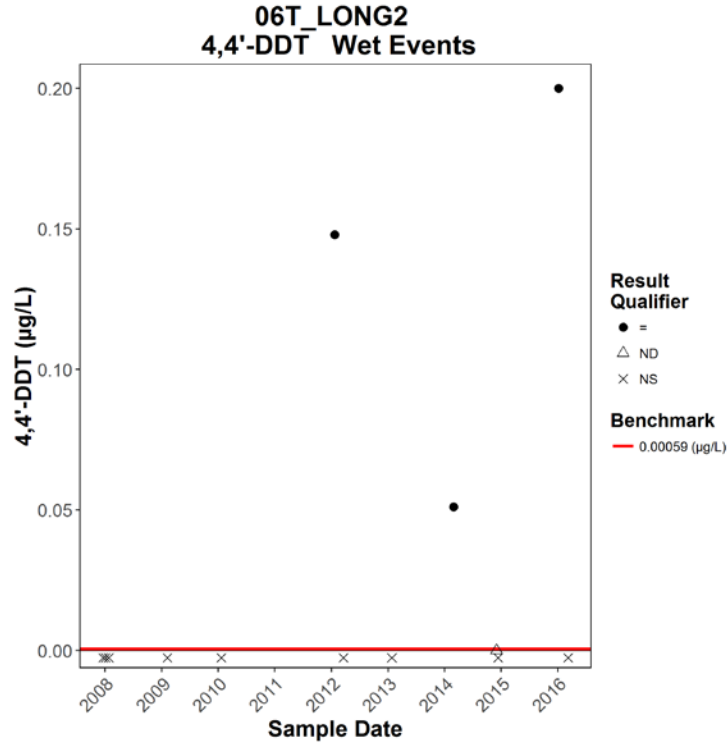


Figure 150. Wet Weather DDT Concentrations at Waiver Benchmark Site 06T\_LONG2

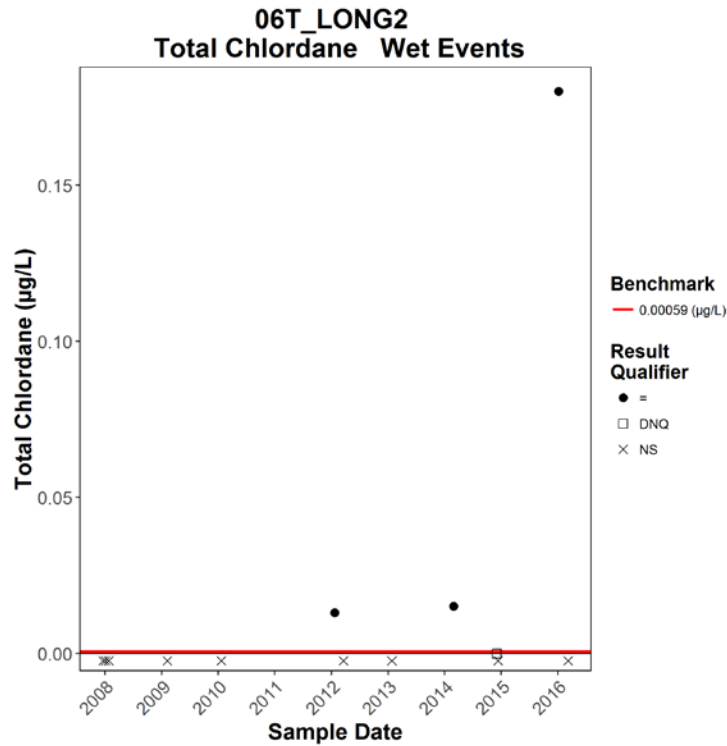


Figure 151. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 06T\_LONG2

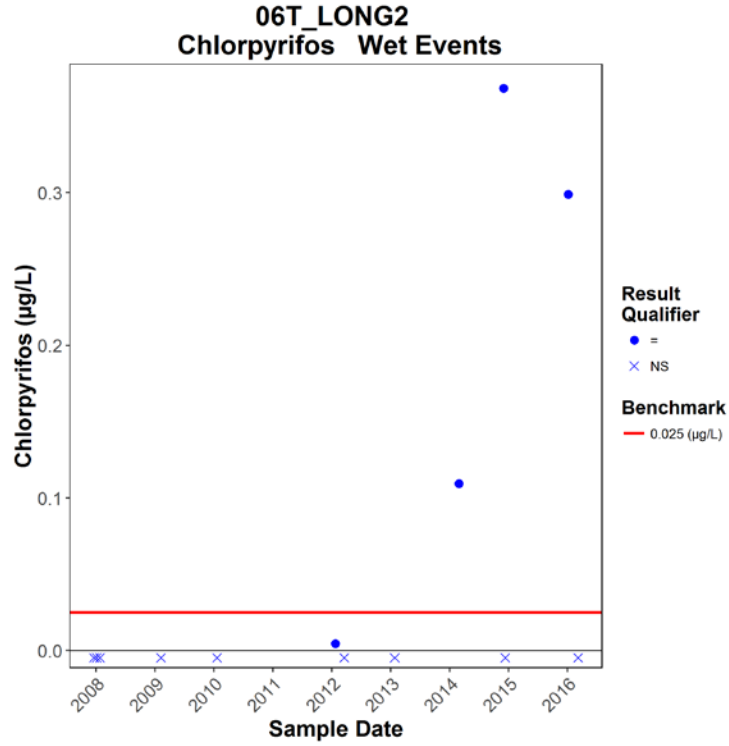


Figure 152. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 06T\_LONG2

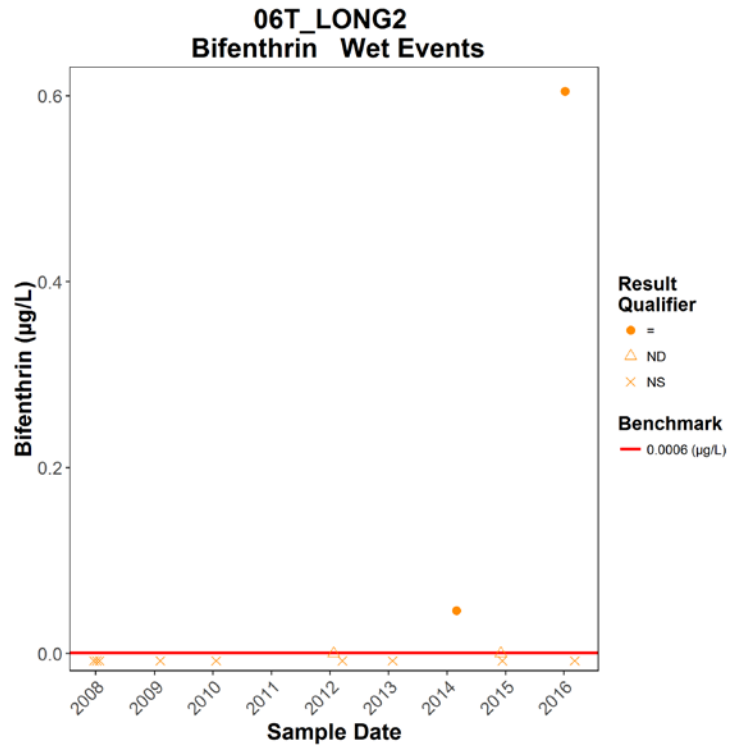


Figure 153. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 06T\_LONG2

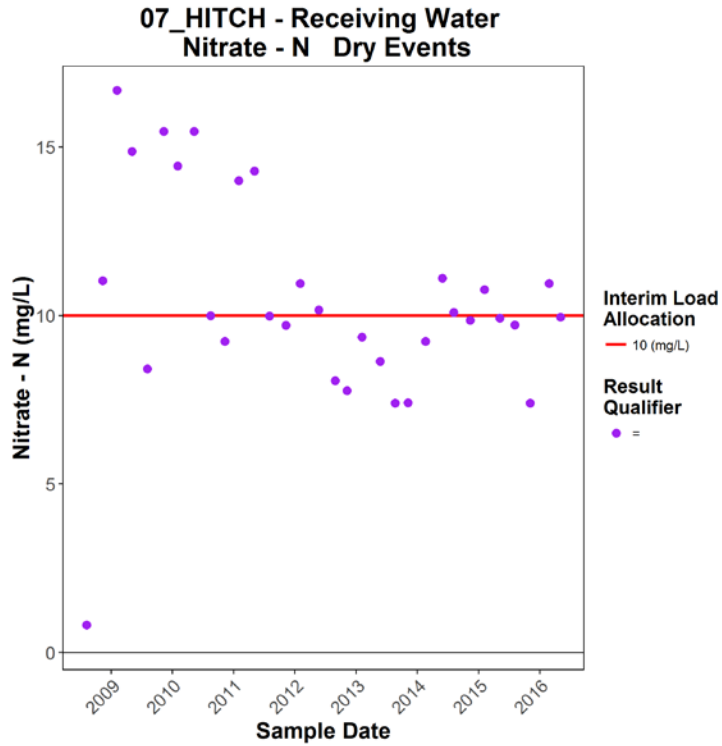


Figure 154. Dry Weather Nitrate-N Concentrations at TMDL LA Site 07\_HITCH

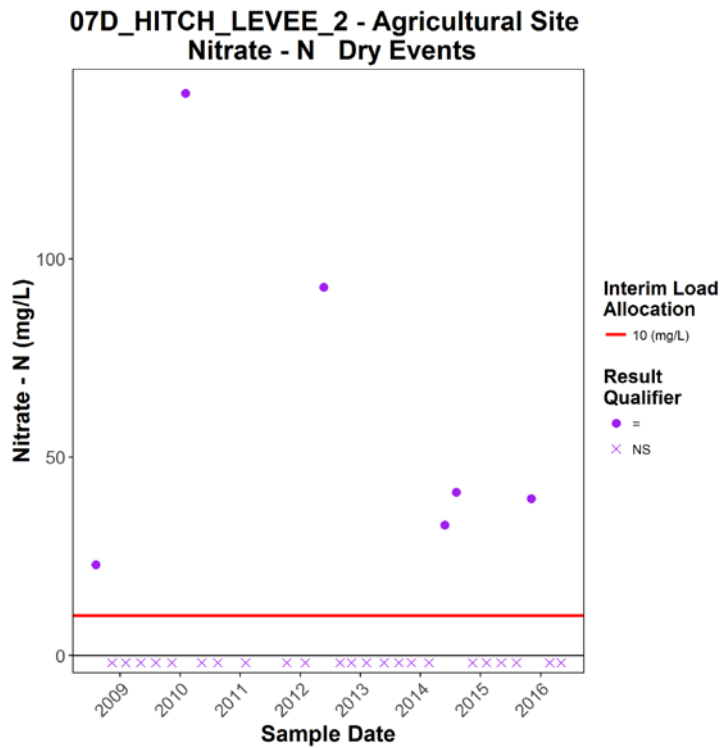


Figure 155. Dry Weather Nitrate-N Concentrations at TMDL Ag Land Use Site 07D\_HITCH\_LEVEE\_2

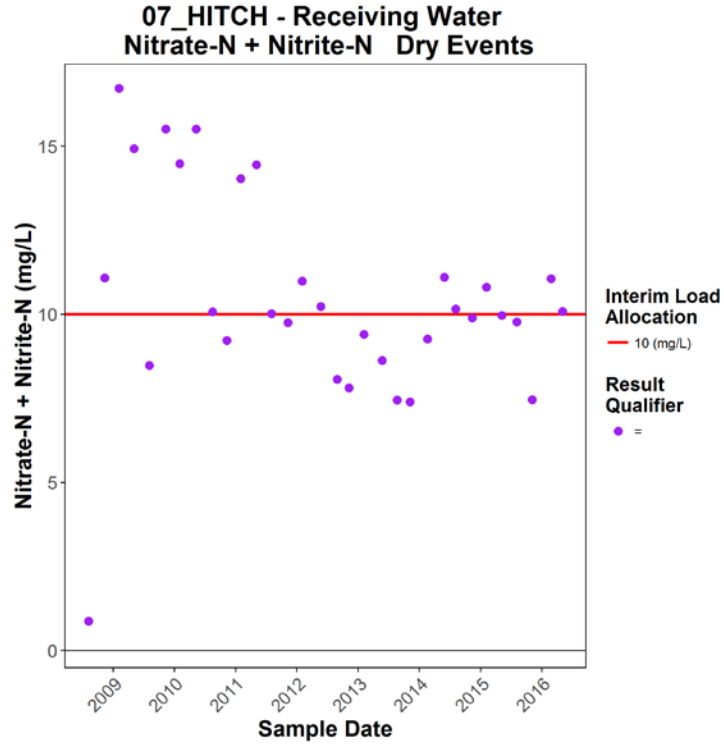


Figure 156. Dry Weather Nitrate-N +Nitrite-N Concentrations at TMDL LA Site 07\_HITCH

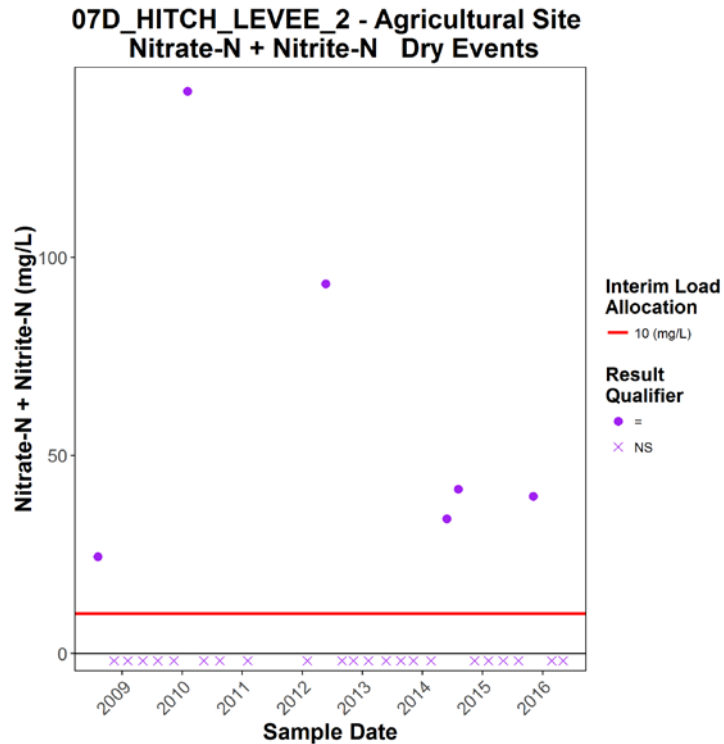


Figure 157. Dry Weather Nitrate-N +Nitrite-N Concentrations at TMDL Ag Land Use Site 07D\_HITCH\_LEVEE\_2

**Table 70. Summary of Benchmark Exceedance Evaluation for Arroyo Simi Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather				Wet Weather			
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs
<b>Nutrients</b>								
Nitrate-N		• <sup>1</sup>	• <sup>2</sup>	<input checked="" type="checkbox"/>				
Nitrate-N + Nitrite-N		• <sup>1</sup>	• <sup>2</sup>	<input checked="" type="checkbox"/>				
<b>OC Pesticides (Legacy)</b>								
DDD					•			<input checked="" type="checkbox"/>
DDE					•			<input checked="" type="checkbox"/>
DDT					•			<input checked="" type="checkbox"/>
Chlordane					•			<input checked="" type="checkbox"/>
<b>OP and Pyrethroid Pesticides (Current)</b>								
Chlorpyrifos					•			<input checked="" type="checkbox"/>
Bifenthrin					•			<input checked="" type="checkbox"/>

1. CCW Nitrogen TMDL and Toxicity TMDL receiving water site is 07\_HITCH.
2. Agricultural land use site for the Nitrogen TMDL is 07D\_HITCH\_LEVEE\_2.



**Table 71. BMPs for Additional Implementation in the Arroyo Simi Responsibility Area**

Exceedance Condition			Survey Question #	BMP	% of Total Applicable Surveyed Units		Additional Implementation Needed? [b]
Nutrients	Legacy Pesticides	Current Pesticides			06T_LONG2 Site Drainage [a]	Arroyo Simi Responsibility Area [a]	
Dry	Wet	Wet					
x	x	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	73%	89%	Yes
x			Irrigation system type	Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	95%	100%	Yes
x			1	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	74%	92%	Yes
x			2	Irrigation practices are based on soil moisture measurements and/or crop evapotranspiration	79%	78%	Yes
x			3	Soil solution electrical conductivity measurements are used to determine when salt leaching is necessary	46%	14%	Yes
x			4	Certified nutrient management plan has been prepared for the property	34%	15%	Yes
x			5	Soil residual nitrate tests are conducted and used to adjust fertilizer applications	57%	77%	Yes
x			6	Leaf/petiole tests are conducted and used to apply the minimum necessary amount of fertilizer	79%	82%	Yes
x			7	Irrigation water nitrate is analyzed and the results are used to adjust fertilizer applications.	27%	75%	Yes
x			8	Fertilizer applications are adjusted to account for nutrients provided by cover crops	60%	6%	Yes
x	x	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	73%	99%	Yes
	x	x	11	How much non-cropped area is bare soil	9%	29%	Yes
x	x	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	75%	96%	Yes
x	x	x	13	Grassed waterways are used	0%	0.6%	Yes
x	x	x	14	Vegetated filter strips are used	0%	0.2%	Yes
		x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	99%	97%	No
		x	16	An integrated pest management plan is implemented	75%	97%	Yes
x			18	How many acres produce irrigation runoff	11%	5%	Yes
x	x	x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	28%	6%	Not at this time
		x	[c]	Pesticide management plan is used			Yes

[a] Responsibility area does not include the beacon monitoring site drainage area.

[b] Only BMP implementation in the responsibility area is considered because the beacon site drainage is not included in the responsibility area.

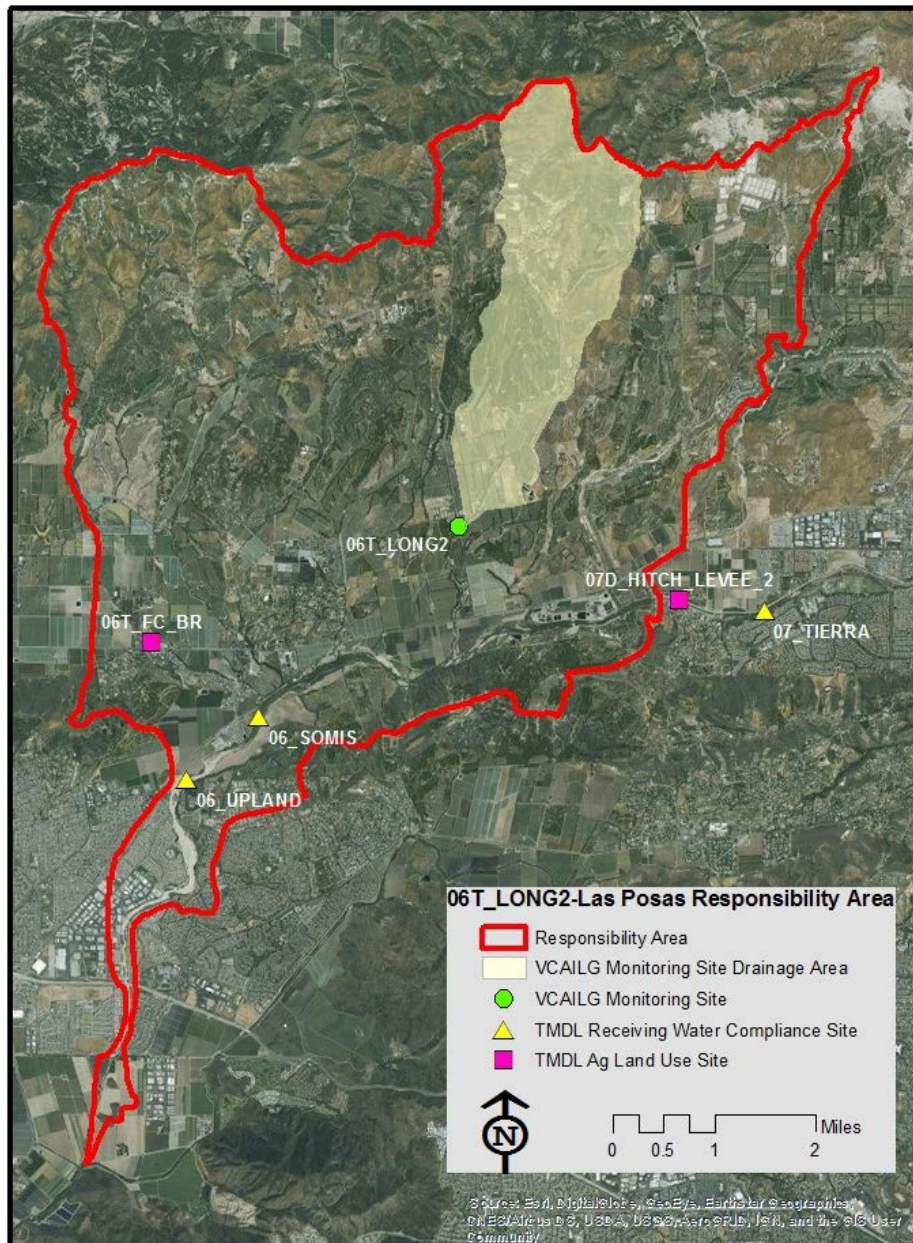
[c] Waiver specified practice for exceedances of copper and current use pesticides.

**Table 72. Proposed Best Management Practices for the Arroyo Simi Responsibility Area**

<b>Water Quality Issues</b>			
<b>Nutrients</b>	<b>Legacy Pesticides</b>	<b>Current Use Pesticides</b>	
<b>Dry Weather</b>	<b>Wet Weather</b>	<b>Wet Weather</b>	<b>BMPs</b>
<i>Source Control BMPs</i>			
x	x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x			Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)
x			Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.
x			Implement irrigation practices that are based on soil moisture measurements and/or crop evapotranspiration
x			Use soil solution electrical conductivity measurements to determine when salt leaching is necessary
x			Prepare a certified nutrient management plan for the property
x			Conduct soil residual nitrate tests and use results to adjust fertilizer application
x			Conduct leaf/petiole tests and use results to apply the minimum necessary amount of fertilizer
x			Analyze irrigation water nitrate and use results to adjust fertilizer application
x			Adjust fertilizer application to account for nutrients provided by cover crops
x	x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
	x	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
		x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
		x	Implement an integrated pest management plan
x			Avoid/prevent irrigation runoff
		x	Use a pesticide management plan
<i>Structural Non-Treatment BMPs</i>			
x	x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	x	x	Use grassed waterways

Water Quality Issues			
Nutrients	Legacy Pesticides	Current Use Pesticides	
Dry Weather	Wet Weather	Wet Weather	BMPs
x	x	x	Use vegetated filter strips

## Las Posas Responsibility Area



**Figure 158. Las Posas Responsibility Area Map**

The monitoring sites used to evaluate attainment of Conditional Waiver benchmarks and/or TMDL LAs for the Las Posas responsibility area are illustrated in Figure 158. The monitoring sites that serve to evaluate TMDL LA benchmark attainment for this responsibility area are as follows:

- 07\_TIERRA is a CCW Salts TMDL Receiving Water Compliance Site
- 06\_SOMIS and 06\_UPLAND are CCW OC Pesticides and PCBs, Nitrogen, and Toxicity TMDL Receiving Water Compliance Sites
- 07D\_HITCH\_LEVEE\_2 is a CCW Salts TMDL Ag Land Use Site
- 06T\_FC\_BR is a CCW Nitrogen and Toxicity TMDL Ag Land Use Site

**Table 73. Las Posas Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Entire Responsibility Area</b>	<b>Drainage Area Monitoring Site 06T_LONG2</b>	<b>Responsibility Area Minus Nested 06T_LONG2 Site Drainage</b>
<b>Assessed Acreage Information</b>			
Total Assessed Acres from Agricultural Parcel List	16,265	1,857	14,408
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	150	12	138
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	9,270	1,264	8,006
Assessed Acres from Agricultural Parcel List belonging to Non Members	6,845	581	6,264
<b>Irrigated Acreage Information</b>			
VCAILG Member Acreage Reported as Irrigated	6,864	994	5,870
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.7	0.8	0.7
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	5,068	457	4,593
Total Estimated Irrigated Acres (Member plus Non Member)	11,932	1,451	10,463
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	58%	69%	56%
<b>Survey Response Information</b>			
Sum Surveyed Irrigated Acres	5,640	393	5,248
Percent of Total Estimated Irrigated Acres that were Surveyed	47%	27%	50%
Percent of VCAILG Member Irrigated Acres that were Surveyed	82%	40%	89%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 74. Las Posas Responsibility Area Crop Types and General Production Practices**

Crop or Practice	06T_LONG2 Site Drainage Only		Responsibility Area Minus Nested 06T_LONG2 Site Drainage	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	0	0%	65	1%
Berry	15	4%	398	8%
Row Crop	0	0%	541	10%
Orchard	356	91%	3,667	70%
Nursery	0	0%	156	3%
Flower	0	0%	0	0%
Sod	0	0%	0	0%
Other	22	6%	421	8%
<b>Overhead Cover in Production Areas</b>				
Hoop House	74	19%	195	4%
No Cover	653	166%	4,627	88%
Greenhouse	0	0%	1	0%
Shade	0	0%	1	0%
Other	0	0%	43	0.8%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	105	27%	2,346	45%
Cover Crop	54	14%	280	5%
Plastic	0	0%	213	4%
Weed Cloth	0	0%	18	0.3%
Mulch	202	51%	2,500	48%
Gravel	0	0%	20	0.4%
Other	31	8%	134	3%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	50	13%	1,635	31%
Microsprinkler/Drip	0	0%	0	0%
Microsprinkler	321	82%	3,373	64%
Overhead Sprinkler	0	0%	218	4%
Overhead/Drip	0	0%	230	4%
Furrow Flood	0	0%	26	0.5%
Hand Watering	0	0%	33	0.6%
Other	22	6%	25	0.5%

**Table 75. Las Posas Responsibility Area Gower BMPs**

Survey Question	Units	06T_LONG2 Site Drainage Only		06T_LONG2-Las Posas Responsibility Area Minus 06T_LONG2 Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	282	74%	3,751	73%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	312	79%	3,403	65%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	177	46%	2,525	51%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	182	46%	2,550	49%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	132	34%	1,578	30%
Q5a: Are soil residual nitrate tests done?	Acres	225	57%	3,112	59%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	225	57%	3,092	59%
Q6: Are leaf/petiole tests conducted?	Acres	310	79%	4,131	84%
Q7a: Is nitrate measured in fertigation water?	Acres	135	34%	2,574	49%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	107	27%	2,541	48%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	171	60%	2,188	76%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	161	41%	2,439	46%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	118	73%	2,320	95%
Q11: How much non-cropped area is bare soil?	Acres	37	9%	738	14%
Q12a: How many feet of ditch exist?	Feet	10,375	N/A	820,272	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	7,800	75%	127,414	16%
Q13a: Are grassed waterways present?	Acres	0	0%	1,103	21%
Q13b: How many acres drain to grassed waterways?	Acres	0	0%	590	11%
Q14: How many acres are treated by vegetated filter strips?	Acres	0	0%	335	6%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	390	99%	5,034	96%
Q16: Is an IPM Plan being implemented?	Acres	295	75%	3,889	74%
Q17a: How many acres are organically farmed?	Acres	171	44%	1,123	21%
Q17b: How many acres are conventionally farmed?	Acres	222	56%	4,125	79%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	42	11%	887	17%
Q19: Runoff from how many acres is treated or detained?	Acres	109	28%	951	18%

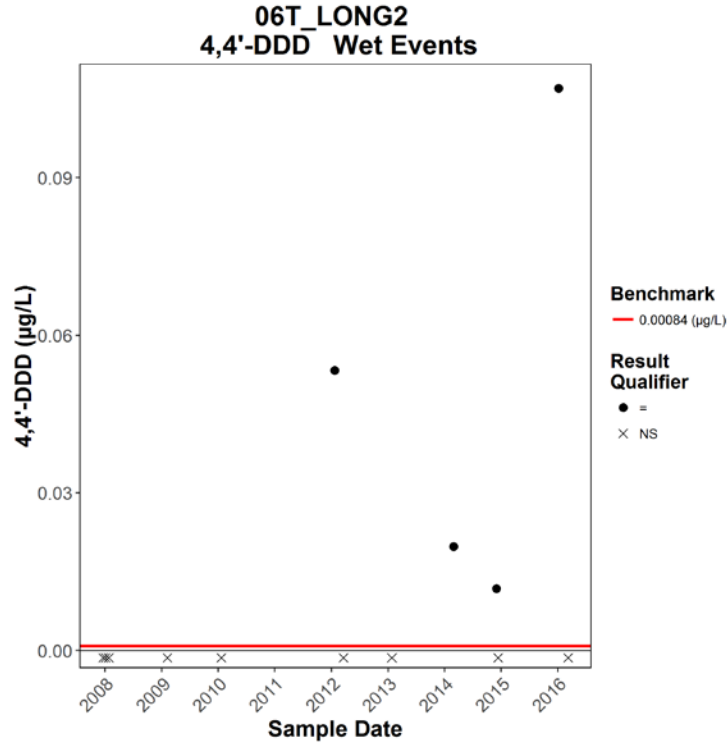


Figure 159. Wet Weather DDD Concentrations at Waiver Benchmark Site 06T\_LONG2

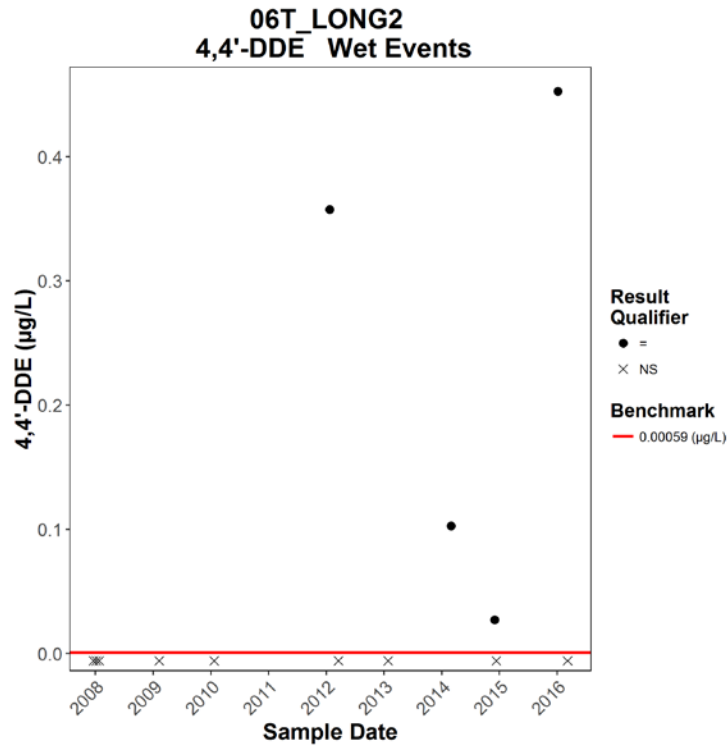


Figure 160. Wet Weather DDE Concentrations at Waiver Benchmark Site 06T\_LONG2



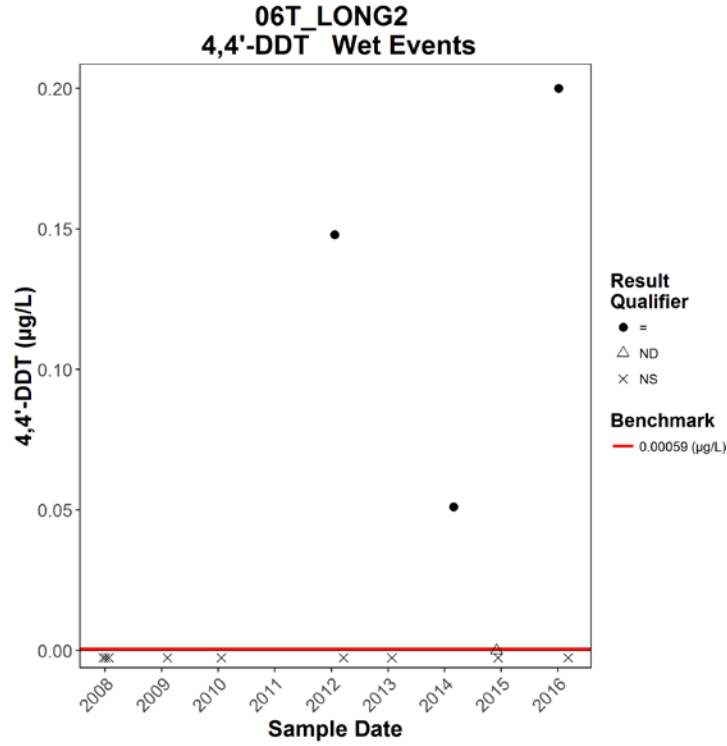


Figure 161. Wet Weather DDT Concentrations at Waiver Benchmark Site 06T\_LONG2

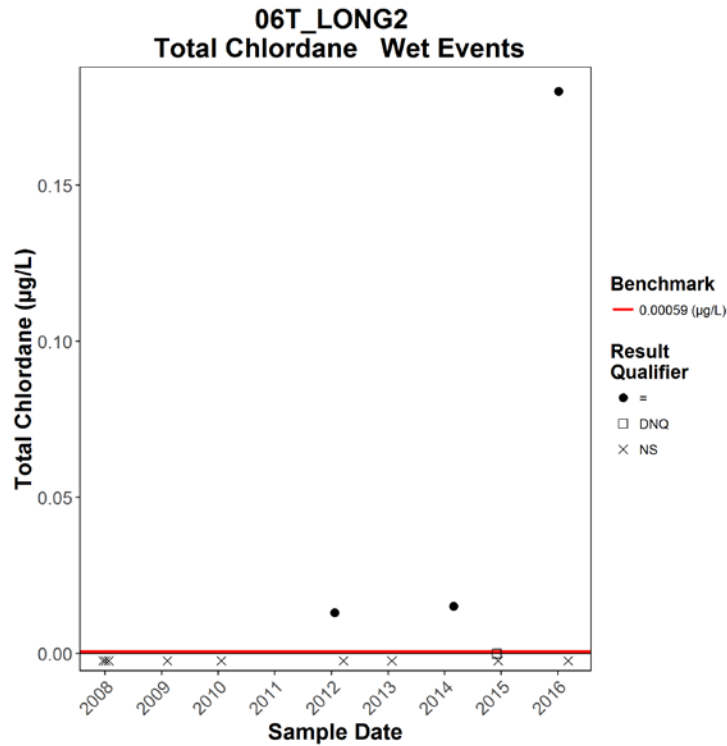


Figure 162. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 06T\_LONG2

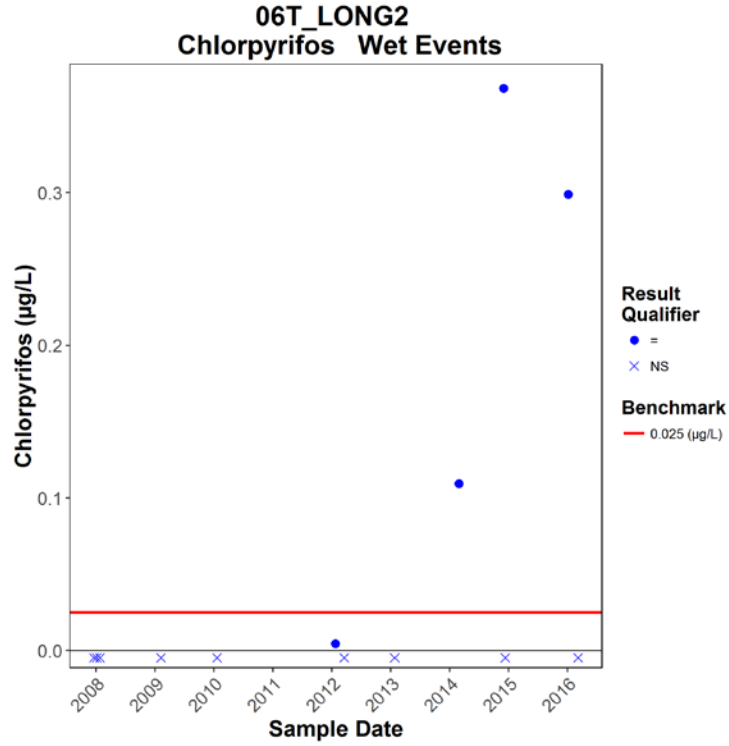


Figure 163. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 06T\_LONG2

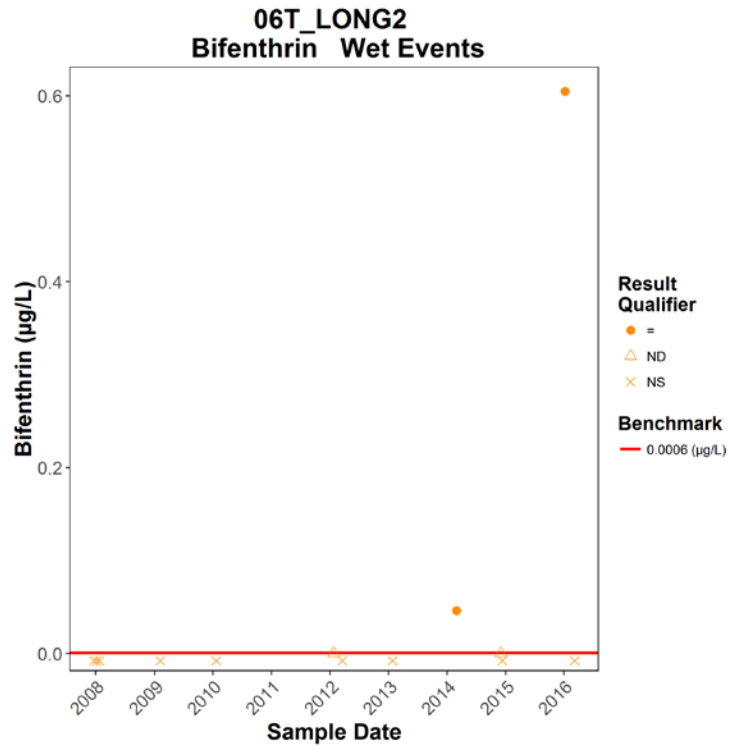


Figure 164. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 06T\_LONG2

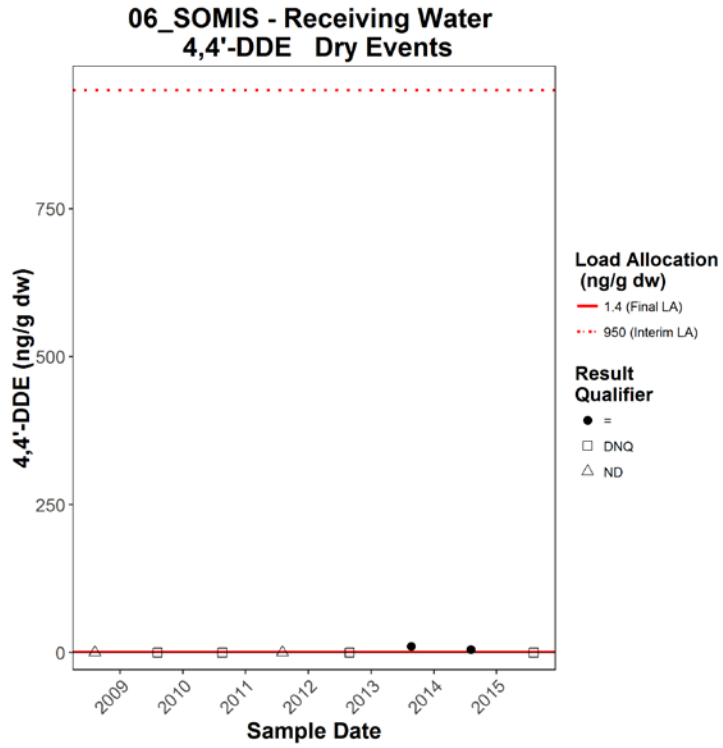


Figure 165. Dry Weather DDE Concentrations at TMDL LA Site 06\_SOMIS

**Table 76. Summary of Benchmark Exceedance Evaluation for Las Posas Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather				Wet Weather			
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Ag Land Use Site Exceedances	Review Implementation and Plan BMPs
<b>Nutrients</b>								
Nitrate-N		● 1	2	3				
Nitrate-N + Nitrite-N		● 1	2	3				
<b>OC Pesticides (Legacy)</b>								
DDD					●			☑
DDE		● 4,5		☑	●	● 4,5		☑
DDT					●			☑
Chlordane					●			☑
<b>OP and Pyrethroid Pesticides (Current)</b>								
Chlorpyrifos					●			☑
Bifenthrin					●			☑

1. CCW Nitrogen TMDL receiving water site is 06\_SOMIS.
2. Agricultural land use site for the Nitrogen TMDL is 06T\_FC\_BR.
3. Agricultural land use data is below the LA so additional management practices in agriculture aren't necessary at this time.
4. CCW OC Pesticides TMDL receiving water site is 06\_SOMIS. TMDL compliance is measured in sediment in receiving. Though sediment is collected during dry weather, the results are applied to both wet and dry weather to ensure management practices minimize sediment transport year-round.
5. Does not exceed interim load allocation but exceeds final load allocation that will need to be achieved by the timeline provided in the Waiver.

**Table 77. BMPs for Additional Implementation in the Las Posas Responsibility Area**

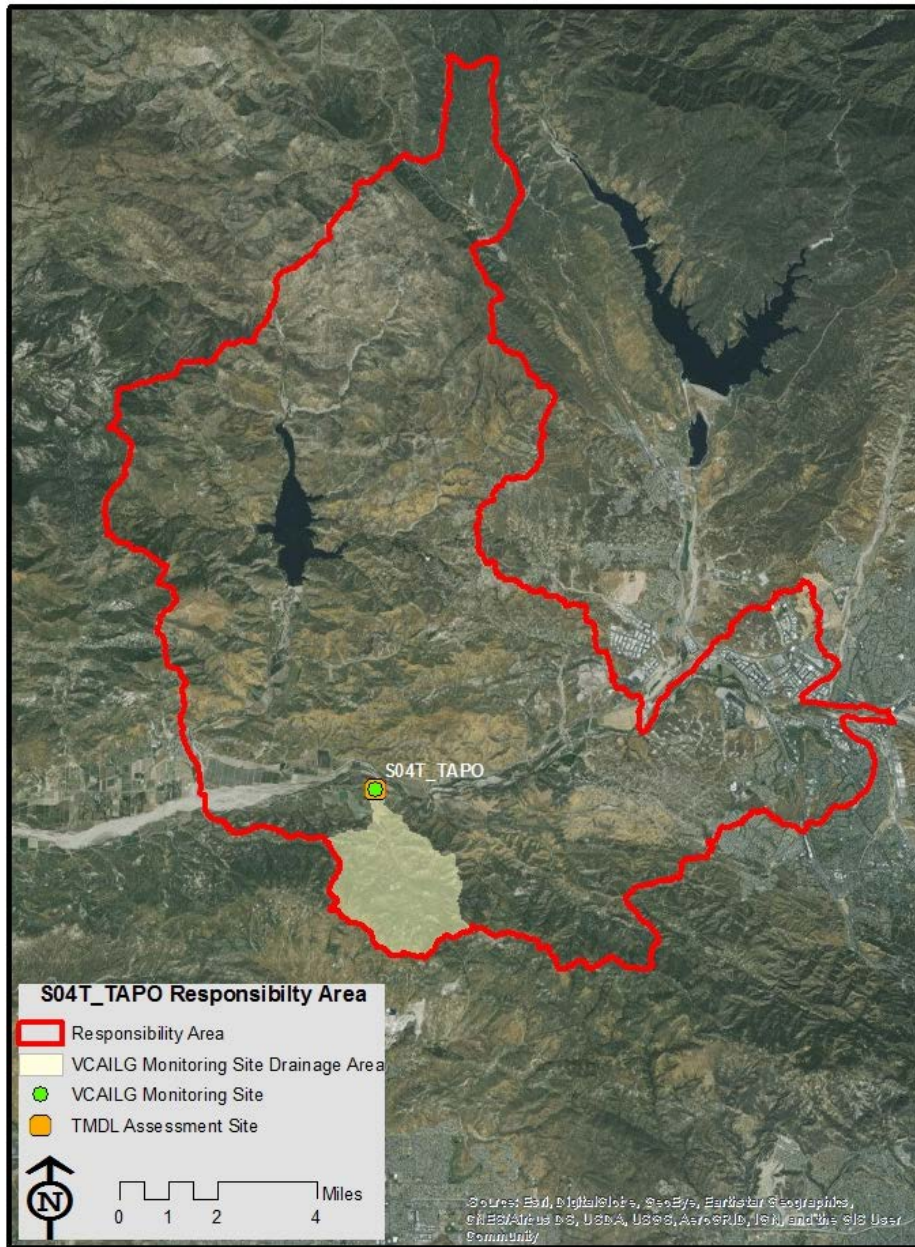
Exceedance Condition			Survey Question #	BMP	% of Total Applicable Surveyed Units		Additional Implementation Needed?
Legacy Pesticides	Current Pesticides				06T_LONG2 Site Drainage Only	Las Posas Responsibility Area Minus Nested 06T_LONG2 Site Drainage	
Dry	Wet	Wet					
x	x	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	73%	61%	Yes
x	x		Irrigation system type	Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	95%	95%	Yes
x	x		1	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	74%	73%	Yes
x	x	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	73%	95%	Yes
x	x	x	11	How much non-cropped area is bare soil	9%	14%	Yes
x	x	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	75%	16%	Yes
x	x	x	13	Grassed waterways are used	0%	21%	Yes
x	x	x	14	Vegetated filter strips are used	0%	6%	Yes
		x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	99%	96%	Yes
		x	16	An integrated pest management plan is implemented	75%	74%	Yes
x	x		18	How many acres produce irrigation runoff	11%	17%	Yes
x	x	x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	28%	18%	Not at this time
		x	[a]	Pesticide management plan is used			Yes

[a] Waiver specified practice for exceedances of copper and current use pesticides.

**Table 78. Proposed Best Management Practices for the Las Posas Responsibility Area**

<b>Water Quality Issues</b>			
<b>Legacy Pesticides</b>		<b>Current Use Pesticides</b>	<b>BMPs</b>
<b>Dry Weather</b>	<b>Wet Weather</b>	<b>Wet Weather</b>	
<i>Source Control BMPs</i>			
x	x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x			Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)
x			Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.
x	x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
	x	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
		x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
		x	Implement an integrated pest management plan
x			Avoid/prevent irrigation runoff
		x	Use a pesticide management plan
<i>Structural Non-Treatment BMPs</i>			
x	x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	x	x	Use grassed waterways
x	x	x	Use vegetated filter strips

## Tapo Canyon Responsibility Area



**Figure 166. Tapo Canyon Responsibility Area Map**

The Tapo Canyon responsibility area is illustrated in Figure 166. The VCAILG monitoring site S04T\_TAPO also serves as a TMDL assessment site for the SCR Nitrogen TMDL and Upper SCR Chloride TMDL.

**Table 79. Tapo Canyon Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Entire Responsibility Area</b>	<b>Drainage Area Monitoring Site S04T_TAPO</b>	<b>Responsibility Area Minus Nested S04T_TAPO Site Drainage</b>
<b>Assessed Acreage Information</b>			
Total Assessed Acres from Agricultural Parcel List	8,867	640	8,227
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	0	0	0
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	8,867	640	8,227
Assessed Acres from Agricultural Parcel List belonging to Non Members	0	0	0
<b>Irrigated Acreage Information</b>			
VCAILG Member Acreage Reported as Irrigated	2,739	273	2,466
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.3	0.4	0.3
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	0	0	0
Total Estimated Irrigated Acres (Member plus Non Member)	2,739	273	2,466
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	100%	100%	100%
<b>Survey Response Information</b>			
Sum Surveyed Irrigated Acres	23	0	23
Percent of Total Estimated Irrigated Acres that were Surveyed	1%	0%	1%
Percent of VCAILG Member Irrigated Acres that were Surveyed	1%	0%	1%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.



**Table 80. Tapo Canyon Responsibility Area Crop Types and General Production Practices**

Crop or Practice	S04T_TAPO Site Drainage Only [a]		Responsibility Area Minus S04T_TAPO Site Drainage	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry			0	0%
Berry			0	0%
Row Crop			0	0%
Orchard			19	83%
Nursery			0	0%
Flower			4	17%
Sod			0	0%
Other			0	0%
<b>Overhead Cover in Production Areas</b>				
Hoop House			0	0%
No Cover			0	2%
Greenhouse			0	0%
Shade			0	0%
Other			0	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil			0	0%
Cover Crop			0	0%
Plastic			0	0%
Weed Cloth			0	0%
Mulch			19	83%
Gravel			0	0%
Other			4	17%
<b>Irrigation Systems in Production Areas</b>				
Drip Only			7	30%
Microsprinkler/Drip			0	0%
Microsprinkler			0	0%
Overhead Sprinkler			0	0%
Overhead/Drip			0	0%
Furrow Flood			0	0%
Hand Watering			0	0%
Other			16	70%

[a] No surveys were submitted for parcels in the S04T\_TAPO drainage area.

**Table 81. Tapo Canyon Responsibility Area Grower BMPs**

Survey Question	Units	S04T_TAPO Site Drainage Only [a]		Tapo Canyon Responsibility Area Minus S04T_TAPO Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres			23	100%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres			17	74%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres			0	0%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres			0	0%
Q4b: Is it a Certified Nutrient Management Plan?	Acres			0	0%
Q5a: Are soil residual nitrate tests done?	Acres			0	0%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres			0	0%
Q6: Are leaf/petiole tests conducted?	Acres			0	0%
Q7a: Is nitrate measured in fertigation water?	Acres			0	0%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres			0	0%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres			0	0%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres			17	74%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres			17	100%
Q11: How much non-cropped area is bare soil?	Acres			125	543%
Q12a: How many feet of ditch exist?	Feet			0	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet			N/A	N/A
Q13a: Are grassed waterways present?	Acres			0	0%
Q13b: How many acres drain to grassed waterways?	Acres			0	0%
Q14: How many acres are treated by vegetated filter strips?	Acres			17	74%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres			22	96%
Q16: Is an IPM Plan being implemented?	Acres			22	96%
Q17a: How many acres are organically farmed?	Acres			6	26%
Q17b: How many acres are conventionally farmed?	Acres			17	74%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres			22	96%
Q19: Runoff from how many acres is treated or detained?	Acres			23	100%

[a] No surveys were submitted for parcels in the S04T\_TAPO drainage area.

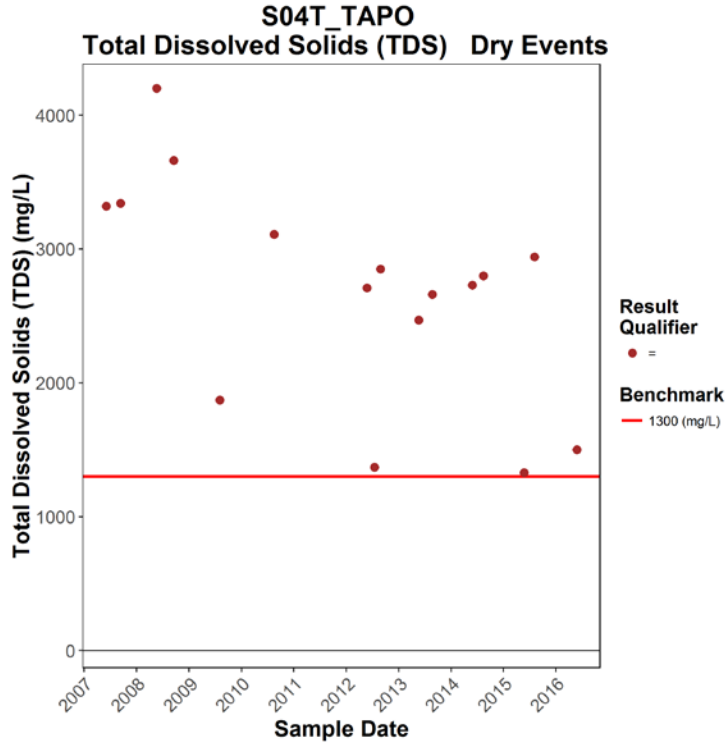


Figure 167. Dry Weather Total Dissolved Solids Concentrations at Waiver Benchmark Site S04T\_TAPO

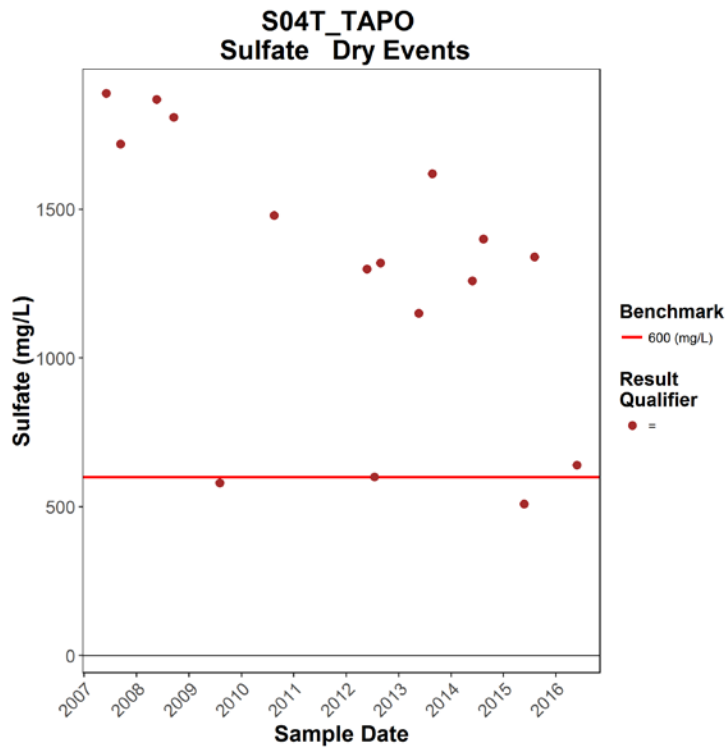


Figure 168. Dry Weather Sulfate Concentrations at Waiver Benchmark Site S04T\_TAPO

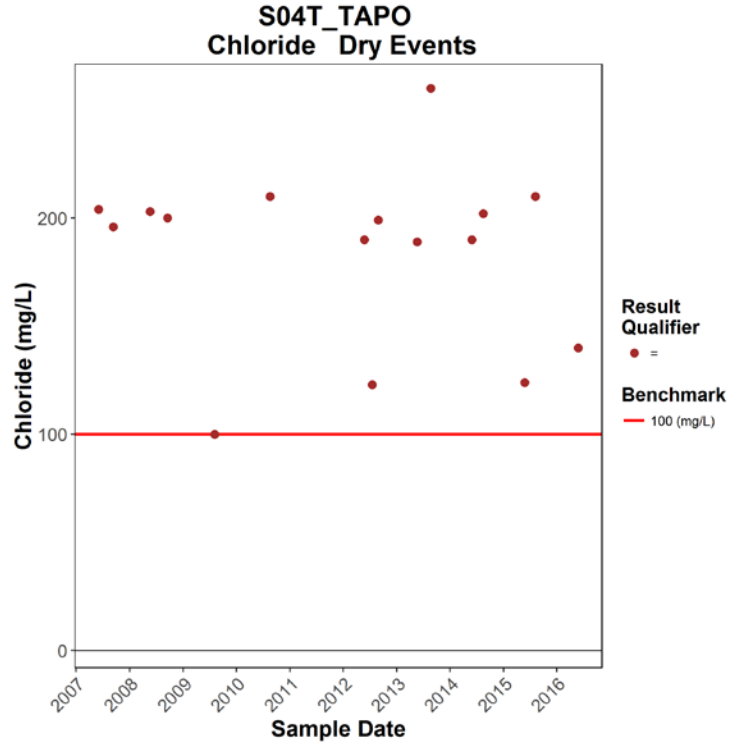


Figure 169. Dry Weather Chloride Concentrations at Waiver Benchmark Site S04T\_TAPO

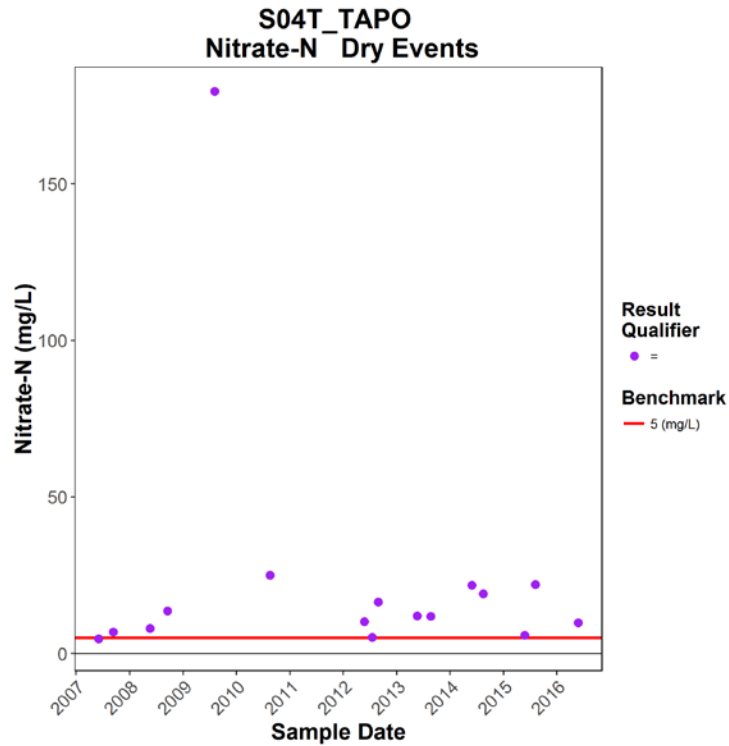


Figure 170. Dry Weather Nitrate-N Concentrations at Waiver Benchmark Site S04T\_TAPO

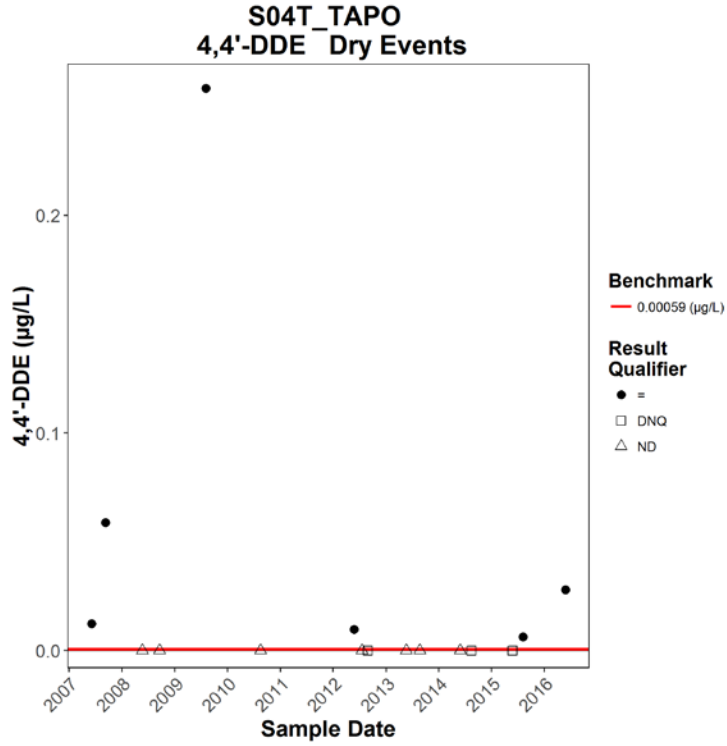


Figure 171. Dry Weather DDE Concentrations at Waiver Benchmark Site S04T\_TAPO

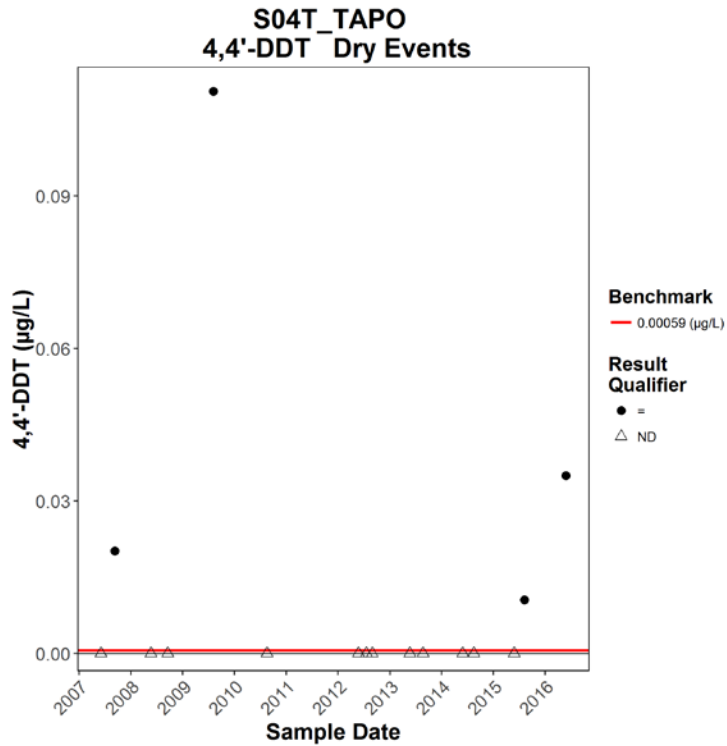


Figure 172. Dry Weather DDT Concentrations at Waiver Benchmark Site S04T\_TAPO

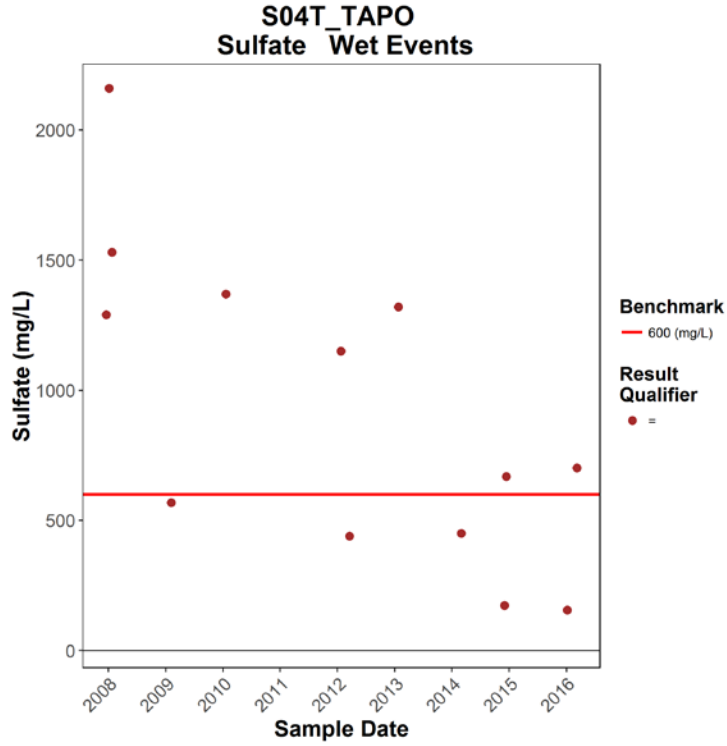


Figure 173. Wet Weather Sulfate Concentrations at Waiver Benchmark Site S04T\_TAPO

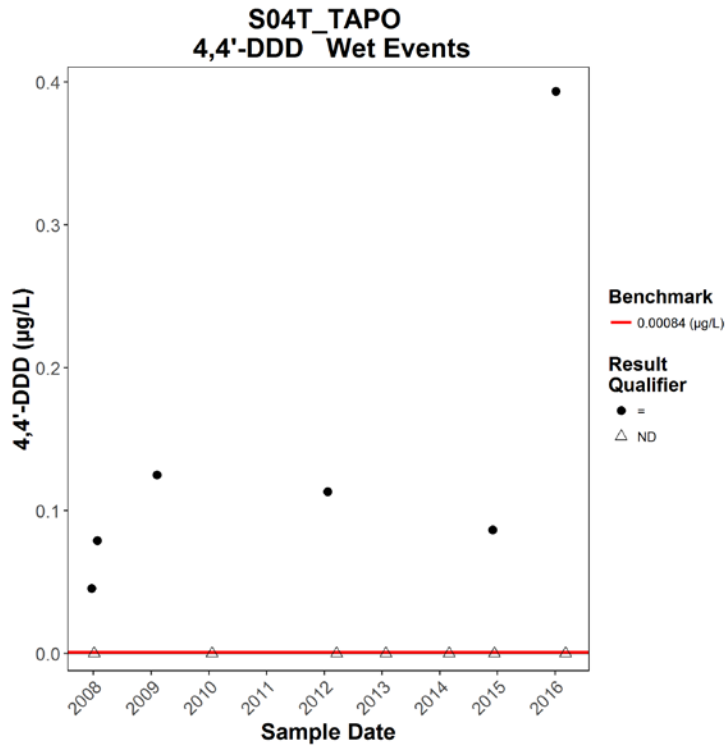


Figure 174. Wet Weather DDD Concentrations at Waiver Benchmark Site S04T\_TAPO

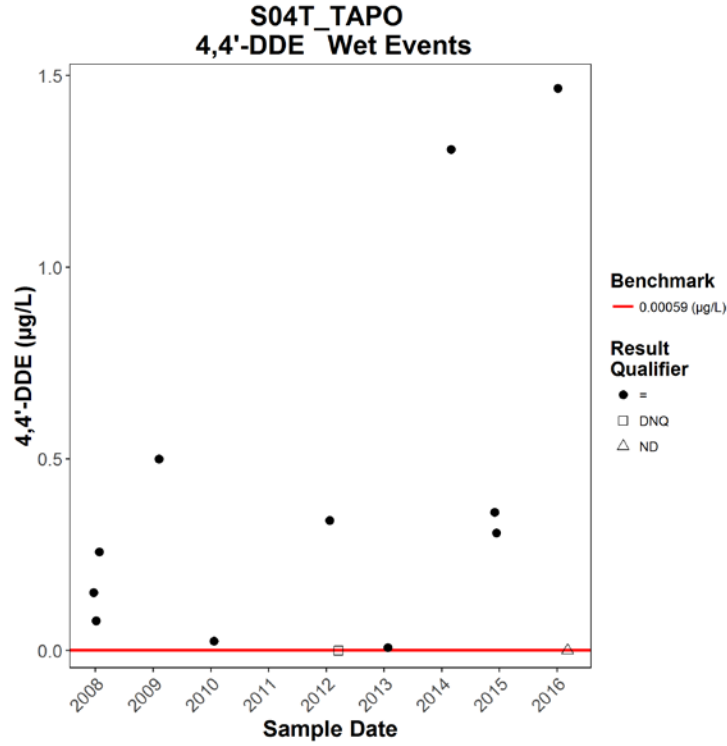


Figure 175. Wet Weather DDE Concentrations at Waiver Benchmark Site S04T\_TAPO

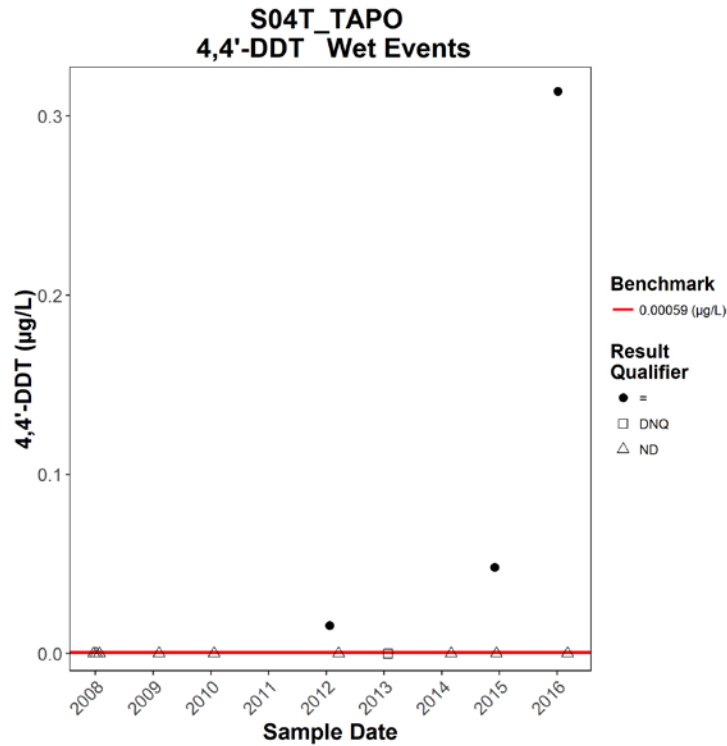


Figure 176. Wet Weather DDT Concentrations at Waiver Benchmark Site S04T\_TAPO

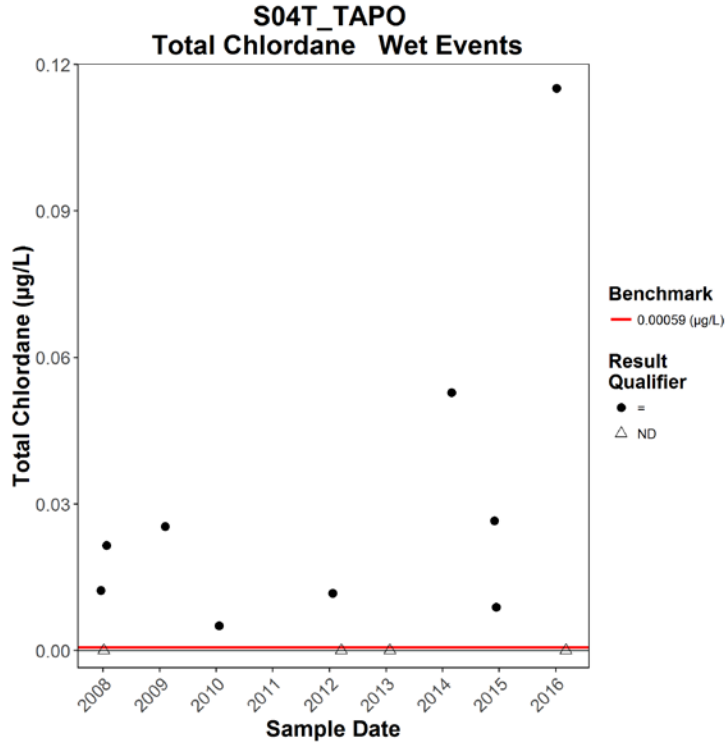


Figure 177. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site S04T\_TAPO

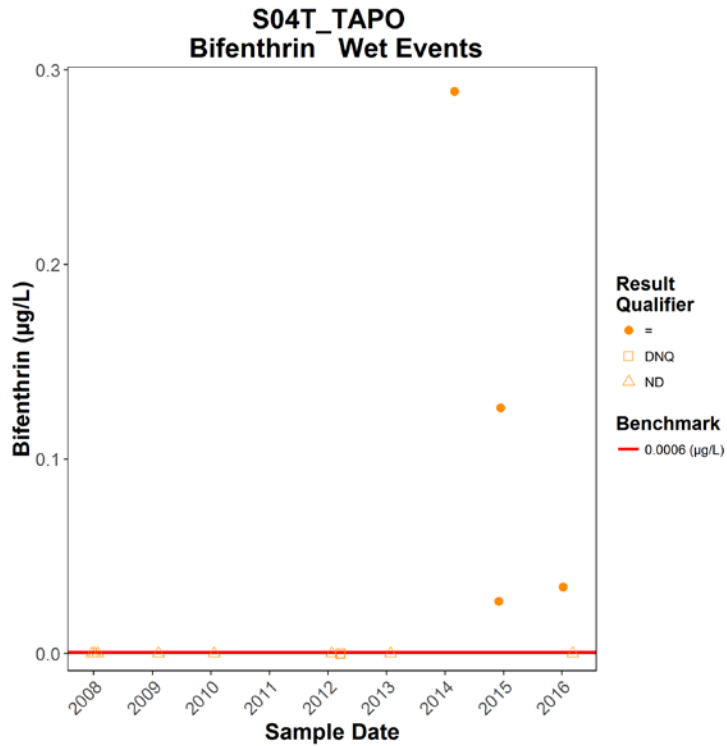


Figure 178. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site S04T\_TAPO



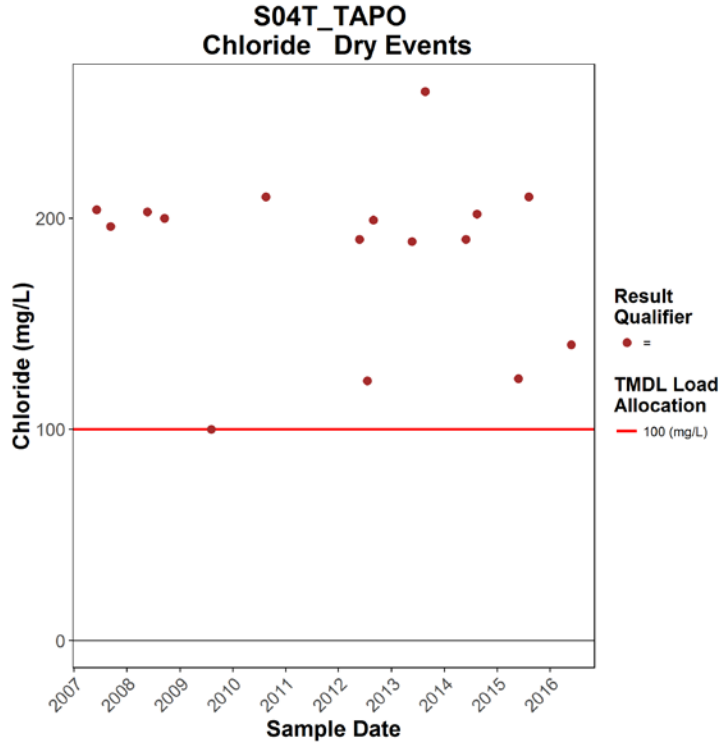


Figure 179. Dry Weather Chloride Concentrations at TMDL LA Site S04T\_TAPO

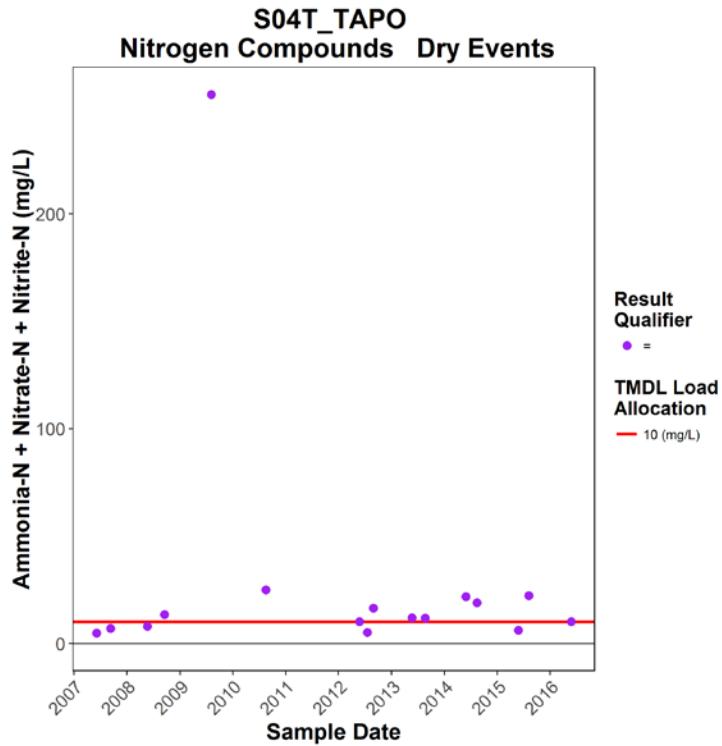


Figure 180. Dry Weather Nitrogen Compounds Concentrations at TMDL Ag Land Use Site S04T\_TAPO

**Table 82. Summary of Benchmark Exceedance Evaluation for Tapo Canyon Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather			Wet Weather		
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs
<b>Salts</b>						
TDS	•		<input checked="" type="checkbox"/>			
Sulfate	•		<input checked="" type="checkbox"/>	•		<input checked="" type="checkbox"/>
Chloride	•	• <sup>1</sup>	<input checked="" type="checkbox"/>			
<b>Nutrients</b>						
Nitrate-N	•		<input checked="" type="checkbox"/>			
Ammonia-N + Nitrate-N + Nitrite-N		• <sup>1</sup>	<input checked="" type="checkbox"/>			
<b>OC Pesticides (Legacy)</b>						
DDD				•		<input checked="" type="checkbox"/>
DDE	•		<input checked="" type="checkbox"/>	•		<input checked="" type="checkbox"/>
DDT	•		<input checked="" type="checkbox"/>	•		<input checked="" type="checkbox"/>
Chlordane				•		<input checked="" type="checkbox"/>
<b>OP and Pyrethroid Pesticides (Current)</b>						
Bifenthrin				•		<input checked="" type="checkbox"/>

1. TMDL LAs for the Santa Clara River Nutrients TMDL and Upper Santa Clara River Chloride TMDL were compared to data from S04T\_TAPO.

**Table 83. BMPs for Additional Implementation in the Tapo Canyon Responsibility Area**

Exceedance Condition						Survey Question #	BMP	% of Total Applicable Surveyed Units		Additional Implementation Needed? <sup>[a]</sup>
Salt		Nutrients		Legacy Pesticides				Current Pesticides		
Dry	Wet	Dry	Dry	Wet	Wet					
		x	x	x	x	1	Crop management Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	100%		Yes
		x	x	x		2	Irrigation system type Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	30%		Yes
x	x	x	x	x		3	1 Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	100%		Yes
x	x	x				4	2 Irrigation practices are based on soil moisture measurements and/or crop evapotranspiration	74%		Yes
x	x	x				5	3 Soil solution electrical conductivity measurements are used to determine when salt leaching is necessary	0%		Yes
		x				6	4 Certified nutrient management plan has been prepared for the property	0%		Yes
		x				7	5 Soil residual nitrate tests are conducted and used to adjust fertilizer applications	0%		Yes
		x				8	6 Leaf/petiole tests are conducted and used to apply the minimum necessary amount of fertilizer	0%		Yes
		x				9	7 Irrigation water nitrate is analyzed and the results are used to adjust fertilizer applications.	0%		Yes
		x				10	8 Fertilizer applications are adjusted to account for nutrients provided by cover crops	0%		Yes
		x	x	x	x	11	9, 10 Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	100%		Yes
			x	x	x	12	11 How much non-cropped area is bare soil	>100%		Yes
		x	x	x	x	13	12 Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	N/A		Yes
x	x	x	x	x	x	14	13 Grassed waterways are used	0%		Yes
x	x	x	x	x	x	15	14 Vegetated filter strips are used	74%		Yes
					x	16	15 Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	96%		Yes
					x	17	16 An integrated pest management plan is implemented	96%		Yes
x	x	x	x	x		18	18 How many acres produce irrigation runoff	96%		Yes
x	x	x	x	x	x	19	19 Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	100%		Not at this time
					x	[b]	Pesticide management plan is used			Yes

[a] Additional implementation recommended for all non-structural BMPs because there is no available survey data for the site drainage.

[b] Waiver specified practice for exceedances of copper and current use pesticides.

**Table 84. Proposed Best Management Practices for the Tapo Canyon Responsibility Area**

Water Quality Issues						BMPs
Salts		Nutrients	Legacy Pesticides		Current Use Pesticides	
Dry Weather	Wet Weather	Dry Weather	Dry Weather	Wet Weather	Wet Weather	
						<i>Source Control BMPs</i>
		x	x	x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x		x	x			Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)
x		x	x			Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.
x		x				Implement irrigation practices that are based on soil moisture measurements and/or crop evapotranspiration
x		x				Use soil solution electrical conductivity measurements to determine when salt leaching is necessary
		x				Prepare a certified nutrient management plan for the property
		x				Conduct soil residual nitrate tests and use results to adjust fertilizer application
		x				Conduct leaf/petiole tests and use results to apply the minimum necessary amount of fertilizer
		x				Analyze irrigation water nitrate and use results to adjust fertilizer application
		x				Adjust fertilizer application to account for nutrients provided by cover crops
		x	x	x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
				x	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
					x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
x		x	x		x	Implement an integrated pest management plan
					x	Avoid/prevent irrigation runoff
					x	Use a pesticide management plan
						<i>Structural Non-Treatment BMPs</i>
		x	x	x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	x	x	x	x	x	Use grassed waterways

Water Quality Issues						BMPs
Salts		Nutrients	Legacy Pesticides		Current Use Pesticides	
Dry Weather	Wet Weather	Dry Weather	Dry Weather	Wet Weather	Wet Weather	
x	x	x	x	x	x	Use vegetated filter strips

## Boulder Creek Responsibility Area



**Figure 181. Boulder Creek Responsibility Area Map**

The Boulder Creek responsibility area is illustrated in Figure 181. The VCAILG monitoring site also serves as a TMDL assessment site for the SCR Nitrogen TMDL.

**Table 85. Boulder Creek Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Entire Responsibility Area</b>	<b>Drainage Area Monitoring Site S03T_BOULD</b>	<b>Responsibility Area Minus Nested S03T_BOULD Site Drainage</b>
<b>Assessed Acreage Information</b>			
Total Assessed Acres from Agricultural Parcel List	17,812	1,954	15,858
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	130	0	130
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	13,836	1,594	12,242
Assessed Acres from Agricultural Parcel List belonging to Non Members	3,846	360	3,486
<b>Irrigated Acreage Information</b>			
VCAILG Member Acreage Reported as Irrigated	6,538	850	5,688
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.5	0.5	0.5
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	1,817	192	1,620
Total Estimated Irrigated Acres (Member plus Non Member)	8,355	1,042	7,308
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	78%	82%	78%
<b>Survey Response Information</b>			
Sum Surveyed Irrigated Acres	5,289	851	4,438
Percent of Total Estimated Irrigated Acres that were Surveyed	63%	82%	61%
Percent of VCAILG Member Irrigated Acres that were Surveyed	81%	100%	78%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 86. Boulder Creek Responsibility Area Crop Types and General Production Practices**

Crop or Practice	S03T_BOULD Site Drainage Only		Responsibility Area Minus S03T_BOULD Site Drainage	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	0	0%	0	0%
Berry	0	0%	1	0%
Row Crop	0	0%	569	13%
Orchard	671	79%	3,502	79%
Nursery	180	21%	365	8%
Flower	0	0%	0	0%
Sod	0	0%	0	0%
Other	0	0%	1	0%
<b>Overhead Cover in Production Areas</b>				
Hoop House	0	0%	399	9%
No Cover	225	26%	1,286	29%
Greenhouse	0	0%	31	0.7%
Shade	0	0%	2	0%
Other	0	0%	11	0.2%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	260	31%	1,460	33%
Cover Crop	0	0%	265	6%
Plastic	0	0%	42	1%
Weed Cloth	0	0%	11	0.2%
Mulch	512	60%	2,380	54%
Gravel	95	11%	216	5%
Other	0	0%	106	2%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	210	25%	660	15%
Microsprinkler/Drip	0	0%	0	0%
Microsprinkler	626	74%	3,419	77%
Overhead Sprinkler	5	0.6%	70	2%
Overhead/Drip	0	0%	230	5%
Furrow Flood	0	0%	59	1%
Hand Watering	10	1%	11	0.2%
Other	0	0%	1	0%



**Table 87. Boulder Creek Responsibility Area Grower BMPs**

Survey Question	Units	S03T_BOULD Site Drainage Only		S03T_BOULD Responsibility Area Minus S03T_BOULD Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	851	100%	2,898	67%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	571	67%	3,463	78%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	0	0%	979	24%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	341	40%	1,485	33%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	74	9%	570	13%
Q5a: Are soil residual nitrate tests done?	Acres	378	44%	2,727	61%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	378	44%	2,698	61%
Q6: Are leaf/petiole tests conducted?	Acres	671	79%	2,879	67%
Q7a: Is nitrate measured in fertigation water?	Acres	603	71%	2,862	64%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	603	71%	2,862	64%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	185	39%	1,320	38%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	252	30%	1,374	31%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	227	90%	1,154	84%
Q11: How much non-cropped area is bare soil?	Acres	25	3%	1,364	31%
Q12a: How many feet of ditch exist?	Feet	10,500	N/A	151,180	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	7,600	72%	88,198	58%
Q13a: Are grassed waterways present?	Acres	5	0.6%	417	9%
Q13b: How many acres drain to grassed waterways?	Acres	5	0.6%	190	4%
Q14: How many acres are treated by vegetated filter strips?	Acres	197	23%	83	2%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	851	100%	4,175	94%
Q16: Is an IPM Plan being implemented?	Acres	851	100%	3,625	82%
Q17a: How many acres are organically farmed?	Acres	0	0%	261	6%
Q17b: How many acres are conventionally farmed?	Acres	851	100%	4,177	94%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	0	0%	398	9%
Q19: Runoff from how many acres is treated or detained?	Acres	197	23%	612	14%

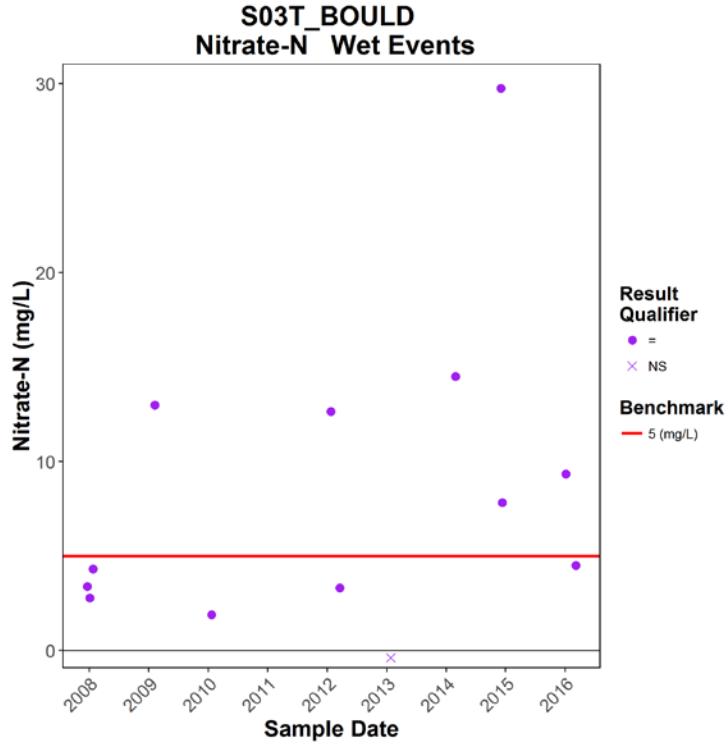


Figure 182. Wet Weather Nitrate-N Concentrations at Waiver Benchmark Site S03T\_BOULD

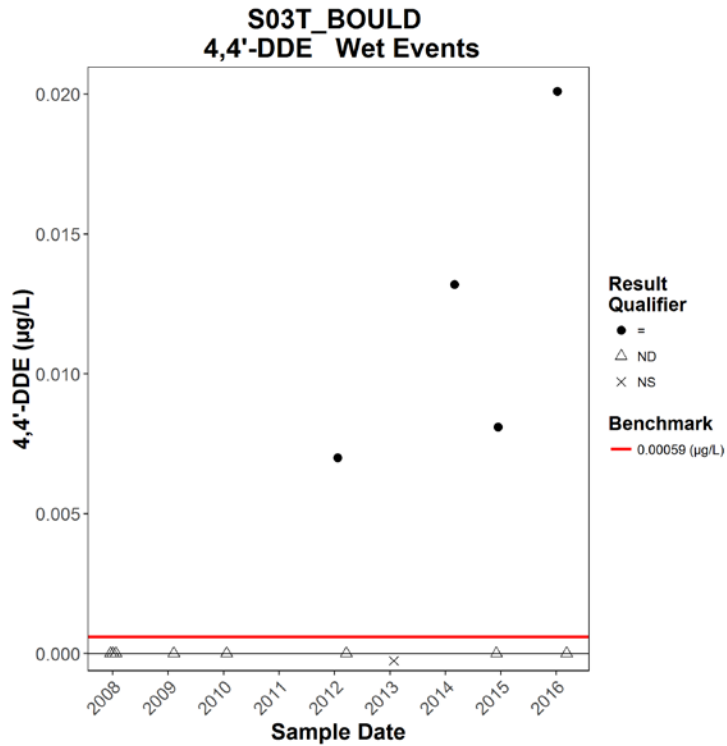


Figure 183. Wet Weather DDE Concentrations at Waiver Benchmark Site S03T\_BOULD

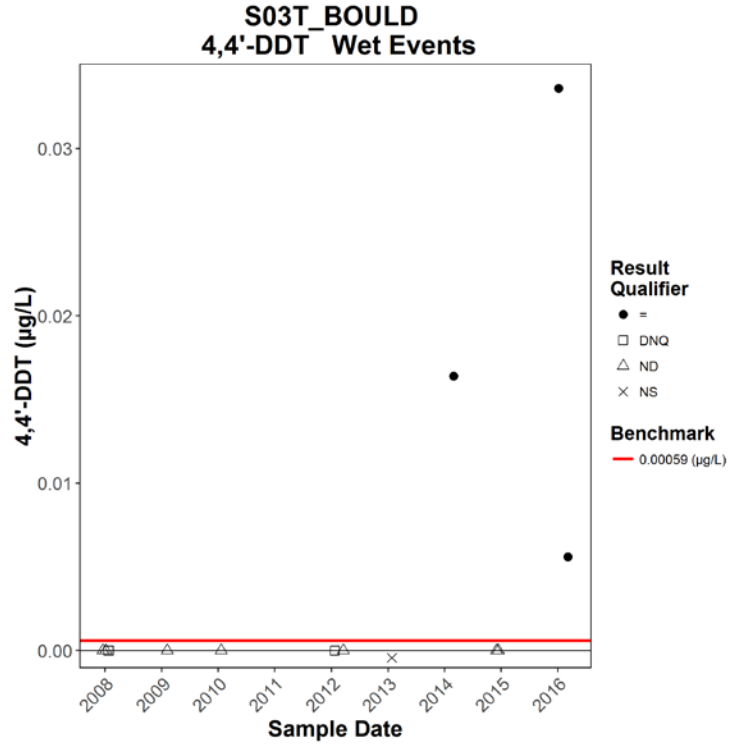


Figure 184. Wet Weather DDT Concentrations at Waiver Benchmark Site S03T\_BOULD

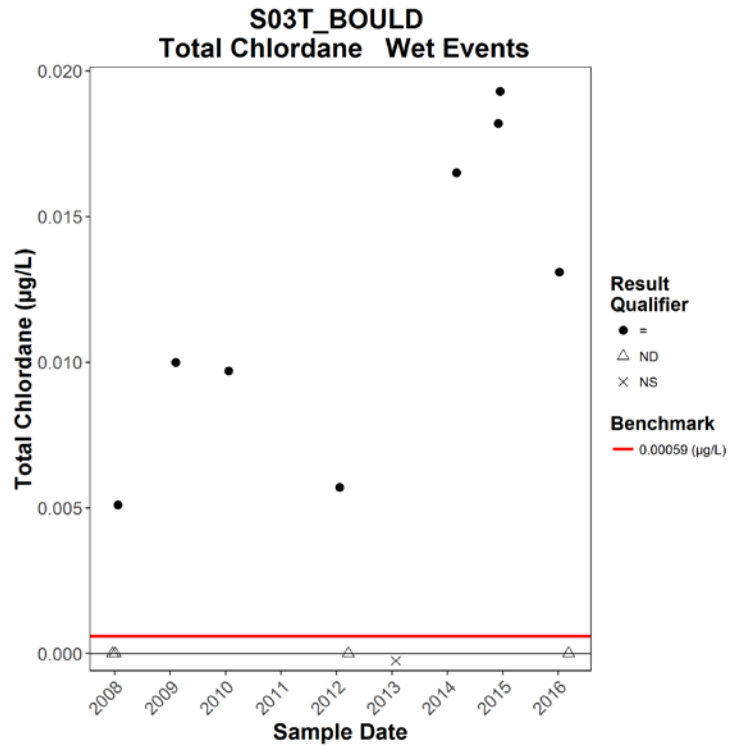


Figure 185. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site S03T\_BOULD

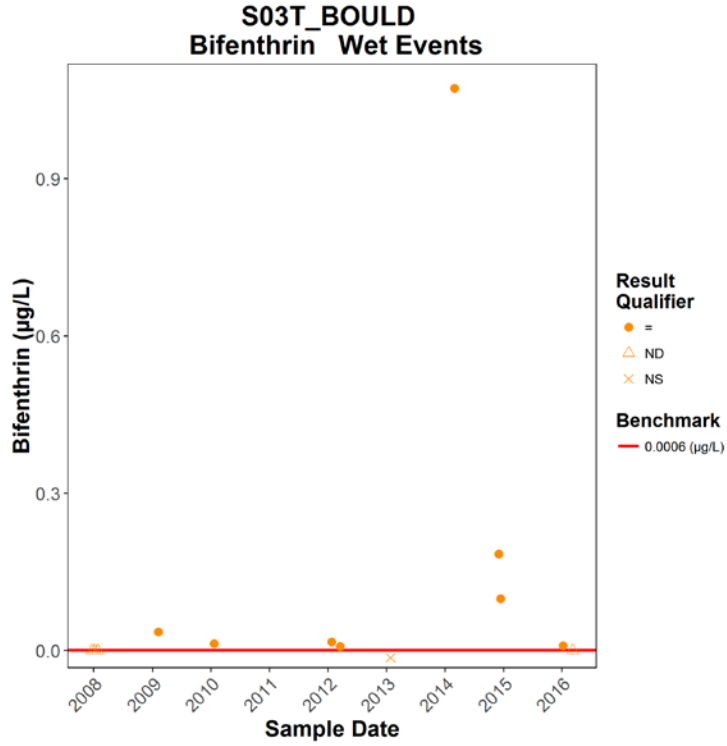


Figure 186. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site S03T\_BOULD

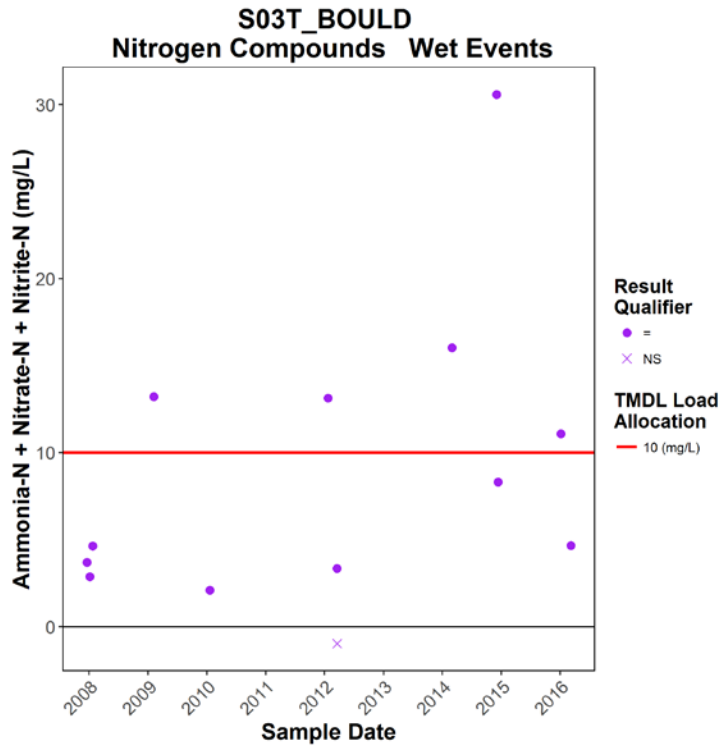


Figure 187. Wet Weather Nitrogen Compounds Concentrations at TMDL Ag Land Use Site S03T\_BOULD

**Table 88. Summary of Benchmark Exceedance Evaluation for Boulder Creek Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather			Wet Weather		
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs
<b>Nutrients</b>						
Nitrate-N				•		<input checked="" type="checkbox"/>
Ammonia-N + Nitrate-N + Nitrite-N					• <sup>1</sup>	<input checked="" type="checkbox"/>
<b>OC Pesticides (Legacy)</b>						
DDE				•		<input checked="" type="checkbox"/>
DDT				•		<input checked="" type="checkbox"/>
Chlordane				•		<input checked="" type="checkbox"/>
<b>OP and Pyrethroid Pesticides (Current)</b>						
Bifenthrin				•		<input checked="" type="checkbox"/>

1. TMDL LAs for the Santa Clara River Nutrients TMDL were compared to data from S03T\_BOULD.

**Table 89. BMPs for Additional Implementation in the Boulder Creek Responsibility Area**

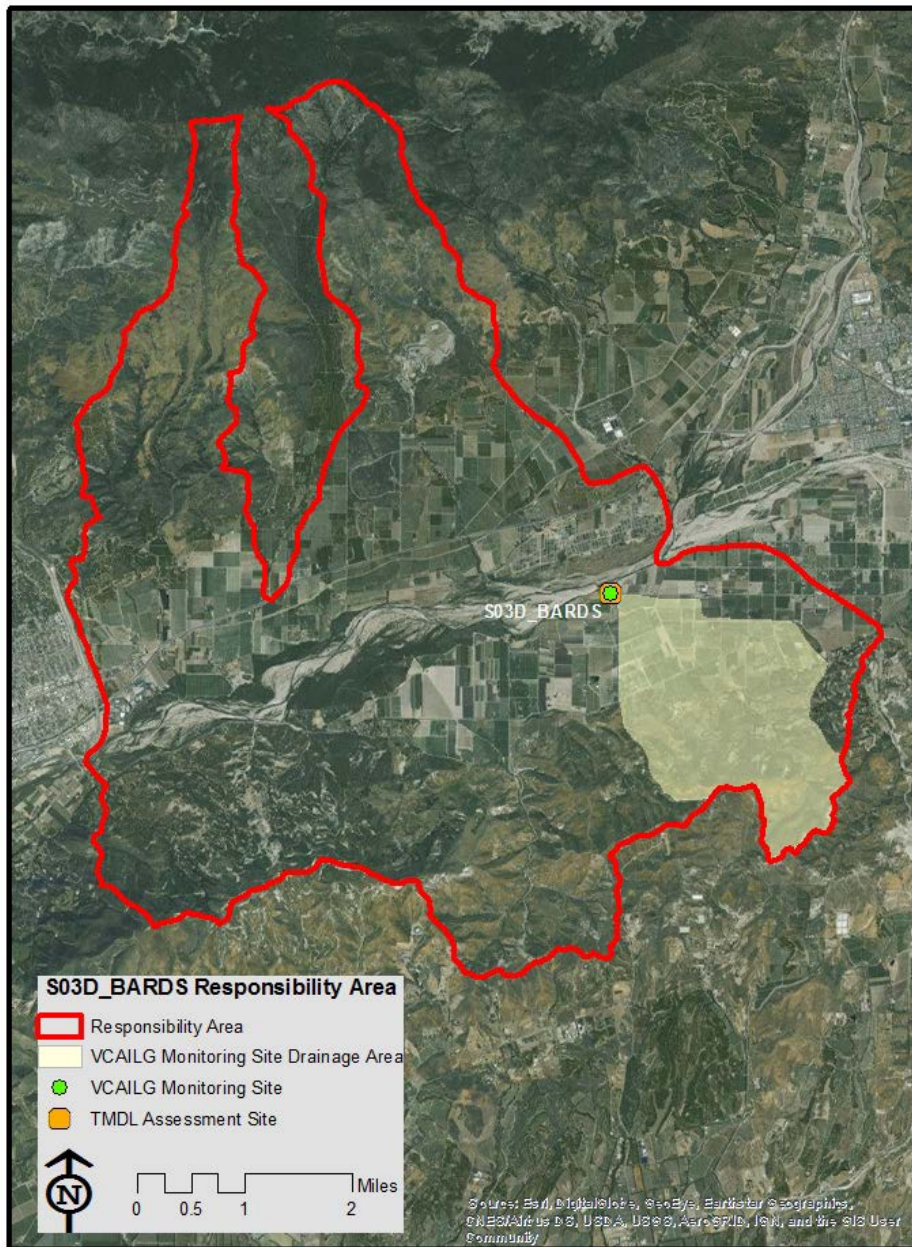
Exceedance Condition			Survey Question #	BMP	% of Total Applicable Surveyed Units		Additional Implementation Needed?
Nutrients	Legacy Pesticides	Current Pesticides			S03T_BOULD Site Drainage Only	Boulder Creek Responsibility Area Minus Nested S03T_BOULD Site Drainage	
Wet	Wet	Wet					
x	x	x		Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	71%	68%	Yes
x			1	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	100%	67%	Yes
x			2	Irrigation practices are based on soil moisture measurements and/or crop evapotranspiration	67%	78%	Yes
x			3	Soil solution electrical conductivity measurements are used to determine when salt leaching is necessary	0%	24%	Yes
x			4	Certified nutrient management plan has been prepared for the property	9%	13%	Yes
x			5	Soil residual nitrate tests are conducted and used to adjust fertilizer applications	44%	61%	Yes
x			6	Leaf/petiole tests are conducted and used to apply the minimum necessary amount of fertilizer	79%	67%	Yes
x			7	Irrigation water nitrate is analyzed and the results are used to adjust fertilizer applications.	71%	64%	Yes
x			8	Fertilizer applications are adjusted to account for nutrients provided by cover crops	39%	38%	Yes
x	x	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	90%	84%	Yes
x	x	x	11	How much non-cropped area is bare soil	3%	31%	Yes
x	x	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	72%	58%	Yes
x	x	x	13	Grassed waterways are used	1%	9%	Yes
x	x	x	14	Vegetated filter strips are used	23%	2%	Yes
		x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	100%	94%	Yes
		x	16	An integrated pest management plan is implemented	100%	82%	Yes
x			18	How many acres produce irrigation runoff	0%	9%	Yes
x	x	x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	23%	14%	Not at this time
		x	[a]	Pesticide management plan is used			Yes

[a] Waiver specified practice for exceedances of copper and current use pesticides.

**Table 90. Proposed Best Management Practices for the Boulder Creek Responsibility Area**

<b>Water Quality Issues</b>			
<b>Nutrients</b>	<b>Legacy Pesticides</b>	<b>Current Use Pesticides</b>	
<b>Wet Weather</b>	<b>Wet Weather</b>	<b>Wet Weather</b>	<b>BMPs</b>
<i>Source Control BMPs</i>			
x	x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x			Prepare a certified nutrient management plan for the property
x			Conduct soil residual nitrate tests and use results to adjust fertilizer application
x			Conduct leaf/petiole tests and use results to apply the minimum necessary amount of fertilizer
x			Analyze irrigation water nitrate and use results to adjust fertilizer application
x			Adjust fertilizer application to account for nutrients provided by cover crops
x	x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
x	x	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
		x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
		x	Implement an integrated pest management plan
		x	Use a pesticide management plan
<i>Structural Non-Treatment BMPs</i>			
x	x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	x	x	Use grassed waterways
x	x	x	Use vegetated filter strips

## Bardsdale Responsibility Area



**Figure 188. Bardsdale Responsibility Area Map**

The Bardsdale responsibility area is illustrated in Figure 188. The VCAILG monitoring site is also used as a TMDL assessment site for the SCR Nitrogen TMDL.



**Table 91. Bardsdale Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Entire Responsibility Area</b>	<b>Drainage Area Monitoring Site S03D_BARDS</b>	<b>Responsibility Area Minus Nested S03D_BARDS Site Drainage</b>
<b>Assessed Acreage Information</b>			
Total Assessed Acres from Agricultural Parcel List	10,447	1,118	9,329
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	4	0	4
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	8,087	886	7,201
Assessed Acres from Agricultural Parcel List belonging to Non Members	2,356	232	2,124
<b>Irrigated Acreage Information</b>			
VCAILG Member Acreage Reported as Irrigated	5,455	816	4,639
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.7	0.9	0.6
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	1,589	214	1,368
Total Estimated Irrigated Acres (Member plus Non Member)	7,044	1,030	6,007
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	77%	79%	77%
<b>Survey Response Information</b>			
Sum Surveyed Irrigated Acres	3,714	823	2,892
Percent of Total Estimated Irrigated Acres that were Surveyed	53%	80%	48%
Percent of VCAILG Member Irrigated Acres that were Surveyed	68%	101%	62%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 92. Bardsdale Responsibility Area Crop Types and General Production Practices**

Crop or Practice	S03D_BARDS Site Drainage Only		Responsibility Area Minus Nested S03D_BARDS Site Drainage	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	0	0%	0	0%
Berry	0	0%	0	0%
Row Crop	18	2%	409	14%
Orchard	801	97%	2,177	75%
Nursery	4	0.5%	289	10%
Flower	0	0%	0	0%
Sod	0	0%	0	0%
Other	0	0%	16	0.6%
<b>Overhead Cover in Production Areas</b>				
Hoop House	0	0%	55	2%
No Cover	170	21%	1,189	41%
Greenhouse	0	0%	15	0.5%
Shade	0	0%	10	0.3%
Other	0	0%	0	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	456	55%	1,595	55%
Cover Crop	190	23%	211	7%
Plastic	0	0%	25	0.9%
Weed Cloth	0	0%	0	0%
Mulch	177	22%	909	31%
Gravel	0	0%	262	9%
Other	0	0%	0	0%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	89	11%	507	18%
Microsprinkler/Drip	0	0%	0	0%
Microsprinkler	693	84%	2,188	76%
Overhead Sprinkler	0	0%	105	4%
Overhead/Drip	18	2%	31	1%
Furrow Flood	23	3%	105	4%
Hand Watering	0	0%	0	0%
Other	0	0%	5	0.2%

**Table 93. Bardsdale Responsibility Area Grower BMPs**

Survey Question	Units	S03D_BARDS Site Drainage Only		S03D_BARDS Responsibility Area Minus S03D_BARDS Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	745	91%	1,854	68%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	709	86%	2,280	79%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	370	45%	764	29%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	616	75%	1,762	61%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	99	12%	886	31%
Q5a: Are soil residual nitrate tests done?	Acres	601	73%	1,566	54%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	601	73%	1,566	54%
Q6: Are leaf/petiole tests conducted?	Acres	773	94%	2,708	95%
Q7a: Is nitrate measured in fertigation water?	Acres	544	66%	1,833	63%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	544	66%	1,833	63%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	172	30%	785	48%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	62	7%	614	21%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	73	119%	541	88%
Q11: How much non-cropped area is bare soil?	Acres	16	2%	432	15%
Q12a: How many feet of ditch exist?	Feet	21,308	N/A	91,167	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	13,330	63%	50,770	56%
Q13a: Are grassed waterways present?	Acres	283	34%	111	4%
Q13b: How many acres drain to grassed waterways?	Acres	146	18%	46	2%
Q14: How many acres are treated by vegetated filter strips?	Acres	184	22%	68	2%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	703	85%	2,862	99%
Q16: Is an IPM Plan being implemented?	Acres	666	81%	2,672	92%
Q17a: How many acres are organically farmed?	Acres	172	21%	144	5%
Q17b: How many acres are conventionally farmed?	Acres	651	79%	2,748	95%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	44	5%	290	10%
Q19: Runoff from how many acres is treated or detained?	Acres	61	7%	346	12%

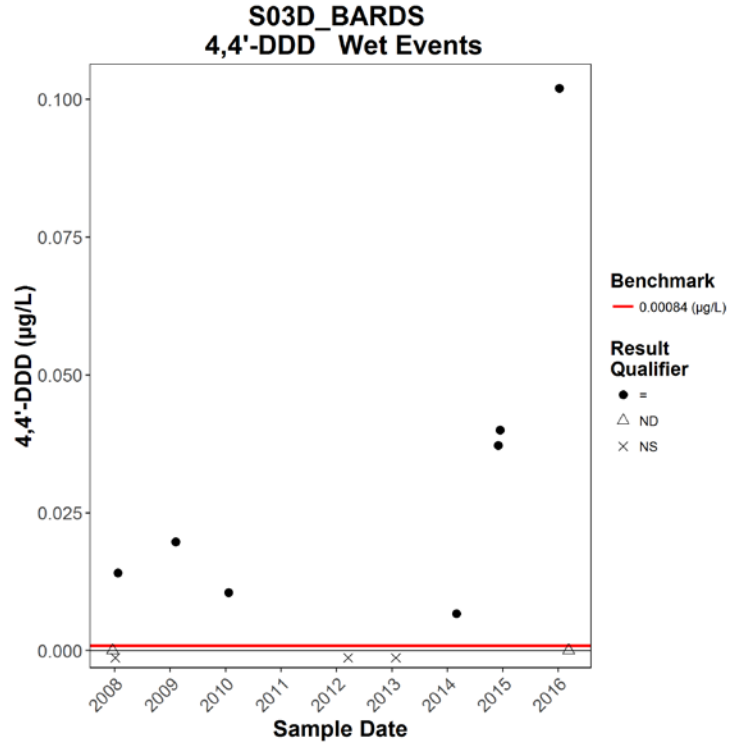


Figure 189. Wet Weather DDD Concentrations at Waiver Benchmark Site S03D\_BARDS

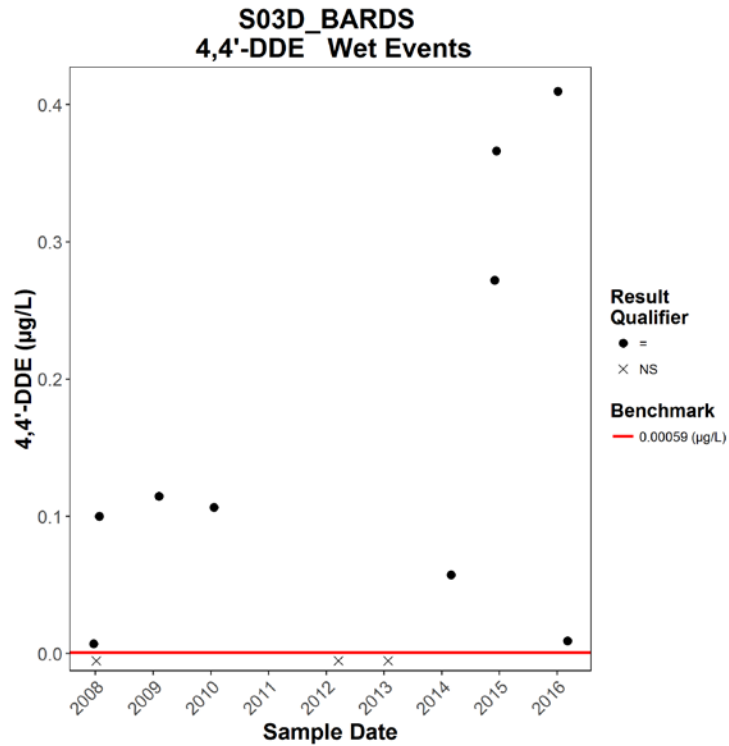


Figure 190. Wet Weather DDE Concentrations at Waiver Benchmark Site S03D\_BARDS

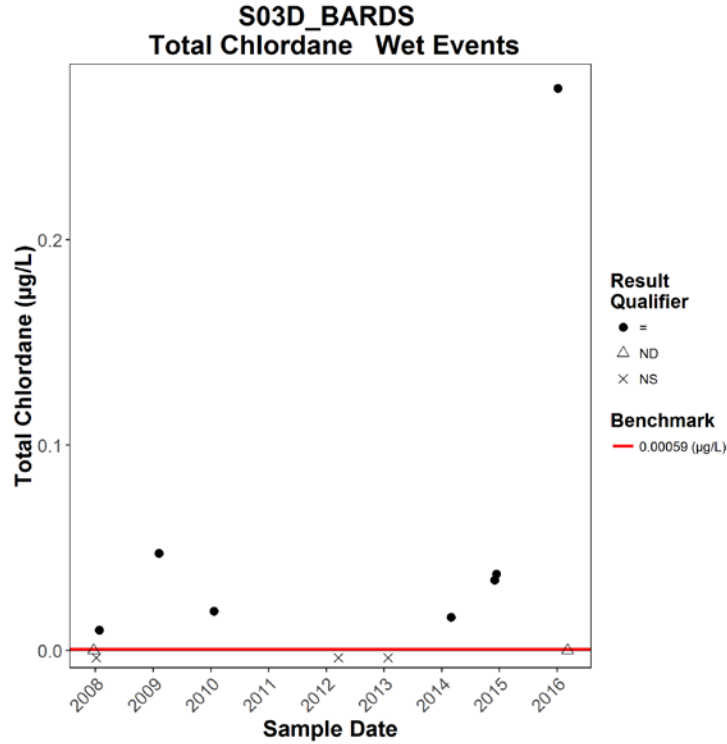


Figure 191. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site S03D\_BARDS

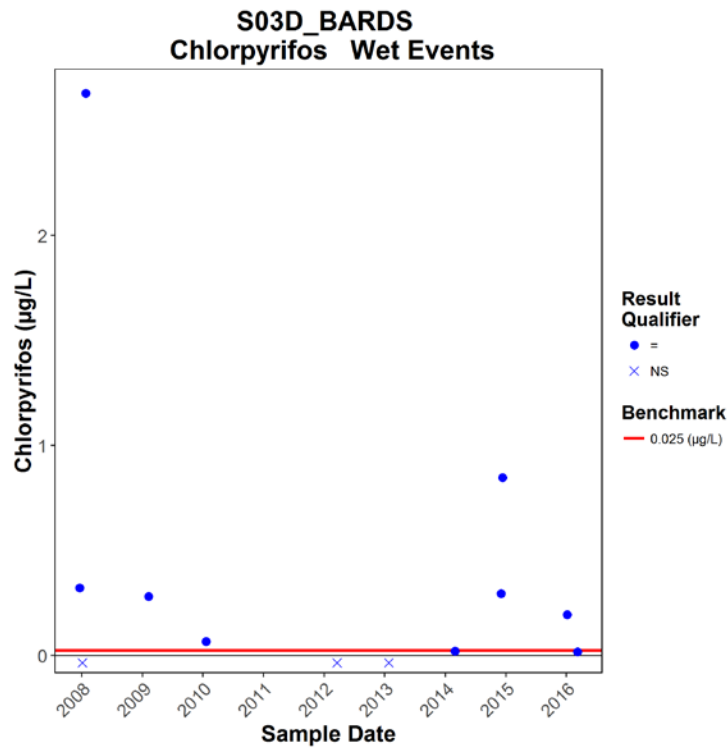


Figure 192. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site S03D\_BARDS

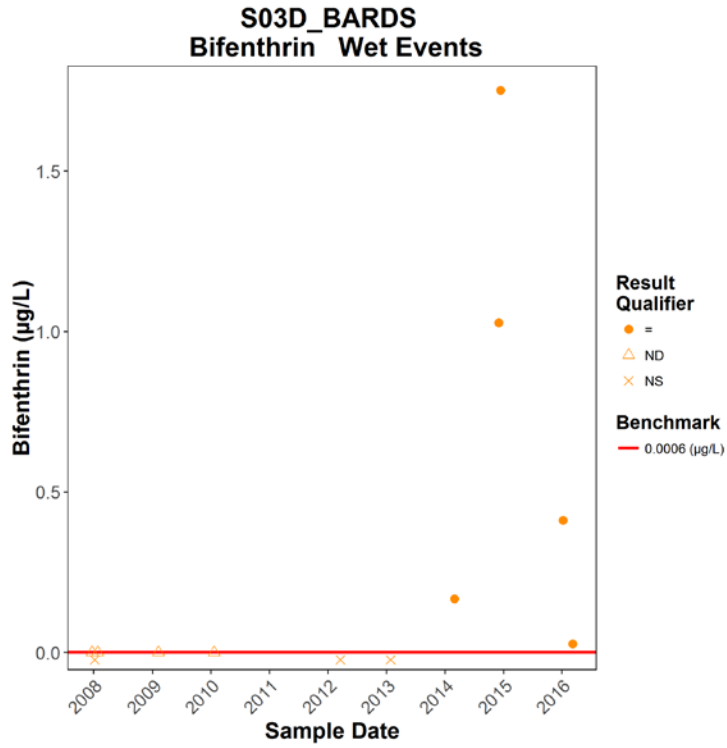


Figure 193. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site S03D\_BARDS

**Table 94. Summary of Benchmark Exceedance Evaluation for Bardsdale Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather			Wet Weather		
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs
<b><i>OC Pesticides (Legacy)</i></b>						
DDD				•		<input checked="" type="checkbox"/>
DDE				•		<input checked="" type="checkbox"/>
Chlordane				•		<input checked="" type="checkbox"/>
<b><i>OP and Pyrethroid Pesticides (Current)</i></b>						
Chlorpyrifos				•		<input checked="" type="checkbox"/>
Bifenthrin				•		<input checked="" type="checkbox"/>

**Table 95. BMPs for Additional Implementation in the Bardsdale Responsibility Area**

Exceedance Condition		Survey Question #	BMP	% of Total Applicable Surveyed Units		Additional Implementation Needed?
Legacy Pesticides	Current Pesticides			S03D_BARDS Site Drainage Only	Bardsdale Responsibility Area Minus Nested S03D_BARDS Site Drainage	
Wet	Wet					
x	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	45%	103%	Yes
x	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	119%	88%	Yes
x	x	11	How much non-cropped area is bare soil	2%	15%	Yes
x	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	63%	56%	Yes
x	x	13	Grassed waterways are used	34%	4%	Yes
x	x	14	Vegetated filter strips are used	22%	2%	Yes
	x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	85%	99%	Yes
	x	16	An integrated pest management plan is implemented	81%	92%	Yes
	x	18	How many acres produce irrigation runoff	5%	10%	Yes
x	x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	7%	12%	Not at this time
	x	[a]	Pesticide management plan is used			Yes

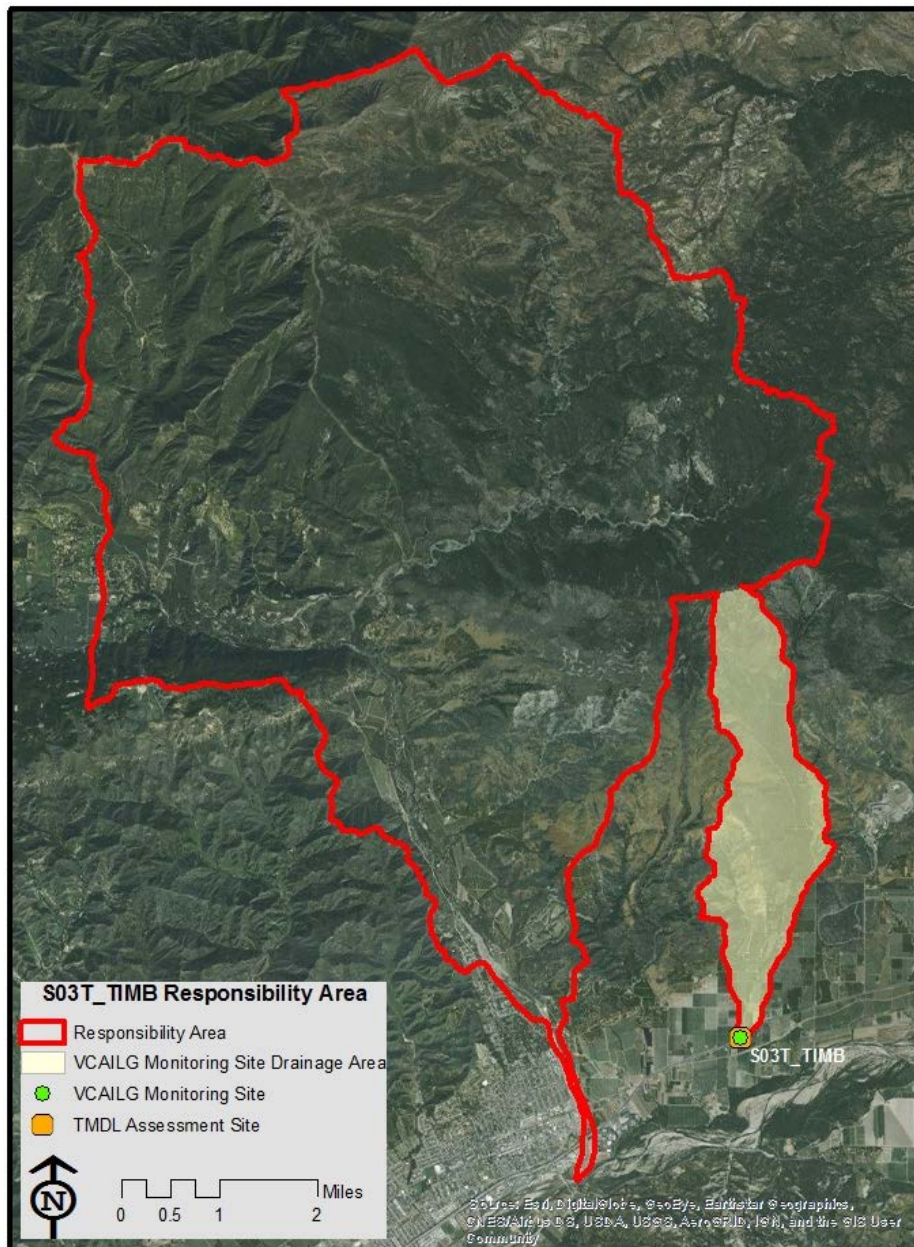
[a] Waiver specified practice for exceedances of copper and current use pesticides.



**Table 96. Proposed Best Management Practices for the Bardsdale Responsibility Area**

<b>Water Quality Issues</b>		
<b>Legacy Pesticides</b>	<b>Current Use Pesticides</b>	
<b>Wet Weather</b>	<b>Wet Weather</b>	<b>BMPs</b>
<i>Source Control BMPs</i>		
x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
x	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
	x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
	x	Implement an integrated pest management plan
	x	Use a pesticide management plan
<i>Structural Non-Treatment BMPs</i>		
x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	x	Use grassed waterways
x	x	Use vegetated filter strips

## Santa Paula Creek Responsibility Area



**Figure 194. Santa Paula Creek Responsibility Area Map**

The Santa Paula Creek responsibility area is illustrated in Figure 194. The VCAILG monitoring site also serves as a TMDL assessment site for the SCR Nitrogen TMDL.

**Table 97. Santa Paula Creek Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Entire Responsibility Area</b>	<b>Drainage Area Monitoring Site S03T_TIMB</b>	<b>Responsibility Area Minus Nested S03T_TIMB Site Drainage</b>
<b>Assessed Acreage Information</b>			
Total Assessed Acres from Agricultural Parcel List	3,260	716	2,544
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	9	0	9
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	2,656	600	2,056
Assessed Acres from Agricultural Parcel List belonging to Non Members	595	116	479
<b>Irrigated Acreage Information</b>			
VCAILG Member Acreage Reported as Irrigated	1,163	326	837
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.4	0.5	0.4
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	261	63	195
Total Estimated Irrigated Acres (Member plus Non Member)	1,424	389	1,032
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	82%	84%	81%
<b>Survey Response Information</b>			
Sum Surveyed Irrigated Acres	714	254	460
Percent of Total Estimated Irrigated Acres that were Surveyed	50%	65%	45%
Percent of VCAILG Member Irrigated Acres that were Surveyed	61%	78%	55%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 98. Santa Paula Creek Responsibility Area Crop Types and General Production Practices**

Crop or Practice	S03T_TIMB Site Drainage Only		Responsibility Area Minus S03T_TIMB Site Drainage	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	0	0%	0	0%
Berry	0	0%	0	0%
Row Crop	0	0%	0	0%
Orchard	254	100%	460	100%
Nursery	0	0%	0	0%
Flower	0	0%	0	0%
Sod	0	0%	0	0%
Other	0	0%	0	0%
<b>Overhead Cover in Production Areas</b>				
Hoop House	0	0%	0	0%
No Cover	74	29%	67	15%
Greenhouse	0	0%	0	0%
Shade	0	0%	0	0%
Other	0	0%	0	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	0	0%	261	57%
Cover Crop	0	0%	25	5%
Plastic	0	0%	0	0%
Weed Cloth	0	0%	0	0%
Mulch	165	65%	90	20%
Gravel	0	0%	0	0%
Other	89	35%	88	19%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	0	0%	130	28%
Microsprinkler/Drip	0	0%	0	0%
Microsprinkler	254	100%	330	72%
Overhead Sprinkler	0	0%	0	0%
Overhead/Drip	0	0%	0	0%
Furrow Flood	0	0%	0	0%
Hand Watering	0	0%	0	0%
Other	0	0%	0	0%

**Table 99. Santa Paula Creek Responsibility Area Grower BMPs**

Survey Question	Units	S03T_TIMB Site Drainage Only		S03T_TIMB Responsibility Area Minus S03T_TIMB Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	134	53%	460	100%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	134	53%	230	50%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	0	0%	106	28%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	134	53%	181	39%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	134	53%	88	19%
Q5a: Are soil residual nitrate tests done?	Acres	134	53%	287	62%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	134	53%	287	62%
Q6: Are leaf/petiole tests conducted?	Acres	254	100%	449	98%
Q7a: Is nitrate measured in fertigation water?	Acres	45	18%	332	72%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	45	18%	268	58%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	0	0%	25	56%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	175	69%	143	31%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	61	35%	129	91%
Q11: How much non-cropped area is bare soil?	Acres	11	4%	269	58%
Q12a: How many feet of ditch exist?	Feet	14,840	N/A	4,628	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	4,540	31%	4,250	92%
Q13a: Are grassed waterways present?	Acres	44	18%	70	15%
Q13b: How many acres drain to grassed waterways?	Acres	5	2%	0	0%
Q14: How many acres are treated by vegetated filter strips?	Acres	0	0%	0	0%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	254	100%	351	76%
Q16: Is an IPM Plan being implemented?	Acres	254	100%	351	76%
Q17a: How many acres are organically farmed?	Acres	0	0%	0	0%
Q17b: How many acres are conventionally farmed?	Acres	254	100%	460	100%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	0	0%	14	3%
Q19: Runoff from how many acres is treated or detained?	Acres	0	0%	9	2%

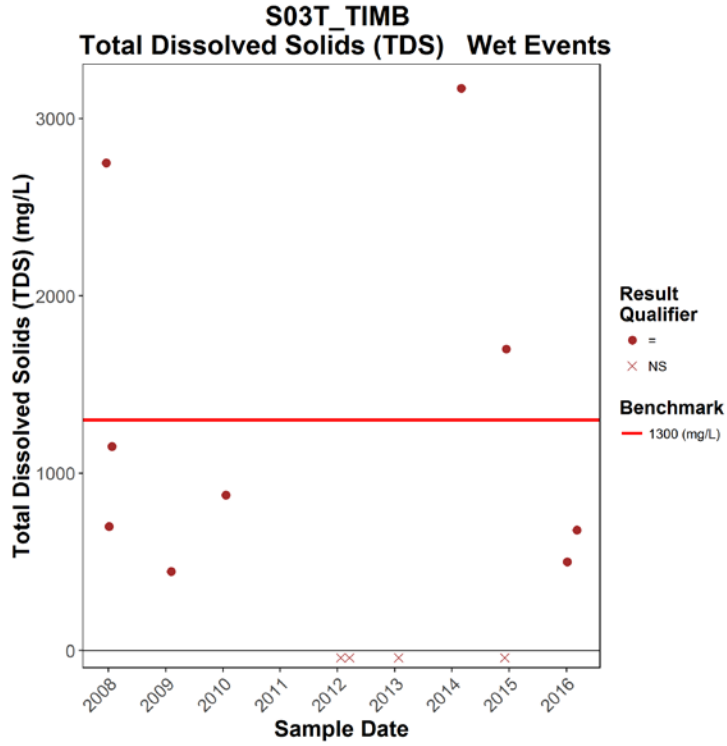


Figure 195. Wet Weather Total Dissolved Solids Concentrations at Waiver Benchmark Site S03T\_TIMB

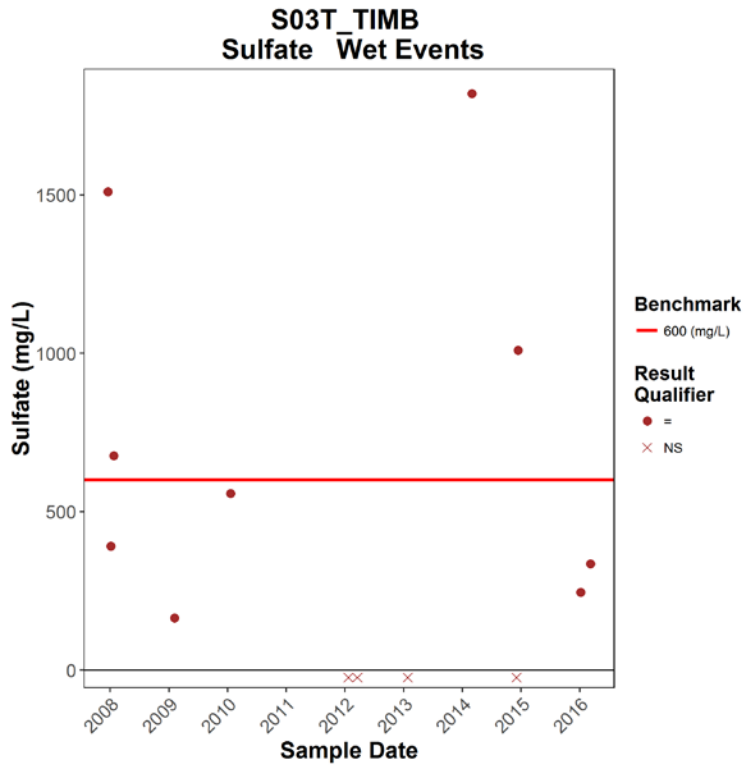


Figure 196. Wet Weather Sulfate Concentrations at Waiver Benchmark Site S03T\_TIMB

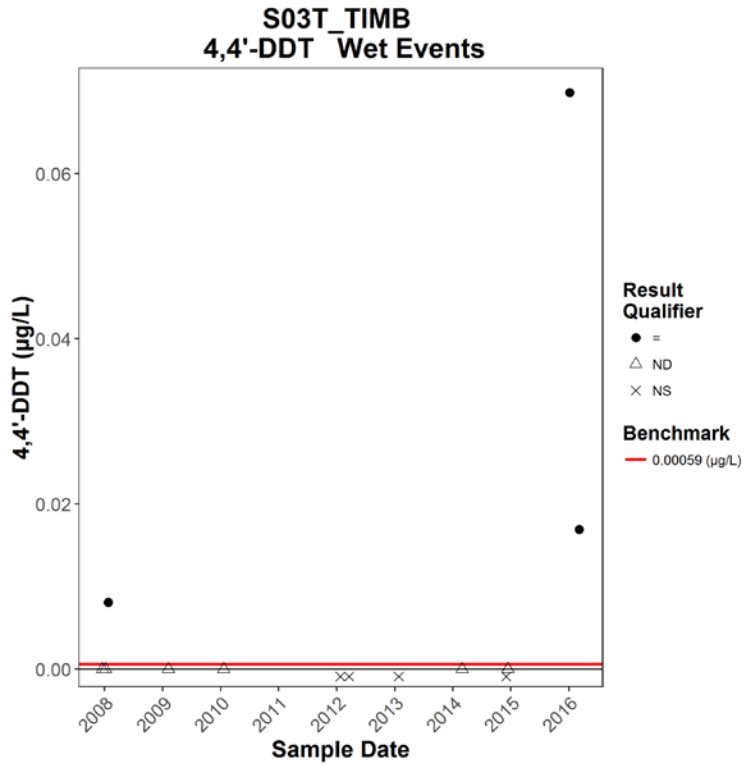


Figure 197. Wet Weather DDT Concentrations at Waiver Benchmark Site S03T\_TIMB

**Table 100. Summary of Benchmark Exceedance Evaluation for Santa Paula Creek Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather			Wet Weather		
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs
<b>Salts</b>						
TDS				•		<input checked="" type="checkbox"/>
Sulfate				•		<input checked="" type="checkbox"/>
<b>OC Pesticides (Legacy)</b>						
DDT				•		<input checked="" type="checkbox"/>



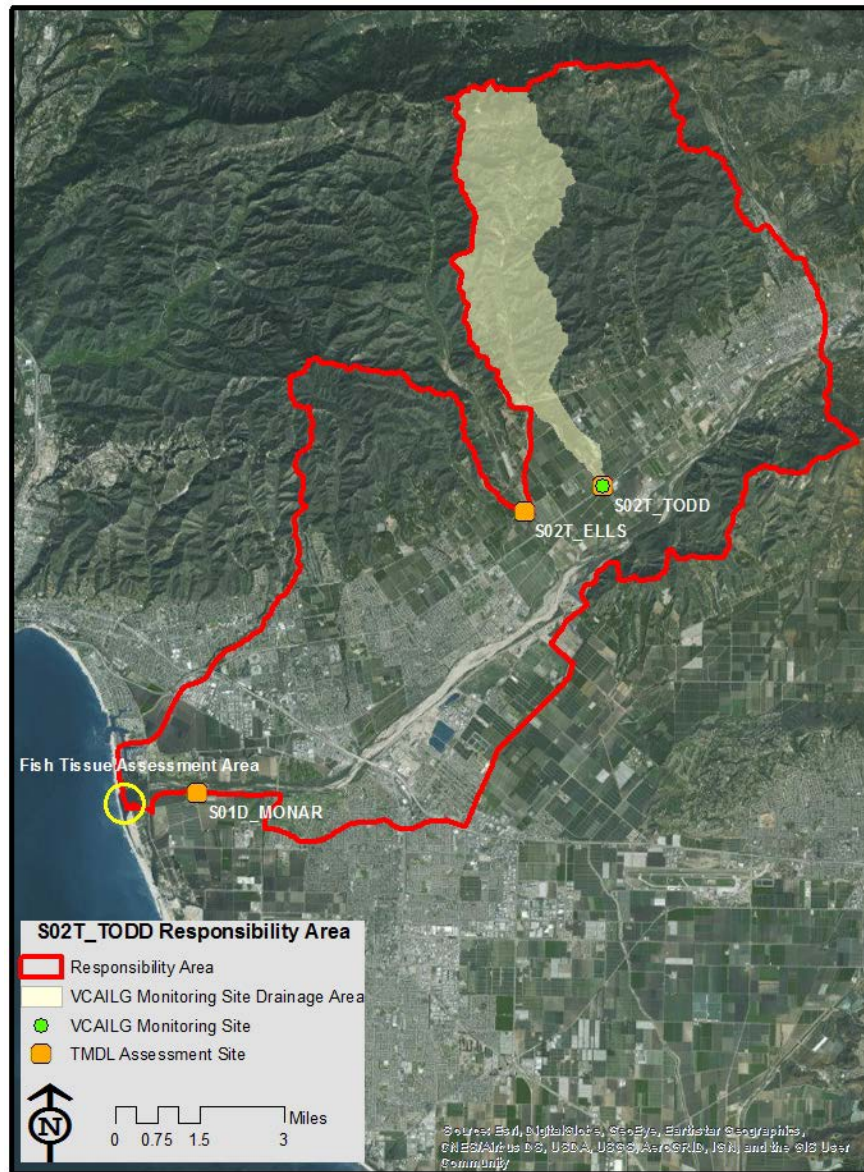
**Table 101. BMPs for Additional Implementation in the Santa Paula Creek Responsibility Area**

Exceedance Condition		Survey Question #	BMP	% of Total Applicable Surveyed Units		Additional Implementation Needed?
Salts	Legacy Pesticides			S03T_TIMB Site Drainage Only	Santa Paula Creek Responsibility Area Minus Nested S03T_TIMB Site Drainage	
Wet	Wet					
	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	100%	44%	Yes
	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	35%	91%	Yes
	x	11	How much non-cropped area is bare soil	4%	58%	Yes
	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	31%	92%	Yes
x	x	13	Grassed waterways are used	18%	15%	Yes
x	x	14	Vegetated filter strips are used	0%	0%	Yes
x	x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	0%	2%	Not at this time
	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	100%	44%	Yes

**Table 102. Proposed Best Management Practices for the Santa Paula Creek Responsibility Area**

<b>Water Quality Issues</b>		
<b>Salts</b>	<b>Legacy Pesticides</b>	
<b>Wet Weather</b>	<b>Wet Weather</b>	<b>BMPs</b>
<i>Source Control BMPs</i>		
	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
<i>Structural Non-Treatment BMPs</i>		
	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	x	Use grassed waterways
x	x	Use vegetated filter strips

## Todd Barranca Responsibility Area



**Figure 198. Todd Barranca Responsibility Area Map**

The Todd Barranca responsibility area is illustrated in Figure 198. Compliance with TMDL LAs applicable to this responsibility area are evaluated at the following monitoring sites in the manner described:

- S02T\_TODD is an SCR Nitrogen TMDL Assessment Site
- Site S02T\_ELLS is an SCR Estuary Toxaphene TMDL Suspended Sediment Assessment Site for Reach 2
- Site S01D\_MONAR is an SCR Estuary Toxaphene TMDL Suspended Sediment Assessment Site for Reach 1
- The yellow circle marks the SCR Estuary Toxaphene TMDL Fish Tissue Assessment Area

**Table 103. Todd Barranca Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Entire Responsibility Area</b>	<b>Drainage Area Monitoring Site S02T_TODD</b>	<b>Responsibility Area Minus Nested S02T_TODD Site Drainage</b>
<b>Assessed Acreage Information</b>			
Total Assessed Acres from Agricultural Parcel List	16,669	714	15,955
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	87	0	87
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	13,296	614	12,682
Assessed Acres from Agricultural Parcel List belonging to Non Members	3,286	100	3,186
<b>Irrigated Acreage Information</b>			
VCAILG Member Acreage Reported as Irrigated	9,299	499	8,800
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.7	0.8	0.7
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	2,298	81	2,211
Total Estimated Irrigated Acres (Member plus Non Member)	11,597	580	11,011
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	80%	86%	80%
<b>Survey Response Information</b>			
Sum Surveyed Irrigated Acres	6,881	436	6,446
Percent of Total Estimated Irrigated Acres that were Surveyed	59%	75%	59%
Percent of VCAILG Member Irrigated Acres that were Surveyed	74%	87%	73%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 104. Todd Barranca Responsibility Area Crop Types and General Production Practices**

Crop or Practice	S02T_TODD Site Drainage Only		Responsibility Area Minus Nested S02T_TODD Site Drainage	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	0	0%	1,285	20%
Berry	41	10%	0	0%
Row Crop	20	5%	964	15%
Orchard	374	86%	4,023	62%
Nursery	0	0%	60	0.9%
Flower	0	0%	96	1%
Sod	0	0%	0	0%
Other	0	0%	19	0.3%
<b>Overhead Cover in Production Areas</b>				
Hoop House	0	0%	79	1%
No Cover	0	0%	507	8%
Greenhouse	0	0%	4	0.1%
Shade	0	0%	1	0%
Other	0	0%	0	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	61	14%	2,271	35%
Cover Crop	0	0%	130	2%
Plastic	0	0%	1,400	22%
Weed Cloth	0	0%	39	0.6%
Mulch	374	86%	2,381	37%
Gravel	0	0%	5	0.1%
Other	0	0	239	4%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	86	20%	1,039	16%
Microsprinkler/Drip	0	0%	782	12%
Microsprinkler	349	80%	3,486	54%
Overhead Sprinkler	0	0%	201	3%
Overhead/Drip	0	0%	881	14%
Furrow Flood	0	0%	94	1%
Hand Watering	0	0%	8	0.1%
Other	0	0%	0	0%

**Table 105. Todd Barranca Responsibility Area Grower BMPs**

Survey Question	Units	S02T_TODD Site Drainage Only		S02T_TODD Responsibility Area Minus S02T_TODD Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	436	100%	5,450	85%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	27	6%	2,901	45%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	41	10%	1,439	23%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	351	81%	3,846	60%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	0	0%	1,341	21%
Q5a: Are soil residual nitrate tests done?	Acres	84	19%	3,830	59%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	84	19%	3,830	59%
Q6: Are leaf/petiole tests conducted?	Acres	436	100%	6,029	94%
Q7a: Is nitrate measured in fertigation water?	Acres	436	100%	4,654	72%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	436	100%	4,576	71%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	41	100%	1,886	67%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	27	6%	1,397	22%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	27	100%	1,439	103%
Q11: How much non-cropped area is bare soil?	Acres	57	13%	811	13%
Q12a: How many feet of ditch exist?	Feet	6,000	N/A	152,730	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	2,400	40%	67,514	44%
Q13a: Are grassed waterways present?	Acres	0	0%	448	7%
Q13b: How many acres drain to grassed waterways?	Acres	0	0%	375	6%
Q14: How many acres are treated by vegetated filter strips?	Acres	2	0.5%	267	4%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	436	100%	6,301	98%
Q16: Is an IPM Plan being implemented?	Acres	436	100%	6,097	95%
Q17a: How many acres are organically farmed?	Acres	41	10%	266	4%
Q17b: How many acres are conventionally farmed?	Acres	394	90%	6,180	96%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	0	0%	545	8%
Q19: Runoff from how many acres is treated or detained?	Acres	0	0%	821	13%

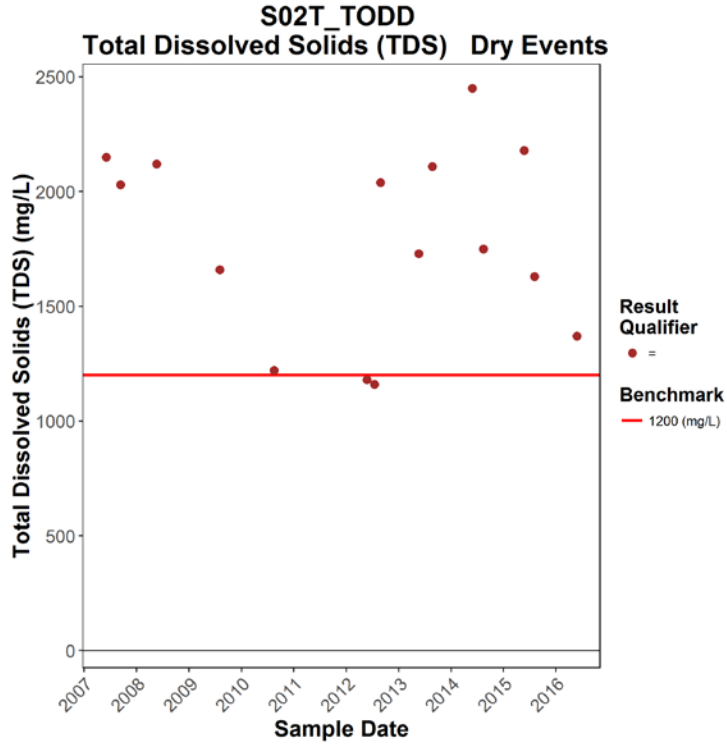


Figure 199. Dry Weather Total Dissolved Solids Concentrations at Waiver Benchmark Site S02T\_TODD

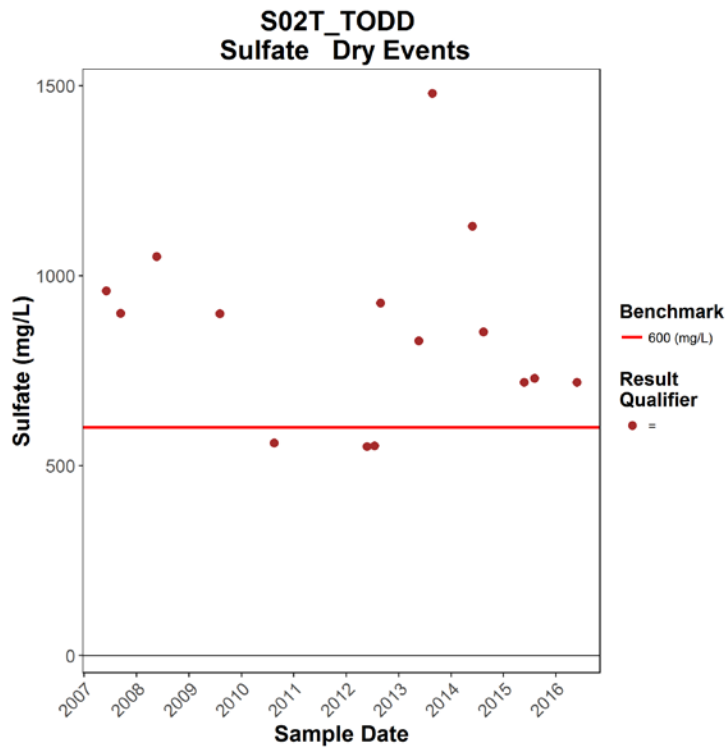
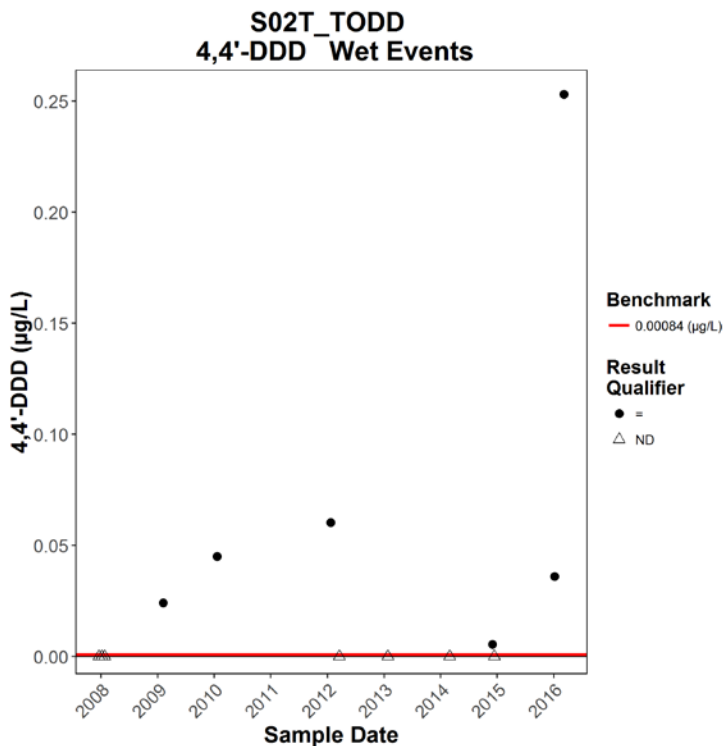


Figure 200. Dry Weather Sulfate Concentrations at Waiver Benchmark Site S02T\_TODD

**Table 106. Water Column Survival Toxicity at Waiver Benchmark Site S02T\_TODD**

Significant Mortality <sup>6</sup>								X	X					
No Significant Mortality	X	X	<sup>7</sup>	<sup>7</sup>	X	X	X			X	X	X	X	X
Date	6/4/2007	1/5/2008	8/4/2009	8/17/2010	1/23/2012	7/17/2012	1/25/2013	8/22/2013	2/28/2014	5/29/2014	12/2/2014	6/22/2014	1/6/2016	5/26/2016



**Figure 201. Wet Weather DDD Concentrations at Waiver Benchmark Site S02T\_TODD**

<sup>6</sup> Single-species toxicity testing was conducted using the Regional Board-approved species *Ceriodaphnia dubia* for S02T\_TODD.

<sup>7</sup> Species different than *Ceriodaphnia dubia* evaluated.



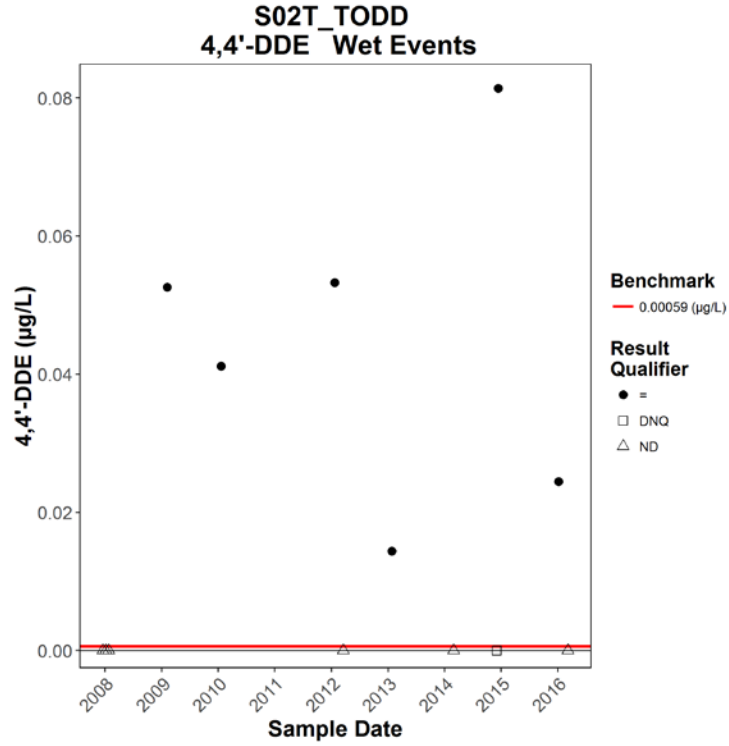


Figure 202. Wet Weather DDE Concentrations at Waiver Benchmark Site S02T\_TODD

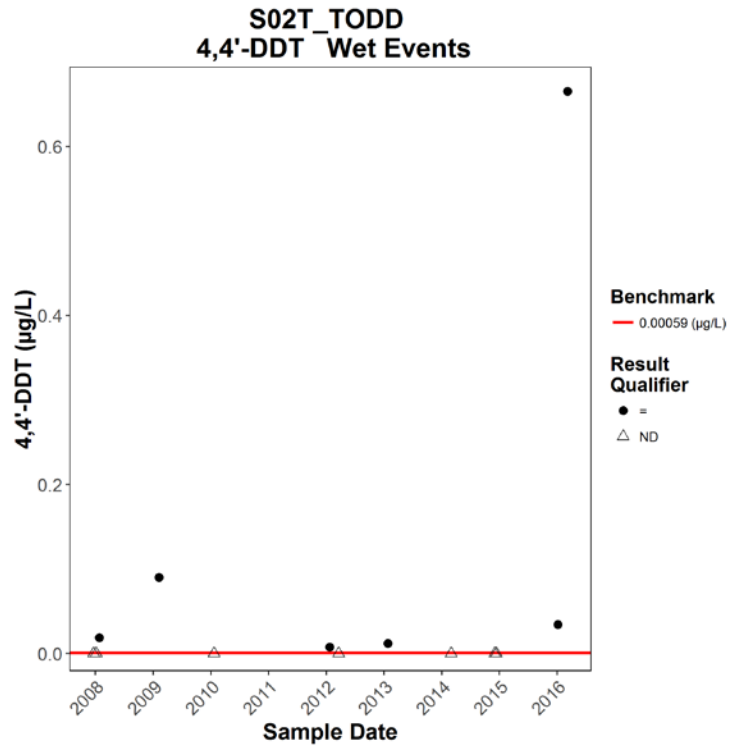


Figure 203. Wet Weather DDT Concentrations at Waiver Benchmark Site S02T\_TODD

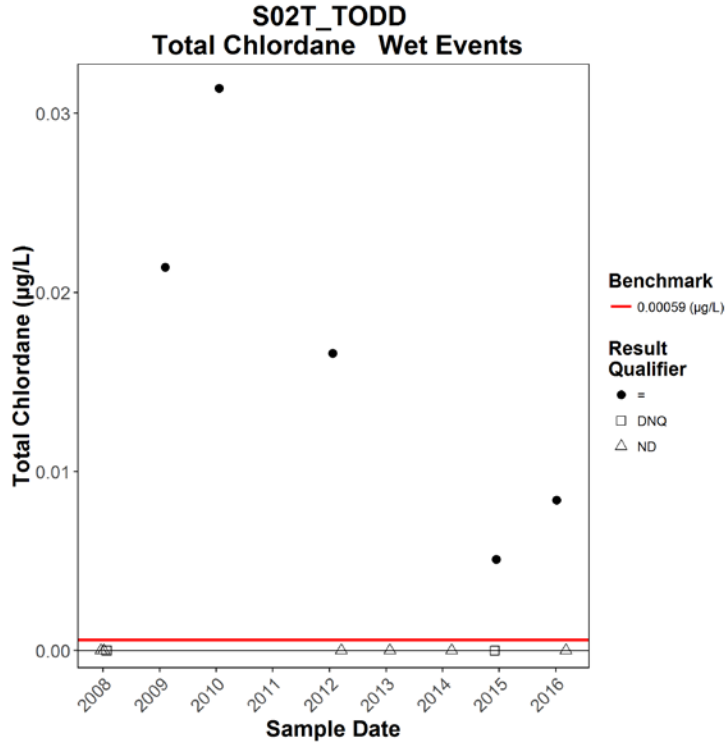


Figure 204. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site S02T\_TODD

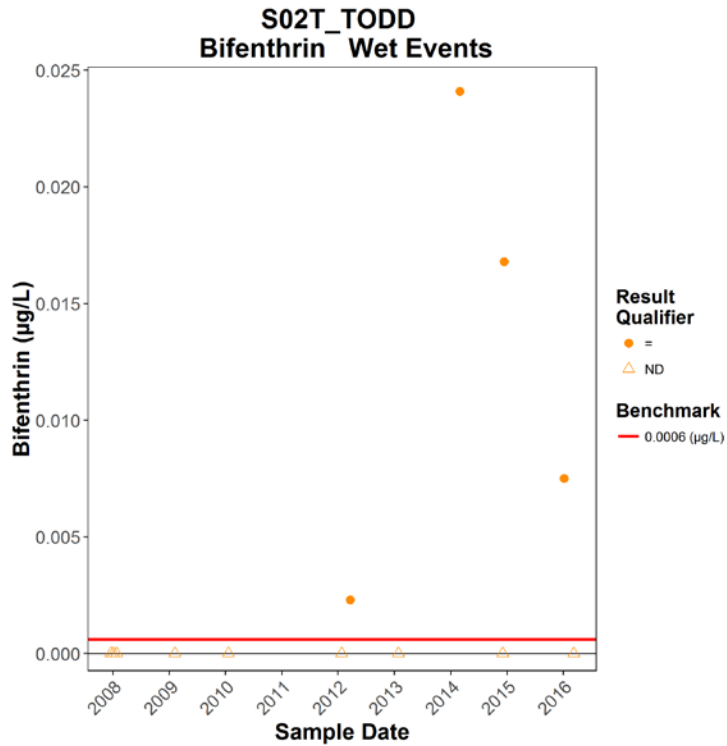
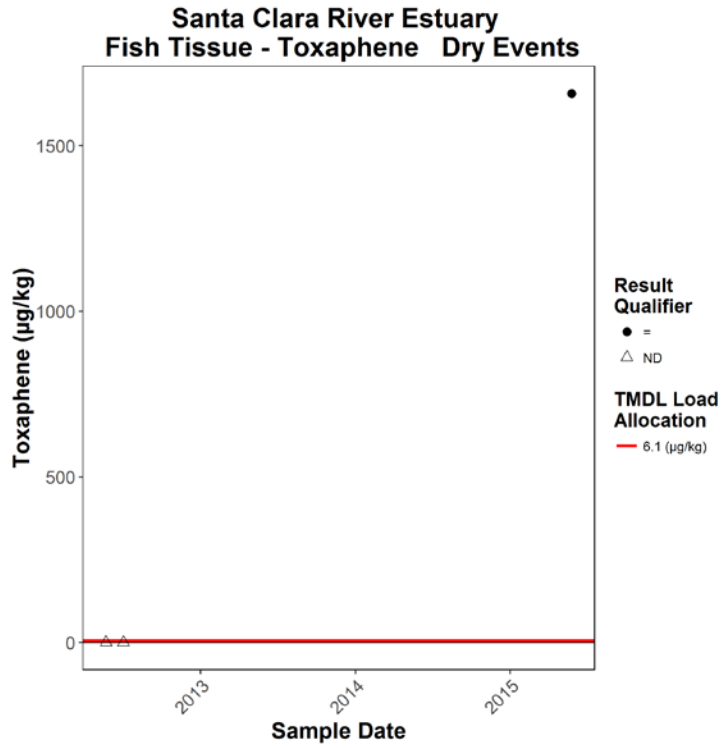


Figure 205. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site S02T\_TODD



**Figure 206. Fish Tissue Toxaphene Concentrations at TMDL LA Site Santa Clara River Estuary**

**Table 107. Summary of Benchmark Exceedance Evaluation for Todd Barranca Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather			Wet Weather		
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs
<b>Salts</b>						
TDS	•		<input checked="" type="checkbox"/>			
Sulfate	•		<input checked="" type="checkbox"/>			
<b>OC Pesticides (Legacy)</b>						
DDD				•		<input checked="" type="checkbox"/>
DDE				•		<input checked="" type="checkbox"/>
DDT				•		<input checked="" type="checkbox"/>
Chlordane				•		<input checked="" type="checkbox"/>
Toxaphene		• <sup>1</sup>	<input checked="" type="checkbox"/>		• <sup>1</sup>	<input checked="" type="checkbox"/>
<b>OP and Pyrethroid Pesticides (Current)</b>						
Bifenthrin				•		<input checked="" type="checkbox"/>
<b>Chronic Toxicity</b>						
Survival Toxicity	• <sup>2</sup>		<input checked="" type="checkbox"/>			

1. Fish tissue exceedance for Santa Clara River Estuary Toxaphene TMDL. Though fish are collected in the estuary during dry weather, the results are applied to both wet and dry weather to ensure management practices minimize toxaphene transport year-round. The exceedance rate for this LA is 50% due to the fact that at this time there have only been two years of fish samplings events (TMDL monitoring frequency is every three years).
2. Single species exceedances for *Ceriodaphnia dubia*.

**Table 108. BMPs for Additional Implementation in the Todd Barranca Responsibility Area**

Exceedance Condition					Survey Question #	BMP	% of Total Applicable Surveyed Units		Additional Implementation Needed?
Salt	Legacy Pesticides	Current Pesticides	Toxicity	Dry			S02T_TODD Site Drainage Only	Todd Barranca Responsibility Area Minus Nested S02T_TODD Site Drainage	
Dry	Dry	Wet	Wet	Dry					
	x	x	x	x	Crop management <sup>[b]</sup>	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	86%	66%	Yes
x	x	x		x	Irrigation system type <sup>[b]</sup>	Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	100%	82%	Yes
x	x	x		x	1 <sup>[b]</sup>	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	100%	85%	Yes
x				x	2 <sup>[b]</sup>	Irrigation practices are based on soil moisture measurements and/or crop evapotranspiration	60%	45%	Yes
x				x	3	Soil solution electrical conductivity measurements are used to determine when salt leaching is necessary	10%	23%	Yes
				x	4	Certified nutrient management plan has been prepared for the property	0%	21%	Yes
				x	5	Soil residual nitrate tests are conducted and used to adjust fertilizer applications	19%	59%	Yes
				x	6	Leaf/petiole tests are conducted and used to apply the minimum necessary amount of fertilizer	100%	94%	Yes
				x	7	Irrigation water nitrate is analyzed and the results are used to adjust fertilizer applications.	100%	71%	Yes
				x	8	Fertilizer applications are adjusted to account for nutrients provided by cover crops	100%	67%	Yes
	x	x	x	x	9, 10 <sup>[b]</sup>	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	100%	103%	No
	x	x	x	x	11 <sup>[b]</sup>	How much non-cropped area is bare soil	13%	13%	Yes
	x	x	x	x	12 <sup>[b]</sup>	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	40%	44%	Yes
x	x	x	x	x	13 <sup>[b]</sup>	Grassed waterways are used	0%	7%	Yes
x	x	x	x	x	14 <sup>[b]</sup>	Vegetated filter strips are used	1%	4%	Yes
			x	x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	100%	98%	No
			x	x	16	An integrated pest management plan is implemented	100%	95%	Yes
x	x	x		x	18 <sup>[b]</sup>	How many acres produce irrigation runoff	0%	8%	Yes
x	x	x	x	x	19 <sup>[b]</sup>	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	0%	13%	Not at this time
			x		<sup>[a]</sup>	Pesticide management plan is used			Yes

[a] Waiver specified practice for exceedances of copper and current use pesticides.

[b] BMP with potential to reduce sediment runoff or improve irrigation efficiency to achieve LAs for the Santa Clara River Estuary Toxaphene TMDL.

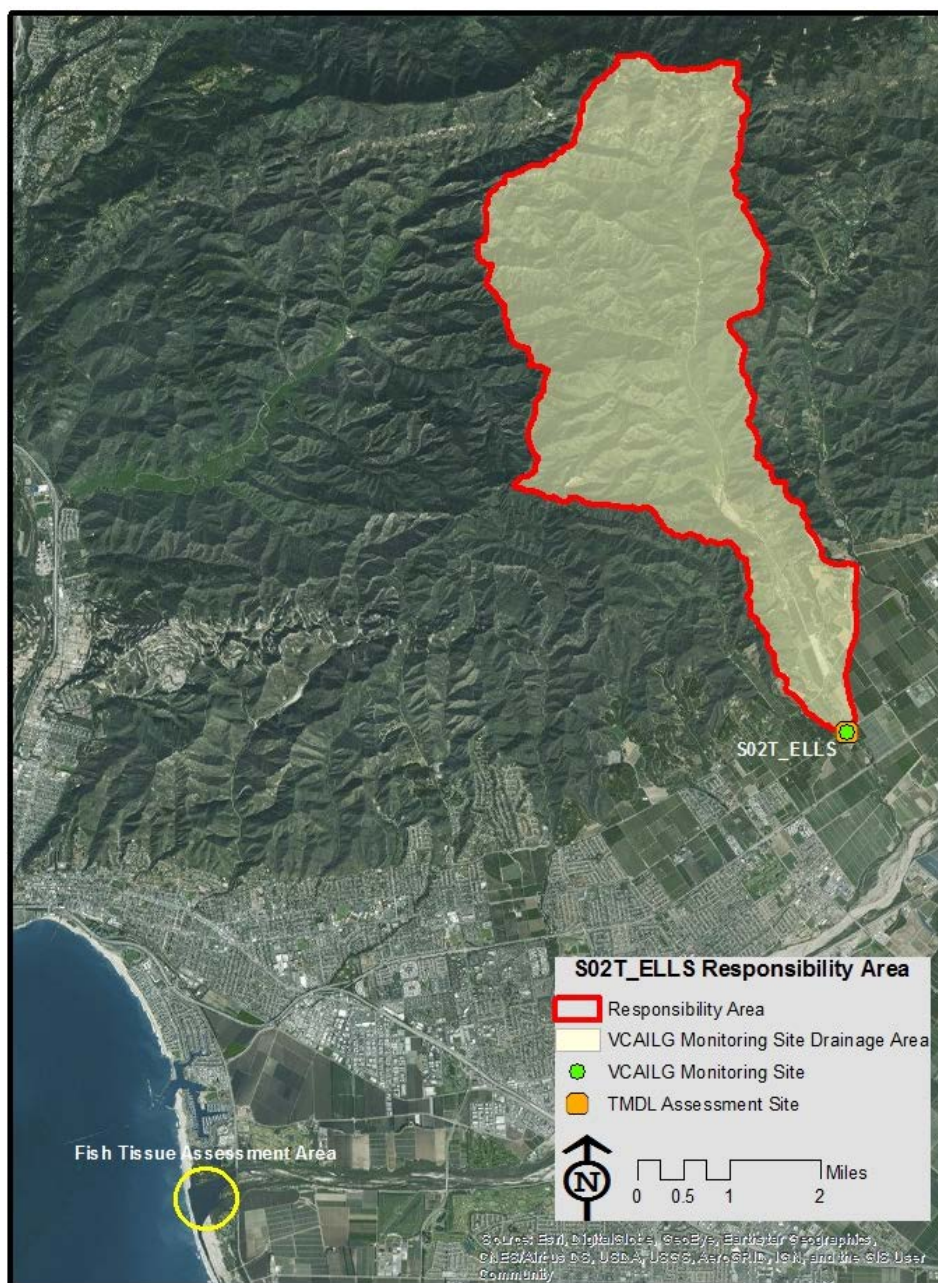
**Table 109. Proposed Best Management Practices for the Todd Barranca Responsibility Area**

Water Quality Issues					BMPs
Salts	Legacy Pesticides		Current Use Pesticides	Toxicity	
Dry Weather	Dry Weather	Wet Weather	Wet Weather	Dry Weather	
					<i>Source Control BMPs</i>
	x	x	x	x	<b>Reduce bare soil in production area with cover crops, gravel, mulch, etc.</b>
x	x			x	<b>Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)</b>
x	x			x	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.
x				x	<b>Implement irrigation practices that are based on soil moisture measurements and/or crop evapotranspiration</b>
x				x	Use soil solution electrical conductivity measurements to determine when salt leaching is necessary
				x	Prepare a certified nutrient management plan for the property
				x	Conduct soil residual nitrate tests and use results to adjust fertilizer application
				x	Conduct leaf/petiole tests and use results to apply the minimum necessary amount of fertilizer
				x	Analyze irrigation water nitrate and use results to adjust fertilizer application
				x	Adjust fertilizer application to account for nutrients provided by cover crops
	x	x	x	x	<b>Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)</b>
		x	x	x	<b>Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel</b>
			x	x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
			x	x	Implement an integrated pest management plan
x	x			x	<b>Avoid/prevent irrigation runoff</b>
			x		Use a pesticide management plan

Water Quality Issues					BMPs
Salts	Legacy Pesticides		Current Use Pesticides	Toxicity	
Dry Weather	Dry Weather	Wet Weather	Wet Weather	Dry Weather	
					<i>Structural Non-Treatment BMPs</i>
	x	x	x	x	<b>Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals</b>
x	x	x	x	x	<b>Use grassed waterways</b>
x	x	x	x	x	<b>Use vegetated filter strips</b>

**Bolded BMPs** are required by the Conditional Waiver to the degree appropriate for achieving the Santa Clara River Estuary Toxaphene TMDL.

## Ellsworth Barranca Responsibility Area



**Figure 207. Ellsworth Barranca Responsibility Area Map**

The Ellsworth Barranca responsibility area is illustrated in Figure 207. Compliance with TMDL LAs applicable to this responsibility area are evaluated at the following monitoring sites in the manner described:

- S02T\_ELLS is an SCR Nitrogen TMDL Assessment Site and SCR Estuary Toxaphene TMDL Suspended Sediment Assessment Site
- The yellow circle marks the SCR Estuary Toxaphene TMDL Fish Tissue Assessment Area



**Table 110. Ellsworth Barranca Responsibility Area Enrollment and Survey Acreage Summary**

Enrollment and Survey Information	Drainage Area Monitoring Site S02T_ELLS
<b>Assessed Acreage Information</b>	
Total Assessed Acres from Agricultural Parcel List	2,664
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	0
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	2,517
Assessed Acres from Agricultural Parcel List belonging to Non Members	147
<b>Irrigated Acreage Information</b>	
VCAILG Member Acreage Reported as Irrigated	783
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.3
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	46
Total Estimated Irrigated Acres (Member plus Non Member)	829
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	94%
<b>Survey Response Information</b>	
Sum Surveyed Irrigated Acres	548
Percent of Total Estimated Irrigated Acres that were Surveyed	66%
Percent of VCAILG Member Irrigated Acres that were Surveyed	70%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 111. Ellsworth Barranca Responsibility Area Crop Types and General Production Practices**

Crop or Practice	S02T_ELLS Site Drainage [a]	
	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>		
Strawberry	0	0%
Berry	0	0%
Row Crop	81	15%
Orchard	467	85%
Nursery	0	0%
Flower	0	0%
Sod	0	0%
Other	0	0%
<b>Overhead Cover in Production Areas</b>		
Hoop House	0	0%
No Cover	0	0%
Greenhouse	0	0%
Shade	0	0%
Other	0	0%
<b>Surface Treatments in Production Areas</b>		
Bare Soil	428	78%
Cover Crop	23	4%
Plastic	0	0%
Weed Cloth	0	0%
Mulch	158	29%
Gravel	0	0%
Other	9	2%
<b>Irrigation Systems in Production Areas</b>		
Drip Only	164	30%
Microsprinkler/Drip	0	0%
Microsprinkler	435	79%
Overhead Sprinkler	0	0%
Overhead/Drip	9	2%
Furrow Flood	0	0%
Hand Watering	0	0%
Other	0	0%

[a] Monitoring site drainage area serves as a complete Responsibility Area

**Table 112. Ellsworth Barranca Responsibility Area Grower BMPs**

Survey Question	Units	S02T_ELLS Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>			
Q1: Is the irrigation system tested for distribution uniformity?	Acres	536	98%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	242	44%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	48	9%
<b>Nutrient Management</b>			
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	357	65%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	36	7%
Q5a: Are soil residual nitrate tests done?	Acres	202	37%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	202	37%
Q6: Are leaf/petiole tests conducted?	Acres	520	95%
Q7a: Is nitrate measured in fertigation water?	Acres	440	80%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	440	80%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	14	100%
<b>Sediment Management</b>			
Q9: How many cropped acres are sloped?	Acres	244	44%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	244	100%
Q11: How much non-cropped area is bare soil?	Acres	422	77%
Q12a: How many feet of ditch exist?	Feet	4,920	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	1,920	39%
Q13a: Are grassed waterways present?	Acres	80	14%
Q13b: How many acres drain to grassed waterways?	Acres	45	8%
Q14: How many acres are treated by vegetated filter strips?	Acres	32	6%
<b>Pest Management</b>			
Q15: Are PCAs used for pesticide management decisions?	Acres	489	89%
Q16: Is an IPM Plan being implemented?	Acres	489	89%
Q17a: How many acres are organically farmed?	Acres	9	2%
Q17b: How many acres are conventionally farmed?	Acres	539	98%
<b>Runoff Management/Treatment</b>			
Q18: How many acres produce irrigation runoff?	Acres	19	3%
Q19: Runoff from how many acres is treated or detained?	Acres	56	10%

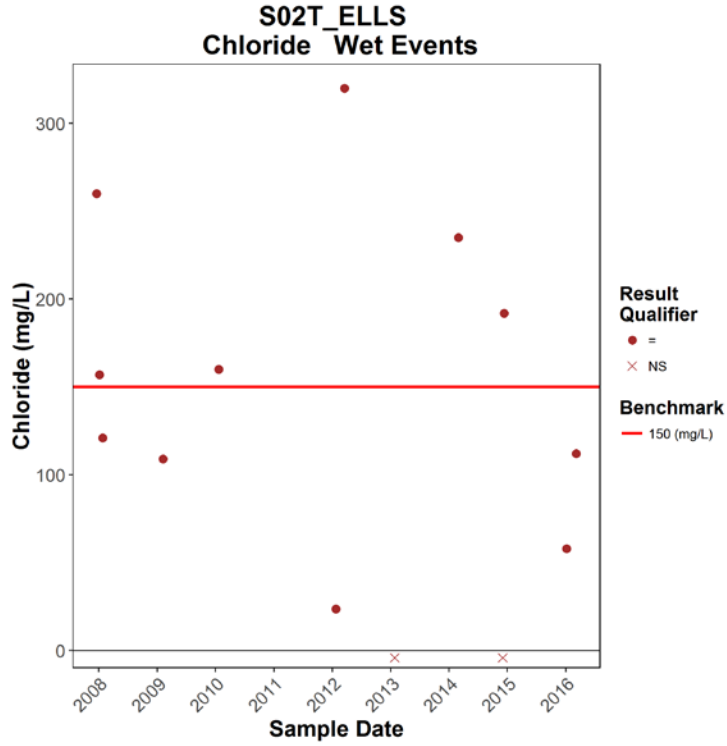


Figure 208. Wet Weather Chloride Concentrations at Waiver Benchmark Site S02T\_ELLS

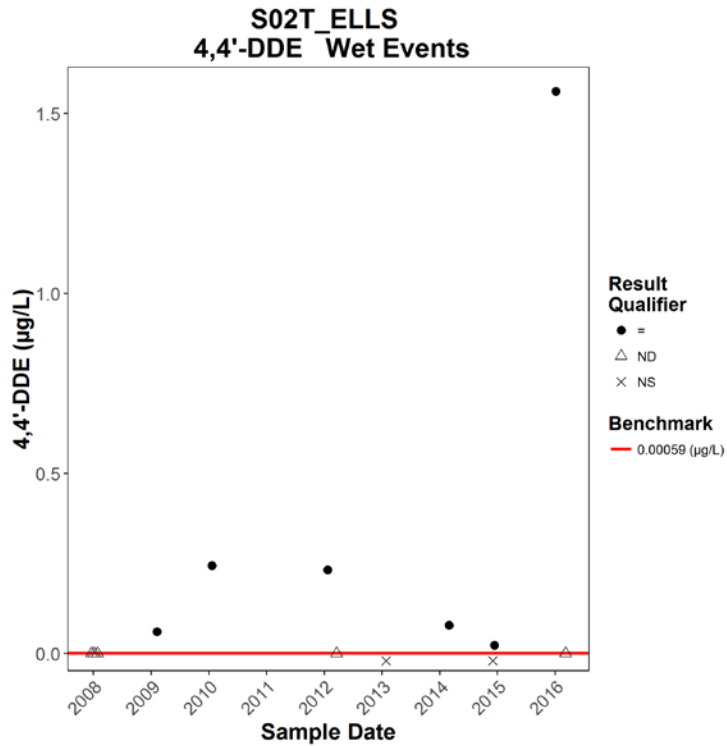


Figure 209. Wet Weather DDE Concentrations at Waiver Benchmark Site S02T\_ELLS

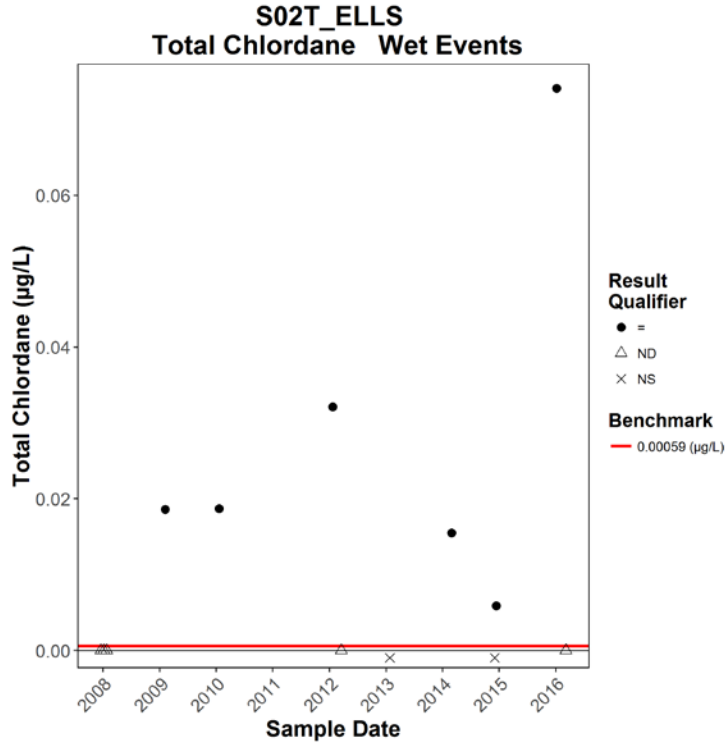


Figure 210. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site S02T\_ELLS

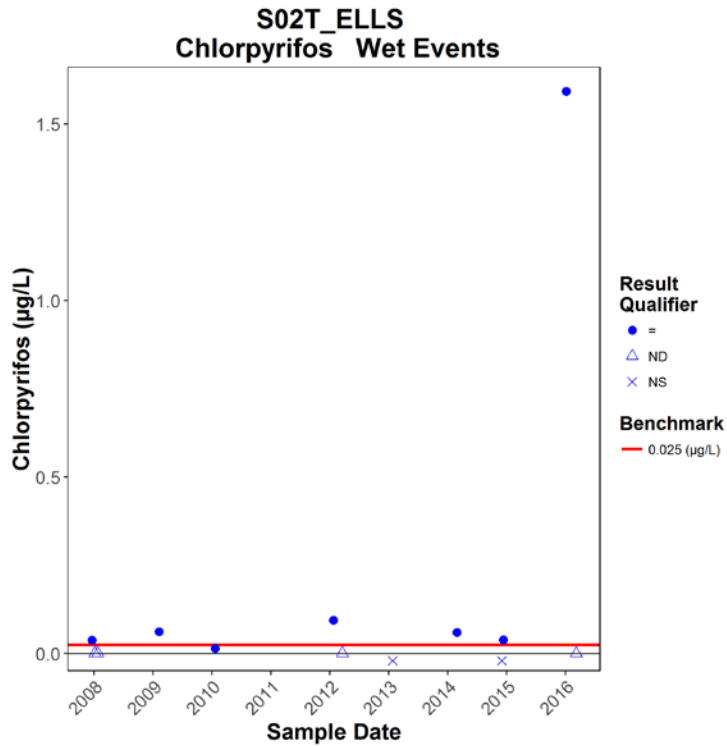


Figure 211. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site S02T\_ELLS

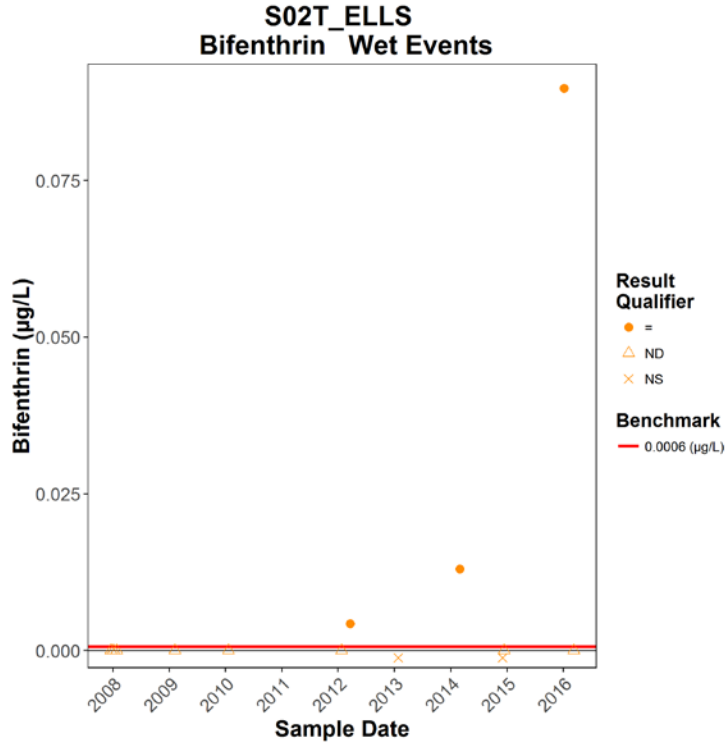


Figure 212. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site S02T\_ELLS

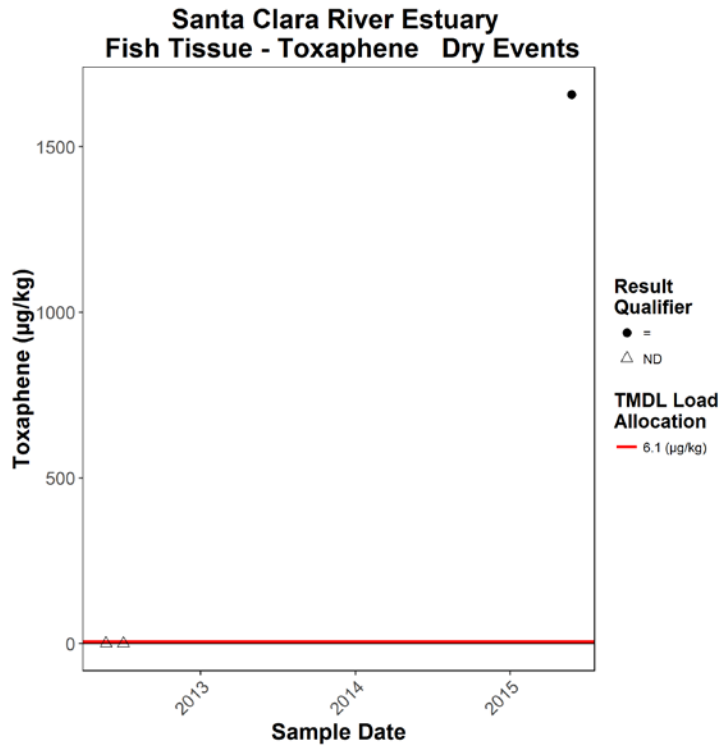


Figure 213. Fish Tissue Toxaphene Concentrations at TMDL LA Site Santa Clara River Estuary

**Table 113. Summary of Benchmark Exceedance Evaluation for Ellsworth Barranca Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather			Wet Weather		
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs
<b>Salts</b>						
Chloride				•		<input checked="" type="checkbox"/>
<b>OC Pesticides (Legacy)</b>						
DDE				•		<input checked="" type="checkbox"/>
Chlordane				•		<input checked="" type="checkbox"/>
Toxaphene		• <sup>1</sup>	<input checked="" type="checkbox"/>		• <sup>1</sup>	<input checked="" type="checkbox"/>
<b>OP and Pyrethroid Pesticides (Current)</b>						
Chlorpyrifos				•		<input checked="" type="checkbox"/>
Bifenthrin				•		<input checked="" type="checkbox"/>

1. Fish tissue exceedance for Santa Clara River Estuary Toxaphene TMDL. Though fish are collected in the estuary during dry weather, the results are applied to both wet and dry weather to ensure management practices minimize toxaphene transport year-round. The exceedance rate for this LA is 50% due to the fact that at this time there have only been two years of fish samplings events (TMDL monitoring frequency is every three years).

**Table 114. BMPs for Additional Implementation in the Ellsworth Barranca Responsibility Area**

Exceedance Condition				Survey Question #	BMP	% of Total Applicable Surveyed Units S02T_ELLS Site Drainage	Additional Implementation Needed?
Salts	Legacy Pesticides	Current Pesticides					
Wet	Dry	Wet	Wet				
	x	x	x	Crop management <sup>[b]</sup>	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	35%	Yes
	x	x		Irrigation system type <sup>[b]</sup>	Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	109%	No
	x	x		1 <sup>[b]</sup>	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	98%	No
	x	x	x	9, 10 <sup>[b]</sup>	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	100%	No
	x	x	x	11 <sup>[b]</sup>	How much non-cropped area is bare soil	77%	Yes
	x	x	x	12 <sup>[b]</sup>	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	39%	Yes
x	x	x		13 <sup>[b]</sup>	Grassed waterways are used	8%	Yes
x	x	x	x	14 <sup>[b]</sup>	Vegetated filter strips are used	6%	Yes
			x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	89%	Yes
			x	16	An integrated pest management plan is implemented	89%	Yes
	x	x		18 <sup>[b]</sup>	How many acres produce irrigation runoff	3%	Yes
x	x	x	x	19 <sup>[b]</sup>	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	10%	Not at this time
			x	<sup>[a]</sup>	Pesticide management plan is used		Yes

[a] Waiver specified practice for exceedances of copper and current use pesticides.

[b] BMP with potential to reduce sediment runoff or improve irrigation efficiency to achieve LAs for the Santa Clara River Estuary Toxaphene TMDL.

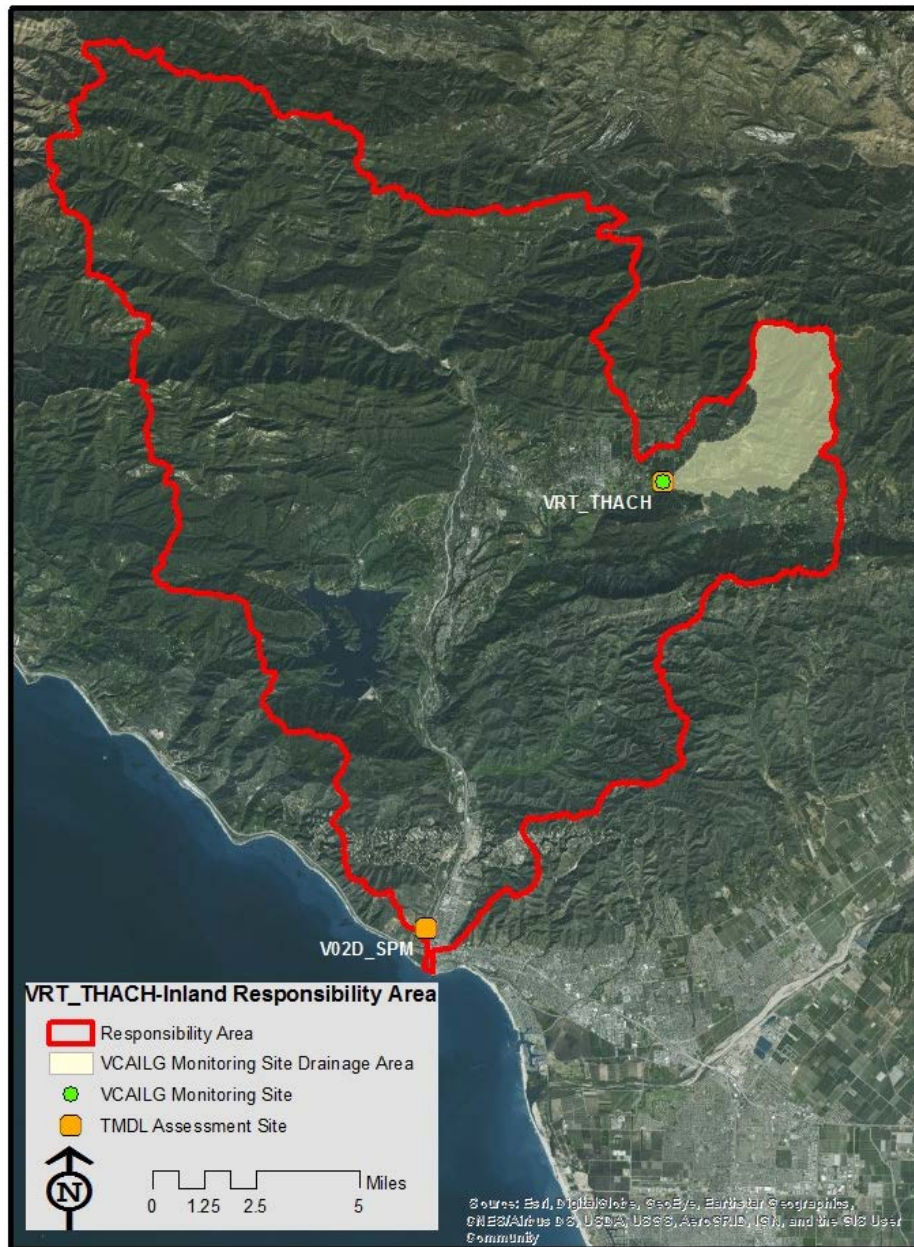


**Table 115. Proposed Best Management Practices for the Ellsworth Barranca Responsibility Area**

<b>Water Quality Issues</b>				<b>BMPs</b>
<b>Salts</b>	<b>Legacy Pesticides</b>		<b>Current Use Pesticides</b>	
<b>Wet Weather</b>	<b>Dry Weather</b>	<b>Wet Weather</b>	<b>Wet Weather</b>	
<i>Source Control BMPs</i>				
	X	X	X	<b>Reduce bare soil in production area with cover crops, gravel, mulch, etc.</b>
	X			<b>Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)</b>
	X			Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.
	X	X	X	<b>Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)</b>
		X	X	<b>Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel</b>
			X	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
			X	Implement an integrated pest management plan
	X			<b>Avoid/prevent irrigation runoff</b>
			X	Use a pesticide management plan
<i>Structural Non-Treatment BMPs</i>				
	X	X	X	<b>Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals</b>
X	X	X	X	<b>Use grassed waterways</b>
X	X	X	X	<b>Use vegetated filter strips</b>

Bolded BMPs are required by the Conditional Waiver to the degree appropriate for achieving the Santa Clara River Estuary Toxaphene TMDL.

## Ventura River Inland Responsibility Area



**Figure 214. Ventura River Inland Responsibility Area Map**

The Ventura River Inland responsibility area is illustrated in Figure 214. The VCAILG monitoring site is also used as a TMDL assessment site for the VR Algae TMDL. Site V02D\_SPM is a future VR Algae TMDL assessment site.

**Table 116. Ventura River Inland Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Entire Responsibility Area</b>	<b>Drainage Area Monitoring Site VRT_THACH</b>	<b>Responsibility Area Minus Nested VRT_THACH Site Drainage</b>
<b>Assessed Acreage Information</b>			
Total Assessed Acres from Agricultural Parcel List	15,801	1,384	14,417
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	875	0	875
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	13,196	921	12,275
Assessed Acres from Agricultural Parcel List belonging to Non Members	1,730	463	1,267
<b>Irrigated Acreage Information</b>			
VCAILG Member Acreage Reported as Irrigated	2,727	721	2,006
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.2	0.8	0.2
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	358	362	207
Total Estimated Irrigated Acres (Member plus Non Member)	3,085	1,083	2,213
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	88%	67%	91%
<b>Survey Response Information</b>			
Sum Surveyed Irrigated Acres	1,925	247	1,677
Percent of Total Estimated Irrigated Acres that were Surveyed	62%	23%	76%
Percent of VCAILG Member Irrigated Acres that were Surveyed	71%	34%	84%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 117. VRT-THACH-Inland Responsibility Area Crop Types and General Production Practices**

Crop or Practice	VRT_THACH Site Drainage Only		Responsibility Area Minus VRT_THACH Site Drainage	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	0	0%	3	0.2%
Berry	0	0%	0	0%
Row Crop	0	0%	18	1%
Orchard	245	99%	1,570	94%
Nursery	0	0%	0	0%
Flower	0	0%	3	0.2%
Sod	0	0%	0	0%
Other	2	0.8%	84	5%
<b>Overhead Cover in Production Areas</b>				
Hoop House	342	138%	677	40%
No Cover	135	54%	634	38%
Greenhouse	5	2%	1	0%
Shade	0	0%	1	0%
Other	10	4%	29	2%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	118	48%	988	59%
Cover Crop	19	8%	37	2%
Plastic	0	0%	8	0.5%
Weed Cloth	0	0%	1	0%
Mulch	129	52%	576	34%
Gravel	0	0%	0	0%
Other	11	5%	148	9%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	12	5%	276	16%
Microsprinkler/Drip	0	0%	3	0.2%
Microsprinkler	234	95%	1,441	86%
Overhead Sprinkler	2	0.8%	13	0.8%
Overhead/Drip	0	0%	0	0%
Furrow Flood	0	0%	0	0%
Hand Watering	0	0%	0	0%
Other	0	0%	0	0%

**Table 118. Ventura River Inland Responsibility Area Grower BMPs**

Survey Question	Units	VRT_THACH Site Drainage Only		Ventura River Inland Responsibility Area Minus VRT_THACH Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	138	56%	1,173	71%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	163	66%	1,367	81%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	29	15%	569	40%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	152	61%	830	49%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	111	45%	266	16%
Q5a: Are soil residual nitrate tests done?	Acres	160	65%	967	58%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	160	65%	967	58%
Q6: Are leaf/petiole tests conducted?	Acres	214	97%	1,508	92%
Q7a: Is nitrate measured in fertigation water?	Acres	142	57%	1,171	70%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	105	42%	1,171	70%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	107	63%	322	40%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	67	27%	866	52%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	19	29%	791	91%
Q11: How much non-cropped area is bare soil?	Acres	32	13%	336	20%
Q12a: How many feet of ditch exist?	Feet	5,120	N/A	142,271	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	4,170	81%	38,010	27%
Q13a: Are grassed waterways present?	Acres	0	0%	586	35%
Q13b: How many acres drain to grassed waterways?	Acres	0	0%	323	19%
Q14: How many acres are treated by vegetated filter strips?	Acres	25	10%	170	10%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	218	88%	1,558	93%
Q16: Is an IPM Plan being implemented?	Acres	214	87%	1,522	91%
Q17a: How many acres are organically farmed?	Acres	73	30%	101	6%
Q17b: How many acres are conventionally farmed?	Acres	174	70%	1,576	94%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	0	0.1%	33	2%
Q19: Runoff from how many acres is treated or detained?	Acres	1	0.4%	389	23%

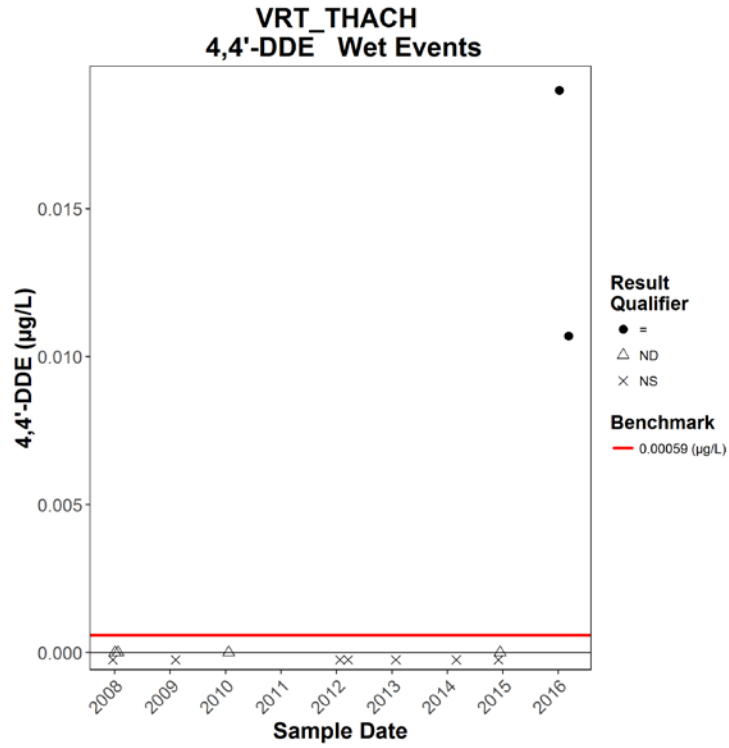


Figure 215. Wet Weather DDE Concentrations at Waiver Benchmark Site VRT\_THACH

**Table 119. Summary of Benchmark Exceedance Evaluation for Ventura River Inland Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather			Wet Weather		
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs
<i>OC Pesticides (Legacy)</i>						
DDE				•		<input checked="" type="checkbox"/>

**Table 120. BMPs for Additional Implementation in the Ventura River Inland Responsibility Area**

Exceedance Condition		% of Total Applicable Surveyed Units					
Legacy Pesticides		TMDL-Specific Management Practice	Survey Question #	BMP	VRT_THACH Site Drainage Only	Ventura River Inland Responsibility Area Minus Nested VRT_THACH Site Drainage	Additional Implementation Needed?
Wet							
x			Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	65%	45%	Yes
x			9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	29%	91%	Yes
x			11	How much non-cropped area is bare soil	13%	20%	Yes
x			12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	81%	27%	Yes
x			13	Grassed waterways are used	0%	35%	Yes
x			14	Vegetated filter strips are used	10%	10%	Yes
x			19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	0.4%	23%	Not at this time
	x		4 <sup>[a]</sup>	Certified nutrient management plan has been prepared for the property	45%	16%	Yes

[a] TMDL-specific management practice for the Ventura River Algae TMDL.

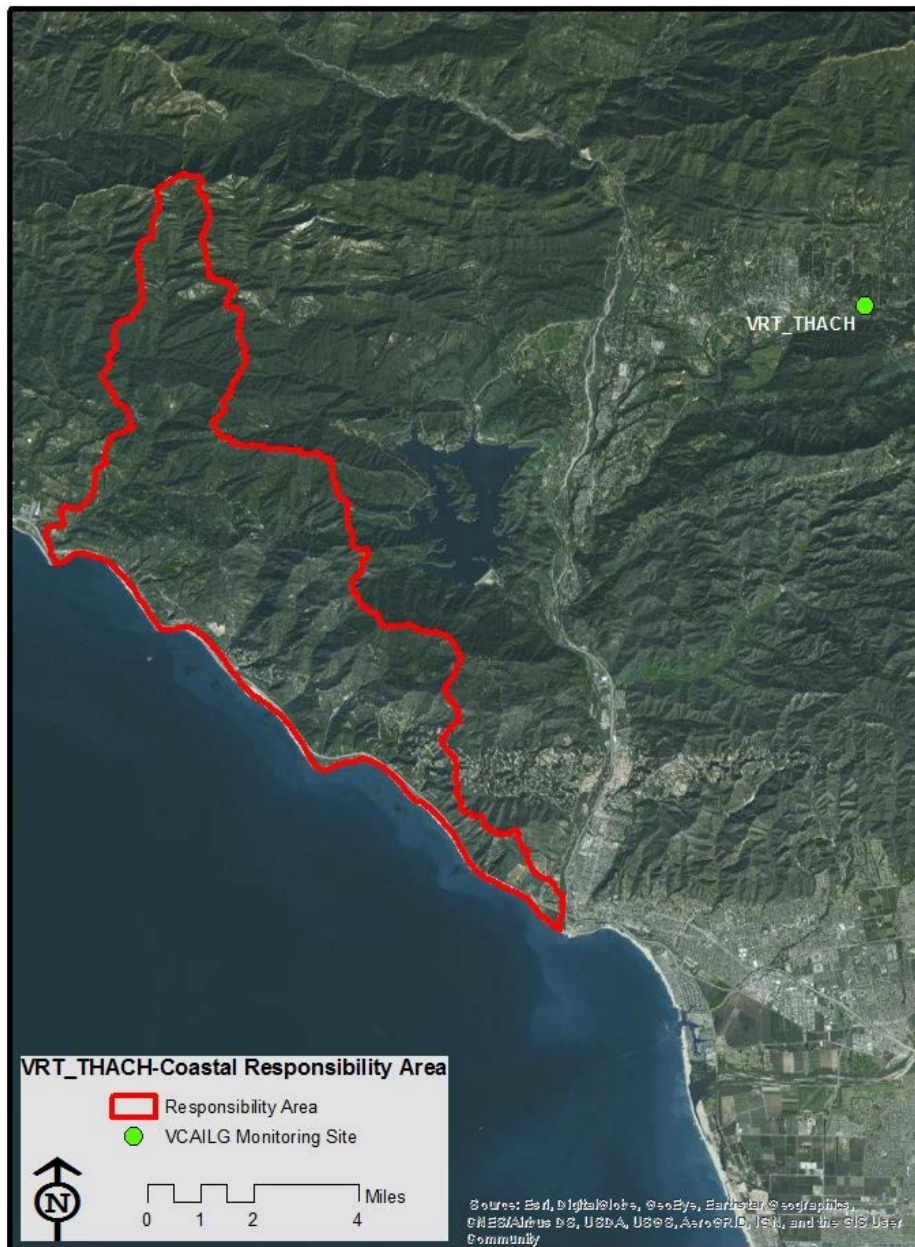


**Table 121. Proposed Best Management Practices for the Ventura River Inland Responsibility Area**

<b>Water Quality Issues</b>		
<b>Legacy Pesticides</b>		
<b>Wet Weather</b>	<b>TMDL-Specific Management Practice</b>	<b>BMPs</b>
<i>Source Control BMPs</i>		
x		Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x		Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
x		Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
	x	<b>Prepare a certified nutrient management plan for the property by January 2019</b>
<i>Structural Non-Treatment BMPs</i>		
x		Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x		Use grassed waterways
x		Use vegetated filter strips

**Bolded BMPs** are required for achieving Ventura River Algae TMDL.

## Ventura River Coastal Responsibility Area



**Figure 216. Ventura River Coastal Responsibility Area Map**

The Ventura River Coastal responsibility area is illustrated in Figure 216. VRT\_THACH serves as the Conditional Waiver benchmark beacon site for the responsibility area. No TMDLs apply.

**Table 122. Ventura River Coastal Responsibility Area Enrollment and Survey Acreage Summary**

Enrollment and Survey Information	Responsibility Area [a]	Drainage Area Monitoring Site VRT_THACH [a]
<b>Assessed Acreage Information</b>		
Total Assessed Acres from Agricultural Parcel List	3,808	1,384
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [b]	568	0
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	1,554	921
Assessed Acres from Agricultural Parcel List belonging to Non Members	1,686	463
<b>Irrigated Acreage Information</b>		
VCAILG Member Acreage Reported as Irrigated	356	721
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.2	0.8
Estimated Irrigated Acres in Non Member Agricultural Parcels [c]	386	362
Total Estimated Irrigated Acres (Member plus Non Member)	742	1,083
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	48%	67%
<b>Survey Response Information</b>		
Sum Surveyed Irrigated Acres	341	247
Percent of Total Estimated Irrigated Acres that were Surveyed	46%	23%
Percent of VCAILG Member Irrigated Acres that were Surveyed	96%	34%

[a] Responsibility area does not include the beacon monitoring site drainage area.

[b] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[c] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 123. Ventura River Coastal Responsibility Area Crop Types and General Production Practices**

Crop or Practice	VRT_THACH		Responsibility Area [a]	
	Site Drainage [a]		Acres with Crop or Practice	% of Surveyed Acres
	Acres with Crop or Practice	% of Surveyed Acres		
<b>Crop Type</b>				
Strawberry	0	0%	139	41%
Berry	0	0%	0	0%
Row Crop	0	0%	0	0%
Orchard	245	99%	171	50%
Nursery	0	0%	16	5%
Flower	0	0%	3	0.7%
Sod	0	0%	13	4%
Other	2	0.8%	0	0%
<b>Overhead Cover in Production Areas</b>				
Hoop House	342	138%	0	0%
No Cover	135	54%	39	11%
Greenhouse	5	2%	0	0%
Shade	0	0%	0	0%
Other	10	4%	0	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	118	48%	112	33%
Cover Crop	19	8%	36	11%
Plastic	0	0%	139	41%
Weed Cloth	0	0%	1	0.1%
Mulch	129	52%	47	14%
Gravel	0	0%	0	0%
Other	11	5%	7	2%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	12	5%	24	7%
Microsprinkler/Drip	0	0%	139	41%
Microsprinkler	234	95%	164	48%
Overhead Sprinkler	2	0.8%	15	4%
Overhead/Drip	0	0%	0	0%
Furrow Flood	0	0%	0	0%
Hand Watering	0	0%	0	0%
Other	0	0%	0	0%

[a] Responsibility area does not include the beacon monitoring site drainage area.

**Table 124. Ventura River Coastal Responsibility Area Grower BMPs**

Survey Question	Units	VRT_THACH Site Drainage [a]		Ventura River Coastal Responsibility Area [a]	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	138	56%	179	52%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	163	66%	207	61%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	29	15%	0	0%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	152	61%	294	86%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	111	45%	100	29%
Q5a: Are soil residual nitrate tests done?	Acres	160	65%	117	34%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	160	65%	117	34%
Q6: Are leaf/petiole tests conducted?	Acres	214	97%	330	97%
Q7a: Is nitrate measured in fertigation water?	Acres	142	57%	278	82%
Q7b: Is fertilizer adjusted using fertigation water nitrate levels?	Acres	105	42%	278	82%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	107	63%	76	32%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	67	27%	152	45%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	19	29%	152	100%
Q11: How much non-cropped area is bare soil?	Acres	32	13%	48	14%
Q12a: How many feet of ditch exist?	Feet	5,120	N/A	11,100	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	4,170	81%	8,550	77%
Q13a: Are grassed waterways present?	Acres	0	0%	236	69%
Q13b: How many acres drain to grassed waterways?	Acres	0	0%	56	16%
Q14: How many acres are treated by vegetated filter strips?	Acres	25	10%	45	13%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	218	88%	327	96%
Q16: Is an IPM Plan being implemented?	Acres	214	87%	327	96%
Q17a: How many acres are organically farmed?	Acres	73	30%	7	2%
Q17b: How many acres are conventionally farmed?	Acres	174	70%	334	98%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	0	0.1%	7	2%
Q19: Runoff from how many acres is treated or detained?	Acres	1	0.4%	210	62%

[a] Responsibility area does not include the beacon monitoring site drainage area.

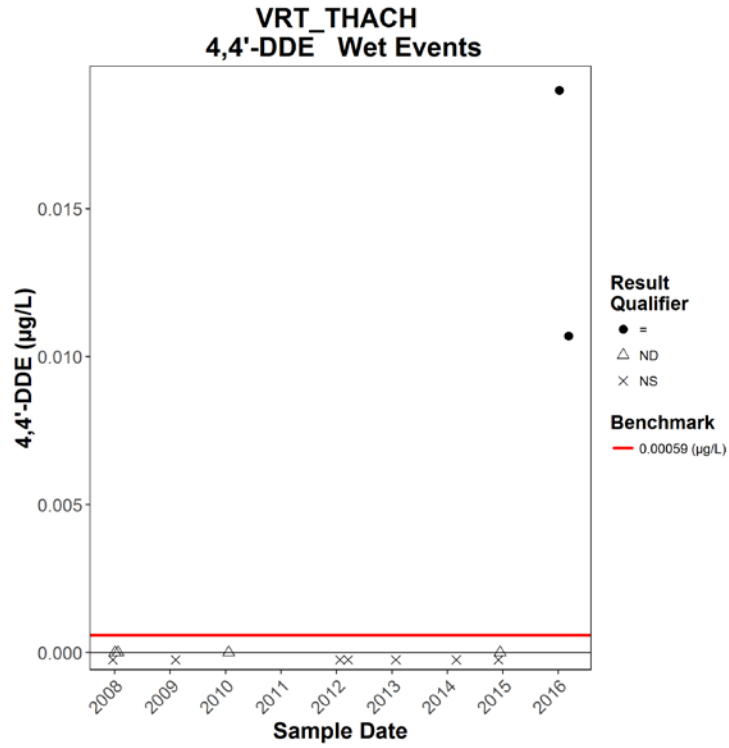


Figure 217. Wet Weather DDE Concentrations at Waiver Benchmark Site VRT\_THACH

**Table 125. Summary of Benchmark Exceedance Evaluation for Ventura River Coastal Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather			Wet Weather		
	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	TMDL LA Site Exceedances	Review Implementation and Plan BMPs
<b>OC Pesticides (Legacy)</b>						
DDE				•		<input checked="" type="checkbox"/>

**Table 126. BMPs for Additional Implementation in the Ventura River Coastal Responsibility Area**

Exceedance Condition							
Legacy Pesticides					% of Total Applicable Surveyed Units		Additional Implementation Needed? [b]
Wet	Survey Question #	BMP	VRT_THACH Site Drainage [a]	Ventura River Coastal Responsibility Area [a]			
x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	65%	68%	Yes		
x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	29%	100%	No [a]		
x	11	How much non-cropped area is bare soil	13%	14%	Yes		
x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	81%	77%	Yes		
x	13	Grassed waterways are used	0%	69%	Yes		
x	14	Vegetated filter strips are used	10.0%	13%	Yes		
x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	0.4%	62%	Not at this time		

[a] Responsibility area does not include the beacon monitoring site drainage area.

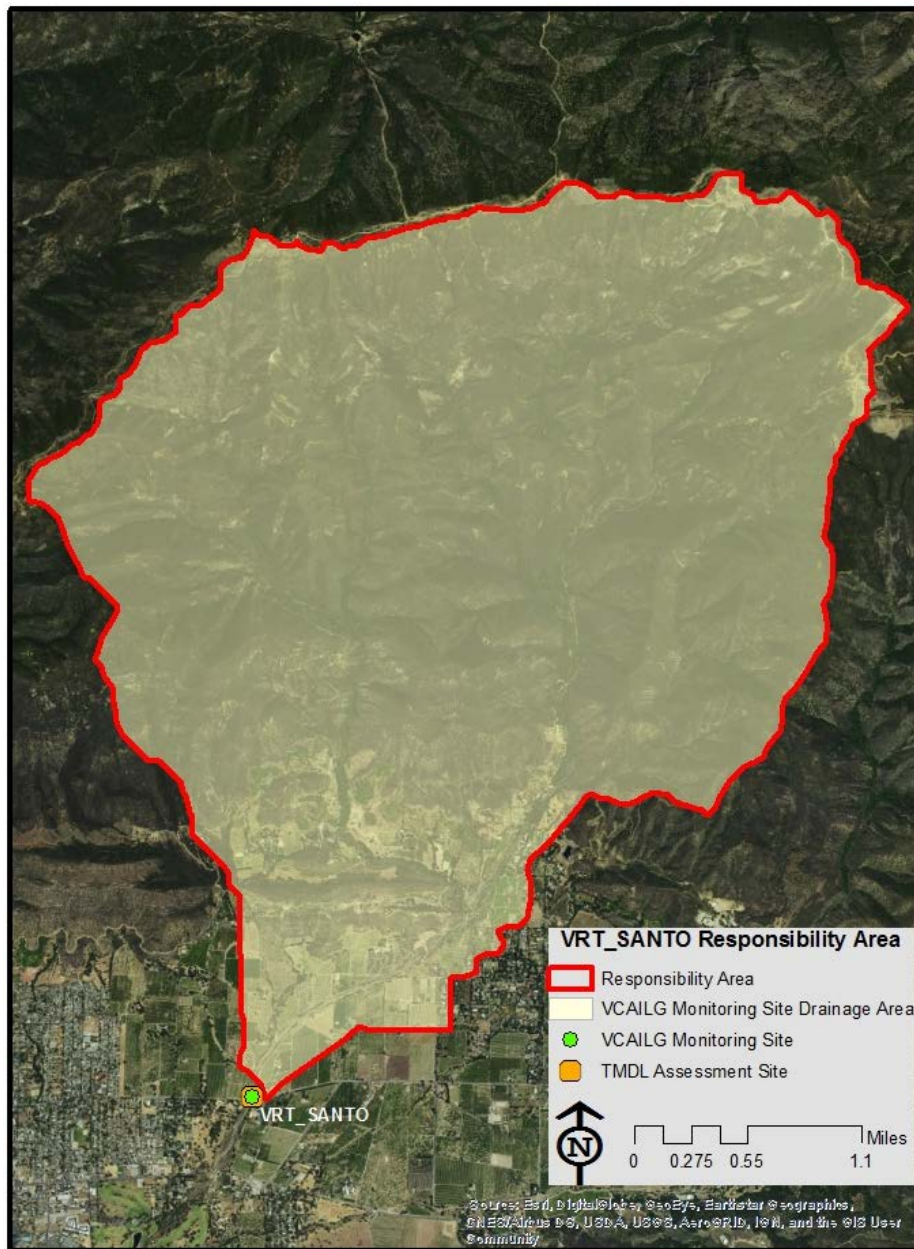
[b] Only BMP implementation in the responsibility area is considered because the beacon site drainage is not included in the responsibility area.



**Table 127. Proposed Best Management Practices for the Ventura River Coastal Responsibility Area**

<b>Water Quality Issues</b>	
<b>Legacy Pesticides</b>	
<b>Wet Weather</b>	<b>BMPs</b>
<i>Source Control BMPs</i>	
x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
<i>Structural Non-Treatment BMPs</i>	
x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	Use grassed waterways
x	Use vegetated filter strips

## San Antonio Creek Responsibility Area



**Figure 218. San Antonio Creek Responsibility Area Map**

The San Antonio Creek responsibility area is illustrated in Figure 218. The VCAILG monitoring site is also used as a TMDL assessment site for the VR Algae TMDL.

**Table 128. VRT\_SANTO Drainage Area Enrollment and Survey Acreage Summary**

Enrollment and Survey Information	Drainage Area Monitoring Site VRT_SANTO
<b>Assessed Acreage Information</b>	
Total Assessed Acres from Agricultural Parcel List	1,018
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	0
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	665
Assessed Acres from Agricultural Parcel List belonging to Non Members	353
<b>Irrigated Acreage Information</b>	
VCAILG Member Acreage Reported as Irrigated	385
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.58
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	204
Total Estimated Irrigated Acres (Member plus Non Member)	589
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	65%
<b>Survey Response Information</b>	
Sum Surveyed Irrigated Acres	327
Percent of Total Estimated Irrigated Acres that were Surveyed	55%
Percent of VCAILG Member Irrigated Acres that were Surveyed	85%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 129. VRT\_SANTO Drainage Area Crop Types and General Production Practices**

Crop or Practice	VRT_SANTO Site Drainage [a]	
	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>		
Strawberry	0	0%
Berry	0	0%
Row Crop	0	0%
Orchard	327	100%
Nursery	0	0%
Flower	0	0%
Sod	0	0%
Other	0	0%
<b>Overhead Cover in Production Areas</b>		
Hoop House	1	0.2%
No Cover	206	63%
Greenhouse	1	0.2%
Shade	2	0.5%
Other	0	0%
<b>Surface Treatments in Production Areas</b>		
Bare Soil	206	63%
Cover Crop	6	2%
Plastic	0	0%
Weed Cloth	0	0%
Mulch	91	28%
Gravel	0	0%
Other	35	11%
<b>Irrigation Systems in Production Areas</b>		
Drip Only	17	5%
Microsprinkler/Drip	0	0%
Microsprinkler	310	95%
Overhead Sprinkler	0	0%
Overhead/Drip	0	0%
Furrow Flood	0	0%
Hand Watering	0	0%
Other	0	0%

[a] Monitoring site drainage area serves as a complete Responsibility Area.

**Table 130. VRT\_SANTO Drainage Area Grower BMPs**

Survey Question	Units	VRT_SANTO Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>			
Q1: Is the irrigation system tested for distribution uniformity?	Acres	203	62%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	308	94%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	6	3%
<b>Nutrient Management</b>			
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	106	32%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	6	2%
Q5a: Are soil residual nitrate tests done?	Acres	162	49%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	162	49%
Q6: Are leaf/petiole tests conducted?	Acres	324	99%
Q7a: Is nitrate measured in fertigation water?	Acres	267	82%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	267	82%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	137	67%
<b>Sediment Management</b>			
Q9: How many cropped acres are sloped?	Acres	175	53%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	32	18%
Q11: How much non-cropped area is bare soil?	Acres	24	7%
Q12a: How many feet of ditch exist?	Feet	10,776	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	7,885	73%
Q13a: Are grassed waterways present?	Acres	22	7%
Q13b: How many acres drain to grassed waterways?	Acres	5	2%
Q14: How many acres are treated by vegetated filter strips?	Acres	2	0.6%
<b>Pest Management</b>			
Q15: Are PCAs used for pesticide management decisions?	Acres	310	95%
Q16: Is an IPM Plan being implemented?	Acres	327	100%
Q17a: How many acres are organically farmed?	Acres	2	1%
Q17b: How many acres are conventionally farmed?	Acres	325	99%
<b>Runoff Management/Treatment</b>			
Q18: How many acres produce irrigation runoff?	Acres	0	0%
Q19: Runoff from how many acres is treated or detained?	Acres	34	10%

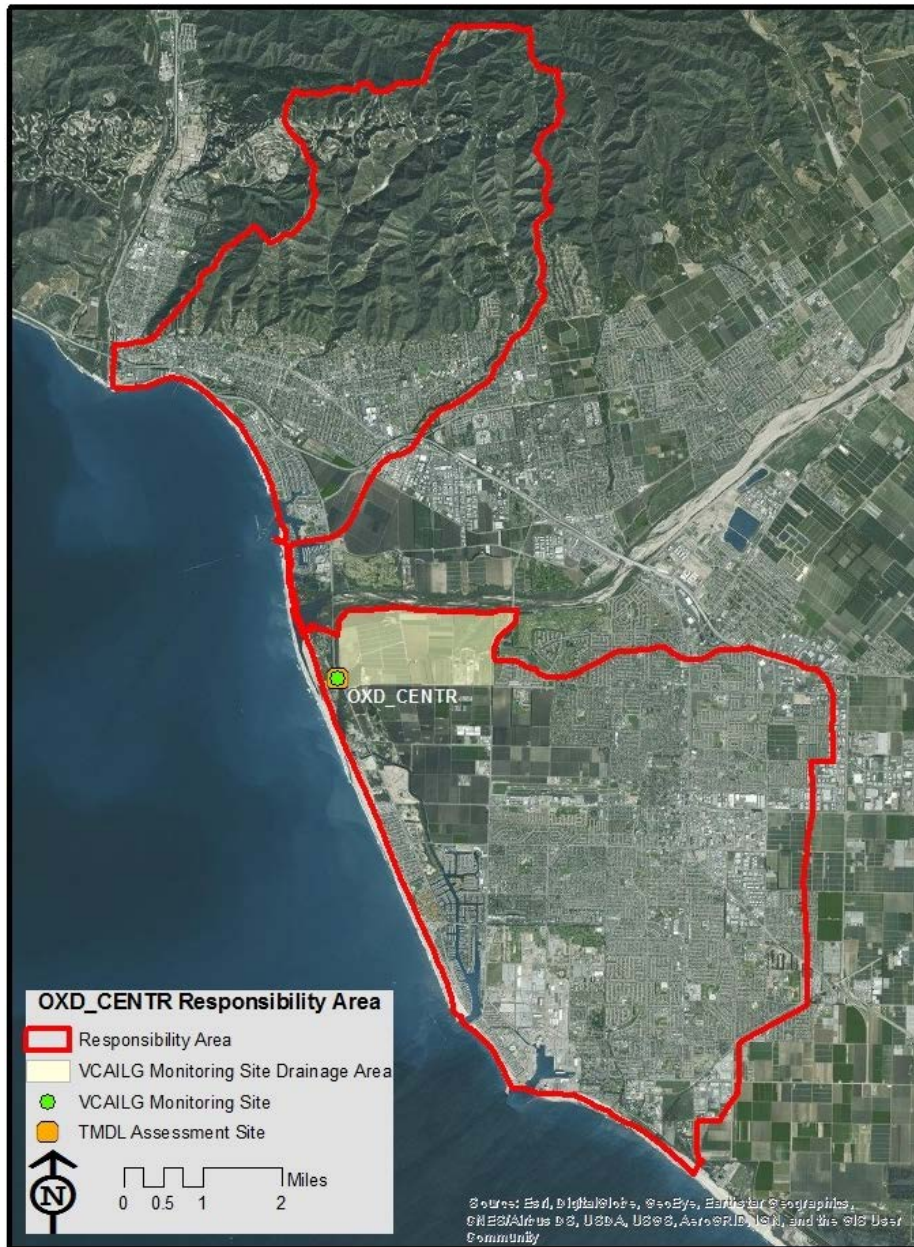
No benchmark exceedances requiring graphs for this responsibility area.

**Table 131. BMPs for Additional Implementation in the San Antonio Creek Responsibility Area**

TMDL-Specific Management Practice	Survey Question #	BMP	% of Total Applicable Surveyed Units	
			VRT_SANTO Site Drainage	Additional Implementation Needed?
x	4 <sup>[a]</sup>	Certified nutrient management plan has been prepared for the property	2%	Yes

1. [a] TMDL-specific management practice for the Ventura River Algae TMDL.

## McGrath Lake Coastal Responsibility Area



**Figure 219. McGrath Lake Coastal Responsibility Area Map**

The McGrath Lake Coastal responsibility area is illustrated in Figure 219. The VCAILG monitoring site also serves as a TMDL assessment site for the McGrath Lake Pesticides, PCBs, and Sediment Toxicity TMDL.

**Table 132. McGrath Lake Coastal Responsibility Area Enrollment and Survey Acreage Summary**

<b>Enrollment and Survey Information</b>	<b>Entire Responsibility Area</b>	<b>Drainage Area Monitoring Site OXD_CENTR</b>	<b>Responsibility Area Minus Nested OXD_CENTR Site Drainage</b>
<b>Assessed Acreage Information</b>			
Total Assessed Acres from Agricultural Parcel List	5,020	1,075	3,945
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [a]	4	0	4
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	4,409	728	3,681
Assessed Acres from Agricultural Parcel List belonging to Non Members	607	347	260
<b>Irrigated Acreage Information</b>			
VCAILG Member Acreage Reported as Irrigated	3,031	598	2,433
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.7	0.8	0.7
Estimated Irrigated Acres in Non Member Agricultural Parcels [b]	417	285	172
Total Estimated Irrigated Acres (Member plus Non Member)	3,448	883	2,605
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	88%	68%	93%
<b>Survey Response Information</b>			
Sum Surveyed Irrigated Acres	2,095	44	2,051
Percent of Total Estimated Irrigated Acres that were Surveyed	61%	5%	79%
Percent of VCAILG Member Irrigated Acres that were Surveyed	69%	7%	84%

[a] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[b] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.



**Table 133. McGrath Lake Coastal Responsibility Area Crop Types and General Production Practices**

Crop or Practice	OXD_CENTR Site Drainage Only		Responsibility Area Minus Nested OXD_CENTR Site Drainage	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	5	10%	1,568	76%
Berry	0	0%	0	0%
Row Crop	40	90%	297	14%
Orchard	0	0%	141	7%
Nursery	0	0%	15	0.7%
Flower	0	0%	31	1%
Sod	0	0%	0	0%
Other	0	0%	0	0%
<b>Overhead Cover in Production Areas</b>				
Hoop House	0	0%	125	6%
No Cover	0	0%	142	7%
Greenhouse	0	0%	2	0.1%
Shade	0	0%	2	0.1%
Other	0	0%	0	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	44	100%	678	33%
Cover Crop	0	0%	686	33%
Plastic	0	0%	803	39%
Weed Cloth	0	0%	4	0.2%
Mulch	0	0%	1	0.1%
Gravel	0	0%	15	0.7%
Other	0	0%	62	3%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	3	7%	432	21%
Microsprinkler/Drip	2	3%	851	42%
Microsprinkler	2	3%	148	7%
Overhead Sprinkler	3	7%	39	2%
Overhead/Drip	35	80%	733	36%
Furrow Flood	0	0%	0	0%
Hand Watering	0	0%	5	0.2%
Other	0	0%	0	0%

**Table 134. McGrath Lake Coastal Responsibility Area Grower BMPs**

Survey Question	Units	OXD_CENTR Site Drainage Only		OXD_CENTR Responsibility Area Minus OXD_CENTR Site Drainage	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	44	100%	1,799	88%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	40	90%	1,364	67%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	35	80%	1,446	76%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	0	0%	515	25%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	0	0%	386	19%
Q5a: Are soil residual nitrate tests done?	Acres	35	80%	1,682	82%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	35	80%	1,682	82%
Q6: Are leaf/petiole tests conducted?	Acres	0	0%	1,569	77%
Q7a: Is nitrate measured in fertigation water?	Acres	35	80%	1,246	61%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	35	80%	1,246	61%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	9	100%	1,165	98%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	0	0%	233	11%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	0	0%	231	99%
Q11: How much non-cropped area is bare soil?	Acres	6	14%	99	5%
Q12a: How many feet of ditch exist?	Feet	5,300	N/A	105,765	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	5,000	94%	23,925	23%
Q13a: Are grassed waterways present?	Acres	0	0%	277	14%
Q13b: How many acres drain to grassed waterways?	Acres	0	0%	193	9%
Q14: How many acres are treated by vegetated filter strips?	Acres	0	0%	179	9%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	44	100%	2,040	99%
Q16: Is an IPM Plan being implemented?	Acres	35	80%	2,031	99%
Q17a: How many acres are organically farmed?	Acres	0	0%	115	6%
Q17b: How many acres are conventionally farmed?	Acres	44	100%	1,936	94%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	9	20%	739	36%
Q19: Runoff from how many acres is treated or detained?	Acres	35	80%	753	37%

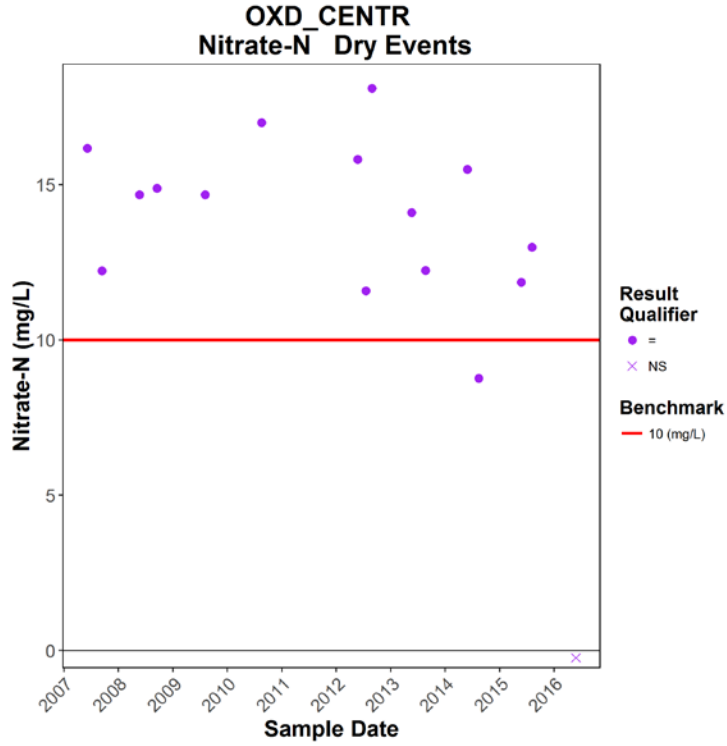


Figure 220. Dry Weather Nitrate-N Concentrations at Waiver Benchmark Site OXD\_CENTR

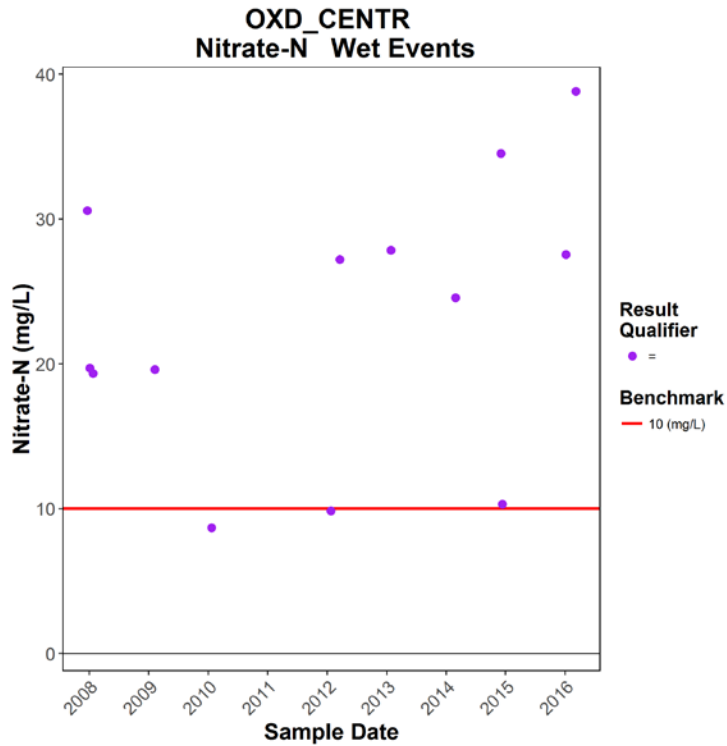


Figure 221. Wet Weather Nitrate-N Concentrations at Waiver Benchmark Site OXD\_CENTR

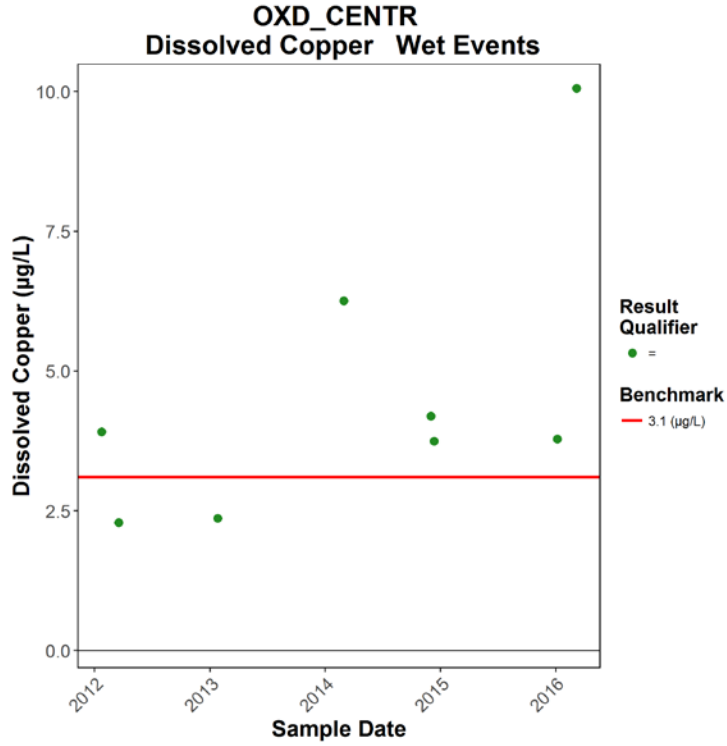


Figure 222. Wet Weather Dissolved Copper Concentrations at Waiver Benchmark Site OXD\_CENTR

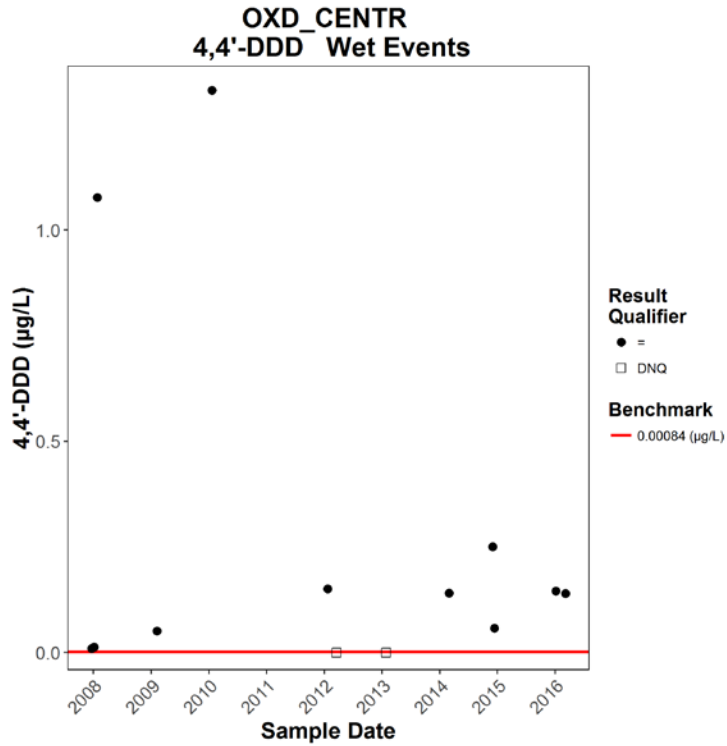


Figure 223. Wet Weather DDD Concentrations at Waiver Benchmark Site OXD\_CENTR

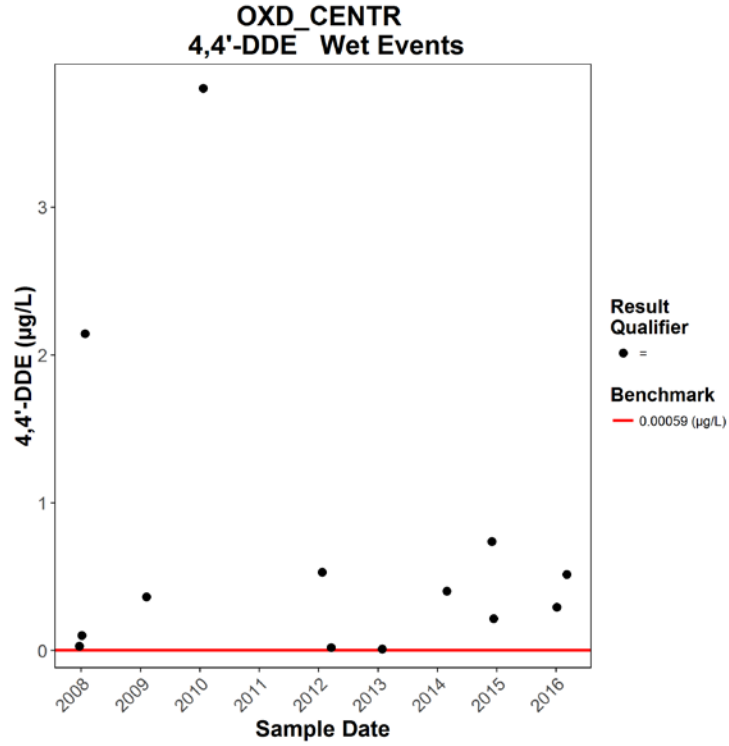


Figure 224. Wet Weather DDE Concentrations at Waiver Benchmark Site OXD\_CENTR

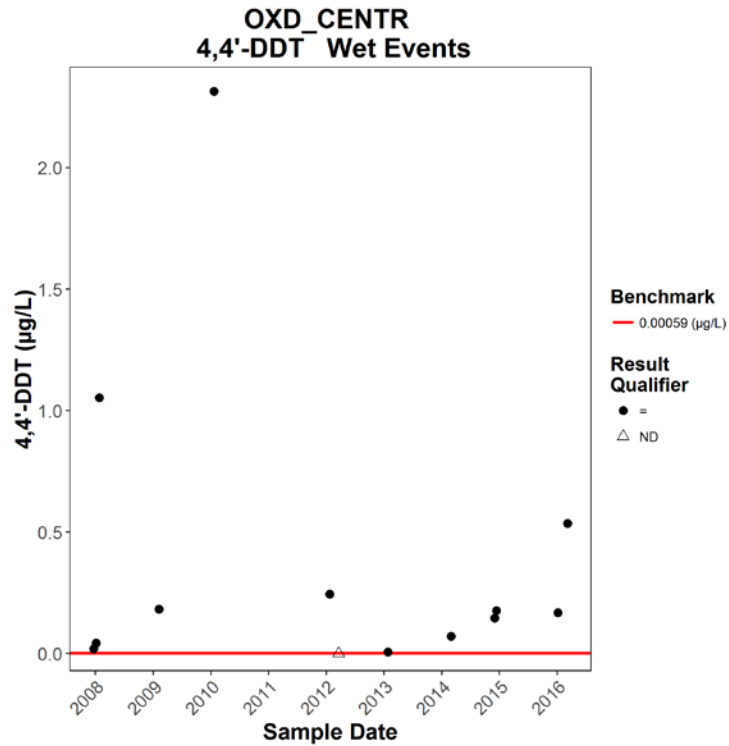


Figure 225. Wet Weather DDT Concentrations at Waiver Benchmark Site OXD\_CENTR

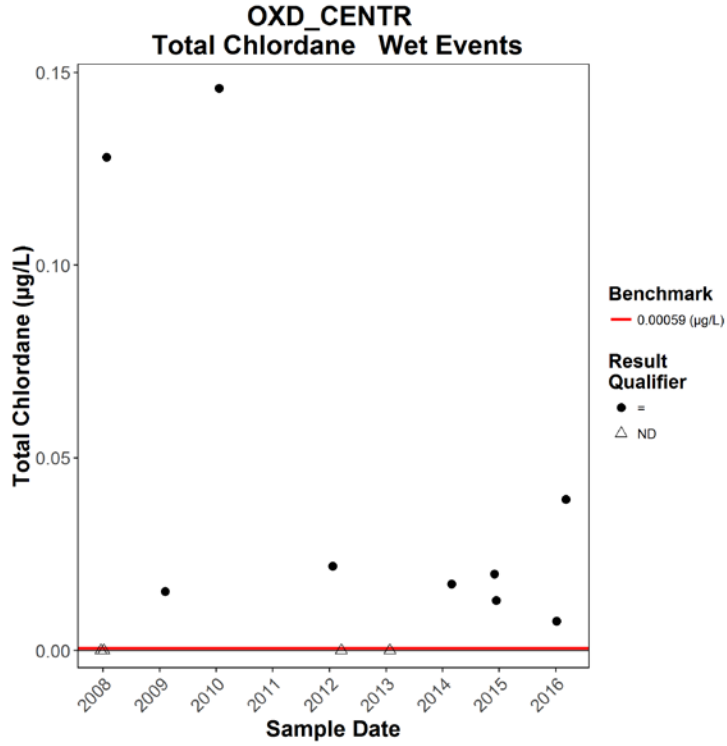


Figure 226. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site OXD\_CENTR

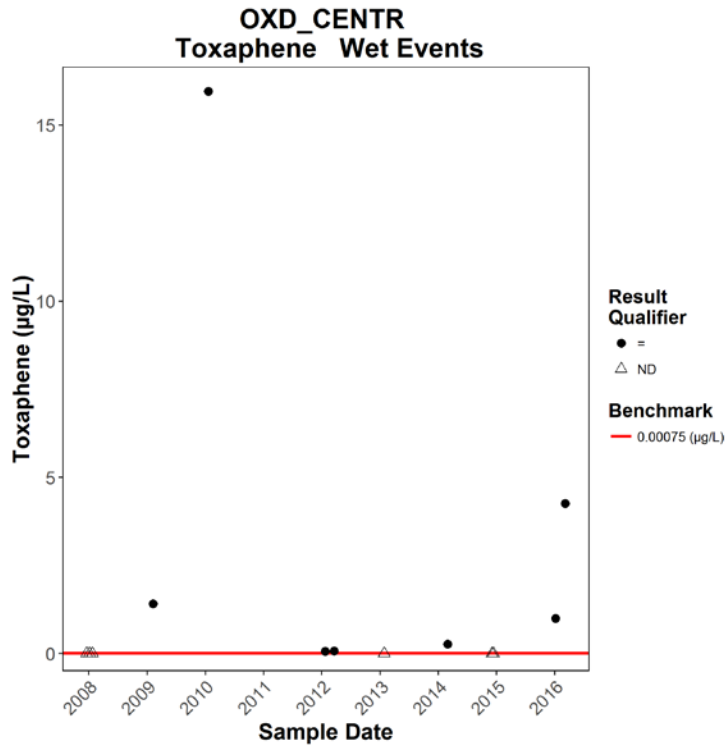


Figure 227. Wet Weather Toxaphene Concentrations at Waiver Benchmark Site OXD\_CENTR

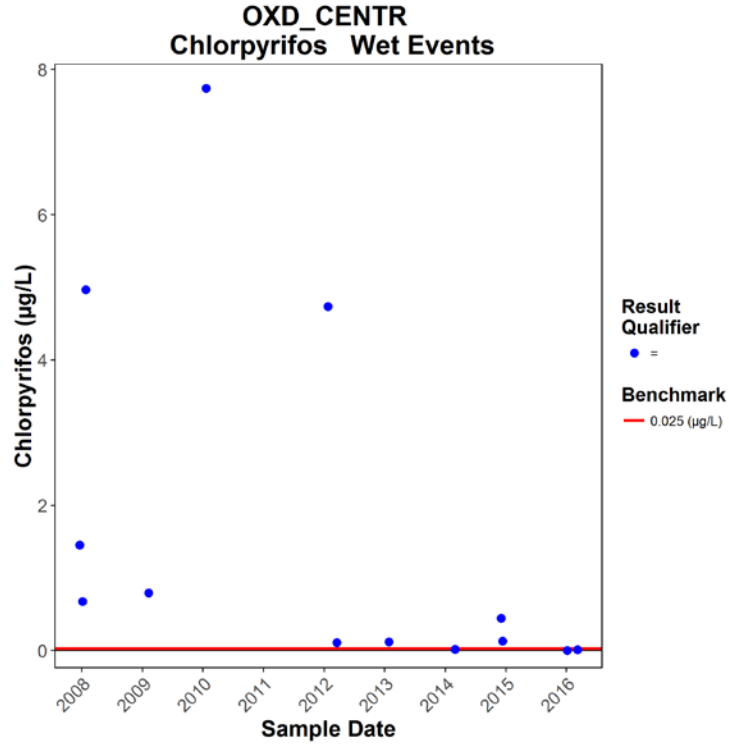


Figure 228. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site OXD\_CENTR

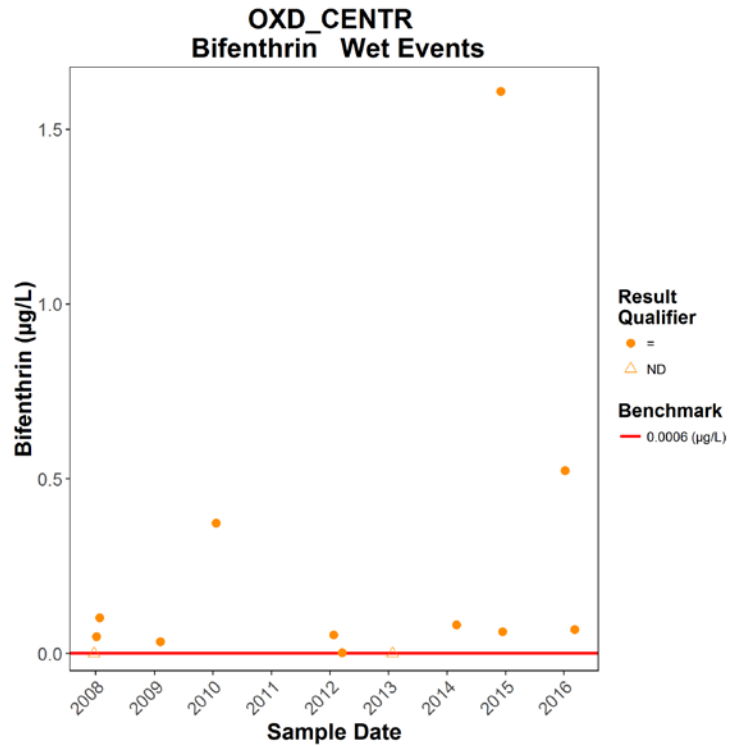


Figure 229. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site OXD\_CENTR

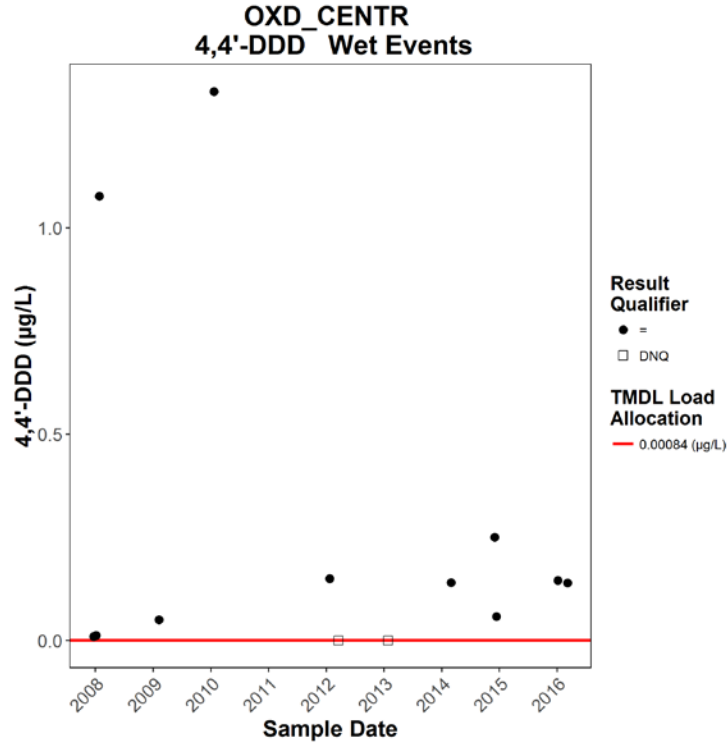


Figure 230. Wet Weather DDD Concentrations at TMDL LA Site OXD\_CENTR

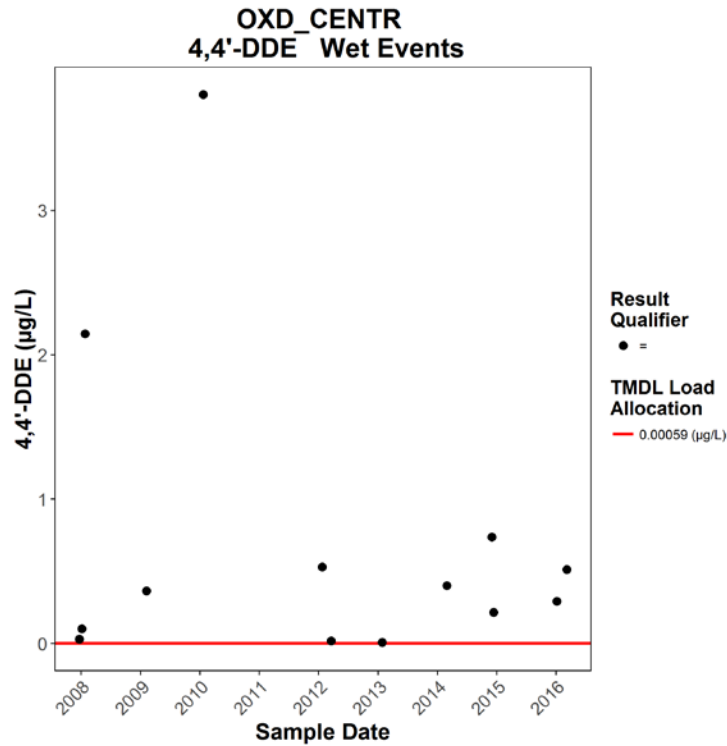


Figure 231. Wet Weather DDE Concentrations at TMDL LA Site OXD\_CENTR



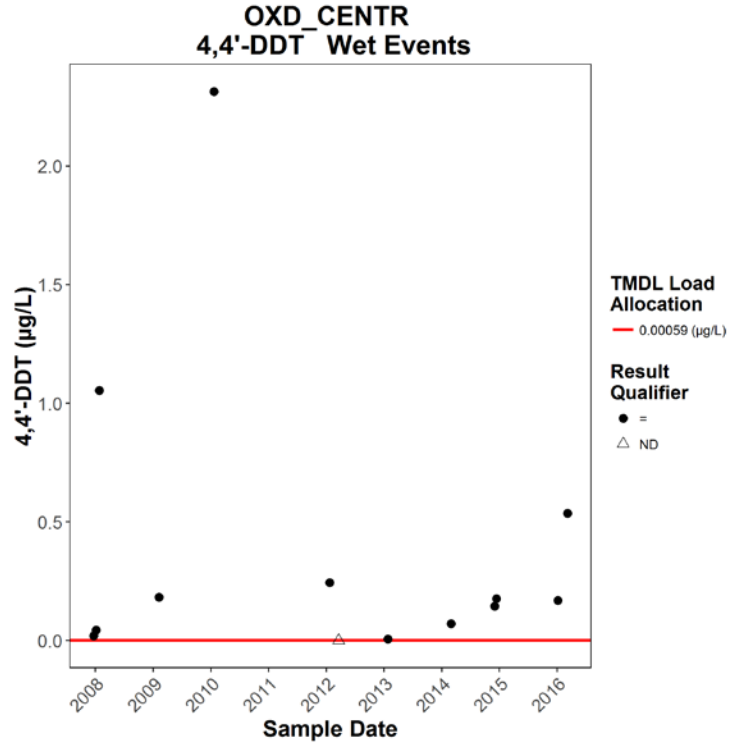


Figure 232. Wet Weather DDT Concentrations at TMDL LA Site OXD\_CENTR

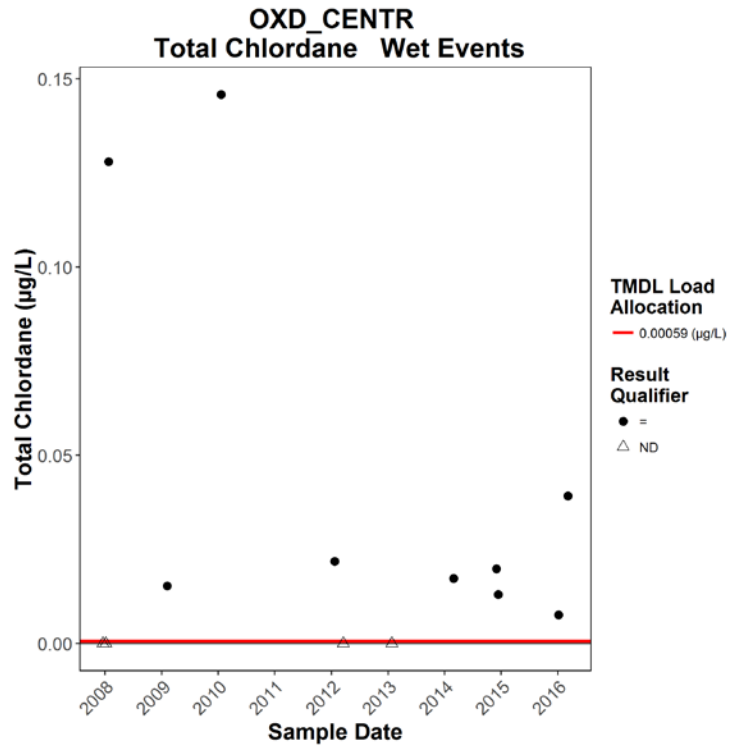


Figure 233. Wet Weather Total Chlordane Concentrations at TMDL LA Site OXD\_CENTR

**Table 135. Summary of Benchmark Exceedance Evaluation for McGrath Lake Coastal Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather			Wet Weather		
	Waiver Benchmark Site Exceedances <sup>1</sup>	TMDL LA Site Exceedances <sup>1</sup>	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances <sup>1</sup>	TMDL LA Site Exceedances <sup>1,3</sup>	Review Implementation and Plan BMPs <sup>4</sup>
<b>Nutrients</b>						
Nitrate-N	•		<input checked="" type="checkbox"/>	•		<input checked="" type="checkbox"/>
Nitrate-N + Nitrite-N						
<b>Metals and Selenium</b>						
Dissolved Copper				•		<input checked="" type="checkbox"/>
<b>OC Pesticides (Legacy)</b>						
DDD				•	• <sup>2</sup>	<input checked="" type="checkbox"/>
DDE				•	• <sup>2</sup>	<input checked="" type="checkbox"/>
DDT				•	• <sup>2</sup>	<input checked="" type="checkbox"/>
Chlordane				•	• <sup>2</sup>	<input checked="" type="checkbox"/>
Toxaphene				•		<input checked="" type="checkbox"/>
<b>OP and Pyrethroid Pesticides (Current)</b>						
Chlorpyrifos				•		<input checked="" type="checkbox"/>
Bifenthrin				•		<input checked="" type="checkbox"/>

1. The monitoring site for Waiver benchmarks and TMDL LAs is site OXD\_CENTR.
2. TMDL water column load allocations for this constituent are the same as the Conditional Waiver benchmarks.
3. The McGrath Lake PCBs, Pesticides and Sediment Toxicity TMDL includes LAs for suspended sediment as well as the water column. Data have not yet been collected for comparison to the suspended sediment LAs for OC pesticides and PCBs.
4. TMDL LA exceedances coincide with Waiver benchmark exceedances, therefore recommendations for BMPs will apply to the entire responsibility area and separate considerations for the McGrath Lake TMDL responsibility area are not necessary.

**Table 136. BMPs for Additional Implementation in the McGrath Lake Coastal Responsibility Area**

Exceedance Condition					Survey Question #	BMP	% of Total Applicable Surveyed Units		Additional Implementation Needed?
Nutrients	Metals	Legacy Pesticides	Current Pesticides	OXD_CENTR Site Drainage Only			McGrath Lake Coastal Responsibility Area Minus OXD_CENTR Site Drainage		
Dry	Wet	Wet	Wet	Wet					
x	x	x	x	x	Crop management <sup>[c]</sup>	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	0%	76%	Yes
x	x				Irrigation system type <sup>[c]</sup>	Efficient irrigation system (sum of drip only, microsprinkler then drip, and micro-sprinkler)	13%	70%	Yes
x	x				1 <sup>[c]</sup>	Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.	100%	88%	Yes
x	x				2 <sup>[c]</sup>	Irrigation practices are based on soil moisture measurements and/or crop evapotranspiration	90%	67%	Yes
x	x				3	Soil solution electrical conductivity measurements are used to determine when salt leaching is necessary	80%	76%	Yes
x	x				4	Certified nutrient management plan has been prepared for the property	0%	19%	Yes
x	x				5	Soil residual nitrate tests are conducted and used to adjust fertilizer applications	80%	82%	Yes
x	x				6	Leaf/petiole tests are conducted and used to apply the minimum necessary amount of fertilizer	0%	77%	Yes
x	x				7	Irrigation water nitrate is analyzed and the results are used to adjust fertilizer applications.	80%	61%	Yes
x	x				8	Fertilizer applications are adjusted to account for nutrients provided by cover crops	100%	98%	No
x	x	x	x	x	9, 10 <sup>[c]</sup>	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	NA <sup>[a]</sup>	99%	No
	x	x	x	x	11 <sup>[c]</sup>	How much non-cropped area is bare soil	14%	5%	Yes
x	x	x	x	x	12 <sup>[c]</sup>	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	94%	23%	Yes
x	x	x	x	x	13 <sup>[c]</sup>	Grassed waterways are used	0%	14%	Yes
x	x	x	x	x	14 <sup>[c]</sup>	Vegetated filter strips are used	0%	9%	Yes
				x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	100%	99%	No
				x	16	An integrated pest management plan is implemented	80%	99%	Yes
x	x				18 <sup>[c]</sup>	How many acres produce irrigation runoff	20%	36%	Yes
x	x	x	x	x	19 <sup>[c]</sup>	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	0%	9%	Not at this time
		x		x	<sup>[b]</sup>	Pesticide management plan is used			Yes

[a] Zero acres reported as sloped within the surveyed OXD\_CENTR site drainage.

[b] Waiver specified practice for exceedances of copper and current use pesticides.

[c] BMP with potential to reduce sediment runoff and improve irrigation efficiency for the McGrath Lake OC Pesticides and PCBs TMDL.

**Table 137. Proposed Best Management Practices for the McGrath Lake Coastal Responsibility Area**

Water Quality Issues					BMPs
Nutrients		Metals	Legacy Pesticides	Current Use Pesticides	
Dry Weather	Wet Weather	Wet Weather	Wet Weather	Wet Weather	
<i>Source Control BMPs</i>					
x	x	x	x	x	<b>Reduce bare soil in production area with cover crops, gravel, mulch, etc.</b>
x					<b>Use efficient irrigation system (sum of drip only, micro-sprinkler then drip, and micro-sprinkler)</b>
x					Test irrigation system for distribution uniformity by monitoring water delivery or pressure differences by block at least every 3 years.
x					<b>Implement irrigation practices that are based on soil moisture measurements and/or crop evapotranspiration</b>
x					Use soil solution electrical conductivity measurements to determine when salt leaching is necessary
x	x				Prepare a certified nutrient management plan for the property
x	x				Conduct soil residual nitrate tests and use results to adjust fertilizer application
x	x				Conduct leaf/petiole tests and use results to apply the minimum necessary amount of fertilizer
x	x				Analyze irrigation water nitrate and use results to adjust fertilizer application
x	x				Adjust fertilizer application to account for nutrients provided by cover crops
x	x	x	x	x	<b>Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)</b>
	x	x	x	x	<b>Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel</b>
				x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
				x	Implement an integrated pest management plan
x					<b>Avoid/prevent irrigation runoff</b>
		x		x	Use a pesticide management plan

Water Quality Issues					BMPs
Nutrients		Metals	Legacy Pesticides	Current Use Pesticides	
Dry Weather	Wet Weather	Wet Weather	Wet Weather	Wet Weather	
					<i>Structural Non-Treatment BMPs</i>
x	x	x	x	x	<b>Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals</b>
x	x	x	x	x	<b>Use grassed waterways</b>
x	x	x	x	x	<b>Use vegetated filter strips</b>

**Bolded BMPs** are required by the Conditional Waiver to the degree appropriate for achieving compliance with the McGrath Lake OC Pesticides and PCBs TMDL.

## Malibu Responsibility Area



**Figure 234. Malibu Responsibility Area Map**

The Malibu responsibility area is illustrated in Figure 234. The VCAILG monitoring site 05T\_HONDO also serves as a proxy TMDL assessment site for the Malibu Creek Watershed Sedimentation and Nutrients TMDLs.

**Table 138. Malibu Responsibility Area Enrollment and Survey Acreage Summary**

Enrollment and Survey Information	Responsibility Area [a]	Drainage Area 05T_HONDO Monitoring Site [a]
<b>Assessed Acreage Information</b>		
Total Assessed Acres from Agricultural Parcel List	310	2,660
Assessed Acres from Agricultural Parcel List Identified as Exempt from Waiver [b]	27	0
Total Assessed Acres from Agricultural Parcel List belonging to VCAILG Members	27	2,499
Assessed Acres from Agricultural Parcel List belonging to Non Members	256	161
<b>Irrigated Acreage Information</b>		
VCAILG Member Acreage Reported as Irrigated	19	1,608
Ratio (VCAILG Member Irrigated Acres/VCAILG Member Assessed Acres)	0.7	0.6
Estimated Irrigated Acres in Non Member Agricultural Parcels [c]	180	104
Total Estimated Irrigated Acres (Member plus Non Member)	199	1,712
Percent of Total Estimated Irrigated Acres Enrolled in VCAILG	10%	94%
<b>Survey Response Information</b>		
Sum Surveyed Irrigated Acres	14	1,467
Percent of Total Estimated Irrigated Acres that were Surveyed	7%	86%
Percent of VCAILG Member Irrigated Acres that were Surveyed	74%	91%

[a] Responsibility area does not include the beacon monitoring site drainage area.

[b] Exempt from *Conditional Waiver* because owner has reported that no crops are irrigated.

[c] Derived using ratio of Irrigated Acres/Assessed Acres for Member Acreage.

**Table 139. Malibu Responsibility Area Crop Types and General Production Practices**

Crop or Practice	05T_HONDO Site Drainage [a]		Responsibility Area [a]	
	Acres with Crop or Practice	% of Surveyed Acres	Acres with Crop or Practice	% of Surveyed Acres
<b>Crop Type</b>				
Strawberry	0	0%	0	0%
Berry	0	0%	0	0%
Row Crop	10	1%	0	0%
Orchard	1,447	99%	14	100%
Nursery	0	0%	0	0%
Flower	10	1%	0	0%
Sod	0	0%	0	0%
Other	0	0%	0	0%
<b>Overhead Cover in Production Areas</b>				
Hoop House	96	7%	0	0%
No Cover	85	6%	0	0%
Greenhouse	0	0%	0	0%
Shade	20	1%	0	0%
Other	0	0%	0	0%
<b>Surface Treatments in Production Areas</b>				
Bare Soil	80	5%	14	100%
Cover Crop	103	7%	0	0%
Plastic	0	0%	0	0%
Weed Cloth	0	0%	0	0%
Mulch	1,288	88%	0	0%
Gravel	0	0%	0	0%
Other	0	0%	0	0%
<b>Irrigation Systems in Production Areas</b>				
Drip Only	881	60%	14	100%
Microsprinkler/Drip	0	0%	0	0%
Microsprinkler	586	40%	0	0%
Overhead Sprinkler	0	0%	0	0%
Overhead/Drip	0	0%	0	0%
Furrow Flood	0	0%	0	0%
Hand Watering	0	0%	0	0%
Other	0	0%	0	0%

[a] Responsibility area does not include the beacon monitoring site drainage area.



**Table 140. Malibu Responsibility Area Grower BMPs**

Survey Question	Units	05T_HONDO Site Drainage [a]		05T_HONDO-Malibu Responsibility Area [a]	
		Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units	Surveyed Units Meeting Criterion	% of Total Applicable Surveyed Units
<b>Irrigation and Salinity Management</b>					
Q1: Is the irrigation system tested for distribution uniformity?	Acres	1,382	94%	14	100%
Q2: Is soil moisture used as determinant of irrigation practices?	Acres	1,344	92%	0	0%
Q3: Is soil EC used to determine when salt leaching is necessary?	Acres	43	3%	0	0%
<b>Nutrient Management</b>					
Q4a: Is there a Nutrient Management Plan for the parcel?	Acres	1,389	95%	0	0%
Q4b: Is it a Certified Nutrient Management Plan?	Acres	1,215	83%	0	0%
Q5a: Are soil residual nitrate tests done?	Acres	1,279	87%	0	0%
Q5b: Is fertilizer adjusted using residual Soil nitrate?	Acres	1,279	87%	0	0%
Q6: Are leaf/petiole tests conducted?	Acres	1,394	95%	14	100%
Q7a: Is nitrate measured in fertigation water?	Acres	1,380	94%	0	0%
Q7b: Is fertilizer adjusting using fertigation water nitrate levels?	Acres	1,360	93%	0	0%
Q8: Is fertilizer adjusted based on nutrients from cover crops	Acres	108	29%	0	0%
<b>Sediment Management</b>					
Q9: How many cropped acres are sloped?	Acres	368	25%	14	100%
Q10: Erosion control is used on how many of the sloped cropped acres?	Acres	519	141%	14	100%
Q11: How much non-cropped area is bare soil?	Acres	277	19%	13	94%
Q12a: How many feet of ditch exist?	Feet	42,143	N/A	50	N/A
Q12b: How many feet of ditch are protected from erosion?	Feet	29,110	69%	50	100%
Q13a: Are grassed waterways present?	Acres	93	6%	0	0%
Q13b: How many acres drain to grassed waterways?	Acres	0	0%	0	0%
Q14: How many acres are treated by vegetated filter strips?	Acres	99	7%	0	0%
<b>Pest Management</b>					
Q15: Are PCAs used for pesticide management decisions?	Acres	1,447	99%	0	0%
Q16: Is an IPM Plan being implemented?	Acres	1,447	99%	0	0%
Q17a: How many acres are organically farmed?	Acres	0	0%	0	0%
Q17b: How many acres are conventionally farmed?	Acres	1,467	100%	14	100%
<b>Runoff Management/Treatment</b>					
Q18: How many acres produce irrigation runoff?	Acres	0	0%	0	0%
Q19: Runoff from how many acres is treated or detained?	Acres	156	11%	0	0%

[a] Responsibility area does not include the beacon monitoring site drainage area.

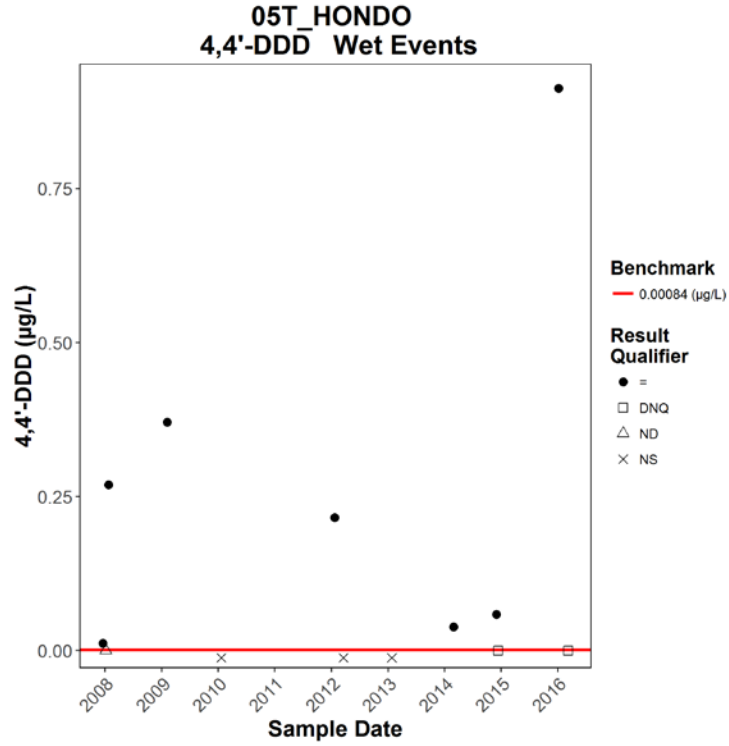


Figure 235. Wet Weather DDD Concentrations at Waiver Benchmark Site 05T\_HONDO

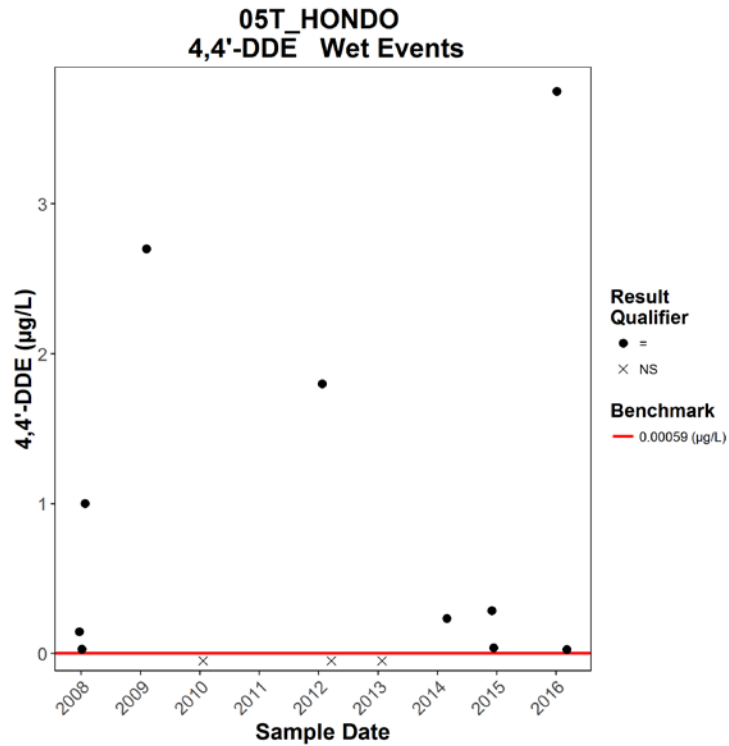


Figure 236. Wet Weather DDE Concentrations at Waiver Benchmark Site 05T\_HONDO

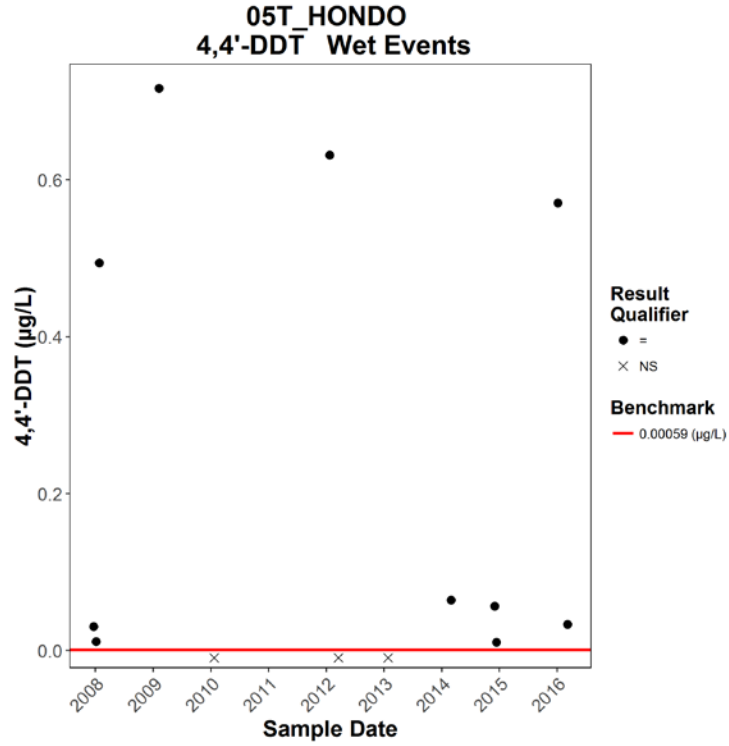


Figure 237. Wet Weather DDT Concentrations at Waiver Benchmark Site 05T\_HONDO

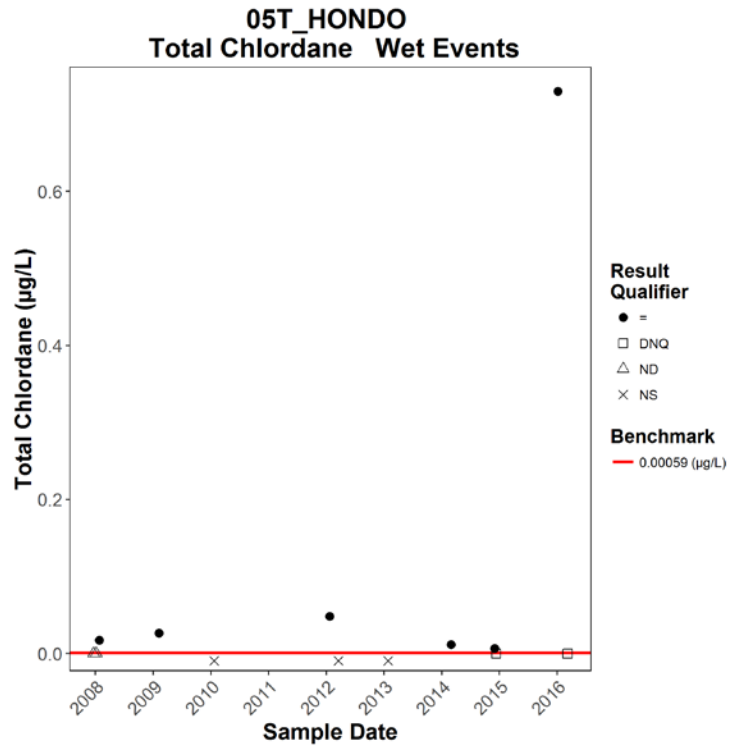


Figure 238. Wet Weather Total Chlordane Concentrations at Waiver Benchmark Site 05T\_HONDO

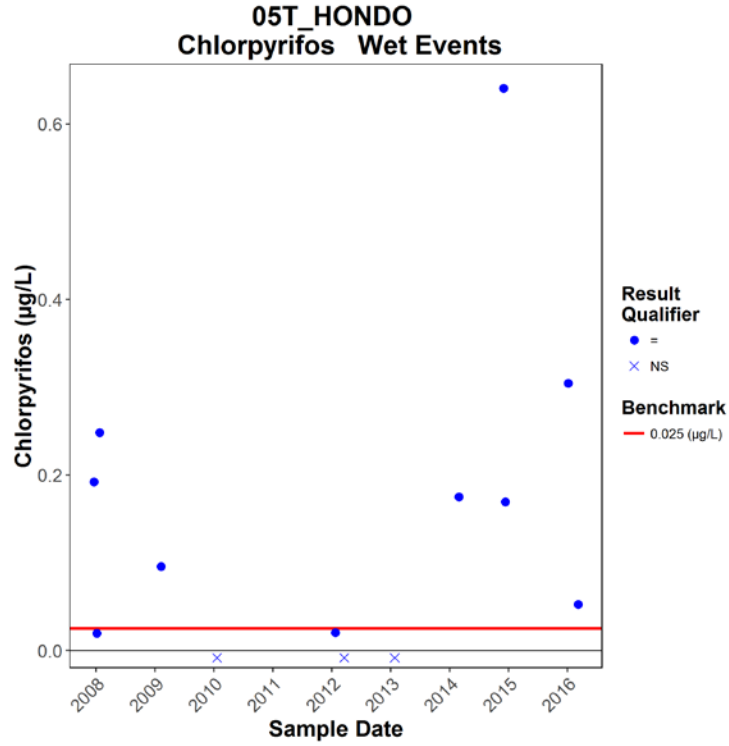


Figure 239. Wet Weather Chlorpyrifos Concentrations at Waiver Benchmark Site 05T\_HONDO

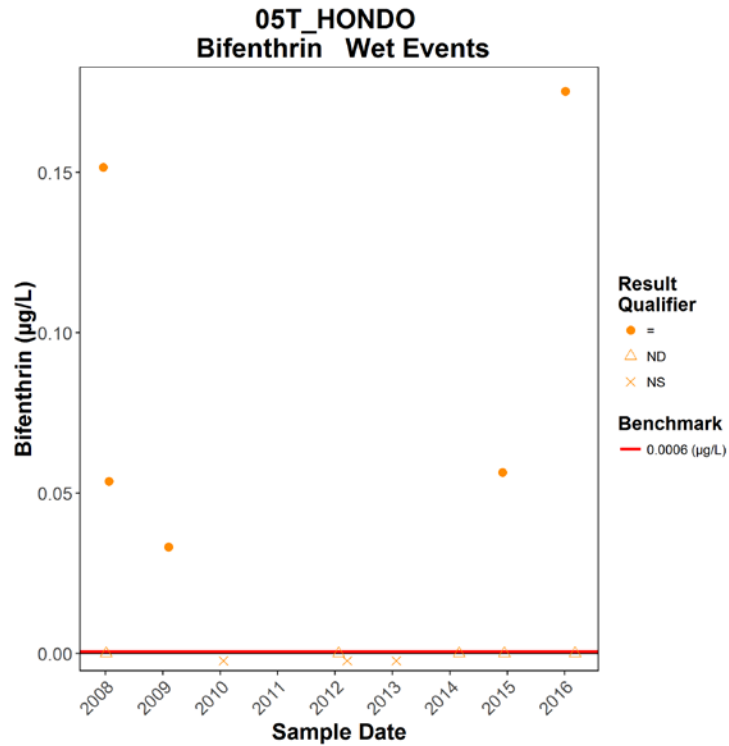


Figure 240. Wet Weather Bifenthrin Concentrations at Waiver Benchmark Site 05T\_HONDO

**Table 141. Summary of Benchmark Exceedance Evaluation for Malibu Responsibility Area**

Constituents for Considering Additional Management Practices Based on Monitoring Data	Dry Weather		Wet Weather	
	Waiver Benchmark Site Exceedances	Review Implementation and Plan BMPs	Waiver Benchmark Site Exceedances	Review Implementation and Plan BMPs
<b><i>OC Pesticides (Legacy)</i></b>				
DDD			•	<input checked="" type="checkbox"/>
DDE			•	<input checked="" type="checkbox"/>
DDT			•	<input checked="" type="checkbox"/>
Chlordane			•	<input checked="" type="checkbox"/>
<b><i>OP and Pyrethroid Pesticides (Current)</i></b>				
Chlorpyrifos			•	<input checked="" type="checkbox"/>
Bifenthrin			•	<input checked="" type="checkbox"/>

**Table 142. BMPs for Additional Implementation in the Malibu Responsibility Area**

Exceedance Condition		Survey Question #	BMP	% of Total Applicable Surveyed Units		Additional Implementation Needed? [b]
Legacy Pesticides	Current Pesticides			05T_HONDO Site Drainage [a]	Malibu Responsibility Area [a]	
Wet	Wet					
x	x	Crop management	Reduce bare soil in production areas with cover crops, gravel, mulch, etc. (sum of all cover types, except bare soil)	95%	0%	Yes
x	x	9, 10	Erosion on sloped areas are minimized with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)	141%	100%	No
x	x	11	How much non-cropped area is bare soil	19%	94%	Yes
x	x	12	Ditches are protected from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals	69%	100%	No
x	x	13	Grassed waterways are used	6%	0%	Yes
x	x	14	Vegetated filter strips are used	7%	0%	Yes
	x	15	Pesticide management decisions are made by a pest control advisor (PCA) or certified qualified applicator	99%	0%	Yes
	x	16	An integrated pest management plan is implemented	99%	0%	Yes
x	x	19	Property is treated with sediment traps, detention/retention basins, bioreactor, or constructed wetlands	11%	0%	Not at this time
	x	[c]	Pesticide management plan is used			Yes

[a] Responsibility area does not include the beacon monitoring site drainage area.

[b] Only BMP implementation in the responsibility area is considered because the beacon site drainage is not included in the responsibility area.

[c] Waiver specified practice for exceedances of copper and current use pesticides.

**Table 143. Proposed Best Management Practices for the Malibu Responsibility Area**

<b>Water Quality Issues</b>		
<b>Legacy Pesticides</b>	<b>Current Use Pesticides</b>	
<b>Wet Weather</b>	<b>Wet Weather</b>	<b>BMPs</b>
<i>Source Control BMPs</i>		
x	x	Reduce bare soil in production area with cover crops, gravel, mulch, etc.
x	x	Minimize erosion on sloped areas with contour farming, contoured buffer strips, or terracing (sloped acres with erosion control/total sloped acres)
x	x	Minimize bare soil in non-cropped areas by using vegetation, mulch, or gravel
	x	Use a pest control advisor (PCA) or certified qualified applicator for pesticide management decisions
	x	Implement an integrated pest management plan
	x	Use a pesticide management plan
<i>Structural Non-Treatment BMPs</i>		
x	x	Protect ditches from erosion using vegetation, rock placement or geotextiles, or wattles placed at intervals
x	x	Use grassed waterways
x	x	Use vegetated filter strips

## PESTICIDE USE EVALUATION

In 1990, California became the first state to require full reporting of agricultural pesticide use in response to demands for more realistic and comprehensive pesticide use data. Under the program, all agricultural pesticide use must be reported monthly to county agricultural commissioners, who in turn, report the data to the Department of Pesticide Regulation (DPR). California has a broad legal definition of "agricultural use" so the reporting requirements include pesticide applications to parks, golf courses, cemeteries, rangeland, pastures, and along roadside and railroad rights-of-way. In addition, all post-harvest pesticide treatments of agricultural commodities must be reported along with all pesticide treatments in poultry and fish production as well as some livestock applications. Only agricultural applications, as noted by specific commodity treated, are summarized in this document.

Section 2)a)iv. of Appendix 3 of the Conditional Waiver requires "a pesticide use evaluation assessment, including the timing of pesticide applications, the application rates, the amounts of pesticides applied, and the points of application". In addition, Section 2)a)iv. requires a comparison of changes in pesticide concentrations at specific monitoring sites to pesticide use patterns for land areas draining to the monitoring site (i.e., a monitoring site's drainage area). To accomplish this, pesticide use records for 2015-2016 reporting year, which were obtained from the Ventura County Agricultural Commissioner's office<sup>8</sup>, were compared with VCAILG monitoring data for the same timeframe.

The evaluation included diazinon, chlorpyrifos, and bifenthrin since those are the three presently permitted pesticides with water quality benchmarks under the Conditional Waiver. To conduct the comparison between the 2015-2016 pesticide use records and the VCAILG monitoring data, pesticide application locations had to be linked to the appropriate monitoring site drainage, as not all pesticide applications within Ventura County occurred within a VCAILG monitoring site drainage area.

Additional manipulation of the pesticide use data included multiplying the percent concentration of the active ingredient (i.e., the percent of diazinon, chlorpyrifos, or bifenthrin within the specific product used) by the total volume or weight of the specific product applied. Depending on the product formulation, the calculated amount of pesticide used was either in gallons or pounds of active ingredient. The dates and amounts of pesticides applied were then compared to the VCAILG monitoring data and benchmark exceedances. Table 144 includes 2015-2016 chlorpyrifos, diazinon, and bifenthrin application information by crop type as well as a comparison to water quality data from associated VCAILG monitoring sites.

### *Chlorpyrifos*

For agricultural application, chlorpyrifos is the active ingredient in several products including Lorsban, Dursban, Nufos, and Warhawk. Use of chlorpyrifos is common on lemons, oranges, and onions in Ventura County. Chlorpyrifos was applied within the drainage areas of 4 of 15 VCAILG monitoring sites during the 2015-16 monitoring year. There were five instances of exceedances at the four monitoring sites where chlorpyrifos was applied within the drainage

---

<sup>8</sup> All effort was made to obtain the most up-to-day pesticide use information from the Ventura County Agricultural Commissioner's office. However, if paper pesticide use reports had been submitted within a few months of the data request, those reports may not have been reflected in the data obtained due to the information required to be entered manually, which delays the addition of the data to the database.



area; all during wet weather with the exception of one dry weather exceedance. There were an additional four exceedances at three monitoring sites that did not have any agricultural applications of chlorpyrifos within their drainage areas. The following factors may contribute to the likelihood that chlorpyrifos is transported off-site: pesticide formulation and application method, date of application in relation to subsequent rain events, and proximity to a drainage channel, stream, or tributary.

#### *Diazinon*

Diazinon usage was much less widespread than chlorpyrifos in 2015-2016. This pesticide was only applied to row crops (lettuce and celery). Applications of diazinon occurred within one VCAILG monitoring site drainage area; however, there were no exceedances of the water quality benchmark at the monitoring site where diazinon was applied within the associated drainage area. There were three exceedances at three monitoring sites that did not have any agricultural applications of diazinon within their drainage areas.

#### *Bifenthrin*

Based on the pesticide use information from the Ventura County Agricultural Commissioner's office, no bifenthrin applications occurred within any of the monitoring site drainage areas during the 2015-2016 reporting year. However, there were 15 exceedances at 12 monitoring sites that did not have any agricultural bifenthrin applications within their drainage areas.

#### *Summary*

Based on the results of the analysis that compared water quality data from the VCAILG sites and the agricultural pesticide use within the associated site drainage areas, it is difficult to discern any patterns between water quality benchmark exceedances and agricultural pesticide use. While the VCAILG monitoring sites' drainage areas aim to include predominantly agricultural land use, none of the drainage areas are completely comprised of agricultural land use. Applications of pesticides often occur outside the agricultural land use areas and are not reflected in the pesticide use records used for the analysis. In addition, pesticide use is variable and performed in response to a variety of factors such as pest pressures, sudden outbreaks of latent diseases and/or pathogens, cropping patterns, variation in neighboring crops that may have incompatible maximum residue limits, etc. Also, the use of a specific pesticide on a particular crop varies from year to year. To mitigate this variability and the changing landscape of pesticide use, all pesticide use decisions are based on farmer and pest control advisor (PCA) expertise, and applied under the authority of the local Agricultural Commissioner's office and the DPR. Additionally, all pesticide-applicable BMPs are included in the suite of BMPs identified in the WQMP when triggered by exceedances of the pesticide benchmarks.

**Table 144. Chlorpyrifos, Diazinon, and Bifenthrin Applications and Benchmark Exceedances by Monitoring Site for 2015-2016**

Site	Date	Crop	Active Ingredient (gal)	Active Ingredient (lbs)	Date Benchmark Exceeded	Event Type(s)	Benchmark (µg/L)	Exceedance Conc. (µg/L)	Drainage Area (acres)
<b>Chlorpyrifos<sup>1</sup></b>									
05T_HONDO	11/18/15	Lemon	22.2	--	1/6/16, 3/7/16	Wet, Wet	0.025	0.3, 0.05	3,928
06T_LONG2	7/24/15	Lemon	7.1	--	1/6/16	Wet	0.025	0.3	2,813
S03D_BARDS	10/22/15	Orange	4.2	--	1/6/16	Wet	0.025	0.2	2,213
S04T_TAPO	5/4/16	Grn. Onion	--	11.3	1/6/16	Wet	0.025	0.04	3,686
04D_ETTG	N/A	N/A	N/A	N/A	1/6/16, 3/7/16	Wet, Wet	0.025	0.032, 0.042	3,309
04D_LAS	N/A	N/A	N/A	N/A	3/7/16	Wet	0.025	0.06	1,339
S02T_ELLS	N/A	N/A	N/A	N/A	1/6/16	Wet	0.025	1.6	9,015
<b>Diazinon<sup>2</sup></b>									
S02T_TODD	8/3/2015	Row Crops	3.8	--	N/A	N/A	0.1	N/A	5,748
04D_ETTG	N/A	N/A	N/A	N/A	3/7/16	Wet	0.1	0.11	3,309
05D_LAVD	N/A	N/A	N/A	N/A	1/6/16	Wet	0.1	0.67	877
S03D_BARDS	N/A	N/A	N/A	N/A	1/6/16	Wet	0.1	1.5	2,214
<b>Bifenthrin<sup>3</sup></b>									
01T_ODD3_ARN	N/A	N/A	N/A	N/A	3/7/16	Wet	0.0006	0.05	800
04D_ETTG	N/A	N/A	N/A	N/A	8/16/15, 3/7/16	Dry, Wet	0.0006	0.002, 0.105	3,309
05D_LAVD	N/A	N/A	N/A	N/A	8/16/15, 1/6/16 3/7/16	Dry, Wet, Wet	0.0006	0.17, 0.06, 0.03	877
05T_HONDO	N/A	N/A	N/A	N/A	1/6/16	Wet	0.0006	0.17	3,928
06T_LONG2	N/A	N/A	N/A	N/A	1/6/16	Wet	0.0006	0.6	2,813
OXD_CENTR	N/A	N/A	N/A	N/A	1/6/16, 3/7/16	Wet, Wet	0.0006	0.52, 0.07	1,243
S02T_ELLS	N/A	N/A	N/A	N/A	1/6/16, 5/26/16	Wet, Dry	0.0006	0.1, 0.02	9,015
S02T_TODD	N/A	N/A	N/A	N/A	1/6/16	Wet	0.0006	0.008	5,748
S03T_TIMB	N/A	N/A	N/A	N/A	1/6/16	Wet	0.0006	0.01	2,183
S03T_BOULD	N/A	N/A	N/A	N/A	1/6/16	Wet	0.0006	0.01	3,764
S03D_BARDS	N/A	N/A	N/A	N/A	1/6/16, 3/7/16	Wet, Wet	0.0006	0.4, 0.03	2,214
S04T_TAPO	N/A	N/A	N/A	N/A	1/6/16	Wet	0.0006	0.03	3,686

1. There were exceedances at monitoring sites where chlorpyrifos was applied within the associated drainage area and exceedances at monitoring sites without chlorpyrifos applications within the associated drainage area.
2. There were no exceedances at the monitoring site where diazinon was applied within the associated drainage area; however, there were exceedances at monitoring sites where diazinon was not applied within the associated drainage area.
3. No bifenthrin applications occurred within any of the monitoring site drainage areas, but exceedances occurred at 12 monitoring sites.

## Schedule

---

In the previous section, an analysis of exceedances, associated BMPs and current adoption rates were used to assess whether additional implementation of specific BMPs is needed. TMDL-specific BMPs listed in the Conditional Waiver were also added, where appropriate. The following table provides target adoption rates for BMPs to be achieved by the end of the current Conditional Waiver in 2021. In the scheduling table, BMPs are referred to by two general categories:

- Source control and non-structural BMPs (captures all survey BMPs except question #'s 12, 13, 14, and 19 that can be considered applicable to the constituent category with benchmark exceedances identified in the previous section)
- Structural Non- treatment BMPs (survey questions 12, 13, and 14, which can be summarized as ditch management and filter strips)

At this time all source control and other non-structural BMPs have not been fully implemented (using a 98% adoption rate for the drainage area and responsibility area, and taking into consideration that the survey responses cover 62% of the irrigated acres currently enrolled in VCAILG) for any of the responsibility areas. Therefore, structural/treatment management practices are not yet required per Appendix 3, Section 2.b.i. However VCAILG is taking a proactive approach with increased target adoption rates of structural non-treatment BMPs. This category of structural BMPs includes ditch erosion protection, grassed waterways, and vegetated filter strips are being recommended for greater implementation due to the multiple categories of pollutants they can address and to promote a proactive approach to addressing the water quality issues that have been identified. Treatment and capture BMPS, as specified by survey question 19 will be implemented voluntarily by the growers at this time.

While the management practice implementation goals are defined for this current Waiver period, modifications may be made based on the results and analysis in future WQMPs. If needed, treatment BMPs will be planned towards the end of the ten-year period as needed to meet the benchmarks and to allow more time for planning.

**Table 145. BMP Implementation Schedule for Each Responsibility Area**

<b>Responsibility Area</b>	<b>Constituent Category for Benchmark Exceedance(s)</b>	<b>Compliance Date</b>	<b>Target Adoption Rate for Source Control and Non-Structural BMPs in 2021</b>	<b>Target Adoption Rate for Structural Non-Treatment BMPs in 2021</b>
01T_ODD3_ARN (within Oxnard Drain #3 TMDL area)	Nutrients	October 2025	80%	25%
	Metals	March 2022	98%	25%
	Legacy Pesticides	April 2026	80%	25%
01T_ODD3_ARN (outside Oxnard Drain #3 TMDL area)	Nutrients	October 2025	80%	40%
	Metals	March 2022	98%	40%
	Legacy Pesticides	March 2026	80%	40%
	Current Pesticides	March 2022	98%	40%
04D_ETTG-Revolon	Nutrients	October 2025	80%	25%
	Metals and Selenium	March 2022	98%	25%
	Legacy Pesticides	March 2026	80%	25%
	Current Pesticides	March 2022	98%	25%
04D_ETTG-Calleguas	Nutrients	October 2025	80%	30%
	Metals	March 2022	98%	30%
	Legacy Pesticides	March 2026	80%	30%
	Current Pesticides	March 2022	98%	30%
04D_LAS	Nutrients	October 2025	80%	25%
	Metals	March 2022	98%	25%
	Legacy Pesticides	March 2026	80%	25%
	Current Pesticides	March 2022	98%	25%
05D_LAVD	Nutrients	October 2025	80%	30%
	Metals and Selenium	March 2022	98%	30%
	Legacy Pesticides	March 2026	80%	30%
	Current Pesticides	March 2022	98%	30%
05T_HONDO	Nutrients	October 2025	80%	30%
	Selenium	March 2022	98%	30%
	Legacy Pesticides	March 2026	80%	30%
	Current Pesticides	March 2022	98%	30%
06T_LONG2-Conejo	Legacy Pesticides	March 2026	80%	25%
	Current Pesticides	March 2022	98%	25%

<b>Responsibility Area</b>	<b>Constituent Category for Benchmark Exceedance(s)</b>	<b>Compliance Date</b>	<b>Target Adoption Rate for Source Control and Non-Structural BMPs in 2021</b>	<b>Target Adoption Rate for Structural Non-Treatment BMPs in 2021</b>
06T_LONG2-Simi	Nutrients	October 2025	80%	25%
	Legacy Pesticides	March 2026	80%	25%
	Current Pesticides	March 2022	98%	25%
06T_LONG2-Las Posas	Legacy Pesticides	March 2026	80%	40%
	Current Pesticides	March 2022	98%	40%
S04T_TAPO	Salts	October 2020	98%	40%
	Nutrients	October 2022	98%	40%
	Legacy Pesticides	April 2027	75%	40%
	Current Pesticides	April 2027	75%	40%
S03T_BOULD	Nutrients	October 2022	98%	40%
	Legacy Pesticides	April 2027	75%	40%
	Current Pesticides	April 2027	75%	40%
S03D_BARDS	Legacy Pesticides	April 2027	75%	40%
	Current Pesticides	April 2027	75%	40%
S03T_TIMB	Salts	April 2027	NA	50%
	Legacy Pesticides	April 2027	75%	50%
S02T_TODD	Salts	April 2027	90%	40%
	Legacy Pesticides	October 2025	90%	40%
	Current Pesticides	April 2027	90%	40%
	Toxicity	April 2027	90%	40%
S02T_ELLS	Salts	April 2027	NA	50%
	Legacy Pesticides	October 2025	90%	50%
	Current Pesticides	April 2027	90%	50%
VRT_THACH-Inland	Legacy Pesticides	April 2027	75%	50%
	TMDL Specific BMP	June 2019	100%	NA
VRT_THACH-Coastal	Legacy Pesticides	April 2027	75%	50%
VRT_SANTO	TMDL Specific BMP	June 2019	100%	NA
05T_HONDO-Malibu	Legacy Pesticides	April 2027	50%	25%
	Current Pesticides	April 2027	50%	25%
OXD_CENTR	Nutrients	April 2027	98%	50%
	Metals	April 2027	98%	50%
	Legacy Pesticides	June 2021	98%	50%
	Current Pesticides	April 2027	98%	50%

## Outreach Plan

---

A comprehensive outreach strategy for VCAILG members is key to greater implementation and adoption of best management practices (BMPs) throughout Ventura County. The Conditional Waiver states that the “WQMP shall include a strategy for communicating to growers the need to implement additional or upgraded management practices. For each monitoring site:

- Provide regular communication (a minimum of twice per year) to members alerting them of additional and upgraded management practice requirements specific to their responsibility area.
- Provide education classes, referrals to technical assistance providers, and notices of available funding to members, targeting the constituents specific to their responsibility area.”

### COMMUNICATIONS

A variety of communications will be utilized to educate members about the water quality testing results in their specific area and the targeted BMPs needed to meet benchmarks by their compliance dates. Outreach materials, where possible, will be crop-specific in nature and prepared in electronic, paper and Spanish versions to reach the widest range of members.

- VCAILG e-Newsletter: Electronic communications is the most efficient method to keep members well informed. With a distribution list of over 1,100 emails, the VCAILG e-Newsletter will be sent bi-monthly, at a minimum, and cover current topics important to the program including upcoming educational sessions and BMPs technical and funding resources.
- Traditional Avenues: Flyers, magazine, mailers and newsletter articles will also be published to engage membership without access to electronic media.
- Website: VCAILG will continue to update, link and expand information, reports and resources on the Farm Bureau of Ventura County website, which was enhanced last year to include a mobile-friendly version. The Water Quality section of the Farm Bureau website is located here: <http://www.farmbureauvc.com/issues/water-issues/water-quality/> and includes information related to VCAILG and TMDLs.

All three of the approaches to reach VCAILG members will be used as part of the outreach program, however emphasis will be placed on the WQMP webpage as all forms of communication will direct farmers to this location for more detailed information. The WQMP webpage can be found here: <http://www.farmbureauvc.com/issues/water-issues/water-quality/wq-mgmt> and contains the following:

- Link to this WQMP document
- Responsibility Areas description and explanation
- Responsibility Area specific compliance summaries detailing what VCAILG members need to know and do in order to meet Conditional Waiver requirements (each compliance summary handout can be accessed directly from the WQMP website linked above)
- Look-up table to determine the responsibility area assignment for each parcel.
- Responsibility Area maps

## EDUCATION

Workshop and other educational opportunities will be conducted to provide sufficient opportunities for all members to fulfill their requirements and gain greater understanding of water quality goals in their specific areas.

- Phase 1: The first set of workshops will focus on member new waiver requirements, understanding water quality impairments in different watersheds, and to provide and explain responsibility area-specific BMPs outreach materials. These materials, as noted earlier, are also available online for future reference. In addition, technical resources and funding opportunities will be covered. The workshops will be held at various locations throughout the County and publicized through all appropriate avenues. Although members may attend any of the sessions since the information will be consistently presented, additional emphasis will be given to the areas nearest the workshop location. It is also proposed that the areas experiencing the greatest water quality impairments will be scheduled first to allow the most time for BMPs implementation. The Responsibility Area specific compliance summaries will be provided at each meeting with maps displayed for VCAILG members to locate their farm(s). Staff will also be available to answer questions and provide one-on-one assistance to workshop attendees.
- Phase 2: The second phase of education will emphasize nutrient management, including assisting members in developing nutrient management plans for the areas who are required to prepare them. The workshops will be designed to be crop-specific as the most efficient way to deliver this important information to targeted interests. Again, workshops will be open to all members but priority registration and proximity locations will be focused on those members and areas with the most need.
- Ongoing: VCAILG will continue to partner with the Ventura County Resource Conservation District, the USDA Natural Resources Conservation Service, the University of California Cooperative Extension, the Strawberry Commission, and other related organizations to provide ongoing and more specialized opportunities to educate members about a wide range of relevant topics.

## Explanation of Compliance List Appendices

---

The Conditional Waiver requires that dischargers obtain a minimum of two hours of educational training every year. Appendix D lists VCAILG members' progress towards meeting the first two hours of education training. Regional Board staff provided written confirmation on September 23, 2016 that the timeframe during which the first two hours of education need to be completed is between April 14, 2016 and November 30, 2017 to align with annual monitoring report submittals.

Since adoption of the 2016 Conditional Waiver four classes have been offered. Table 146 lists the approved classes and the hours of credit for each class. As demonstrated in the Outreach Plan, a number of additional classes are planned for the next six months, providing VCAILG members with multiple opportunities to obtain the required education credits and to also be informed of the water quality issues and applicable BMPs for their responsibility area.

**Table 146. Courses Approved for Education Credit**

<b>Date</b>	<b>Course Title</b>	<b>Education Hours</b>
7/28/2016	Irrigation and Nutrient Management Meeting for Berry and Vegetable Crops	3.15
9/27/2016	Agricultural Water Use Efficiency Education Program and Kickoff Event	2
9/28/2016	ABCs of Fertilizers and Plan Nutrition	4
9/29/2016	ABCs of Fertilizers and Plan Nutrition (Spanish)	4

As part of the WQMP, VCAILG is also required to submit information regarding the responses of its members including completion of the BMP survey or response to any other information requests, participation in group monitoring, if applicable, and payment of required fees. Appendix E is a complete parcel list with notations for VCAILG membership status, BMP survey completion, and fee payment status. This list was generated on March 31, 2017. Regional Board staff sent noticed of violation (NOVs) in March to approximately 700 farmers. The VCAILG has been managing a significant influx of new members and Appendix E reflects those recent changes.