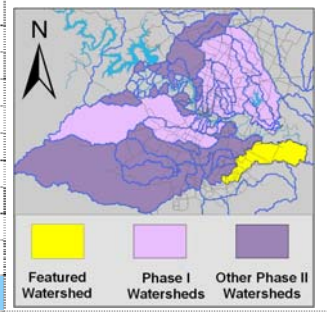


# Dry Creek (East) Watershed

## Watershed Overview

|                    |                                  |                |    |    |    |    |    |    |    |
|--------------------|----------------------------------|----------------|----|----|----|----|----|----|----|
| Catchment          | Total area                       | 41.8 sq. miles |    |    |    |    |    |    |    |
|                    | Area in recharge                 | 0              |    |    |    |    |    |    |    |
|                    | Creek length                     | 24.8 miles     |    |    |    |    |    |    |    |
|                    | Receiving water                  | Colorado River |    |    |    |    |    |    |    |
| Demographics       | 2000 population                  | unknown        |    |    |    |    |    |    |    |
|                    | 2030 projected population        | unknown        |    |    |    |    |    |    |    |
|                    | 30 year projected % increase     | unknown        |    |    |    |    |    |    |    |
| Land Use           | Impervious cover (2003 estimate) | 4.0 %          |    |    |    |    |    |    |    |
|                    | Impervious cover (2013 estimate) | 4.4 %          |    |    |    |    |    |    |    |
| Overall EII Scores | 1999                             | 56             | 55 | 60 | 55 | 60 | 61 | 59 | 69 |



## Flow Regime\* for Sample Sites on Dry Creek (East)

| Site | 2002 |     |     |     |     | 2005 |     |     |     |     | 2008 |     |     |     |     | 2010 |     |     |     |     | 2011 |     |     |     |     | 2012 |     |     |     |     | 2014 |     |     |     |  | 2016 |  |  |  |  |
|------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|--|------|--|--|--|--|
|      | Feb  | Feb | May | Aug | Nov | Mar  | Jun | Jun | Sep | Dec | Feb  | May | Jun | Sep | Dec | Mar  | May | May | Oct | Dec | Mar  | Apr | Jul | Sep | Jan | Apr  | May | Jul | Sep | Jan | Apr  | May | Jul | Sep |  |      |  |  |  |  |
|      | WQ   | Bio | WQ  | WQ  | WQ  | WQ   | WQ  | Bio | WQ  | WQ  | WQ   | WQ  | Bio | WQ  | WQ  | WQ   | WQ  | Bio | WQ  | WQ  | WQ   | Bio | WQ  | WQ  | WQ  | WQ   | Bio | WQ  | WQ  | WQ  | WQ   | WQ  | WQ  | WQ  |  |      |  |  |  |  |
| 1208 | n    |     | n   | n   | B   |      |     |     |     |     |      |     |     |     |     |      |     |     |     |     |      |     |     |     |     |      |     |     |     |     |      |     |     |     |  |      |  |  |  |  |
| 1209 | n    |     | n   | n   | B   |      |     |     |     |     |      |     |     |     |     |      |     |     |     |     |      |     |     |     |     |      |     |     |     |     |      |     |     |     |  |      |  |  |  |  |
| 1211 | B    |     | B   |     | B   | B    | n   | B   | B   | B   | n    | n   | B   | n   | B   | B    | S   | B   | B   | B   | B    | n   | B   | B   | B   | B    | B   | B   | B   | B   | B    | B   |     |     |  |      |  |  |  |  |
| 1210 | B    | B   | n   | B   | B   | B    | B   | n   | B   | B   | n    | n   | n   | n   | B   | n    | S   | n   | B   | B   | B    | n   | B   | B   | B   | n    | B   | n   | B   | B   | B    | n   | B   |     |  |      |  |  |  |  |
| 1212 | B    |     | n   | B   | B   | B    | B   | n   | n   | n   |      |     |     |     |     |      |     |     |     |     |      |     |     |     |     |      |     |     |     |     |      |     |     |     |  |      |  |  |  |  |

\* B = baseflow    n = no flow    storm = storm flow    blue = Samples were taken    light blue = Samples were not taken    blank = not visited

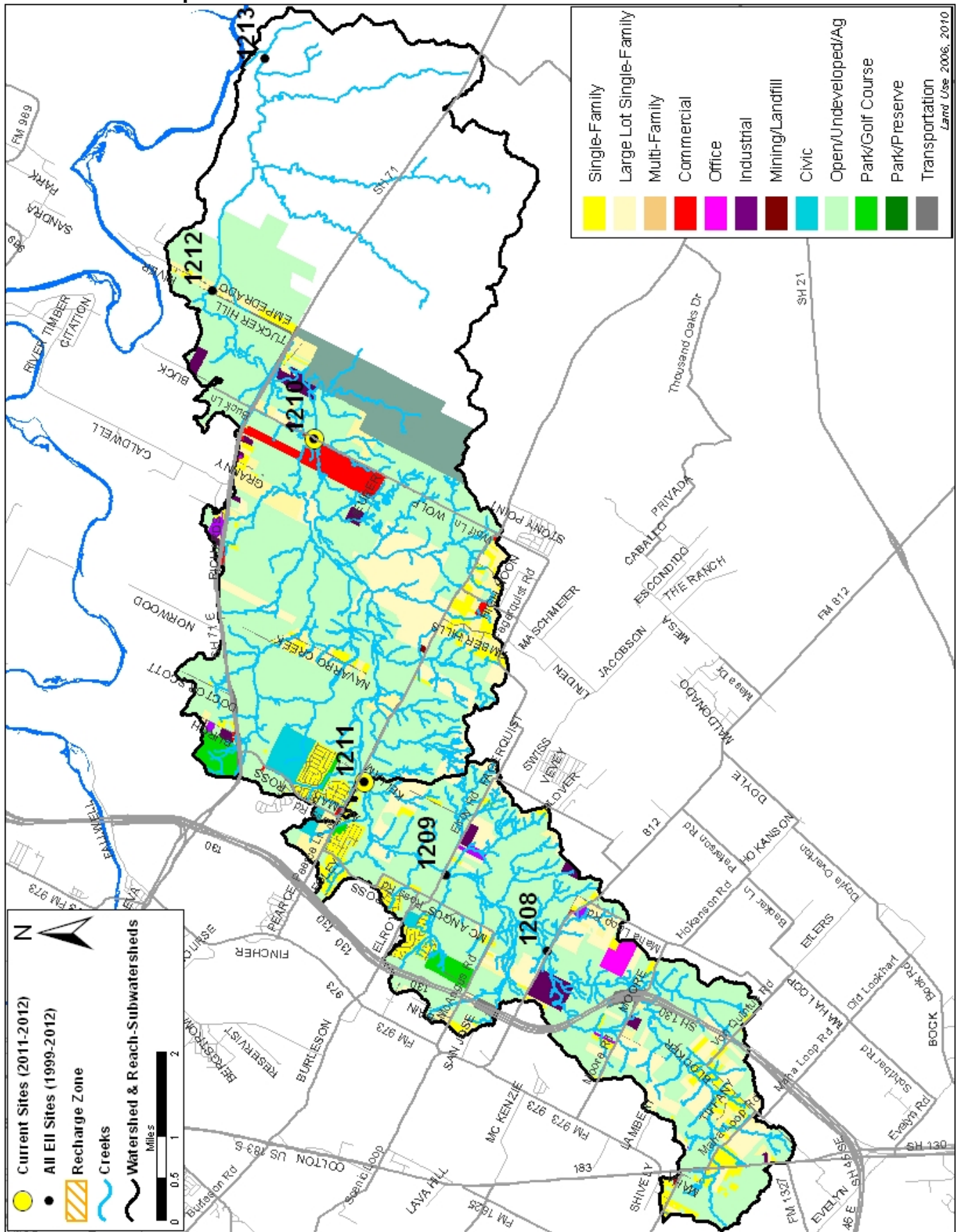
## Index scores\* for Dry Creek (East) Sites by Year

| Reach | Site | Site Name               | Year | Water Quality | Sediment** | Contact Rec. | Non-Contact Rec. | Physical Integrity | Aquatic Life | Benthic subindex | Diatom subindex | Total EII Score |
|-------|------|-------------------------|------|---------------|------------|--------------|------------------|--------------------|--------------|------------------|-----------------|-----------------|
| DRE1  | 1210 | Dry Creek @ Wolf Lane   | 1999 | 46            | 84         | 90           | 36               | 42                 |              |                  |                 | 50              |
| DRE1  | 1212 | Dry Creek @ River Road  | 1999 | 42            | 84         | 87           | 39               | 68                 |              |                  |                 | 53              |
| DRE1  | 1213 | Dry Creek @ Colorado Dr | 1999 | 49            | 84         | 97           | 65               | 72                 |              |                  |                 | 61              |
| DRE2  | 1208 | Dry Creek @ FM 812      | 1999 | 76            | 84         | 100          | 88               | 64                 |              |                  |                 | 69              |
| DRE2  | 1209 | Dry Creek @ Elroy Road  | 1999 | 65            | 84         | 97           | 48               | 31                 |              |                  |                 | 54              |
| DRE2  | 1211 | Dry Creek @ Pearce Road | 1999 | 49            | 84         | 83           | 42               | 33                 |              |                  |                 | 49              |
| DRE1  | 1210 | Dry Creek @ Wolf Lane   | 2002 | 47            | 86         | 76           | 63               | 32                 | 27           | 34               | 20              | 55              |
| DRE1  | 1212 | Dry Creek @ River Road  | 2002 | 48            | 86         | 85           | 37               | 48                 |              |                  |                 | 51              |
| DRE2  | 1208 | Dry Creek @ FM 812      | 2002 | 61            | 86         | 94           | 50               | 26                 |              |                  |                 | 53              |
| DRE2  | 1209 | Dry Creek @ Elroy Road  | 2002 | 58            | 86         | 95           | 72               | 31                 |              |                  |                 | 57              |
| DRE2  | 1211 | Dry Creek @ Pearce Road | 2002 | 59            | 86         | 96           | 65               | 48                 |              |                  |                 | 59              |
| DRE1  | 1210 | Dry Creek @ Wolf Lane   | 2005 | 42            | 83         | 64           | 57               | 39                 | 56           | 64               | 48              | 57              |
| DRE1  | 1212 | Dry Creek @ River Road  | 2005 | 54            | 83         | 67           | 32               | 48                 | 71           |                  | 71              | 59              |
| DRE2  | 1211 | Dry Creek @ Pearce Road | 2005 | 54            | 83         | 76           | 50               | 44                 | 77           | 77               |                 | 64              |
| DRE1  | 1210 | Dry Creek @ Wolf Lane   | 2008 | 60            | 80         | 87           | 22               | 49                 |              |                  |                 | 50              |
| DRE2  | 1211 | Dry Creek @ Pearce Road | 2008 | 48            | 80         | 61           | 62               | 49                 | 59           | 59               |                 | 60              |
| DRE1  | 1210 | Dry Creek @ Wolf Lane   | 2010 | 59            | 83         | 45           | 56               | 38                 | 57           | 53               | 60              | 56              |
| DRE2  | 1211 | Dry Creek @ Pearce Road | 2010 | 49            | 83         | 55           | 70               | 58                 | 60           | 53               | 66              | 63              |
| DRE1  | 1210 | Dry Creek @ Wolf Lane   | 2012 | 48            | 82         | 29           | 51               | 59                 | 80           | 77               | 83              | 58              |
| DRE2  | 1211 | Dry Creek @ Pearce Road | 2012 | 58            | 82         | 56           | 62               | 69                 | 49           | 55               | 42              | 63              |
| DRE1  | 1210 | Dry Creek @ Wolf Lane   | 2014 | 60            | 79         | 63           | 19               | 35                 | 74           | 74               |                 | 55              |
| DRE2  | 1211 | Dry Creek @ Pearce Road | 2014 | 59            | 79         | 69           | 60               | 50                 | 59           | 59               |                 | 63              |
| DRE1  | 1210 | Dry Creek @ Wolf Lane   | 2016 | 61            | 81         | 47           | 77               | 59                 | 64           | 55               | 72              | 65              |
| DRE2  | 1211 | Dry Creek @ Pearce Road | 2016 | 68            | 81         | 89           | 71               | 55                 | 72           | 72               |                 | 73              |

\* blank cells indicate parameter was not collected, blank row indicate site was dropped    \*\*sediment samples only collected at the downstream site  
 100-87.5 Excellent    87.5-75 V. Good    75-62.5 Good    62.5-50 Fair    50-37.5 Marginal    37.5-25 Poor    25-12.5 Bad    12.5-0 V. Bad

# Dry Creek Watershed

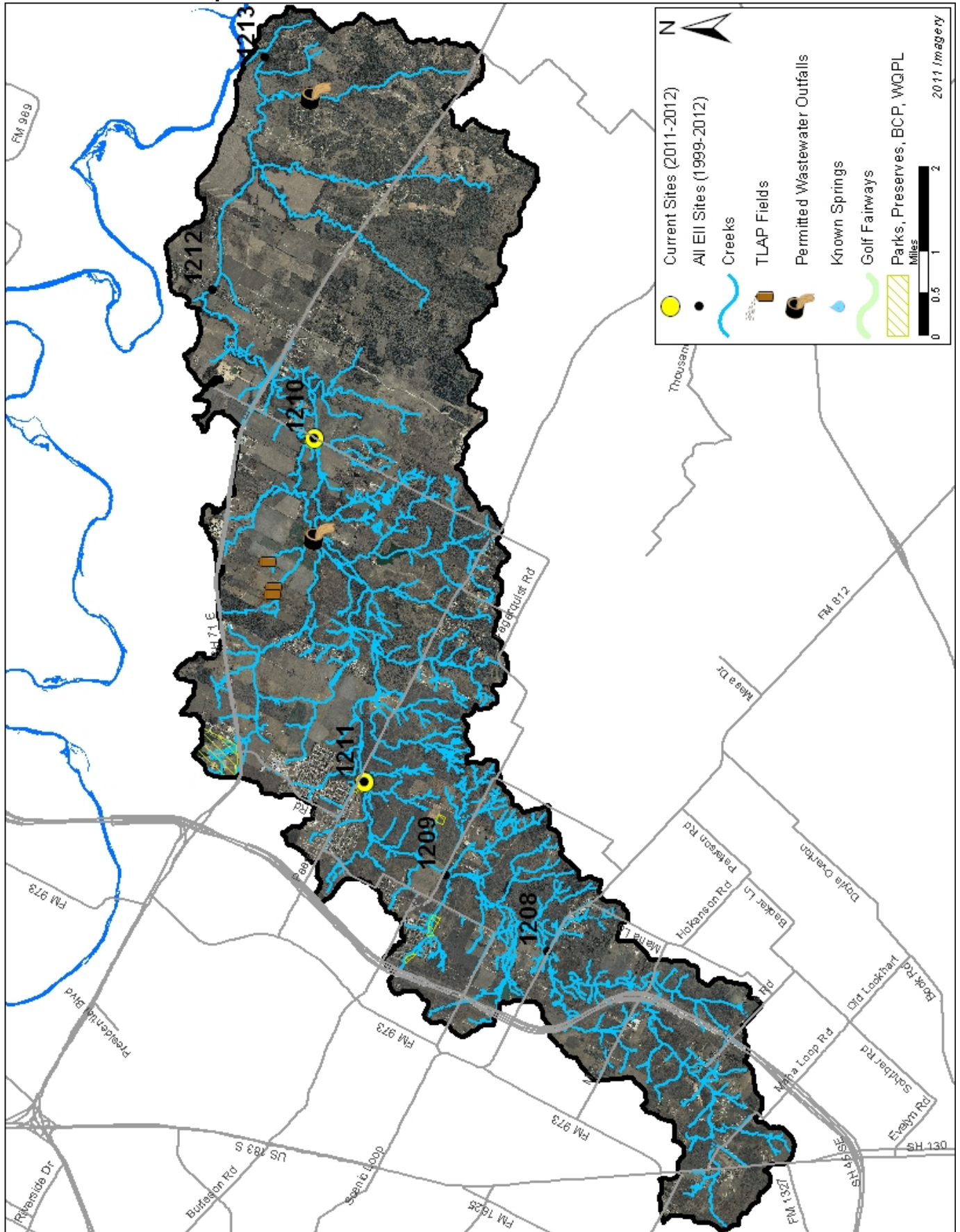
## Land Use Map



Land Use 2006, 2010

# Dry Creek (East) Watershed

Aerial Map



# Dry Creek (East) Watershed

## Water Quality Data – Temperature, Conductivity, pH, Dissolved Oxygen & *E. coli* for 2016 Sample Sites (Downstream to Upstream)

|  |    |                          |   |         |                        |
|--|----|--------------------------|---|---------|------------------------|
| <b>Qualifiers to the left of the value</b> | >  | Greater than             | <b>Qualifiers to the right of the value</b> | (blank) | Useable                |
|  | <  | Less than                |   | S       | Exceeds standard range |
|  | <J | Less than detected limit |   | R       | Rejected, failed QC    |
|  | J  | Estimated                |   |         |                        |

| Watershed     | Site | EII Reach | Date       | Temp. flag | Cond. flag | pH flag | D.O. flag | E. Coli flag |
|---------------|------|-----------|------------|------------|------------|---------|-----------|--------------|
| Dry East      | 1210 | DRE1      | 01/12/2016 | 8.3        | 593        | 8.19    | 10.2      | 224.7        |
| Dry East      | 1210 | DRE1      | 04/12/2016 | 21.0       | 833        | 7.86    | 5.6       | 71.9         |
| Dry East      | 1210 | DRE1      | 05/12/2016 | 25.5       | 639        | 8.07    | 7.4       |              |
| Dry East      | 1210 | DRE1      | 07/12/2016 | 26.1       | 768        | 7.83    | 4.1       | 95.8         |
| DRE1 Mean     |      |           |            | 20.2       | 708        | 7.98    | 6.8       | 130.8        |
| Dry East      | 1211 | DRE2      | 01/12/2016 | 9.2        | 600        | 7.93    | 7.8       | 31.5         |
| Dry East      | 1211 | DRE2      | 04/12/2016 | 20.9       | 1002       | 7.64    | 6.0       | 19.3         |
| Dry East      | 1211 | DRE2      | 05/12/2016 | 24.8       | 654        | 7.69    | 5.2       |              |
| Dry East      | 1211 | DRE2      | 07/12/2016 | 28.2       | 2351       | 7.73    | 4.0       | 10.9         |
| Dry East      | 1211 | DRE2      | 09/13/2016 | 2606       | 1270       | 7.70    | 5.5       | 10.6         |
| DRE2 Mean     |      |           |            | 21.9       | 1175       | 7.74    | 5.7       | 18.1         |
| Dry East Mean |      |           |            | 21.2       | 968        | 7.84    | 6.2       | 66.4         |

Gray highlighting indicates that the value exceeds one standard deviation from the mean of all E.I.I. sites combined.

| Summary Statistics for all 2015-2016 E.I.I. Sites Combined |                   |                   |                   |                            |                            |
|--|-------------------|-------------------|-------------------|----------------------------|----------------------------|
| Parameter  | 2015-2016 Average | 2015-2016 Minimum | 2015-2016 Maximum | 1 Standard Deviation Above | 1 Standard Deviation Below |
| Temperature (C°)   | 20.7              | 5.8               | 34.2              | 27.5                       |                            |
| Conductivity (uS/cm)                                       | 722               | 160               | 3549              | 955                        |                            |
| pH (Standard units)  | 7.86              | 5.85              | 10.25             | 8.24                       | 7.47                       |
| D.O. (mg/l)  | 7.9               | 0.1               | 18.7              | 10.4                       | 5.5                        |
| <i>E. Coli</i> (col/100ml)                                 | 316.1             | 1.0               | 2420.0            | 883.7                      |                            |

# Dry Creek (East) Watershed

## Water Quality Data – Ammonia, Nitrate / Nitrite, Ortho-Phosphorus, Total Suspended Solids & Turbidity for 2016 Sample Sites (Downstream to Upstream)

|  |                             |   |                          |
|--|-----------------------------|---|--------------------------|
| <b>Qualifiers to the left of the value</b> | > Greater than              | <b>Qualifiers to the right of the value</b> | (blank) Useable          |
|  | < Less than                 |   | S Exceeds standard range |
|  | <J Less than detected limit |   | R Rejected, failed QC    |
|  | J Estimated                 |   |                          |

| Watershed     | Site | EII Reach | Date       | NH3-N    | NO3/NO2 | Ortho-P  | T.S.S. | Turb.  |
|---------------|------|-----------|------------|----------|---------|----------|--------|--------|
|               |      |           |            | flag     | flag    | flag     | flag   | flag   |
| Dry East      | 1210 | DRE1      | 01/12/2016 | <J 0.008 | <J 0.01 | <J 0.004 | 14.6   | 29.8 R |
| Dry East      | 1210 | DRE1      | 04/12/2016 | <J 0.008 | <J 0.01 | <J 0.004 | 11.1   | 9.3    |
| Dry East      | 1210 | DRE1      | 05/12/2016 |          |         |          |        |        |
| Dry East      | 1210 | DRE1      | 07/12/2016 | <J 0.008 | 0.11    | <J 0.004 | 16.9   | 22.5   |
| DRE1 Mean     |      |           |            | 0.008    | 0.04    | 0.004    | 14.2   | 20.5   |
| Dry East      | 1211 | DRE2      | 01/12/2016 | <J 0.008 | 0.03    | <J 0.004 | 11.1   | 24.0 R |
| Dry East      | 1211 | DRE2      | 04/12/2016 | <J 0.008 | <J 0.01 | <J 0.004 | 5.5    | 5.9    |
| Dry East      | 1211 | DRE2      | 05/12/2016 |          |         |          |        |        |
| Dry East      | 1211 | DRE2      | 07/12/2016 | <J 0.008 | <J 0.01 | <J 0.004 | 11.6   | 14.2 R |
| Dry East      | 1211 | DRE2      | 09/13/2016 | <J 0.008 | 0.02    | <J 0.004 | 10.3   | 11.2   |
| DRE2 Mean     |      |           |            | 0.008    | 0.02    | 0.004    | 9.6    | 13.8   |
| Dry East Mean |      |           |            | 0.008    | 0.03    | 0.004    | 11.6   | 16.7   |

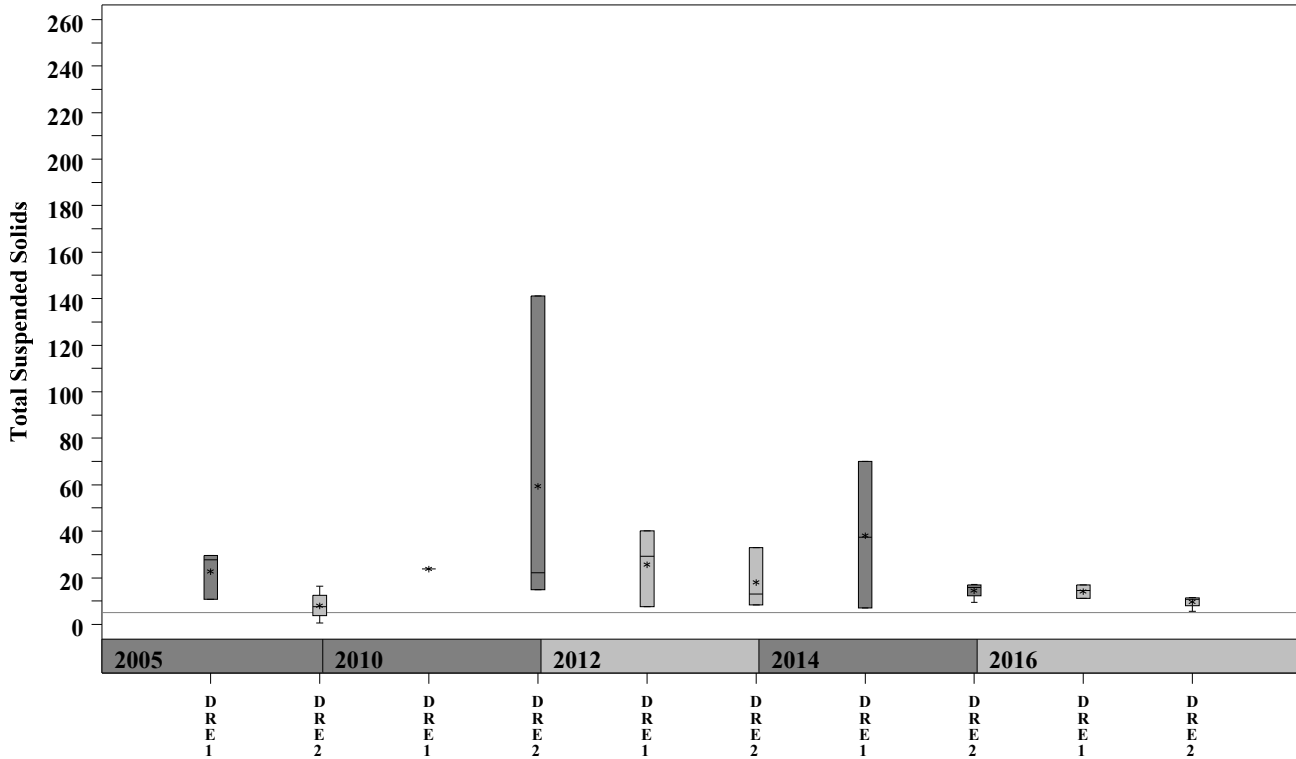
Gray highlighting indicates that the value exceeds one standard deviation from the mean of all E.I.I. sites combined.

| Summary Statistics for all 2015-2016 E.I.I. Sites Combined |                   |                   |                   |                            |
|--|-------------------|-------------------|-------------------|----------------------------|
| Parameter  | 2015-2016 Average | 2015-2016 Minimum | 2015-2016 Maximum | 1 Standard Deviation Above |
| NH3-N (mg/l)   | 0.018             | 0.008             | 0.881             | 0.085                      |
| NO3-N (mg/l)   | 1.14              | 0.01              | 12.0              | 3.16                       |
| Ortho-P (mg/l)   | 0.016             | 0.004             | 0.661             | 0.08                       |
| T.S.S. (mg/l)  | 3.7               | 1.0               | 58.2              | 9.7                        |
| Turbidity (NTU)  | 4.4               | 0.2               | 98.6              | 11.7                       |

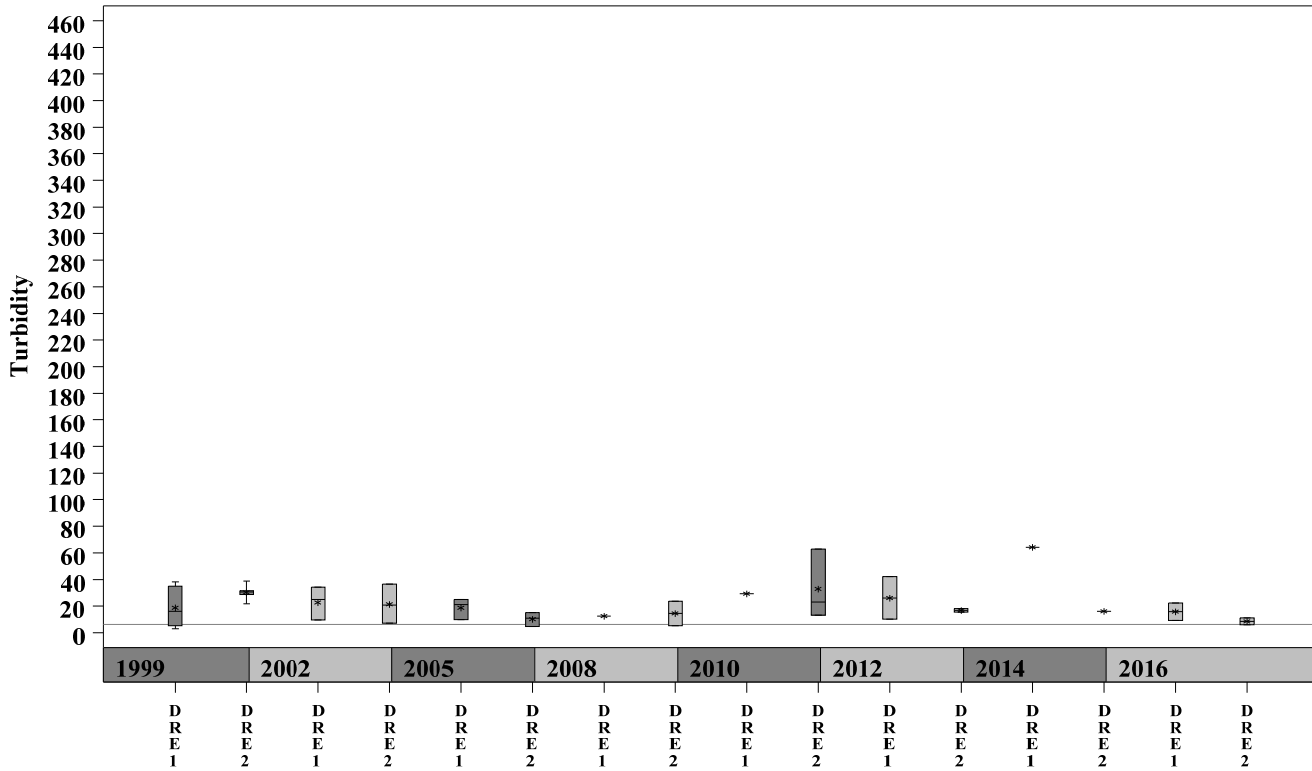
# Dry Creek (East) Watershed

Data Summary Graphs – Total Suspended Solids and Turbidity (Downstream to Upstream by Year)

Parameter = TOTAL SUSPENDED SOLIDS Unit = mg/L Watershed = Dry East



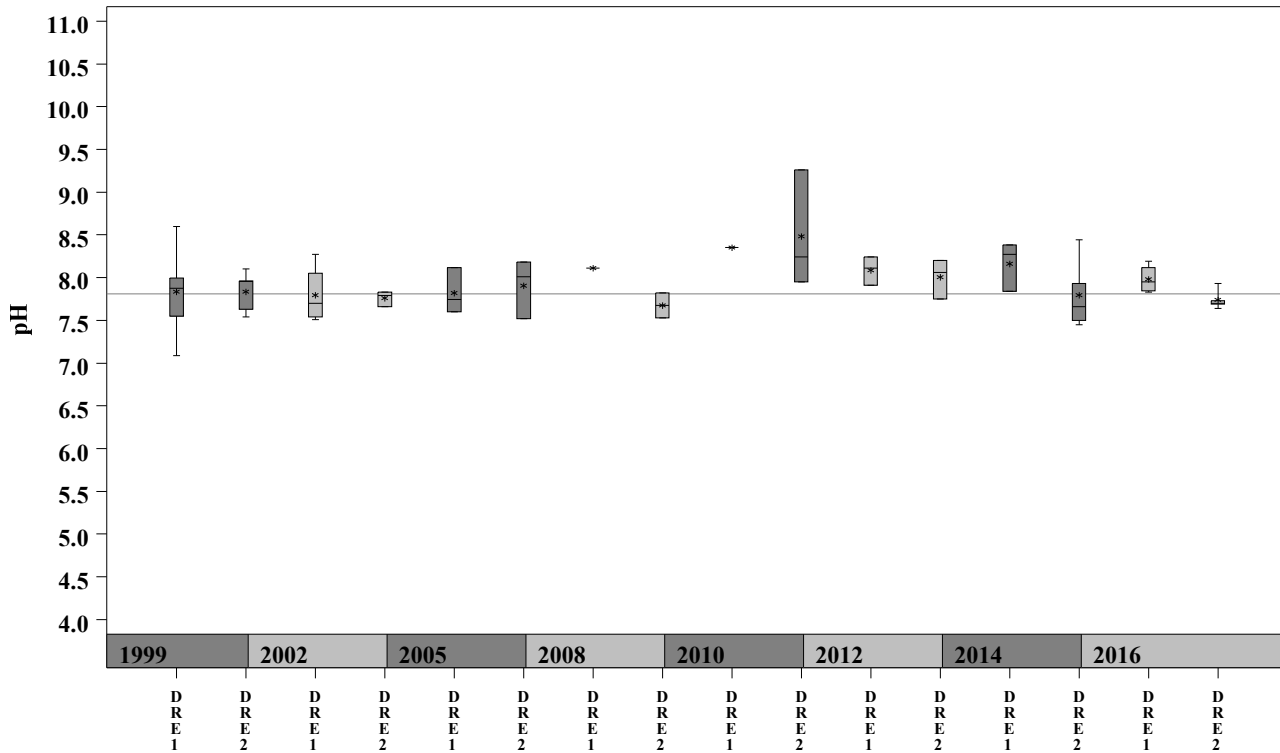
Parameter = TURBIDITY Unit = NTU Watershed = Dry East



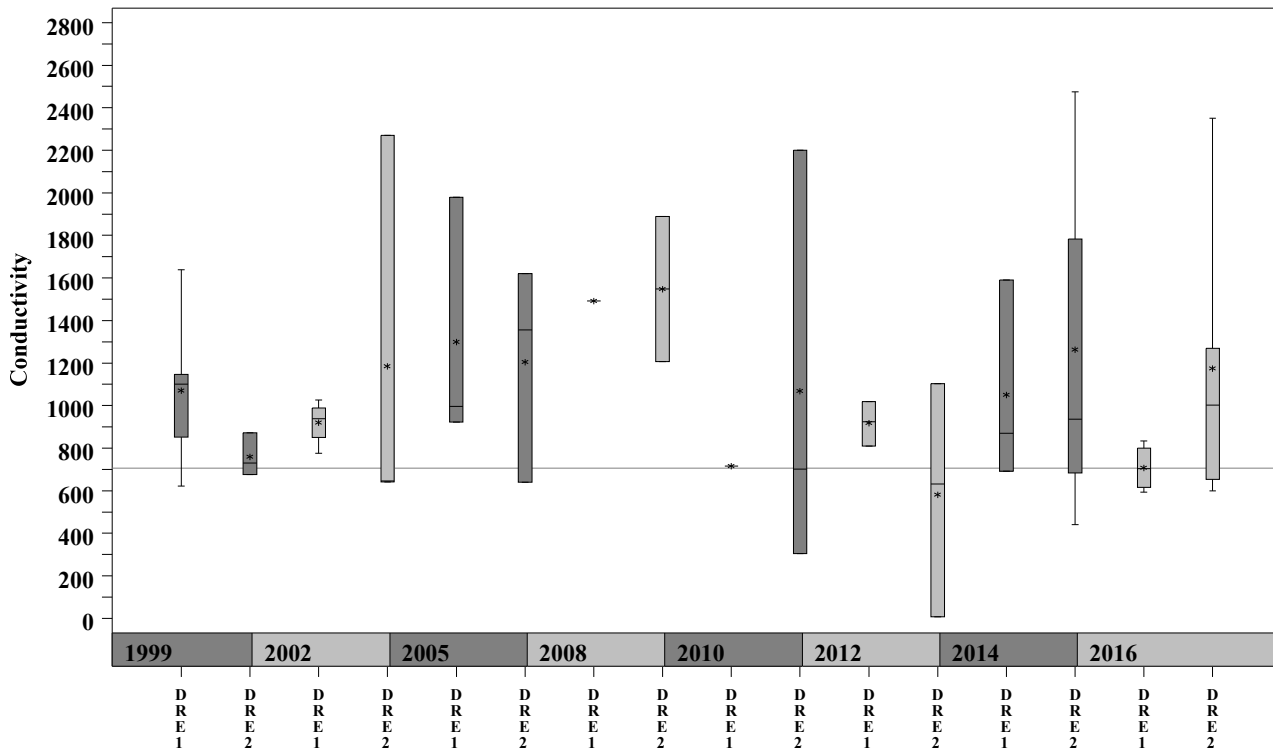
# Dry Creek (East) Watershed

Data Summary Graphs – pH and Conductivity (Downstream to Upstream by Year)

Parameter = pH Unit = Standard Units Watershed = Dry East



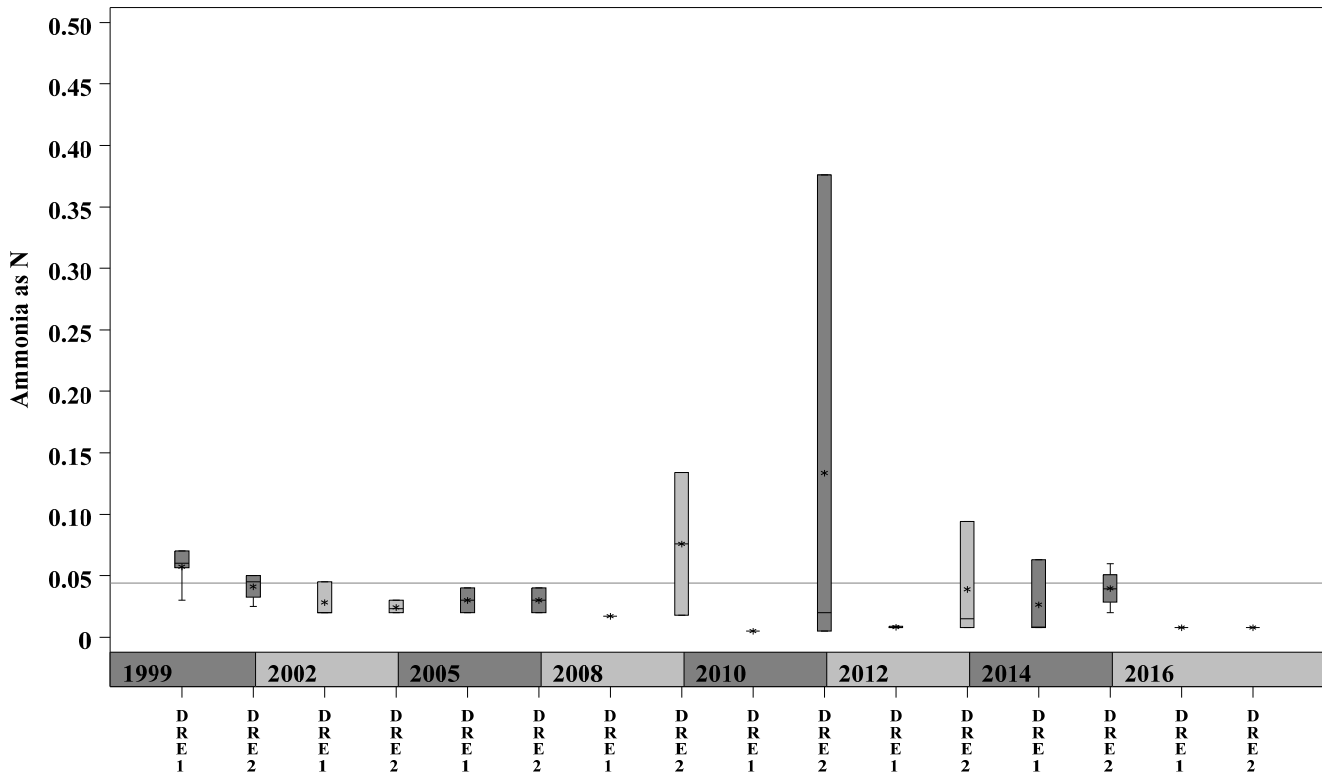
Parameter = CONDUCTIVITY Unit = uS/cm Watershed = Dry East



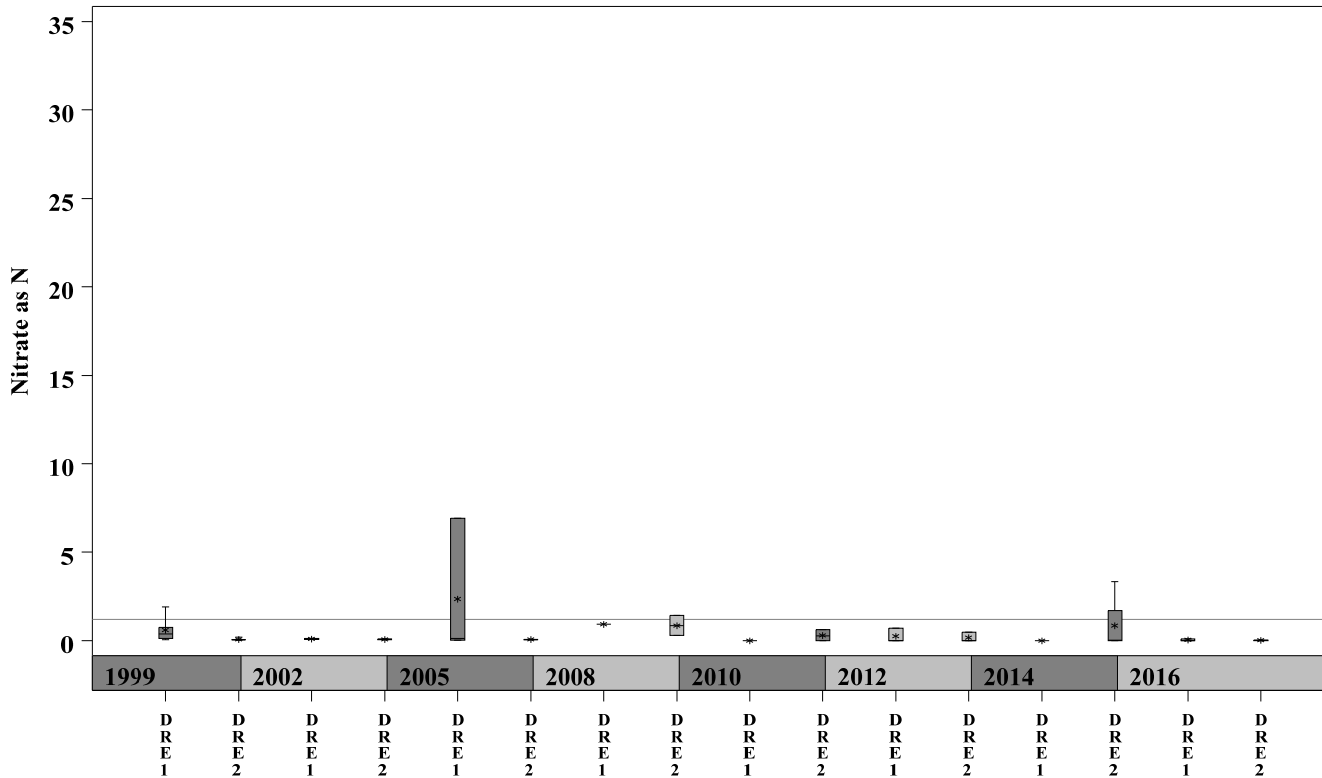
# Dry Creek (East) Watershed

Data Summary Graphs – Ammonia and Nitrate/Nitrite (Downstream to Upstream by Year)

Parameter=AMMONIA AS N Unit=mg/L Watershed=Dry East



Parameter=NITRATE AS N Unit=mg/L Watershed=Dry East

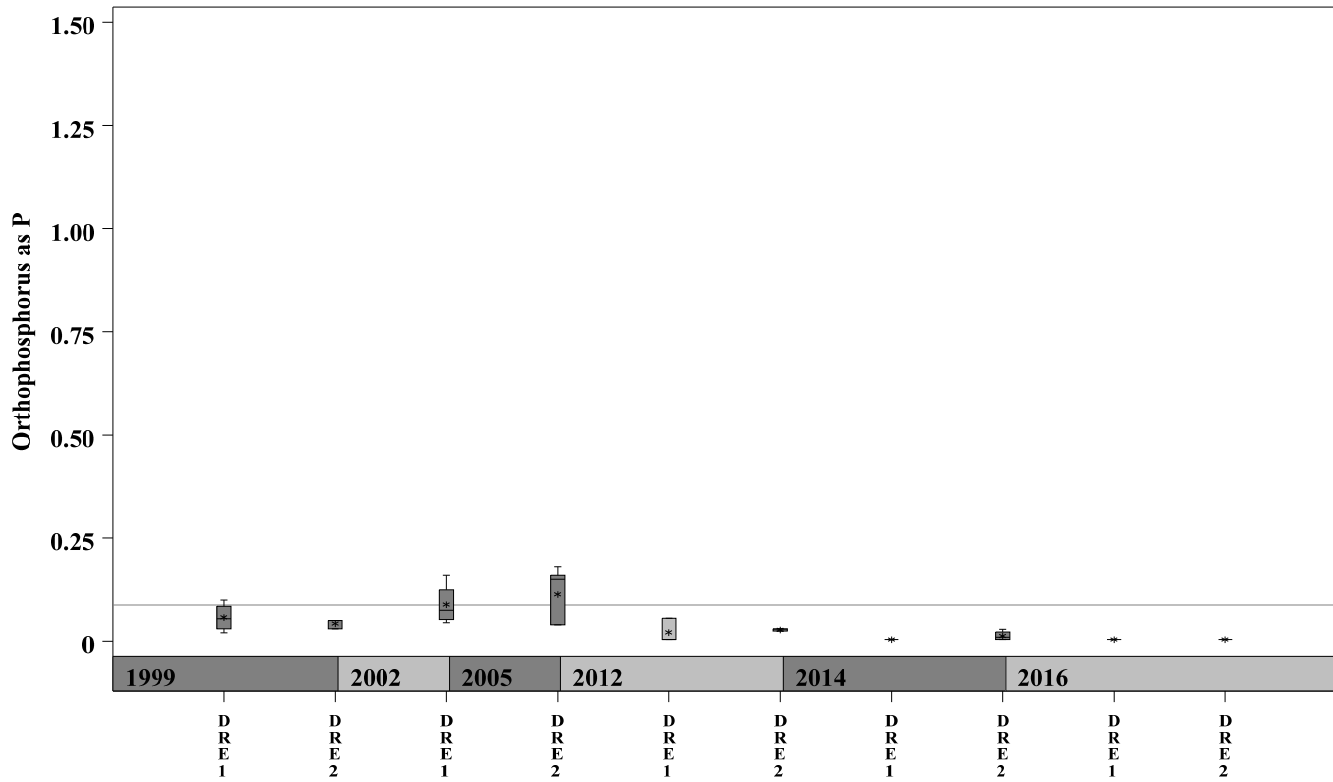




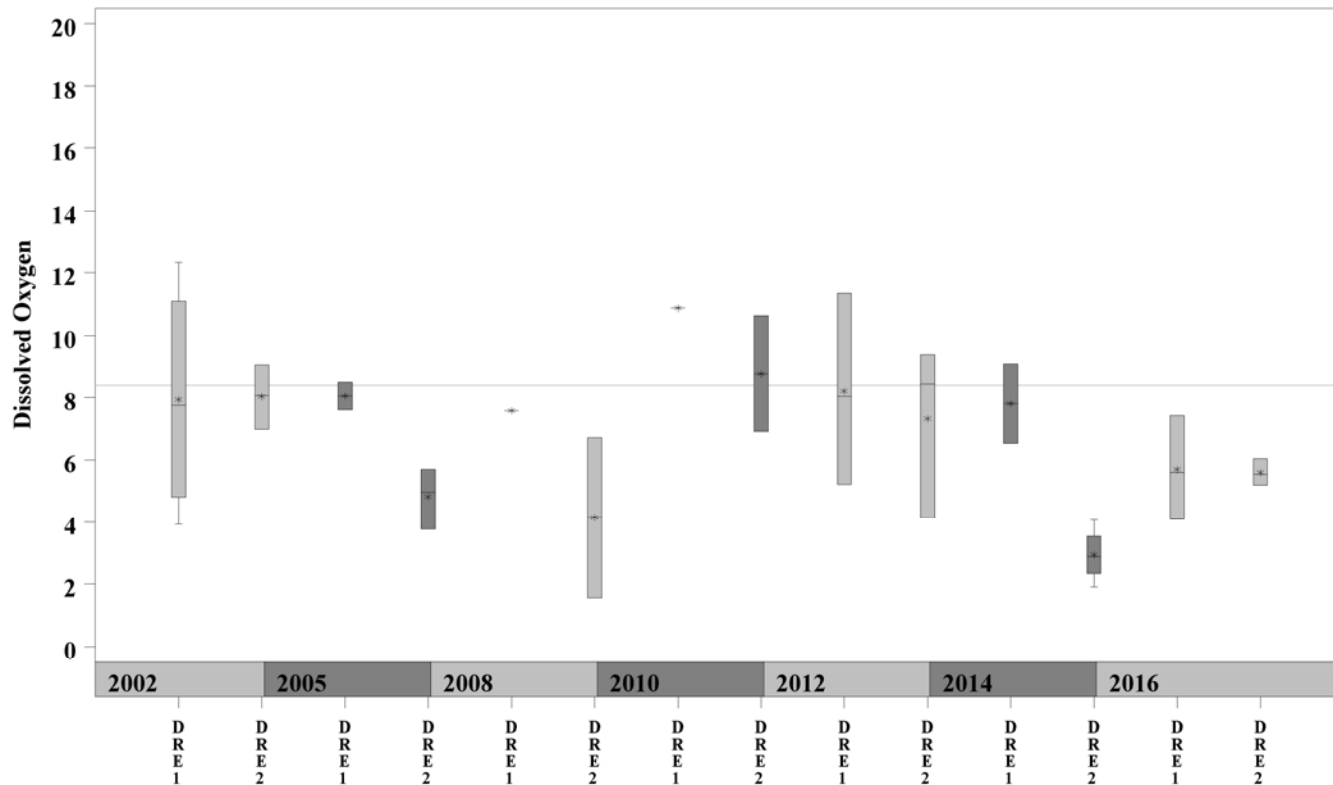
# Dry Creek (East) Watershed

Data Summary Graphs – Orthophosphate and Dissolved Oxygen (Downstream to Upstream by Year)

Parameter = ORTHOPHOSPHORUS AS P Unit = mg/L Watershed = Dry East



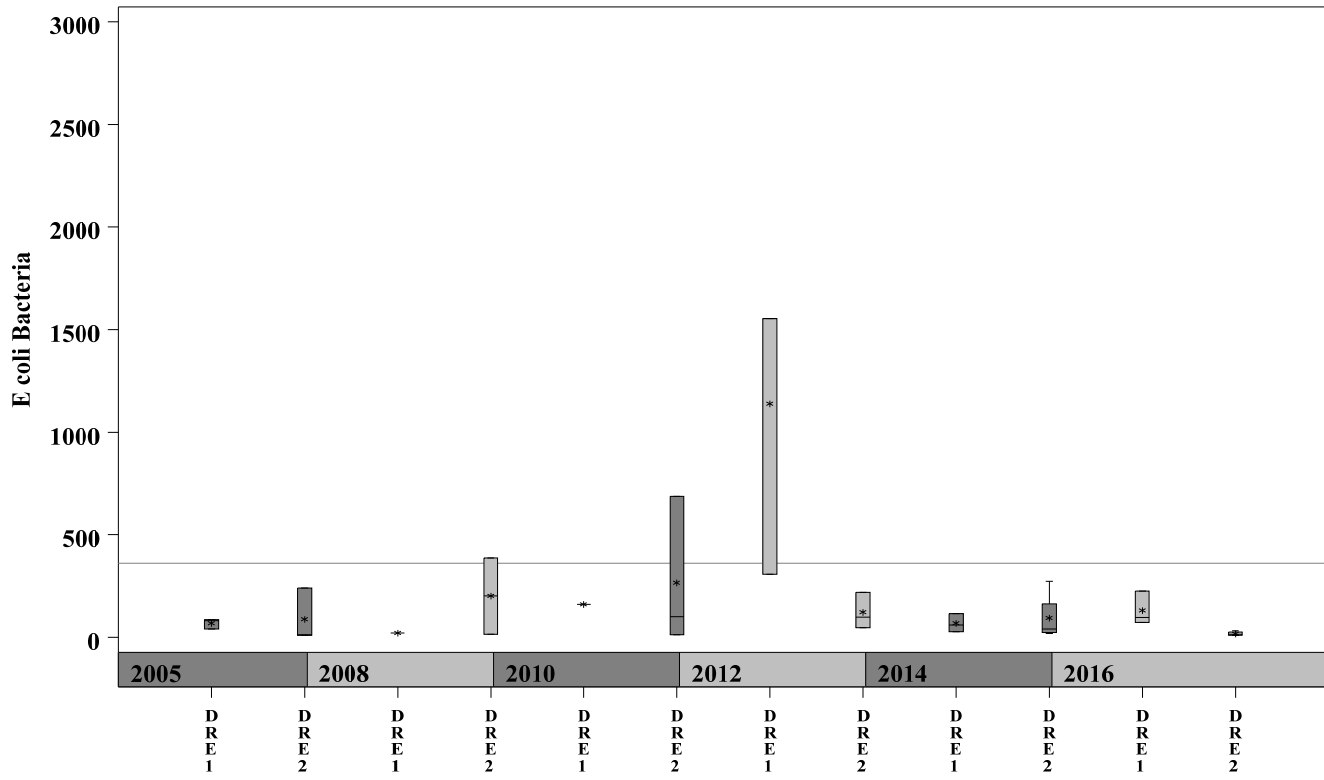
Parameter = DISSOLVED OXYGEN Unit = mg/L Watershed = Dry East



# Dry Creek (East) Watershed

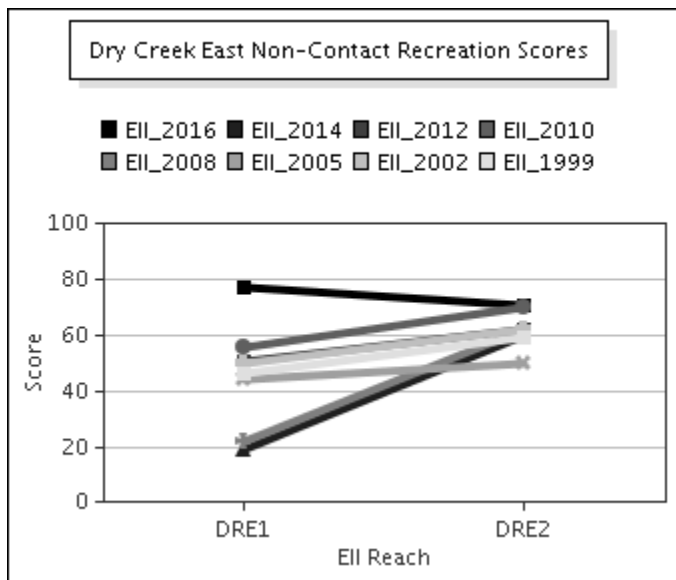
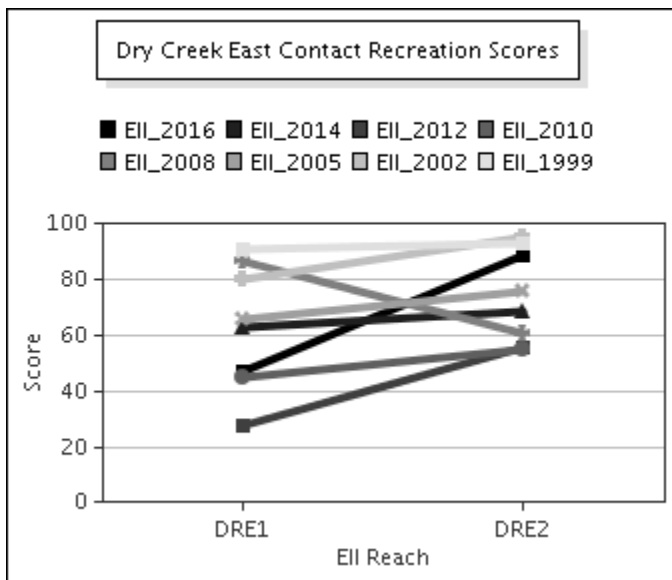
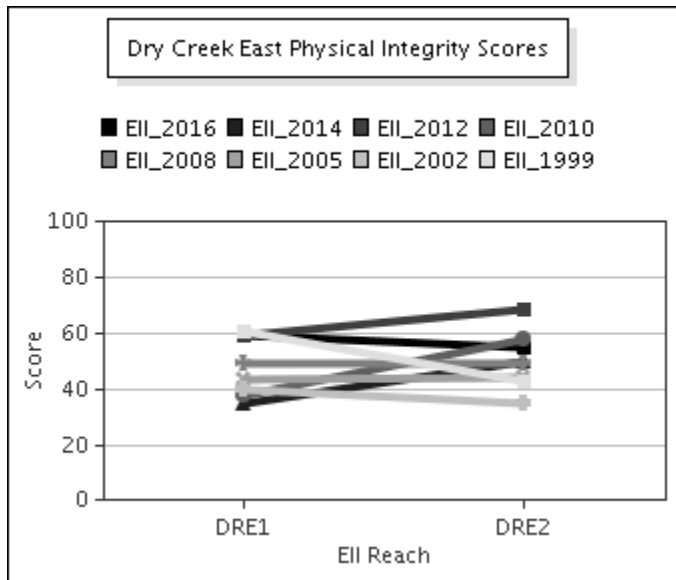
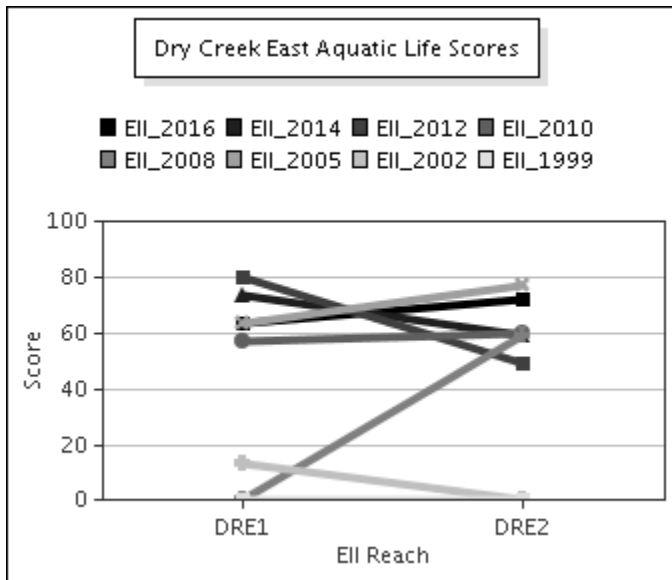
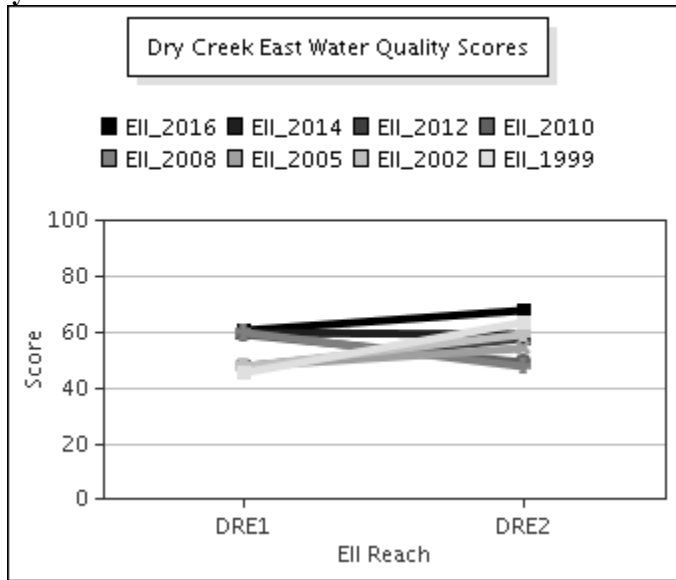
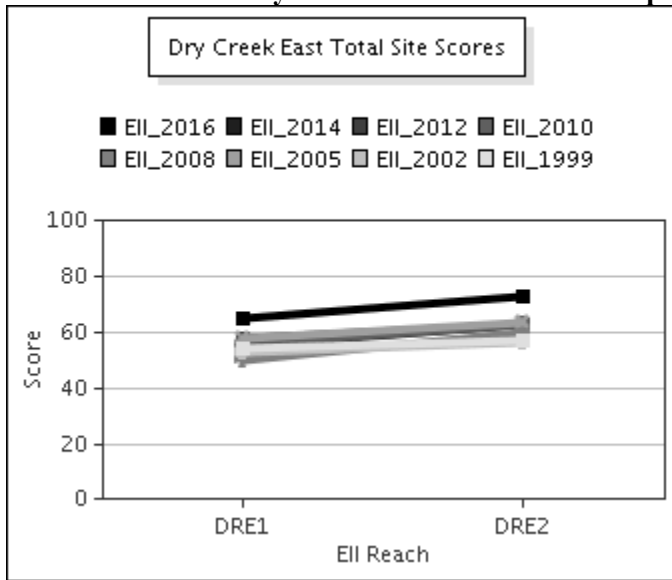
Data Summary Graphs – *E.coli* (Downstream to Upstream by Year)

Parameter = E COLI BACTERIA Unit = MPN/100mL Watershed = Dry East



# Dry Creek (East) Watershed

## Score Summary – Reach scores for each sample year



# — Dry Creek (East) Watershed —

## Benthic Macroinvertebrates – Taxa List, Pollution Tolerance Index & Functional Feeding Group for 2016 Sample Sites (Downstream to Upstream)

| Benthic Macroinvertebrates - Dry Creek East |     |          | SFD @ Pearce (1211) 05/12/2016<br>(WRE) | SFD @ Wolf (1210) 05/12/2016 (WRE) |
|---|-----|----------|---|------------------------------------|
| Benthic Macroinvertebrate ID                | PTI | FFG      |   |                                    |
| Callibaetis                                 | 4   | CG       | 14                                      |                                    |
| Fallceon                                    | 4   | CG,SC    | 6                                       |                                    |
| Neochoroterpes                              | 4   | CG       |   | 2                                  |
| Rheumatobates                               | 5   | P        | 1                                       |                                    |
| Tricorythodes                               | 5   | CG       | 2                                       |                                    |
| Argia                                       | 6   | P        | 1                                       |                                    |
| Cheumatopsyche                              | 6   | FC       | 1                                       |                                    |
| Corbicula Fluminea                          | 6   | FC       | 4                                       |                                    |
| Chironomidae                                | 6   | FC,P     | 9                                       | 10                                 |
| Enallagma                                   | 6   | P        | 2                                       |                                    |
| Microvelia                                  | 6   | P        | 1                                       |                                    |
| Stenonema Femoratum                         | 6   | CG,SC    |   | 2                                  |
| Tanypodinae                                 | 6   | P        |   | 5                                  |
| Caenis                                      | 7   | CG,SC    | 110                                     | 32                                 |
| Helisoma Anceps                             | 7   | SC       | 1                                       |                                    |
| Scirtidae                                   | 7   | CG,SC,SH | 3                                       |                                    |
| Anopheles                                   | 8   | FC       | 1                                       |                                    |
| Hyalella                                    | 8   | CG,SH    | 39                                      | 5                                  |
| Oligochaeta                                 | 8   | CG       |   | 2                                  |
| Musculium                                   |     |          |   | 1                                  |

# Dry Creek (East) Watershed

## Site Photographs



1208\_t00-us-02\_27\_2002



1208\_t00-ds-02\_27\_2002



1209\_t00-us-02\_27\_2002



1209\_t00-ds-02\_27\_2002



1211\_00-ur-05\_18\_2010



1211\_00-us-05\_18\_2010

# Dry Creek (East) Watershed

## Site Photographs



1210\_t00-ur-06\_16\_2005



1210\_t00-ur-02\_27\_2002



1210\_00-us-05\_18\_2010



1210\_00-ds-05\_18\_2010



1212\_t00-us-02\_27\_2002



1212\_t00-ds-06\_16\_2005