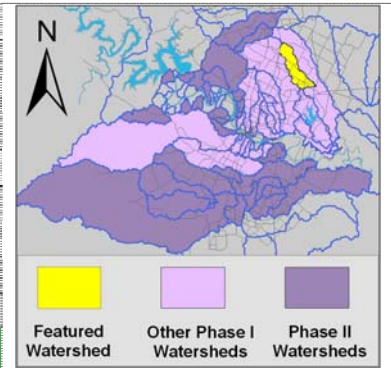


Harris Branch Watershed

Summary Sheet

| | | | | | | |
|--------------------|----------------------------------|-----------------|------|------|------|------|
| Catchment | Total area | 11 sq. miles | | | | |
| | Area in recharge | 0 | | | | |
| | Creek length | 11 miles | | | | |
| | Receiving water | Gilleland Creek | | | | |
| Demographics | 2000 population | 10,173 | | | | |
| | 2030 projected population | 23,867 | | | | |
| | 30 year projected % increase | 235 % | | | | |
| Land Use | Impervious cover (2003 estimate) | 7.96 % | | | | |
| Overall EII Scores | 1999 | 2002 | 2005 | 2008 | 2009 | 2011 |
| | 59 | 61 | 58 | 62 | 62 | 51 |



Flow Regime* for Sample Sites on Harris Branch

| Site # | Site Name | 2005 | | | | | 2006 | 2008 | | | | | 2009 | | | | | 2010 | 2011 | | | | |
|--------|--------------|--------|--------|---------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|---------|--------|--|
| | | Mar WQ | Jun WQ | Jun Bio | Sep WQ | Dec WQ | Feb WQ | Feb WQ | May WQ | Jun Bio | Sep WQ | Dec WQ | Feb WQ | May WQ | May Bio | Oct WQ | Dec WQ | Dec WQ | Mar WQ | Jun WQ | Jun Bio | Sep WQ | |
| 1199 | Crystal Bend | B | B | B | B | S | B | B | B | B | B | B | B | B | B | B | B | B | B | n | n | n | |
| 888 | Cameron | B | B | B | n | B | | | | | | | | | | | | | | | | | |
| 1201 | Boyce | B | B | B | B | B | | B | B | B | B | B | B | B | B | B | B | B | B | B | B | | |

* B = baseflow n = no flow S = storm flow blue = Samples were taken grey = Samples were not taken blank = not visited

Summary of 2011 Data for Harris Branch

| Summary | Parameter | Mean | Max | Min | Discussion |
|-----------------|----------------------|-------|-------|-------|--|
| Physicochemical | D.O. mg/l | 7.3 | 8.3 | 6.4 | Within normal range |
| | pH st.units | 7.75 | 8.05 | 7.53 | Within normal range |
| | Cond uS/cm | 778 | 896 | 707 | Within normal range, generally higher downstream |
| Nutrients | NH ₃ mg/l | 0.075 | 0.153 | 0.008 | Generally above average, some high values at site 1201 |
| | NO ₃ mg/l | 8.115 | 14.30 | 1.750 | Consistently above average, very high vales at site 1201 |
| | Ortho P mg/l | 0.534 | 0.900 | 0.040 | Consistently high values at site 1201 |
| Sediment Load | TSS mg/l | 6.6 | 16.4 | 1.1 | Generally higher concentrations downstream with some very high |
| | Turbidity ntu | 7.91 | 18.61 | 1.10 | Generally higher concentrations downstream with some very high |
| Biology | E.Coli /100ml | 746 | 2420 | 45 | Mostly within normal range, some high values at site 1201 |

Benthic Macroinvertebrates and Diatoms: evaluations are provided in the introduction of this report

Index scores* for Harris Branch Sites by Year

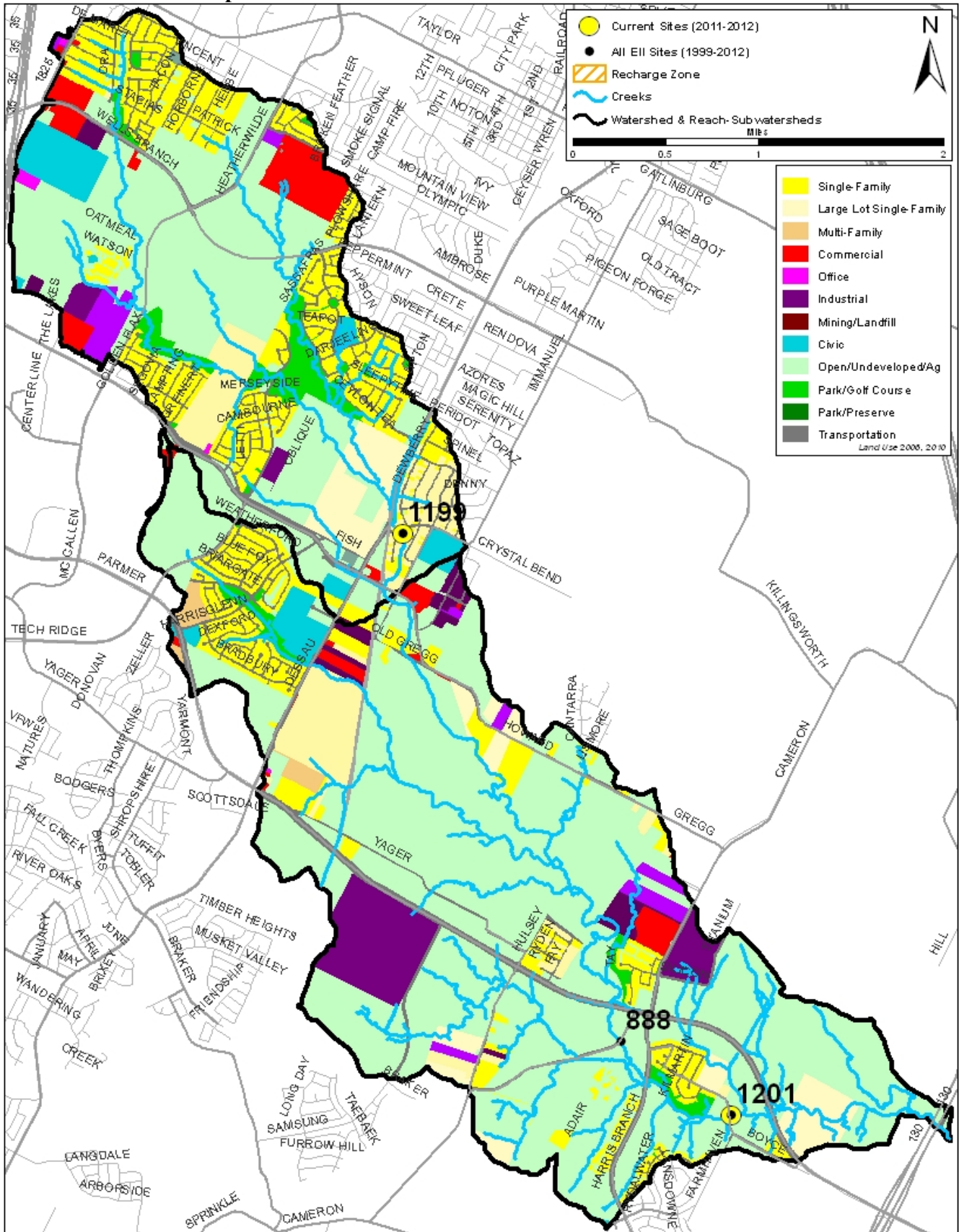
| Reach | Site | Site Name | Year | Water Quality | Sediment** | Contact Recreation | Non-Contact Rec. | Physical Integrity | Aquatic Life | Benthic subindex | Diatom subindex | Total EII Score |
|-------|------|--|------|---------------|------------|--------------------|------------------|--------------------|--------------|------------------|-----------------|-----------------|
| HRS1 | 888 | Harris Branch Creek @ Cameron Road | 2002 | 36 | 84 | 89 | 58 | 65 | 59 | 75 | 42 | 65 |
| HRS1 | 1201 | Harris Branch Creek @ Boyce Lane | 2002 | 34 | 84 | 78 | 68 | 67 | 48 | 65 | 30 | 63 |
| HRS2 | 1199 | Harris Branch Creek @ Crystal Bend Drive | 2002 | 31 | 84 | 79 | 40 | 50 | 47 | 70 | 23 | 55 |
| HRS1 | 888 | Harris Branch Creek @ Cameron Road | 2005 | 38 | 87 | 34 | 53 | 54 | 82 | 82 | | 58 |
| HRS1 | 1201 | Harris Branch Creek @ Boyce Lane | 2005 | 32 | 87 | 53 | 58 | 58 | 66 | 94 | 37 | 59 |
| HRS2 | 1199 | Harris Branch Creek @ Crystal Bend Drive | 2005 | 34 | 87 | 33 | 67 | 53 | 69 | 74 | 64 | 57 |
| HRS1 | 1201 | Harris Branch Creek @ Boyce Lane | 2008 | 31 | 82 | 63 | 71 | 63 | 80 | 97 | 63 | 65 |
| HRS2 | 1199 | Harris Branch Creek @ Crystal Bend Drive | 2008 | 36 | 82 | 25 | 68 | 58 | 80 | 82 | 77 | 58 |
| HRS1 | 1201 | Harris Branch Creek @ Boyce Lane | 2009 | 34 | 80 | 35 | 63 | 70 | 90 | 93 | 87 | 62 |
| HRS2 | 1199 | Harris Branch Creek @ Crystal Bend Drive | 2009 | 47 | 80 | 32 | 72 | 57 | 84 | 90 | 77 | 62 |
| HRS1 | 1201 | Harris Branch Creek @ Boyce Lane | 2011 | 25 | 82 | 38 | 66 | 45 | 73 | 89 | 56 | 55 |
| HRS2 | 1199 | Harris Branch Creek @ Crystal Bend Drive | 2011 | 44 | 82 | 46 | 50 | 57 | | | | 47 |

* 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

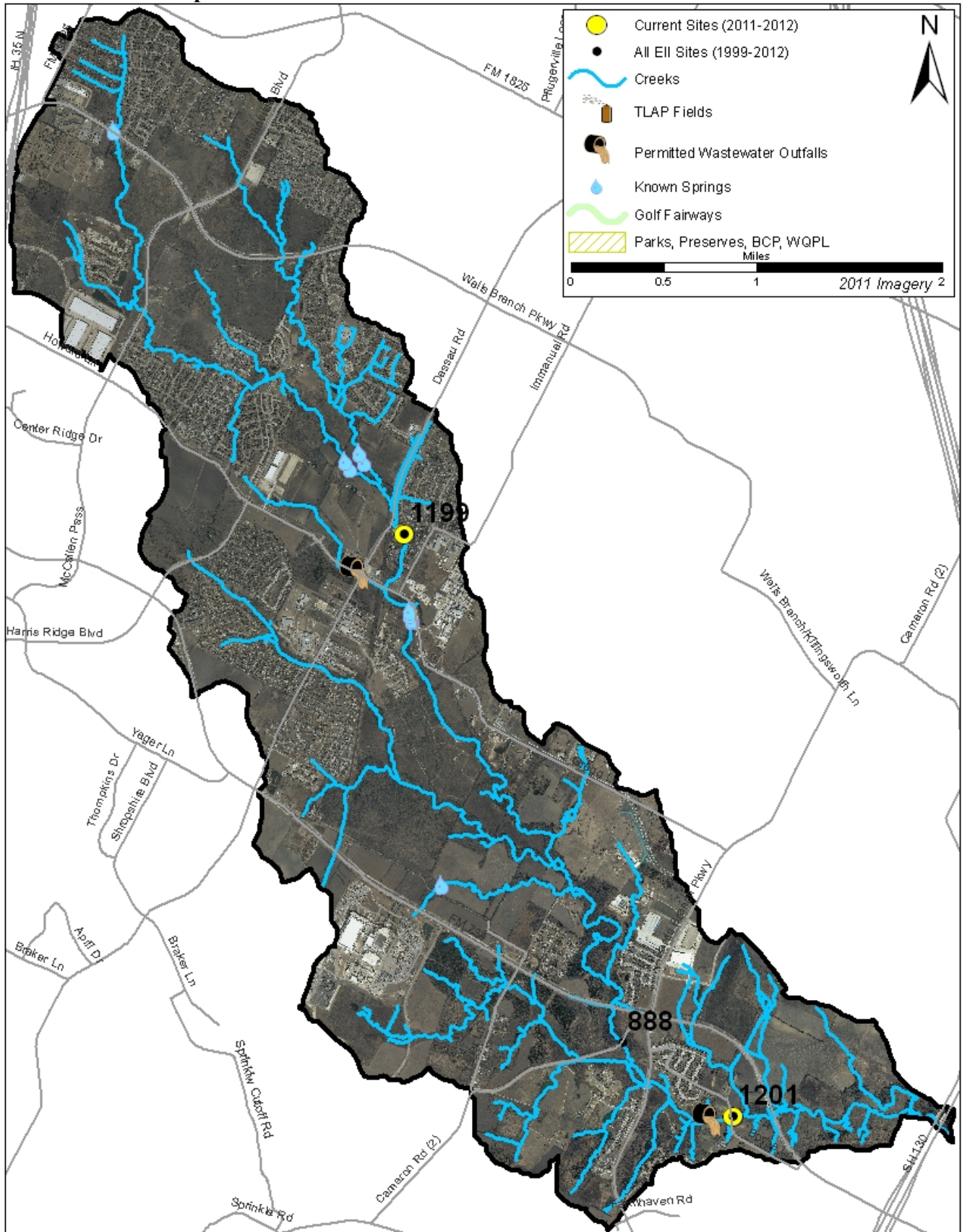
Harris Branch Watershed

Land Use Map



Harris Branch Watershed

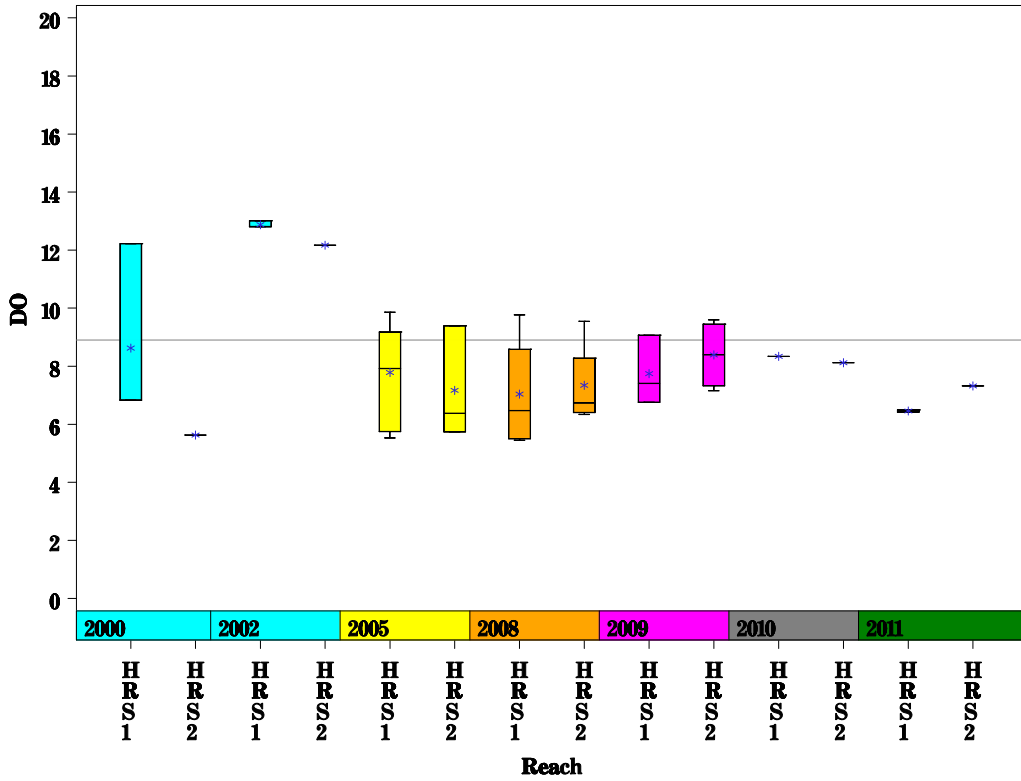
Aerial Map



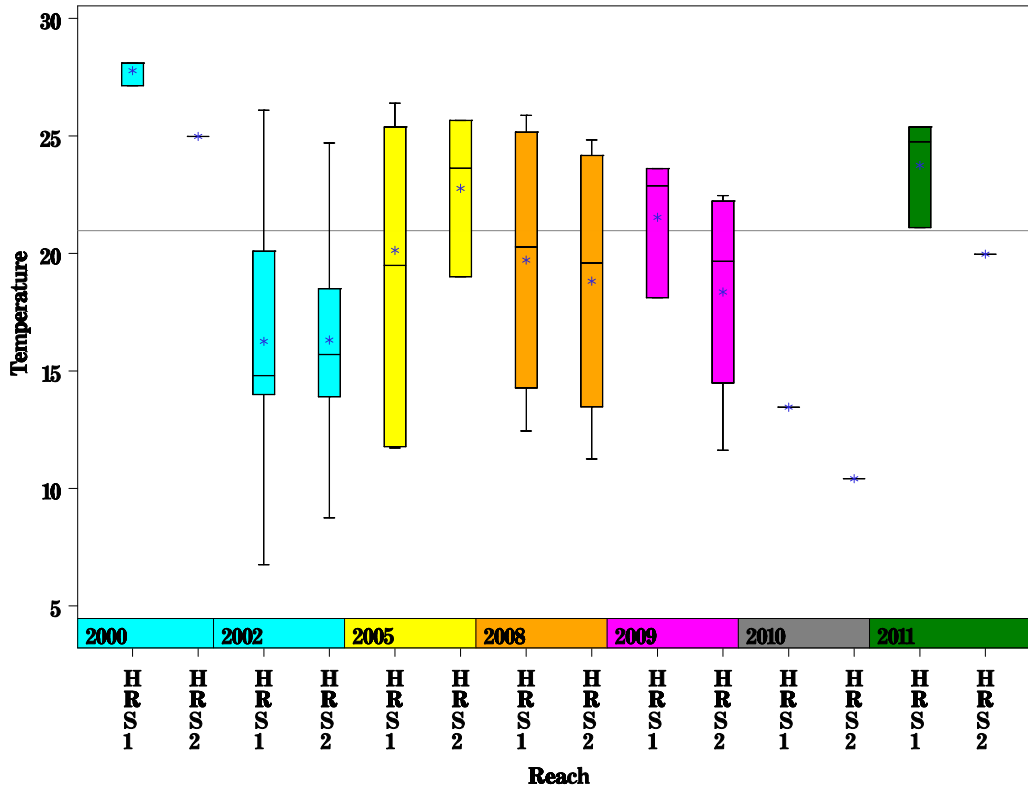
Harris Branch Watershed

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

Parameter=DISSOLVED OXYGEN Unit=MG/L Watershed=Harris Branch

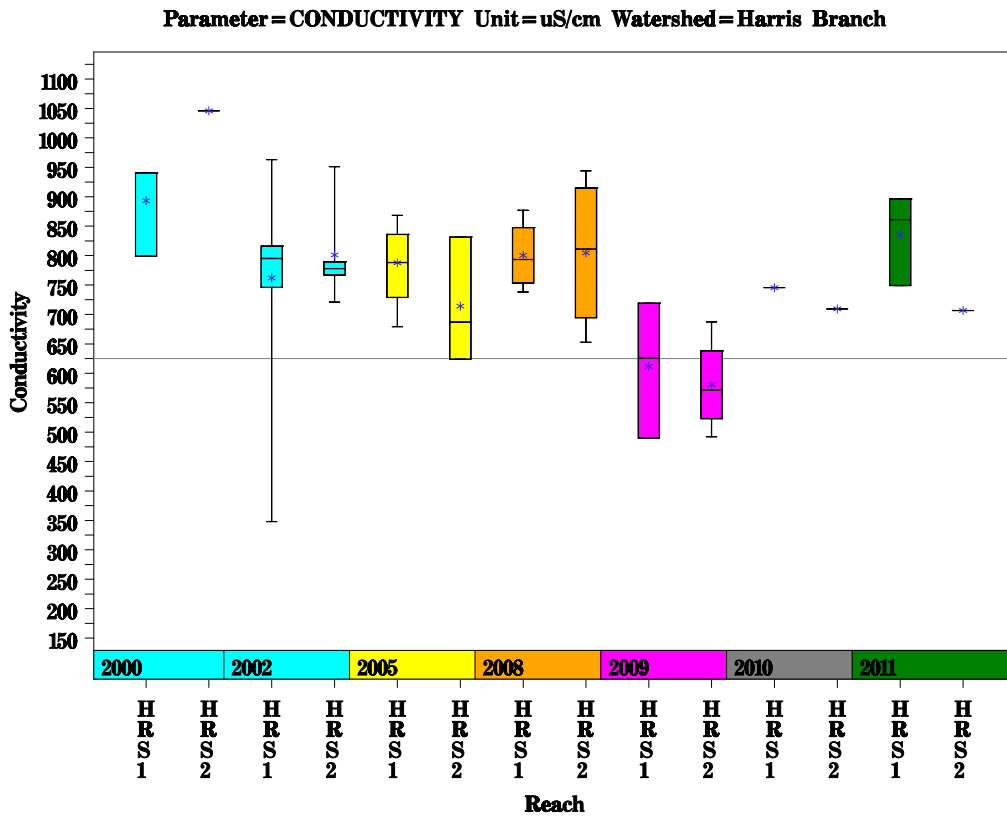
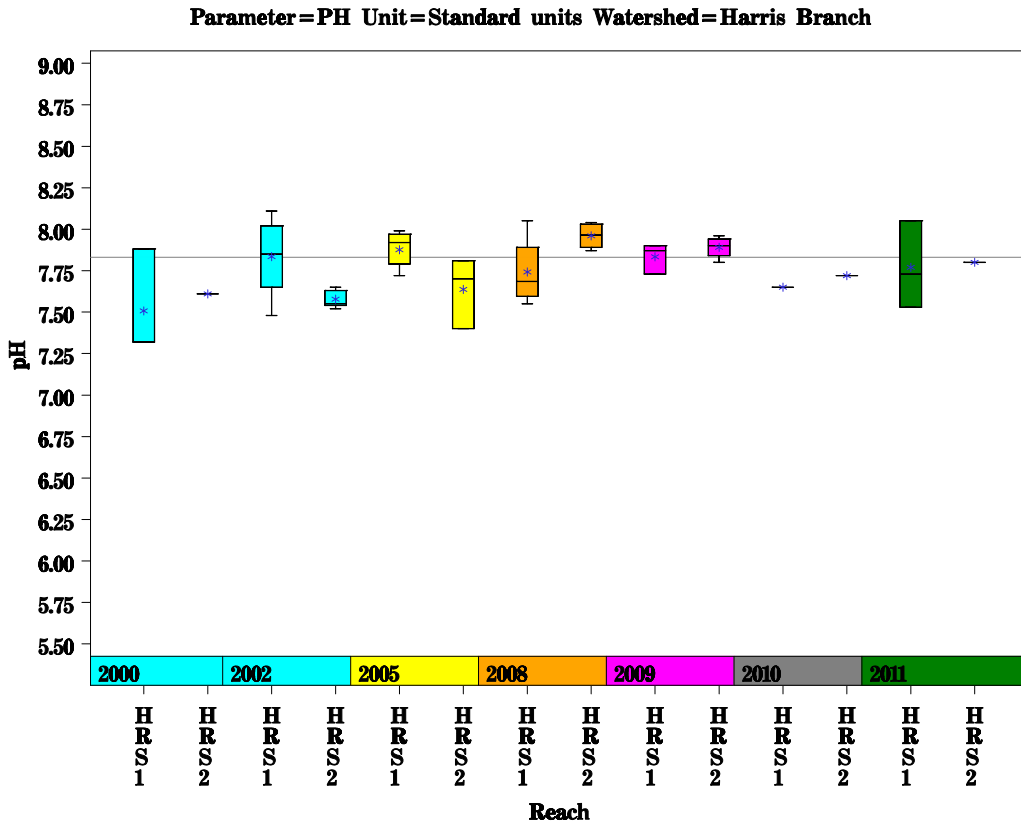


Parameter=WATER TEMPERATURE Unit=Deg. Celsius Watershed=Harris Branch



Harris Branch Watershed

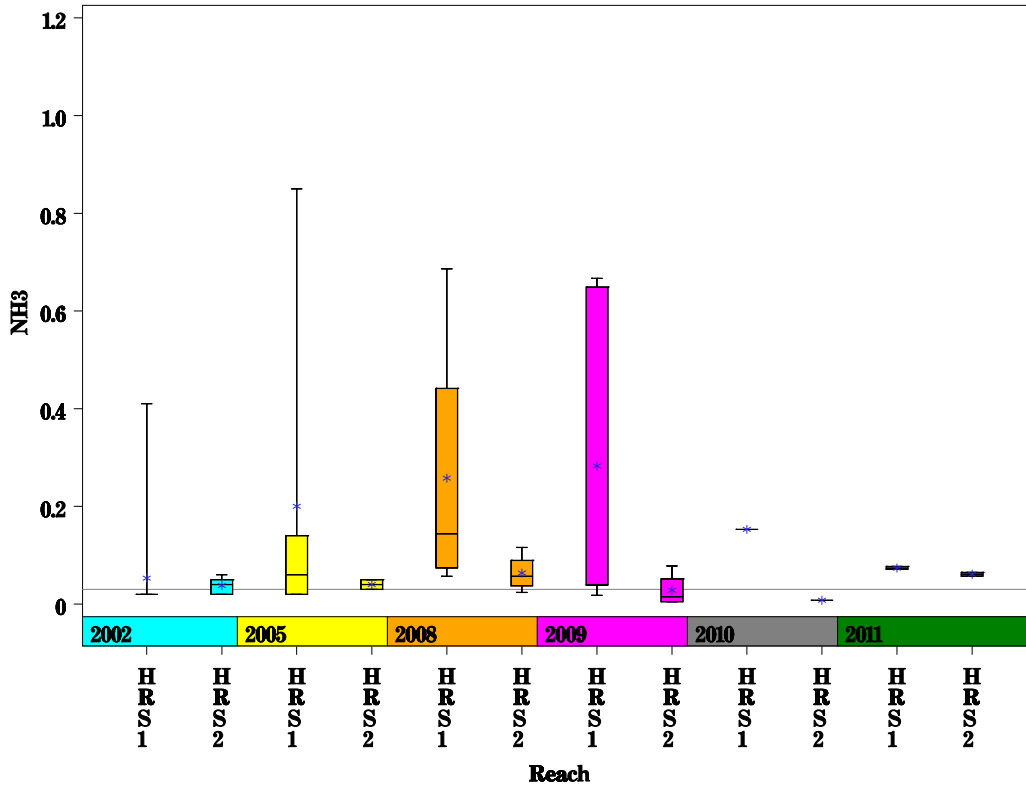
Data Summary Graphs – pH and Conductivity (Downstream to Upstream by Year)



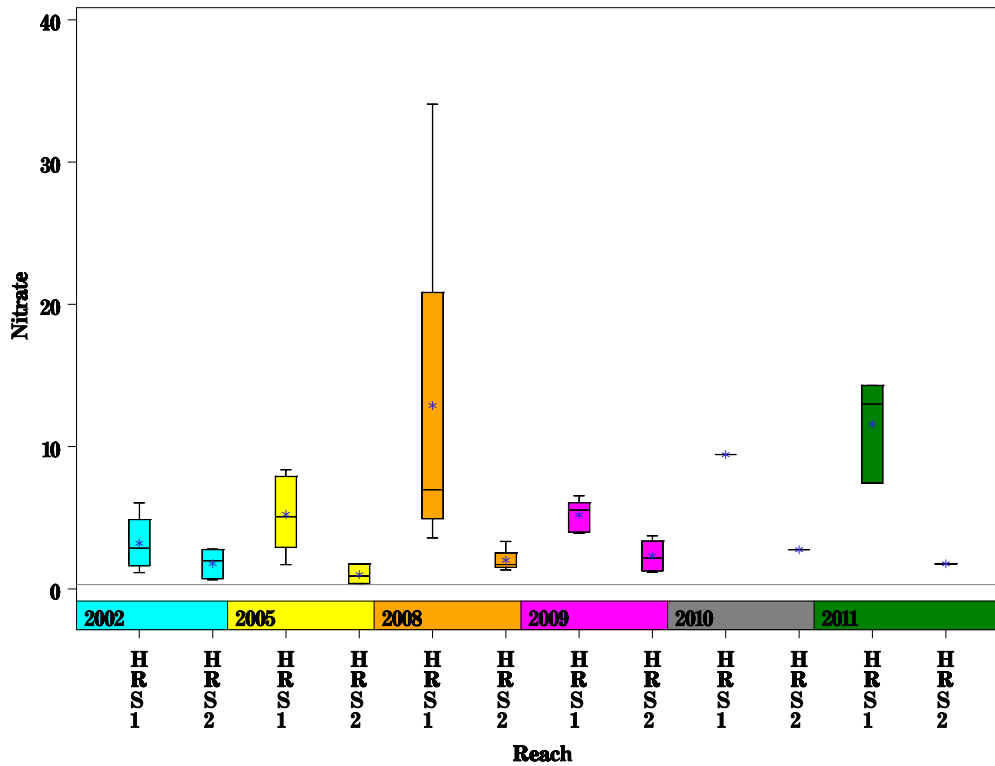
Harris Branch Watershed

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

Parameter=AMMONIA AS N Unit=MG/L Watershed=Harris Branch



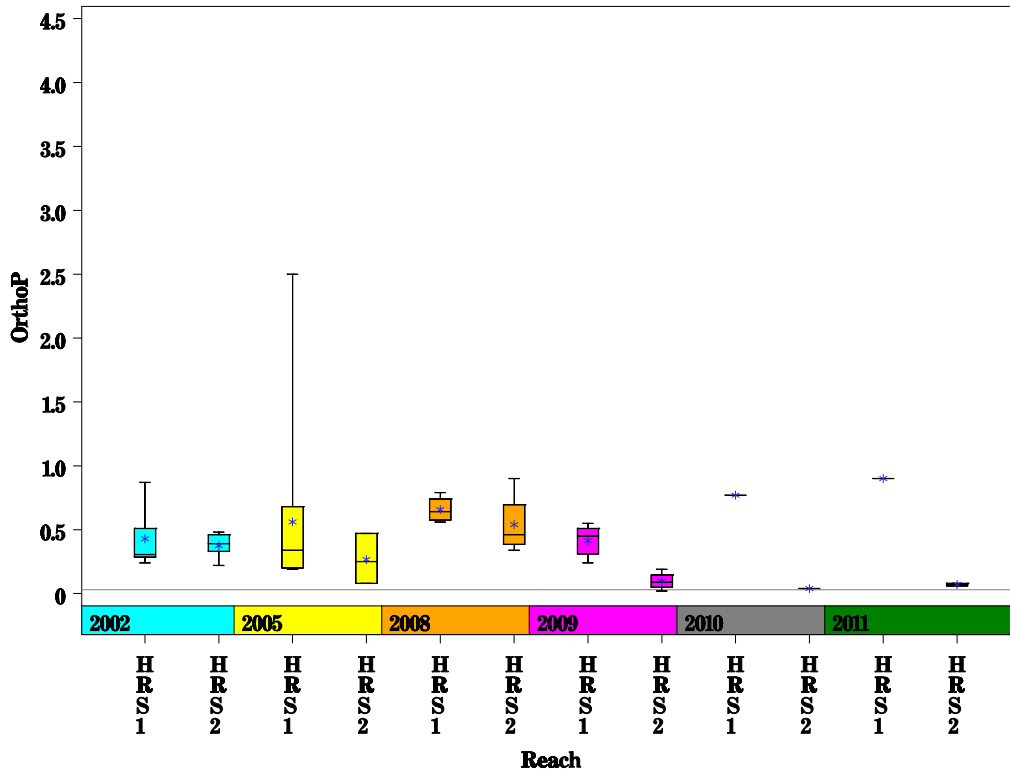
Parameter=NITRATE AS N Unit=MG/L Watershed=Harris Branch



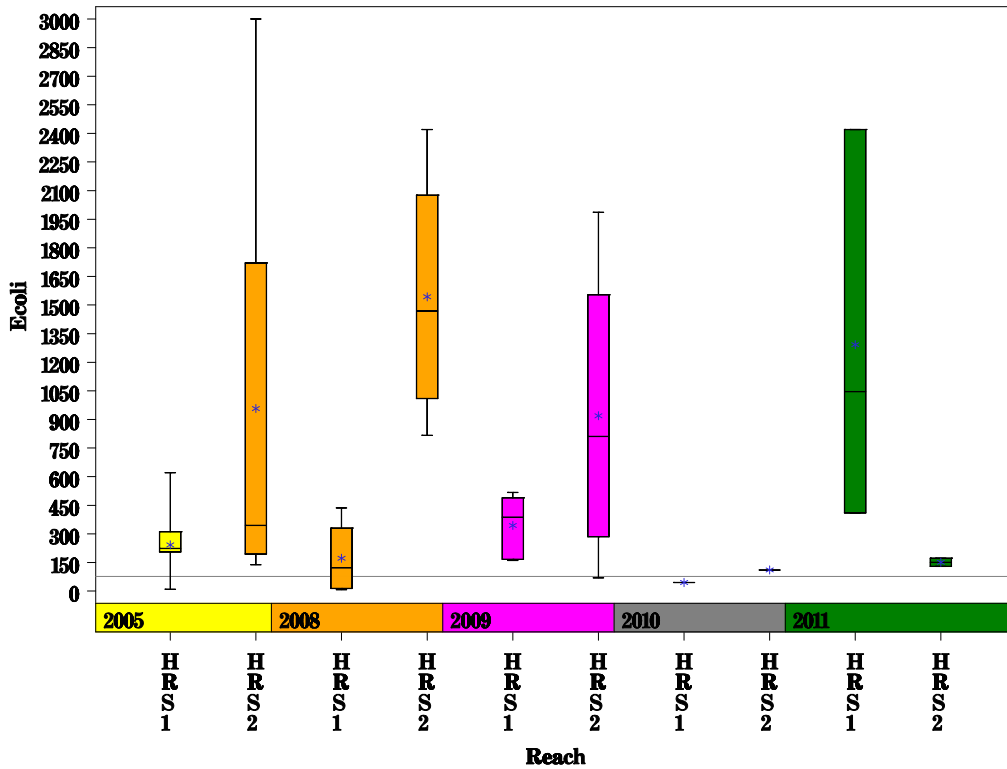
Harris Branch Watershed

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

Parameter = ORTHOPHOSPHORUS AS P Unit = MG/L Watershed = Harris Branch

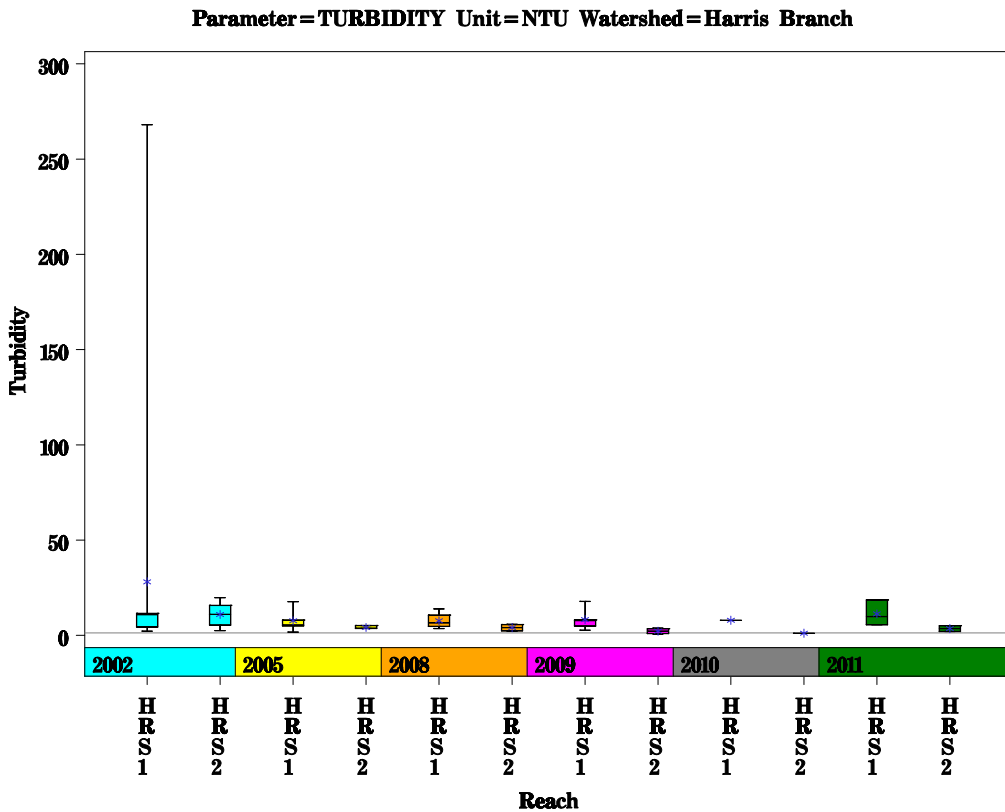
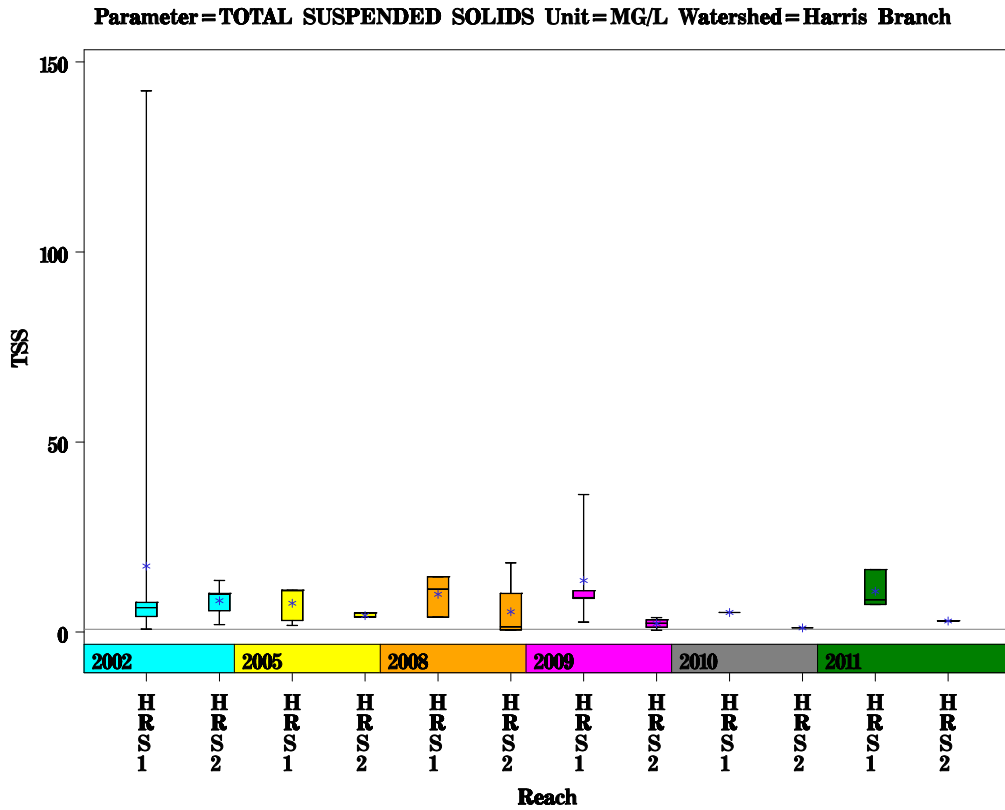


Parameter = E COLI BACTERIA Unit = MPN/100ML Watershed = Harris Branch



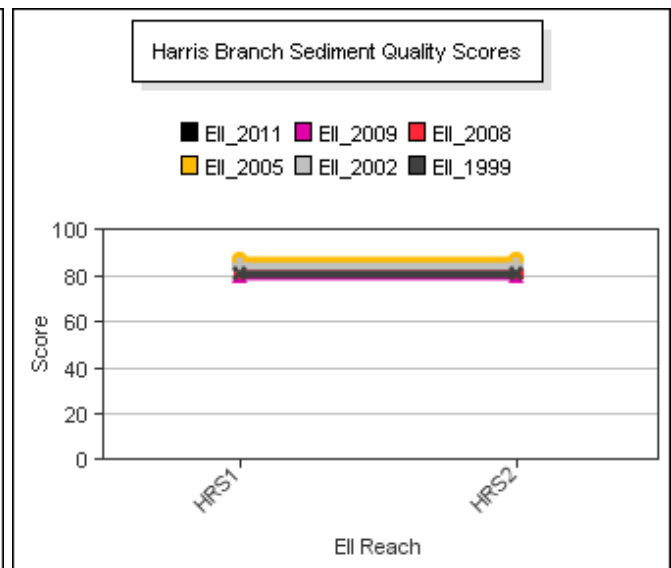
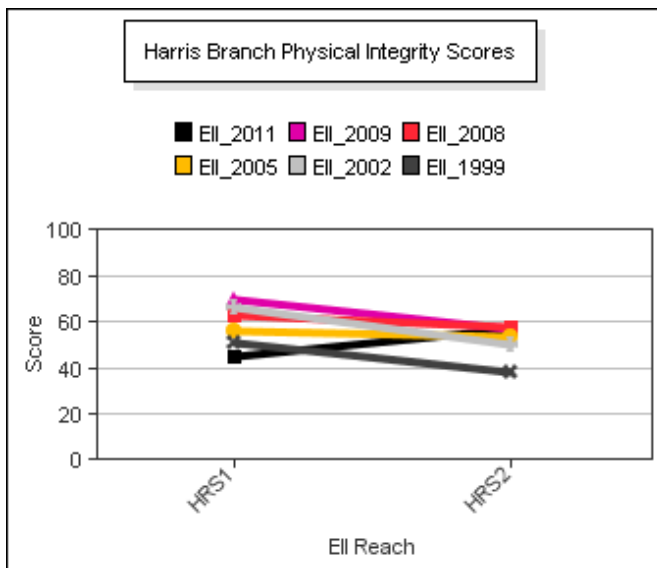
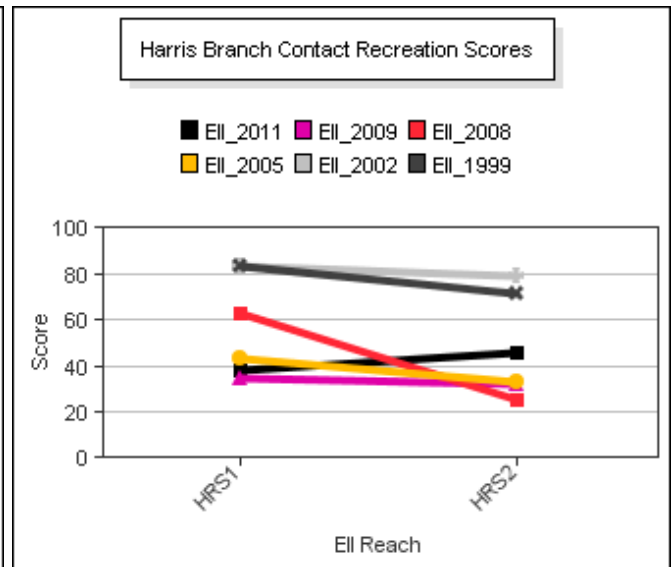
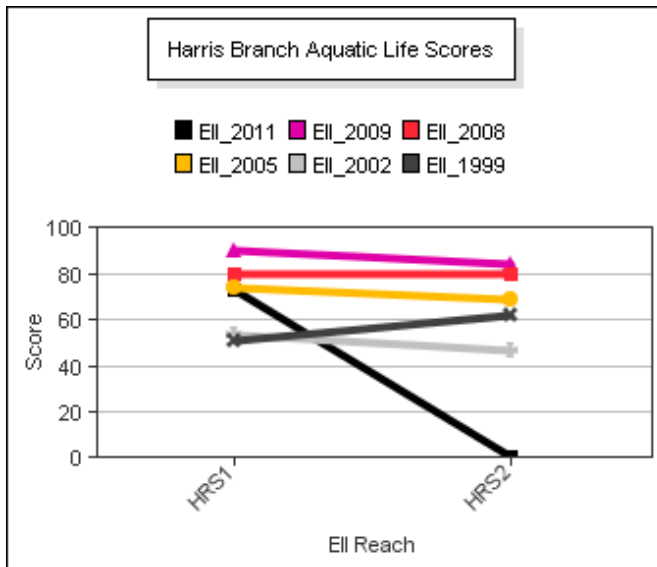
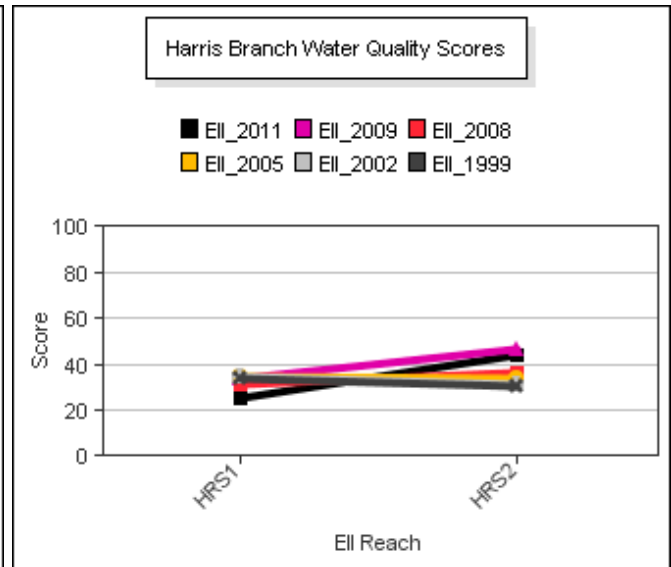
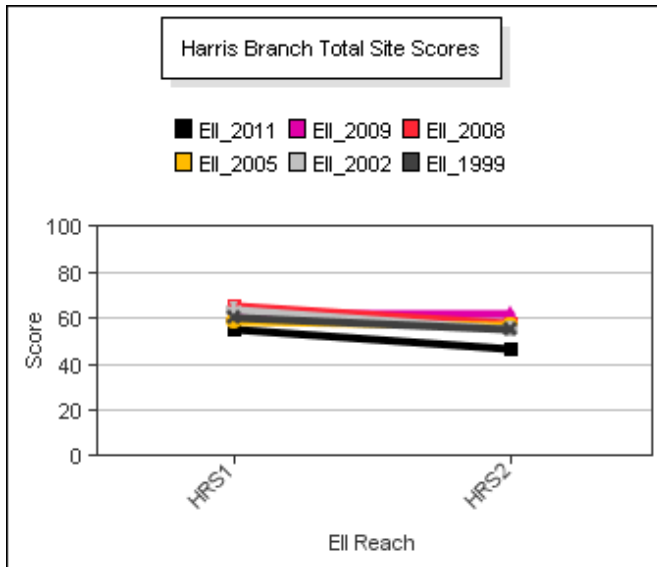
Harris Branch Watershed

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



Harris Branch Watershed

Score Summary – Reach scores for each sample year



Harris Branch Watershed

Site Photographs



1199_t00-us-03_27_2002



1199_t00-ds-03_27_2002



1199_t00-us-06_16_2008



888_t00-us-02_28_2002



888_t00-ur-02_28_2002

Harris Branch Watershed

Site Photographs



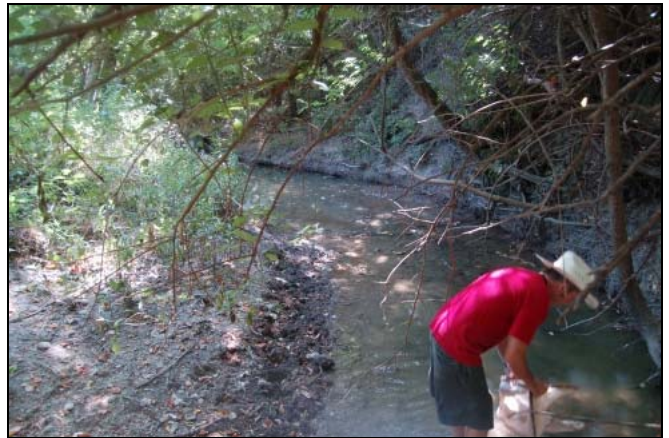
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1201_t00-ds-06_17_2005



1201_t00-us-06_17_2008



1201_t00-ds-06_17_2008



1201_t00-us-05_28_2009



1201_t00-ds-05_28_2009

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