

# Mill Creek E.coli 2014

Abbie Simmons

Shilah Olson

Wasco Co. Soil and Water Conservation District

# Background

- The Dalles Watershed Council started sampling for *E.coli* in 2009.
- Water quality sampling and monitoring on Mill Creek has been used to conduct reconnaissance and outreach in the community.
- There has been a total of 40 sites sampled.

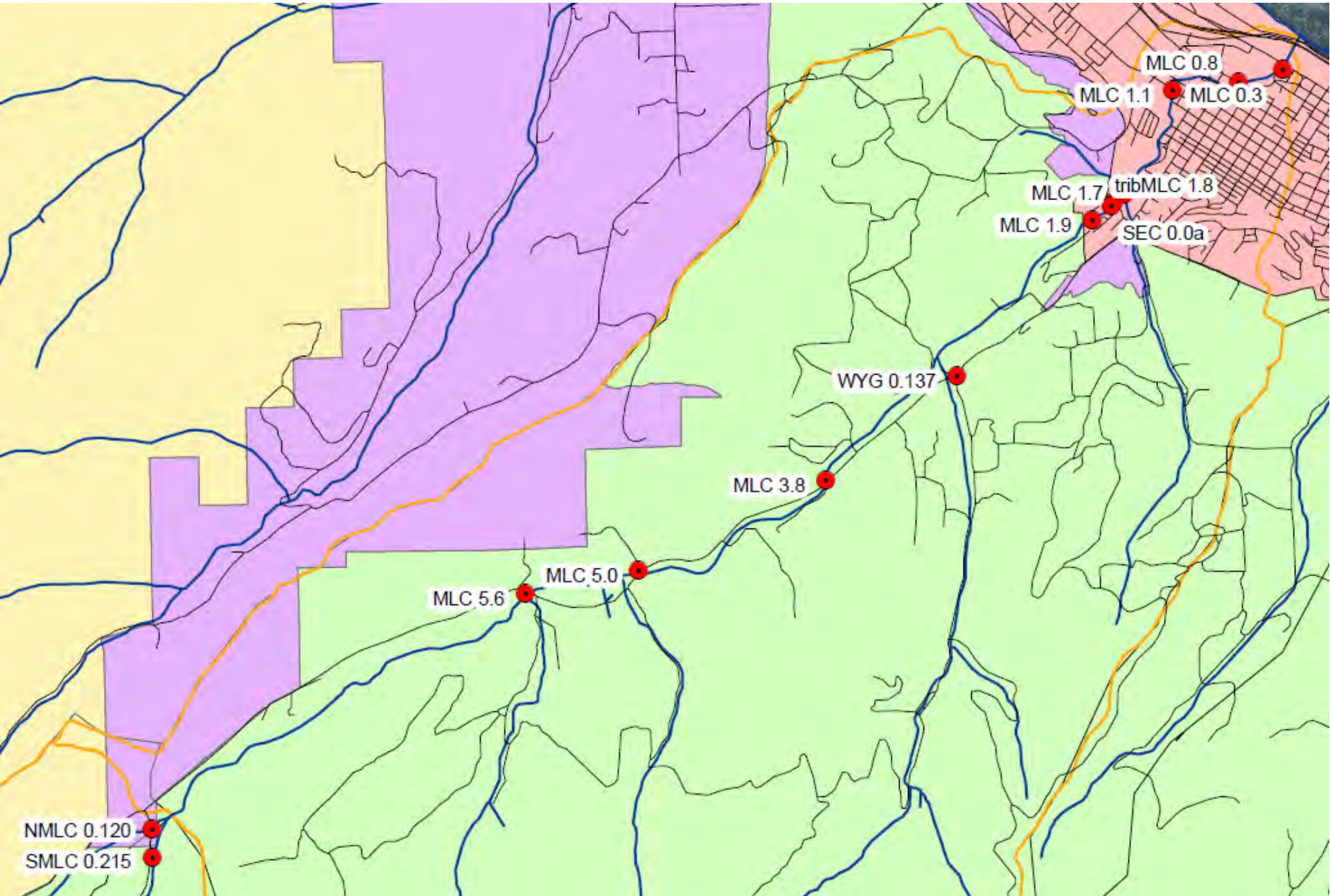
# *E.coli*

- There are two water quality standards that define acceptable levels of *E.coli* in Oregon:
  - *Acute: a single water standard cannot exceed 406 Organisms/ 100 mL*
  - *Chronic: the geometric mean of five consecutive samples taken within a 30 day period cannot exceed 126 Organisms/ 100 mL*

# All Sites

| x       | y         | Station ID  | SITE DESCRIPTION                     | LASAR ID |
|---------|-----------|-------------|--------------------------------------|----------|
| 45.6041 | -121.1888 | MLC 0.3     | Mill Cr at 2nd Street                | 28574    |
| 45.6032 | -121.1935 | MLC 0.8     | Mill Cr at TDID pipeline bridge      |          |
| 45.6027 | -121.2005 | MLC 1.1     | Mill Cr at 10th Street, The Dalles   |          |
| 45.5951 | -121.2059 | MLC 1.7     | Mill Cr at Byers weather station     |          |
| 45.5945 | -121.2070 | SEC 0.0a    | Skyline tributary at mouth           |          |
| 45.5942 | -121.2073 | tribMLC 1.8 | Pipe Discharge at 2401 Wright Street |          |
| 45.5932 | -121.2093 | MLC 1.9     | Mill Cr at Wright Road               | 28575    |
| 45.5818 | -121.2240 | WYG 0.137   | Whiskey Gulch at Mill Creek Road     |          |
| 45.5743 | -121.2380 | MLC 3.8     | Mill Cr at First Mill Cr Rd Bridge   |          |
| 45.5679 | -121.2580 | MLC 5.0     | Mill Cr at Second Mill Cr Rd Bridge  |          |
| 45.5664 | -121.2700 | MLC 5.6     | Mill Cr at Third Bridge              | 28576    |
| 45.5495 | -121.3100 | NMLC 0.120  | N Fork Mill Cr at Reservoir Rd       |          |
| 45.5474 | -121.3100 | SMLC 0.215  | S Fork Mill below Wicks              | 30173    |

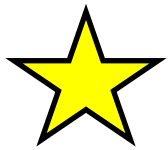
# All Sampling Sites



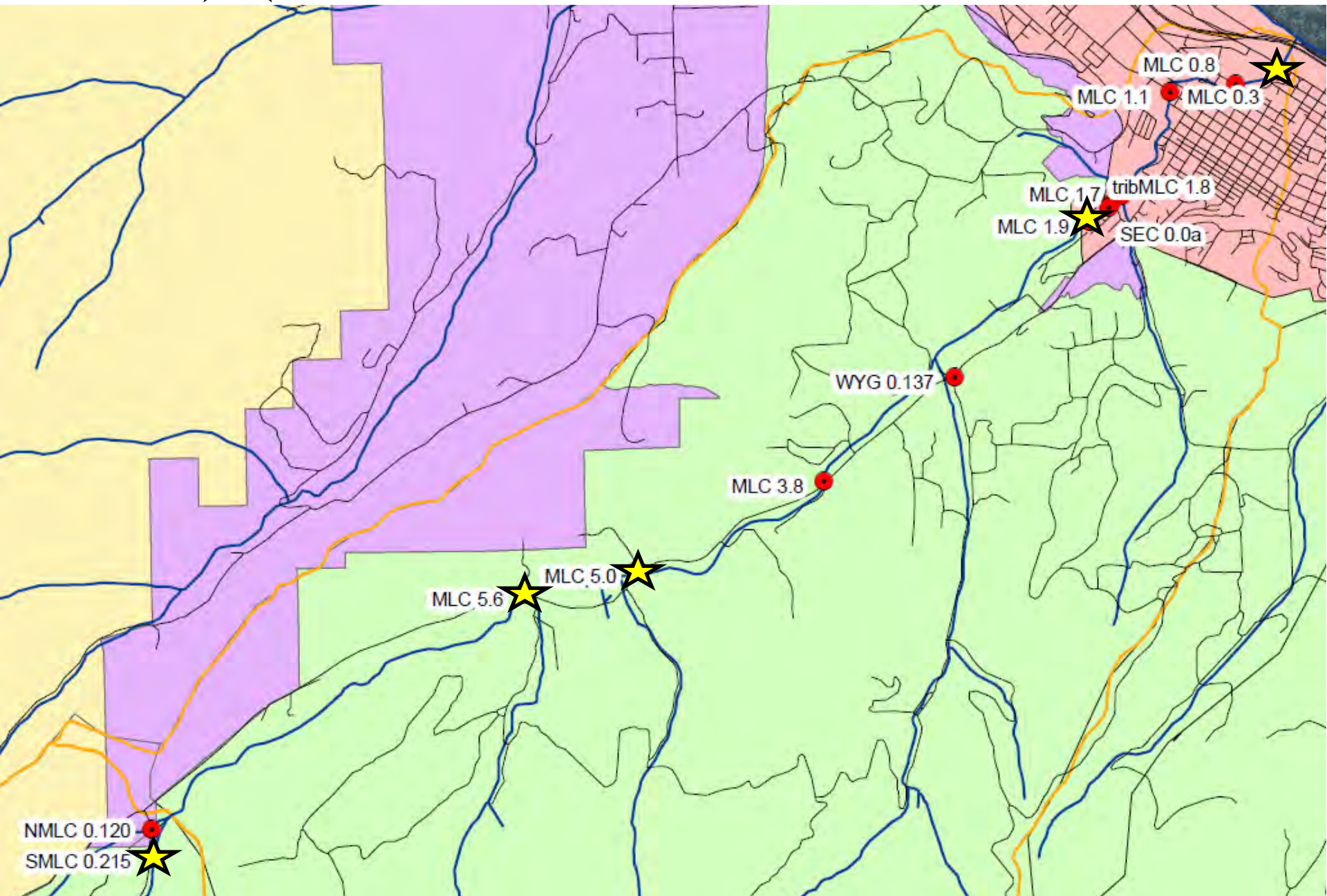
# Sample Sites – 2014

| <b>x</b> | <b>y</b>  | Station ID | <b>SITE DESCRIPTION</b>             | <b>LASAR ID</b> |
|----------|-----------|------------|-------------------------------------|-----------------|
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# Sample Sites – 2014



# Turbidity (NTU)

| Turbidity   |           |          |           |          |           |          |           |          |           |          |          |
|-------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|----------|
| Site ID     | 30-Jan-14 | 4-Jun-14 | 25-Jun-14 | 9-Jul-14 | 23-Jul-14 | 6-Aug-14 | 20-Aug-14 | 3-Sep-14 | 17-Sep-14 | 9-Oct-14 | 6-Nov-14 |
| MLC 0.3     | 2.37      | 2.21     | 4.68      | 2.13     | 38        | 1.67     | 2.93      | 1.97     | 2.28      | 1.6      | 1.08     |
| MLC 0.8     | 2.57      | 2.01     | 8.83      | 2.06     | 26.7      | 1.46     |           |          |           |          |          |
| MLC 1.1     | 3.08      | 2.07     | 3.44      | 1.61     | 12.7      | 1.65     |           |          |           |          |          |
| MLC 1.7     | 2.39      | 2.25     | 3.85      | 1.73     | 14.6      | 2.22     |           |          |           |          |          |
| SEC 0.0A    | 3.22      | 5.05     | 6.24      | 5.23     | 9.7       | 9.5      |           | 9.63     |           |          |          |
| TRIBMLC 1.8 | 1.93      | 2.61     | 1.07      |          |           |          |           |          |           |          |          |
| MLC 1.9     | 1.97      | 2.09     | 4.12      | 1.77     | 16.6      | 4.16     | 1.97      | 2.37     | 2.11      | 3.25     | 1.45     |
| WYG 0.137   | 5.16      |          | 449       | 24       | 315       | 37.5     |           |          |           |          |          |
| MLC 3.8     | 3.83      | 1.61     | 3.29      | 4.14     | 11.3      | 4.15     |           |          |           |          |          |
| MLC 5.0     | 4.12      | 1.69     | 6.33      | 2.1      | 6.83      | 3.71     | 1.62      | 4.65     | 11.9      | 2.87     | 15.6     |
| MLC 5.6     | 4.47      | 1.62     | 1.85      | 2.83     | 4.89      | 2.72     | 1.58      | 2.29     | 1.59      | 2.09     | 2.83     |
| NMLC 0.120  | 3.91      | 1.35     | 2.11      | 1.16     | 5.17      | 1.42     |           |          |           |          |          |
| SMLC 0.215  |           |          |           |          |           |          | 1.68      | 0.47     | 1.43      | 1.67     | 1.7      |

The measure of relative clarity of a liquid. Materials that cause water to be turbid include clay, silt, inorganic/organic matter, algae and other microscopic organisms. Measured by shining a light through the water and is reported in nephelometric turbidity units (NTU). Heavy rain events can cause higher levels of turbidity.



# Specific Conductance ( $\mu\text{s}/\text{cm}$ @ 25°C)

| Sp.conductance |           |          |           |          |           |          |           |          |           |          |          |
|----------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|----------|
| Site ID        | 30-Jan-14 | 4-Jun-14 | 25-Jun-14 | 9-Jul-14 | 23-Jul-14 | 6-Aug-14 | 20-Aug-14 | 3-Sep-14 | 17-Sep-14 | 9-Oct-14 | 6-Nov-14 |
| MLC 0.3        | 93.70     | 203.70   | 225.00    | 270.40   | 217.90    | 323.50   | 310.80    | 275.40   | 280.00    | 281.90   | 229.60   |
| MLC 0.8        | 95.8      | 200      | 218.1     | 277.4    | 218.9     | 329.8    |           |          |           |          |          |
| MLC 1.1        | 95.2      | 193.6    | 216.8     | 269.1    | 229.5     | 329      |           |          |           |          |          |
| MLC 1.7        | 95.1      | 194.9    | 210.7     | 266.2    | 230       | 330.7    |           |          |           |          |          |
| SEC 0.0A       | 406.9     | 591      | 598       | 597      | 589       | 602      |           | 600      |           |          |          |
| TRIBMLC 1.8    | 404.8     | 589      | 598       |          |           |          |           |          |           |          |          |
| MLC 1.9        | 87.3      | 181.1    | 194.1     | 238.8    | 206.8     | 300.3    | 288.7     | 243.5    | 247.3     | 233.2    | 199.5    |
| WYG 0.137      | 424.6     |          | 548       | 608      | 519       | 560      |           |          |           |          |          |
| MLC 3.8        | 66.7      | 115.9    | 127.8     | 151.6    | 129       | 175.5    |           |          |           |          |          |
| MLC 5.0        | 64.1      | 111.4    | 110.5     | 139.7    | 118.8     | 149.1    | 144.5     | 131.6    | 147.8     | 132.4    | 131.8    |
| MLC 5.6        | 61.9      | 99.9     | 103.4     | 119.4    | 109.2     | 127      | 123.1     | 123.8    | 129.1     | 124.5    | 125.7    |
| NMLC 0.120     | 56.8      | 107.8    | 109.8     | 119.9    | 114.9     | 128.1    |           |          |           |          |          |
| SMLC 0.215     |           |          |           |          |           |          | 81.8      | 83.6     | 85.1      | 88.7     | 85.9     |

Specific conductance is a measure of the ability of water to conduct an electrical current. It is an important water-quality measurement because it gives a good idea of the amount of dissolved material in the water. Tributaries and the “mystery pipe” were consistently high, due to more runoff and likely from contributions from failed sewer systems.

# 2014 Raw Data

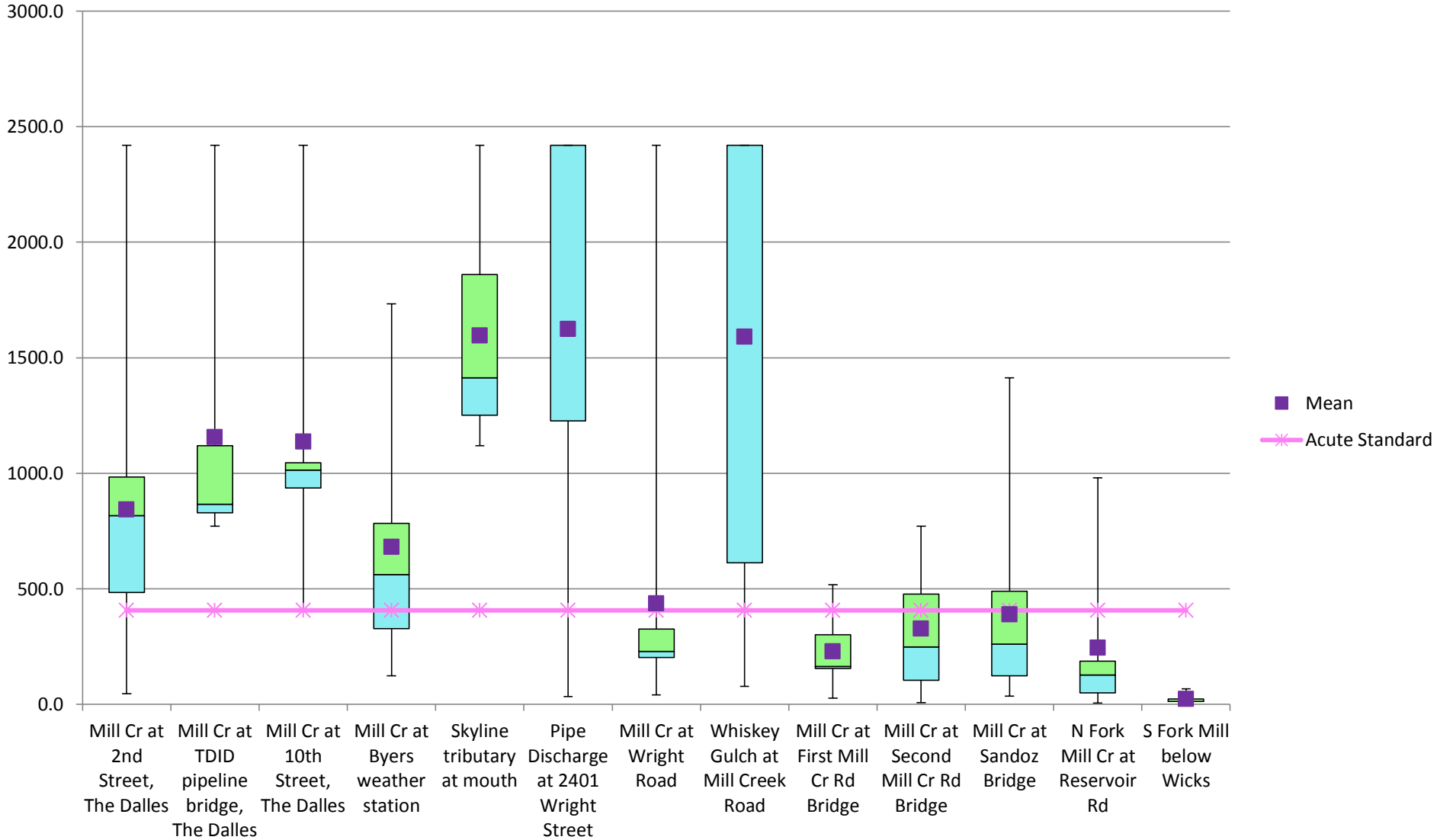
| E.coli MPN/dL    |           |          |           |          |           |          |           |          |           |          |          |
|------------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|----------|
| Site ID          | 30-Jan-14 | 4-Jun-14 | 25-Jun-14 | 9-Jul-14 | 23-Jul-14 | 6-Aug-14 | 20-Aug-14 | 3-Sep-14 | 17-Sep-14 | 9-Oct-14 | 6-Nov-14 |
| MLC 0.3          | 1046.2    | 866.4    | 922.8     | 816.4    | >2419.6   | 579.4    | 1299.7    | 387.3    | 46.1      | 770.1    | 123.6    |
| MLC 0.8          | 770.1     | 866.4    | 1203.3    | 866.4    | >2419.6   | 816.4    |           |          |           |          |          |
| MLC 1.1          | 410.6     | 920.8    | 980.4     | 1046.2   | >2419.6   | 1046.2   |           |          |           |          |          |
| MLC 1.7          | 123.6     | 686.7    | 290.9     | 435.2    | 1732.9    | 816.2    |           |          |           |          |          |
| SEC 0.0A         | 1986.3    | 1732.9   | 1203.3    | 1119.9   | 1413.6    | 1299.7   |           | >2419.6  |           |          |          |
| TRIBMLC 1.8      | >2419.6   | >2419.6  | 34.5      |          |           |          |           |          |           |          |          |
| MLC 1.9          | 40.4      | 228.2    | 325.5     | 435.2    | 2419.6    | 325.5    | 195.6     | 218.7    | 209.8     | 325.5    | 72.4     |
| WYG 0.137        | 78        |          | >2419.6   | 613.1    | >2419.6   | 2419.6   |           |          |           |          |          |
| MLC 3.8          | 25.9      | 156.5    | 344.8     | 172.2    | 517.2     | 155.3    |           |          |           |          |          |
| MLC 5.0          | 7.4       | 101.7    | 770.1     | 387.3    | 770.1     | 517.2    | 248.9     | 186      | 73.8      | 435.2    | 107.6    |
| MLC 5.6          | 35.5      | 110.6    | 275.5     | 686.7    | 1413.6    | 206.4    | 260.3     | 137.6    | 290.9     | 770.1    | 101.9    |
| NMLC 0.120       | 6.3       | 31.3     | 105       | 198.9    | 980.4     | 148.3    |           |          |           |          |          |
| SMLC 0.215       |           |          |           |          |           |          | 23.1      | 2        | 13.4      | 67       | 12.2     |
| 3Mile @ Hwy 197  |           |          | 980.4     | 290.9    | >2419.6   |          |           | 727      |           |          |          |
| Bridge @ Skyline |           |          |           | >2419.6  | 1732.9    |          |           |          |           |          |          |
| TRIBMLC 5.6      |           |          |           | 2419.6   | >2419.6   |          |           |          |           |          |          |

~ green cells indicate concentrations less than the chronic standard (126 MPN/ 100mL)

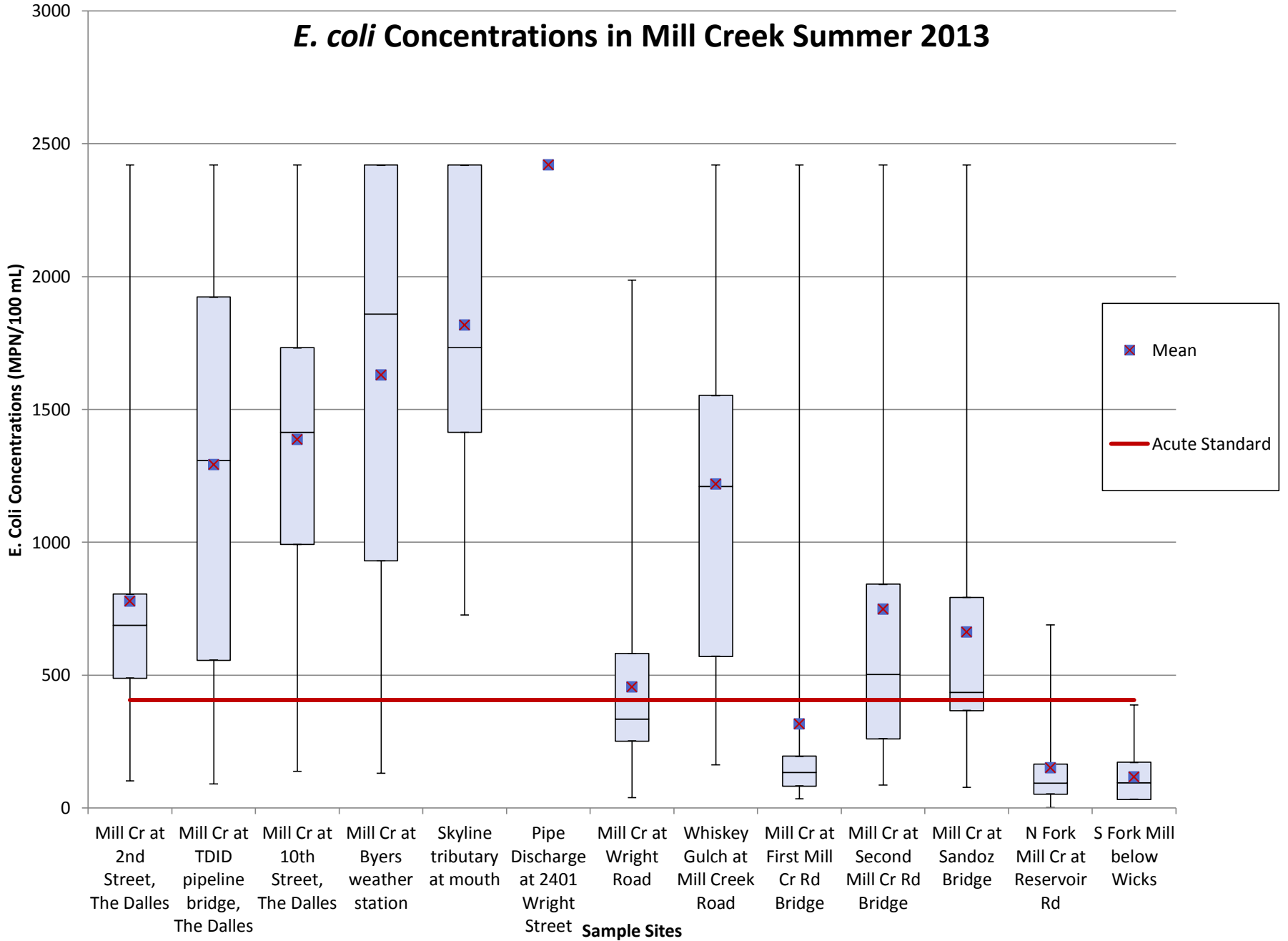
~ yellow cells indicate concentrations greater than the chronic standard but less than the acute standard (406 MPN/100mL)

~ red cells indicate concentrations greater than the acute standard

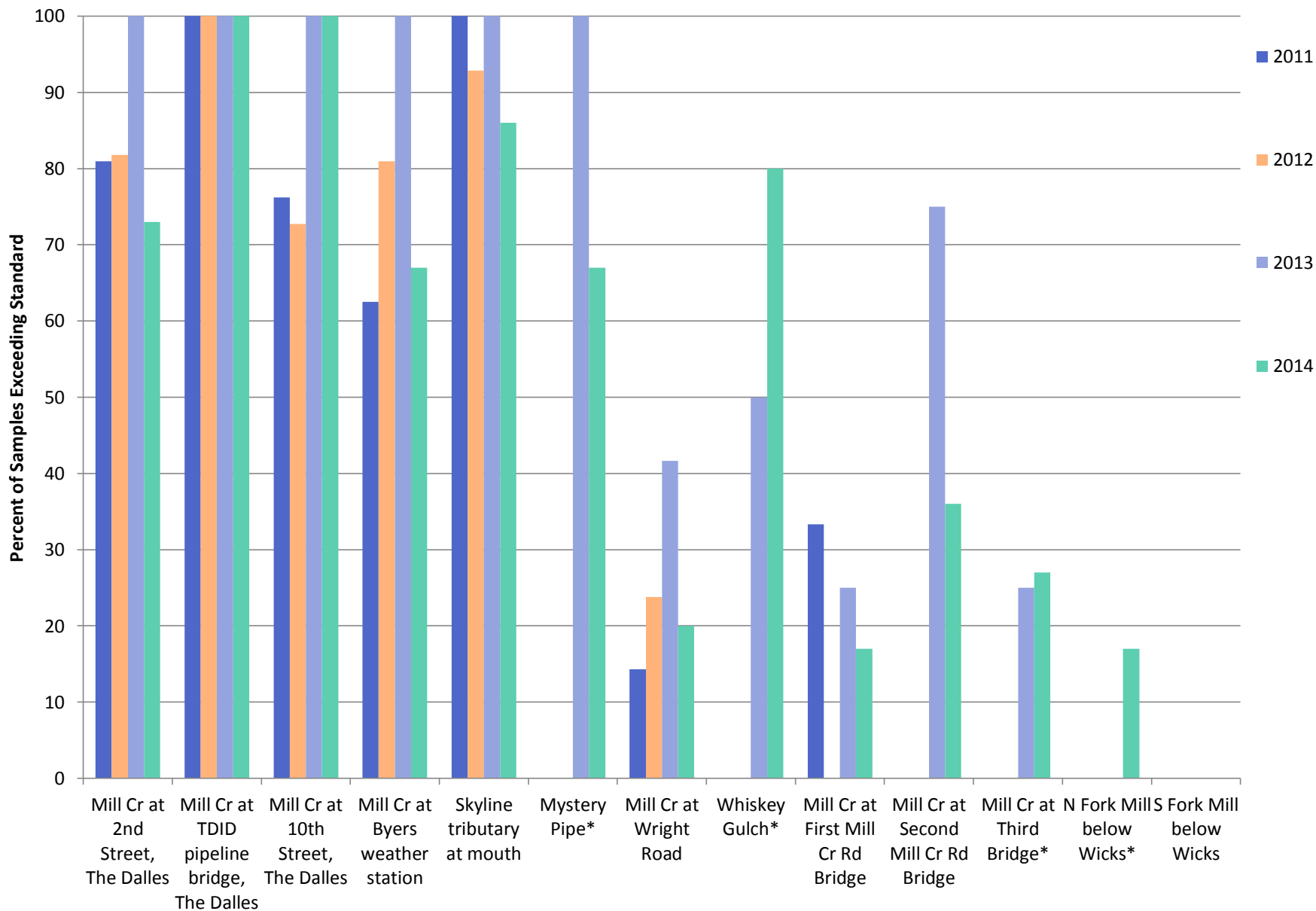
# E. coli Concentrations in Mill Creek 2014



# *E. coli* Concentrations in Mill Creek Summer 2013



# Mill Creek *E. coli* samples exceeding Acute Standard





# Next Steps

- Sample every other week during the summer
- Gather stream flow data.
- ODA's plan – Ag
  - Strategic Implementation Area
- Continue with same sites and schedule
- Questions???