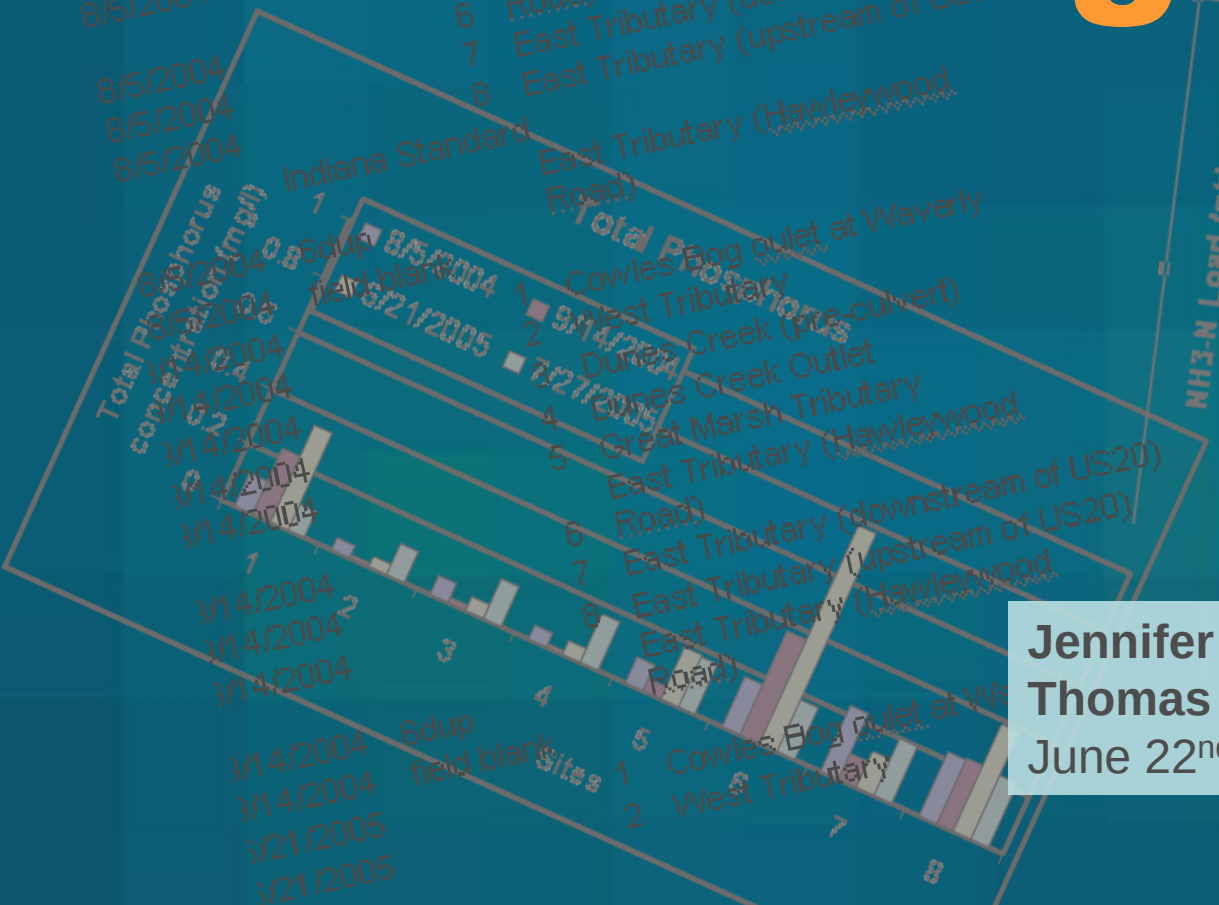
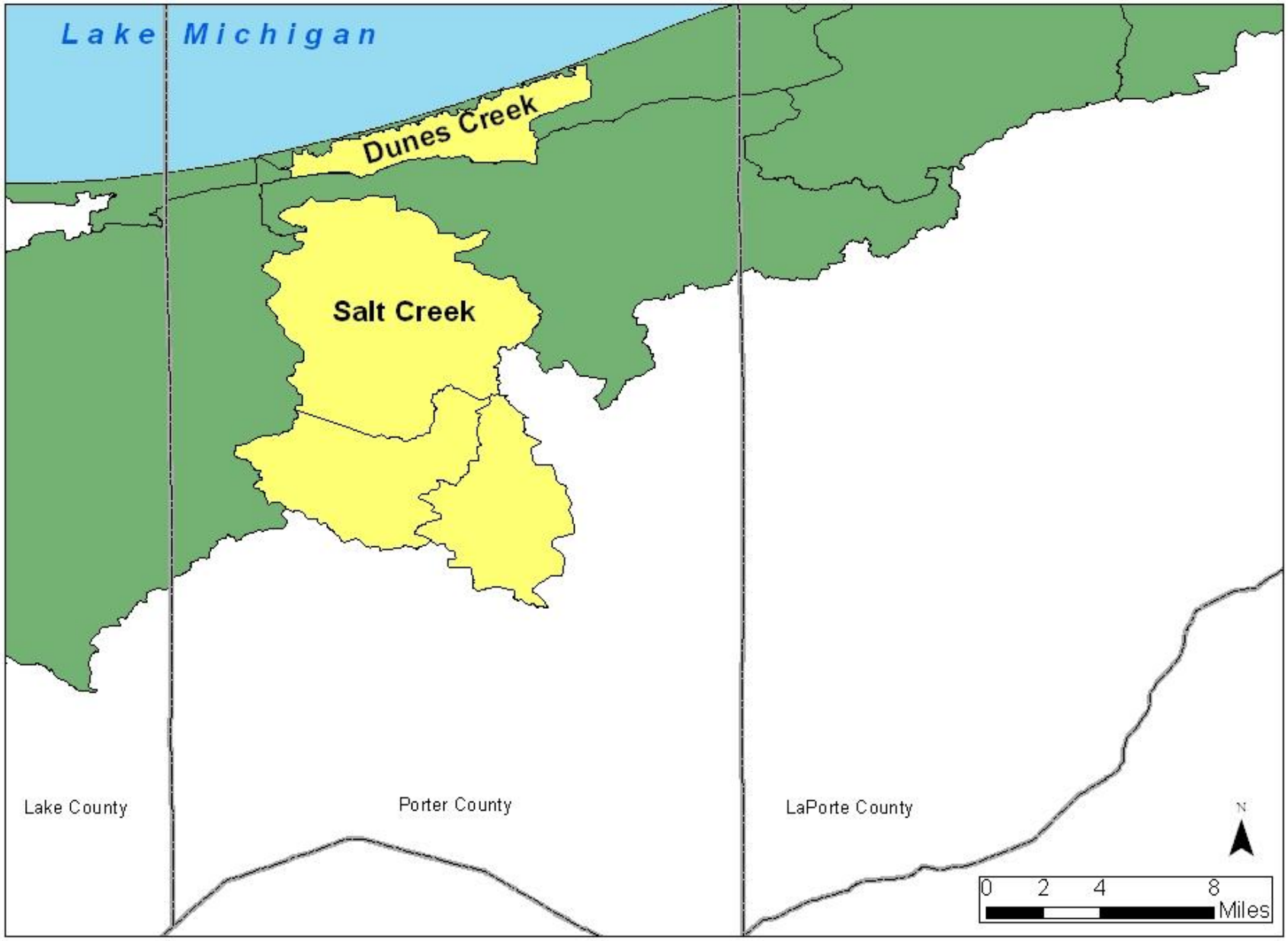
# Putting the Pieces Together



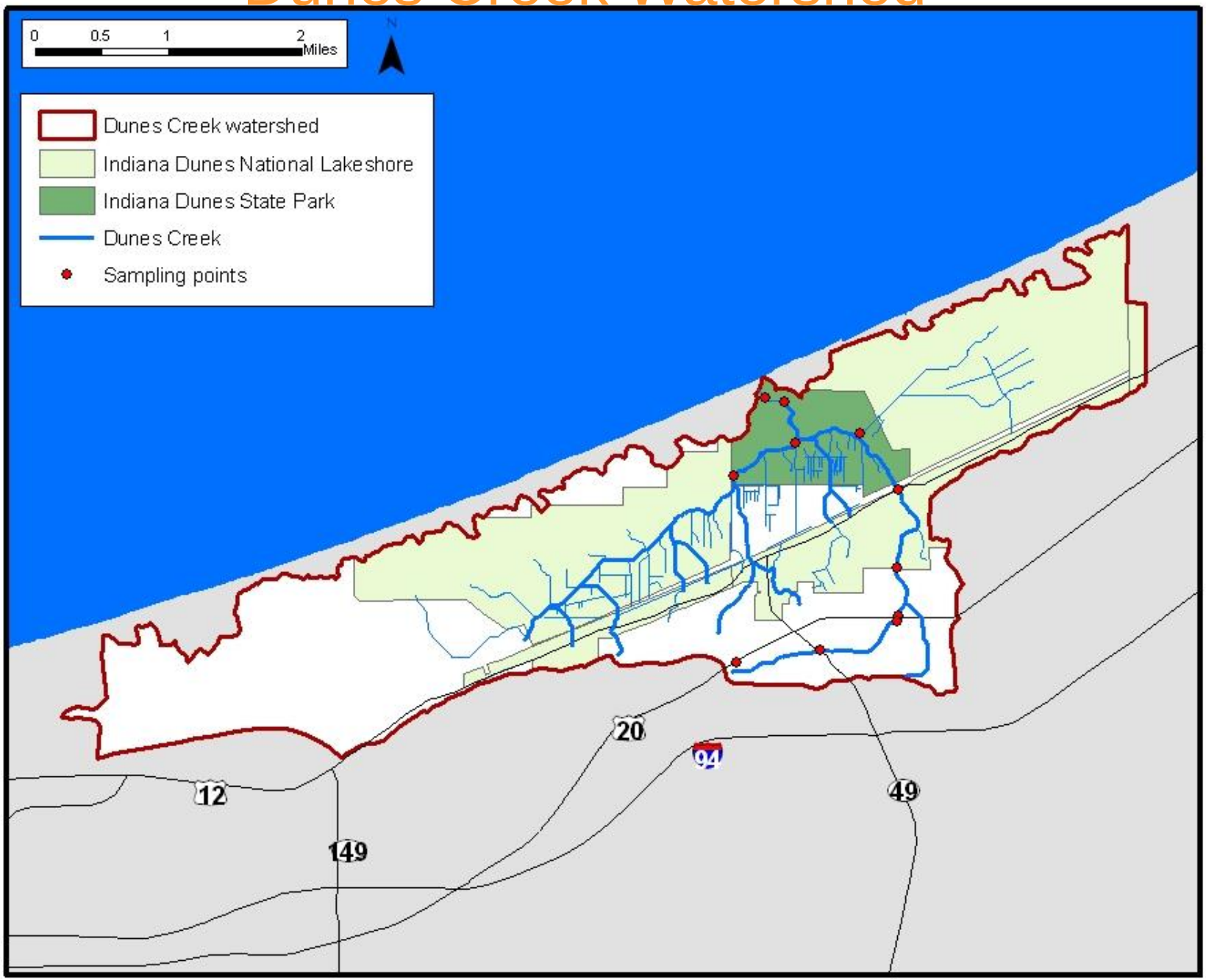


**Jennifer Nebe, Save the Dunes**
**Thomas Davenport, EPA Region 5**
June 22nd, 2009

# Save the Dunes Watersheds



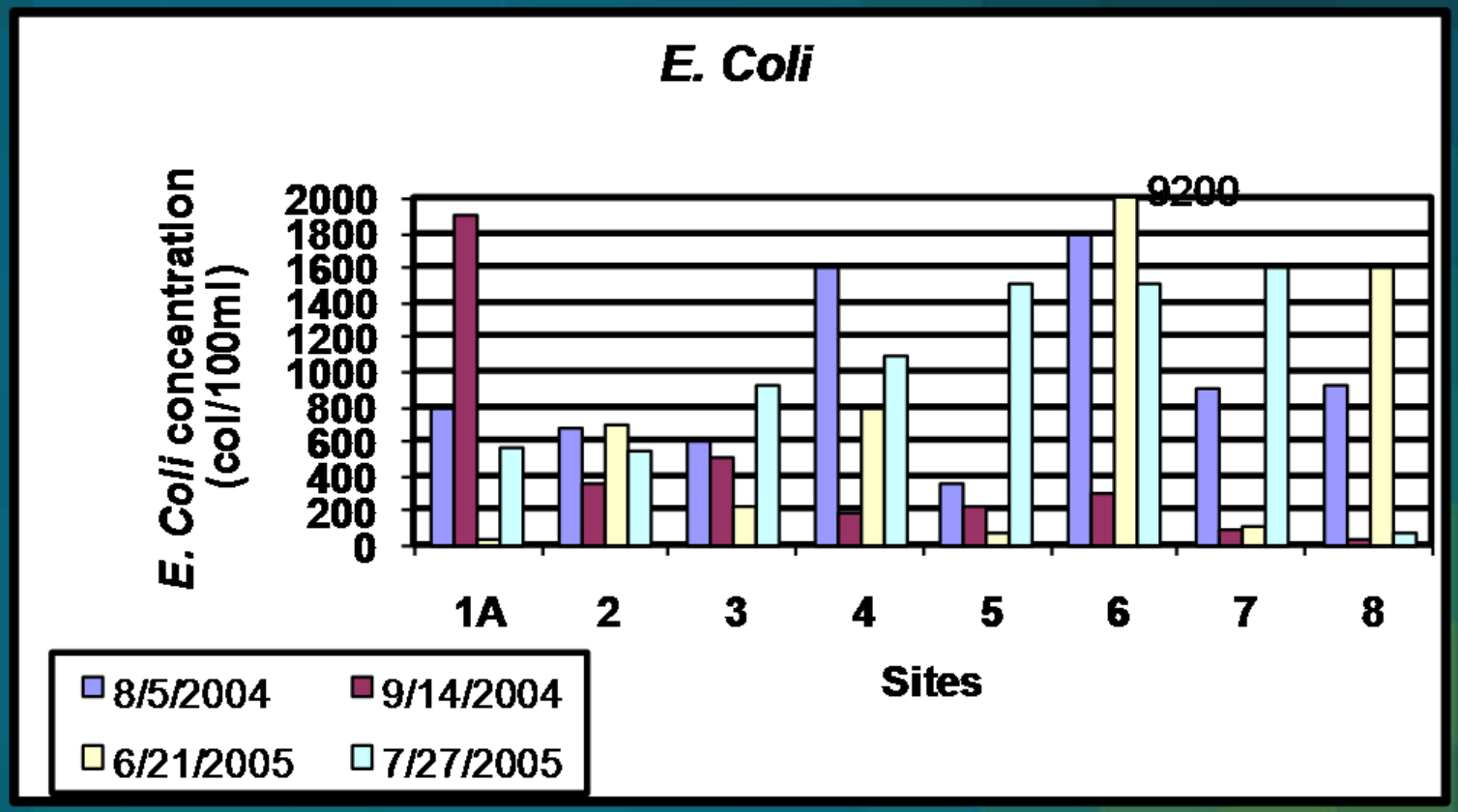
# Dunes Creek Watershed



# Dunes Creek Data

| Date | Site | Stream Name | Event | Flow | Flow | Temp | DO | % Sat | pH | Conductivity | Ammonia | Nitrate | TSS | E. coli |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8/5/04 | 1A | Cowles Bog (culvert) | storm | 0.066 | 1.9 | 18.6 | 0.6 | 6.3 | 7.1 | 555 | 0.047 | 0.03 | 8.5 | 800 |
| 8/5/04 | 2 | West Tributary | storm | 0.764 | 21.6 | 18.1 | 6.0 | 63.4 | 7.8 | 351 | 0.082 | 0.17 | 11 | 680 |
| 8/5/04 | 3 | Dunes Creek (pre-culvert) | storm | 3.311 | 93.7 | 18.7 | 7.0 | 78.1 | 7.8 | 648 | 0.079 | 0.15 | 5.6 | 600 |
| 8/5/04 | 4 | Dunes Creek Outlet | storm* | back wash from lake | | 19.2 | 7.4 | 78.8 | 8.4 | 485 | 0.055 | 0.22 | 21 | 1600 |
| 8/5/04 | 5 | Great Marsh Tributary | storm | 0.859 | 24.3 | 19.3 | 0.8 | 6.6 | 6.9 | 145 | 0.011 | 0.03 | 9.2 | 360 |
| 8/5/04 | 6 | East Tributary (Hawleywood Road) | storm | 0.308 | 8.7 | 18.7 | 6.4 | 69.3 | 7.8 | 1723 | 0.062 | 0.09 | 8.4 | 1800 |
| 8/5/04 | 6dup | East Tributary (Hawleywood Road) | storm | | | 18.7 | 6.4 | 68.1 | 7.8 | 1733 | 0.061 | 0.06 | 8 | 320 |
| 8/5/04 | 7 | East Tributary (downstream of US20) | storm | 0.280 | 7.9 | 18.9 | 6.9 | 70.1 | 7.6 | 1760 | 0.042 | 0.05 | 17 | 900 |
| 8/5/04 | 8 | East Tributary (upstream of US20) | storm | 0.226 | 6.4 | 18.9 | 5.4 | 57.7 | 7.5 | 1664 | 0.044 | 0.05 | 5.2 | 930 |
| 9/14/04 | 1 | Cowles Bog oulet at Waverly | base | stagnant water | | 18.2 | 0.3 | 3.2 | 7.1 | 320 | 0.3 | 0.03 | 74 | 1900 |
| 9/14/04 | 2 | West Tributary | base | 0.200 | 5.7 | 18.2 | 6.4 | 69 | 7.8 | 605 | 0.052 | 0.29 | 2.1 | 360 |
| 9/14/04 | 3 | Dunes Creek (pre-culvert) | base | 1.010 | 28.6 | 19.3 | 6.15 | 67.1 | 7.0 | 448 | 0.044 | 0.15 | 1.9 | 500 |
| 9/14/04 | 4 | Dunes Creek Outlet | base | 1.070 | 30.3 | 19.2 | 7.07 | 76.5 | 8.0 | 449 | 0.047 | 0.16 | 2 | 190 |
| 9/14/04 | 5 | Great Marsh Tributary | base | 0.327 | 9.3 | 20.3 | 0.7 | 8 | 7.1 | 368 | 0.015 | 0.03 | 8.4 | 220 |
| 9/14/04 | 6dup | East Tributary (Hawleywood Road) | base | | | 18.6 | 0.85 | 9.1 | 7.5 | 1710 | 0.267 | 0.07 | 29 | 100 |
| 9/14/04 | 6 | East Tributary (Hawleywood Road) | base | stagnant water | | 18.7 | 0.82 | 9 | 7.5 | 1700 | 0.361 | 0.05 | 27 | 310 |
| 9/14/04 | 7 | East Tributary (downstream of US20) | base | stagnant water | | 19.3 | 1.7 | 18 | 7.8 | 3270 | 0.033 | 0.03 | 30 | 100 |
| 9/14/04 | 8 | East Tributary (upstream of US20) | base | stagnant water | | 18.7 | 1.5 | 15.5 | 7.8 | 1605 | 0.01 | 0.03 | 10 | 40 |
| 6/21/05 | 1 | Cowles Bog oulet at Waverly | base | 0.001 | 0.03 | 18.7 | 1.15 | 12 | 6.8 | 275 | 0.17 | <0.10 | 430 | 30 |
| 6/21/05 | 2 | West Tributary | base | 0.193 | 5.5 | 16.7 | 7.56 | 78.1 | 8.0 | 680 | 0.14 | 0.21 | 1.9 | 700 |
| 6/21/05 | 3 | Dunes Creek (pre-culvert) | base | 0.351 | 9.9 | 18.4 | 6.7 | 71.6 | 7.8 | 512 | 0.08 | 0.26 | 3.2 | 220 |
| 6/21/05 | 4 | Dunes Creek Outlet | base | 0.384 | 10.9 | 18.5 | 8.64 | 93.7 | 7.9 | 719 | 0.07 | 0.25 | 1.9 | 800 |
| 6/21/05 | 5 | Great Marsh Tributary | base | 0.026 | 0.7 | 19.4 | 2.02 | 22 | 6.8 | 442 | 0.13 | <0.10 | 49 | 70 |
| 6/21/05 | 6 | East Tributary (Hawleywood Road) | base | stagnant water | | 17.5 | 0.057 | 6.2 | 7.8 | 3825 | 3.5 | <0.10 | 5.2 | 9200 |
| 6/21/05 | 7 | East Tributary (downstream of US20) | base | 0.120 | 3.4 | 17.8 | 2.87 | 21.8 | 8.2 | >3999 | 1 | <0.10 | 11 | 110 |
| 6/21/05 | 8 | East Tributary (upstream of US20) | base | stagnant water | | 18.3 | 2.81 | 28.9 | 8.1 | 1820 | 0.431 | <0.10 | 20 | 1600 |
| 6/21/05 | 4dup | Dunes Creek Outlet | base | | | 18.4 | 8.64 | 93.6 | 7.9 | 721 | 0.07 | 0.3 | <1.9 | 800 |
| 6/21/05 | AA | Across from Splashdown Dunes | base | 0.033 | 0.9 | 24.6 | 3.88 | 46.6 | 7.5 | 2156 | | | | |

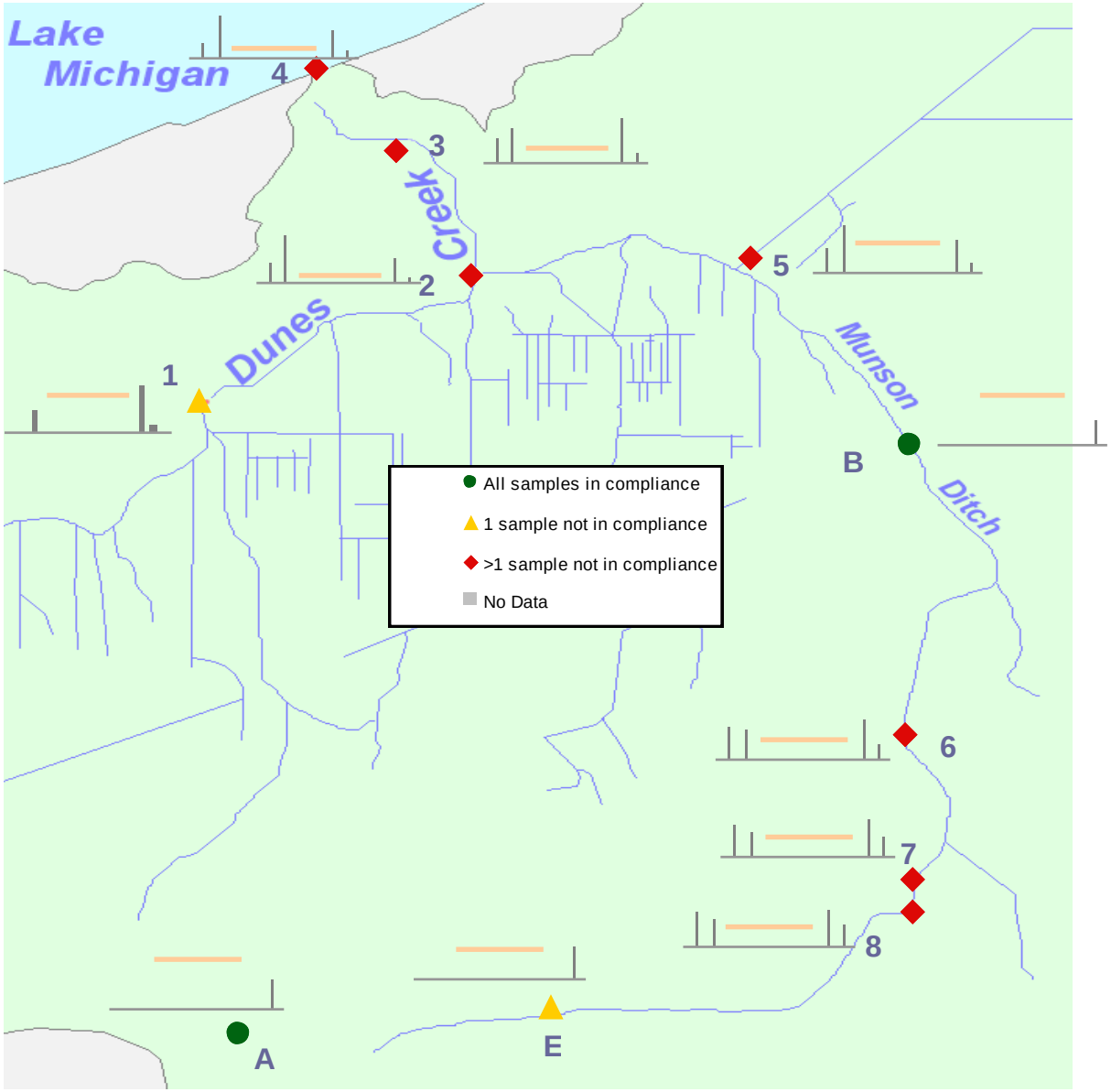
# Dunes Creek Data



**PARAMETER: % Dissolved P**

**THRESHOLD: 51 %**

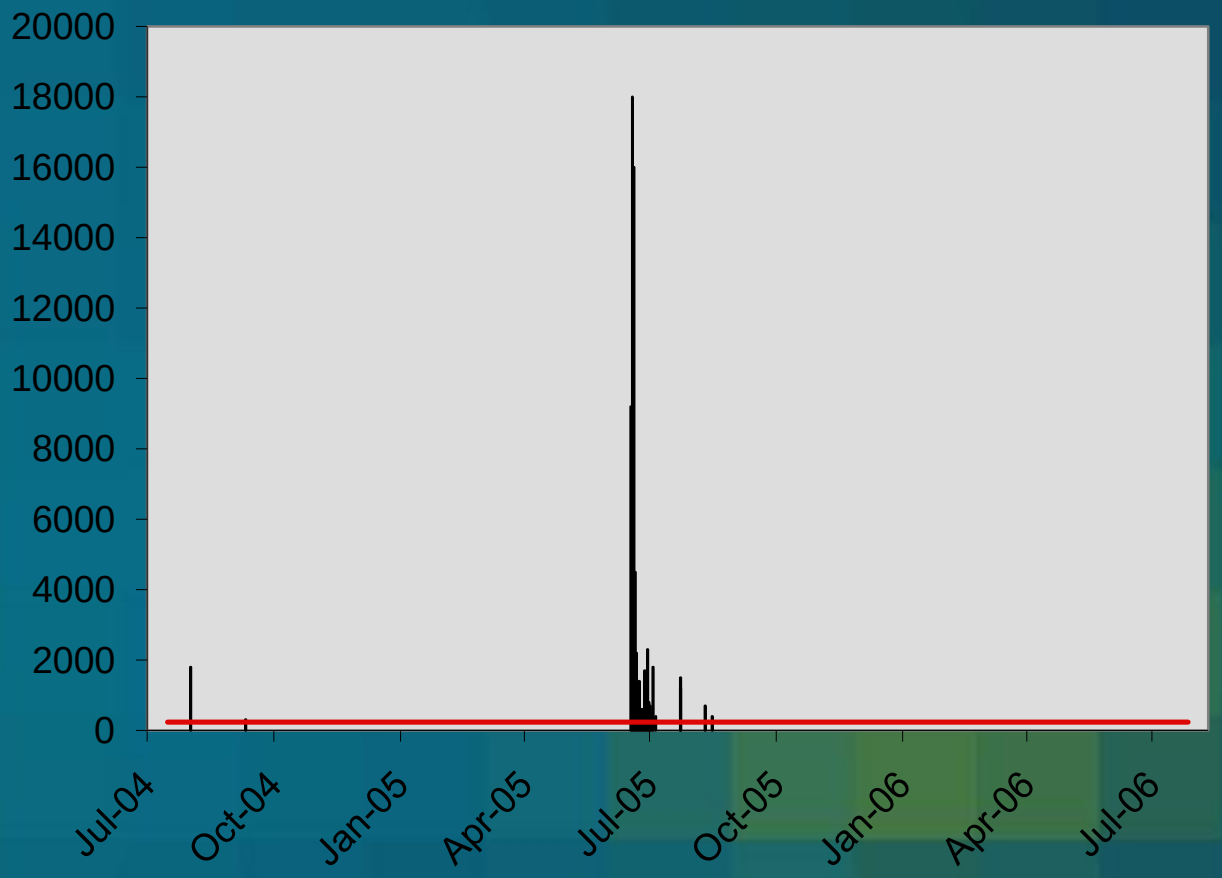
*last updated: June 17, 2009 11:57 AM*



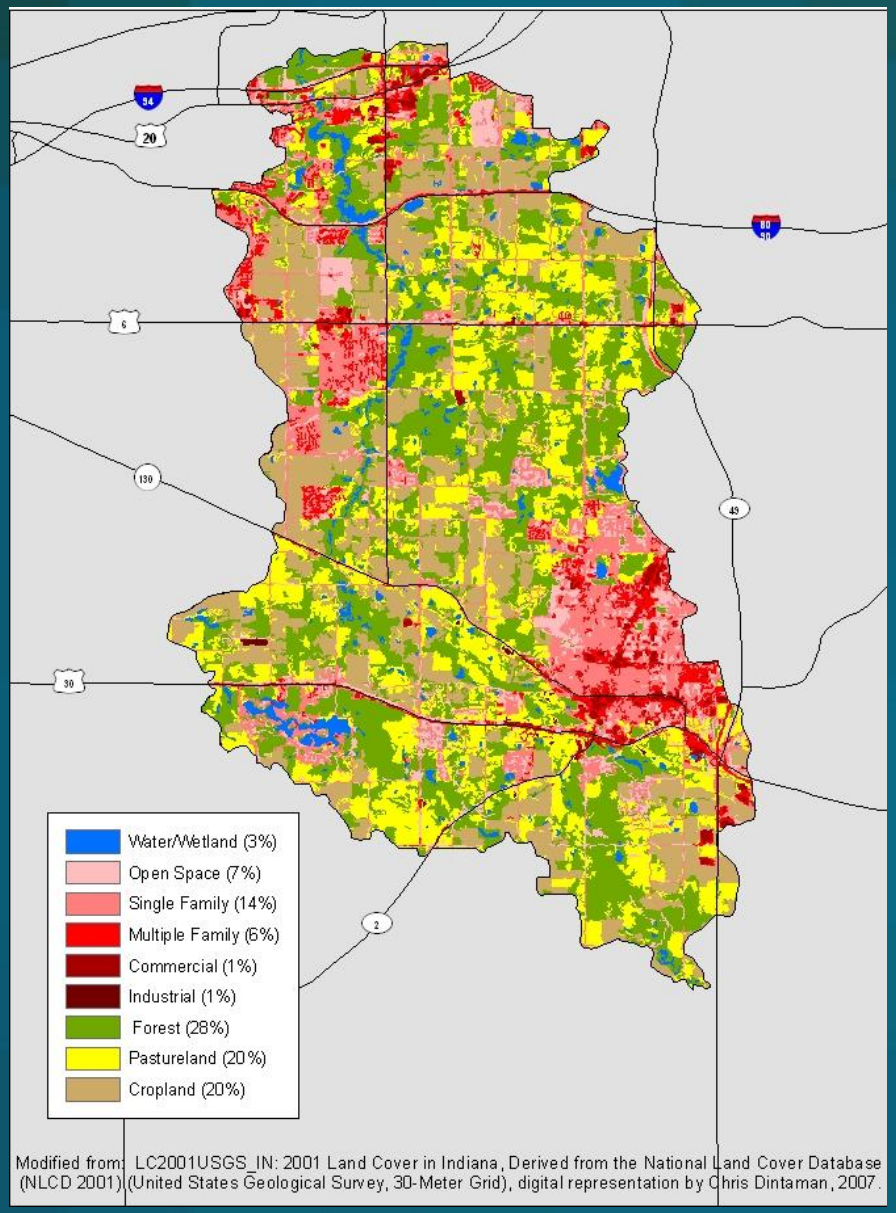
# Focus on site 6

| Site | Date | E. coli |
|---|---|---|
| 6 | 8/5/2004 | 1800 |
| 6 | 9/14/2004 | 310 |
| 6 | 6/21/2005 | 9200 |
| 6 | 6/22/2005 | 18000 |
| 6 | 6/23/2005 | 16000 |
| 6 | 6/24/2005 | 4500 |
| 6 | 6/25/2005 | 2200 |
| 6 | 6/26/2005 | 800 |
| 6 | 6/27/2005 | 1400 |
| 6 | 6/28/2005 | 600 |
| 6 | 6/29/2005 | 600 |
| 6 | 6/30/2005 | 600 |
| 6 | 7/1/2005 | 1700 |
| 6 | 7/2/2005 | 200 |
| 6 | 7/3/2005 | 2300 |
| 6 | 7/4/2005 | 800 |
| 6 | 7/5/2005 | 700 |
| 6 | 7/6/2005 | 500 |
| 6 | 7/7/2005 | 1800 |
| 6 | 7/9/2005 | 400 |
| 6 | 7/27/2005 | 1200 |
| 6 | 7/27/2005 | 1500 |
| 6 | 8/14/2005 | 700 |
| 6 | 8/19/2005 | 400 |

Standard - 235cfu /100 ml

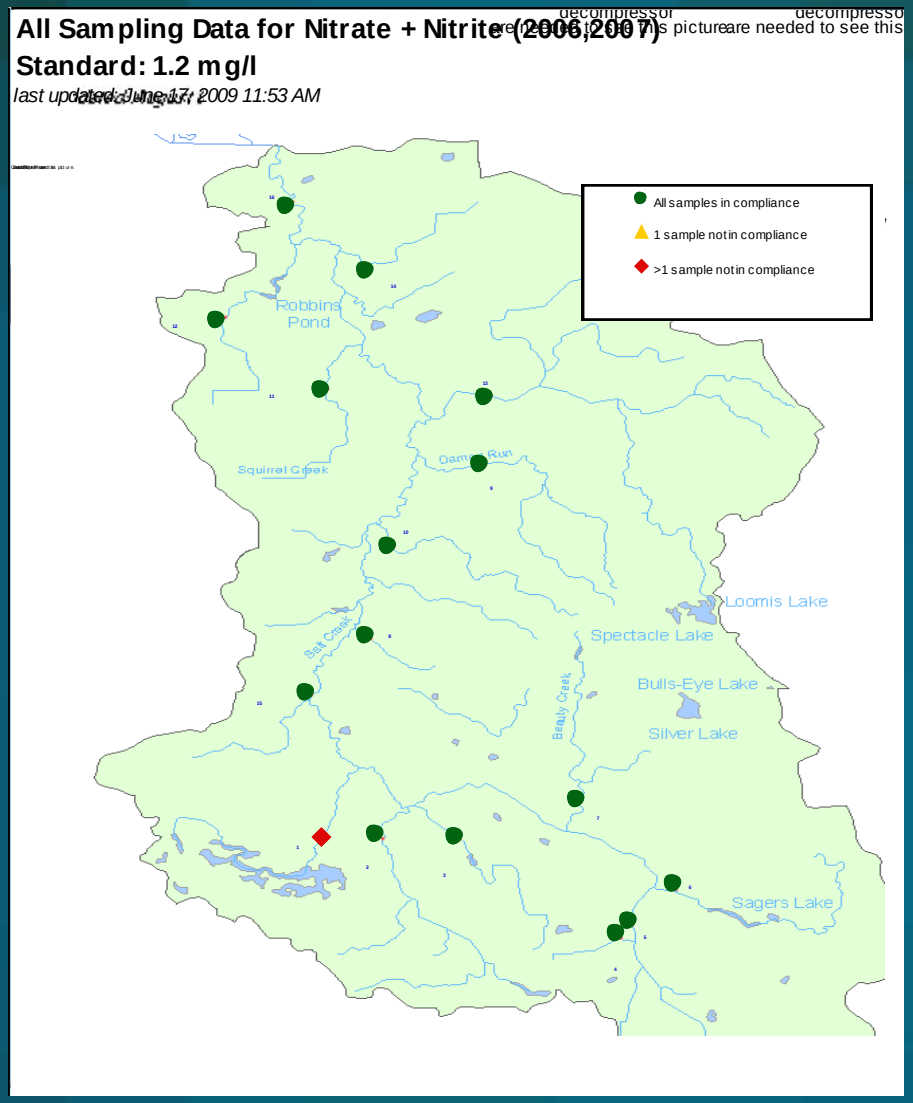


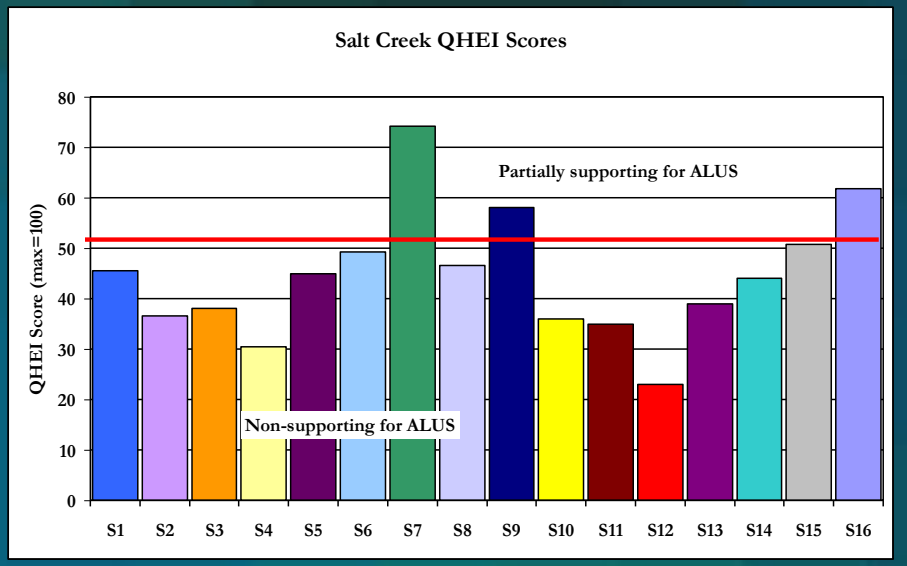
# Salt Creek watershed

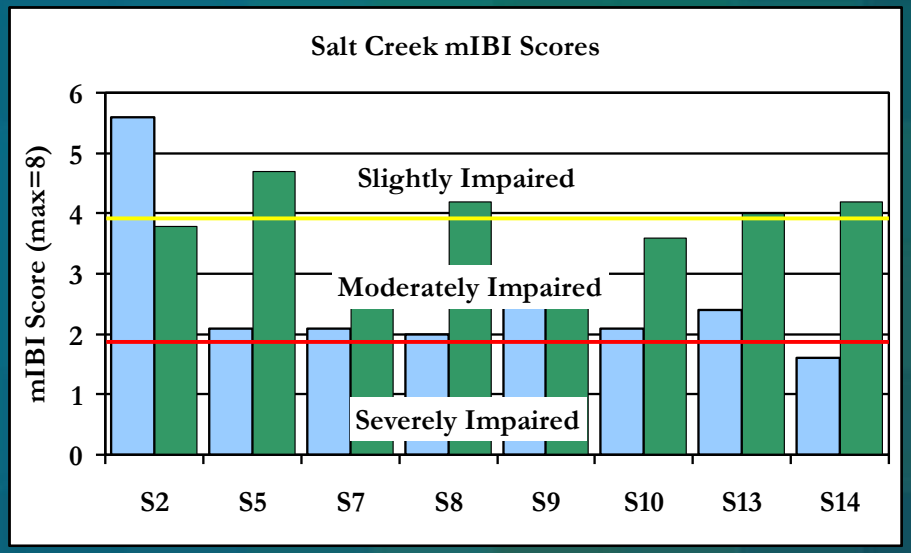


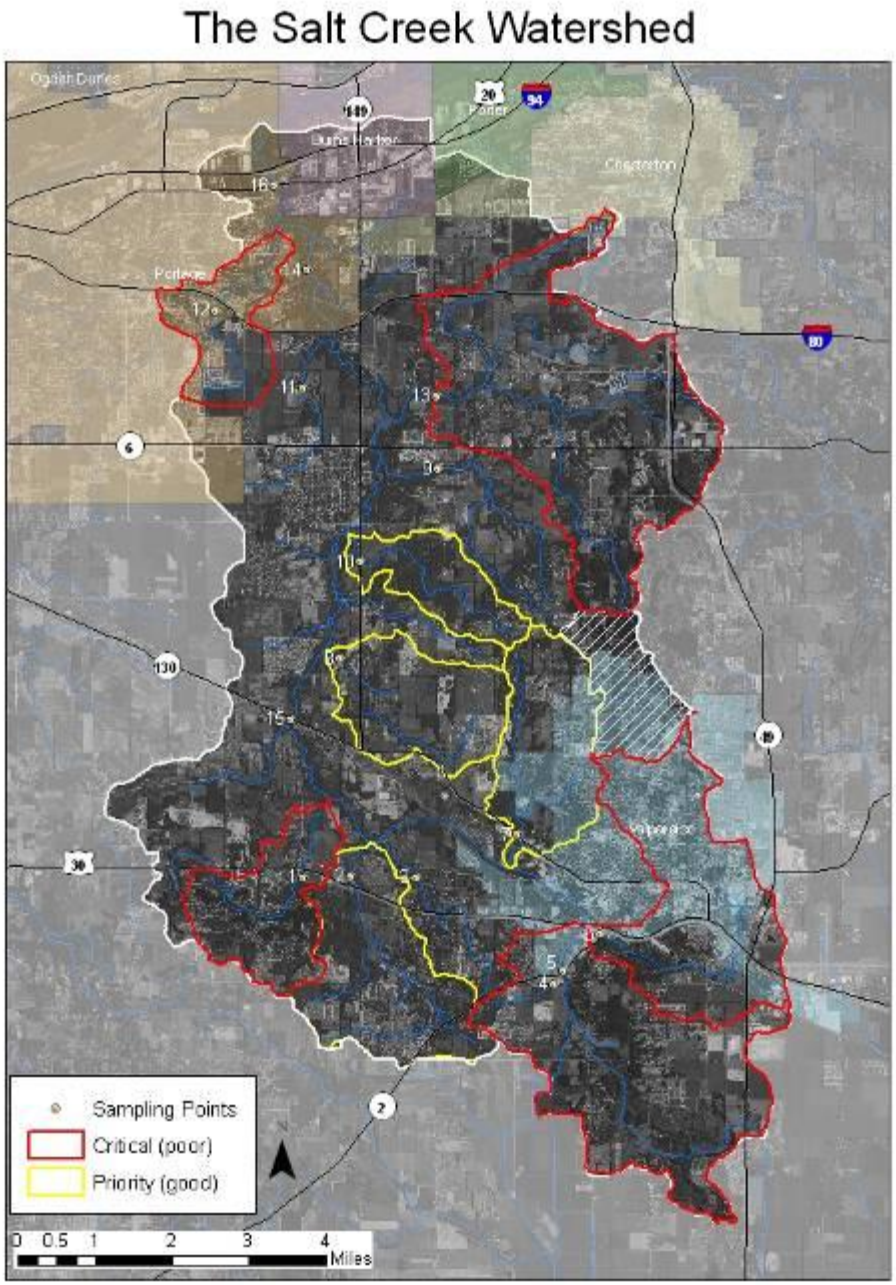

- Elevated nutrient concentrations
- Elevated *E. coli* concentrations
- Elevated TSS concentrations
- Poor habitat
- Limited biotic community

# Salt Creek Data






# Critical and Priority Areas

## Critical Areas (Red)

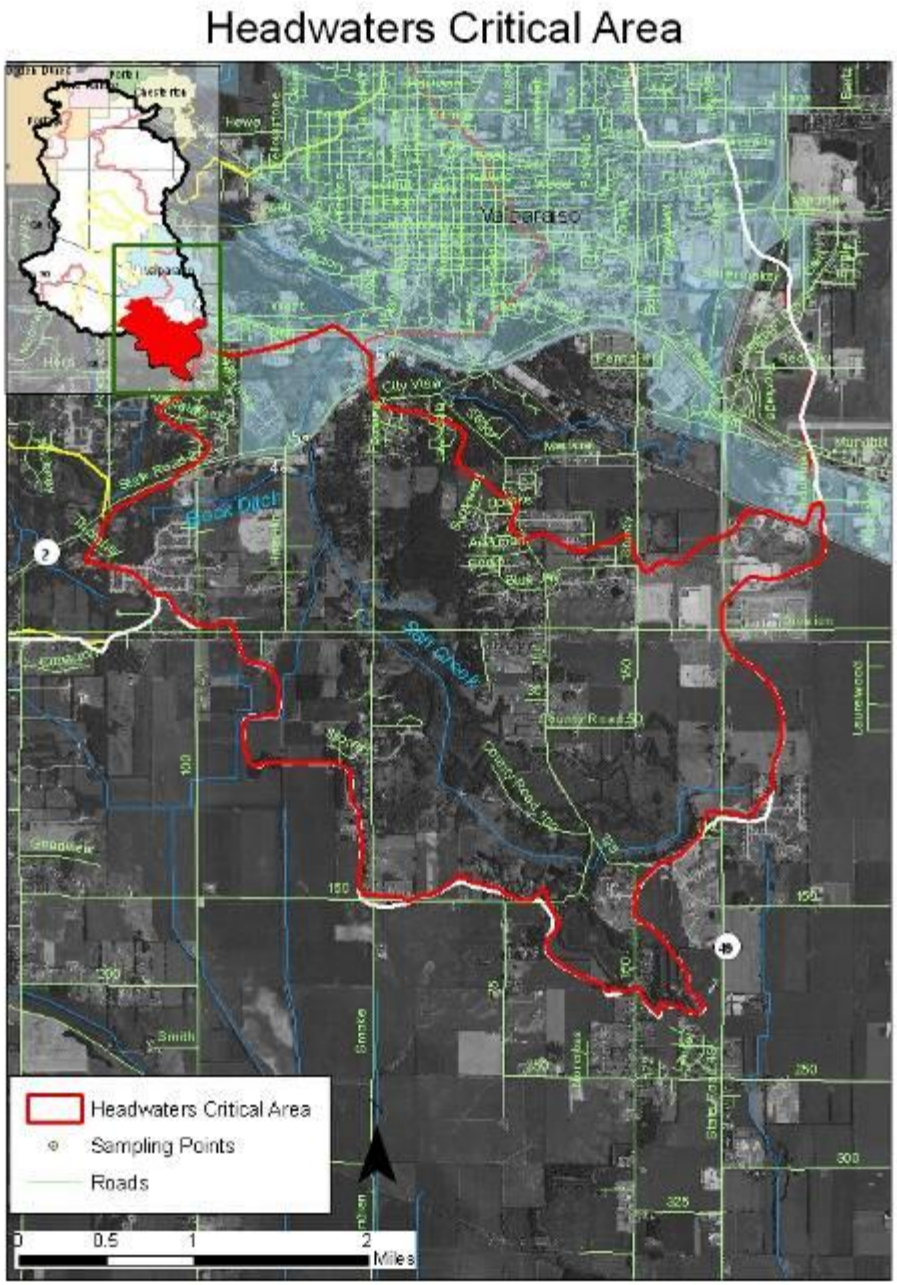
- Need treatment to improve existing poor water quality

## Priority Areas (Yellow)

- Need protection to protect relatively good water quality

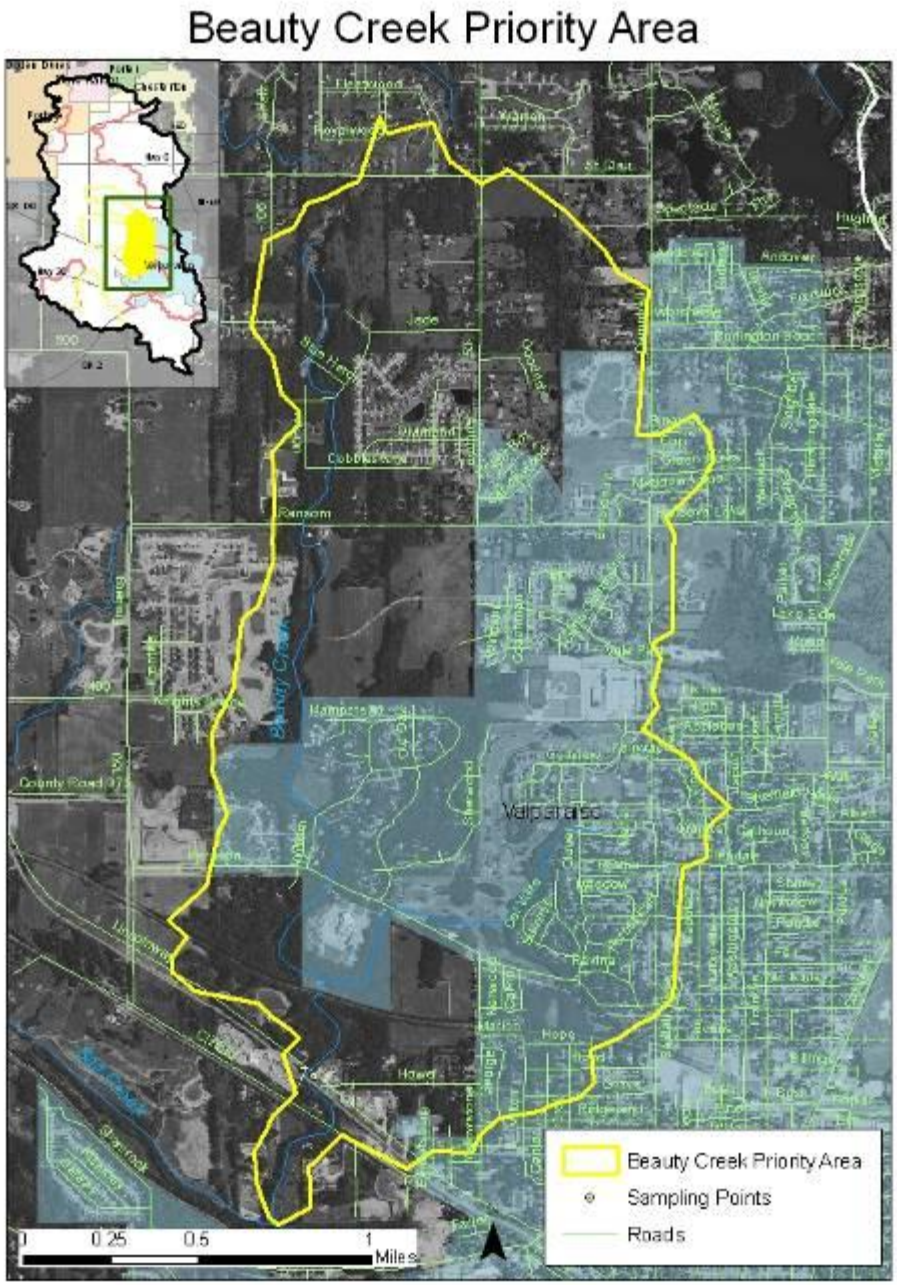
Based upon:

- historic water quality data,
- current water quality data,
- confirmed sources,
- projected future development,
- and causes of impairment.




## Salt Creek Headwaters

- Highest average *E. coli* concentration
- Highest average TSS concentration and loading rate
- High nutrient loading rates
- Low DO
- Poor habitat rating




# Beauty Creek

- Lowest average *E. coli* concentration
- Lowest average TSS concentration and areal loading rate
- Relatively low nutrient concentrations
- Highest habitat rating

# Basic Use and Benefits

- Identify pollutants and link to sources
- Set goals
- Prioritize activities
  - BMPs
  - Protection and restoration
- Determine critical and priority areas
- Ongoing sampling to track trends

# Basic Use and Benefits

- Steering Committee meetings
- Public meetings and outreach
- Cost savings

# Thank you!


## Jennifer Nebe

Save the Dunes Conservation Fund

(219) 879-3564

water@savedunes.org

## Thomas Davenport

(312) 886-0209

Davenport.thomas@epa.gov