

Presenting Monitoring and Assessment Information

Follow Journal Guidelines

- *Management of Environmental Quality*
 - <http://www.emeraldinsight.com/info/journals/meq/notes.jsp>
- *Environmental Science & Technology*
 - https://paragon.acs.org/paragon/ShowDocServlet?contentId=paragon/menu_content/authorchecklist/es_authguide.pdf
- *Journal of Environmental Quality*
 - <https://www.agronomy.org/publications/pdfs/jeqsugcontrib.pdf>

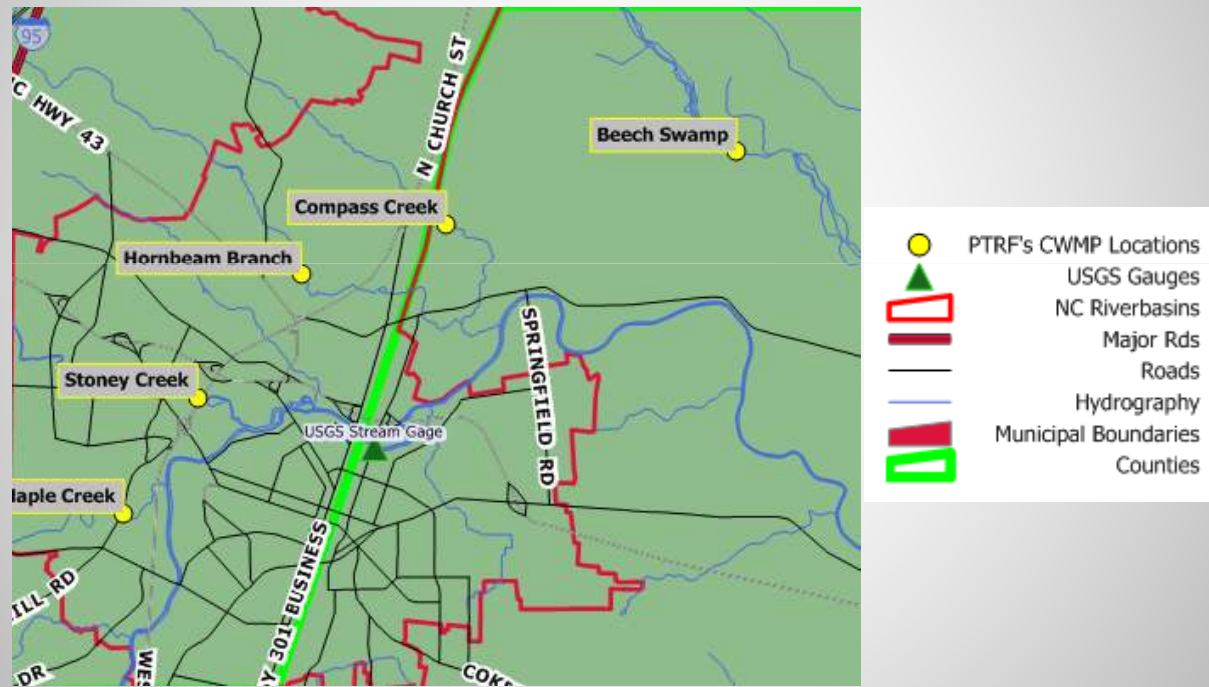
Basic Information

- Who performed the monitoring?
- What was the purpose of monitoring?
- Where was the monitoring performed?
- What parameters were monitored?
- When was the monitoring done?
- How were the samples analyzed?
- What were the results?
- Go back to the QAPP!

Watershed Features and Monitoring Site Locations

Use maps and figures to show watershed boundaries, monitoring site locations, and watershed characteristics (e.g., land use, land cover) that “explain” the chosen locations of monitoring sites

The Citizens Watershed Monitoring Project



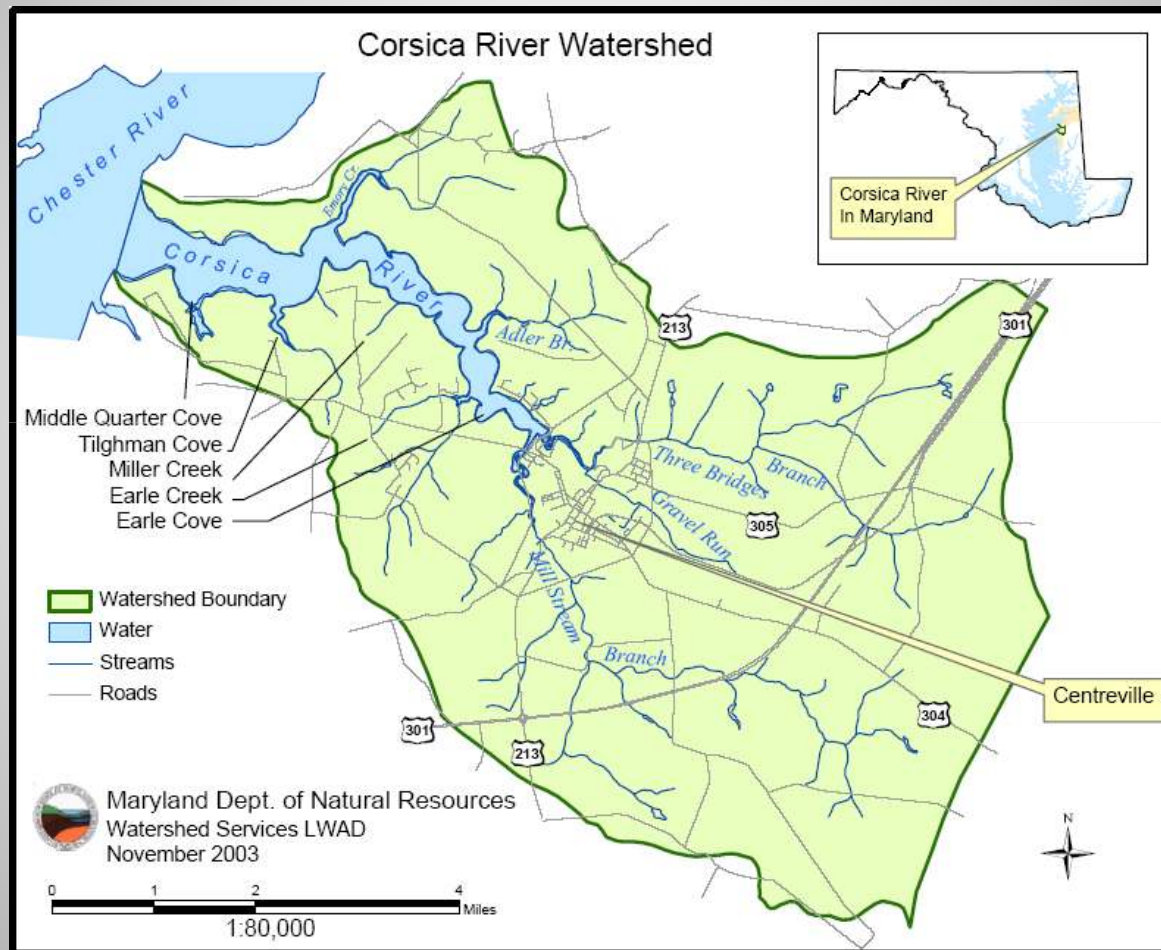
<http://www.mapserving.com/publicmaps/cwmp/default.asp>

The Citizens Watershed Monitoring Project



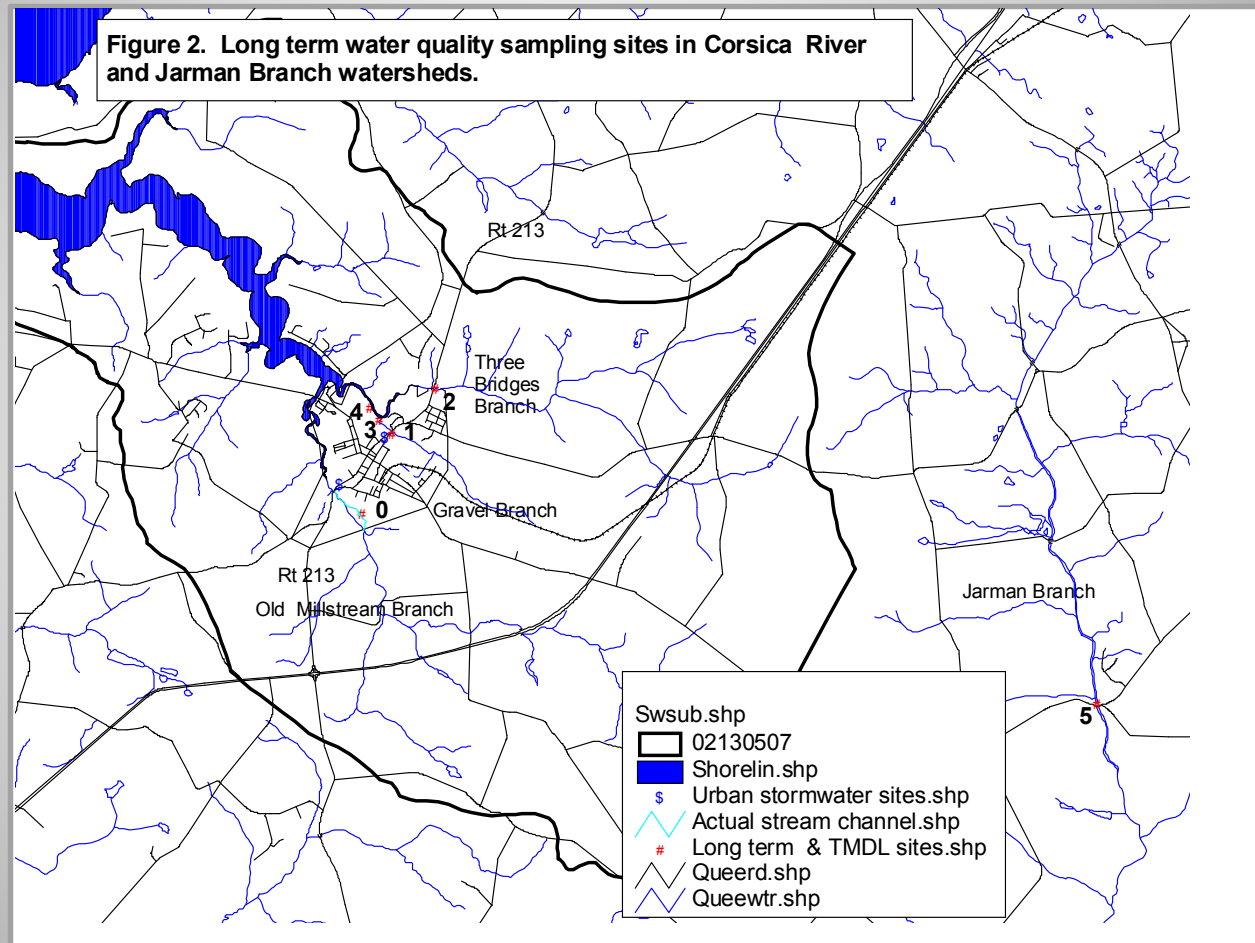
- Potential Contaminant Sources of the Tar-Pamlico**
(source: NCDENR, PWSS, SWAP)
- Animal Operations
 - CERCLIS Sites
 - RCRA Gen. / Trans. Facilities
 - Non Discharge Permits
 - NPDES Permits
 - National Priority List Sites
 - PCB Sites
 - Pollution Incidents
 - Septage Disposal Sites
 - Soil Remediation Sites
 - Solid Waste Facilities
 - Tier II Sites
 - RCRA TSD Facilities
 - Old Landfill Sites
 - UIC Permits
 - UST Permits

Corsica River, MD



Primrose, 2006

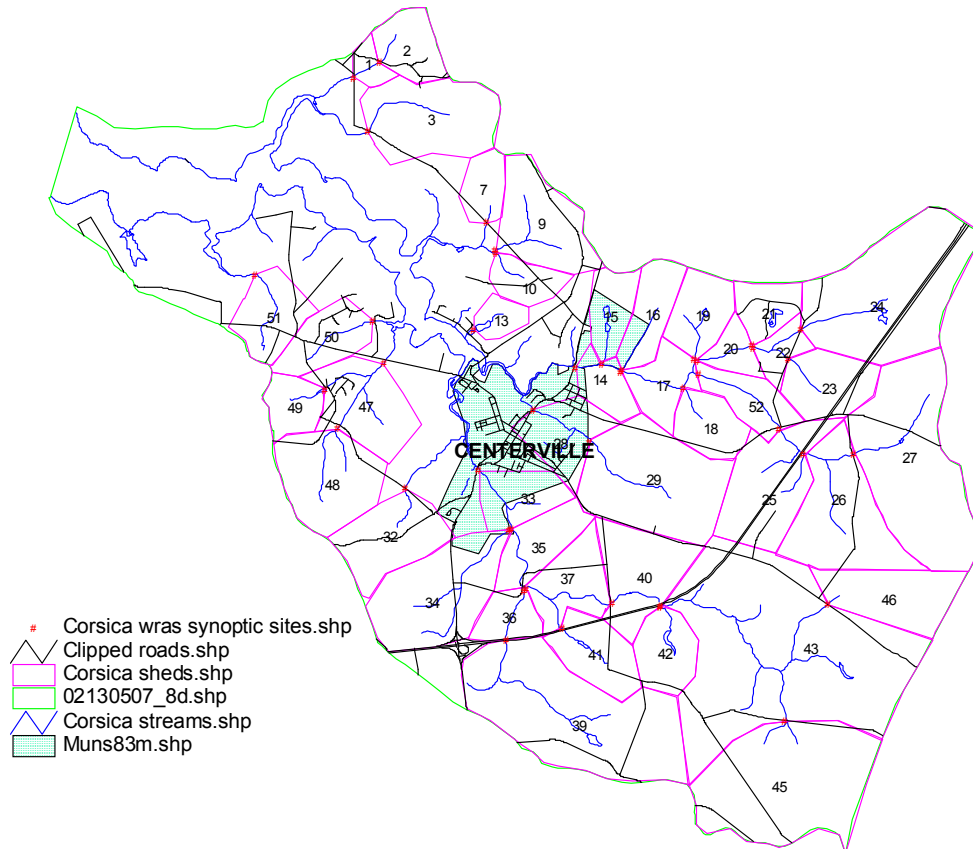
Corsica River, MD



Primrose, 2006

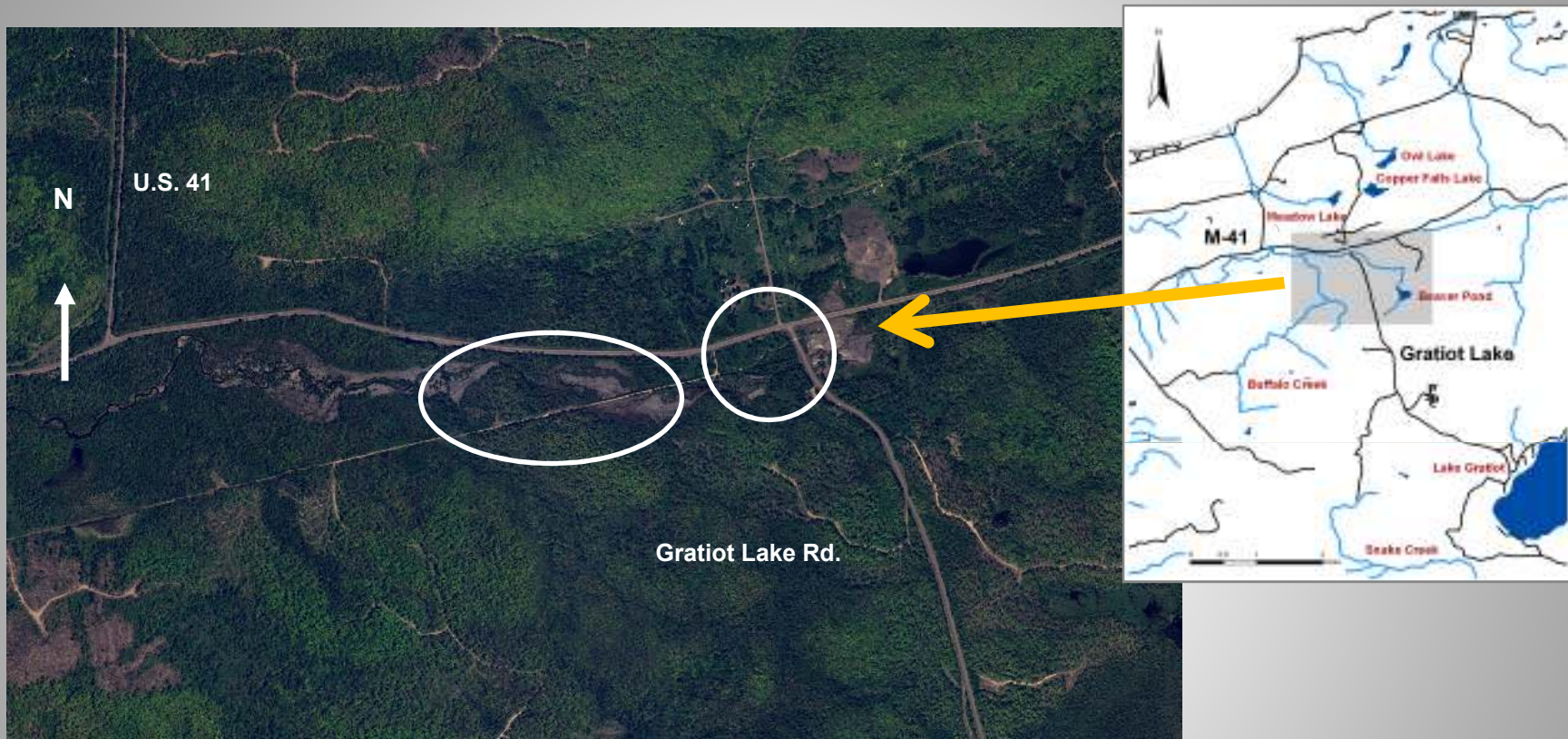
Corsica River, MD

Figure 3. Corsica Watershed Nutrient Synoptic Sites



Primrose, 2006

Michigan Stamp Sands



East Branch of the Eagle River, including the Central Mine Site #1 (circle) and Central Mine Site #2 (oval). [Water flows from right to left.]

Rathbun, 2007

Data Presentation

Keep it simple and make it clear

- To where and when do data apply?
- How do data compare with criteria and indices benchmarks?
- Are data summaries clearly linked to maps and basic watershed information?
- Does data presentation set the stage for report conclusions and proposals for follow-up activities in the watershed?

Massachusetts Water Watch Partnership

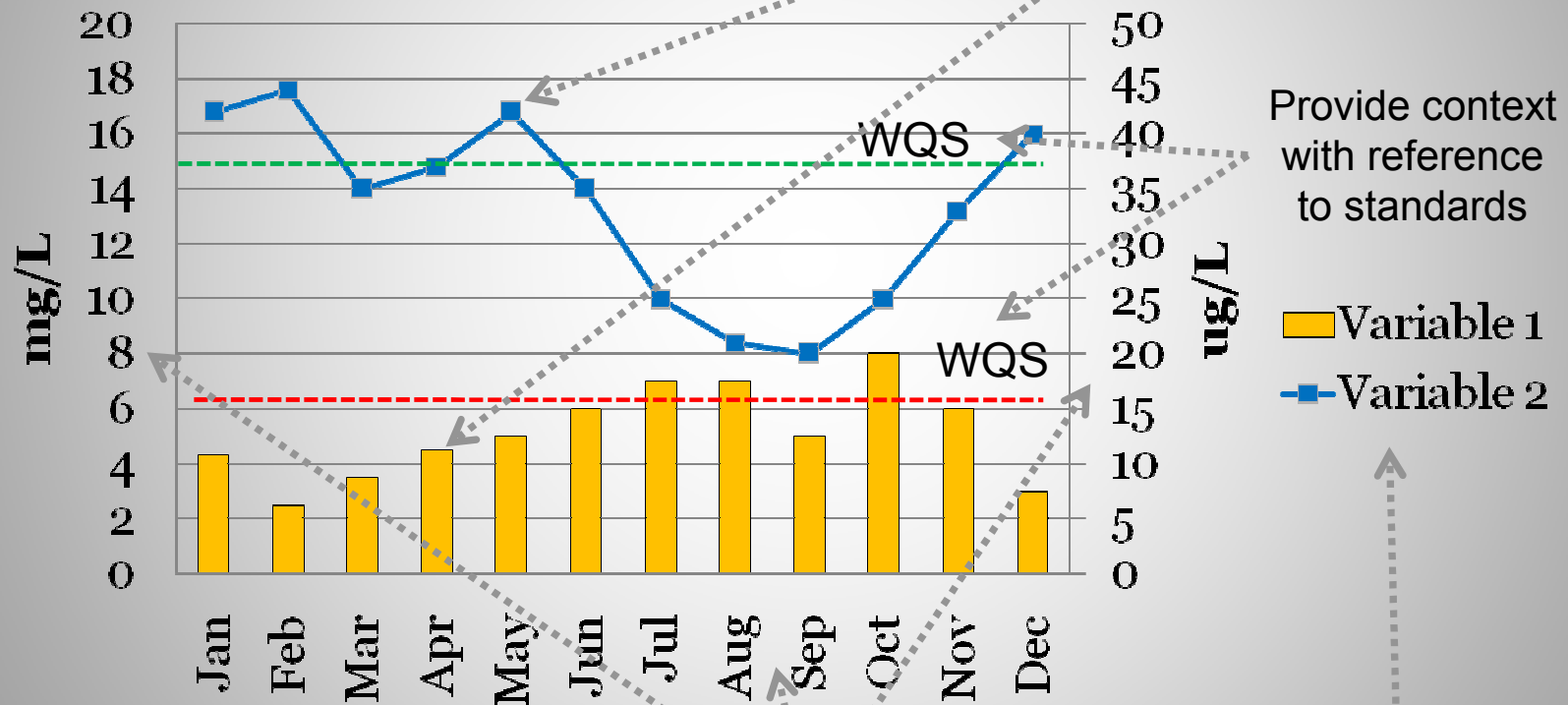
- “Ready, Set, Present!”
 - A data presentation manual for volunteer water quality monitoring groups
 - <http://www.umass.edu/tei/mwwp/datapresmanual.html>

Basic Rules for Legible Graphs

Use short but clear title

No more than 2 parameters

Variable 1 and Variable 2, 2007



Provide context with reference to standards

Variable 1
Variable 2

After Massachusetts Water Watch Partnership

Label all axes, including units

Legend necessary when more than one parameter

Massachusetts Water Watch Partnership

Chart 1

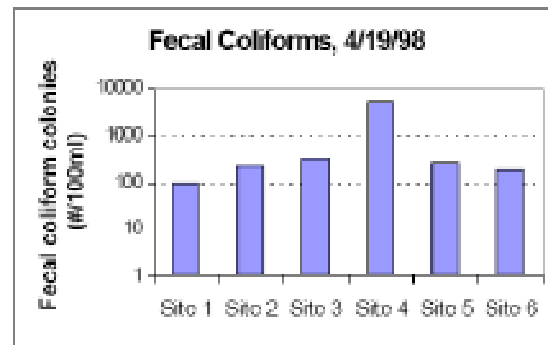
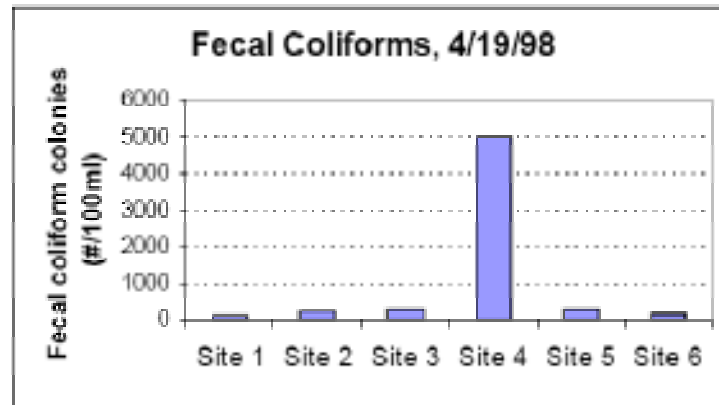


Chart 2

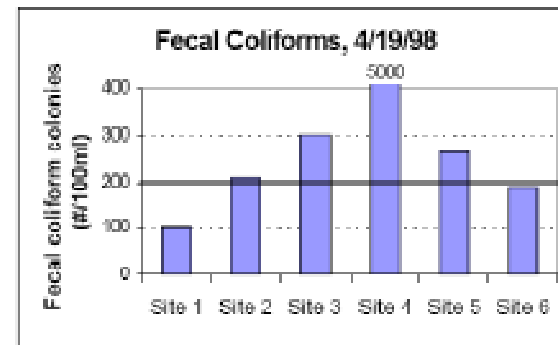
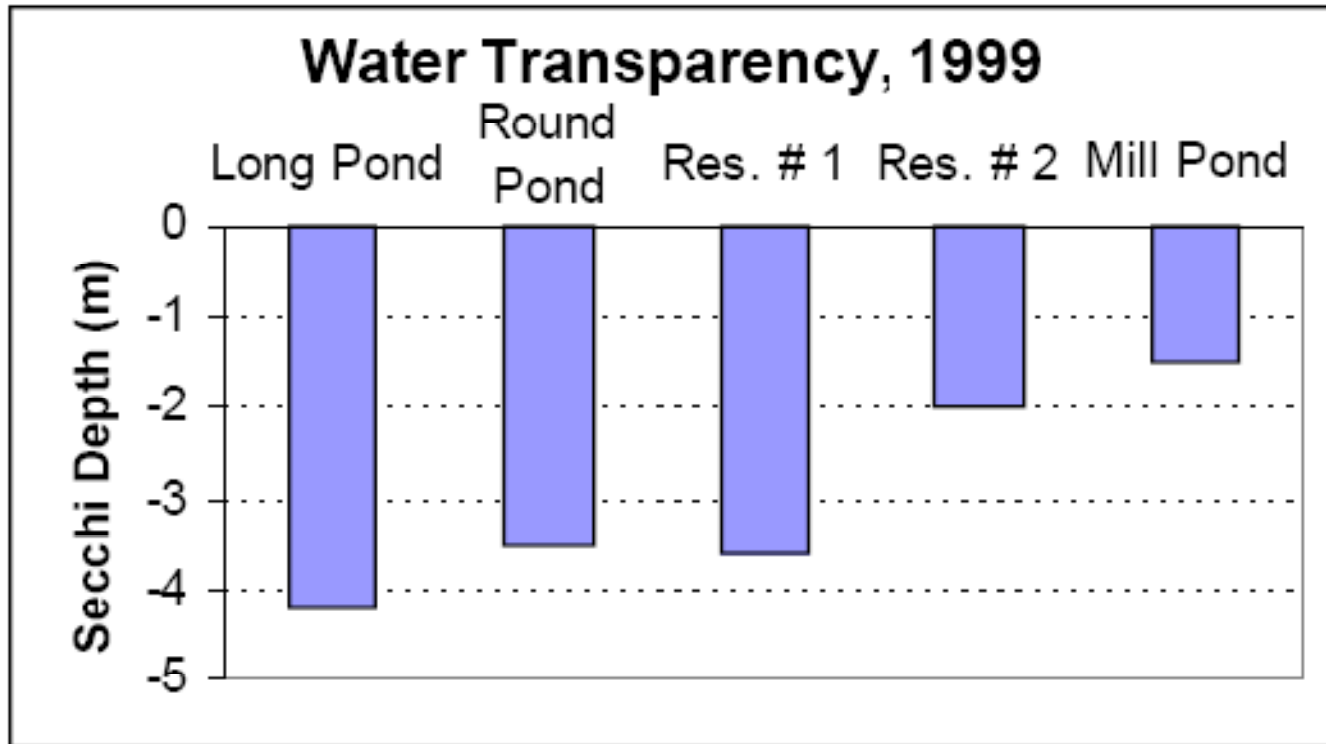


Chart 3

Example 3-14: Chart 1 uses a normal scale, which dwarfs all values but the high one. Chart 2 uses a logarithmic scale, which amplifies lower values, but visually diminishes the high value. Chart 3 compromises by allowing the high value to exceed the chart's limits.

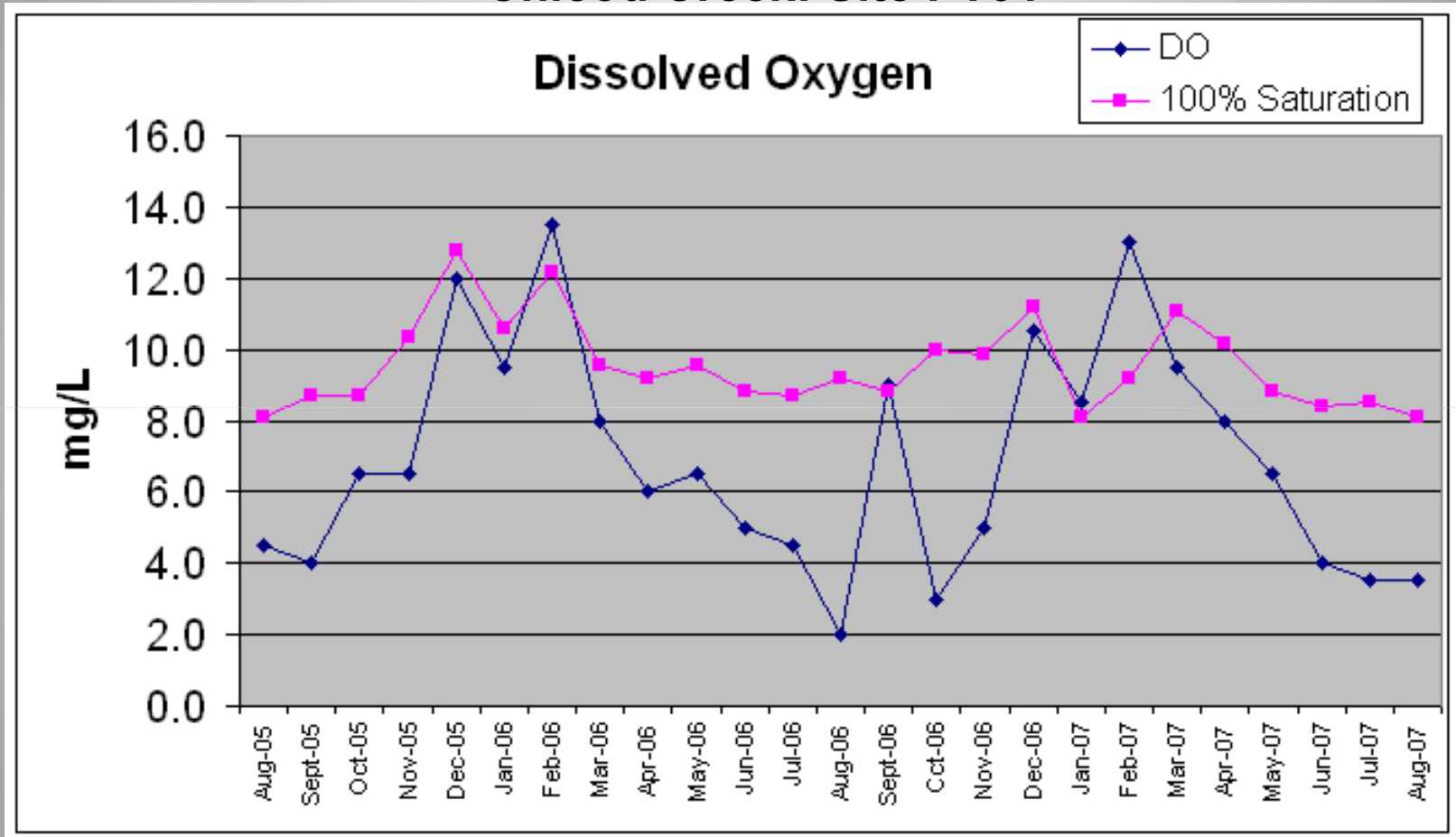
Massachusetts Water Watch Partnership



Example 3-7: In this bar graph, the y-axis scale shows negative values to depict depth under water.

The Citizens Watershed Monitoring Project

Chicod Creek: Site PT01

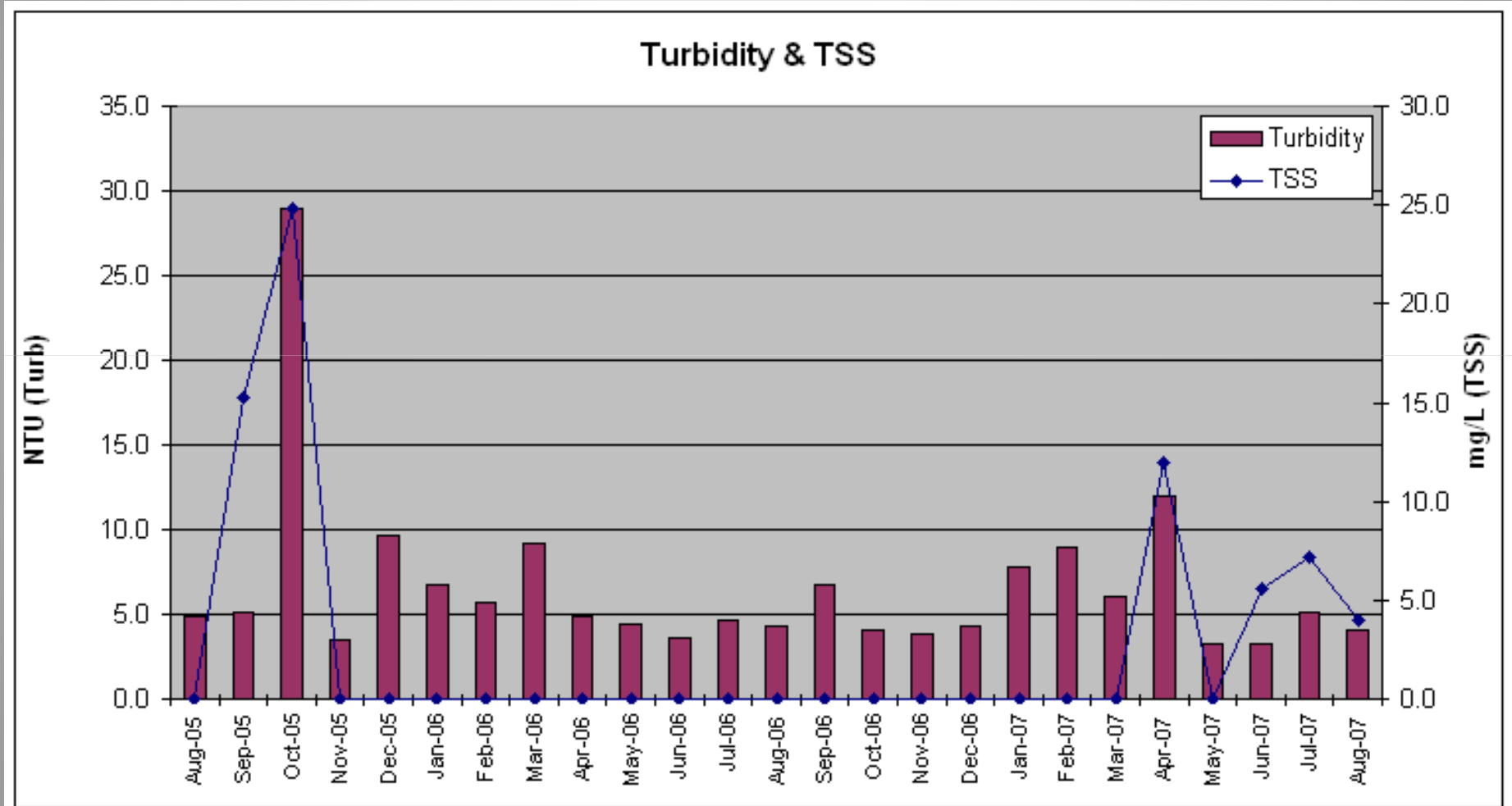


Note: Samples are taking once per month on the second Saturday-- Sampling begun August, 2005

http://www.ptrf.org/PT01_DO.htm

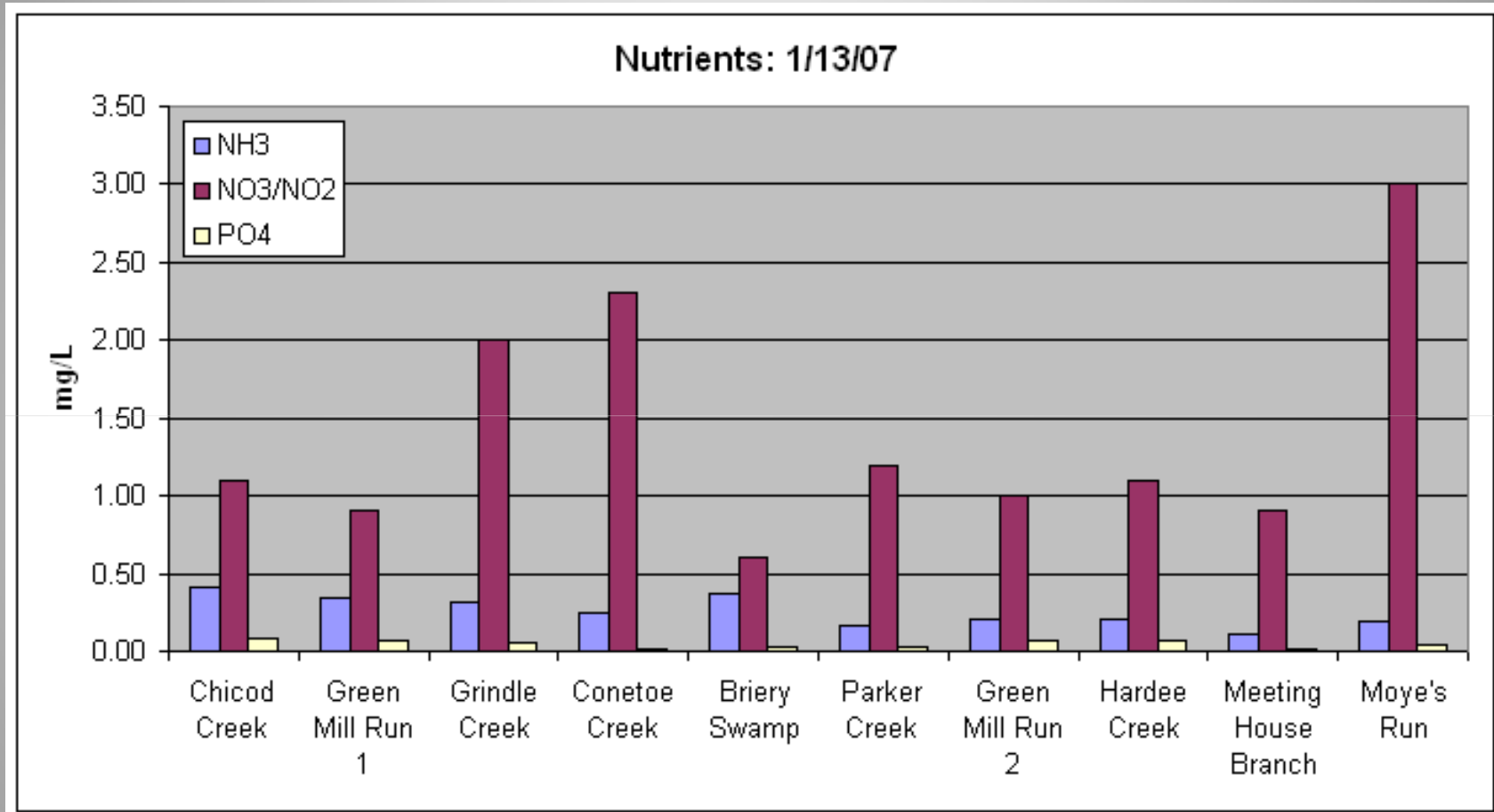
The Citizens Watershed Monitoring Project

Chicod Creek: Site PT01



http://www.ptrf.org/PT01_turb_TSS.htm

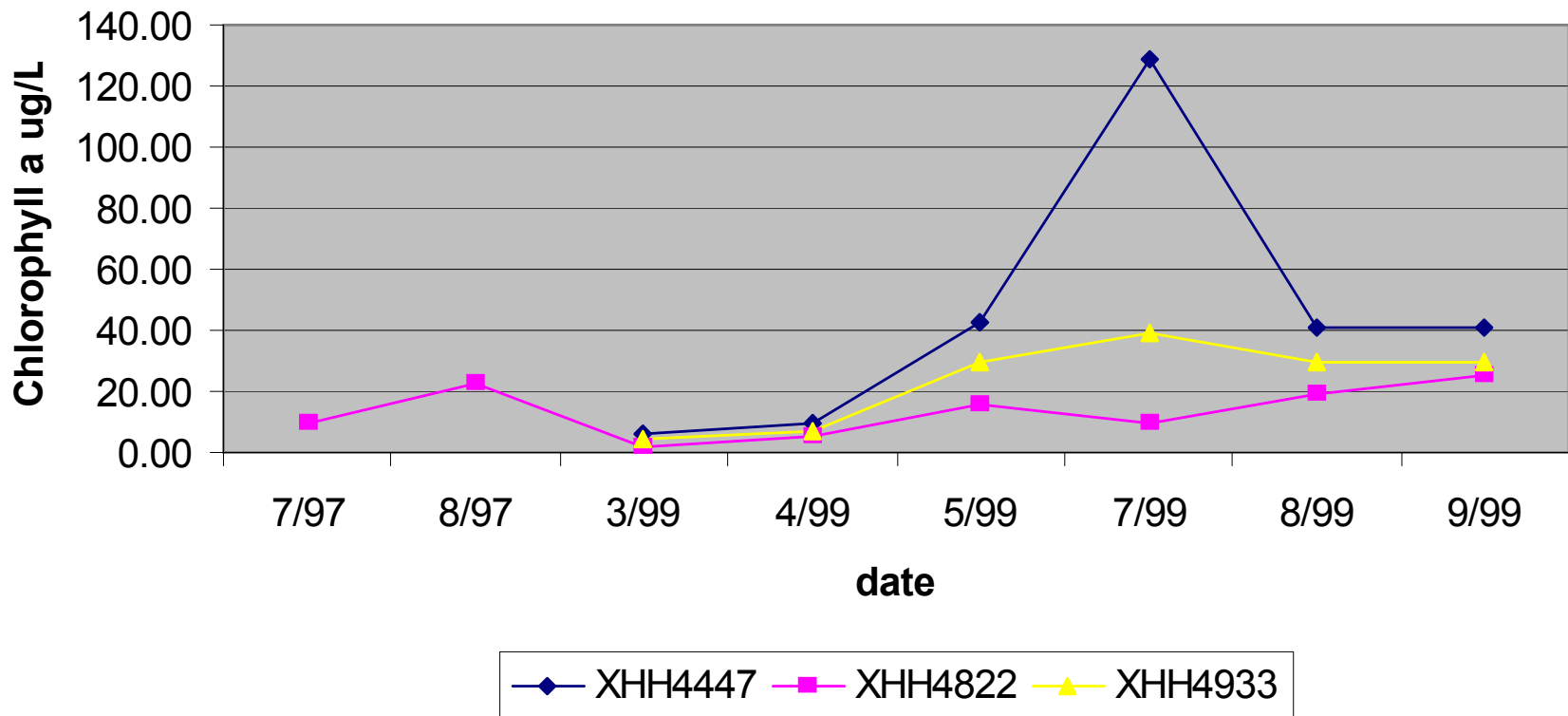
The Citizens Watershed Monitoring Project



http://www.ptrf.org/all_sites_1_07.htm

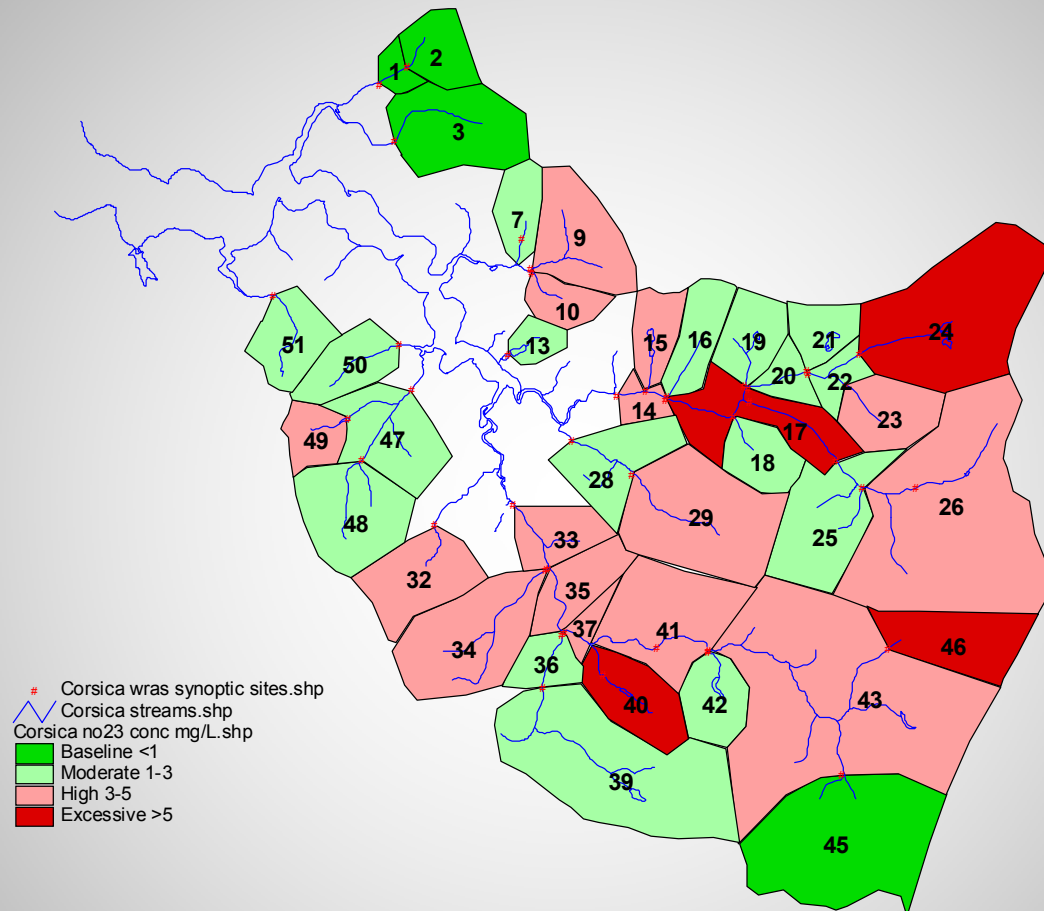
Corsica River, MD

Figure 3. Historic Corsica Tidal Data - Chlorophyll a ug/L



Primrose, 2006

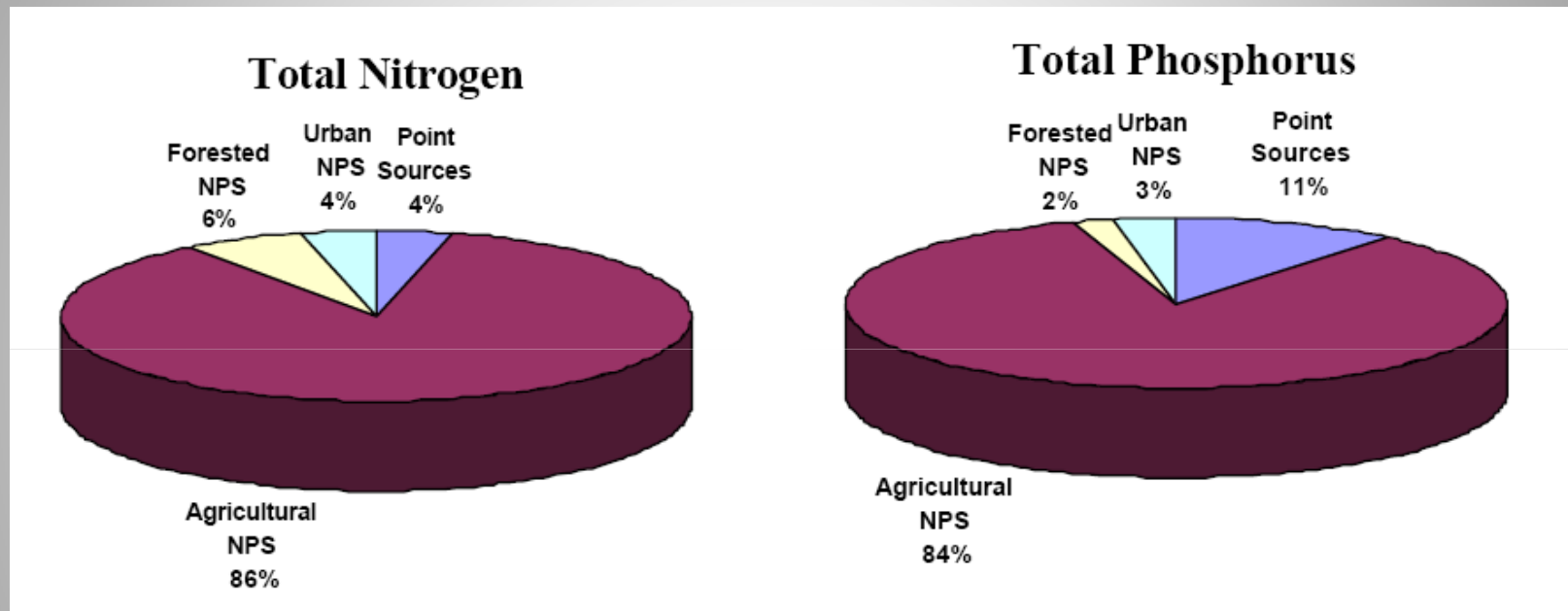
Corsica River, MD



**Corsica Watershed WRAS Nutrient Synoptic Survey March, 2003
Nitrate/Nitrite (NO₂+NO₃) Concentrations (mg/L).**

Primrose, 2006

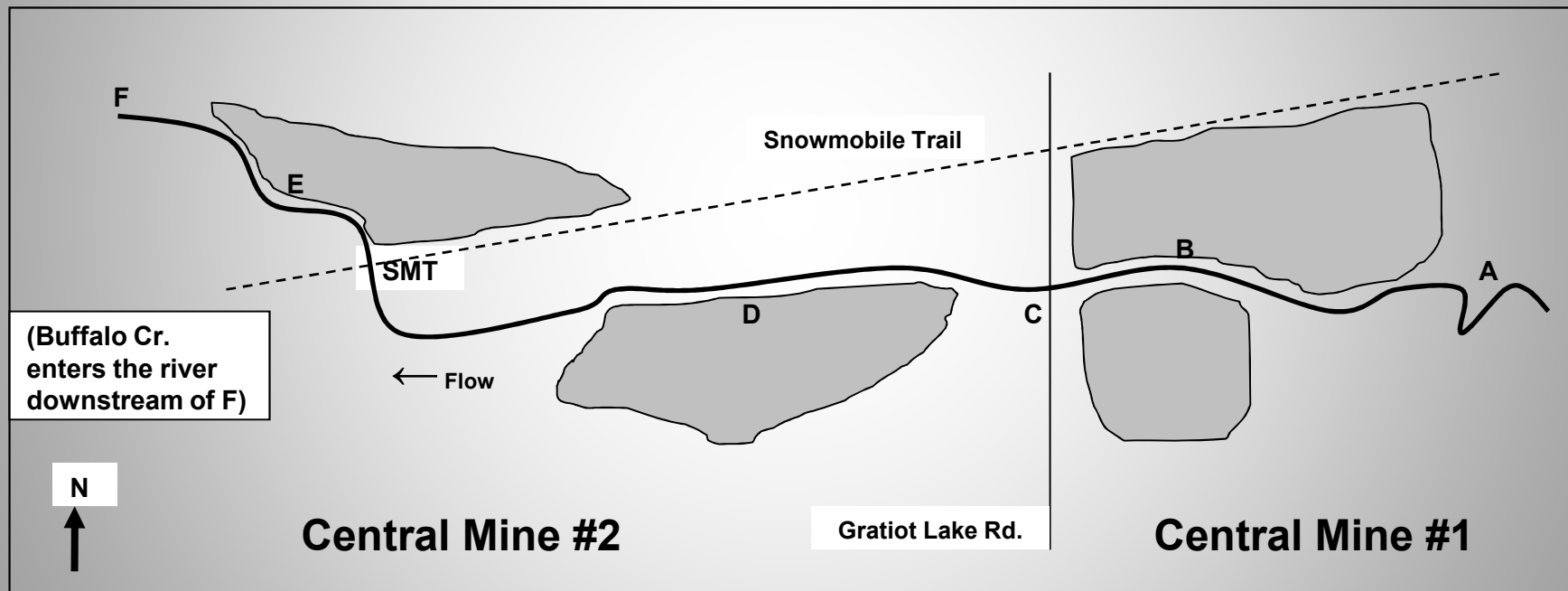
Corsica River, MD



Nutrient Proportions by Land Use

Michigan Stamp Sands

Figure 2.1 Schematic Illustration of the Central Mine Sampling Sites



(Gray zones = stamp sand deposits)

Michigan Stamp Sands

Summary of Recent P51 Macroinvertebrate Surveys in the Central Mine Study Area (2006 – 2007).

| Parameter | B (June 2006) | D (June 2007) | E (June 2007) | F (June 2007) | Buffalo Creek (June 2006) |
|----------------------------|---------------------|---------------------|---------------------|---------------------|------------------------------------|
| Total families | 12 | 12 | 11 | 12 | 27 |
| EPT families | 6 | 5 | 6 | 6 | 14 |
| Macroinvertebrate score | 0 (acceptable) | 0 (acceptable) | 2 (acceptable) | 2 (acceptable) | 7 (excellent) |
| Aquatic habitat score | 47 (poor) | 72 (marginal) | 106 (good) | 158 (excellent) | 170 (excellent) |

(Stations arranged upstream to downstream; see Figure 2.1)

Rathbun, 2007

References

Primrose, N. 2006. *Application to have the Corsica River Watershed Project Nominated to National Monitoring Program Status*, April 12, 2006. Maryland DOE, Baltimore.

Rathbun, J. 2007. *Quality Assurance Project Plan for the Central Mine Site Stamp Sand Remediation Project, Version 1*; August 8, 2007, Michigan Department of Environmental Quality, Water Bureau – Nonpoint Source Unit, Lansing, MI