



Bridgewater State University

## Virtual Commons - Bridgewater State University

---

Watershed Access Lab Projects

Watershed Access Lab

---

5-3-2006

### Abbott Run River Study

Follow this and additional works at: [https://vc.bridgew.edu/wal\\_projects](https://vc.bridgew.edu/wal_projects)



Part of the [Environmental Monitoring Commons](#), and the [Natural Resources and Conservation Commons](#)

---


#### Recommended Citation

North Attleborough High School, North Attleborough, Massachusetts (2006). *Abbott Run River Study*. In Watershed Access Lab Projects. Project 45.  
Available at: [https://vc.bridgew.edu/wal\\_projects/45](https://vc.bridgew.edu/wal_projects/45)

This item is available as part of Virtual Commons, the open-access institutional repository of Bridgewater State University, Bridgewater, Massachusetts.



**Abbott Run  
River Study  
North Attleboro  
High School**

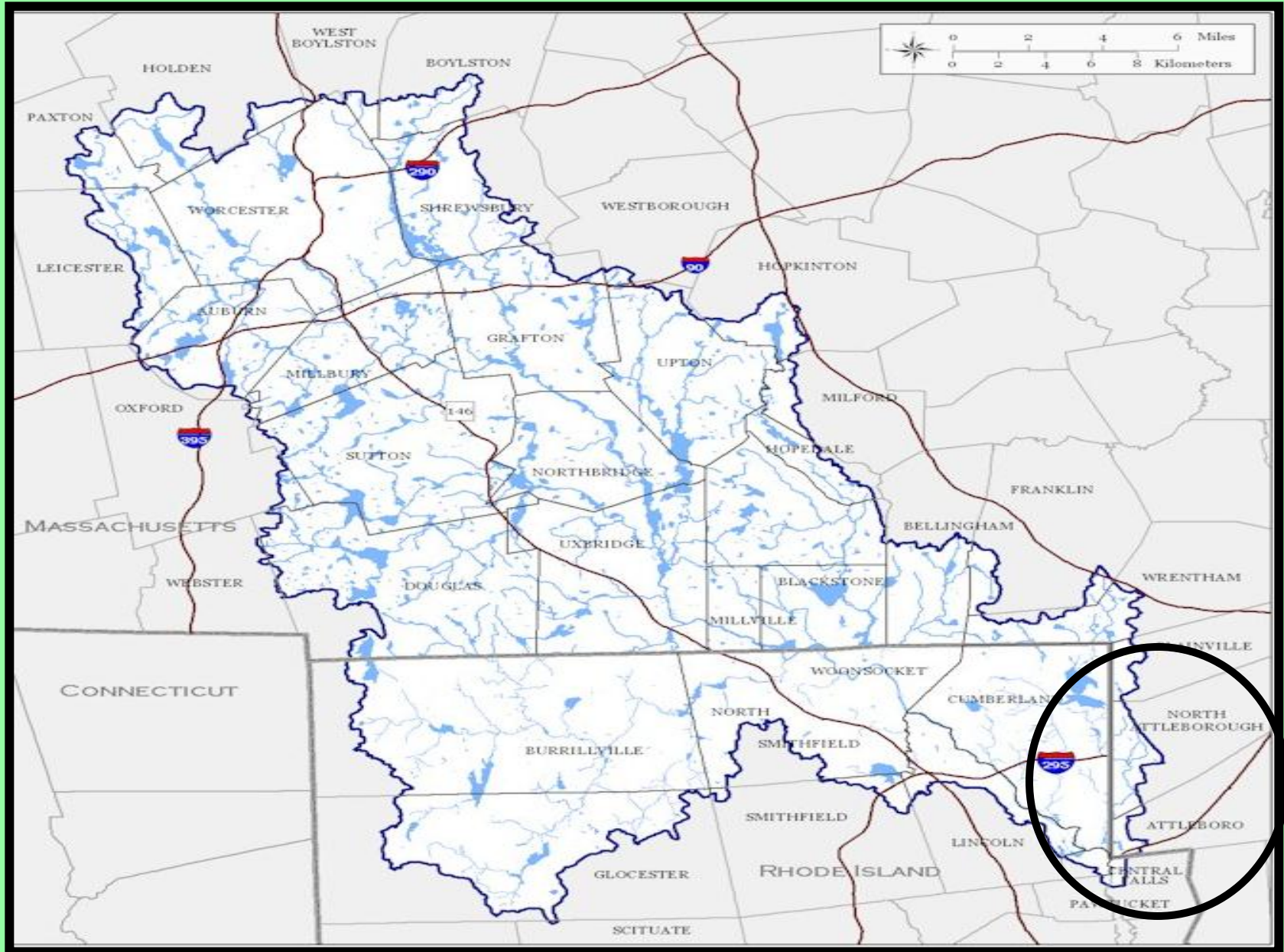


**Bridgewater State College  
May 3, 2006**

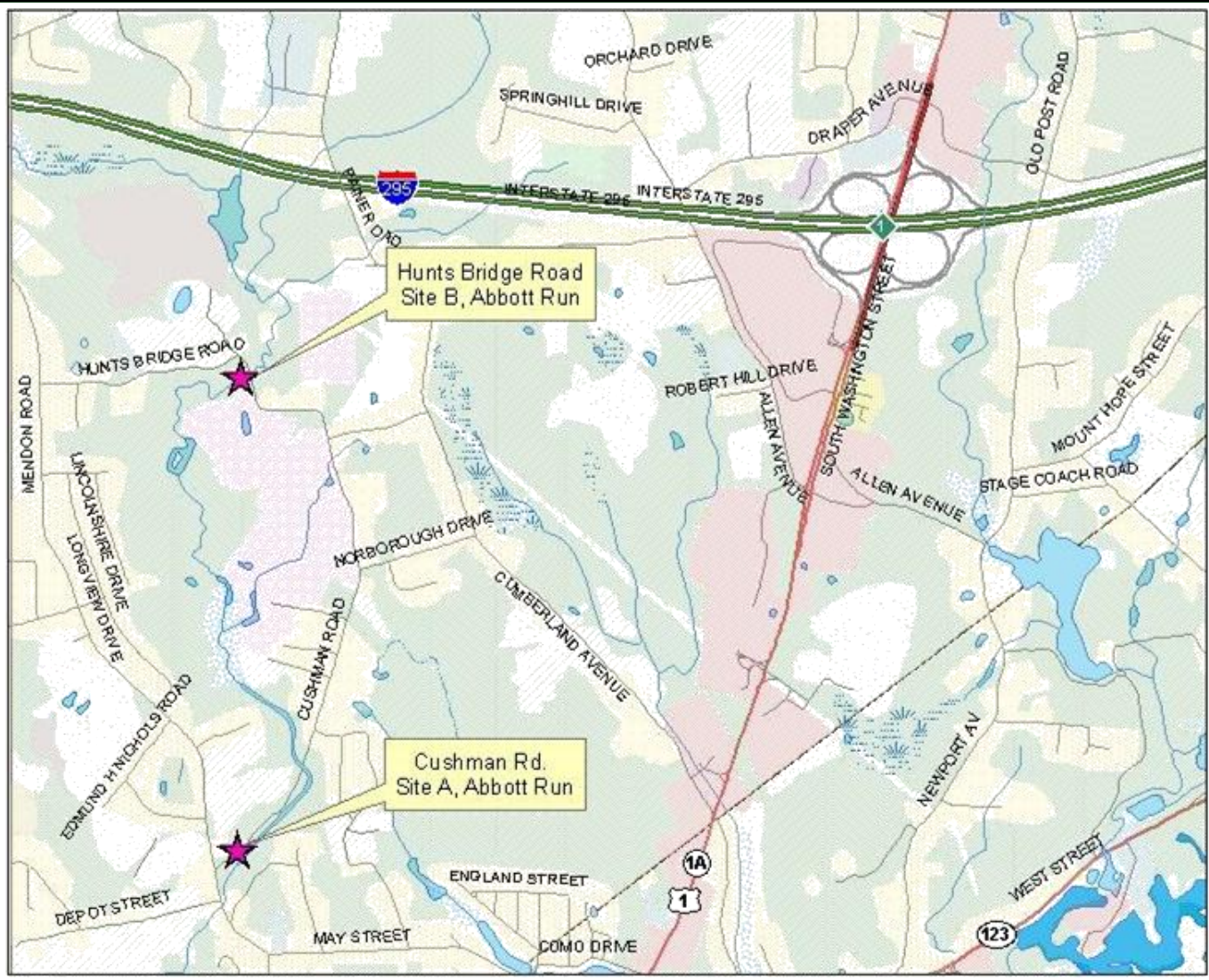
# Purpose of Study

- \*To make sure the river meets the Class A Standards by testing dissolved oxygen, pH, temperature, and conductivity. We also studied nitrates and phosphates.**
- \*To find the pollution tolerance in Abbott Run using the macro-invertebrates.**

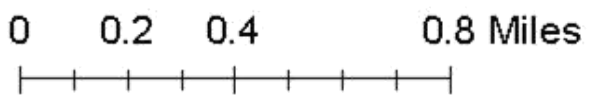
# Blackstone River Watershed



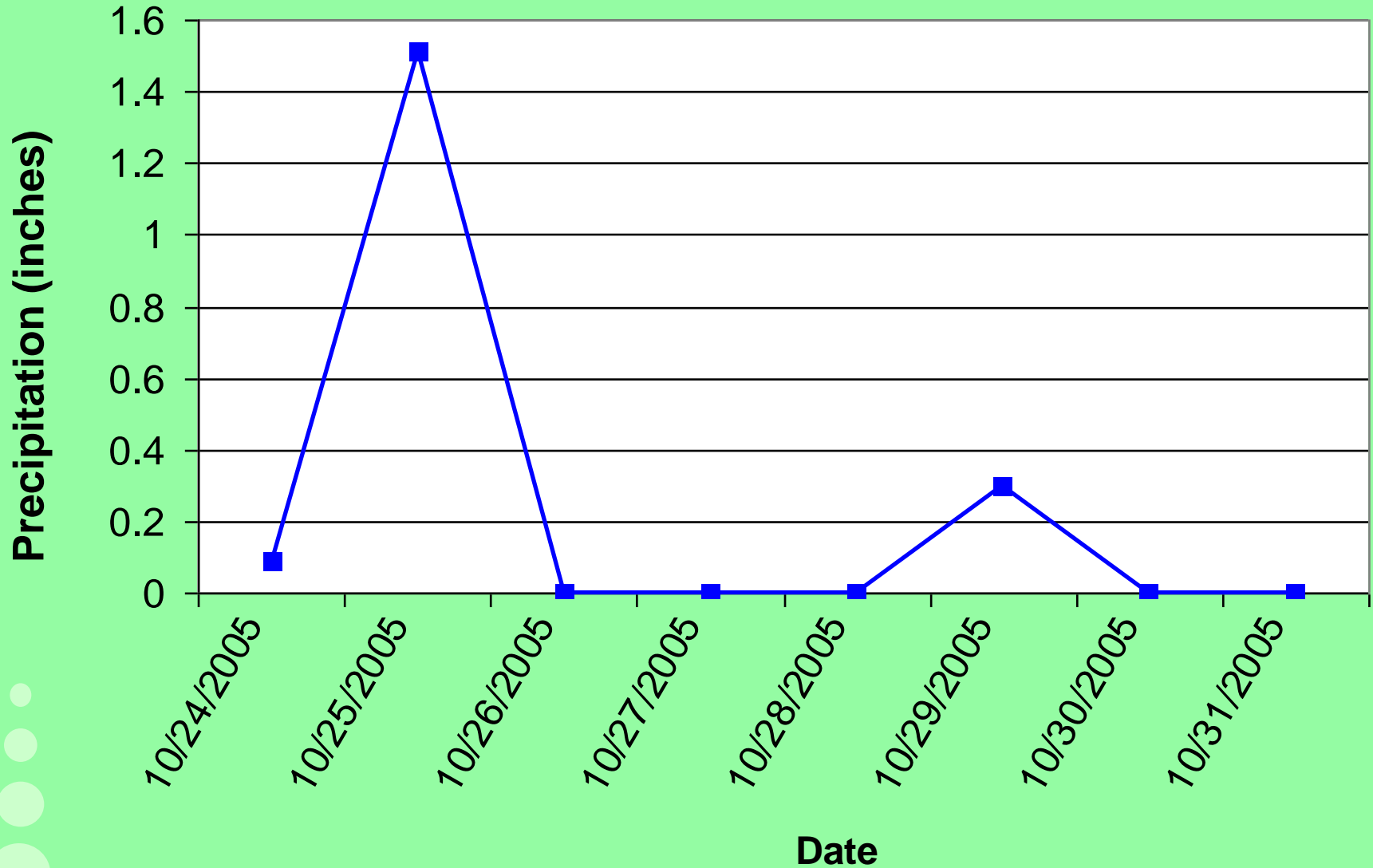
# Map, North Attleboro, MA, Cushman Road, Hunts Bridge Road, 12-14-05



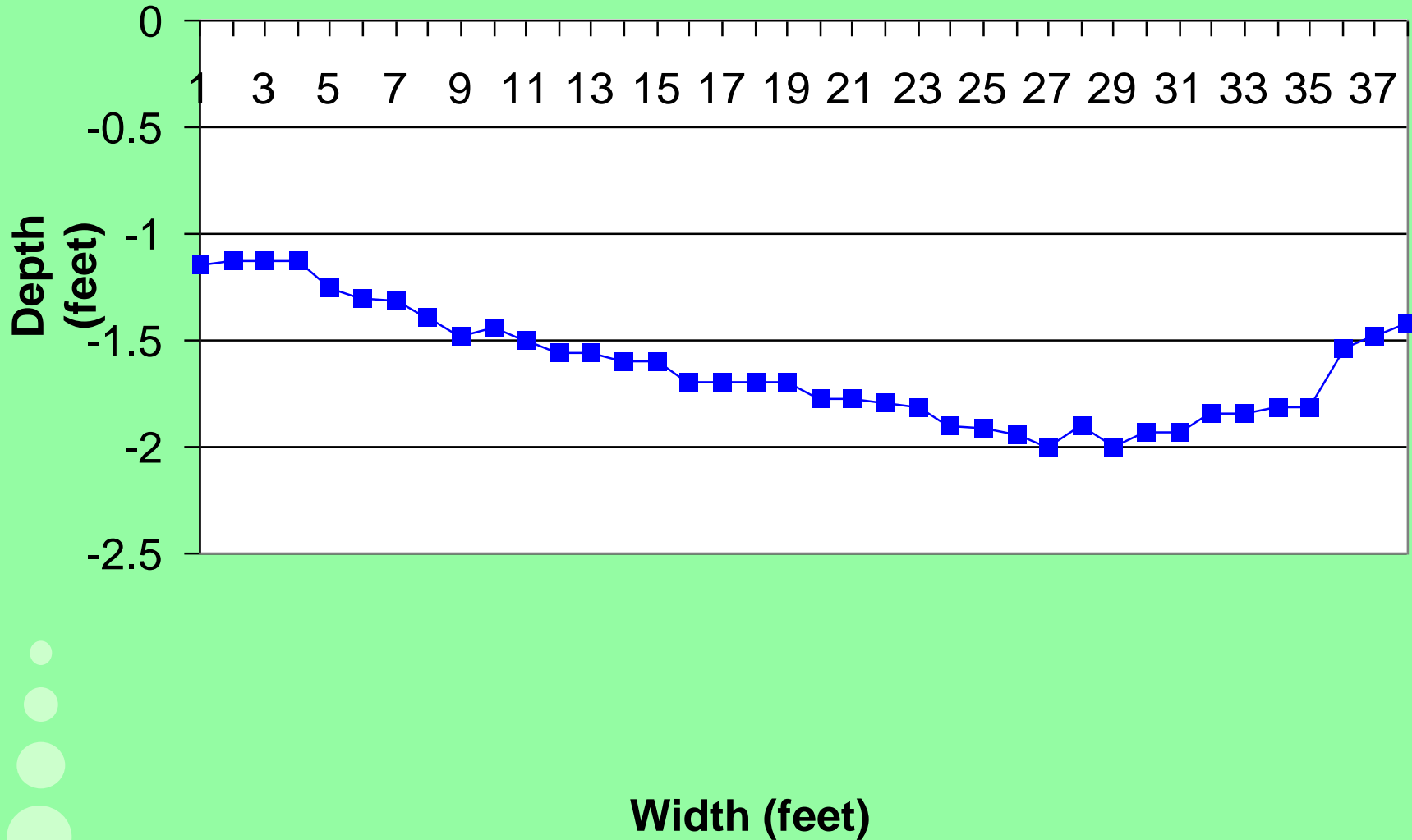
- Crop Land
- Pasture
- Forest
- Non-Forested Wetland
- Mining
- Open Land
- Participation Recreation
- Spectator Recreation
- Water-Based Recreation
- Multi-Family Residential
- High Density Residential
- Medium Density Residential
- Low Density Residential
- Salt Water Wetland
- Commercial
- Industrial
- Urban Open
- Transportation
- Waste Disposal
- Water
- Woody Perennial



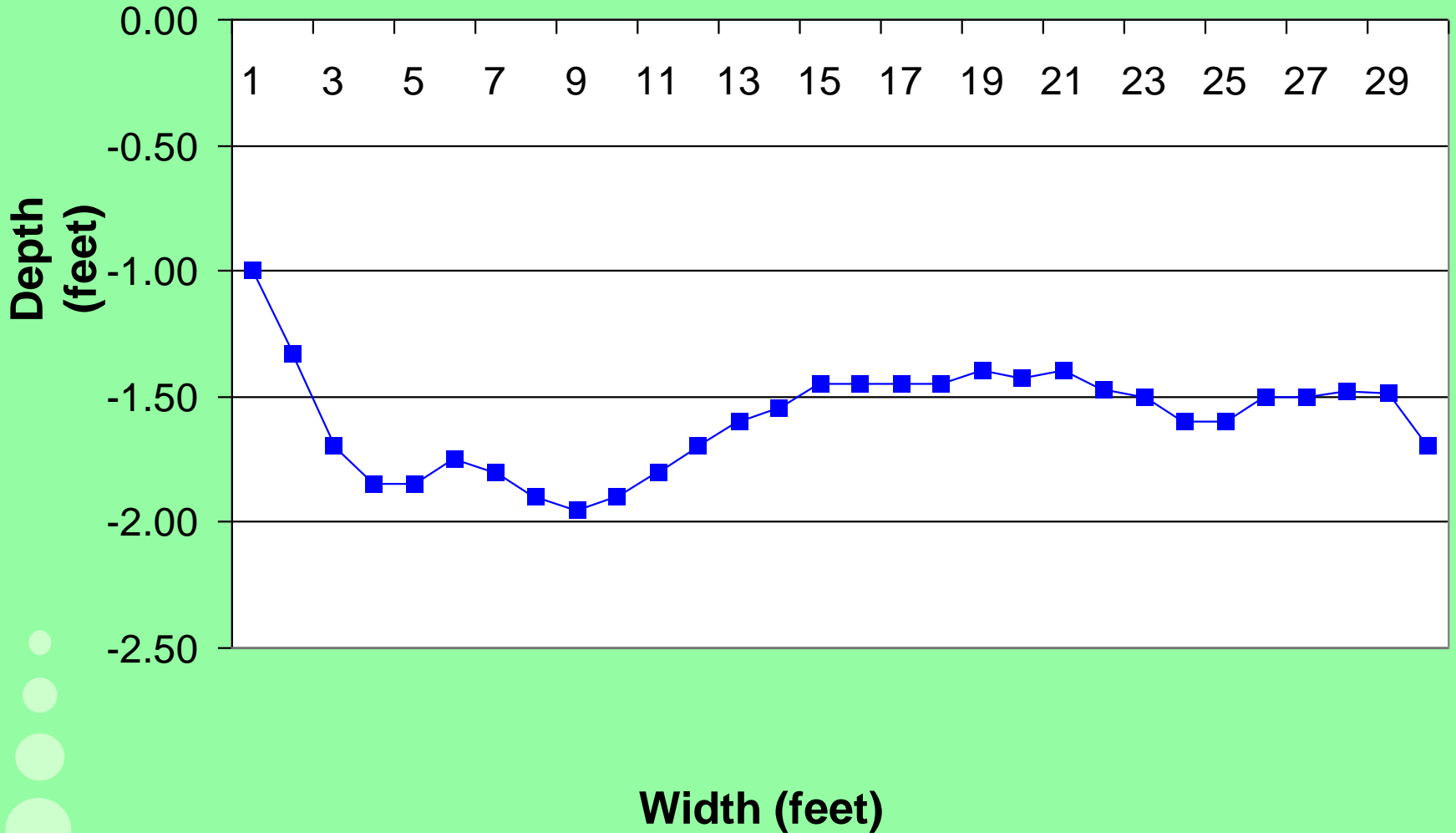
# Precipitation, North Attleboro, MA, 10-24-05 through 10-31-05



# Stream Profile, Cushman Road



# Stream Profile, Hunts Bridge Road





# Average Flow, Total Discharge, Average Stream Width, Average Depth and Bottom Composition

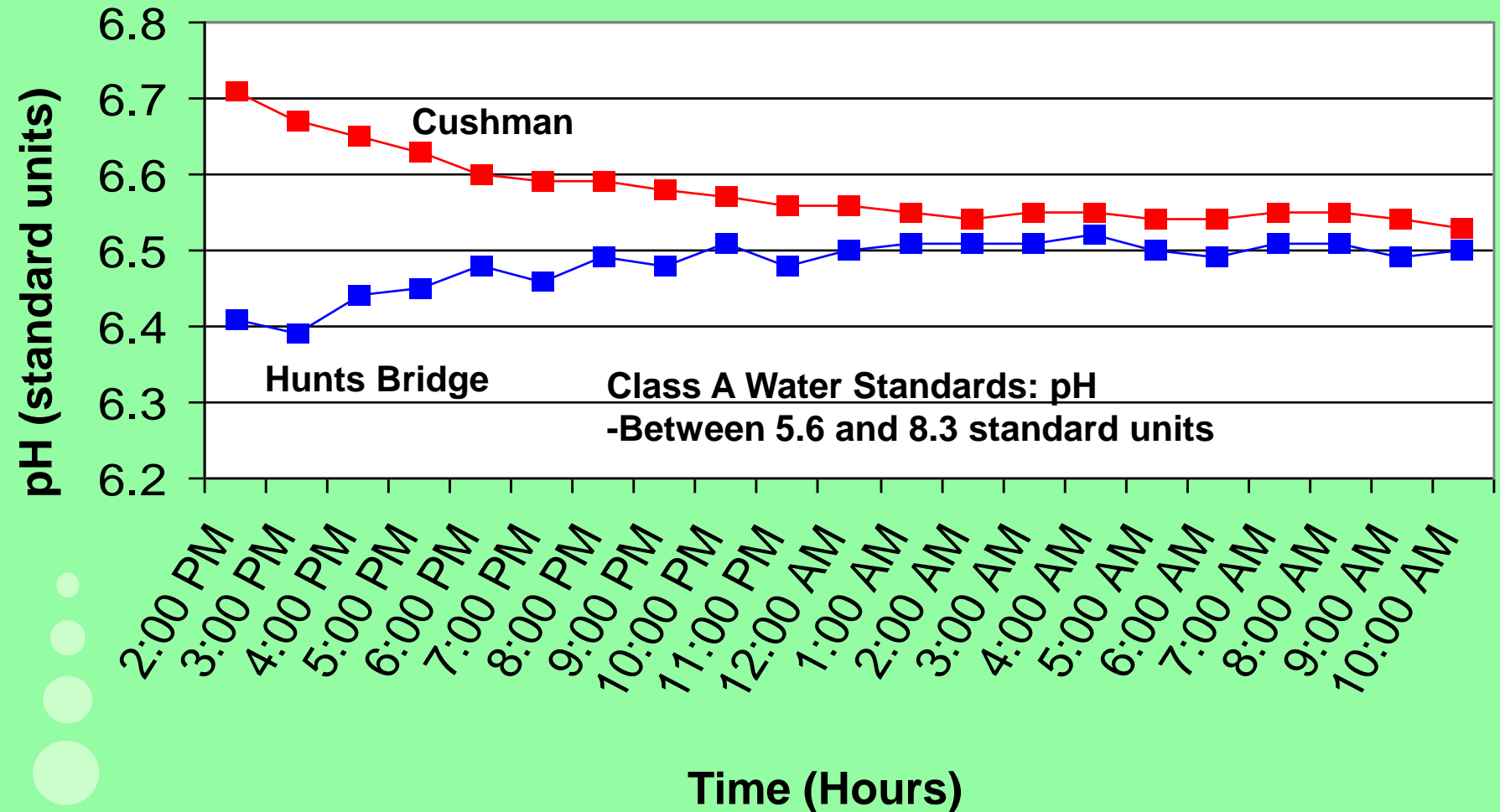
Cushman Road

Average Flow	1501.12 L/s
Total Discharge	52.01 CFS
Average Width	37 feet
Average Depth	1.62 feet
Bottom Composition	The bottom was solid and extremely rocky.

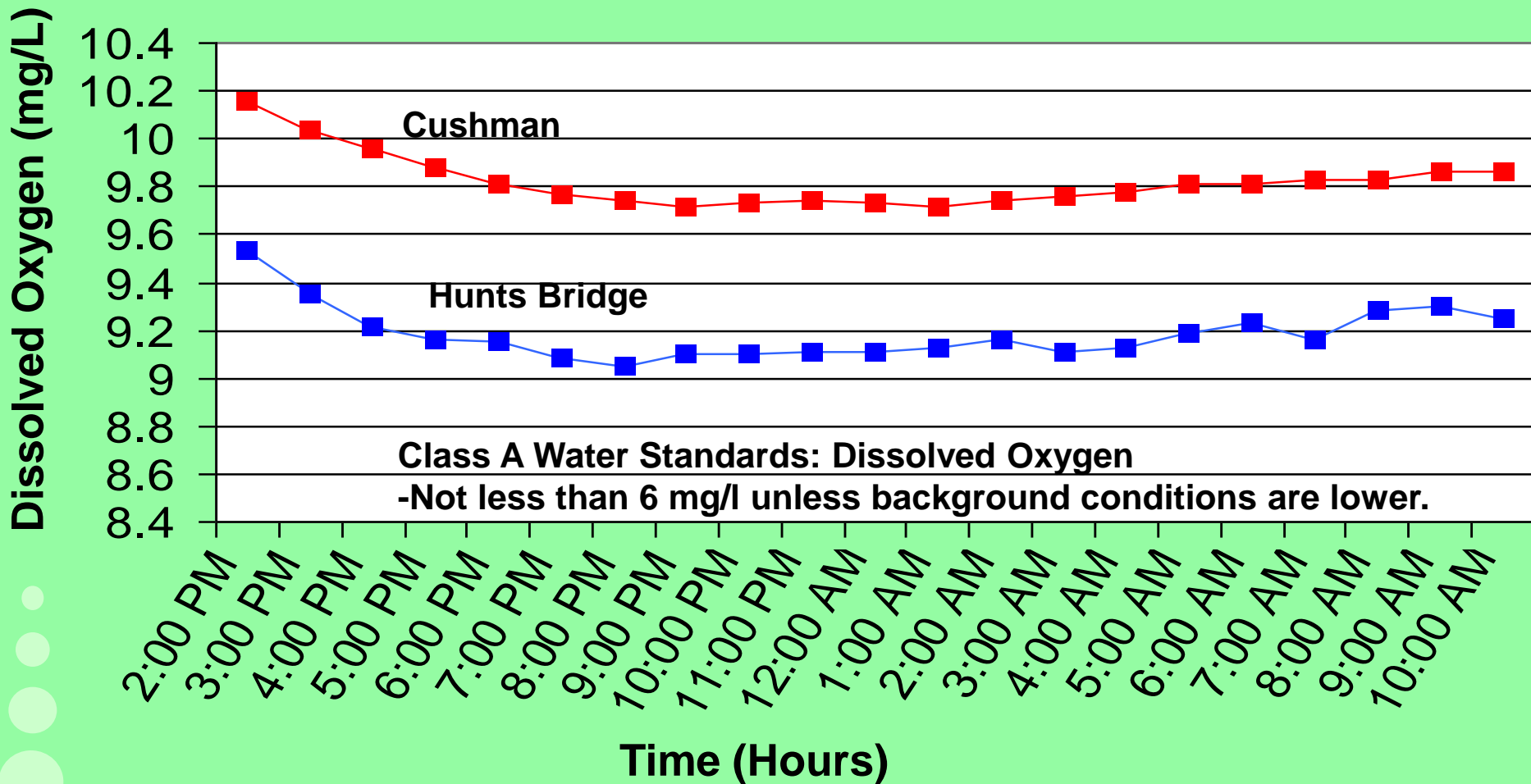
Hunts Bridge Road

Average Flow	1583.22 L/s
Total Discharge	55.9 CFS
Average Width	29 feet
Average Depth	1.59 feet
Bottom Composition	The bottom had a buildup of sediment and was not solid.

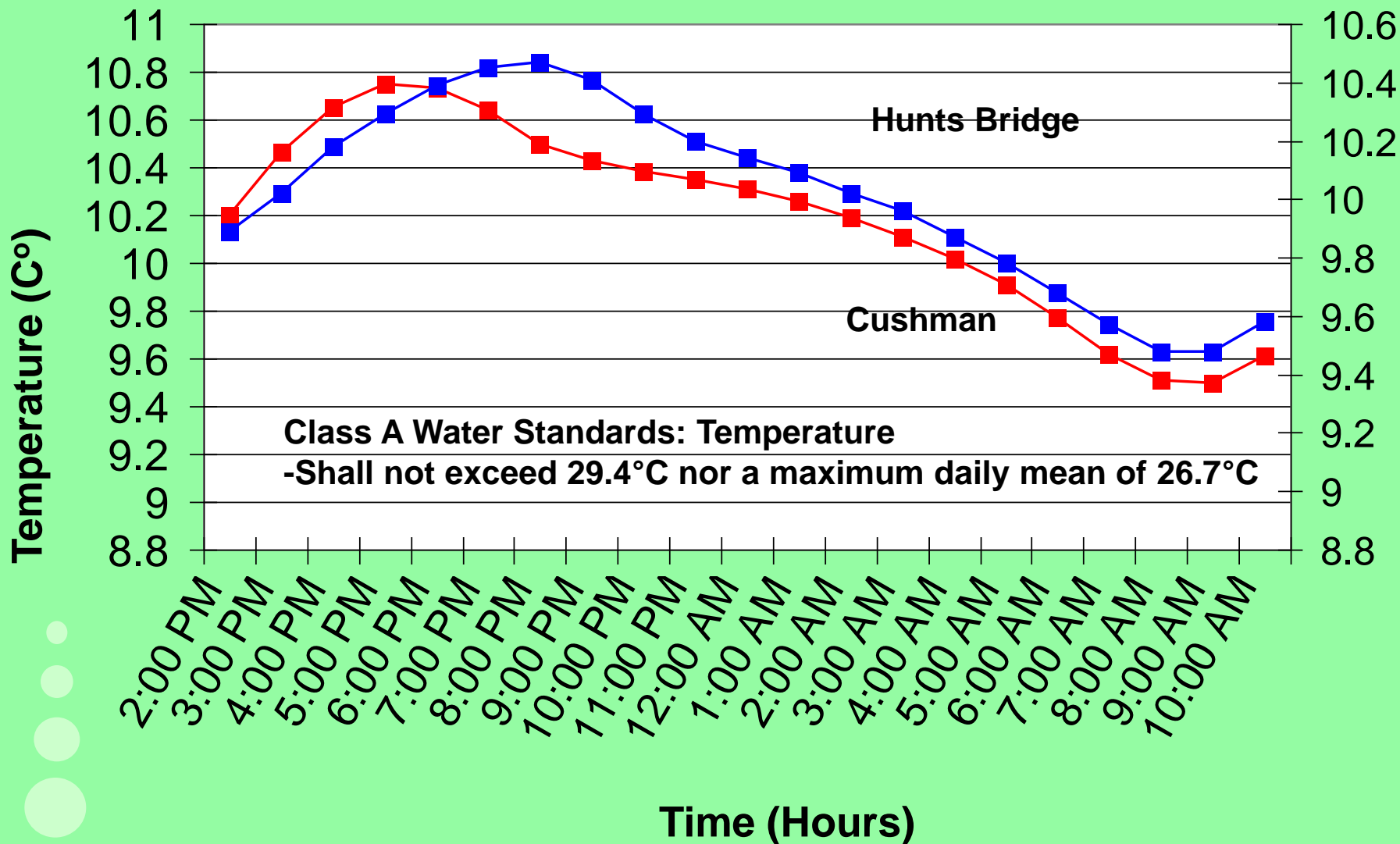
# pH Comparison, Cushman Road, Hunts Bridge Road, Abbott Run, 10-31-05 through 11-1-05



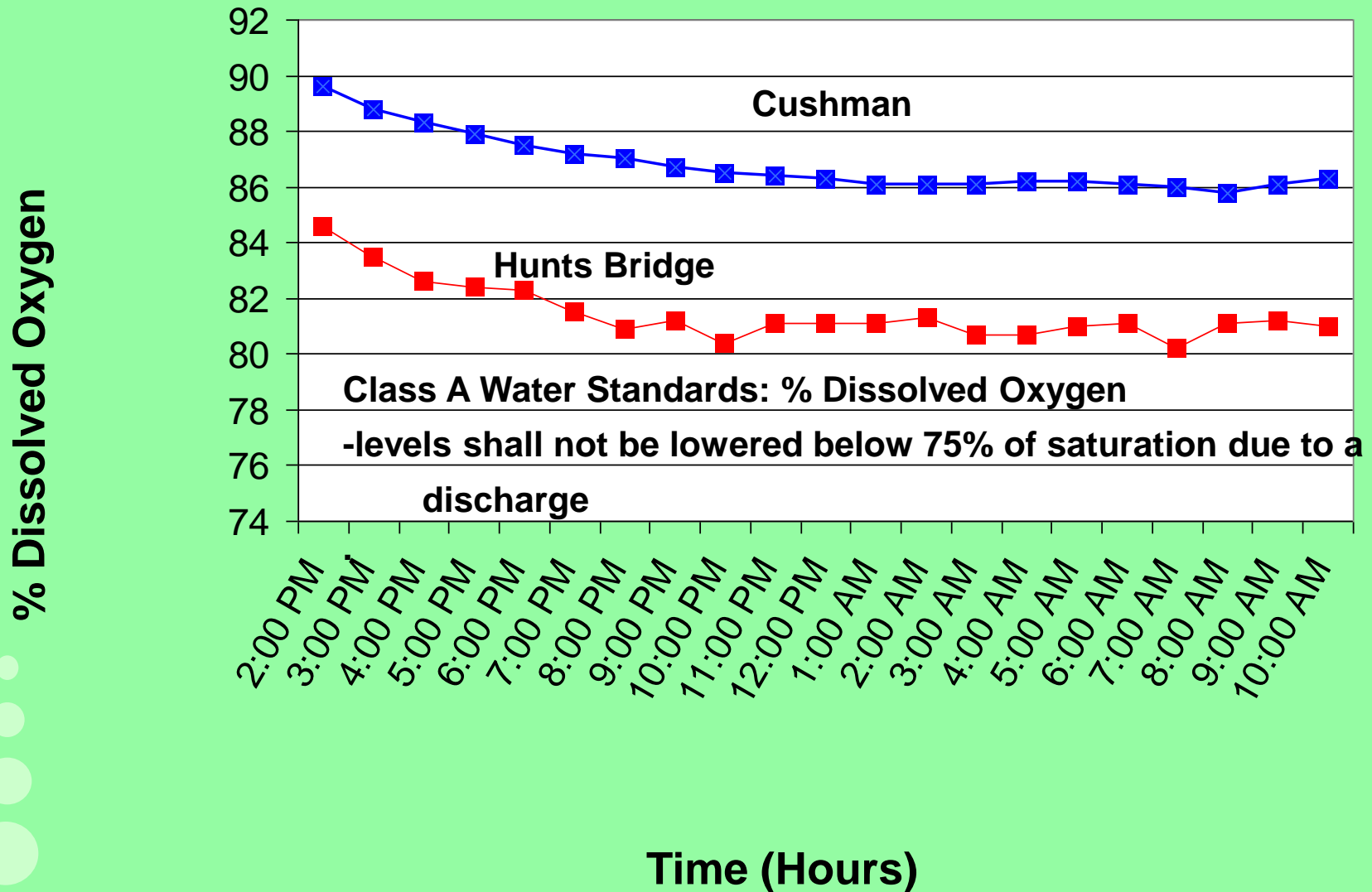
# Dissolved Oxygen Comparison, Cushman Road, Hunts Bridge Road, Abbott Run, 10-31-05 through 11-01-05



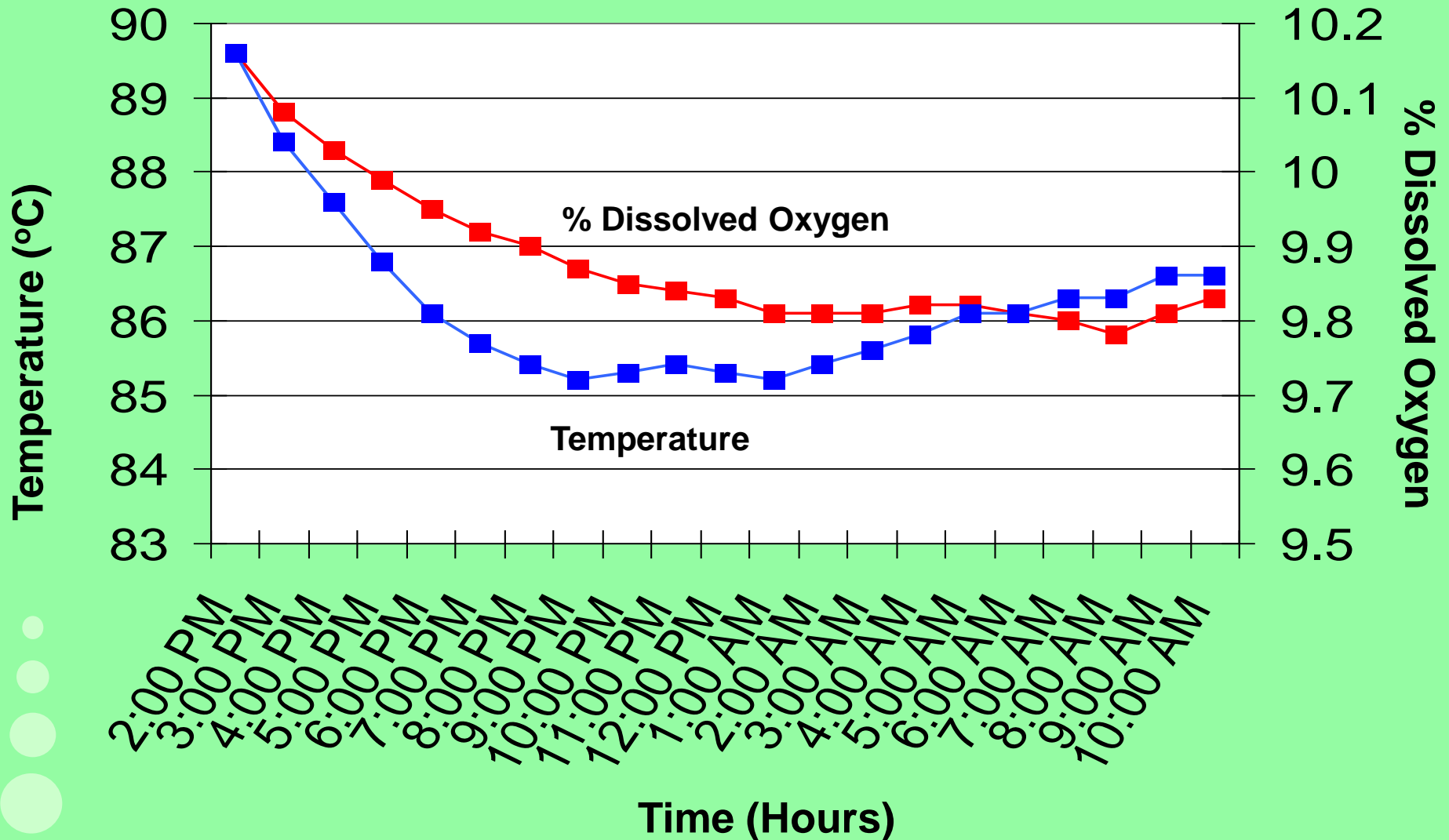
# Temperature Comparison, Cushman Road, Hunts Bridge Road, Abbott Run, 10-31-05 through 11-01-05



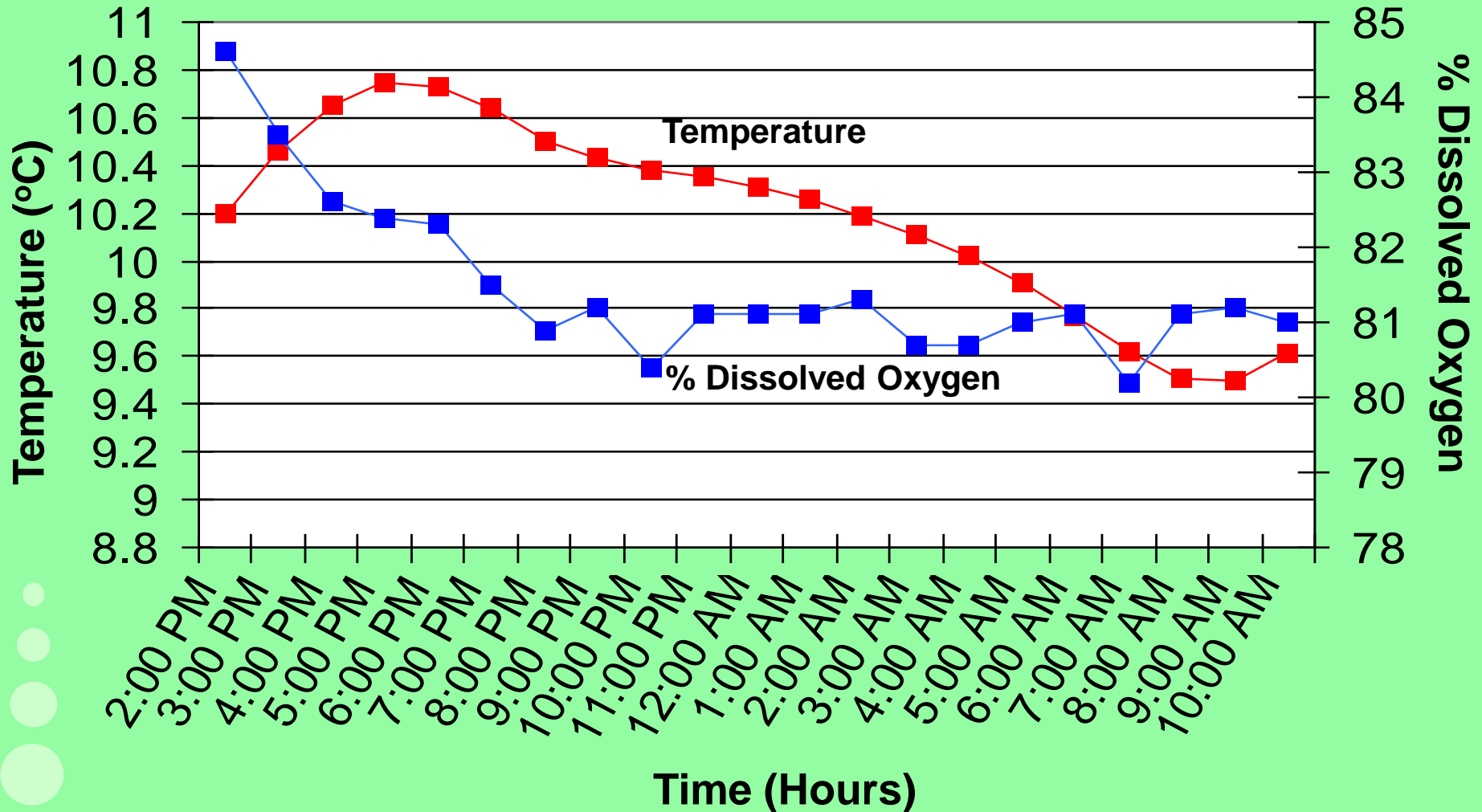
# % Dissolved Oxygen Comparison, Cushman Road, Hunts Bridge Road, Abbott Run, 10-31-05 through 11-1-05



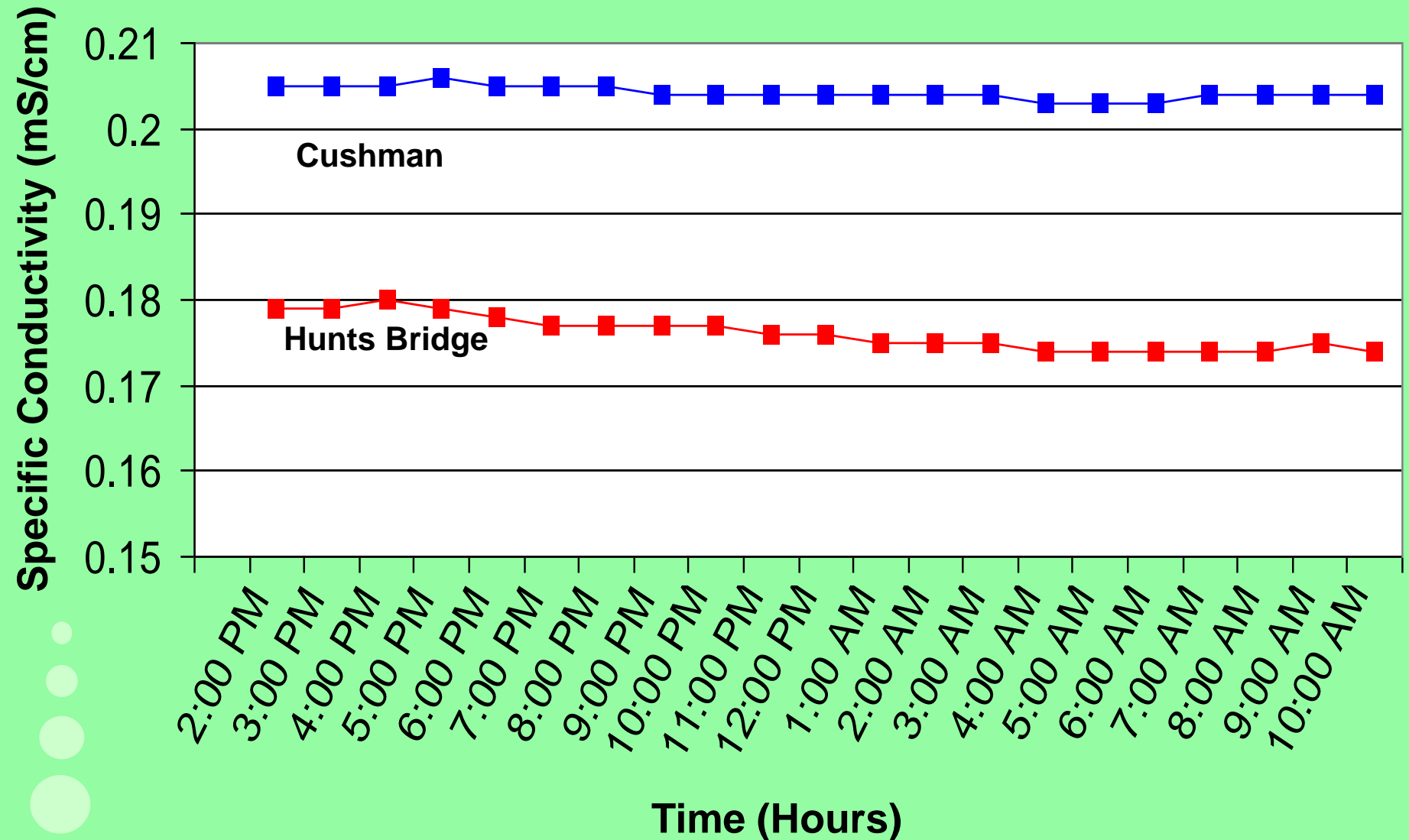
# Temperature and % Dissolved Oxygen Comparison, Cushman Road, Abbott Run, 10-31-05 through 11-01-05



# Temperature and % Dissolved Oxygen Comparison, Hunts Bridge Road, Abbott Run, 10-31-05 through 11-01-05



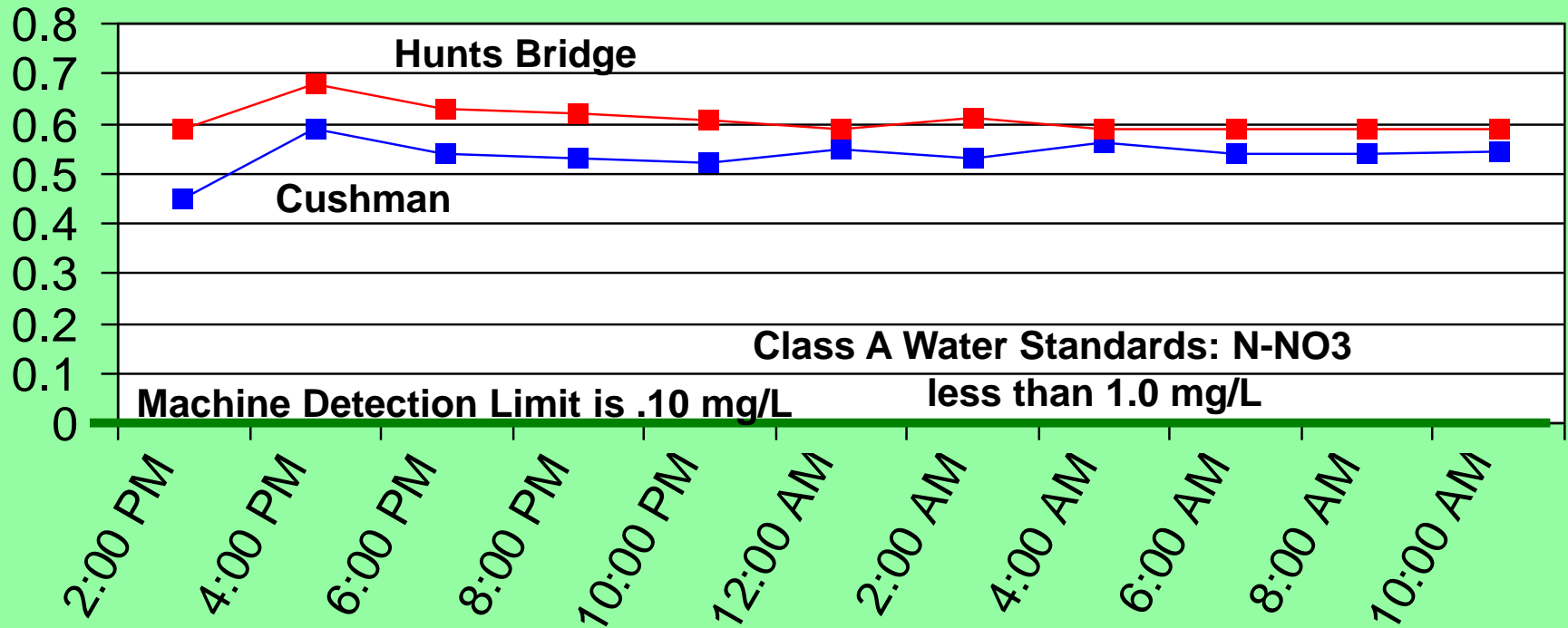
# Specific Conductivity Comparison, Cushman Road, Hunts Bridge Road, 10-31-05 through 11-1-05





# Nitrogen Nitrate (N-NO<sub>3</sub>) Comparison, Cushman Road, Hunts Bridge Road 10-31-05

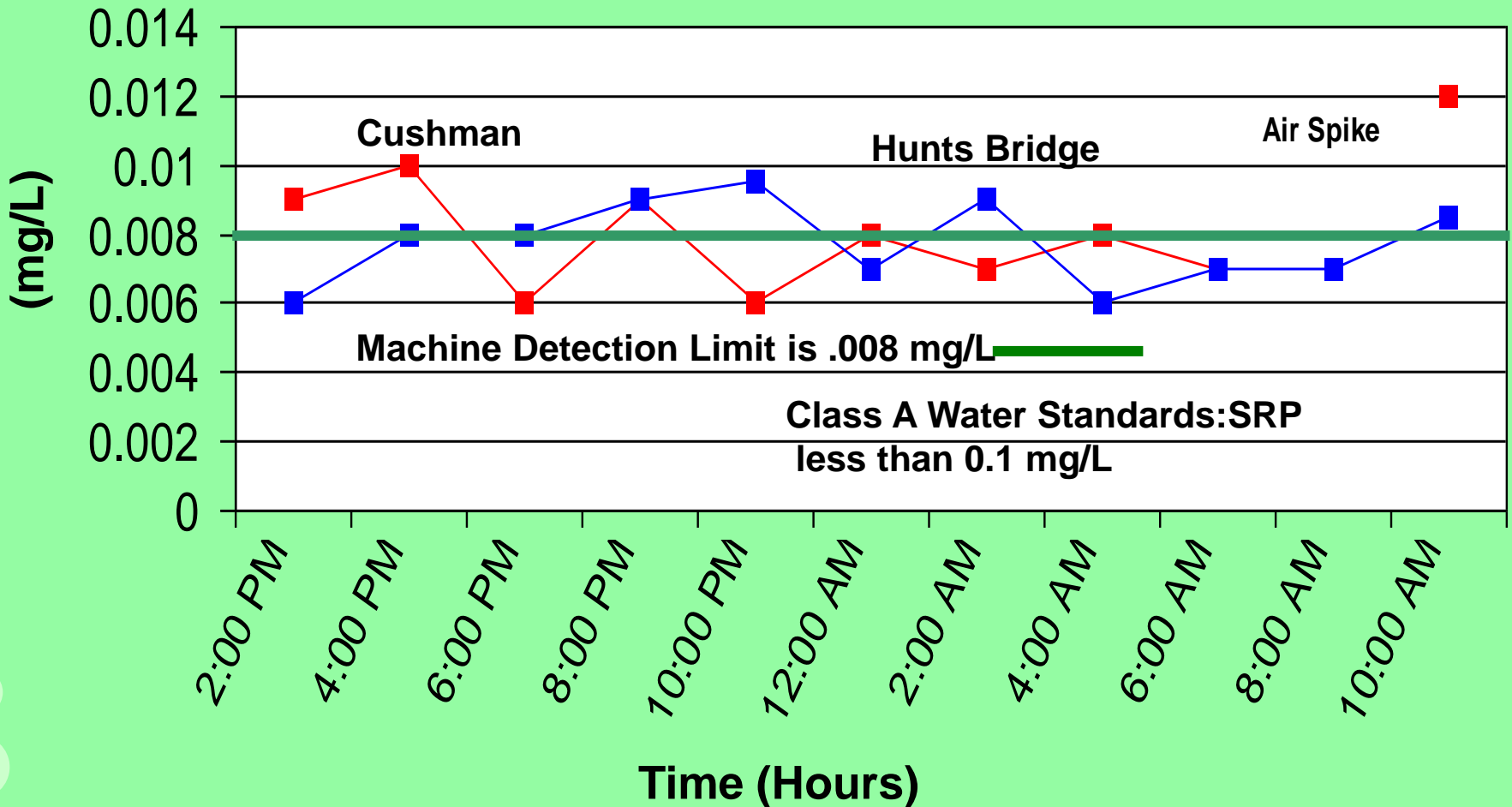
Amount of Nitrogen-Nitrate (mg/L)



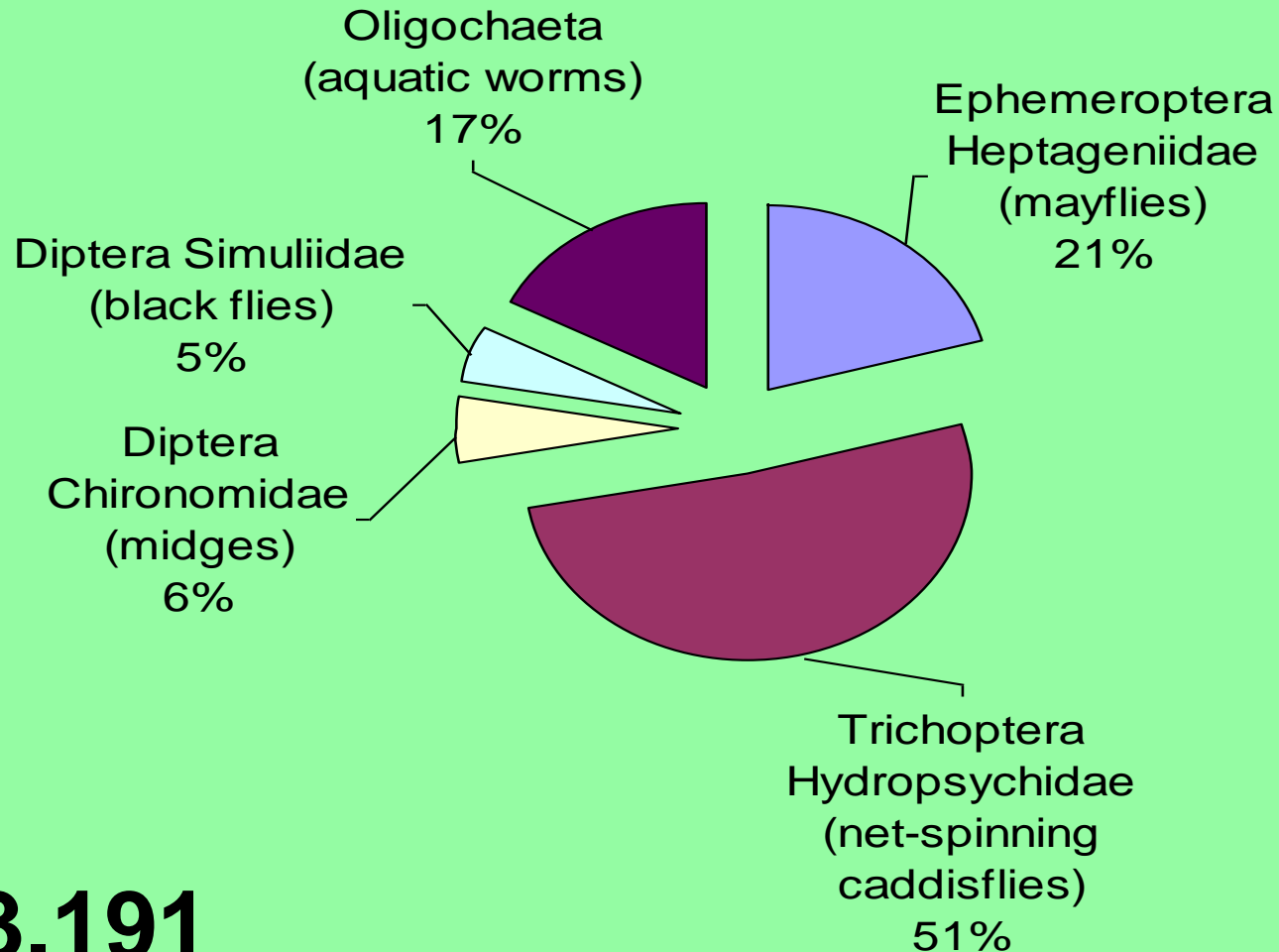
Time (Hours)

# Soluble Reactive Phosphorus (SRP) Comparison, Cushman Road, Hunts Bridge Road, 10-31-05

Soluble Reactive Phosphorus  
(mg/L)

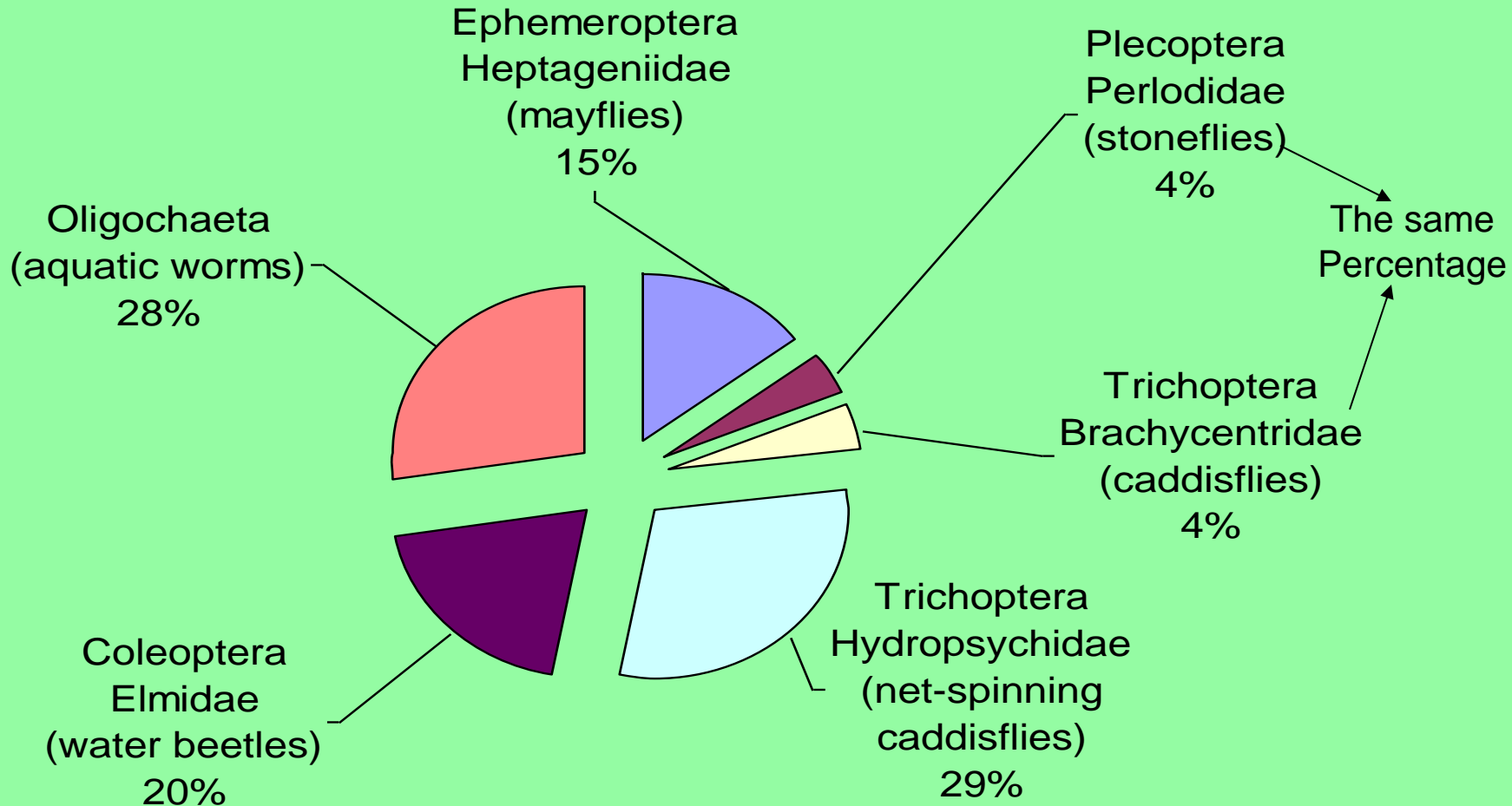


# Benthic Macro-Invertebrate Results, Cushman Road, Abbott Run, 10-31-05



**FBI=3.191**

# Benthic Macro-Invertebrate Results, Hunts Bridge Road, Abbott Run, 10-31-05



**FBI=2.849**

**Range, Average, Temp, pH, Specific  
Conductivity, DO, and % DO, Cushman Road,  
10-31-05 through 11-01-05**

	<b>Range</b>	<b>Average</b>
<b>Temperature (°C)</b>	<b>9.48 - 10.47</b>	<b>10.01</b>
<b>pH (standard units)</b>	<b>6.53 - 6.71</b>	<b>6.58</b>
<b>Specific Conductivity (mS/cm)</b>	<b>0.20 - 0.21</b>	<b>0.20</b>
<b>DO (mg/l)</b>	<b>9.72 - 10.16</b>	<b>9.82</b>
<b>%DO (Sat)</b>	<b>85.8 – 89.6</b>	<b>86.82</b>

# Range, Average, Temp, pH, DO, and % DO, Specific Conductivity, Hunts Bridge Road, 10-31-05 through 11-01-05

	<b>Range</b>	<b>Average</b>
<b>Temperature (°C)</b>	<b>9.50 - 10.75</b>	<b>10.19</b>
<b>pH (standard units)</b>	<b>6.39 - 6.52</b>	<b>6.48</b>
<b>Specific Conductivity (mS/cm)</b>	<b>0.17 - 0.18</b>	<b>0.18</b>
<b>DO (mg/l)</b>	<b>9.05 - 9.53</b>	<b>9.19</b>
<b>%DO (Sat)</b>	<b>80.9 – 84.6</b>	<b>81.48</b>

# SRP and N-NO3 Ranges, Averages and Load Values, Cushman Road, Hunts Bridge Road, 10-31-05 through 11-01-05

## SITE A (Cushman Road)

	SRP	N-NO3
<b>Ranges</b>	<b>0.006--0.015 mg/L</b>	<b>0.45--0.69 mg/L</b>
<b>Averages</b>	<b>0.008 mg/L</b>	<b>0.53 mg/L</b>
<b>Load Values</b>	<b>1037.57 g/day</b>	<b>77817.94 g/day</b>

## SITE B (Hunts Bridge Road)

	SRP	N-NO3
<b>Ranges</b>	<b>0.10--0.06 mg/L</b>	<b>0.59--0.68 mg/L</b>
<b>Averages</b>	<b>0.008 mg/L</b>	<b>0.60 mg/L</b>
<b>Load Values</b>	<b>1094.32 g/day</b>	<b>72498.84 g/day</b>

# Summary of Ideas and What Caused Results

- Overall, Abbott Run met or exceeded the MA Class A Standards.
- Runoff from golf course seemed to affect the nitrogen load at Cushman Road.
- Something is causing higher phosphorus at Hunt's Bridge Road, perhaps runoff from large rain event or sewer overflow.



# Presented By

**Sadhana Yoder**

**Anthony Patjane**

**Lauren Roche**

**Sam Mathieson\*\***

**Josh MacDonald**

**Kevin O'Brien**

**Jordan Pickering**

**\*\*PowerPoint Coordinator**