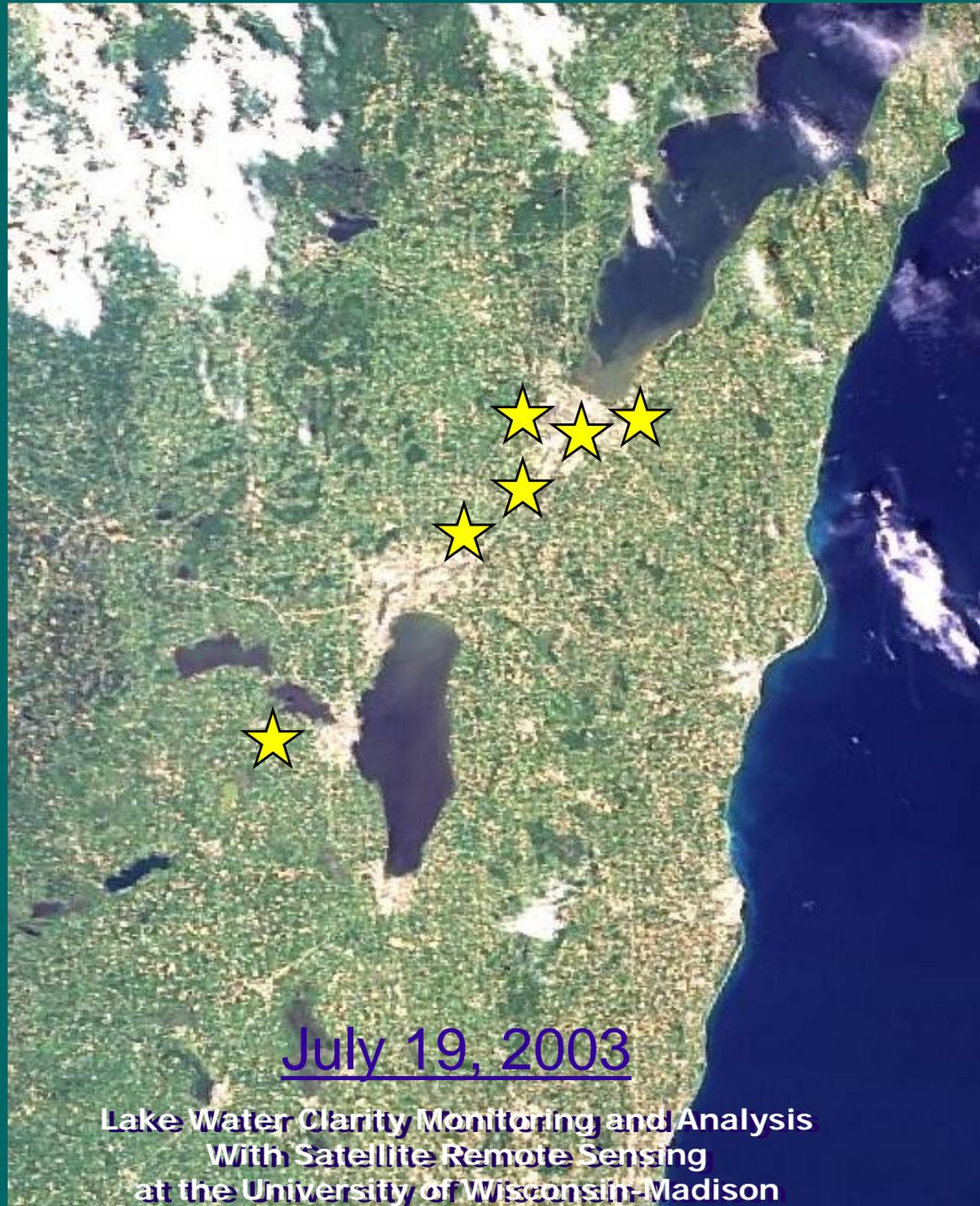




**Third Annual
Watershed
Symposium
March 15, 2006
UW Green Bay**



July 19, 2003

Lake Water Clarity Monitoring and Analysis
With Satellite Remote Sensing
at the University of Wisconsin-Madison

Overview: Lower Fox River Watershed Monitoring Program



- Multi-year water monitoring & assessment program
- Established in 2003
- Connects university and agency scientists with teachers and their students and the community

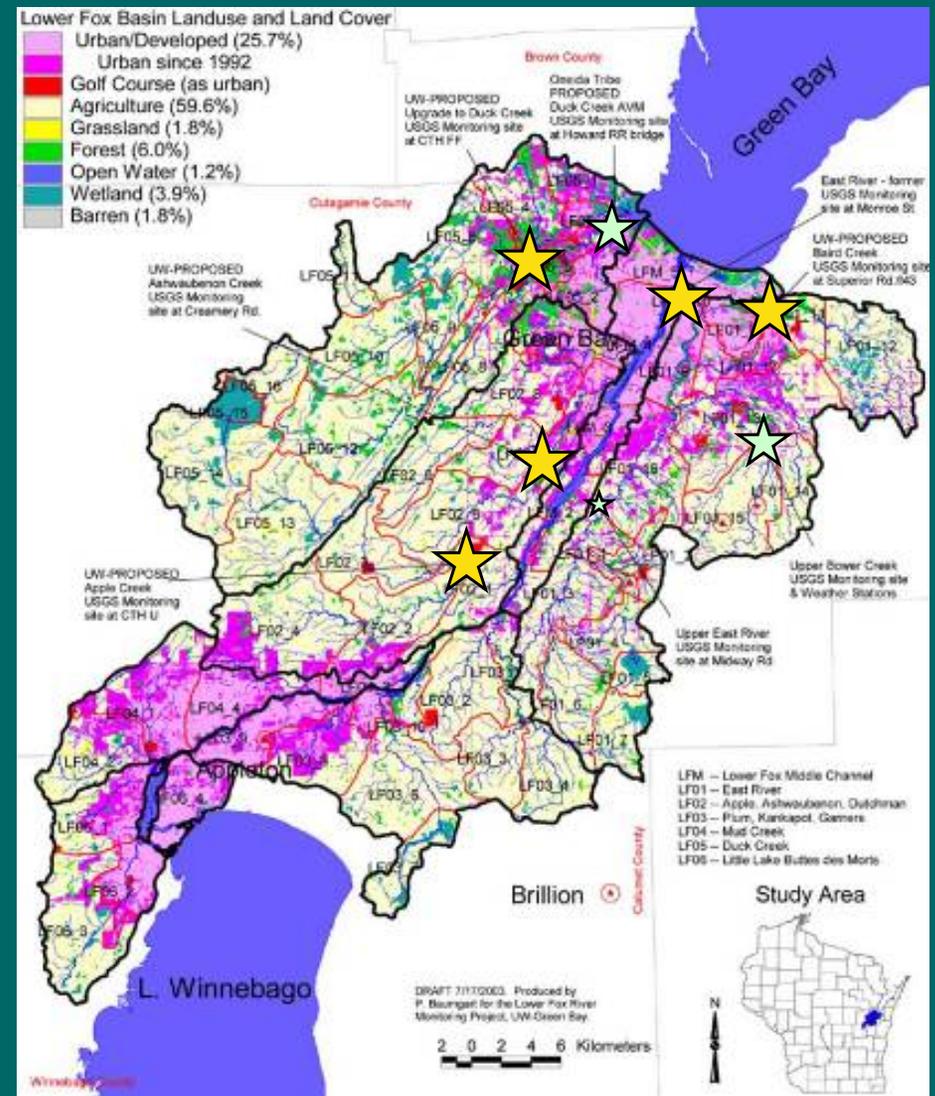
Watershed Symposium

- Summary of program activities
- Students learn about Fox-Wolf basin and watershed science
- Make Connections
- Share information about their watershed; monitoring techniques and research findings
- Exposure to college student research



Project Goals

- Measure WQ and Biotic Integrity -- relate to watershed.
- Improve ability to predict future impacts.
- More informed decision making.



Major Program Elements

- School-based monitoring program
 - hands-on learning, citizen scientists, meaningful data
- Stream biotic integrity monitoring
- Continuous monitoring
 - Sediment & P loading
 - Real-time sensors



Program Partners: Introductions

- UW Green Bay
 - Kevin Fermanich, Paul Baumgart,
Jill Fermanich, Bob Howe, Bud Harris, Nick Reckinger, Jesse
Baumann, Jessie Fink, many others
- UW Milwaukee
 - Tim Ehlinger, Dani Anholzer, many others
- 6 High Schools
 - GB Southwest HS: Lynn Terrien, Rick Berken
 - Appleton East HS: Kara Pezzi, Ryan Marx
 - Markesan Schools: Dave Burbach, Aaron Burbach
 - Luxemburg-Casco HS: Charlie Frisk
 - GB Preble: Kevin Hendrickson, Chris Hansel
 - West DePere: Dana Lex



Program Partners: Introductions

- US Geological Survey
Dave Graczyk, Dale Robertson, Paul Reneau and Troy Rutter
- Green Bay Metropolitan Sewerage District
John Kennedy, Tracy Valenta; Lab Staff
- Oneida Nation
Michael Finney
- **Arjo Wiggins Appleton Inc.**
- Monitoring site hosts
- Others



School-Based Monitoring Program

- Enhance student/teacher & community understanding of landscape and land use impacts on water quality and stream ecosystems.

Structured to provide meaningful, long-term data:

- Picture of existing conditions (**Baseline**)
- Changing conditions over time (**Trends**)
- Can be used by students, teachers, scientists and managers to answer questions about watershed dynamics and integrity. (**Cause and effect relationships**)



Teacher Workshop June 2005





School-Based Parameters

Physical Elements

Temperature

Turbidity (Clarity)

Specific Conductance

Streamflow

Chemical Elements

pH

Dissolved Oxygen

Soluble Reactive P

Nitrate

Ammonia

Habitat and Biotic Elements

Habitat

Macroinvertebrates

Amphibians

Birds



How many students are involved and what have they (you) been doing?

- 72 year 1
- 88 year 2
- ?? year 3

- Water quality
 - 79 site-days
 - >400 data pts



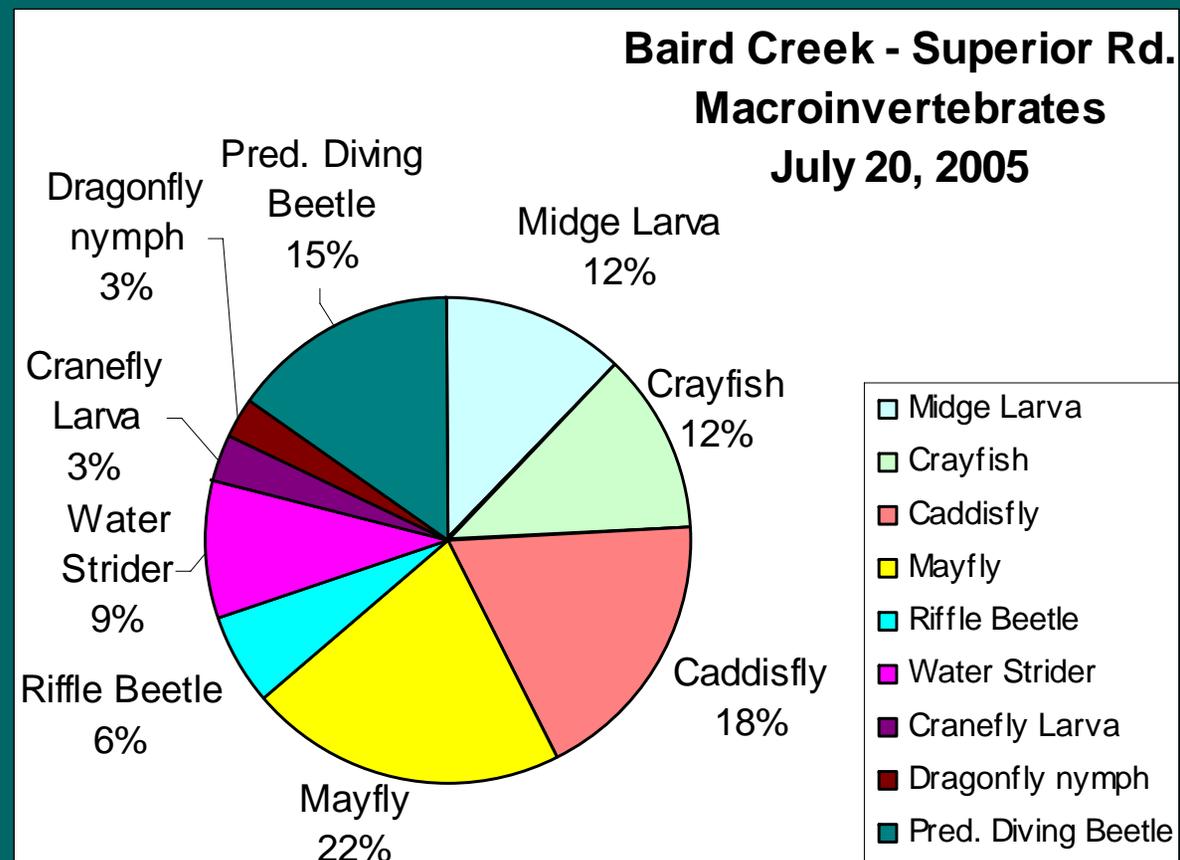
Biotic Monitoring

- Birds
 - 68 point counts (std methods, good site data)
 - 96 species, 2655 bird data points, 11 days
 - Thank You: Expert Birding Leaders
 - Bob Mead
 - Ryan Atwater
 - Joan Berkopec
 - Nick Walton



Biotic Monitoring

- Stream macroinvertebrates & habitat
 - 8 sites, 4 watersheds, 2 times
- Amphibians
 - >33 site-days



March 2005 Symposium

- Proposed study objectives.
- For example:
Determine whether or not the retention basin located off County JJ and French Road is effectively filtering sediments.



Symposium Schedule

9:15 -- 10:45	Oral Presentation Sessions (Niagara A and B)
10:45 – 11:00	Break
11:00 – 12:45	Poster Session (Niagara Rooms) Student, university, agency, web ASK QUESTIONS!
12:00 – 1:00	Lunch (Niagara Buffet)
12:30 - 1:00	Optional Information Session on College Programs at UWGB & UWM
1:00 – 2:30	Student Break-out Sessions – Cofrin Student Research Symposium – Watershed Quiz Bowl – GPS Skills



Student Presentations

Niagara A: **Scott Ashmann**, UWGB, moderator

- 9:15** Luxemburg-Casco High School. **Monitoring in the Baird Creek Watershed.**
- 9:30** Nicole Martin and Fei Yin Luk, Green Bay Southwest High School. **Artificial Substrates....To Do or Not To Do.**
- 9:45** Miranda Hada and Pratha Muthiah, Appleton East High School. **Effect of Algae on Reproducibility of Phosphorus Method.**
- 10:00** Theresa Qualls*, UW Sea Grant Institute. **Lower Green Bay Trophic State Indicators.**
- 10:15** Matt Fenske, Kaylin Werth, and Josiah Zacharias, Markesan High School. **Seasonal Diversity and Population Density of Macro-invertebrates in Spring Brook**
- 10:30** Greta Jochman and Bryan Swanson; Appleton East High School. **The Effectiveness of Detention Basins on Apple Creek**



Student Presentations

Niagara B: **Pat Robinson, UWEX**, moderator

9:15 Jordan Palubicki, Alli Thut, Alicia DeGroot, Kevin McDonald, Preble High School. **Phosphorous levels in Baird's Creek.**

9:30 Ryan Pollesh, Markesan High School. **Factors That Are Directly Affecting the Spring Brook Watershed.**

9:45 Kevin Dombrock and Jon Fischer, Appleton East High School. **Effect of Cow Manure on Nutrient Levels.**

10:00 Amanda Lederer*, graduate student, UW – Green Bay. **Impacts of Round Gobies on Macroinvertebrates in Green Bay, Lake Michigan**

10:15 Brittany Mertens, Green Bay Southwest High School. **Got Frogs?**

10:30 Danielle Anholzer*, graduate student, UW – Milwaukee. **Effects of Land Use and Riparian Cover on Invertebrate Communities.**



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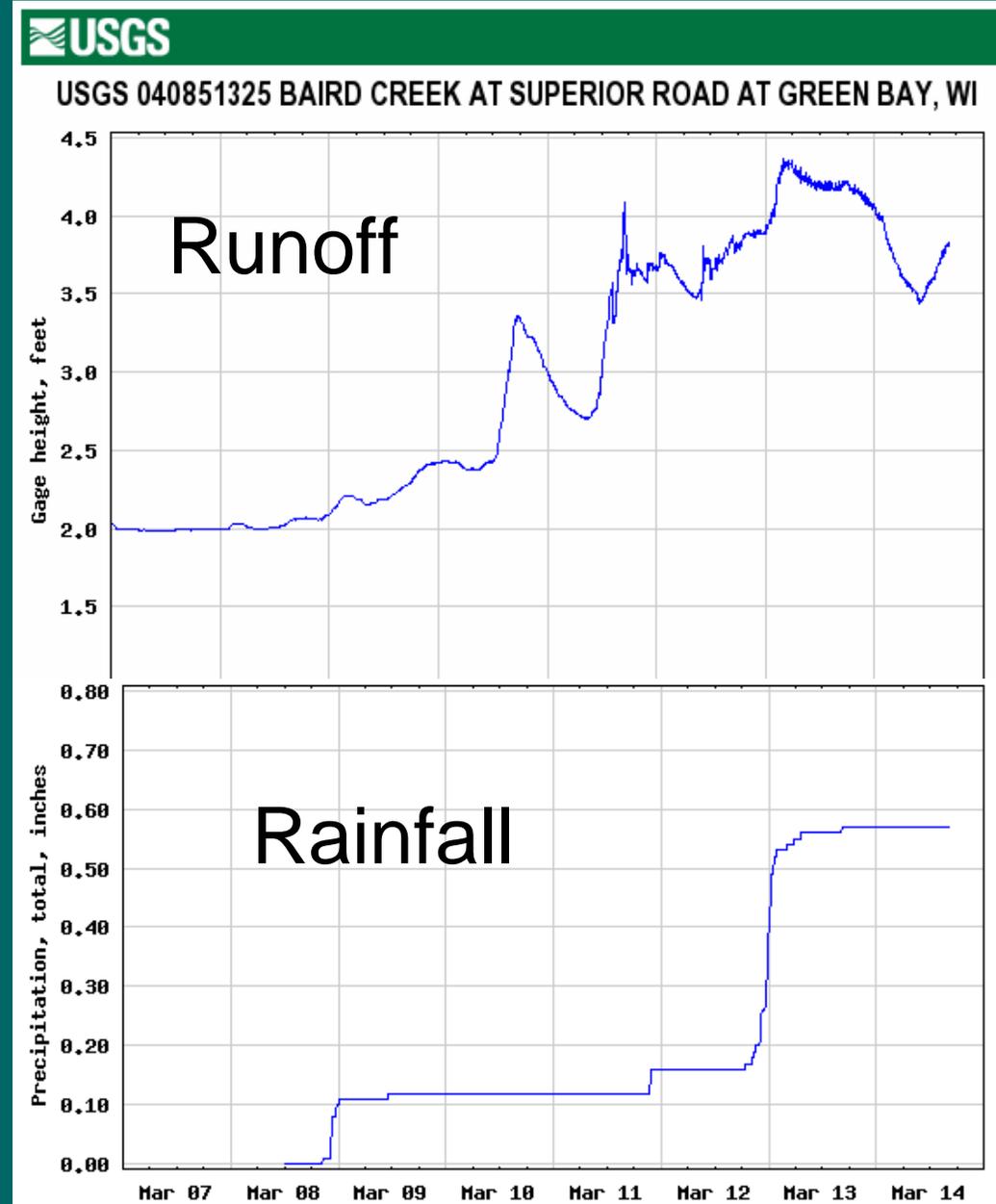
Ongoing Plans

- School Monitoring:
 - Continue w/ current schools
 - Add school for Ashwaubenon Creek, others?
 - Continue to build community linkages
 - DNR Steam Water Quality Monitoring Pilot Project
 - Municipalities
 - Community Groups
 - Industry
 - Long-term funding

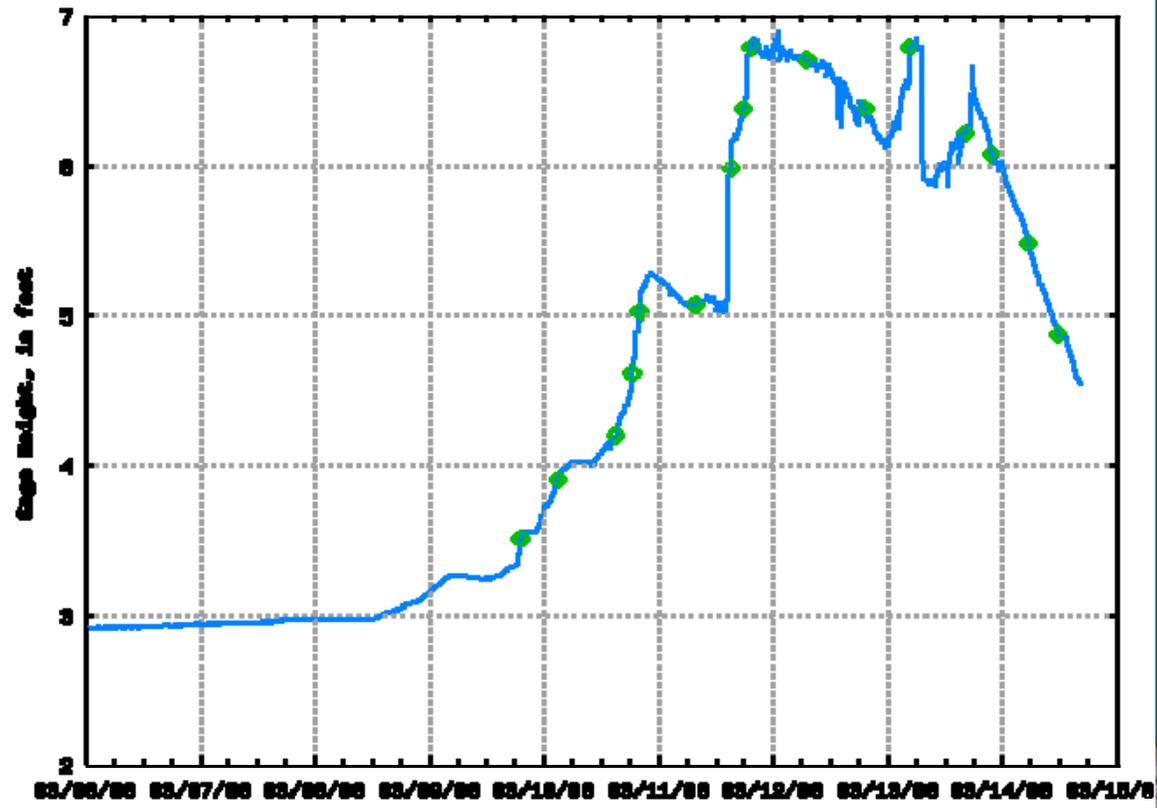


Continuous Monitoring Program

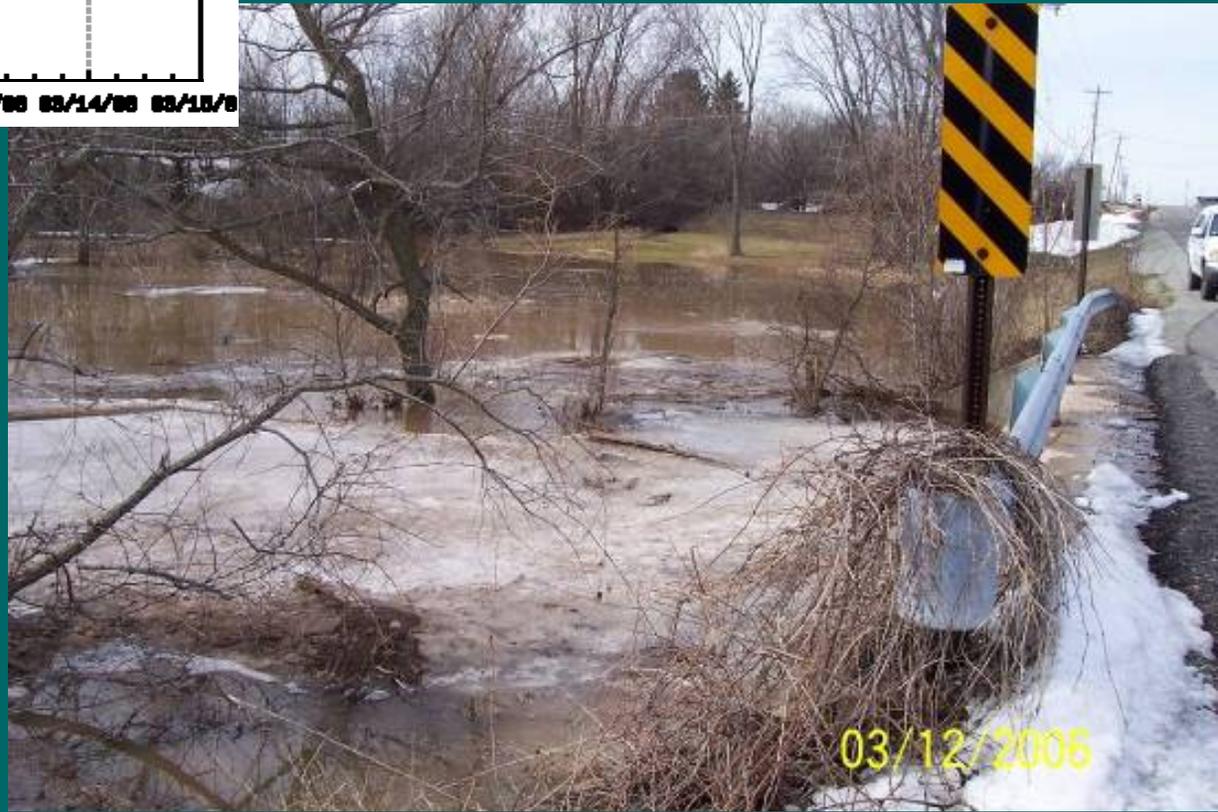
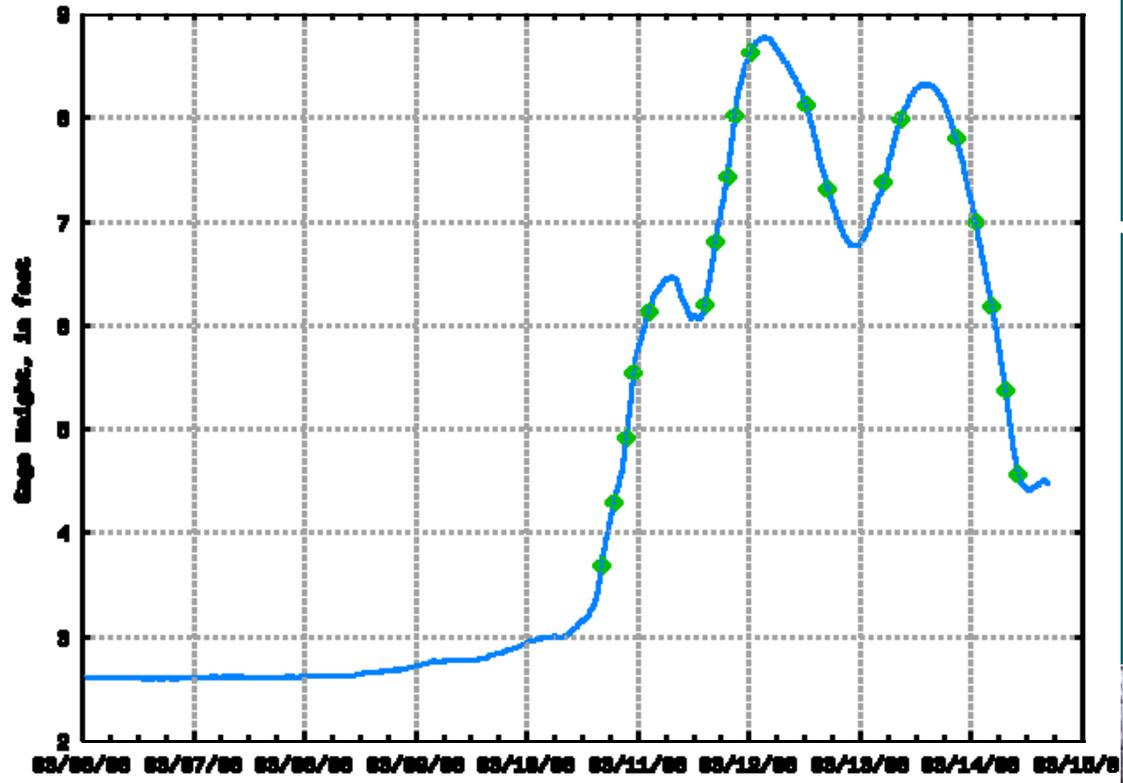
- 5 Monitoring Stations
 - Real-time flows
 - Precipitation
 - Sediment and nutrient loads
 - Real-time sensors
- 2 Complete WY
 - continuing Sept'06
- Biotic Monitoring



04000040 APPLE CREEK AT SKIDDEEVILLE, MI



04800000 ASHWAUBENON CREEK NEAR LITTLE RAPIDS, MI

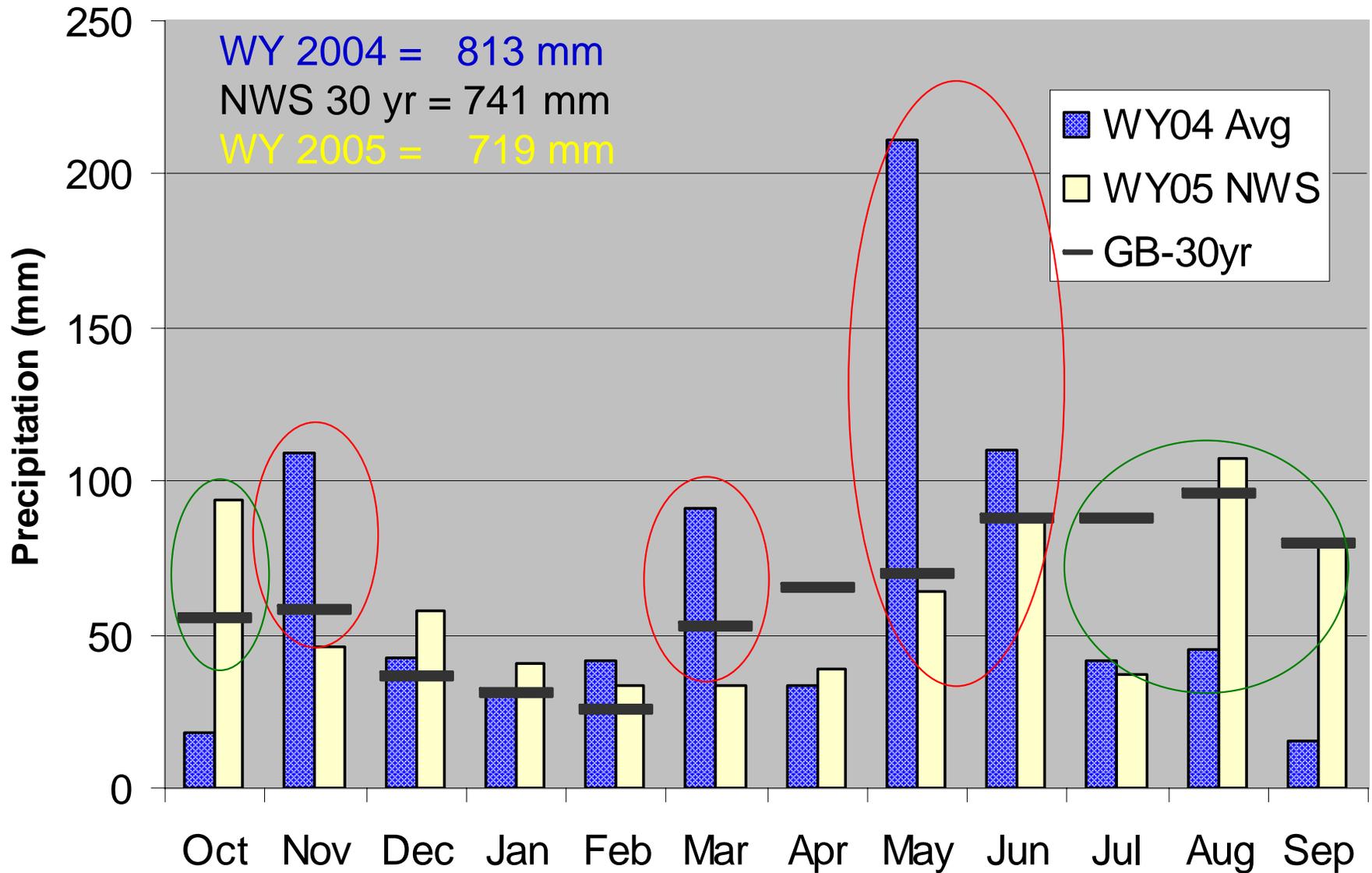


Baird Creek

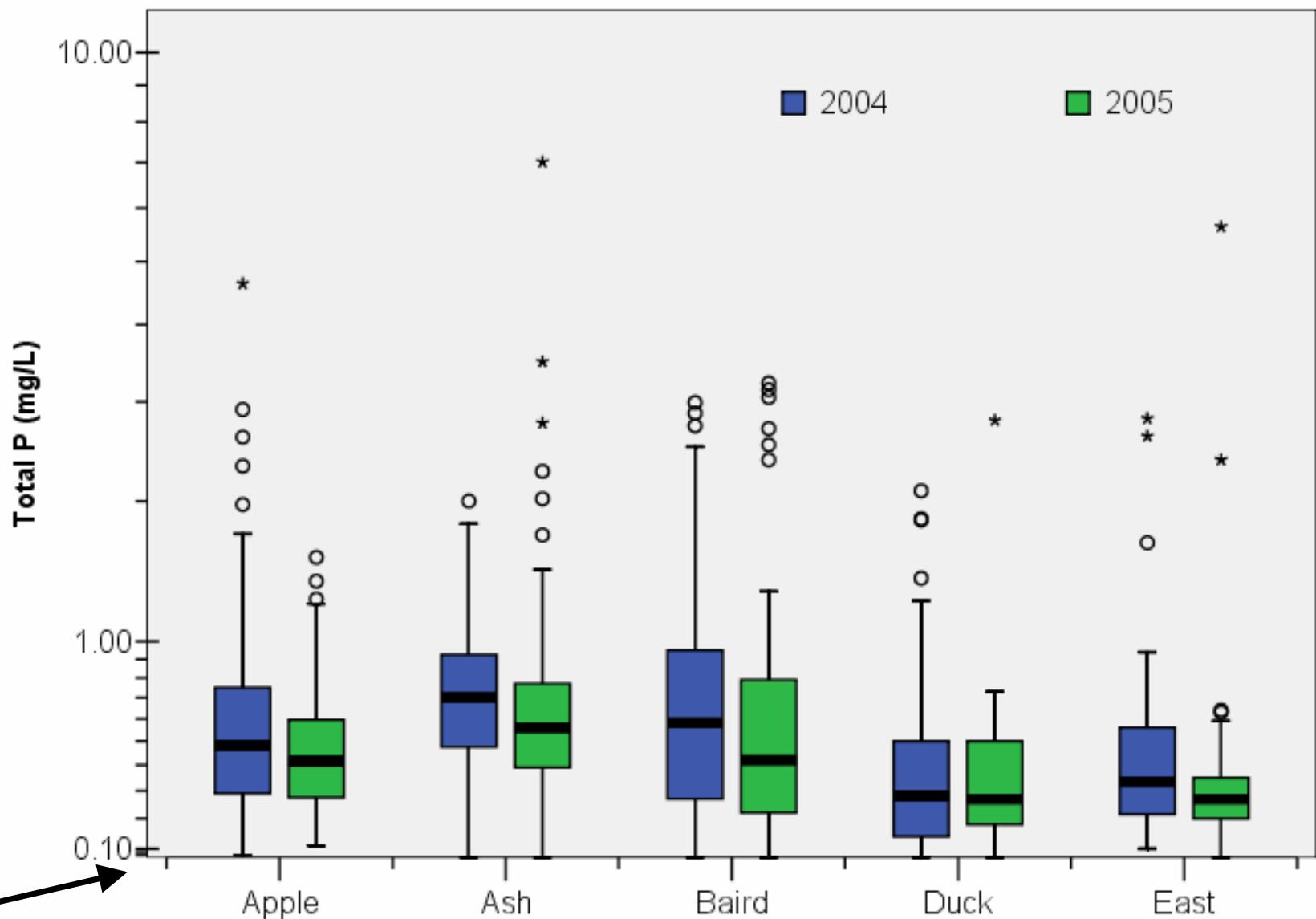


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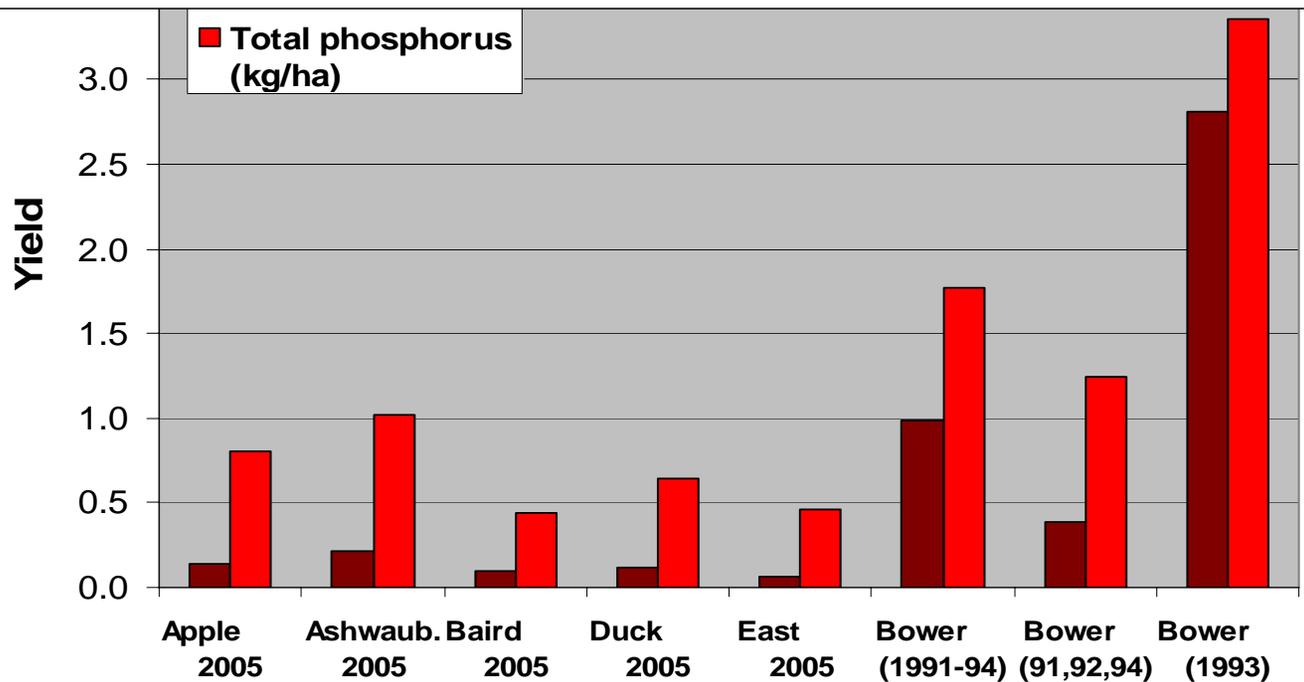
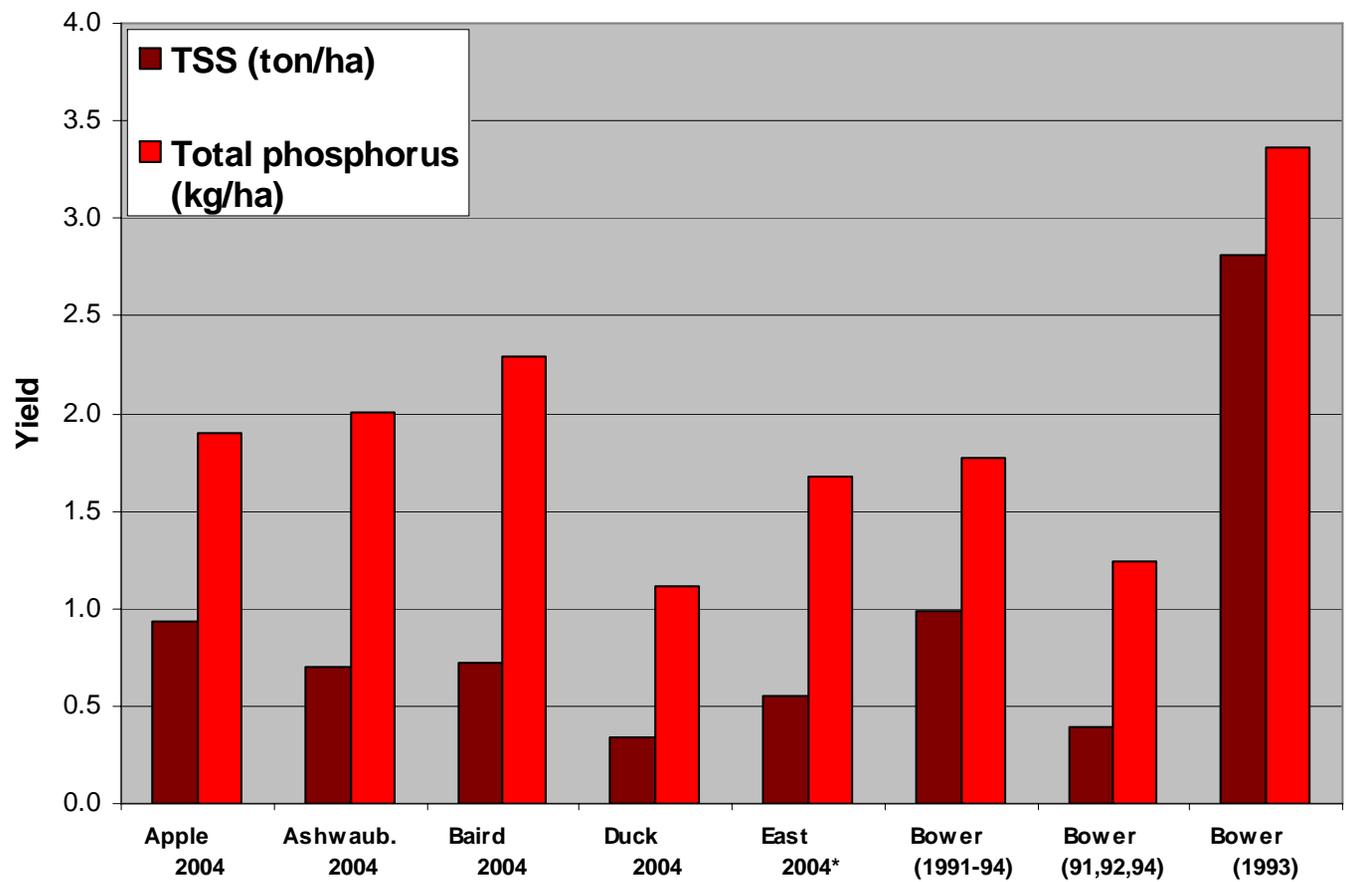
Precipitation



TP (mg/L): All Samples



- Sed. and P exported per ha of watershed
- Highly event driven
- Continuing Sept. 2006
- See poster for more details



Duck Creek June 2005





03/12/2006

For more information...

- <http://www.uwgb.edu/watershed/>
 - Integration of project elements
 - Online and real-time data
 - resources
- Poster Session
- Questions?

