

A photograph of a stream flowing through a dense thicket of green vegetation, viewed through a dark, triangular opening. The water is clear and reflects the surrounding greenery. The text is overlaid on the image in white, sans-serif font.

# VEE Geology Research Summer 2002

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# Purpose of Proposed Studies

- Describe the pH changes during storms in Williamsburg stream systems.
- Identify changes of stream hydrographs in developed, developing, and undeveloped basins in Williamsburg.
- Compare stream discharge in tributaries of Lake Matoaka.
- Determine the water balance for the lake.

# Field Research Methods

- Weirs
- Stilling Wells
- Staff Gauges
- Salt Dilution
- Rain Gauges



A photograph of an automated stream gauging station in a wooded area. The station consists of a white PVC pipe with a sensor at the top, connected to a white control box. A laptop is placed on top of the control box, displaying the Windows logo. The station is situated next to a stream with a wooden weir structure. The background is a dense forest with green foliage.

# Automated Stream Gauging Station in Powhatan Drainage Basin

# Gauging Stations

## Powhatan Watershed:

- Eastern State
- Casey Property



## Matoaka Watershed:

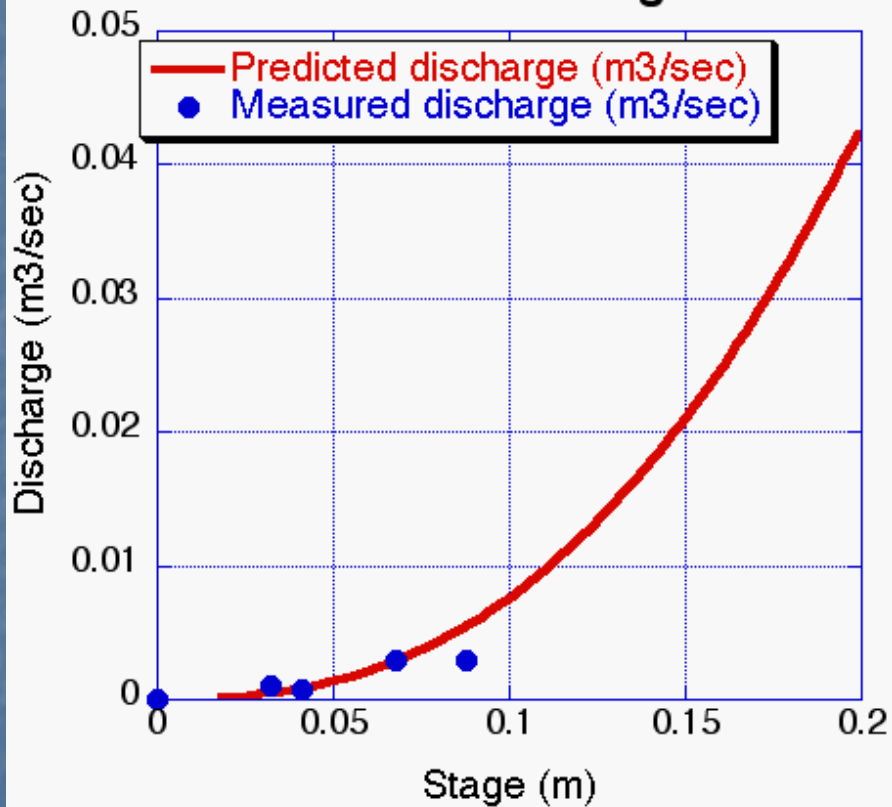
- Berkeley Creek
- College Creek



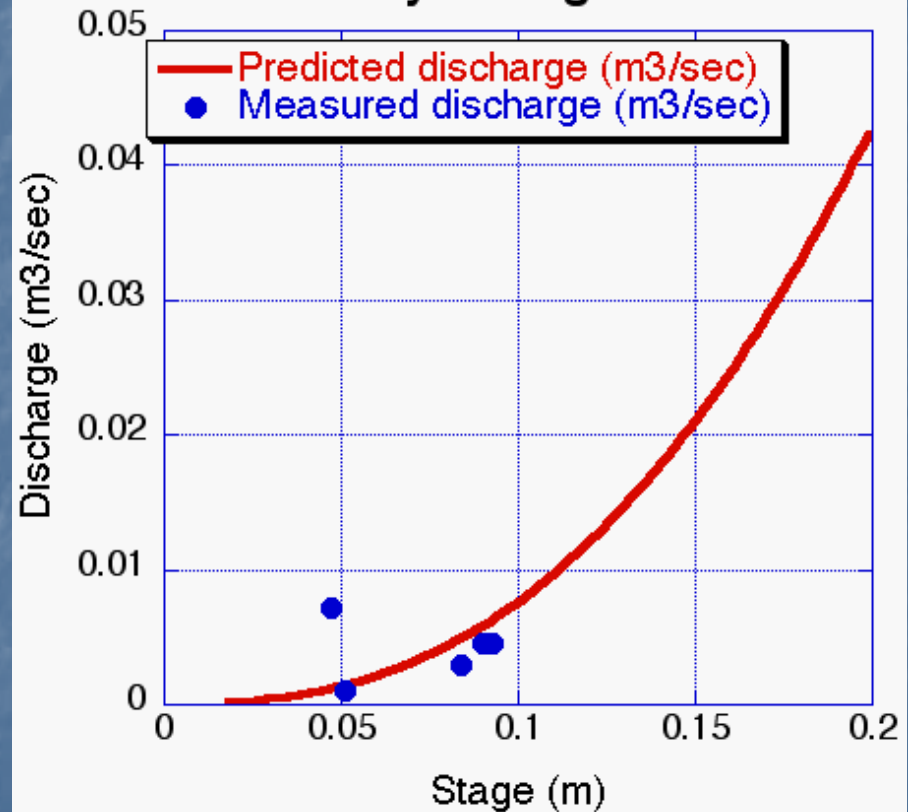
# Preliminary Results

## Rating Curves from Powhatan Watershed

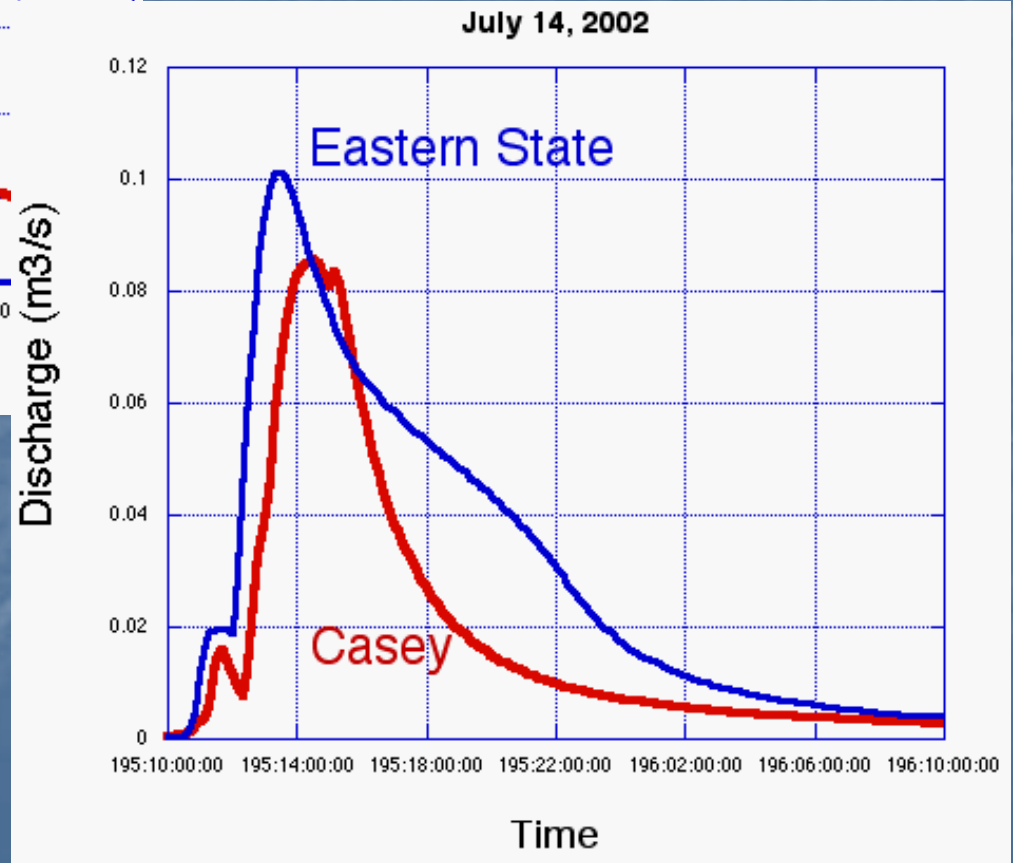
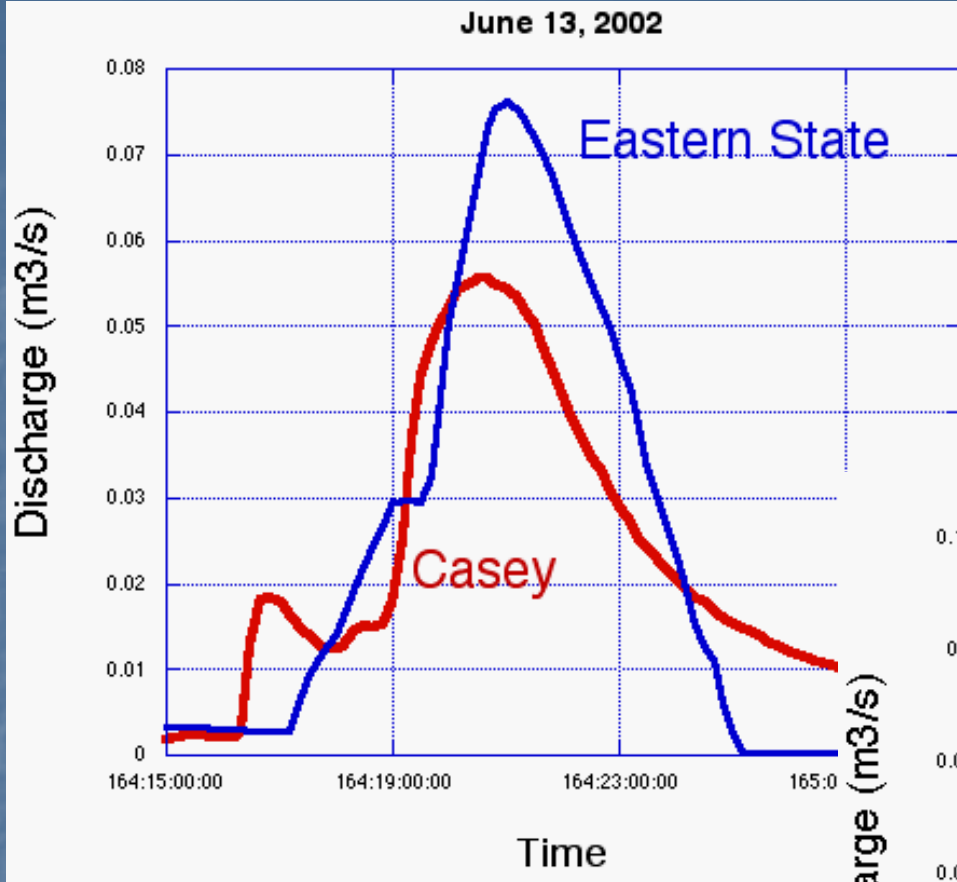
### Eastern State Rating Curve



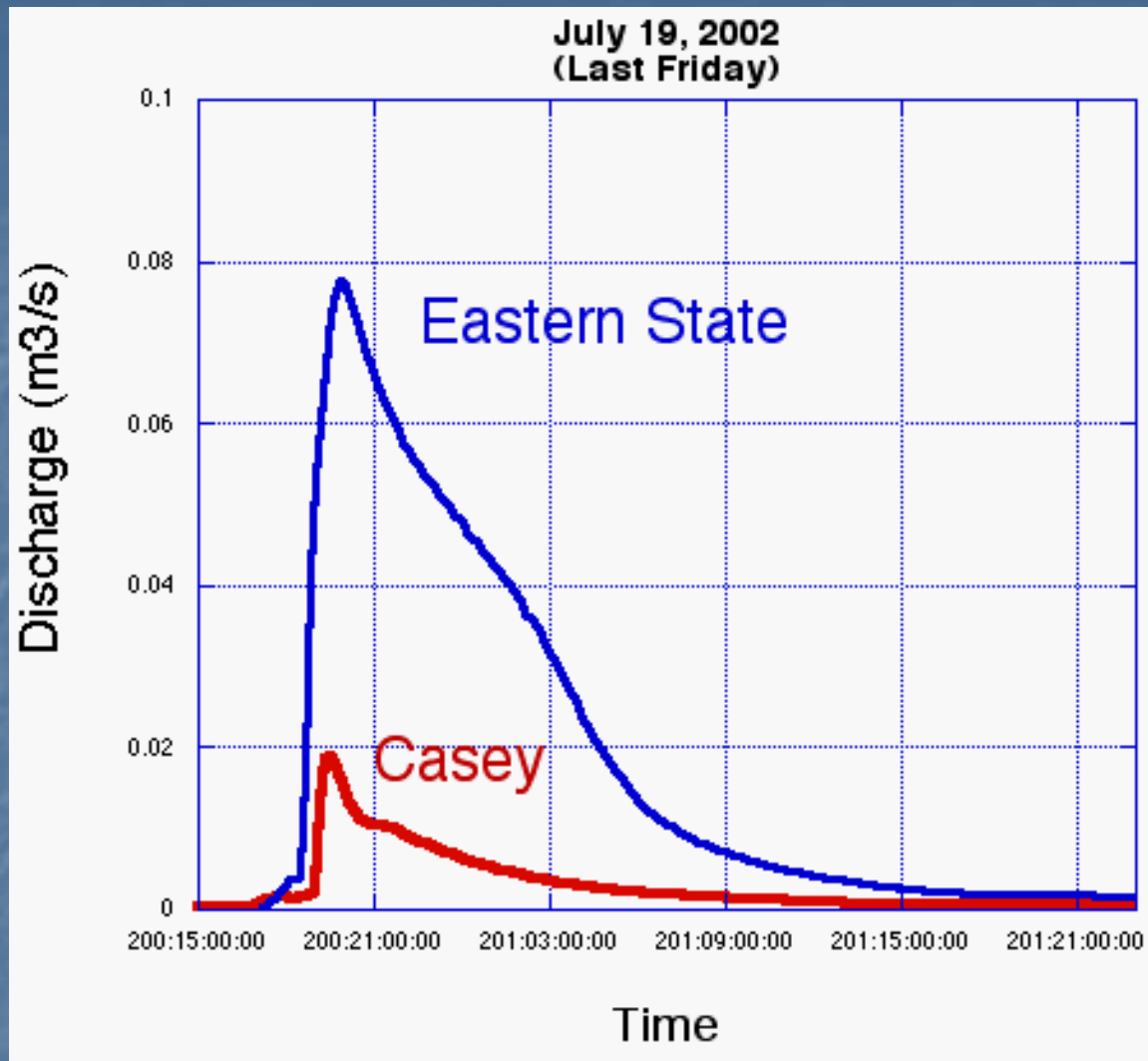
### Casey Rating Curve



# Discharge Hydrographs



Powhatan  
Watershed



Although equal in watershed area, the more developed Eastern State drainage basin exhibits a larger stormwater discharge hydrograph, relative to Casey.

# Continuing Research

- Installation of more weirs
- Installation of stilling wells
- Setup of rain gauge and pH probe sites
- Detailed analysis of rating curves and hydrographs
- Continued monitoring of discharge data