1-1-2007

Quantifying Hydrologic Fluxes to a Small Impounded Piedmont Lake, Greenville, South Carolina

Cameron Moore

QUANTIFYING HYDROLOGIC FLUXES TO A SMALL IMPOUNDED PIEDMONT LAKE, GREENVILLE, SOUTH CAROLINA

Water Budget Concept

What is a water budget?

- $(ppt + SW_{in} + R + GW_{in}) - (E + SW_{out} + GW_{out} + WD) = \Delta S$

ppt = precipitation

Sw = surface water flows (in or out)

Gw = groundwater flows (in or out)

R = overland runoff

E = evaporation

WD = irrigation withdrawals

ΔS = Net change in lake storage

Water Budget Concept

Why at Furman Lake?

The lake has suffered from years of pollution.

Furman Lake restoration project.

Necessary for a chemical and nutrient budget.

Why make a water budget?

Assess the condition of a lake.

Plan for the future.

Ultimate goal is sustainable management.

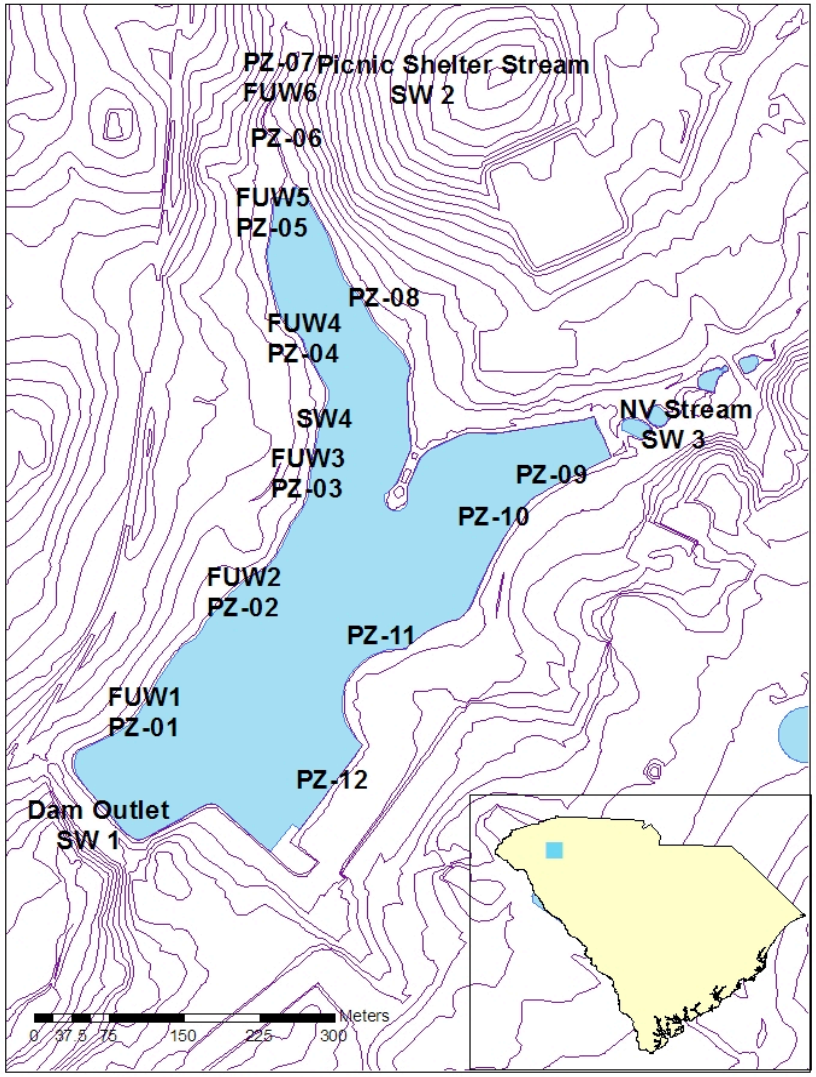
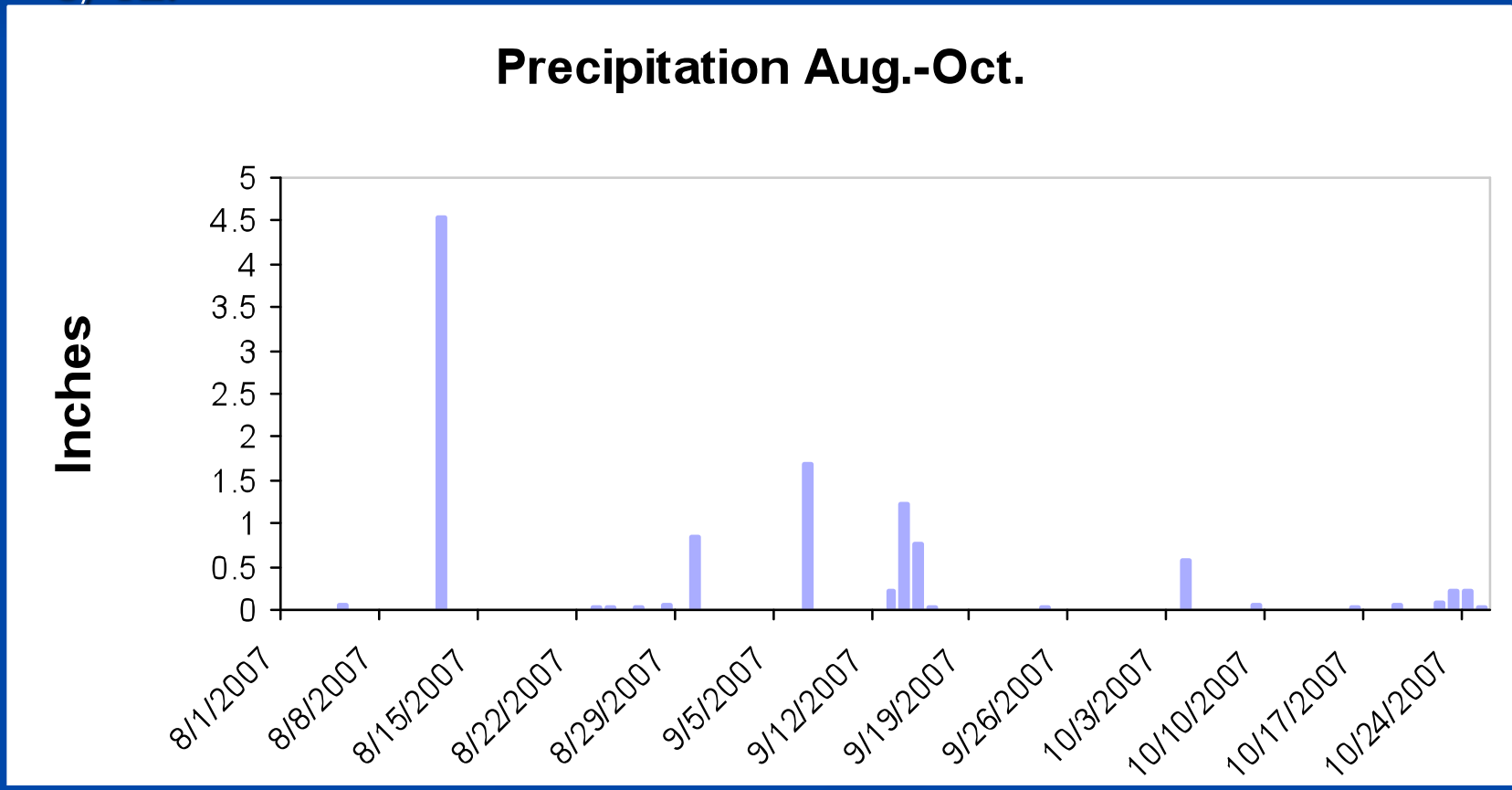


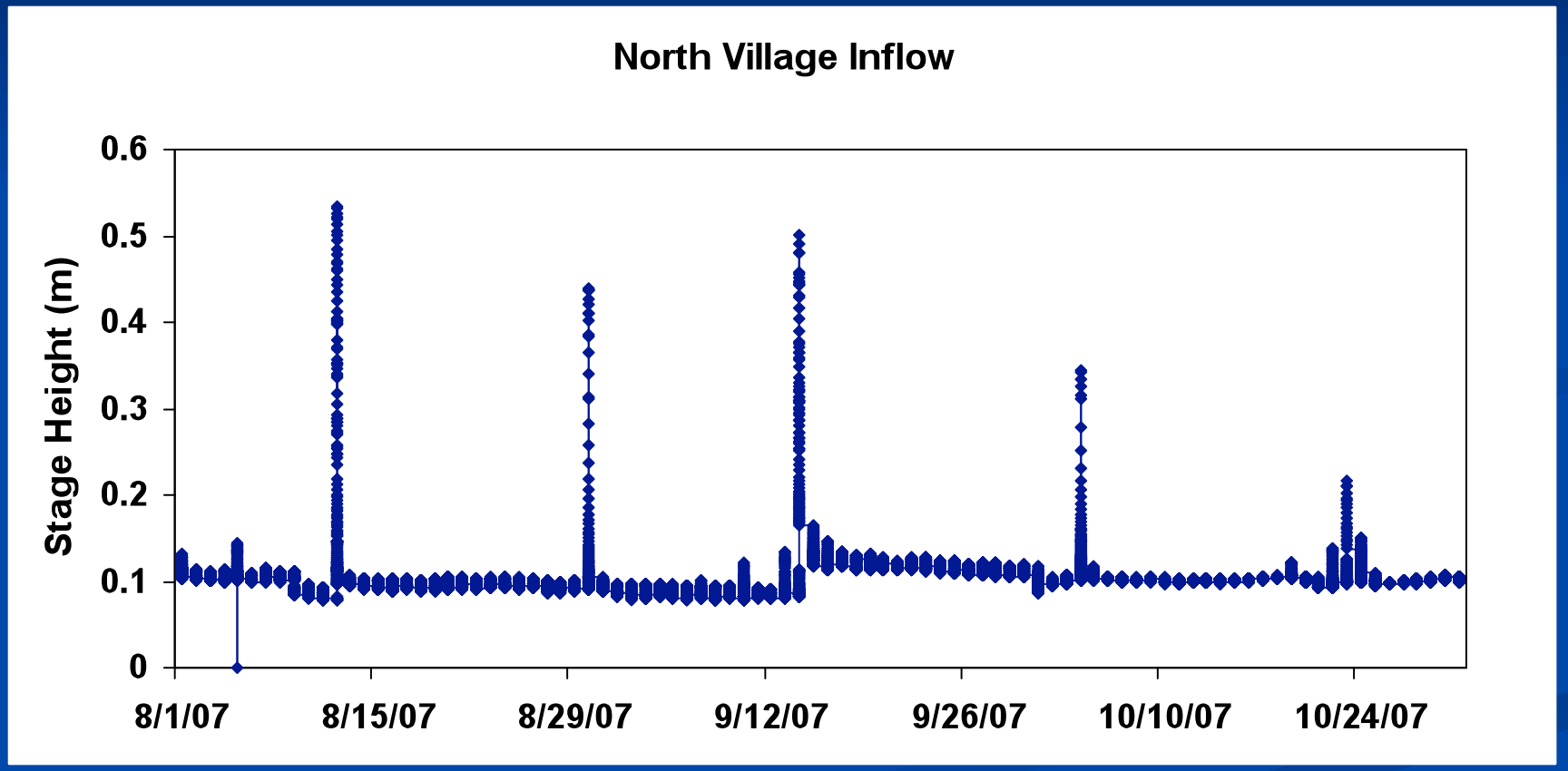
Figure 1. Distribution of Instrumentation Around Furman Lake. FUW refers to land well locations, PZ refers to piezometers in the lake and SW refers to stilling well locations.

Components/Results

- Results tabulated for three months of data.
- Precipitation – totaled 10.86 inches for the study. Majority fell on 8/12.



Surface Water Flow



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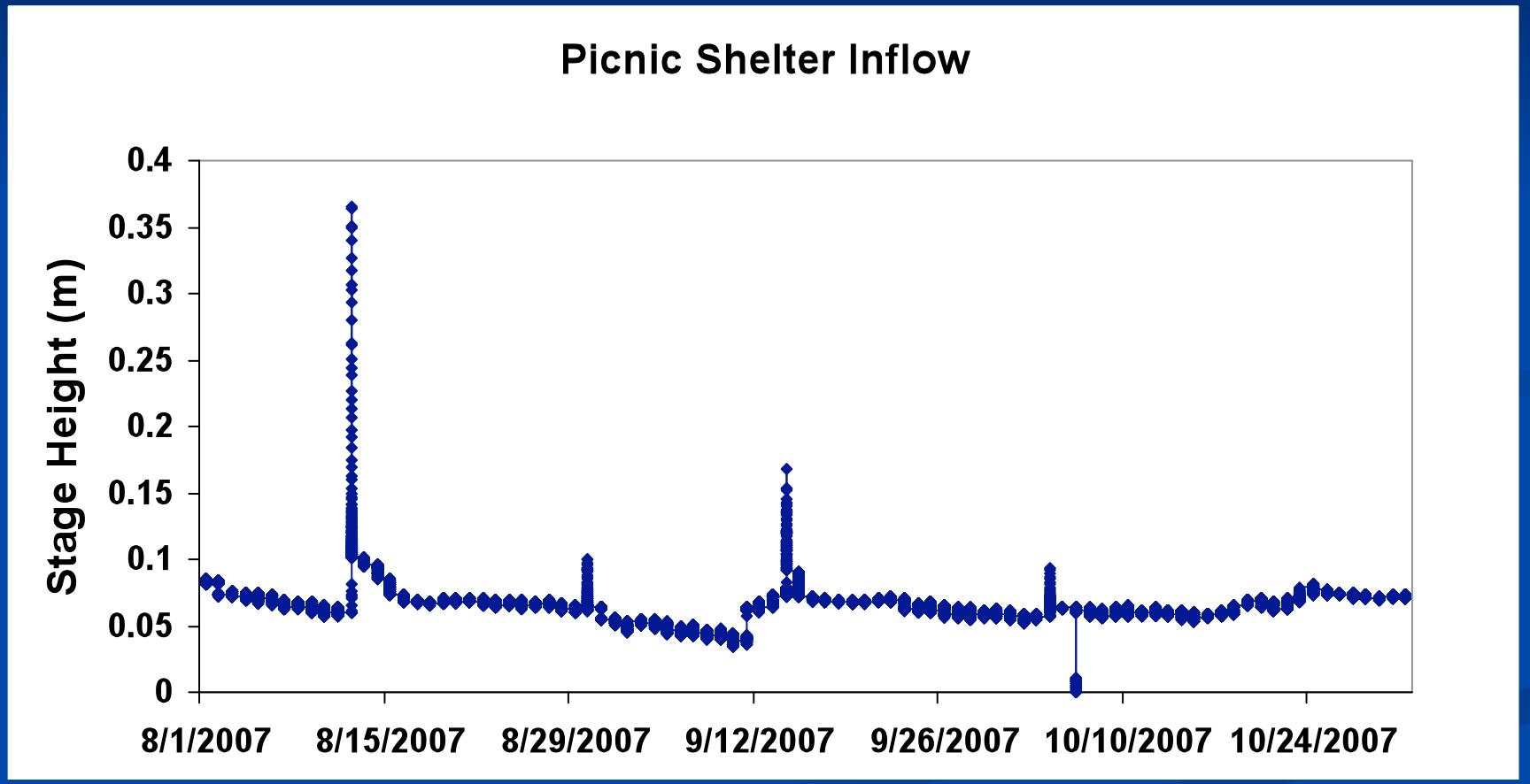
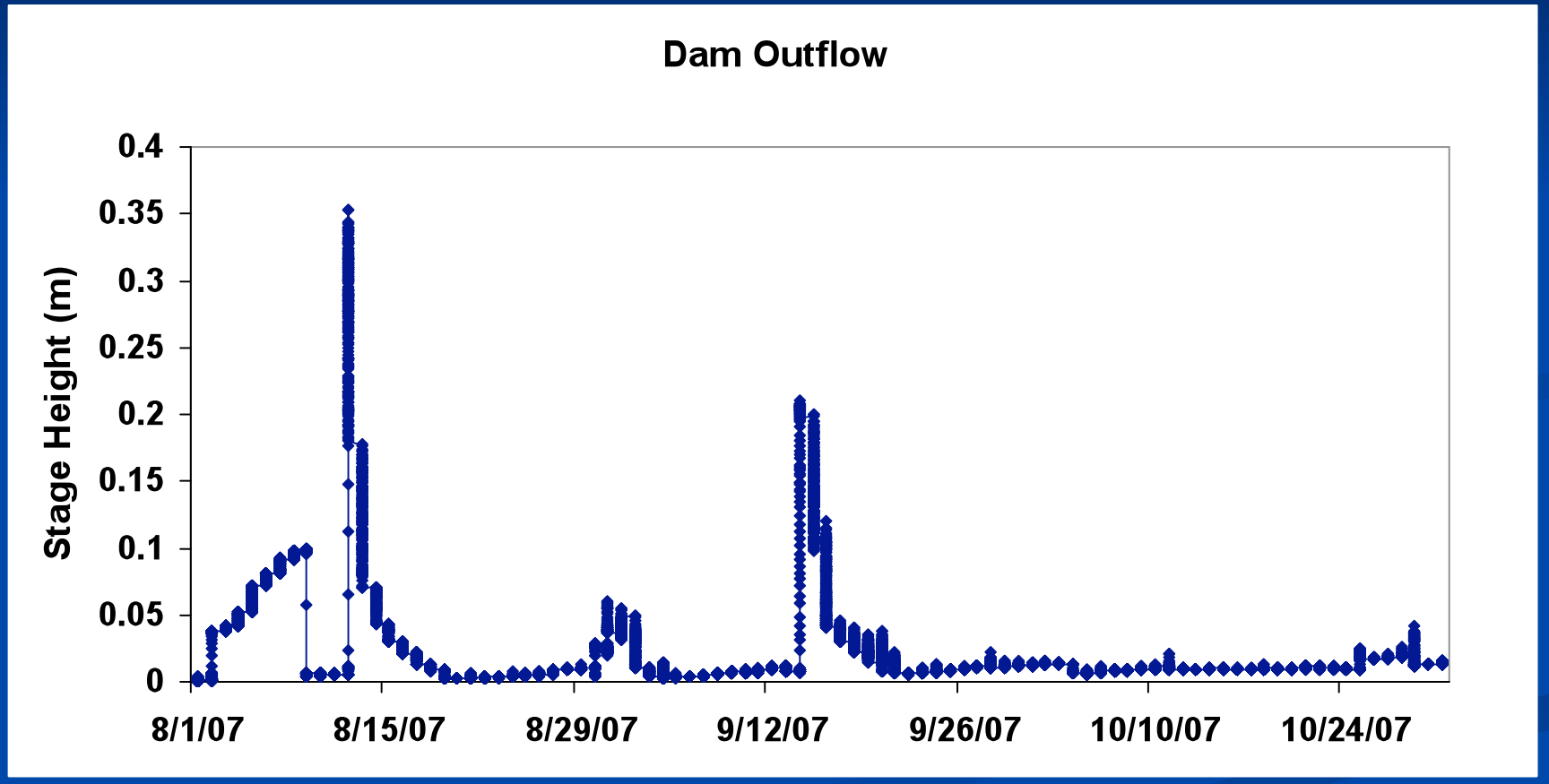
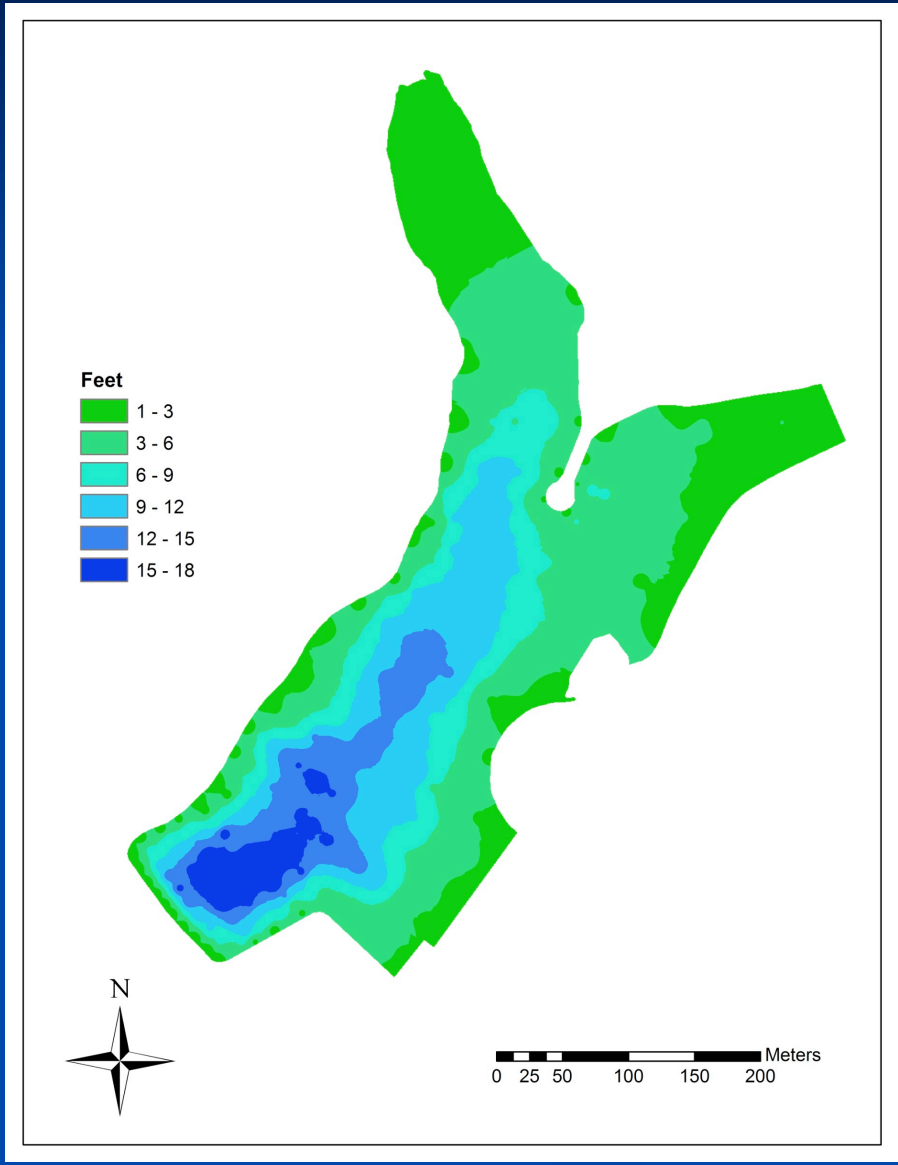


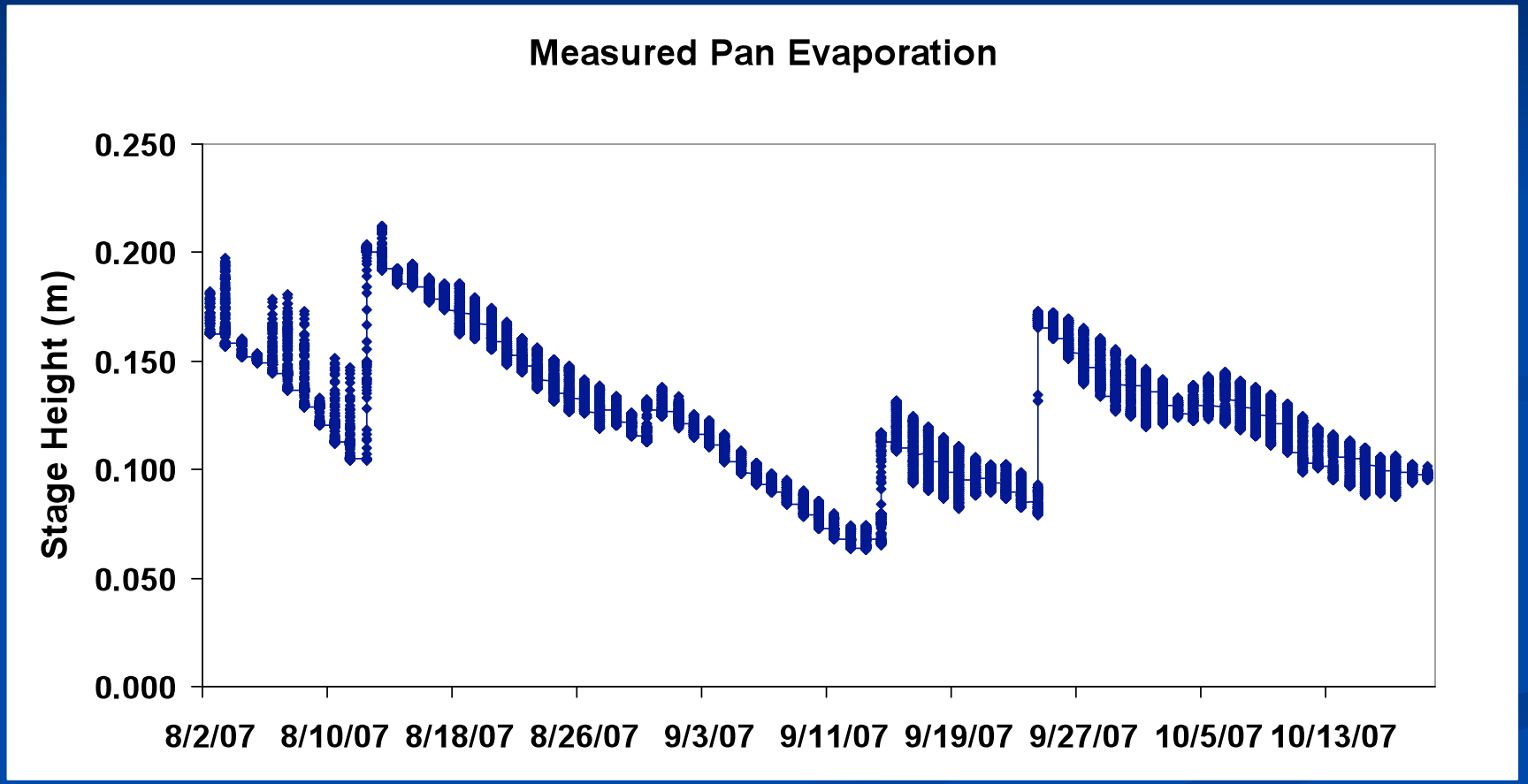
Surface Water Flow



Lake Storage



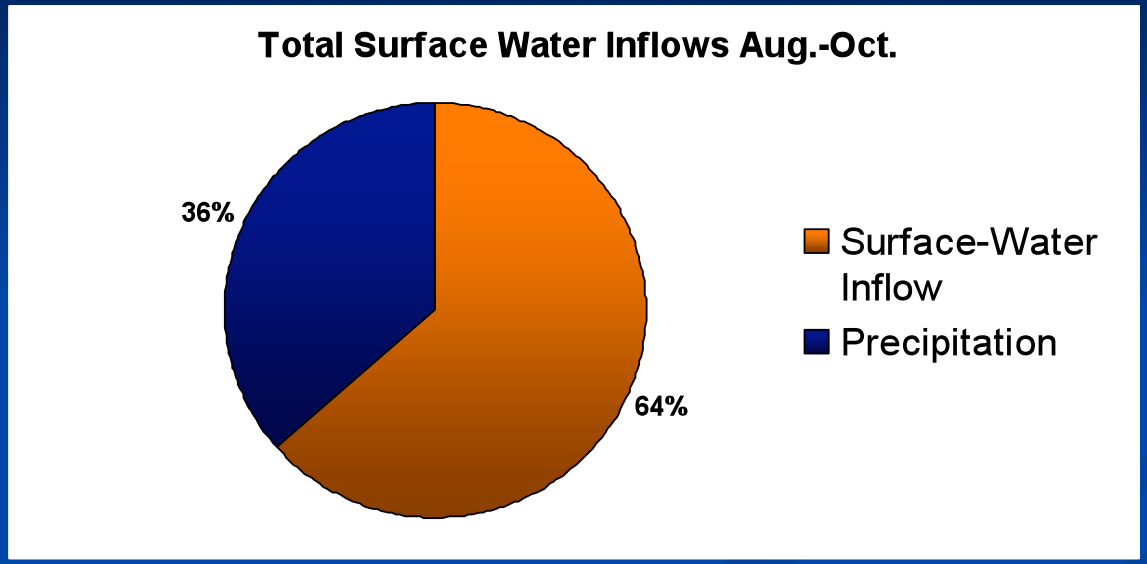
Components/Results

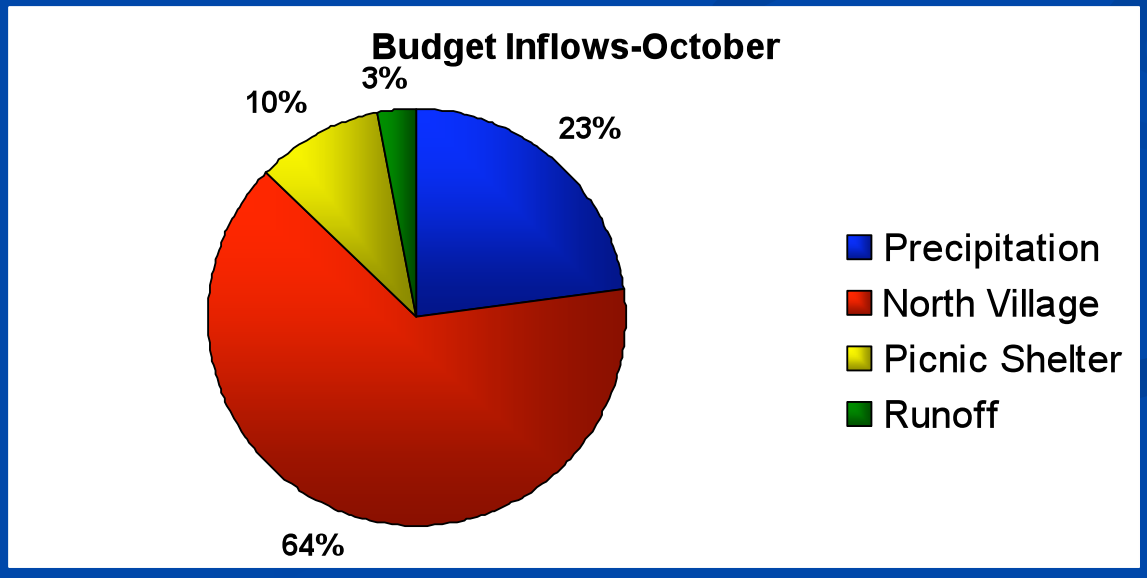


Irrigation and Groundwater

- The most difficult to quantify.
- Data from facilities services is questionable.
- Groundwater is difficult because it is subsurface.

The Big Picture: What Does this Mean for Furman?





The Big Picture: What Does this Mean for Furman?