



Quarterly Project Status

January 24, 2007

Vashon-Maury Island
Water Resources Evaluation

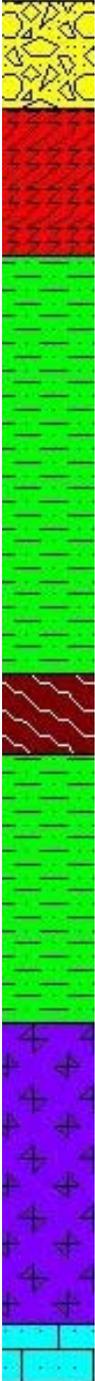
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Quarterly Review

- Ongoing monitoring overview
- WRE report update
- Modeling update
- Budget
- Next Quarter

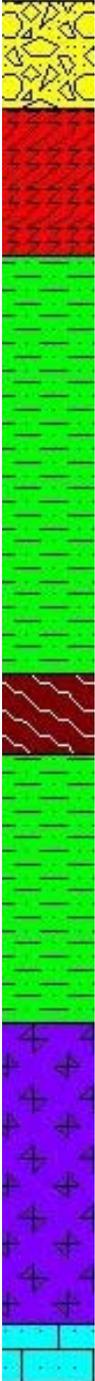
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Island Monitoring

- Stream and Precipitation gauging continuing
 - Plan to upgrading a site to be a "full" meteorological station
 - Plan to telemetry some sites
- WL survey continuing in 2007
 - 30 sites
 - 3 new inquiries (from Susie K)
- All monitoring data collected in 2006 to be presented in annual data report

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Island Monitoring con't

■ New Stream Water Quality sampling

– Data gap in the Water Resources of VMI

– Short term (1 yr) assessment

– Parameters:

- N+N, NH₃⁺, Total N, Alk, Ortho/Total P, EC, FC, TSS and field parameters (pH, DO, Cond)

– 7 sites: Shinglemill, Christensen, Tahlequah, Fisher, Judd, Mileta, Gorsuch.

- Map on next page

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VMI WRE Stream & Precipitation Stations

5 – Precipitation (green)

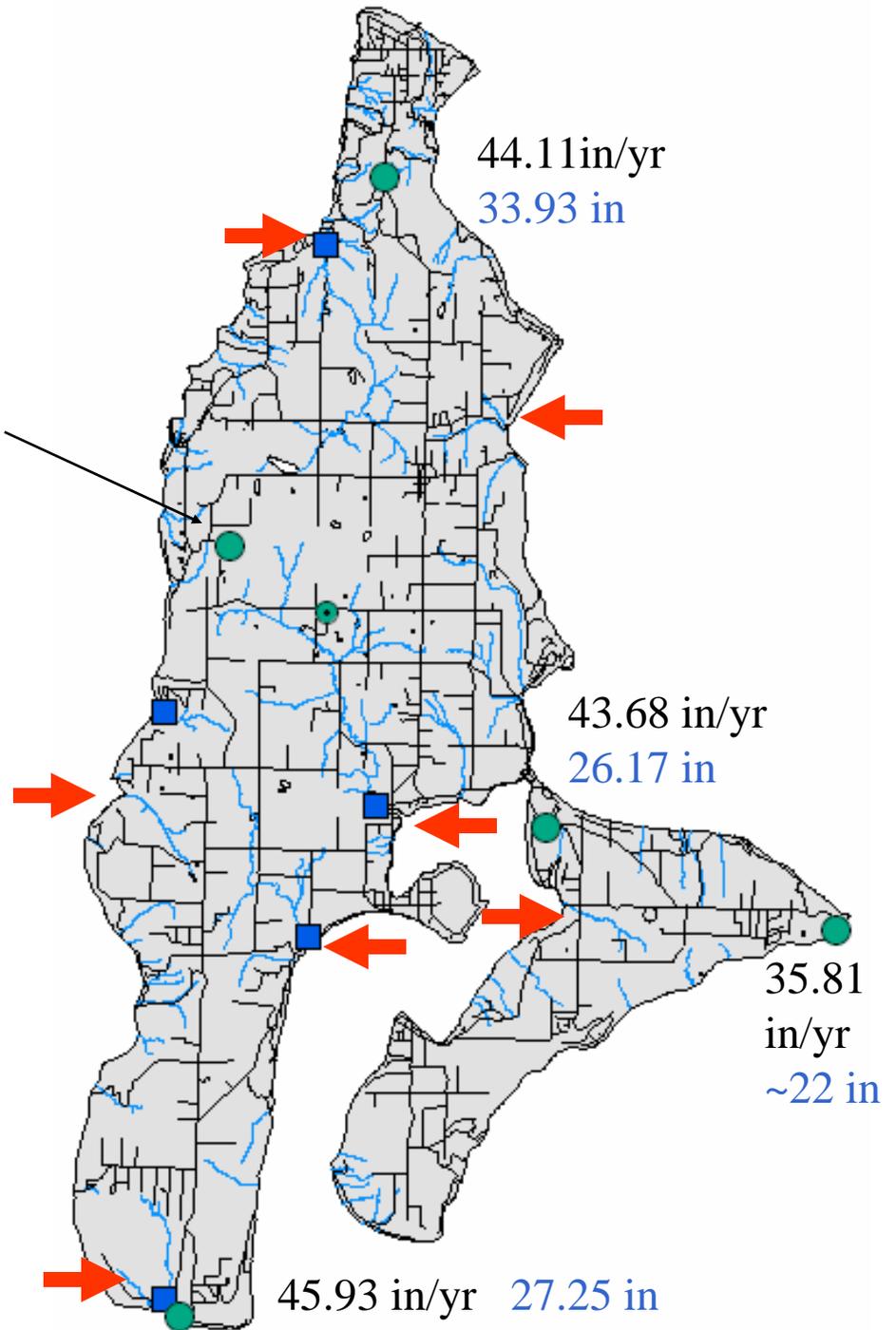
5 – Stream (blue)

7 – Stream WQ (red)

2006 Water year (Oct-Sep)
precipitation totals for each site
2007 WY (Oct-Dec)

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46.78 in/yr
28.80 in
Weather station



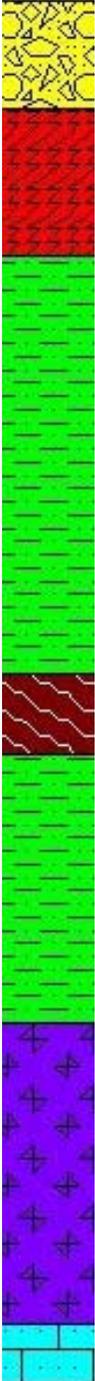


Island Monitoring con't

■ Stream WQ sampling con't

- Project cost for 2007 is ~17K for the monthly sampling
- Maybe add organics to WQ routine to assess springtime runoff
- Wastewater paying for 1 site (Gorsuch Creek)
- Possible PH SKC coordination for additional granted funded work

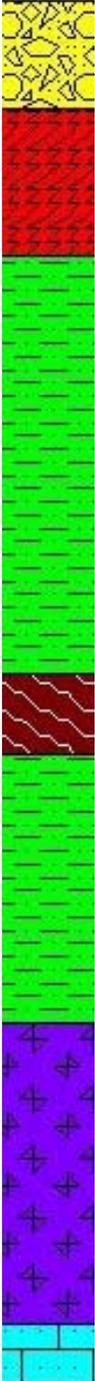
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Island Monitoring con't

- New dedicated setup for each monitoring well
 - Water level device (Levelogger)
 - Sampling setup
 - Plan to add telemetry to the sites
- Water Quality monitoring (~summer)
 - Environmental indicators at current sites
 - Arsenic, Chloride and Nitrate+Nitrite
 - Baseline parameters at new monitoring sites

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WRE Reports Update

■ Next reports

- 2006 Water Resources Data report
 - Plan to be completed by April meeting
- Workplan update

■ Completed:

- 2005 Well Data Report
 - Available via the web

<http://dnr.metrokc.gov/wlr/wq/WRE-welldata-report05.htm>

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WRE Phase II Modeling

- Conversion of Phase I model
 - Modflow into Mike-SHE
- Modeling activities will simulate
 - Changes
 - Land-use
 - well pumpage
 - climate / recharge
 - Effects on
 - Water table
 - In-stream flows

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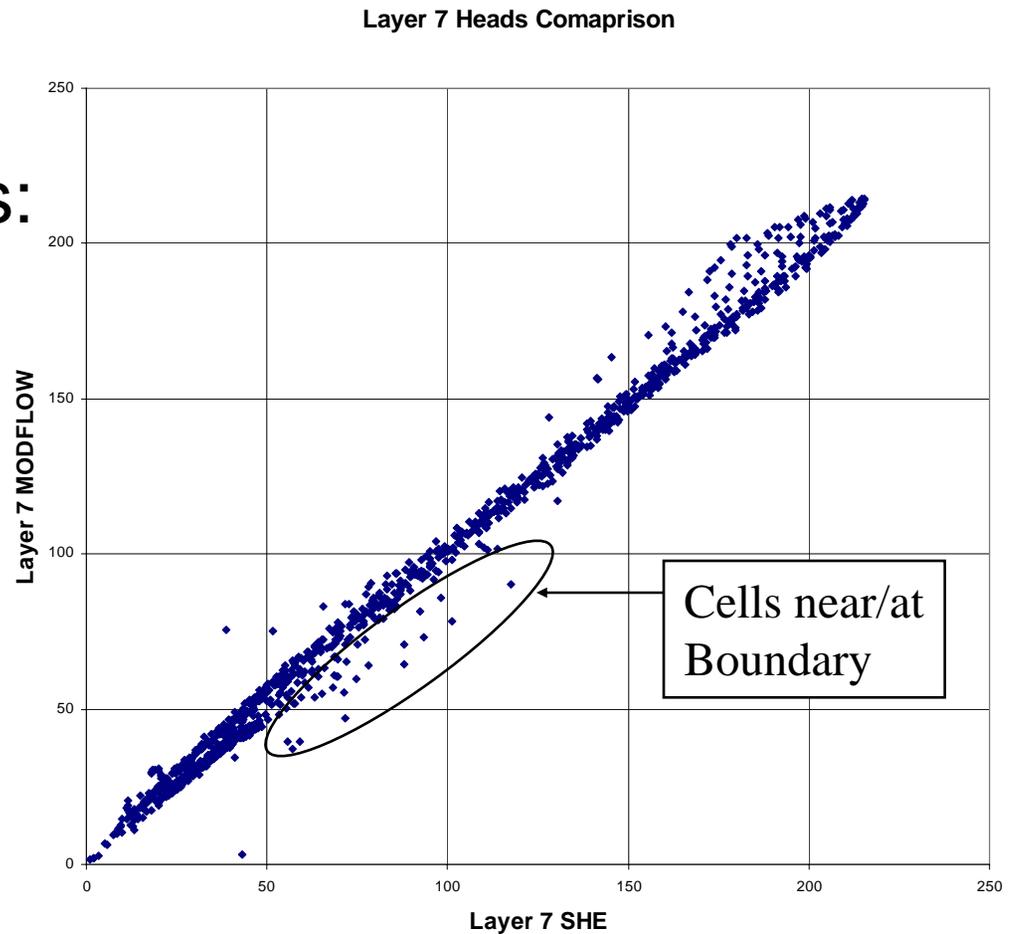
WRE Modeling con't

- Working to reproduce current (Modflow) results
- Migrate basic groundwater data to new model: Geology, Springs, Wells.
- Use new model to improve/revisit assumptions in existing model

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WRE Modeling: Process and Issues

- Different results between models: same numerical solver, different handling of boundary conditions.



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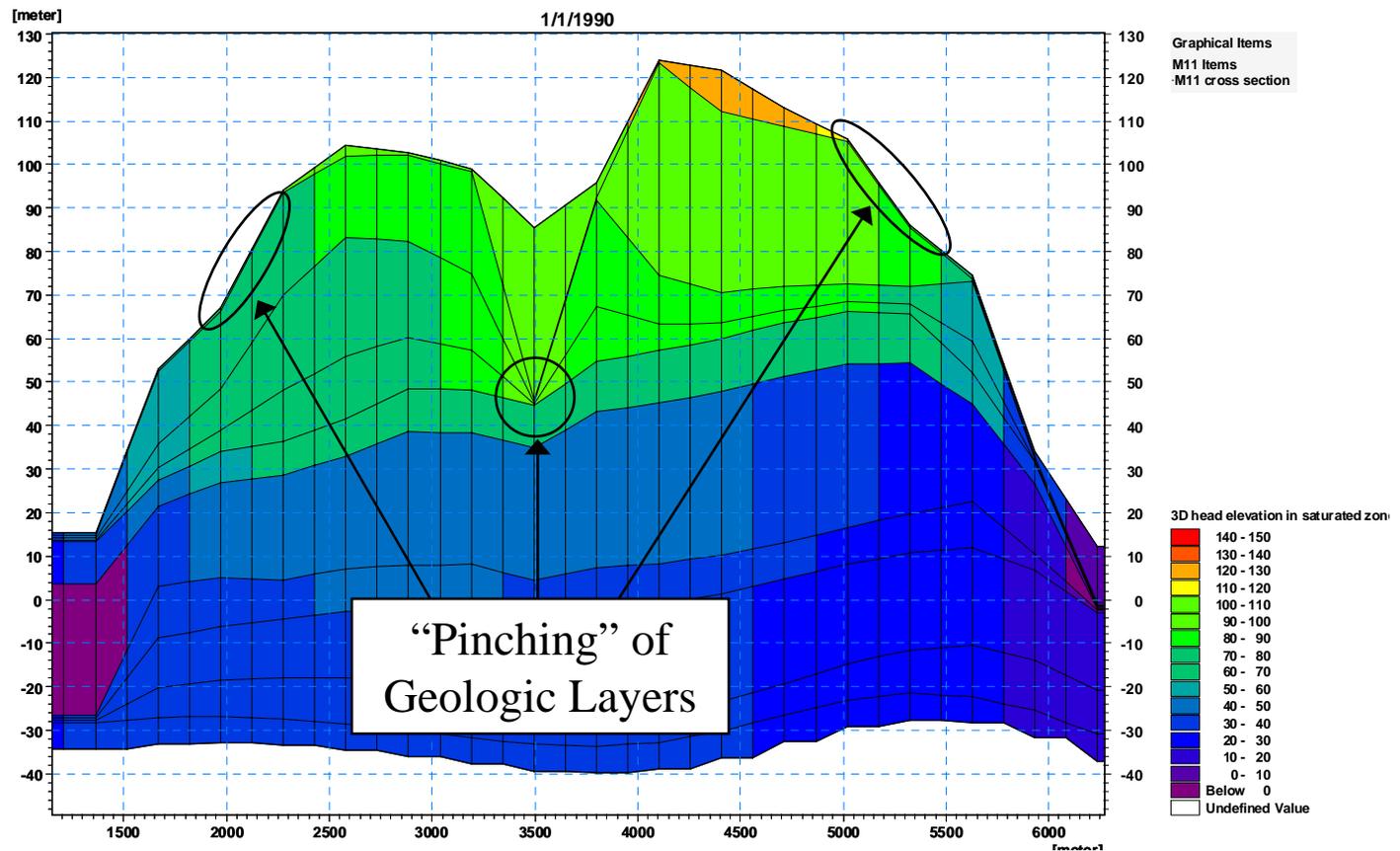


WRE Modeling: Opportunities

- Relax geologic constraints of existing model. Currently, all geologic layers must exist in all cells.
- New model allows for geologic layers of limited spatial extent, e.g. Qvr.
- Incorporate prior work from dynamic river model of major Vashon rivers and streams.

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VMI East/West Cross-Section



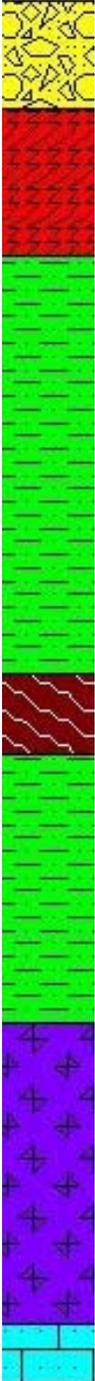
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WRE Modeling: Next steps

- Resolve – fix or explain differences between existing and new groundwater models
- Improve geology – remove “pinching”
- Incorporate rivers
- Define scenarios – three major scenarios with increasing complexity and uncertainty
- Timeline:
 - Next quarter: resolve and improvements
 - Fall: working with the scenarios

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WRE Modeling: Future Scenarios

- Population growth – effects of increased pumping and surface withdrawals.
- Summer low flow conditions – connections to groundwater and impacts from population growth.
- Climate Change – effects of changing rainfall and temperature on water use/availability.

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Budget

- Project budget for 2006 was \$211,630
 - 100 % of our budget expended
 - Additional modeling work done; expenses covered by salary savings.
- Project budget for 2007 is \$290,479
 - Additional rollover ~\$24,000
- New project budget for 2007 is \$314,479
 - Note: Additional Monitoring wells in 2007 budgeted to be \$117,000

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Next Quarter

- Water Resource 2006 Data Report
 - New precipitation map
 - Water table contour map
- Grant support
 - Exempt Well Flow task update
- Working with UW to publish VMI geology map
- Continued activities
 - Gauging
 - WL data
 - Modeling

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