

Read Me

- These slides were presented to the Hood River Basin Water Planning Group on May 1, 2013 by Jon Rocha and Jennifer Johnson.
- Slides contain animations that rely on mouse clicks for proper display and presentation timing.
- Slides are also heavy on graphics which may not make sense without the presenters talking through the evolution of the presentation.
- Direct questions to
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RECLAMATION

Managing Water in the West

Hood River Basin Study

Groundwater Modeling

1May2013



U.S. Department of the Interior
Bureau of Reclamation

Purpose & Objectives

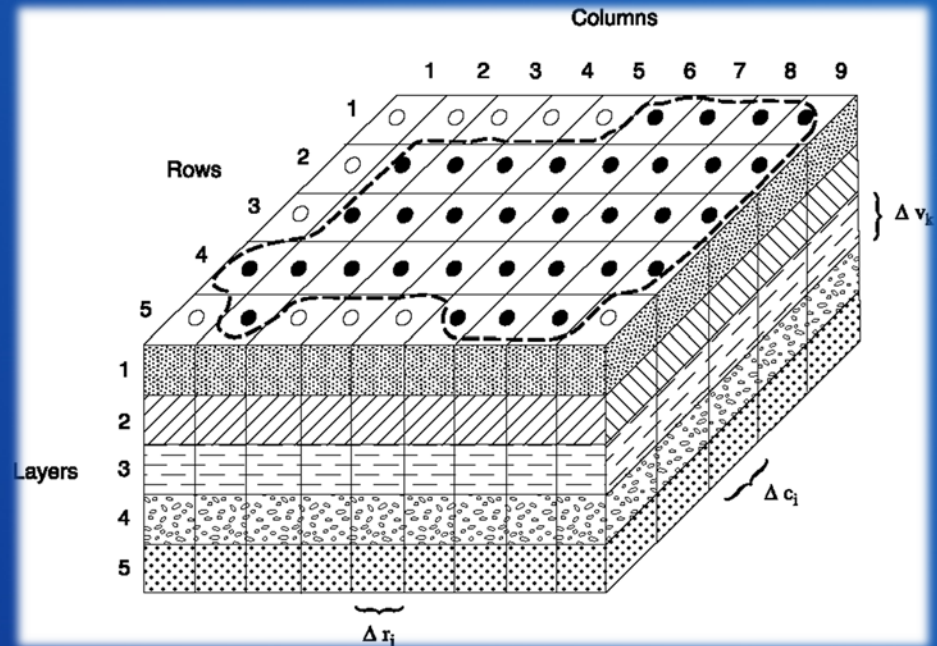
- Understand the sources and rates of groundwater recharge and the geologic controls on its movement and discharge as it relates to the overall hydrology of the basin and groundwater contributions to streams and aquatic ecosystems.

- The study addresses the following questions:
 1. How will new development impact groundwater conditions in the basin including discharge to streams?
 2. How will hydrologic changes due to climate change impact groundwater conditions?
 3. Is managed recharge a viable option for improving stream flow?
 4. Can the basin aquifer be used for aquifer storage and recovery?

Methods

➤ Groundwater modeling

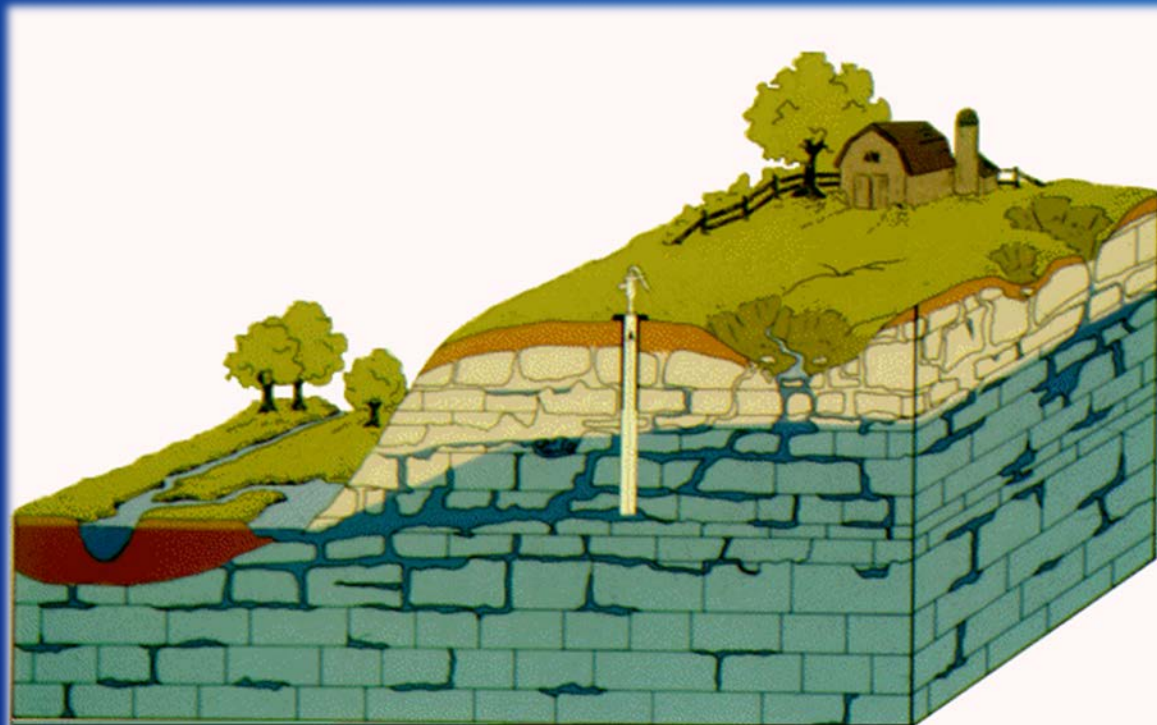
- Steady state
- Transient



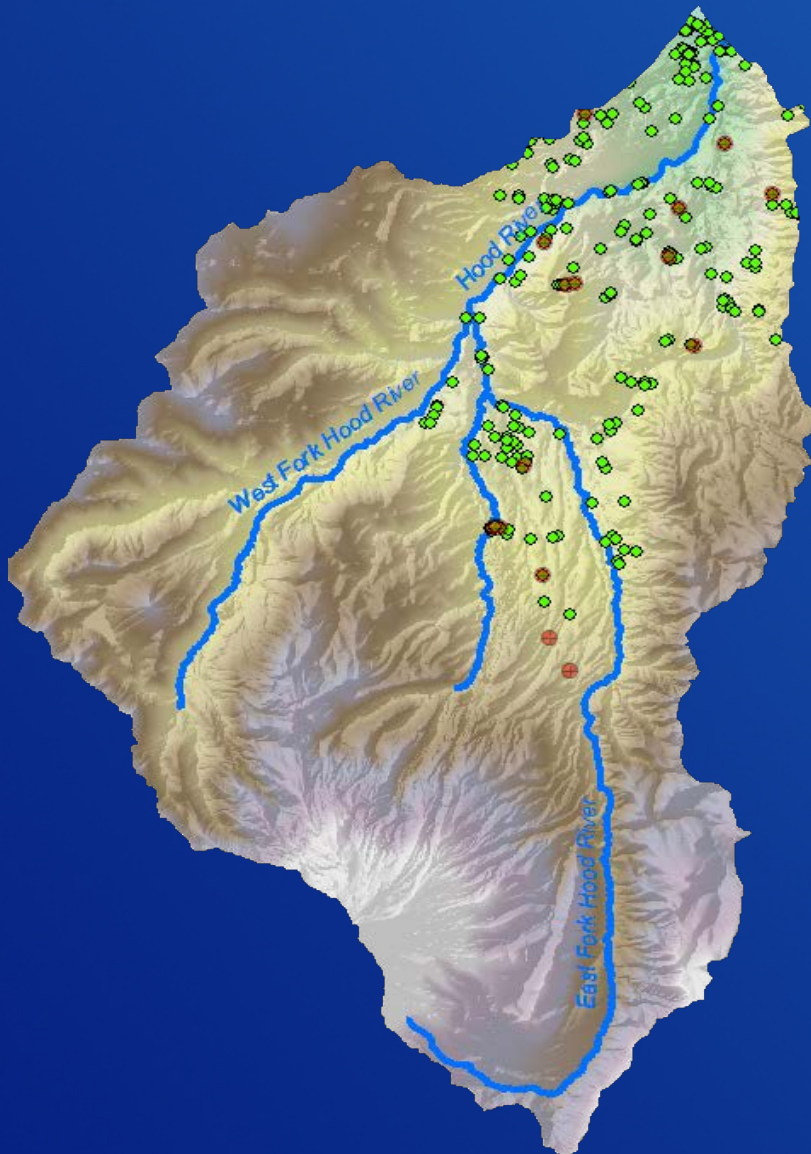
http://upload.wikimedia.org/wikipedia/commons/thumb/8/80/MODFLOW_3D_grid.png/640px-MODFLOW_3D_grid.png

Water Budget

Aquifer Inflow	Aquifer Outflow
Precipitation Recharge	Pumping
River Losses	River Gains
Boundary Inflows	Boundary Outflows
Canal Losses	Springs
On-Farm Infiltration	

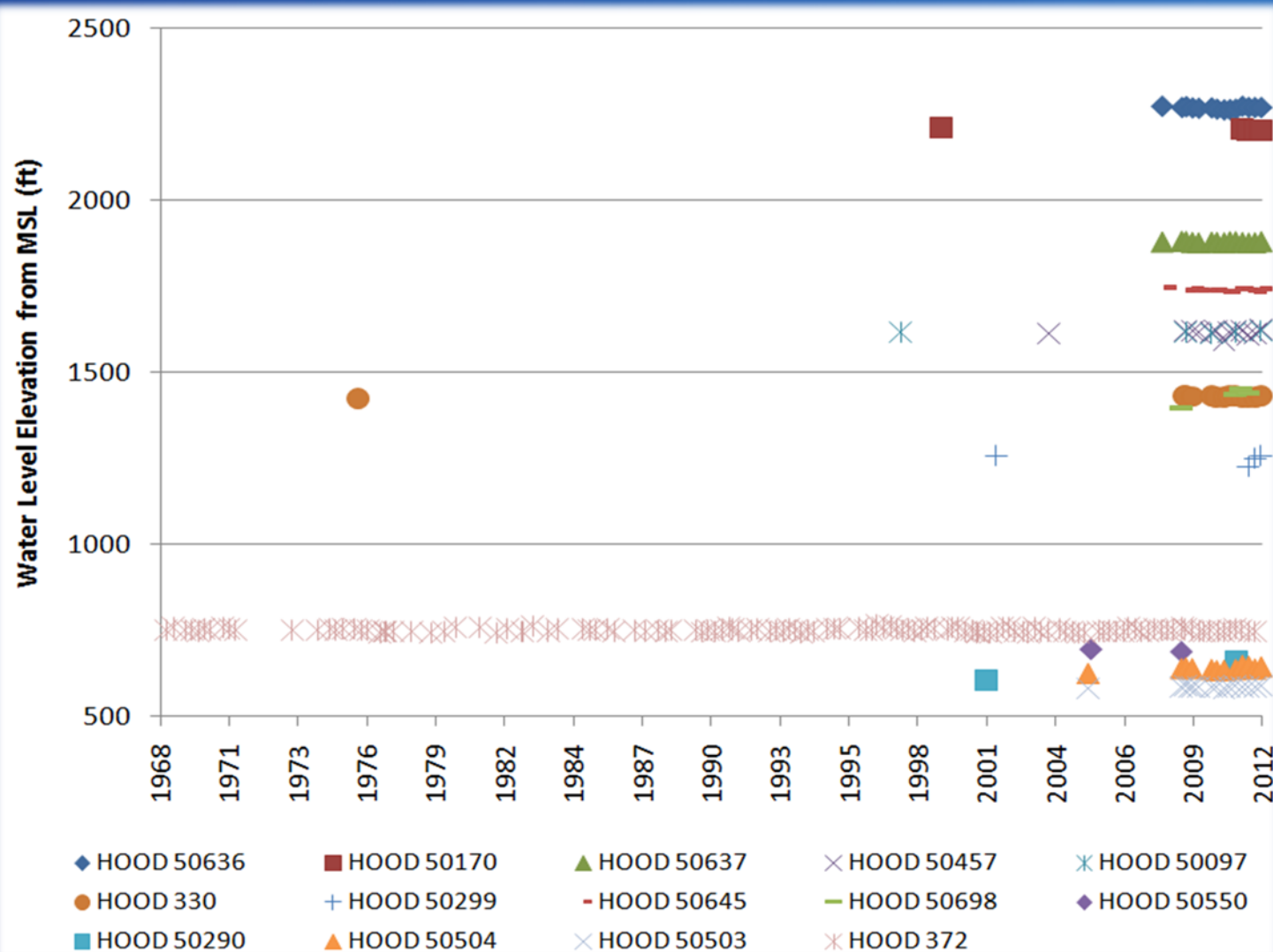


Available Data

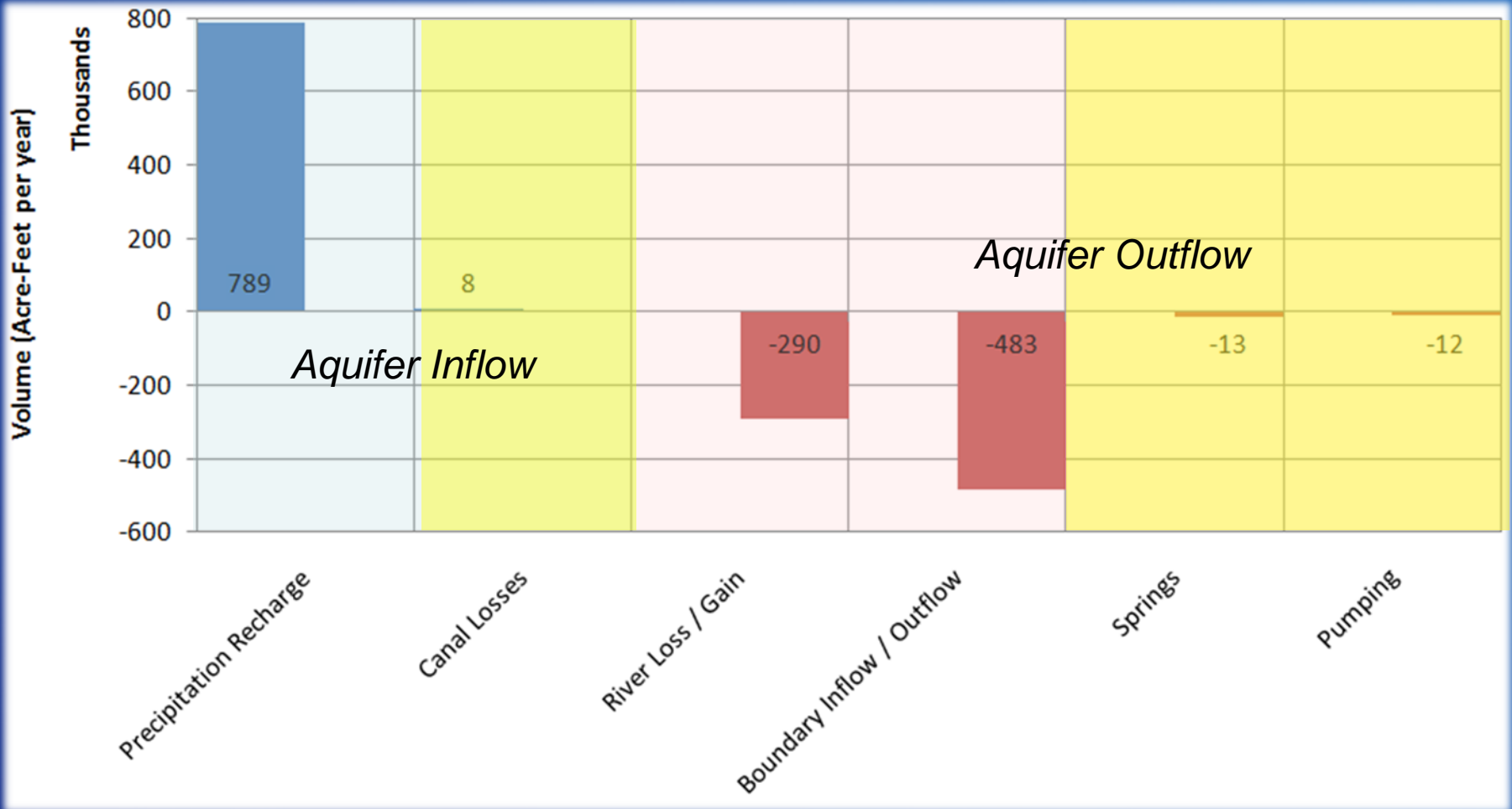


- 14 wells (⊕)
 - Well logs and sporadic water level data
- 293 wells (●)
 - Well logs only
- 3 stream gages
- Irrigation district reports

Available Data



Water Budget Estimate



Recharge



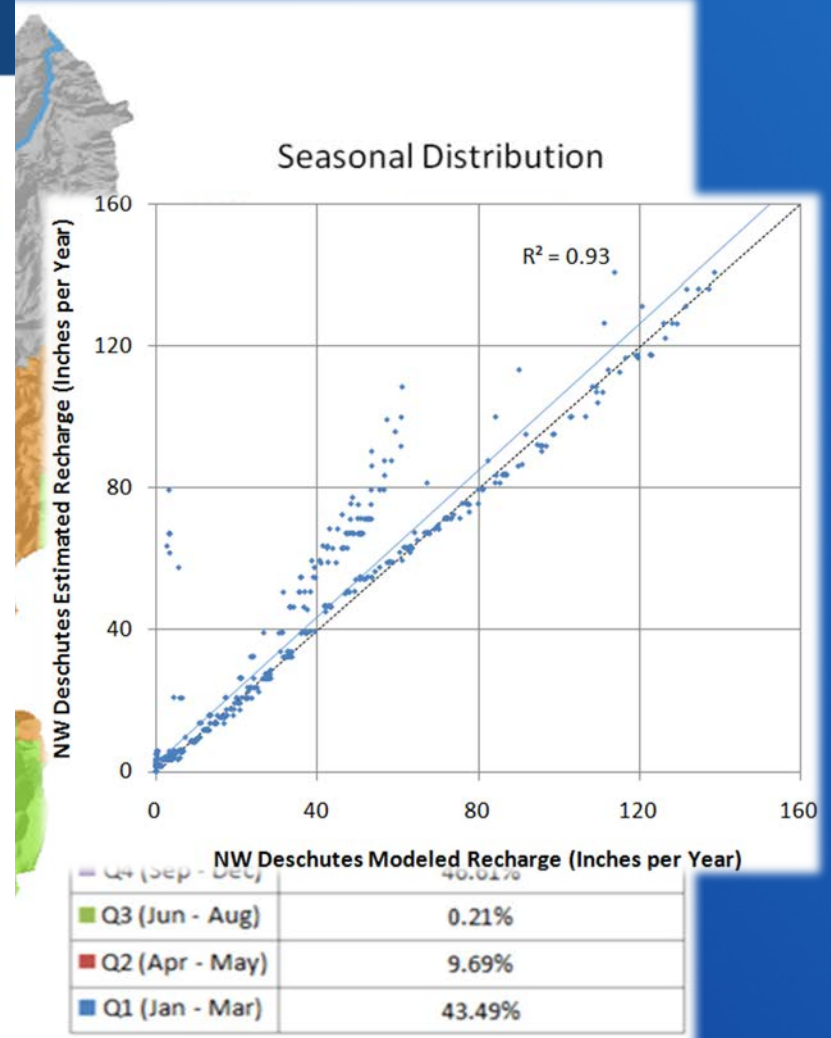
Groundwater Resources Program

Hydrogeologic Framework and Hydrologic Budget Components of the Columbia Plateau Regional Aquifer System, Washington, Oregon, and Idaho



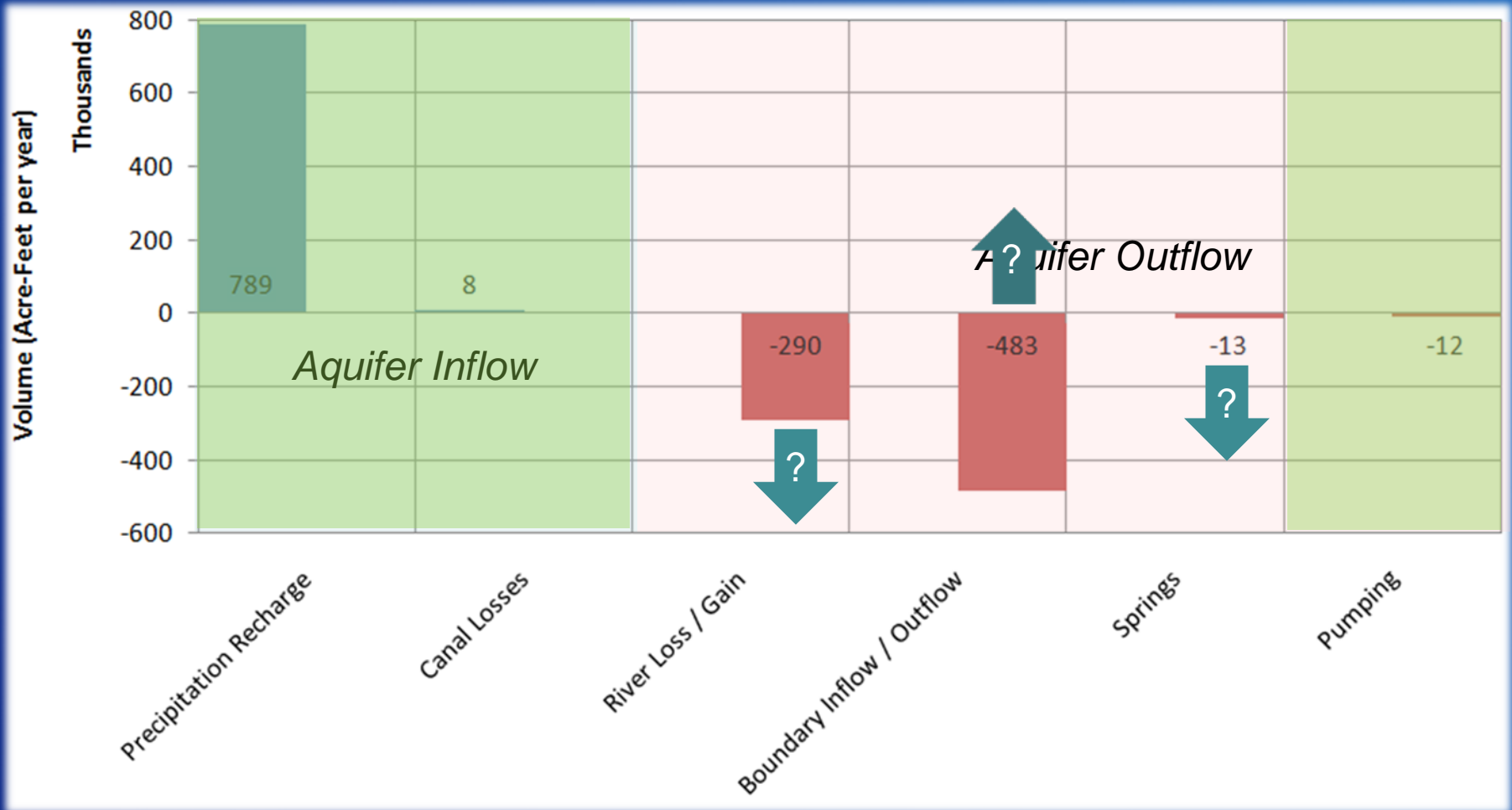
Scientific Investigations Report 2011-5124

U.S. Department of the Interior
U.S. Geological Survey



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Water Budget Estimate



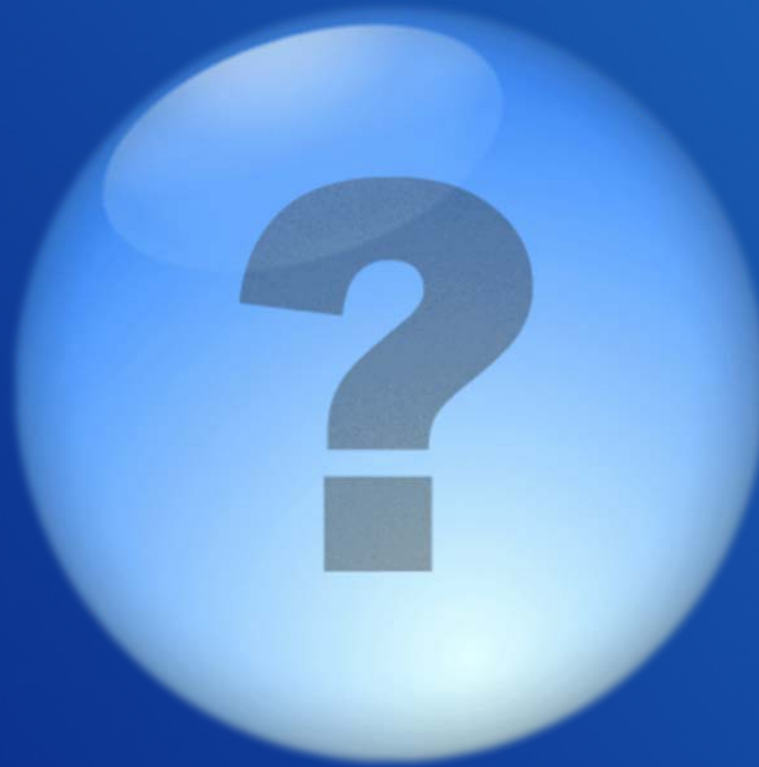
Ongoing Efforts

- Model development and calibration
 - USGS collaboration
 - Finalizing steady state model calibration
 - Transient model still under development
- Scenario and alternative modeling
 - Scenarios and alternatives are yet to be defined
- Documentation

Projected Schedule

Task	Mar-13	Apr-13	May-13
Model Development	■		
Model Calibration & Validation		■	
Scenario Modeling			■

Questions



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