


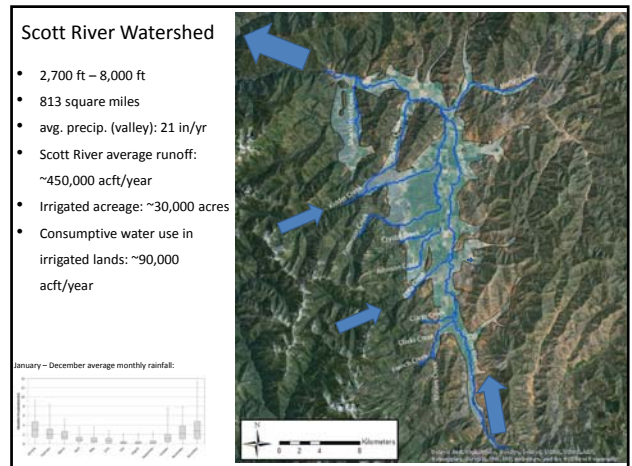
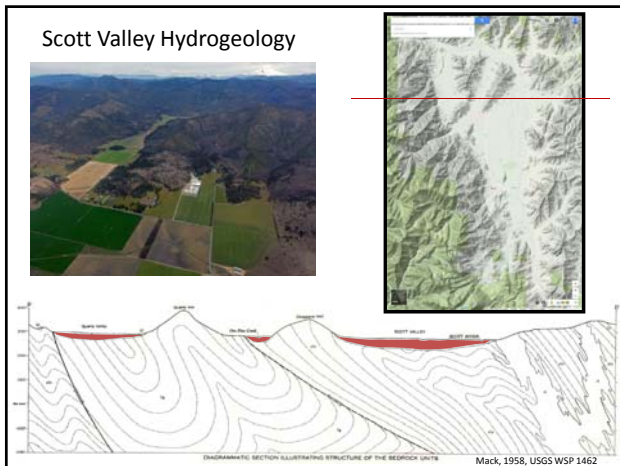
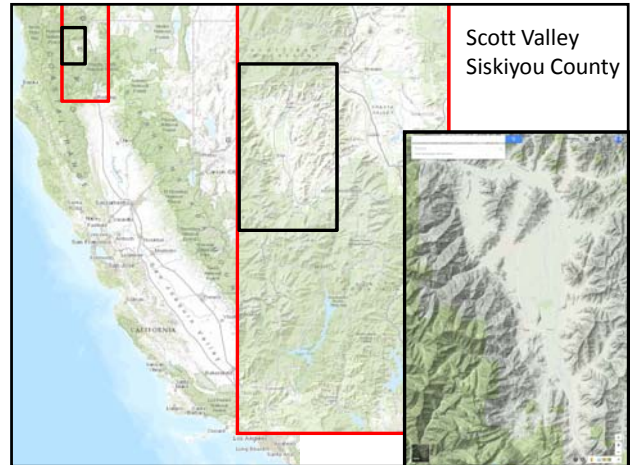
Understanding and Managing a Groundwater Dependent Ecosystem:  
 Scott Valley, Siskiyou County, California

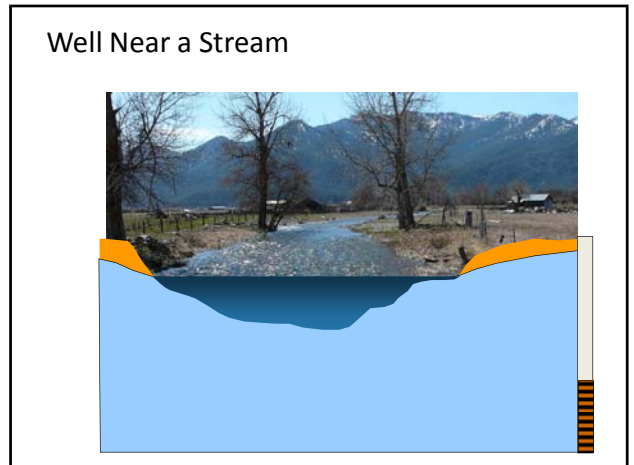
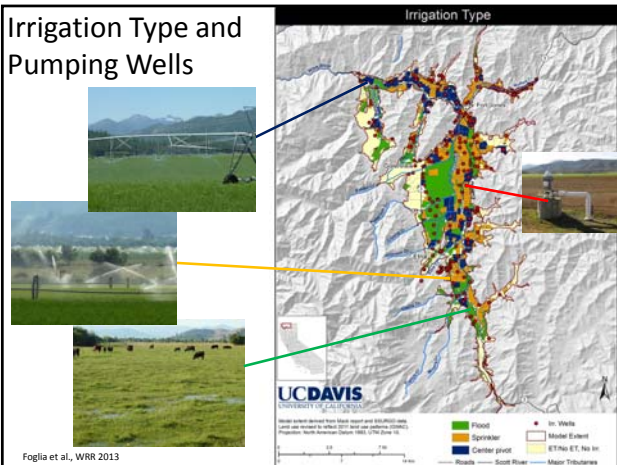
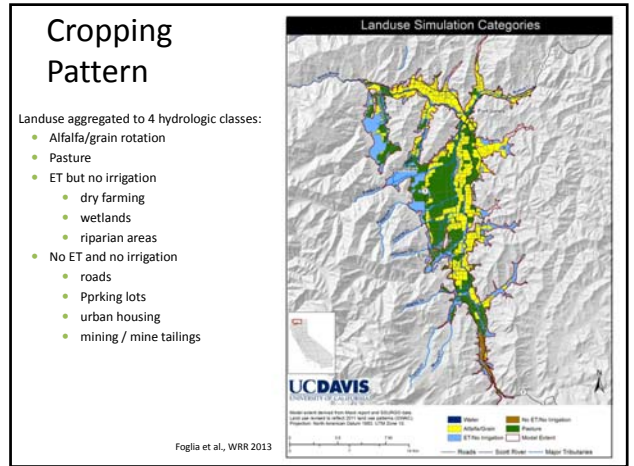
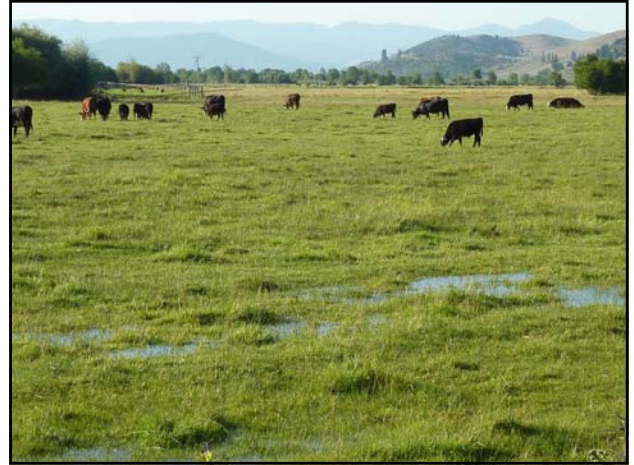


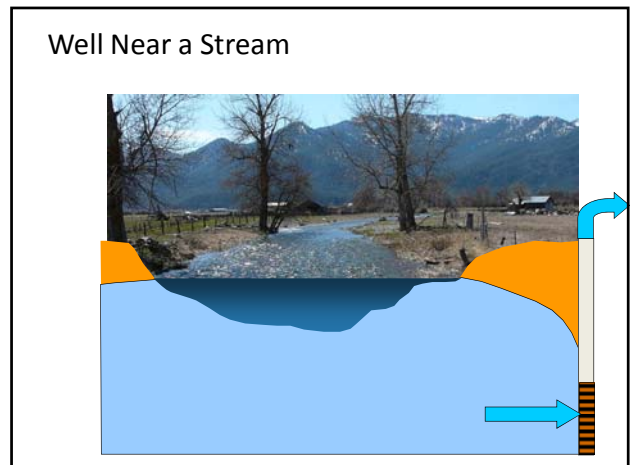
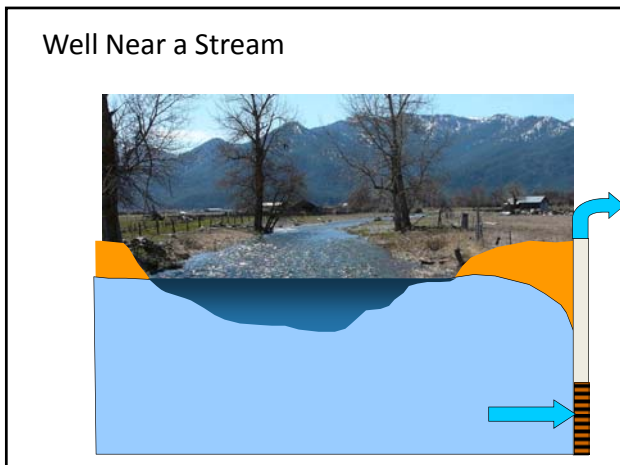
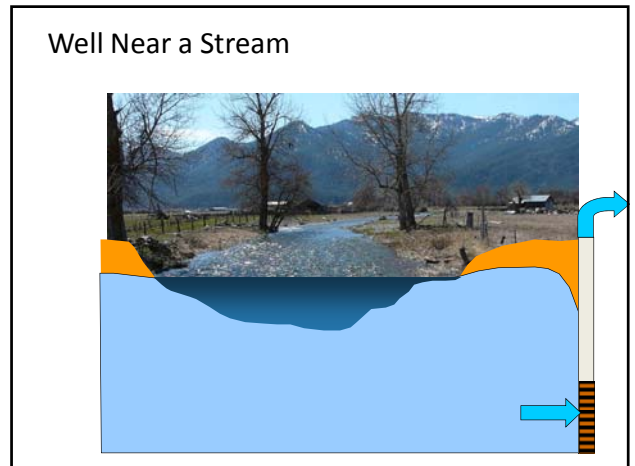
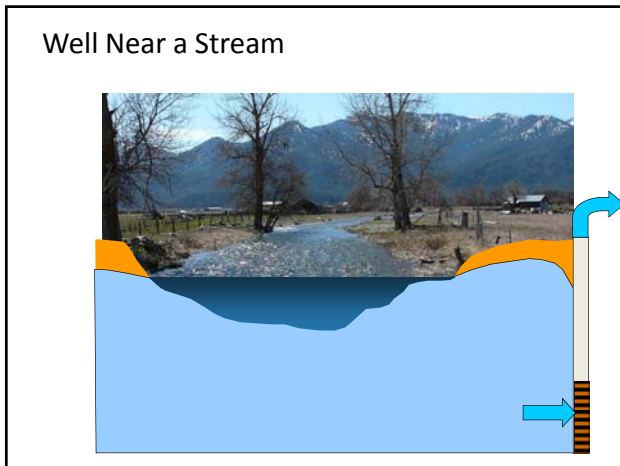
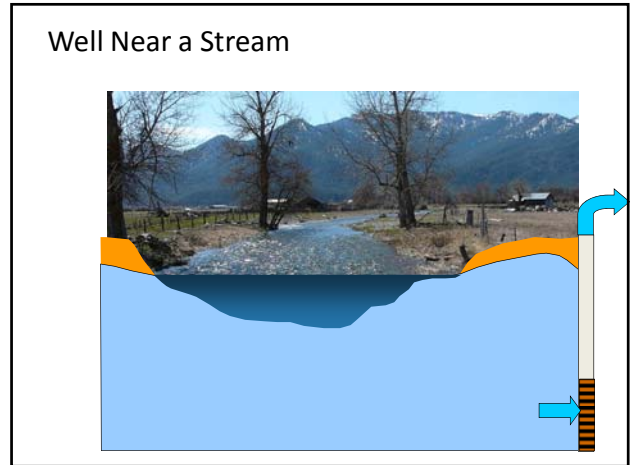
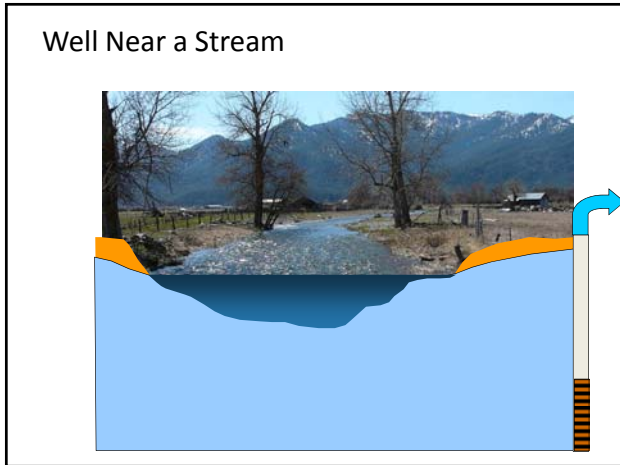
Thomas Harter  
*in collaboration with:*  
 Gus Tolley, Jakob Neumann, Laura Foglia  
 ThHarter@ucdavis.edu  
<http://groundwater.ucdavis.edu>

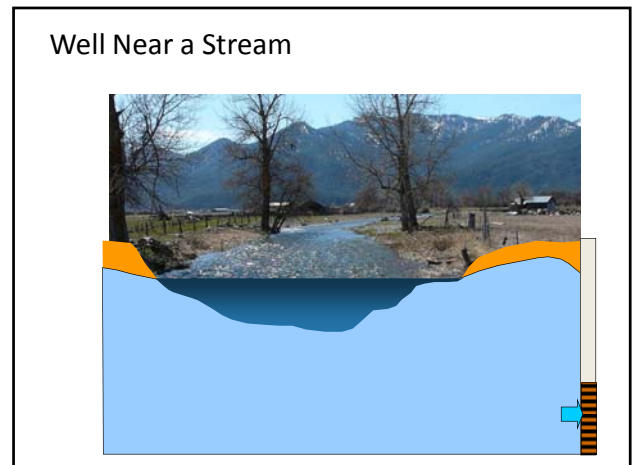
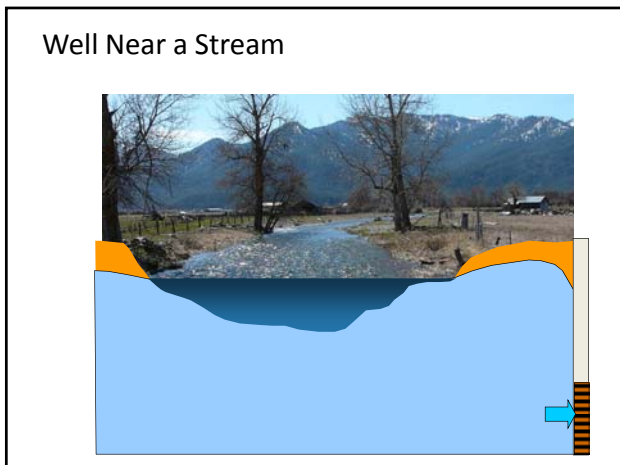
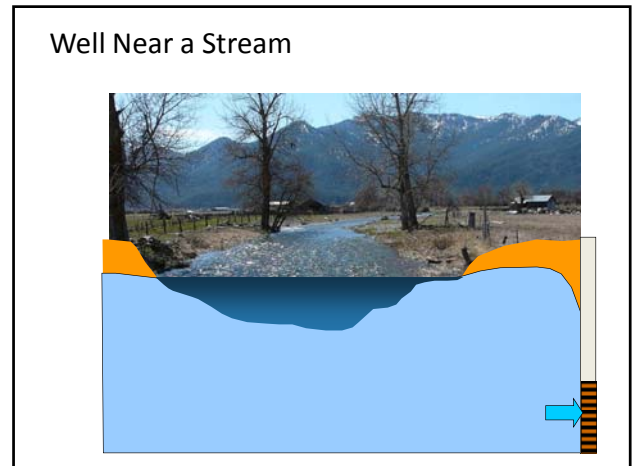
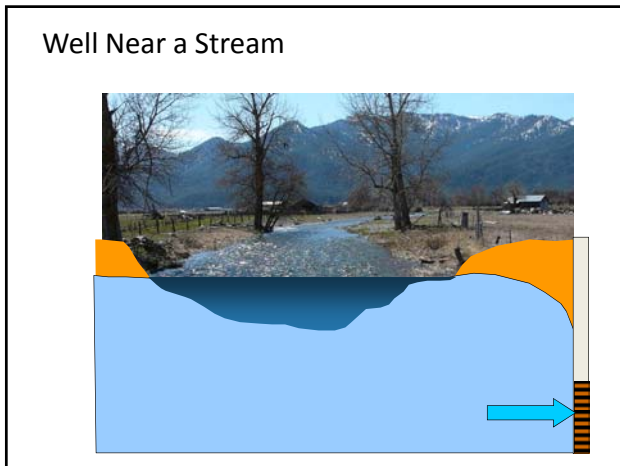
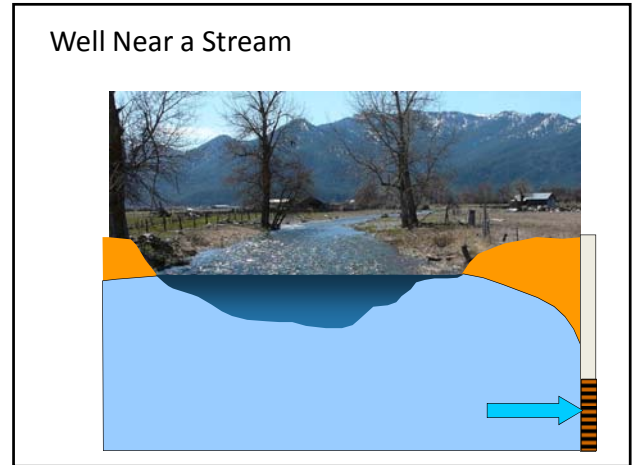
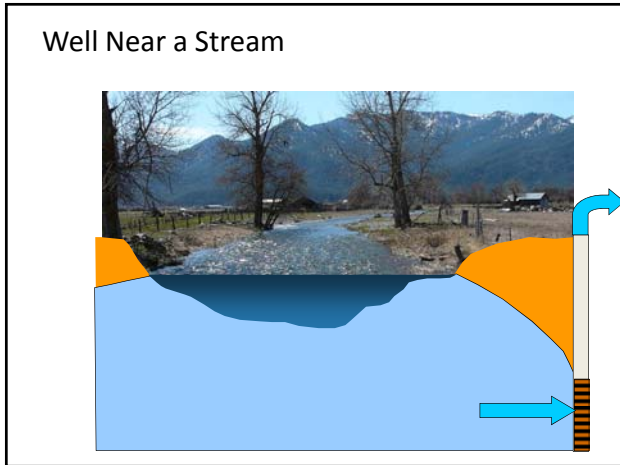
UCDAVIS UNIVERSITY OF CALIFORNIA

AGI Critical Issues Webinar: Water as One Resource July 13, 2015

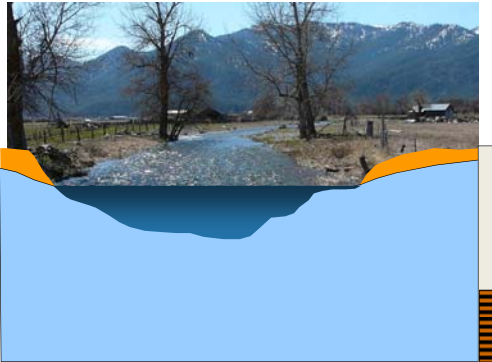




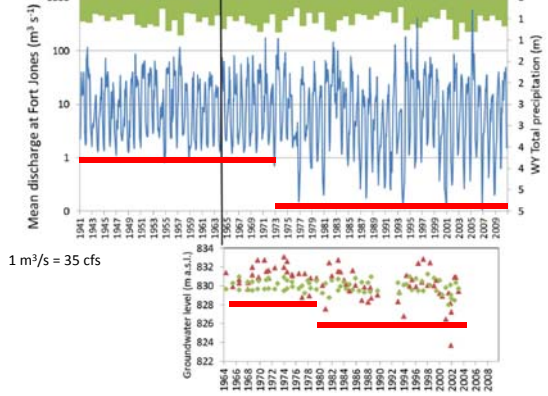




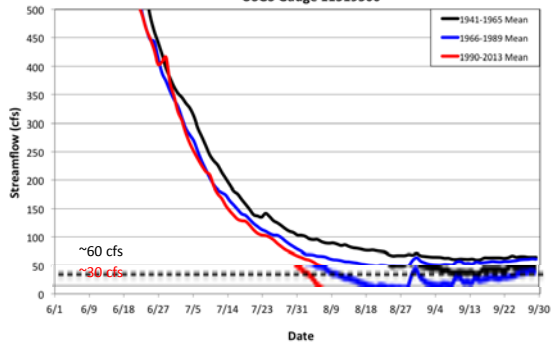
Well Near a Stream



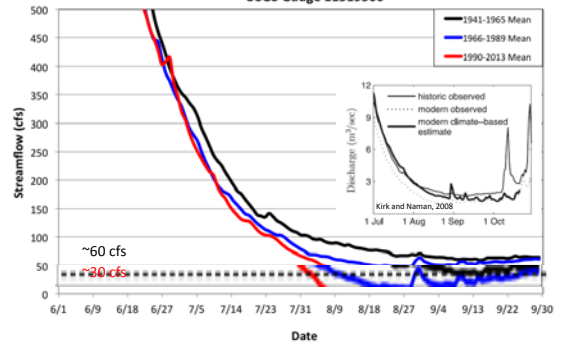
Scott River Flow below Fort Jones



Average Scott River Summer Streamflow  
USGS Gauge 11519500



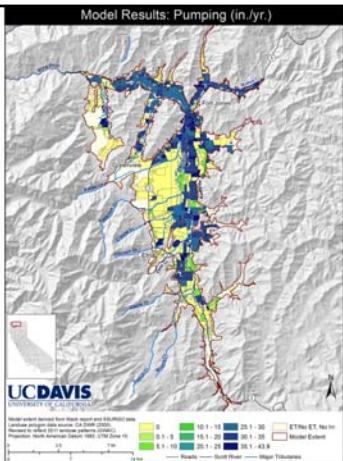
Average Scott River Summer Streamflow  
USGS Gauge 11519500



Tolley et al., 2015

Tolley et al., 2015

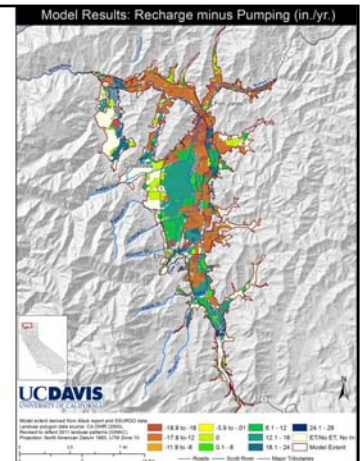
Estimated Pumping



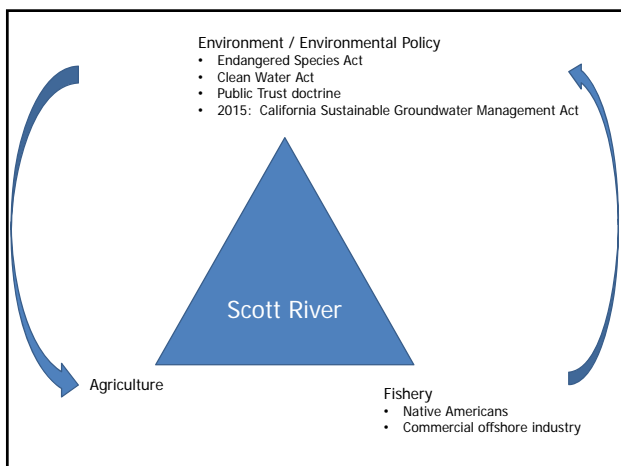
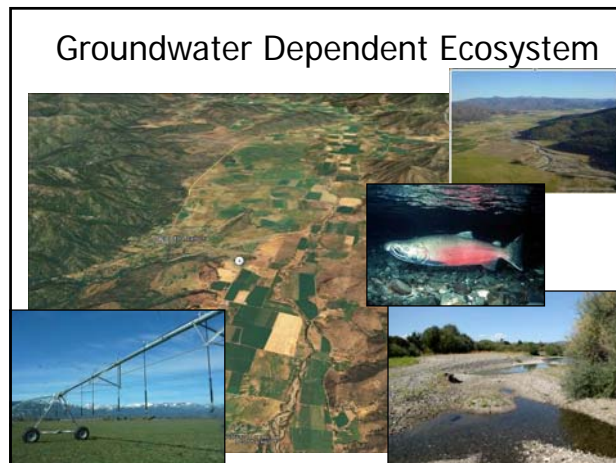
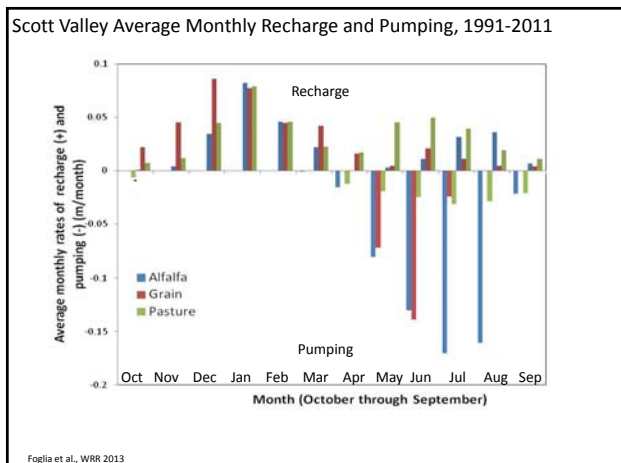
Foglia et al., WRR 2013

Recharge minus Pumping

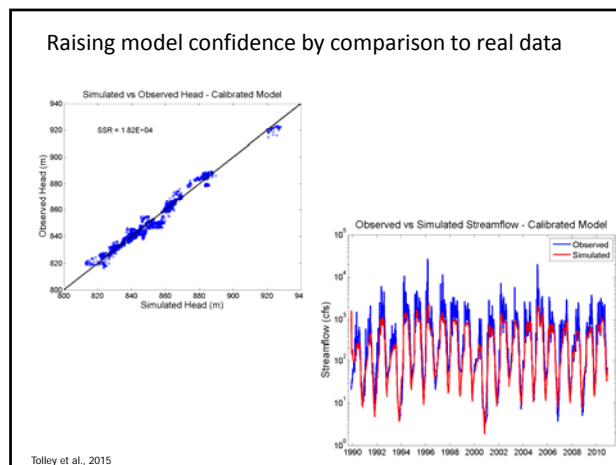
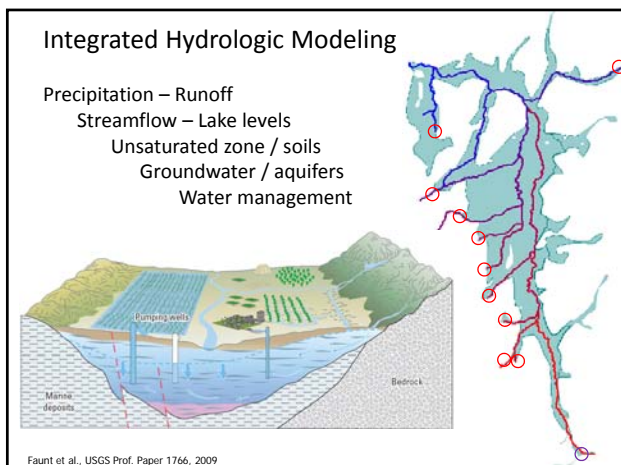
(Annual Net Groundwater Input / Output)



Foglia et al., WRR 2013



- ### Collaborative Approach
- Identify common goals
  - Identify range of potential solutions
  - Select agreeable management options and identify potential concerns
  - Evaluate promising options (modeling / field testing)
  - Select workable solution for implementation
  - Adaptive management

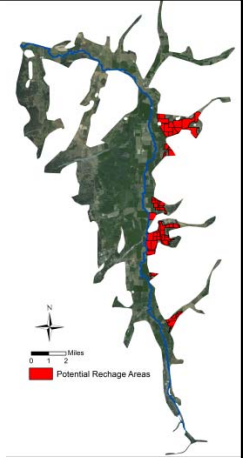


### Groundwater Dependent Ecosystem Management: Key Alternatives for Scott Valley

- **Basic options:**
  1. Decrease surface water diversions, or
  2. Increase landscape recharge, especially in the months immediately before the low flow season, or
  3. Build infrastructure:
    - \* local aquifer recharge/aquifer storage and recovery
    - \* surface water storage, or
  4. Reduce groundwater pumping.

### Managed Aquifer Recharge

- Potential recharge fields on the east side of Scott Valley
- 3,300 acres
  - 2,800 acres of alfalfa/grain hay
  - 500 acres of pasture
- Calculated available storage ranges from 3,300 acre-ft to 15,000 acre-ft
- 3,300 acre-ft could sustain several cfs of flow for over two months



Tolley et al., 2015

### In-Lieu Recharge & Intentional Recharge

- In-Lieu Recharge
  - Surface-water instead of groundwater is used to irrigate fields near the river while streamflow is sufficiently high (spring months)
  - Apply one extra irrigation with stream water before first cutting of alfalfa (agricultural recharge)



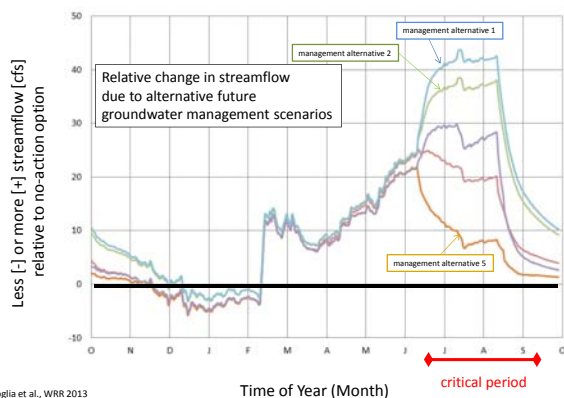
Tolley et al., 2015

### Beaver-Dams / Raising Stream Level & Water Table



<http://www.blendspace.com>

### Investigate Impact of Alternative Management Practices



Feglia et al., WRR 2013

Questions?



<http://groundwater.ucdavis.edu/Research/ScottValley>