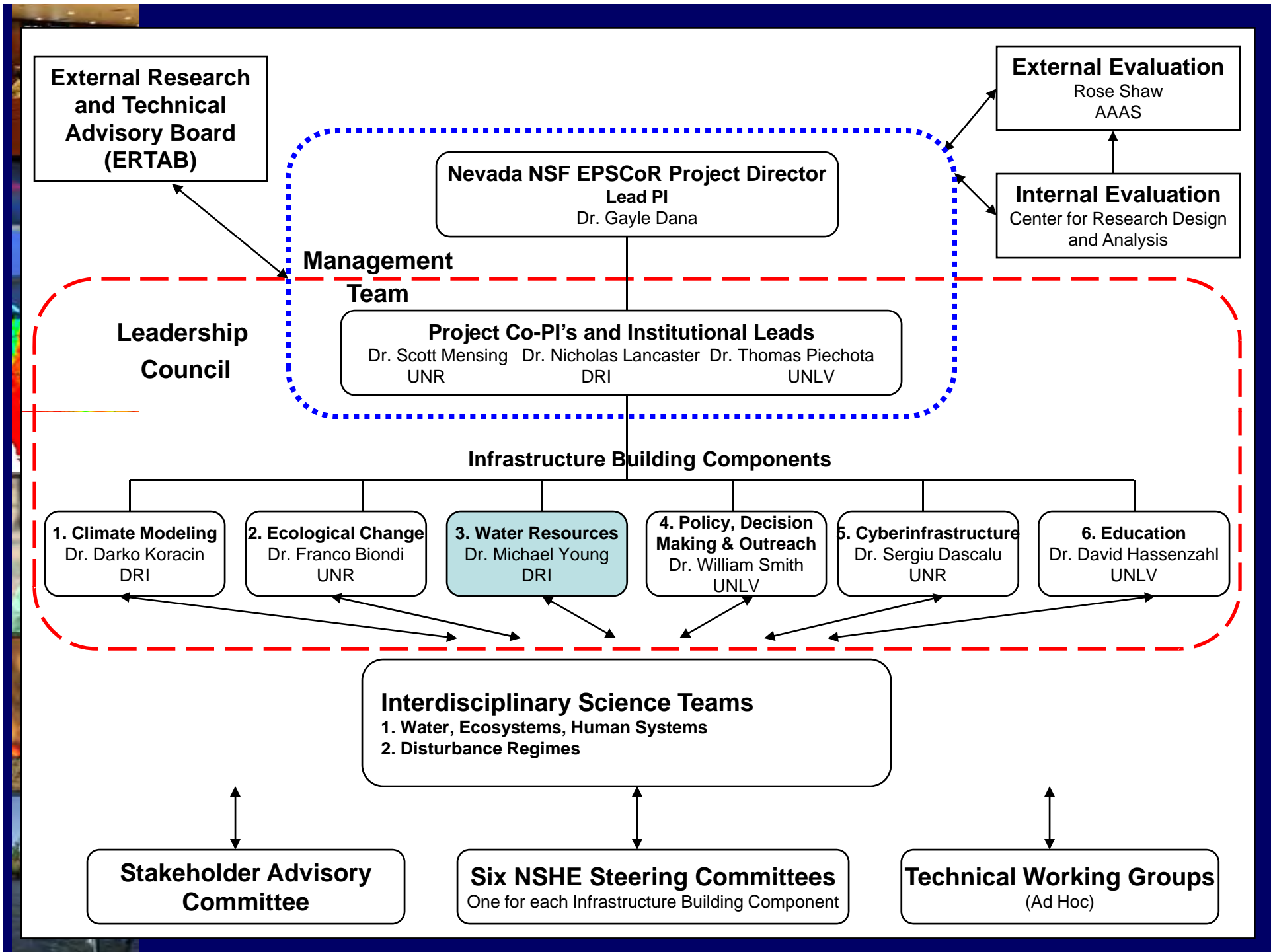


Nevada EPSCoR Project: Water Component Overview

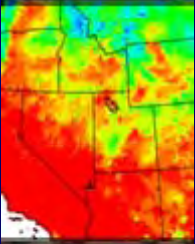
Laurel Saito
Assistant Professor
University of Nevada Reno





Water Resources Steering Committee

- One lead from each institution:
 - Michael Young, DRI (Lead)
 - Dale Devitt , UNLV
 - Laurel Saito, UNR
- Additional interested individuals from all institutions



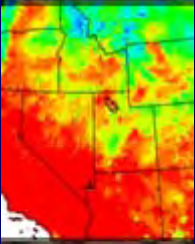
Water Resources Component

- Component goal

Develop data collection, modeling, and visualization infrastructure to better quantify and model changes in water balance and supply under climate change, with an emphasis on the recharge component.

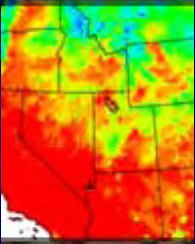
- Key elements

- Instrumented transects spanning a range of elevations at two locations in Nevada
- Numerical models to evaluate interactions between surface and groundwater systems under climate change and/or climate variability scenarios and to predict future state of water resources



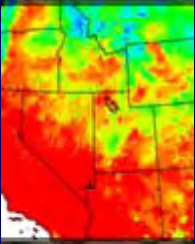
Observational transects

- Quantify effects of climate change and variability on hydrologic inputs and ecologically modulated distribution of this water
- Quantify ecological responses of system components to climate change and variability to determine/define ecosystem hydrologic behavior (e.g. bio-availability of water)
- Assess how effects and responses may differ between elevational transects located at different latitudes within the State



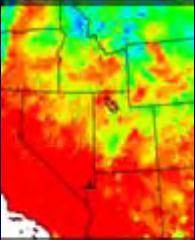
Numerical modeling activities

- Developed in close collaboration with other components
- Models will address:
 - climate change impacts on extreme hydrologic events
 - groundwater recharge
 - groundwater/surface water interaction
 - hydrologic interactions with ecology

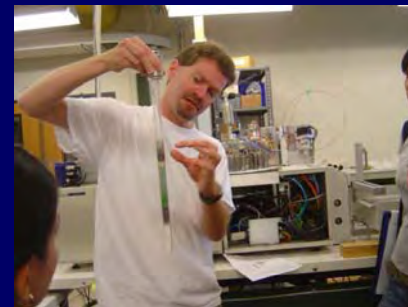


Existing strengths and resources

- Faculty with expertise in surface, vadose zone, and groundwater hydrology
- Research and educational programs
- Physical infrastructure
 - Boulder City Large Lysimeter Facility (DRI)
 - Stable Isotope Laboratory (UNR)
 - Center for Urban Water Conservation (UNLV)



Large Lysimeter Facility



Stable Isotope Laboratory



Center for Urban Water Conservation

Strategies

- Primary strategy

Develop data collection, modeling, and visualization infrastructure to better quantify and model changes in water balance and supply under climate change

- Augment existing faculty

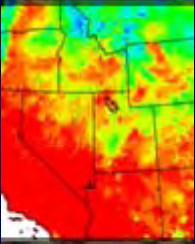
- Hire one new faculty in Ecohydrology (UNLV)

- Develop observational networks

- Numerical and conceptual model development

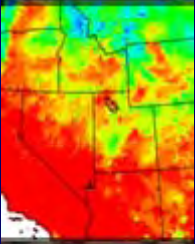
- Interact with community stakeholders

- Close collaborations with Ecological Change Component



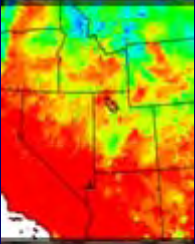
Outcomes

- Improved understanding of processes controlling recharge at different elevations under climate change
- Enhanced hydrologic modeling capabilities
- Strengthened understanding of linkages between water and ecology
- Nationally recognized research in water resources



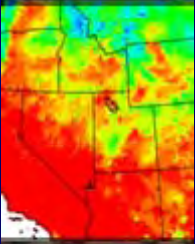
Accomplishments thus far

- Hired two graduate research assistants
- Hired one technician
- Selected two graduate fellows
- Finalizing site selections and equipment list



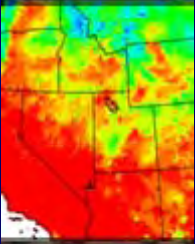
Future plans

- 2008-2009:
 - Select environmental transects
 - Begin instrumentation of sites
 - Begin data collection
- 2009-2010:
 - Complete instrumentation of sites
 - Continue data collection
 - Begin search for new faculty at UNLV
- 2010-2011:
 - Continue data collection
 - Hire new faculty at UNLV
 - Initiate modeling
- 2011-2013:
 - Continue data collection
 - Establish baseline conditions and conceptual linkages
 - Complete model development
 - Identify data 'layers' for multi-media



Collaboration

- With others in the component
 - Maximize use of existing expertise
- With other components
 - Climate modeling: Climate variability and downscaling
 - Cyberinfrastructure: Enhance visualization
 - Ecosystem change: Linkages with ecology
 - Education: Courses and outreach
 - Policy: Informing decision-making
- With other states
 - Sharing of knowledge
 - Sharing of resources



Comments/Questions/Ideas

