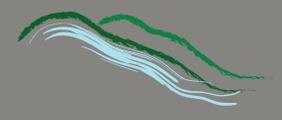


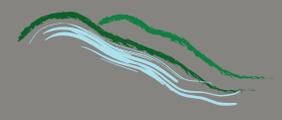
Water sustainability in the Willamette River Basin: The WW2100 project

Institute for Water
and Watersheds





- ◆ Some context on the WW2100 project re: water sustainability
- ◆ The WW2100 project
- ◆ Some early lessons on water sustainability in the Willamette

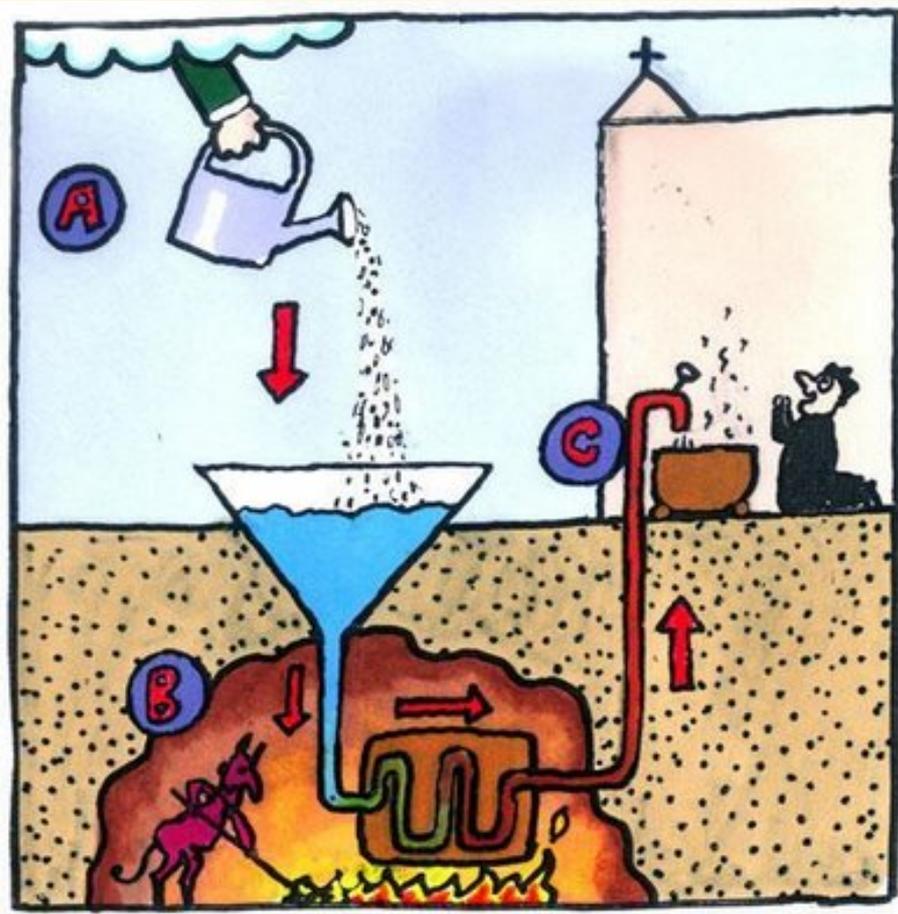


Context

Water sustainability and climate

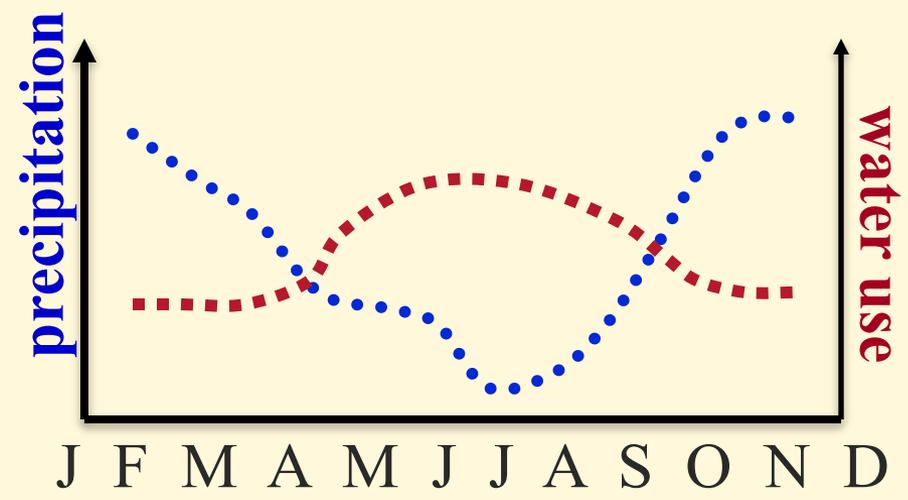
- “major gaps in our basic understanding of water availability, quality and dynamics, and the impact of both a changing and variable climate, and human activity, on the water system.”

NSF Jan. 2010



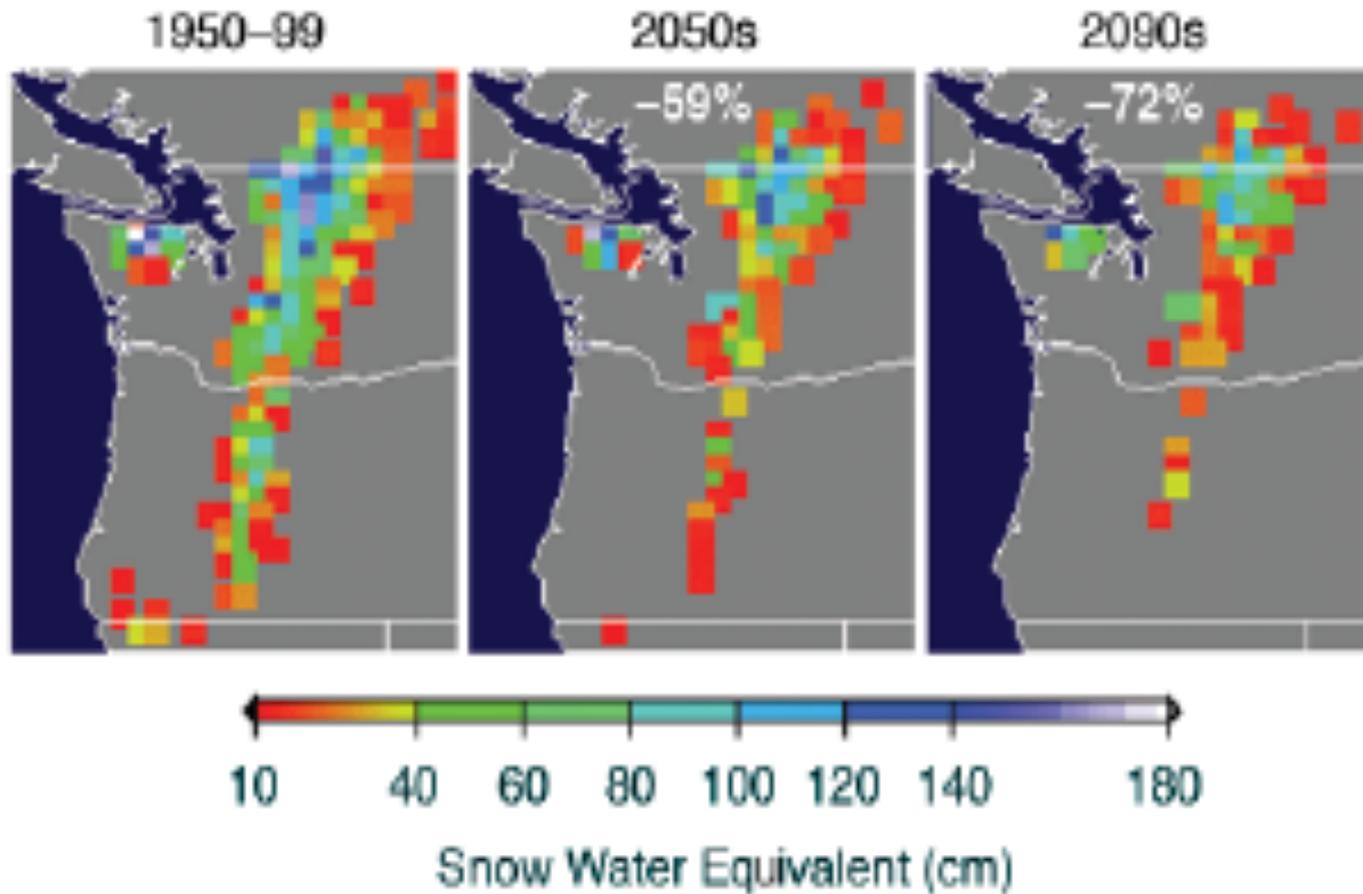
http://www.google.com/imgres?imgurl=http://2.bp.blogspot.com/_jW0fHcfb-L4/SNOaZoxuw3I/AAAAAAAAAFy8/jgNkNp60-o

Issues of water in the West



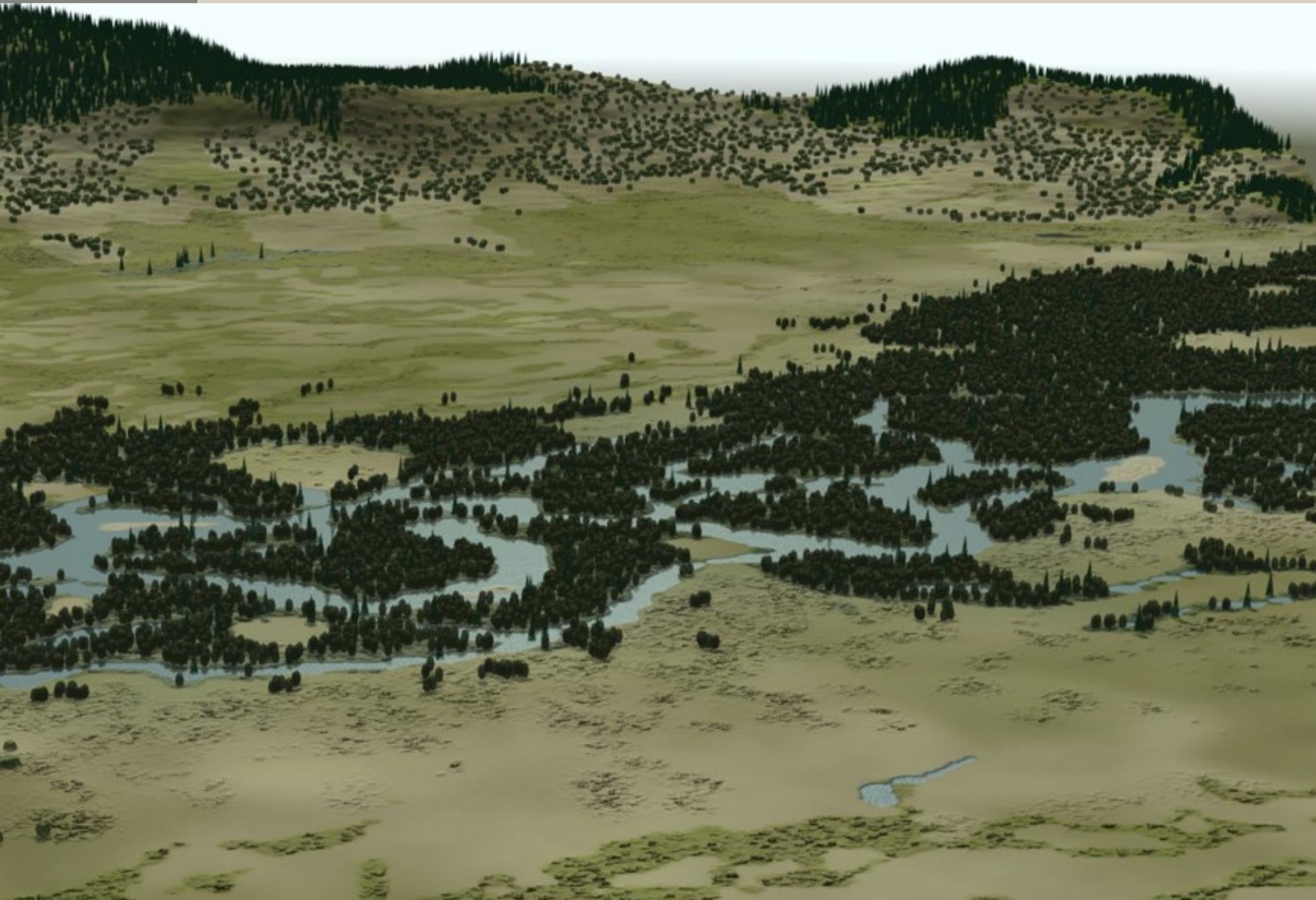
This problem will be intensified
by climate change

Global Change Scenarios in the PNW



Mote et al.
Science 2004

Virtually gone. Computer models suggest that even moderate warming will drastically reduce the spring (peak) snowpack in the Oregon and Washington Cascades.





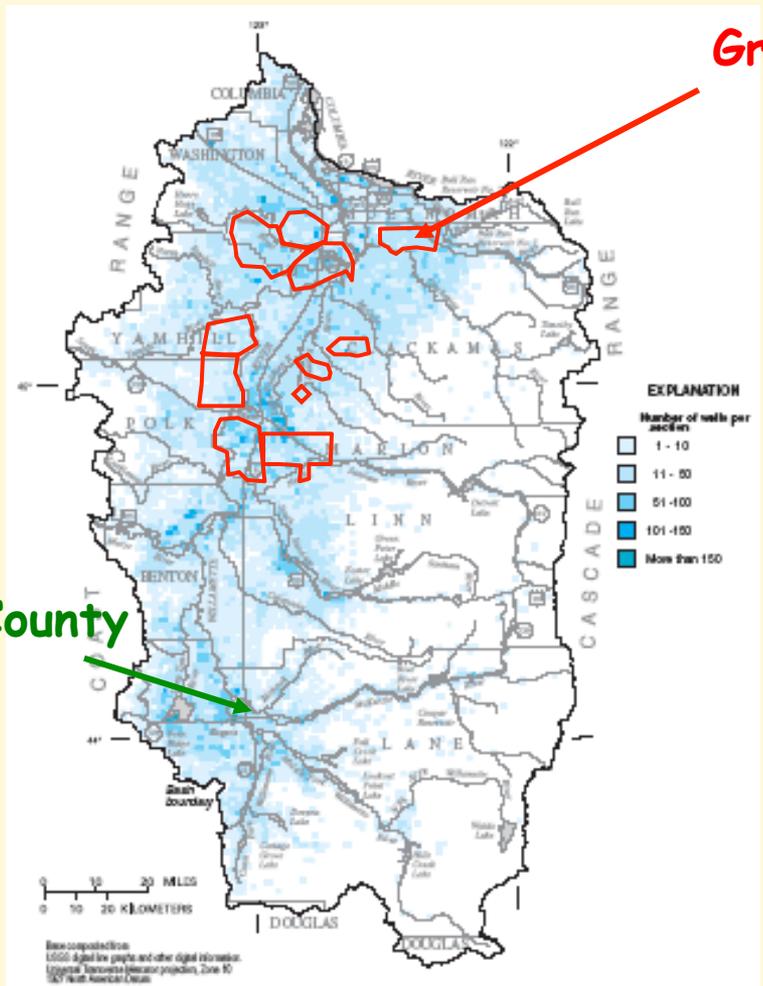


Groundwater Limited Areas

Groundwater Limited Areas

State-designated GLAs mostly located in Columbia River Basalts

Lane County also has groundwater limited areas in volcanic rocks that are not recognized by State.



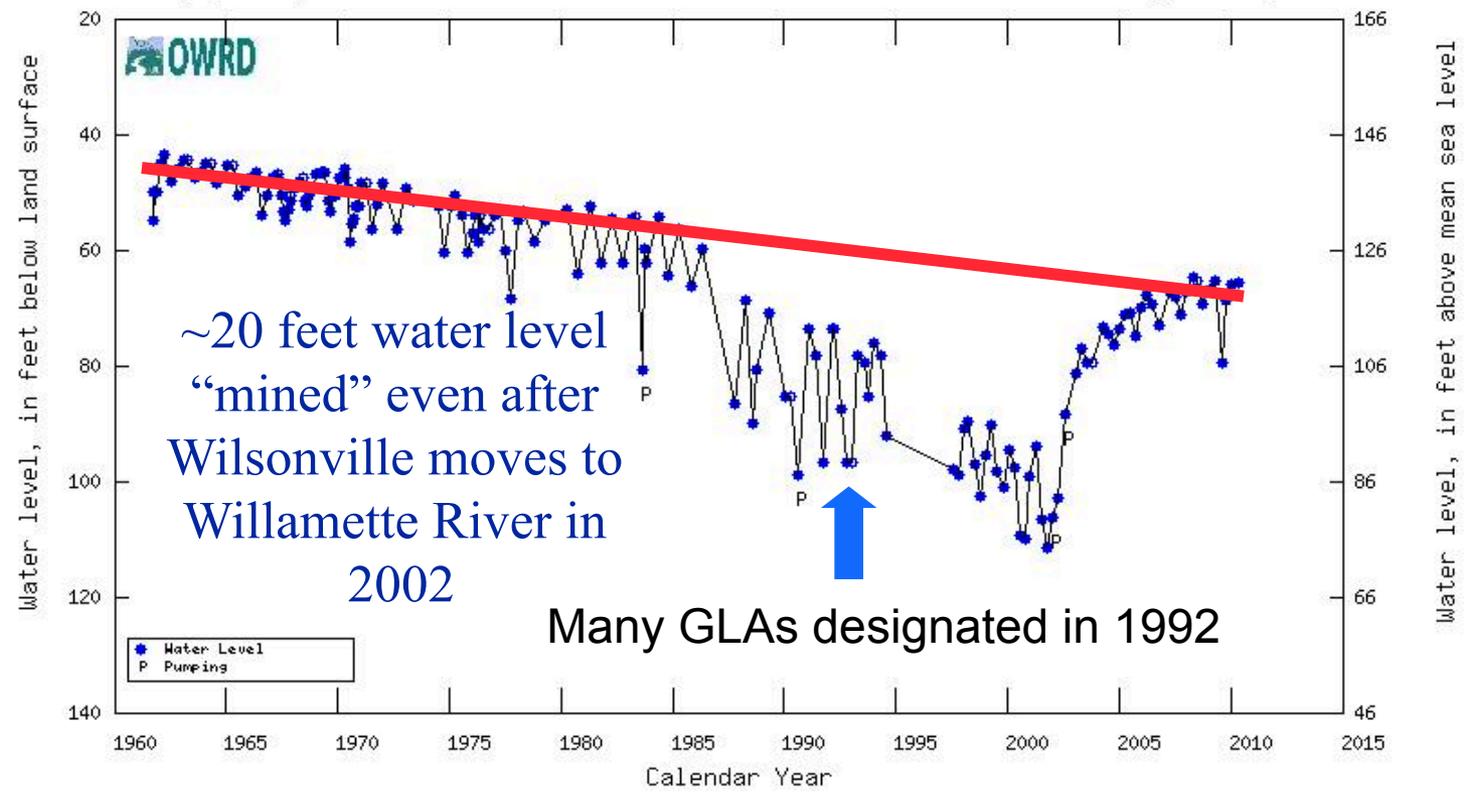
Lane County

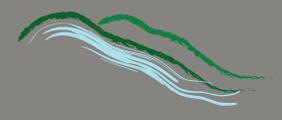
Base map modified after OWRD and DLCD (2002).

Storage: Groundwater Limited Areas Generally Based on Water Level Declines

West of Wilsonville

Oregon Water Resources Department Well Location	
Oregon Water Resources Department Logid	CLAC 8231
Oregon Water Resources Department Well Tag (Well ID)	----
Oregon Water Resources Department State Observation Well Number	40
Total well depth (feet below land surface)	1000
Land surface elevation (feet above mean sea level)	186
Primary use of well	PUBLIC SUPPLY
Primary aquifer system	Late Tertiary Basalt Aquifers





WW2100 Project

Outline



Willamette
Water 2100:
*Anticipating
water scarcity
and informing
integrative water
system response
in the Pacific
Northwest*

Our key Questions:

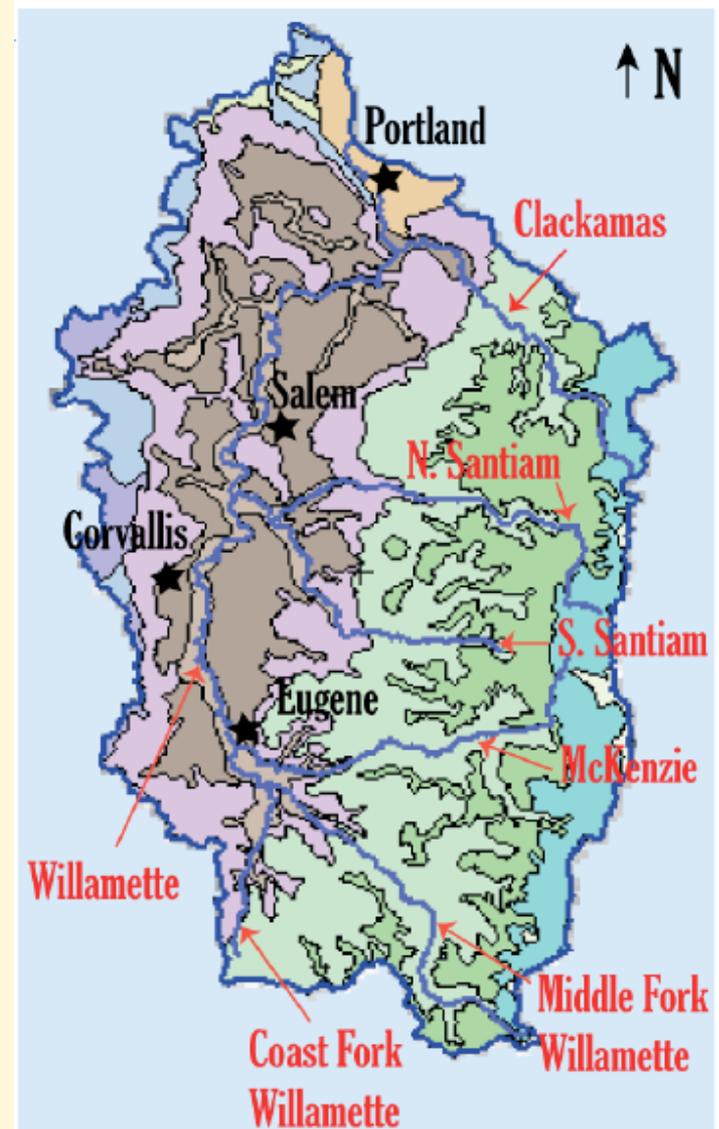
- Where are climate change and human activity most likely to create conditions of water scarcity?
- Where is water scarcity most likely to exert the greatest impact on ecosystems and communities?
- What strategies would allow communities to prevent, mitigate, or adapt to scarcity most successfully?



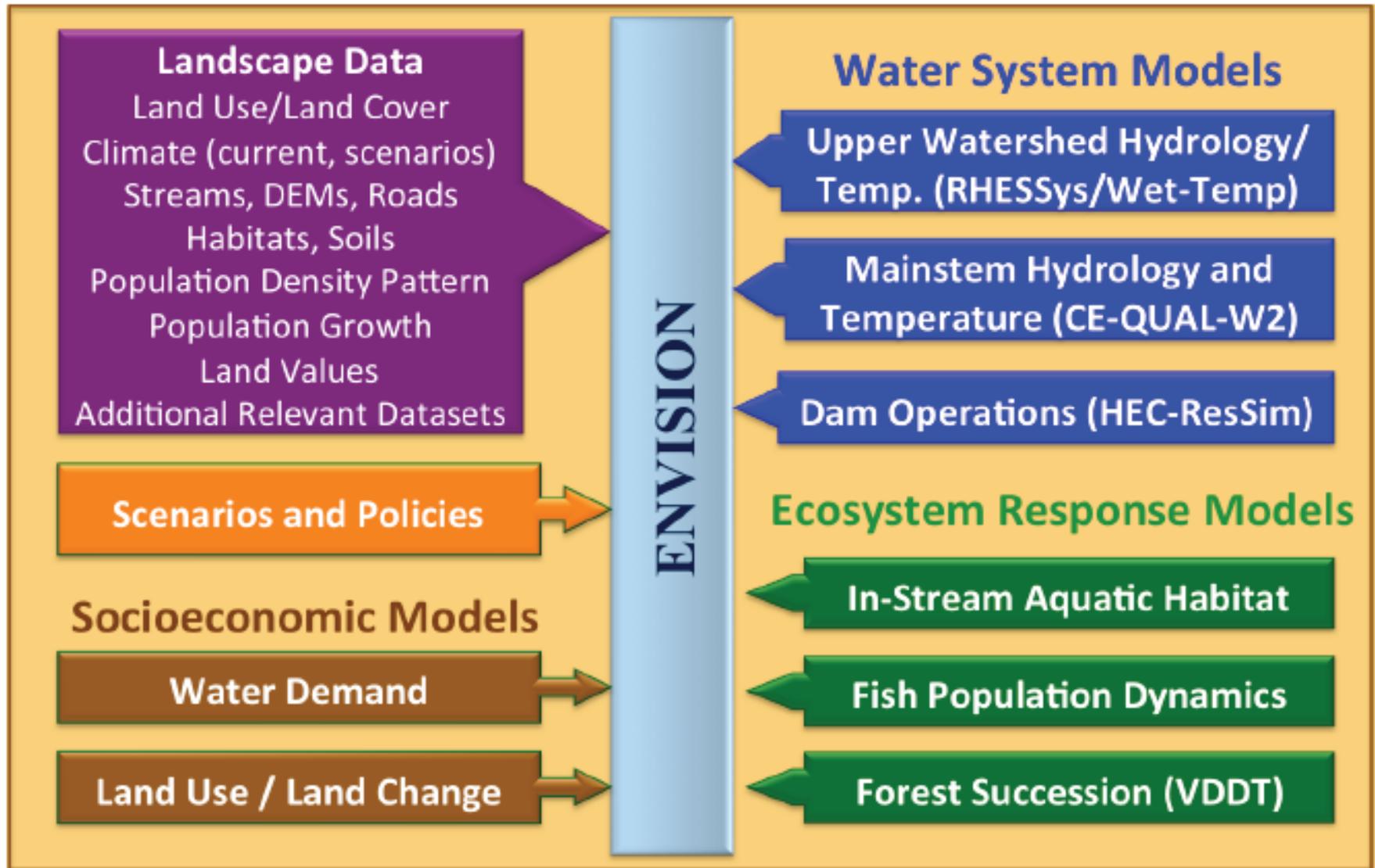
July 27, 2011

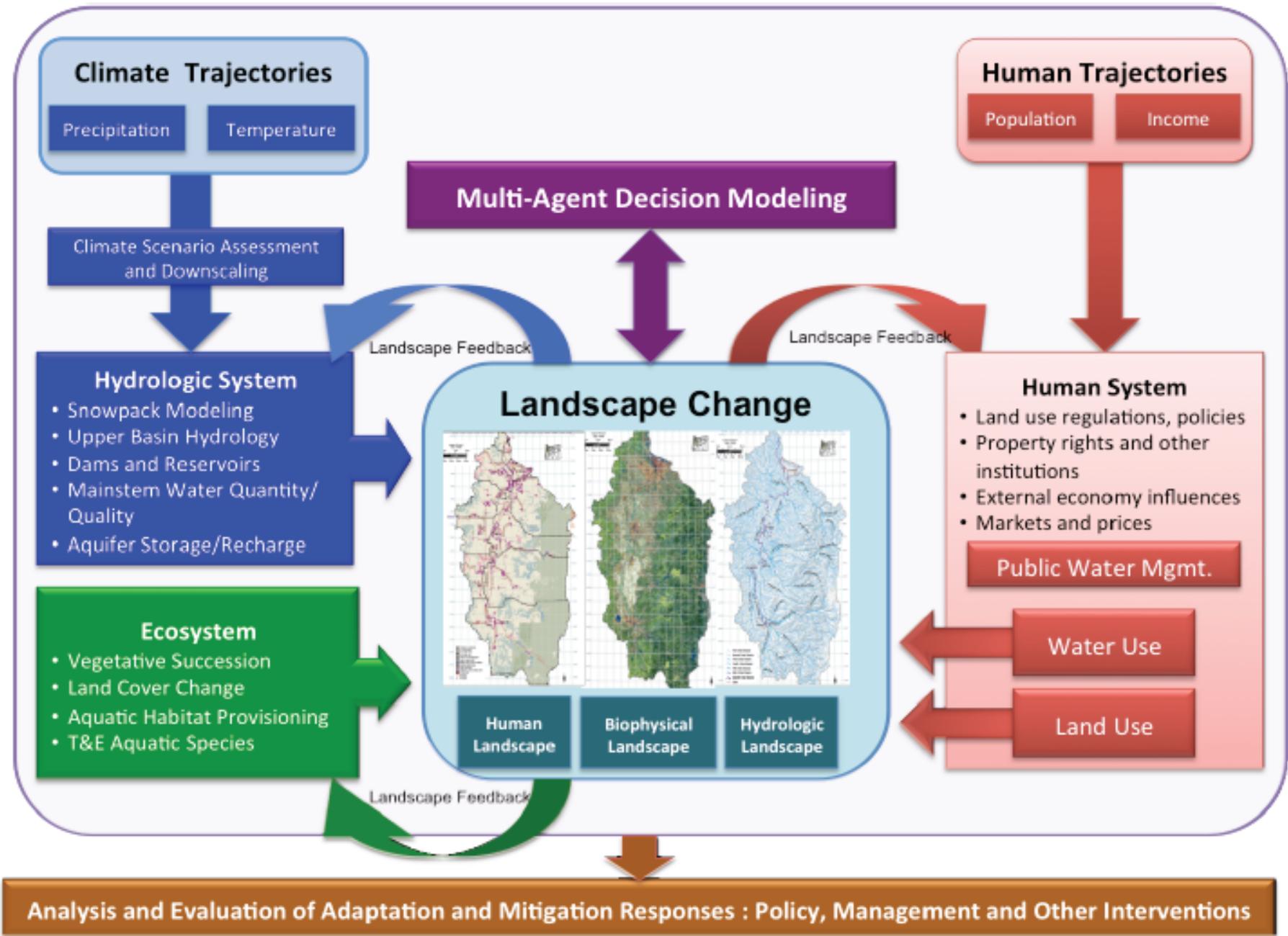
What we said we'd do?!

- Model the system
- Explain the interactions
- Indentify the vulnerabilities
- Compare alternatives
- Simplify



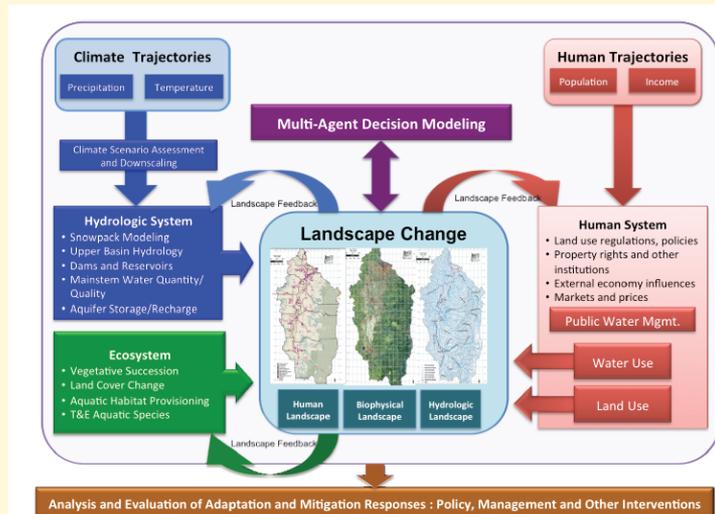
Envision with Data Sources and Plug-In Models

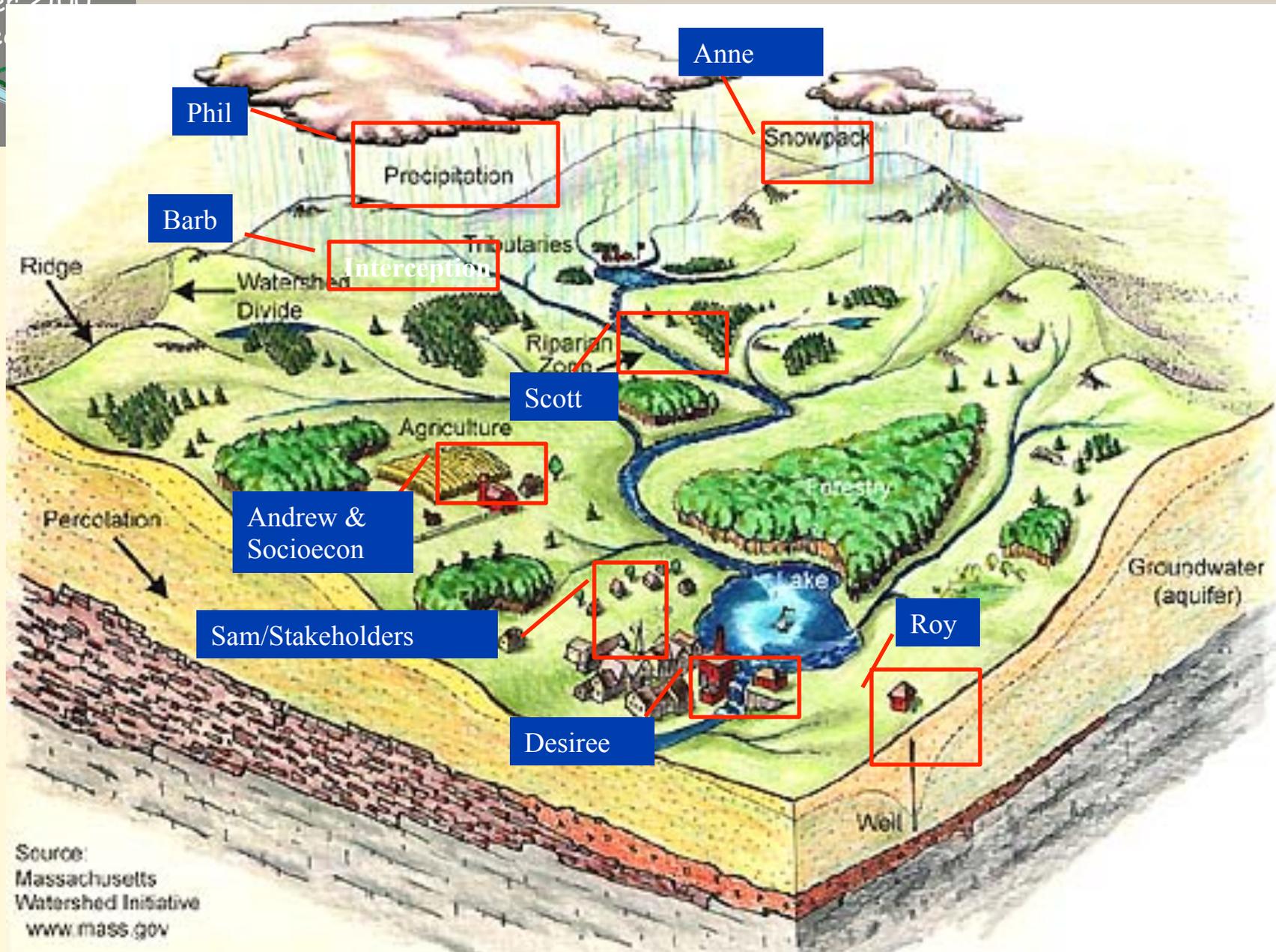




Goals of the first 6 months

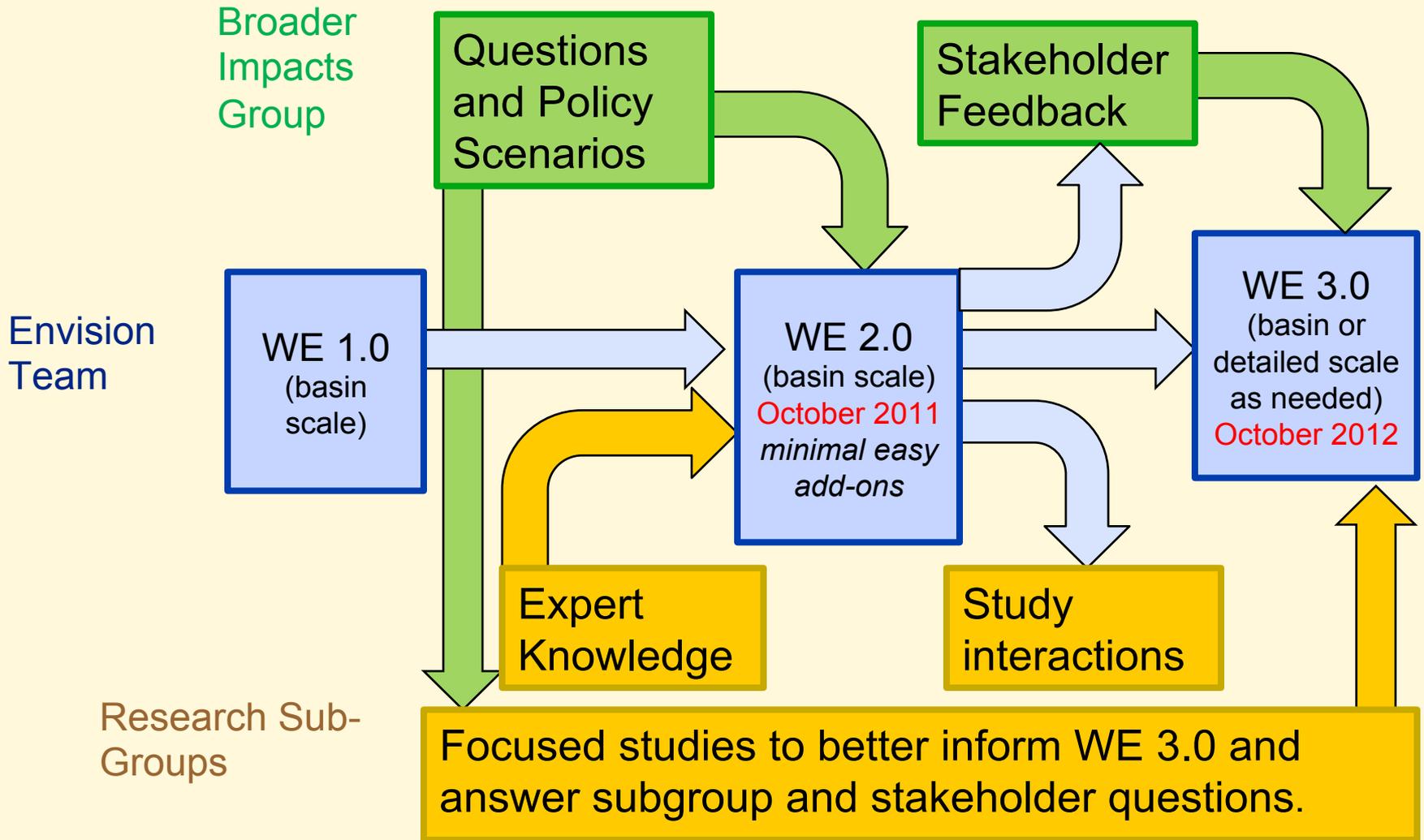
- A first attempt to put 'time' into our diagram
 - Something between a flow chart and a Gantt chart
- Try to decide where we will work in the basin
 - Wall-to-wall (?), specific sub-basins, elasticity of ENVISION
- What will be the grain of the spatial reporting units?
- Conceptual convergence, building a common vocabulary,
- Initial team building

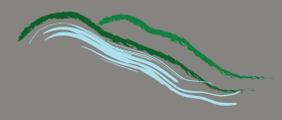




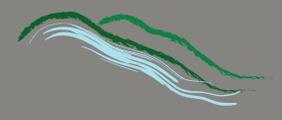
Source:
Massachusetts
Watershed Initiative
www.mass.gov

Our Horrendogram





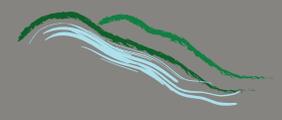
Early lessons learned



Flood potential may cause scarcity



Willamette River 1996 Flood



The big lever in the Willamette



**The key factor for who
will see scarcity**

An Introduction to
Oregon's Water Laws

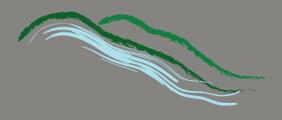


WATER RIGHTS
IN OREGON

Oregon Water Resources Department
General Edition - September 2009

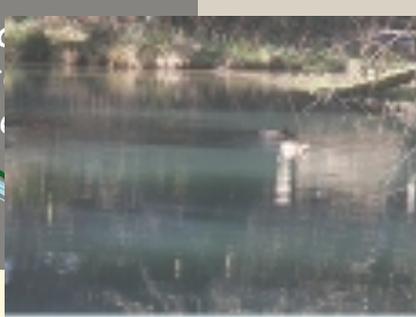


~80% of WW use



Near stream restoration efforts





Outreach

Water Scarcity: What Drives It?

Benton County Community Water Meeting

Wednesday, June 30, 2010, 6:00-8:00 PM

Benton County Fairgrounds, Conference Room

110 SW 53rd St., Corvallis, Oregon 97333

 **Keynote** "The Hydrologic Continuum": The Water Cycle & People
Chris Maser, Environmental Researcher and Author

 Mitigation and Adaptation Project Presentations:
Oregon State University
The Freshwater Trust
Climate Change Leadership Initiative

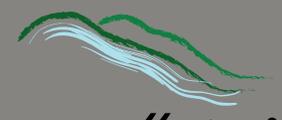
 Have Your Say on Local & State Water Policy Work!

Thanks to our Community Water Meeting Partners:



The importance of stakeholder engagement





Stakeholder & Universal Well Care

“A Local Assessment of ‘Abandoned Wells’ in
Linn and Benton Counties, Oregon”



(USGS Mini-Grant 2008-2009)



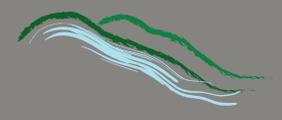
The Market Place Estimate in **Benton County**:

~2,000 unused domestic water wells (11,000 total)

~\$4,000 - \$8,000 (avg. cost for ‘proper abandonment’)

X 264 (# of Wells over 35 years old) =

\$1-2M (well abandonment revenue potential)



Summary

- ◆ Some context on the WW2100 project re: water sustainability
 - Climate change and variability; population increase, income increase, changed landuse
- ◆ The WW2100 project
 - An attempt to explore the interactions within the water cycle—decadal to centennial time scale
- ◆ Some early lessons on water sustainability in the Willamette
 - Dam operation rules and water rights
 - Landuse likely trumps climate change
 - How/if to use downscaled GCM information?!