

Summary Notes – Willamette 2100 Water Resource Envision Project

Youtube Video (59 min) <https://www.youtube.com/watch?v=fhoS1pUJ44g>

Project Leads: Jeff McDonnell and John Bolte, OSU; many collaborators

Physical + socioeconomic modeling, combined with water forecasting (years 2000 – 2100)

Climate Change in Willamette Valley: warming climate, less snow, more rain, less rain on snow, more flashy runoff, rain in valley, snow retreat to higher elevations, decreases snow pack storage in winter

Humans = projected population growth and land development in Willamette Valley

Climate refugees from southwest U.S. predicted in Oregon; anticipated water scarcity in Willamette Valley

Willamette River – historic simplification since 1800's, drain wetlands, straighten channels, develop floodplain

Willamette 2100 project = policy + science + community action/planning

Key Questions

1. Climate change and human activity
2. Ecosystem and community impacts: salmonids and stream temp. disturbance
3. Mitigation Strategies / planning

Willamette Basin = 30,000 sq. km, Eugene to Portland, north draining

Methods:

Model the system

Explain interaction

Identify vulnerabilities

Devise alternatives for mitigation

Geology influences hydrology, snow pack, runoff vs. groundwater inputs “Geology is Destiny” ... bedrock and sediments control surface water hydrology

Models – socioeconomic parameters, agriculture / water use, municipal use, ecosystem services, land management; stakeholder inputs

Willamette Basin = gaging network, HJ Andrews Experimental Forest; groundwater monitoring, groundwater vs. rainfall patterns

Multi-use landowners, fragmented governance

Willamette River History / Projections: 1850 ---- 2100 decadal scale modeling

Dams, simplification, draining wetlands

Population expected to double in next 100 years

Supply side vs. demand side water use (recreation, municipal, agriculture, ecosystem services)

Modeling landscape parameters: Physical vs. Social + decision making scenarios “Envision” Framework, iterative modeling process with decision trees