

1. Climate in the Basin

- Group 1
 - Institutional barriers – coordinating management needs and science responses
 - Science communication
 - Example: Seattle's evolution from outsourcing to internal work
 - Full water cycle
 - Understanding soil moisture, radiation,
 - Applying remote sensing, modeling
 - Martyn: relate state variables to specific decisions/impacts
 - Managing legal and physical overlays (e.g. water rights, land ownership, physical environment)
 - Characterizing uncertainty
- Group 2
 - Service / science enterprise
 - Synthesis/Guidance/Best Practices - Gap: People do not understand issues

- Group 3
 - Significant recent success in planning to climate at basin scale
 - Need naturalized flows including better data for model calibration/ground trothing
 - Existing modeling infrastructure has limited ability to capture human regulation
 - Full water cycle
 - Calibrate to other variables
 - Vegetation
 - Land use
 - Ecosystem
 - Monitoring
 - groundwater
 - Service/science disparities
 - Reveal uncertainty through characterization in order to explore possible decisions to take both now but also especially into the future
 - Including precipitation

- Group 4:
 - Institutionalizing application of science into decision making
 - Paradigm shift from deterministic to probabilistic
 - decision making under uncertainty
 - uncertainty is increasing and can be debilitating
 - develop institutional capacity to deal and effective strategies for communicating/understanding uncertainty
 - Tolerance/strategy for failure
 - Continue integrate science into process (more challenging in some places than others)
 - Need to be increasingly adaptive over time
 - Tremendous progress
 - Keep advancing science
 - Training next generation
 - Better understand drought tipping points
 - SLR advances
 - Governance of federal and academic water enterprise
 - Support monitoring network

Major Crosscutting Themes

- Institutionalizing application of science into decision making
- Capture full water cycle in projections/scenarios
- Keep advancing science
 - Revealing uncertainty
 - Naturalized flows
 - Training next generation
 - Monitoring