



Public and Communal Land
Considerations in Response to Climate Changes:
Reflections from the US National Climate
Assessment and the Great Plains Region

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The World is Warming

Numerous independent lines of evidence demonstrate that warming has continued.

Because human-induced warming is superimposed on a naturally varying climate, rising temperatures are not evenly distributed across the globe or over time.

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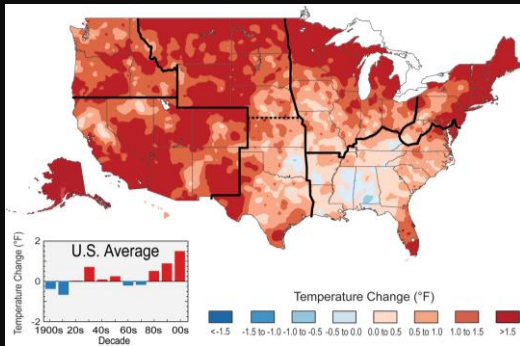
Our communities are already feeling the effects of changing climate and seasonal patterns associated with extreme weather events



How has Climate Changed?

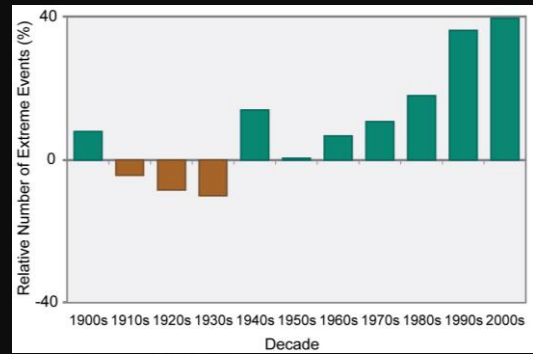
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Observed U.S. Temperature Change



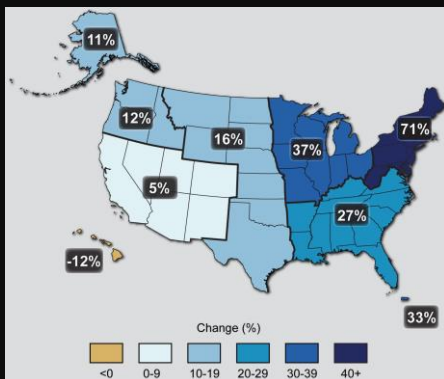
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Observed U.S. Trends in Heavy Precipitation



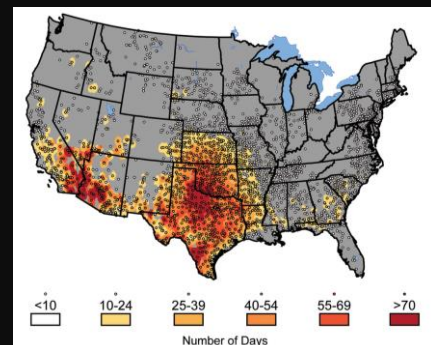
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Observed Change in Very Heavy Precipitation



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100-degree Days in 2011



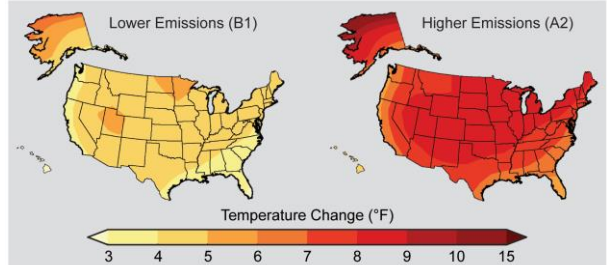
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How may Climate Projections affect these Weather Patterns?

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Projected Temperature Change



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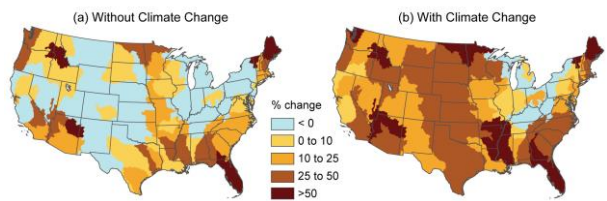
Impacts are Projected to Increase



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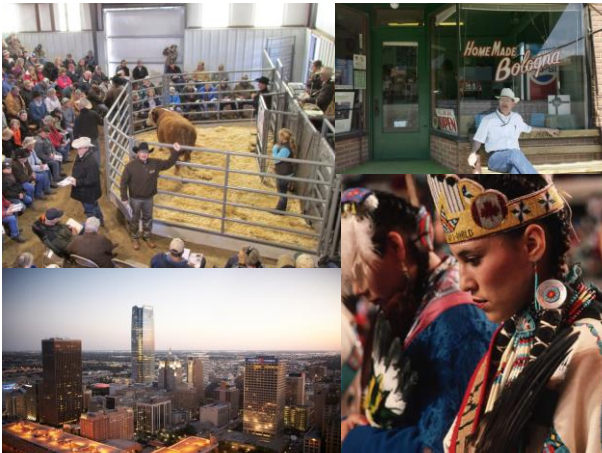
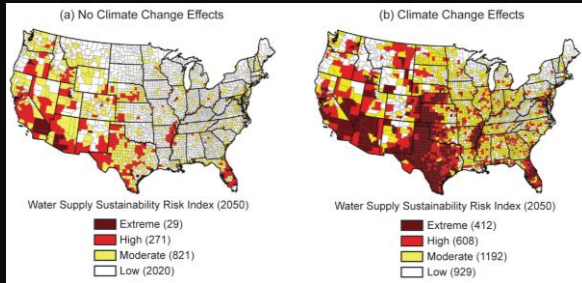
Projected Changes in Water Withdrawals

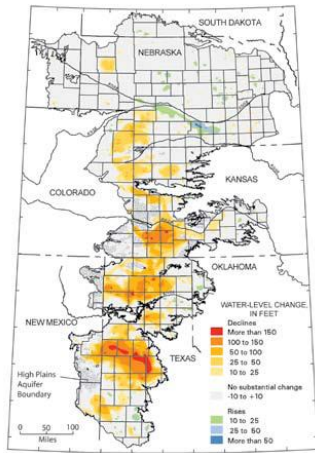


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Water Supplies Projected to Decline

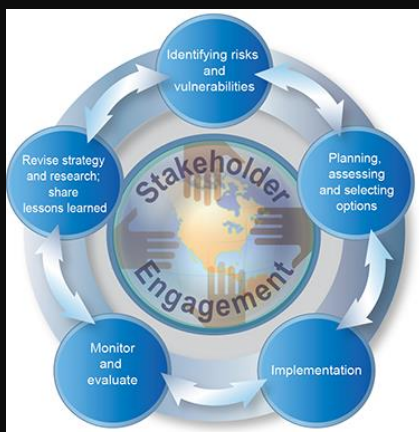




Recent changes in ground water levels due to irrigation use in Ogallala Aquifer may have constraints on agricultural productivity

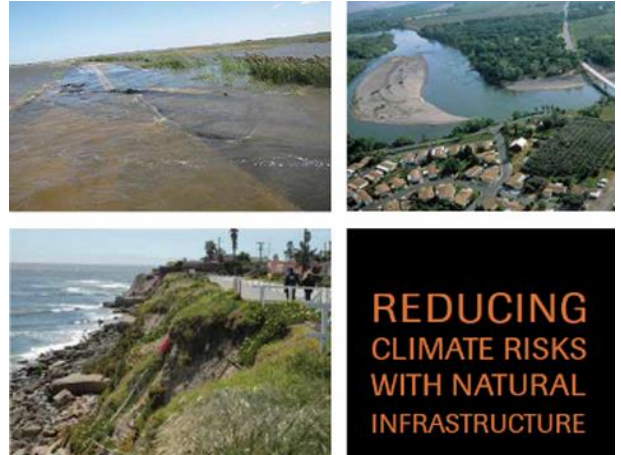
Adaptation: Key Messages

- There is no "one-size fits all" adaptation, but there are similarities in approaches across regions and sectors. Sharing best practices, learning by doing, and iterative and collaborative processes including stakeholder involvement, can help support progress
- Vulnerability to climate change is exacerbated by other stresses such as pollution, habitat fragmentation, and poverty. Adaptation to multiple stresses requires assessment of the composite threats as well as tradeoffs amongst costs, benefits, and risks of available options
- The effectiveness of climate change adaptation has seldom been evaluated, because actions have only recently been initiated and comprehensive evaluation metrics do not yet exist.



Adaptive Management Approach

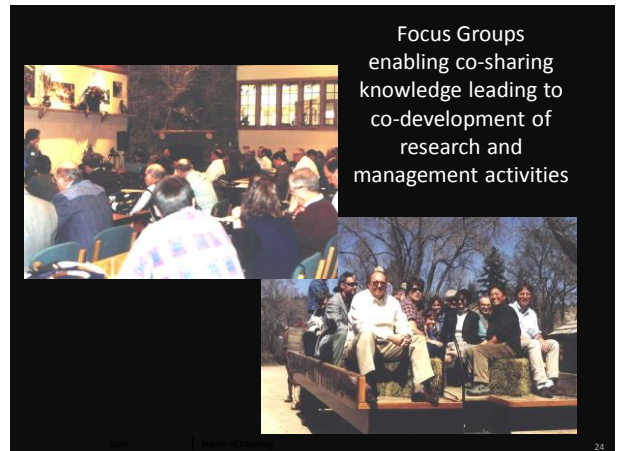
- Regional context of the change needs to be understood.
- Development of "no-regrets" options -- ones that make sense given current conditions and potential future ones -- should be identified and considered through the use of scenarios.
- People need to be provided with practical and tractable alternatives for adaptation
- Decision makers should "learn by doing" and evaluate results along the way, making the process of adaptation an iterative process.
- Public need to be kept informed of the implications of change.



How Can Research Inform and Assist Development of Response Strategies?

- Through development of partnerships with local to state level managers and decision makers co-design and co-develop information sets related to impacts, consequences, and scenarios
- Co-develop tools for analysis and assessments of critical system interactions and multiple stresses
- Provide metrics for monitoring and assessments

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