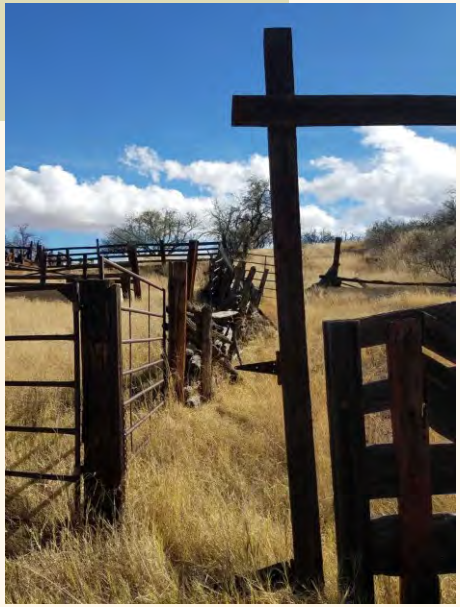
Southwest Drought and Human Health Workshop
Tucson, AZ
February 27, 2020

Connecting Science and Decision-Making to Manage Climate Risks



Kathy Jacobs
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Why is Climate Risk Management Important?

We have three choices: mitigation, adaptation and suffering. We are going to do some of each. The question is what the mix is going to be? The more mitigation we do, the less adaptation will be required and the less suffering there will be.

John Holdren, White House Office of Science and Technology Policy

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Managing Risk: Connecting Science and Policy

- Many frames for understanding the interface between science and policy, including understanding:
  - the roles of **institutions**,
  - **perceptions** of risk,
  - **ways of learning**, knowing, and engaging,
  - the **decision context**.

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Bridging the gap

Between politics and reality,
Between science and decision-making…

Understanding the role of science and communications in managing risk

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Acknowledging legitimate differences in perspective and training

Image source:http://ch301.cm.utexas.edu/learn/Credit: John Rowley

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Managing Climate Risk

Managing risk requires:

- understanding likelihood and consequence of future events…
- understanding intensity and duration of future climate drivers AND understanding underlying sources of vulnerability, including social, institutional and physical vulnerabilities.

Managing Risk: Who makes decisions? What is at Risk?

Multiple Actors at Multiple Scales

- Individuals
- Non-governmental organizations
- Businesses, corporations
- Utilities
- Universities
- Cities and towns
- Watersheds
- Indigenous people
- Federal agencies
- International/global actors

Systems that Interact at Multiple Scales

- Water
- Energy
- Communications
- Forests
- Agriculture
- Coastal Management
- Fisheries
- Transportation
- Etc.

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Learning and Knowing: Challenges of Climate Change for Decision Makers

- Knowing "what to adapt to" especially if outside the envelope of prior experience
- Non-stationarity is a new paradigm
- Understanding interactions - Trends vs abrupt change/extreme events
- Linkages and cascading effects
- Politics

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Barriers to Managing Risk : Are we in a Post-fact world?

Washington Post Fact Checker

"President Trump made 16,241 false or misleading statements in his first 3 years in office"

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Overcoming Barriers

- Long-term relationships between scientists (academics) and decision-makers
- Understanding the implications of “co-production of knowledge”
- Investing in interdisciplinary knowledge in a “real world context”
- Capacity building (for both parties)

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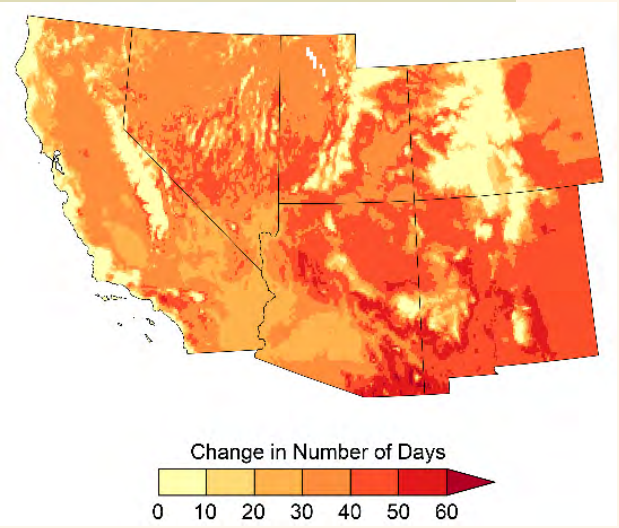
Science translation: Simplifying assumptions for managing risk

- It is going to get hotter
- Streamflow is likely to be reduced (impacting supply)
- ET will increase (impacting demand)
- Drier on average with intense rainstorms
- Likelihood of cascading effects (eg heat waves, brown outs, forest fires, air quality problems, sedimentation of reservoirs, etc.)



Don’t let the perfect be the enemy of the good

What CCASS does:

- Convenes and supports adaptation projects across the UA campus and externally
- Builds capacity to support stakeholders more effectively on the ground
- Coordinates and clarifies roles, particularly related to stakeholder engagement and science support

Themes:
Adaptation and International Development
Ecosystem Resilience and Adaptation
Tribal Resilience and Adaptation
Water Security, Planning and Policy
Food Systems and Adaptation
Adaptation and Health

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What CCASS does:

- Aggregates knowledge across a wide array of projects and scales
- Coordinates hands-on support for local and regional water managers, utilities, cities, watershed groups and Tribes as they prepare for the impacts of climate change

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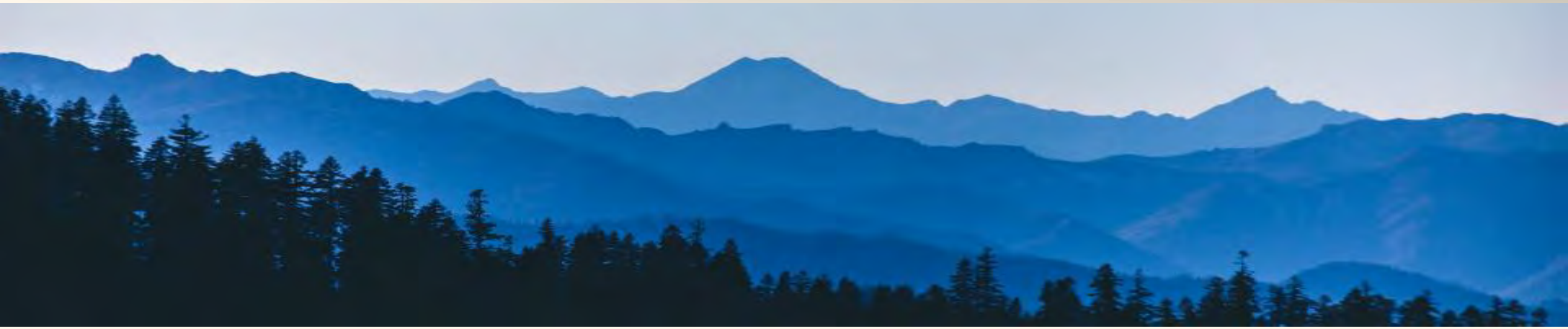
CCASS Themes/Grand Challenges



- *Bridging the gap between science and decision making*
- *Managing risk in a complex, interdisciplinary and multi-sectoral context*
- *Supporting transformational adaptation and preparing for extreme climate and weather events*
- *Finding synergies among adaptation and mitigation strategies to promote sustainability*

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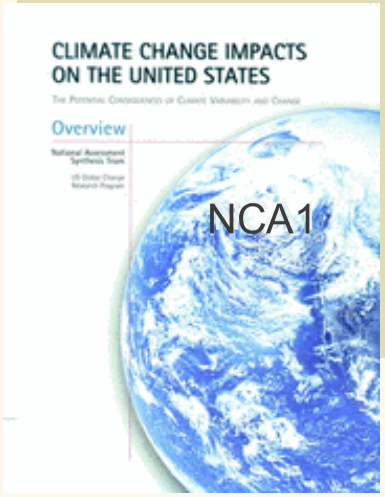
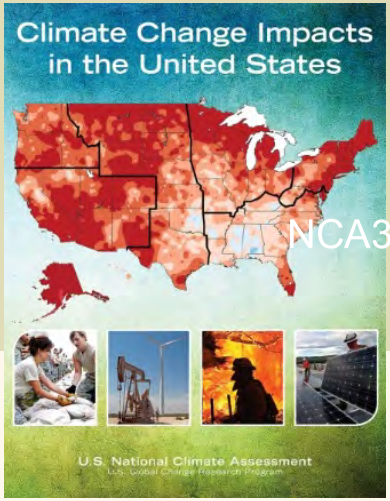
The US National Climate Assessment/SCAN

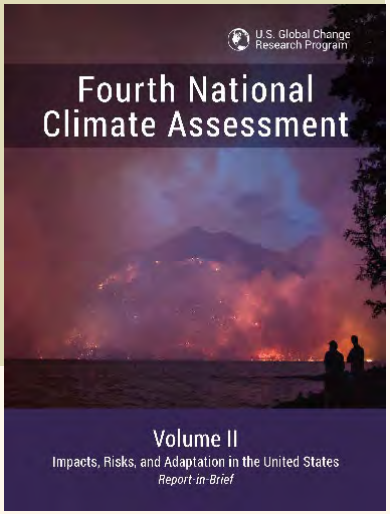
National Climate Assessment Mission (since NCA3)

To advance an **inclusive, broad-based, and sustained** process for assessing and communicating scientific knowledge of the impacts, risks, and vulnerabilities associated with a changing global climate in support of decision-making across the United States.

2000 2009 2014 2017 2018







SCAN: A Citizen-based version of the US National Climate Assessent

"Evaluating Knowledge to Support Climate Action: A Framework for Sustained Assessment"

www.climateassessment.org

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CCASS Colorado River Activities

Kathy Jacobs
Center for Climate Adaptation Science and Solutions
September 10, 2019
Borderlands Brewing

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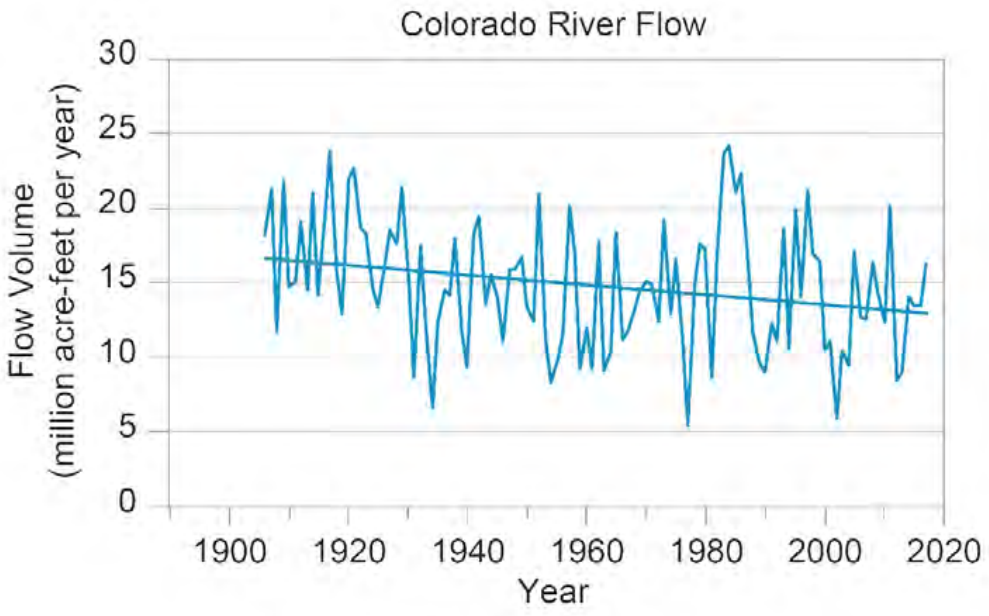
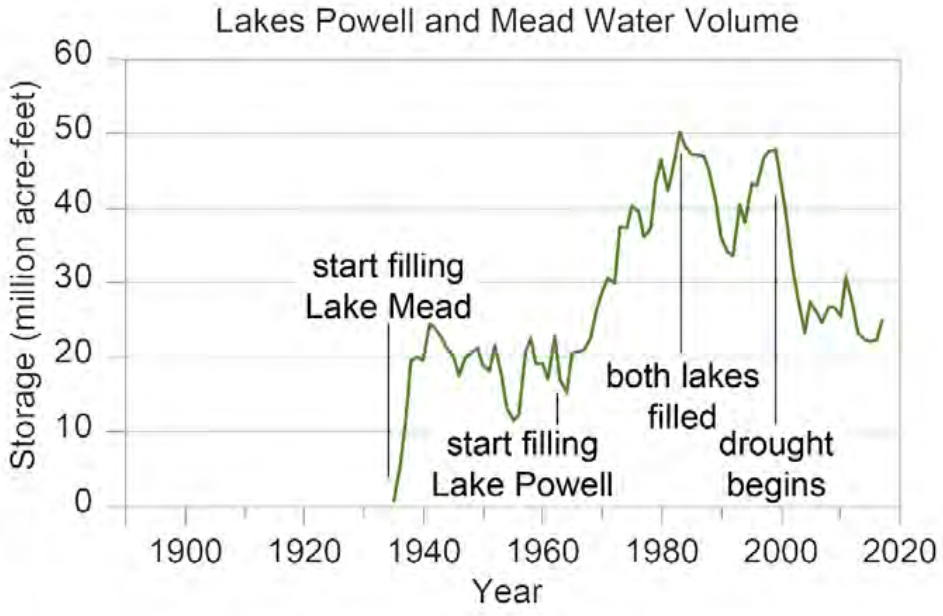
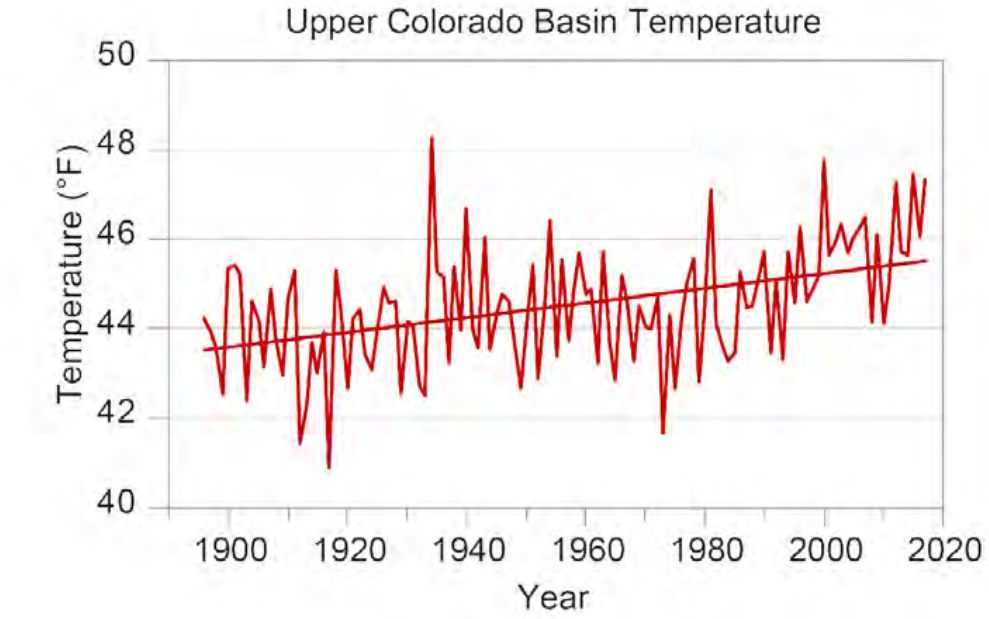
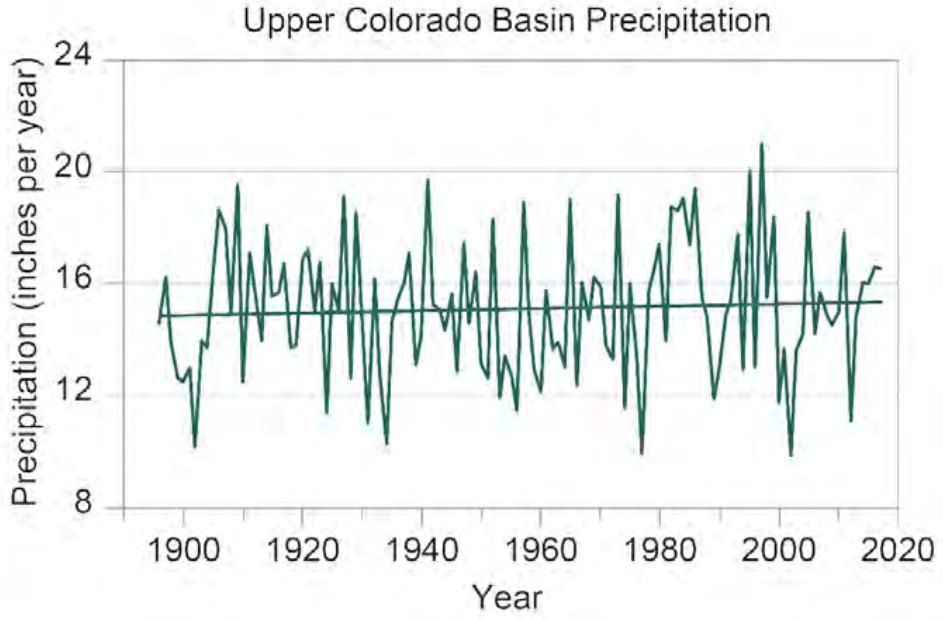
NCA4: Colorado River and Climate Change









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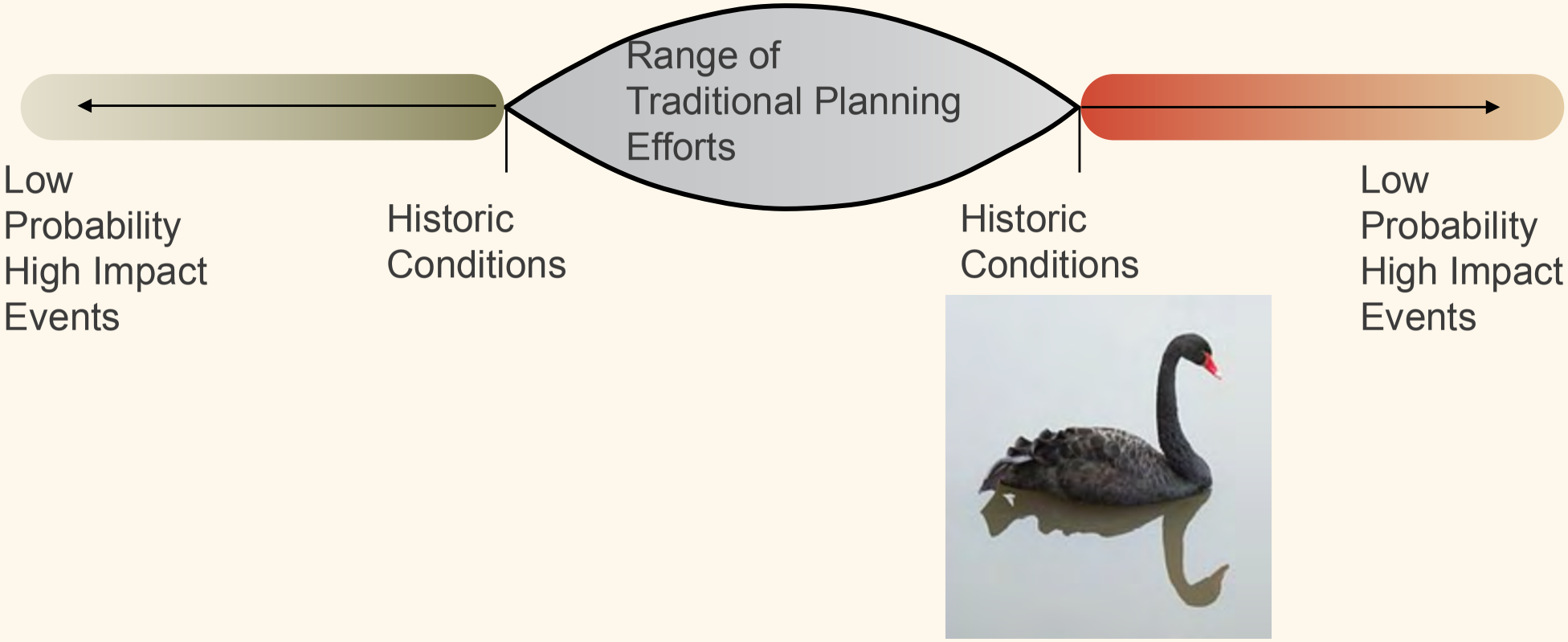
Colorado River Conversations: Focusing explicitly on low probability, high consequence events; empowering new voices; focusing on the river as a system



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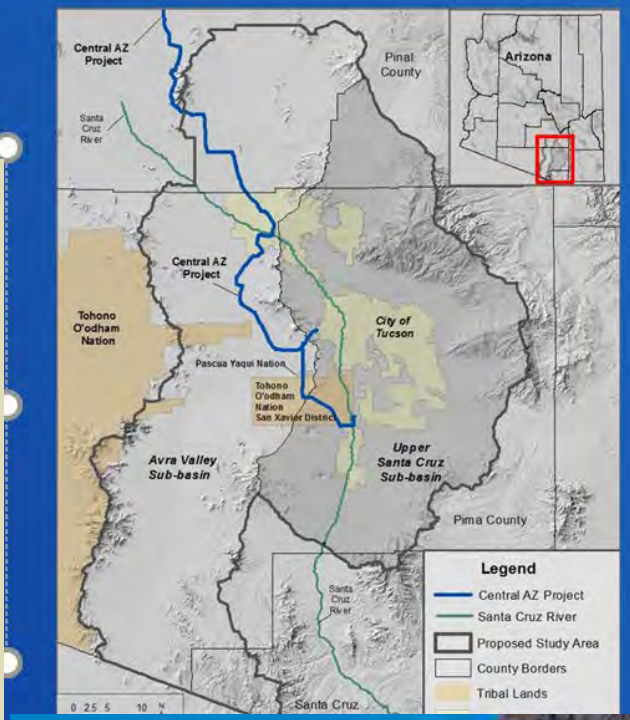
New Roles for Universities in Linking Science with Decision-making

Lower Santa Cruz River Basin Study Key Details

- Addresses the impacts of changing climate on both supply and demand
- Includes analysis of environmental impacts (riparian areas)
- Employs a scenario approach to explore range of futures (with and without adaptation measures)
- Uses multiple approaches to downscaling, as input to groundwater and surface water models



SW Adaptation Forum / SW Practitioners' Adaptation Network (SPAN)

Southwest Adaptation Forum
Draft Summary Report

Southwest Climate Adaptation Science Center

Center for **Climate Adaptation Science** and **Solutions**

Co-convened by the Southwest Climate Adaptation Science Center and the Center for Climate Adaptation Science and Solutions

University of Arizona
October 29-31, 2018

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Managing Risk: Keep your eyes on the ball !

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