Contextualizing stakeholder perspectives through hydroclimate assessments: A case study in the Sierra Nevada, western United States

The Truckee-Carson River System, CA-NV, USA

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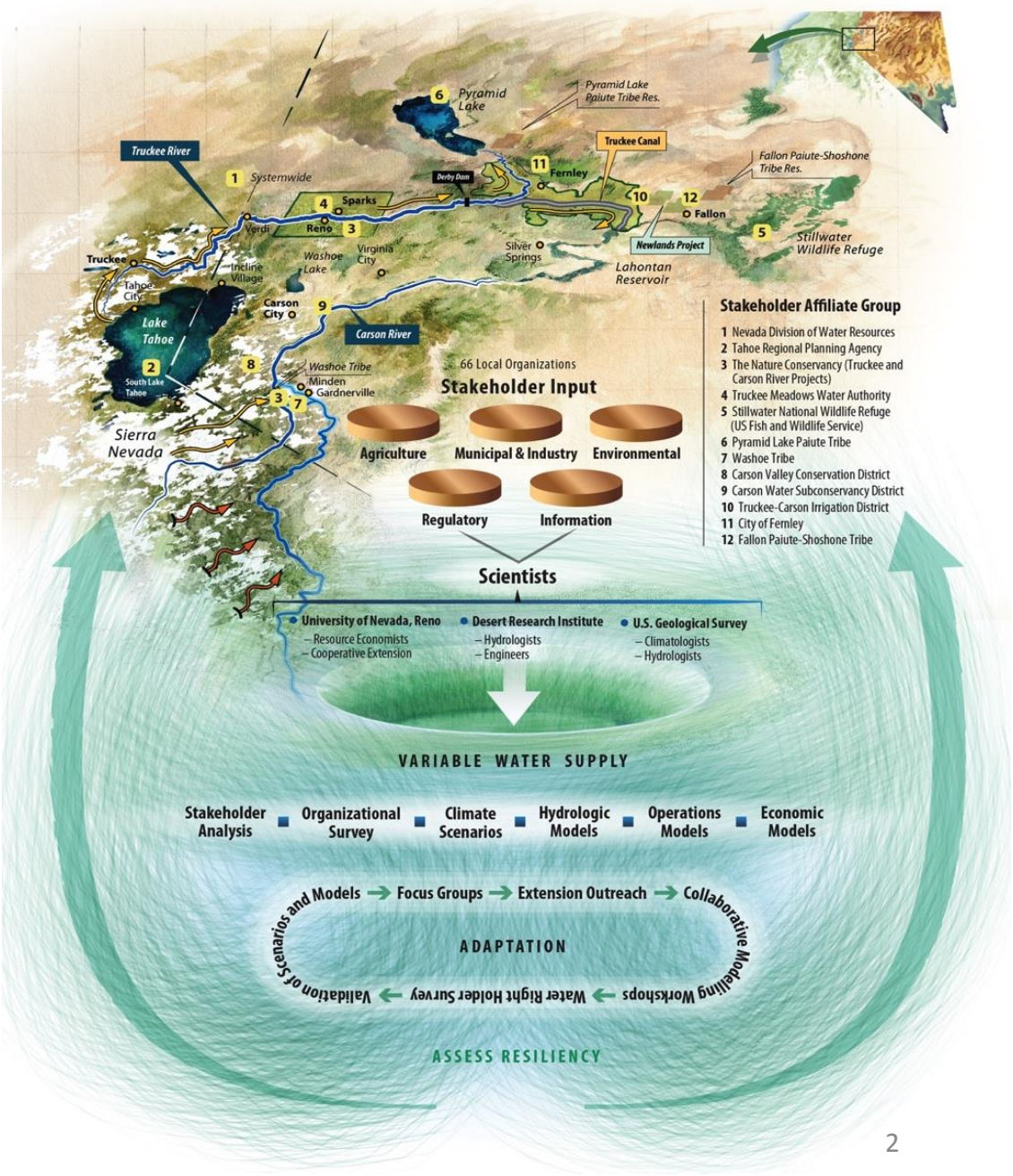
Collaborative Modeling Research Design

Iterative interactions occur among an interdisciplinary research team and key local water managers to examine climate-induced water supply variability

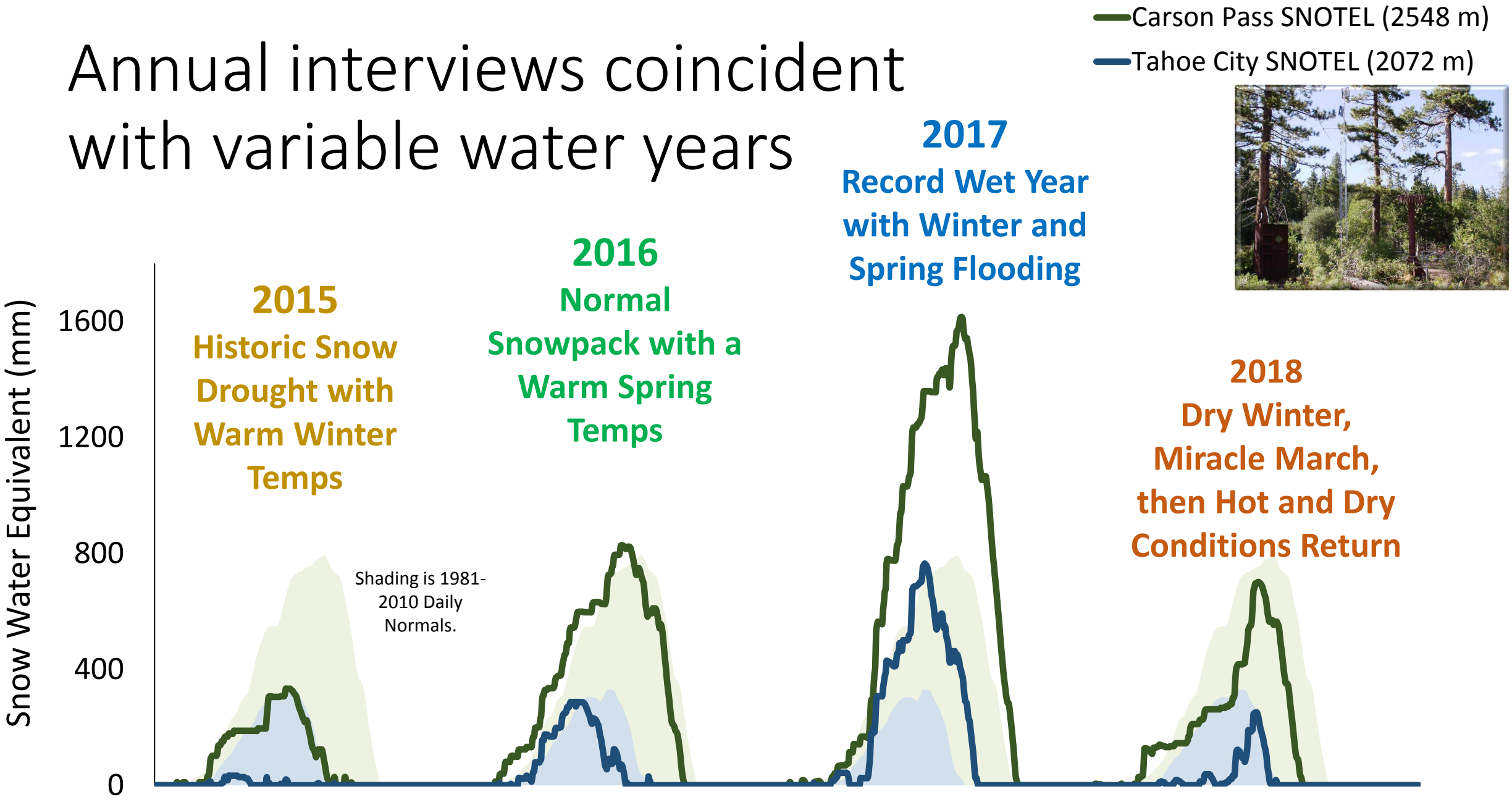
What sources of information and data should be integrated to assess climate change in snow-fed river basins?

How can the resulting information be merged/presented to support local climate adaptation planning?



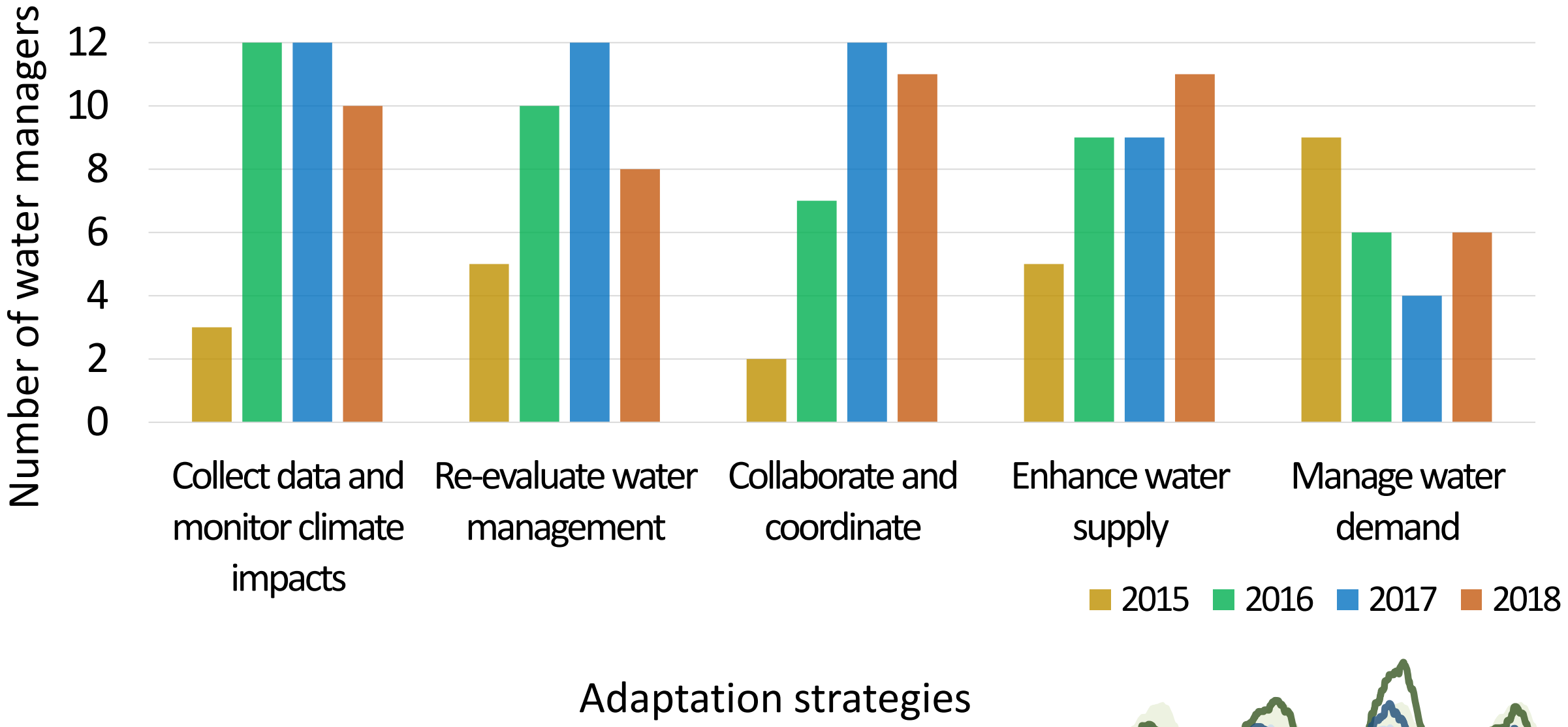
References: Singletary & Sterle, 2017; Singletary & Sterle, 2018

Annual interviews coincident with variable water years

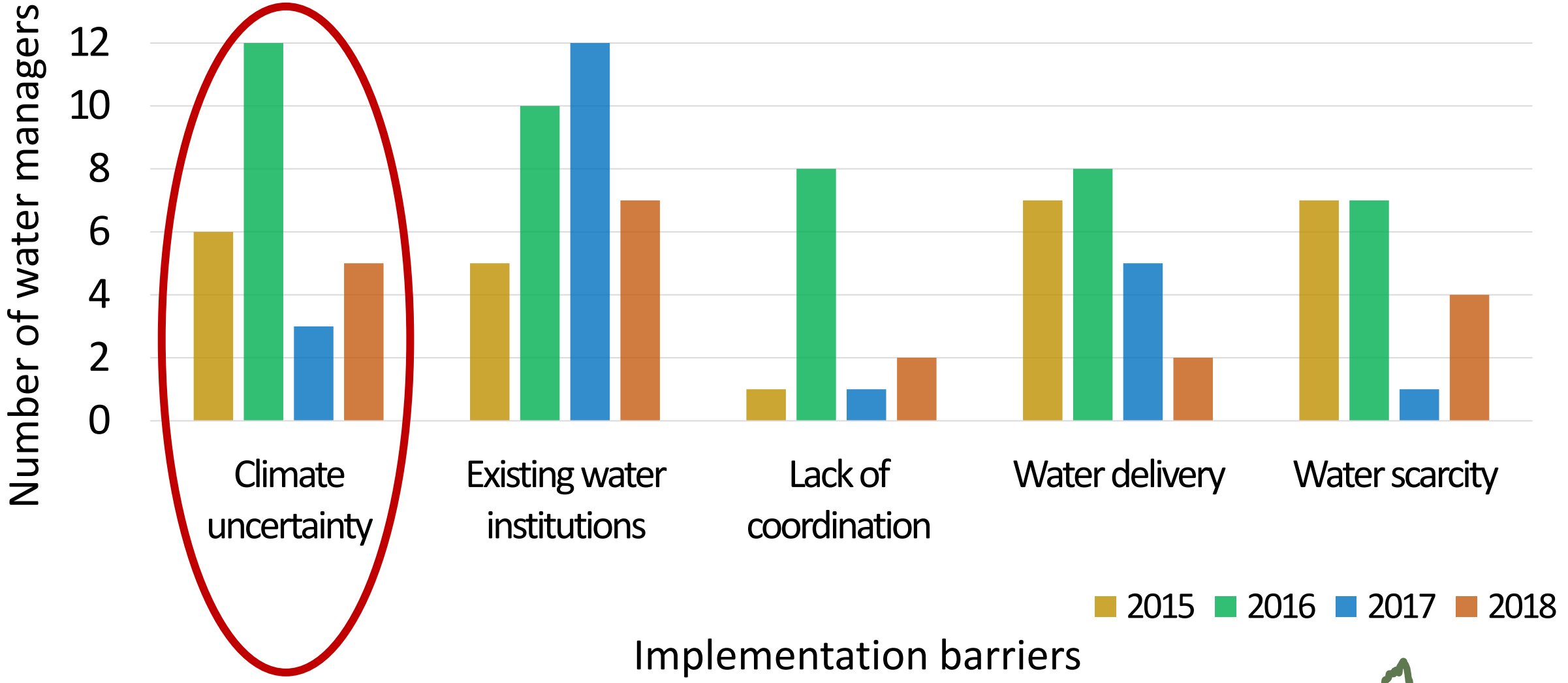


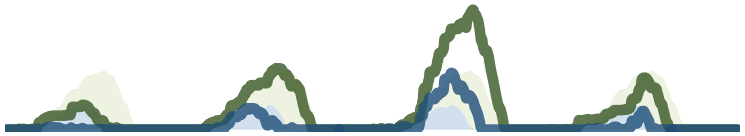
Data sources: USDA Natural Resources Conservation Service SNOTEL Data.

Adaptation strategies described by managers



Barriers emerge and diminish over time



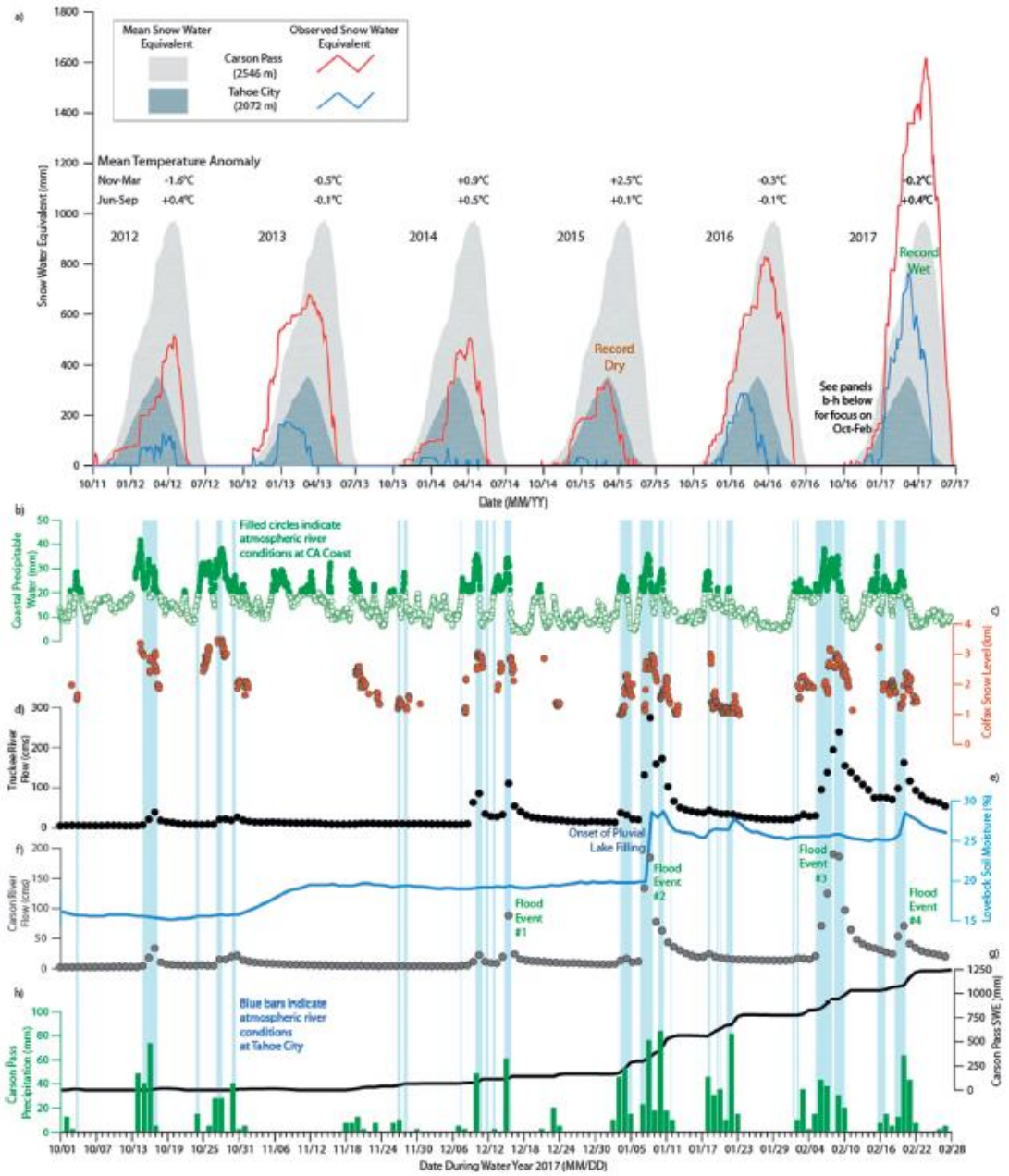


Contextualize managers' perspectives through hydroclimate assessment

"Is this the new normal?"

Recent (2012-2017) variability:

- Bounds historical (100 yrs) observations in terms of extremes
- Consistent with paleoclimate (> 100 yrs) extremes in terms of magnitude of both dry and wet conditions
- Indicative of future climate inclusive of drought and flood extremes



Analysis led by: Ben Hatchett, Desert Research Institute

RESEARCH PARTNERS

FUNDING AGENCIES

Key Takeaways

- A collaborative modeling case study in the Truckee-Carson River System effectively convened an interdisciplinary research team with key local water managers to identify strategies to adapt to changing mountain snowpack
- Integrating qualitative interview data with quantitative hydroclimate data situated managers' perspectives of a "new normal climate" in a climate context
- Applied research that incorporates local knowledge and information needs has the potential to provide climate services useful for local climate adaptation planning

Sterle, K., Hatchett, B., Singletary, L. & Pohll, G. (2019). Hydroclimatic Variability in Snow-fed River Systems: Local Water Managers' Perspectives on Adapting to the New Normal. Bulletin of the American Meteorological Society.