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Water is for Fighting Over and other myths about water in the west
October 24th, 2016



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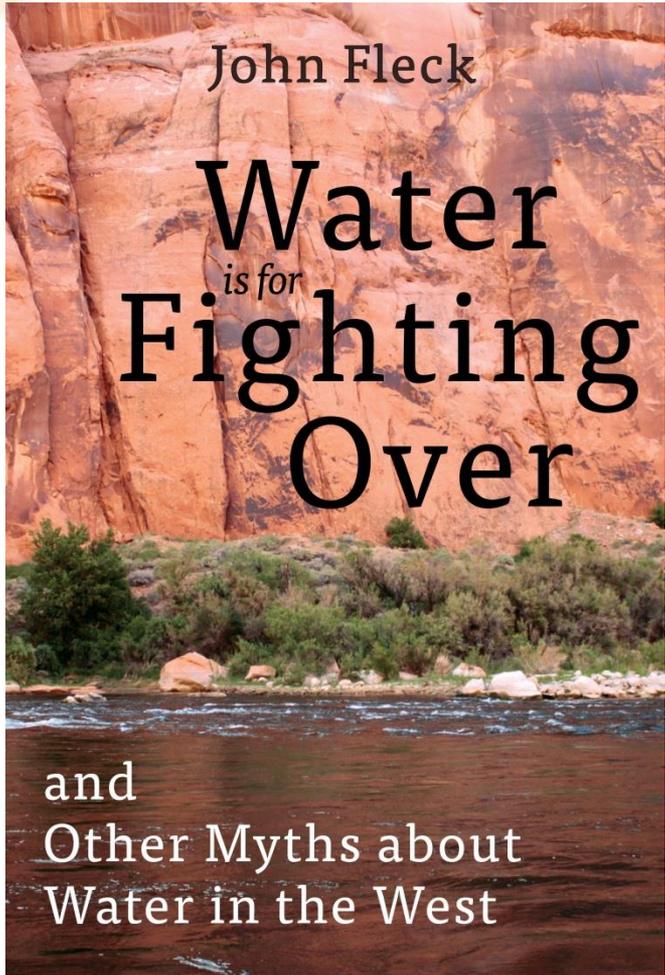
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And Other Myths about Water in the West

By John Fleck

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Agenda

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- ***Introduction: Jay Lund***
- Presentations:
 - **John Fleck**, Director of the University of New Mexico's Water Resources Program
 - **Sharon Megdal**, Director of The University of Arizona Water Resources Research Center and C.W. and Modene Neely Endowed Professor
 - ***Discussion Moderated by Jay Lund***
- ***Audience Q&A: Use the box in the go to Webinar window***

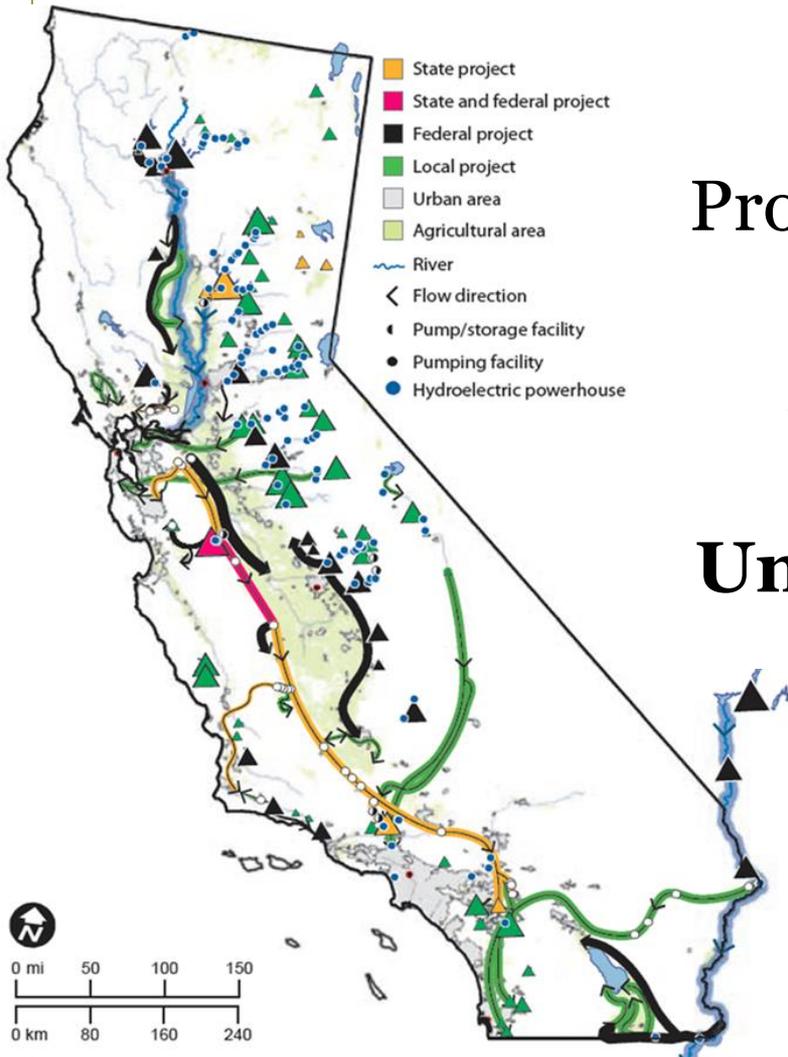
(Please Take the Brief Exit Survey)

Moderator

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Jay Lund, Director, Center for Watershed Sciences, University of California – Davis Ray B. Krone Professor of Environmental Engineering, Department of Civil and Environmental Engineering. Research and teaching specialties are integrated engineering of water resource and environmental systems at regional, utility, and household scales, employing ideas from economics and operations research.



Jay Lund

Professor of Civil and Environmental Engineering

Director, Center for Watershed Sciences

University of California – Davis

CaliforniaWaterBlog.com



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Panelists

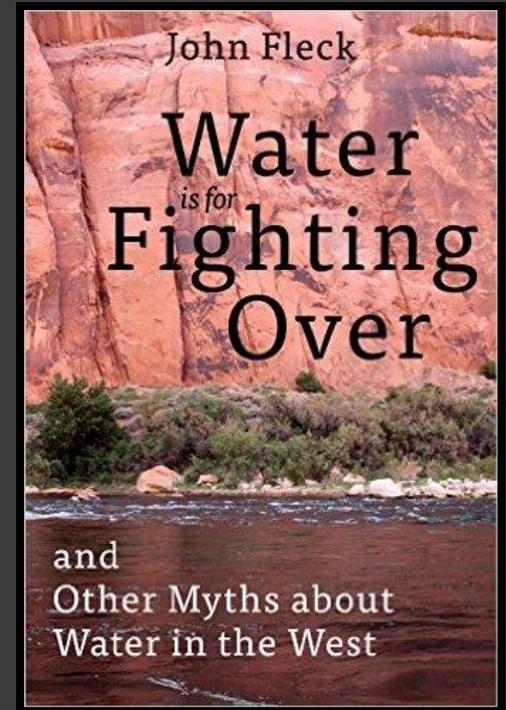
7



John Fleck, Director of the University of New Mexico's Water Resources Program. Much of his career was spent in journalism, focused since the 1980s on the interface between science and political and policy processes, with special emphasis on climate and water in the southwestern United States. He was the Water Resource program's writer-in-residence for three years before transitioning to academia full time in 2016.



Sharon Megdal, Director of The University of Arizona Water Resources Research Center and C.W. and Modene Neely Endowed Professor. She focuses on state, regional and transboundary water resources management and policy. Sharon is an elected member of the Board of the Central Arizona Project and President-Elect of the board of the Universities Council on Water Resources (UCOWR).



WATER'S NOT REALLY FOR FIGHTING OVER

How myths of crisis and conflict stand in the way of solving the West's water problems

John Fleck, University of New Mexico Water Resources Program

Myths that get in the way of sustainable solutions to our water challenges

- We're running out of water
- Water's for fighting over
- Water flows uphill toward money

Defining “sustainability”

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

- Brundtland Commission, 1987

Defining “resilience”:

The capacity of a system to absorb a shock and retain its basic structure and function – “to have the same identity”.

THE END OF SUSTAINABILITY

The realities of the Anthropocene demand a new approach to environmental governance.



WRITER
Melinda Harm
Benson

July 8, 2014 — The time has come for us to collectively reexamine — and ultimately move past — the concept of sustainability. The continued invocation of sustainability in policy discussions ignores the emerging realities of the Anthropocene, which is creating a world characterized by extreme complexity, radical uncertainty and unprecedented change. From a policy perspective, we must face the impossibility of even defining — let alone pursuing — a goal of

Myth number one: We're running out of water.



Southland's Water Safety Margin Placed at 10 Years

Squeeze on Lifeblood for Ever-Growing Population Increasing Every Year

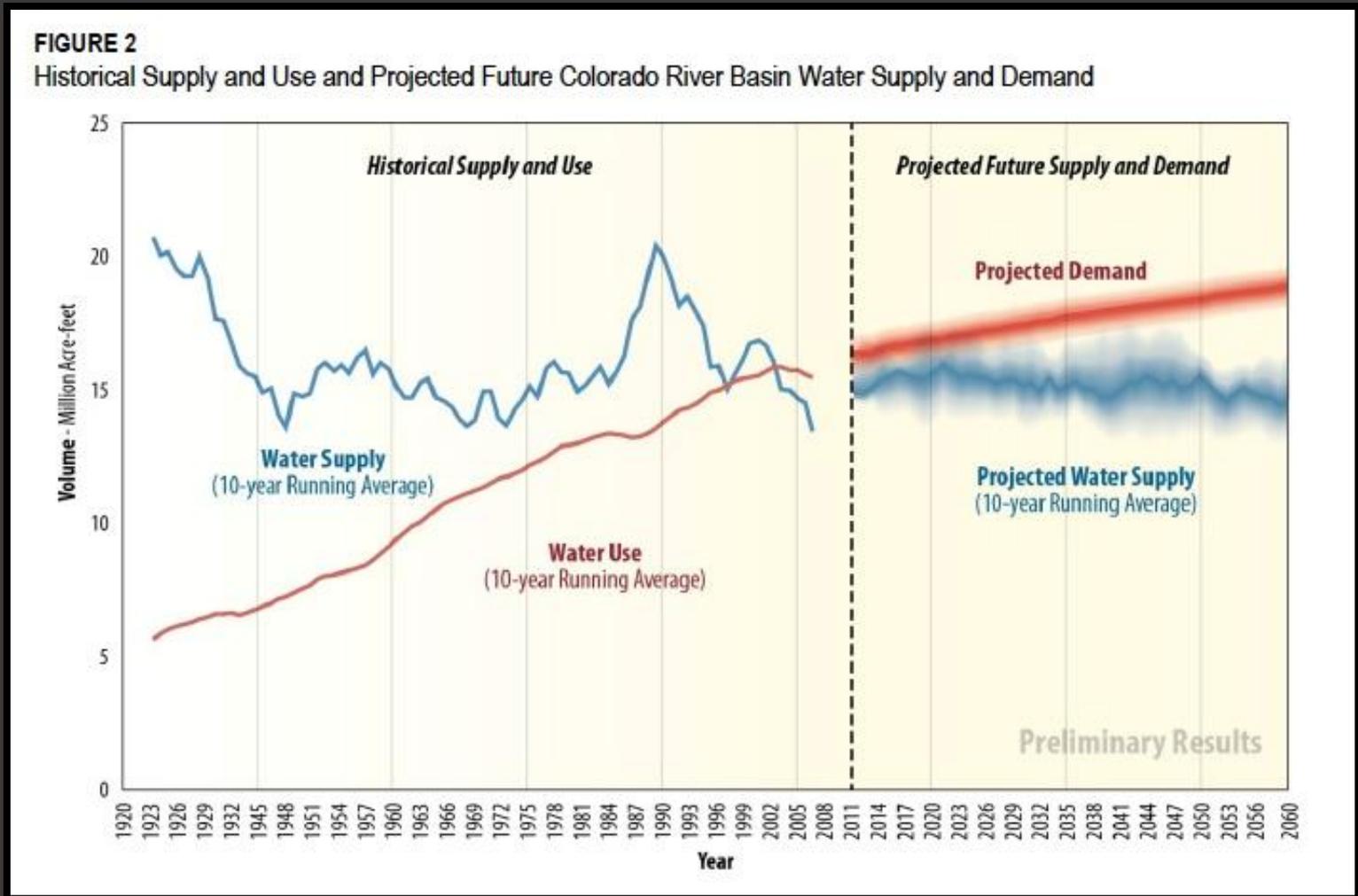
This is the first in a series of five articles titled "Water to Grow On"—a look at the complex water picture in Southern California. Today's article discusses the Southland's growth and how existing water sources and supplies fit into the changing pattern.

BY RAY HEBERT

These words are painted above the office door of a small water company in the San Gabriel Valley:

Los Angeles Times, Jan. 24, 1960

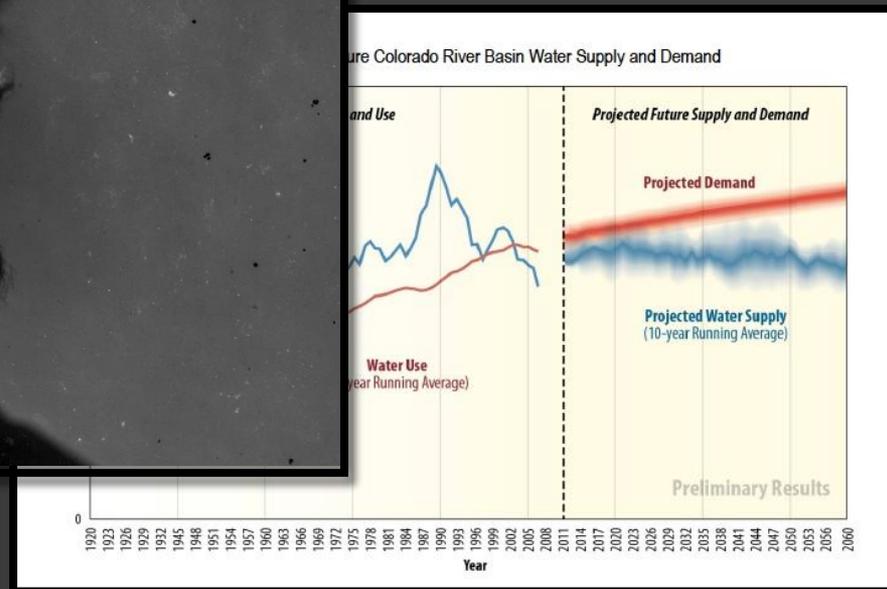
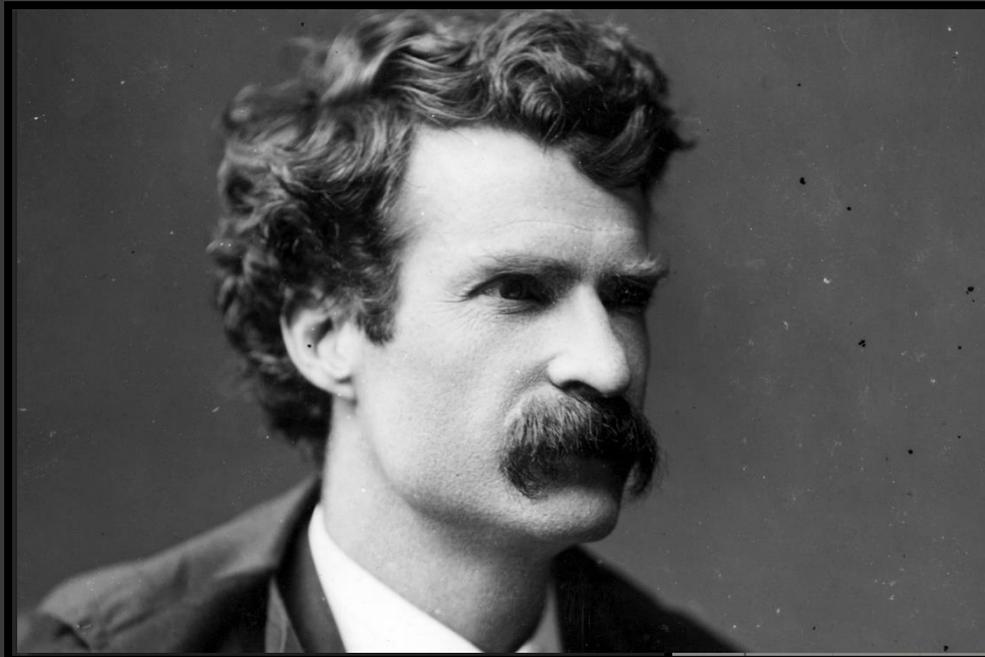
Myth number one: We're running out of water.



Source: USBR Basin Study, December 2012

Myth number two: “Whiskey’s for drinkin’,
water’s for fightin’ over.”

- apparently not Mark Twain



Myth 2a: “Water flows uphill toward money.”

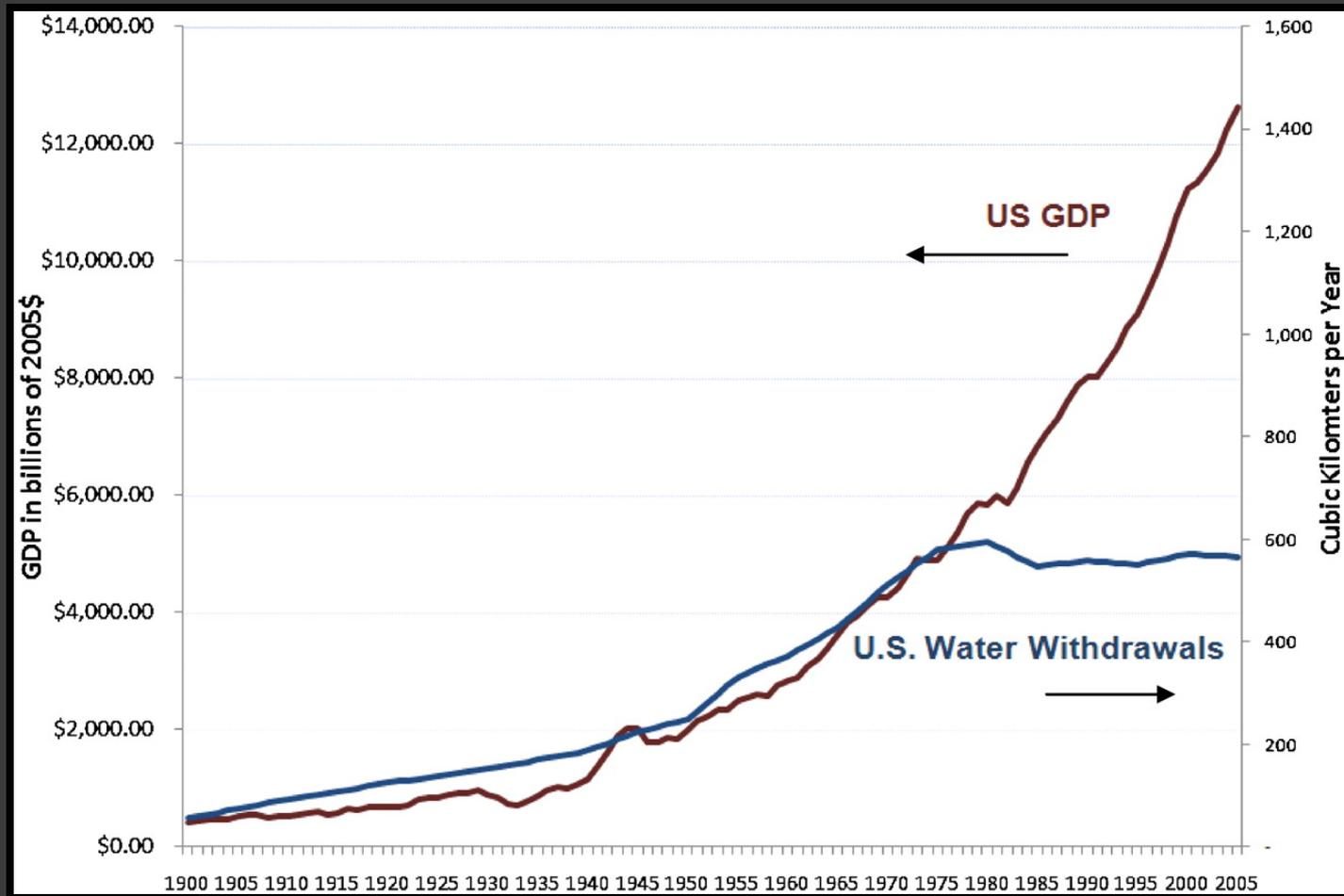


Yuma, Arizona



Las Vegas, Nevada

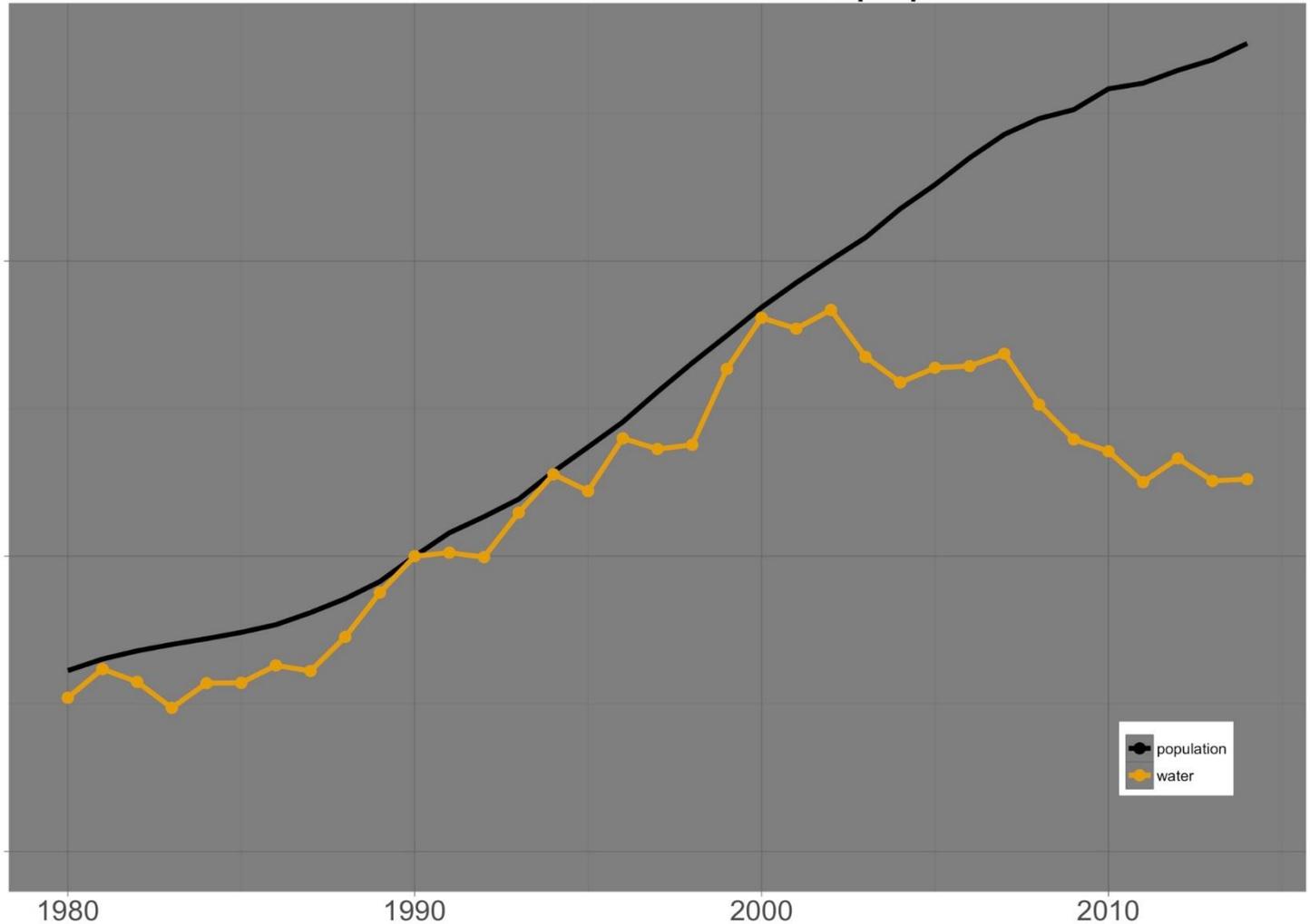
Decoupling: population and the economy go up, water use does not



Peter H. Gleick, and Meena Palaniappan PNAS
2010;107:11155-11162

PNAS

Southern Nevada water use, population



Source: USBR, Census Bureau

John Fleck, University of New Mexico Water Resources Program

Decoupling, Las Vegas style

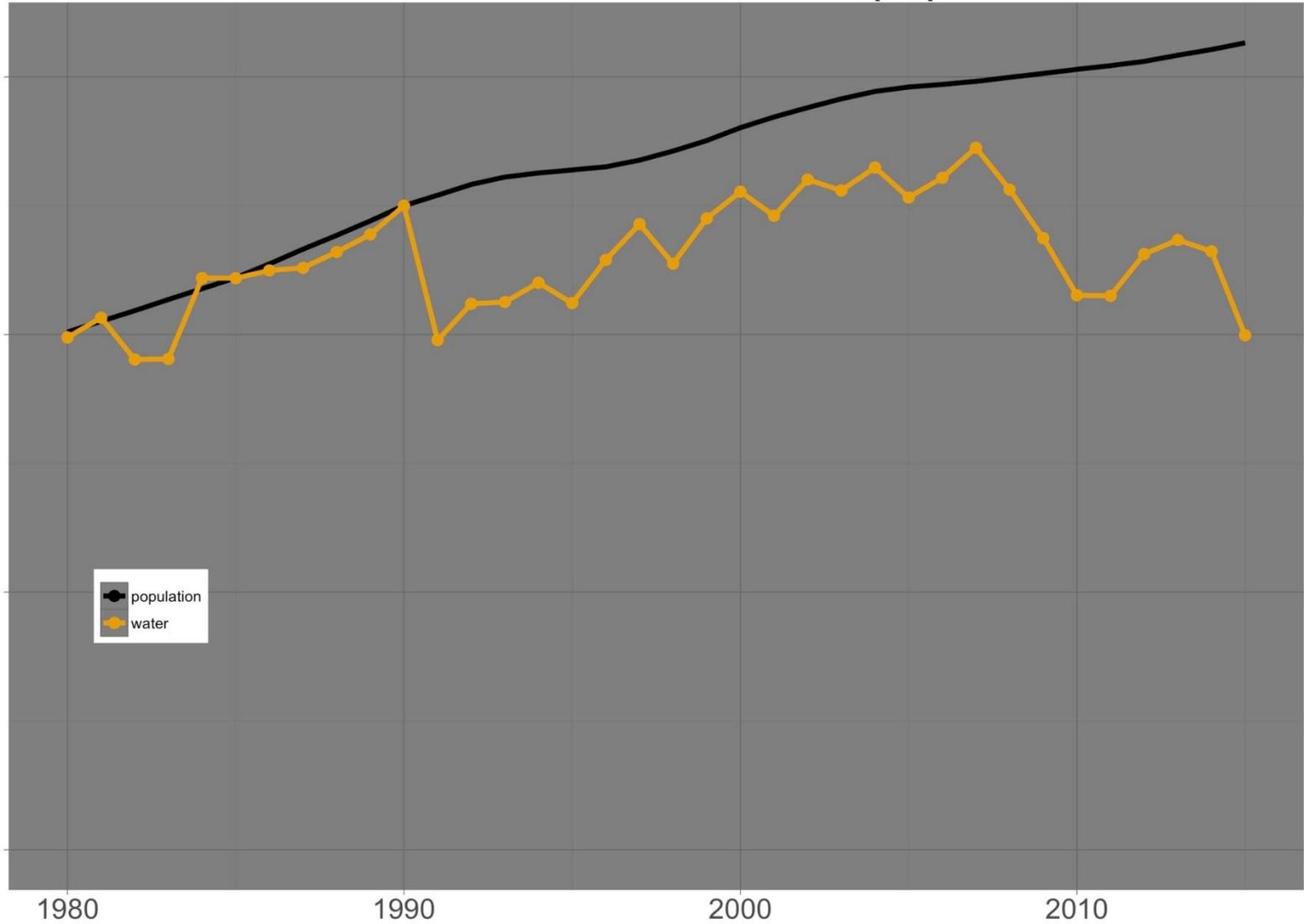


BRWINGHOSAN

EVACTION 02 B

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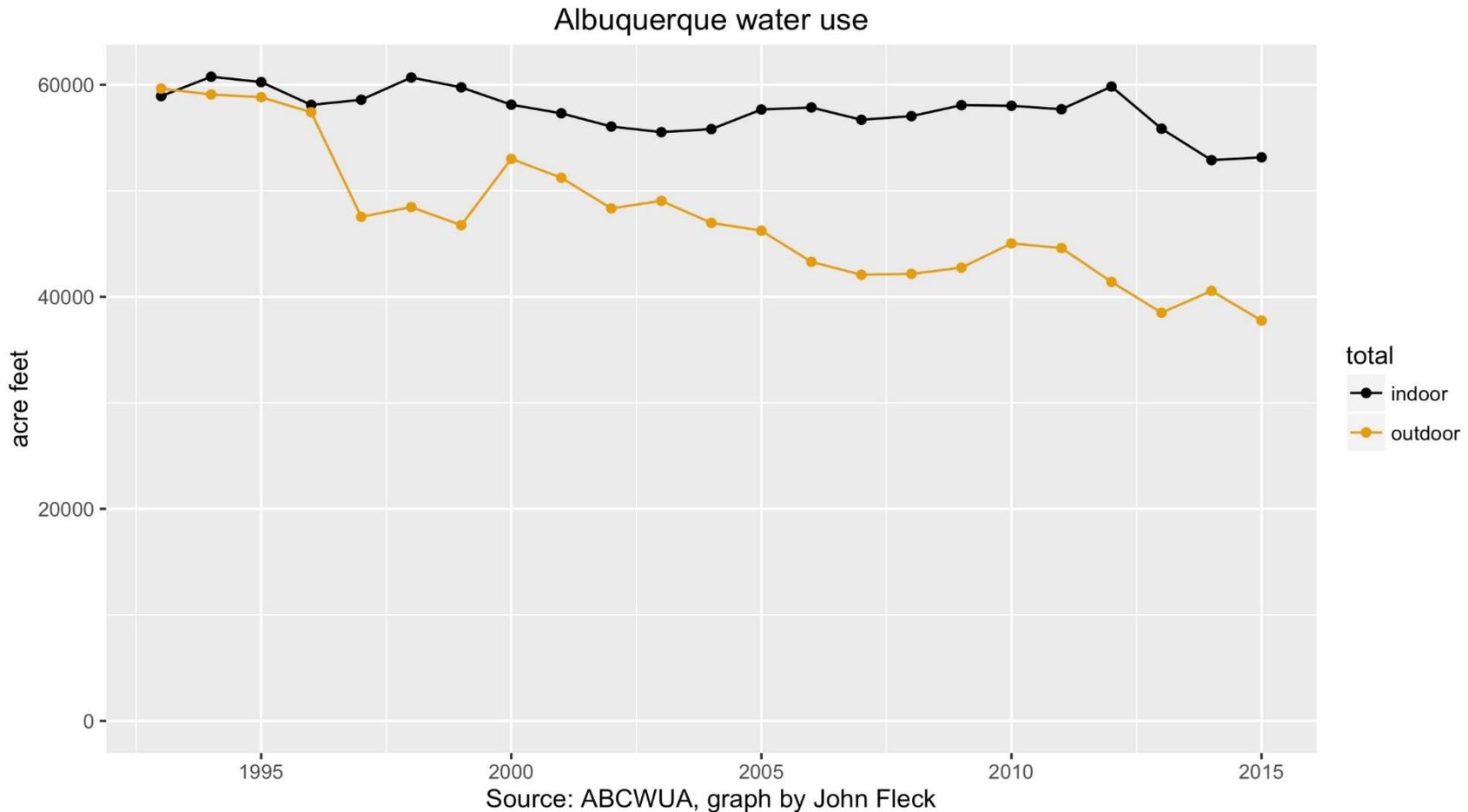
Southern California water use, population



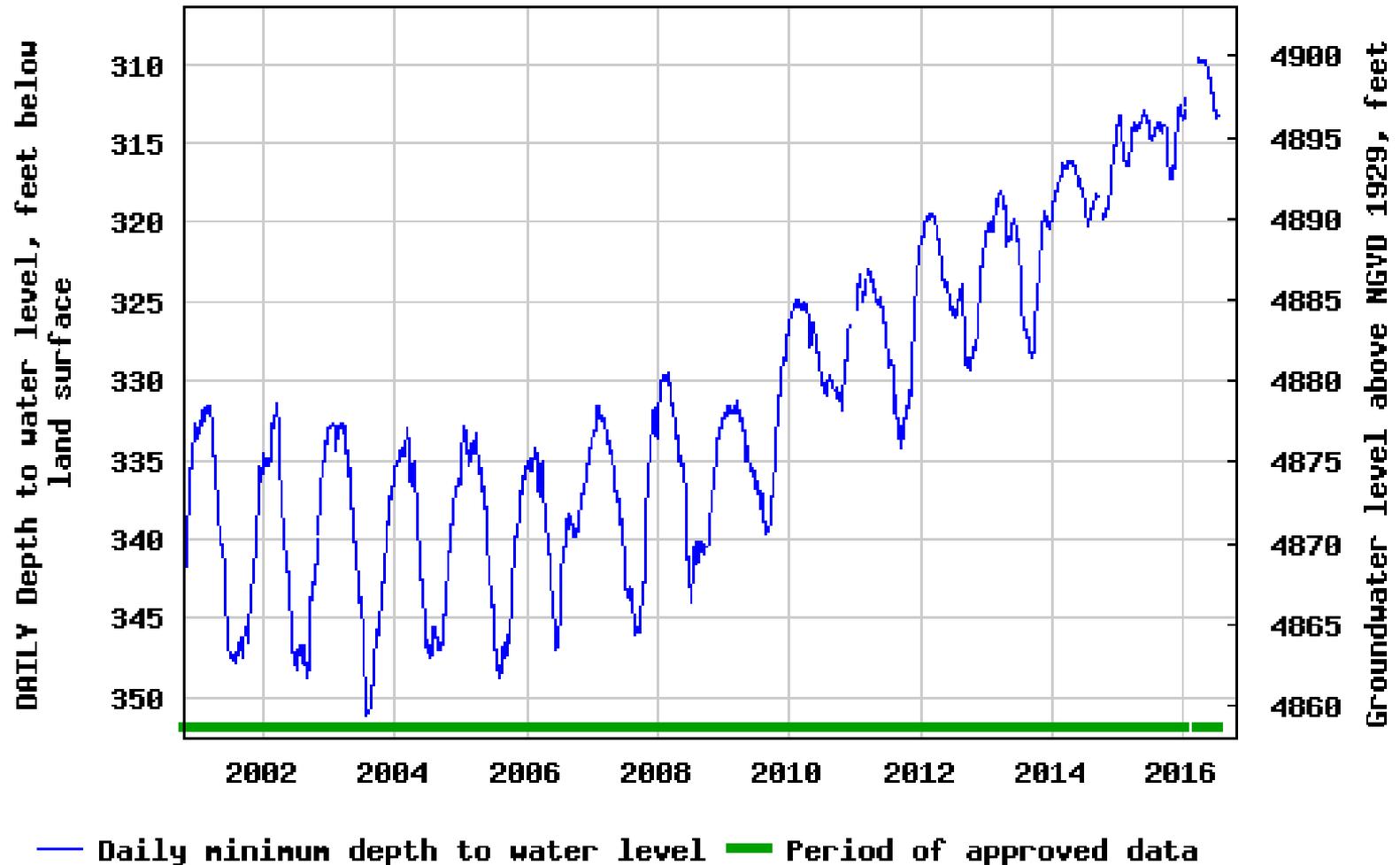
population
water

Source: Metropolitan Water District of Southern California
John Fleck, University of New Mexico Water Resources Program

Albuquerque's water consumption has declined 36 percent since the mid-1990s, even as population has risen by 25 percent.



USGS 350534106354701 10N,03E,14,324 DEL SOL DIVIDER

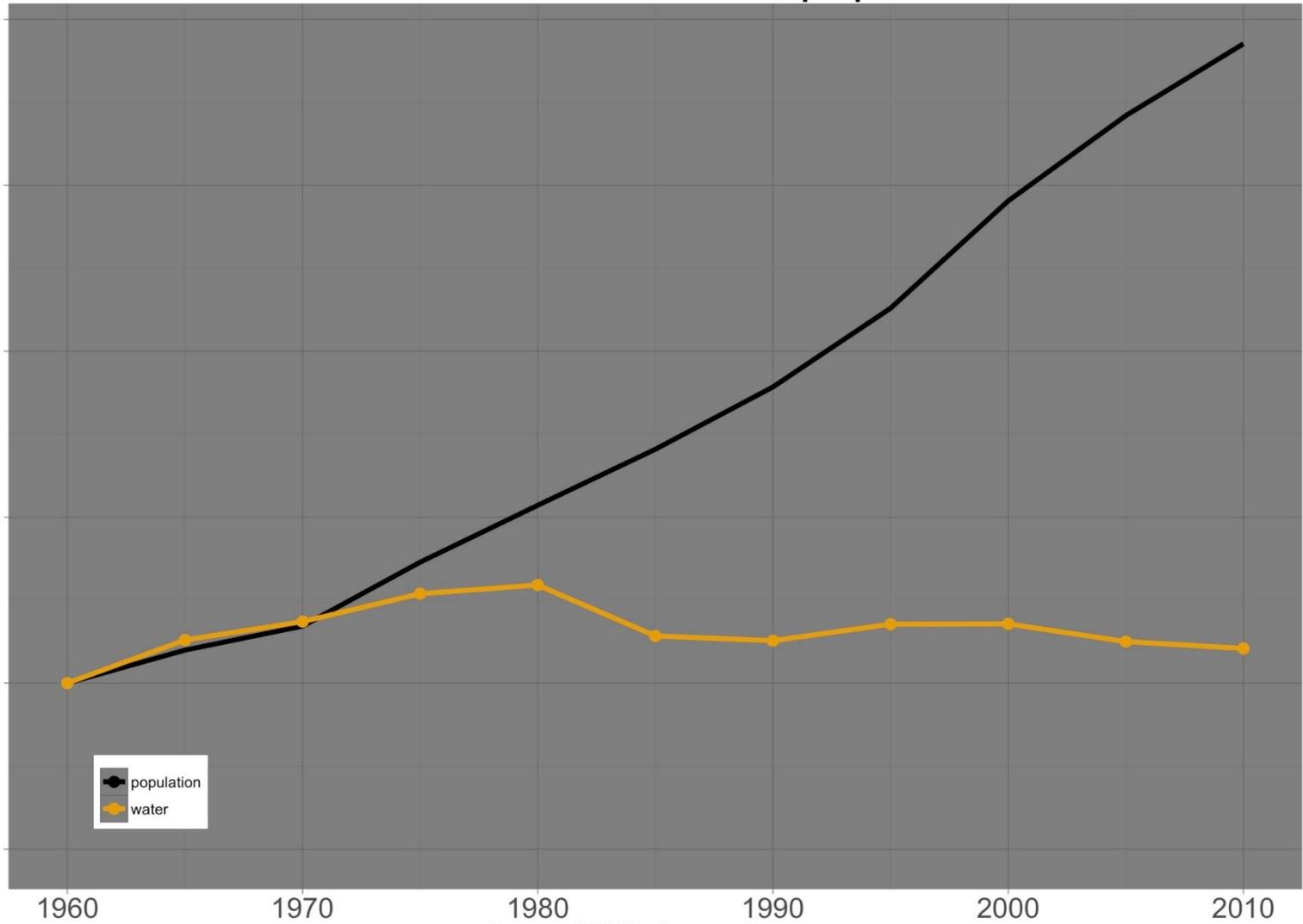


Albuquerque groundwater rebound

Arizona



Arizona total water use, population



population
water

1960

1970

1980

1990

2000

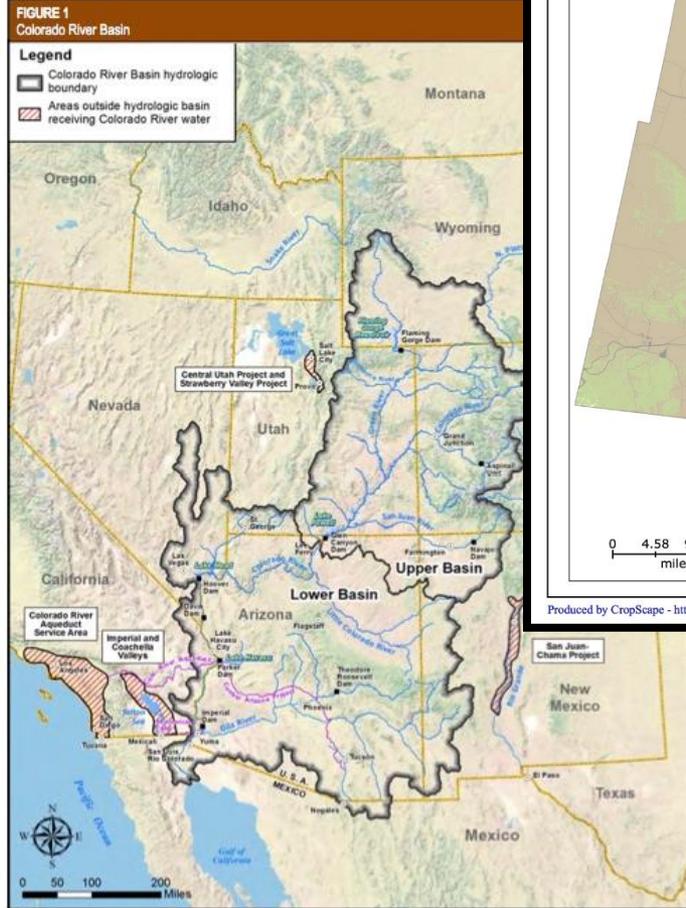
2010

Source: USGS, Census Bureau

John Fleck, University of New Mexico Water Resources Program

Imperial Valley, California

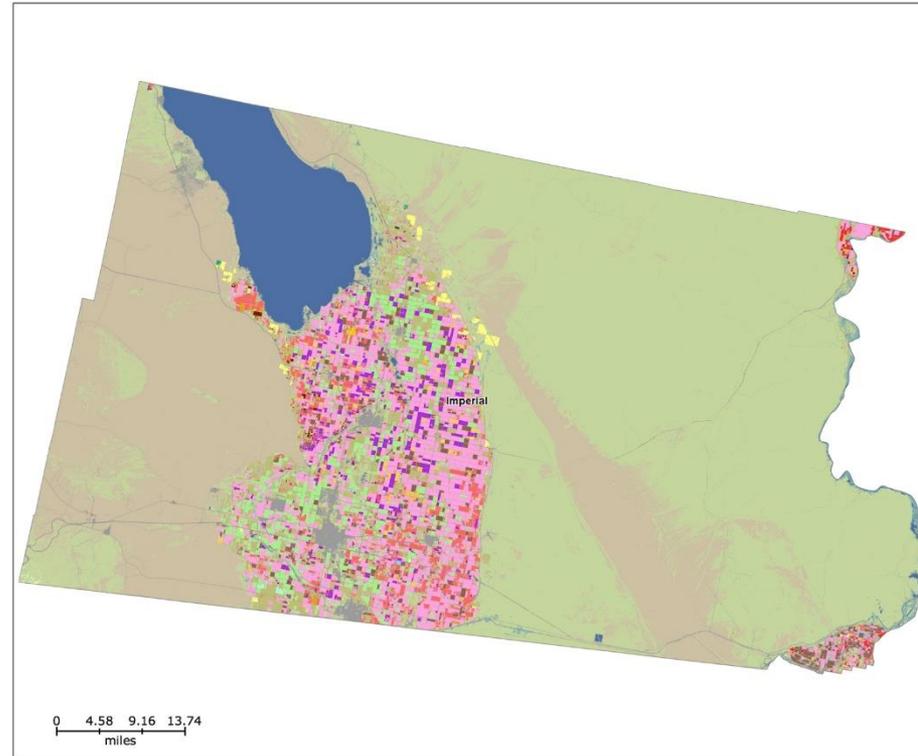
Moving Forward: Phase 1 Report



Note:
Similar to the Basin Study, the scope of the *Moving Forward* effort is limited to the portion of the Basin and adjacent areas that receive Colorado River water within the U.S.



2014 CDL, Imperial County, California



Land Cover Categories
(by decreasing acreage)

AGRICULTURE*

- Alfalfa
- Fallow/Idle Cropland
- Other Hay/Non Alfalfa
- Sugarbeets
- Durum Wheat
- Onions
- Carrots
- Lettuce
- Citrus
- Greens
- Broccoli
- Misc Veggies & Fruits
- Cantaloupes
- Sweet Corn
- Intl Crop Lettuce/Durum Wht
- Cotton

NON-AGRICULTURE**

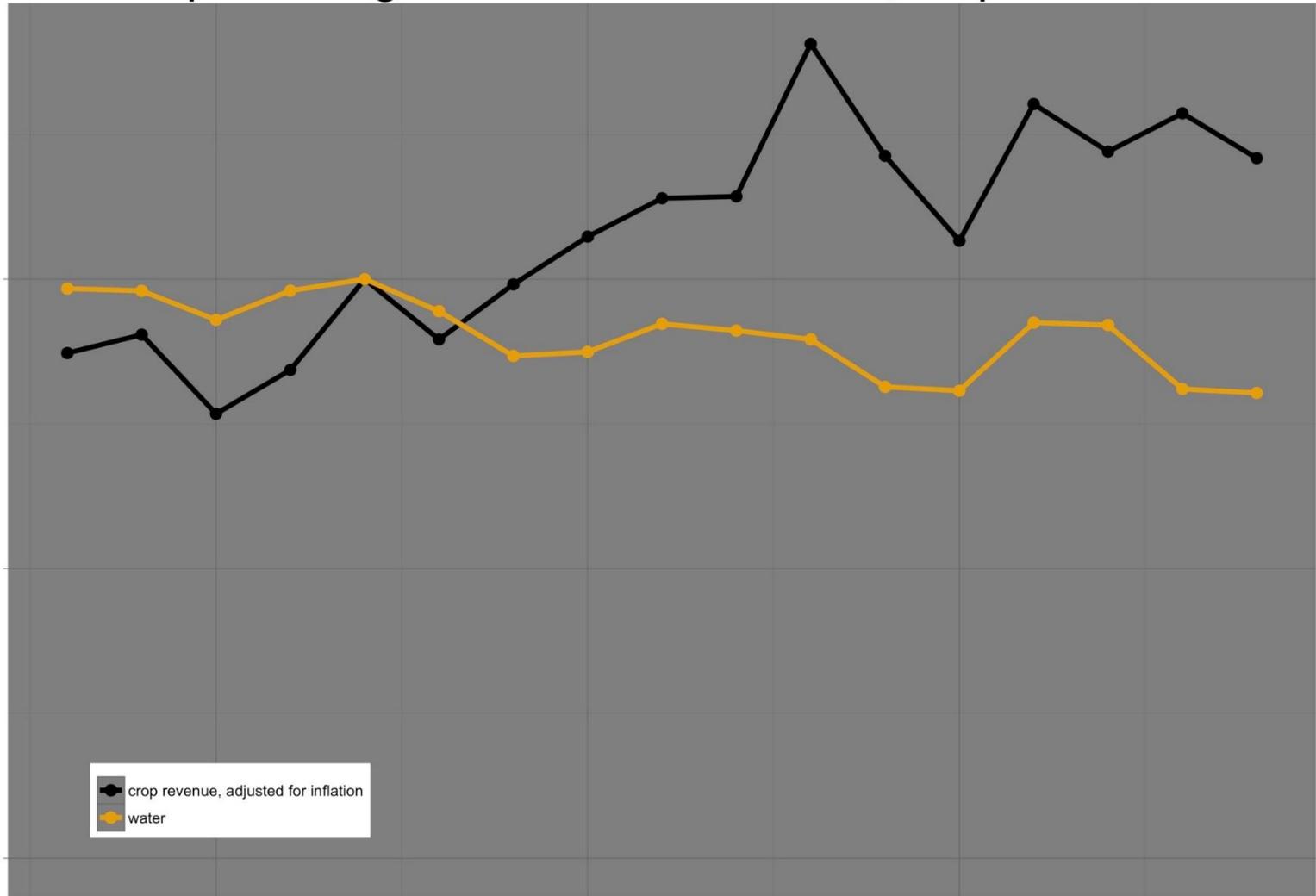
- Shrubland
- Barren
- Open Water
- Developed/Low Intensity
- Developed/Open Space
- Woody Wetlands

Produced by CropScape - <http://nassgeodata.gmu.edu/CropScape>

* Only top 16 agriculture categories are listed. ** Only top 6 non-agriculture categories are listed.

Credit: Sara Gerlitz, UNM WRP

Imperial Irrigation District water use, crop revenue



● crop revenue, adjusted for inflation
● water

2000

2005

2010

Source: USBR, Department of Commerce
John Fleck, University of New Mexico Water Resources Program



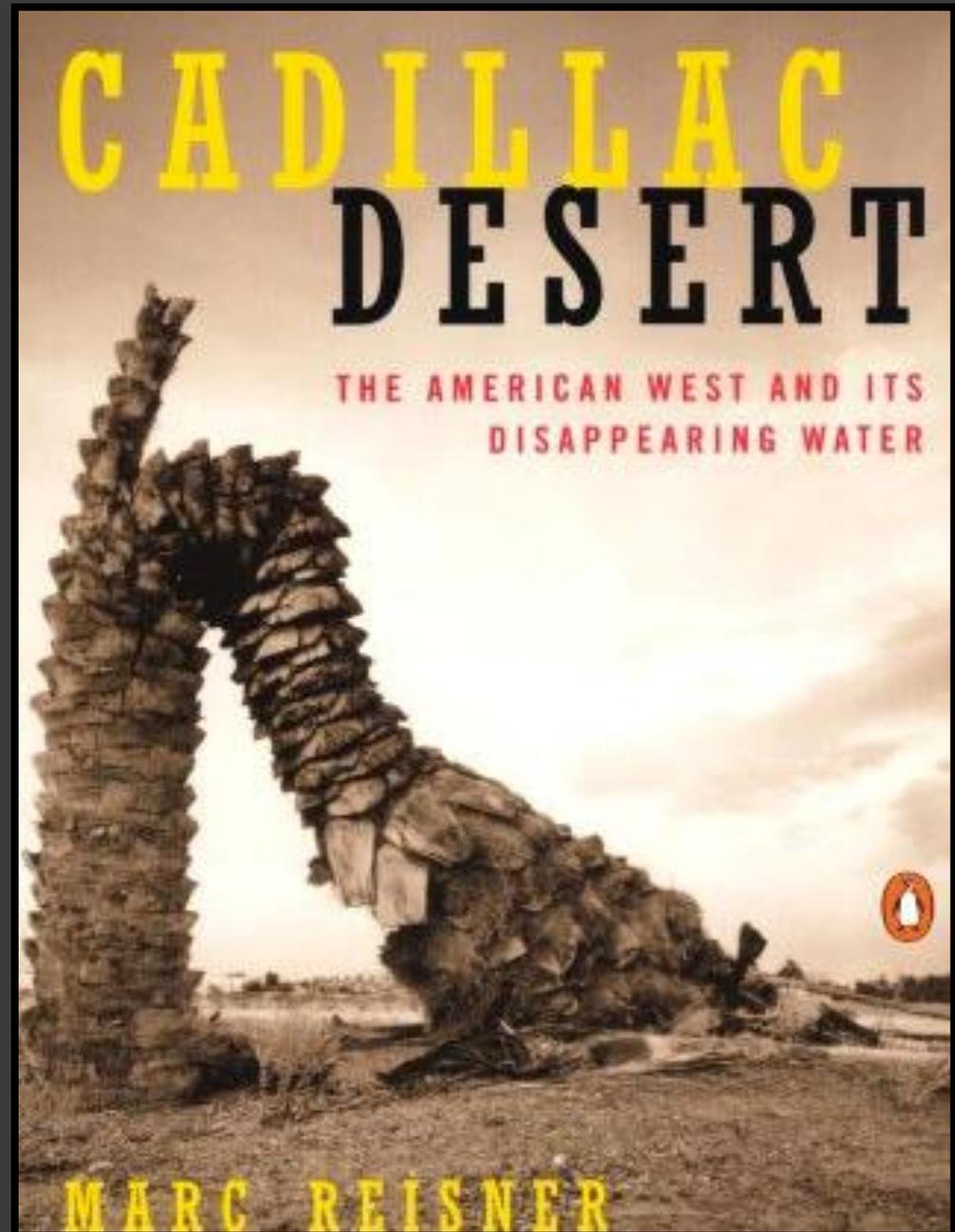
Onions, Imperial Valley, spring 2014

We adapt.

Where does that
come from?

How can we
nurture and
encourage it?

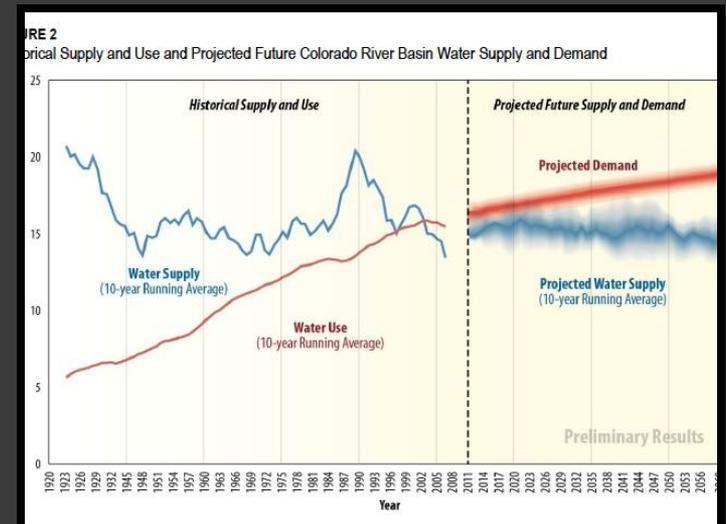
Most importantly,
how can we scale it
up?

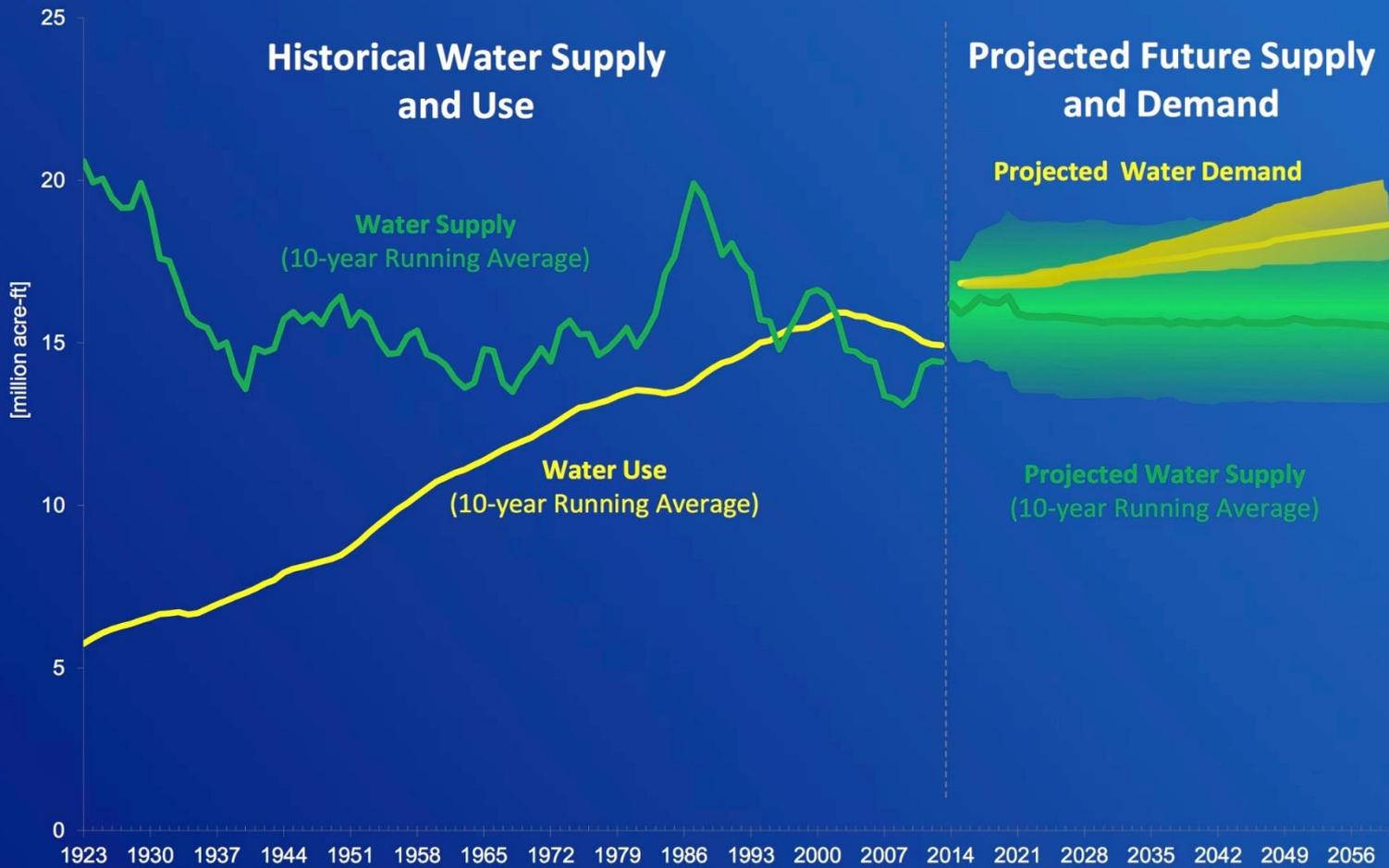


Recognize scarcity signals



Don't be tricked by the orange line





RECLAMATION



Special thanks to Emily Turner Davis, Juan Hernandez, Brad Udall, Jennifer Pitt, Mike Connor, John Entsminger, Kathryn Sorensen, Bob Berrens, Sara Gerlitz, Melinda Harm Benson, Bruce Thomson, Island Press, the Breakthrough Institute, the Colorado River District



John Fleck

Director, University of New Mexico Water Resources Program

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COOPERATIVE EXTENSION

WATER RESOURCES RESEARCH CENTER

Water Challenges and Solutions in the West

Dr. Sharon B. Megdal, Director
smegdal@email.arizona.edu

Security & Sustainability Forum on Water in the West
October 24, 2016

wrrc.arizona.edu

**GREATER DEPTH,
BROADER
PERSPECTIVE
FOR A CLEAR
WATER FUTURE**

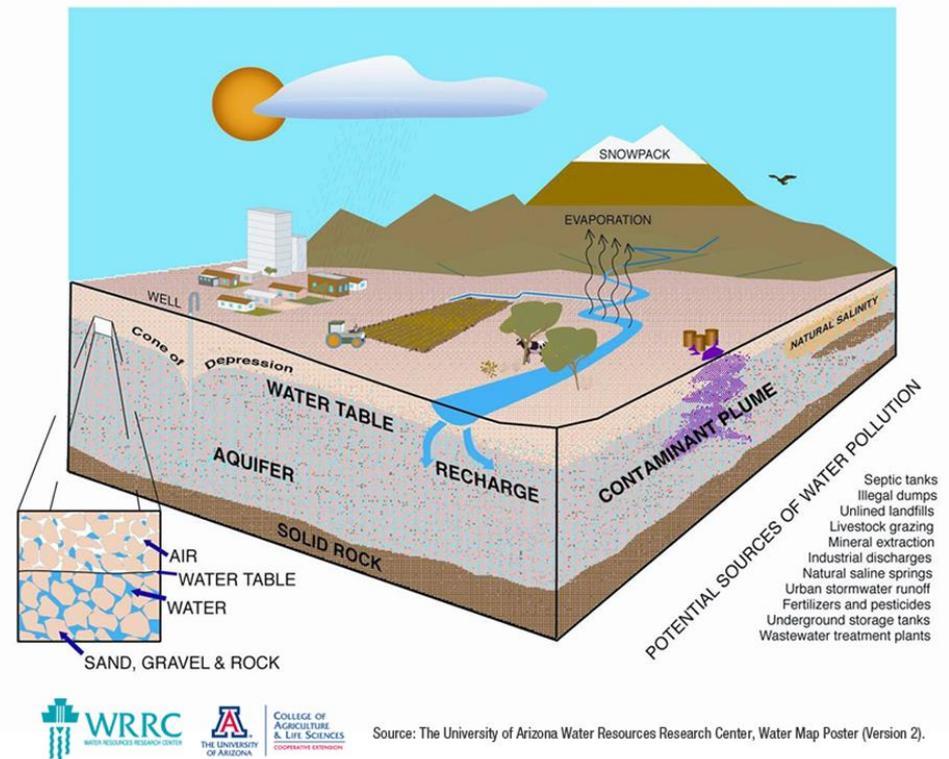


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Some C's of Water Challenges and Solutions

- Competition for water resources
- Climate
- Lack of Certainty
- Community
- Collaboration
- Compromise
- Communication
- Cycle of water
- Context

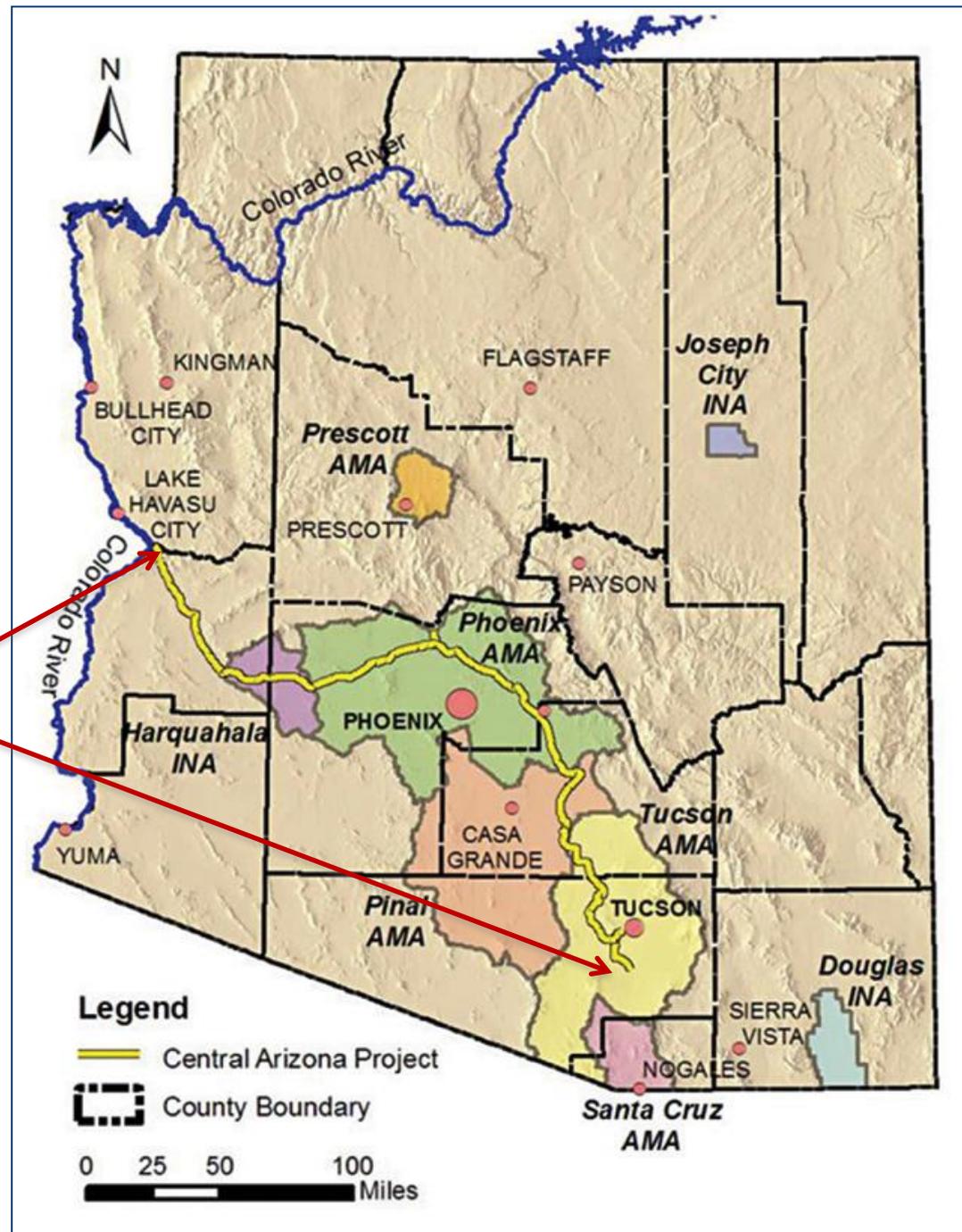




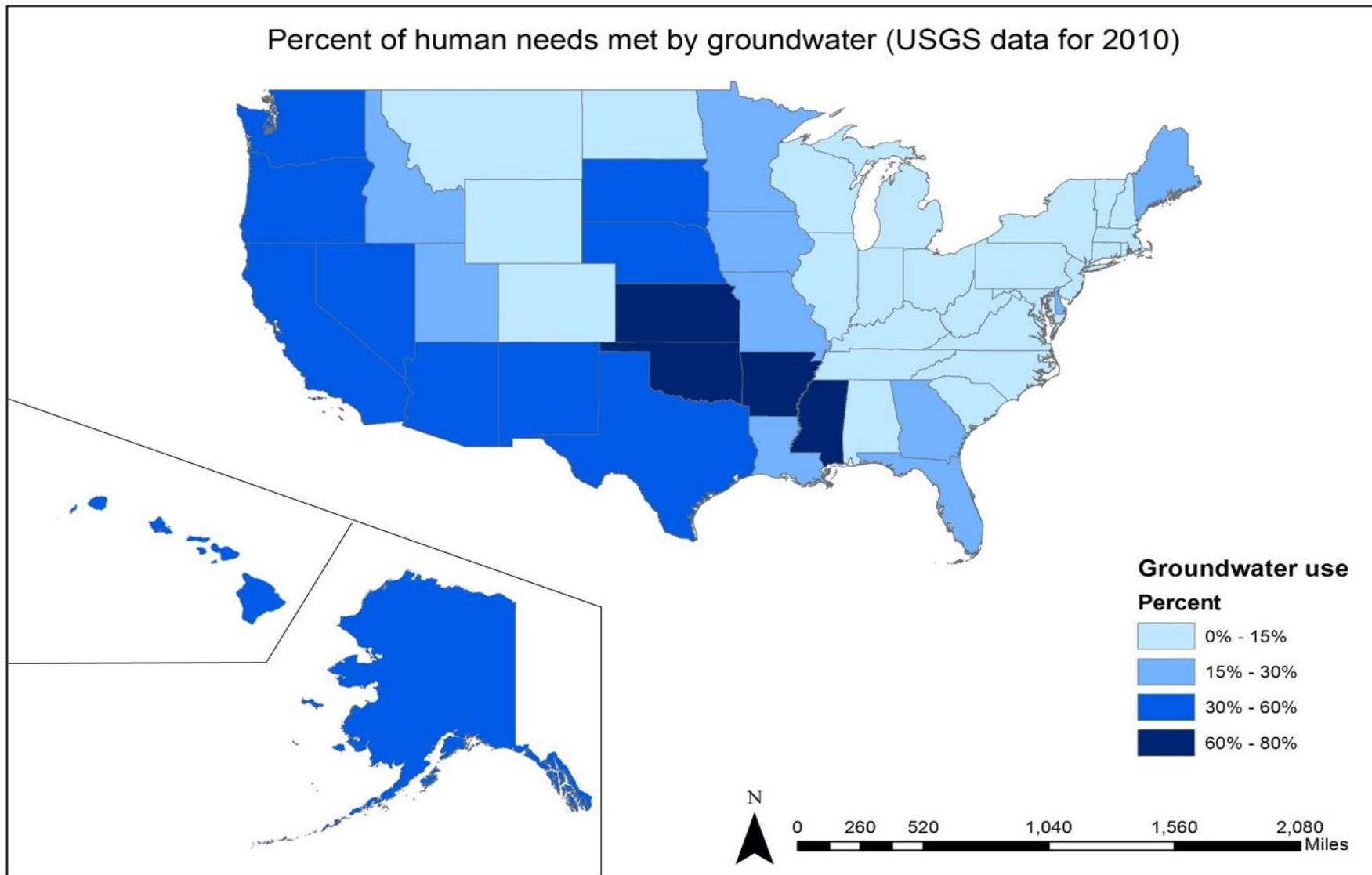
Colorado River Basin

Importance of Colorado River water and the Central Arizona Project* (CAP) to Arizona

*Elected member of the CAP Board



Importance of Groundwater



Importance of education and engagement



Sharing experiences/lessons learned with others around the country and the globe



Hadera, Israel – Photo by Cody Sheehy

Searching for Solutions

- Uncertainty and imperfect information
- Working collaboratively
 - Interstate
 - Tribal Nations
 - Mexico
 - Within states
- Considering the options – and implementing some
 - Desalination
 - Reuse
 - Conservation
 - Water banking
 - Voluntary transactions
 - Rainwater harvesting; grey water systems



Environmental Considerations

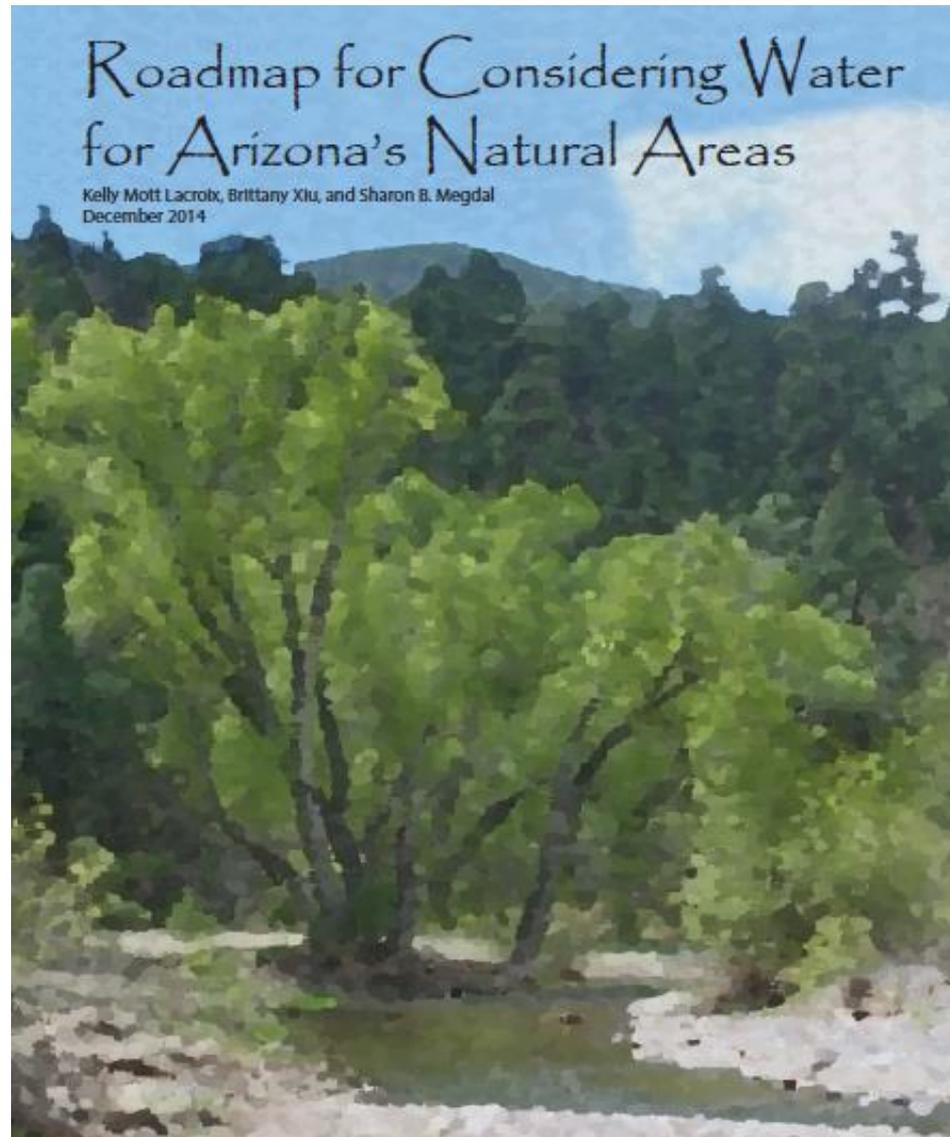


Moving Forward: Phase 1 Report

Chapter 5 | Environmental and Recreational Flows

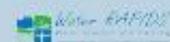
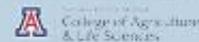
This chapter is a product of the
Environmental and Recreational Flows
Workgroup

May 2016



Roadmap for Considering Water for Arizona's Natural Areas

Kelly Mott Lacroix, Brittany Xiu, and Sharon B. Megdal
December 2014

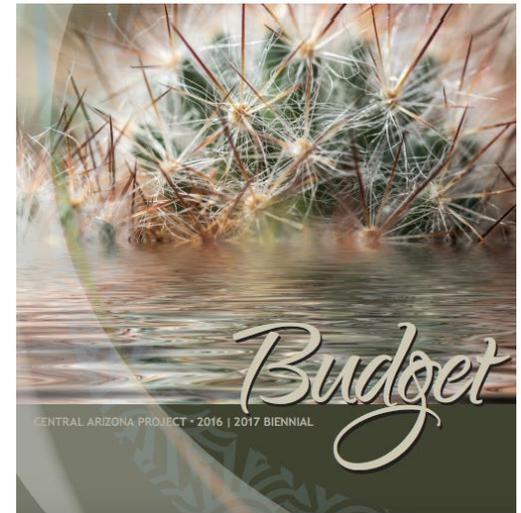


Governance and Financing Considerations

- Legal/Institutional/Governance Context is important
 - Decentralized: Cannot paint US with a single brushstroke
 - Pathways to solutions will differ
- Groundwater governance and surface water governance
- Financing solutions and projects
 - Future role of public-private partnerships
 - Utility rate structures



Photo: Phil Fortnam



Thank you!

**Many articles and resources can be
found at
wrrc.arizona.edu**

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Discussion

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Panel Discussion Questions

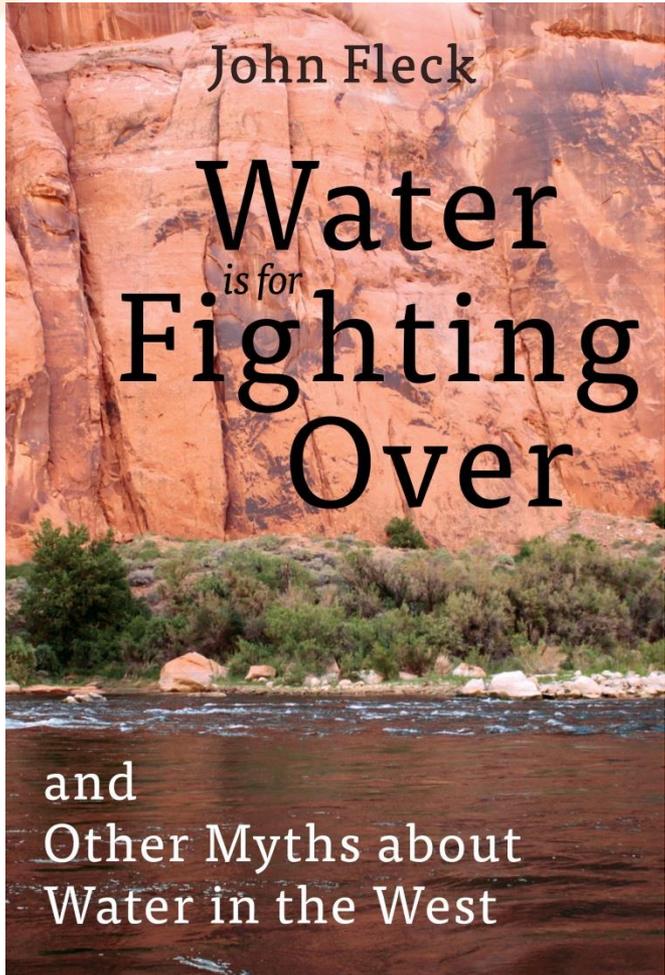
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- John, you've talked about your optimism that communities can continue to decouple their water use from population and economic growth, and shown some interesting examples. But how long can that continue? Won't there be a point where we've wrung out all the savings and further growth will outstrip water supplies?
- What are some of the steps utility managers can take to reduce water use?

Panel Discussion Questions

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- What can state and federal agencies do to be more useful in supporting the kinds of discussions needed for long-term and short-term collaborations?
- What can local and regional government officials do to help support such discussions?
- Is there a useful role for universities?



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By John Fleck

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