

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com





COLLEGE OF
AGRICULTURE
& LIFE SCIENCES

Do You Know Your Urban Water Address - and Why it Matters?

Arizona Project WET

Kerry Schwartz, Faculty

Director Arizona Project WET

University of Arizona, Water Resources Research Center and
Cooperative Extension

at

Water Smart Innovations 2013 – Las Vegas

Arizona Project WET's Mission

Water Stewardship & STEM Literacy through:

- teacher professional development focused on 21st century skills,
- direct student outreach that delivers or extends classroom learning, and
- community engagement.

APW has conducted professional development with 7,221 teachers and reached over a half million students in 263 communities.



Water Investigations Program

Refine students' critical and creative thinking skills and environmental position over a year of inquiry about water resources and supply, water use, and water in natural system by helping teachers transform their instructional practices through integrating STEM disciplines.



The WIP Process:

Water Resources & Supply

- Study Arizona's water resources.
- Students explore connections between groundwater and surface water.

July - October

Human Water Use

- Study water use at school and home and quantify use.
- Students act to save water using technological solutions.

October - January

Water in the Environment

- Study the effect that water has on the environment.
- Students design their own investigations and conduct them at a riparian area.

February - May

Critical Thinking and Problem Solving Skill Development

A Massive Arid Urban Area

- Newly released population data show the Phoenix metro area's population surpassed **4.3 million** last year.
- The Valley is the **13th largest metropolitan area** in the U.S., according to these new numbers from the U.S. Census Bureau.

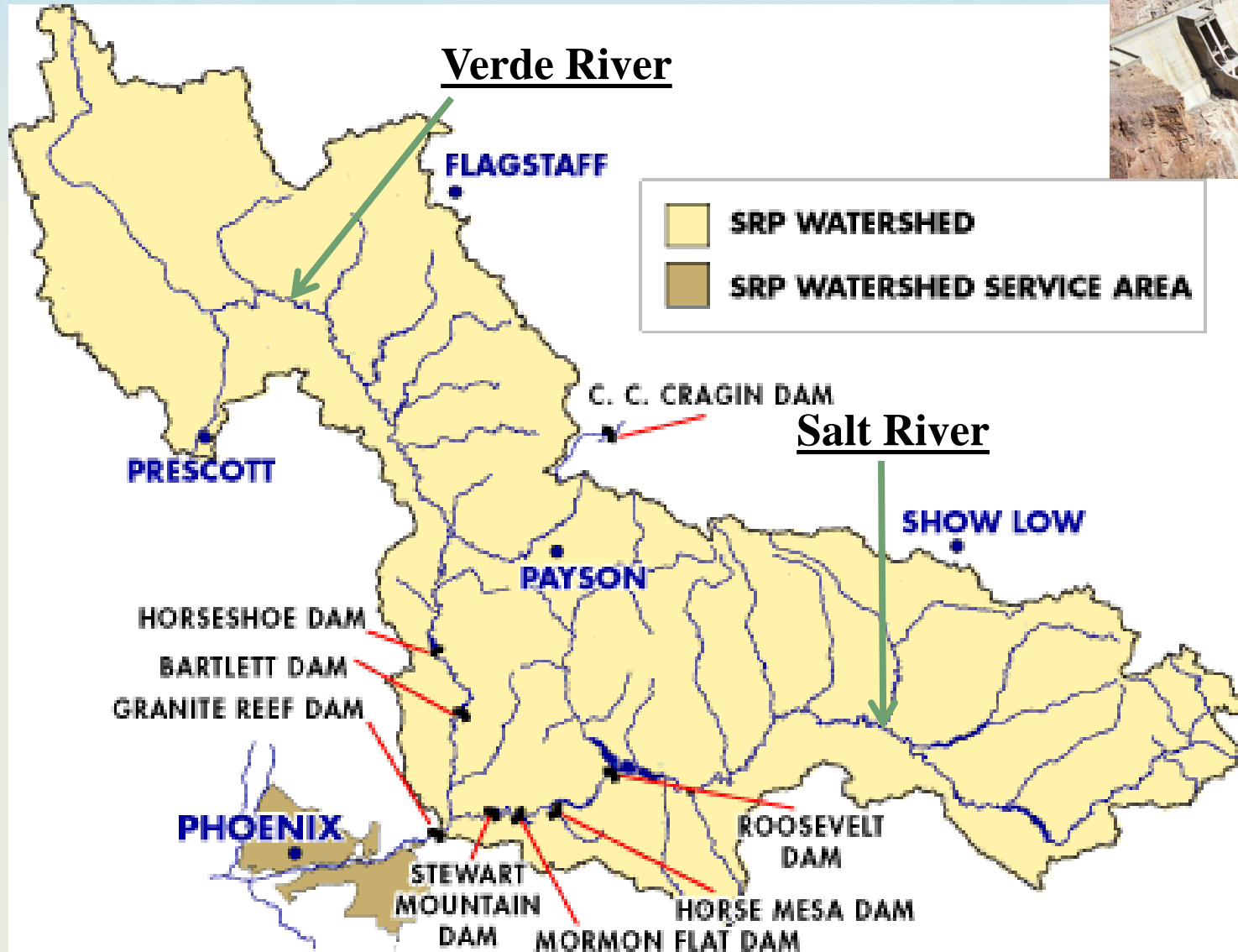
From: *Phoenix Business Journal Morning Edition Newsletter*
Mar 14, 2013, 12:02pm MST Updated: Mar 14, 2013, 1:07pm MST
Census: *Phoenix-area population tops 4.3 million, moves up metro rankings*

Your Water Address

Salt - Verde Watersheds



Roosevelt Dam
completed in 1911



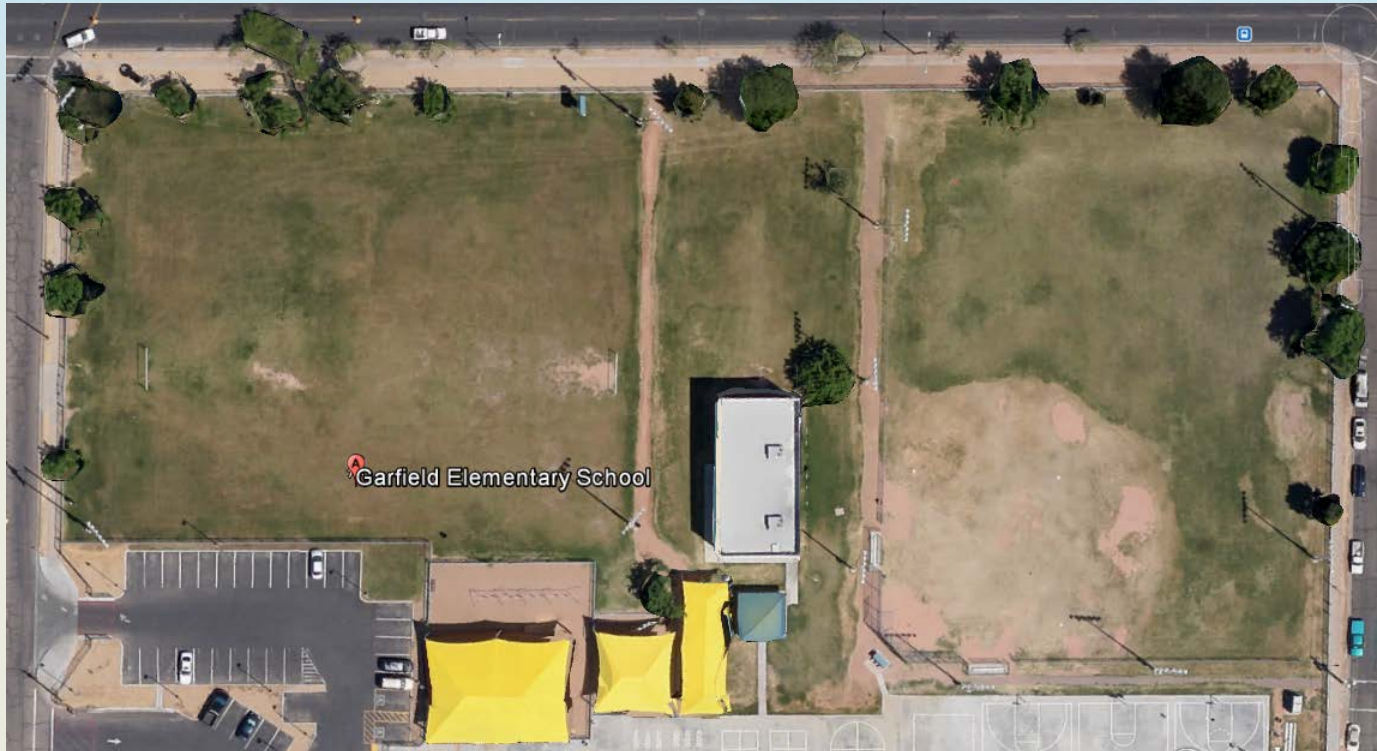
Your Water Address

Garfield Ele. School located in downtown Phoenix. Students can see their own school and their own community enabling us to bring in that real-world relevancy.

Note: This image was taken from Google Earth a technology tool to engage students in real world projects.



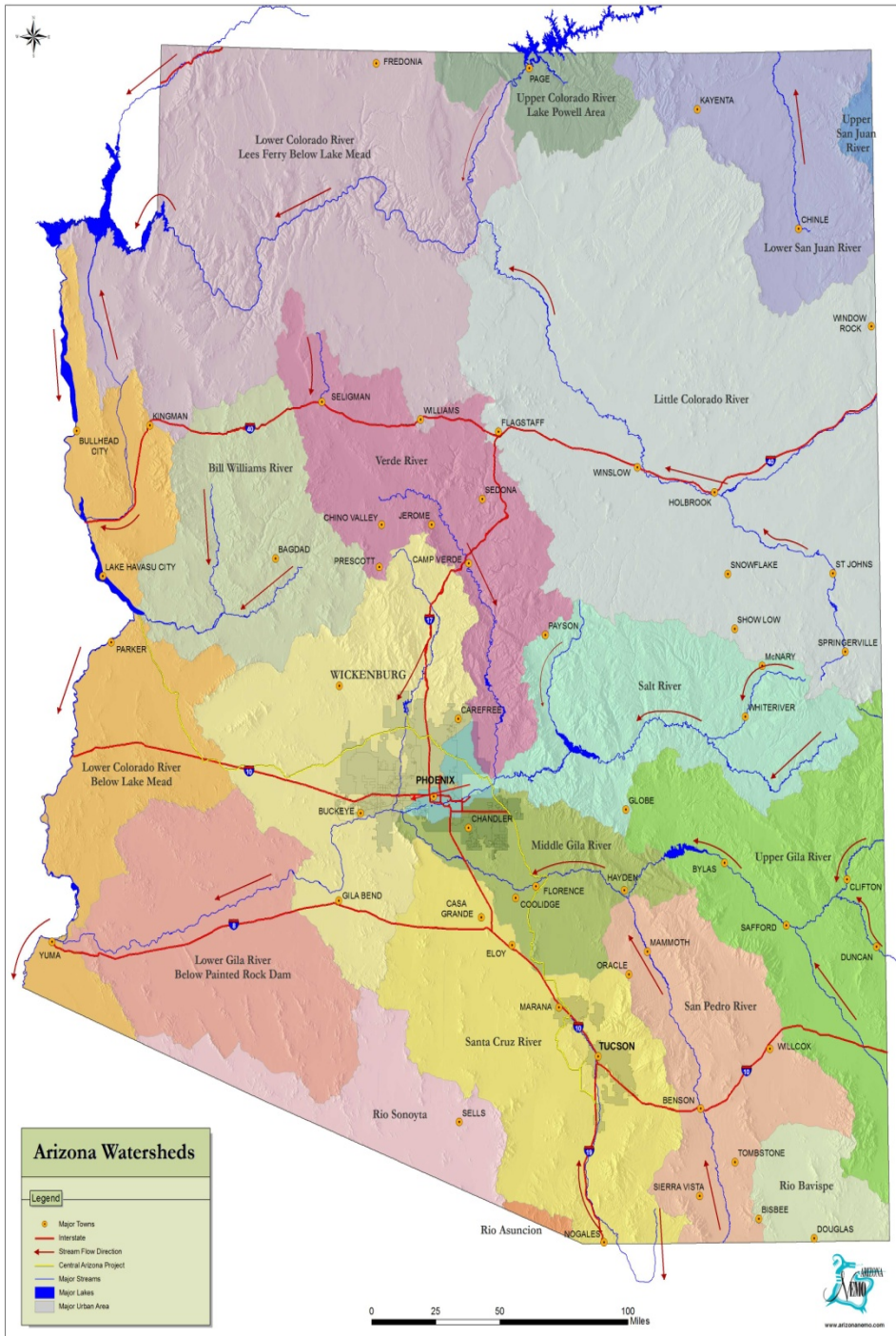
Your Water Address



Designing Solutions: How can you capture and store water and move it where you want it when you want it?

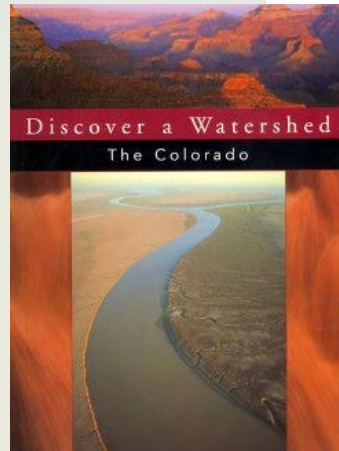
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Your Water Address: Arizona and its' major Watersheds



Your Water Address: Colorado River Watershed

- Headwaters in Colorado and Wyoming (Green River)
- 244,000 square miles
- 1,450 miles from headwaters to the delta



Configured to be consistent with the Bureau of Reclamation's depiction of the Colorado River Watershed

Once we know our Water Address, what can we do?



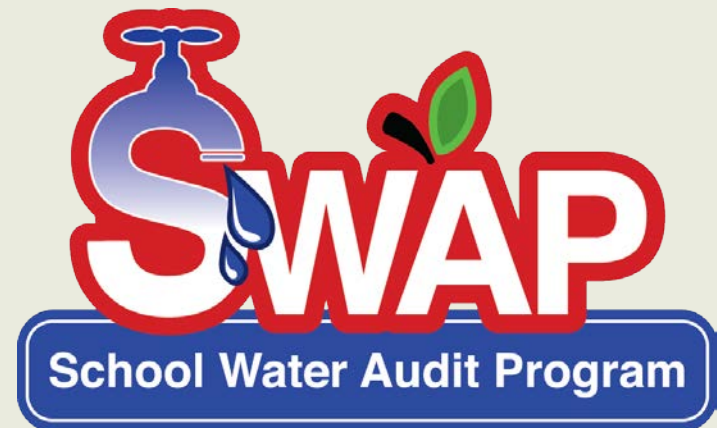
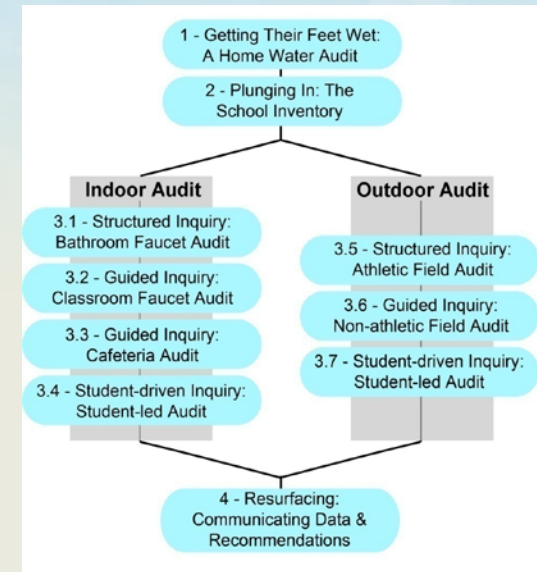
Relevant Inquiry ... Creative and Critical Thinking ... Real-world Solutions

Channel 12



School Water Audit Program

STEM education that incentivizes school and community water conservation through student-driven inquiry and students acting to install technology that saves water.



Water Scene Investigations

<http://arizonawet.arizona.edu/wsi/>

Inspire participants to adopt home water conservation practices through the installation of water efficient technology and comparison of their savings with other water users.



Bringing it Home

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THE UNIVERSITY
OF ARIZONA®

<http://cals.arizona.edu/arizonawet/>

Arizona Water Festival

Instill a deeper understanding of water in the earth system and Arizona's water resources through a day of student exploration at a community festival, teacher professional development on a standards-based unit, volunteer involvement, and an opportunity for sponsors and collaborators to invest in effective education.



Teacher Academies

Professional development that evolves teachers' instructional practice and water-related content mastery through STEM integration, interdisciplinary Standards inclusion, project based learning, real-world and relevant application, and collaborative work with teachers.



Community Programs

Discovery Program: incentivize outdoor exploration and science literacy for youth and adult learners by following a QR code scavenger hunt and answering questions as a scientist would discovering something about that place.

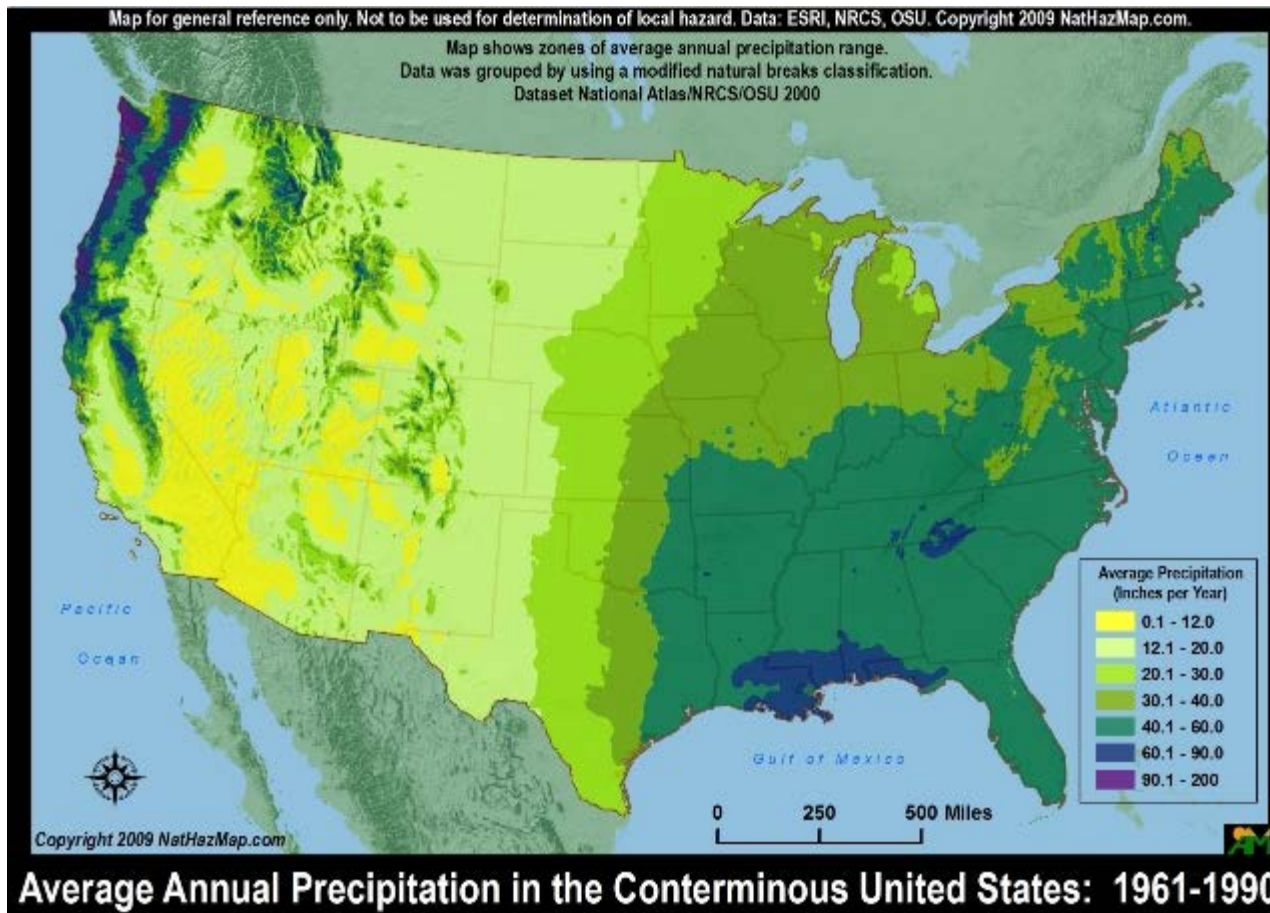


Tom Cech
Director

One World One Water (OWOW) Center
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Metropolitan State University of Denver
Denver, Colorado

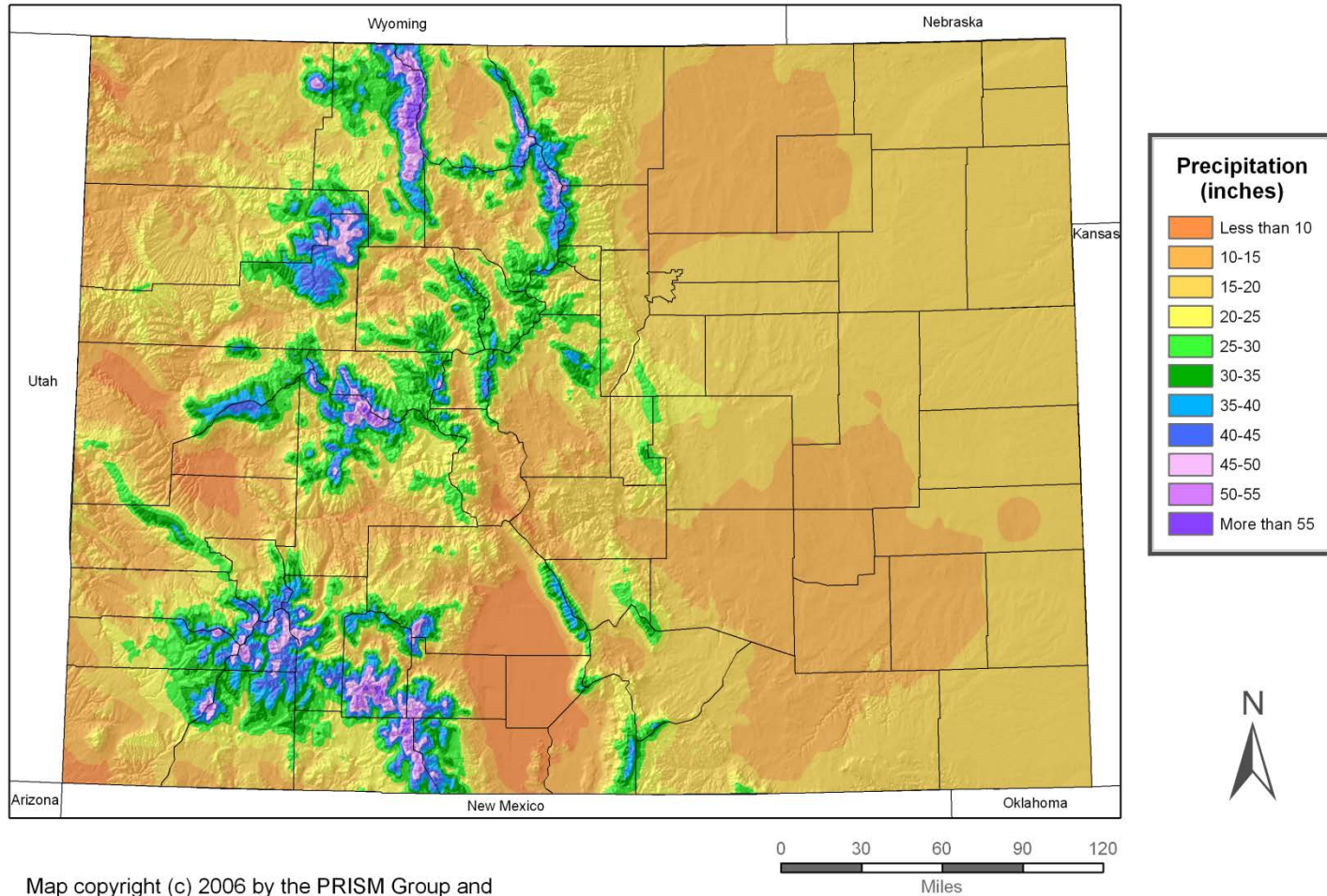
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Average Annual Precipitation of Colorado 7-50+ inches

Average Annual Precipitation, 1971-2000 Colorado



Map copyright (c) 2006 by the PRISM Group and Oregon Climate Service, Oregon State University.

Metropolitan State University of Denver

An Urban Campus



**Approx. 24,000
students**

157 acre campus
off Speer Blvd.

Established 1965

**Established as
MSU Denver
in 2012**

MSU Denver An Innovative Campus



**New Hotel and
Hospitality
Learning Center**

**New Student
Success Building**

**Home of the new
One World, One
Water (OWOW)
sculpture by
Rik Sargent,
Valerie Gates
in 2012**

One World One Water (OWOW) Center for Urban Water Education and Stewardship

Established in Fall 2011 with a five-year, \$1 million grant to MSU Denver.

Three goals:

- 1. Establish a Water Studies minor for all students and departments at MSU Denver**
- 2. Develop “Water Stewards” at and beyond the Auraria Campus**
- 3. Create Experiential Activities for students**

Developing Water Stewards



Engineering Tech
(Richard Pozzi)

Biology
(Dr. Cynthia Church)

Marketing
(Dr. Nicole Vowles)

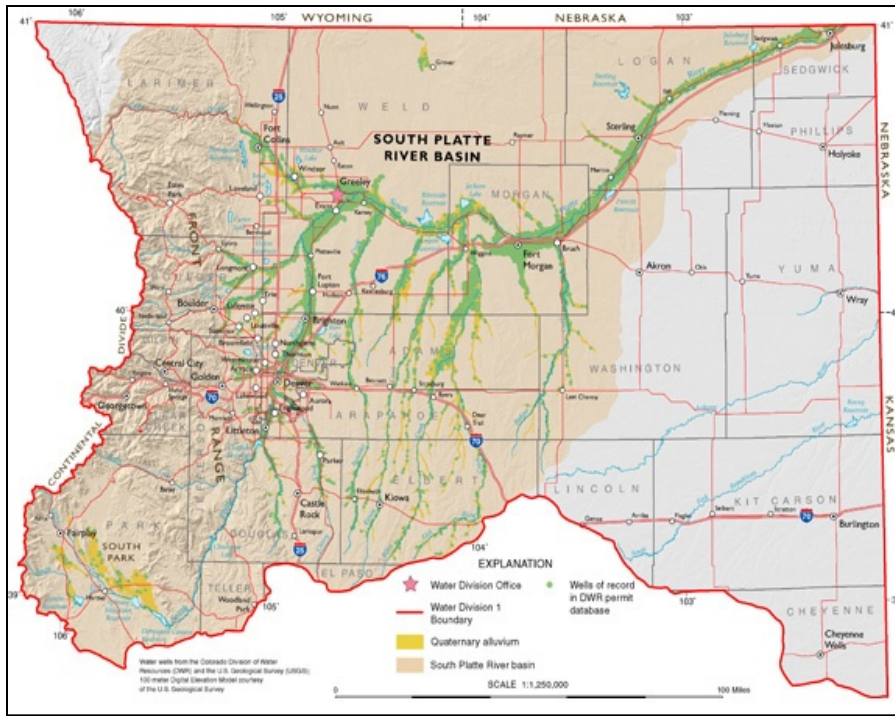
Land Use
(Dr. Jason Janke)

Psychology
(Dr. Chad Mortensen)

Theater
(Dr. Marilyn Hetzel)

South Platte River Basin Facts

- Colorado Population – 5.0 million
2030 projection – 7.1 million
- Denver Metro Population – 2.4 million
(30% growth since 1990)
- Denver projected
2030 projection – 3.9 million



- Water shortfall by 2030 in the South Platte Basin
410,000 acre-feet (134 billion gallons)
- Acres of irrigated land expected to be dried up by
2030 in the South Platte Basin:
133,000 – 226,000 acres



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