Confronting Climate Change

The Challenges of Ensuring Reliable Water Supplies for Central Arizona

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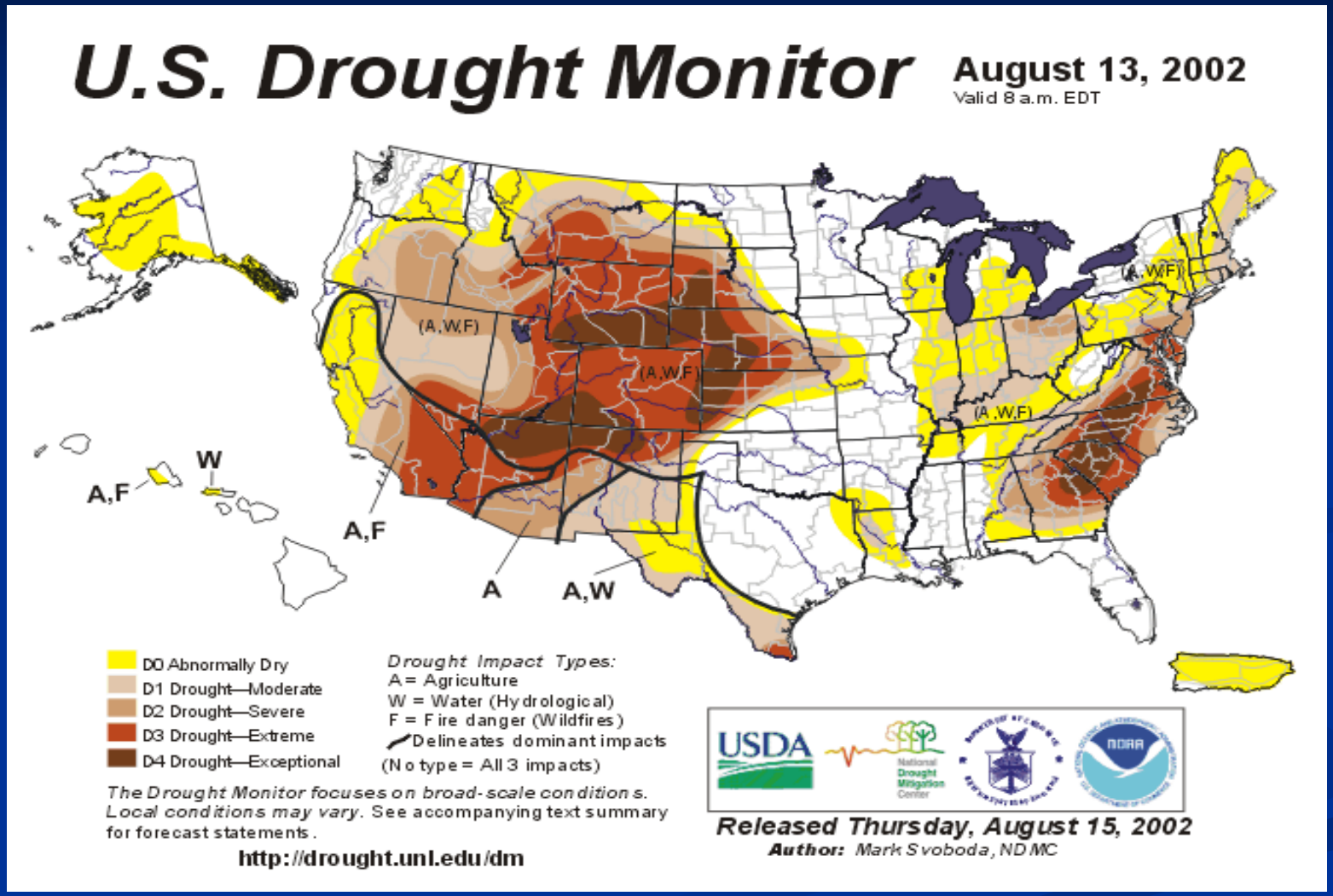
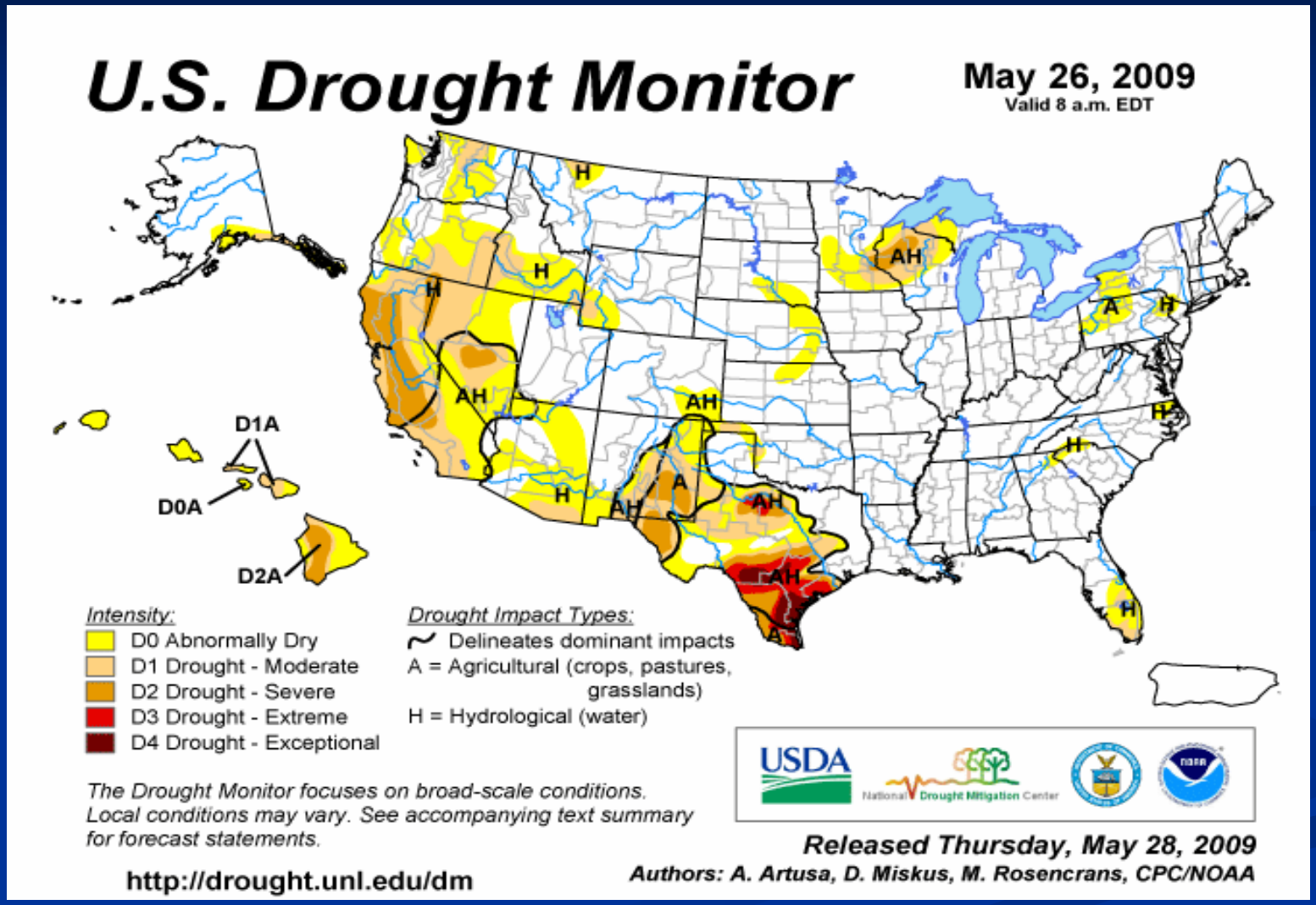
Citizens' Water Advisory Committee
June 3, 2009

After 10 years of severe to extreme drought…



… the situation has improved



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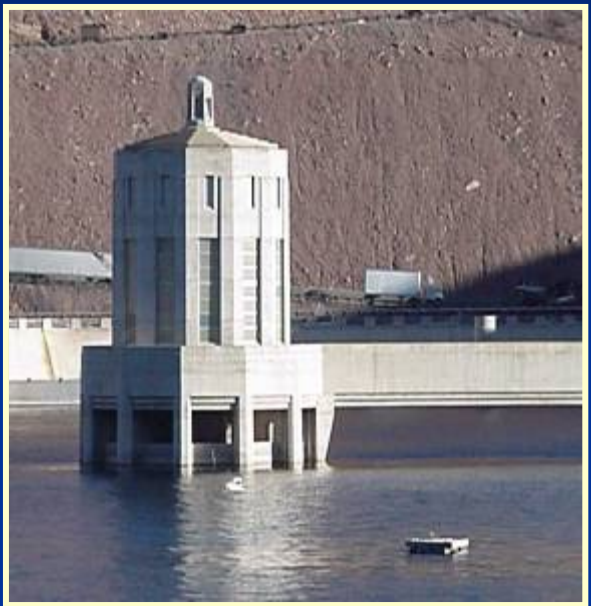
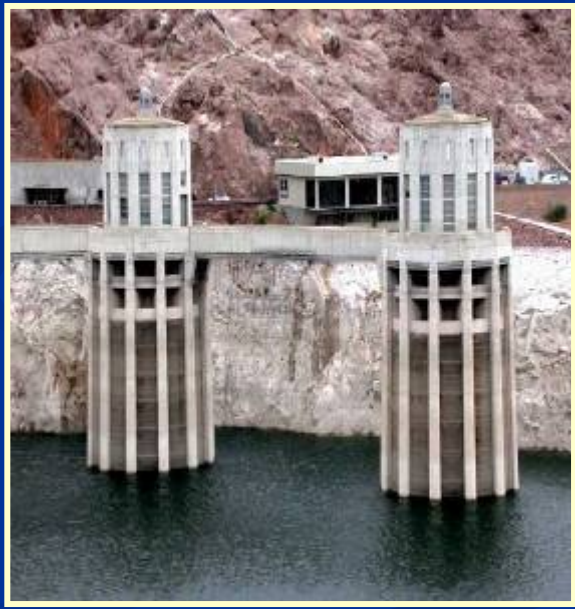
But, Climate Change May Reset "Normal"





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Regional Responses

CAP + Basin States and Dept. of Interior create new Guidelines to Manage the Colorado River

Conserve and reduce "lost" water

Develop plans to Augment the Colorado River

CAP Responses

Improve Climate Change predictive models

Manage & Maximize Water Banking

Support Conservation and reuse programs

Plan to Augment supplies by studying desalination of poor quality groundwater and the development of new groundwater supplies

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New Guidelines for Managing the Colorado River

New Guidelines for Managing the Colorado River

At the Secretary's urging, the Basin States reached agreement in 2006 on conjunctive management of Lakes Powell and Mead and shortage sharing in the Lower Basin

Lake Mead

Lake Powell

The Secretary adopted the new Colorado River guidelines and shortage sharing agreement in December 2007

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Shortage Guidelines

Shortage declarations for the Lower Basin States are based on the elevation of Lake Mead above sea level

Elevation	Shortage to Arizona	Shortage to CAP
1075 ft	320,000 af	292,000 af
1050 ft	400,000 af	363,000 af
1025 ft	480,000 af	435,000 af

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Current Lake Mead Status

Lake Mead elevation is approximately 1098 ft

Without equalization with Lake Powell, Lake Mead loses about 12' per year

Worst case: First shortage in 2012

More likely: First shortage ~ 2016

CAP's maximum shortage under the new guidelines is about 435,000 af

Shortages and Priorities within the CAP

CAP Shortages will affect users in order from lowest to highest priority

Low Priority:

Banking Excess CAP Water

Mid Priority:

Agricultural uses

High Priority:

Municipal, Industrial, and Native American uses

Impact of Shortage on CAP

435,000 af shortage **today** would only impact recharge

If CAP normal year supply ~ 1.5 maf, then 440,000 af shortage will not impact M&I or Indian priority users

Current CAP supply is about 1.6 maf

Bottom line: No shortage to CAP M&I and Indian priority uses likely for 20-30 years

Conservation and Reducing "Lost" Water

Saving water that would otherwise be lost from the Colorado River system reduces the risk of shortage to CAP

Activities

- Yuma Desalting Plant
- Drop 2 reservoir
- Vegetation management

Yuma Desalting Plant

- Completed in 1992
- Designed to remove salts so that salty drainage water flowing to Mexico can be counted as delivery of water to meet the treaty obligation
- Awaits further testing
- Drain water created the Cienega de Santa Clara

Drop 2 Reservoir

Preserves water that is ordered from Lake Mead but not used immediately

Water is delivered to California, reducing draft on Lake Mead

Vegetation Management

Reduce non-native plants that consume river water

Replace with lower water use native plants

Restore native riparian habitats

Develop Colorado River Augmentation Plans

Augmentation was an integral component of 1968 Basin Project Act, but never implemented by U.S. government

Alternatives

Desalination

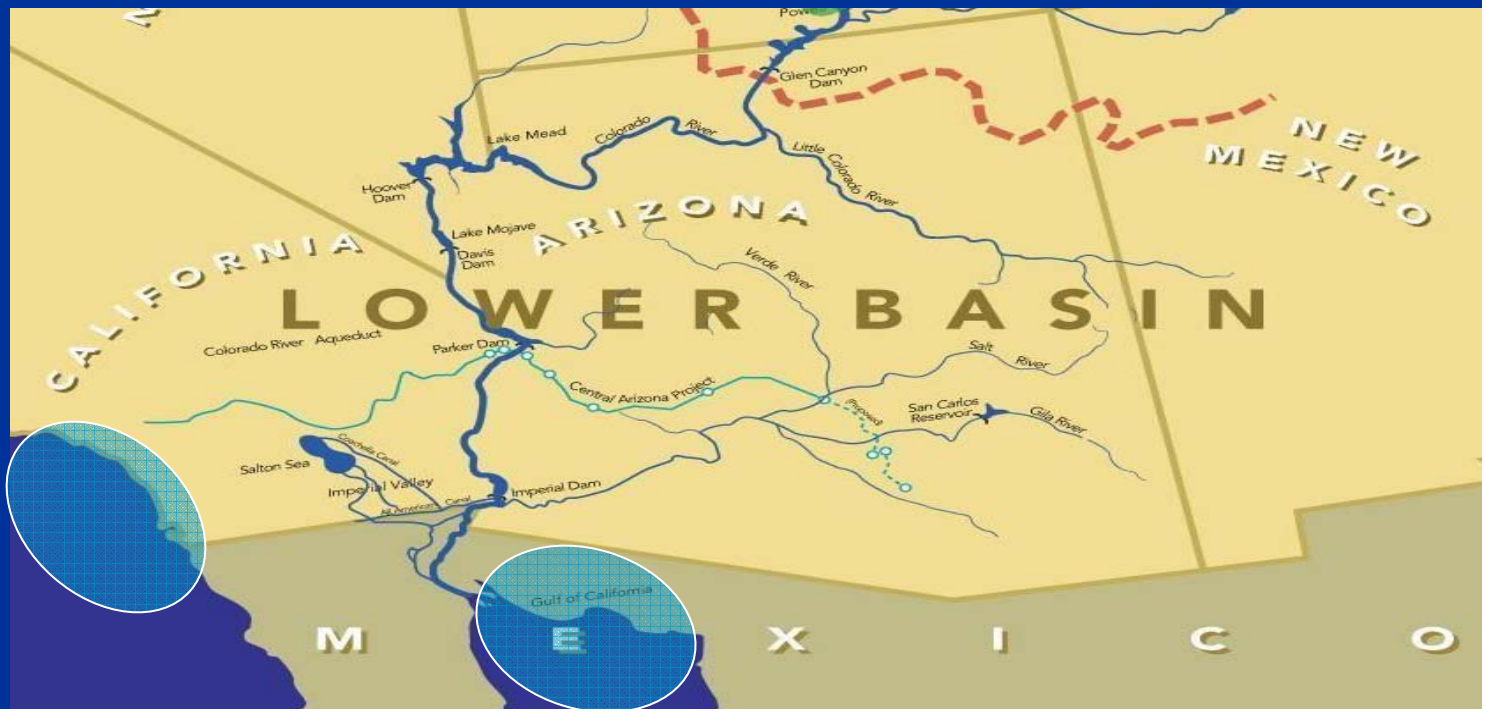
Import additional surface water

Weather modification

Desalination

Seawater

Fund plants in Mexico or California, and leave equivalent amount of water in Lake Mead

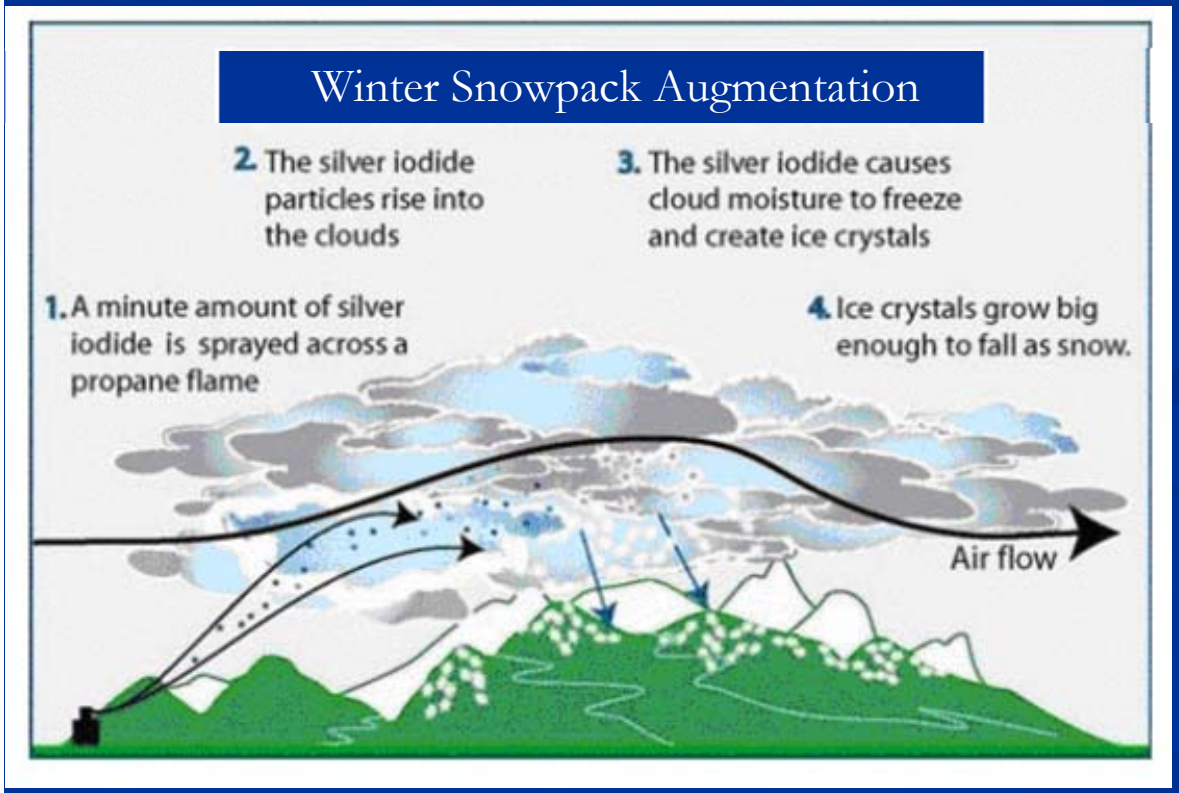


Import Additional Surface Water

Mississippi River Canal

Weather Modification

Cloud seeding – add to winter snowpack to increase run-off



CAP Responses

Improve

Manage

Conserve

Augment

Improve Climate Change Models

Current Global Circulation Models are too broad to accurately predict impacts on individual watersheds

CAP is working with partners to develop more detailed, "down-scaled" models of Colorado River watershed

U of A Salt River Project Bureau of Reclamation City of Phoenix

CAP is collaborating with climate experts to better understand impact of Climate Change on water supplies

NOAA Univ of Colorado Univ of Arizona Arizona State Univ

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Manage & Maximize Water Banking

More than 3.5 million acre-feet have been recharged since 1992, at a cost of $220 million. The stored water will be used to mitigate the impacts of shortages

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Support Conservation & Reuse Programs

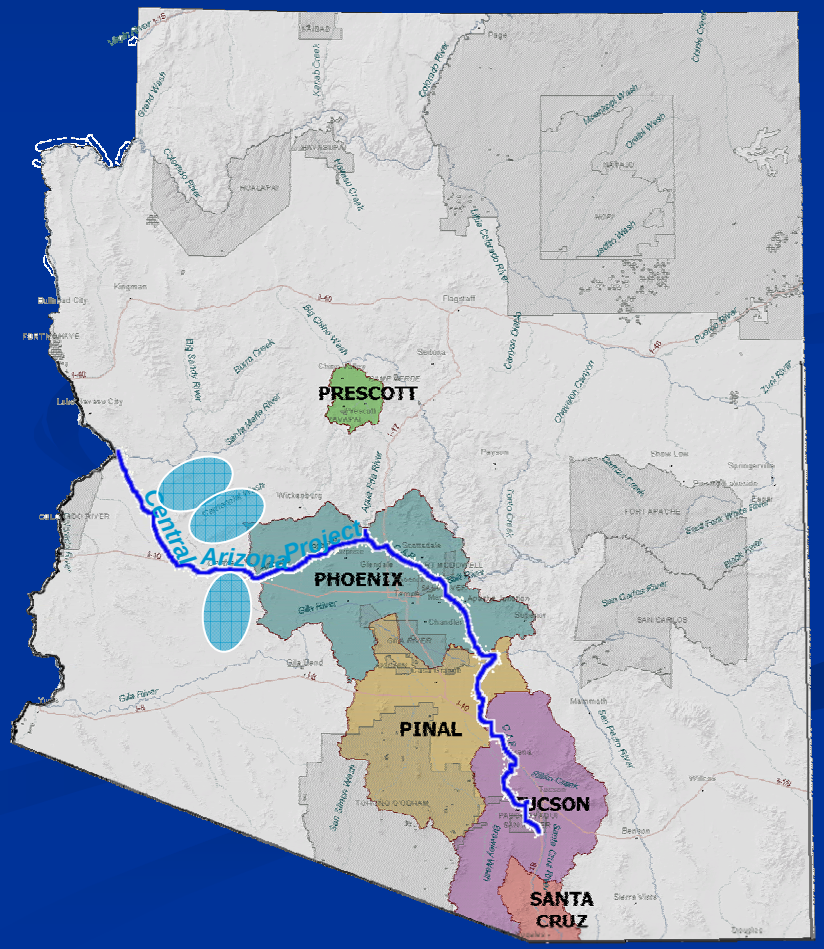
Education & CAGRD Grants

Desalination

Brackish Groundwater – unused poor quality water

Groundwater Development

Underutilized groundwater basins



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