

# The Western States Water Council and Water n the West

Missouri River Basin Interagency Roundtable

January 28, 2015

Omaha, Nebraska

Tony Willardson, Executive Director  
Western States Water Council

The Western States Water Council was created by a Resolution of the Western Governors Conference in June, 1965. The Governors stated in their Resolution the reasons for establishment of the Council.

“WHEREAS, the future growth and prosperity of the western states depend upon the availability of adequate quantities of water of suitable quality; and

“WHEREAS, the need for accurate and unbiased appraisal of present and future requirements of each area of the West and for the most equitable means of providing for the meeting of such requirements demands a regional effort;”

The Governors also provided Rules of Organization to guide the formation of the Council. In describing the functions of the Western States Water Council the Governors directed the Council to:

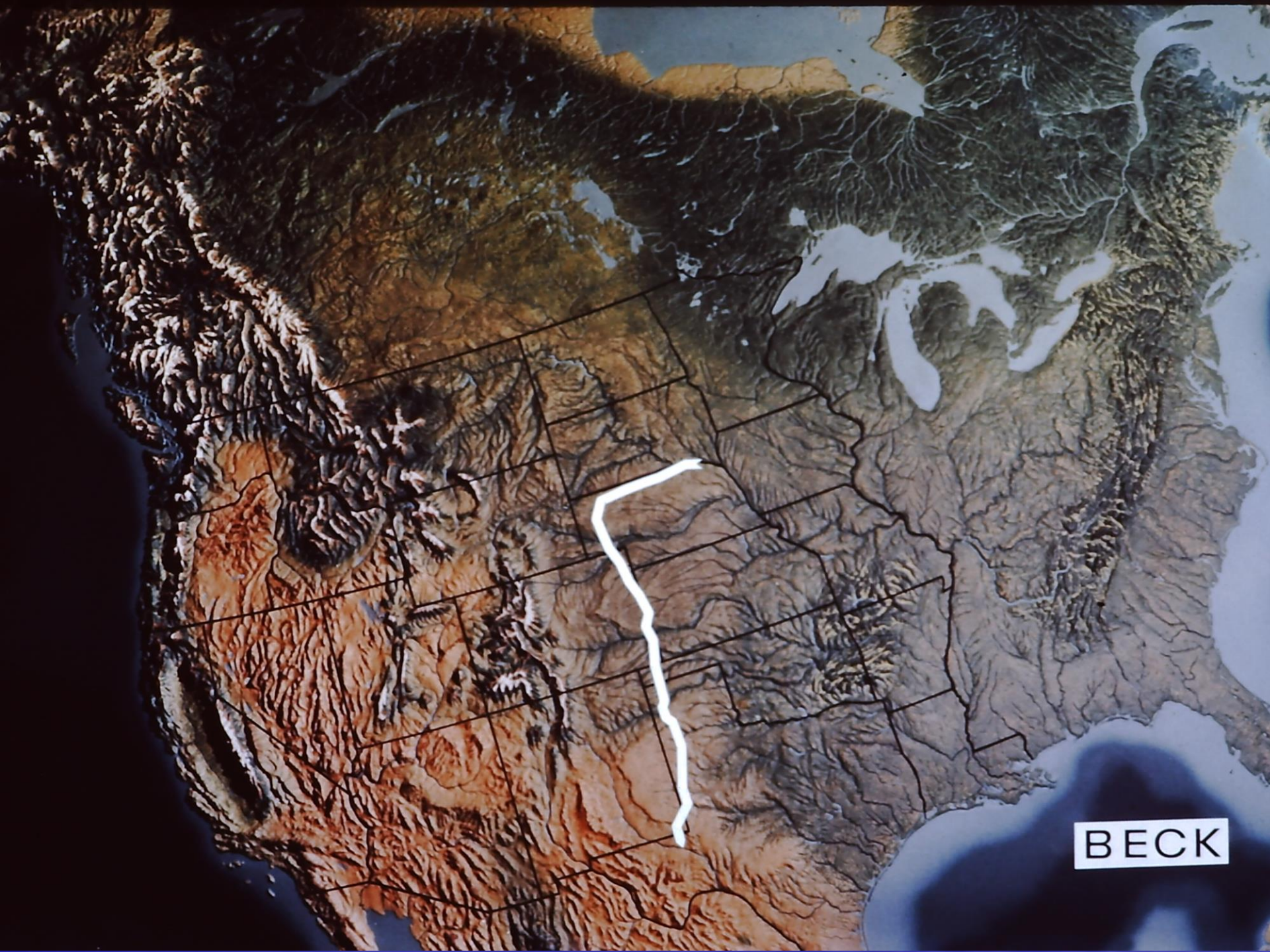
“Undertake continuing review of all large-scale interstate and interbasin plans and projects for development, control or utilization of water resources in the western states and submit recommendations to the Governors regarding compatibility of such projects and plans with an orderly and optimum development of water resources in the western states.”





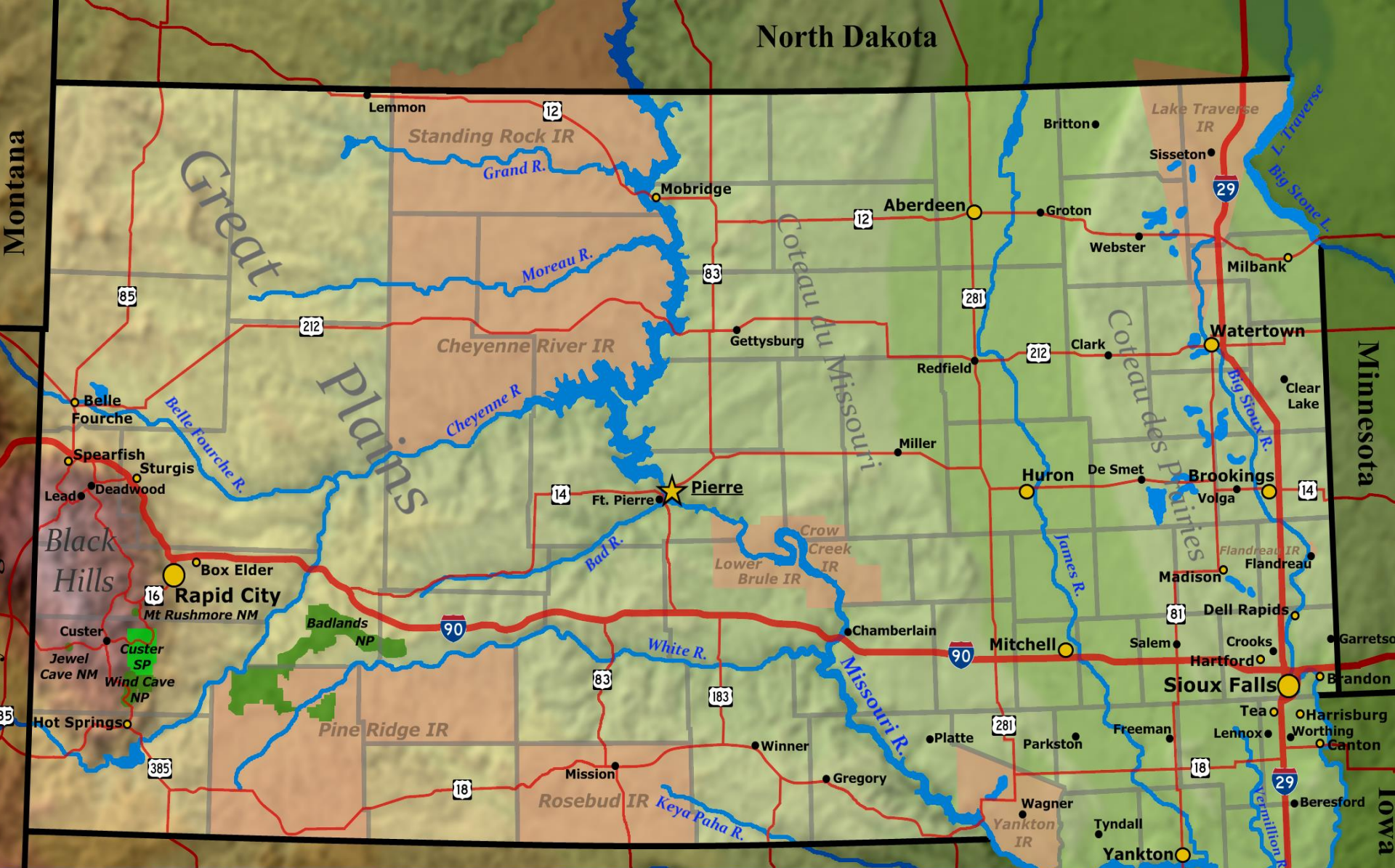
SMITH





BECK





# The State of South Dakota

Drawn by Jon Platek  
A.D. MMXI



River or Lake	State line	<b>Pierre</b>	State capital
National Park	County line	<b>Sioux Falls</b>	Pop. 50,000+
State Park	Interstate Hwy	<b>Watertown</b>	Pop. 10,000-50,000
Indian Reservation	US Hwy	<b>Spearfish</b>	Pop. 3,000-10,000
		<b>Custer</b>	Pop. 1,000-3,000



# Water Needs and Strategies for a Sustainable Future



Western Governors' Association ♦ June 2006

# Water Needs and Strategies for a Sustainable Future: *Next Steps*



Western Governors' Association ♦ June 2008





## Western States Federal Agency Support Team

### *A Declaration of Cooperation*

*Working Together for the Sustainable and  
Efficient Use of Western Water Resources*

We, as representatives of our respective Federal agencies, do hereby declare our intent to cooperate as members of a Western States Federal Agency Support Team (WESTFAST) partnership. We will work together whenever and wherever possible throughout the 17 Western States to promote and educate the public on the benefits of sustainable and efficient use of water resources.

We declare that WESTFAST supports a continued commitment on the part of Federal, and State organizations; working with local, Tribal, and other stakeholders; to improve the effectiveness of collaboration to seek watershed solutions to water issues in the Western States. This effort emphasizes proactive, voluntary, participatory and incentive-based approaches to water resource management and conservation assistance programs throughout the Western States.

We hereby declare that we as WESTFAST partners will collaborate with the Western States Water Council to guide the development of an appropriate action plan for this partnership.

We hereby declare to support, in concept, the establishment of a Federal liaison position to work with the WESTFAST members and the Western States Water Council in developing a collaborative work plan to carry forward joint water resource initiatives. Contributory cost-sharing such a position will be based on authorized and available funds.

Assistant Secretary of the Army  
for Energy & Sustainability  
Army Corps of Engineers  
Bureau of Land Management  
Bureau of Reclamation  
Environmental Protection  
Agency  
National Aeronautics and Space  
Administration  
National Oceanic and  
Atmospheric Administration  
Natural Resources Conservation  
Service  
U.S. Fish & Wildlife Service  
U.S. Forest Service  
U.S. Geological Survey  
U.S. Department of Energy  
National Park Service



# Major Western Water Challenges

- Data
- Climate/Drought/Extreme Events
- Growth/Energy/Water
- Infrastructure
- Regulatory Requirements
- Tribal & Other Federal Water Needs
- Water Transfers (Among Intrastate Users)



# Water Policy and Growth

Population growth is continuing at an unprecedented rate in the West with ramifications not only for cities but rural communities and agricultural areas.

Changing demographics and values placed on various water uses are transforming the future of water management.

In the future, we may not be able to sustain unlimited growth and still maintain our current quality of life. Difficult political choices will be necessary....



Decisions about where and how to grow are rarely influenced by water policy or by the availability of water





# Competing Uses for Limited Supply

Energy



Municipal and Industrial

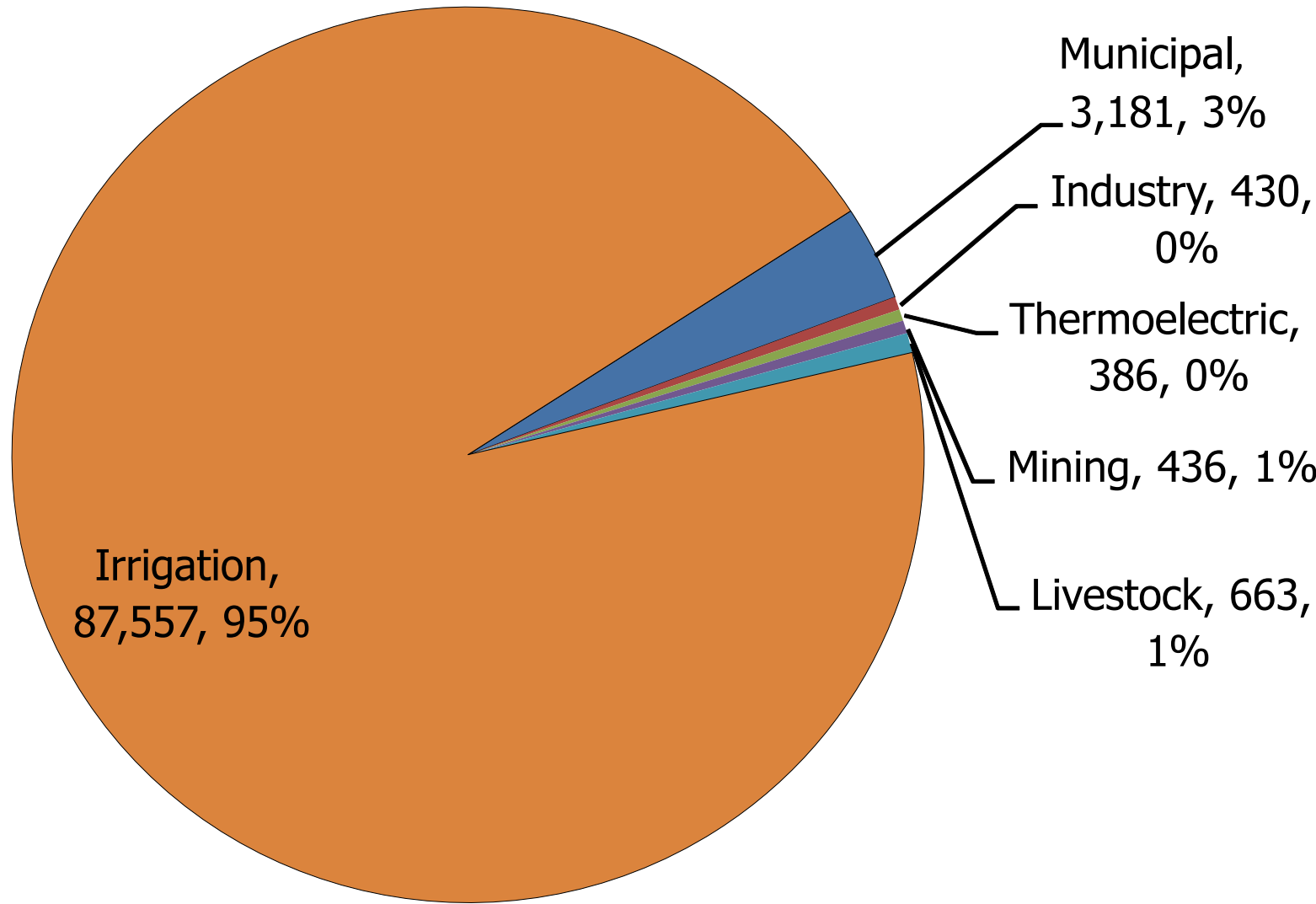


Instream Flows for Recreation and for The Environment

Agriculture



# 2010 Water Consumption (MGD)





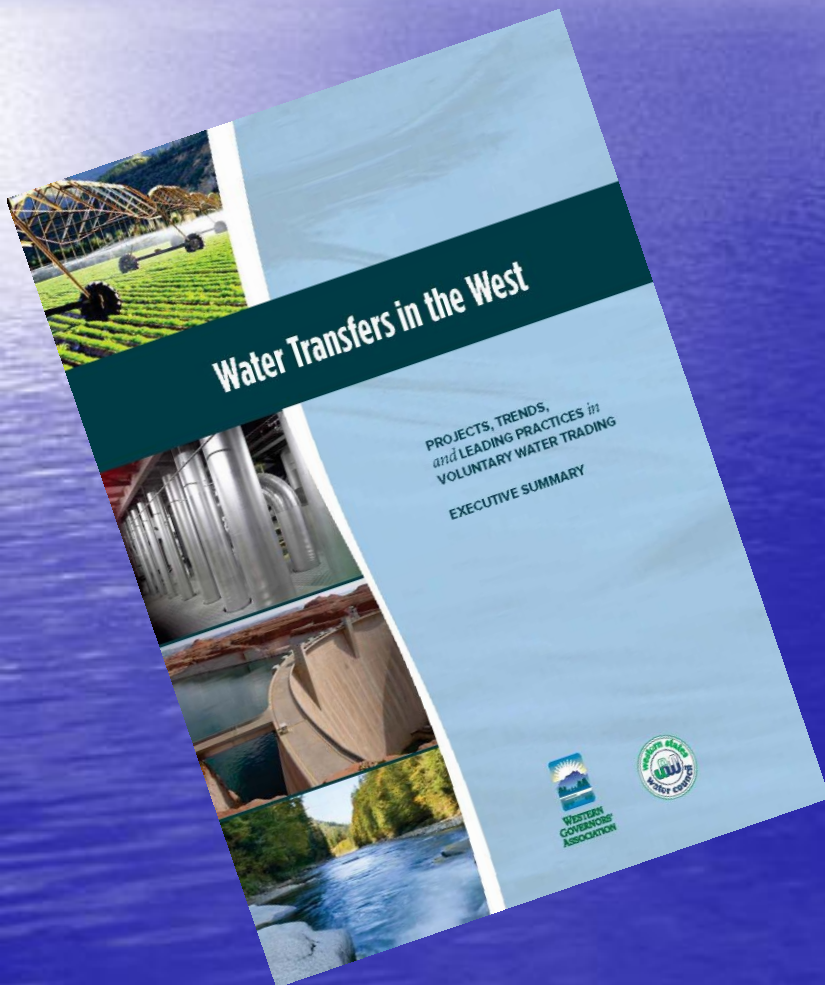
# Water moving from agricultural to urban and other uses



We need to integrate water resources and land use planning and energy planning



# The Western Governors' Association



*Western Governors believe states should identify and promote innovative ways to allow water transfers from agricultural to other uses (including urban, energy and environmental) while avoiding or mitigating damages to agricultural economies and communities.*

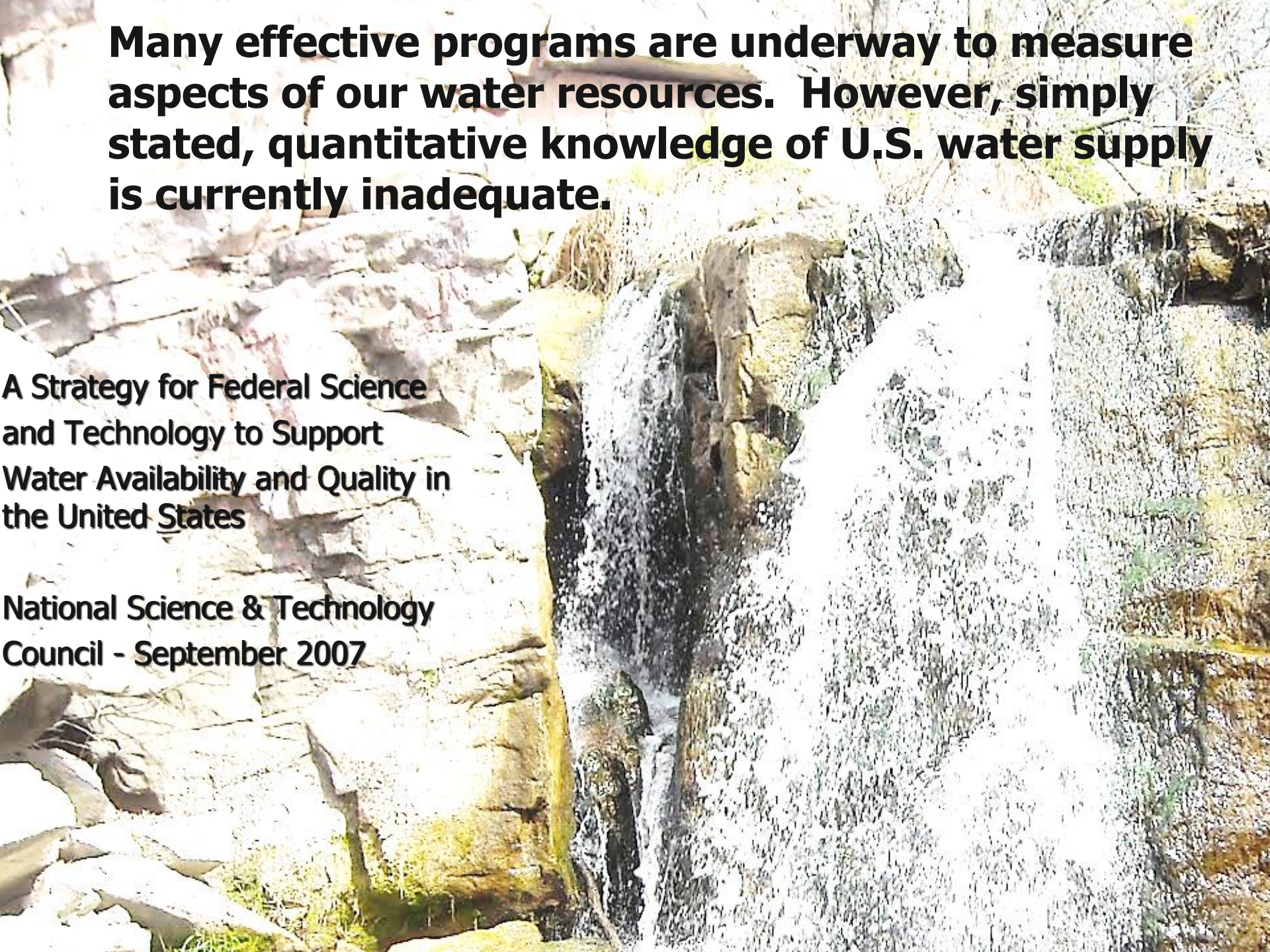
*Policy 11-7*



# Major Western Water Challenges

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A photograph of a waterfall cascading over a rocky cliff face. The water is white and frothy as it falls, creating a misty spray at the bottom. The rocks are dark and jagged, with some green moss or algae visible. The background is a bright, overexposed sky.

**Many effective programs are underway to measure aspects of our water resources. However, simply stated, quantitative knowledge of U.S. water supply is currently inadequate.**

**A Strategy for Federal Science and Technology to Support Water Availability and Quality in the United States**

**National Science & Technology Council - September 2007**



**A robust process for measuring the quantity and quality of the Nation's water resources requires a systems approach.**

**Surface water, groundwater, rainfall, and snow-pack all represent quantities of water to be assessed and managed – from the perspectives of quantity, quality, timing, and location.**

National Science and Technology Council  
Subcommittee on Water Availability and Quality (SWAQ)

The United States:

- should accurately assess the quantity and quality of its water resources;
- should accurately measure how water is used;
- should know how water supply and use change over time;
- should measure water resources more strategically and efficiently.





NASA/USGS  
Landsat Satellite



NWS  
Weather Satellite



NOAA  
Snow-Level  
Radar



NWS  
Co-Op Program  
Rain Gauge



NRCS  
Snow Pillow



USGS  
Monitoring Well



NOAA  
Atmospheric  
River  
Observatory



USGS  
Streamgage



NWS  
Evaporation Pan



NOAA  
TAO Array Buoy  
(Tropical Atmosphere Ocean)



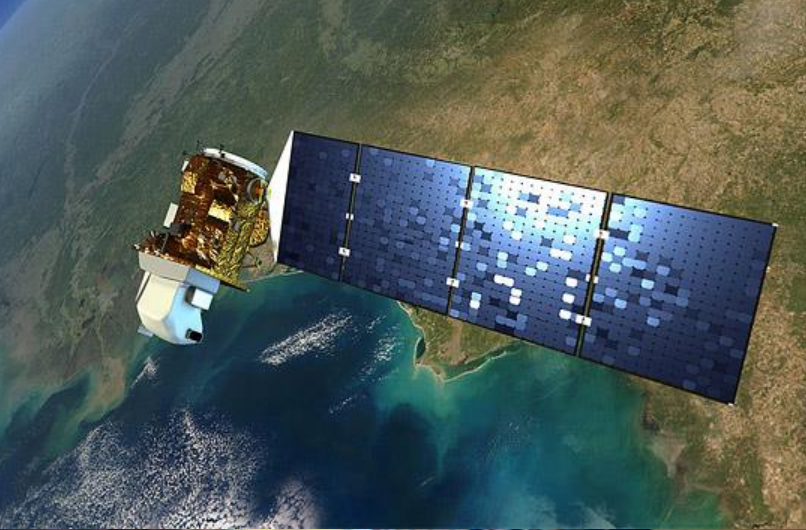












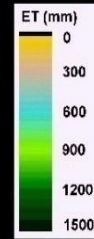


# USGS/NASA Landsat Program

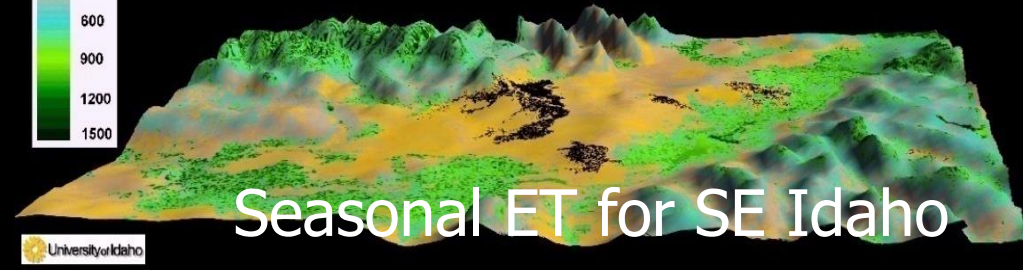
- National Land Imaging Program (NLIP)
- Vegetative Cover and other Products
- Thermal infrared imagery
- Evapotranspiration and Energy Exchange
- Translated into Consumptive Water Use
- Used for Administering Western Water Law
- Critical for Evaluating Water Transfers



Vegetation,  
Water and ET  
are variable  
in space and  
time

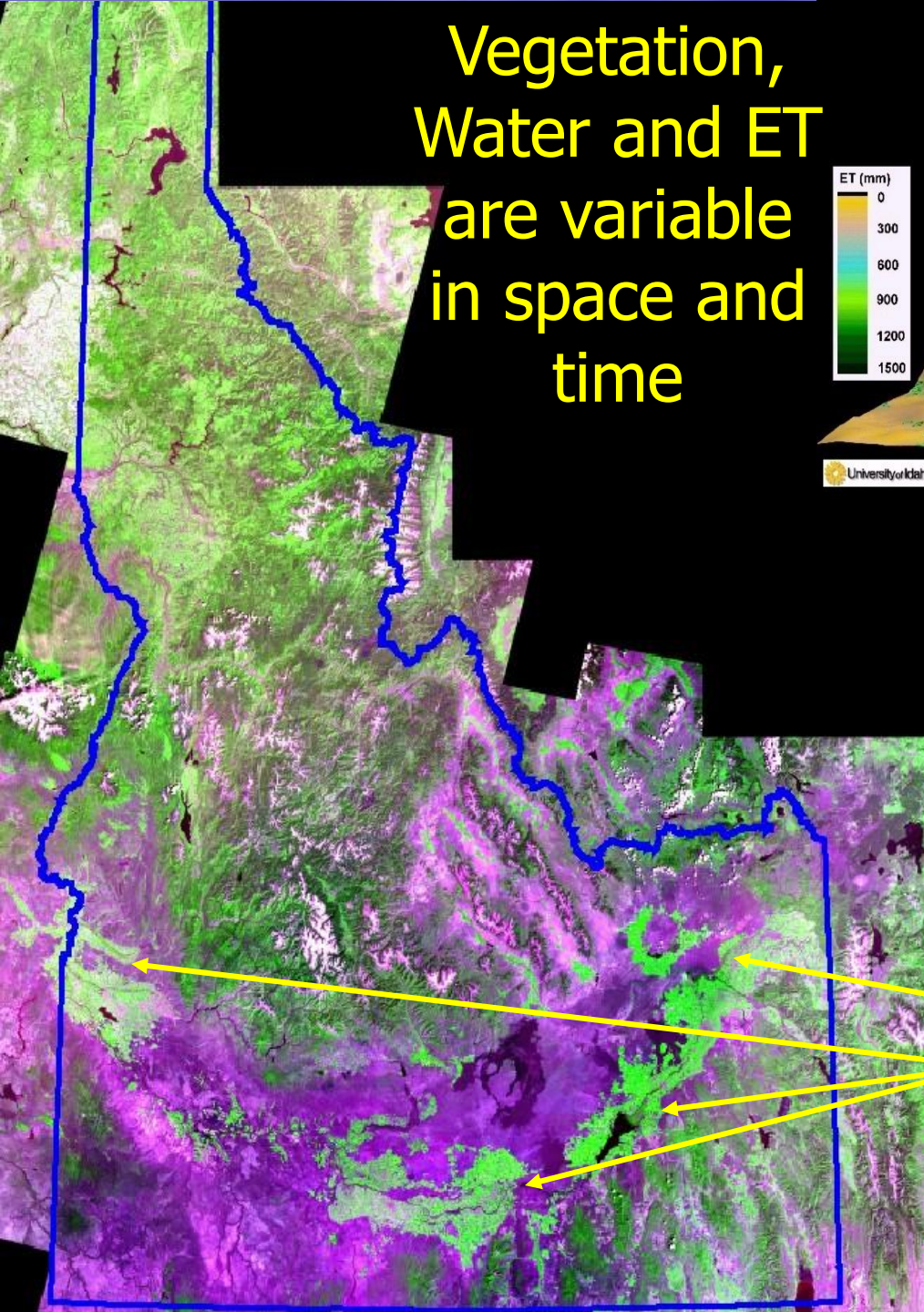


Seasonal Evapotranspiration during 2000  
Eastern Snake River Plain, Idaho



## Idaho from Landsat

Major Irrigated  
areas in Idaho and  
areas of  
METRIC application





Make a Map of Idaho - Windows Internet Explorer

http://maps.idwr.idaho.gov/et/viewer.htm

Make a Map of Idaho

### Idaho Department of Water Resources Evapotranspiration

Layers | Legend | Metadata

- Base Map
- Evapotranspiration
  - 2003 -- P39R30
    - 2003 P39R30 6/5, 2
    - 2003 P39R30 7/7, 2
    - 2003 P39R30 8/24,
    - 2003 P39R30 6/1-9,
    - 2003 P39R30 LAND
  - 2000 -- Southern Idaho
    - 2000 Snake Plain 3/:
    - 2000 P3940 LANDS
  - 2000 -- P42R2930
  - 2000 -- P41R30
  - 2000 -- Lemhi
  - 1997 -- P42R30
  - 1985 -- P39R3031
- Background Images

Active Layer  
Counties

Refresh Map

Zoom In [Download GIS data from the Idaho FTP site.](#)

start Pegasus Mail 2 Firefox Adobe Acrob... 3 Microsoft... Microsoft Word RickJan2007... Norton File M... Make a Map ... 54 12:27 PM

<http://maps.idwr.idaho.gov/et/>



# Why use High Resolution Imagery?



**Landsat vs MODIS**

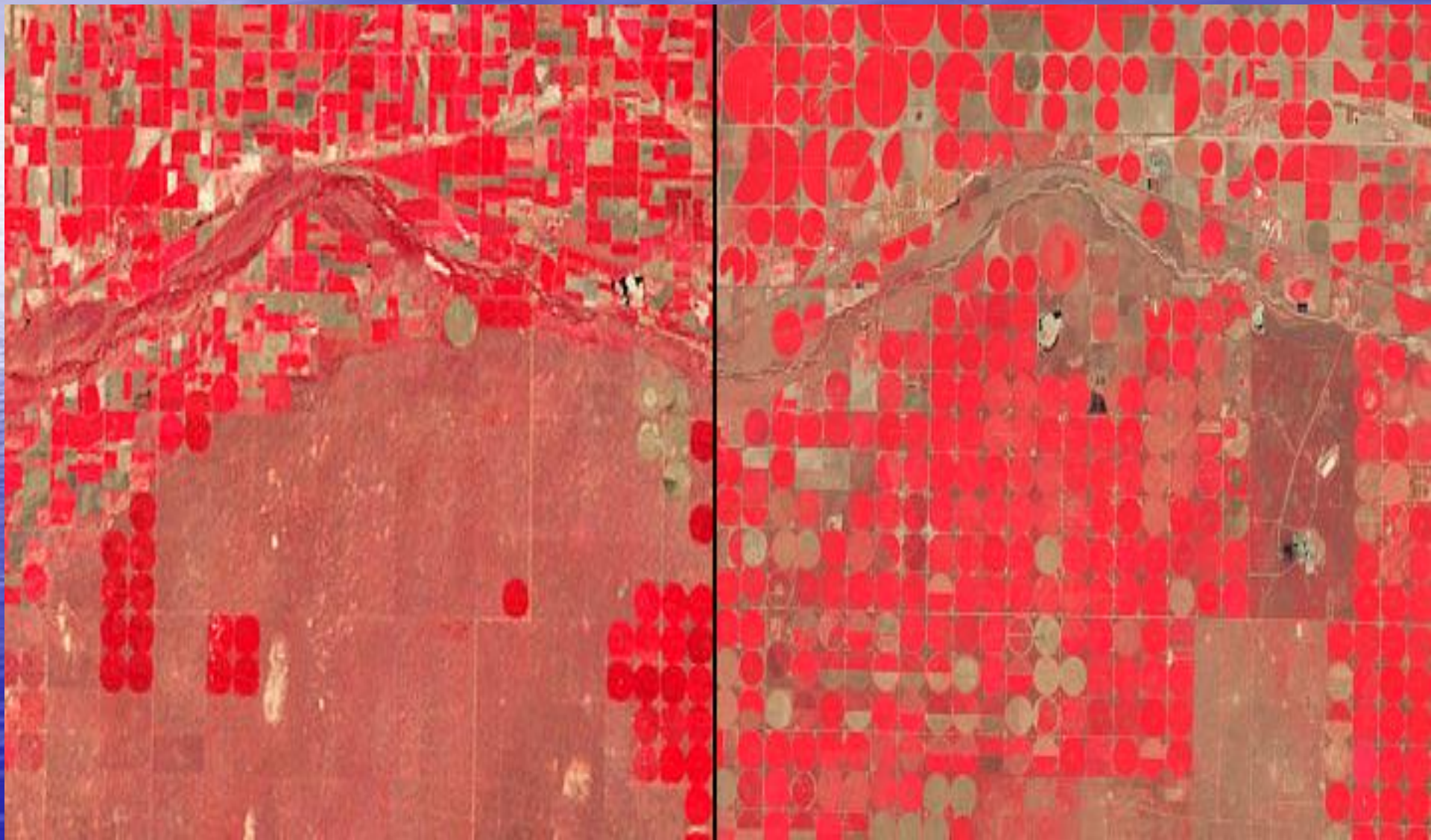
**Middle Rio Grande near Albuquerque**

Landsat False Color  
8/26/2002 10:33am

MODIS False Color  
8/26/2002 11:02am



# Nebraska Sandhills 1972 and 2011



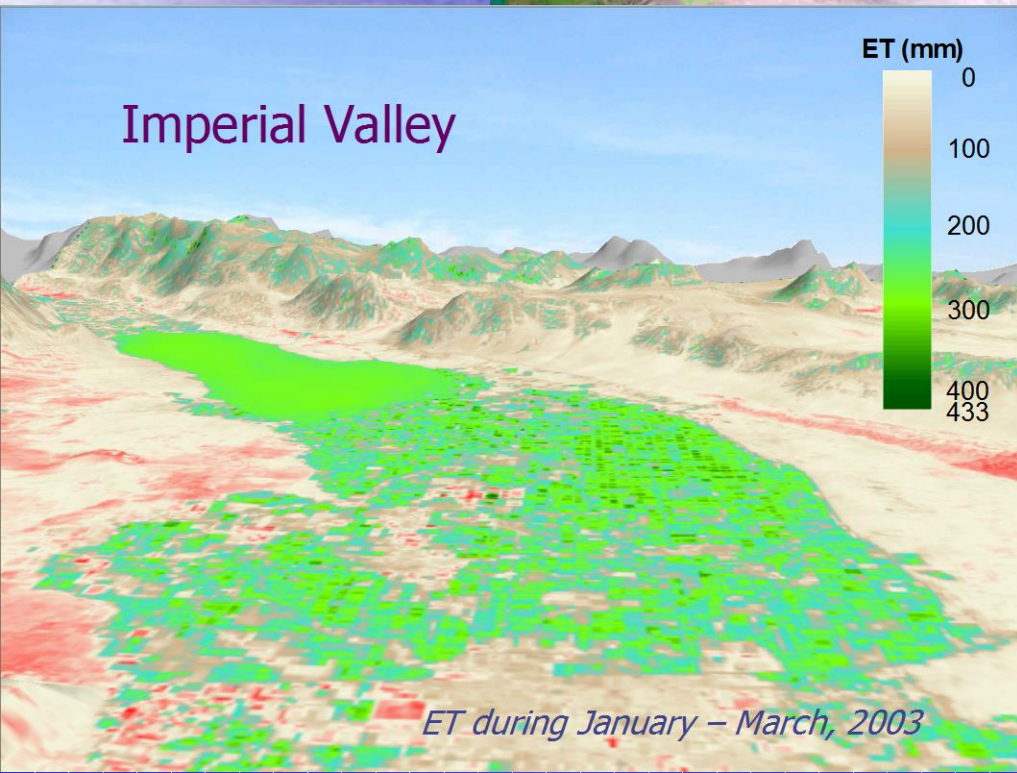
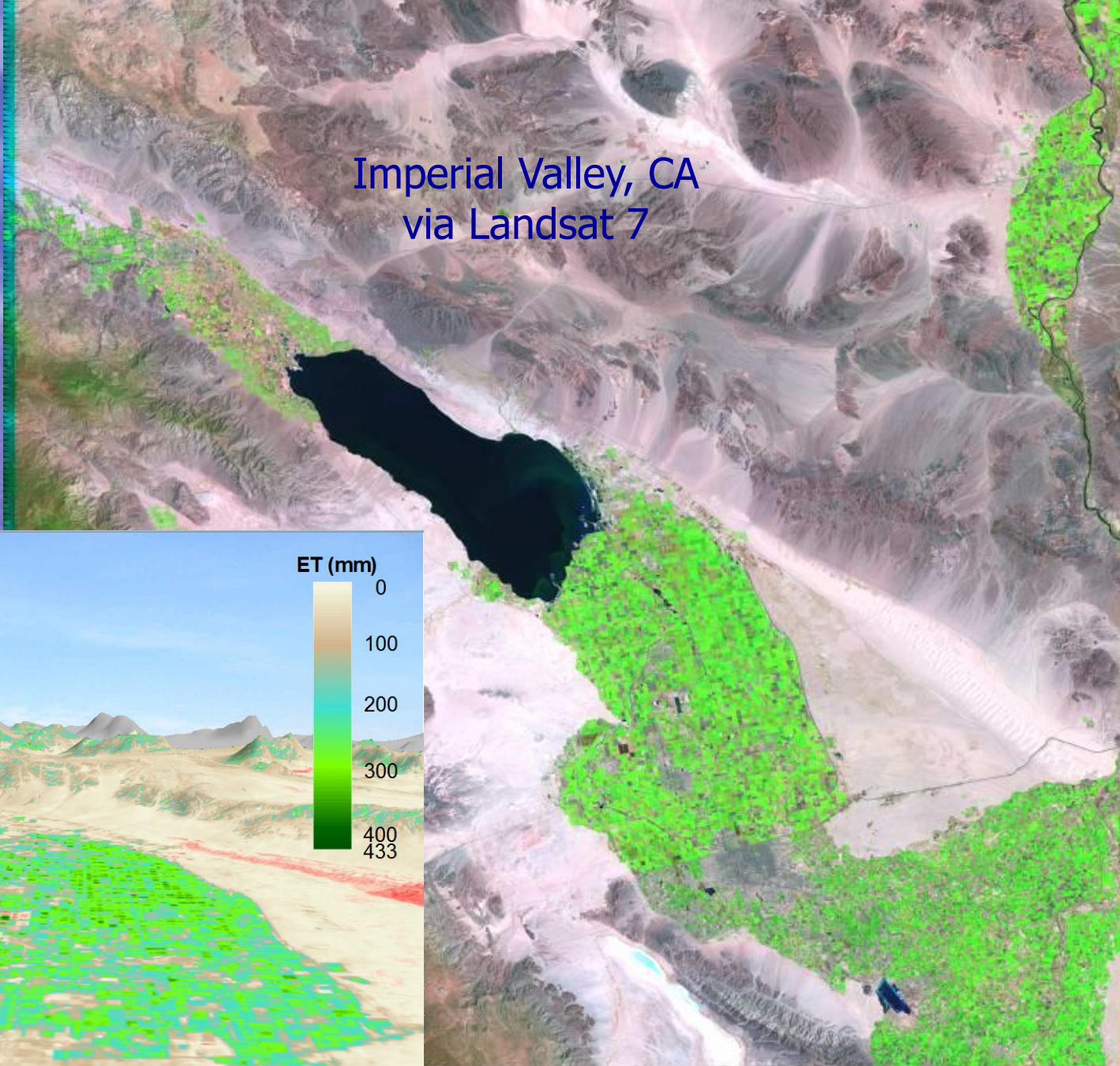


# Lake Powell and the Upper Colorado River



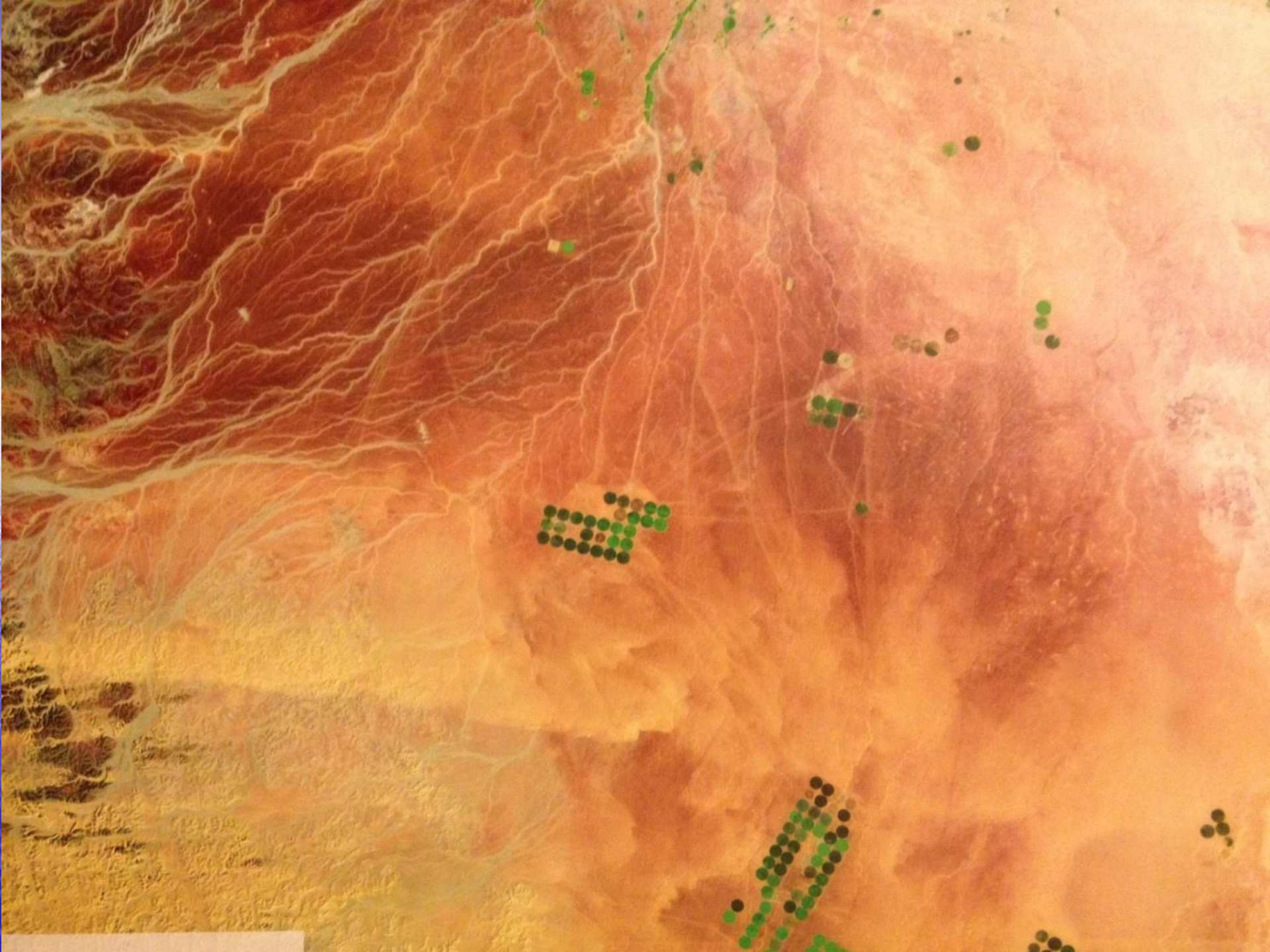


Shortage  
Sharing and  
Intentionally  
Created  
Surplus (ICS)  
Water



*ET during January – March, 2003*





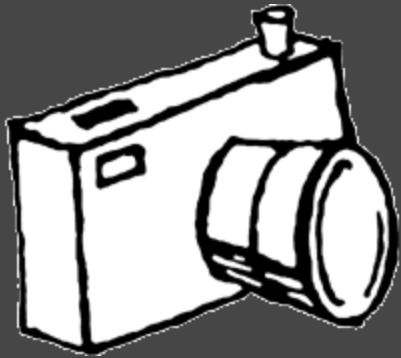






# Water Data Exchange (WaDE)

## What are the Big Picture Goals?



To better enable the states to share important water data with each other, the public and federal agencies.

To improve the sharing of federal data with the states, to assist their planning efforts



# HOW DOES IT WORK?

## Western Water Data Exchange (WaDE) Central Portal

A mapping application for discovering water data web services hosted by the states, federal agencies and Sandia National Lab

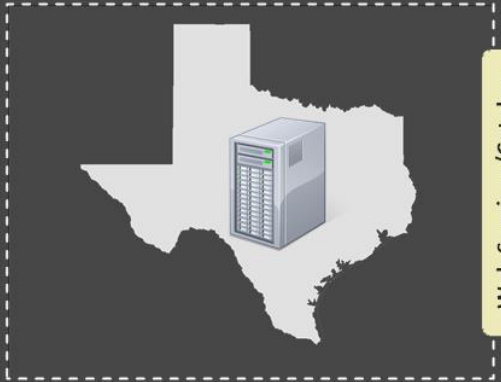
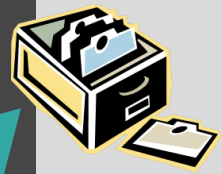
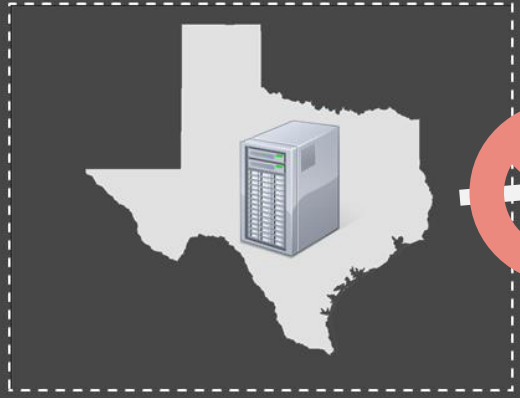
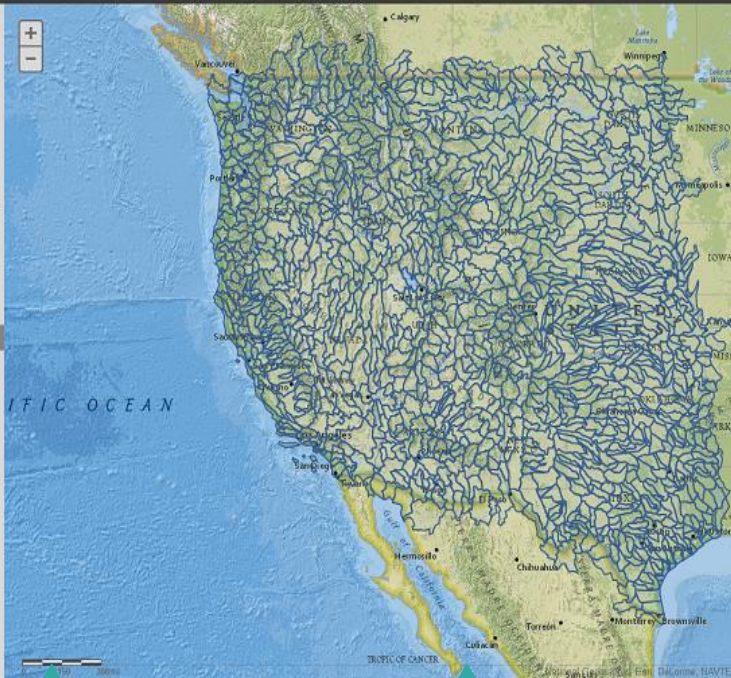
An state agency sponsored initiative to better share water data was begun in 2008 and has taken on a greater importance in more recent years. Faced with the need to collaborate on regional watershed management issues and the growing requests for access to water data, state agencies have initiated the Water Data Exchange (WaDE) project.

This Central Portal for WaDE provides access to state water data (pictured on the left), such as water planning, availability, use and allocation data, as well as summary water availability results from Sandia National Laboratory's Water/Energy Nexus Study (pictured on the right).

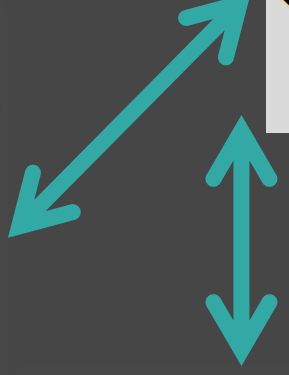
To use the portal, zoom and pan to find your area of interest. Both maps will adjust to the same location. Click on either of the maps to see summary information about the hydrologic unit (HUC) and for a link that queries active web services running at each of the state nodes and for Sandia National Laboratory. The hyperlink sends parameter information to the various databases and brings back the information requested in a new browser window.

### LEGEND

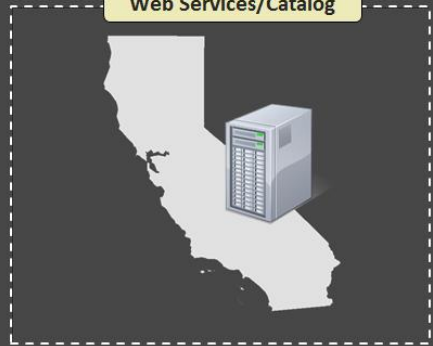
Western 8-Digit HUC Layer



Web Services/Catalog



Web Services/Catalog



Web Services/Catalog



Web Services/Catalog



United States Department of Agriculture  
Natural Resources Conservation Service



Representational  
State Transfer (REST)  
Endpoint

<http://www.state.us>



# REPORT – 2013 – Details

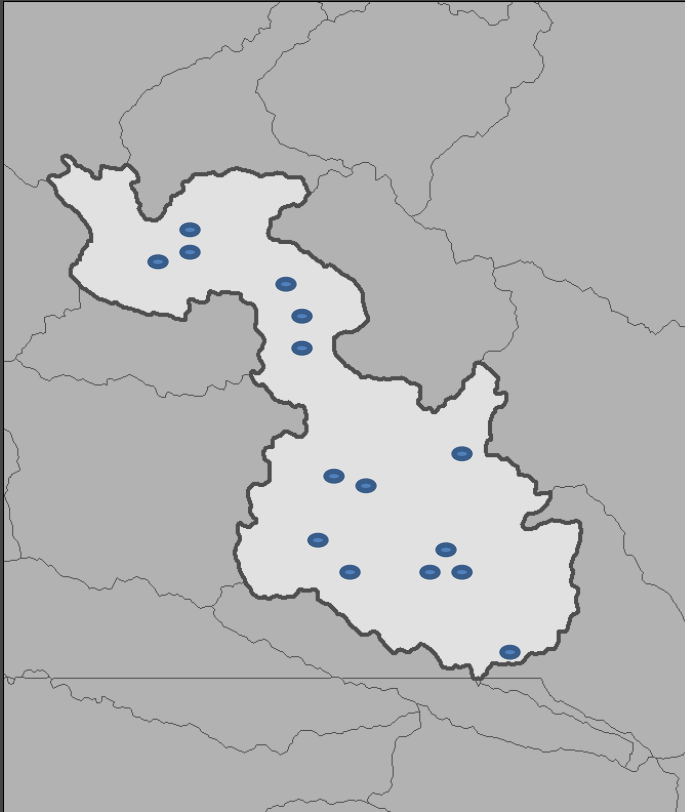
## Allocation Data

- Owner
- Beneficial Use
- Status
- Priority Data

## Diversions

Uses (withdrew)

Return Flows



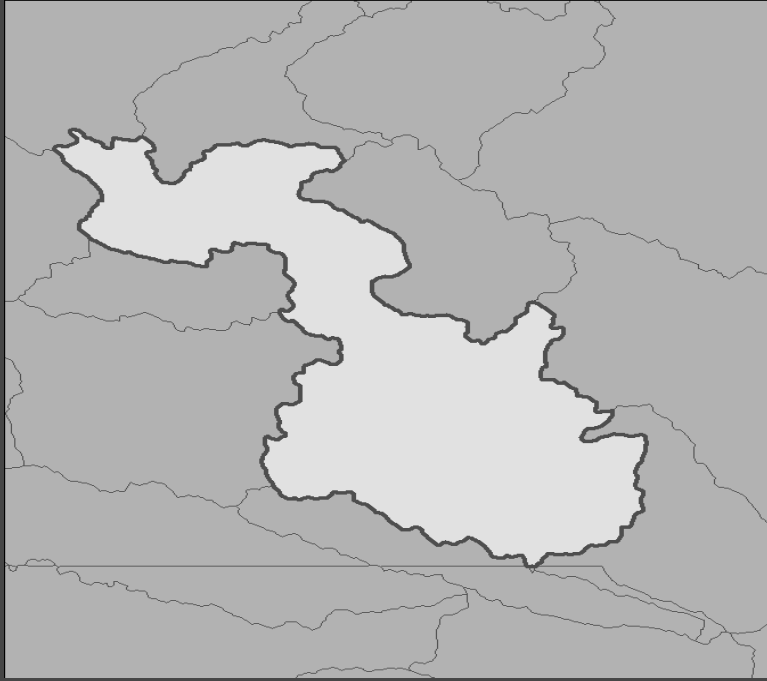
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an evil sorceress, and her own childhood to bec
```



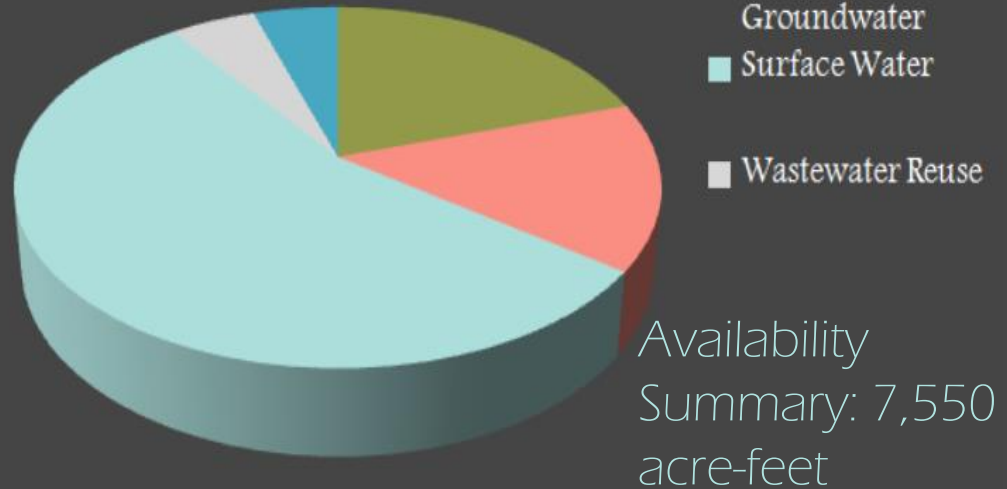
FUTURE STEPS:  
States plugged in,  
streamgauging,  
etc. federal data,  
too.



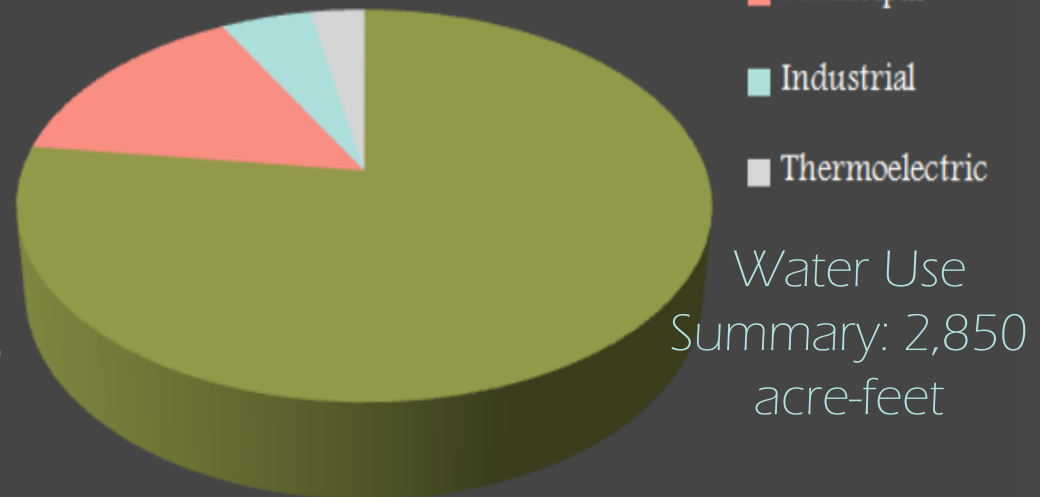
# WHAT WILL IT PROVIDE?



## Water Availability



## Water Use



Water Supply Summary:

24,000 acre-feet

Regulatory Summary:

- Groundwater Management Area
- Minimum Instream Flow Requirements



# Major Western Water Challenges

- Data
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- Tribal & Other Federal Water Needs
- Water Transfers



# SEVERE T-STORMS TUE AFTN

- HAIL
- DAMAGING WINDS
- ISOLATED TORNADOES





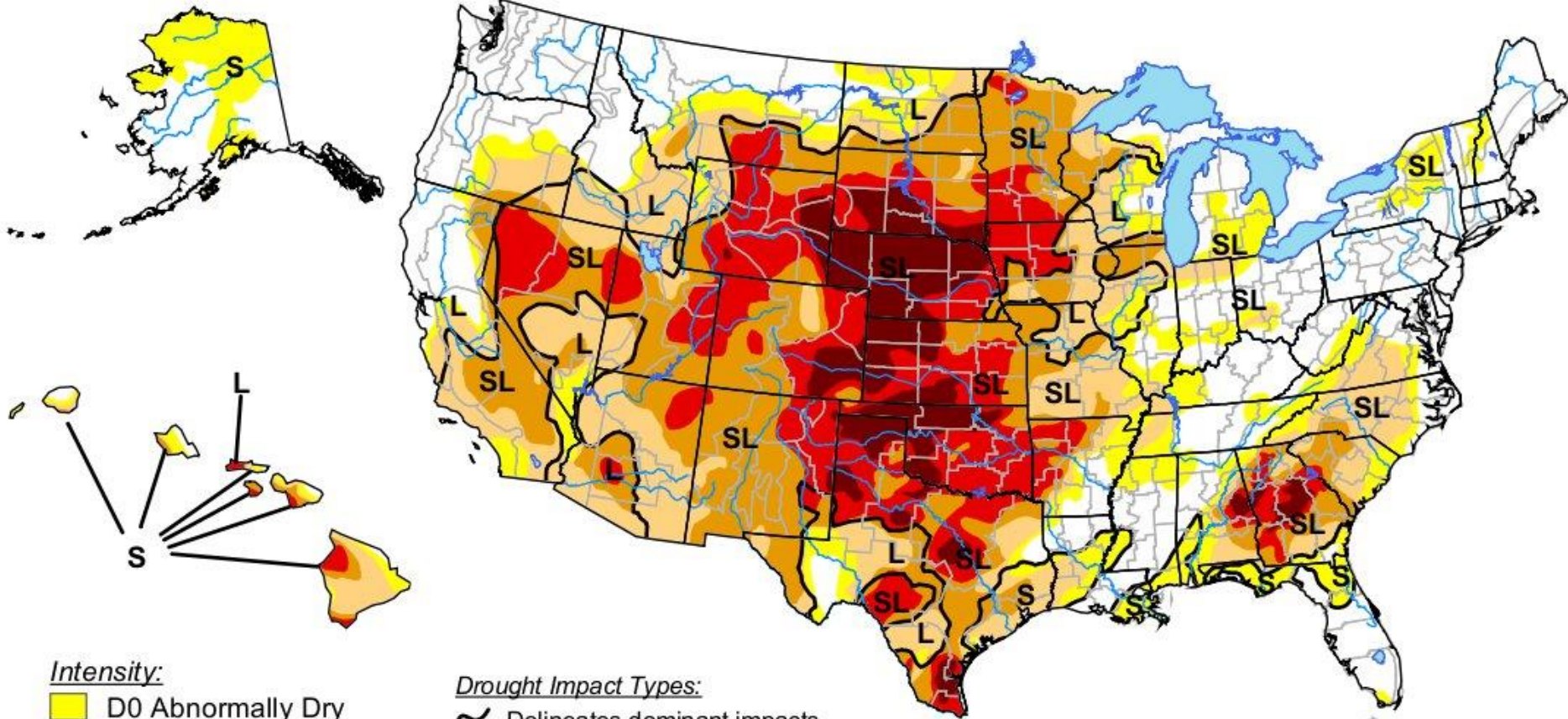





# U.S. Drought Monitor

December 18, 2012


Valid 7 a.m. EST



## Intensity:

-  D0 Abnormally Dry
-  D1 Drought - Moderate
-  D2 Drought - Severe
-  D3 Drought - Extreme
-  D4 Drought - Exceptional

## Drought Impact Types:

-  Delineates dominant impacts
- S = Short-Term, typically <6 months  
(e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months  
(e.g. hydrology, ecology)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu/>

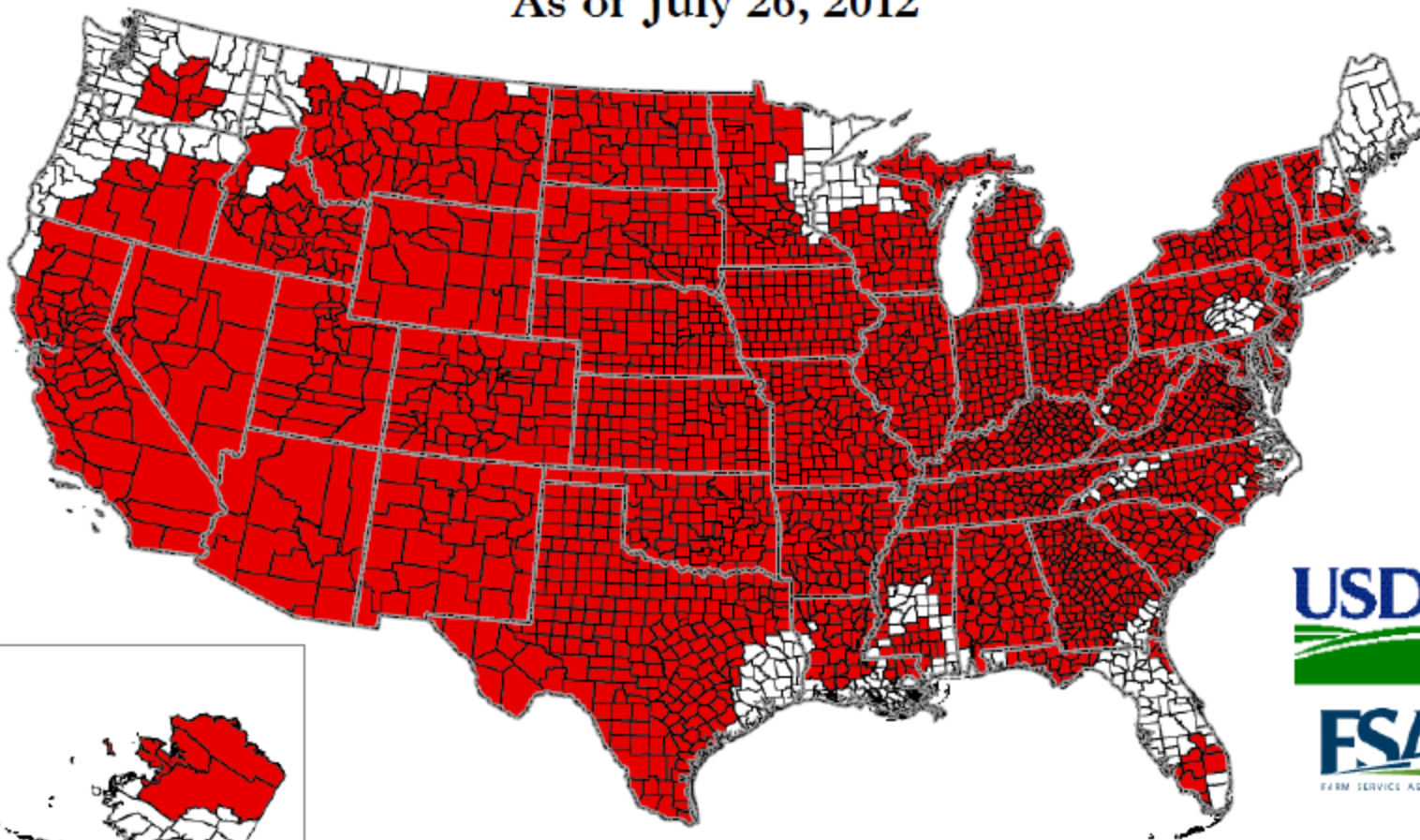



Released Thursday, December 20, 2012

Author: Brian Fuchs, National Drought Mitigation Center



## US Counties With Drought Level D0 and Above As of July 26, 2012



 Drought Level D0 and Above

Map created by DAFF/CEPD/CAB July 27, 2012

Accessed by FIRE-EARTH August 6, 2012



# Western Governors' Drought Forum



## **Managing Drought in the Energy**

**Sector:** Sept. 18-19, September 18-19,  
Norman, Oklahoma



**WESTERN  
GOVERNORS'  
ASSOCIATION**

## **Drought Impacts and Solutions**

**in the Manufacturing, Mining and Industrial Sectors:**

**October 7-8, Tempe, Arizona**

## **Drought Impacts and Solutions in the Agricultural**

**Sector: November 13-14, Sacramento, California**

## **Drought Impacts and Solutions for Water Supply:**

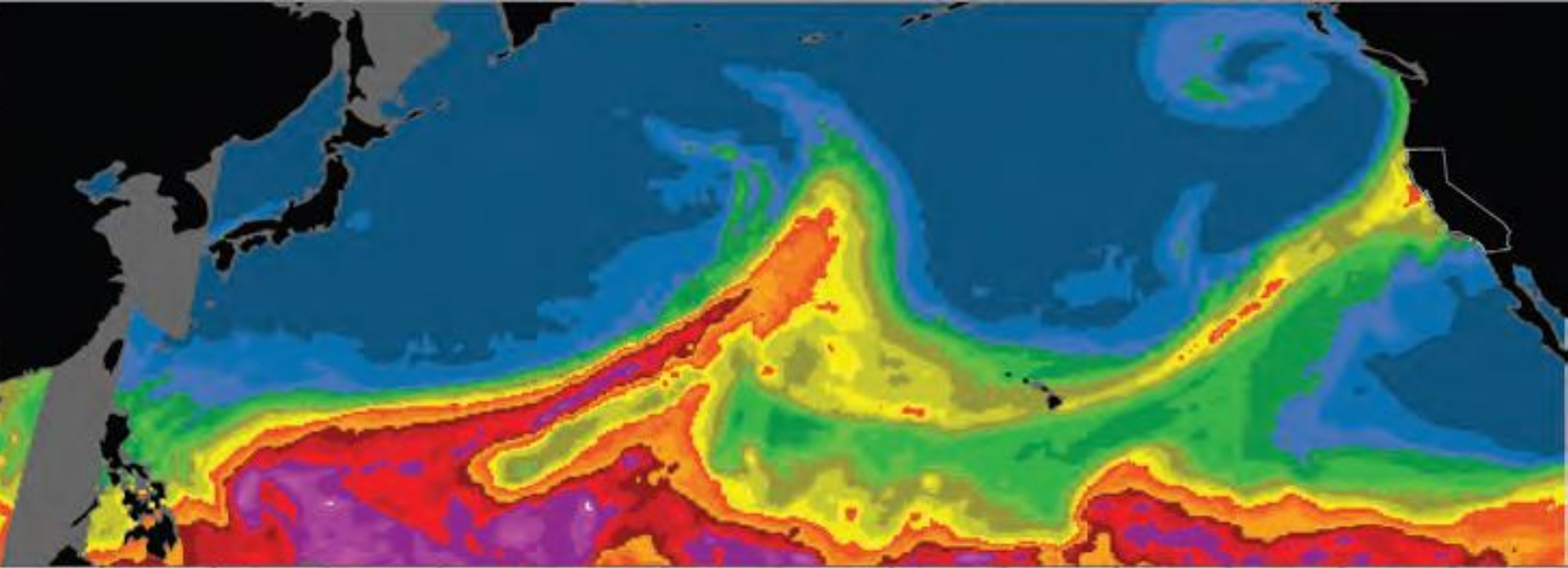
**December 8-9, Las Vegas, Nevada**







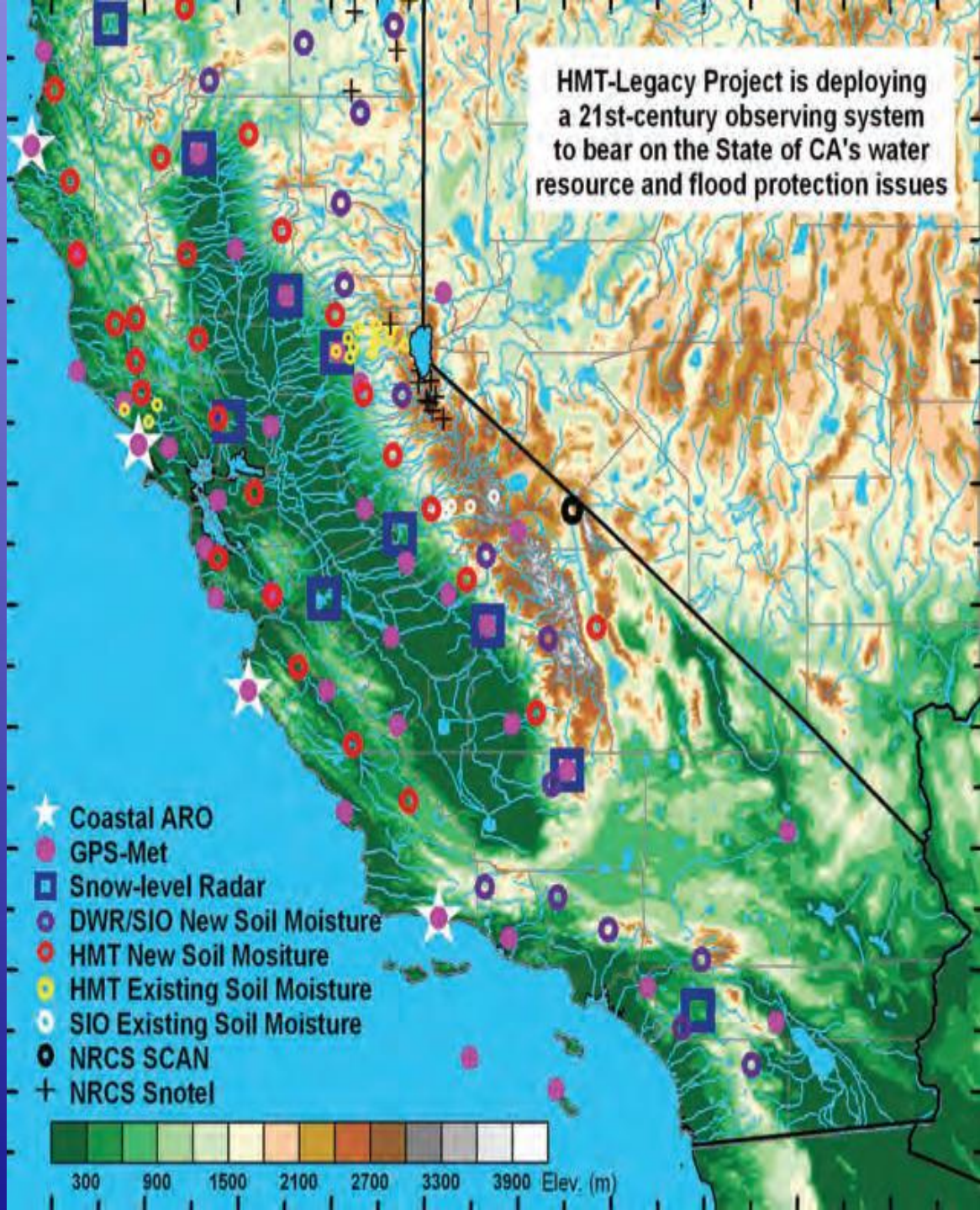
# Atmospheric Rivers



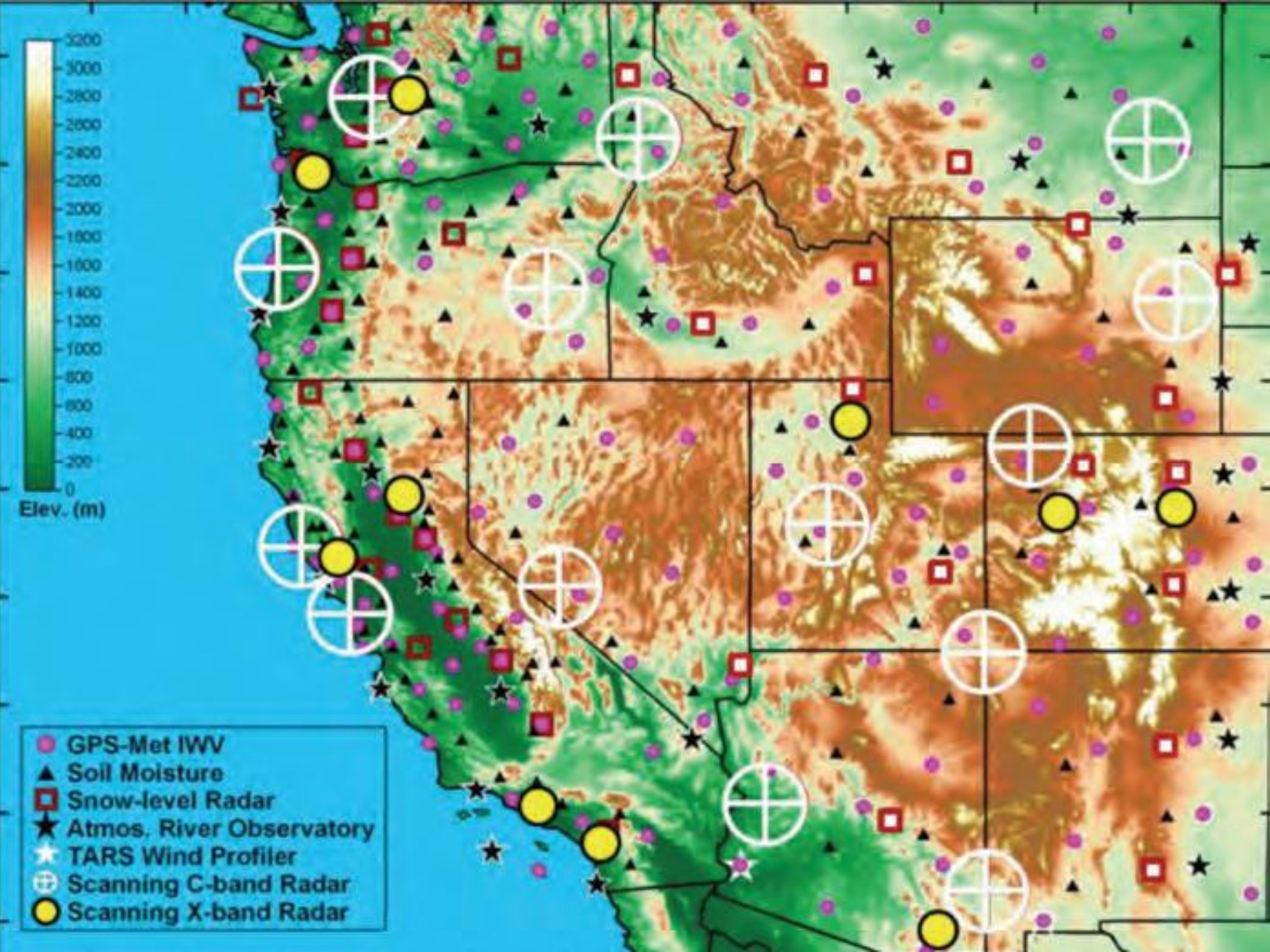


HMT-Legacy Project is deploying a 21st-century observing system to bear on the State of CA's water resource and flood protection issues

- ★ Coastal ARO
- GPS-Met
- Snow-level Radar
- DWR/SIO New Soil Moisture
- HMT New Soil Moisture
- HMT Existing Soil Moisture
- SIO Existing Soil Moisture
- NRCS SCAN
- + NRCS Snotel





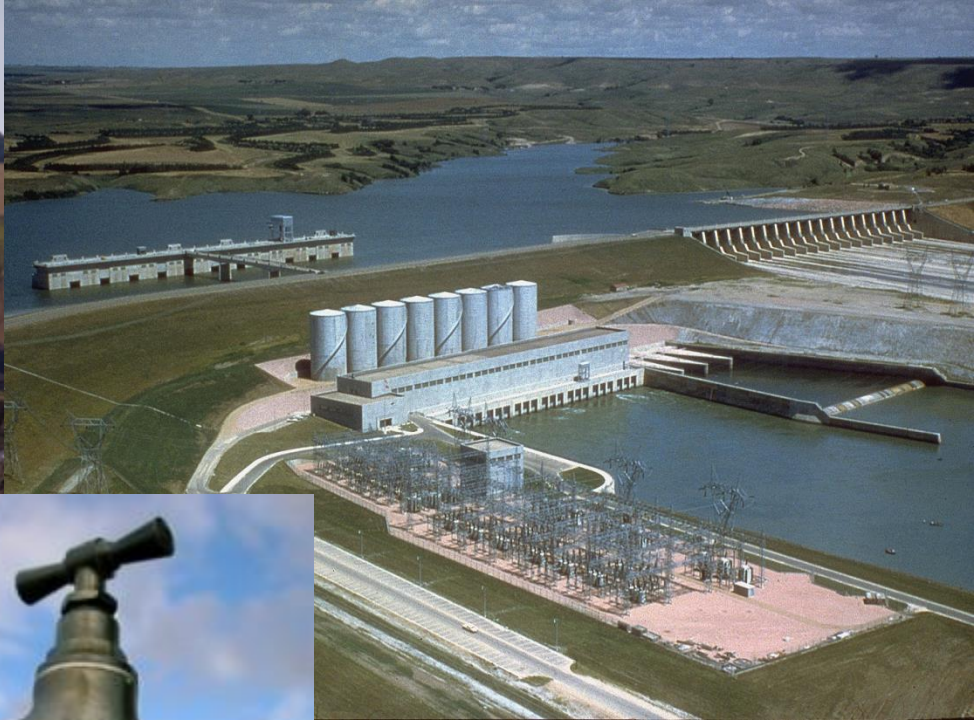





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- **Infrastructure**
- Regulatory Requirements
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- Water Transfers









# Lewis & Clark

REGIONAL WATER SYSTEM



**DANGER**  
High Voltage  
Electrocution



# Water Infrastructure Strategies

- Identify & Quantify Infrastructure Needs
- Value of Water – Investors/Water Stress
- Water Conservation & Reuse
- Asset Management Principles
- Private Financing & Construction
- Public-Private Partnerships
- Federal & State Investments
- Federal Reclamation Fund



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- **Regulatory Requirements**
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Western states have primary authority and responsibility for the appropriation, allocation, development, conservation and protection of water resources.



# Federal Regulatory Actions

- EPA Waters of the United States
- Corps of Engineers' surplus water/water supply rules
- USFS Groundwater Directive
- Bureau of Land Management GW policy
- Endangered Species Protections
- National Environmental Policy Act







**United States House of Representatives  
Committee on Transportation and Infrastructure  
Subcommittee on Water Resources and Environment**

**Hearing**

**“Potential Impacts of Proposed Changes to the Clean  
Water Act Jurisdictional Rule”**

**Testimony of**

**J.D. Strong, Oklahoma Water Resources Board  
Western Governors’ Association  
Western States Water Council**

**June 11, 2014**



**RESOLUTION**  
**of the**  
**WESTERN STATES WATER COUNCIL**  
**regarding**  
**CLEAN WATER ACT JURISDICTION**  
**Helena, Montana**  
**July 18, 2014**

**WHEREAS**, the Clean Water Act (CWA) is built upon the principle of cooperative federalism in which Congress intended the states, the Environmental Protection Agency (EPA), and the U.S. Army Corps of Engineers to implement the CWA as partners, delegating co-regulator authority to the states; and

**WHEREAS**, the CWA's cooperative federalism framework has resulted in significant water quality improvements since the law's enactment in 1972, and western states have made great strides in protecting water quality and coordinating water quality and water quantity decisions; and

**WHEREAS**, states are best positioned to manage the water within their borders because of their on-the-ground knowledge of the unique aspects of their hydrology, geology, and legal frameworks; and

**WHEREAS**, states have authority pursuant to their "waters of the state" jurisdiction....



Re: Attention – Docket ID No. EPA-HQ-OW-2011-0880

- Gives full force to CWA 101(b) and 101(g)
- Connection between waters that is more than speculative or insubstantial
- The rule should also quantify “significance”
- Complies with the limits Congress and the U.S. Supreme Court have set
- Exclude waters generally considered to be outside the scope of CWA jurisdiction
- Acknowledges that states have authority pursuant to their “waters of the state” jurisdiction to protect excluded waters

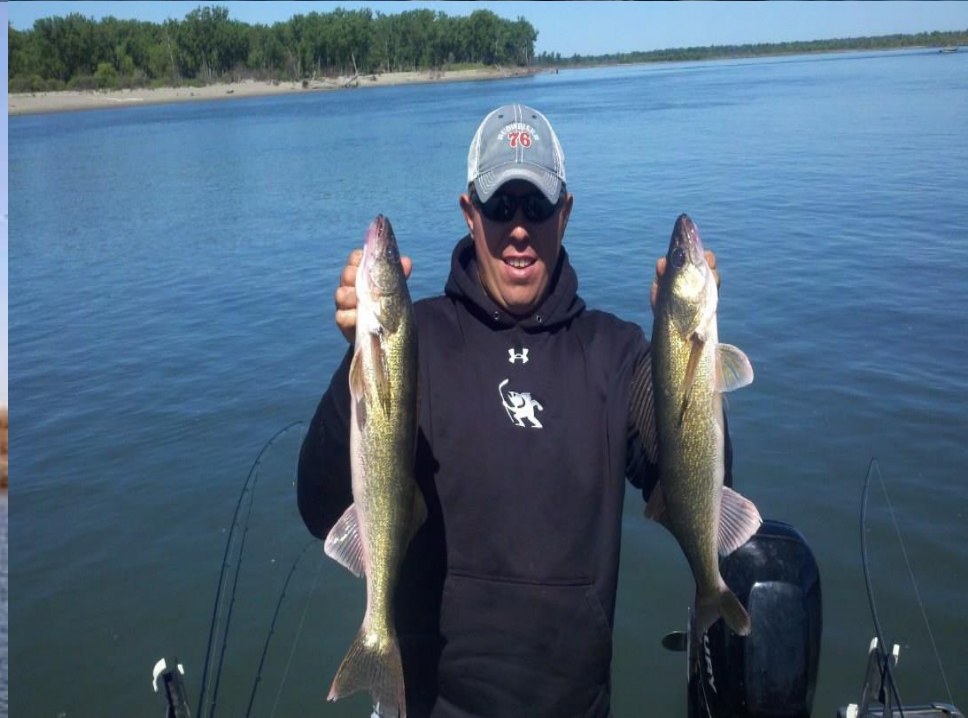


- **EPA'S CONNECTIVITY REPORT AND PUBLIC COMMENT EXTENSION**
- **STATE CONSULTATION AND IMPLEMENTATION OF THE RULE**
- **AREAS WHERE FURTHER CLARIFICATION IS NEEDED**
- **"Other Waters," "Agricultural Exemptions"  
" Groundwater," "Significant Nexus"**











# USGS Ground Water Directive

- Recognize the importance of groundwater and the impact that USFS activities
- Recognize USFS authority to permit access to federal lands for lawful activities
- States have serious concerns over the lack of substantive state participation
- Groundwater is a state and not a federal resource.



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# Tribal Water Issues

- Tribal Water Rights/Quality Administration
- Negotiated Tribal Water Rights Settlements  
Permanent Settlement Fund
- CWA Sec. 518 Treatment of Tribes as States  
Inherent Tribal Authority  
Tribal Program Capability
- Tribal Total Maximum Daily Load Regulations
- Tribal lands and rights of way/Indian Country



Tony Willardson, Executive Director  
Western States Water Council

801-685-2225

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[www.westernstateswater.org](http://www.westernstateswater.org)



# Water Law 101

- Law of Prior Appropriation
- First in Time, First in Use
- Priority Dates and Water Duties
- No Injury
- Use it or Lose it! (Non-speculation)
- Forfeiture and Abandonment Statutes
- Water Rights Transfers
- Consumptive Water Use