

# National Drought Prediction Workshop

## Building a Drought Early Warning and Prediction System



Tony Willardson, Executive Director

April 29, 2013

San Diego, California



## 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.

Army Corps of Engineers  
Bureau of Land Management  
Bureau of Reclamation  
Environmental Protection  
Agency  
National Oceanic & Atmo-  
spheric Administration  
Natural Resources  
Conservation Service  
U.S. Fish & Wildlife Service  
U.S. Forest Service  
U.S. Geological Survey  
U.S. Department of Energy  
National Aeronautics and  
Space Administration  
U.S. Dept. of Defense  
[National Park Service]

# WGA Policy Resolution 11-7



## Western Governors:

- Encourage continued investment in the Nation's water measurement and monitoring data networks and research and development of information services
- Support several federal programs that are critical and provide important water supply information
- Support federal efforts to coordinate water data gathering/information programs across agencies
- Call on the federal government to work with States to develop tools and models that better enable the synthesis, visualization & evaluation of water data

# Meeting Future Water Demands

## National Water Needs & Use Assessment

Quantifying Supplies & Demands (w/data)

Importance of existing observation and remote sensing capabilities -

NRCS Snow Survey Program

USGS Streamgaging Programs

USGS Ground Water Monitoring

USGS Water Quality Monitoring

USGS/NASA Landsat Thermal Infrared for ET

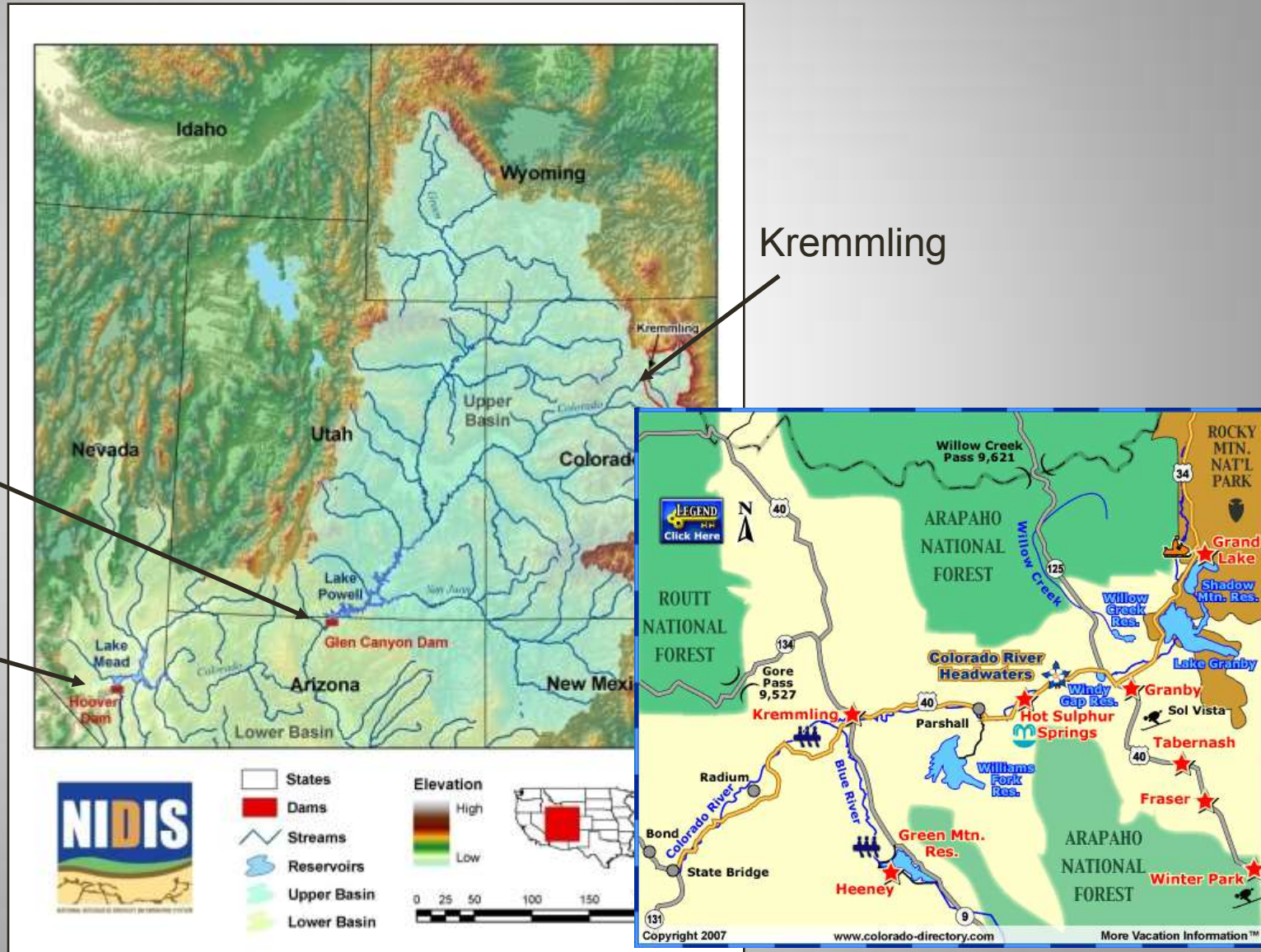
More storage and innovative options

# NIDIS Pilot Implementation Upper Colorado River Basin

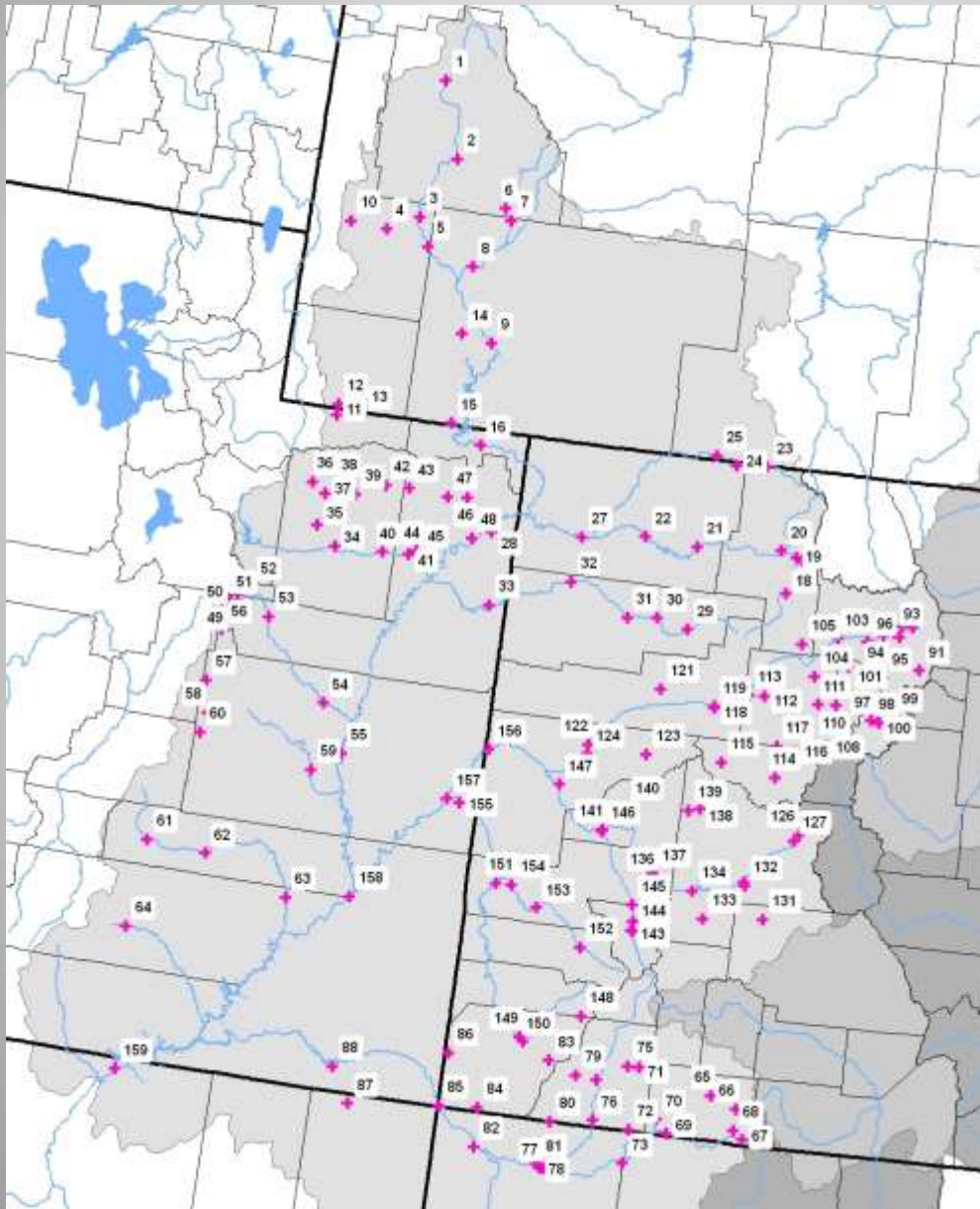
Lake Powell

Lake Mead

Kremmling



# Upper Colorado River Low-Flow Impacts Database



**National Drought  
Mitigation Center,  
Lincoln NE**

**Identified potential  
low flow/stage  
impacts near 164  
forecast points**

**Impacts data  
incorporated into  
the NWS Advanced  
Hydrologic  
Prediction System  
(AHPS)**

# Monitoring Gaps Assessment

## NRCS SNOTEL

Existing 117 SNOTEL stations (CO 66, UT 33, WY 18)

Addition of soil moisture instrumentation underway

Estimate an additional 66 SNOTEL stations needed in the UCRB  
(CO 36, UT 29, WY 1) at an estimated cost of \$1,650,000

## USGS Stream Gages

Re-establishment of selected long-term gaging stations  
especially for “indicator basins” without storage or diversions

Real time estimates of native flow in historic perspective for  
stations with long records

Detailed study underway by Utah WSC with support of USGS  
Climate Effects Network

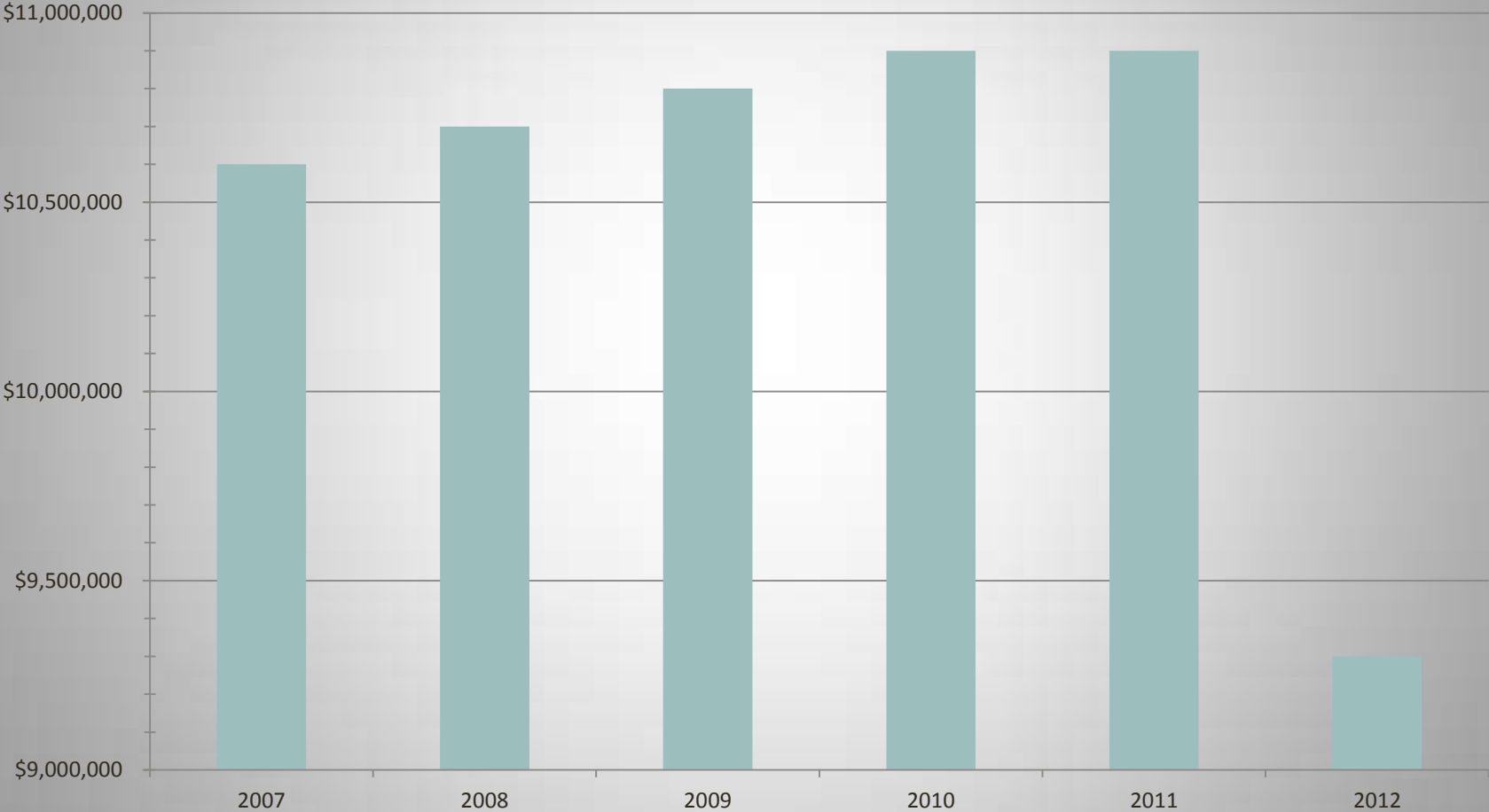
## Reservoir Storage

Only half the reservoirs are monitored by USBR and USGS

A very labor intensive process by NRCS for the rest

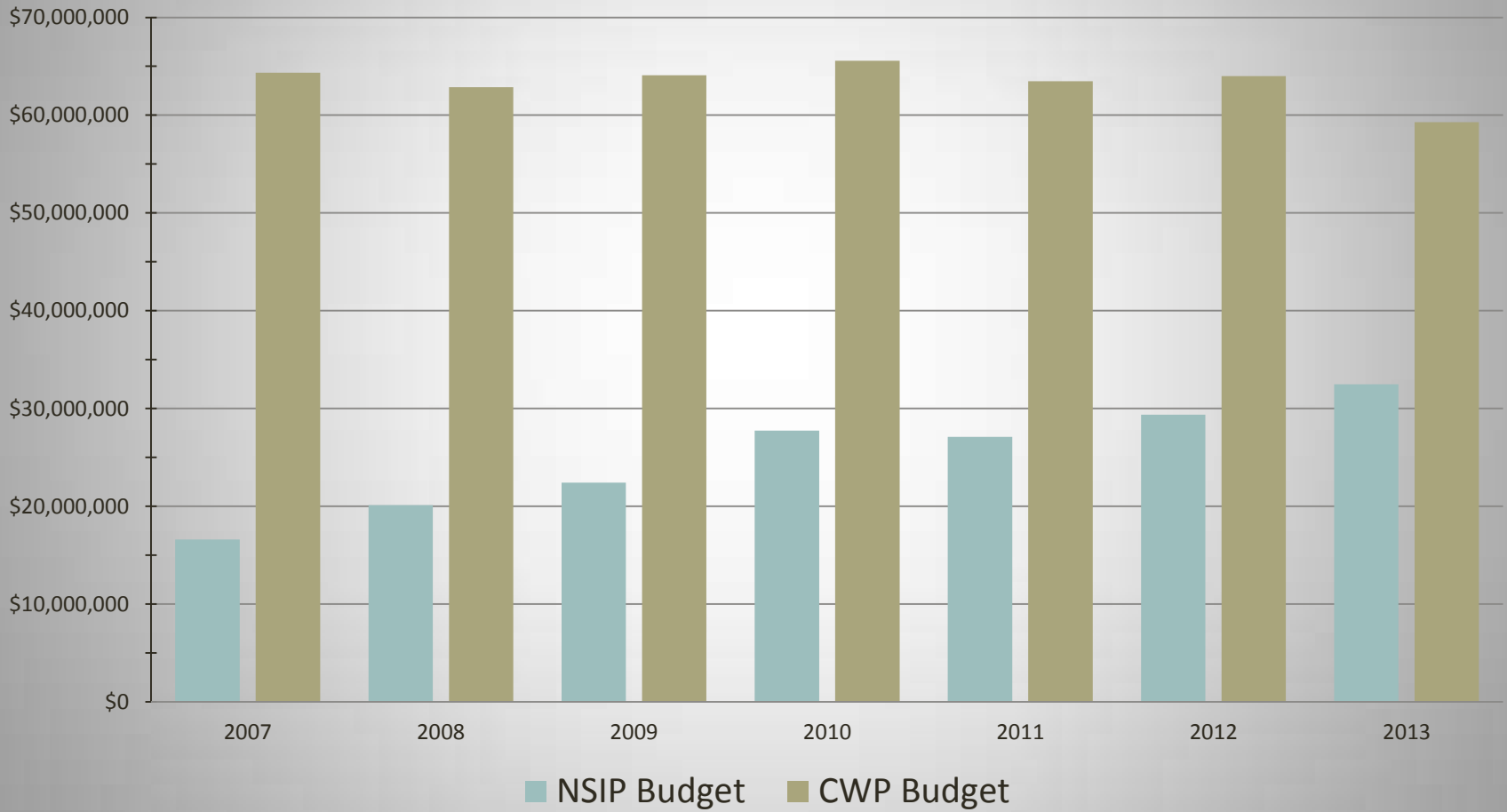
Additional automated monitoring of levels is needed

# NRCS Snow Survey Budget

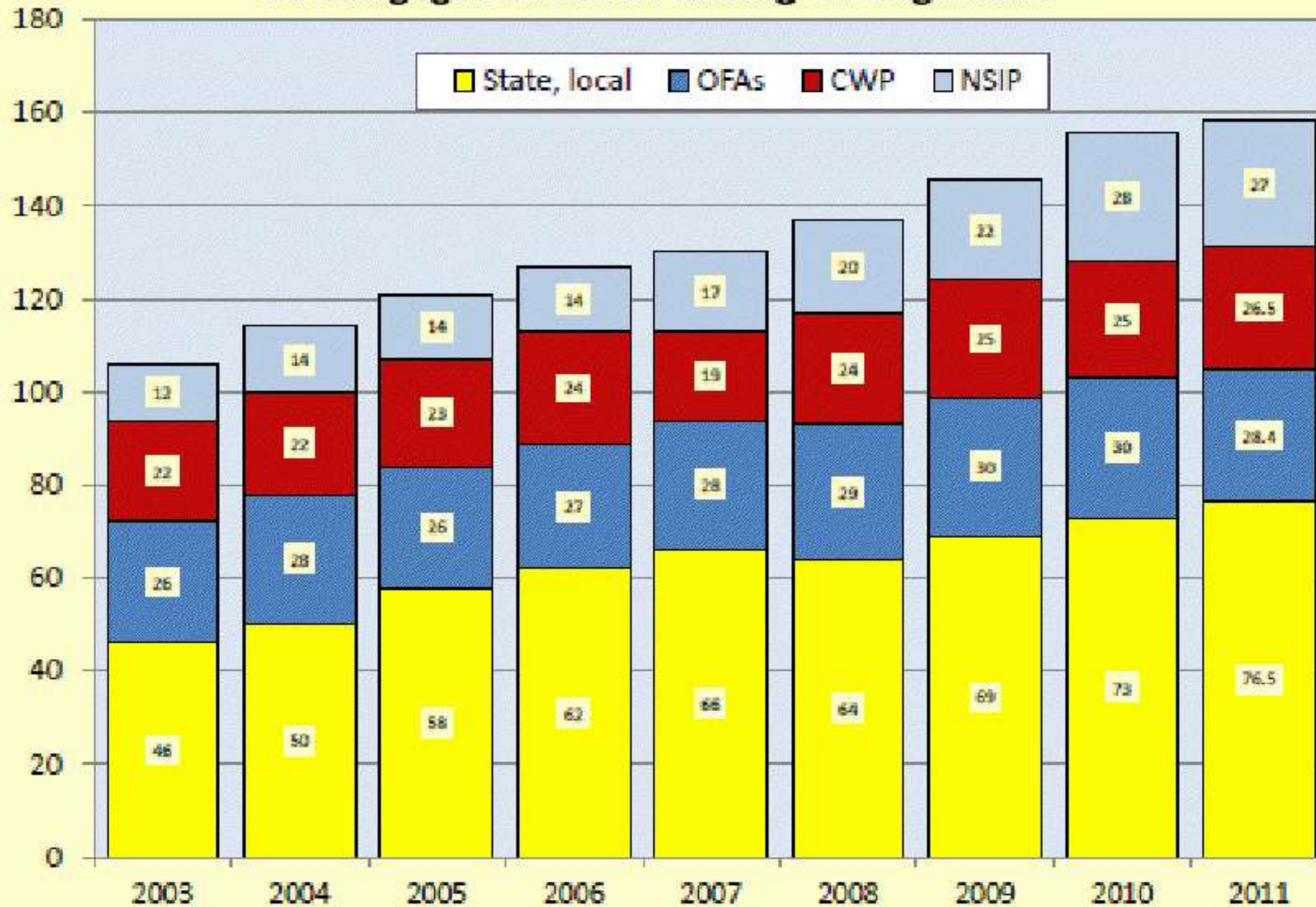




# USGS NSIP/CWP Budgets



# Streamgange Network Funding Through Time



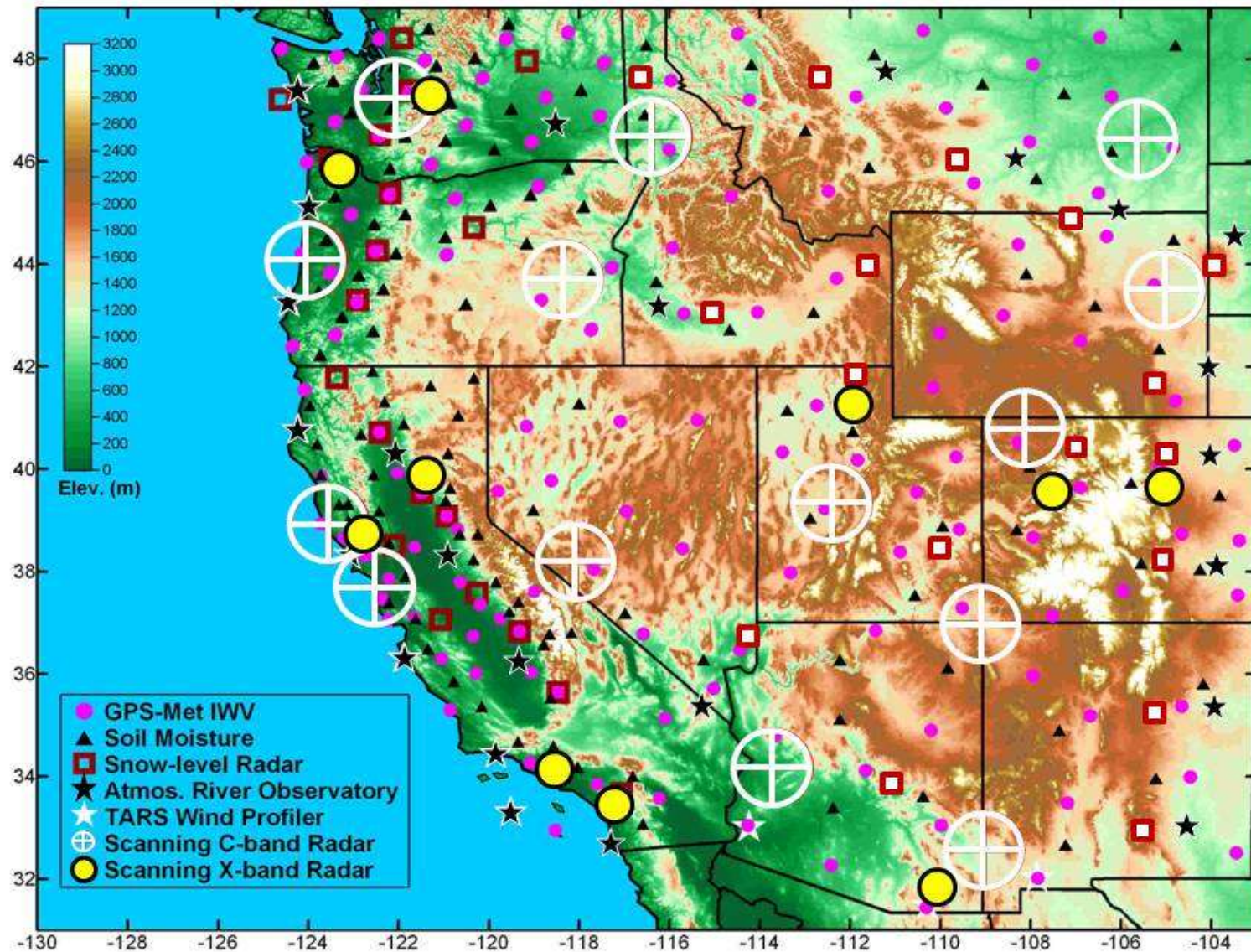
Imperial Valley, CA  
via Landsat 7



Imperial Valley



*ET during January – March, 2003*



Thank You