USGS
science for a changing world

Consistent, long-term, water-resources data • Excellence in hydrologic research

Nevada Water Science Center

Drought Science Contributions

"Providing reliable, unbiased scientific information about Nevada's water resources to stakeholders and the public"

We have a long-standing presence and commitment to Nevada's water resources

We are a science-based agency and do not decide water policy

We collaborate with about 25 cooperators across the State

We are known for our scientific expertise in hydrologic studies and data

Drought Science

Funding

We provide $1.5–2.0 million dollars annually in Cooperative Water Program funding for hydrologic studies and streamflow measurements with State and local agencies that can directly, or indirectly, be used for drought support, in particular to: **State Engineer • NDEP • NDOT • NDOA**

Data Collection

- **Critical to water management in the State**
- **Long-term record** (since late 1880's) allows comparison of current conditions to historical conditions
- **Available** to water-resource managers and the public **through NWISweb** (http://waterdata.usgs.gov)
- **Relied on** by Natural Resource Conservation Service and National Weather Service **for water-supply forecasts**

Stream Gaging

Approximately 200 gages in the state measuring stream flow.

Groundwater

Network of 800 wells provides critical water-level information.

Water Quality

Monitored at approximately 150 surface-water and groundwater sites.

Models

- **Lower Walker River Basin:** Groundwater-management model that balances the need for irrigation with restoration of the Walker Lake ecosystem.
- **Carson River:** Modeling tools for the watershed and surface-water and groundwater resources in the upper and middle basin
- **Upper and Middle Carson River basins:** Groundwater-flow models

Contributions

Nevada Water Science Center

Innovative Tools and Research

Vegetation Mapping tools

Assess changes in watersheds and reservoirs due to drought conditions using satellite and other airborne imagery.

Water Watch

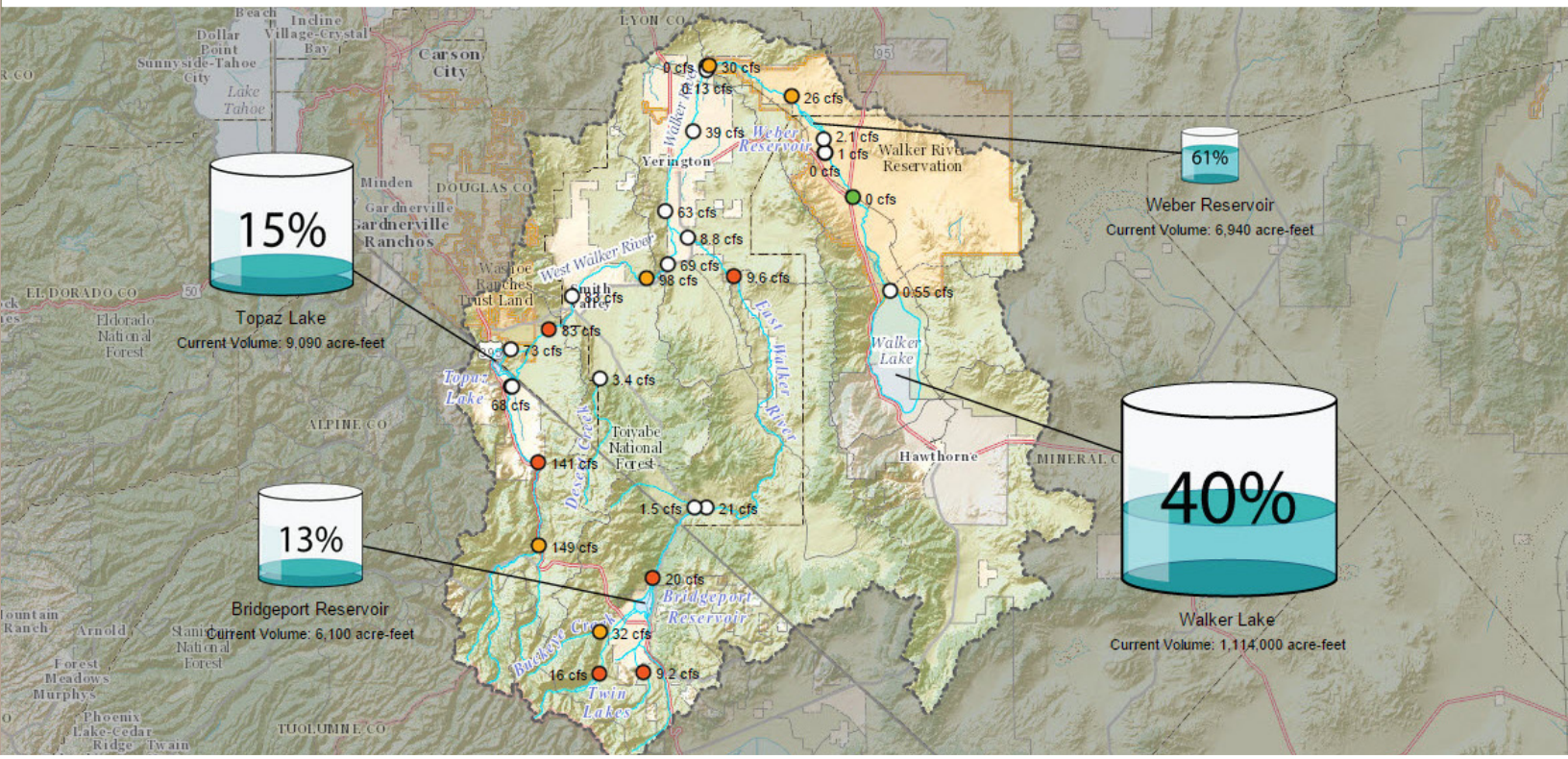
See streamflow conditions during drought in perspective to historical flows.

http://waterwatch.usgs.gov/?m=real&r=nv&w=map

Walker Basin Hydromapper

View real-time reservoir volumes/levels and streamflow across the basin.

http://nevada.usgs.gov/walkerbasinhydromapper



Groundwater Pumping

Studying potential effects on streamflow from groundwater pumping and water use from vegetation along a portion of the Truckee River.

Evapotranspiration

Evapotranspiration (ET) studies are being conducted across the state to refine water budgets in hydrographic areas.

- State Engineer uses these water budgets to administer groundwater rights in selected basins.
- Critical Management Areas are identified and designated using water budgets. Drought conditions need to be considered in these decisions.

Additional Capabilities

Nevada Water Science Center

Conjunctive Management

Develop tools for conjunctive management (putting surface water in the ground during high flows for later use during droughts and low flows) of water supplies to maximize resiliency during droughts.

Groundwater Monitoring

Scientifically plan, drill, and install new groundwater monitoring wells as water levels decline below existing monitoring wells.

Subsidence

Monitor land-surface levels in Nevada valleys to evaluate subsidence associated with increased pumpage of groundwater that may occur as drought reduces surface-water availability.

Modeling Tools

Develop modeling tools to evaluate surface-water capture from groundwater pumping for resource managers to use during times of drought.

Bathymetry

Image reservoir bathymetry to evaluate potential changes in storage capacity due to sedimentation for refining storage estimates and planning for storage changes during large drawdowns associated with drought.

Meteorological Stations

Plan, install, and monitor long-term stations to assist State Climatologist with gaps in essential data.

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Nevada Water Science Website:
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USGS Publications:
http://pubs.usgs.gov