SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

Water Storage in the San Gabriel Valley

Darin Kasamoto, General Manager
San Gabriel Valley Municipal Water District
August 27, 2015

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

The Current Drought

- **Earth**
  - 2015 - hottest July in history!
- **San Gabriel Valley**
  - SWP imported water deliveries 5% in 2014; 20% in 2015
- **California**
  - 2013 – driest year on record
  - 2014 - hottest year on record
  - January 2015 - driest January on record
  - February 2015 – hottest February on record
- **Precipitation**
  - 57% of normal in 2014-15
- **Reservoirs**
  - 45% of capacity
  - 59% of average
  - 1 year supply
- **Snow Levels**
  - 0% of normal
- **Groundwater Levels**
  - Lowest in recorded history

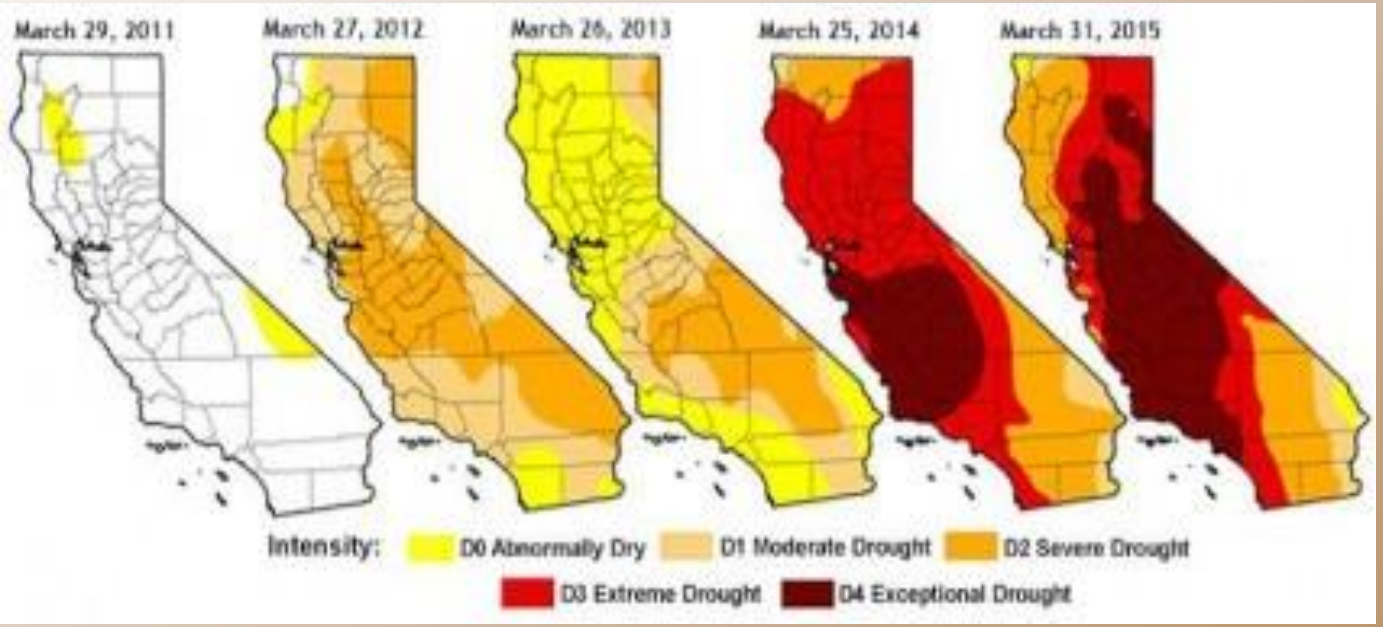
SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

The Current Drought

- **Earth**
  - 2015 - hottest July in history!
- **San Gabriel Valley**
  - SWP imported water deliveries 5% in 2014; 20% in 2015
- **California**
  - 2013 – driest year on record
  - 2014 - hottest year on record
  - January 2015 - driest January on record
  - February 2015 – hottest February on record
- **Precipitation**
  - 57% of normal in 2014-15
- **Reservoirs**
  - 45% of capacity
  - 59% of average
  - 1 year supply
- **Snow Levels**
  - 0% of normal
- **Groundwater Levels**
  - Lowest in recorded history

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

Drought Threatens Water Supplies Including Groundwater



SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

Examples of Water Storage

- Reservoirs
  - Managed by the State Department of Water Resources, L.A. County DPW
- Snowpack
  - Eastern Sierra Nevada - slow melting snowpack results in water run-off into streams and lakes
- Groundwater
  - Supplies the vast majority (82%) of water for the San Gabriel Valley

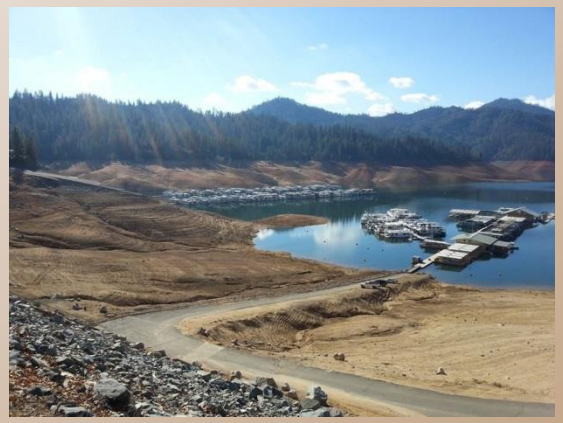
SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

Reservoirs

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

Declining California Reservoir Levels

Folsom Lake



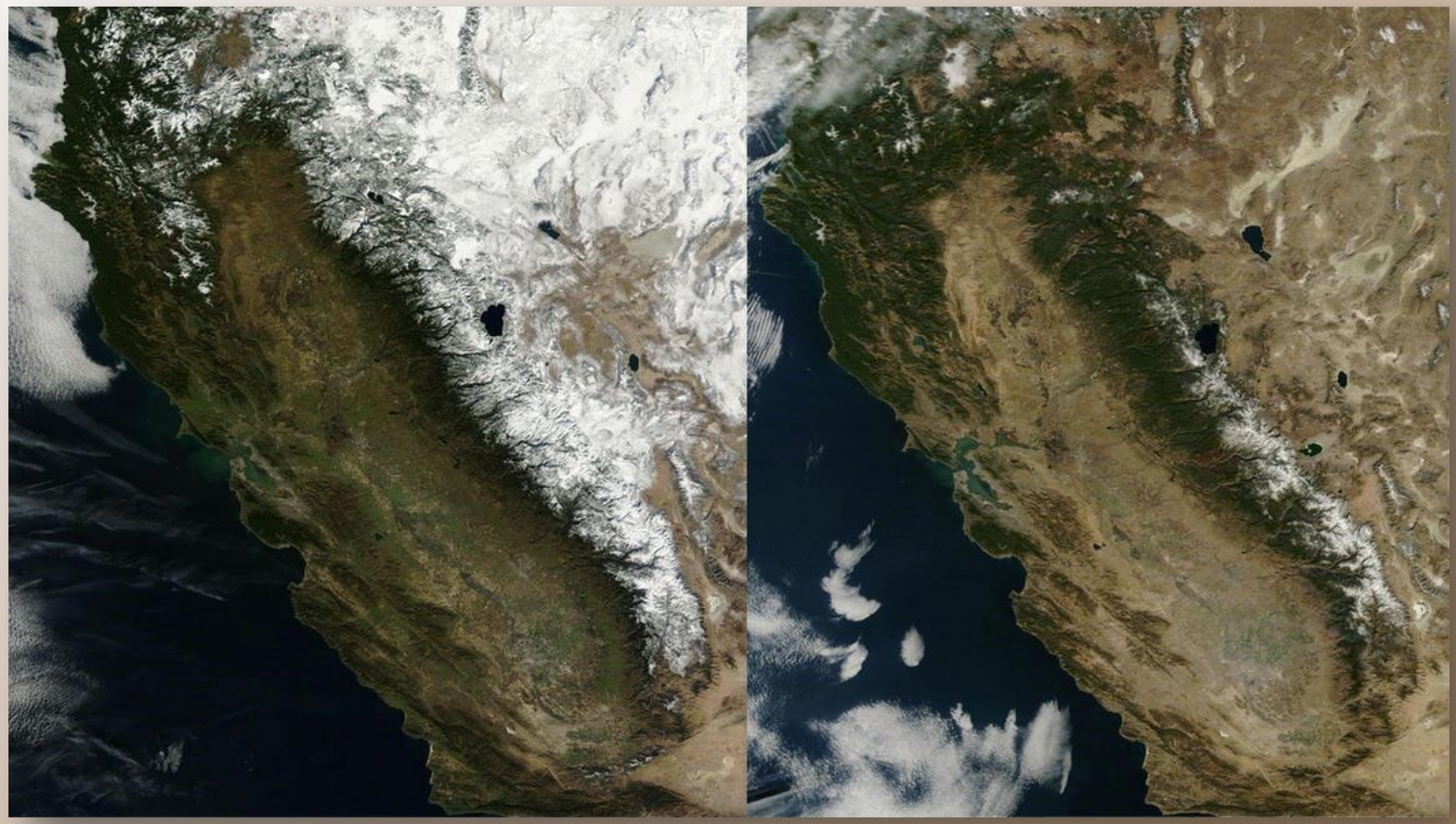
Lake Shasta 2014 – 50% of Capacity

Lake Mead
38% of Capacity; Lowest Since Built

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

California Snow Pack

2013 **2014**



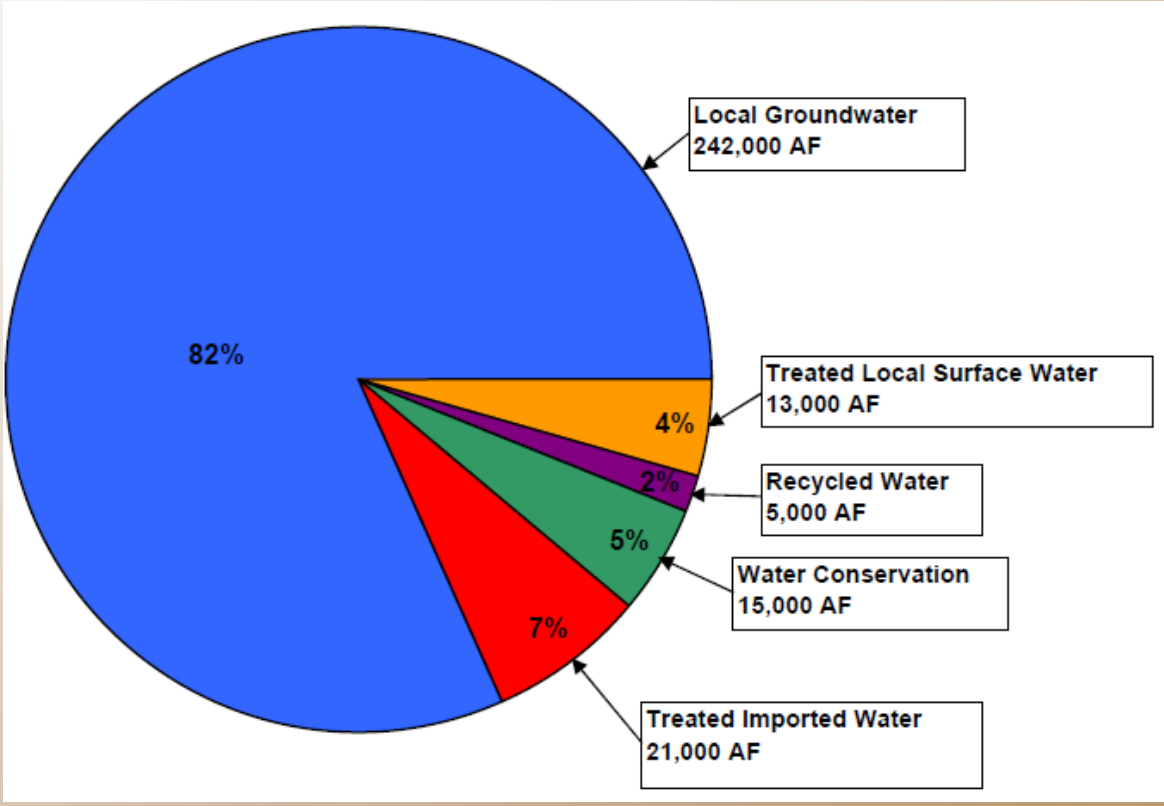
SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

Groundwater

- Natural Re-Charge of Groundwater Basin and Aquifers
  - Fed by precipitation, streams and rivers
- Imported Water
  - State Water Project (i.e. California Aqueduct)
- Recycled water
- Stormwater capture

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

Importance of Groundwater Storage In the San Gabriel Valley



Local Groundwater is Replenished with about 45,000 AF of Imported Water

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

Managing our Groundwater: Main San Gabriel Valley Watermaster

- Administers adjudicated water rights and manages groundwater resources within the Main San Gabriel Basin watershed and groundwater basin.
- Created in 1973 by the California Superior Court of Los Angeles County to provide a basin-wide governing body for management of water resources.

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

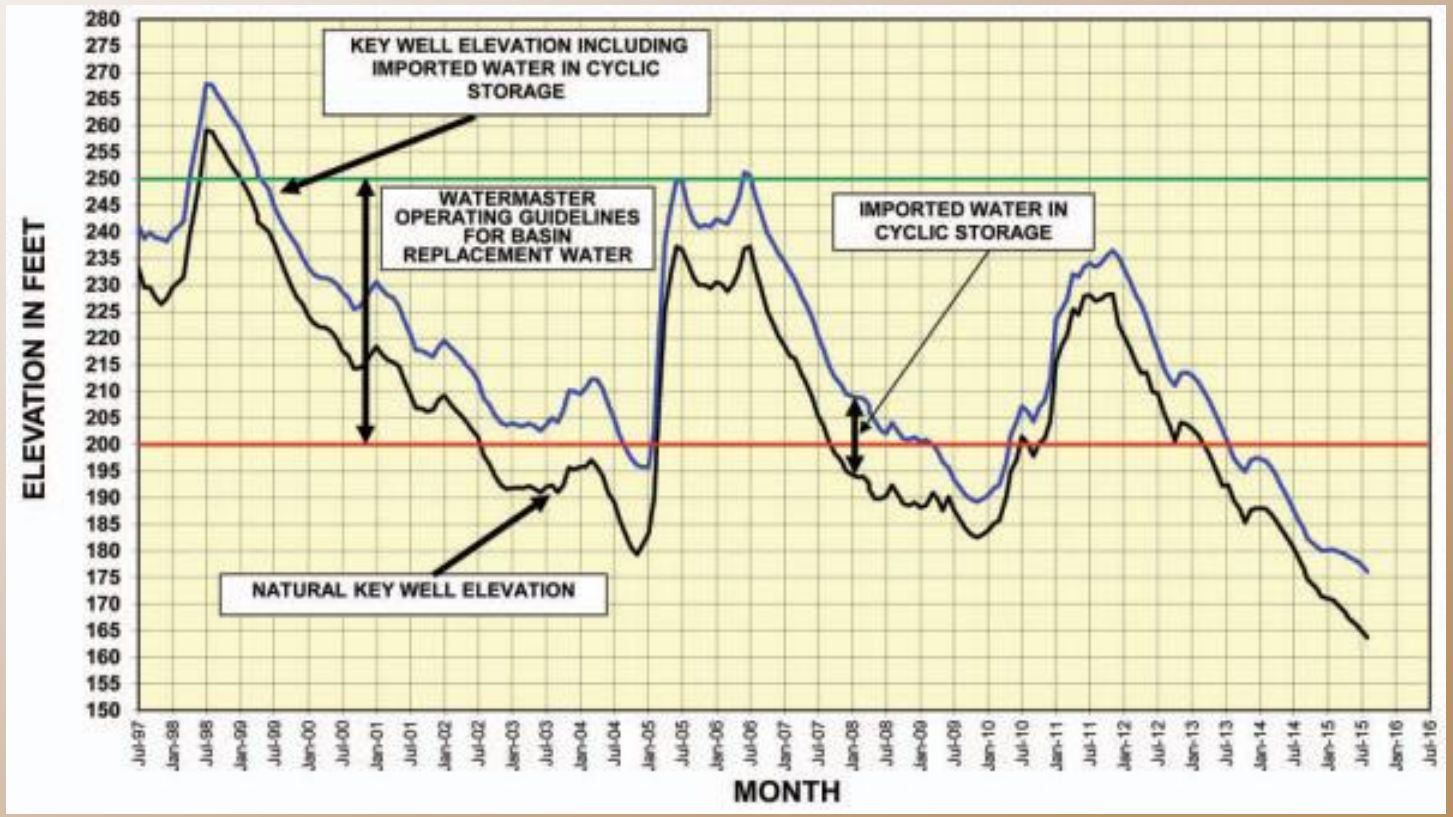
Groundwater Storage

- Functions like a bank account
  - Deposits and withdrawals on an ongoing basis
  - Watermaster ensures the account stays “liquid”
- Deposits/supplemental groundwater “recharge” comprised of:
  - Stormwater
  - Imported water
  - Recycled water
- Spreading Grounds
  - Located adjacent to river channels, and areas where the underlying soils are composed of permeable formations and in hydraulic connection with the underlying aquifer
  - Water percolates/seeps downward to aquifers (12-18 months)

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

Local Groundwater: Baldwin Park Key Well

- Black line shows well level without supplemental water
- Blue line shows well level with supplemental water
- "Cyclic Storage" is the difference between the blue and black lines



SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

State Water Project (SWP)

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

State Water Project (SWP)

- Nation's largest state-built water and power development and conveyance system
- Planned, designed, constructed and now operated and maintained by CA Department of Water Resources
- Provides supplemental water supplies for 25 million Californians and 750,000 acres of irrigated farmland.
- Includes 34 storage facilities, reservoirs and lakes; 20 pumping plants; 4 pumping-generating plants; 5 hydroelectric power plants; and about 701 miles of open canals and pipelines.
- Distributes water to 29 State Water Contractors (70% urban; 30% agricultural)

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

Potential Challenges to Groundwater Supplies

- Drought
- Contamination
- Cutbacks to State Water Project
  - Environmental (pumping restrictions)
  - Disruption of service (earthquakes, other outages)

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

Potential Solutions for Groundwater Supplies

- Investments in and expansion of:
  - Stormwater capture
  - Recycled water
  - Water conservation
- $7.5 billion Water Bond
- Increased imported water deliveries
  - Bay Delta Conservation Plan/California Water Fix
    - Decrease environmental restrictions on pumping
    - Would prevent long term outages caused by levee failure in the delta

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
AZUSA | SIERRA MADRE | MONTEREY PARK | ALHAMBRA

The Next Steps

- New technologies for water conservation and storm water capture could lead to partnerships with universities and water industry
- Infrastructure projects could result in job creation
- K-12 Education programs to change behavior on water use for the next generation