

# Drought in the LRG

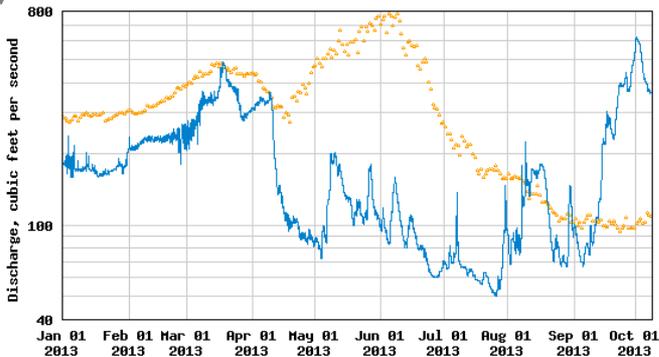
Drought Subcommittee

October 9, 2013

Gary Esslinger



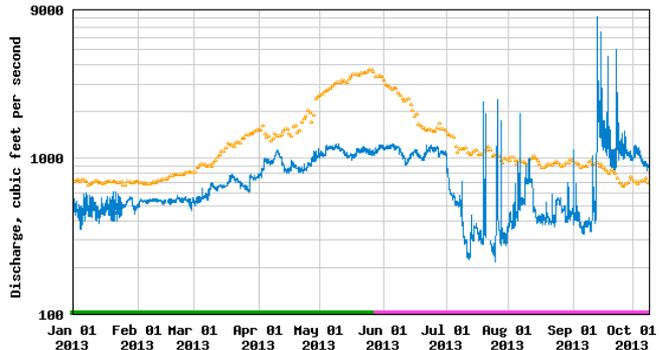
USGS 08263500 RIO GRANDE NEAR CERRO, NM



----- Provisional Data Subject to Revision -----

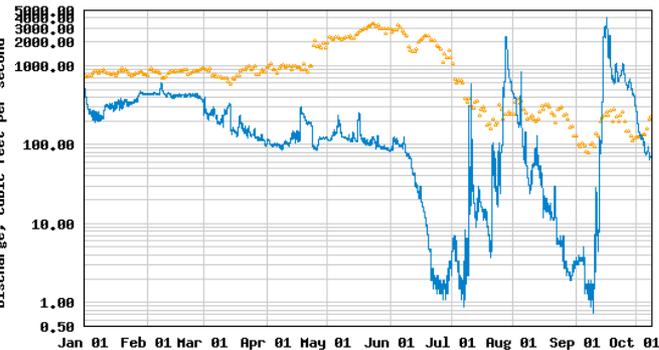
• Median daily statistic (63 years) — Discharge

USGS 08313000 RIO GRANDE AT OTOMI BRIDGE, NM



• Median daily statistic (42 years) — Period of approved data  
— Discharge — Period of provisional data

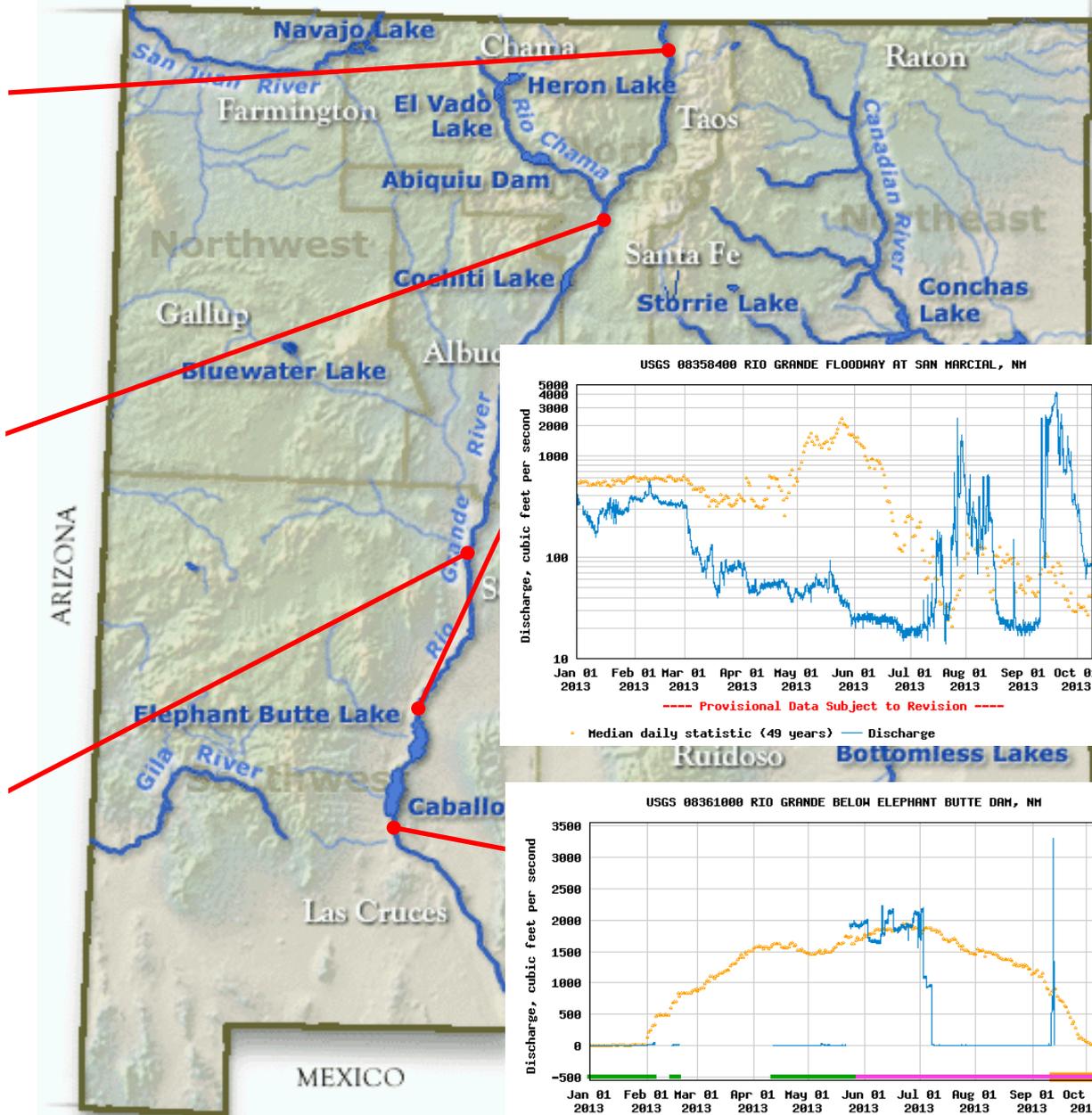
USGS 08332010 RIO GRANDE FLOODWAY NEAR BERNARDO, NM



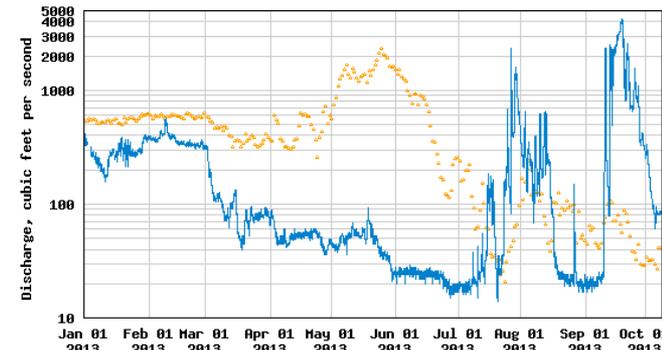
----- Provisional Data Subject to Revision -----

• Median daily statistic (32 years) — Discharge

COLORADO



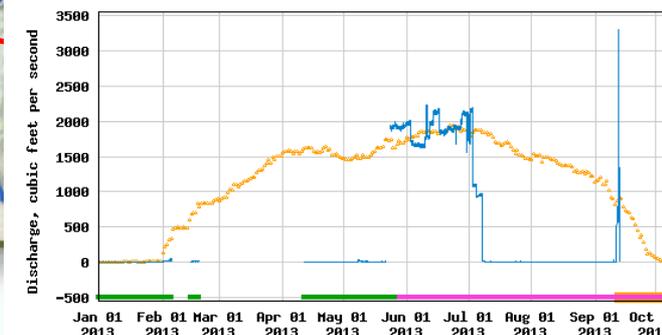
USGS 08358400 RIO GRANDE FLOODWAY AT SAN MARCIAL, NM



----- Provisional Data Subject to Revision -----

• Median daily statistic (49 years) — Discharge

USGS 08361000 RIO GRANDE BELOW ELEPHANT BUTTE DAM, NM



• Median daily statistic (96 years) — Period of approved data

# Breaking the wrong records in the LRG



- Latest first release from Project Storage – June 1
- Earliest shutdown of release – July 17
- Smallest volume of release – 168,607 acre-feet
- Highest river loss rate – Average > 600 cfs
- Smallest Project diversion – 109,272 AF for EBID, El Paso #1, and Mexico
- Smallest allotment to EBID farmers – 3.5 inches
- Elephant Butte bottomed out at 60,327 AF on July 8, the lowest level since September 1, 1972
- Declining groundwater levels
- Increasing groundwater salinity
- 2014 very likely another short year



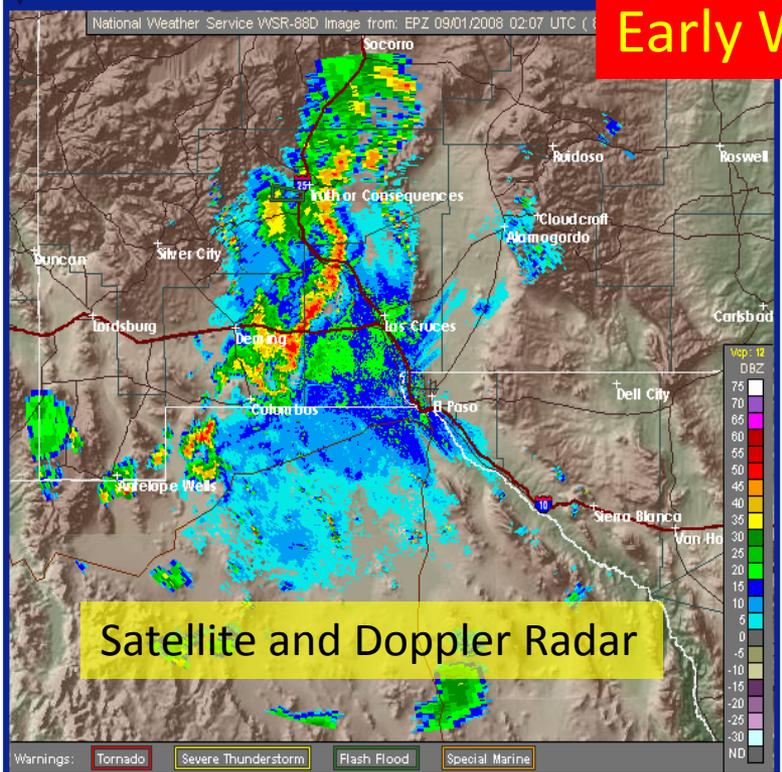
# Coping with Drought

- Storm Water Capture
  - Early warning and reaction
  - Diversion, delivery, retention, infiltration
- Re-plumbing the system – piping saves >12,000 AF/year
- Drip Irrigation – one size does not fit all!
- Provide water for environmental use to minimize ESA impacts – E-farming approach



08:07 PM MDT Sun Aug 31 2008

# Early Warning



## Satellite and Doppler Radar

## Reclamation Support



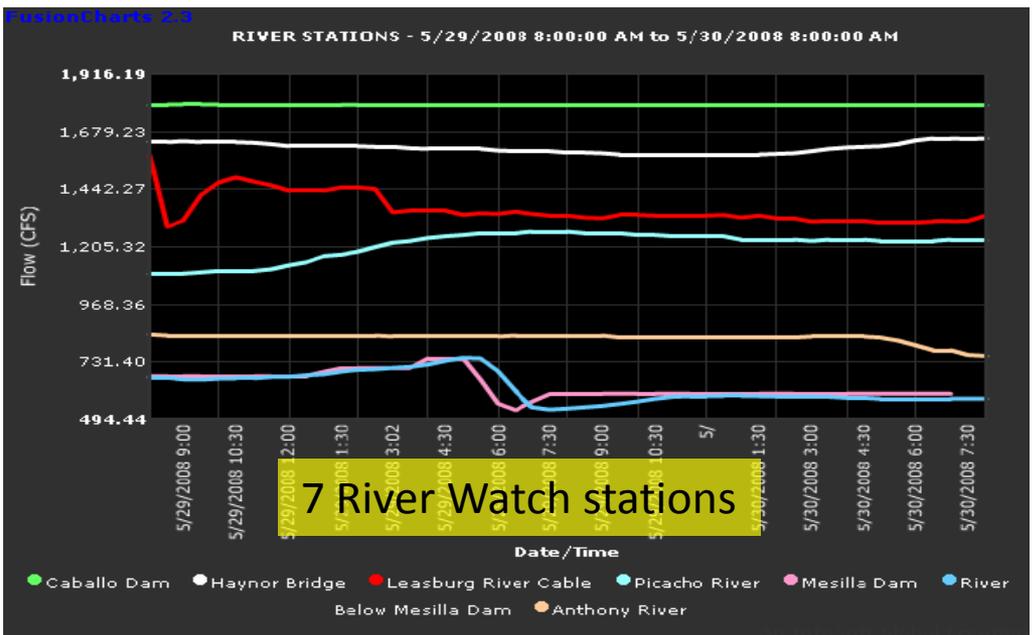
## 6 Upper Watershed Weather Stations



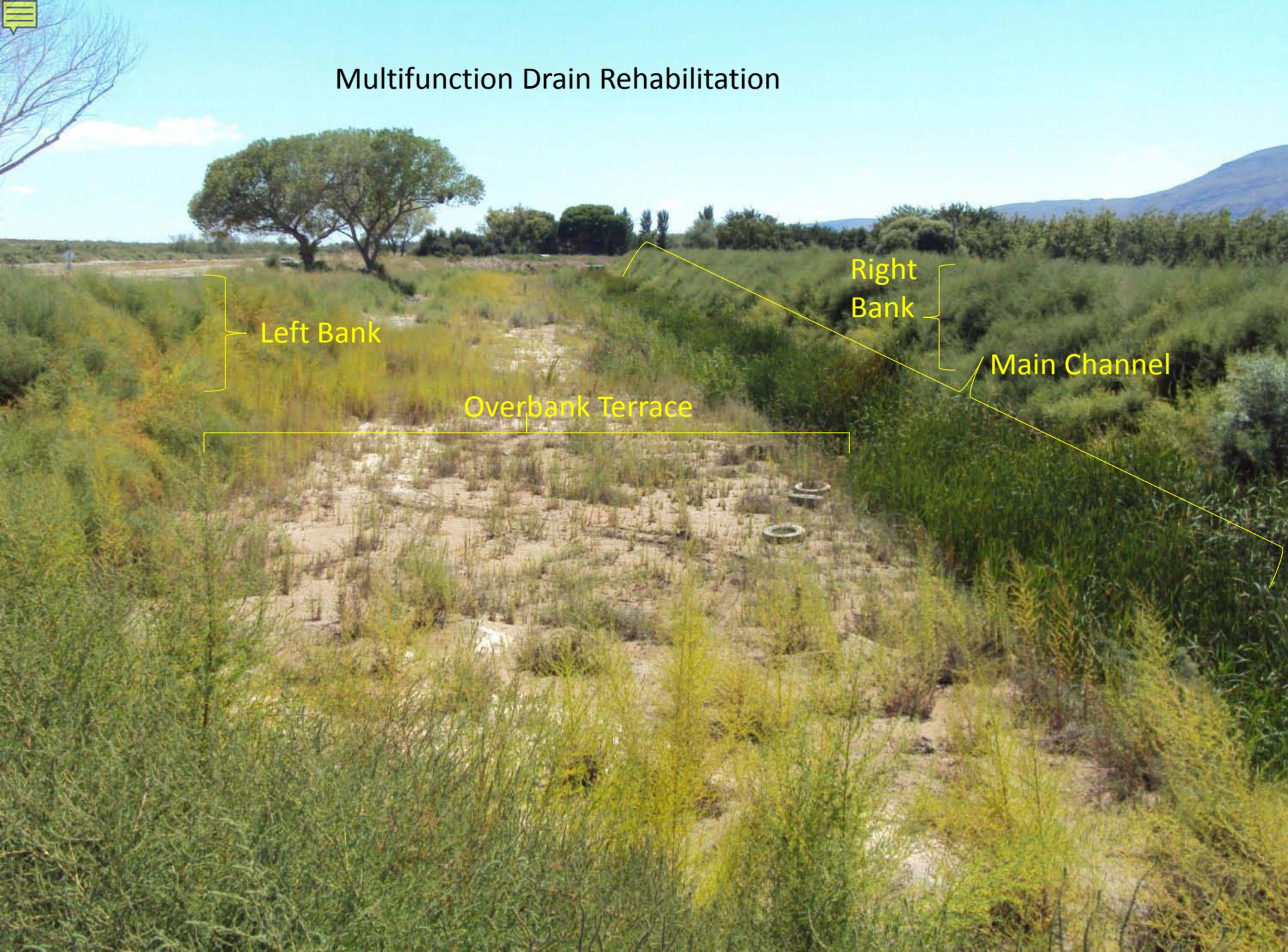
## Reclamation Support

## 3 Arroyo Measurement

APR 14 2008



# Multifunction Drain Rehabilitation



Left Bank

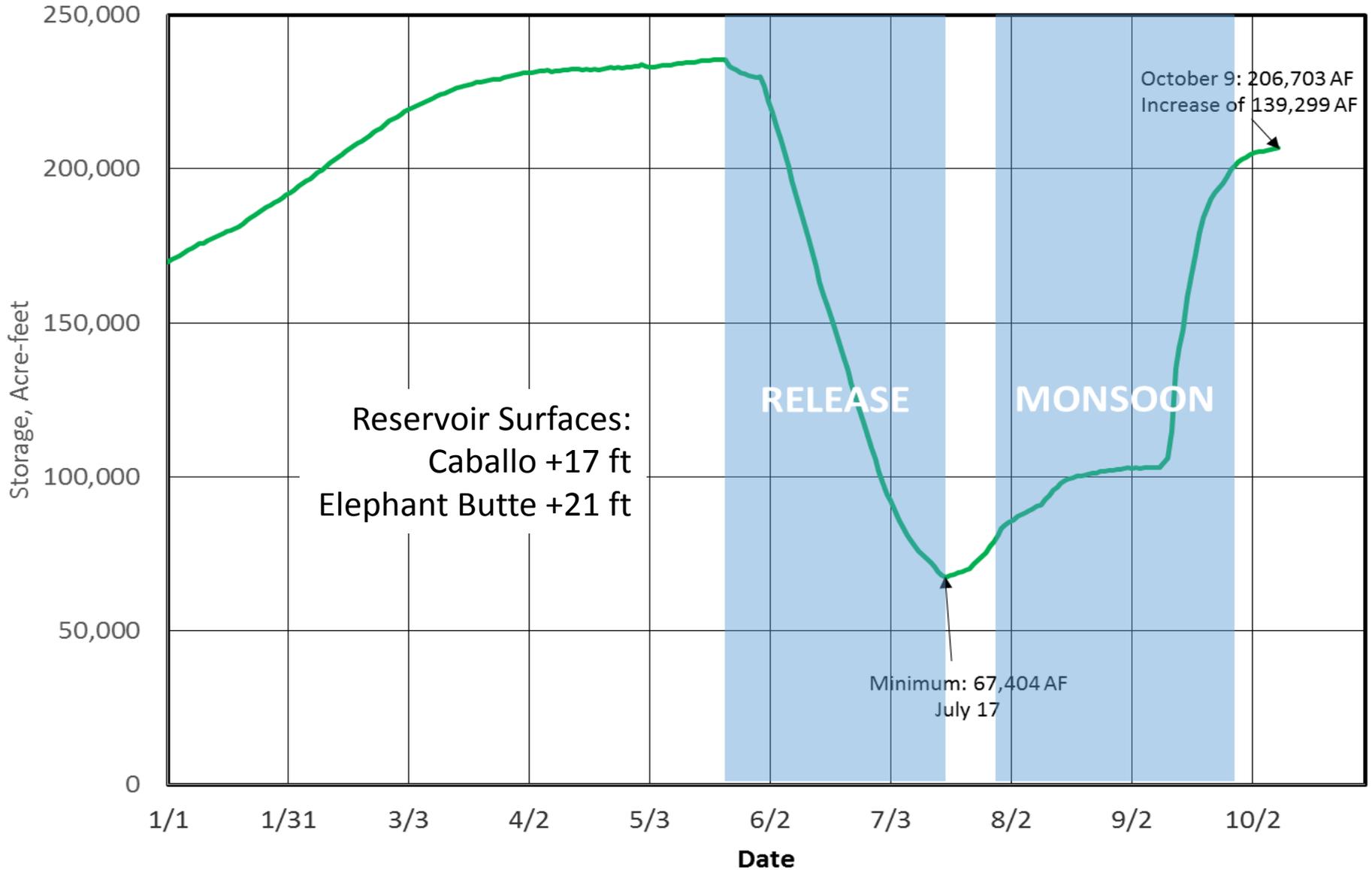
Overbank Terrace

Right Bank

Main Channel

# The Drought Rollercoaster

Combined Elephant Butte and Caballo Storage, 2013





## Below Caballo: August and September 2013

- Events of 500 to 5,000 cfs of flood water in the river below Caballo
- Historical practice would have been to evacuate water downstream
- Diverted at Leasburg and Mesilla Dams
- Water in canals for more than 3 weeks total
- Watered approximately 4,000 acres
- River and canal seepage, on-farm deep percolation recharge alluvial aquifer
- Highly efficient capture and infiltration



## Downsides - Effects on River Channel

- Heavy sediment and debris load into river
- No maintenance by responsible agencies
- Threat to levee system
- Lowered conveyance efficiency, capacity
- EBID takes the hit



# Flood control facilities

- Over 100 aging, under-designed PL-566 flood control dams
- False sense of security
- Inadequate laws on development below dams
- Rehab, upgrade is \$\$\$, logistically impossible
- Watershed management is necessary
- Consequences of failure

# Inundation map, monument

- Low hazard dams reclassified as high hazard; no resources or space to upgrade
- Consequences of failure are dire
- Necessary watershed improvement measures could be impossible with Monument designation

