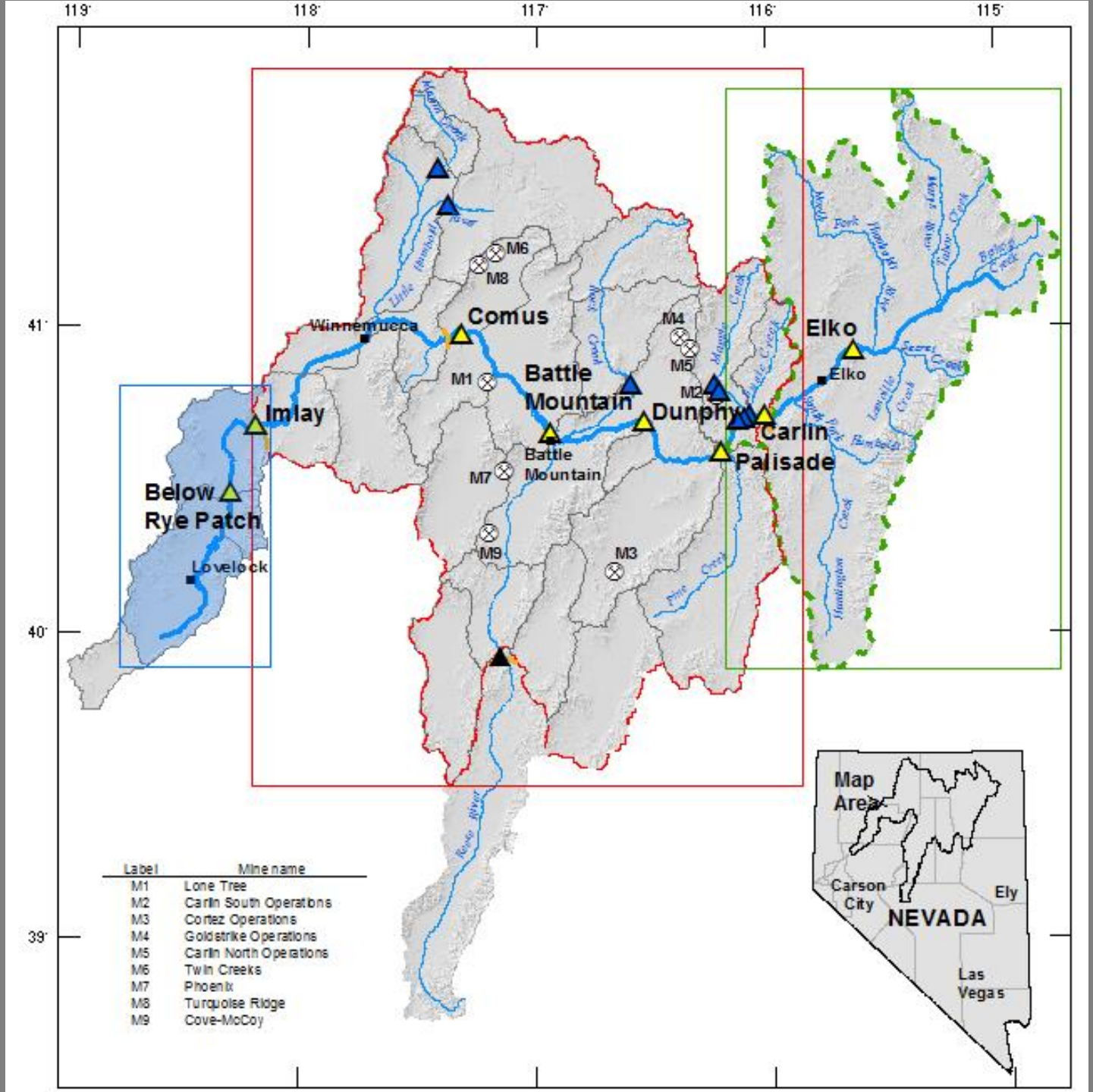
Division of
WATER RESOURCES

Conjunctive Management of the Waters of the Humboldt River Basin

Jason King
State Engineer



DEPARTMENT OF
CONSERVATION &
NATURAL RESOURCES

Brief History

- Humboldt River adjudication finalized in 1930's
- 285,000 acres irrigated under the decree, rights total ~700,000 af
- Groundwater development began in 1950's
- Current groundwater appropriations of 750,000 af
- Annual pumping of ~380,000 af
- All Decree rights senior to all groundwater rights

PCWCD Writ Petition

- 40,000-acre PCWCD holds 140,000 af Decree rights
- Received little to no water from 2013 to 2015
- Argue that groundwater pumping is depleting Humboldt River and conflicting with their senior water rights
- PCWCD filed writ petition in District Court August 2015
  - Curtailment in overappropriated basins
  - Eliminate cones of depression by groundwater pumping causing interference with flows of the Humboldt River
  - Treat mine water rights as permanent; consider dewatering effects and pit lakes.

Humboldt River Basin Conjunctive Management Regulations

Approach:

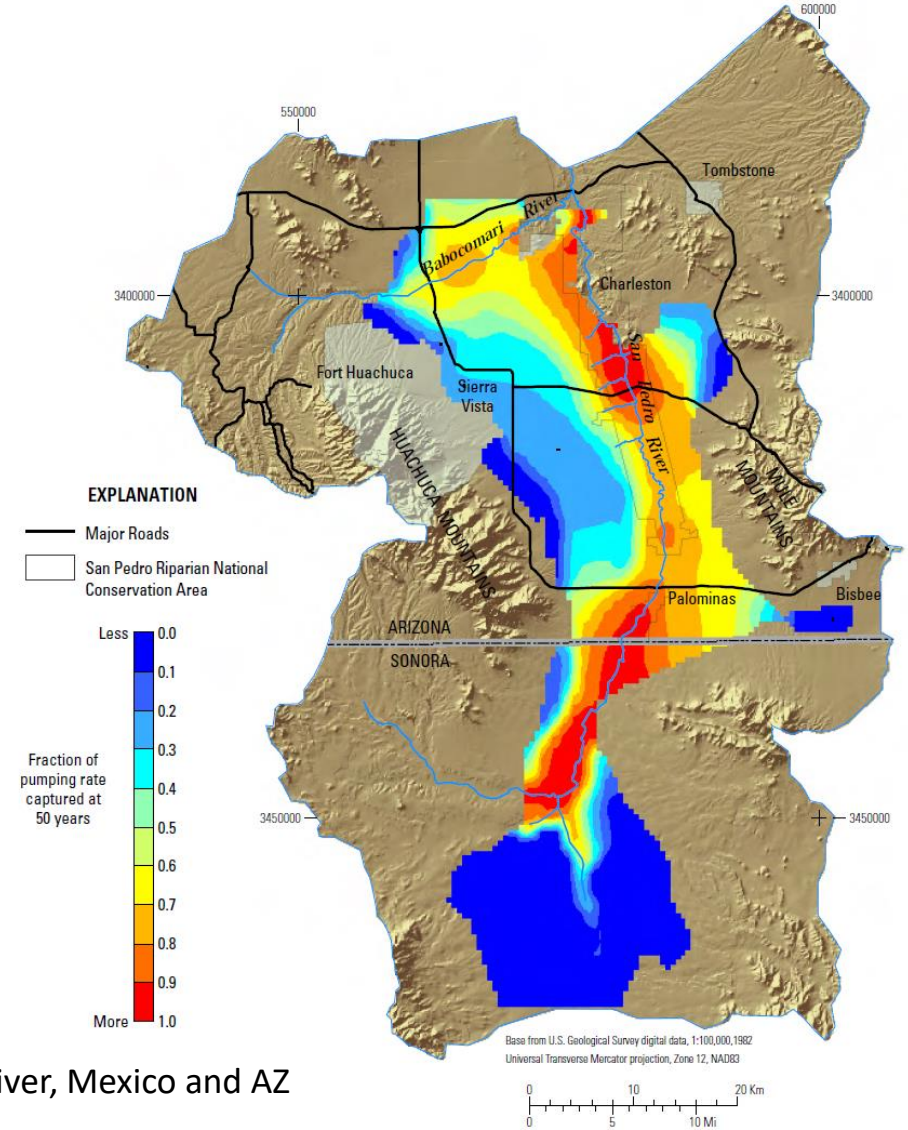
- Allow for replacement of injurious depletions – to the extent that surface water is available
  - Very little storage exists, replacement must be from direct diversions while in priority
  - Groundwater from within the Humboldt River basin cannot be used for replacement
- If replacement water is not made available, then groundwater users are required to participate in a basin-wide mitigation plan
  - Includes all groundwater use that depletes river
  - Mitigation by financial compensation
  - Mitigation fund compensates surface water users based on conflict
  - Need independent value of water in upper, middle and lower basin
  - Determine conflict – based on pre-pumping estimate of supply, scheduled deliveries minus actual deliveries

Water Model needed to determine extent of conflict

- Contracted with USGS and Desert Research Institute to build a capture model to simulate the natural system
- Calibrate to historic conditions, flow records, water levels and pumpage
- Quantify how much surface water is actually captured by groundwater pumping

Capture Maps

- Evaluate stream depletion as result of pumping



Ref: USGS Circular 1376; San Pedro River, Mexico and AZ

Humboldt River Basin Conjunctive Management Regulations

Problems and issues:

- Lower basin water users may want water, not money
  - For surface water flows to return to normal flow would require decades with no pumping
  - Population centers, major mines, agriculture and businesses are close to river and would be curtailed
- Groundwater assessment fees may prove too costly for many users
- Domestic wells

Advantage of Proposed Regulations vs Writ Petition

- Addresses same groundwater rights as writ petition
- Regulations will hopefully allow for continued beneficial use of water
- Senior surface water rights compensated to the extent of conflict
- Better outcome for both surface water and groundwater users than curtailment
- Regulations will impose a burden on small business, but much less than potential curtailment

Status

Questions?