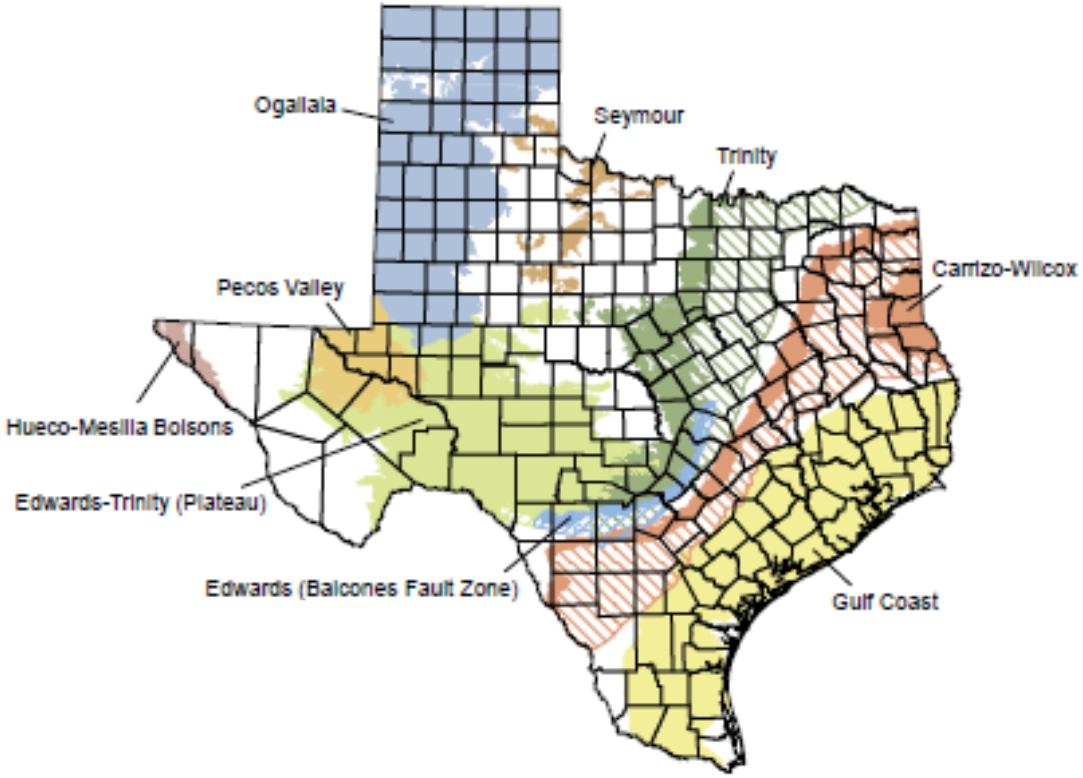
Groundwater as a Buffer for Drought

Bridget Scanlon, Michael Young, Alex Sun,
Brad Wolaver, and Robert Reedy

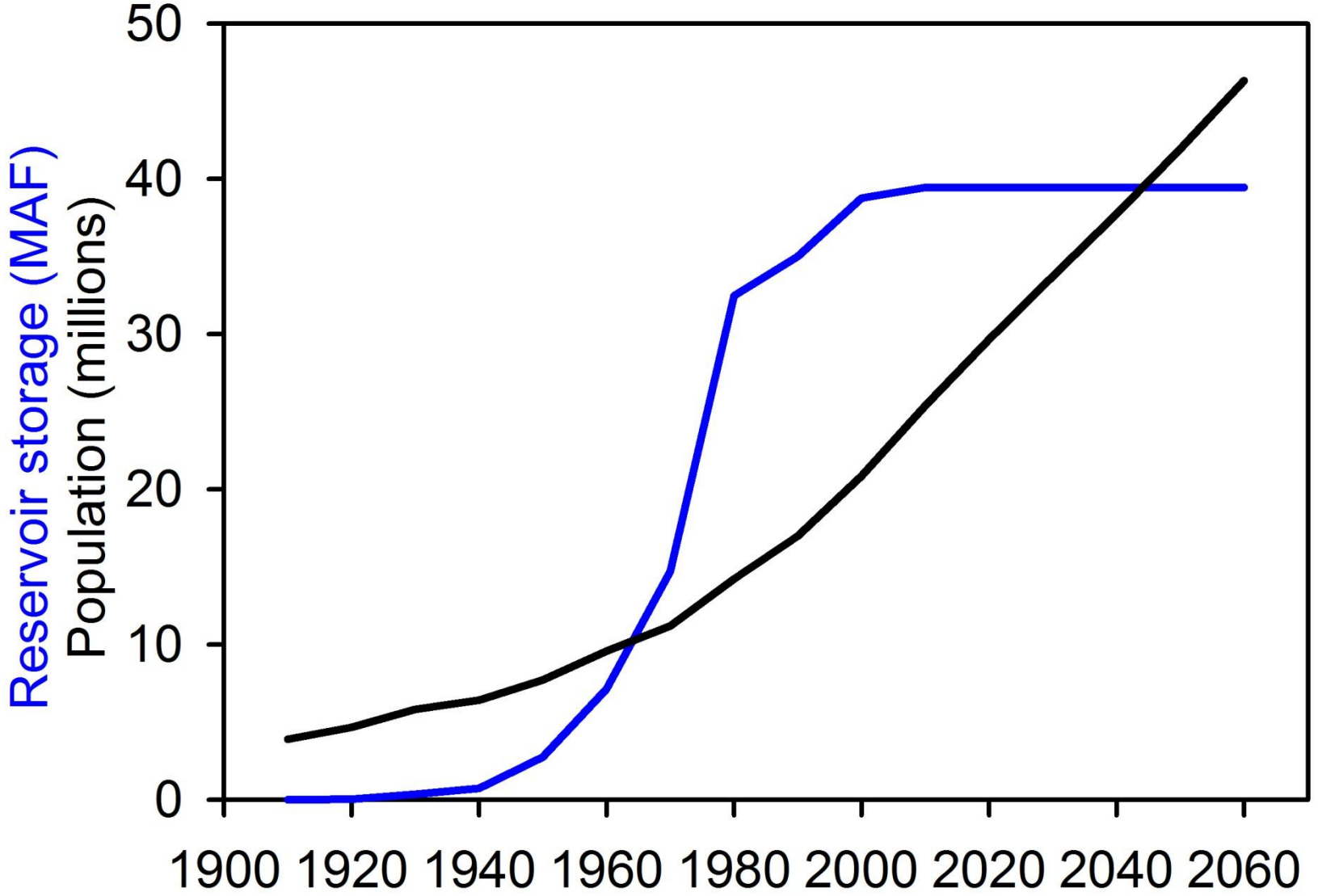


Bureau of Economic Geology, Jackson School of Geosciences

Water Resources Issue

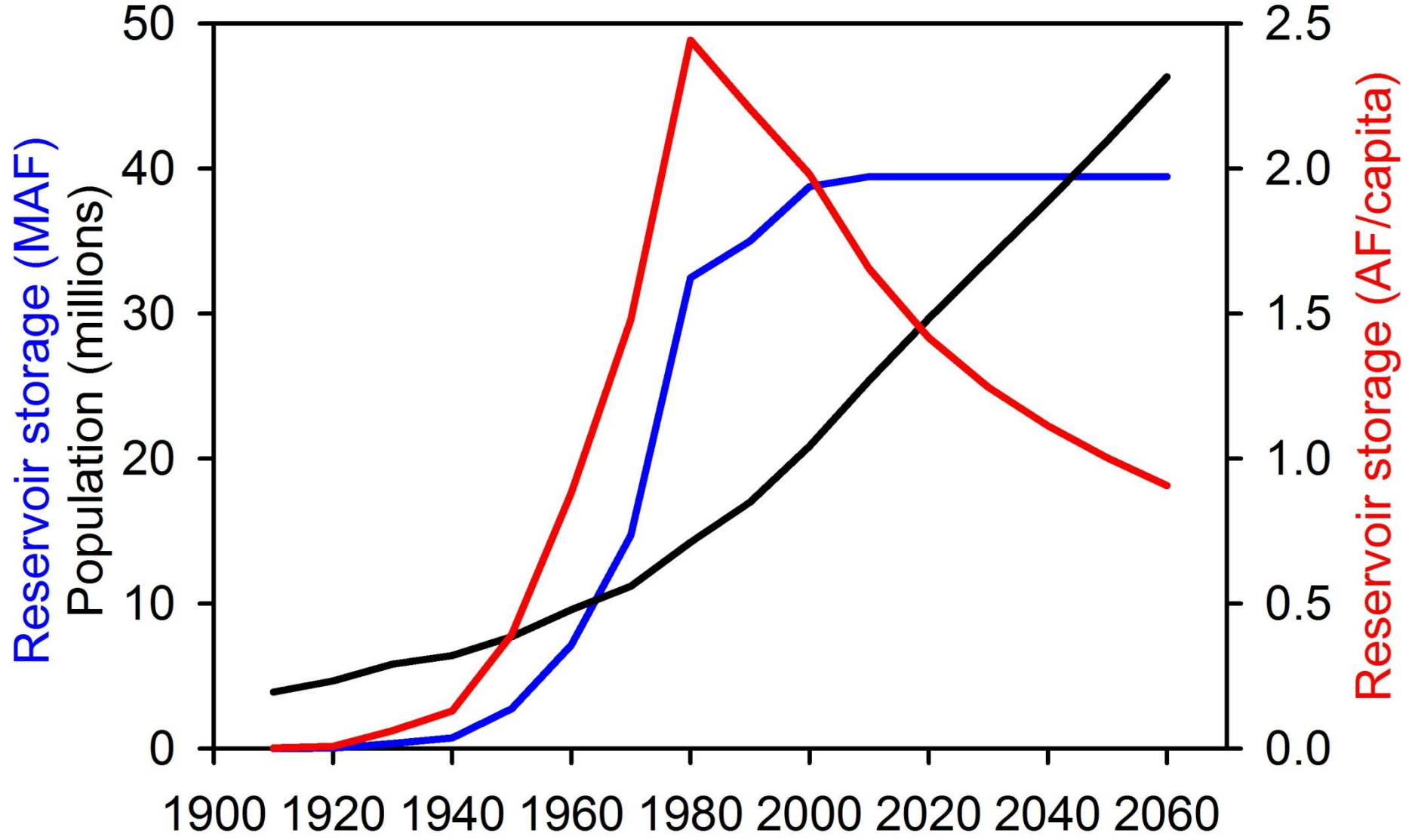
We have plenty of water when we don’t need it and not enough when we do.

Reservoir Storage and Population Growth

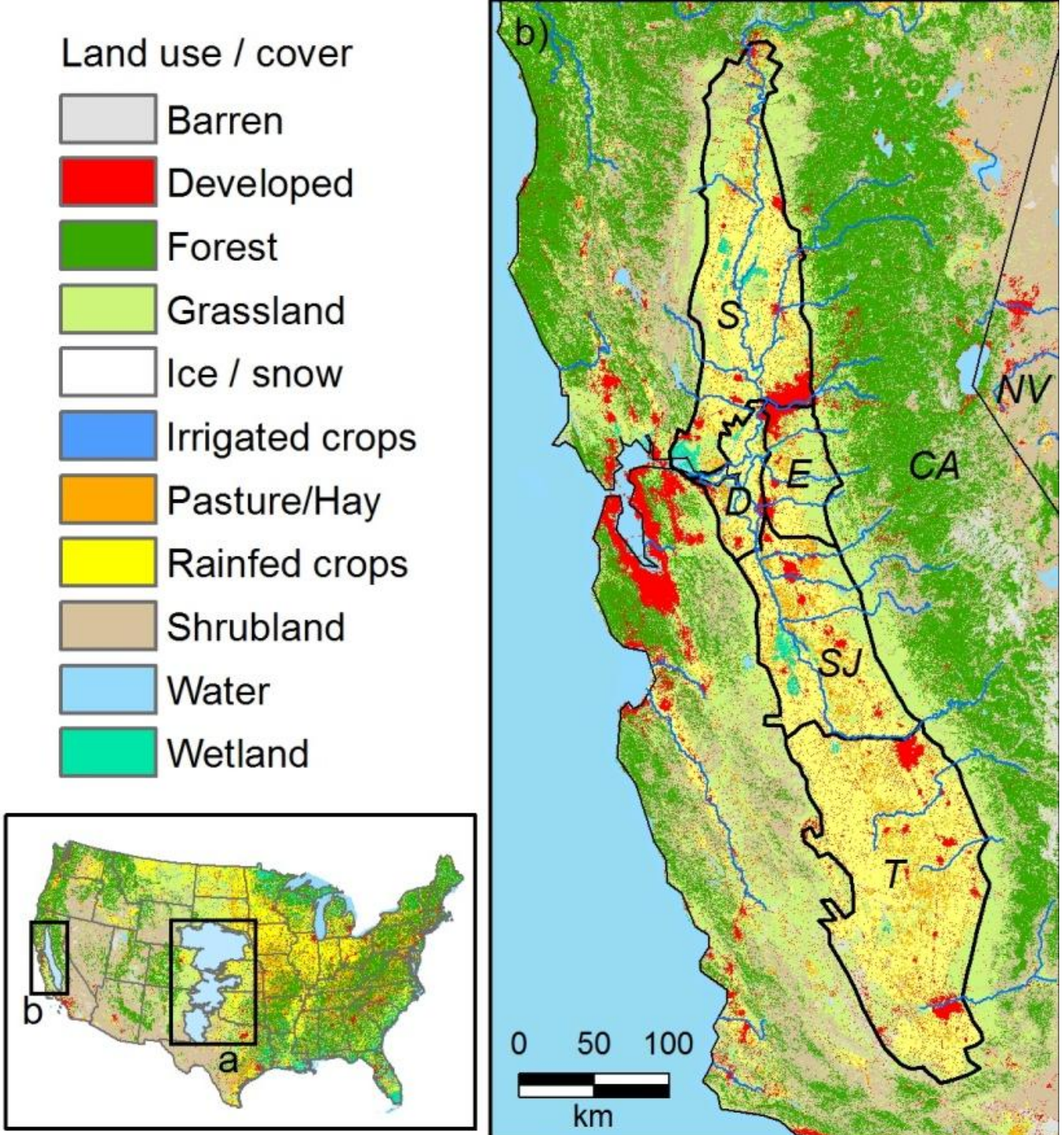


TWDB State Water Plan 2012

Reduction in Per Capita Reservoir Storage



TWDB State Water Plan 2012



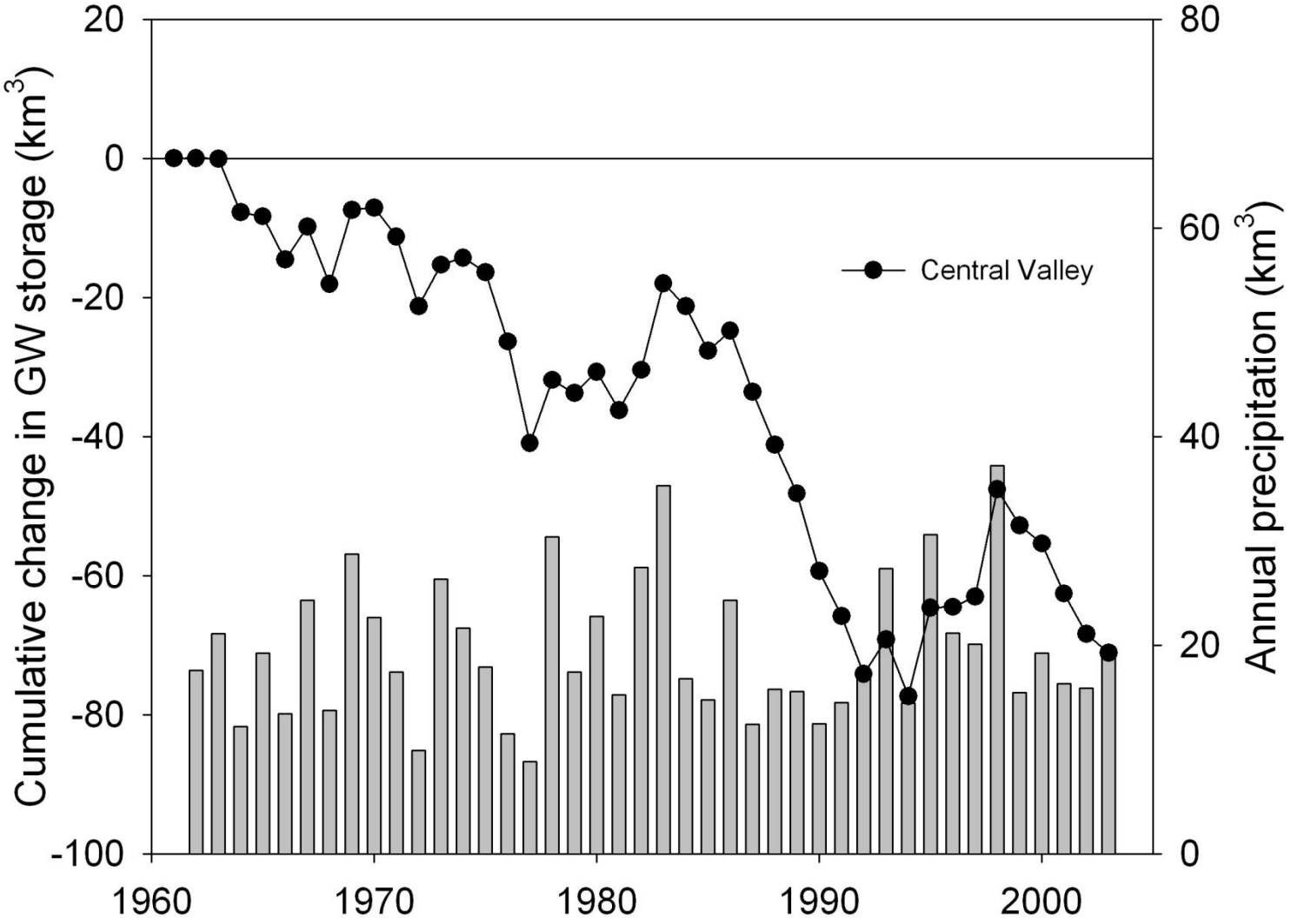
Central valley, California

Total water stored: 1,200 MAF

Water depletion: 170 MAF

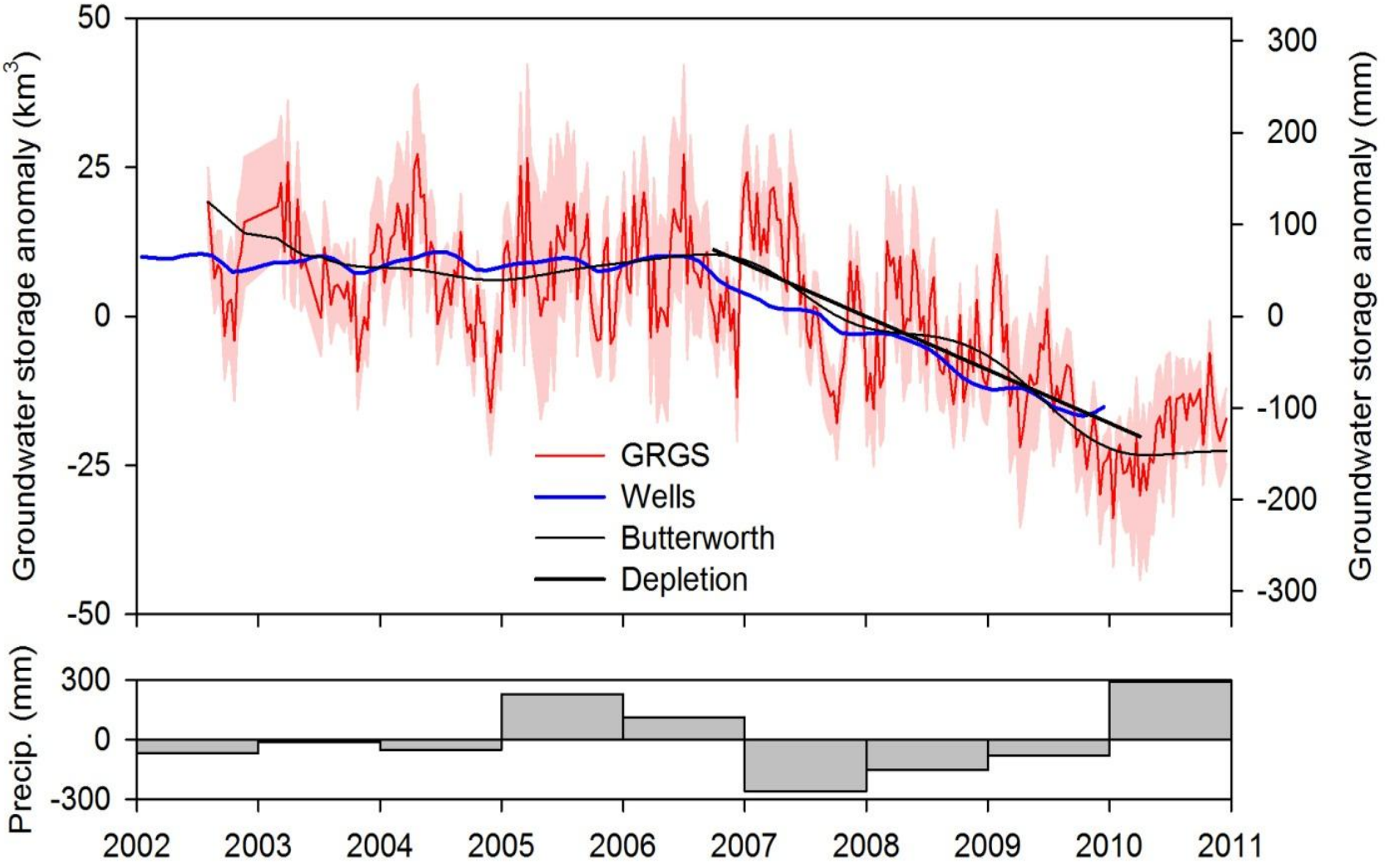
Scanlon et al., 2012

Central Valley Hydrologic Model (CVHM) 1962 - 2003



Faunt, 2009

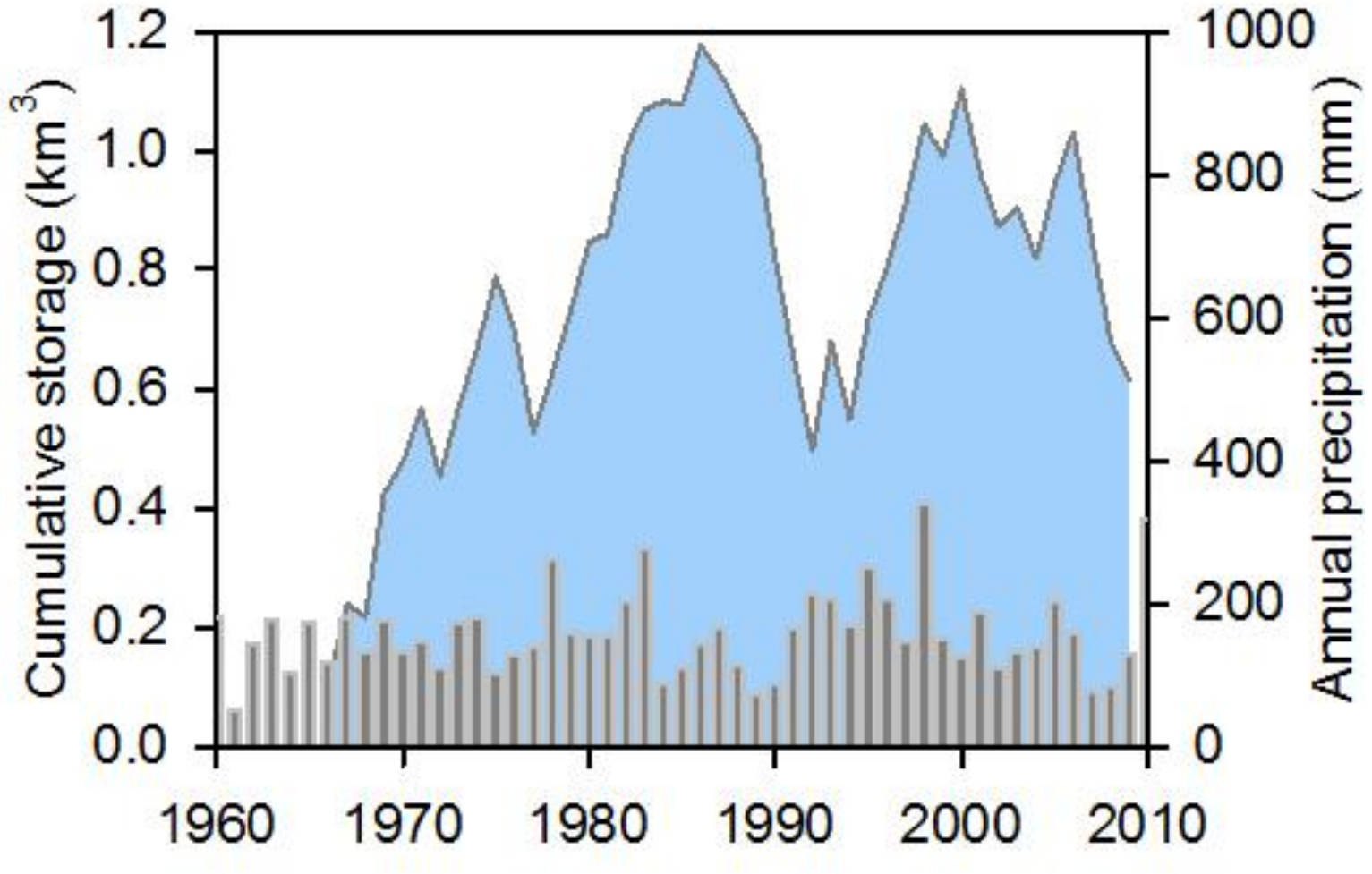
GRACE Groundwater Storage Changes drought (2006 – 2009): 11 MAF/yr, total ~40 MAF



Scanlon et al., 2012

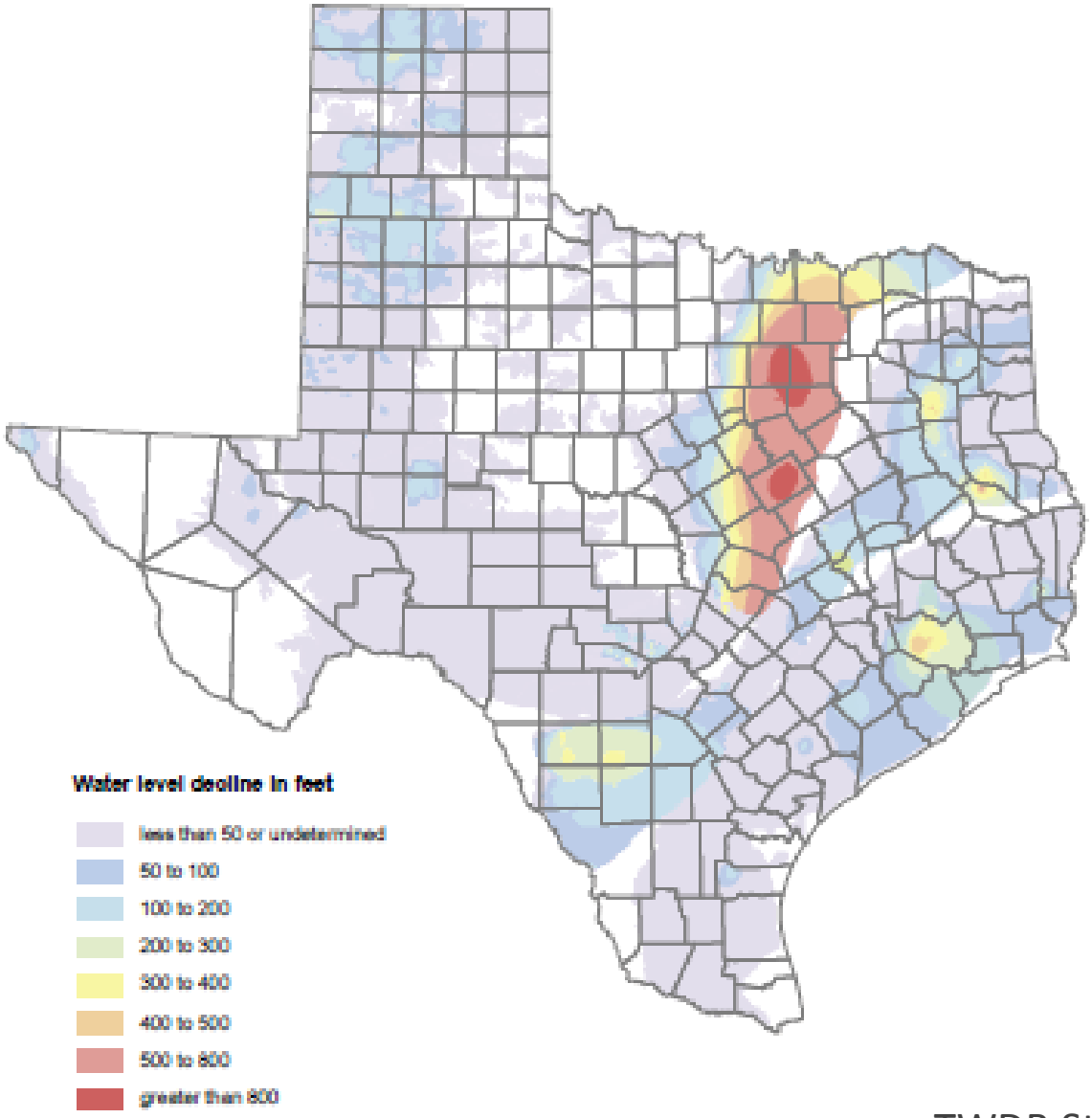
Spreading Basins for Groundwater Banking in California

Arvin Edison Water Banking System, Central Valley



Scanlon et al., 2012

Aquifer Storage Capacity



TWDB State Water Plan 2007

Summary

- Surface water, renewable, vulnerable to droughts and floods
- Groundwater, renewable – nonrenewable, alternative to surface water during drought
- Conjunctive use of surface water and groundawter
- Aquifer storage and recovery provides a valuable approach for managing extremes