Recharging groundwater in the San Joaquin Valley

Preliminary findings from a survey of water managers

Groundwater Recharge Forum, Sacramento
November 8, 2017

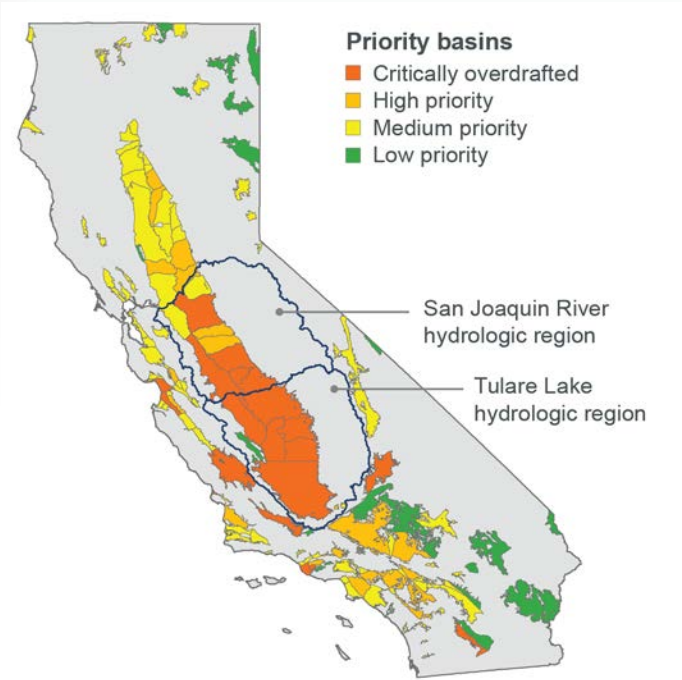
Ellen Hanak, Jelena Jezdimirovic, Sarge Green, Alvar Escriva-Bou

Supported with funding from the S. D. Bechtel, Jr. Foundation and Sustainable Conservation

PPIC PUBLIC POLICY INSTITUTE OF CALIFORNIA

PPIC WATER POLICY CENTER

Most San Joaquin Valley groundwater basins are critically overdrafted

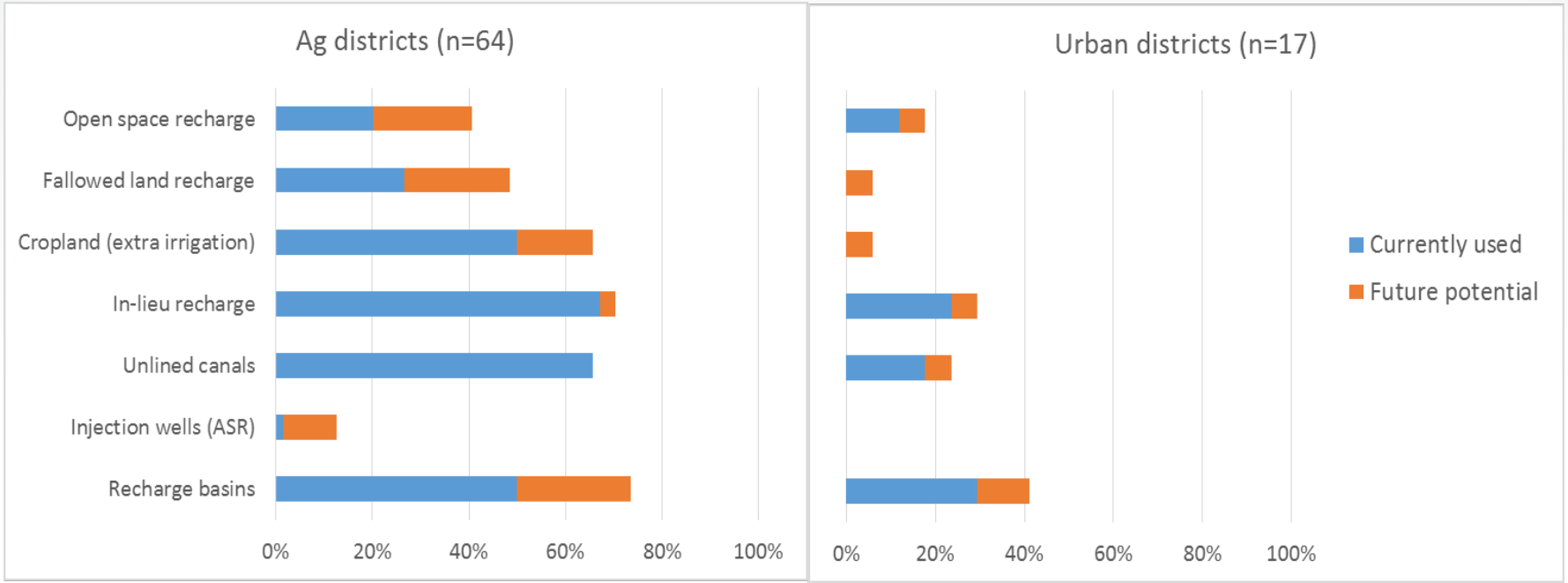


- PPIC estimates ~2 million acre-feet/year average SJV overdraft (1986-2015)
- Consequences are dry wells, sinking lands, reduced supplies for droughts
- New groundwater law (SGMA) requires achieving sustainability by 2040
- Attaining balance means more recharge, less water use, or both

Survey sought manager input on recharge experiences in 2017, first wet year since SGMA enactment

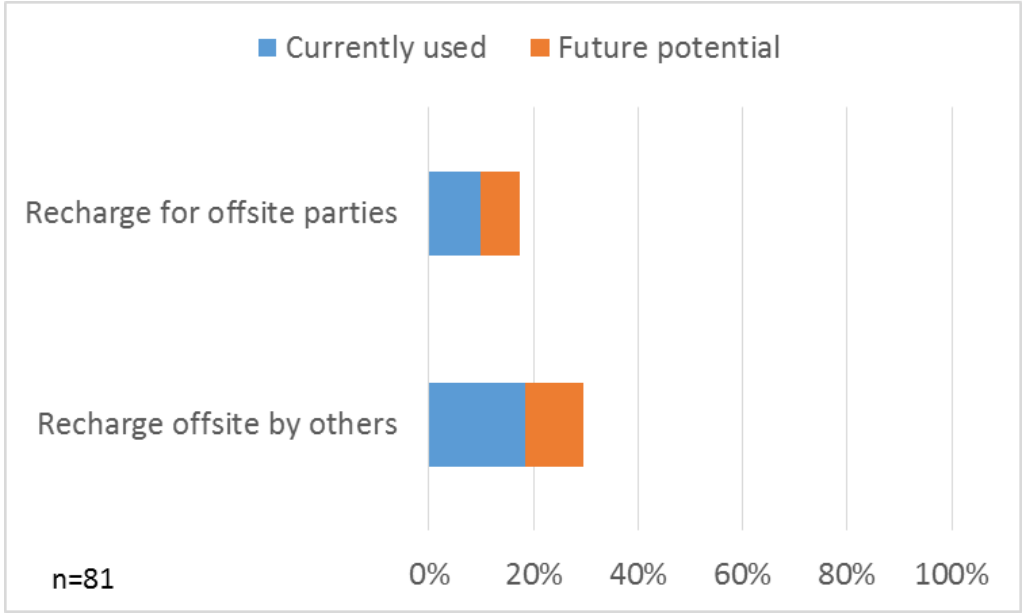
- Questions
  - Recharge tools used currently and with future potential
  - Active recharge this year: volumes, tools, sources
  - Barriers encountered and priorities for expanding recharge
- Broadly representative sample, leaning toward larger districts
  - 81 districts of 202 contacted (40%)
  - 64 ag districts (42%) and 17 urban districts (33%)
- Survey in September, focus group discussion in October

Ag districts currently use a wider range of onsite recharge tools and see more potential for expansion



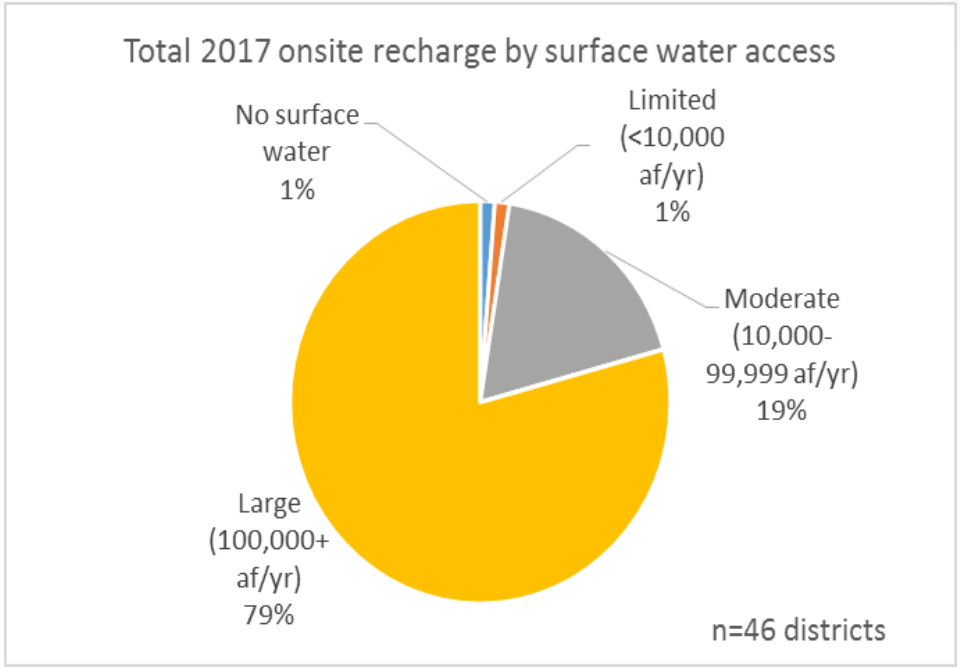
Offsite recharge through partnerships is still relatively limited

- Enables cost-effective recharge in areas with good capacity
- Useful for districts with poor local recharge conditions
- Occurs mainly in southern Valley



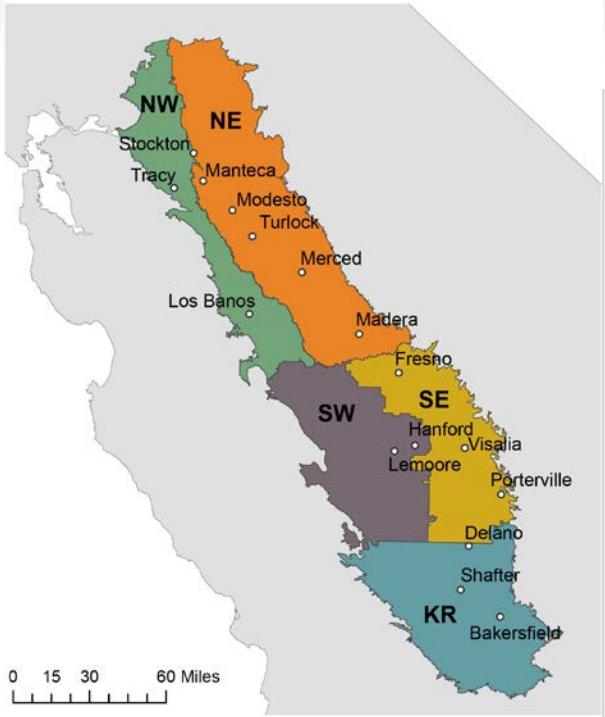
Recharge was substantial in 2017, and concentrated in districts with more surface water

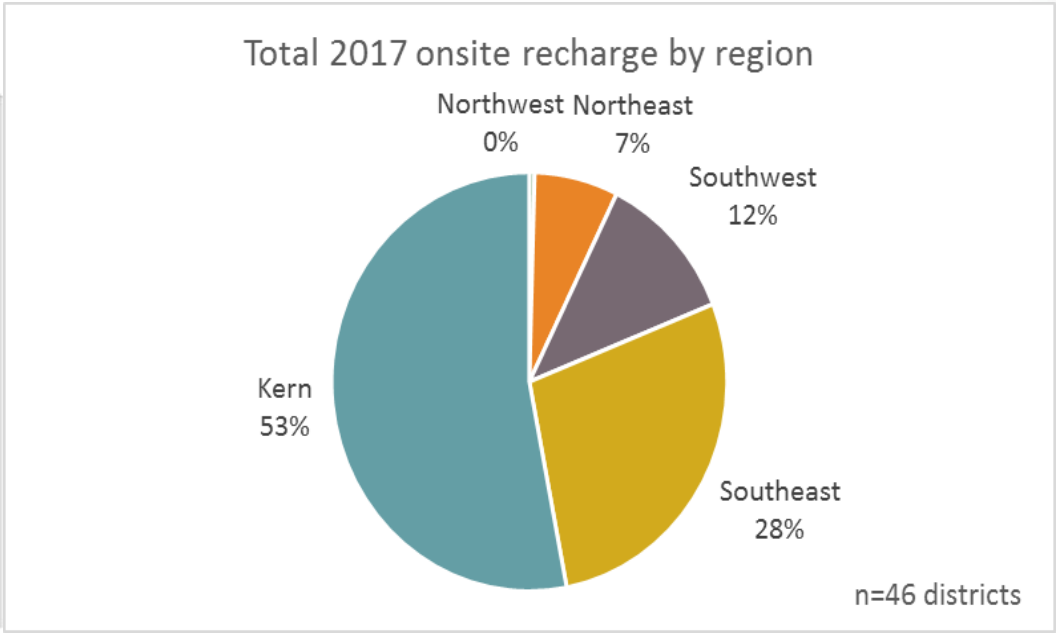
- ~75% of districts reported active recharge programs
- ~75% of those provided volume estimates
- Total onsite recharge: 4.1 maf
- Total offsite recharge: 0.5 maf



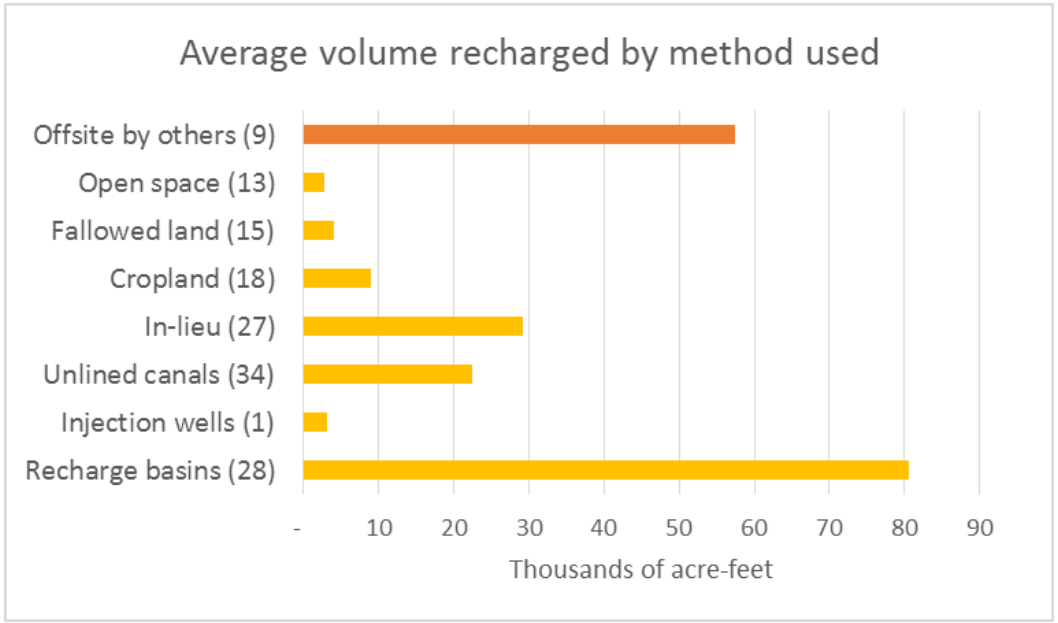
Note: 81 responding districts roughly evenly split among these categories.

Recharge was also concentrated in the Kern basin and Southeast





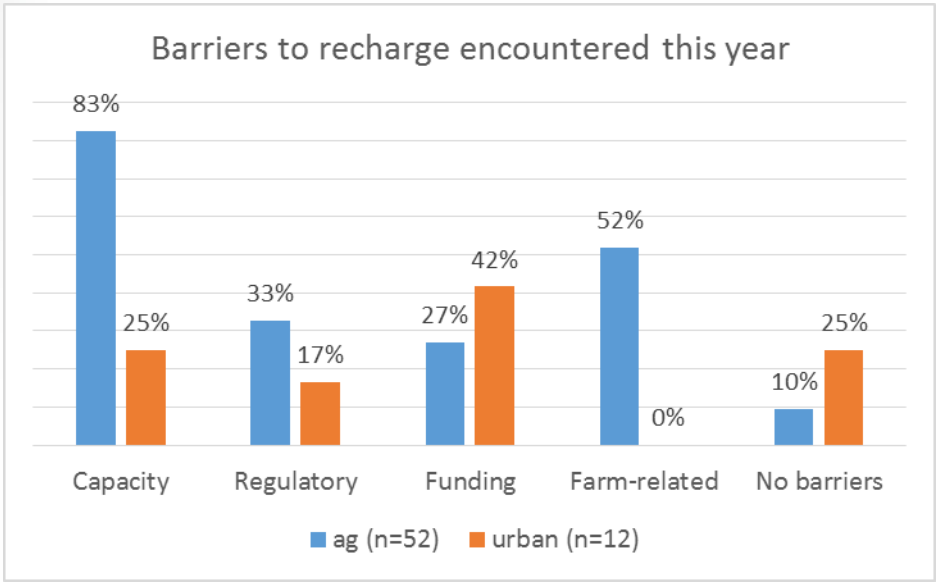
Recharge basins store the most water



Note: Offsite storage typically uses recharge basins or in-lieu methods.

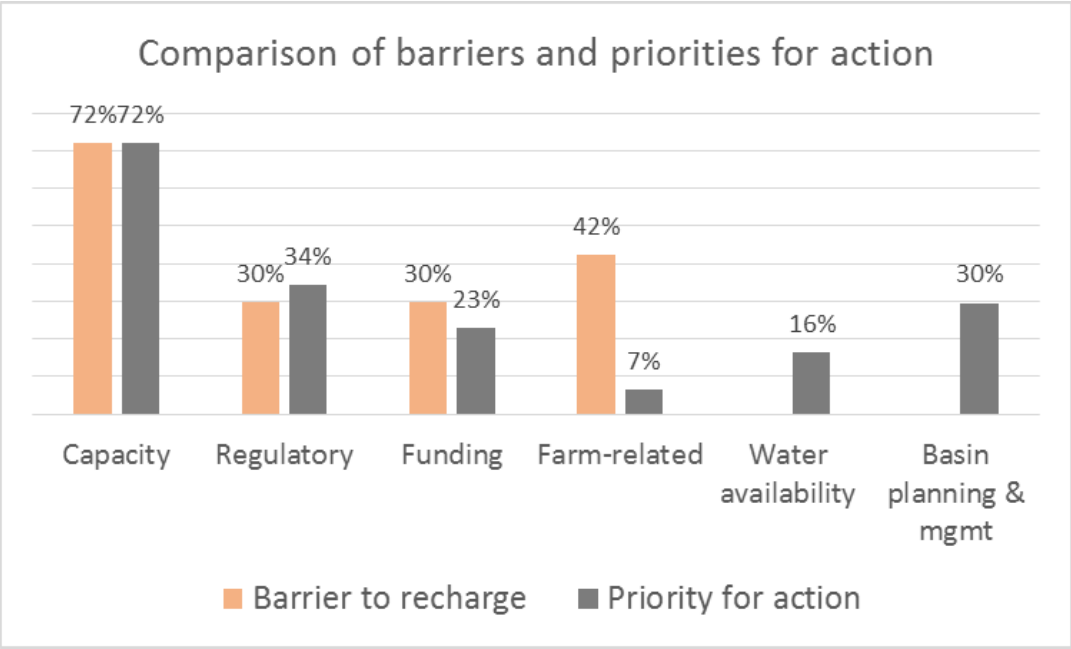
- Volumes less likely to be reported for recharge via:
  - Cropland
  - In-lieu
  - Unlined canals

Infrastructure issues were the most significant barriers to recharge encountered this year



Barriers to recharge	ag	urban
Capacity issues		
System conveyance	37%	8%
District basin capacity	50%	25%
District conveyance	44%	17%
Timing of water	63%	8%
Regulatory issues		
Construction approvals	29%	8%
Water rights	15%	0%
Conveyance approvals	10%	0%
Water quality	10%	8%
Funding issues		
Proposition 218	17%	0%
Price of water	12%	0%
Migration out of district	0%	42%
Farm-related issues		
Irrigation system	46%	0%
Benefits for farmers	13%	0%
Crop health	29%	0%

Managers also emphasized capacity improvements as top priorities for action



Note: Priorities were coded from open-response answers.

Key Takeaways

- Most districts recharge, but districts with large surface supplies and formal programs store most water
- Interest in expanding recharge is widespread
- At least in a wet year, capacity constraints loom larger than regulatory issues
- SGMA will encourage
  - Better accounting of recharge
  - Joint programs between surface and groundwater districts
  - (Maybe) More offsite recharge for parties lacking good local conditions

Notes on the use of these slides

These slides were created to accompany a presentation.
They do not include full documentation of sources, data samples, methods, and interpretations. To avoid misinterpretations, please contact:

Ellen Hanak
hanak@ppic.org
(415) 291-4433

For more information, see www.ppic.org/water

Thank you for your interest in this work.