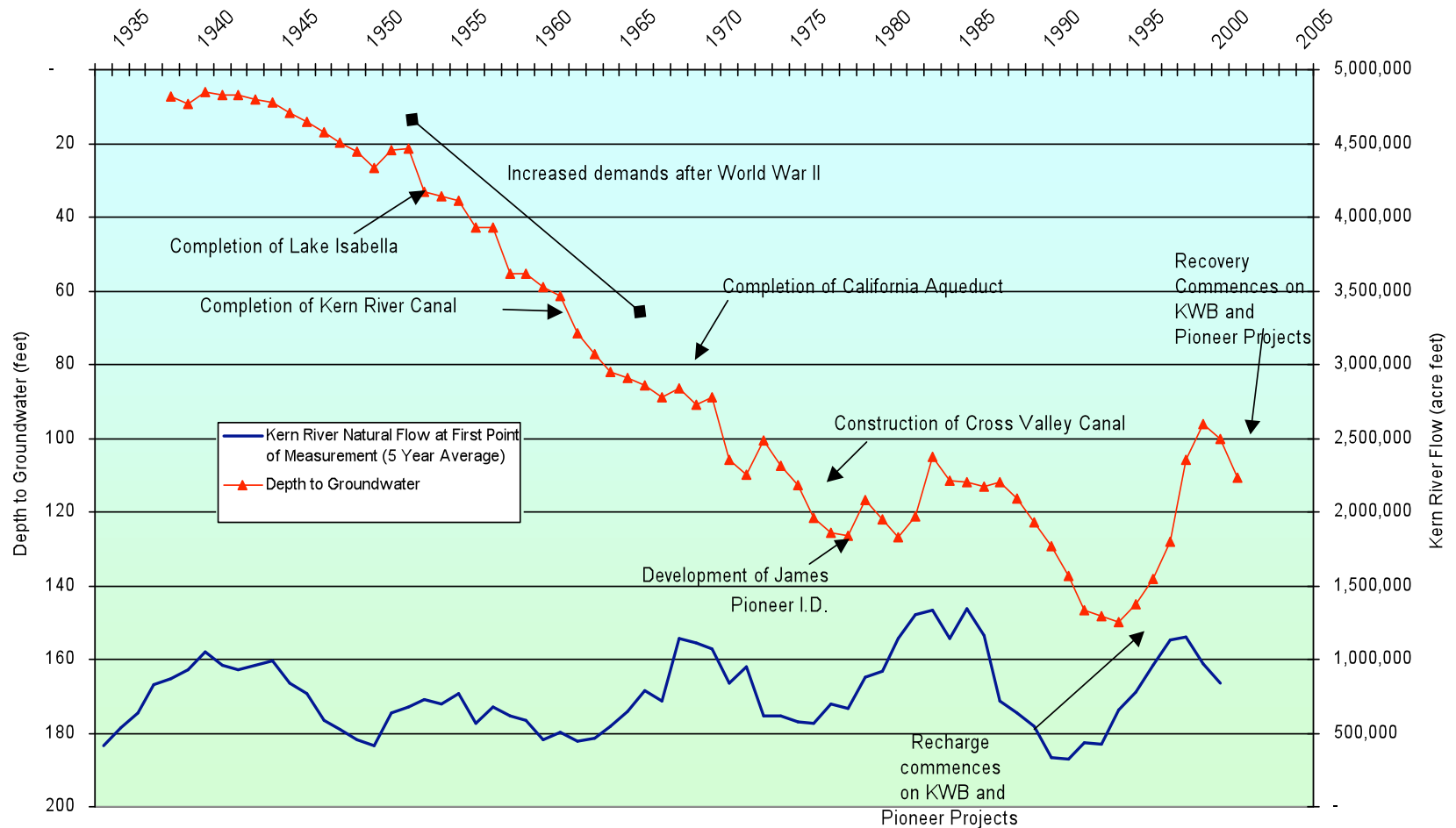


WATER BANKING

1. Goals & Objectives
2. Performance
3. Governance

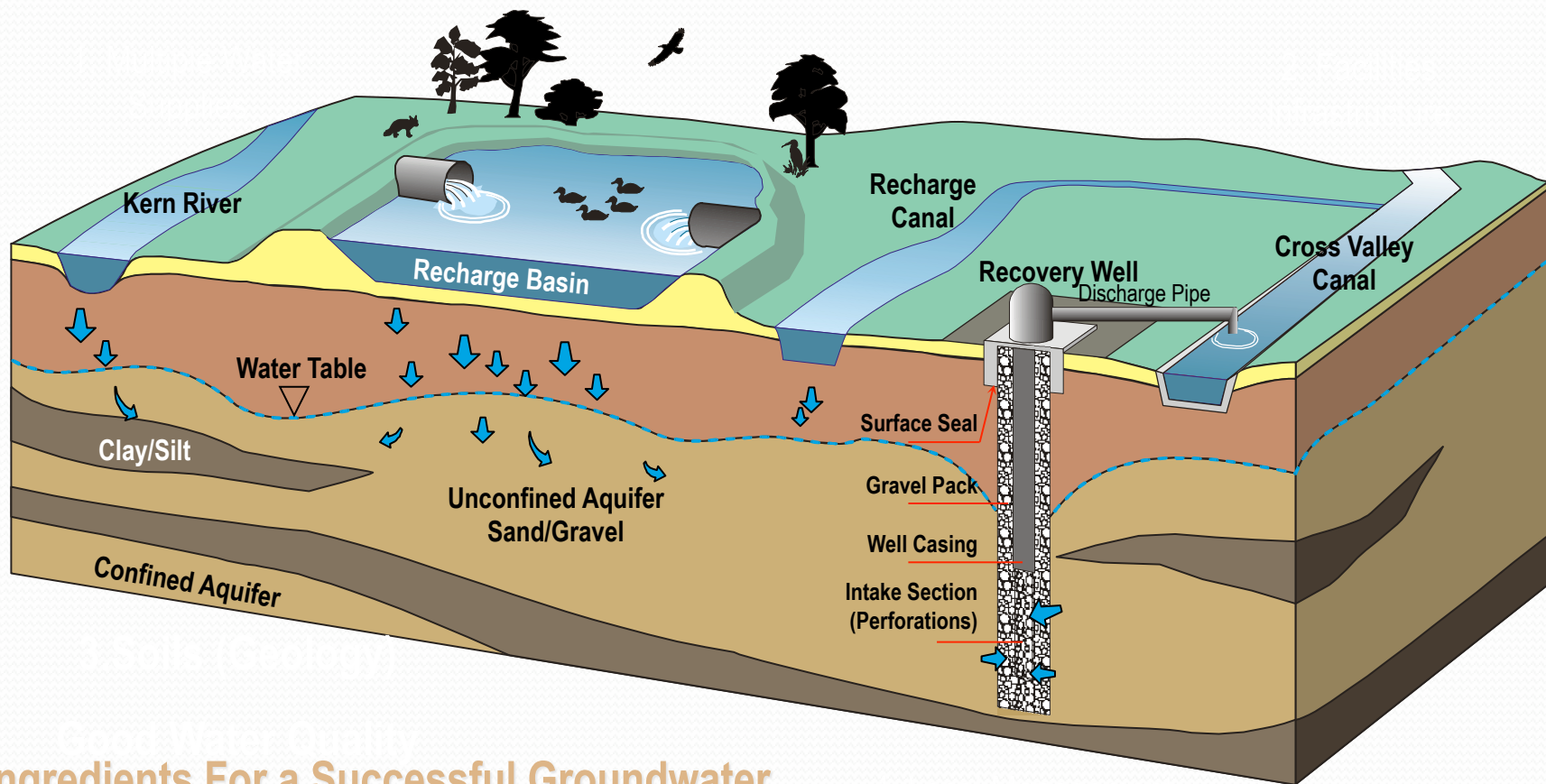
FACTORS INFLUENCING DEPTH TO GROUNDWATER

Hydrograph for well 30S/24E-02C01 (North of Elk Preserve)



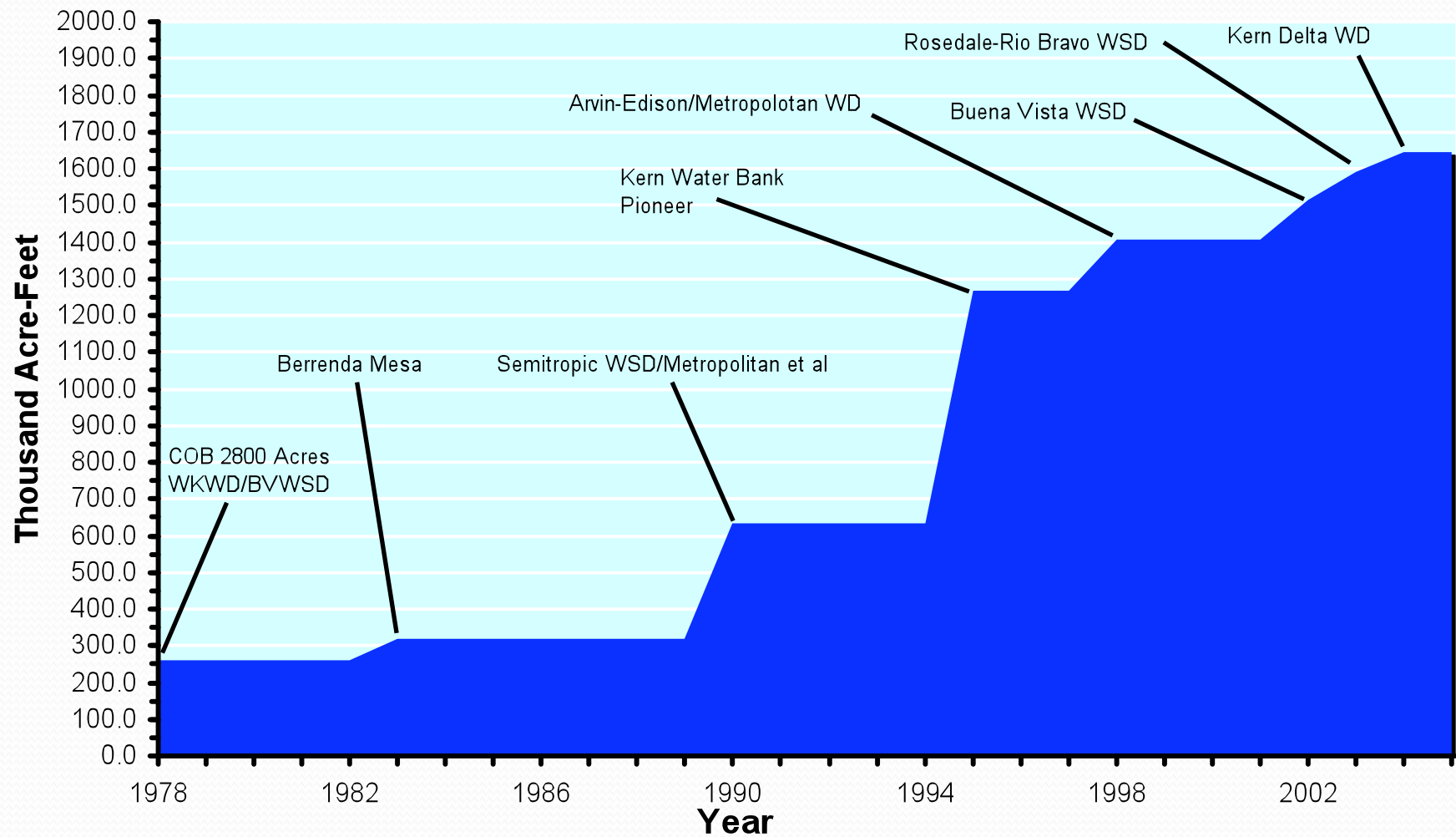
Rosedale-Rio Bravo WSD

Groundwater Banking

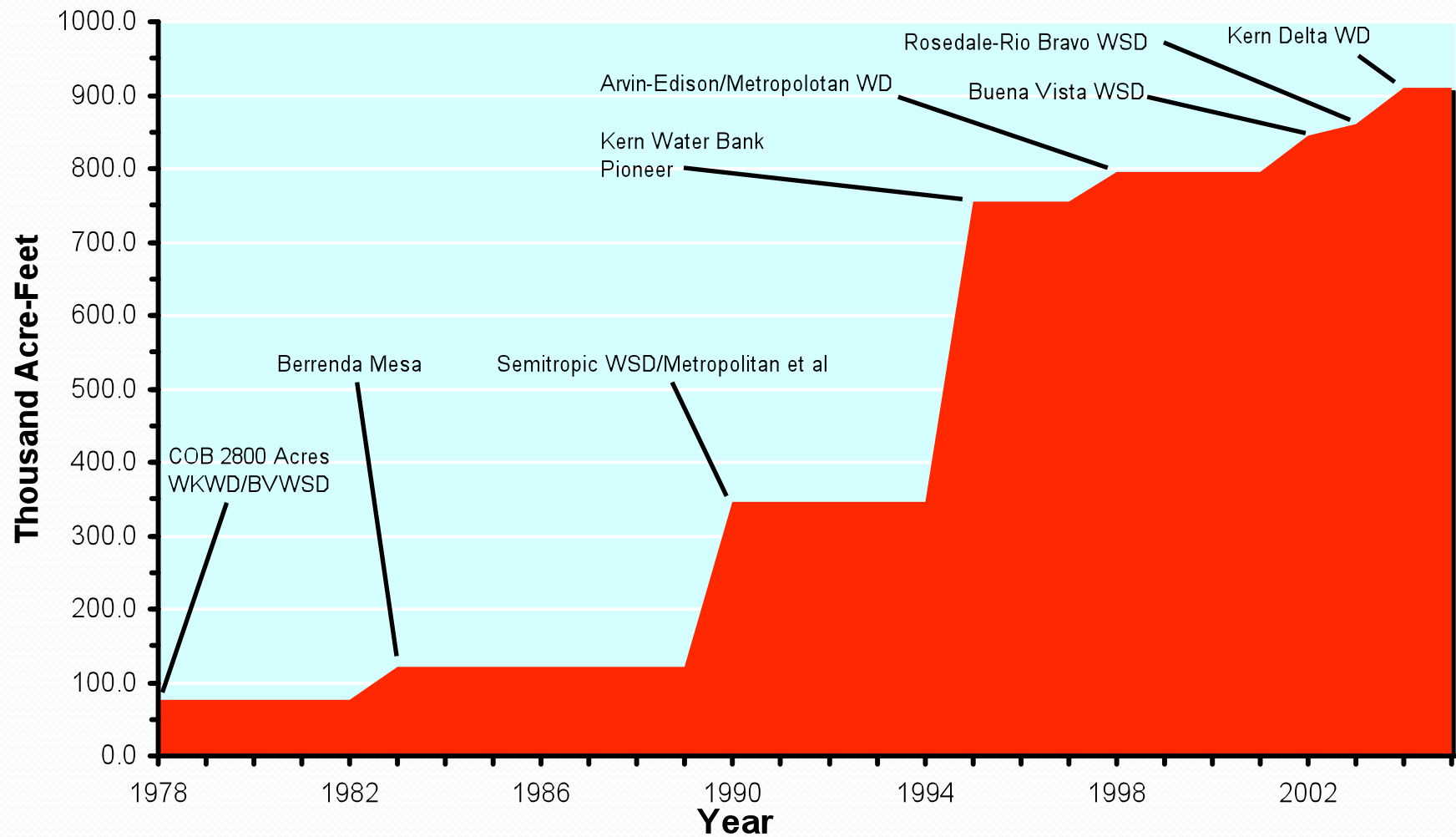


Ingredients For a Successful Groundwater
Banking and Recovery Program

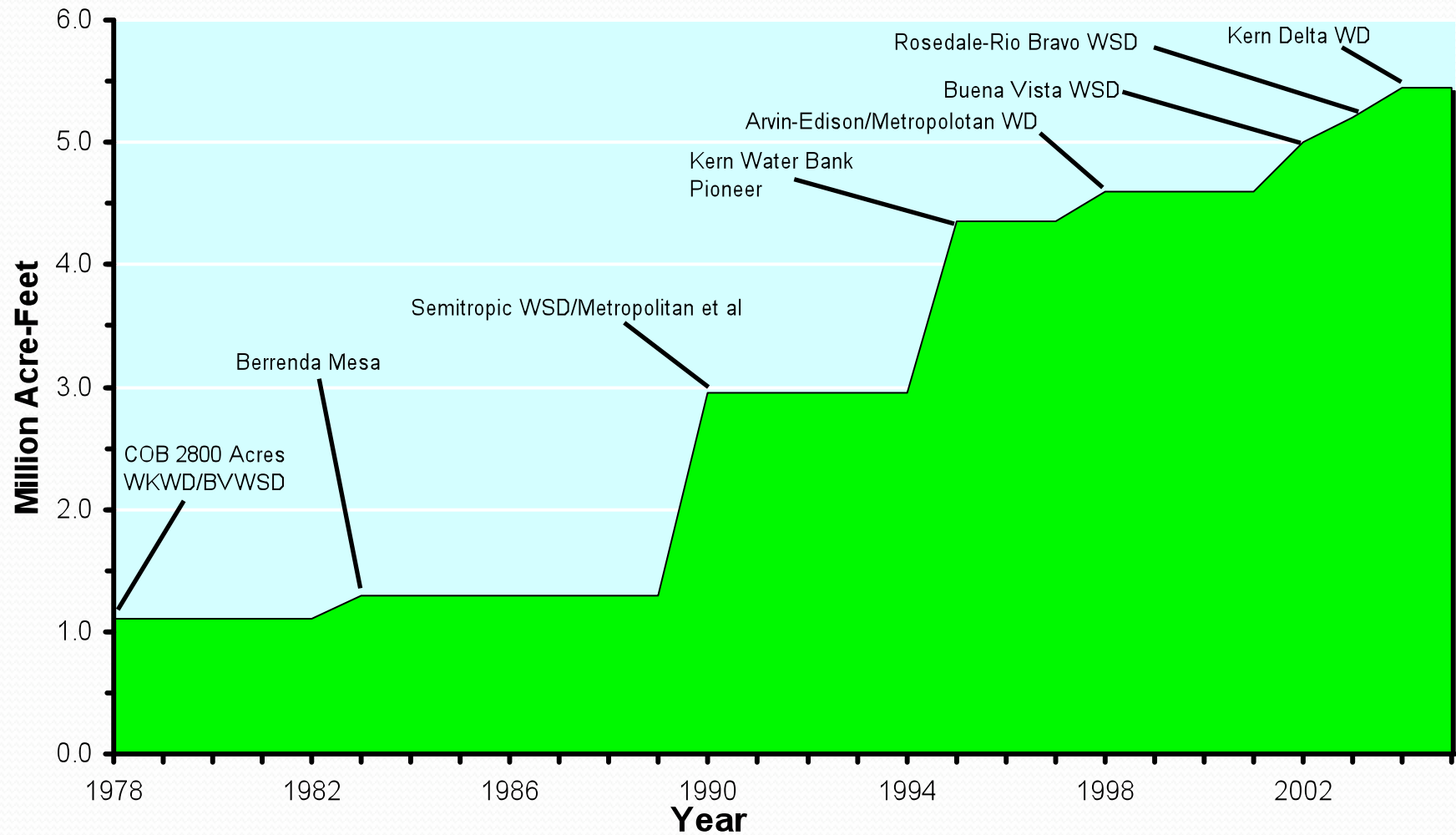
Kern County's Annual Recharge Capacity Developed for Groundwater Banking



Kern County's Annual Recovery Capacity Developed for Groundwater Banking



Kern County's Groundwater Storage Capacity Developed for Groundwater Banking

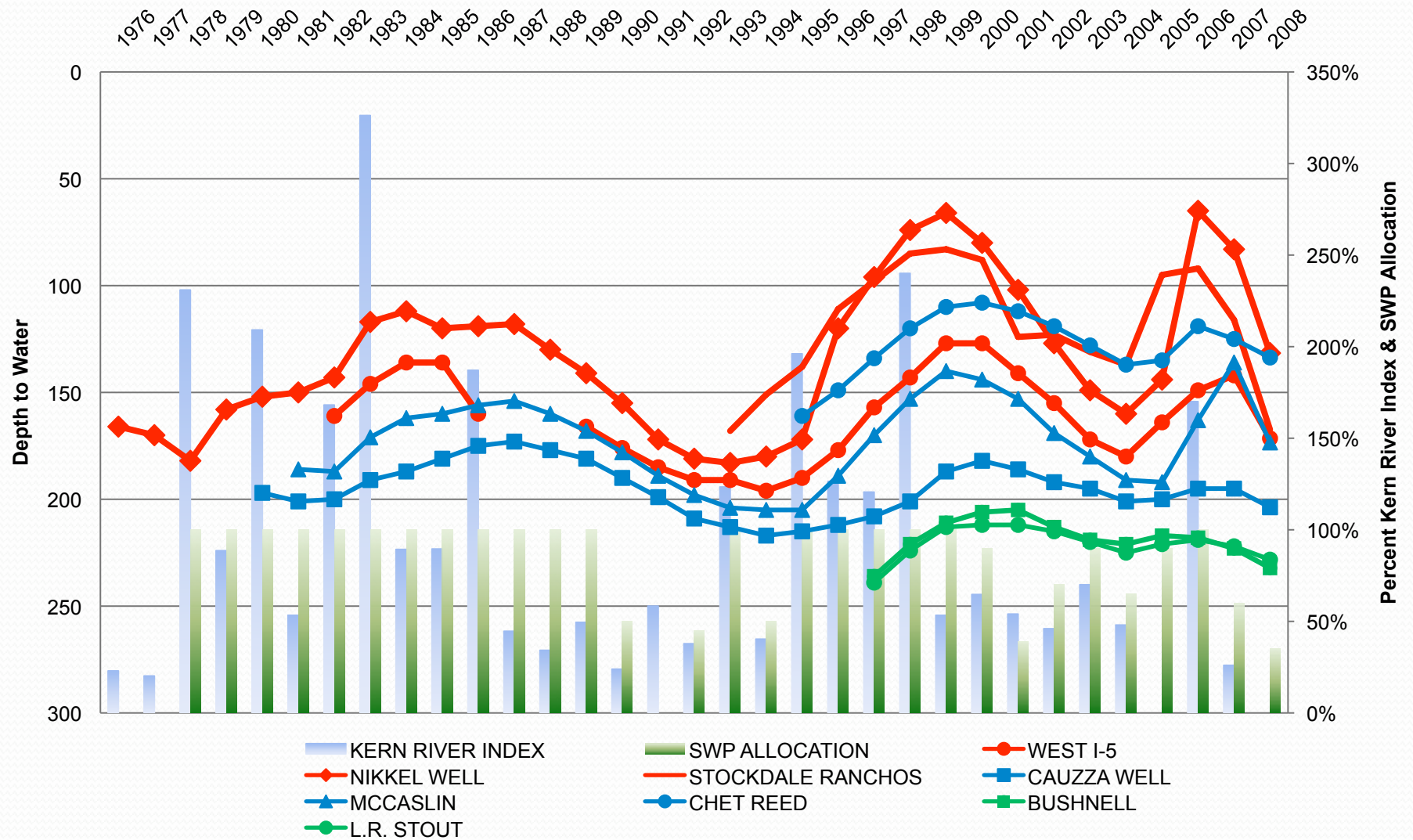


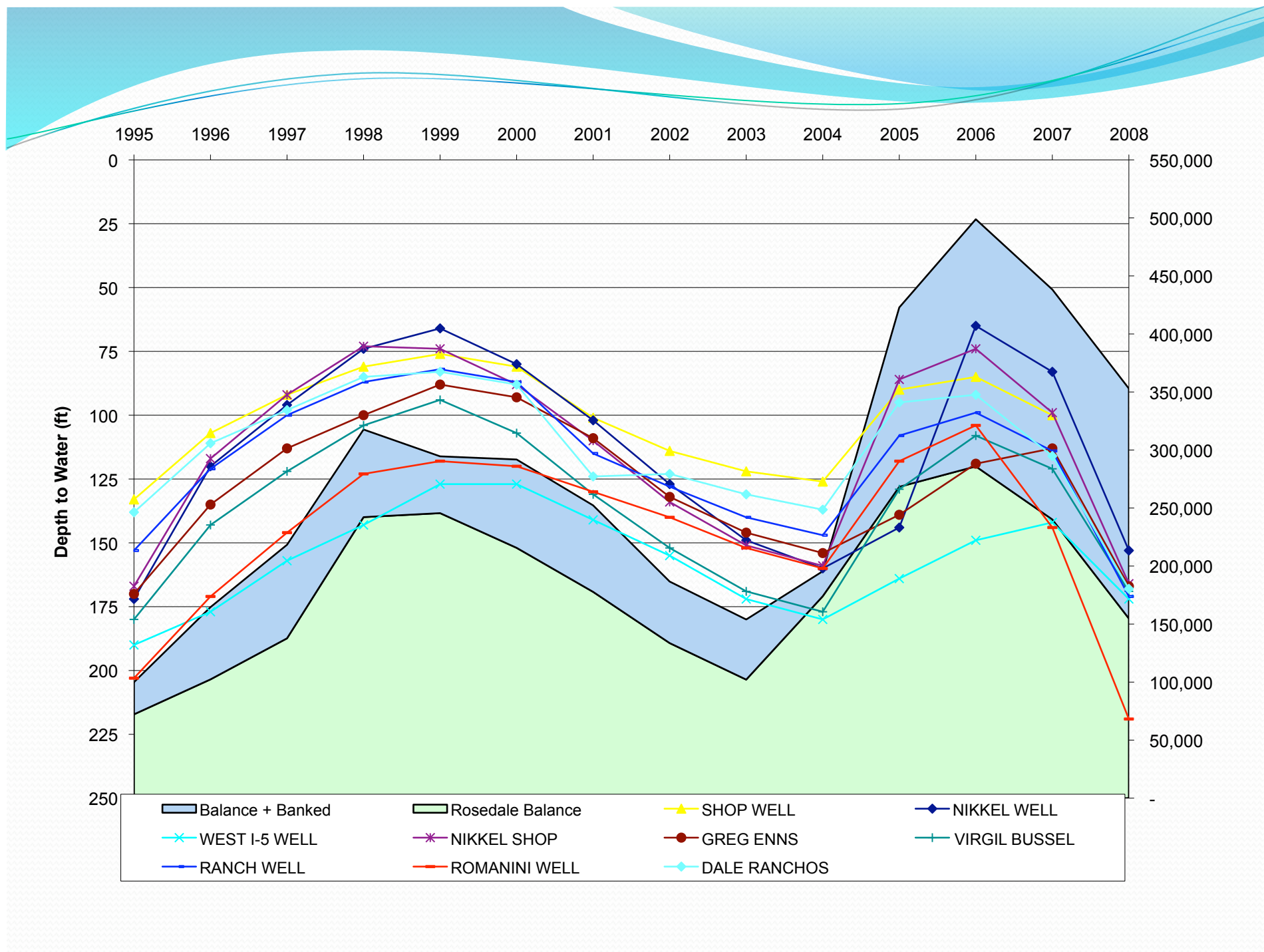
KERN FAN Groundwater Banking Projects

Recharge Facilities

Project	Recharge Area (Acres)	Instantaneous Flow (CFS)	Acre-Feet Per Day (AF/Day)	Maximum Annual Recharge (AF)
Direct Recharge Projects				
Berrenda Mesa	250	80	160	58,000
COB 2800 Acres	1,470	230	460	168,000
Pioneer	1,260	400	800	292,000
Kern Water Bank	6,800	600	1,230	450,000
West Kern WD/Buena Vista WSD	525	130	260	94,000
Subtotal	10,305	1,440	2,910	1,062,000
In Lieu/Direct Recharge Projects				
Rosedale-Rio Bravo WSD	1,500	600	1,200	200,000
Buena Vista WSD	500	145	290	105,000
Kern Delta WD	814	250	500	50,000
Subtotal	2,814	995	1,990	355,000
TOTAL	13,119	2,435	4,900	1,417,000

RRBWSD - DISTRICT HYDROGRAPH - LONG TERM







GOVERNANCE

- Memorandum of Understanding
- Critical element for local acceptance of banking programs
- Applies to bankers and adjoining entities
- New projects must negotiate similar MOU
- Provides for:
 - Project definition
 - Operational objectives
 - Mitigation measures
 - Minimum operating criteria
 - Project monitoring



MOU Operational Objectives

- Maintain or enhance water quality
 - Recharge priority to highest quality water
 - Negative salt balance
 - Extract poor quality water where practical and where blending provides mitigation
 - Control migration of poor quality groundwater
- The golden rule – cannot create conditions that are worse than would have prevailed absent the project
giving due recognition to benefits



MOU Mitigation Measures

- If problems develop:
 - Limit recovery
 - Provide enough wells to allow pumping rotation
 - Provide adequate well spacing
 - Adjust or terminate pumping
 - Lower affected users pump bowls
 - Alternate water supplies
 - Financial compensation



MOU Minimum Operating Criteria

- No recharge in on or near contaminated areas
- No reduction in natural, normal, and unavoidable recharge of water native to Kern Fan
- Cannot cause or contribute to overdraft
 - No borrowing from the basin
- Losses
 - 6% Evapotranspiration
 - 5% Out of county
 - 4% Migration



MOU Project Monitoring

- The MOU establishes a Monitoring Committee, which:
 - Is composed of bankers and adjoining entities
 - Engages an independent consultant
 - Establishes a groundwater evaluation methodology and plan
 - Prepares annual reports on water quality and operations
 - Recommends modifications to project operations to minimize project impacts
 - Is the first venue for dispute resolution



MOU Challenges

- New projects must negotiate substantially similar MOU
- Key issues
 - Limited experience with long-term recovery program
 - Clear criteria to determine impacts from Banking Projects
 - Competition for recharge lands (and storage) as new projects become operational
 - Ensuring compliance with the golden rule