1. Goals & Objectives
2. Performance
3. Governance
Rosedale-Rio Bravo WSD

Groundwater Banking

Ingredients For a Successful Groundwater Banking and Recovery Program
Kern County's Groundwater Storage Capacity
Developed for Groundwater Banking

Year

Million Acre-Feet
0.0 1.0 2.0 3.0 4.0 5.0 6.0

COB 2800 Acres WKWD/BVWSD
Berrenda Mesa
Semitropic WSD/Metropolitan et al
Kern Water Bank Pioneer
Anvin-Edison/Metropolitan WD
Buena Vista WSD
Rosedale-Rio Bravo WSD
Kern Delta WD
# KERN FAN Groundwater Banking Projects

## Recharge Facilities

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

Depth to Water vs. Percent Kern River Index & SWP Allocation

- Kern River Index
- Nikkel Well
- Stockdale Ranchos
- Cauzza Well
- McCaslin
- Chet Reed
- L.R. Stout
- West I-5
- Cauzza Well
- Chet Reed
- Bushnell


Depth to Water Range: 0 to 350

Percent Kern River Index & SWP Allocation Range: 0 to 350%
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