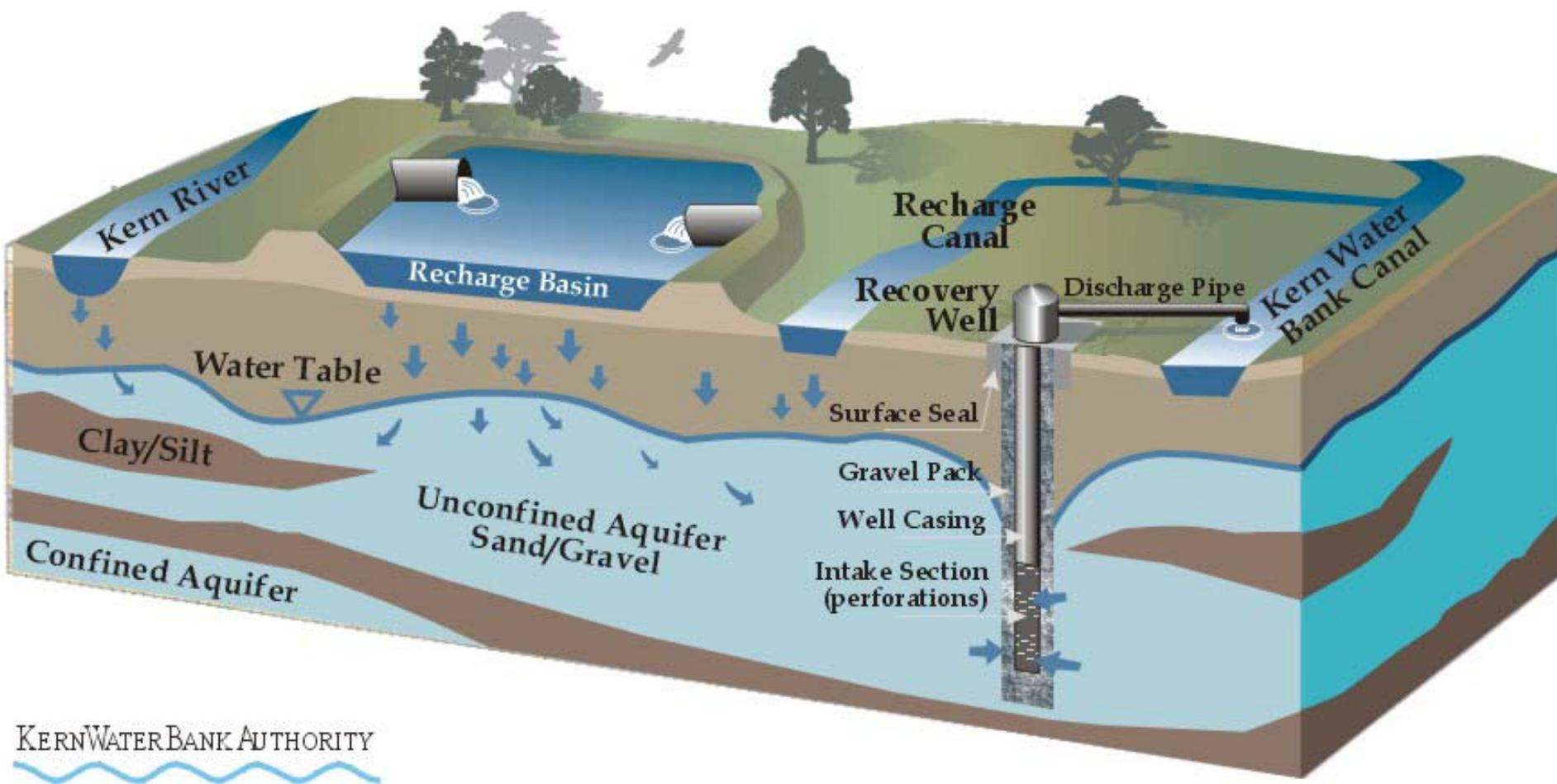


Kern Water Bank Authority



The Kern Water Bank

- ▶ What, where, who, and why
- ▶ Why the KWB works
- ▶ Capacities and costs
- ▶ Public benefits







The Why

- ▶ The variability of precipitation in California and regulatory constraints in the Delta coupled with insufficient storage results in supply shortfalls

Why It Works

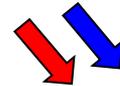
- ▶ Occupies 32 square miles SW of Bakersfield
- ▶ Central to several conveyance facilities
- ▶ Very good hydrogeology



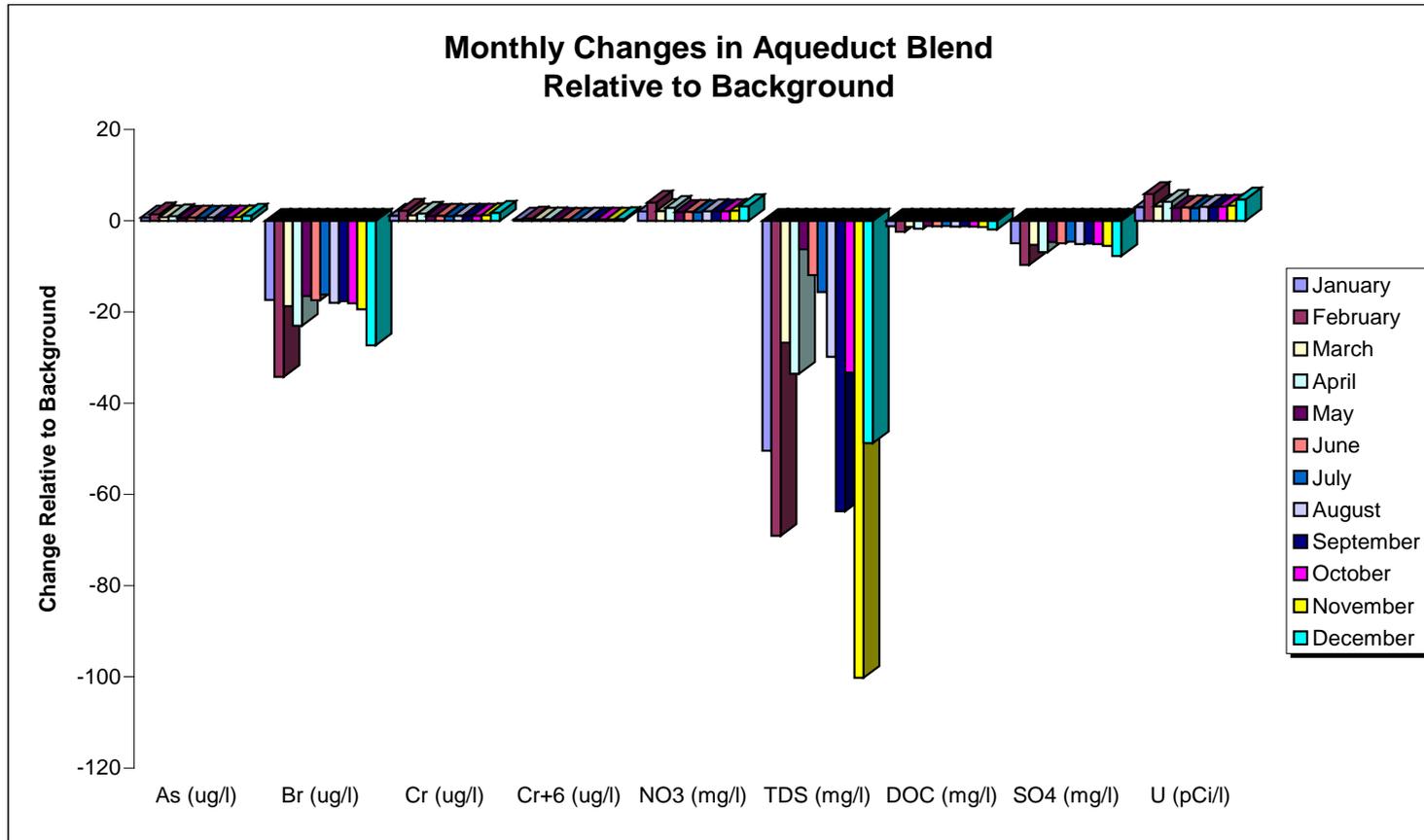


Groundwater Quality

- ▶ Extremely critical aspect of recovery programs
- ▶ Need to demonstrate effects of proposed programs to downstream stakeholders
- ▶ Downstream stakeholders prefer that pump-in water meet background quality on a constituent-by-constituent basis



Kern Fan Groundwater Quality



Type Year: Dry

Capacities

▶ Storage

- Maximum storage to date over 1.3 million AF
- No fixed maximum, but 1.5 million AF reasonably achievable
- Current storage just over 1 million AF

▶ Recharge

- 70 shallow recharge basins (11 mi²)
- 425,000 AF stored in 2005
- 500,000 AF/y maximum?

▶ Recovery

- 85 wells with flow rates to 12 cfs (5,600 gpm)
- ~240,000 AF/y maximum

Development Costs

- ▶ In addition to retiring 45,000 AF of Table A water (worth ~\$45 million in 1995 and \$250 million in 2010) to acquire the KFE lands, KWBA spent the following amounts to develop the KWB:
 - ▶ Recharge ponds: \$3 million
 - ▶ KWB Canal: \$8.5 million
 - ▶ New wells, well rehabilitations, pipelines, lift stations: \$23.5 million
 - ▶ Total infrastructure: \$35 million



Funding & Financing

- ▶ Annual expenses (G&A) funded through participant assessments (~\$1.2 million)
- ▶ Recharge and recovery expenses paid by user
- ▶ Major infrastructure projects funded through commercial loan (\$21 million), Prop 204 loan (\$5 million), and Prop 13 grant (\$3.375 million)
- ▶ Commercial loan refinanced with variable rate bond (\$27 million) which included additional infrastructure

Recharge and Recovery Fees

Recharge	(\$/AF)
Capital	4.00
O&M (\$2 canal, \$2 ponds)	4.00
Pump Station (\$3.00 energy, \$1.50 O&M)	0 to 4.50
Summer Energy Surcharge (May - October)*	0.40
Conveyance by Others (CVC)	1.50
Total	9.50 to 14.40

Recovery	
Capital (\$4.00 canal, \$16.00 wells)	20.00
O&M (\$2.00 canal, \$7.00 wells)	9.00
Energy	39.25
Summer Energy Surcharge (May - October)*	20.00
Conveyance by Others (CVC, River Canal, etc.)	1.75
Total	70.00 to 90.00

Public Benefits

- ▶ Ecosystem improvements
- ▶ Water quality improvements
- ▶ Flood control
- ▶ Emergency response
- ▶ Recreational purposes

Ecosystem Improvements

- ▶ “Ecosystem improvements... that contribute to restoration of... native fish and wildlife”
 - KWB has developed 7,000 acres of intermittent wetlands along the Pacific Flyway that mimic pre-development conditions
 - At least 40 new water fowl species – 19 reproducing
 - 13,000 acres of farmland restored to upland habitat
 - Populations of kangaroo rats, burrowing owls, tri-colored blackbirds, and many other special-status species are thriving









Other Public Benefits

- ▶ Water quality improvements in SWP
- ▶ Flood control benefits – KWB can recharge up to 1,000 cfs of Kern River, Friant Kern or Aqueduct floodwater
- ▶ Emergency response – KWB can provide up to 240,000 AF/y to the Aqueduct south of the Delta
- ▶ Recreational purposes include bird watching, academic studies, and educational tours
- ▶ Sustained employment
 - KWB recovered ~600,000 AF during 2007–2009 drought which helped to irrigate a significant amount of crops which kept many people employed

Summary

- ▶ KWB provides much-needed storage and critical dry-year supplies to participants
- ▶ The success of the KWB rests in large part on aquifer geology, groundwater quality, and available conveyance
- ▶ The project has been almost entirely funded locally
- ▶ Put and take cost is about \$100/AF
- ▶ Significant environmental benefits are realized from the project