

Kern County Groundwater Banking Projects

A unique, efficient, and environmentally sound program to provide a reliable water source for cities, industry and farms

KERN COUNTY GROUNDWATER PROFILE

- Largest banking projects in the world - over three million acre-feet banked.
- Established monitoring procedures to detect impacts to groundwater basin.
- Efficient system to reliably recover banked water when surface water supplies are insufficient.
- Frequent water quality monitoring to assure safe water supplies for urban use.

Why groundwater banking is necessary

With less than six inches of rainfall per year, Kern County is a semi-desert region. Kern County receives water from the State Department of Water Resources' State Water Project (SWP) and the federal Central Valley Project (CVP) system through its Friant-Kern Canal. The Kern River flows through the center of Kern. In most years, these surface water supplies are not enough to meet the needs of citizens, businesses and farmers in the area.

During the 1980s water leaders began developing groundwater banking programs to supplement the inconsistent surface water supplies and provide surety of water during dry years. The City of Bakersfield's 2,800 Acre Spreading Area was the first full-fledged banking project. In the 1990s, the banking programs were expanded with construction of the Kern Water Bank and the Pioneer Banking Project.

These banking programs are essential to Kern County's water management and future growth. Because of these innovative programs, Kern County and other areas of the State now have a more dependable water supply to meet the needs of people, industry and farms.

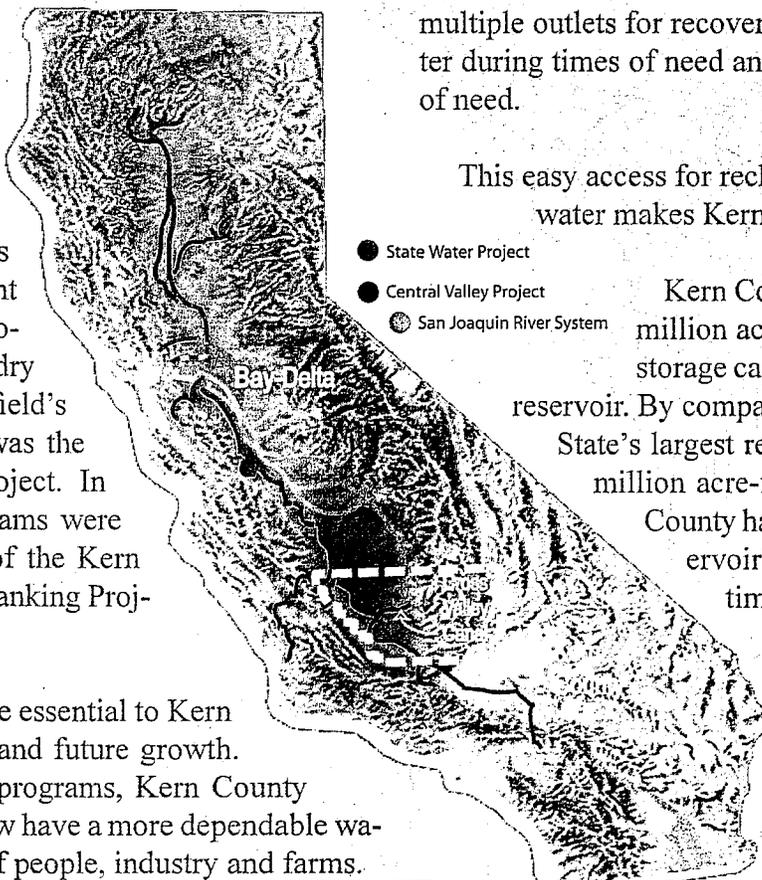
Why Kern County is unique

Kern County is blessed with an inter-connected conveyance system. This system ties together the major surface water sources and allows multiple water sources to reach the groundwater banking projects, even simultaneously.

In addition, the same conveyance system has multiple outlets for recovering banked groundwater during times of need and conveying it to areas of need.

This easy access for recharging and recovering water makes Kern County unique.

Kern County also has about 10 million acre-feet of groundwater storage capacity for use as a huge reservoir. By comparison, Shasta Lake, the State's largest reservoir, stores about 4 million acre-feet of water. So Kern County has an underground "reservoir" capable of storing 2.5 times the entire volume of Shasta Lake!



What is recharge?

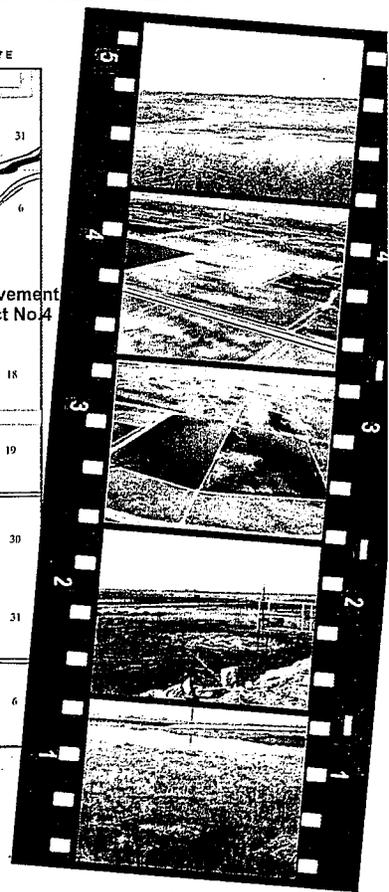
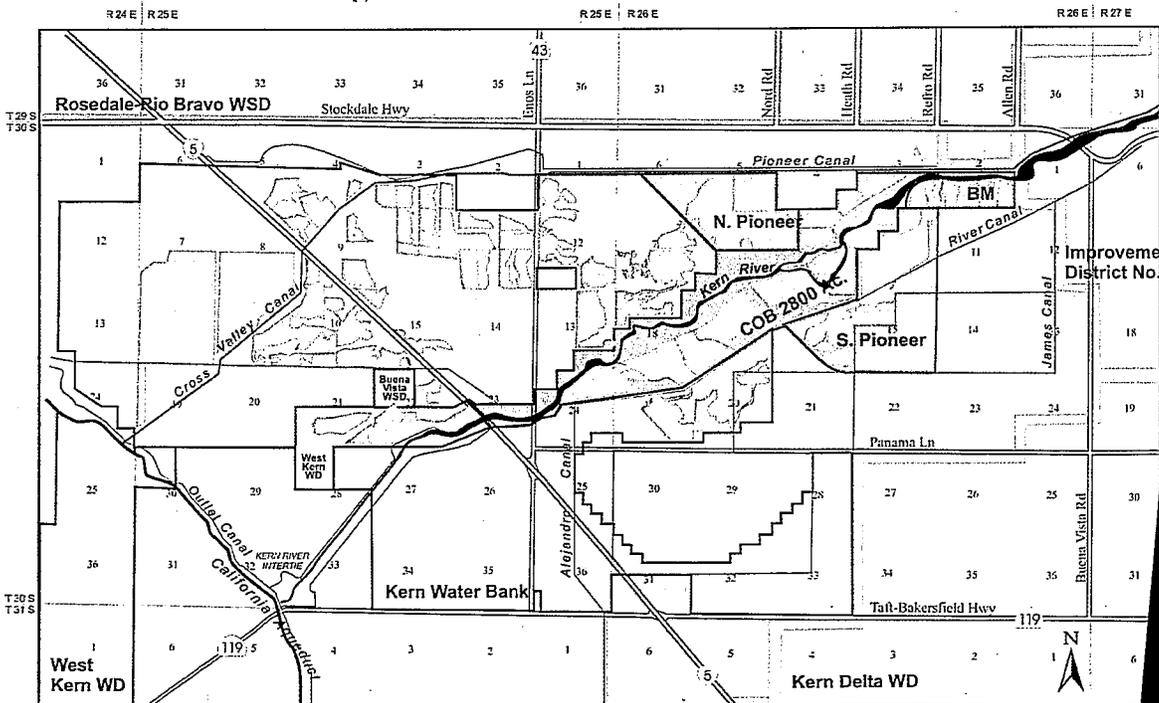
Recharge is spreading water over the surface of the ground, where it soaks into the soil to a groundwater aquifer.

It remains in storage in the groundwater aquifer, just like it was stored in a lake, until it is needed.

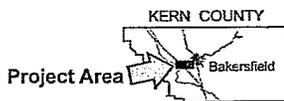
Kern County has over 15,000 acres of groundwater recharge ponds capable of recharging about 1.2 billion gallons per day!

What is groundwater banking?

Groundwater banking is the storing of surface water supplies in an area via recharge (such as imported from the State Water Project or Central Valley Project), then recovering the water via groundwater wells for use in areas outside where it was recharged.

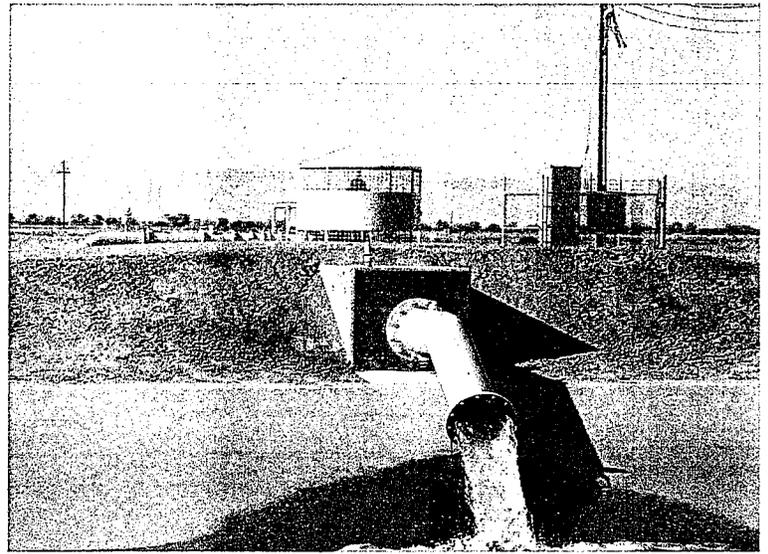


Kern Fan Banking Projects



Banking makes water supply sense

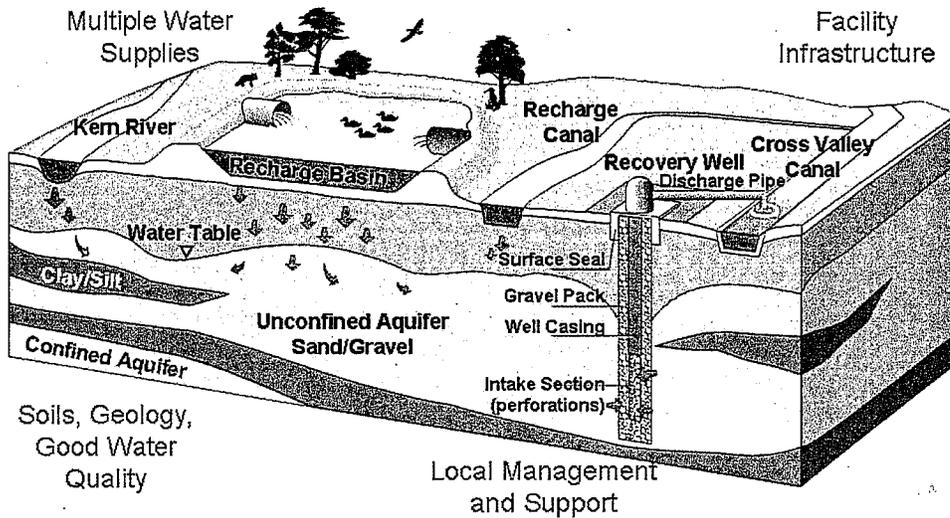
While some recharge and recovery has been done since the early 1900s, Kern County Water Agency and its member districts have been banking water on a large scale since 1981. This innovative approach to water management was designed to bolster declining water supplies from State and federal water projects. Kern County has developed a large-scale, technically sound, unique approach to storing water underground.



In total, Kern County banking programs have stored over three million acre-feet since 1995, the largest formalized banking program in the world. In 2001, due to State and federal water shortages, these banking projects provided almost 200,000 acre-feet of critically needed water for urban residents and agriculture within Kern County.

Kern County has also partnered with large urban water users in other parts of the State; in 2001 an additional 81,000 acre-feet of recovered water also went to urban residents in Southern California.

Elements of a Successful Groundwater Banking Project



There are several banking programs in Kern County. The largest direct recharge project is the Kern Water Bank, which was initiated in 1995 and encompasses almost 20,000 acres of recharge ponds and habitat/wildlife land.

	Gross Area (Acres)	Maximum Annual Recharge (Acre-Feet)	Maximum Annual Recovery (Acre-Feet)
Kern Fan Projects	27,302	892,000	522,000
Berrenda Mesa	369	58,000	46,000
City of Bakersfield 2,800 Acres	2,760	168,000	46,000
Kern Water Bank	19,900	450,000	287,000
Pioneer	2,273	146,000	98,000
West Kern/Buena Vista	2,000	70,000	45,000
Other Projects	566,000	690,000	378,000
Arvin-Edison (in lieu and direct) *	130,000	280,000	120,000
Semitropic (in lieu) *	221,000	315,000	223,000
Rosedale-Rio Bravo	40,000	80,000	15,000
Kern Delta (in lieu * and direct)	125,000	50,000	50,000
Buena Vista (in lieu * and direct)	50,000	105,000	50,000



* In lieu recharge is accomplished by providing surface water to a landowner and turning off a groundwater well.

Banking makes financial sense

Loss of agricultural land is devastating to rural economies. Water banking enables many farms to keep land in production, maintaining jobs and economic viability. Banking provides a reliable supply of water for industrial and urban needs and allows water stored during wet years to be

available for use during dry years. The cost to bank water is generally less than it is to build new surface storage reservoirs today.



Banking makes water quality sense

Frequent monitoring of pumped groundwater quality is critical. Kern County Water Agency worked with urban agencies to establish a set of guidelines for ensuring that water conveyed from banking programs and into the California Aqueduct is of good quality. The quality of banked water is reported for components such as arsenic, total dissolved solids, nitrate, uranium, chromium, bromide and total organic carbon. Southern California urban agencies are able to

reduce their treatment costs because of the better quality of banked water compared to State Water Project supplies, when pumped groundwater is conveyed in the California Aqueduct.

Banking makes environmental sense

The groundwater banking projects in Kern County provide about 30,000 acres of publicly-owned lands preserved for open space. During wet years as many as 15,000 acres of wetted area are available for birds and waterfowl, especially in the spring when the recharge areas are typically filled with water. Bald eagles, mallards, great blue herons, white pelicans and many other birds frequent the banking ponds. Terrestrial species such as bobcats, foxes, kangaroo rats, rabbits and many other species also thrive in the dry areas around the ponds.

Groundwater banking does not impact the environment as a reservoir storage project might. Banking provides a water source to areas that may not have any other environmentally sound alternative for developing a water source. And, in many cases, groundwater banking provides a rich habitat area for wildlife, such as open space and migration corridors.



For more information about the Kern County Water Agency,
write to P.O. Box 58, Bakersfield, California 93302-0058 or call
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