

Water Market Insider



California | Q2 2014



Drought Intensity Highlights Importance of Spot Market Water Transfers in California

California's spot market for single-year surface water transfers on the State Water Project (SWP) and Central Valley Project (CVP) has become a valuable water management tool. The spot market will become even more critical as the state's current drought continues. In 2013, more than \$26.8 million and 197,000 acre-feet (AF) of water were traded. This marks a 180% increase total dollars and a 220% in total volume traded over the previous year. That growth trend is expected to continue in 2014 as California enters its third year of one of the worst drought cycles in recent history.

California's last major drought extended from 2007 through 2009. During that period, the spot water market played a critical role in efficiently reallocating water to alleviate shortages. That period also marked the highest spot market prices in California's history of water trading, with average prices rising nearly

90% from 2007 to 2009. Similarly, the current drought that began in 2012 has driven spot market prices to more than double over the past two years, with prices already climbing to new record levels in 2014.

Spot Market Performance During Drought

The spot market was an important source of water for many agricultural and urban water providers during the last major drought from 2007 through 2009. During that period, the spot market experienced a steady rise in both the total volume and value of water traded, reaching a peak in 2009 of approximately 400,000 acre-feet and \$95 million exchanged across the state, nearly four times value of water traded in 2013. Prices ranged from a low of \$49 to a high of \$500/AF/year during the drought from 2007-2009 (see Table 1).

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WATER MARKET METER

(12-MONTH TREND)

2013 AVERAGE MARKET PRICE



\$168/AF/YEAR

Average price, 2012: \$154

NUMBER OF TRADES IN 2013



19 TRADES

Number of trades, 2012: 7

VOLUME TRADED IN 2013



197,397 AF

Volume traded, 2012: 61,259 AF

Table 1: Drought Market Performance Comparison

Market Metrics Periods	Drought 2007-2009	Drought 2012-2013
Mean Price (\$/AF/year)	\$232	\$162
Median Price (\$/AF/year)	\$250	\$190
Drought Price Range (\$/AF/year)	\$49-\$500	\$50-\$305
Average Annual Volume Traded	314,500 AF	129,328 AF
Average Annual Value Traded	\$73,000,000	\$21,000,000

In most years, spot market prices are highly correlated with water supply availability. Prices rise during dry years, and decrease during wet years (see Figure 1). Since 2009, spot market prices have been lower on average than price levels observed during the previous drought. However, that is expected to change as the market moves into the third consecutive year of drought. During the 2007-2009 drought, prices on the higher end were largely driven by commercial permanent crop growers shoring up water supplies for tree and nut crops such as almonds and pistachios. Many of these same growers were some of the first to start buying water in 2014 in anticipation of water shortages.

Figure 1: Drought Conditions Drive up Spot Market Prices

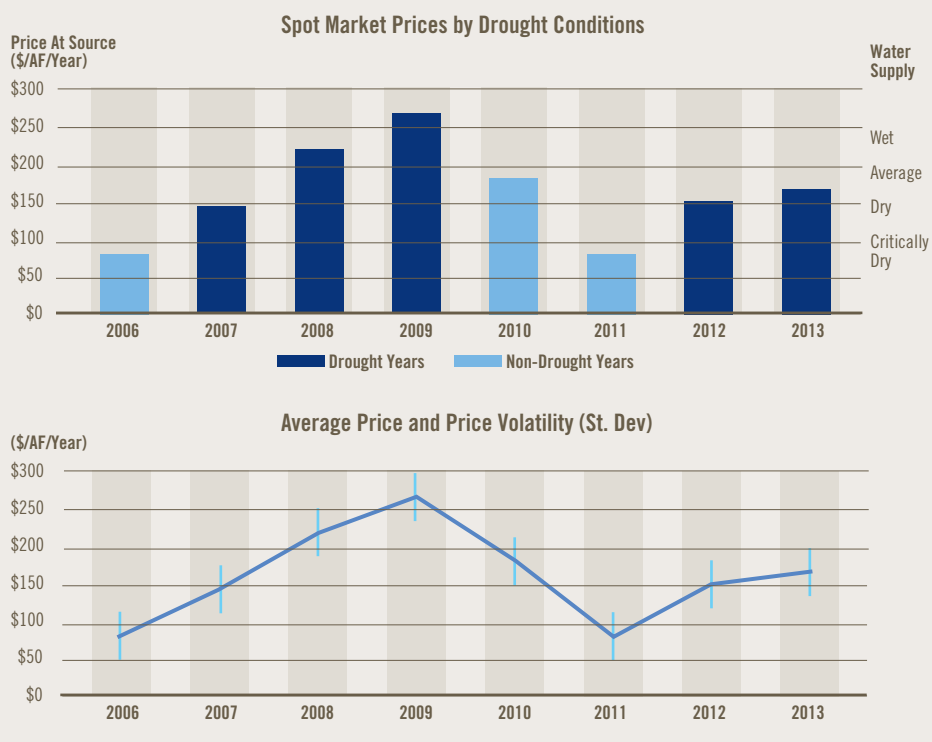


Figure 2: Total Value Traded Annually from 2006-2013

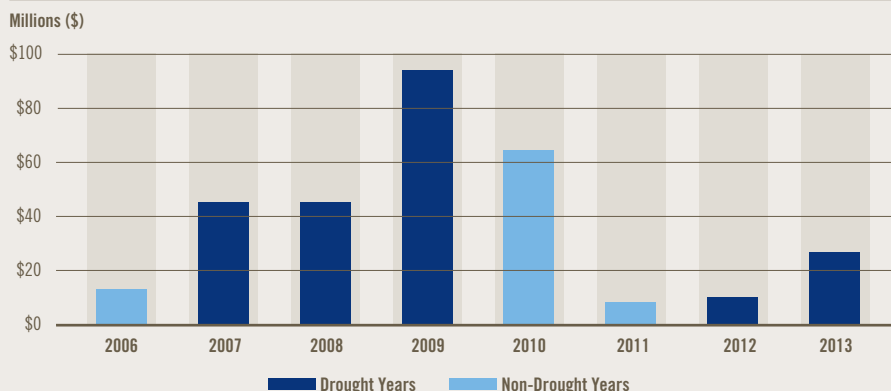
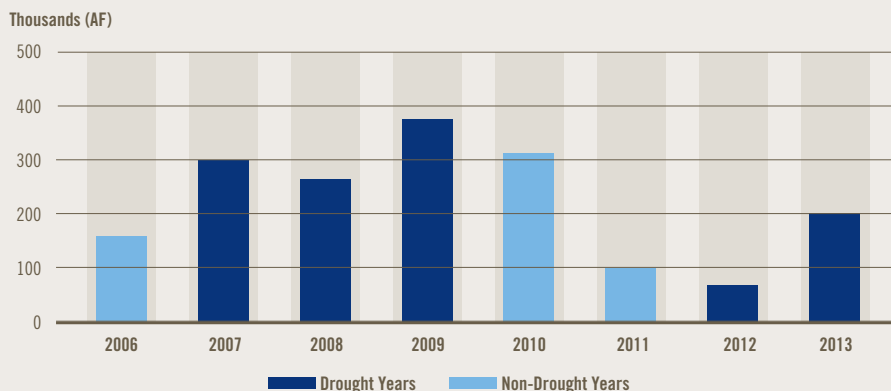
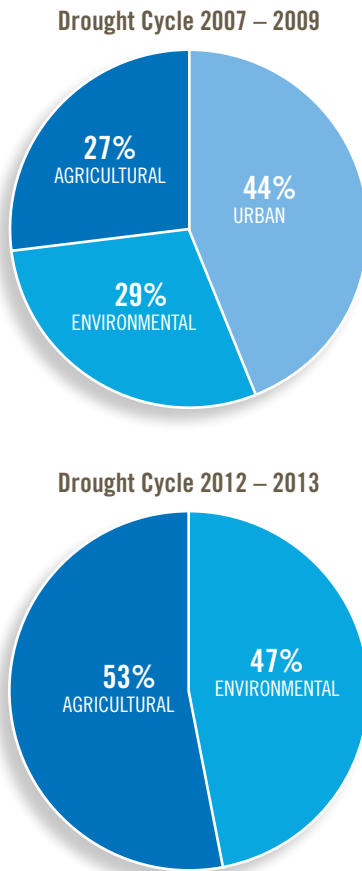


Figure 3: Total Trading Volume from 2006-2013



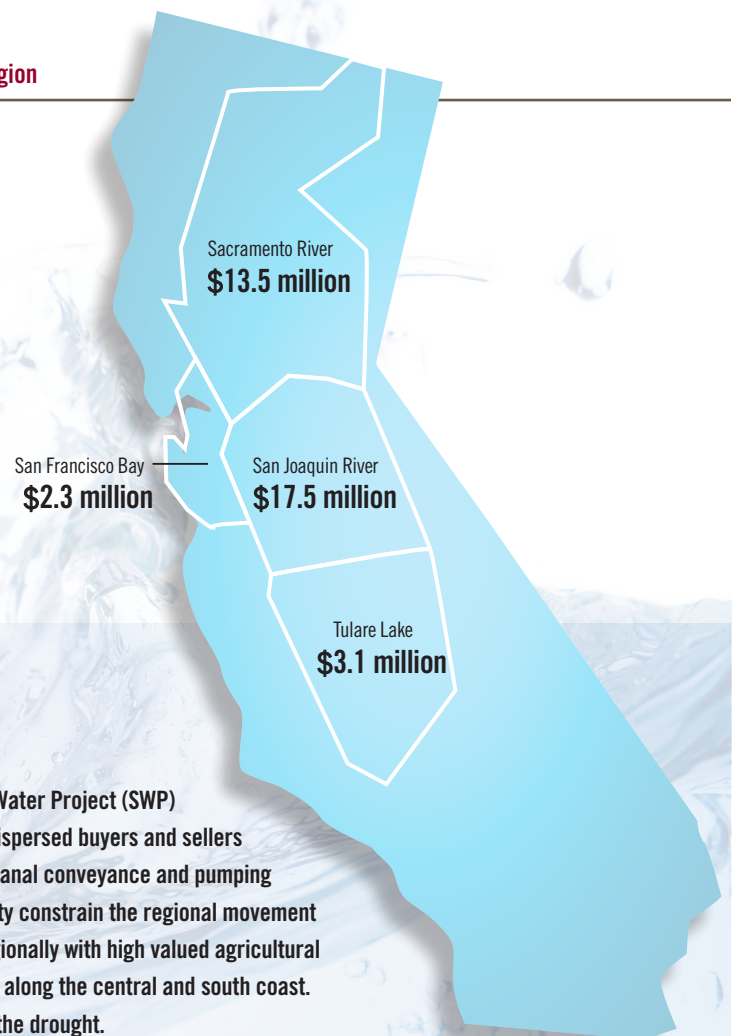
Similar to per-unit prices, annual spot market trading activity and total market value are highly responsive to annual water supply conditions. For example, 2009 was the third consecutive dry year, and the total value traded of \$95 million in that year was nearly 10 times greater than the value traded during 2011, which was a wet year. In 2013, also a dry year, total market value was up 180% from the previous year, following a transfer volume increase of 220% (see Figures 2 and 3).

Figure 4: Total Volume Traded by End Use

Agricultural Buyers Dominate Market Demand

Historically, urban buyers have been the largest demand in the spot water market. This was particularly true during the last drought cycle when urban buyers made up 44% of all spot market purchases. However, the demand base and market participation have changed significantly in the current drought. Urban buyers are largely absent with agricultural water users filling in to buy up available water supplies. Agricultural water users have been the dominant buyers during the current drought making up more than 53% of total volume

traded (see Figure 4). In addition, agricultural water buyers have consistently outbid urban water users in several recent transactions. However, that market dynamic may be changing in the near future. Several urban water supplies have indicated they are entering the market this year to shore up depleted supplies. For example, the City of Benicia recently announced that it might be acquiring 3,000 AF to ensure water supplies for the Valero Benicia Refinery.

Figure 5: Total Value Traded by Supplier Region

Localization of California's Spot Water Market

Spot market prices and trading activity are highly regionalized. The State Water Project (SWP) and Central Valley Project (CVP) facilitate trading among geographically dispersed buyers and sellers through an impressive network of canals and storage facilities. However, canal conveyance and pumping capacity limitations as well as fees and priorities for accessing the capacity constrain the regional movement of water and spot market activity. Also, the major demand sectors vary regionally with high valued agricultural demands concentrated in the San Joaquin Valley and more urban demands along the central and south coast. Figure 5 shows total value of trading, by region, over the last two years of the drought.

2014 Market Outlook

State Water Project Declares 5% Water Allocation

The California Department of Water Resources (DWR) has forecasted a 5% allocation for the SWP in 2014, the lowest supply since the project began delivering water in 1967. The announcement is a glaring reminder of California's deteriorating water supply outlook.

The 29 SWP contractors will need to draw from alternative water resources to meet urban, industrial, and agricultural demand in 2014. Agriculture will be hit particularly hard with approximately 750,000 acres of farmland currently being served by SWP. While some farmers have access to groundwater supplies, many water agencies and districts have already asked customers to reduce water consumption.

Spot Market Heating Up

In response to statewide water scarcity and limited availability of SWP water, spot market water transfer prices are expected to be high in 2014.

Based on the anticipated 5% SWP allocation in 2014, WestWater estimates that average spot market water transfer prices are likely to double in 2014 relative to 2013. In some areas, average market prices may rise by as much as 200% over previous years. Spot market prices will vary across the state, and the highest prices are expected to be paid by South Coast cities and San Joaquin Valley irrigators. Already in 2014, an auction held

by Buena Vista Water Storage District located in Kern County yielded 20 bids at \$1,000/AF/year or higher. Similarly, an auction held by Madera Irrigation District yielded bids in excess of \$2,000/AF/year, four times the previous high water mark for spot transfer prices.

The size of the 2014 spot market is projected to be \$124-\$208 million traded for a total of 310,000 to 415,000 AF. These values indicate a 362% increase in the spot market total value and a 57% increase in total trading volume from 2013. Agricultural water districts in the San Joaquin Valley with significant permanent crop plantings are expected to be the most active buyers in 2014, particularly districts without access to groundwater. In past dry years, permanent crop growers have demonstrated a willingness to pay high prices for spot market transfers. These districts are scrambling to find more water in an already tight market to supply valuable permanent crops that cannot be fallowed. The water is primarily coming from fallowing or groundwater substitution in commodity crops such as alfalfa and rice.

New Water Projects Could be Accelerated

In February, DWR announced over \$150 million in grants for local and regional water projects to provide long-term drought relief, nearly a third of which are water conservation and recycling projects. In addition, the State Water Resources

Control Board (Water Board) and DWR will expedite water transfer processing which will encourage voluntary transfers and allow water to flow where it is needed most. The Water Board is also considering petitions to consolidate places of use for SWP and CVP, which would further streamline transfers and exchanges between water users within the areas of these two major water projects. Concurrently, the US Bureau of Reclamation announced plans for an expedited water transfer approval process, including a one-year North-to-South Water Transfer Program in 2014.

California continues to evaluate new water supply development projects to address growing water demand and decreasing SWP and CVP reliability. Although small-scale conservation and recycling projects dominate near-term planning, large-scale infrastructure development continues to be an important component of the state's long-term water resource strategy. Most recently in 2013, the state introduced its Bay Delta Conservation Plan (BDCP), a proposal which would top \$25 billion in costs. The BDCP involves a series of measures including tunnels through the Sacramento-San Joaquin Delta designed to improve water supply reliability while protecting endangered species and habitats. The BDCP could be a key element of California's water supply portfolio in the long-term, but it offers little near-term relief to thirsty growers, cities, and endangered species. Until this larger-scale project comes to fruition, spot market water trading will continue to be a vital tool for managing supply shortages in the Central Valley and throughout California.



ABOUT WESTWATER RESEARCH

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