

# Water Market Insider



Q3 2015

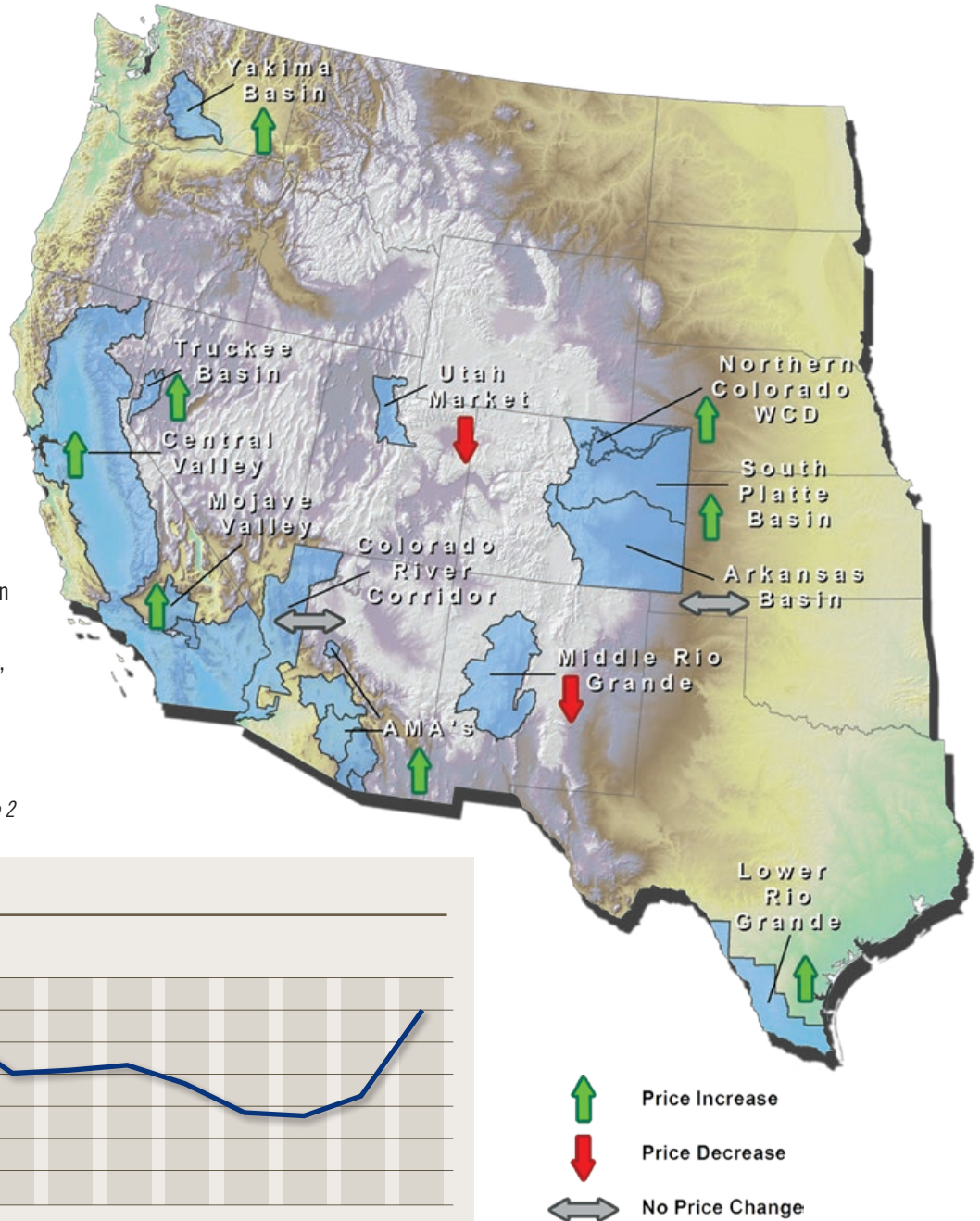
## WestWater Research Announces 2014 Water Rights Price Index Results

### Water Markets Show Large Gains in 2014

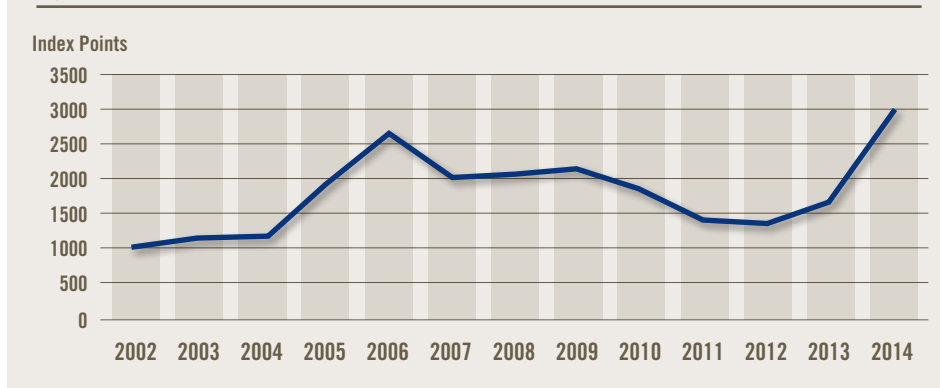
Water right prices continued to build on a strong 2013 with another year of double digit gains in 2014. The Water Rights Price Index (WRPIx) rose 46% to a new high of 3,912 points, eclipsing the previous high mark of 2,951 set in 2006. Nearly every market region included in the index reported year-over-year price gains in 2014, which helped drive the index higher.

Markets in California, Colorado, and Washington saw the largest gains. Ongoing drought, urban growth, and the continued housing market recovery were the largest contributing factors to the widespread rise in prices. As an asset class, water rights price growth outpaced public equities, real estate, and agricultural commodities. New Mexico and Utah were the only regions where prices softened, with modest decreases observed.

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**Figure 1: WRPIx, 2002-2014**



The WRPIx is expressed in points, similar to the Consumer Price Index or other indices, with a base of 1,000. WRPIx index points should not be conflated with water right prices in dollars per acre-foot or any other unit of measurement.

## Market Movers

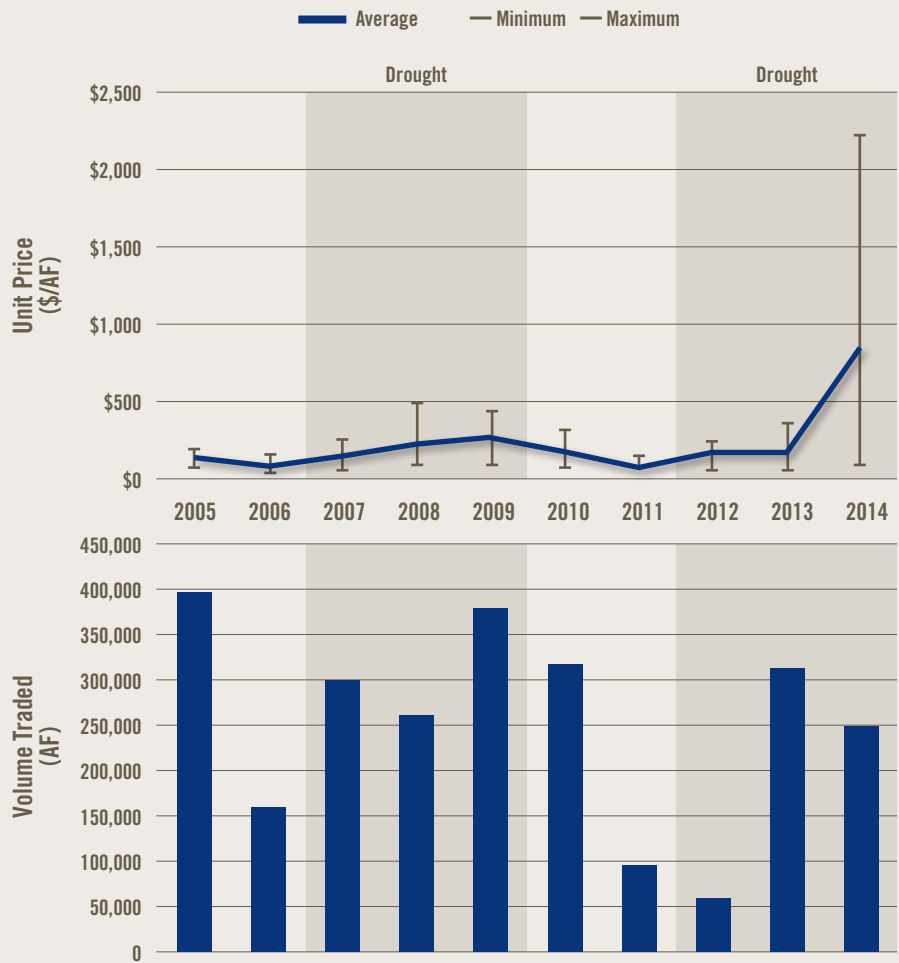
Of the 14 market regions included in WRPlx, the California Central Valley and Colorado-Big Thompson Project markets reported the largest year over year price increases in 2014.

### California's Spot Market for Surface Water

2014 marked the third consecutive year of severe drought in California. For the first time in the history of the State Water Project, the California Department of Water Resources announced a zero percent project allocation. The allocation was later increased slightly to five percent, but the increase provided only minor relief to water users relying on project supplies. Scarcity was reflected in the market for one-year water leases in the Central Valley, known as "spot market" transfers. Average prices in the spot market soared in 2014, rising from an average of \$180/AF in 2013 to \$830/AF in 2014 as a result of the drought and record low water allocation. Figure 2 displays the average lease rates observed in the spot market since 2005. As shown, average prices rise substantially during drought years. In addition, the observed range in prices widens during dry years.

Demand in the California spot market has been driven by agriculture in recent years. Farmers in the Central Valley growing high-value permanent crops such as almonds have actively purchased water on the spot market in order to preserve their crops through the drought. By acquiring water through the spot market, these farmers are able to avoid the time and cost of reestablishing crops. In addition, a number of municipalities and water districts acquired water on the spot market to provide the necessary supply to avoid watering restrictions and the risk of water service interruptions.

Figure 2: California Spot Market Prices and Trading, 2005-2014



Spot market prices are reported in dollars per acre-foot per year, and reflect the price of the water at the source. Conveyance charges and energy costs associated with transporting the water are not included.

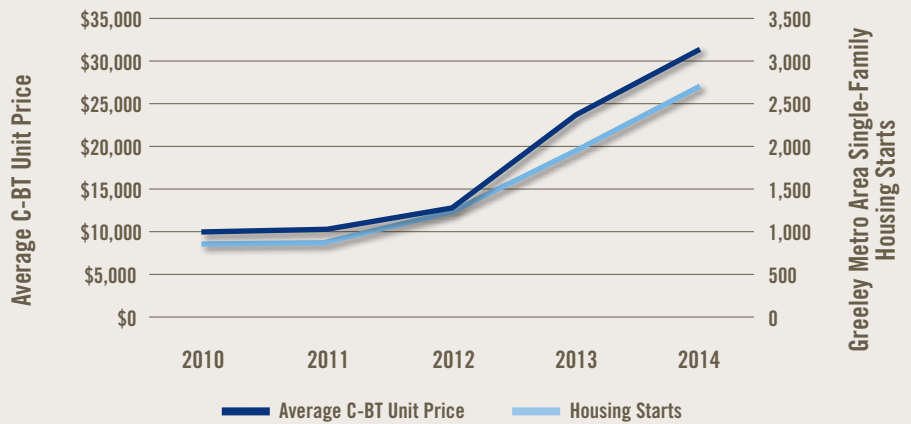
### Colorado-Big Thompson Project Units

The Colorado-Big Thompson (C-BT) project is a federal water project that imports approximately 220,000 acre-feet per year on average from the Upper Colorado River Basin to the Northern Front Range to provide supplemental water to municipalities and irrigated farms within the boundaries of the Northern Colorado Water Conservancy District. Project supplies are allocated annually to the owners of 310,000 C-BT

units. Each unit entitles the owner to a pro-rata portion of the project's water supply, and an active market exists for C-BT units. Transfers of C-BT units are not subject to water court review, and may be accomplished quickly and easily between parties within the boundaries of the Northern District. As a result, C-BT units are often purchased by real estate developers looking for a readily available water supply to support new development projects in Northern Colorado.

The C-BT market consists primarily of transfers from agriculture to urban uses to support growth and new development. Over the past three years, the housing market in Northern Colorado has continued to recover. Real estate development is escalating which has contributed to a sharp rise in C-BT unit prices. Figure 3 provides a summary of average C-BT prices over the last five years, as well as the annual number of single-family housing starts reported in the Greeley metropolitan area. As shown, prices are closely correlated with new housing development. In 2014, average prices rose 35% to \$31,724 per acre-foot, concurrent with a 40% increase in the number of housing starts over the same period.

**Figure 3: Average C-BT Prices and Greeley Metro Area Housing Starts, 2010-2014**



**Table 1: Cumulative Returns by Asset Class**

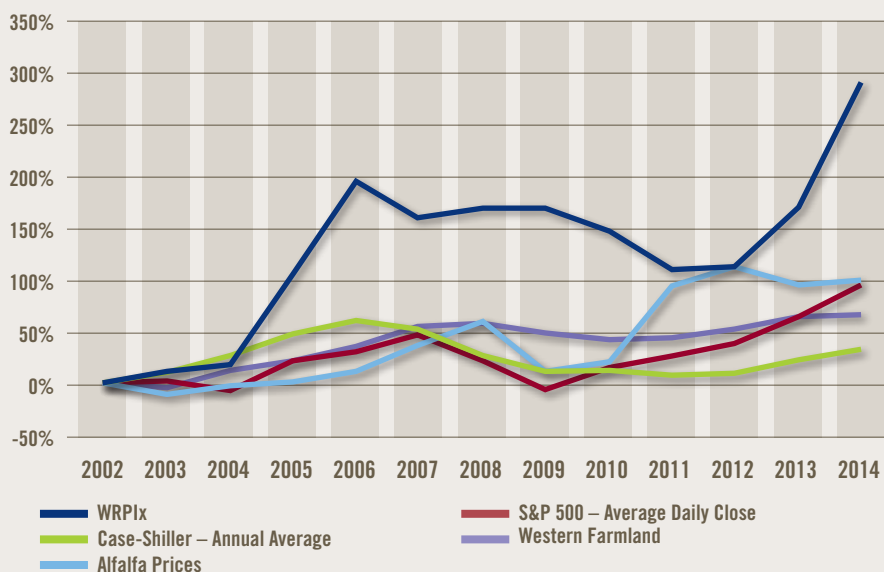
	2014	2005-2014
WRPIx	45.92%	91.67%
S&P 500	17.49%	59.98%
Case-Shiller	7.91%	-10.34%
Western Farmland	1.07%	34.58%
Alfalfa Prices	1.51%	94.23%

### Comparison to Other Investments

Over the last decade, the WRPIx has risen more than the S&P 500, the Case-Shiller home price index, and average farmland values. Although water right prices followed the housing boom and bust from 2005-2007, the drop in water right prices was less severe than the drop in home prices. Municipalities and industries outside of real estate development continued purchasing water rights through the recession providing price support. In recent years, ongoing drought growth in global agricultural commodities and increased real estate development have contributed to the strong performance of the WRPIx.

Water is a unique asset class because prices are influenced by a wide range of local and global market conditions. Since 2002, the WRPIx has shown the closest correlation with western farmland prices, with a correlation coefficient of 0.87. This is not surprising, as water rights are frequently transferred with farmland, and irrigated farm values frequently reflect the value of related water rights.

**Figure 4: WRPIx Performance Comparison**



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The S&P 500 has shown a moderate correlation of 0.72 with the WRPlx. Rising equity prices generally coincide with economic expansion and increased demand for acquisition of water rights to support urban growth, and industrial expansion. The WRPlx is less correlated with the Case-Shiller

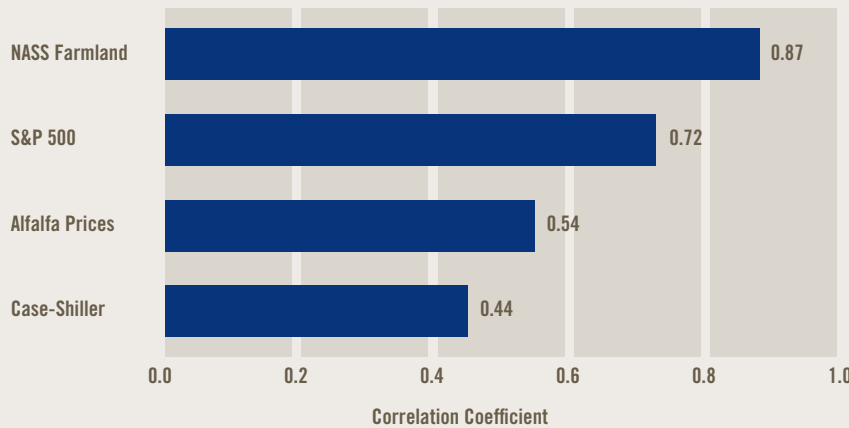
home price index and alfalfa prices, at 0.44 and 0.54, respectively. While some regional water rights markets are closely linked to land development and home prices (e.g., the C-BT market), water right prices in other regions are driven by different factors such as drought.

### About the WRPlx

The WRPlx measures market movements using data from Waterlitix, WestWater's industry leading database of over 15,000 water rights transactions across the western United States. Similar to other leading indices such as the S&P 500 for public equities or the Case-Shiller index for real estate prices, the WRPlx provides investors and analysts with a statistical benchmark to track the performance of water investments.

Waterlitix is constantly updated by a team of analysts dedicated to maintaining the most accurate and up-to-date market information. As water rights continue to emerge as the next real asset class, the WRPlx offers a performance benchmark and allows performance comparison.

**Figure 5: WRPlx Correlation with Other Asset Classes, 2002-2014**



### ABOUT WESTWATER RESEARCH

WestWater Research (“WestWater”) is the leading economic and financial consulting firm specializing in water rights and water resource development in the United States. With a national practice and offices in four western states, WestWater provides market intelligence, valuation, transaction advisory, economic and strategic planning, and asset management services relating to water resources. The firm has a reputation for rigorous analysis, and information-driven water rights investment strategy formulation and execution. This reputation has been earned over 15 years through advising private, public, and non-profit sector clients on over \$700 million in water rights transactions. Recent transactions have included public-private partnerships for acquisition and development of reclaimed water in the southwestern United States, two of which have been nominated by Global Water Intelligence for “Water Deal of the Year.”

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