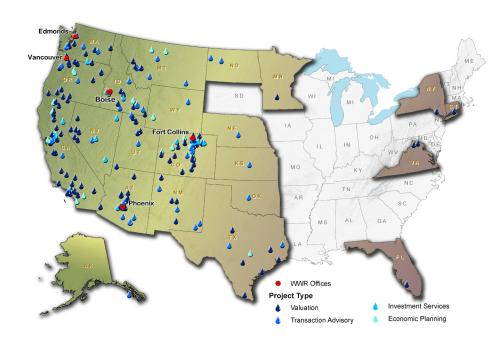
# **Statement of Qualifications**



### We Understand the Value of Water.

WestWater's clients rely upon the firm's expertise in water markets to make sound water resource management and financial decisions when water demands increasingly outpace available supplies. Our reputation as a leading economic consulting firm in the water resources sector has been earned through completing over \$700 million in transaction advisory and valuation services.



# National Reach and Regional Expertise

WestWater works across the country with five regional offices to provide market intelligence, valuation. transaction advisory, strategic planning, and asset management services relating to water rights and water resources. We are known for our rigorous analysis, and informationdriven water rights investment strategy formulation and execution. This reputation has been earned through advising private, public, and non-profit sector clients on complex water market and trading issues since 2001, with projects across the United States. The WestWater team is an accomplished and complementary group of professionals with deep experience in water rights, water transfers, economics, policy, finance, and water resource planning.

#### **Market Information**

WestWater's value to the customer is rooted in is its proprietary database of water right sales and leases covering the past two decades. Waterlitix is the country's largest and most comprehensive pricing source for water transactions. Through Waterlitix, we make sure our clients are ahead of the curve with accurate information on market trends and prices gathered from primary sources.

# Creating Value Through Innovation

We create value for clients through innovative and unique deal structures which combine our extensive deal experience with strong market intelligence. For example, in 2007, we generated more than \$67 million for a small municipality though a unique reclaimed water entitlement auction that was recognized internationally for its innovation. In 2014, WestWater advised on a water acquisition and development project that was nominated for an international "Water Deal of the Year" award by Global Water Intelligence.

#### **Bringing Investor Perspective**

WestWater Research provides financial sophistication to the water rights and water development sector. Our strong relationships within all facets of the investment community bring unparalleled expertise from both the "buy" and "sell" side of transactions. Our experience with private equity firms, institutional investors and strategic partnerships opens the doors to financial resources and capital for water projects that otherwise might not be achieved.

Southwest





## **Our Services:** Making sense of complex water rights & markets

#### Valuation

WestWater is a nationally recognized leader in water right valuations and appraisals. We provide comprehensive analysis and opinions of value for a wide range of water assets in support of transactions, financing, and litigation. In the past 5 years, we have completed over 150 water right valuation projects across the US. WestWater's appraisals are routinely relied upon and accepted by public and private lenders, major investment banks, and the IRS.

WATER ASSET VALUATION
BUSINESS VALUATION
FINANCIAL ANALYSIS
LITIGATION SUPPORT

# Transaction Advisory

Our buy side services include formulation and execution of acquisition strategies that ensure clients achieve their water supply objectives through an informed and cost-effective process. On the sell side, we assist clients with large complex water assets to develop their project and get the best price through our access to an extensive network of professional and institutional water investors.

WATER ASSET TRANSACTIONS
SALE REPRESENTATION
DEAL ORIGINATION
DUE DILIGENCE

#### Water Planning

WestWater provides comprehensive economic, financial, and strategic planning services that include regional economic impact analysis, fiscal impact analysis, and cost-benefit analysis. Clients rely on West Water for identification of water supply vulnerabilities and potential solutions, strategic prioritization of alternatives, and actionable items for implementation.

BENEFIT-COST ANALYSIS
FISCAL IMPACT ANALYSIS
RISK MANAGEMENT
PRIORITIZING ALTERNATIVES

#### Market Analysis

We ensure our clients are well informed on current market prices, trading activity, trends, and regulatory and policy developments in the increasingly competitive market for water supplies. We have earned the trust of our clients by performing rigorous, objective analysis using proprietary data and models to provide a forward-looking view of business opportunities and risks.

WATER RIGHTS MARKETS CUSTOMIZED MARKET REPORTS

# Asset Management

WestWater assists clients with inventorying their water assets, and understanding both basic water right characteristics and market opportunities for the assets to enable formulation of optimal management strategies. Our team routinely manages water development planning and implementation for clients, and has experience operating water supply assets.

WATER RIGHTS ANALYSIS

ASSET INVENTORY &
ASSESSMENT

WATER RIGHTS MANAGEMENT
& OPTIMIZATION



## **Waterlitix**<sup>tm</sup> — The only & most comprehensive price database for water transactions

The Waterlitix database gives WestWater and our clients a unique vantage point over the changing water market landscape. Since reliable analysis requires accurate data, our team of analysts is dedicated to researching water right and infrastructure transactions, and maintaining the most comprehensive and timely market information in our proprietary database. With over 15,000 transactions already stored, Waterlitix maintains detailed information on price, quantity, and other deal terms that is verified through interviews with trading parties, and confirmed with regulatory filing documents.





#### Clay Landry, Managing Director

Clay Landry is the managing director and a principal of WestWater. Landry has negotiated and advised on major water transactions throughout the United States. In 2007 he managed an auction of municipal effluent water rights which closed at \$67 million in proceeds for a small city in Arizona, and was nominated Water Deal of the Year by GWI. Under Landry's management, WestWater has advised on more than \$700 million in water transactions. In addition, Landry works regularly with private equity and hedge funds in structuring deals and sourcing funds for water development and acquisition projects. Prior to founding WestWater, Landry was an associate at the Political Economy Research Center (PERC), a public policy research institute that specializes in market approaches to natural resource management

Landry is recognized as a leading authority on water pricing and is routinely called upon as an expert witness by clients such as the IRS, U.S. Department of Interior, Indian tribes, municipal governments and private companies. He has also worked internationally on water-marketing issues in Australia, Brazil, and the United Kingdom. Landry serves as an associate editor for Water Resource Impact, a monthly publication of the American Water Resources Association, and was previously the finance and regulation editor for Global Water Intelligence, an international water industry news magazine. With a strong commitment to market-based stewardship, Landry helped establish the Montana Water Trust, a private non-profit that buys and leases water rights for stream flow protection. Landry holds a master's in agriculture and resource economics from Oregon State University and a bachelor's in economics from the University of Wyoming.



### Harry Seely, Water Resource Economist and Principal

Mr. Seely has fifteen years of experience in agricultural and water resource economic analysis. Over the last decade, Mr. Seely has applied mathematical programming and econometric analysis techniques to estimate the value of water. In addition, he has developed a variety of economic models as part of interdisciplinary teams to assess the regional economic costs and benefits of water quality, development and reallocation projects throughout the West.

Seely has developed and utilized market information, simulation models, and econometric techniques to estimate the market value of water for federal and state agencies, nonprofits, and private industry in support of water project development and reallocation activities. Currently, Mr. Seely is developing and utilizing this expertise to estimate the economic value of water for federal surface water storage feasibility studies in California. He has conducted market and financial analyses of proposed private water development projects in the southwest as well as numerous water right appraisals in support of water acquisitions for urban and instream flow purposes. In earlier analyses, Seely developed an economic optimization model to assess the potential benefits to agricultural production in the Yakima Basin from proposed new surface storage facilities and the economic effects associated with restrictions on irrigation drain water discharge from 100,000 irrigated acres in California's Central Valley. He holds a M.S. in natural resource and agricultural economics from Oregon State University and a B.S. in economics from Pacific Lutheran University.





#### Matt Payne, Principal

Matt Payne is a Principal with WestWater Research and leads the firm's Southwest office in Phoenix. He is dedicated to helping public, private, and non-profit sector clients address economic, financial, and strategic challenges relating to water resources and infrastructure. His areas of expertise are water resource economics, financial management, risk management, strategic planning and implementation, and water asset transactions. In recent years, Matt has been engaged by Arizona's largest water provider to lead planning and implementation of the most extensive renewable water acquisition program in the United States. Under WestWater's management, the program has executed nearly \$100 million in water transactions. These investments range from rotational fallowing agreements to acquisition and development of reclaimed water.

For private equity and industrial clients, Matt has originated water and wastewater investments, and led due diligence in support of transactions. He frequently works as a part of multidisciplinary teams, contributing economic and financial analytical capabilities to water resource and integrated utility planning projects. Recent analyses have included costbenefit assessments of proposed infrastructure projects and water management strategies, as well as valuation of water rights and infrastructure assets.

Matt holds an M.B.A. from the W.P. Carey School of Business at Arizona State University. He also earned a degree in economics from Colorado College, and is a certified Project Management Professional (P.M.P.). He has conducted extensive research in the field of water resource economics, and specializes in estimating the value of water using econometric techniques. Much of this research is published in industry and peer-reviewed journals.



#### Brett Bovee, Rocky Mountain Regional Director

Brett Bovee leads the Colorado office of WestWater Research in Fort Collins as the Rocky Mountain Regional Director. Brett brings over ten years of experience conducting a variety of engineering and water rights studies across the Western states, along with specialized knowledge of Federal reserved water rights and Native American Tribal water planning and management. Brett has performed dozens of investigations of water supply and demand for Federal, Tribal, and private clients, and has completed detailed studies of water planning, irrigated agriculture, and water project feasibility. He is skilled in water valuations and economic cost-benefit analyses, and has been instrumental in water rights litigation and dispute resolution. Brett has prepared expert witness and technical reports, completed hydrographic surveys of water use, and reviewed settlement agreements. He has also contributed to several technical working groups for multi-stakeholder negotiations.

Brett holds B.S. and M.Eng. degrees in biological and environmental engineering from Cornell University, with a focus in water resources. He is a licensed professional civil engineer in five western states, and is also a recognized hydrologist. Prior to joining WestWater, Brett worked for NRCE managing and assisting with water rights projects across the Western U.S.

(602) 595-7009





#### Eric Borgen, Northwest Regional Director

Erik Borgen leads WestWater's greater Seattle office as Northwest Regional Director. Erik has over 10 years of experience working with water rights, water transactions and hydrology on projects throughout the western US. Erik has led efforts in strategic planning, valuation and due diligence for water rights acquisition and mitigation banking programs. His work for impact investors, non-profit and government clients has focused on understanding the reliability of water rights and modelling the hydrological impact of administrative changes to those water rights. Erik has completed several water bank feasibility studies, including the development of demand estimates, analysis of potential supply sources and analysis of mitigation credit pricing. Additionally, he has experience in assessing climate change risk to water rights.

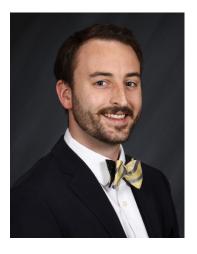
Erik holds a JD from Willamette University College of Law, an MBA from Willamette's Atkinson Graduate School of Management, and a BA from Dartmouth College in Geography. He was admitted to the Washington State Bar in 2005. Prior to joining WestWater, Erik worked for Ecosystem Economics completing a wide array of water rights transaction-related analyses and projects.



#### John Townsend, Senior GIS and Database Specialist

John Townsend has been working in the GIS and Data Management field for over 3 years. John currently oversees all aspects of GIS and provides IT support for WestWater. He holds a B.A. in Geography and a Minor in Geographic Information Systems from Portland State University. During his studies he contributed to research in the Remote Sensing field involving Land Surface Temperature in urban environments.

Post-graduation, John has continued professional development coursework in the area of database design and administration. Prior to employment with WestWater Research, John worked as a contractor on projects with the Bureau of Land Management. Projects included converting Master Title Plats into a GIS environment, mapping reciprocal rights-of-way over western forested lands, and designing and administering various imagery databases providing ease of access to historic documents.



#### Drew LaFiandra, Associate

Drew LaFiandra is an Associate with WestWater Research at our Southwest office and is responsible for maintaining the firm's proprietary database of water market transactions by researching and analyzing public and private water right transactions. He also leads water right valuation projects, and has significant experience in agricultural water supply management in the context of rotational fallowing programs.

Prior to working for WestWater Research, Drew was in the commodities world where he researched coal, bio-fuel, and energy markets in the US and Europe, dealt with coal operations, and executed petroleum coke trades. Drew is a graduate of Hamilton College where he earned a B.A. in German with honors and a minor in Mathematics. In 2007 Drew was a Fulbright fellow and speaks German, Italian, and Spanish.





#### Tanner Ketellapper, Analyst

Tanner Ketellapper is a Research Analyst with WestWater and is based in the firm's Southwest office in Phoenix. He routinely provides clients with detailed financial and economic analysis relating to water resources and water development projects. An expert in asset and business valuation, Tanner has estimated the value of water rights and water supply enterprises for numerous public, non-profit, and private clients ranging from conservation organizations to private equity funds. In addition, Tanner has extensive water rights transactional experience, and has performed due diligence research and financial analysis in support of water rights sales and leases.

Tanner holds a B.S.B.A. in Finance from the University of Arizona. In addition, Tanner has passed the level III Chartered Financial Analyst (CFA) exam and will soon receive certification.



#### Viviane Baji, Analyst

Viviane Baji is a Research Analyst at WestWater's Southwest Office in Phoenix. She holds dual degrees with Honors in Environmental and Natural Resource Economics and Business Economics with a minor in Environmental Studies from Utah State University. Viviane has previous experience in research and applied project implementation in water resource management, economic cost-benefit analysis, and social science research from her undergraduate research fellowship in the Department of Applied Economics at Utah State.

These research experiences have culminated in the completion of two submitted academic articles. As a LEED Green Associate, Viviane has also used her knowledge and expertise to implement highefficiency water conservation projects at Utah State University. At WestWater, Viviane is responsible for compiling relevant water market data to assist with research and analysis.



#### Julie Mai, Administrative Services Manager

Julie Mai is WestWater's Administrative Services Manager, and comes to us with ten years of financial and analytical experience, and fifteen years in an administrative capacity. Julie is responsible for the smooth operation of WestWater's multiple offices, including contract management, client relations, human resources, book-keeping, marketing, and press communications. Julie's event planning expertise helps the firm organize and execute conferences, workshops, and webinars.

Julie began her career in the banking and mortgage lending industry, as well as commercial real estate investment and financing. She has managed a public affairs consulting office, and brings to WestWater her strong work ethic, and positive problem-solving nature.

West Coast



Our buy side services include formulation and execution of acquisition strategies that ensure clients achieve their water supply objectives through an informed and cost-effective process. On the sell side, we assist clients with large complex water assets to develop their project and access capital markets through our extensive network of professional and institutional water investors.

### **Transaction Advisory**

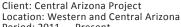
WATER ASSET TRANSACTIONS

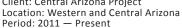
SALE REPRESENTATION

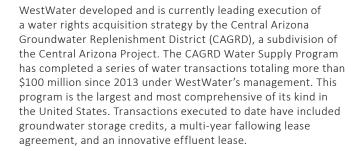
**DEAL ORIGINATION** 

**DUE DILIGENCE** 

#### **CAGRD WATER SUPPLY ACQUISITION PROGRAM**









#### WATER RIGHTS ACQUISITION FOR GROUNDWATER **MITIGATION**

Client: Cities of Olympia, Lacy, Yelm

Location: Washington Period: 2008 — 2012







WestWater assisted the cities of Yelm, Lacey and Olympia in an effort to identify water rights and habitat improvement projects that could be used for mitigation purposes to offset new groundwater withdrawals in the Yelm and McAllister aquifers. WestWater collaborated with the cities' staff and completed multiple water right purchase agreements and a farm property purchase to offset reductions in surface flows during the irrigation season.

#### SHOSHONE-BANNOCK TRIBAL WATER MARKETING PROGRAM

Client: Shoshone-Bannock Tribes Location: Fastern Idaho Period: 2008 - Present



WestWater developed a lease marketing plan in 2008 for the Tribes' contract storage rights in two Bureau of Reclamation reservoirs in the Upper Snake River Basin. WestWater has advised the Tribes on two multi-year lease agreements transferring 45,000 acre-feet per year to hydropower and groundwater mitigation purposes ince the plan was initially completed,. WestWater continues to provide a wide array of water rights and economic consulting assistance to the Tribes.

#### TNC TEXAS WATER RIGHT **ACQUISITION PROGRAM**

Client: The Nature Conservancy Location: Texas Gulf Coast Period: 2015 - Present



WestWater provided preliminary due diligence assessments for potential farmland acquisitions identified by TNC for instream flow and habitat improvement purposes. WestWater is currently engaged to assist with the acquisition of selected farms and water rights. WestWater is providing TNC with transaction advisement services, including price expectations, deal construction, offer documentation, and general meeting coordination and sale management.



### **Transaction Advisory**

## CURLEW VALLEY FARM SALE

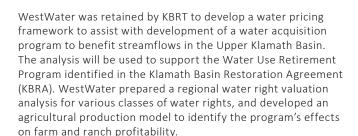
Client: Compass Minerals Location: North Central Utah Period: 2015 — 2016



WestWater was engaged to design an innovative water sharing agreement that will enable the sale of a large alfalfa farm, while at the same time the original owner retains use of the water rights on an interruptible basis to satisfy water quality and quantity mitigation requirements. WestWater completed a financial analysis of farm operations under various water sharing alternatives to inform development of the terms of the water sharing agreement, and led negotiations with potential buyers that will continue farming the land in a way that satisfies the terms of the interruptible water supply agreement.

### WATER PRICING FRAMEWORK IN THE UPPER KLAMATH BASIN

Client: Klamath Basin Rangeland Trust Location: Oregon Period: 2009 — 2010



## INNOVATIVE EFFLUENT CREDIT AUCTION

Client: Town of Prescott Valley Location: Arizona Period: 2007



WestWater was engaged to promote and implement an auction of 2,274 acre-feet of effluent water credits to help finance the Big Chino Water Importation Project. WestWater Research advised Prescott Valley how to use a creative auction format to provide an equitable sales process and to reallocate resources to the highest-valued use, ensuring a fair market value for their assets. Project tasks involved development of due diligence materials in support of the auction, advertising the auction to local, regional, and national interests, and development of a price floor agreement. The innovative auction structure caught the attention of national investment buyers, and received a 2008 Global Water Award by Global Water Intelligence.

## CalAm WATER RIGHT ACQUISITION PROGRAM

Client: California American Water Location: Southern California Period: 2016 — Present



California American Water is an investor-owned utility providing water service to customers throughout California. To reduce reliance on purchased imported water in the Los Angeles area, and gain access to a more secure local supply, California American is seeking to acquire additional groundwater rights. WestWater is engaged to assist with planning and implementation of a proactive water rights acquisition program. The first phase of the program has consisted of valuing local water rights and developing an acquisition strategy, and a second phase will include targeted water right acquisitions.

### GROUNDWATER BANKING INVESTMENT DUE DILIGENCE

Client: Confidential Private Equity Firm Location: Antelope Valley, California

Period: 2010

A private equity firm evaluated an opportunity to purchase a 500,000 acre-foot groundwater banking facility near Los Angeles. WestWater was engaged to provide due diligence services in support of this proposed acquisition, which included financial modeling to predict revenues and costs under a variety of water supply scenarios and a detailed analysis of the regional water leasing market. WestWater also analyzed the rate structures, ownership structures, customers, and participation of competitive groundwater banks in the region.



WestWater is a nationally recognized leader in water right valuations and appraisals. We have completed over 150 water right valuation projects across the U.S In the past 5 years. We provide comprehensive analysis and opinions of value for a wide range of water assets in support of transactions, financing, and litigation. WestWater's appraisals are routinely relied upon and accepted by public and private lenders, major investment banks, and the IRS.

### Water Valuation

WATER ASSET VALUATION

**BUSINESS VALUATION** 

**FINANCIAL ANALYSIS** 

LITIGATION SUPPORT

WestWater was retained by the Town of Stephens City's attorney

County, Virginia. WestWater evaluated wholesale water contract

pricing in the local region, and analyzed infrastructure costs and

regulatory constraints associated with utilizing alternative water

sources. The valuation analysis is intended to be used to support

to provide a valuation assessment for the raw water resource

found within an abandoned limestone quarry in Frederick

the Town's negotiations with the regional municipal water

provider for a long-term water lease agreement.

#### **COLUMBIA BASIN ECONOMIC CONSULTING SERVICES**

Client: National Fish and Wildlife Foundation Location: Western and Central Arizona Period: 2013 - Present



WATER VALUATION Client: Lawson & Silek, PLC

Location: Western Virginia

STEPHENS CITY QUARRY

Period: 2016



WestWater was retained by Bonneville Power Administration and the National Fish and Wildlife Foundation to provide economic and water valuation services to the Columbia Basin Water Transaction Program (CBWTP). The Program generates approximately 40,000 acre-feet per year of instream flow benefits through leases and agricultural improvements. WestWater provides a variety of services to the program including policy advisement and water right valuation services for specific transactions.

#### **VALUATION OF PRPA WINDY GAP UNITS**

Client: Platte River Power Authority Location: Northern Colorado

Period: 2016



PRPA owns a large holding of Windy Gap Project units and is a current participant in the Windy Gap Firming Project, both of which are regional water storage projects in Northern Colorado. PRPA was looking to make some strategic decisions about its holdings of original Windy Gap Project units and its level of participation in the Firming Project. WestWater was contracted to provide lease and sale valuation estimates for the Windy Gap Project units and to provide financial modeling of different water right holding scenarios.

#### **VALUATION OF AIR LINE WATER ASSETS**

Client: Liberty Utilities Location: Phoenix, Arizona Period: 2014 - 2016



Liberty Utilities was evaluating the acquisition of water infrastructure (wells and a canal) from a land developer as one element of a Master Services Agreement under which Liberty would commit to supplying the developer's subdivision. WestWater was engaged to perform a valuation analysis of the existing wells and canal. The intended use of the valuation was to support negotiations, and regulatory review of the agreement. WestWater applied a cost approach to estimate the current value of the assets, taking into account their complex encumbrances and current condition. Liberty also engaged WestWater to update the valuation annually following completion of the initial analysis.



### **Water Valuation**

## CWT INSTREAM FLOW WATER SHARING AGREEMENT

Client: Colorado Water Trust Location: Colorado West Slope

Period: 2014



**Brownstein Hyatt** 

Farber Schreck

The Trust is implementing a water sharing project with the Colorado Water Conservation Board that is intended to improve instream flows in a specific critical reach. Under the split-season lease agreement between the Trust and CWCB, the Trust receives financial consideration in exchange for CWCB's use of the shares for instream flows during the latter half of the irrigation season. WestWater advised the Trust on structuring the financial terms of its innovative water sharing agreement with CWCB, and provided a valuation analysis of the grant of flow restoration use to be conveyed to CWCB.

## PWB LEASE VALUE FOR MUNICIPAL GROUNDWATER SPRINGS

Client: City of Portland Water Bureau Location: Oregon

Period: 2015



The Portland Water Bureau (PWB) is pursuing the acquisition of water rights to improve water quality and instream flows as part of a broader habitat conservation plan, and identified several water rights owned by the City of Sandy as potential acquisition targets. PWB is proposing to enter into a long-term agreement with the City to lease the water rights to Brownell Springs during summer to benefit habitat for fish. WestWater completed a report that provides an estimate of value for the water rights according to the prescribed lease terms. Both comparable water transactions in the region and a replacement cost approach for the City of Sandy were analyzed in determining a lease value.

## VALUATION ANALYSIS OF HOT SPRINGS CREEK WATER RIGHTS

Client: Brownstein Hyatt Farber Schreck LLP Location: Southern California

Period: 2012

A private landowner was considering donating a water right to a land trust. The water right was a pre-1914 appropriative water right located near Santa Barbara, California. A water right appraisal was needed to support and quantify the tax benefits associated with this donation. WestWater conducted numerous interviews with local market participants to understand regional

water supply and demand conditions. Sales comparison and cost

approaches were applied to estimate the water right's value.

## VALUATION OF MILL CREEK WATER RIGHTS

Client: The Nature Conservancy Location: Chico, California

Location: Chico, California Period: 2012



TNC periodically purchases water rights on Mill Creek to conserve and protect environmental flows for the benefit of fish and wildlife. TNC was evaluating purchasing a pre-1914 appropriative water right offered by an individual landowner. To inform negotiations, WestWater was engaged to perform a valuation analysis of the water right. A sales comparison analysis was conducted, relying on recent sales of pre-1914 rights in the region. In addition, WestWater applied a replacement cost approach to further support the value estimate.

#### VALUATION ANALYSIS FOR GROUNDWATER CONTAMINATION CLAIM

Client: Akin Gump Strauss Hauer & Feld, LLP Location: Texas

Location: Texas Period: 2010 Akin Gump

WestWater was retained to provide expert opinion on the valuation methodologies employed in valuing water rights and alleged losses of value to the water rights. WestWater reviewed and critiqued the opposing expert report according to accepted water right appraisal standards, and provided an expert report outlining the extent to which the opposing report varied from commonly accepted approaches.

#### **Rocky Mountain**



WestWater provides comprehensive economic, financial, and strategic planning services in the water rights sector. For past clients, this has included regional economic impact analysis, fiscal impact analysis, and cost-benefit analysis. Clients rely on WestWater for identification of water supply vulnerabilities and potential solutions, strategic prioritization of alternatives, and actionable items for implementation.

### **Water Resources Planning**

**BENEFIT-COST ANALYSIS** 

**FISCAL IMPACT ANALYSIS** 

**RISK MANAGEMENT** 

PRIORITIZING ALTERNATIVES

## SHASTA LAKE WATER RESOURCES INVESTIGATION

Client: US Bureau of Reclamation (subconsultant to MWH) Location: California Period: 2008 — Present



WestWater is responsible for identifying appropriate valuation approaches and developing benefit estimates for all benefit categories associated with this water storage project. WestWater is modifying an existing agricultural production model (CVPM) to estimate the value of improved agricultural water supply reliability. In addition, WestWater is applying a market-based model and an existing simulation model (LCPSIM) developed by the California Department of Water Resources to estimate the economic value associated with changes in urban water supply reliability. WestWater is also assisting with the development of recreation benefits and ecosystem benefits associated with the investigation alternatives.

## ALTERNATIVE WATER TRANSFERS IN COLORADO

Client: Environmental Defense Fund Location: Colorado Front Range Period: 2016 — 2017



WestWater was engaged to develop a financial analysis of Alternative Transfer Methods (ATMs) on the Colorado Front Range. ATMs are water sharing and leasing frameworks that seek to provide a water supply to the municipal sector while reducing the permanent "dry up" of agricultural lands. WestWater provided a detailed review of ATM frameworks and example ATMs in Colorado and other Western US states, and completed an analysis of municipal water sector criteria to prioritize selection of municipal case studies. For the two case studies, WestWater developed a comprehensive financial comparison of the water supply development and acquisition options, including both traditional sources and ATM approaches. The resulting study is being used to inform communication with policy leaders and water users in Colorado.

#### NORTH UNIT IRRIGATION DISTRICT ALTERNATIVE WATER SOURCE PROJECT

Client: Warm Springs Power & Water Enterprises Location: Central Oregon Period: 2016 — Present



WestWater Research was contracted in 2014 by the Confederated Tribes of the Warm Springs Reservation through their Water and Power Enterprises office to develop a water marketing plan for the off-Reservation portion of the Tribes' Federal reserved water rights. One of the plan recommendations was motivated by lawsuits filed against irrigation districts in the Deschutes River Basin. The Tribes and the North Unit Irrigation District (NUID) cooperated on a project to investigate the feasibility of developing an alternative water supply source for NUID using the Tribe's water right. WestWater completed a preliminary feasibility study evaluating the capital, operating, and water leasing costs for two different water supply alternatives.

### FEDERAL RESERVED WATER RIGHTS ANALYSIS

Client: Native American Rights Fund Location: Southern California Period: 2016 — Present



WestWater has been engaged to provide expert economic analysis in a case brought by the Agua Caliente Tribe near Palm Springs. NARF is providing legal and technical assistance to the Tribe in evaluating the Tribe's Federal reserved water rights claims to groundwater in the Coachella Valley and the impacts of regional groundwater pumping on those water rights. WestWater is providing agricultural economic analysis to support a multi-disciplinary team's assessment of feasibility for irrigated agriculture and other water uses on Reservation lands. WestWater is currently developing benefit-cost models for irrigated agriculture in the region.

#### Southwest

#### **Rocky Mountain**



### **Water Resources Planning**

#### **REGIONAL WATER HUB OF COMMERCE**

Client: Shoshone-Bannock Tribes Location: Eastern Idaho Period: 2015 — 2016



The Tribes have one of the largest holdings of senior-priority water rights in the State of Idaho, and are located in close proximity to transportation networks and agricultural products. The Tribes have considered the development of a Regional Water Hub of Commerce, which would represent an organized and centralized effort to develop the Tribal water rights for economic development on the Reservation. WestWater managed a grantfunded project to evaluate the Water Hub concept, including analyses of the Tribes' water rights, economic development assets, water intensive industries, and potential fiscal impact. The report provided a series of recommendations for continued development of the concept.

### LOS VAQUEROS RESERVOIR **EXPANSION INVESTIGATION**

Client: US Bureau of Reclamation (subconsultant to MWH) Location: California Period: 2012 - Present



WestWater is responsible for describing and estimating the economic benefits associated with expansion of the Los Vaqueros Reservoir. WestWater is developing a statistical model of the California water transfer market to value environmental water supplies provided by the investigation alternatives, and is also estimating the value of emergency water supplies associated with potential California Delta-area shortages through application of urban water demand functions derived from the economic literature. WestWater is also applying a market-based model and an existing model (LCPSIM) to estimate the economic value associated with changes in urban water supply reliability. WestWater is also providing an estimate of the economic value of improvements in water quality to urban users in the San Francisco Bay Area from a reservoir expansion. As part of this project, WestWater has presented information to the Common Assumptions Economic Workgroup and coordinated with Reclamation economists to develop and apply economic approaches consistent with the Principles and Guidelines.

#### WATER MANAGEMENT STRATEGIES IN THE VERDE RIVER WATERSHED



Client: The Nature Conservancy Location: Verde Valley, Arizona

Period: 2013

WestWater Research was retained by TNC to evaluate the ability of various water management strategies in the Verde River watershed to benefit upstream and downstream communities, as well as the watershed's rivers and associated waterdependent natural resources. WestWater identified alternative water management strategies available to the region and then developed a cost-benefit framework that was used to evaluate and rank the water management alternatives. The costs and benefits of high-ranking alternatives were studied in greater detail to understand their applicability to the Verde River Watershed.

#### **ECONOMIC ANALYSIS FOR A COMPREHENSIVE AQUIFER MANAGEMENT PLAN**

Client: Idaho Department of Water

Location: Southern Idaho Period: 2008 - 2009



WestWater developed an economic impact analysis and flexible models to evaluate various water management options identified by IDWR to achieve a 600,000 to 900,000 acre-feet per year change in the Eastern Snake Plain Aquifer (ESPA) water budget. WestWater's analysis characterized potential economic benefits from the proposed water management options, which included: conversion of ground water irrigation to surface water irrigation, managed aquifer recharge, and irrigation water demand reduction. Impacts were evaluated for various economic sectors, including: agriculture, aquaculture, municipal, industrial, hydropower, and real estate development. The results of the analysis were used by various state agencies and the state legislature to evaluate and select a set of water management alternatives for inclusion in the aquifer plan.

Southwest



### **Market Information & Analysis**

We ensure our clients are well informed on current market prices, trading activity, and trends, as well as regulatory and policy developments in the increasingly competitive market for water supplies. We have earned the trust of our clients by performing rigorous, objective analysis using proprietary data and models to provide a forward-looking view of business opportunities and risks.

The Nature

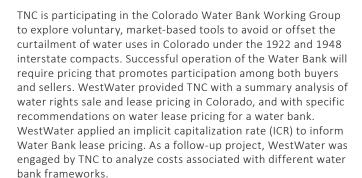
Conservancy

WATER
RIGHTS MARKETS

CUSTOMIZED
MARKET REPORTS

## COLORADO WATER BANK PRICING ANALYSIS





# CENTRAL ARIZONA MARKET CONSULTATION

Client: Arizona Public Service Co. Location: Central Arizona Period: 2015 — Present



APS is the largest electric utility in Arizona, and uses significant quantities of water for cooling and other purposes. APS was interested in obtaining market intelligence on historic and current market prices for water entitlements in Central Arizona, and engaged WestWater to provide a consultation report. WestWater provided detailed information on current and historic market prices and trading activity for various classes of Arizona water entitlements, such as Long-Term Storage Credits (LTSC), Extinguishment Credits, Type 2 Non-Irrigation Grandfathered Groundwater Rights, Colorado River Entitlements, Effluent, and Central Arizona Project (CAP) Indian Contracts.

# TRUCKEE RIVER BASIN WATER MARKET OVERVIEW

Client: Perkins Coie Location: Northwest Nevada Period: 2015

WestWater was retained to provide a market overview analysis of the Truckee River Basin in the Reno/Sparks area of Nevada. The analysis provided information on the regulatory environment, supply and demand conditions, and water right market activity and prices in the Truckee Meadows region. The analysis was intended to convey information on the market for water rights in the Truckee Meadows, and to provide historic and current market price ranges as well as an assessment of future price movement.

## COLORADO WATER MARKET ANALYSIS

Client: Molson Coors Location: Colorado Front Range

Period: 2015



Molson Coors Brewing Company (Coors) engaged WestWater to provide market intelligence on water rights pricing and trading activity in the region. WestWater completed a summary and review of historic and current water rights market prices and trading activity in select Colorado Front Range water districts. The factors that influence prices and drive trading volumes were described and a water rights price forecasting analysis was performed.

(425) 563-8450

Perkinscole

COUNSEL TO GREAT COMPANIES

Southwest



### **Market Information & Analysis**

#### MIDDLE RIO GRANDE BASIN **MARKET ANALYSIS**

Client: Confidential Pueblo Location: Middle Rio Grande Basin, New Mexico Period: 2013

A Pueblo located along New Mexico's Rio Grande River was evaluating a proposal to lease San Juan-Chama Project water for agricultural purposes. In support of the Pueblo's evaluation of the proposed lease terms, WestWater provided a summary and review of market transactions for water rights in the Middle Rio Grande Basin. Sales and leases of pre-1907 surface water rights, as well as market transactions of San Juan-Chama Project water, were reported. Econometric techniques were applied to forecast water right sale and lease prices over the proposed lease term. The water market analysis results were applied to provide a fairness opinion pertaining to the proposed lease, and recommendations regarding counter-proposal terms.

#### WATER MARKET ASSESSMENTS: CALIFORNIA, COLORADO, ARIZONA, AND NEVADA

Client: Confidential Water Rights Investment Firm

Location: Multiple Regions

Period: 2012

WestWater was engaged to provide four customized market consultation reports to a water rights investment and management firm. The regional markets covered were Nevada's Truckee River Basin, Colorado's South Platte Basin, Central Arizona, and California's Adjudicated Groundwater Basins. The intended uses of the reports were to support valuation of the firm's water right assets, and to inform prospective capital providers on the business opportunities, challenges, and risks within each region.

#### WATER MARKET ANALYSIS FOR THE UTAH WATER RIGHTS

Client: Kirton & McConkie Location: Northern Utah

Period: 2011

WestWater was retained by Kirton and McConkie to provide expert witness services related to litigation between Interstate Income Properties (IIP) and Alpine City (Civil No. 920400767). The purpose of the analysis was to describe the market for 2 groundwater rights and 19 secondary shares of stock in Alpine Irrigation Company. These water rights were included in a trade agreement between IIP and Alpine City in 1978 as a condition of the annexation for Alpine Village Estates.

#### **MARKET ANALYSIS FOR STATE WATER** PROJECT TABLE A ENTITLEMENTS

Client: Ducks Unlimited Location: California Period: 2008



WestWater provided Ducks Unlimited with relevant water market information to support negotiations for the purchase of 3,000 to 5,000 acre-feet of State Water Project Table A entitlements from the Berrenda Mesa Water District. WestWater provided a range of market prices for the entitlements and included a description of the transfer process and associated costs. Ducks Unlimited intends to transfer the water entitlement to the Kern National Wildlife Refuge.

#### WATER BANKING IN THE **UNITED STATES**

Client: Washington Department of Ecology

Location: Western US

Period: 2004



KIRTON MCONKIE

WestWater completed a comprehensive report on water banking legislation, policies and programs in 12 Western States. The report was intended to identify banking programs and structures that promote and enhance water supply reliability, provide drought planning and satisfy environmental needs. The analysis examined each state individually, and provided a detailed description of banking rules and level of activity. The analysis generated a set of questions that should be addressed, and guidelines to consider, when establishing a water bank.



## **Service Sectors**

### **Asset Management & Operations**

WestWater assists clients with inventorying their water assets, and understanding both basic water right characteristics and market opportunities for the assets to enable formulation of optimal management strategies. Our team routinely manages water development planning and implementation for clients, and has experience operating water supply assets.

## NATIONAL WILDLIFE REFUGE SYSTEM WATER ENTITLEMENTS INVENTORY

Client: US Fish and Wildlife Service (USFWS) Location: California Period: 2014 — Present



USFWS manages a system of wildlife refuges throughout California, and water is supplied to each refuge under a large portfolio of diverse water entitlements. WestWater has been engaged to assemble baseline information and supporting documentation for each water entitlement associated with 10 refuges in California. In addition, WestWater's ArcGIS specialists are mapping each water entitlement. WestWater is developing a database to catalogue and provide access to the water entitlements inventory and the associated maps.

## COLORADO WATER RIGHTS PORTFOLIO OPTIMIZATION

Client: Colorado State Board of Land Commissioners Location: Colorado

Location: Colorado Period: 2014 — Present



The State Land Board holds a diverse portfolio of water rights associated with state trust lands across the state of Colorado. WestWater has been engaged to provide a range of services with the objective of developing and implementing a business plan for SLB's water rights to add value to state trust lands. WestWater has provided due diligence and negotiation support for water-related proposals received by SLB, including water rights leases and a land lease for a proposed reservoir site. WestWater recently completed an inventory of water right holdings and water uses within the State Forest Property and evaluated potential water development activities on the Property to increase value.

### ROTATIONAL FALLOWING PROGRAM MANAGEMENT





As part of the CAGRD Water Supply Program, WestWater designed and implemented a temporary rotational fallowing program within the Yuma Mesa Irrigation and Drainage District on the Colorado River. WestWater was responsible for ongoing management of the fallowing program, including conserved water quantification, communication with landowners and regulators, fallowing verification and monitoring, and community outreach. A database and field monitoring system were developed to maintain program documentation, and to facilitate systematic verification of farm fallowing and water diversion forbearance.

### WATER RIGHT ASSETS INVENTORY AND VALUATION

Client: Union Pacific Railroad Location: Western US Period: 2010 — Present



Union Pacific is one of the largest landowners in the United States and holds a large number of diverse water rights. UPRR retained WestWater beginning in 2010 to assist in identifying its water rights within a 22-state region, assessing the assets' regulatory status and historic use, and identifying their marketability and value. This information was used by UPRR to determine which water rights were surplus and could be monetized, and to identify the value that may be lost as a result of abandonment decisions. As part of the project, WestWater developed a GIS database of the water rights and associated market assessments. WestWater continues to annually provide water rights analysis and valuation estimates for UPRR water right holdings.



# **Expert Witness Experience**

WestWater has broad experience providing litigation support involving the valuation of economic losses, impacts on market value, and costs associated with water reallocation and damages to water resources. Legal firms throughout the United States select WestWater to provide expert witness because of our strong reputation, technical expertise, and ability to communicate concepts of value on the witness stand. Some of our expert witness projects are provided below:

YEAR	CASE	CLIENT
2016	Damage claims filed for reduction in water right value. Case in progress.	Waas Campbell Rivera Johnson & Velasquez on behalf of water right owner
2015	Complaint filed against former attorneys due to reduction in the volume of a provisional water right. Expert witness report.	Vial Fotheringham LLP on behalf of Cherokee Metro Water District
2014—15	City of Weed, CA. Litigation of lease reapportionment between J.H. Baxter Company and the City of Weed.	Churchwell White, LLP on behalf of Roseburg Forest Products
2014—15	San Bernardino County Superior Court, Case CIVRS1108911, California Steel Industries v. CCG Ontario LLC. Trial testimony, depositions, expert report.	Hanson Bridgett on behalf of CCG Ontario LLC.
2014	Potential claim of legal malpractice and representation in a water rights transaction in Central California. Expert witness report.	Long and Levit LLP
2012	Thurston County Superior Court, WA. First Citizens Bank v. Todd Hansen. Expert witness report.	Davies Pearson PC on behalf of First Citizens Bank
2012	District Court of Arapahoe County, State of Colorado, Case 31279713. North Pines Metropolitan District vs. Seder & Vander Wall PC. Expert witness deposition and report.	Burg Simpson Eldredge Hersch Jardin PC on behalf of North Pines
2012	United States Court of Federal Claims, Case No. 04-541L. Stockton East Water District, et al. v. United States. Trial testimony, depositions, and expert report.	Herum Crabtree Suntag on behalf of Stockton East Water District
2011	Third Judicial Court of Summit County, State of Utah Case 920400767: Interstate Income Properties v. Alpine City.	Kirton & McConkie on behalf of Alpine City
2011	275th Judicial District, Hidalgo County, TX Case C-5798-99-E: Vasquez et al. v. Republic Waste Industries, Inc.	Curran Tomko Tarski LLP on behalf of Republic Waste Industries, Inc.
2011	Third Judicial Court of Summit County, State of Utah Case 010500359: Summit Water Distribution Company, v. Summit County and Mountain Regional Water Company.	Williams & Hunt on behalf of Mountain Regional Water Company
2011	Superior Court of the State of California Case No. T06/2239C: Truckee-Carson Irrigation District v. Sierra Pacific Power Company and Truckee Meadows Water Authority.	Hanson Bridgett on behalf of Truckee- Carson Irrigation District
2009	Condemnation proceedings involving water rights formerly owned by Miller Brewing Company.	Graham & Dunn on behalf of Cities of Olympia, Lacey, and Tumwater
2006	BSR Water Company et al. v. The City of San Antonio, As Owner of San Antonio Water System (defendants); District Court, 225th Judicial District, Bexar County, Texas.	Akin Gump Strauss Hauer & Feld, LLP. on behalf of San Antonio Water System
2005	Federal Agricultural Mortgage Corporation v. It's a Jungle Out There, a California Corporation, dba Vintage Capital; Robert Lee Hower and Ami Cheri Hower, United States District Court for the Northern District of California, NO. C 0303721.	Wild Carey & Fife, P.C.
2005	Boise Cascade Corporation Water Right Donation – Pacific Northwest Region, Internal Review Service Audit.	Internal Revenue Service
2005	Excelsior Mining Company request for perfection of mining claim. United States District Court for the Northern District of California.	Burns Wall Smith & Mueller, P.C.



