

WATER MARKET SOLUTIONS FOR CALIFORNIA WATER ISSUES

An information exchange workshop for California's major water users and all organizations and entities that are dealing with implementation of SGMA

“The use of water market trading can provide creative solutions to scarcity”

Water trading allows and enables water right-holders to sell or lease water. To be most effective in times of drought (with time-sensitive water needs by end-users), there needs to be a streamlined approval process for trades. This workshop explains water markets, outlines the current processes for California water trades, showcases successes and offers perspectives on the role water market trades can play to help successful implementation of the Sustainable Groundwater Management Act.

Sacramento - Friday April 29, 2016

Sutter Square Galleria, (UC Davis Extension - Room 200A), 2901 K Street, Sacramento, CA 95816

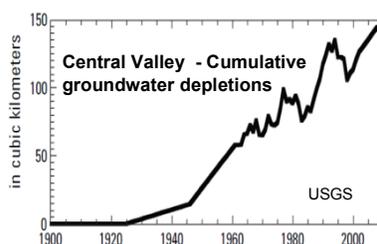
In cooperation with Groundwater Resources Association



AMERICAN GROUND WATER TRUST (Non-profit education organization)

Ground Water Information, Awareness & Education Since 1986..... This is what we do:

- ~ Promote efficient and effective water management
- ~ Communicate the environmental and economic value of groundwater
 - ~ Showcase groundwater science and technology solutions
 - ~ Increase citizen, community and decision-maker awareness
 - ~ Facilitate stakeholder participation in water resource decisions



7:15 – 8:15

REGISTRATION

8:15 – 8:30

Tony Morgan, Deputy General Manager, United Water Conservation District, Santa Paula, CA
INTRODUCTION - WHERE WILL WE FIND THE WATER? A WATER MANAGER'S PERSPECTIVE

8:30 – 10:00

SESSION 1. RESOURCE ECONOMICS AND HOW WATER MARKETS OPERATE

Matthew Fienup, Economist, Center for Economic Research & Forecasting, Thousand Oaks, CA
WATER MARKETS 101

Rabia Ahmed, Sr. Economist and Manager, Ramboll Environ, Seattle, WA
THE ECONOMICS OF WATER MARKETS

Dr. Rodney Smith – Managing Member, Stratecon, Claremont, CA
A PRACTITIONER'S VIEW ON POTENTIAL ELECTRONIC WATER EXCHANGES

10:00 – 10:15

BREAK

10:15 – 12:15

SESSION 2 WATER MARKET TRADING PLATFORMS - PRACTICAL EXAMPLES

Tom Rooney, President, WaterFind USA, Sacramento, CA
THREE KEYS TO BUILDING A FULLY FUNCTIONAL WATER MARKET - AUSTRALIA'S EXPERIENCE

Clay Landry, Managing Director, WestWater Research, Boise, ID
THE VALUE AND VOLUME OF US WATER TRADES: MODEL TEMPLATE FOR ENTERING WATER MARKETS

Lee West, Director, CTX Global-North America, Los Angeles, CA
LESSONS LEARNED FROM REAL WORLD ELECTRONIC WATER EXCHANGES

Vernon Crowder, Senior Vice President and Agricultural Economist, Rabobank, Fresno, CA
FREE FLOWING MARKETS SUSTAIN GROWTH

12:15 – 1:15

LUNCH (provided)

1:15 – 2:15

SESSION 3. WATER MARKETS AS A SOLUTION TO ENVIRONMENTAL REQUIREMENTS

Dr. Jay Lund, Professor, Department of Civil and Environmental Engineering, UC Davis, CA
ENVIRONMENTAL WATER MARKET / WATER MARKET FOR FISH FLOWS

Jay Ziegler, Director of External Affairs & Policy, The Nature Conservancy, San Francisco, CA
MOVING TO SUSTAINABLE GROUNDWATER MANAGEMENT FOR PEOPLE, AGRICULTURE AND THE ENVIRONMENT.

2:15 – 2:30

BREAK

2:30 – 4:00

SESSION 4 AGENCY & LEGAL PERSPECTIVES ON WATER MARKET IMPLEMENTATION

Gary Bardini, Deputy Director, California Department of Water Resources, Sacramento, CA
AGENCY PERSPECTIVES ON WATER MARKETS

Brandon Goshi, Metropolitan Water District, Manager of Water Policy and Strategy, Los Angeles, CA
METROPOLITAN WATER DISTRICT'S PERSPECTIVES ON WATER MARKETS

Aaron Ferguson, Associate, Somach Simmons & Dunn, Sacramento, CA
THE IMPACT OF WATER TRANSFERS ON WATER RIGHTS

4:00 – 4:30

CONFERENCE KEYNOTE "CLOSER"

Dr. Ruth Langridge, UC Santa Cruz, Associate Researcher, Center for International, Global and Regional Studies, Santa Cruz, CA
ADJUDICATED GROUNDWATER BASINS AND WATER TRANSFERS: LESSONS LEARNED

WATER MARKET SOLUTIONS FOR CALIFORNIA WATER ISSUES

WATER MARKET PRESENTERS – listed in presentation order

Tony Morgan, Deputy General Manager, United Water Conservation District, Santa Paula, CA



Tony Morgan (PG, CHG), is the Deputy General Manager / Groundwater & Water Resources at United Water Conservation District in Santa Paula, CA. He has undergraduate and graduate degrees from Indiana University and has been with UWCD since 2009. Prior to that he was Western Region Manager for Layne Geosciences. Mr. Morgan is leading UWCD's efforts on the Sustainable Groundwater Management Act and is active with ACWA and GRAC. He oversees the Groundwater Resources Department at UWCD which serves as an in-house resource on groundwater supply, water quality, and water resource management and also provides hydrogeological expertise to other local agencies. The department performs water level measurements and water quality sampling and analysis on hundreds of wells each year and performs field investigations to improve the District's understanding of the controls on groundwater flow, evaluates the impacts of groundwater utilization and conservation options on resource availability. Mr. Morgan has served as a Director on the Board of the

American Ground Water Trust since 2008.

Matthew Fienup, Economist, Center for Economic Research & Forecasting, Thousand Oaks, CA



Matthew Fienup is an economist at the California Lutheran University (CLU) Center for Economic Research & Forecasting. His specialty is applied econometric analysis and the economics of land use. Matthew is active in the issues surrounding urban growth restriction and groundwater management policy in Ventura County. He also teaches courses in Econometrics and Environmental Economics in CLU's Masters of Quantitative Economics program. Matthew holds a Masters Degree in economics from the University of California Santa Barbara, and he is a PhD candidate in environmental economics at the Bren School of Environmental Science & Management at UCSB.

Rabia Ahmed, Sr. Economist and Manager, Ramboll Environ, Seattle, WA



Rabia Ahmed has over ten years of experience in policy and regulatory economics, natural resource economics and community/development economics. She has extensive experience in conducting socioeconomic and environmental justice impact analyses for National Environmental Policy Act (NEPA), State Environmental Policy Act (SEPA), and California Environmental Quality Act (CEQA) projects. She is well versed in water laws and water markets in the western US, and has expertise in conducting water demand analysis and valuation of ground and surface water. Rabia has also been involved in studies on the economic impacts, costs, and benefits of critical habitat designations under the Endangered Species Act (ESA), focusing on impacts of such designations on commercial, governmental, and private activities. She is experienced in survey design, and participatory research methods, and in conducting public outreach using tools such as focus group discussions and open-ended questionnaires. She has successfully managed a number of projects involving multi-disciplinary teams. In addition,

Rabia has considerable international experience. Her quantitative background includes statistical analysis, including linear regression, using SAS and Gauss.

Dr. Rodney Smith – Managing Member, Stratecon, Claremont, CA



Rodney T. Smith is President of Stratecon Inc., an economics and strategic planning consulting firm specializing in the economics, finance, law, and politics of water resources. He was also manager of a water rights fund in 2005 for DB Zwirn, lead a water rights and infrastructure project for investors through Southwest Texas Water Resources, L.P. and currently serves as President of Baja Norte Water Resources LLC and an affiliated Mexican entity involving the marketing of desalinated Mexican seawater in the United States. Rod is also currently involved in the early stage, start-up of a water company in Texas.

Rod is involved as an advisor in the acquisition of water rights throughout the western United States and in the sale and leasing of water rights and water supplies to public and private sector water users. He has consulted extensively for public and private sector clients, including high net worth investors, on business and public policy issues concerning water resources. Recently, Rod served as a consultant to a major new water transfer study by the Western Governors' Association and the Western States Water Council.

Rod received his Ph.D. in Economics from the University of Chicago and a Bachelor of Arts in Economics from the University of California at Los Angeles.

Tom Rooney, President, WaterFind USA, Sacramento, CA



Tom Rooney started in the water industry in 1989 and is a recognized leader in the water industry. His understanding of water markets, water policy and water trading rules is incomparable. Tom is the founder of Waterfind, a global leader of water markets. Founded in 2003, the company has been central to the development and maturing of Australia's national water market, through the development of a highly awarded, innovative online water trading platform that is supported by a team of experienced water brokers. Waterfind provides a dedicated Trade team to process the complex documentation associated with trading water licences. Waterfind's Policy team identifies market opportunities and releases free, timely water market news and information to support each customer's decision making process.

Clay Landry, Managing Director, WestWater Research, Boise, ID



Clay Landry is the Managing Director and a Principal of WWR. Mr. Landry has provided valuation and appraisal services on major water acquisition and development projects throughout the United States. He is currently assisting the Central Arizona Groundwater Replenishment District implement the largest water rights acquisition program in the United States. In 2007 he advised an Arizona small municipality on valuing and structuring an auction of municipal effluent water rights which closed at \$67 million in proceeds. This project was nominated as Water Deal of the Year. 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.

Mr. Landry serves as an Associate Editor for Water Resource Impact, a monthly publication of the American Water Resources Association. Prior to founding WestWater Research, 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

Lee West, Director, CTX Global-North America, Los Angeles, CA



Lee West began his career in the financial markets in the early 1980's managing and investing capital in alternative and traditional assets. In 2009, Lee entered the environmental markets assisting the Mayor's Office in San Francisco, working to accelerate the development of effective business and public policy responses to climate change by fostering the creation and deployment of environmentally friendly technologies and market mechanisms.

His experience includes carbon offsets, renewable energy credits, mitigation and endangered species banking credits, and nutrient and water trading. Lee serves as a board member of a global environmental commodities exchange which owns the only independent electronic water exchange in Australia (H2Ox.com), in joint venture partnership with Australian government officials. As Director and Co-Head of N. American Water, Lee is active in establishing pilot water exchange programs to trade water rights and leases within water basins in CA, NV, AZ and TX.

Vernon Crowder, Senior Vice President and Agricultural Economist, Rabobank, Fresno, CA



Vernon is a Senior Vice President and Agricultural Economist. He manages the team that analyses and conducts market research on California agribusiness as well as the North American fresh fruit and produce sectors.

Before joining Rabobank in 2010, Vernon served as senior vice president and agricultural economist for Bank of America for 11 years, analysing the agricultural industry, agribusiness, commodity prices and food processors. Most recently, he served as senior client manager for Bank of America in Fresno for seven years. A banker for more than 30 years, Vernon began his career at the former Security Pacific National Bank where he progressed to vice president and agribusiness specialist.

Vernon earned a Bachelor of Arts degree and an MBA at the University of California, Riverside. He is a graduate of the California Agricultural Leadership Program and attended the Pacific Coast Banking School at the University of Washington.

Dr. Jay Lund, Professor, Department of Civil and Environmental Engineering, UC Davis, CA



Dr. Lund is the Director, Center for Watershed Sciences, University of California – Davis Ray B. Krone Professor of Environmental Engineering, Department of Civil and Environmental Engineering. His research and teaching specialties are integrated engineering of water resource and environmental systems at regional, utility, and household scales, employing ideas from economics and operations research. He is a member of the Civil and Environmental Engineering, Geography, Hydrologic Science, and International Agricultural Development graduate programs. He earned a Ph.D. in Civil Engineering, from the University of Washington in 1986.

Jay has research and teaching interests in the application of systems analysis, economic, and management methods to infrastructure and public works problems. His recent work is primarily in water resources and environmental system engineering, but with substantial work in solid and hazardous waste management, dredging and coastal zone management, and some dabbling in urban, regional, and transportation planning. While

most of this work involves the application of economics, optimization, and simulation modeling, his interests also include more qualitative policy, planning, and management studies

Jay Ziegler, Director of External Affairs & Policy, The Nature Conservancy, San Francisco, CA



Prior to his current role with the Nature Conservancy Jay was principal of a Sacramento-based public affairs consulting firm, Ziegler Associates. The firm was founded in 2003 and specializes in land use issues, regulatory concerns and political communications. After graduating from UC Davis in 1984, Jay worked in the California State Legislature and later served as Deputy Controller for the State of California from 1989-1992. Jay also served in the Clinton Administration as Special Assistant to Interior Secretary Bruce Babbitt for intergovernmental affairs (1993-1996) and served as Assistant Trade Representative for Public Affairs (1996-1999). At the Department of the Interior Jay's portfolio included coordination of strategies to advance collaborative conservation efforts between public and private concerns. In this capacity, he addressed a series of volatile and complex regional natural resource issues including as endangered species and habitat conservation, expansion of natural parks and monuments.

Gary Bardini, Deputy Director, California Department of Water Resources, Sacramento, CA



Gary B. Bardini was appointed Deputy Director for Integrated Water Management in August, 2011. He is responsible for leading four divisions and almost 850 employees conducting a variety of programs in support of the 2014 Governor's California Water Action Plan. Some of the services provided under Mr. Bardini's leadership include: statewide water management investigations, analysis and planning tied to the California Water Plan; drought management operations; water use efficiency investigations, outreach and local assistance; sustainable groundwater management; storage investigations; technical and financial assistance to nearly 50 integrated water management groups in the state, and climate change. Mr. Bardini is also responsible for the multi-faceted FloodSAFE California initiative. Services provided by FloodSAFE for statewide benefit include: directing and conducting flood emergency response activities, statewide planning for flood risk reduction, and supplying essential hydrology data to government agencies, academia and the public. Additionally, Mr. Bardini oversees the regulation and safe operation of over 1200 dams in the state via the Division of Safety of Dams.

Brandon Goshi, Metropolitan Water District, Manager of Water Policy & Strategy, Los Angeles, CA



Brandon Goshi is the Manager of Water Policy and Strategy at the Metropolitan Water District of Southern California. He is an expert in water resource management and has been with Metropolitan for over twenty years.

Brandon's expertise is in defining approaches for managing uncertainty so that Metropolitan can fulfill its mission to provide its service area with adequate and reliable supplies of high-quality water. Brandon leads teams of professionals responsible for the planning and analysis of water supply, demand and storage portfolio, and he is responsible for the development of regionally-based water resource programs, policies and strategies for Metropolitan's 5,200 square-mile service area. Brandon has played a key role in the development of Metropolitan's Integrated Resources Plan, Regional Urban Water Management Plan, Water Surplus and Drought Management Plan, and Water Supply Allocation Plan. He holds a bachelor's degree in Economics from the University of California at Irvine.

Aaron Ferguson, Associate, Somach Simmons & Dunn, Sacramento, CA



Aaron Ferguson's expertise in water law is the result of a unique combination of working on high-profile, complex water law issues coupled with previous careers as a water supply analyst and a regulatory affairs specialist. Aaron has worked on a range of small and large water rights matters. Much of his recent work has been helping to address new applications of water supply requirements that have shifted as a result of water scarcity. He is currently working with a large municipality in Southern California to update permit requirements with the State Water Resources Control Board. The new operating requirements will allow the city to work with a partner water agency to provide water to farmers without having to overdraft the groundwater basin, in turn preventing saline intrusion problems.

Dr. Ruth Langridge, UC Santa Cruz, Associate Researcher, Center for International, Global and Regional Studies, Santa Cruz, CA



Ruth Langridge's expertise is California water law and policy and her research focuses on the processes and relations that enable access to water and create resilience to water scarcity; on the legal and institutional issues related to water supply planning and groundwater management; and on water supply security under climate change. Her Ph.D. is from UC, Berkeley, Department of Environmental Science, Policy and Management.

In addition to her UC Santa Cruz research position she is a Continuing Lecturer with the Legal Studies Program. She was the Principal Investigator of the Groundwater Adjudication Project that assessed all current and pending adjudications and special act districts in California to evaluate the processes and outcomes of these institutions for managing groundwater. Additional research is focused on climate change, drought and water supply security. She is the lead author of a report detailing the hydrogeophysical, legal-institutional, and socio-political dimensions of establishing local groundwater drought reserves that was incorporated into California's

2012 Vulnerability and Adaptation study. Her research is funded by state and federal agencies and foundations. She has presented her work on groundwater to state and federal agencies and legislators, and just completed a three-year term as a member of the CA Department of Water Resources Climate Change Technical Advisory Committee.