

Water. Engineered.

West Yost brings the value of knowledge gained from decades of experience in the development and implementation of groundwater management plans. Our talented Geologists, Scientists, and Engineers have a deep breadth of skills to support our clients with regulatory compliance with the Sustainable Groundwater Management Act (SGMA); Groundwater Sustainability Agency (GSA) and Watermaster administration; groundwater modeling and hydrogeologic evaluations; planning and design of programs and facilities to optimize your long-term supply planning goals for quantity, quality, and conjunctive management of available water resources.

- GSA Administration
- Development of Groundwater Management Plans (GMPs)
- Recharge Master Planning
- Land Subsidence Management
- Database Management



- Watermaster Services
- Salt & Nutrient Management Plans
- Recycled Water Recharge Compliance
- Groundwater & Surface Water Integrated Modeling



- Groundwater Banking and Storage Management
- Recharge Feasibility Studies
- Aquifer Storage and Recovery (ASR) Programs
- Analysis of Groundwater Dependent Ecosystems (GDEs)
- Water Quality Investigations



- Climate Resilience Planning
- Monitoring Network Design, Implementation, and Data Management
- Well Rehabilitation and Well Construction Oversight
- Agricultural, Municipal, and ASR Well Design



Groundwater Sector: Who We Are



Samantha Adams, MESM
Groundwater Business Sector Leader

Samantha is passionate about collaborating with our team of geologists, scientists, and engineers to develop and implement creative regulatory and management solutions. While the challenges our clients face are similar, they each have unique and interesting problems and perspectives that make every project exciting. Her expertise includes salt nutrient management planning, watermaster services, and groundwater management plan implementation.

Contact: sadams@westyost.com, 949.600.7527



Andy Malone, PG
Principal Geologist

Andy's professional work is focused on the sustainable use of a renewable natural resource: groundwater. He finds it's an interesting research topic that requires a fun combination of science and imagination. Andy is a geologist with over 25 years of professional experience in water resources consulting and geologic sciences. Andy's areas of expertise include land subsidence monitoring and management, development of monitoring programs, and watermaster services.

Contact: amalone@westyost.com, 949.600.7503



Andy Rodgers
Scientist and Engineering Manager

Andy has always been fascinated by our hidden freshwater reservoirs and their relationships to everything else. Andy has over 35 years of professional experience and provides comprehensive technical, administrative, and management consulting services to public and private entities throughout the western United States at West Yost. His areas of expertise include GSA Administration.

Contact: arodgers@westyost.com, 707.508.3672



Ken Loy, PG, CEG, CHG
Principal Hydrogeologist

As a specialist in groundwater-related issues, Ken enjoys being a part of the strong multidisciplinary teams at West Yost to address wide-ranging client needs. Ken is a hydrogeologist with over 30 years of professional experience in water resources consulting. Ken's areas of expertise include ASR programs, hydrogeologic investigation/characterization, and GMP/GSP development and implementation.

Contact: kloy@westyost.com, 530.792.3276



Eric W.H. Chiang, PhD
Chief Surface and Groundwater Modeler

Eric loves creating animations of groundwater flow and constituent concentration to help his modeling results come alive for stakeholders. Eric is an expert groundwater-surface water integrated modeler with 25 years of professional experience focused on research and application in the areas of numerical groundwater and surface water modeling, 3D visualization, software development, data management, planning and decision analysis, and GIS.

Contact: echiang@westyost.com, 949.600.7518



Veva Weamer
Senior Scientist

Veva loves working with clients to advance programs to protect and manage their precious groundwater resources; this aligns with her desire to ensure sustainable water resources for her children and future generations. Veva has over 15 years of professional experience in environmental and geological science and manages complex internal and client databases at West Yost. Her areas of expertise include analysis of GDEs, database management, and water quality Investigations.

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Les Chau, BCES

Management Planning and One Water

Les is all about helping clients solving California's water scarcity and addressing climate impacts.

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Carolina Sanchez, PE

Recharge Master Planning and Salt and Nutrient Management Planning

Carolina is energized to find collaborative groundwater management solutions to meet the needs of diverse stakeholder groups, ensuring no wishing well goes dry.

csanchez@westyost.com | 949.600.7504



Matt Baillie, PG, CHG

Integrated Modeling

Matt finds groundwater fascinating and loves how complex and rewarding the study of water is, especially in California.

mbaillie@westyost.com | 530.761.0231



Anna Reimer, PG

Hydrogeologic Investigations and Integrated Modeling

As a child, I dreamt of how rocks could grow into mountains and water sprouted out of the ground. I can still dream about such things...with a bit more science mixed in.

areimer@westyost.com | 530.665.8134



Garrett Rapp, PE

Recharge Master Planning and Integrated Modeling

Garrett's fascination with nature and affinity for collaboration inspires him to develop innovative solutions to protect and sustain our water resources.

grapp@westyost.com | 602.962.6761



Erik Cadaret, PG

GSA Administration and GMP/GSP Implementation

Erik loves to play in the dirt and working towards achieving sustainable water resources for all!

ecadaret@westyost.com | 530.322.5553



Pete Dellavalle, PG

Monitoring Network Design and Implementation

Pete is a committed groundwater scientist because it's fascinating work and the only way he's found to get paid for messing about in mud.

pdellavalle@westyost.com | 707.508.3674



Sodavy Ou

Water Quality Investigation and Analysis of GDEs

Sodavy is driven to protect and enhance our water resources and ensure that this valuable resource continues to benefit the people and environment of California.

sou@westyost.com | 949.600.7513



Michael Schaefer, PhD

Geochemistry, Surface-Groundwater Interactions & Water Quality

Michael is dedicated to protecting groundwater quality and ensuring every Californian has access to safe, affordable, and reliable water.

mschaefer@westyost.com | 949.523.1545



Brett Storey

GSA Administration & GMP/GSP Implementation

Brett gets his hands dirty to make sure your project gets done on time!

bstorey@westyost.com | 307.409.6877



Dave Vossler, PG, CEM

Well Design and Well Rehabilitation

Dave loves solving complex challenges encountered in the field at well sites to provide clients with high-quality wells, and mentoring future geologists to do the same.

dvossler@westyost.com | 707.508.3675



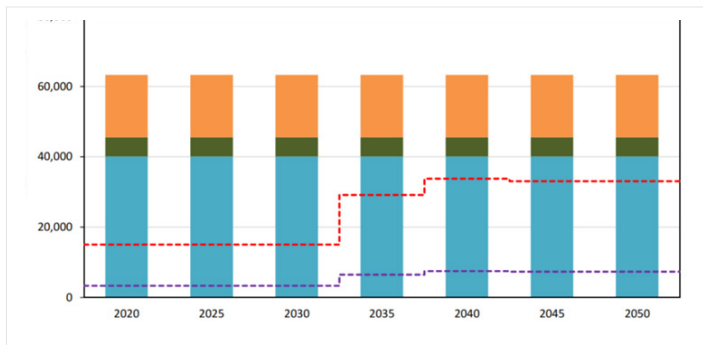
Sandi Potter, PG, CEG, QSD

GSA Administration & GMP/GSP Implementation

Sandi has been working to achieve drinkable and recreational water for all; protecting groundwater is vital!

spotter@westyost.com | 707.543.1860

Work we take pride in



Recharge Master Planning (2000-Present) CHINO BASIN WATERMASTER AND INLAND EMPIRE UTILITIES AGENCY

Challenge: Urbanization in the Chino Basin has reduced the permeability of the land surface, including the lining of streams and creeks channels, which has reduced annual stormwater recharge by about 15,000 acre-feet per year (afy) compared to pre-1980 conditions.

Project: West Yost developed and supports implementation of a comprehensive Recharge Master Plan (RMP), including periodic updates, to increase recharge of storm, imported, and recycled waters. The RMP establishes recharge capacity needs; evaluates performance of conceptual facilities under variable climate conditions using detailed surface water modeling; and ranks conceptual facilities based on feasibility, supply reliability, and performance to inform a robust evaluation of potential projects to enhance recharge.

Successful Outcomes:

- Implementation of the RMP has increased recharge capacity in the Chino Basin by 42,000 afy, and increased recharge of storm and recycled waters by 30,000 afy since 2000.
- Client has obtained about \$56 million in grant funding and low-interest loans to implement the RMP projects since 2000.



GSA Administrative Services SONOMA COUNTY GSAS: SANTA ROSA PLAIN, SONOMA VALLEY, PETALUMA VALLEY

Challenge: Cost of compliance with SGMA plus PMAs, integration of County well permitting (per EO), and identifying ways to add value for basin stakeholders in times of drought in GSA jurisdictions with relatively small populations and highly diverse uses of groundwater.

Project: West Yost services include managing consolidated day-to-day operations of the three Sonoma County GSAs, development and management of annual budgets, management of Board of Directors, Advisory Committee, and community meetings/hearings in compliance with the Brown Act, management of GSA contracts including State grants, technical support, legal counsel, facilitation, outreach, and financial audit services, and management of the GSA website, communications, and maintaining official records.

Recent Highlights:

- Retained consultants to develop a rate and fee structure to fund GSP implementation
- Obtained unanimous Board approval to adopt rate and fee structure



ASR Well 28

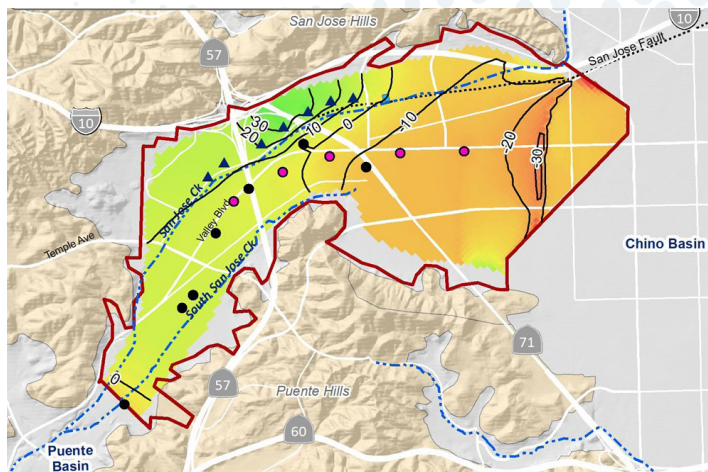
CITY OF WOODLAND AND WOODLAND-DAVIS CLEAN WATER AGENCY

Challenge: Prior to construction of the Woodland-Davis Clean Water Agency (Agency) regional surface water supply project, the City of Woodland (City) was fully dependent on groundwater. The City planned to implement an aquifer storage and recovery (ASR) program once treated surface water became available, to bolster groundwater supply during periods of peak demand. In order to meet their current supply demands and prepare for the upcoming ASR program, the City needed an ASR well that could be immediately used as a municipal supply well, independent of its ASR capabilities.

Project: West Yost worked with the Agency and the City to conduct an ASR evaluation as a component of the overall water supply for the Davis Woodland Water Supply Project (DWWSP), designed the first ASR facility for the City, and completed construction of the project, which included injection testing and impact analyses of the ASR well.

Unique Solutions:

- Constructed an ASR well that draws water from three distinct zones that, when blended, provides source water that meets drinking water standards.
- Designed a well that operates as a municipal supply well independent of its ASR capabilities.



Spadra Subbasin GSP

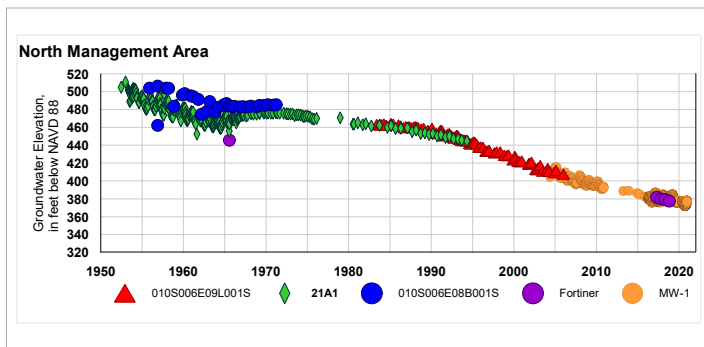
SPADRA BASIN GSA

Challenge: The Spadra Basin was an unmanaged groundwater basin with some water quality challenges that is used primarily for non-potable uses by the pumpers in the basin. The Walnut Valley Water District and City of Pomona collectively formed the Spadra Basin GSA and elected to prepare a GSP for the Spadra Basin with the objective to encourage collaborative management of the Spadra Basin between all pumpers and make maximum beneficial use of the basin in a sustainable fashion.

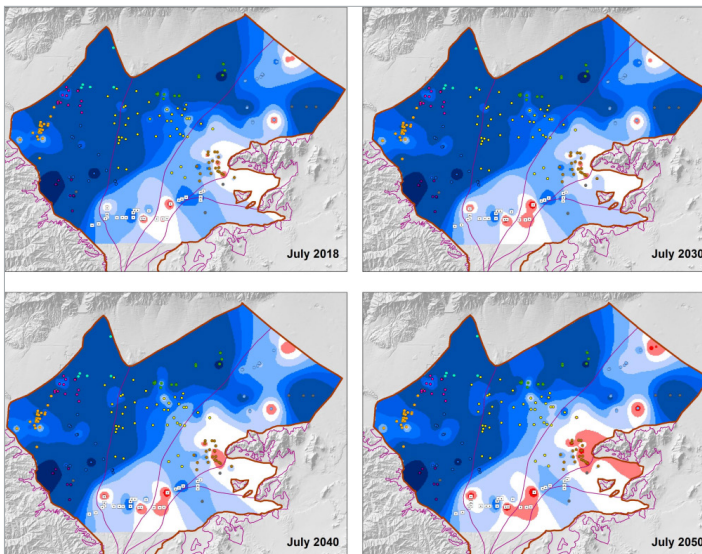
Project: West Yost led the development of the GSP for the Spadra Basin. The GSP was prepared through a stakeholder and public-review process and included the development of a hydrogeological conceptual model, construction and calibration of a groundwater model, development of sustainable management criteria, evaluation of future baseline conditions, development and evaluation of basin optimization scenarios to achieve sustainability, and construction of a new monitoring well to fill data gaps.

Outcomes and Solutions:

- Developed the Spadra Basin GSP and obtained adoption by stakeholders
- Developed unique options for projects and management actions that will maintain sustainability and make maximum beneficial use of the basin, and operating the Spadra Basin into a reliable local potable water supply, allowing for less reliance on the expensive imported water supplies.



- The West Yost team worked with the agricultural community to address potential crop change affects for modeling and advised many agency members to comprehend the technical and modeling results.



Recalculation of the Safe Yield in the Chino Basin

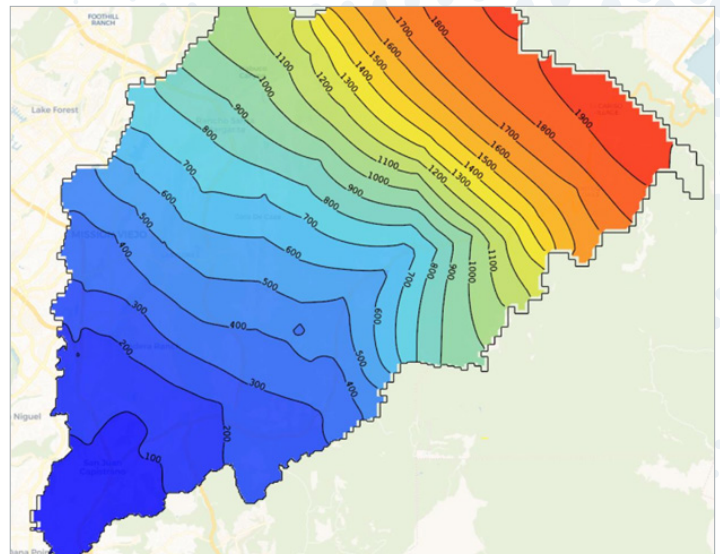
CHINO BASIN WATERMASTER

Challenge: New monitoring data and changing conditions in the Chino Basin necessitate the periodic recalculation of the Chino Basin Safe Yield pursuant to governing agreements and regulations.

Project: West Yost developed a robust approach to estimate Safe Yield using surface-water and groundwater-flow models, accounting for expected future conditions, management outcomes, and changes in hydrology. West Yost developed a methodology to calculate the Safe Yield that was approved by the Court. West Yost implemented the Court-approved methodology, performing the modeling and leading two multi-year stakeholder processes to support updates of the Safe Yield in 2015 and 2020.

Successful Outcomes:

- The methodology to calculate the Safe Yield using surface-water and groundwater-flow models was approved by the Court. The methodology includes a comprehensive and systematic evaluation of the potential basin responses from future pumping behavior.
- West Yost led the technical and stakeholder processes to recalculate the Safe Yield for two separate periods: 2011-2020 and 2021-2030. The Safe Yield resets for these periods were approved by the Court in 2017 and 2020, respectively.
- The technical and stakeholder processes used to support the recalculation of the Safe Yield are a transparent, technically defensible approach to inform the management of a dynamic groundwater basin.



San Juan Watershed Project

SANTA MARGARITA WATER DISTRICT

Challenge: The District's water supply is largely from imported sources, including the Colorado River. Given decreasing supply reliability and uncertainty of future climate conditions, the District is seeking to enhance its local supply portfolio of recycled water and groundwater from a small aquifer system with degraded water quality.

Project: West Yost developed a groundwater management plan to establish a framework for optimizing the use of San Juan Basin to enhance local water supply reliability through enhanced stormwater recharge, recycled water recharge, brackish groundwater desalination, and groundwater pumping optimization to address climate variability, protect groundwater dependent ecosystems, and manage seawater intrusion.

Unique Solutions:

- West Yost developed GSFLOW model of the San Juan Watershed to better simulate surface and groundwater interactions.

WE SUPPORT OUR COMMUNITIES

WE ARE WATER FOCUSED

WE TAKE PRIDE IN WHAT WE DO

WE STRIVE TO BECOME OUR BEST

WE DO WHAT'S RIGHT

WE BELIEVE IN QUALITY

WE LISTEN

WE SOLVE CHALLENGING PROBLEMS

WE SEE THE BIGGER PICTURE

WE TAKE OWNERSHIP

WE COLLABORATE

WE HAVE FUN

WE ARE WEST YOST

westyost.com

OREGON

Eugene
Lake Oswego

CALIFORNIA

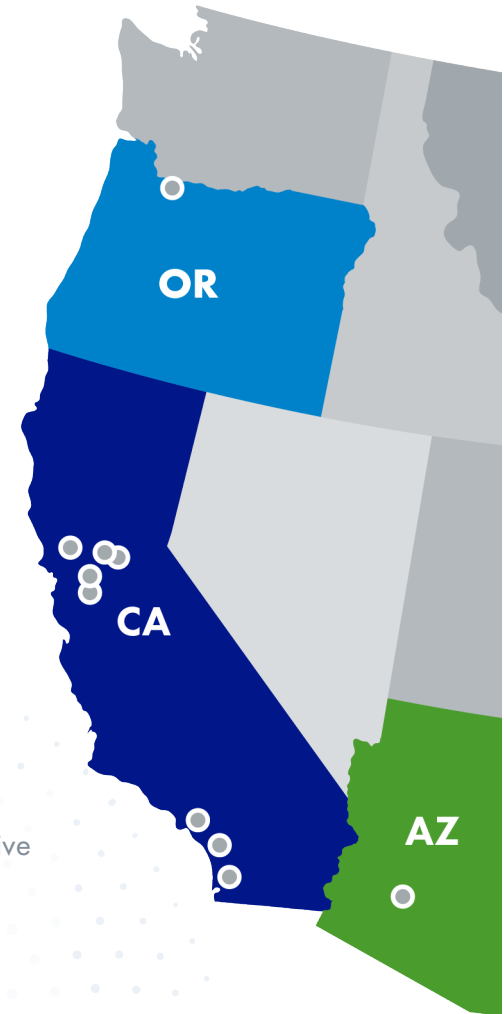
Concord
Davis (HQ)
Lake Forest
Oceanside
Pleasanton
Sacramento
San Diego
Santa Rosa

ARIZONA

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WEST YOST GROUNDWATER TEAM AREAS OF EXPERTISE AND PROJECT EXPERIENCE

<div> TEAM MEMBER</div>	GSA ADMINISTRATION & WATERMASTER SERVICES	DEVELOPMENT OF GROUNDWATER MANAGEMENT PLANS	RECHARGE MASTER PLANNING & FEASIBILITY STUDIES	LAND SUBSIDENCE MANAGEMENT	GROUNDWATER & SURFACE WATER INTEGRATED MODELING	MONITORING NETWORK DESIGN, IMPLEMENTATION, AND DATA MANAGEMENT	DATABASE MANAGEMENT	SALT & NUTRIENT MANAGEMENT PLANS	RECYCLED WATER RECHARGE COMPLIANCE	GROUNDWATER BANKING & STORAGE MANAGEMENT	AQUIFER STORAGE & RECOVERY (ASR) PROGRAMS	ANALYSIS OF GROUNDWATER DEPENDENT ECOSYSTEMS (GDES)	WATER QUALITY INVESTIGATIONS	CLIMATE RESILIENCE PLANNING	AGRICULTURAL, MUNICIPAL, AND ASR WELL DESIGN	WELL REHABILITATION & WELL CONSTRUCTION OVERSIGHT	DESIGN & IMPLEMENTATION OF HYDROGEOLOGIC INVESTIGATIONS
Samantha Adams, MESM	■	■	■		■	■	■	■	■	■			■	■			
Andy Malone, PG	■	■	■	■	■	■	■	■	■	■	■	■	■	■			■
Andy Rodgers	■																
Ken Loy, PG, CEG, CHG		■			■	■		■	■		■		■		■	■	■
Eric W.H. Chiang, PhD			■	■	■	■	■	■	■	■			■	■			
Veva Weamer, MS	■	■	■			■	■	■	■			■	■				■
Les Chau, BCES		■												■			
Carolina Sanchez, PE	■	■	■	■	■	■	■	■	■	■			■				■
Anna Reimer, PG		■			■	■	■	■			■		■	■	■	■	■
Garrett Rapp, PE	■	■	■	■	■	■	■	■	■	■			■	■			■
Erik Cadaret, PG	■	■			■	■	■	■			■	■	■		■	■	■
Pete Dellavalle, PG						■	■				■		■		■	■	■
Sodavy Ou, MESM						■	■	■	■			■	■				
Dave Vossler, PG, CEM						■					■		■		■	■	
Brett Storey	■	■	■														
Matt Baillie, PG, CHG		■			■			■					■			■	■
Sandi Potter, PG, CEG, QSD	■	■															