

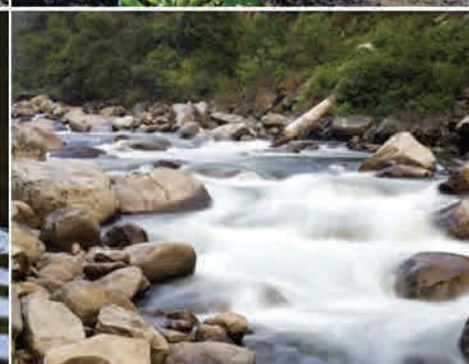
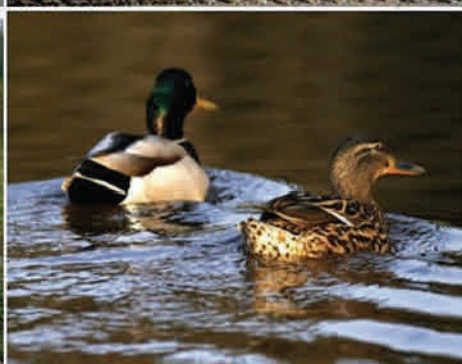
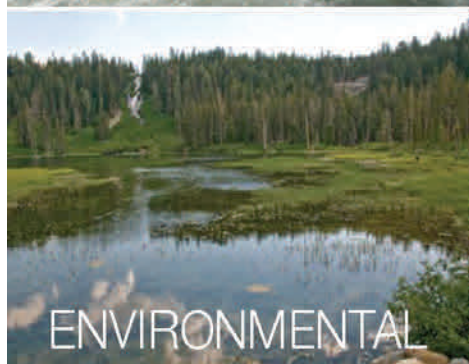
**CSU**

**The California State University**

WATER RESOURCES AND POLICY INITIATIVES

**5th Annual Conference**  
**June 20, 2013**  
**Long Beach, CA**

[www.calstate.edu/water](http://www.calstate.edu/water)



# CSU Water Resources and Policy Initiatives

## Vision

The Water Resources and Policy Initiatives (WRPI) will contribute to a long-term, sustainable water supply for California through education, research and policy development while balancing the needs of urban, agricultural and environmental concerns.

## Mission

The Water Resources and Policy Initiatives will link the capabilities and resources within the twenty-three California State University campuses to provide academic preparation, applied research and policy development that addresses all aspects of water use. WRPI optimizes and links the many centers and programs of excellence within CSU on water issues. The scope of WRPI activities include:

- Provide critical faculty and staff-based expertise to support California's need for appropriate and sustainable water resources in the 21<sup>st</sup> century;
- Promote education, training and professional capacity development with the water industry, governmental agencies, and the wider community;
- Develop new and advanced water technologies and services that will help drive economic development and job creation.

WRPI will also enhance the universities' ability to attract exceptional students and faculty by providing a culture of collaboration and innovation within a multi-disciplinary water curriculum.

## Key Goals

The goals listed below support the key elements in the WRPI mission. The goals reflect the CSU comparative advantage in addressing current and emerging statewide water issues. WRPI will be a leading resource for:

***Partnerships with the water industry and government agencies*** – WRPI will engage a broad group of water industry stakeholders and government agencies to leverage university resources to pursue the development of “good science” from which to base decision making and emerging water policy.

***Education, training and professional capacity building*** – WRPI will raise awareness on careers in water and develop academic pathways for the next generation of professionals to meet the needs of businesses, government officials, tribal nations, water professionals and the general public through outreach and training programs, professional capacity building, university curriculum development, and formal post-secondary and graduate education.

***Technology and economic development*** – WRPI will provide a strong science base and business development support to help commercialize new ideas in water industries, services and professions in California. The outcome will be a creative climate of innovation, furthering economic growth in water technology.

## Conference Agenda

June 20<sup>th</sup> 2013

Office of the Chancellor, Long Beach

**Conference Objective:** Connect CSU faculty/staff with CSU water programs and research

8:00 am	Conference registration and continental breakfast	
9:00 am	Welcome Opening Remarks	Chancellor's Office
9:20 am	Conference Overview	David Zoldoske Executive Director
9:30 am	Quick introductions: Name, Affiliation, and Interests	All
10:05 am	Panel presentation discussing CSU campus-based efforts in water reuse, efficiency and sustainability  <i>Fields of Green: Integrated Planning</i> Cal Poly Pomona/Seema Shah-Fairbank <i>Water Conservation Auditing</i> CSU East Bay/Michael Lee <i>Campus Stormwater Reuse and Management</i> Humboldt State/Eileen M. Cashman <i>Capital Planning, Design and Construction</i> Chancellor Office/Len Pettis	
11:45 am	Keynote Address – <i>Where Do Engineers Fit into the Water Equation?</i>	Michael R. Markus Orange County Water District
12:15 pm	Lunch w/Student Poster Session	All
1:30 pm	Faculty Research Efforts  <i>Los Angeles River Revitalization: The Challenges of the Arroyo Seco Confluence</i> Cal Poly Pomona/Meredith McKenzie <i>Toward a Sierran Stream Discharge Forecast Based on Tulare Lake-level Reconstruction</i> CSU Bakersfield/Rob Negrini <i>The Role of Humboldt State University's Environmental Resource Engineering Department in Developing and Infusing into Application A Low Cost Natural Wastewater Treatment-Constructed Wetland</i> Humboldt State/Robert Gearheart	
3:00 pm	WRPI Internships, Faculty Release, and Grant Submissions	Boykin Witherspoon CSU San Bernardino
3:30 pm	Wrap up/Comments/Adjourn	All
4:00 pm	Conference Adjourn	All



## WELCOME MESSAGE

David F. Zoldoske



CSU Students, Faculty and Staff,

I want to welcome you to the 5<sup>th</sup> annual WRPI conference. This meeting provides the opportunity for us to learn about some of the great work being done in water and a venue for networking outside our normal day-to-day activities. I hope you will take advantage of meeting new colleagues and looking for opportunities to collaborate in your areas of interest.

The need to train the next generation of “water” professionals has never been greater. The California State University system is positioning itself to fill this need on an unprecedented scale. Many individuals within the greater water industry are within five years or so of reaching retirement. Now is the time to encourage the “best and brightest” to seek careers in water.

By encouraging our students to engage in water research, we can influence critical choices that are needed to ensure California’s future. Whether we are involved in improving the environment, conserving and reusing urban water supplies, or helping agriculture improve water use efficiency, we will all contribute to a sustainable future. The prospect of climate change and a growing population provides the backdrop for meeting tomorrow’s needs today.

## KEYNOTE SPEAKER

Michael R. Markus



**Michael R. Markus, P.E., D.WRE, BCEE, F.ASCE**

**General Manager  
Orange County Water District**

Michael Markus is the general manager of the Orange County Water District. With more than 30 years of experience, he is well known for his expertise in large project implementation and water resource management. Mike obtained a Bachelor of Science degree in Civil Engineering from California State Polytechnic University at Pomona and a Master of Science degree in Civil Engineering from the University of Southern California. He is a registered Civil Engineer in the State of California.

Currently Mike is responsible for the management of all operations in the District including a staff of 216. The District’s primary role is to manage the local groundwater basin which provides approximately 350,000 AFY of water supply to the area.

During his 24-year career at the District, Mike has been responsible for managing the implementation of the \$480-million Groundwater Replenishment System program. This program included a \$35-million design effort and the construction of seven individual projects, which amounted to approximately \$400-million. The largest of the projects was the \$300-million, 70-million gallon per day, Advanced Water Purification Facility. This project is the largest planned indirect potable reuse project in the world and has won many awards including the 2008 Stockholm Industry Water Award and the 2009 ASCE Outstanding Civil Engineering Achievement Award.

# Faculty

## David Alderete

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- MS, Civil & Environmental Engineering, California State University, Sacramento, 2004
- BS, Civil & Environmental Engineering, University of California, Davis, 1996; Professional Engineer, State of California; Research Engineer, Office of Water Programs, California State University, Sacramento, 2000–present
- Stormwater Best Management Practice (BMP)
- Research Stormwater Monitoring and Characterization
- Project Engineer, Montgomery Watson Engineering Consultants, Sacramento, CA, 1993–2000
- Environmental Documentation and Analysis
- Surface Water and Groundwater Hydrologic Modeling Flood Control Planning and Design Professional Interests: Water resources and environmental modeling; stormwater BMP development and testing; stormwater sampling

## Dirk Baron

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Dirk Baron is a Professor of Geology. His expertise is in Hydrogeology and Environmental Geochemistry.

## Christian Carleton

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- MS, Hydrologic Sciences, University of California, Davis, 2002
- BS, Environmental Biology and Management (Water Resources Emphasis), University of California, Davis, 1998
- Professional Hydrologist (PH)
- Certified Professional in Storm Water Quality (CPSWQ); Certified Professional in Erosion and

Sediment Control (CPESC); Research Hydrologist, Office of Water Programs, California State University, Sacramento, 2008–present

- Surface water hydrology and water quality
- Hydrologic, stormwater, and erosion control studies
- Hydrologic data analysis, modeling, and measurements; Hydrologic methods; Associate Hydrologist/Project Manager, Foothill Associates, Rocklin, CA, 2003–2008
- Water quality monitoring programs
- NPDES General Construction site permit compliance
- Water resources monitoring data
- Hydrologic analysis for stream and wetland restoration designs
- Stream geomorphic analysis
- GIS hydrologic data analysis and modeling
- Watershed and other water-related management plans Professional Interests: Stormwater impacts on surface water hydrology, open channel hydraulics, and water quality; pollutant source and transport pathway identification; stochastic processes; fluvial geomorphology; hydro modification; low impact design/development; hydrologic and erosion control training.

## Eileen M. Cashman

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Eileen M. Cashman is a Professor and Department Chair of Environmental Resources Engineering at Humboldt State University (HSU). She is a graduate of HSU with a BS in Environmental Resources Engineering. Eileen has an MS in Land Resources and Energy Analysis and Policy and a PhD in Civil and Environmental Engineering from the University of Wisconsin-Madison. Recent projects and upcoming projects include a feasibility analysis of micro hydroelectric resource for the Yurok Tribe and mixing basin analysis for the Arcata Marsh.

## Anita Chaudhry

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Dr. Crockett discharges multiple assignments on behalf of the San Diego State University Research Foundation, all of which center around the RF's mission to promote university research and education. Dr. Crockett has an active role in education and research and is co-author on over twenty professional publications. As an E. Kika De La Garza Fellow, Dr. Crockett has been active in USDA programs, including as a faculty mentor for the Watershed Management Experiential Learning for USDA careers. Dr. Crockett is also co-PI on the DOE's Innovation Ecosystem regional program executed collaboratively with UCSD. Dr. Crockett received a Bachelor of Arts in Earth and Environmental Science from Wesleyan University, and an MS and PhD in Marine Geology from the University of Washington.

**Suzanne Dallman**

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Suzanne Dallman is an environmental geographer interested in all aspects of water resources management and policy, and environmental sustainability.

**Shawna Dark**

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Dr. Dark is Chair of the Department of Geography at CSUN and Director of the Center for Geographical Studies. Her area of expertise is in water resources. Dr. Dark has been involved in a variety of projects mapping and documenting California's water resources.

**Andre Ellis**

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Dr. Ellis received his PhD from the University of Illinois at Urbana Champaign developing Cr and Se stable isotopes systems to monitor fate and transport of the two contaminants. Since joining the faculty at CSULA in 2009, Dr. Ellis has been working with the NSF-CREST Center for Energy and Sustainability studying the environmental impacts of leaky carbon sequestration sites. His research interests focus on contaminant transport (Cr and As), isotope hydrology (Cr, Se, Sr, S, O, H), groundwater flow and long-term carbon cycle studies in watersheds. Dr. Ellis offers courses in hydrogeology, environmental geochemistry, isotope geochemistry and geochemical cycles.

**Brad Finney**

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Brad A. Finney is professor of Environmental Resources Engineering at Humboldt State University in Arcata, California. He received his MS and PhD in Civil and Environmental Engineering from Utah State University. His 34 years of research and consulting expertise includes constructed wetlands for wastewater treatment, wastewater facility planning and management, and the optimal management of water and wastewater systems.

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Philip Garone is Associate Professor of History at CSU Stanislaus. His specialization is environmental history, and he has published a book, *The Fall and Rise of the Wetlands of California's Great Central Valley* (UC Press, 2011), and several articles on the history and ecology of the Central Valley, with an emphasis on wetlands and hydraulic infrastructure. His current projects include the identity and water politics of the Sacramento-San Joaquin Delta, and the effects of global climate change on the current and future management of public lands

**Robert Gearheart**

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Dr. Gearheart is an Emeritus Professor of Environmental Resource Engineering at Humboldt State University, in Arcata, California where he taught courses in environmental impact assessment, water and wastewater treatment and water quality management. Dr. Gearheart introduced and implemented an Engineered Natural Treatment System course prior to his retirement and still teaches that course. Dr. Gearheart presently is the Director of the Arcata Marsh Research Institute, a City of Arcata/Humboldt State University facility for supporting student research and City operational requirements. Dr. Gearheart has over 100 publications and was a major contributor and author for the 1999 EPA Constructed Wetland Design Manual. Over the last twenty years he has organized more than ten week-long constructed wetland workshops attended by consultants, agency and tribal staff and municipal representatives. He is a member of the American Water Resources Association, International Water Association, and the Society of Wetland Scientist. He has worked internationally for the World Bank, USAID, Asian Development Bank, and many NGO's in the area of low cost water and wastewater treatment systems and served as a consultant for several municipalities including, City County of San Francisco, San Jose, Phoenix, Ventura, Sacramento, and Tucson.

#### **Dave Goorahoo**

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Dave Goorahoo is an Associate Professor in the Plant Science Department and a Soil Scientist with the Center for Irrigation Technology (CIT) at California State University, Fresno. He teaches courses in Food-Society and Environment, Vegetable Production, Organic farming and Soils in the Environment and Seed Technology at the Undergraduate level and courses related to Soil-Plant-Water and Energy interactions at the graduate level. His AgEnviron research focuses on nutrient and water use efficiency in vegetable crop production systems with an emphasis on examining the impact of agricultural practices on the environment. Dr. Goorahoo was born in Trinidad and Tobago where he obtained his BS in agriculture at the University of the West Indies. He completed his MS and PhD studies at the University of Guelph, Canada before moving to Fresno in December 1999.

#### **Sargeant Green**

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Sarge Green is working on the San Joaquin Valley Integrated Regional Water Management Plan (IRWMP) process as well as the San Joaquin River Restoration Program as a landowner technical facilitator. He serves as the Clean Water Subcommittee Chair for the Association of California Water Agencies and is also a member of the California Water Quality Monitoring Council.

#### **Don Hankins**

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Dr. Hankins has been involved in various aspects of water-related projects including regulatory, habitat enhancement, and planning. Currently he is working on restoration and enhancement projects utilizing prescribed fire aimed at improving ecosystem services including water storage. He continues to provide technical assistance to Tribal entities including the California Indian Water Commission regarding traditional ecological knowledge and restoration.

#### **Eric Houk**

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Dr. Eric Houk earned his PhD in Agricultural & Resource Economics and his primary areas of expertise include Agricultural Production and Natural Resource Economics. His research primarily focuses on the economics of water and how water policy affects the efficiency of water resource allocation. Specifically, he has examined the economic impacts of water transfers from agriculture for endangered species preservation, the economic effects of irrigation-induced waterlogging and soil salinization, and the impact of water conservation efforts on residential water demand. He is currently evaluating the economic and hydrologic impacts associated with water transfers from agriculture in northern California.

#### **John Johnston**

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John is a professor of Civil Engineering at California State University Sacramento. Since 1999, he has been splitting his time between the classroom and the Sacramento State Office of Water Programs where he has been a technical adviser to the Caltrans stormwater research program. His work has focused on the development of treatment BMPs for highway runoff, particularly in the Tahoe region. Prior to joining Sacramento State, John was a faculty member at Fresno State. He earned his doctoral degree at UC Davis and is a registered civil engineer in California.

**Krista Kamer**

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Dr. Krista Kamer is the Director of the CSU Council on Ocean Affairs, Science & Technology (COAST, [www.calstate.edu/coast](http://www.calstate.edu/coast)), the system-wide affinity group for marine and coastal research and education. She is involved in system-wide efforts to support faculty members and students, promote research and stakeholder engagement, and enhance student learning. Krista received her PhD in Biology from UCLA and worked at the Southern California Coastal Water Research Project (SCCWRP) and Moss Landing Marine Laboratories (MLML) prior to leading the establishment of COAST in 2008.

**John Keyantash**

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John Keyantash is an Associate Professor and the Chair of the Department of Earth Science and Geography, with specialization in hydroclimatology. His research interests include quantifying the severity of droughts, and the physical geographic characteristics of large waterfalls (including their very low-frequency sounds). He is interested in the statistical properties of streamflow, including the timing and volume of spring runoff in the Sierra Nevada. He has also analyzed the spatial coverage of Sierran stream gauge networks using GIS. Keyantash has also employed neural network models to estimate the potential effects of climate change on California salmon populations.

**Charles Krauter**

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Charles Krauter began teaching the irrigation and water management courses in the Plant Science department in 1979. During that period, he conducted research in the following areas: Irrigation Scheduling, Leaching of fertilizers and pesticides from the root zone, Water Requirements of various crops, Infra-red Thermometry, and Air Quality problems. He retired from full time teaching in 2009 but continues to teach and conduct research part time.

**Julie Lappin**

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Ms. Lappin is the Program Manager for the Water Resources Institute at CSU San Bernardino and manages WRI's multiple internship programs. She holds a Jurist Doctorate from Franklin Pierce Law Center and focused on intellectual property law. Ms. Lappin has served as the Assistant Director for another CSUSB award, the Office of Technology Transfer and Commercialization, which was a 9-year, multi-million dollar Department of Defense-funded program. She has many successful years of experience in planning, managing, and executing federally funded programs.

**Michael Lee**

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Michael Lee is Professor of Geography and Environmental Studies at Cal State East Bay. He has spent 25 years teaching, researching and consulting in water and sustainability. He received his doctorate from the London School of Economics in 1989 where he researched water harvesting systems, then consulted internationally on water conservation and protection. He first taught at the Escuela Agrícola Panamericana, Honduras, where he managed part of a USAID-funded global Sustainable Agriculture and Natural Resources Management program. He joined CSUEB in 1996 and developed his courses on Water Resources and Management and Sustainable Development. He also teaches courses on Sustainable Resource Management and Sustainable Cities among other topics.



**Karl Longley**

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Dr. Longley is a researcher and project manager with the California Water Institute at Fresno State. His current responsibilities include serving as an investigator for the California Council of Science and Technology's Innovation for California's Water Future Program, and serving as the principal investigator for a U.S. Environmental Protection Agency grant focused on developing solutions for the safe drinking water needs of small, economically disadvantaged communities (DACs). Dr. Longley's experience includes twenty-two years as a Central California Regional Water Quality Control Board member of which eight years were as the Board's chair, a position he currently fills. Dr. Longley served as the Dean of the College of Engineering and Computer Science, California State University, Fresno, during the period of 1996 through 2004 with responsibility for a number of programs including the MESA/MEP program, and he served three years on the Board of Scientific Counselors, Agency for Toxic Substances and Disease Registry (ATSDR). Dr. Longley has over 45 years of experience directly supervising or conducting studies of water quality, industrial waste control, hazardous waste management, and water and wastewater treatment plant design and as a civil engineering faculty member, researcher and academic administrator.

**Marc Los Huertos**

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Marc Los Huertos teaches a wide range of classes based on his interests. The undergraduate courses include Aquatic Ecology and Environmental Monitoring. He also teaches a number of graduate courses that teach students to integrate science and policy and research methods. Currently, he is writing a text book entitled, *The Ecology of California's Inland Waters*.

**Ramzi Mahmood**

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Dr. Mahmood is Professor and former Chair of the Civil Engineering Department at California State University, Sacramento, and since 1997, the Director, of the Office of Water Programs (OWP). OWP is the national leader for the development and distribution of training materials for operators and managers of water and wastewater treatment plants. OWP researchers also have been very active in evaluating Best Management Practices (BMPs) for stormwater runoff from transportation facilities. Dr. Mahmood's main interest is in environmental statistical data analysis and modeling. For the last two years, he has been working with UNESCO to develop a strategic plan and roadmap for the improvement of Higher Education.

**Meredith McKenzie**

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Meredith McKenzie, JD, has been a Cal Poly Pomona faculty member since 2008, specializing in environmental planning for urban areas with a focus on land use/water use interfaces. Her research has focused on urban riverine restoration of natural processes and its role in supporting innovative water conservation while enhancing native habitat functioning. She is a member of the Cal Poly Pomona faculty water initiative committee and a researcher team member of the SIRG II-funded Field of Green recycled water project. She works extensively on Los Angeles River Watershed restoration projects.

**Saad Merayyan**

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Dr. Saad Merayyan is an Associate Professor of Civil engineering with Water Resources engineering specialty. Dr. Merayyan's research interests are in hydrology, hydraulics computer models and climate change impacts and adaptations.

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Anthony Metcalf researches biodiversity in southern California watersheds, primarily focusing on streams and drainages within the Santa Ana River watershed. His lab and students are currently examining genetic diversity in a local fish species, the Santa Ana Speckled Dace, using mitochondrial and nuclear markers.

**Jean Moran**

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Dr. Jean Moran is an associate professor in the Department of Earth and Environmental Science at California State University, East Bay. Her research focuses on using naturally-occurring and introduced isotopes to examine geochemical and transport processes in the vadose zone and in groundwater. Dr. Moran has a PhD in Geochemistry from the University of Rochester, Bachelor's degrees in physics and geology from the University of Rochester and a Master's degree in geophysics from the University of Washington.

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- Professional Engineer, State of California Engineering Manager, Office of Water Programs, California State University, Sacramento, CA, 2002–present; Applied Research Engineer, 2000–2002
- Stormwater Research Management
- Stormwater Treatment BMP Research
- Stormwater Runoff Monitoring Research Stormwater Management Training
- Project Engineer, Radian International, Sacramento, CA, 1991–2000
- Groundwater and Soil Remediation System Design and Construction
- Regulatory Compliance Action Plans, Assessments, and Reports Remedial Investigation and Feasibility Study Activities Professional Interests: Source control and elimination; BMP effectiveness evaluations; Low Impact Development

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BS cum laude Amherst College in Geology 1979  
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Professor of Geophysics in Geological Sciences, CSU Bakersfield 1985-present. CSUB Outstanding Teacher AY97/98. CSUB Outstanding Researcher AY12/13. \$6.5 M in grant funding from peer-reviewed competitions. Presently, Director of CSUB NSF Center of Research Excellence in Science and Technology and Vice-Chair of the CSUB Academic Senate.

**James Noblet**

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Dr. Noblet received a BS in Geology from the University of California-Los Angeles in 1983, an MS in Chemistry from California State University-Long Beach in 1991, and a PhD in Environmental Health Sciences (Environmental Chemistry) from the University of California-Los Angeles in 1997. He has over 20 years of experience in chemical analysis and project management. His expertise is in the transport, transformations and fate of contaminants in aquatic systems. In addition to teaching chemistry for non-science majors, general, analytical, environmental, materials chemistry, and conducting research, Dr. Noblet is also Director of the newly formed CSUSB Water Quality Laboratory.

**Dipen Patel**

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Dr. Dipen Patel has extensive experience in the field of water quality management. He has worked at the Office of Water Programs at Sacramento State for over 10 years providing technical oversight for both full-scale and small-scale stormwater treatment pilot studies. His interests include designing and testing innovative stormwater treatment technologies, improving the effectiveness of conventional treatment systems, and water quality modeling. He is a registered Civil Engineer in California.

**Len Pettis**

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Len Pettis is Chief of Plant, Energy & Utilities for the California State University 23rd campus and has more than 35 years of experience in engineering operations and energy management. Leading the university system through one of the most ambitious grant writing periods in its history, Pettis took on the challenge of coordinating multiple stakeholders from both within and outside CSU, overseeing a smart grid demonstration grant application for \$155 million. He champions integrated building design, sustainable best practices and energy efficiency initiatives within the nation's largest public university system. Pettis is the co-architect for the largest statewide energy efficiency grant program, which has received \$70 million since 2004 from the CPUC to fund a three-part comprehensive program for retrofit, monitoring based commissioning (MBCx) and training and education programs. He holds a Bachelor's degree in Mechanical Engineering from Maine Maritime Academy, received his Chief Engineer's license from the United States Coast Guard, and is a Certified Energy Manager with the Association of Energy Engineers.

**Laura Ramos**

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**Rollin Richmond**

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Following a distinguished career as a faculty member, researcher in evolutionary biology, and academic administrator, Rollin C. Richmond was appointed the sixth president of Humboldt State University in 2002. Since his appointment, Humboldt State has gained recognition as a student-centered, diverse, and sustainable university which serves as an important community and economic hub. Richmond's research focus is in the areas of the genetic mechanisms of evolution and the genetic bases for the effects of psychoactive drugs. He has won numerous grants from the National Institutes of Health and National Science Foundation, published over 80 articles in his field, and has presented his research

findings internationally. Richmond's campus and community involvements include service on the boards of the Long Island Technology Incubator while at SUNY Stony Brook, the H. Lee Moffitt Cancer Center at the University of South Florida, and local United Way efforts in Florida, New York, Iowa and California. His honors include fellowship in the American Association for the Advancement of Science and Commonwealth Scientific and Industrial Research Organization (Australia), the University of South Florida President's Award for Outstanding Performance and Enhancement of Affirmative Action in Higher Education, and an honorary doctorate from Georgia Agrarian State University.

**Darren Sandquist**

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Darren Sandquist is a plant ecologist who works on plant water use in arid and semi-arid ecosystems.

**Seema Shah-Fairbank**

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Seema C. Shah-Fairbank is an assistant professor in water resources at California State Polytechnic University in Pomona. She teaches courses in hydrology, hydraulics and environmental engineering. Seema is currently serving as the student section advisor American Society of Civil Engineers (ASCE). She is currently working with the Foothill Municipal Water District on ways to increase ground water recharge. She obtained her BS in Environmental Engineering from California Polytechnic State University, San Luis Obispo in 2001. Prior to attending graduate school at Colorado State University (CSU) she spent 3 years working as a Design Engineer for RBF Consulting in Storm Water Management where she worked on various flood control, hydrology and hydraulics projects. She is a Licensed Professional Engineer in the State of California. She completed her graduate studies in Civil Engineering at CSU with a MS in 2006 and PhD in 2009, where she specialized in sediment transport and river mechanics.

**Douglas Smith**

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Dr. Douglas Smith received a PhD from UC Santa Barbara in Geological Sciences. He is a professor in the Division of Science and Environmental Policy at Cal State Monterey Bay. He teaches Geology, Geomorphology, and Hydrology in undergraduate and graduate courses. Advanced courses have GIS, geospatial analysis, hydraulics, hydrology, sediment transport, river restoration and computer modeling components. Dr. Smith's recent research projects include sediment erosion from off-highway vehicles and dam removal impacts.

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My research interest is focuses on understanding hydrologic and land surface processes to improve the prediction of hydrologic fluxes, interannual and interseasonal climate variability, investigating the effect of land use and cover change, and assess the effect of human impacts on the environment. My research group uses hydrologic and land surface models, ground observation and remote sensing data for their analysis.

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Dr. Jeffrey Thompson (BS, physics and PhD, molecular biophysics) spent six years at the NIH, then joined the College of Medicine, Department of Cell and Structural Biology, at the University of Illinois, Urbana-Champaign. For the last twenty-five years, he has been in the Department of Biology, California State University, San Bernardino. He served as Chair of the Biology Department from 1998 to 2005. He is currently the Associate Provost for Research and Dean of Graduate Studies. The Water Resource Institute at CSUSB reports to him. His research interests include influence of adult stem cells on neurons and neurite outgrowth.

**Kaomine Vang**

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Kaomine Vang is a project manager with good analytical and technical skills who works for the Center for Irrigation Technology (CIT) at California State University of Fresno. As a project manager he is involved in the development of water management plans, water-related research, and coordination of educational programs. Kaomine is responsible for the WATERIGHT program, a web-based irrigation scheduling tool free to growers and the public. He is involved in the San Joaquin River restoration project identifying regulatory issues and concerns that growers may have. He co-wrote chapter 16 Conservation and environmental Protection in *Irrigation, Sixth Edition* published by the Irrigation Association and was involved in the agricultural water use report published by the Center for Irrigation Technology. Kaomine also works with the rural Development Center on campus to help disadvantaged communities with water-related issues.

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Boykin Witherspoon serves as Director of Programs at WRI including the administration of all aspects of the management including: planning and budgeting; promotion of the Institute within the community, universities and industry; liaison with advisory boards; program management; development and oversight of contracts and grants; hiring and supervision of staff; and training and publications efforts. Mr. Witherspoon is a focused problem solver with international project management experience GIS applications and software for sustainable landscape architectural planning and design. Mr. Witherspoon's experience includes managing interdisciplinary teams of designers, scientists and software developers. Mr. Witherspoon is dedicated to ingraining GIS and geographic information science into the teaching, legal and regulatory frameworks that direct development and use of the Earth's resources.

**William Wright**

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Dr. Wright began his career with Black & Veatch consulting engineers after earning a BS degree in Civil Engineering from UC Berkeley in 1986. Following that he earned MS and PhD degrees in Civil and Environmental Engineering at UC Davis and has been a faculty member in Civil Engineering at Fresno State since 1999. He is an Associate Professor responsible for coursework in environmental and water resources engineering, and he is the Coordinator of the Graduate Program. His research interests include water and wastewater treatment with an emphasis on removal of taste and odor compounds and nitrate; and vapor-phase biofiltration.

**Dilruba Yeasmin**

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Dr. Dilruba Yeasmin recently joined California Water Institute at California State University Fresno as a researcher (specialized in GIS and natural resources). She has been working as a post-doctoral research associate at Energy-Water-Ecosystem Engineering group, Environmental Sciences Division, Oak Ridge National Laboratory (ORNL) after completing her PHD from University of Arizona. Her work at ORNL focused on geo-spatial analysis to identify the locations of potential new small dams for the entire United States. She was also involved in mapping and visualization for National Hydropower Assets Assessment (NHAAP) project. Before

joining ORNL, as a graduate student at University of Arizona, she worked for several natural resources projects which include Rapid Watershed Assessment in Arizona, developing National Wetland Inventory for Arizona and Siting Analysis for Pumped Storage Hydropower. Her research interests include application of GIS in natural resources management and society technology interaction for environmental decision making.

**David Zoldoske**

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David Zoldoske serves as the Water Resource and Policy Initiatives executive director and as the director of Fresno State's Center for Irrigation Technology and California Water Institute. He is currently serving as the co-chair of the California Department of Water Resources strategic planning caucus for New Water Technology: Objective 11 and has served as president of the Irrigation Association and the California Chapter of the American Society of Agronomy. David has authored or co-authored over 100 articles on irrigation and water technology. He co-authored the CIT report *Agricultural Water Use in California: A 2011 Update* and Chapter 16 Conservation and Environmental Protection in *Irrigation, Sixth Edition* published by the Irrigation Association. Major areas of emphasis cover water use in agriculture, urban and the environment, and include policy, education and training, equipment testing and economic development.

## Students

**Richard Alcala**

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Currently attending Cal Poly Pomona studying Civil Engineering as a first generation college student. Will be graduating in spring 2013 with hopes to attend graduate school and continue on with current research. Working as a Watershed Management Intern for the Water Resource Institute in San Bernardino where working on a project on a creek site within the San Gabriel Mountains, Angeles National Forest.

**Omar Al-Shafie**

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I am a graduate student at Humboldt State University. My thesis project is the investigation of nitrification in constructed wetlands through artificial aeration.

**Scott Blanco**

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My parents were from modest backgrounds, and as a result they have been hard workers and understanding the value of education. I studied molecular biology and ecology at UC Berkeley, and joined the Biology Scholars Program, a multicultural academic organization for socioeconomic/ethnic minorities. My experience at UCB provided me with an appreciation for the dynamic environment created by diversity. While there, I was involved in sustainability programs, volunteering for organizations where urban agriculture was used to increase science literacy. Professionally, I will reach out to people of all backgrounds, especially those lacking opportunities to explore science and interaction with natural systems.

**Emmett Campbell**

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I am a senior at CSU San Bernardino. My area of study is Biochemistry but my focus for a career has been environmental chemistry. I currently work in a water quality lab on campus and intern at an aerospace corporation called Kelly Space. I plan on going to graduate school in environmental engineering and hope to have a successful career in water chemistry.

**David Challacomb**

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I am a 34 year old with experience in education who wants to return to teaching with the knowledge of how to handle society's most pressing concerns, namely water resources, waste management, energy infrastructure, food production and transportation. I want to coordinate a better school to workforce program, with an emphasis in productivity, keeping the ratio of producers to consumers on everyone's mind.

**My Dang**

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I recently completed my graduate degree in Industrial Technology at Fresno State. I have accumulated agricultural and research experience as a student intern at the Center for Irrigation Technology and am currently finishing the Watershed Management Internship Program.

**Christina David**

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I just finished the second year of the Coastal and Watershed Science & Policy graduate program at CSU Monterey Bay, where I am studying water resources management with a particular focus in reducing nitrate levels in farm runoff. I worked for short stints with the California Department of Pesticide Regulation and the United States Geological Survey, monitoring groundwater and endangered species, respectively. I enjoy hiking, dancing, and eating good food with friends.

**Elizabeth DeRubeis**

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Elizabeth is a graduate student in the Geology department at California State University, East Bay. She is currently completing her Masters Degree with a focus on hydrogeology.

**Allison Edgerley**

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Allison is a Civil Engineering student at Cal Poly Pomona. With the help of her adviser, Dr. Monica Palomo, Allison has had the opportunity to participate in two research projects. She looks forward to presenting the results of her evaluation of the undergraduate water knowledge at Cal Poly Pomona.

**Issa El Haddad**

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I am a civil engineering student at SDSU, doing research in environmental engineering. My research deals with silver nanoparticle toxicity to nitrifying bacteria. The project I am currently working on assesses the influence of silver nanoparticles on chronically exposed bacteria.

**Elayna Flanders**

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I obtained my Bachelor's degree in Biological Sciences with an Ecology concentration from California State University San Marcos (CSUSM) in August of 2010. I immediately entered their graduate program working closely with conservation biologist, Dr. William Kristan, looking at knowledge gaps in conservation information in the Birds of North America reference series. This past summer I had the opportunity to complete my own research project through the Watershed Management Internship Program. During the course of this internship I have designed and conducted a research project involving the treatment ponds at the San Dieguito River Park. I have learned how to outline and implement my own research project, along with learning new techniques involving water quality, soil collection, and analysis.

**Aldo Garcia**

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I am an undergraduate student working on a BA in geography and a minor in geology. My concentrations in geography are physical, California, and geospatial technologies. I plan to pursue a career with the Forest Service in the Sierras.

**Alec Goldman**

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By combining population and molecular studies, we investigated whether there is a link between intracellular microcystin toxin and cell density to determine if cyanobacteria exhibit quorum-sensing properties to regulate the production of microcystin in samples collected from Pinto Lake, Watsonville California

**Yelena Granovskaya**

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After receiving a BS in Environmental Science from the University of Florida. I joined the Geography Department at San Diego State University as a Master's student. My research interests lie at the inter-face of climate change, hydrology and GI Science. This led me to develop a research project focused on changing disturbance regimes in ecosystems. My thesis work uses remote sensing imagery, statistical, and computing methods to assess the spatio-temporal patterns and driving mechanisms behind drought impact on indigenous forests of South Africa. This work becomes especially important in the context of Global Climate Model predictions and increasing concerns for forest management and climate mitigation strategies.

**Liane Greaver**

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I am a third-year graduate student in Dr. Tony Metcalf's ecology and evolution lab. I have previously had an internship with the WRI on the CSUSB campus. My project entailed the survey of a particular fresh water fish species, *Rhinichthys osculus*, the speckled dace. This small minnow is an indicator of the health and vitality of the local watershed streams of the Santa Ana watershed, in particular Lytle Creek. The seasonal shifts in water flow parallel the population fluctuations of this fish. For my Master's thesis I am studying the genetic variation of the speckled dace among three neighboring watershed habitats of central to southern California.

**Heidi Halverson**

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I am a graduate student in the Environmental Systems program at Humboldt State University. I am working on a project at the Arcata Wastewater Treatment Facility to determine the treatment capabilities expected from three enhancement wetlands used for tertiary treatment. I look forward to working internationally with water resources after I complete my schooling.

**Shelley Lawrence**

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I am a second-year research intern with CSU San Bernardino Water Resource Institute. I have had the opportunity to continue my research on urban runoff water treatment ponds throughout the summer. Currently, I am also working toward my Master's degree in Biological Sciences with a concentration in ecology. I plan to pursue a career in ecological conservation upon finishing my degree and internship in Summer 2013.

**Raymond Lee**

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I am a second-year Master's student in the Department of Geography (Watershed Sciences). My thesis is a study on nutrient loading and eutrophication in four drinking water reservoirs.

**Britany MacFarlane**

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I am a first-year Masters student at Humboldt State University. I am majoring in Environmental Resource Engineering with an emphasis in water quality.

**Tanisha Martin-Chiles**

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I'm passionate about conservationism! If we don't care about what we have, then we'll lose it all to greed and ignorance. I plan on doing research in the category of conservationism that'll have impacts within communities as well as on a global scale. I'll be continuing my education to obtain my doctorate degree. I'll be studying either Geography with an emphasis in conservation and preserving resources; or policy fields, so I can apply my research into productive policies that'll benefit the environment and creatures that inhabit within it. Diversity in

ecosystems makes this world whole, and it begins with water.

**Stacey Nerkowski**

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I am a graduate student at CSU San Bernardino studying the relationships of the Santa Ana Speckled Dace among the tributaries of the Santa Ana and San Gabriel River Watersheds.

**Kelsey Padilla**

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I am currently an undergraduate at CSU Bakersfield. My existing short-term goal is to finish out a four-year degree program to get my Bachelors degree in geology. I plan on graduating by spring of 2013 with a BS in Geology and will likely continue on to graduate school, most likely as far as a PhD, starting with the MS program at CSUB. My career goal is to be hired by either the USDA Forest Service or by some other land and water conservation agency. I would like to conduct research on future water resources in the United States and land management in order to preserve ecosystems that are slowly vanishing over time. Gaining my PhD and combining it with leadership skills that I have been taught over the years will help me to go far within the career path of my choice.

**Oleta Piecuch**

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I am a student majoring in geography at CSU Stanislaus. I am also part of the USDA Watershed Management Internship program. Our study presents the results of the investigation of the hydro-geomorphic characteristics of the Tuolumne, Stanislaus, and Merced Watershed of the Central Sierra Nevada.

**Logan Prosser**

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I am a geology student at CSU Bakersfield presenting a poster on my research on Tulare Lake sediments.

**Julianne Rhodes**

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I am currently pursuing a Masters in Coastal & Watershed Science & Policy at CSUMB and finishing up a USDA-sponsored internship administered by the Watershed Resources Institute. My internship duties include conducting water quality testing and reporting of conditions in the Carmel River Lagoon for Monterey Peninsula Water Management District ([mpwmd.net](http://mpwmd.net)). I represent CSUMB at monthly meetings of the Integrated Regional Water Management Program ([greatermontereyirwmp.org/about](http://greatermontereyirwmp.org/about)) where several agencies come together to take a proactive, leadership role in solving water management problems on a local level through collaborative regional planning and I serve on the board of the Coastal Watershed Council ([coastal-watershed.org](http://coastal-watershed.org)) a Santa Cruz-based nonprofit focusing on stewardship and monitoring of water resources through the efforts of citizen scientists.

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I am a single mom with two children, Gracie and Phillip. Thanks to them I began to study and am now a graduating senior, with a major in Chemistry, at CSUSB. My major led me to meeting Dr. James Noblet, whom I had the privilege of working with as a Lab Aid. In the lab, we monitored Canyon Lake and Lake Elsinore in the Inland Empire. Shortly after, we began our research with Alum and Canyon Lake water. These experiences have launched my interest in Environmental Science, a field I hope to continue to pursue after my undergraduate studies.

**Janet Robles**

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Janet Robles is currently an Undergraduate student at California State University, Fresno where she is pursuing her Bachelor's Degree in the Craig School of Business. Janet has assisted with laboratory experiments for several

research projects over the past two years. She is also working with the Center for Irrigation Technology on various research projects. In fact, her participation was a focal point of the original USDA grant, which is to help support and expand opportunities for Hispanic students. She is considering putting her business skills to work for the USDA after graduation.

**Jorge Rubalcava**

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I am Civil Engineering major at Cal Poly Pomona with an emphasis in Environmental Engineering. I currently help out at my family's restaurant when I have free time from school. I will be graduating this summer and hope to join the Peace Corps in the future or continue with an internship I previously had.

**Michelle Saltis**

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My name is Michelle Saltis and I am 30 years old. I am of a Hispanic Mexican American origin and I am married without children. I currently have two Associates degrees, one in the arts and the other is in science, and they were both earned at Riverside Community College. Throughout my life, I have liked to set small goals because they are more realistic to obtain and when I reach that goal, it encourages me to accomplish further. After completing a Bachelor's degree, the next goal is to obtain a Masters degree and then continue to earn a Doctorate.

**Daniel Segal**

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Daniel Segal is a Graduate Student in Geology at Cal State East Bay. He received his Bachelors of Science in Physical Geography from UC Santa Barbara in 2009. He has been a student researcher at Lawrence Livermore National Laboratory since 2012. Current research topics include using dissolved gases and isotopes to assess climate change vulnerability in high elevation groundwater basins.

**Erin Stanfield**

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As a graduate student in the Coastal Watershed Science and Policy Master's Program at CSUMB, I've become increasingly familiar with the emerging crisis facing California's dwindling supply of potable water. I have come to understand both the need for this water to effectively support California's growing population and robust economy as well as the multiple threats facing the existing water supply. Through my thesis research, I am helping the California State Water Resources Control Board and the City of Watsonville to understand the environmental factors associated with the development and toxicity of cyanobacterial harmful algal blooms in coastal freshwater lakes.

**Touyee Thao**

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Touyee Thao is a senior undergraduate student at California State University, Fresno. He is pursuing a degree in Plant Science/ Crop Production Management and has strong interest in crop research. Currently he has been working as a Student Assistant with Dr. Dave Goorahoo and Florence Cassel at the Center for Irrigation Technology assisting with numerous projects on salinity assessment and water management. His involvement with Researchers has exposed him to soil and tissue analysis, field management, surfactant and herbicide application. Touyee Thao will be graduating in Fall 2014 and plans to get a Masters in Plant Science.

**Ingrid Williams**

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I am currently a junior at CSUSB scholar with WRI. The project I will be presenting on is Ecological Restoration Monitoring and Mapping and how the G.I.S outcomes directly affect local watersheds: Santa Ana, Northern and Southern Mojave. The project focused on the restoration of meadows and other areas burned in the 2007 fires and it was carried out over summer 2012. I interned with CSUSB WRI and worked alongside USDA Forest Service and Southern California Mountains Foundation to

complete the monitoring and mapping project.

**Samayyah Williams**

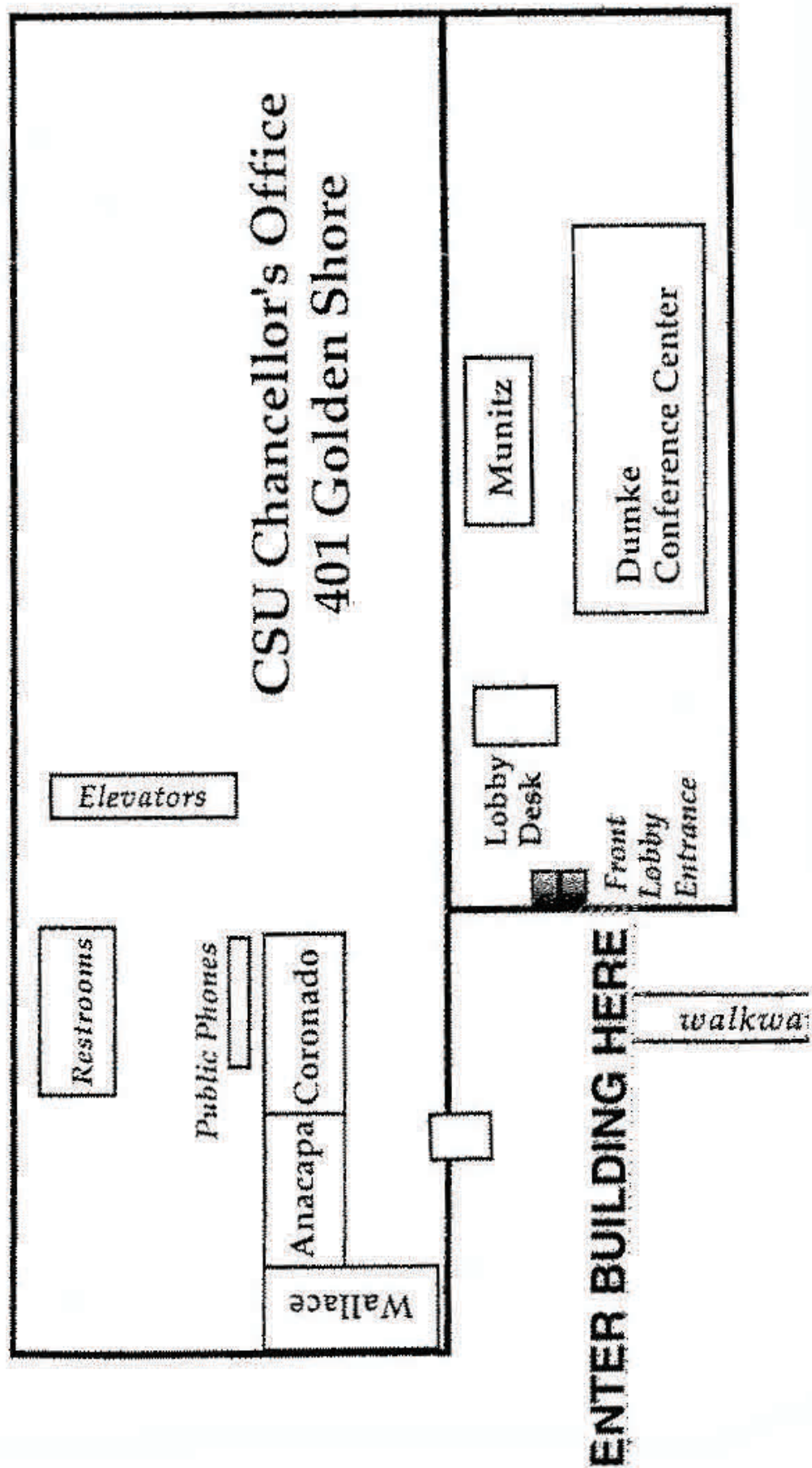
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Samayyah Williams is an undergraduate Environmental-Civil Engineering student at Cal Poly Pomona. She is doing research with Dr. Monica Palomo and Dr. Marcia Murry-Ewers in the field of denitrification of groundwater through the use of woodchip bioreactors as well as analyzing the microbial population responsible for the process. She hopes to continue her education and obtain a Master's degree in environmental engineering.

**Teagan Zoldoske**

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I am currently a Fresno State student pursuing a civil engineering degree with a minor in chemistry and mathematics.



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