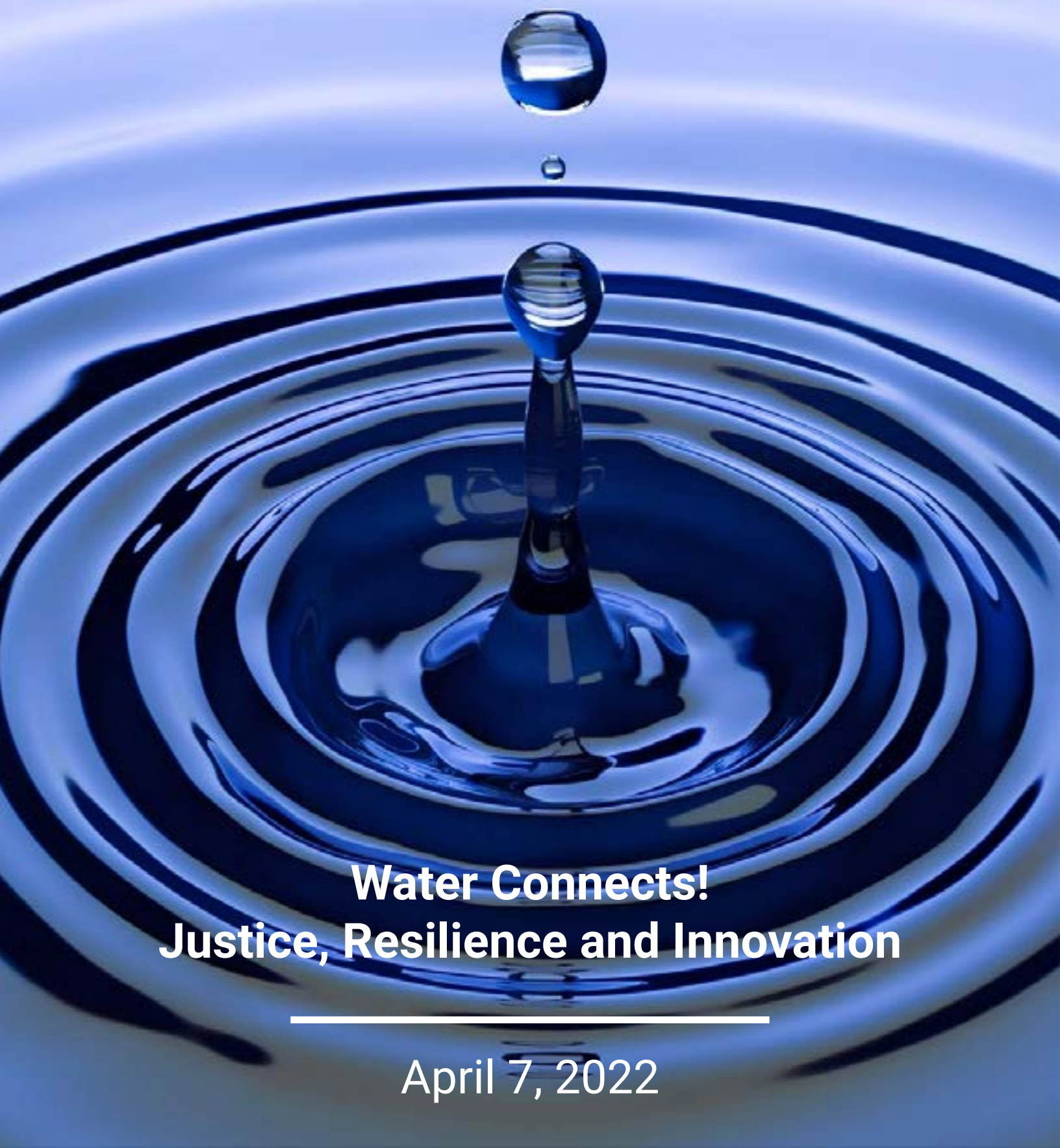
CSU The California State University

WRPI

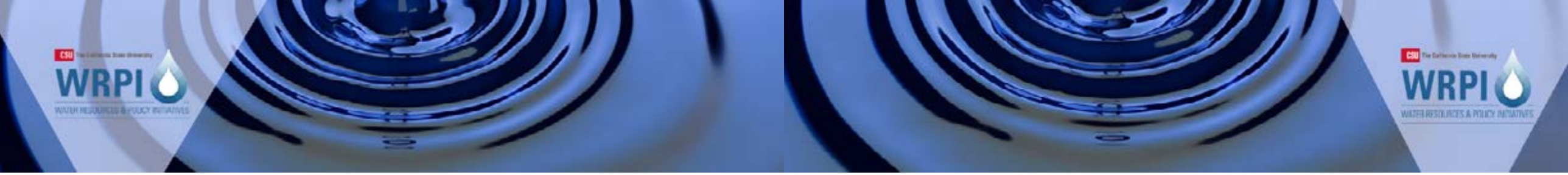
WATER RESOURCES & POLICY INITIATIVES

13th Annual Water Resources & Policy Initiatives Conference



Water Connects!
Justice, Resilience and Innovation

April 7, 2022



Vision

Water Resources and Policy Initiatives (WRPI) will be a resource for education, research, and policy development to help state agencies, regulators, and lawmakers achieve a long-term, sustainable water supply for California based on good science. The WRPI aims to convene and organize the vast knowledge and expertise related to water within the CSU and will help foster collaborations to demonstrate this capacity as a resource in California for information and solutions regarding the state's water resources.

Mission

The Water Resources and Policy Initiatives is designed to target the capabilities and resources within the 23 California State University Campuses to provide academic preparation, applied research, and partnerships with stakeholders, addressing all aspects of water use. WRPI serves to focus synergistically with the many centers and programs of excellence within the CSU on water issues. The goals listed below support the key elements in the WRPI mission.

Key Goals

The goals reflect the CSU comparative advantage in addressing current and emerging statewide water issues. WRPI will be a leading resource to:

- Develop partnerships with water resource stakeholders to advance technology, support economic development, and create public awareness and support concerning water-related resources and issues for sustainable, reliable water with fair and equitable access.
- Support WRPI and expansion of CSU research and external funding through systemwide and multiple campus coalitions.
- Promote career awareness through high-impact practices in education, training, and professional capacity building.

Special thanks to the WRPI Conference Planning Committee:

Bwalya Malama	Jeroen Gillard	Pitiporn Asvapathanagul
Danielle Bram	Julian Fulton	Sami Maalouf
Emmanuel Iyiegbuniwe	Jung You	Sherry Sidick
Gabriel Granco	Katherine Cushing	Steve Blumenshine
Hassan Davani	Maryam Haddad	Sudarshan Kurwadkar
Jennifer Alford	Pitiporn Asvapathanagul	Tesfayohanes Yacob

AGENDA

AGENDA

Water Connects! Justice, Resilience, and Innovation
April 7, 2022

8:00 am	**Conference Opens** **Networking and Poster Session**	
8:45 am	**Conference Overview**	**Laura Ramos**
9:00 am	**Welcome**	**Erika Beck**, President, CSU Northridge
		Boykin Witherspoon, WRPI Executive Director
9:15 am	**Payahuunadü – Land of the Flowing Water** **Indigenous Water Practices Interrupted**	**Teri Red Owl,** Owens Valley Indian Water Commission
9:45 am	**Water Connects - Justice**	
	Disadvantaged Community Involvement Program (DACIP): Engaging Underserved Communities in Regional Water Management	**Regan Maas**, CSU Northridge
		Jennifer Alford, CSU San Bernardino
	Developing Lithium Valley: Hydrosocial Dynamics and the Importance of Community Engagement for a Just Transition	**Alexa Buss**, **Dr. James J.A. Blair** California State Polytechnic University Pomona
	Groundwater Markets, Drinking Water Racial Inequities, and Climate Change Resiliency in California's Central Valley	**Erick Orellana**, Sacramento State
11:00 am	**Water Resilience for Southern California**	**Liz Crosson**, Chief Sustainability, Resiliency and Innovation Officer, Metropolitan Water District of Southern California
11:45 am	**Networking Lunch//Poster Session**	Lobby
1: 00 pm	**Water Connects - Resilience**	
	Improving Surface Water Datasets for California: Benefits for Water Resource Management	**Joel Osuna-Williams**, CSU Northridge
	Resiliency to Climate Change in Sierra Nevada Ecoregion	**Rebeka Sultana**, CSU Long Beach
	Assessing the Influence of El Niño on the California Precipitation Regime During the Satellite Precipitation Era.	**Digant Chavda**, CSU Los Angeles
2:15 pm	**Water Connects - Innovation**	
	Selective Removal of Toxic and Valuable Ions: Tuning the Same-Charge Ion Selectivity of Ion Exchange Membranes by the Smart Design of Polymer Composites	**Meng Shen**, CSU Fullerton
	Understanding the Presence of Contaminants of Emerging Concern in the San Francisco Bay Area	**Katherine Cushing**, San Jose State
	Water Sustainability Using the Pond-In-Pond Treatment System with Reuse	**Kushal Adhikari**, Humboldt Sate
3:45 pm	**Closing Remarks**	**Boykin Witherspoon**, WRPI Executive Director
4:00 pm	**Networking Happy Hour**	Lobby

JUSTICE INNOVATION AND RESILIENCE

Payahuunadü – Land of the Flowing Water Indigenous Water Practices Interrupted

Teri Red Owl, Executive Director, Owens Valley Indian Water Commission

Teri Red Owl is an enrolled citizen of the Bishop Paiute Tribe. She lives in Bishop, California with her husband and children. Teri has worked for the Owens Valley Indian Water Commission, a Tribal Consortium that provides water, environmental, and agricultural services to its member Tribes, for 26 years and has served as the Executive Director for the past 22 years.

Teri is at the forefront of efforts to negotiate tribal land and water for the Bishop, Big Pine, and Lone Pine tribes and advocates for environmental protection and policy change in Payahuunadü, in Los Angeles, and at the state and federal levels. Teri has extensive experience in grant management and oversight and has two business degrees. Teri has successfully managed and implemented a variety of projects and grants while maintaining sound financial management.

Teri has served on numerous boards, committees, and commissions including Bishop Paiute Gaming Corporation, Inyo County Water Commission, Inyo/Los Angeles Standing Committee, California Indian Manpower Consortium, U.S. Environmental Protection Agency Region 9 Regional Tribal Operations Committee, California Department of Water Resources – Water Plan Update Committee, Contributing Author Committee for 4th California Climate Change Assessment Indigenous Communities Report, Bishop Indian Utility Organization, Red Nation Celebration Institute, and Bishop Paiute Development Corporation. Teri is a licensed Tribal Court Advocate and in her spare time she volunteers as a youth cheerleader head coach.

Water Resilience for Southern California

Liz Crosson, Chief Sustainability, Resiliency and Innovation Officer, Metropolitan Water District of Southern California

Liz Crosson recently joined the Metropolitan Water District of Southern California as its first Chief Sustainability, Resiliency and Innovation Officer. She previously served as a consultant to the LA County Chief Sustainability Office as the team's liaison to the 88 LA cities and as a resource on sustainability and climate for municipal sustainability staff. She also previously served as Los Angeles Mayor Eric Garcetti's Director of Infrastructure and was the Mayor's chief policy liaison to the Los Angeles Department of Water and Power (LADWP) and the five bureaus under the Department of Public Works. For the Mayor, she was charged with delivering the Mayor's bold agenda on water, energy, waste and public right of way infrastructure. She also previously served as the Mayor's Deputy Chief Sustainability Officer and his first appointed Water Policy Advisor. From 2010-2015, Liz was the Executive Director of Los Angeles Waterkeeper, a nonprofit organization that protects and restores waterways throughout Los Angeles County through Clean Water Act enforcement, advocacy, restoration and community action.

She received a bachelor's degree in Environmental Science, Policy and Management from the University of California-Berkeley and earned a master's degree in Biology from Southern Oregon University and a juris doctorate from Lewis & Clark Law School, where she graduated with honors and a certificate in environmental law.

Water connects the CSU system!!

Water Connects – Justice Panel

- **Disadvantaged Community Involvement Program (DACIP): Engaging Underserved Communities in Regional Water Management**
  By Regan Maas and By Jennifer Alford
- **Developing Lithium Valley: Hydrosocial Dynamics and the Importance of Community Engagement for a Just Transition**
  By Alexa Buss and By Dr. James J.A. Blair
- **Groundwater Markets, Drinking Water Racial Inequities, and Climate Change Resiliency in California's Central Valley**
  By Erik Orellana

Water Connects – Resilience Panel

- **Improving Surface Water Datasets for California: Benefits for Water Resource Management**
  By Joel Osuna-Williams
- **Resiliency to Climate Change in Sierra Nevada Ecoregion**
  By Rebeka Sultan
- **Assessing the Influence of El Niño on the California Precipitation Regime During the Satellite Precipitation Era.**
  By Digant Chavda

Water Connects – Innovation

- **Selective Removal of Toxic and Valuable Ions: Tuning the Same-Charge ion Selectivity of Ion Exchange Membranes by the Smart Design of Polymer Composites**
  By Meng Shen
- **Understanding the Presence of Contaminants of Emerging Concern in the San Francisco Bay Area**
  By Katherine Cushing
- **Water Sustainability Using the Pond-In-Pond Treatment System with Reuse**
  By Kushal Adhikari

An Investigation into Cyanide Levels at Arcata Wastewater Treatment Facility
By Danielle Brown
The City of Arcata Wastewater Treatment Facility (AWTF) received a new National Pollution Discharge Elimination System (NPDES) permit, which establishes a water quality objective for cyanide of 1.0 µg/L for the protection of saltwater aquatic life. Since the enactment of the permit, the AWTF has been over the maximum daily effluent limit (MDEL) of 1.0 µg/L and the average monthly effluent limit (AMEL) of 0.43 µg/L for cyanide in discharged effluent. However, results show that the concentration of cyanide in the wastewater leaving the plant is, on average greater than those measured in the plant influent. This study used distillation and colorimetric analysis to investigate the cyanide formation within the AWTF by comparing the cyanide levels in preserved and unpreserved samples. Samples were taken concurrently with the monitoring samples that were sent to a certified lab. The study, which had an estimated method detection limit (MDL) of 0.55 µg/L, found that unpreserved samples had no detectable levels of cyanide while preserved samples demonstrated a cyanide concentration ranging from no detection to 1.7 µg/L. Results for preserved samples from this study compared well with those from the certified lab; however, the value from our study was consistently lower for each sampling event.

The use of field spikes demonstrated that the integrity of the sample was maintained in unpreserved samples.
The elevated cyanide levels in preserved samples compared to unpreserved samples suggest that preservation with sodium hydroxide (pH > 12) leads to a positive interference in the analysis.

Analysis of Phosphorus Load in Sediment Collected From the Laguna de Santa Rosa Watershed
By Ellyse Cappellano
The current allowable amount of phosphorus that can be discharged into the Laguna de Santa Rosa by water treatment facilities is zero. However, treatment plants in Santa Rosa and Windsor need to release phosphorus into the Laguna de Santa Rosa during unusually high rain events. A new Water Quality Trading Credit program allows the cities to purchase phosphorus credits from Sonoma Water when needed. To generate these credits, Sonoma Water removes large volumes of phosphorus-rich sediment from the watershed. We have taken samples of sediment from different locations in the Laguna de Santa Rosa watershed in order to create a map of phosphorus concentrations in different channels. This map is a resource that Sonoma Water can reference to determine at which site they could potentially remove the most phosphorus. In addition to generating Water Quality Trading Credits, sediment removal provides an opportunity to improve flood control and provide habitat for native species.

Ammonia Recovery from Wastewater via Membrane Filtration Processes
By Blanca Gonzalez, August Nguyen, Maryam Haddad
In order to meet environmental regulations, adequate removal of ammonia is essential for the proper treatment of both commercial and municipal wastewater streams. Ammonium is harmful in wastewater streams since it is the main rejected catabolite through the gills and feces of fish which makes it highly toxic for the organism. In people, it readily converts to nitrate, which is also highly toxic. On the other hand, ammonia can be sued in other fields, such as fertilizer in the agricultural sector and green fuel for transportation. The main objective of this research project is to harvest ammonia from synthetic wastewater via membrane filtration processes. We study the impact of operational conditions and feed characterizations on the overall performance of the Ammonia recovery process.

Biological Degradation Of Vinyl Chloride Under The Extreme Environment Of High Saline Concentrations
By Monica Robles
Background: Vinyl Chloride, a known human carcinogen, yielded from the reductive dechlorination of perchloroethylene (PCE), trichloroethene (TCE), and dichloroethane, has vastly contaminated surface water, groundwater, and soil. Freshwater polluted or spiked with vinyl chloride studies have been widely applied, but studies of vinyl chloride removal near coastal regions, where salinity plays a significant role, are absent. Our hypothesis states that “Extreme conditions of salinity interfere with vinyl chloride degradation in various settings.” Our aims of the project are to discover salt-tolerant vinyl chloride degrading bacteria and to understand their growth mechanisms and metabolic activities. Methods: Our study utilizes three bacteria genera, including Mycobacterium, Nocardioides, and Pseudomonas, to study their ability to remove vinyl chloride under extreme salt concentrations at different temperatures, moisture level content, oxygen levels, and substrate concentrations. Phase I introduces salt concentrations to simulate extreme salt concentrations, including the control with no salt (0%), half seawater concentration (1.75%), average seawater concentration (3.50%), and twice that of seawater concentration (7.00%). Batch experiments are employed to test the hypothesis; culture bacteria in various salt concentrations 0%, 1.75%, 3.50%, and 7.00%. Samples were collected at various times following initial incubation time, recording optical density, Spectrophotometer Thermo Scientific Genesys 20, readings at 600 nm. Optical density was applied to assess cell abundance and bacteria performance under high saline conditions. Results: Among all bacteria investigated, P.putida (5) and M. vanbaalenii (7) yielded the highest growth rate for 0%, 1.75%, and 3.50% salt concentrations. In addition, N.nitrophenolicus (3), M.pyrenivorans (6), and M. vanbaalenii (7) were among bacteria with an overall growth rate >1x10^4 cells/hr for all salt concentrations. Conclusion: Bacterium N.nitrophenolicus (3), P.putida (5), and M.vanbaalenii (7) advancing to Phase II, temperature variations.

Improving Agricultural Water Sustainability and Resilience Using Agricultural-Waste-Derived Soil Amendments
By Hugo Cortes Lopez
Climate change has increased extreme hydrological events such as long-term drought, leading to greater uncertainty in agricultural production. California, as the largest producer of agricultural products in the U.S., is in the early stages of a severe multi-decadal drought. In particular, soil moisture retention is always a challenge in hot and dry Southern California. On the other hand, California generates a huge amount of agricultural waste annually, such as grape pruning, almond chip, and corn stover. Conventional disposal methods include open burning and land disposal of green residues. However, these methods lead to air quality issues and many concerns such as parasite, plant disease, and biomass decomposition efficiency. Therefore, sustainable and environment-friendly methods for handling agricultural wastes are highly demanded.

Pyrolysis is a commercialized thermochemical technology for energy and resource recovery that converts carbonaceous materials to biochar, bio-oil, and pyrolysis gas. Bio-oil and pyrolysis gas can be burned to provide the energy required by the process itself. Biochar is widely recognized as a good soil amendment to enhance retention of moisture and nutrients due to its porous structure. In order to increase the soil water retention capacity and improve the soil microbial communities during the drought season in California, using soil amendments such as biochar is a proved method to promote resilience to climate-related impacts such as heatwaves.

In this study, the major types of agricultural waste generated in California were first converted to biochar via pyrolysis. Then the beneficial effects and the plant growth-promoting properties of agricultural-waste-derived biochar were evaluated systematically. Beneficial effects on the soil were scored through measurement of pH, moisture retention, and microbial activity. The plant growth-promoting properties were scored by measurement of the root and shoot biomass (fresh and dry weight), the root-to-shoot ratio, and the photosynthetic capacity of plants grown in amended versus non-amended soil. The preliminary results showed that the biochar yields of California agricultural waste were around 35% (mass fraction of the total pyrolysis products), and the vegetative crops (alfalfa and lettuce, widely grown in California) with biochar addition had better water retention and higher germination rate when compared to those without biochar.

Manganese Removal from Domestic Groundwater Supplies via Layered Calcite Contactor
By Maria Soto & Maryam Haddad
In the United States, groundwater is the main drinking water source for nearly 40% of the residents, mostly living in rural and small communities. High levels of manganese (Mn) and iron (Fe) often naturally co-exist in groundwater. And although Mn is an essential nutrient for human health, its presence in drinking water can cause aesthetic and health concerns such as neurotoxicity, cardiovascular damage, and carcinogenicity susceptibility. In consideration of small and rural communities where high levels of Mn are detected, the water treatment process should be inexpensive and simple

as their financial and technical resources are often limited. Current Mn removal methods are limited by complicated operation, risk of Mn leaching, and removal of beneficial nutrients in the finished water. Recent studies demonstrate that calcium carbonate can adsorb Mn from aqueous solutions in a sustainable and environmentally friendly process. Thus, the objective of this project is to design a green and efficient layered calcium carbonate column as a simple and reliable treatment method for efficient Mn removal from groundwater. The impact of the operational conditions and groundwater composition on the overall process performance are investigated.

Microbial Populations Shift During Mesophilic and Thermophilic Anaerobic Digestion- Phase 1: Biological Hydrogen Gas Production from Lab-Scale Batch Anaerobic Digester using Various Substrates
By Leanne Deocampo
Global warming and an increase in greenhouse gases are both incredibly pressing issues we face today. Low-cost and carbon-rich fuels emit large amounts of greenhouse gases. This project intends to decrease the amount of emissions created by utilizing other forms of energy, such as hydrogen gas. Hydrogen gas is known as one of the cleanest and most sustainable types of energy, yielding three times the amount compared to fossil fuels. The process of anaerobic digestion was utilized to produce Hydrogen gas; however, the amount produced was a fraction within the 1%. We found that the microbial substrate competitions during anaerobic digestion inhibits high Hydrogen gas content formation. Two sets of seven 50 mL batch reactors were incubated at 35°C for 18 days, and one set was spiked with C. acetobutylicum and one not spiked as the control. During this time period, COD, alkalinity, volatile fatty acids, and ammonia content were monitored using the Hach DR 3900 Spectrometer. Hydrogen gas was measured using the Hydrogen Detector by Forensics. Hydrogen gas content was measured only with the reactors containing food waste and only within the 4 to 6 day period. Impacts of the C. acetobutylicum spike were not observed. We aim to continue this project by performing batch experiments using C. butyricum, C. beijerinckii, C. hudrogeniformans, and Lactobacillus spp. We would also like to repeat this experiment to determine if the process of methanogenesis can be interrupted.

Environmental Inequalities, Social Disadvantages, and Lead Contamination
By Rasha Naseif
The persistence of lead poisoning as a public health problem in the United States demonstrated the prevalence of lead hazards in the environment and the high risks that are associated with lead exposure and its vital health problems in the most vulnerable population, children. Children's lead poisoning problem varies among the population whose communities have experienced this health problem unevenly. The social inequality by class and race is usually accompanied by environmental inequality of uneven distribution of toxic hazards that are mostly clustered within communities that tend to be located in concentrated minorities and low-income neighborhoods.

While previous studies on blood lead levels (BLLs), including elevated BLLs in children (< 72 months of age), examined limited geographical regions to investigate the disparity of elevated BLLs in children, this paper attempts to broaden the geographical boundaries to investigate the wide gap of disproportionate BLLs in children at a national level. Given the limited sociological research that addresses adverse health outcomes in children, this study contributes to approaching the chronic health problem of elevated BLLs in children (< 72 months of age) from a social science perspective. Literature on lead poisoning in children mostly exists in the current frames of environmental, epidemiological, or public health studies that examine the immediate area around a point source at which environmental hazards occur. This paper seeks to widen the reductive geographical measures and findings by drawing on the overarching sociological perspective that unfolds more than mere documentation of the correlations between race, class, and elevated BLLs. The wide gap of disproportionate lead poisoning across the U.S. states is investigated by integrating the socio-spatial, socio-racial and socioeconomic relations, as constitutive factors of environmental inequality, at a national level.

This paper also intends to extend the knowledge on an interdisciplinary topic (environmental, public health, and epidemiological) from theoretical (critical race theory) and methodological (comparative statistical analysis at a national level) frameworks of social sciences. By so doing, this study can allocate structural inequality that is context-specific

POSTER

to lead poisoning in children who are younger than 6 years old and the institutionalized environmental racism that generates racialized inequalities that shape racial, spatial, and socioeconomic relations. Together, the socioeconomic, socio-spatial, and socio-racial predictors are constitutive factors of the disproportionate geographic distribution of lead, indicating the production and reproduction processes of environmental injustice.

San Joaquin Valley Water Collaborative Action Program
By Elijah Banda
The San Joaquin Valley has a reputation for fighting over policies to manage the region's water resources. However, in recent years, various interest groups in the Valley have been reaching out to each other to identify common problems and solutions. In fact, leaders from many interest groups have begun to come together to engage in water management issues in the Valley – leaders who are more interested in working with each other than in fighting each other, and developing durable solutions as opposed to ones that are short-term and unsustainable. Rather than individual interest groups seeking to solve the Valley's numerous water challenges separately without regard for the problems faced by others, these groups have agreed to collaborate and seek comprehensive, sustainable, equitable, and integrated solutions supported by all.

Treatment of Contaminated Water using Recycled Plastics
By Antonio Arreguin
Around the world, the rates of freshwater use and waste generation are rising. To meet the global demand for drinking water, there are several ongoing attempts to reclaim wastewater and treat contaminated water bodies. On the other hand, if inadequately managed, wastes can cause serious pollution and negatively impact public health and aquatic ecosystems. For example, indiscriminate disposal of plastics on land and open-air burning can release toxic chemicals such as heavy metals, dioxins, and furans, which, when inhaled, can cause health risks, especially respiratory disorders. Many birds, turtles, fishes, seals, and other marine animals have died by drowning or suffocation as a result of entanglement in plastic debris. On top of that, the ecotoxicological risks of the presence of plastics in the marine environment can be spatially extended as they can act as vectors for the passage of contaminants such as toxic hydrophobic, persistent, and bio-accumulative substances.
The research goal is to design a sustainable process to convert solid waste into water treatment materials.

Treatment of Produced Water via Membrane Separation Processes
By Bradley Yuhasz & Maryam Haddad
Produced water (PW) is created from oil and gas mining operations and contains a mixture of hydrocarbons, dissolved salts, organic matter, and mining additives. Due to the contents of PW, it requires treatment before it can be disposed of safely, or else it would contaminate groundwater. Offshore drilling directly pollutes the ocean, whereas land-based operations pollute watersheds which then find their way to oceans via rivers. It was found that fish around offshore drilling sites with active dumping of PW had concentrations of various heavy metals and polycyclic aromatic hydrocarbons at dangerously high levels. The main objective of this research project is to investigate the efficacy of nanofiltration and reverse osmosis membranes in recovering heavy metals and minerals from synthetic produced water.

Use of Drone to Detect Distribution of the Invasive Plant Ludwigia in the Laguna de Santa Rosa
By Robbie Bisordi
The invasive aquatic plant Ludwigia has become an increasing problem within the Russian River watershed, particularly in the Laguna de Santa Rosa. It outcompetes native plant species, hinders flood control, serves as prime habitat for mosquitos, and impedes the migration of anadromous fish, such as salmon and steelhead trout. The purpose of the project is to establish a method for using drone imagery to map the distribution of Ludwigia in the section of the Laguna de Santa Rosa that passes under Stony Point Road in Rohnert Park. We will compare this method to other ways of mapping Ludwigia distribution.

ATTENDEES

Kushal Adhikari
Faculty, CSU Humboldt
kushal.adhikari@humboldt.edu

Dr. Adhikari's research interest lies in integrating sustainability dimensions into engineering, thus building a sustainable and resilient society while using appropriate ways to reduce, reuse, and recycle. His major research projects include water sustainability via reclamation and reuse, climate-smart agriculture, optimization techniques for water resources management, food-energy-water nexus, and materials sustainability, among others. As a faculty in the Department of Environmental Resources Engineering at Humboldt State University, he looks forward to continuing his sustainability efforts via research, teaching, and global engagement.

Jennifer Alford
Faculty, CSU San Bernardino
jennifer.alford@csusb.edu

Dr. Jennifer B. Alford is an Associate Professor in the CSUSB Department of Geography and Environmental Studies, the Director of the CSUSB Water Resources Institute, and an active member of the WRPI "Water Faculty," assisting with research projects focused on water resources in disadvantaged communities. Her teaching focuses on hydrology related to water quality, environmental sustainability, policy, environmental education, and community engagement. Her courses often incorporate high-impact practices, including service-based learning, community-based research, environmental education, and partnering with numerous community organizations so students can gain real-world experiences while completing courses.

Antonio Arreguin
Student, CSU Long Beach
Antonio.Arreguin@student.csulb.edu

I am Antonio Arreguin, an undergraduate chemical engineering student at California State University, Long Beach. As an NIH-funded Building Infrastructure Leading to Diversity (BUILD) scholar, my research goal is to design a sustainable process to convert solid waste into water treatment materials.

Pitiporn Asvapathanagul
Faculty, CSU Long Beach
Pitiporn.Asvapathanagul@csulb.edu

Dr. Asvapathanagul is an associate professor in Environmental Engineering at California State University, Long Beach (CSULB). She also serves as an undergraduate advisor and is involved in a newly developed Environment Engineering program at CSULB. She received her B.ENG. in Environmental Engineering (2001) from Chiang Mai University, Thailand, coupled with an M.S. (2009) and Ph.D. (2011) from the University of California, Irvine in Environmental Engineering (water quality). She joined CSULB in 2012. Dr. Asvapathanagul's research area of competency is water reclamation processes, water quality, and molecular biology. Her research interests are molecular biology for enhancing the understanding of biological wastewater treatment processes, including nitrification, denitrification, bulking, foaming, anaerobic digesters and aeration diffuser biofilms, biological hydrogen as production, resources recovery, as well as microbial source tracking, biocementation and chemical micropollutants (pollutants of emerging concern) combined with microplastics in water and wastewater.

Elijah Banda
Student, CSU Fresno
waterinstitute@mail.fresnostate.edu

Hello, my name is Elijah Banda, and I am currently a senior at California State University, Fresno pursuing my bachelor's degree in City and Regional Planning.

Robert Bisordi
Student, CSU Sonoma
rjbisordi@gmail.com

Robbie Bisordi, Senior at Sonoma State University in the Geography, Environment and Planning department. My class members and I have been collaborating with the Sonoma Water agency in an effort to monitor the growth of the invasive plant ludwigia in the Laguna de Santa Rosa. This project has been continuing for 5 years now with the adaption of utilizing aerial photographs from a drone over the study area.

ATTENDEES

James Blair
Faculty, CSU Pomona
jblair@cpp.edu

James J. A. Blair is an Assistant Professor in Geography and Anthropology at California State Polytechnic University, Pomona. He is also the Graduate Coordinator at the Lyle Center for Regenerative Studies at Cal Poly Pomona. He holds a Ph.D. in Anthropology from The Graduate Center, City University of New York. Blair's work centers on energy, water, environment, and sovereignty in the Americas. Rooted in cultural and environmental anthropology, as well as human geography, his research employs ethnographic and historical methods to advance the interdisciplinary fields of political ecology, science and technology studies (STS), and settler colonial studies.

Steve Blumenshine
Staff, CSU Fresno
sblumens@csufresno.edu

I'm the Director of the California Water Institute Research & Education Division. The Division develops and strengthens water research and scholarship in collaboration with external partners and other water stakeholders. These efforts focus on critical agricultural, urban, and environmental water issues in our region, with an awareness and application of the governmental and societal roles in the allocation of stressed water resources. I also maintain an active research lab as a Biology Professor, with research projects focused on juvenile Chinook salmon in the San Joaquin River Restoration. International experience in water issues includes two U.S. Fulbright Awards and collaborations in China, Germany, Israel, Switzerland, and Thailand.

Danielle Bram
Staff, CSU Northridge
danielle.bram@csun.edu

Danielle Bram is a GIS professional and project manager with over 22 years of experience in the higher education, geospatial consulting, and public agency sectors. Her applied research interests and experience cover a variety of areas. However, she is most engaged with water and natural resource GIS projects. Danielle is currently director of the Center for Geospatial Science and Technology at CSU, Northridge.

Alexa Buss
Student, CSU Pomona
afbuss@cpp.edu

Alexa Buss is a second-year graduate student in the M.S. Regenerative Studies program at California State Polytechnic University, Pomona. Through an interdisciplinary lens, Buss' research focuses on the relationship between local communities, industries, and the natural environment.

Georgina Campos
Student, CSU Northridge
georgina.campos.951@my.csun.edu

My name is Georgina J Campos, and I am a first-year graduate student majoring in geology at CSUN. My goal is to help people, whether locally or nationally, affected by poor land development practices by researching the response of hydrological systems due to human disturbances and climate change. My hope is to make a difference by furthering my understanding of chemical components in surface water and pollutants.

Zachary Canter
Staff, CSU Northridge
zachary.canter@csun.edu

The Center for Geospatial Science & Technology is an interdisciplinary research center focused on applications, education, and innovative solutions to real-world problems using Geographic Information Systems (GIS). As part of our mission, we serve as a leader and catalyst for the advancement of GIS technology for academic institutions, private industry, and the public sector. With years of experience in geospatial technology, we provide quality services while providing our students with an opportunity to develop skills that further their educational experience and prepare them for the working world. Our services vary from education and training in geospatial technology to the implementation of customized GIS solutions.

ATTENDEES

ATTENDEES

Ellyse Cappellano
Student, CSU Sonoma
cappella@sonoma.edu

Ellyse Cappellano is a fourth-year Environmental Science, Geography, and Management major at Sonoma State University with a minor in Spanish and career aspirations in land stewardship. The projects she is involved with include monitoring and enhancing riparian ecosystems with a focus on invasive species.

Digant Chavda
Student, CSU Los Angeles
dchavda2@calstatela.edu

Digant is a graduate student in the Environmental Science program at the Department of Geosciences and Environment, College of Natural and Social Sciences, CSULA.

Ben Chou
Staff, CSU Northridge
ben.chou@csun.edu

Ben Chou is a project manager for the Center for Geospatial Science and Technology at California State University, Northridge, where his work focuses on water resources, vulnerable and underserved communities, and local government. He has more than a decade of experience in water resources policy and geographic information systems (GIS) and has worked previously for The Walt Disney Company, the Natural Resources Defense Council, and the Arizona Department of Environmental Quality. He has a bachelor's degree from the University of South Carolina and master's degrees from Columbia University and Pennsylvania State University.

Hugo Cortes Lopez
Student, CSU Bakersfield
hcortes2@csub.edu

I, Hugo Cortes Lopez, am a Hispanic fifth-year undergraduate student at California State University of Bakersfield pursuing a bachelor's degree in Engineering Sciences. I am the oldest out of four younger siblings raised in Delano, California. I am also a first-generation college student expected to graduate this Spring Semester of 2022. My experience in engineering has been expanded through my participation in the Summer Undergraduate Research Experience (SURE) Program at CSU Bakersfield. In addition, my experience also includes being a student research assistant conducting several experiments based on thermochemical processes for both pyrolysis and gasification technologies. For over a year, I had the experience to expand my engineering knowledge and have been successful in using agricultural biomass to thermochemically process the feedstock to produce bioliquid and biogas, which can be used as renewable resources for energy and resource recovery from these waste materials. Living in the San Joaquin Valley, I have also worked as a seasonal field worker for both the grape and blueberry harvest throughout the summer vacations in my high school and early college education. My interests have remained within the engineering discipline, which deals with my learning of mathematics and science. In addition to my academic experience, I have had the privilege of being an alumnus of the College Assistance Migrant Program (CAMP) at CSU Bakersfield. I continue being involved with the CAMP program and often offer mentorship to current CAMP students. Some of my engineering knowledge extends towards environmental engineering, operations research, advanced hydraulics and hydrology, and conventional and renewable energy production. For my plans after graduation, I seek to gain further experience through internships concentrating in the energy and resource recovery industry. Because of this, the Water Resources and Policy Initiatives (WRPI) Conference would allow me to improve my knowledge and exposure to the professional environment.

Allison Craun
Staff, CSU Fresno
wrpi@mail.fresnostate.edu

Allison Craun is the Marketing and Event Manager for the California Water Institute, where she manages WRPI and many other water programs and events. Her primary duty is to plan and execute events that inform and engage the community to pursue sustainable water management for California.

Katherine Cushing
Faculty, CSU San Jose
katherine.cushing@sjsu.edu

Katherine Cushing is a professor and chair of the Department of Environmental Studies at San Jose State University. She also served as the Executive Director of CommUniverCity SJSU, an award-winning non-profit serving low-income residents in Central San Jose. She is a nationally recognized expert on sustainability and community-engaged learning and has advised United Nations' departments, Fortune 500 companies, the cities of San Jose and Palo Alto, California, and the Army Corps of Engineers. Her primary areas of expertise are environmental policy, water resources management, and service-learning. She holds a doctoral degree in civil and environmental engineering from Stanford University. Prior to joining SJSU, Katherine was a faculty member at both Stanford and the University of California, Berkeley.

Leanne Deocampo
Student, CSU Long Beach
leannedeocampo@ymail.com

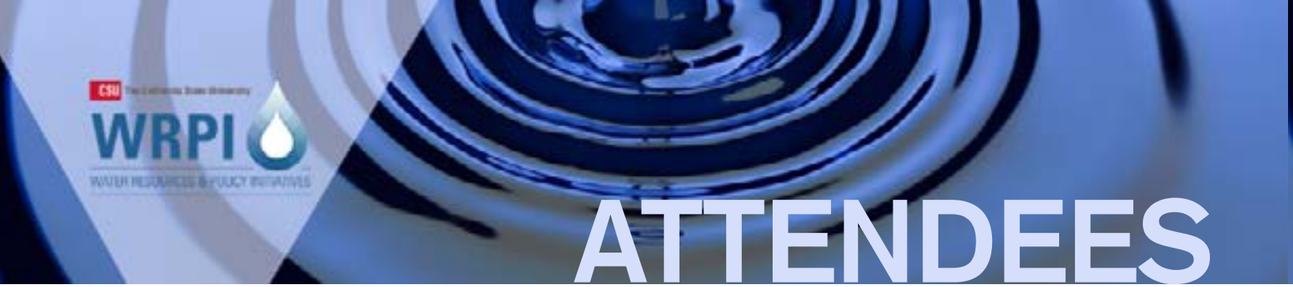
Global warming and an increase in greenhouse gases are both incredibly pressing issues we face today. Low-cost and carbon-rich fuels emit large amounts of greenhouse gases. This project intends to decrease the amount of emissions created by utilizing other forms of energy, such as hydrogen gas. Hydrogen gas is known as one of the cleanest and most sustainable types of energy, yielding three times the amount compared to fossil fuels. The process of anaerobic digestion was utilized to produce Hydrogen gas; however, the amount produced was a fraction within the 1%. We found that the microbial substrate competitions during anaerobic digestion inhibits high Hydrogen gas content formation. Two sets of seven 50 mL batch reactors were incubated at 35°C for 18 days, one set spiked with C. acetobutylicum and one not spiked as the control. During this time period, COD, alkalinity, volatile fatty acids, and ammonia content were monitored using the Hach DR 3900 Spectrometer. Hydrogen gas was measured using the Hydrogen Detector by Forensics. Hydrogen gas content was measured only with the reactors containing food waste and only within the 4 to 6 day period. Impacts of the C. acetobutylicum spike were not observed. We aim to continue this project by performing batch experiments using C. butyricum, C. beijerinckii, C. hudrogeniformans, and Lactobacillus spp. We would also like to repeat this experiment to determine if the process of methanogenesis can be interrupted.

Zoi Dokou
Faculty, CSU Sacramento
zoi.dokou@csus.edu

Dr. Zoi Dokou is Assistant Professor at the Civil Engineering Department, California State University, Sacramento. Dr. Dokou received her B.Eng. degree in Environmental Engineering from the Technical University of Crete, Greece, and her Ph.D. in Civil and Environmental Engineering from the University of Vermont, USA.Dr. Dokou has published 32 peer-reviewed journal articles, 1 book chapter, and 51 conference presentations in the fields of hydrogeology, contaminant hydrology, food and water security, and water resources management. She is associate editor for the Journal of Hydrology and reviewer for numerous journals in the area of hydrology. Dr. Dokou's main research focus is on the area of water resources engineering. She believes that sustainable management of water resources necessitates an integrated strategy that requires the combined effort of multiple disciplines and takes into consideration the needs of the end-users. Such a strategy requires knowledge of physical processes, the combination of modeling, field and laboratory investigations, and their integration with newly available technology. Her specific areas of expertise include groundwater flow modeling under unsaturated and saturated conditions, managed aquifer recharge (MAR), integration of geophysical methods and remote sensing in groundwater modeling, saltwater intrusion in coastal and island aquifer systems, seasonal forecasting to improve food and water security in emerging regions and transport of perfluoroalkyl substances (PFAS) in the subsurface.

Stephen Doyle
Staff, CSU San Jose
stephen.doyle@sjsu.edu

My name is Stephen Doyle, and I am a 2nd-year graduate student at San Jose State. My primary research interests revolve around California's unique watersheds and location-specific water management issues. My undergraduate research focused on coastal wetlands and how effective natural vegetative buffer zones are at filtering out nutrient-rich runoff. My graduate-level research has pivoted to urban water issues. My thesis will focus on tire-



ATTENDEES

derived contaminants in stormwater runoff, such as the toxicant 6PPD-quinone, a transformation product of 6PPD, which is utilized as an antioxidant in tire rubber. I hope to showcase the ubiquity of 6PPD in Bay Area waters to help promote its inclusion in future regulatory frameworks for contaminants of emerging concern.

Alfredo Estrada
Student, CSU Northridge
alfredo.estrada.476@my.csun.edu

Hello, I am Alfredo Estrada. I am a Master's student at CSUN working with Dr. Scott Hauswirth. My thesis focuses on impacts of crude oil on coastal watersheds.

Priya Ganguli
Faculty, CSU Northridge
priya.ganguli@csun.edu

Dr. Priya Ganguli is an Assistant Professor of Geological Sciences at CSU Northridge (CSUN). She studies contaminant transport and fate in a variety of marine and freshwater systems, with a focus on mercury (Hg) biogeochemistry. At CSUN, one of Priya's major projects explores environmental impacts associated with the 2018 Woolsey Fire, which burned much of the Malibu Creek watershed. In addition to her academic experience, Priya was employed at the SFB Regional Water Quality Control Board, where she worked on coastal remediation projects. She is also involved in efforts to enhance diversity, equity, and inclusion in academia.

Kelley Giron
Student, CSU San Bernardino
005190909@coyote.csusb.edu

My name is Kelley Giron, and I am a graduate student at California State University of San Bernardino. My thesis focuses on post-fire effects on headwater streams.

Blanca Gonzalez
Student, CSU Long Beach
blaasugon12@gmail.com

Blanca Gonzalez, Chemical Engineering Graduate Student at CSULB. Interested in water sustainability research, technology applied to water, and resource management.

Jackie Guilford
Faculty, CSU Sonoma
guilforj@sonoma.edu

Jackie Guilford teaches at Sonoma State in the Departments of Biology, Education, University Studies, and Geography, Environment, and Planning. Her students have been collaborating with the Sonoma County Water Agency to monitor eradication attempts of the invasive species Ludwigia in the Laguna de Santa Rosa for the past five years. An exciting new addition to the project in this past year has been to determine Ludwigia distribution using photos collected as students fly a drone over our study area.

Maryam Haddad
Faculty, CSU Long Beach
maryam.haddad@csulb.edu

Dr. Maryam Haddad joined the Department of Chemical Engineering at California State University, Long Beach, as an Assistant Professor in Fall 2019. Dr. Haddad obtained her Ph.D. in Chemical Engineering from Polytechnique Montreal, Quebec, Canada, in 2016. Dr. Haddad was a postdoctoral research fellow in the NSERC Industrial Chair on Drinking Water at Polytechnique Montreal and the NSERC Chair in Water Treatment at the University of Waterloo from 2016 to 2019. Dr. Haddad's research lies in the nexus of water desalination, waste management, and resource recovery. Her research applies an interdisciplinary approach to address the challenges that our society is facing, ranging from water quality and scarcity, massive waste production, and climate change to the shortage of valuable resources. During her graduate studies and postdoctoral appointments, Dr. Haddad worked on the design and implementation of hybrid membrane processes in order to provide a framework for the next-generation technologies to sustainably and simultaneously treat water/wastewater and produce value-added products.

ATTENDEES

Scott Hauswirth
Faculty, CSU Northridge
scott.hauswirth@csun.edu

Scott Hauswirth is an Assistant Professor in the Department of Geological Sciences at California State University, Northridge. After obtaining his bachelor's degree in Earth and Environmental Science from Wesleyan University, he worked for a number of years in the environmental consulting industry conducting investigations and overseeing clean-up activities at contaminated sites. He returned to academia and obtained his Ph.D. in Environmental Sciences and Engineering from the University of North Carolina at Chapel Hill in 2014. He continued conducting research and teaching at UNC as a postdoctoral research associate before joining the CSUN faculty in the Fall 2016. His research has focused on improving understanding of complex non-aqueous phase liquid (NAPL) contaminants, developing and testing methods for contaminant remediation, investigating the behavior of non-Newtonian fluids in porous materials, and investigating the fate and transport of contaminants associated with wildfires and other sources in surface water systems.

Tyler Hayduk
Student, CSU Northridge
tyler.hayduk.152@my.csun.edu

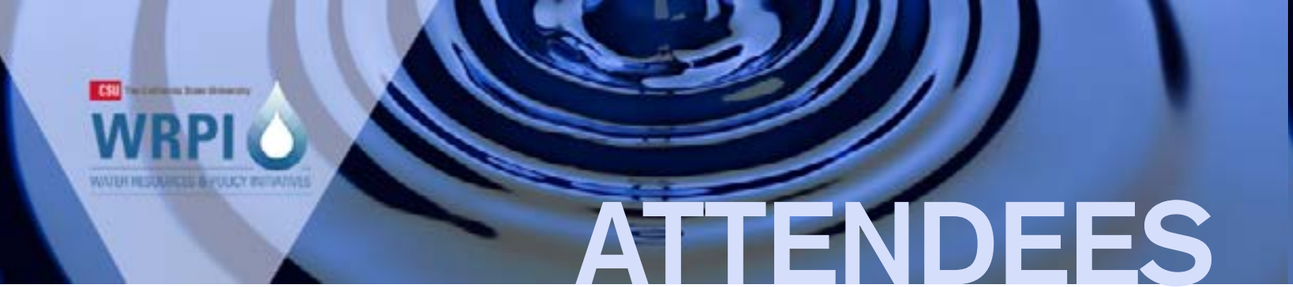
I am a recent graduate from CSU, Northridge, and am primarily interested in geochemical research and research that is relevant to sustainability.
Studying climate and precipitation regimes is especially appealing to me as I hope to one day have a career that is relevant to the management of California water resources that focuses on water management on a long-term time scale.

Charles Hillyer
Staff, CSU Fresno
hillyer@csufresno.edu

Charles Hillyer, Ph.D., is the Interim Associate Vice President for the California Water Institute at California State University, Fresno. He has over 20 years of experience developing software systems and tools for agriculture, with 13 of those years focused on irrigation management and deficit irrigation. Hillyer is an active member of the American Society of Agricultural and Biological Engineers (ASABE), the Irrigation Association (IA), the Irrigation Innovation Consortium (IIC), and AgGateway. He also works on international standards development and serves as the Chair of NRES-03/2 US TAG committee for ISO TC23/SC18. CIT is built on a foundation of innovation and technology transfer focused on testing, applied research, and entrepreneurship to support developing and deploying technologies that will bring the world the most innovative products and resource management tools. Hillyer's current work at CIT is combining today's best new technologies into a fully integrated system, where decision support is part of the integration, addresses the burden of doing irrigation scheduling, and has the potential to improve water management.

Lily House-Peters
Faculty, CSU Long Beach
lily.housepeters@csulb.edu

Dr. Lily House-Peters is Assistant Professor of Sustainability Science in the Department of Geography at California State University, Long Beach (CSULB). She holds a Ph.D. in Geography from the University of Arizona. She is a broadly trained human-environment geographer with expertise in sustainability science, climate resilience, water security, biodiversity conservation, and the human dimensions of global environmental change. Her research has been published in a wide range of academic journals, including Global Sustainability, Environmental Science and Policy, The Annals of the American Association of Geographers, Progress in Human Geography, Antipode, Water Resources Research, and Landscape and Urban Planning. In addition to the Creating Climate Change Collaboration (4C) research project, she is also currently a Co-PI of an international research grant focused on the role of local and traditional knowledge systems and transdisciplinary collaborations on improving biodiversity conservation implementation at the local scale in biodiversity hotspots in Latin America.



ATTENDEES

ATTENDEES

Kyle Ikeda
Student, CSU Northridge
kyle.ikeda.728@my.csun.edu

I am a graduate of CSUN who attended the last WRPI conference. I am a volunteer under a few professors at CSUN's geology department. I am interested in various environmental issues, especially those related to the human footprint affecting the environment. I hope to learn more about these impacts as well as see the potential solutions to solving these current problems.

Emmanuel Iyiegbuniwe
Faculty, CSU San Marcos
eiyiegbuniwe@csusm.edu

Dr. Emmanuel Iyiegbuniwe earned both MSPH and Ph.D. degrees in Environmental & Occupational Health Sciences from the University of Illinois at Chicago and an MBA from Western Kentucky University. He has over 28 years of academic, administrative, and consulting experience and served as the inaugural Director of Public Health at CSUSM for three years, where he provided vision and leadership for the MPH program. He currently teaches several courses and conducts research on various environmental determinants of health.

Sami Maalouf
Faculty, CSU Northridge
smaalouf@csun.edu

Sami Maalouf's [he/his] research interests are centered on sustainable development (heat disposal, alternative energy systems, hydroelectric power, and energy conservation) and environmental fluid mechanics (water quality models, turbulence, transport phenomena, stratified flow, surface, and groundwater flow and contamination). Current research focuses on modeling the fate and transport of contaminants in groundwater and around coastal zones. Ongoing work deals with:1. Dead-end pores in groundwater and2. Brine effluent from SWRO desalination plants and its effects on the coastal environment. Besides coastal and environmental matters, he has an interest in researching engineering education, finding ways to enhance and optimize the teaching/ learning experience, and building a bridge between fundamental engineering disciplines and practical applications in the civil engineering field. Ongoing work involves reversing the hierarchy in engineering education.

Maas, Reagan
regan.maas@csun.edu

Dr. Regan Maas is Associate Professor of Geography and Environmental Studies, as well as Associate Director of the Center for Geospatial Science and Technology, at California State University Northridge. She has over twenty years of experience working in the geospatial industry and teaching in the geospatial sciences, and is well-versed in the myriad spatial analysis and visualization techniques relevant to geography, especially in areas of neighborhood and residential dynamics, health research, and spatial demography. Her research focuses on integrating GIS and geospatial science into public health and minority health disparities research and explores the various relationships between demographic characteristics, health outcomes and the environment at the neighborhood level across the urban landscape. Her most recent work attempts to understand the varied ways resiliency is measured in minority neighborhoods across Los Angeles. Additionally, Dr. Maas has also been heavily involved in research looking at residential mobility and selection across socioeconomic groups, both in Los Angeles and abroad. Recent work also included the modeling of neighborhood social and environmental vulnerability to Aedes mosquito-borne disease across Los Angeles County in partnership with LA County DPH. Dr. Maas' current engagement with WRPI involves the modeling of disadvantaged communities and the development of community water-related needs assessments through the DACIP program. Dr. Maas has a BS in biology from the University of Iowa, a BS in psychology from Iowa State University, an MA in geography from CSUN and a PhD in geography from UCLA.

Yessica Martinez
Student, CSU Sonoma
martyess@sonoma.edu

Yessica Martinez is a student at Sonoma State University majoring in Geography, Environment, and Planning. My classmates and I have been working together with Professor Jackie Guilford on monitoring the eradication efforts of the invasive species Ludwigia in the Laguna de Santa Rosa. We added to the project by using a drone to capture photos of the Ludwigia in our study area.

Rasha Naseif
Student, CSU Northridge
Rasha.mohmd@gmail.com

My name is Rasha Naseif. I am currently a graduate student at CSUN and finishing up my thesis in the department of sociology. I am currently working on multidisciplinary research that addresses environmental justice struggles and the risk factors related to vulnerable communities and disproportionate exposure to toxins and environmental

Joel Osuna-Williams
Staff, CSU Northridge
joel.osuna@csun.edu

Joel Osuna-Williams has worked at the Center for Geospatial Science and Technology (CGST) at California State University, Northridge (CSUN) for over 10 years. He is currently a project manager helping to lead the work done on National Hydrography Dataset (NHD) update projects and NHD sub-stewardship in California. He is also currently managing projects pertaining offshore renewable energy and geophysical data. His previous work has primarily focused on using geographic information systems (GIS) for water resources, including topics such as historical ecology modeling, wetland and surface water mapping, and water quality mapping.

Sophia Pruden
Student, CSU Sonoma
Pruden@sonoma.edu

I am a senior at Sonoma State, graduating this May with a degree in Geography, Environment, and Planning with a concentration in Society, Environment, and Development. I currently work as a Garden Steward for Sonoma State and Research Intern for CA Seagrant's Russian River Salmon and Steelhead Monitoring Program. Following my graduation, I am interested in working in natural resource management or sustainable agriculture careers.

Laura Ramos
Staff, CSU Fresno
lramos@csufresno.edu

Laura Ramos is the Programs Manager of the California Water Institute at California State University, Fresno, managing multiple programs and overseeing marketing and operations. Her primary duty is to elevate the water IQ of the community by engaging stakeholders throughout the San Joaquin Valley -- including Fresno State faculty, staff, students, and researchers -- in the pursuit of sustainable water resource management solutions for California's agriculture, urban, environment, and disadvantaged community interests. She has been part of the Fresno State water initiatives since 2001, and some of her most recent projects include a feasibility study to consolidate small water systems, stakeholder engagements for water infrastructure needs in the Valley, and presenting and developing educational material to engage communities, including a campus-wide water book club.

Sophia Reyes
Nothridge
Sophia.Reyes.232@my.CSUN.edu

Monica Robles
Staff, CSU Long Beach
monica.robles@csulb.edu

Monica Robles, a chemical engineering master's student, is investigating the environmental factors enhancing vinyl chloride biodegradation under high salinity conditions. Research interests include but are not limited to environmental engineering, water remediation, resource recovery, etc.

Kevin Ryan
Staff, CSU Northridge
Kevin.ryan@csun.edu

I'm a GIS Analyst with the Center for Geospatial Science & Technology (CGST) and have worked on various water-related projects at CGST. One of them includes the Disadvantaged Community Involvement Program (DACIP) project in collaboration with WRPI. Happy to share WRPI's efforts with the community!

ATTENDEES

Bryan Sanchez
Student, CSU Northridge
bryan.sanchez.108@my.csun.edu

Have a BS from CSUN in geology in 2015. I am currently a student pursuing an MA in Geography and Environmental Science from CSUN.

Meng Shen
Faculty, CSU Fullerton
meshen@fullerton.edu

Dr. Meng (Stephanie) Shen started her position as an assistant professor in the Department of Physics at California State University, Fullerton, in August 2020. She uses computational physics and statistical mechanics to understand the interactions at dielectric interfaces and the microscopic transport mechanisms and to design the material morphology by data-driven models. Her research is highly interdisciplinary and is actively in collaboration with scientists specializing in environmental science, biological science, chemistry, materials science, etc. She pursued her Ph.D. in Materials Science and Engineering on nanoscale heat transfer, directed by Prof. Pawel Keblinski at Rensselaer Polytechnic Institute (RPI). After graduation, she joined Northwestern University as a postdoctoral fellow and completed the pioneering work on the molecular mechanisms of polymeric membrane filtration with Prof. Sinan Keten and Prof. Richard Lueptow. Then she completed the work on the physics of electrostatic-driven self-assembly of colloids and emulsion droplets with Prof. Monica Olvera de la Cruz at Northwestern University. She moved on to the University of Chicago, pulled up, and completed the work on the computational design of disordered 3D auxetic materials under the direction of Prof. Juan de Pablo, which led to successful computational-experimental collaborations.

Garrett Struckhoff
Faculty, CSU Fullerton
gstruckhoff@fullerton.edu

Associate professor of Civil and Environmental Engineering at CSU-Fullerton specializing in phytoremediation and algal biofuels.

Rebeka Sultana
Faculty, CSU Long Beach
Rebeka.Sultana@csulb.edu

Dr. Rebeka Sultana is an Instructor at the California State University, Long Beach, where she teaches classes in water resources engineering. She received her doctorate in civil engineering with an emphasis in water resources engineering from the University of California, Irvine, and a master's degree in civil engineering from Purdue University, West Lafayette, Indiana. Dr. Sultana's research interest is developing resilient water resources systems with a specific focus on watershed hydrology, urban stormwater management, and the application of remote sensing. Her research has been published in peer-reviewed journals and conference proceedings. While she is passionate about her teaching and research, she also enjoys mentoring and working with students for their learning and success. She often integrates her research and work experience in her teaching pursuits to promote her students' intellectual growth. Dr. Sultana is a registered professional engineer in the state of California.

Boykin Witherspoon
Staff, CSU San Bernardino
bwithers@csusb.edu

Mr. Witherspoon's experience includes the administration of all aspects of the management for the Water Resources and Policy Initiatives, including strategic planning and budgeting; promotion with 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. Additionally, Mr. Witherspoon is a focused problem solver with international project management experience developing Geographic Information System (GIS) applications and software for sustainable landscape architectural planning and design. Mr. Witherspoon's professional experience includes managing interdisciplinary teams of designers, scientists, and software developers, creating innovative and sustainable land use and land planning solutions with an emphasis on programmatic suitability and capability analysis. Mr. Witherspoon is dedicated to ingraining GIS and geographic information science into the teaching, legal, and regulatory frameworks that direct the development and use of the Earth's resources.

ATTENDEES

Eric Woodruff
Student, CSU Sonoma
woodruffe@sonoma.edu

Eric Woodruff is a senior at Sonoma State University majoring in Environmental Studies, Geography, and Planning. He is currently monitoring impacts on streamflow and aquatic habitat brought on by the invasive species Ludwigia in the Laguna de Santa Rosa. His research is being conducted with guidance from Professor Jackie Guilford.

William Wright
Faculty, CSU Fresno
wfwright@csufresno.edu

Dr. William Wright began his career with Black & Veatch Consulting Engineers in 1986 after earning a BS degree in Civil Engineering at UC Berkeley, obtained a license to practice Civil Engineering (CA), and then earned MS and Ph.D. degrees in Civil and Environmental Engineering at UC Davis in 1995 and 2000, respectively. Dr. Wright joined the Civil Engineering faculty at Fresno State in 1999. His responsibilities currently include instruction in civil and environmental engineering and coordination of the graduate program. His research interests include water and wastewater treatment, salinity management, conversion of food wastes to marketable products (e.g., bioplastics and activated carbon), manure management, digestion/ fermentation, and biofiltration. Recent work has focused on the production of water and fertigation nutrients from nontraditional water sources using ion exchange and membrane technologies.

Tesfayohanes Yacob
Faculty, CSU Humboldt
twy2@humboldt.edu

Tesfayohanes Yacob is an assistant professor of environmental engineering at California Polytechnic University, Humboldt, who is passionate about access to clean water and a hygienic living environment for all communities regardless of economic status. In his recent research and service work, he has focused on sustainable wastewater treatment, removal of emerging contaminants in wetlands, sustainable urbanization in developing countries, groundwater resource planning, the development of innovative point-of-use drinking water treatment technologies, and wildfire-related air quality management. His teaching experience includes senior capstone design, water, and wastewater treatment, groundwater hydrology, hazardous waste and air pollution management, environmental transport processes, fluid mechanics, appropriate technology for developing communities, numerical methods, and engineering statics. He enjoys hiking, taking long walks, reading, and listening to audiobooks. He has a B.Sc. in Chemical Engineering from Addis Ababa University and a Ph.D. in Civil and Environmental Engineering and the University of Colorado at Boulder.

Jung You
Faculty, CSU East Bay
jung.you@csueastbay.edu

My teaching and research interests are public economics, energy and environmental economics, and mechanism design.

Bradley Yuhasz
Student, CSU Long Beach
Bradley.Yuhasz01@student.csulb.edu

My name is Bradley Yuhasz, and I am a transfer student at CSULB studying chemical engineering. I am originally from Oceanside, California.

NOTES

CSU The California State University

WRPI

WATER RESOURCES & POLICY INITIATIVES