UNIVERSITY OF SAN FRANCISCO
Master of Science in Environmental Management

Spring 2026
Master's Project Presentations

Thursday, May 14th at the Fromm Complex, USF Hilltop Campus

Event Description

Join the MS in Environmental Management (MSEM) program for its Spring 2026 Master's Project Presentations! Students in the graduating cohort will present their capstone research projects, providing evidence-backed management recommendations on a real-world environmental issue. These projects showcase a wide range of topics and approaches, reflecting the diversity of work within the program. They also serve as our students' bridge to the professional world, giving them the opportunity to demonstrate their project management skills and domain expertise.

Overview of Event

- 5:30PM: Reception
- 6:00PM: Presentations Begin
- 8:30PM: Graduation Celebration

Remote Participation

We will be offering a remote option for this event. Here are the Zoom links for each section of presentations:

- Prof. Allison Luengen's Section: https://usfca.zoom.us/j/84588004698
- Prof. Simon Scarpetta's Section: https://usfca.zoom.us/j/83913425072
- Prof. Stephanie Siehr's Section: https://usfca.zoom.us/j/81265397404

Presentation Schedule

TIME	Prof. Allison Luengen's Section	Prof. Simon Scarpetta's Section	Prof. Stephanie Siehr's Section
6:00PM	**Tyrone Bass** Redlining associated with higher particulate matter (PM2.5) concentrations in the California Bay Area	**Lady Palomino Peinado** Effectiveness of wastewater treatment technologies for pharmaceutical removal in Bogotá, Colombia	**Mike Fogarty** Examining Water Security and Climate Resilience Benefits of Low-Tech Stream Restoration in California
6:20PM	**Briana Miller** Photocatalytic advanced oxidative processes (AOP) as a promising agricultural runoff treatment solution for the Central Valley	**Michelle Zuniga Recilla** Wetlands as Natural Buffers: Insights from Tampico, Tamaulipas	**Rebecca To** The Role of Intermittent Nutrient Loading in San Francisco Bay
6:40PM	**Charlie Carmichael** A wildlife crossing proposal for mountain lions in San Luis Obispo County	**Nick Jones** Evaluating Wildfire Mitigation and Exposure Hot Spots in the Northern Bay Area	**Stella Luong** PFAS Removal in Wastewater Treatment: Chain-Length, Membrane Performance, and Fuzzy MCDA Technology Selection
BREAK 7:00PM - 7:10PM			
7:10PM	**Emily Parker** Climate-driven maritime hazards and marine fuel oil spill risk in the Northwest Passage	**Amanda Rosales** Improving human-wildlife coexistence: An ecological and educational approach to rewilding grizzly bears (Ursus arctos horribilis) in California	**Maria Natalia Rodriguez Bustos** Deforestation Dynamics in the Amazon: Impacts, Socio-Economic Drivers, and Restoration Pathways
7:30PM	**Evan Eldermire** (Thesis) The Concentration and distribution of mercury in coyote (Canis latrans) in San Francisco and the surrounding area	**Debbie Diaz Mirands** Saltwater intrusion in coastal aquifers of California: Pajaro Valley and Los Angeles County	**Laiba Rehman** Comparative Analysis of Transportation Emissions and Policy in Lahore and Los Angeles
7:50PM	**Edward Turk** (Thesis) Complementing Topographic Wetness with Sentinel-2 Phenological Indices to Map Soil Moisture Gradients in a Snowmelt-Driven Mountain Floodplain	**Sarah Burton** (Thesis) William P. Jordan and the Lichens of San Francisco and Its Outlying Islands from 1863 to present	

About the MSEM Program

Launched in 1977, the Masters of Science in Environmental Management (MSEM) program at the University of San Francisco (USF) is one of the first graduate environmental management programs in the U.S, and the longest-running in the West. Strongly rooted in the natural sciences, the MSEM interdisciplinary curriculum connects ecology and chemistry-based courses with environmental policy, law, and management. MSEM features a combination of coursework and applied research, and it offers concentrations in *Water Management, Energy and Climate, Ecology,* and *Environmental Health & Hazard*s, plus a *GIS* certificate option. Designed to help working professionals grow their careers in environmental management, USF MSEM offers in-person courses on weeknights and Saturdays. Courses are taught by full-time faculty and practitioner instructors, bringing a strong mix of theory and practice. MSEM alumni number more than 1,000, working in government, consulting, industry and non-profit organizations in California and around the world.

The MSEM program is currently accepting applications for the Fall 2026 cycle, please contact msem@usfca.edu for more information.

Student Bios

Sarah Burton - *William P. Jordan and the Lichens of San Francisco and Its Outlying Islands from 1863 to present*
Attending the University of San Francisco has been the opportunity of a lifetime – I have found awe, joy, and wonder at every turn. Lichens were a passion before I began this program, now my voice is louder and my brain is fuller. I have contacts and opportunities I have dreamed about. My research focuses on the ecology, phylogeny, and conservation of the lichens of California and its associated islands, several projects under the mentorship of Drs. Jessi Allen, April Randle, and Klara Scharnagl. In 2025, I secured a grant from the California Institute of Biodiversity to resuscitate an orphaned collection of 50 year-old lichens created by California lichenologist, William P. Jordan. In three chapters, my thesis delves into the archives of unknown herbaria collections, establishes a first every annotation checklist of the lichens of San Francisco County, and will eventually take me to the Farallon Islands to further research on a lichen of particular conservation concern, the endemic lichen Edrudia constipans. I am particularly passionate about California lichen collections and mentoring those around me.

Maria Natalia Rodriguez Bustos - *Deforestation Dynamics in the Amazon: Impacts, Socio-Environmental Drivers, and Restoration Pathways*
Maria Natalia Rodriguez Bustos is a Master of Environmental Management candidate at the USF, with a background in Environmental Engineering from Colombia. Her work focuses on climate change mitigation, ecosystem conservation and sustainability. For her Master project Natalia analyzed deforestation dynamics in the Amazon rainforest, examining the spatial relationship between forest loss, mining activities and transportation networks. Using GIS her research highlights the key role of protected areas and indigenous territories. As an international student she brings a global perspective and a strong commitment to environmental justice. After graduation she aims to pursue a career in sustainability, contributing to projects in resilient socio-ecological systems.

Nick Jones - *Evaluating Wildfire Mitigation and Exposure Hot Spots in the Northern Bay Area*
My time in USF's MSEM program has strengthened my interest in wildfire mitigation, GIS, and environmental policy. My Master's Project examines wildfire risk and mitigation strategies across Alameda, Contra Costa, and Sonoma Counties, focusing on how wildfire hazard, wildland-urban interface exposure, and policy planning overlap in the Northern Bay Area. Through spatial analysis and policy evaluation, I compare how counties identify high-risk areas and whether local planning efforts align with the places most exposed to wildfire impacts. This project has allowed me to combine technical GIS skills with broader questions about climate adaptation, governance, infrastructure, and community safety. I am especially grateful to my professors, whose guidance, support, and dedication have helped foster my education and shaped my growth as an environmental professional.

Stella Luong - *PFAS Removal in Wastewater Treatment: Chain-Length, Membrane Performance, and Fuzzy MCDA Technology Selection*
Water has been the cornerstone of my life and also my journey through the MSEM program. My capstone focuses on how membrane treatment can remove PFAS, the so-called "forever chemicals". It is a difficult problem but working through it has only deepened my belief that dedicated engineering can make a real difference. I hope this project contributes meaningfully to the growing challenges of PFAS contamination and serves as a foundation for the work I'm committed to do next. The MSEM program has opened doors that I'm forever grateful for, in which one led me to SF Recreation and Parks Department where I strengthened my skills that directly support my personal and professional development. After graduating, I'm excited to begin a new chapter as an Engineering Intern with the City of Palo Alto, supporting capital improvement projects at their Water Quality Control Plant. I came into this program because of water and leaving ready to build my career around it.

Laiba Rehman – *Comparative Analysis of Transportation Emissions and Policy in Lahore and Los Angeles*

My interest in this Master's Project stems from both personal experience and academic curiosity. Growing up in Pakistan, air pollution was never an abstract issue, it was visible in everyday life, shaping how I thought about environmental governance long before I had the language for it. The MSEM program gave me the frameworks to turn that curiosity into rigorous analysis and deepened my commitment to climate and energy policy as a field. My project examines how transportation emissions shape urban air quality, public health, and climate outcomes in Lahore and Los Angeles, and asks what regulatory lessons a city like Lahore can draw from California's six decades of governance experience. I hope this research contributes, even in a small way, to the ongoing conversation about what effective environmental policy looks like in rapidly urbanizing cities in the Global South. I am deeply grateful to Prof. Stephanie Siehr and Prof. Amalia Kokkinaki for their guidance throughout this process and making this experience so meaningful.

Maria Natalia Rodriguez Bustos - *Deforestation Dynamics in the Amazon: Impacts, Socio-Economic Drivers, and Restoration Pathways*

Maria Natalia Rodriguez Bustos is a Master of Environmental Management candidate at the USF, with a background in Environmental Engineering from Colombia. Her work focuses on climate change mitigation, ecosystem conservation and sustainability. For her Master project Natalia analyzed deforestation dynamics in the Amazon rainforest, examining the spatial relationship between forest loss, mining activities and transportation networks. Using GIS her research highlights the key role of protected areas and indigenous territories. As an international student she brings a global perspective and a strong commitment to environmental justice. After graduation she aims to pursue a career in sustainability, contributing to projects in resilient socio-ecological systems.

Rebecca To - *The Role of Intermittent Nutrient Loading in San Francisco Bay*

I enrolled in USF's MSEM program aiming to grow my technical skill set, and position myself for a long career in environmental management. I am happy to report that I've accomplished my first goal and feel exceptionally hopeful that I have accomplished my second goal. I've had a wonderful experience being a student again, and I'm grateful for all the professors and classmates I've met along the way. My Master's Project represents my passion for coastal ecosystems and interests in nutrient cycling as well as my concentration in Water Management and GIS certificate. It focuses on eutrophication and intermittent sources of nitrogen pollution in San Francisco Bay, specifically sanitary sewer overflows and the influence of anthropogenic land use. My project's goal was to build on our understanding of nitrogen management and loading in an intricate system that is on the verge of impairment.

Evan Eldermire - *The Concentration and Distribution of Mercury in Coyotes (Canis latrans) in San Francisco and the Surrounding Area*
I couldn't be more grateful for the learning opportunities I've had at USF. Truly enjoyed MSEM's thoughtful discussion, fieldtrips, and hands-on learning. I feel like I obtained a valuable, high-quality education that brought me to where I am today. I am very grateful for the amazing friends I made through MSEM who have supported and guided me. My thesis encompasses my time spent in the lab, in the literature, and experiencing the full scope of what primary research entails. My master's thesis studies the presence of mercury in coyotes as a step toward understanding the threat of mercury in urban landscapes.

Michelle Zuniga Recilla - *Wetlands as Natural Buffers: Insights from Tampico, Tamaulipas*
I grew up in Tampico, Tamaulipas, watching the city flood every rainy season. Back then I didn't have the words for it, but I always felt that something was missing from the landscape, something that should have been protecting us. That feeling is what brought me to the MSEM program, and eventually to this research. My Master's Project looks at how wetland characteristics enhance flood protection in coastal urban areas, using GIS analysis, geomorphological assessment, and a comparison of Mexican and U.S. policy frameworks, all applied to my hometown. Living in San Francisco and being part of the MSEM program genuinely changed how I see the world. Experiencing a city and a community where environmental consciousness is woven into everyday life where people fight for ecosystems, show up for them, and build policy around them gave me a new lens for understanding what is possible, and what Tampico deserves. After graduation, I want to work at the intersection of environmental planning and coastal resilience, and bring some of that awareness back home.

Lady Palomino Peinado - *Effectiveness of wastewater treatment technologies for pharmaceutical removal in Bogotá, Colombia*
I chose the MSEM program at the University of San Francisco because its curriculum closely aligned with my background as an environmental engineer from Colombia, while allowing me to expand my perspective on complex environmental challenges. These past two years have been transformative both academically and personally, as I adapted to life in a new country far from home. My Master's Project investigates pharmaceutical compounds in Bogotá's wastewater systems, evaluating whether advanced treatment technologies are sufficient to address this emerging environmental challenge. Through a systematic literature review, comparative case studies, and gap analysis, my research identifies critical barriers related to monitoring, treatment infrastructure, and regulation, while proposing targeted recommendations for Bogotá's water governance framework, particularly in light of the planned Canoas WWTP. Looking ahead, I hope to build a career in water resources management in the United States, applying the knowledge gained during this program to address environmental challenges. I am deeply grateful to my family in Colombia, especially my mother Yolanda and my brother Juan, as well as my host family in the U.S., whose support made this journey possible.

Edward Turk - *Mapping Soil Moisture in a Snowmelt-Driven Mountain Floodplain Using Satellite Vegetation Time Series*

I came to MSEM after years as a Bay Area lab technician, first in soil health research and later developing biological formulations for agriculture. Soil health and regenerative agriculture remain passions of mine. That brought me to Professor Amalia Kokkinaki's group, where I joined her work on methane emissions from soils. I participated in two field campaigns collecting methane flux in a remote river floodplain near Crested Butte, Colorado. For my thesis I wanted to connect Amalia's work to a new interest of mine taking hold at USF, remote sensing and GIS. My project builds satellite image time series and reads how vegetation responds across the growing season as a record of the soil moisture below it, then uses that signal to map moisture gradients across a landscape. Soil moisture controls more than methane. Mountain floodplains hold water that downstream communities depend on, and snowmelt systems across the West are changing fast. Mapping subsurface moisture from space is one of the few ways to monitor places too remote to instrument. After graduation I'm staying in the Bay Area, pursuing GIS work in water resources and climate resilience. Thanks to Amalia and everyone at USF who helped along the way.

Amanda Rosales - *Improving human-wildlife coexistence: An ecological and educational approach to rewilding grizzly bears (Ursus arctos horribilis) in California*

I have eagerly learned alongside environmentally conscious individuals since seeking the MSEM program after my previous background in Animal Science and Law Enforcement. I am thankful for the mentorship and comradery shared with my cohort and the first-year students, getting to know them better on field trips! Even though I commuted, this program nurtured the craving I had to learn more about the environment, be hands-on, become a solutions-thinking individual, and learn ways to be a proactive leader. My concentration in Ecology/Ecosystems also led me to discover topics for my project: the role of predators in ecosystems, restoration of plants and animals, and immersing children in nature. I thrived in courses like Ecology, Conservation Biology, and California Ecosystems as well as Climate Science. Even when I was unaware of what I needed next, my advisors encouraged me to take Environmental Law and the Environmental Policy: Design and Implementation to better understand these subject matters useful for my project. I want to take this next opportunity in life to reach out to local early outdoor education and environmental education opportunities for my son and share these experiences with that community while seeking similar job and leadership opportunities.

Debbie Diaz Mirands - *Saltwater intrusion in coastal aquifers of California: Pajaro Valley and Los Angeles County*

My experience in the USF M.S. in Environmental Management (MSEM) program has been both academically enriching and professionally transformative. The program has provided me with a strong foundation, integrating environmental science, and data analysis. One of the most

valuable aspects has been the emphasis on applying technical knowledge to real-world environmental challenges, as well as the opportunity to collaborate with peers and faculty from diverse backgrounds. Through coursework and project-based learning, I have strengthened my analytical and research skills while also developing a deeper understanding of environmental systems. My Master's Project focuses on saltwater intrusion in Pajaro Valley and Los Angeles County, two coastal regions facing significant groundwater management challenges. This process threatens water quality, agricultural productivity, and long-term water security for local communities. This research seeks to address critical environmental questions, including the extent of saltwater intrusion, potential impacts, and what are the current mitigation strategies implemented to protect these vital water resources. By examining data trends, my goal is to contribute to more sustainable groundwater management practices and inform decision-making processes. Ultimately, through this work, I aim to support the development of preventive solutions that protect freshwater supplies, promote environmental resilience, and ensure equitable access to clean water in coastal regions increasingly affected by climate change.

Emily Parker - *Climate-driven maritime hazards and marine fuel oil spill risk in the Northwest Passage*

I had ten years of experience in maritime meteorology before enrolling in the MSEM program. My interest in climate change was a major motivator in returning to school, and the Energy & Climate Change concentration seemed like a natural fit. The variety of topics taught throughout the curriculum was excellent, and I now have a more well-rounded understanding of the interconnectedness of environmental systems. My master's project combines my professional background with my lifelong interest in meteorology, oceanography, and climate science. It examines how declining Arctic sea ice conditions are altering navigational hazards and increasing marine fuel oil spill risk across the Northwest Passage as vessel activity grows. The project also evaluates how Arctic governance and spill response systems are struggling to keep pace with increasing environmental and operational risks. Understanding how these evolving Arctic conditions may affect such a sensitive region is paramount for limiting environmental damage and long-term ecological degradation. I am grateful for my time in this program and for everything I have learned from both the faculty and my classmates.

Tyrone Bass - *Redlining associated with higher particulate matter (PM2.5) concentrations in the California Bay Area*

Tyrone Bass (he/him) is an expected 2026 graduate of the University of San Francisco's M.S. in Environmental Management, with a concentration in geographic information systems (GIS). His masters research investigates whether redlining is associated with inequitable racial and ethnic disparities in fine particulate matter in the San Francisco Bay Area. Tyrone's research centers original quantitative analysis using R, GIS, and data gathered from contemporary and firsthand historical sources. Tyrone currently serves as the Director of Operations for the Institute for the

Quantitative Study of Inclusion, Diversity, and Equity (QSIDE), a data science + social justice nonprofit, where he continues to advance an equity-minded research agenda.

Event Contact Information

If you have any questions regarding the event, please contact MSEM Program Assistant Maggie Morant at mmorant@usfca.edu.