Environmental Systems Graduate Group
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Humberto Flores-Landeros

Curriculum Vitae

Research Focus

Managed Aquifer Recharge (MAR), applied geophysics for infiltration basin design, field monitoring (groundwater quantity and quality), subsurface modeling, subbasin-scale groundwater sustainability planning (SGMA), and geospatial decision-support.

Education

2026 **Ph.D., Environmental Systems (Hydrology and Water Resources Engineering)**, *University of California, Merced*

2024 **M.S., Environmental Systems**, *University of California, Merced*
Topic: Low-cost CO_2 sensors reveal seasonal and management-driven soil carbon fluxes in a Mediterranean agroecosystem

2020 **B.S., Environmental Engineering** , *University of California, Merced*
⋆ Graduated with high honors, received outstanding student award, and won best capstone project in Environmental Engineering

2018 **General Engineering for Transfer**, *Santa Rosa Junior College, Santa Rosa*

Research & Professional Experience

Aug 2021–Present **PhD Student**, *University of California, Merced*
⋆ Dean's Dissertation Fellowship

Research on groundwater recharge potential via electromagnetic geophysics and assessment of local storage opportunities.

Developed site-specific lithological transforms to identify and guide MAR basin design.

Instrumentation design of research MAR basin.

Co-developed Geospatial toolkits for multicriteria land management decision making.

Performed economic impact analysis of multibenefit land repurposing.

Mentored and trained graduate and undergraduate students.

Dec 2021–Dec 2023 **Staff Scientist**, *E-PUR LLC*
Assisted Principal Groundwater Hydrogeologist across the San Joaquin Valley.

Conducted water quantity (depth-to-water and piezometers) and quality sampling (Stable isotopes, TDS, ions, metals, nutrients.

Set up and use of Global Navigation Satellite System for well georeferencing

Piper diagram creation for ioninc water chemistry analysis. (USGS GWChart)

Site Safety Officer during implementation of vertically nested monitoring well installation.

Borehole and well lithology logging. (Strater)

Jan 2021–Aug 2021 **Junior Specialist**, *Sierra Nevada Research Institute*
Supported UC Merced researchers on topics of land repurposing, water management, and greenhouse gas emissions.

Oct 2019–Dec 2020 **Undergraduate Researcher**, *University of California, Merced*
Assisted in community-engaged water research projects and developed maps for water management reports

Outreach & Service

Dec 2019–Present **Board of Directors**, *SocioEnvironmental and Education Network (SEEN)*
Nonprofit leadership supporting science-based outreach and education.

Coordinate workshops and develop educational programs on scientific topics for K-12 students from disadvantaged communities.

Secured approximately $1.5 million in funding since 2021 for educational and community programs.

Oversee strategic planning, program implementation, and community partnerships.

Publications (Peer-Reviewed)

2026 **Flores-Landeros, H.**, Alvarado, A. G., Jurusik, A., Morande, J. A., Waring, E., & Harmon, T. C. (2026). Low-cost CO_2 sensors reveal seasonal and management-driven soil carbon fluxes in a Mediterranean agroecosystem. *Environmental Technology & Innovation, 41, 104743*. doi:10.1016/j.eti.2025.104743..

2025 Nuñez-Bolaño, Y., **Flores-Landeros, H.**, Rodríguez-Flores, J. M., Fernandez-Bou, A. S., Medellín-Azuara, J., & Harmon, T. C. (2025). A participatory approach for developing a geospatial toolkit for mapping the suitability of California's Multibenefit Land Repurposing Program (MLRP) in support of groundwater sustainability. *Frontiers in Water, 7, 1539834*. doi:10.3389/frwa.2025.1539834.

2025 Fernandez-Bou, A.S., Rodriguez-Flores, J.M., Ortiz-Partida, J.P., Fencl, A., Classen-Rodriguez, L., Yang, V., Williams, E., Schull, V., Dobbin, K., Christian-Smith, J., Penny, G., Escobedo, N.G., Sanchez, S., Livingston, A., Guzman, A., Islas, A., Gurevitz, A., Sharma, A., Stevenot, A., Van Dyke, C., Pells, C., O'Connell, D., Toews, D., Bischak, E., Gamino, E., Waring, E., Perez, F., Benitez-Altuna, F., Dourado, G.F., **Flores-Landeros, H.**, Fanous, J., Anagha, J., Snyder, J., Abatzoglou, J.T., Munguia, J.A., Susa-Rincon, J.L., Barajas-Galindo, S.J., Kalansky, J., Mudd, K., Rivers, K., Jiang, L., Uribe-Robles, M., Taharkah, M., Goswami, O., Ryals, R., Akiona, R., Cuppari, R., Sandoval-Solis, S., Pan, S., Helmrich, S., Salzman, T., Corringham, T., Espinoza, V., & Nuñes-Bolaño, Y. (2025). Cropland repurposing as a tool for water sustainability and a just land transition in California: Review and best practices. *Frontiers in Water*, 7. doi.org/10.3389/frwa.2025.1510413

2023 Fernandez-Bou, A.S., Rodríguez-Flores, J.M., Guzman, A., Ortiz-Partida, J.P., Classen-Rodriguez, L.M., Sánchez-Pérez, P.A., Valero-Fandiño, J., Pells, C., **Flores-Landeros, H.**, Sandoval-Solís, S., Characklis, G.W., McCullough, M., Harmon, T.C., & Medellín-Azuara, J. (2023). Water, environment, and socioeconomic justice in California: a multi-benefit framework. *Science of the Total Environment*, 858, 159963. doi.org/10.1016/j.scitotenv.2022.159963

2021 Fernandez-Bou, A.S., Ortiz-Partida, J.P., Classen-Rodríguez, L.M., Pells, C., Dobbin, K.B., Espinoza, V., Rodríguez-Flores, J.M., Thao, C., Hammond Wagner, C., Fencl, A., **Flores-Landeros, H.**, Maskey, M.L., Cole, S.A., Azamian, S., Gamiño, E., Guzman, A., Alvarado, A.G.F., Campos-Martinez, M.S., Weintraub, C., Sandoval, E., Dahlquist-Willard, R., Bernacchi, L., Naughton, C.C., DeLugan, R.M., & Medellín-Azuara, J. (2021). 3 challenges, 3 errors, and 3 solutions to integrate frontline communities in climate change policy and research: Lessons from California. *Frontiers in Climate*, 3, 717554. doi.org/10.3389/fclim.2021.717554

2021 Fernandez-Bou, A. S., Ortiz-Partida, J. P., Dobbin, K. B., **Flores-Landeros, H.**, et al. (2021). Underrepresented, understudied, underserved: Gaps and opportunities for advancing justice in disadvantaged communities. *Environmental Science & Policy, 122*, 92–100. doi:10.1016/j.envsci.2021.04.014.

2021 **Flores-Landeros, H.**, Pells, C., Campos-Martinez, M. S., Fernandez-Bou, A. S., Ortiz-Partida, J. P., & Medellín-Azuara, J. (2021). Community Perspectives and Environmental Justice in California's San Joaquin Valley. *Environmental Justice*. doi:10.1089/env.2021.0005.

Conference Presentations

2025 **Flores-Landeros, H.**, Nuñez-Bolaño, Y., Morande, J. A., & Harmon, T. C. µMAR: Micro-Scale Managed Aquifer Recharge in Shallow Hydrogeological Units (AGU 2025, H41G-09). doi:10.22541/essoar.176859142.23499670/v1.

2024 **Flores-Landeros, H.**, Nuñez-Bolaño, Y., Morande, J. A., & Harmon, T. C. Advancing Farm-Scale Groundwater Recharge: Leveraging Electromagnetic Geophysical Methods for Enhanced Subsurface Characterization and Storage Assessment (LACA, 2024).

2023 **Flores-Landeros, H.**, Fernandez-Bou, A., Gomez, E., Waring, E., & Harmon, T. C. Distributed Carbon Dioxide Flux Assessment in Agricultural Soils (AGU 2023, GC51P-0859). doi:10.22541/essoar.172554820.06095296/v1.

Technical Reports

2025 Tule & Kaweah Subbasin Multibenefit Land Repurposing Economic Impact Analysis. Sierra Nevada Research Institute (**H. Flores-Landeros**, contributing author)

2024 A Geospatial Toolkit for Mapping MLRP Suitability in the Tule Groundwater Basin. **H. Flores-Landeros**, Y. Nuñez Bolaño, E. Trujillo, S. Maalouf, J. Medellín-Azuara, T. Harmon.

2023 Eastside Water District Final Report on Pilot Study of Stormwater Recharge to Groundwater via Downwells/Vertical Drains in the Mustang Creek Watershed. John M. Lambie, PG, CEG, PE & **H. Flores-Landeros**.

2023 Planada Area Groundwater-Recharge-Project Construction. John M. Lambie, PG, CEG, PE & **H. Flores-Landeros**.

2023 Direct Groundwater Recharge Project: CPT & USDA Research tTEM Data for Robson Farms (Merced County, California). John M. Lambie, PG, CEG, PE & **H. Flores-Landeros**.

2021 San Joaquin Valley Region Report for California's Fourth Climate Change Assessment. San Joaquin Valley Region Authors (**H. Flores-Landeros**, contributing author)

Technical Skills

Hydrogeology Geophysical electromagnetic methods, site-specific lithological transforms;groundwater recharge and storage suitability assessment in agricultural lands, & engineered drainage solutions through vertical drains and drywells.

Geospatial Analysis Multi-criteria decision making, multi-objective evolutionary algorithms, buffers analysis, zonal statistics

Field Experience Water level measurements, water quality sampling, CO_2 flux sampling, monitoring station installations, aquifer testing, soil sampling, infiltration tests, isotope sampling.

Communication Technical reports, academic writing, stakeholder engagement, panelist, scientific presentations, software tutorials, educational videos.

Software Python, ArcGIS Pro, QGIS, R; Shiny, Matlab, HYDRUS, Strater, IMPLAN.

Professional Memberships

American Geophysical Union (AGU)

Groundwater Resources Association (GRA)

Languages

English Fluent

Spanish Fluent