Marie Tolteca

marietolteca@gmail.com | marietolteca00.github.io | GitHub | LinkedIn

EDUCATION

Master of Environmental Data Science, June 2026

Bren School of Environmental Science & Management, University of California, Santa Barbara (UCSB)

Highlighted Coursework: Databases and Data Management, Machine Learning, Geospatial Analysis and Remote Sensing, Data Visualization and Communication

Bachelor of Science, Environmental Science, Technology & Policy, May 2023

California State University Monterey Bay (CSUMB), Seaside, CA

DATA SCIENCE EXPERIENCE

Characterizing the Relationship Between Evapotranspiration and Groundwater Decline Across Arid Agricultural Regions

Capstone Project, UCSB Bren School, 11/2025 – 6/2026 **| GitHub: github.com/meds-AridGW**

• Built a reproducible pipeline that pulled evapotranspiration data from the OpenET API and combined it with USGS groundwater records across 6 regions (4 arid, 2 non-arid) to test whether groundwater is being replenished as fast as it is extracted.

• Led client communication for a four-person team, presenting findings every two weeks.

• Found that higher evapotranspiration-to-precipitation ratios were associated with faster groundwater decline, suggesting the ratio may serve as an early indicator.

Research Technician, NASA Ames Research Center, 5/2023 – 5/2024

CSUMB Water Agriculture Technology and Remote Sensing Lab (WATRS), Seaside, CA

• Assessed satellite imagery of California Irrigation Management Information System (CIMIS) stations using Google Earth and Climate Engine.

• Analyzed CIMIS station data in Python and R, following Food and Agriculture Organization standards (ArcPy, Matplotlib, Pandas).

• Compiled data and created ArcGIS visualizations to communicate findings.

Marine Aquaculture Suitability: West Coast EEZ for Oysters and California Spiny Lobster (Panulirus interruptus)

Course Project | GitHub: github.com/marietolteca00/Marine-Aquaculture-West-Coast-EEZ-for-Oysters

• Built a reproducible R workflow combining vector and raster data (resampling, masking, map algebra) to identify suitable West Coast Exclusive Economic Zones (EEZ) for oysters and spiny lobster; the workflow is reusable for additional species.

FIELD EXPERIENCE

Wildscape Restoration, Ventura, CA

On-Call Biologist, 10/2026 – Present

• Conduct biological assessments, nesting bird surveys, and pre-construction monitoring, collecting field data with Survey123 and Field Maps.

Biologist and Assistant Project Manager, 12/2024 – 7/2025

• Managed survey and mapping software (Field Maps, ArcGIS Pro, Survey123, Collector) to build custom forms, collect data, and integrate it into a mobile map application.

• Prepared technical reports, proposals, and project documentation for agencies and clients.

• Documented all project phases, including methodologies, findings, and conclusions, and assessed environmental risks and impacts.

Biologist and Project Assistant, 2/2024 – 7/2024

• Conducted biological surveys, including nesting bird surveys, biological assessments, and pre-construction monitoring.

• Assisted in preparing technical reports and ensuring compliance with environmental regulations.

Bureau of Land Management and American Conservation Experience, Burns, OR

Environmental Upland Monitoring Intern, 7/2024 – 11/2024

• Applied vegetation cover methods (Pace 180, point line intercept, Oregon Rangeland Monitoring Program (ORMP)) with the U.S. Geological Survey (USGS).

• Led ORMP projects: taught others to use Field Maps and Survey123, mapped coverage areas, and organized schedules.

• Surveyed fence inventory to prevent livestock grazing in wilderness and remote areas; built ArcGIS Pro visualizations to summarize findings for management.

Senior Park Aide (800 hours), California State Parks, 4/2023 – 8/2023

• Provided visitor assistance, customer service, administrative tasks, and operational support for a state park; applied language skills and worked both independently and collaboratively.

Residential Advisor, CSUMB, 6/2022 – 5/2023

• Mediated conflicts between residents.

• Conducted nightly rounds and documented findings.

• Ensured residents followed community standards in campus housing.

Trail Maintenance, Big Sur Land Trust, 9/2021 – 12/2021

• Led trail restoration work to preserve natural landscapes and improve the experience of park visitors.

Biological Science Aide, Santa Monica Mountains National Recreation Area (SAMO Fund), Thousand Oaks, CA, 6/2021 – 8/2021

• Led trail restoration to improve accessibility and habitat restoration to support ecological balance.

• Collected and cleaned seeds; participated in propagation in a nursery setting.

Researcher, The Aperture, Thousand Oaks, CA, 6/2018 – 8/2018

• Collaborated with fellow students on research projects, doing lab work, following protocols, and using lab instruments for data analysis.

• Applied the scientific method and drew relevant findings from literature to inform the study.

PUBLICATIONS

Oliver, H., Montes Lemus, R., Tolteca, M., & Martinez, A. (2026). AridGW: **Characterizing the Relationship Between Evapotranspiration and Groundwater Decline Across Arid**

Agricultural Regions: Outputs and Analysis. HydroShare. https://doi.org/10.4211/hs.b5ef5485b54e486ab4488d60158cce9a

PROJECTS

• **Drivers of Trail 1 Instability, Who's Behind the Wheel?** Guilinger, J., Tolteca, M., Satti, F. A., Liles, D., Klopstock, T., & Reid, E. CSUMB, Capstone, GEOL 460: River Hydrology and Monitoring.

• **Monitoring Crop Water Consumption in the Salinas Valley: 2023 Results**. Solymar, R., Purdy, A., Biedebach, M., Burroughs, K., Tolteca, M., Villa Alvarado, M., Cahn, M., Johnson, L., & Melton, F.

SKILLS

• **Programming & Data:** Python (ArcPy, Matplotlib, Pandas, Scikit-learn), R (RStudio), SQL (DuckDB, MySQL), C++ (basic), HTML (basic), Git

• **GIS and Field Data:** ArcGIS Pro, ArcGIS Online, Survey123, Field Maps, Collector, Avenza, Google Earth, Climate Engine

• **Field methods:** Nesting bird surveys, biological assessments, pre-construction monitoring, vegetation cover monitoring (Pace 180, point line intercept, ORMP)

CERTIFICATIONS AND PERMITS

• MySQL Database Development: GIS, Cloud & Connectors for MySQL, BLM, 11/2024

• State of California, Department of Fish and Wildlife: Scientific Collecting Permit (California Bumble Bee Atlas), 06/2025

• NSC Defensive Driving Course, 10X (L) Edition

• UTV Certified

AWARDS

• California State University Monterey Bay, Academic Honors: Cum Laude; Dean's List (3 semesters)

• Ventura & Oxnard Community College Dean's List: Fall 2019, Spring 2020, Fall 2020