

Jenna Israel
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Education

UNIVERSITY OF CALIFORNIA, BERKELEY, *Ph.D. Candidate* Fall 2021 - Present
Environmental Engineering, GPA: 3.976
UNIVERSITY OF CALIFORNIA, BERKELEY, *M.S.* 2022
Environmental Engineering, GPA: 4.000
CORNELL UNIVERSITY, *B.S. magna cum laude.* 2021
Environmental Engineering with Honors Thesis, English Minor, GPA: 3.899

Research Experience

Graduate Research in Salinity Intrusion Modeling Spring 2024 - Present
UNIVERSITY OF CALIFORNIA, BERKELEY

- Perform 3-D hydrodynamic model simulations using SCHISM to compare stakeholder-generated salinity intrusion management scenarios for the Sacramento- San Joaquin Delta
- Investigate implementations of sea level rise and potential future climates in SCHISM to understand the sensitivity of salinity intrusion to ocean boundary and atmospheric forcings
[Supervisor: Laurel Larsen]

Graduate Research in Microbiome Thermodynamics Spring 2022 - Present
UNIVERSITY OF CALIFORNIA, BERKELEY

- Collaborate with groups across UC Berkeley and Lawrence Berkeley National Laboratory on NSF project investigating the thermodynamic theory of microbes in a changing climate
- Develop respirocalorimetry experiments to test and modify trait-based dynamic energy budget model simulating trade-off between growth and efficiency as a control on soil carbon cycling
[Supervisors: Eoin Brodie and Evan Variano]

Undergraduate Research in Denitrifying Bioreactor Performance Spring 2018 - Spring 2021
CORNELL UNIVERSITY

- Modeled and measured nitrate removal performance and greenhouse gas production of denitrifying woodchip bioreactor to predict performance under future climate scenarios
- Implemented finite difference advection-dispersion model and performed biogeochemistry experiments, collected and analyzed field samples using Ion and Gas Chromatography
[Supervisor: Matthew Reid]

Undergraduate Research in Wastewater Antibiotic Resistance Gene Persistence Summer 2019
VIRGINIA TECH INTERDISCIPLINARY WATER SCIENCE AND ENGINEERING REU

- Investigated the spread of antibiotic resistance genes (ARGs) in wastewater treatment
- Traveled to Chennai, India to sample wastewater treatment plants with collaborators at IITM
- Extracted DNA and antibiotics from samples, quantified ARGs using qPCR and analyzed new and previous data for impact of solids treatment on ARGs using nonparametric statistics
[Supervisor: Amy Pruden]

Pre-Undergraduate Student Researcher
DUKE UNIVERSITY

Fall 2016, Summer 2017

- Piloted utilization of low cost indoor and outdoor air quality sensors at my high school
- Analyzed particulate matter data and pursued independent project calibrating ozone sensors
[Supervisor: Michael Bergin]

Professional Development

Sea Level Rise Summer School, TU Delft August 2025
NSF ASI: Fresh Water Ecosystem Management, UC Davis/IHE Delft July 2025
Fluid Dynamics of Sustainability and the Environment Summer School, École Polytechnique May 2024

Honors and Certifications

Invitation NSF Workshop Salt Contamination of Water Supplies in Tidal Rivers Fall 2025
Swedish Women's Educational Association San Francisco Travel Scholarship Spring 2025
Passed Fundamentals of Engineering Exam (FE) Summer 2021
Tau Beta Pi, Engineering Honor Society Inducted Fall 2020
Chi Epsilon, Civil Engineering Honor Society Inducted Fall 2020
Rawlings Cornell Presidential Research Scholarship Fall 2019 - Spring 2021

Teaching Experience

Graduate Student Instructor, CE 100 Elementary Fluid Mechanics Fall 2023

Service and Leadership

Volunteer at California Department of Water Resources, Delta Modeling Section Fall 2024- Present
Civil and Environmental Engineering Students for Anti-Racism *Increasing Awareness Group Lead 2022-2023*: Organized reading group Fall 2021- Present
Environmental Engineering Graduate Seminar Organizing Committee Fall 2022
UC Berkeley Graduate Student Assembly Delegate Fall 2021 - Spring 2022
Graduate Student Representative to UC Berkeley Faculty Senate Fall 2021 - Spring 2022
Committee on the Library
Cornell Museum Club, *President 2019-2020*: Coordinated student events at campus art museum Fall 2017- Spring 2021
Cornell Minority, Indigenous and Third World Studies Department Spring 2020- Fall 2020
Research Assistant

Publications

- 3 **J. Israel**, E. Ateljevich, S. Iacobellis, D. Cayan, L. Larsen. Coastal water level controls on salt intrusion in the Sacramento-San Joaquin Delta. In prep.
- 2 **J. Israel**, A. Eng, S. Wang, G. Marschmann, U. Karaoz, E. Brodie. Isothermal calorimetry illuminates power-yield trade-off in soil heterotrophic bacteria. In prep.
- 1 **J. Israel**, Z. Zhang, Y. Sang, P. M. McGuire, S. Steinschneider, M. C. Reid. (2023). Climate change effects on denitrification performance of woodchip bioreactors treating agricultural tile drainage. *Water Research*, 242.

Presentations (presenter(s) underlined)

- 12 **J. Israel**, E. Ateljevich, S. Iacobellis, D. Cayan, L. Larsen. Salinity intrusion response to sea-level rise and atmospheric stress-testing in the Sacramento San Joaquin Delta. Poster Presentation at Coastal Ocean Dynamics Gordon Research Conference, June 2025, New London, NH.
- 11 **J. Israel**, E. Ateljevich, L. Tomkovic, L. Larsen, B. Milligan. Salinity intrusion in a shifting Delta in a changing climate. Oral Presentation at California Water and Environmental Modeling Forum Annual Meeting, May 2025, Folsom CA.
- 10 **J. Israel**, L. Larsen, E. Ateljevich, B. Milligan. Stress-testing salinity intrusion management in a changing climate. Poster Presentation at UC Berkeley Water Day Symposium March 2025, Berkeley, CA.
- 9 **J. Israel**, L. Su, D. Cayan, L. Larsen, E. Ateljevich, B. Milligan. Climate change stress testing to evaluate scenarios for future Sacramento-San Joaquin Delta salinity management. Poster Presentation at American Geophysical Meeting Fall Meeting December 2024, Washington, DC.
- 8 **J. Israel**, L. Larsen, E. Ateljevich, B. Milligan. Stress-testing salinity intrusion management in a changing climate. Poster Presentation at California Geophysical Fluid Dynamics Conference September 2024, Palo Alto, CA.
- 7 **J. Israel**, L. Larsen, E. Ateljevich, B. Milligan. Modeling the Sacramento-San Joaquin Delta salinity under potential future, infrastructure, and prioritization scenarios. Poster Presentation at Fluid Dynamics of Sustainability and the Environment Summer School May 2024, Palaiseau, France.
- 6 **J. Israel**, S. Wang, G. Marschmann, J. Tang, J. Huang, U. Karaoz, A. Arkin, E. Brodie. Integrated respirocalorimetry, imaging and chemical analysis to explore microbial growth rate and efficiency trade-offs. Poster Presentation at American Geophysical Union Fall 2023 Meeting.
- 5 M. C. Reid, **J. Israel**, S. Steinschneider. Climate change effects on denitrification performance of denitrifying woodchip bioreactors in agricultural catchments. Poster Presentation at American Geophysical Union Fall 2023 Meeting.
- 4 G. Marschmann, J. Tang, U. Karaoz, **J. Israel**, E. Brodie. Pareto-optimal bugs: do power-yield trade-offs scale from individual microorganisms to microbial communities? Oral Presentation at Ecological Society of America 2022 Meeting.
- 3 **J. Israel**, P. M. McGuire, M. C. Reid. Parameterization and evaluation of a parsimonious model for nitrate removal and nitrous oxide production in a field denitrifying bioreactor experiencing hydroclimatic variability. Poster Presentation at American Chemical Society Spring 2021 National Meeting.
- 2 **J. Israel**, P. M. McGuire, N. Butkevich, M. C. Reid. Development of a parsimonious model for nitrate removal in woodchip bioreactors under dynamic hydrologic and temperature conditions. Oral Presentation accepted for American Chemical Society Spring 2020 National Meeting, prior to cancellation due to COVID-19.
- 1 P. M. McGuire, **J. Israel**, C. Peterson, T. Walter, M. C. Reid. Impacts of variable hydrologic regimes upon denitrifying bioreactor performance. Poster Presentation at American Geophysical Union Fall 2018 Meeting.