

Patricia Gonzales

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SUMMARY

Environmental engineer and researcher experienced in working with water agencies and communicating with diverse audiences to address 21st century water challenges. Critical thinker and fast-learner with a strong background in environmental science, engineering, and policy. Specializes in bridging system-level analyses to inform water conservation, water supply diversification, and collective action for more sustainable water management strategies.

EDUCATION

Ph.D. **Stanford University** (Environmental Engineering), Stanford, CA (expected 2018)
M.S. **University of Arizona** (Environmental Engineering), Tucson, AZ (2014)
B.S. **University of Arizona** (Environmental Science, *Summa Cum Laude and Honors*), Tucson, AZ (2013)

APPLIED RESEARCH EXPERIENCE

2014-Present **Graduate Researcher**, Stanford University, Stanford, CA
Re-Inventing the Nation's Urban Water Infrastructure (ReNUWIt), Civil & Environmental Engineering

- Managed multiple applied research projects from design to completion, leading to 5 peer-reviewed publications as well numerous plain-language presentations, research briefs, and news stories tailored to broad audiences.
- Collaborated closely with local water agencies to write funding proposals, manage sensitive data, and deliver reports and presentations.
- Conducted both technical and qualitative assessments to develop decision-support tools for water supply reliability and resilience.
- Integrated science, economics, and policy principles to design and evaluate innovative solutions to emerging water challenges.

Project: Coordinating regional water management to enhance resilience of the San Francisco Bay Area
Analyzed the potential for flexible policies and market-based mechanisms to incentivize coordination of water conservation and supply diversification efforts in the San Francisco Bay Area.

Project: Data-driven insights into California's dynamic urban water use
Investigated statewide datasets and developed novel metrics to quantify and model conservation responses during droughts. Built an interactive web portal to visualize data.

Project: A regional resilience framework for the changing urban water sector
Developed assessment metrics and identified drivers of changing water supply and demand characteristics in the San Francisco Bay Area. Characterized opportunities to introduce alternative water supplies to enhance water resilience under emerging challenges.

2012-2014 **Graduate Researcher**, University of Arizona, Tucson, AZ
Superfund Research Program, Chemical & Environmental Engineering

- Conducted technical and analytical work in studies at the science-policy interface of arsenic contamination in the Iron King superfund site.
- Collaborated with multidisciplinary teams to characterize arsenic mobilization, assess remediation technologies, and evaluate human health impacts.

2010-2012 **Undergraduate Researcher**, University of Arizona, Tucson, AZ
Chemical & Environmental Engineering

- Designed independent laboratory experiments and collaborated with graduate students in multiple research projects focused on arsenic geochemistry and remediation.

LEADERSHIP AND COMMUNICATION EXPERIENCE

- 2018 **Rising Environmental Leader**, Stanford Woods Institute for the Environment, Stanford, CA
- Interacted with decision-makers in Sacramento, CA and Washington, DC, developing science communication skills while learning about state- and federal-level environmental policy making.
- 2017-Present **President**, Stanford University Cycling Team, Stanford, CA
- Managed club operations, including overseeing 20 volunteer officer positions, making financial decisions for an operating budget of nearly \$100K, and supporting over 100 club members.
- 2016-2017 **Diversity Liaison Officer**, ReNUWit, Stanford, CA
- Steered the development of a Student and Postdoc Committee on Diversity and Inclusion. Conceptualized a vision for the committee, structured bylaws, and oversaw initiatives by 12 committee members across four universities.
- 2016-2017 **Water Task-Force Member**, Bay Area Regional Reliability Task Force, CA
- Collaborated with water agencies in the development of a regional drought contingency plan.
- 2014-Present **Education and Outreach Volunteer**, ReNUWit, Stanford, CA
- Conducted over 100 hours of mentoring, education and outreach tailored to different audiences.
- Research Assistant**, Water in the West Program, Stanford, CA
- Coordinated with communications team to write/edit news articles and research brief.

TECHNICAL SKILLS

- System-level analysis:** Optimization, decision-support modeling, economic and policy analysis
- Data science:** Processing large datasets, machine learning, statistics, data analysis and visualization
- Programming:** MATLAB, R, Python, JavaScript, agent-based modeling
- Other software:** Microsoft Office, ImageJ, MODFLOW, WEAP, geospatial analysis in ArcGIS and QGIS
- Laboratory and field:** Field sampling, geochemical characterization of environmental contaminants, mineral synthesis, sorption and leaching tests
- Languages:** Spanish (native speaker), Italian (intermediate)
- Communication:** Effective written and oral communication and science translation tailored to diverse audiences

SELECTED PEER-REVIEWED PUBLICATIONS (4/7)

- Gonzales, P.** and N.K. Ajami (2017). Social and Structural Patterns of Drought-Related Water Conservation and Rebound. *Water Resources Research* 53 (12), 10619-10634, [DOI: 10.1002/2017WR021852](https://doi.org/10.1002/2017WR021852).
- Gonzales, P.**, N.K. Ajami, and Y. Sun (2017) Coordinating water conservation efforts through tradable credits: a proof of concept for drought response in the San Francisco Bay Area. *Water Resources Research* 53 (9), 7662-7677, [DOI:10.1002/2017WR020636](https://doi.org/10.1002/2017WR020636).
- Gonzales, P.**, and N.K. Ajami (2017). The Changing Water Cycle: Impacts of an evolving supply and demand landscape on urban water reliability in the Bay Area. *Wiley Interdisciplinary Reviews-Water* 4(6), [DOI: 10.1002/wat2.1240](https://doi.org/10.1002/wat2.1240).
- Gonzales, P.** and N.K. Ajami (2017) An Integrative Regional Resilience Framework for the Changing Urban Water Paradigm. *Sustainable Cities and Society* 30, 128-138, [DOI: 10.1016/j.scs.2017.01.012](https://doi.org/10.1016/j.scs.2017.01.012).

SELECTED MULTIMEDIA OUTPUTS

- **Research brief:** Out of sight but not out of mind- The growing role of water conservation in California ([Stanford Water in the West](#)).
- **Interactive web portal:** Visualizing California's Dynamic Urban Water Use: <https://ca-drought.herokuapp.com> (named *finalist in the 2016 California Water Data Challenge*)
- Featured in **9 news stories and Q&As** published by popular media, including *Water Deeply* and *Stanford News Service*.