

KATHERINE ALFREDO

Associate Professor, Civil & Environmental Engineering, University of South Florida
Drinking Water Treatment, Access, Policy, and Sustainability (DW-TAPS) Research Group

kalfredo@usf.edu

SUMMARY

Dr. Alfredo's career embodies the *National Academies* definition of the interdisciplinary researcher; she is an environmental engineer who researches behavioral choice, participatory research, regulatory policy, and the physical-chemical-biological treatment processes to help improve the sustainable provisions of potable water. Her work integrates mechanistic understanding with system design and implementation of drinking water systems in the US and globally.

EDUCATION

Ph.D., Civil Engineering: Environmental Engineering (*December 2012*) University of Texas at Austin, Austin, TX

DISS: Drinking water treatment by alum coagulation: Competition among fluoride, natural organic matter, and aluminum. Advisors: Dr. Desmond F. Lawler and Dr. Lynn E. Katz

Master of Engineering, Environmental and Water Resources Engineering (*August 2008*) UT Austin, Austin, TX

Thesis: Environmental complexities involved in engineering a defluoridation filter. Advisors: Dr. Desmond F. Lawler and Dr. Lynn E. Katz

Bachelor of Engineering, Civil Engineering (*May 2005*) Cooper Union for the Advancement of Science and Art, NY, NY. *Summa Cum Laude*

Professional Licensure

Professional Engineer (PE) License VA (2019-Present)

RESEARCH GRANTS, AWARDS, AND FELLOWSHIPS

Since joining USF, Dr. Alfredo has secured **\$2.4 million in research funding**, including **\$1.1 million as Principal Investigator**, from NSF, the JPB Environmental Health Fellowship, and other sources, along with **>\$500,000 in in-kind instrumentation support**.

ACTIVE RESEARCH GRANTS

NSF Environmental Engineering (#2520301): Redesigning Point-of-use Treatment from the Perspectives of Water Quality Tradeoffs and Human Behavior (PI). \$448,338. (2025-2028)

USF Interdisciplinary Research Award: CLEAR Water Quality: Convergent Learning to Enhance the Analysis of Risk on Water Quality. (PI). \$152,057 (2024-2026)

JPB Environmental Health Fellowship (administered by Harvard University): Using a Risk Cup approach to evaluate vulnerabilities associated with community water systems in the US. (PI). \$200,000

USF Building Partnerships Across Campuses Grants Program 2026. Forever Resilient: Comparative Risk Analysis for Contaminants of Emergent Concern (PFAS) in India, USA, and Global Contexts (PI). \$10,000 (2026-2027).

AWARDS AND HONORS

Fellow, Florida Education Fund McKnight Junior Faculty Fellow 7/25-7/26

Research Fellow, Hiroshima University NERPS Research Fellow 3/25-3/27

Fellowship, JPB Environmental Health Fellowship 10/22-2/26

Postdoctoral Fellow, Fulbright-Nehru Postdoctoral Fellowship Program, India 3/16-4/17

Postdoctoral Fellow, Columbia University Earth Institute, Columbia Water Center 9/13-3/16

Fellow, Critical Language Fellowship, Hindi Language; Jaipur, India 6/13-8/13

Fellow, U.S. Student Fulbright Program, Ghana 8/08-8/09

Fellow, National Science Foundation Graduate Research Fellowship Program 6/05-9/10

PROFESSIONAL AND ACADEMIC EXPERIENCE

University of South Florida (Tampa, FL), Associate Professor 2026-Present
Assistant Professor 2019-2026

My research blends technical expertise involved in drinking water treatment with the social cultural considerations of moving technology into communities both within the US and internationally. Courses taught include Environmental Systems Engineering (UG), Engineering Sustainable and Healthy Communities (UG), Aquatic Chemistry (G), Engineering for International Development (G)

DC Water (Washington, DC), Program Manager (Research & Development, WQ) 2017-2019

Led research related to 1) the annual monochloramine to free-chlorine conversion, 2) source-to-tap evaluation of drinking water ecology, 3) reimagining biofiltration, and 4) microbiological activity of POU filters

Fulbright-Nehru Postdoctoral Scholar, host institute CSIR-NEERI (Nagpur, India) 2016-2017

Researched the success of small-scale, rural water treatment technologies and implementation plans; taught professional development and technical workshops (half or full day depending on the topic).

Columbia University Earth Institute, Columbia Water Center (NY, NY):

-Postdoctoral Fellow

2013-2016

Researched source-to-user fluoride issues in India regarding treatment plant operation and adoption, quantifying the water used in agriculture in northern Indian states, and water quality regulation research (US and India).

- Lecturer, SUMA 4146 (grad): Water Systems Analysis

2015, 2016

-Lecturer, NECR Clinic on Conflict and Collaboration in Natural Resource Management (Grad, Summer)

2024-2026

American Water Works Association (Washington, D.C.), Researcher

01-06/2013

Worked on policy and regulation research as it pertained to drinking water utilities and/or treatment.

eDesign Dynamics (West New York, NJ), Project Manager

2005-2006

PUBLICATIONS

Dr. Alfredo is the author of **over 30 peer-reviewed publications**, with over half published since 2019, in journals including *Water Research*, *Environmental Science & Technology*, and *AWWA Water Science*. (USF student; undergraduate student#; non-USF mentored student*)

- 36 Luangphairin, N., Adhikari, M., Alfredo, K.A. (in review). A retrospective cost and performance analysis of EPA's 50 full-scale arsenic pilots. *AWWA Water Science*.
- 35 Jakpa, H., Alfredo, K.A. (minor revisions). Microbial Community Dynamics and Filter Design: Implications for Point-of-Use Filters in Chloramine Water Systems. *Environmental Science & Technology Water*.
- 34 Hasan, M.*, Alfredo, K.A., Murthy, S., Riffat, R. (in review). Potential of Ceramic-GAC Dual Media Biofiltration for Enhanced Removal of Fast and Slow Degrading Micropollutants. *Water Research*.
- 33 Luangphairin, N., Roberson, A., Alfredo, K. (2025). Evaluating State Nitrification Action Plans for Controlling Distribution System Nitrification and MDBPs. *AWWA Water Science*. <https://doi.org/10.1002/aws2.70036>
- 32 Black, A., Luangphairin, N., Papp, K., Gerrity, D., Alfredo, K. (2025). Enhancing Biofilm Recovery from Carbon Filters for Molecular Analysis and Flow Cytometry. *AWWA Water Science*
- 31 Hasan, M.*, Alfredo, K., Murthy, S., Riffat, R. (2025). Role of half-saturation coefficient and biofilm thickness on micropollutant biodegradation. *Journal of Water Process Engineering*. <https://doi.org/10.1016/j.jwpe.2025.107659>
- 30 Simangan, D., Fisher, J., Ide, T., Koubi, V., Sharifi, A., Alfredo, K., Candelaria, J.L., Dalby, S., Kharrazi, Al., Oswald-Spring, U., Roy, J. (2025). Twelve research agendas for advancing the peace-sustainability nexus. *Peace and Sustainability*. <https://doi.org/10.1016/j.nerpsj.2025.100008>
- 29 Guimaray, J., Alfredo, K., Ergas, S., Ghebremichael, K. (2025). Aluminum hydroxide-coated pumice and biochar enhance biosand filter defluoridation and water treatment. *Environmental Science and Pollution Research*. <https://doi.org/10.1007/s11356-025-36246-1>
- 28 Alfredo, K.A. Bedard, E., Buse, H.Y., Cazals, M., Francisco, P., Lee, J, Masters, S., Osann, E. Stillwell, A., Westerhoff, P. Bartrand, T.A. (2025). Ten questions concerning water quality in building hot water systems. *Building and Environment*. <https://doi.org/10.1016/j.buildenv.2025.112803>
- 27 Sampath, G.*, Alfredo, K.A. (2025). Nudges, Time Poverty, and the Friction of Distance: Three Factors Explaining Arsenic Exposure in Rural India. *Environmental Science & Technology Water*. <https://pubs.acs.org/doi/10.1021/acsestwater.4c00924F>
- 26 Black, A., Natchaya, L., Alfredo, K.A. (2025). The impact of the fourth regulatory determination on vulnerable populations. *Environmental Monitoring and Assessment*. <https://doi.org/10.1007/s10661-025-13689-0>
- 25 Jakpa, H., Alfredo, K.A. (2024). Chlorine conversion impact on activated carbon block filters: water quality and nitrification risk in chloraminated water. *AWWA Water Science*. <https://doi.org/10.1002/aws2.70003>
- 24 Osler, Ashley, Alfredo, K., Mihelcic, J. (2024). Chlorine water taste threshold and acceptability among Indigenous and non-Indigenous populations in rural Panama. *Environmental Science & Technology*. <https://doi.org/10.1021/acs.est.3c05630>

- 23 Henderson, M., Trotz, M., Wells, E.C., Carasquillo, M., Sears, R., **Alfredo, K.A.**, Cobb-Robers, D. (2024). Integrating Environmental Justice into Civil and Environmental Engineering Curricula. *Papers on Engineering Education Repository (PEER)*. <https://peer.asee.org/47654>
- 22 **Alfredo, K.** (2023). To filter or not to filter: water quality impacts and stagnation effects of carbon-based point-of-use (POU) filters installed in monochloramine systems. *Environmental Science & Technology Water*. <https://doi.org/10.1021/acsestwater.3c00235>
- 21 Vasilaky, K.N., Harou, A., **Alfredo, K.A.** (2023). What works for conservation? Evidence from a field experiment in India *Journal of Environmental Economics and Management*. <https://doi.org/10.1016/j.jeem.2023.102802>
- 20 **Alfredo, K.**, Wilson, M., Roberson, A., (2023), Management of point-of-use and point-of-entry for regulatory compliance: survey of state administrators. *AWWA Water Science*. <https://doi.org/10.1002/aws2.1335>
- 19 Buerck, A., Khaliq, M., **Alfredo, K.**, Cunningham, J., Barrett, L., Rakotondrazaka, R., Rakotoarisoa, L., Champion, W., Mihelcic, J.R. (2023)., Reductions in Children's Blood Lead Levels from a Drinking-Water Intervention in Madagascar, Sub-Saharan Africa. *Environmental Science & Technology*. <https://pubs.acs.org/doi/abs/10.1021/acs.est.3c03774>
- 18 Champion, W., Buerck, A., Nenninger, C., Yusuf, K., Barrett, L.J.P., Rakotoarisoa, L., Rakotondrazaka, R., **Alfredo, K.**, Cunningham, J., Khaliq, M., Mihelcic, J.R. (2022). Childhood Blood Lead Levels and Environmental Risk Factors in Madagascar. *Environmental Science and Pollution Research*. <https://link.springer.com/article/10.1007/s11356-022-20586-3>
- 17 Buerck, A., Usowicz, M., Cunningham, J., Kaliq, Mahmooda, Barrett, L.J.P., Rakotoarisoa, L., Rakotondrazaka, R., **Alfredo, K.**, Sommariva, S., Mihelcic, J.R. (2021). Health and economic consequences of lead exposure associated with products and services provided by the informal economy. *Environmental Science & Technology*. 55, 12: 8362-8370. <https://pubs.acs.org/doi/10.1021/acs.est.0c08127>
- 16 Hasan, M.*, **Alfredo, K.A.**, Murthy, S., Riffat, R. (2021). Biodegradation of salicylic acid, acetaminophen and ibuprofen by bacteria collected from a full-scale drinking water biofilter. *Journal of Environmental Management*. <https://doi.org/10.1016/j.jenvman.2021.113071>
- 15 **Alfredo, K.A.**, Seidel, C., Ghosh, A. (2021). Does regulating PFAS represent a meaningful opportunity for health risk reduction in drinking water? *AWWA Water Science*. <https://doi.org/10.1002/aws2.1240>
- 14 **Alfredo, K.A.** (2021). The "Burn": water quality and microbiological parameters related to limited free chlorine disinfection periods in a chloramine system. *Water Research*. <https://doi.org/10.1016/j.watres.2021.117044>
- 13 **Alfredo, K.A.**, Lin, J*., Islam, A., Wang, Z. (2020). Impact of activated carbon-block point-of-use (POU) filters on chloraminated water quality. *AWWA Water Science*. <https://doi.org/10.1002/aws2.1180>
- 12 **Alfredo, K.A.**, O'Garra, T. (2020). Preference for water treatment provision in rural India: comparing communal, pay-per-use, and labor-for-water schemes. *Water International*. <https://doi.org/10.1080/02508060.2020.1720137>
- 11 O'Garra, T., **Alfredo, K.** (2019). Communication, Observability and Collective Action: a Field Experiment on Water Management in India. 27: 1-18. *Water Resources and Economics*. <https://doi.org/10.1016/j.wre.2018.12.002>
- 10 **Alfredo, K.A.** and Russo, T.A. (2017). Sustainable water quality in the United States: Urban, Agriculture, and Environmental Protection Management. *WIREs Water*. <https://doi.org/10.1002/wat2.1229>
- 9 **Alfredo, K.A.**, Seidel, C., Ghosh, A., Roberson, J.A. (2017). Using a Relative Health Indicator (RHI) metric to estimate health risk reduction in drinking water. *Environmental Monitoring and Assessment*. 189:124. <https://doi.org/10.1007/s10661-017-5815-8>
- 8 **Alfredo, K.**, Montalto, F., Bartrand, T., Worlde-Georgis, T., Lall, U. (2016). The use of participatory stakeholder meetings to address cultural water concerns and plan sustainable safe drinking water access and development in a rural, water scarce village of northern Ethiopia. *Water*. 8. <https://doi.org/10.3390/w8070275>
- 7 **Alfredo, K.A.**, Stanford, B., Roberson, J.A., and Eaton, A. (2015). Chlorate Challenges for Water Systems. *Journal AWWA*. 107 (4): E187-E196. <https://doi.org/10.5942/jawwa.2015.107.0036>
- 6 Russo, T.A., **Alfredo, K.A.**, and Fisher, J. (2014). Review of Water Quantity Management in Sustainable Development. *Water*. 6(12): 3934-3956. <https://doi.org/10.3390/w6123934>
- 5 **Alfredo, K.A.**, Lawler, D.F.; Katz, L.E. (2014). Fluoride Contamination in the Bongo District of Ghana, West Africa: Geochemical and Cultural Complexities. *Water International*. 39 (4): 486-503. <https://doi.org/10.5004/dwt.2020.25196>

- 4 **Alfredo, K.A.**, Seidel, C., Roberson, A. (2014). Reviewing the occurrence data used in the revised Arsenic Rule. *Journal AWWA*. 106 (3): E139-E149. <https://doi.org/10.5942/jawwa.2014.106.0038>
- 3 **Alfredo, K.A.**, and Hart, H. (2011). The University and the Responsible Conduct of Research: Who is responsible for what? *Journal of Science and Engineering Ethics*. 17:447-457. <https://doi.org/10.1007/s11948-010-9217-3>
- 2 **Alfredo, K.A.**, Montalto, F., Goldstein, A.; (2010). Observed and Modeled Performance of Prototype Green Roof Test Plots Subjected to Simulated Low and High Intensity Precipitation in a Laboratory Experiment. *The Journal of Hydrologic Engineering*, 15 (6): 444-457. [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0000135](https://doi.org/10.1061/(ASCE)HE.1943-5584.0000135)
- 1 Montalto, F.; Behr, C., **Alfredo, K.**, Wolf, M., Arye, M., Walsh, M. (2007). Rapid assessment of the cost-effectiveness of low impact development for CSO control. *Landscape and Urban Planning*, 82: 117-131. <https://doi.org/10.1016/j.landurbplan.2007.02.004>

Publications in Preparation The manuscripts on this list are in draft form with some near completion. (USF student; undergraduate student#; non-USF mentored student*)

Hayek, C.*, **Alfredo, K.A.**, Lall, U. (*in preparation*). Then and now: analyzing growth of residential water charges after the Great Recession to inform our post-COVID future. Goal Journal: *PNAS*.

Yazdani Arani, M., **Alfredo, K.** (*in preparation*). National AI-Driven Risk Assessment Reveals Hidden Drinking Water Health Risks Across 16,700 U.S. Utilities Undetected by Regulatory Violations. Goal Journal: *PNAS*

Castro Carias, M., **Alfredo, K.** (*in preparation*). Key indicators impacting plate health, aluminum generation, and fluoride treatment in electrocoagulation defluoridation treatment systems. Goal Journal: *Journal of Environmental Management*

AmRhein, N.#, **Alfredo, K.** (*in preparation*). Correlating the Health Outcomes of Hillsborough County in Relation to Environmental Land Change and Pollutants. Goal Journal *Landscape and Urban Planning*

Alfredo, K., Wilson, M., Buerck, A. (*in preparation*). Evaluating Pb leaching from well component parts in Madagascar. Goal Journal: *AEESP Environmental Engineering Science*

Alfredo, K., Long, K., Trotz, M. (*in preparation*). Field-Base Exploratory Study of Microbial Activity in Potable Water Storage Tanks in Barbados. Goal Journal: *AEESP Environmental Engineering Science*

Sampath, G.,* **Alfredo, K.** (*in preparation*). Neighborhood Effects in the Spread of Public Health Information: The case of Arsenic awareness in West Bengal, India. Goal Journal: *Peace and Sustainability*

RESEARCH PRESENTATIONS (Podium presentations unless noted. Presenting author is listed first)

Dr. Alfredo participated in **over 40 research presentations** at conferences (USF student; undergraduate student#; non-USF mentored student*)

45 **Alfredo, K.**, Zaima, L. Fisher, J. Assessing the Efficacy of Place-based Experiential Pedagogies for Sustainability Focused Education. 2026 NERPS, Tokyo, Japan (Mar 2026).

44 **Alfredo, K.**, Jakpa, H. Dynamics of Microbial Communities and Filter Design: Effects on Point-of-Use Filters in Chloraminated Water Systems. AWWA Water Quality and Technology Conference, Tacoma, WA (Nov 2025).

43 Luangphairin, N., Adhikari, M., **Alfredo, K.** Arsenic Demo Sites: Where Are They Now? A Retrospective Cost and Performance Analysis of EPA's 50 Full-Scale Treatment Pilots. AWWA Water Quality and Technology Conference, Tacoma, WA (Nov 2025).

42 Yazdani Arani, M., **Alfredo, K.** RHI, Beyond Violations: A Nationwide Framework for Cumulative Health Risk Assessment in U.S. Drinking Water Systems. AWWA Water Quality and Technology Conference, Tacoma, WA (Nov 2025).

41 Castro Carias, M., **Alfredo, K.** Electrocoagulation Performance Indicators for Decentralized Drinking Water Treatment. UNC Water and Health Conference, Chappel Hill, NC. (Oct 2025)

40 **Alfredo, K.**, Yazdani Arani, M. Rethinking how national drinking water safety is evaluated in the United States. UNC Water and Health Conference, Chappel Hill, NC. (Oct 2025).

39 **Alfredo, K.**, Source water selection and sustainability, IIT Madras, Chennai, India. March 2025. *Invited speaker*.

38 AmRhein, N.#, **Alfredo, K.** Tracing the Footprint of Contamination. Florida Undergraduate Research Conference (February 14-15, 2025) - Tampa, FL.

- 37 AmRhein, N[#], Alfredo, K., Tracing the Footprint of Contamination: Hillsborough County's Environmental History and Its Impact on Community Health through Case Studies. (Poster). Our Planet, Our Health: 2025 Climate Action Convention, Washington, D.C. (5-7 Mar 2025).
- 36 Luangphairin, N., Roberson, A., Alfredo, K. Evaluating the Impact of State Nitrification Action Plans in Mitigating Distribution System Nitrification and MDBPs: A Focus on Chloramine-Based Systems with Case Studies. FSAWWA Conference, FSAWWA. Orlando, FL. (Dec. 8-11, 2024). **Best Poster (2nd Place)**
- 35 Henderson, M., Trotz, M., Wells, E.C., Carasquillo, M., Sears, R, **Alfredo, K.A.**, Cobb-Robers, D. (2024). Integrating Environmental Justice into Civil and Environmental Engineering Curricula. American Society for Engineering Education Conference. Montreal, Canada. (22-25 June).
- 34 **Alfredo, K.**, Our records show you have access to safe water, do you? 2024 Annual NERPS Conference, Hiroshima, Japan, (6-9 March 2024).
- 33 **Alfredo, K.** Drinking water sustainability and source selection. Workshop on Water Resources Management in the Changing World (Dec 1, 2023). Nagpur, India. Invited.
- 32 **Alfredo, K.**, Black, A., Langphairin, N. Using a relative health metric to evaluate socio-economic correlations with municipal water quality. AWWA Water Quality and Technology Conference, Dallas, TX (Nov 2023).
- 31 Jakpa, H., **Alfredo, K.** Assessing Limits of Chlorine Conversion in Controlling Nitrification and Microbial Growth in Activated Carbon Point-of-Use Filters. AWWA WQTC, Dallas, TX (Nov 2023).
- 30 Black, A., Papp, K, Gerity, D., **Alfredo, K.** Quantitative Stable Isotope Probing Identifies Activate Degradors of Micropollutants in Biofilters. AWWA Water Quality and Technology Conference, Dallas, TX (Nov 2023).
- 29 Luangphairin, N., Roberson, A., **Alfredo, K.** Evaluating the Impact of State Nitrification Action Plans on System Nitrification, Disinfectant Residuals, and MDBP Risks. AWWA Water Quality and Technology Conference, Dallas, TX (Nov 2023).
- 28 Anderson, C., Biscardi, P., **Alfredo, K.** Understanding and Mitigating Membrane Fouling Unique to Potable Reuse. AWWA Water Quality and Technology Conference, Dallas, TX (Nov 2023).
- 27 Carias, M.C., **Alfredo, K.**, Alexander, C., Correlating electrocoagulation aluminum production, current density, and pitting distributions to determine key water treatment efficiency indicators. ACS Fall 2023 (Aug 2023). San Francisco, CA
- 26 **Alfredo, K.** To filter or not to filter? Water quality impacts of carbon-based point-of-use (POU) filters installed in monochloramine systems. ACS Fall 2023 (Aug 2023). San Francisco, CA. Invited.
- 25 **Alfredo, K.**, Long, Katelyn, Cadogan, Elon. Microbial Activity in Potable Water Storage. WATEFCON 2022: Water Resources for Small Island Developing States (SIDS), Trinidad. (14-16 Dec 2022).
- 24 **Alfredo, K.**, Sampath, G.* The Friction of Distance: decision making factors governing arsenic safe water source selection in India. AEESP Research and Education Conference, St. Louis, MO (June 2022).
- 23 **Alfredo, K.**, Hayek, C.*, Lall, U. Then and now: analyzing water rate responses to the Great Recession to inform our post-COVID future. AWWA Water Quality and Technology Conference, Tacoma, WA (Nov 2021). Podium
- 22 **Alfredo, K.**, Hasan M.*, Black, A., Murthy, S., Riffat, R. Putting biofilms first: managing biofilm thickness to enhance micropollutant removal in drinking water and water reuse filtration. AWWA Water Quality and Technology Conference, Tacoma, WA (Nov 2021).
- 21 **Alfredo, K.**, O'Garra, T. Identifying drivers of successful community-based water treatment of fluoride in rural India. UNC Water and Health Conference (Oct 2021). Podium (Virtual)
- 20 **Alfredo, K.**, Chen, K.L., Schmelling, M. Stagnation, use, and age: understanding nitrification in point-of-use (POU) carbon-block filters. AWWA Water Quality and Technology Conference, Dallas, TX (Nov 2019). Podium
- 19 **Alfredo, K.**, Stillings, G. The "Burn": investigating water quality and microbiological parameters related to DC Water's free chlorine disinfection period. AWWA WQTC, Dallas, TX (Nov 2019).
- 18 Hasan, M.*, **Alfredo, K.**, Debarbadillo, C, Murthy, S, Riffat, R. Biodegradation of Organic Micropollutants and their Treatment Efficiency Influenced by Biofilm Thickness in Drinking Water and Reuse Applications. WEF-EESS Conference on Advancement in Water and Wastewater Treatment and Reuse, AWWTR 2019. National University of Singapore, Singapore. (July 31-August 1, 2019). **Best Presentation Award**
- 17 Hasan, M.*, **Alfredo, K.**, Debarbadillo, C, Murthy, S, Riffat, R. Enhanced Organic Micropollutants Removal through Bio lm Thickness Management in Drinking Water and Water Reuse Application. International Conference on Resource Sustainability- Cities 2019 (icRS Cities). University of Adelaide, Australia. (1-3 July 2019). **Best Presentation Award**

- 16 **Alfredo, K.**, Jain, M.*, Nagarnaik, P, Labhasetwar, P. Investigating key indicators impacting plate health, aluminum generation, and fluoride treatment in electrocoagulation defluoridation treatment systems. 255th ACS National Meeting, New Orleans, LA (18-22 March 2018).
- 15 **Alfredo, K.**, O'Garra, T. Preferences for Different Water Payment Mechanisms: a Case Study in Rural India. 49th Annual Convention of IWWA, "Smart Water Management", Nagpur, India (19-21 January 2017).
- 14 **Alfredo, K.**, O'Garra, T. Groundwater and Group Interest: A lecture and discussion lead by Dr. Katherine Alfredo. Columbia Global Center Mumbai Groundwater Lecture Series. Mumbai, India. (27 September 2016). *Invited*
- 13 **Alfredo, K.**, O'Garra, T. Special Lecture: Water Collective Action. Tata Institute of Social Science, Mumbai, India. (26 September 2016). *Invited Lecture*.
- 12 **Alfredo, K.**, Dove, N.*, Lall, U. Water rates in the U.S. American Water Utility of the Future Symposium III, NJ. (15-16 September 2015). *Invited Presentation*.
- 11 **Alfredo, K.**, O'Garra, T. Understanding the social and technical barriers to sustainable water treatment in Maharashtra, India. Columbia University Postdoctoral Research and Career Symposium (17-18 September 2015). Poster Presentation. **Best Presentation Award**
- 10 **Alfredo, K.**, Seidel, C., Ghosh, A., Roberson, J. Using a Relative Health Indicator (RHI) metric to estimate health risk reduction in drinking water. Society of Risk Analysis, 2013 Annual Mtg, Baltimore, MD (8-12 Dec).
- 9 **Alfredo, K.**, Lawler, D, Katz, L. Fluoride contamination in the Bongo District of Ghana: geochemical and cultural complexities. OU International Water Conference, Norman, OK. (23-25 Sept 2013).
- 8 **Alfredo, K.**, Lawler, D., Katz, L. Aluminum-fluoride chemical interactions during alum coagulation and associated effects on drinking water treatment. GeoGen2013 Conference: Addis Ababa, Ethiopia (2-7 Feb 2013). Poster Presentation. **Best Poster Award**
- 7 **Alfredo, K.**, Lawler, D., Katz, L. Competition among fluoride, natural organic matter, and aluminum during drinking water treatment. IWA Young Water Professionals Conference. Budapest, Hungary (10-13 July 2012). Poster Presentation. **Best Poster Award**
- 6 **Alfredo, K.** Translating academic research into hands-on activities for K-12 students. ACS SWRM, Austin, TX (9-12 Nov 2011).
- 5 **Alfredo, K.**, Lawler, D., Katz, L. Fluoride, natural organic matter, and aluminum competition in drinking water treatment. 241st ACS National Meeting & Exposition. Anaheim, CA (Mar 27-30, 2011). ***Podium Award**.
- 4 **Alfredo, K.** Cultural Complexities of Fluoride Contamination in Bongo, Ghana. The Society of Women Engineers Annual Meeting, WE10. Orlando, FL (Nov 5-9 2010). Poster Presentation
- 3 **Alfredo, K.**, Lawler, D., Katz, L. Environmental and Technical Complexities of Fluoride Contamination in the Bongo District of Ghana, West Africa. AWWA ACE10 National Conference. Chicago. 20-25 June 2010. Poster
- 2 **Alfredo, K.** Fluoride contamination issues in Ghana and the U.S. Drexel University Water Resources Research Seminar. Philadelphia, PA. 10 August 2010.
- 1 Hart, H., Moore, C., Ellzey, J, **Alfredo, K.** Plagiarizing the Literature Review: How Big Is the Problem?" Association for Practical and Professional Ethics Annual Meeting: San Antonio, TX (Feb 2008).

PROFESSIONAL SERVICE

Dr. Alfredo serves as **Associate Editor for AWWA Water Science** and as **Chair of the AWWA Inorganic Contaminant Committee**. She has contributed to national and international water research efforts through advisory roles with the Water Research Foundation and professional societies. Dr. Alfredo regularly reviews for leading journals including *Environmental Science & Technology* and *Water Research*. She has served on several NSF Review Panels as well as review panels for US-India joint funding ventures. Examples of her Professional Service include:

Government Policy Peer Reviewer, Peer reviewed Health Canada's Fluoride Standard and Guidelines document (2024)

AWWA Water Science (peer reviewed journal), *Associate Editor* (2020-Present)

Peace and Sustainability (peer reviewed journal) *Editorial Board* (2024-Present)

AEESP: Grand Challenges Task Force (2025-Present); *Government Affairs Committee* (2024-Present); *Academic Job Application Review Committee* (2022-2024)

Water Research Foundation, *Project Advisory Committee Member* (WRF 4983; WRF 5104)

American Water Works Association

Premise Plumbing Committee Member

*Inorganic Contaminant Committee, **Chair***

Disinfection Committee Member

2018-Present

*Member: 2014-Present, **Chair**: 2024-2027*

2023-Present

Distribution System Water Quality Committee Member

2018-Present

Biological Treatment Committee Member

2023-Present

Conference Coordination*Scientific Committee, 2025 (Manila, Philippines) Network for the Education and Research on Peace and Sustainability (NERPS) Conference**Scientific Committee, 2024 (Hiroshima, Japan) Network for the Education and Research on Peace and Sustainability (NERPS) Conference**Scientific Committee, 2023 (Bangkok, Thailand) Network for the Education and Research on Peace and Sustainability (NERPS) Conference**Session Coordinator and PI, NSF sponsored Hot Water Systems Expert Panel Series. (1: 14 Jan 2022, 2: 28 Jan 2022, 3: 11 Feb 2022. Moderated panel 1, was an expert panelist on panel 2, managed all webinar logistics for all panels.**Session Coordinator, AEESP Converging COVID-19, environment, health, and equity. Weekly webinars (Oct-Nov 2020). Moderator for “COVID-19 and the creation of efficient, healthy and resilient cities” session Oct 30th.**Primary Convener, AGU Session GH027 (I (Oral), II (Oral), III (Poster)). AGU Annual Conference, CA (Dec 2019).***Professional Manuals of Practice** (authorship and editing)

Chapter Author: AWWA M56 Nitrification Manual (author on three chapters) 2019-Present

Chapter Author: AWWA M4 Fluoridation Manual (Chapter 7: Defluoridation) 2023-Present

Contributing Editor: AWWA M4 Fluoridation Manual 2013-2015

USF SERVICE

At USF Dr. Alfredo serves on several departmental and university-wide committees. Her service at USF reflects her deep commitment to improving engineering training and career readiness at her institution

CEE Departmental Service *Environmental and Water Resources Engineering Committee; Industrial Liaison Committee; Curriculum Committee; ABET Coordinator for BS Env. Eng Program***College of Engineering Service:** *Strategic Planning Task Force, Career Readiness Programming Champion***University Committees** *Publication Committee (2023-2025)***USF STUDENT MENTORING:**Dr. Alfredo currently mentors **5 PhD students and 3 undergraduate research students**. At USF, she has served as primary advisor **2PhD dissertations, 11 MS theses and reports, and 1 UG honors thesis** in addition to serving on **12 doctoral and 18 master's committees**. Her students have received national fellowships, internships, and presentation awards, and have presented research at major conferences.**Current Alfredo USF DW-TAPS Research Group Advisees**

My current research group consists of five PhD students and three undergraduate students.

1. Monica Castro Carias. PhD (expected Spring 2027). Civil and Environmental Engineering. (co-advised by Christopher Alexander).
 - Dissertation: Evaluating and Modeling of Aluminum Electrocoagulation Performance Indicators for Decentralized Drinking Water Treatment
2. Natchaya Luangphairin. PhD (expected 2027) Civil and Environmental Engineering
 - Dissertation: Determining Biofilter Design and Management Impacts on Biofilm Microbiome and Select Emerging Contaminant Degradation
3. Maedeh Yazdani Arani. PhD (expected 2028) Civil and Environmental Engineering
 - Dissertation: A Nationwide Evaluation of Water Quality Risk Hot Spots and Developing a Tap Water Aversion Campaign: Integrating Health Indicators with Socio-Economic Factors
4. Farin Tusnuva Dhara. PhD-tracked (expected Spring 2026). Civil and Environmental Engineering
 - Research topic: Determining the risk of DBPs from activated carbon block point of use filters
5. Nimisha Gautam, PhD student (joining Fall 2026).

TEACHING EXPERIENCE

The following section details the courses for which Dr. Alfredo is the instructor of record both at USF and at other universities. Her continued collaboration with Columbia University and Hiroshima University has led to her involvement in the *Peace Study Tour* course which recently was highlighted as contributing to Hiroshima University's receipt of an international award.

USF: Since joining USF, Dr. Alfredo taught required courses at both the graduate (ENV 6666) and undergraduate (ENV4001, ENV2061) level.

Semester & Year	Course Number	Title, credits, required or elective, % responsibility	Students
Fall 2026	ENV 6666	Aquatic Chemistry, 3, required, 100	8
Fall 2026	ENV 2061	Engineering Sustainable & Healthy Environments, 2, required 100	35
Fall 2025	ENV 6666	Aquatic Chemistry, 3, required, 100	11
Fall 2024	ENV 6666	Aquatic Chemistry, 3, required, 100	7
Fall 2024	ENV 2061	Engineering Sustainable & Healthy Environments, 2, required 100	32
Spring 2023	ENV 6935	Environmental Engineering and Water Resources Seminar, 1, elective, 80	6
Spring 2023	ENV 6666	Aquatic Chemistry, 3, required, 100	9
Fall 2022	ENV 4001	Environmental Systems Engineering, 3, required, 100	40
Spring 2022	ENV 6666	Aquatic Chemistry, 3, required, 100	20
Spring 2021	ENV 6666	Aquatic Chemistry, 3, required, 100	10
Spring 2020	ENV 6666	Aquatic Chemistry, 3, required, 100	19

HIROSHIMA UNIVERSITY & COLUMBIA UNIVERSITY: As part of Dr. Alfredo's cross-appointed fellowship with Hiroshima University's NERPS Center, she co-teaches a 10 day interdisciplinary course on Peace, Sustainability, and Environmental Quality with a faculty member from Hiroshima University and Columbia University. This *Peace Study Tour* was highlighted as contributing to Hiroshima University being awarded the 2025 International Strategy of the Year Grand Prize by Times Higher Education Awards Asia

Semester & Year	Course Number	Title, credits, required or elective, % responsibility	Students
Summer 2026	PS5260	Peace Study Tour (Clinic on Conflict and Collaboration in Natural Resource Management – Advancing Positive Peace and the SDGs), 3, elective, 100% for Columbia University and 50% for the joint course	30
Summer 2025	PS5260	Peace Study Tour (Clinic on Conflict and Collaboration in Natural Resource Management – Advancing Positive Peace and the SDGs), 3, elective, 50% for Columbia University and 30% for the joint course	45
Summer 2024	PS5260	Peace Study Tour (Clinic on Conflict and Collaboration in Natural Resource Management – Advancing Positive Peace and the SDGs), 3, elective, 30% for the joint course	40

COLUMBIA UNIVERSITY: While a Columbia University Earth Institute Postdoctoral Fellow, Dr. Alfredo taught a required course for the Earth Institute's Sustainable Water Management.

Semester & Year	Course Number	Title, credits, required or elective, % responsibility	Students
Spring 2016	SUMAK4146	Water Systems Analysis, 3, required, 100	12
Spring 2015	SUMAK4146	Water Systems Analysis, 3, required, 100	15