

PROFILE SUMMARY

Siddhartha Roy is an environmental engineer and assistant professor, who works in the areas of aquatic chemistry, corrosion science, public health, lead exposure, international development, and environmental justice. He and his team's scientific and humanitarian relief work, with residents of Flint Michigan, helped uncover the Flint Water Crisis.

Nationalities: India (Citizen by birth); United States (Permanent resident: EB1-A "Extraordinary Ability in the Sciences").

ACADEMIC HISTORY AND LICENSES

Virginia Tech, Blacksburg, VA

2018 *Ph.D. in Civil Engineering (emphasis: Environmental Engineering)*

2015 *M.S. in Environmental Engineering*

2014 *Interdisciplinary Water and Health Sciences Graduate Certificate*

Nirma University, Ahmedabad, India

2010 *B.Tech. in Chemical Engineering*

State of Virginia, Engineer in Training (EIT)

2020 *Environmental Engineering License #0420072931*

EXPERIENCE

2024+ **Rutgers University, Department of Environmental Sciences** – New Brunswick, NJ
Assistant Professor (01/24)

2022-23 **University of North Carolina, Gillings School of Global Public Health** – Chapel Hill, NC
Research Associate, UNC Water Institute (10/22 – 12/23)

- Testing, monitoring, and sustainable remediation of [lead and toxic metals in rural drinking water systems](#) (borehole handpumps and mechanized taps) in Ghana, West Africa.
- Co-led a new global initiative to address lead in drinking water by 2040 alongside WHO, UNICEF, Hilton Foundation, World Vision, and WaterAid, among others. Co-author of the [Global Lead-Free Water Pledge](#) launched as part of the official UN [Water Action Agenda](#) at the UN 2023 Water Conference.

2012-22 **Virginia Tech, Dept. of Civil and Environmental Engineering** – Blacksburg, VA
Research Scientist (10/20 – 10/22)
Postdoctoral Research Associate (04/18 – 09/20)
Graduate Research and Teaching Assistant (11/12 – 02/18)

- Student Leader, Flint Water Study Team: We used citizen science, open data sharing, field sampling, investigative journalism and social media to expose elevated waterborne lead (Pb) and Legionella in the Flint Water Crisis. Our efforts led to declaration of a "Public Health Emergency" by President Obama, garnered over \$1.2 billion in relief, and informed the 2018 MI Lead and Copper Rule, the 2021 \$1 Trillion federal Infrastructure Bill (H.R. 3684), and the 2024 US EPA Lead and Copper Rule Improvements.
- Exemplar water quality, environmental epi, health disparities and environmental justice studies:
 - a. water sampling in 300+ homes in Chicago (South Side) and 3 suburbs revealing harmful and persistent lead in drinking water ([Chicago Tribune front page](#));
 - b. timing and magnitude of [childhood water lead exposure](#) during the Flint crisis;
 - c. [impacts of miscarriage, stillbirth and fertility rates from lead exposure](#) in pregnant women;
 - d. [trends in special education outcomes](#) and [psychological health harm](#) in Flint children;
 - e. [water lead sampling in US public schools](#) in four states;
 - f. [citywide surveillance of chlorine disinfectant in Flint's water](#) and decision tree to help homeowners protect themselves and their families from harmful bacteria.

- [PhD dissertation](#): Interplay of Water Chemistry and Entrained Particulates in Erosion Corrosion of Copper and Nonleaded Alloys in Potable Water Systems
- Mentored 17 students in research, publishing, and winning national awards.

2010-12 **Cognizant** – Pune, India

Programmer Analyst (10/10 – 05/12)

- Data analytics and business intelligence for Merck Pharma.

AWARDS

2023 Obama Leaders USA Fellow, The Barack Obama Foundation

(100 leaders across the United States)

2021 STAT Wunderkind 2021, STAT News/The Boston Globe

(early career heroes of science and medicine across North America)

2020 Young Leadership Award 2020-22, International Water Association

(global prize; first Indian and first US nominee)

2018 Early Career Award for Public Engagement with Science Finalist, American Association for the Advancement of Science *(three scientists across the U.S. and E.U.)*

2017 Graduate Student of the Year, Virginia Tech *(university-wide)*

2015 Water Is Life Award, American Civil Liberties Union Michigan

(For “your courage to shine a light on the Flint water crisis protecting the health of countless residents”)

PROFILES

- University of North Carolina at Chapel Hill (2023): [Safe Water for All](#)
- STAT News (2021): [Lessons from a Flint crisis researcher about building trust in science during the pandemic](#)
- International Water Association (2021): [Influential scientist wins IWA Young Leadership Award](#)
- American Institute of Chemical Engineers (2016): [Pursuing Science for the Public Good](#)

TED TALK

- Science in service to the public good (<https://go.ted.com/Cyoi>), 1.6 million views

SCIENTIFIC SCHOLARSHIP

Total 25 [peer-reviewed scientific articles](#) (1683 citations)

- [Roy, S.*†](#), M.A. Edwards[‡], K.J. Petrie, G.D. Gamble, and E. Jacques. A possible nocebo effect in children following the Flint Water Crisis: Evidence from schoolteacher survey and neuropsychological assessments. *Disaster Medicine and Public Health Preparedness*. doi: 10.1017/dmp.2024.106.
- [Roy, S.*](#), B. Velasco[^] and M.A. Edwards. Tracking the academic competition for engineering tenure-track faculty positions in the United States. *PNAS Nexus*. doi: 10.1093/pnasnexus/pgae169.
- Wait, K., [S. Roy](#), A. Katner, J. Purchase, R. Kriss, T. Odimeyomi, A. Pruden and M.A. Edwards*. A Citizen Science Approach to Evaluating Consumer Water Safety Concerns (2011–2022). *ACS ES&T Water*. doi: 10.1021/acsestwater.4c00090
- [†] [Roy, S.*](#), K.N. Dietrich, H.F. Gomez, and M.A. Edwards. 2023. Considering some negative implications of an ever-decreasing US Centers for Disease Control and Prevention (CDC) blood lead threshold and “no safe level” health messaging. *Environmental Science and Technology*. doi: 10.1021/acs.est.3c04766
- [#] Mazzola, F.[^], [S. Roy](#) and M.A. Edwards. 2023. Engineering Ethics and the Public: Impacts of a graduate-level course on students' ethical perceptions and conduct in research and professional settings (2010-20). *ASEE Annual Conference and Exposition 2023*.
- [Roy, S.*](#), K.J. Petrie, G.D. Gamble, and M.A. Edwards*. 2023. Did a nocebo effect contribute to the rise in special education enrollment following the Flint, Michigan Water Crisis? *Clinical Psychology in Europe*. doi: 10.32872/cpe.9577 [[Featured in the 2024 book ‘The Nocebo Effect’ by Mayo Clinic Press](#)]
- [Roy, S.*](#) and M.A. Edwards. 2023. NSF Fellows’ perceptions about incentives, research misconduct, and scientific integrity in STEM academia. *Scientific Reports*. doi: 10.1038/s41598-023-32445-3. [[Ranked in the Top 100 Sustainability Papers](#)]

- Wait, K.[^], S. Roy and M.A. Edwards*. 2023. Rapid pitting of copper tube from deposits of cathodic manganese in hot water systems: Mechanism and effects of water chemistry. *CORROSION*. doi: 10.5006/4250.
- Roy, S.* and M.A. Edwards. 2022. Addressing the Preprint Dilemma. *International Journal of Hygiene and Environmental Health*. doi: 10.1016/j.ijheh.2021.113896.
- Roy, S.* and M.A. Edwards. 2022. Are there excess fetal deaths attributable to waterborne lead exposure during the Flint Water Crisis? Evidence from Bio-kinetic Model Predictions and Vital Records. *Journal of Exposure Science and Environmental Epidemiology*. doi: 10.1038/s41370-021-00363-z
- Roy, S.*, K. Mosteller, M. Mosteller, K. Webber, V. Webber, S. Webber, L. Reid, L. Walters, and M.A. Edwards. 2021. Citizen science chlorine surveillance during the Flint, Michigan federal water emergency. *Water Research*. doi: 10.1016/j.watres.2021.117304.
- # Lightner, T.*[^], S. Roy, M.A. Edwards and J. London. 2021. Centering the public: A narrative analysis of engineering graduate students' journeys navigating public-inspired science work. *ASEE Annual Conference and Exposition 2021*, Jul 25-28, 2021.
- Roy, S.* and M.A. Edwards. 2020. Efficacy of Corrosion Control and Pipe Replacement in Reducing Citywide Lead Exposure during the Flint, Michigan Water System Recovery. *Environmental Science: Water Research & Technology*. doi: 10.1039/d0ew00583e
- Roy, S.*, M. Tang, and M.A. Edwards. 2019. Lead Release to Potable Water during the Flint, Michigan Water Crisis as revealed by Routine Biosolids Monitoring Data. *Water Research*. doi: 10.1016/j.watres.2019.05.091
- Roy, S.* and M.A. Edwards. 2019. Citizen Science During the Flint, Michigan Federal Water Emergency: Ethical Dilemmas and Lessons Learned. *Citizen Science: Theory and Practice*. doi:10.5334/cstp.154
- Roy, S.* and M.A. Edwards. 2018. Preventing another Lead (Pb) in Drinking Water Crisis: Lessons from Washington DC and Flint MI contamination events. *Current Opinion in Environmental Science & Health*. doi: 10.1016/j.coesh.2018.10.002
- Roy, S.*, P. Smith[^], G. House[^], and M.A. Edwards. 2018. Cavitation and Erosion Corrosion Resistance of Nonleaded Alloys in Chlorinated Potable Water. *CORROSION*. doi: 10.5006/2939
- Roy, S.* and M.A. Edwards. 2018. Interactive Effects of Water Chemistry, Hydrodynamics, and Precipitated Calcium Carbonate Causing Erosion Corrosion of Copper in Hot Water Recirculation Systems: Case Study and Experimental Work. *CORROSION*. doi: 10.5006/2937
- Pieper, K.J., M. Tang, R. Martin, L. Walters, J. Parks, S. Roy, C. Devine, and M.A. Edwards*. 2018. Evaluating Water Lead Levels during the Flint Water Crisis. *Environmental Science & Technology*. doi: 10.1021/acs.est.8b00791
- Roy, S.*, J.M. Coyne, J.A. Novak, and M.A. Edwards. 2017. Flow-induced failure mechanisms of copper pipe in potable water systems. *Corrosion Reviews*. doi: 10.1515/correv-2017-0120
- Edwards, M.A.* and S. Roy. 2016. Academic Research in the 21st Century: Maintaining Scientific Integrity in a Climate of Perverse Incentives and Hyper-competition. *Environmental Engineering Science*. doi: 10.1089/ees.2016.0223.
[\[Top 1% cited paper in Engineering academe; 'Most Read' paper in journal's history; 250,000+ downloads; Trended #1 on Reddit Science; Featured in Science News & Chemistry World\]](#)
- # Roy, S.* and M.A. Edwards. 2016. Effects of Calcium Carbonate precipitation on erosion corrosion of non-leaded brass fittings in potable hot water systems. *Proc. NACE CORROSION 2016*, Mar 6-10, 2016, Vancouver.
- Phetxumphou, K., S. Roy, B.M. Davy, P.A. Estabrooks, W. You, and A.M. Dietrich*. 2016. Assessing clarity of message communication for mandated USEPA drinking water quality reports. *Journal of Water and Health*, doi: 10.2166/wh.2015.134
- Roy, S.*, K. Phetxumphou, A.M. Dietrich, P.A. Estabrooks, W. You, and B.M. Davy. 2015. An Evaluation of the Readability of Drinking Water Quality Reports: A National Assessment. *Journal of Water and Health*, doi: 10.2166/wh.2015.194
- # Lambrinidou, Y.*[^], W.J. Rhoads, S. Roy, E. Heaney, G. Ratajczak, and J. Ratajczak. 2014. Ethnography in Engineering Ethics Education: A Pedagogy for Transformative Listening. *ASEE Annual Conference and Exposition*, Jun 15-18 2014, Indianapolis, IN.

POPULAR SCHOLARSHIP

- *Research/data websites launched and curated:* www.uswaterstudy.org, www.flintwaterstudy.org (1 million visits).
- *Featured in science documentaries (3):* PBS NOVA 'Poisoned Water' (on Netflix), Discovery, Virginia Tech.
- *Media coverage (60+):* BBC, Chicago Tribune, NPR, Guardian, The New York Times, STAT, WIRED.
- *Public talks (100+):* World Health Organization, MIT, Northwestern, Stanford, Georgetown, Middlebury, Tufts, Princeton, Wesleyan, Columbia, Notre Dame, Rutgers, Queens, UNC, UF, UVA, UCLA, EU.
- *Executive producer of the US Water Study podcast ([iTunes](#)) and science documentary series ([YouTube](#)) to inspire high school and college students to pursue STEM education.*
- *[Guest essays](#) (11):* CNN, American Scientist, Aeon, Undark, Scientific American, Retraction Watch
- *Science education workshops (1,500+ US children):* Kids' Tech University (250+ middle school students), Governor's School of VA, Salem City School, Phillips Exeter Academy, George Walton Academy, Episcopal High School, Alexandria City Public Schools, Academies of Loudoun.

SERVICE

- U.S. Environmental Protection Agency, "Social and Community Science" Federal Committee (2022-present).
- NJ Department of Environmental Protection, *Science Advisory Board: Water Quality and Quantity* (2024-present)
- *Instructor:* Six courses for water plant operators sponsored by Virginia Dept. of Health (2018-21).
- *Referee for 18 scientific journals (2016+):* American Journal of Public Health, BMJ Public Health, ES&T, ES&T Letters, ES&T Water, J. of Water & Health, Proceedings of the National Academy of Sciences, Water Research.

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