JESETH DELGADO VELA

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EDUCATION

PhD Environmental Engineering 2018
University of Michigan
Thesis: Nitrogen and Sulfur Cycling During Wastewater Treatment
Thesis Advisors: Dr. Nancy G. Love and Dr. Gregory J. Dick

MSE Environmental Engineering 2014
University of Michigan

BS Civil Engineering 2012
University of Texas at Austin

APPOINTMENTS

Assistant Professor, Howard University	2018-present
Graduate Student Researcher, University of Michigan	2012-2018
Undergraduate Research Assistant, University of Texas	2011-2012
Undergraduate Research Assistant, University of Michigan	2011

AWARDS

Ford Foundation Dissertation Award	2016-2017
Rackham Predoctoral Fellowship, (declined)	2016-2017
Best Paper of 2015, Environmental Science and Technology: Letters	2015
Presentation Award, AEESP Research and Education Conference	2015
National Science Foundation Graduate Research Fellow	2012-2015
Rackham Merit Fellow	2012-2018

PEER-REVIEWED JOURNAL ARTICLES

Bekele, Z.A, **Delgado Vela, J.,** Bott, C.B., Love, N.G. 2020. Sensor-mediated controls for aerobic granular sludge processes treating mainstream anaerobic effluents. *Water Environment Research*. **DOI:** 10.1002/wer.1296.

Sakowski, E., Uritskiy G., Cooper, R., Gomes, M., McLaren M.R., Meisel, J.S., Mickol, R.L., Mintz, C.D., Mongodin E.F., Pop, M., Rahman, M.A., Sanchez, A., Timp, W, **Delgado Vela, J.** Wolz, C.M, Zackular, J.P., Chopyk, J., Commichaux, S., Davis, M., Dluzen, D., Ganesan, S.M., Haruna, M., Nasko, D., Regan, M.J., Sarria, S, Shah, N., Stacy, B., Taylor, D., DiRuggiero, J., Preheim, S.P. 2019. Current state and

future opportunities for prediction in microbiome research: Report from the Mid-Atlantic Microbiome Meet-up, Baltimore, MD, January 9th, 2019. *mSystems.* **DOI**: 10.1128/mSystems.00392-19

Delgado Vela, J., Dick, G.J., Love, N.G. 2018. Sulfide inhibition of nitrite oxidation in activated sludge depends on community composition. *Water Research.* **DOI:** 10.1016/j.watres.2018.03.047

Stadler, L.B.†, **Delgado Vela, J.**†, Jain, S., Dick, G.J., Love, N.G. 2017. Elucidating the impact of microbial community diversity on pharmaceutical biotransformation during wastewater treatment. *Microbial Biotechnology.* **DOI:** 10.1111/1751-7915.12870
† These authors contributed equally to this work.

Delgado Vela, J., Stadler, L.B., Martin, K. J., Raskin, L., Bott, C. B., Love, N. G. 2015. Prospects for Biological Nitrogen Removal from Anaerobic Effluents during Mainstream Wastewater Treatment. *Environmental Science and Technology: Letters,* **2**(9):234-244. **DOI:** 10.1021/acs.estlett.5b00191. (Best Paper of 2015)

In review

Delgado Vela, J., Bristow L.A., Marchant, H.K., Love, N.G., Dick, G.J. Sulfide changes microbial interactions in a nitrogen cycling biofilm reactor. Submitted to *Environmental Microbiology.*

In preparation, draft available upon request

Delgado Vela, J., Bekele, Z.A., Gordon, K. J., Klatt, J.M., Dick, G.J., Love, N.G. The impact of sulfide on the performance and microbial ecology of a membrane aerated biofilm reactor. In preparation for submission to *Environmental Science and Technology.*

NON PEER-REVIEWED PUBLICATIONS

Bivins, A., North, D., Ahmad, A. Ahmed, W., Alm, E., Been, F., Bhattacharya, P., Bijlsma, L., Boehm, A.B., Brown, J., Buttiglieri, G., Calabro, V., Carducci, A., Castiglioni, S., Gurol, Z.C., Chakraborty, S., Costa, F., Curcio, S., de los Reyes, F.L., **Delgado Vela, J.**, Farkas, K., Fernandez-Casi, X., Gerba, C., Gerrity, D., Girones, R., Gonzalez, R., Haramoto, E., Harris, A., Holden, P.A., Islam, M.T., Jones, D.L., Kasprzyk-Hordern, B., Kitajima, M., Kotlarz, N., Kumar, M., Kuroda, K., La Rosa, G., Malpei, F., Mautus, M., McLellan, S.L., Gertjan, M., Meschke, J.S., Mueller, J., Newton, R.J., Nilsson, D., Noble, R.T., van Nuijs, A., Peccia, J., Perkins, T.A., Pickering, A.J., Rose, J., Sanchez, G., Smith, A.L., Stadler, L.B., Stauber, C., Thomas, K, van der Voorn, T., Wigginton, K, Zhu, K, Bibby, K. 2020. Wastewater-Based Epidemiology of COVID-19: Global Collaborative to Maximize Impact. *Environmental Science and Technology.* **DOI:** https://doi.org/10.1021/acs.est.0c02388

INVITED PRESENTATIONS

North Carolina State Univ, Dept. of Civil, Construction, and Environmental Engineering.	2019
Rowan University, Dept. of Civil and Environmental Engineering.	2018
University of Texas, Dept. of Civil, Architectural, and Environmental Engineering.	2018
The Ohio State University, Dept. of Civil, Environmental, and Geodetic Engineering	2018
University of Michigan, Environmental and Water Resources Seminar.	2018
University of Southern California, Dept. of Civil and Environmental Engineering.	2017

FUNDED GRANTS AND CONTRACTS

GOALI: Collaborative Research: Advancing wastewater treatment resiliency and sustainability goals in the face of climate change

NSF- CBET- Environmental Engineering
PIs: Lauren Stadler (Rice University), **Jeseth Delgado Vela,** Lu Liu (Rice University), Andrew R. Shaw (Black and Veatch)
Total: $418,696, Share: $113,191
Project duration: 3 years (2019-2022)

Wetland and peroxide treated harmful algal blooms

EPA P3 Award
PI: Jeseth Delgado Vela
Total: $25,000
Project duration: 1 year (2019-2020)

Partial Denitrification and Anammox Filter

DC Water- Blue Plains Advanced Wastewater Treatment Plant
PIs: Kimberly Jones, **Jeseth Delgado Vela**
Total: $82,500
Project duration: 1 year (2019-2020)

RAPID: Monitoring for SARS-CoV-2 in municipal wastewater and sewage to elucidate infection dynamics across major metropolitan areas of the United States

NSF- CBET- Environmental Engineering
PIs: Francis de los Reyes III (North Carolina State University), Nadine Kotlarz (North Carolina State University), **Jeseth Delgado Vela,** Lauren Stadler (Rice University), Adam Smith (University of Southern California)
Total: $200,000, Share: $35,000
Project duration: 1 year (2020-2021)

Excellence in Research: Harnessing Microbial Signals for Biofilm Control

NSF- HBCU-UP program
PI: Jeseth Delgado Vela
Total: $329,999
Project duration: 3 years (2020-2023)

A Materials Characterization and Testing System for Enhancing Transdisciplinary Research and Education at Howard University

Army Research Office: Defense University Research Instrumentation Program (DURIP)
PIs: Hessam Yazdani, Paul Wang, Claudia Marin-Artieda, **Jeseth Delgado Vela,** Mohsen Mosleh, Prabhakar Misra
Total: $569,904; Equipment grant

CONFERENCE PODIUM PRESENTATIONS (*PRESENTER, †HU GRADUATE STUDENT)

Fofana, R.*†, Peng, B., Huynh, H., Jones, K., Al-Omari, A., Bott, C.B., **Delgado-Vela, J.**, Murthy, S., Wett, B., Debarbadillo, C., DeClippeleir, H. Media Selection for Enrichment of Anammox in Polishing Filters. 92nd Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), Chicago, IL, September 23rd, 2019.

Delgado Vela, J.*, Understanding nitrogen and sulfur cycling in urban water systems. Howard University-Ohio State University, Ecology and Evolutionary Sciences Mini-Symposium. Washington, DC, September 18th, 2019.

Delgado Vela, J.*, Dick, Gregory J., Love, N.G. Sulfide induced dissimilatory nitrite reduction to ammonia in a membrane aerated biofilm reactor. Mid-Atlantic Microbiome Meetup on Predictions and the Microbiome. Baltimore, MD, January 9th, 2019.

Delgado Vela, J.*, Dick, Gregory J., Love, N.G. The Impact of Sulfide on Nitrification: Implications for Nitritation Processes. Fifth International Conference on Nitrification and Related Processes (ICoN5): Early Career and Graduate Student Workshop. Vienna, Austria, July 23-27, 2017.

Delgado Vela, J.*, Dick, Gregory J., Love, N.G. Managing Healthy Activated Sludge Communities: Understanding the Impact of Sulfide on Nitrogen Removal. 2017 Association of Environmental Engineering & Science Professors (AEESP) Research and Education Conference. Ann Arbor, MI, June 20-22, 2017.

Bekele, Z.A.*, **Delgado Vela, J.** Martin, K.J., Bott, C.B., Love, N.G., Using sensor-mediated control and modeling to develop an aerobic granular sludge technology for low energy nitrogen removal. 2017 Association of Environmental Engineering & Science Professors (AEESP) Research and Education Conference. Ann Arbor, MI, June 20-22, 2017.

Delgado Vela, J.*, Wagner, B.M., Bekele, Z.A., Arcelay, A., Bott, C. B., Dick, G.J., Love, N.G. The Impact of Sulfide on Nitrogen Removal from Mainstream Anaerobic Processes using a Membrane Aerated Biofilm Reactor. 2017 Borchardt Conference, Ann Arbor, MI, February 21-22, 2017.

Delgado Vela, J.*, Bekele, Z.A., McFarland, A., Arcelay, A., Martin, K.J., Bott, C. B., Love, N.G. The Membrane Aerated Biofilm Reactor for Nitrogen Removal from Mainstream Anaerobic Processes. 89th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), New Orleans, LA, September 26-28, 2016.

Stadler, L.B.*, **Delgado Vela, J.,** Love N.G., Impact of low dissolved oxygen and microbial community on pharmaceutical biotransformations during wastewater treatment. 88th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), Chicago, IL, September 26-30, 2015.

Delgado Vela, J.*, Martin, K. J., Beaton, N., McFarland, A., Stadler, L.B., Bott, C. B., Skerlos, S.J., Raskin, L., Love, N.G. Nutrient Removal from Mainstream Anaerobic Processes Using a Membrane Biofilm Reactor and a Granular Sludge Sequencing Batch Reactor. 88th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), Chicago, IL, September 26-30, 2015.

Delgado Vela, J.*, Martin, K. J., McFarland, A., Beaton, N., Stadler, L.B., Skerlos, S.J., Raskin, L., Bott, C. B., Love, N.G. Removing nitrogen from effluents of anaerobic wastewater treatment processes: Understanding control and operation through biofilm modeling. 250th American Chemical Society National Meeting and Exhibition. Boston, MA, August 16-20, 2015.

Stadler, L.*, **Delgado Vela J.***, Love, N.G. Elucidating the Relationship between Wastewater Treatment Plant Microbial Diversity and Pharmaceutical Fate. 2015 Association of Environmental Engineering & Science Professors (AEESP) Research and Education Conference. New Haven, CT, June 13-16, 2015. (**Presentation Award**)

Delgado Vela J.*, Martin, K. J., Beaton, N., McFarland, A., Stadler, L., Bott, C. B., Raskin, L., Skerlos, S.J., Love, N.G. Nitrogen Removal Downstream of an Anaerobic Membrane Bioreactor for Domestic Wastewater Treatment. IWA Global Challenges: Sustainable Wastewater Treatment and Resource Recovery. Kathmandu, Nepal, October 26-30, 2014.

Stadler, L. B.*, Smith, A. L.*, Jain, A. K., Martin, K. J., **Delgado Vela, J.,** Puente, P., Cao, L., Frenette, S., Bott, C. B., Rauch-Williams, T., Shimada, T., Salveson, A., Love, N. G., Raskin, L., and Skerlos, S. J. Integrating Life Cycle Assessment and Experimental Research: Evaluating Anaerobic Membrane Bioreactors in Domestic Wastewater Treatment for Energy Recovery. Borchardt Conference. Ann Arbor, MI, February 25 – 26, 2014.

Moline, C. J.*, Stadler, L. B.*, Su, Lijuan, Ernstoff, A. S., Dapcic, A. D., **Delgado Vela, J.**, Aga, D., and Love, N. G. Pharmaceutical Fate Under Varying Redox Treatment Environments. Proceedings of the 85th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), New Orleans, LA, September 29 – October 3, 2012.

POSTER PRESENTATIONS (*presenter, †HU graduate student)

Pahlavanneshan, M.*†, **Delgado-Vela, J.** Harnessing Microbial Signals for Biofilm Control in Urban Wastewater Treatment Systems. ASM Microbe. Cancelled (COVID-19).

Pahlavanneshan, M.†, **Delgado-Vela, J.*** Harnessing Microbial Signals for Biofilm Control in Urban Wastewater Treatment Systems. Gordon Research Conference: 2020 Microbiology of the Built Environment. Cancelled (COVID-19).

Delgado Vela, J.*, Dick, Gregory J., Love, N.G. The Impact of Sulfide on Nitrification: Implications for Nitritation Processes. Fifth International Conference on Nitrification and Related Processes (ICoN5): Early Career and Graduate Student Workshop. Vienna, Austria, July 23-27, 2017.

Bekele, Z.A.*, **Delgado Vela, J.,** Martin, K.J., Bott, C.B., Love, N.G., Aerobic granular sludge process optimization and modeling for mainstream anaerobically treated wastewater. 10th IWA International Conference on Biofilm Reactors. Dublin, Ireland, May 9-12, 2017.

Bekele, Z.A.*, **Delgado Vela, J.,** Martin, K.J., Bott, C.B., Love, N.G., Achieving nitrogen removal from mainstream anaerobically treated wastewater using aerobic granular sludge with low aeration rate. 2017 Borchardt Conference, Ann Arbor, MI, February 21-22, 2017.

Delgado Vela, J.*, Dick, G.J., Love, N.G. Clarifying the impact of sulfide on nitrification in wastewater treatment. IWA Microbial Ecology in Water Engineering & Biofilms joint specialist conference. Copenhagen, Denmark, September 4-7, 2016.

Delgado Vela, J.*, Dick, G.J., Love, N.G. The importance of nitrogen and sulfur cycles during wastewater treatment. Michigan Meeting: Unseen Partners: Manipulating Microbial Communities that Support Life on Earth, Ann Arbor, MI, May 16-18,2016. (with lightening talk)

Delgado Vela, J.*, Martin, K. J., McFarland, A.*, Beaton, N., Stadler, L., Bott, C. B., Raskin, L., Skerlos, S.J., Love, N.G. Advancing Energy Neutral Wastewater Treatment: Removing Nitrogen and Dissolved Methazne from Dilute Anaerobic Effluents. 2015 Association of Environmental Engineering & Science Professors (AEESP) Research and Education Conference. New Haven, CT, June 13-16, 2015.

Stadler, L.*, **Delgado Vela, J.**, Love, N.G. Elucidating the Relationship between Wastewater Treatment Plant Microbial Diversity and Pharmaceutical Fate. American Society for Microbiology 115th General Meeting. New Orleans, LA, May 30-June 2, 2015.

Delgado Vela, J.*, Martin, K.J., Stadler, L.B., Bott, C. Skerlos, S.J., Raskin, L., Love, N.G., Nutrient Removal from Mainstream Anaerobic Effluents: Linking Biofilm Modeling to Experimental Design. 87th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), New Orleans, LA, September 28-October 1, 2014.

Delgado Vela, J.*, Stadler, L., Love, N.G., Elucidating Biotransformation of Pharmaceuticals by the Methanotroph Methylosinus Trichosporium Ob3b. Gordon Research Conference Environmental Sciences: Water, Plymouth, NH, June 22-27, 2014.

Cook S.*, **Delgado Vela, J.**, Stadler, L.* Advancing the Success of Engineering Service Projects from the Classroom to the Field. 86th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), Chicago, IL, October 5-9, 2013.

Delgado Vela, J.*, Stadler, L., Love, N.G. Elucidating Biotransformation of Pharmaceuticals by Methanotrophic Bacteria. Association of Environmental Engineering & Science Professors (AEESP) 50th Anniversary Conference, Golden CO, July 14-16, 2013.

Stadler L.*, Stevens, L., **Delgado Vela, J.,** Su, L., Aga, D.S., Love, N.G. Impact of redox environment and microbial populations on pharmaceutical biotransformation. 5th International Conference, Microbial Ecology and Water Engineering, Ann Arbor, MI, July 7-10, 2013.

TEACHING

Howard University

Unit Operations in Environmental Engineering (Senior level)	Spr 2019, 2020
Environmental Engineering I (Junior level)	Fall 2018, 2019
Undergraduate Research in Environmental Engineering	Spr 2020

STUDENT SUPERVISION AND MENTORING

Howard University graduate students

Rahil Fofana, co-advised with Kimberly Jones and Haydee De Clippeleir	2018-present
Mahsa Pahlavanneshan	2019-2020

Howard University undergraduate students

Moriah Brown	2019-present
Siani Brown	2019-present
Kamau Sykes	2020-present

SYNERGISTIC ACTIVITIES AND OUTREACH

Professional Development Activities

NSF Engineering CAREER Workshop	2019
Preparing Future Faculty Seminar on College Teaching	5/2016
Trainee, Integrated Training in Microbial Systems	2016-2018

Departmental & Institutional Service

Member, Assessment Committee, Dept of Civil & Env Engineering	2020-present
Member, Search Committee, Dept of Civil & Env Engineering	2020
Member, Evaluation Committee for Comprehensive Learning Management System	2019-2020
Program Committee, Environmental Science Symposium, Research Week	Spring 2019
Faculty advisor, Howard University Water Environment Association	2019-present

Professional Service

Conference Co-Chair, WEF Innovations in Process Engineering (June 2021)	2019-present
Member, Diversity and Inclusion Task Force, WEF	2019-2020
Member, Education Committee, AEESP	2019-present
Reviewer, AEESP SSC Navigating the Academic Job Search Workshop	Summer 2019
Program Committee, WEF Nutrient Removal & Recovery Symposium	2018
Student organizing committee, AEESP 2017 Conference	2016-2017
Reviewer, manuscripts	2013-present

- Environmental Science & Technology, Environmental Microbiology, Bioresource Technology, Environmental Science: Water Research and Technology, Chemosphere

CERTIFICATIONS

Certified Engineer in Training, Texas 2012