

Jenny C. Fisher, Ph.D.
Biology Department
College of Arts and Sciences
Indiana University Northwest
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EDUCATION

Ph.D., Marine Sciences (2007)

University of Georgia, Athens

Focus: Microbial Ecology and Biogeochemistry

Dissertation: *Characterization of novel microbial arsenite oxidation processes in Mono Lake, California, USA*

B.S.E., Civil and Environmental Engineering (1998)

Duke University, Durham, NC (*cum laude*)

PROFESSIONAL EXPERIENCE

Assistant Professor (2016-present)

Biology Department, College of Arts and Sciences, Indiana University Northwest, Gary, IN

Research Associate (2013-2016)

School of Freshwater Sciences, UW-Milwaukee, Milwaukee, WI

Postdoctoral Associate (2008-2013)

Environmental Microbiology Laboratory, Division of Earth and Ecosystems Sciences, Desert Research Institute, Las Vegas, NV

Graduate Research Assistant (2003-2007)

Marine Sciences Department, University of Georgia, Athens, GA

Graduate Teaching Assistant (2000-2003, 2007)

Marine Sciences Department, University of Georgia, Athens, GA

Environmental Engineer (1998-2000)

US Environmental Protection Agency, Washington, DC

Laboratory Assistant (1996-1998)

Nicholas School of the Environment, Duke University, Durham, NC

COURSES TAUGHT

BIOL-L403 Senior Seminar

BIOL-L290/490 Research in Microbiology

BIOL-M200 Microorganisms in Nature and Disease

BIOL-M310 Microbiology

BIOL-M310L Microbiology Lab

BIOL-M420 Environmental Microbiology (IW)

BIOL-M440 Medical Microbiology

GRANTS & FELLOWSHIPS

Summer Faculty Fellowship (2019), PI Quantification of Bacterial Pathogens in Beach Sands Impacted by Septic Systems	\$11,000.00
Illinois-Indiana Sea Grant (NOAA), 2018-2019, PI Failing Septic Systems as a Potential Source of Human Pathogens to Beach Sand	\$10,000.00
Lake Michigan Coastal Program (NOAA), 2018-2020, PI Microbial Source Tracking of Septic Pollution in Mixed Land Use Watersheds	\$23,590.00
Summer Faculty Fellowship (2018), PI Detection of Septic System Pollution in Northwest Indiana Using Sequence-Based Microbial Source Tracking	\$11,000.00
Regional Grand Challenges Grant (2017), Co-I Feeding Minds, Building Community, and Eating Our Vegetables	\$25,000.00
Summer Faculty Fellowship (2017), PI Quantifying the Prevalence of Antibiotic-Resistant Bacteria in the Human Microbiome Using Sanitary Sewage	\$11,000.00

STUDENT GRANTS & FELLOWSHIPS

Ayesha Khan, Minority Opportunities in Research Experience 2019	\$1,000.00
Mark Mason, GLISTEN Summer Research Fellowship 2018	
Eva Elmalh, Louis Stokes Alliances for Minority Participation 2018	\$2,500.00
Alero Jackson, Louis Stokes Alliances for Minority Participation 2018	\$2,500.00
Eva Elmalh, Minority Opportunities in Research Experience 2018	\$1,000.00
Harleen Aujla, Minority Opportunities in Research Experience 2018	\$1,000.00
Diamond Jackson, Undergraduate Research Fund 2017	\$2,493.00
Chiamara Anokwute, Minority Opportunities in Research Experience 2017	\$1,000.00

PEER-REVIEWED PUBLICATIONS

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- Green HC, **Fisher JC**, McLellan, SL, Sogin ML, Shanks OC. 2016. Identification of specialists and an abundance-occupancy relationship among intestinal bacteria of *Aves*, *Mammalia*, and *Actinopterygii*. *Applied and Environmental Microbiology* 82(5):1496-1503. doi:10.1128/AEM.02456-15.
- McLellan SL, **Fisher JC**, Newton RJ. 2015. The microbiome of urban waters. *International Microbiology* 18(3):141-149. doi:10.2436/20.1501.01.244. (Invited review)
- Fisher JC**, Eren AM, Green HC, Shanks OC, Morrison HG, Vineis JH, Sogin ML, and McLellan SL. 2015. Comparison of the microbiomes of sewage and animal feces by oligotyping reveals potential human fecal indicators in multiple taxonomic groups. *Applied and Environmental Microbiology* 81:7023-7033. doi:10.1128/AEM.01524-15. (Featured in Spotlight)
- Fisher JC**, Newton RJ, Dila DK, and McLellan SL. 2015. Urban microbial ecology in a freshwater estuary of Lake Michigan. *Elementa: Science of the Anthropocene* 3: 000064. doi: 10.12952/journal.elementa.000064. (Invited contribution to special issue on Urban Aquatic Ecosystems).
- Eren AM, Sogin ML, Morrison HG, Vineis JH, **Fisher JC**, Newton RJ, McLellan SL. 2015. A single genus in the gut microbiome reflects host preference and specificity. *ISME Journal* 9:90-100. doi: 101038/ismej201497.
- Koskey AM, **Fisher JC**, Eren AM, Ponce Terashima R, Reis MG, Blanton RE, and McLellan SL.

2014. *Blautia* and *Prevotella* sequences distinguish human and animal fecal pollution in Brazil surface waters. *Environmental Microbiology Reports* 6(6):696-704. doi: 10.1111/1758-2229.12189.

- Fisher JC**, Levican A, Figueras MJ, McLellan SL. 2014. Population dynamics and ecology of *Arcobacter* in sewage. *Frontiers in Microbiology* 5:525. doi: 10.3389/fmicb.2014.00525.
- Koskey AM, **Fisher JC**, Traudt MF, Newton RJ, McLellan SL. 2014. Analysis of the gull fecal microbial community reveals the dominance of *Catellibacterium marimammalium* in relation to culturable enterococci *Applied and Environmental Microbiology* 80(2):757-765.
- Thomas JM, Moser, DP, **Fisher, JC**, Riehle JN, Wheatly A, Hershey RL, Baldino C, and Weissenfluh D. 2013. Using water chemistry, isotopes and microbiology to evaluate groundwater sources, flow paths and geochemical reactions in the Death Valley Flow System, USA. *Procedia Earth and Planetary Sciences* 7: 842-845.
- Peacock JP, Cole JK, Murugapiran SK, Dodsworth JA, **Fisher JC**, Moser DP, and Hedlund, BP. 2013. Pyrosequencing reveals high-temperature cellulolytic microbial consortia in Great Boiling Spring after *in situ* lignocellulose enrichment. *PLoS ONE* 8(3):e59927.
- Labahn SK, **Fisher JC**, Robleto EA, Young MH, and Moser DP. 2010. Microbially-mediated aerobic and anaerobic degradation of acrylamide in a western US irrigation canal *Journal of Environmental Quality* 39(5);1563-1569.
- Planer-Friedrich B, **Fisher JC**, Hollibaugh JT, Süß E, and Wallschläger D. 2009. Oxidative transformation of trithioarsenate along alkaline geothermal drainages: abiotic versus microbially mediated processes. *Geomicrobiology Journal* 26:339-350.
- Kulp TR, Hoefft SE, Asao M, Madigan MT, Hollibaugh JT, **Fisher JC**, Stolz JF, Culbertson CW, Miller LG, and Oremland RS. 2008. Arsenic(III) fuels anoxygenic photosynthesis in hot spring biofilms from Mono Lake, California. *Science* 321:967-970.
- Fisher JC** and Hollibaugh JT. 2008. Selenate-dependent anaerobic arsenite oxidation by a bacterium from Mono Lake, California. *Applied and Environmental Microbiology* 74:2588-2594.
- Fisher JC**, Wallschläger D, Planer-Friedrich B, and Hollibaugh JT. 2008. A new role for sulfur in arsenic cycling. *Environmental Science and Technology* 42:81-85 (Cover feature).

Publications in review or revision:

- Harrison J, Surfus K, **Fisher JC**, McLellan SL. What's a clean beach worth? How the Great Lakes public perceives and values water quality. *Submitted to Journal of Coastal Conservation*.
- Fisher JC**, Dila DK, Roguet A, and McLellan SL. Identification of sewage and wildlife microbiome signatures in stormwater (Submitted to *Applied and Environmental Microbiology*).
- Levican AL, **Fisher JC**, McLellan SL, Avendano-Herrera, R. High throughput sequencing of the microbial communities associated with farmed *Genypterus chilensis* reveals the abundance of pathogens of the genera *Vibrio* and *Tenacibaculum*. (Submitted to *Aquaculture*).

OTHER PUBLICATIONS

- Moser DP, Hamilton-Brehm SD, **Fisher JC**, Bruckner JC, Kruger B, Sackett J, Russell CE, et al. 2014. Radiochemically-Supported Microbial Communities: A Potential Mechanism for Biocolloid Production of Importance to Actinide Transport. Report to USDOE Office of Biological & Environmental Research. doi:10.2172/1176791.
- Moser, DP, **Fisher JC**, Bruckner JC, Riehle J, Edmiston P, Wheatly A, Jacovides, C. 2014. Microbial Biogeochemistry of Ash Meadows Springs. Report to US Fish and Wildlife Survey.

- USEPA. 2000. Nutrient Criteria Technical Guidance: Estuaries and Coastal Marine Waters. Office of Water, Washington, DC.
- USEPA. 2000. Nutrient Criteria Technical Guidance: Rivers and Streams. Office of Water, Washington, DC.
- USEPA. 2000. SOP #1304. Immunoassay (ELISA) Method for Diazinon Detection. Region IX Laboratory, Richmond, CA.

SELECTED PRESENTATIONS

- Fisher JC.** No Data Left Behind: Making the Most of Metagenomic Data. Talk, International Association of Great Lakes Research Annual Meeting (Toronto, Canada, June 21, 2018).
- Fisher JC.** A New Bioinformatic Approach to Microbial Source Tracking. Invited Seminar, Governor's State University, Department of Biology (University Park, IL, March 29, 2018).
- Fisher JC.** The End of the Antibiotic Era: Is Resistance Inevitable? Hot Topic presentation, Indiana Academy of Sciences Annual Meeting (Indianapolis, IN, March 2018).
- Fisher JC.** Microbial Source Tracking: A New Approach for NWI. Invited Speaker, Northwest Indiana Environmental Management Policy Committee (Portage, IN, September 7, 2017).
- Fisher JC.** Urban infrastructure reveals the microbiome of a city. Invited Seminar, Calvin College Department of Biology (Grand Rapids, MI, April 21, 2017).
- Fisher JC.** Getting to know your microbiome. Invited Hot Topic presentation, Indiana Academy of Sciences Annual Meeting (Indianapolis, IN, March 2017).
- Fisher JC.** From the human microbiome to Lake Michigan: Exploring Milwaukee's microbial metropolis. Invited Talk, University of Illinois, Chicago (Chicago, November 03, 2015).
- Fisher JC.** South Shore Beach: a history of pollution, a future of remediation. Invited Talk, Alliance for the Great Lakes (Milwaukee, September 21, 2015).
- Fisher JC,** Newton RJ, Dila DK, McLellan SL. Urban Microbial Ecology of the Milwaukee Estuary and Harbor. Talk. Society of Freshwater Science Annual Meeting (Milwaukee, WI, May 20, 2015).
- Fisher JC,** Dila DK, McLellan SL. Human, Animal, or Infrastructure? Identifying Sources of Urban-Derived Bacteria to Aquatic Environments. Talk. Geological Society of America North-Central Section Annual Meeting (Madison, WI, May 19, 2015).
- Fisher JC** Who's in Your Stormwater? Bacterial communities in Urban Stormwater. Clean Rivers, Clean Lake Conference. (Milwaukee, WI, April 30, 2015). Talk. Session organizer, *Issues in Stormwater Quality*.
- Fisher JC,** Newton RJ, Dila DK, McLellan SL. Microbial Metropolis: Bacterial Indicators of Urban Impacts of Aquatic Ecosystems. Joint Aquatic Sciences Meeting (Portland, OR, May 22, 2014).Talk.
- Fisher, JC.** Getting Your Mind Into the Gutter: Understanding the Impacts of Sewage and Stormwater on the Great Lakes. NSF ADVANCE Postdoctoral Seminar Program (UW-OshKosh, WI, March 12, 2014). Invited Talk.
- Fisher JC,** Levican A, Eren AM, Figueras MJ, McLellan SL. Prevalence and Diversity of *Arcobacter* in Sewage. Ocean Sciences Meeting (Honolulu, HI, February 18, 2014). Poster.
- Fisher, JC.** Host-specific Bacterial Indicators of Animal Fecal Pollution. Milwaukee Microbiology Society (Milwaukee, WI, October 9, 2013). Invited Talk.
- Fisher JC.** Using the *mothur* pipeline for clone library sequence analysis. Tutorial Workshop (Desert Research Institute, Las Vegas, NV February 1, 2013). Talk.
- Fisher JC.** How Basic and Applied Geomicrobiology at DRI are Leading to New Discoveries at the Fringe of Biology. Green Power Workshop (Desert Research Institute, Las Vegas, NV, June 27, 2011). Invited Talk.

- Fisher JC**, Bruckner JC, Planer-Friedrich B, Hershey RL, Moser DP. Arsenic and Sulfur Cycling in Walker Lake, NV. Annual Meeting of the Arizona-Nevada Branch of the American Society for Microbiology (Las Vegas, Nevada, April 17, 2010). Talk.
- Fisher JC**, Tinnacher RK, Zavarin M, Kersting AB, Czerwinski KR, Moser DP. Microbially Produced Organic Matter and Its Role in Facilitating Plutonium Transport in the Deep Vadose Zone. American Geophysical Union Fall Meeting (San Francisco, CA, December 17, 2010). Talk.
- Fisher JC**, Faye SA, Czerwinski KR, Moser DP. Microbial Effects on the Sorption of Actinides at the Nevada Test Site. UNLV School of Life Sciences (April 17, 2009). Talk.
- Fisher JC**, Gostic R, Gostic J, Czerwinski KR, Moser DP. Microbial Effects on Actinide Migration. UNLV School of Life Sciences (December 4, 2009). Talk.
- Fisher JC**, Faye SA, Czerwinski, KR, Moser, DP. Microbial Effects on the Sorption of Uranium: Kinetics and Distribution Ratios for Tuff Samples from the Nevada Test Site. Migration (Kennewick, WA, 2009). Poster.
- Fisher, JC**, Bruckner J, Planer-Friedrich B, Hershey RL, and Moser DP. Arsenic Biogeochemistry of Walker Lake, NV. International Symposium on Terminus Lakes (Reno, NV, 2009). Poster.
- Fisher, JC**. Doing Our Dirty Work: Microbial Transformations of Toxics in the Environment. Nevada Board of Regents Meeting (Desert Research Institute, Las Vegas, NV, October 2, 2008). Invited talk.
- Fisher JC**, Gostic R, Gostic J, Czerwinski KR, Moser DP. Microbial Effects on Sorption and Transport of Actinides in Tuff Samples from the Nevada Test Site and Soils from McGuire AFB, NJ. AGU Fall Meeting (San Francisco, CA, 2009). Poster.
- Fisher JC** and Hollibaugh JT. Roles of Sulfide, Selenate, and Nitrate in Arsenite Oxidation in Mono Lake. American Geophysical Union Fall meeting (San Francisco, CA, 2004). Poster.
- Fisher JC** and Yager PL. Temporal and Spatial Changes in Dissolved Inorganic Carbon and Alkalinity in the Arctic Halocline during Ice Station SHEBA. American Society of Limnology and Oceanography General Meeting (Salt Lake City, UT, 2003). Poster.

MENTORED STUDENT PRESENTATIONS

- Aujla, HK and Fisher JC**. Detecting Antibiotic-Resistant Bacteria in the Human Microbiome (COAS Conference, Indiana University Northwest, April 27, 2018).
- Jackson, DN and Fisher JC**. Growth of Human Commensal Bacteria in Sewage: Effects of Antibiotics (COAS Conference, Indiana University Northwest, April 27, 2018).
- Aujla, H and Fisher JC**. Detecting Antibiotic-Resistant Bacteria in the Human Microbiome (Indiana University Undergraduate Research Conference, Indianapolis, IN, November 17, 2017).

HONORS AND AWARDS

- Founder's Teaching Award (Nominated 2016 & 2017, not yet eligible to apply)
- National Science Foundation ADVANCE Postdoctoral Seminar Program (2014)
- American Society of Limnology & Oceanography Early Career Travel Award (2014)
- University of Georgia Dissertation Completion Fellowship (2005)
- American Geophysical Union Outstanding Student Paper, Hydrology Division (2004)
- University of Georgia Graduate School Travel Award (2004)
- University of Georgia TA Mentor (2002)
- University of Georgia Outstanding Teaching Assistant Award (2002)

MENTORING – Student Researchers

IU Northwest Students

Chiamara Anokwute (2017)
Weetdjhea Augustin (2017)
Harleen Aujla (2017-2018)
Kyle Costa (2017)
Michael Drinksi (2017)
Eva Elmalh (2017-present)
Abdul Enayah (2018)
Alero Jackson (2017-2018)
Diamond Jackson (2017-2018)
Hamza Javed (2017)
Natasha Jolakoski (2017)
Ayesha Khan (2018-present)
Mark Mason (2018-present)
Krystle Mendez (2017-2018)
Makaela McCormick (2017-2018)
Palak Patel (2018)
Brittany Pedersen (2018-2019)
Angad Sidhu (2019-present)
Catherine Villa (2018-2019)

Undergraduate Students (past)

Jamie St. Ledger, Urban Beach Ecosystem Health (UW-Milwaukee, 2015-2016)
Detaya Johnson, Microbial Communities in Biosand Filters (UW-Milwaukee, 2014-2015)
Jessica Riehle, Microbial Diversity in Ash Meadows Springs (UNLV/DRI, 2010-2012)
Alex Michaud, *Shewanella* Abundance and Diversity in Keane Wonder Spring, NV (REU; UNLV/DRI, 2008)

Graduate Students (past)

Robert Tuliszewski, *E. coli* as an Indicator of Water Quality in Tributary Rivers of Lake Malawi (Medical College of Wisconsin, 2013-2015)
Amber Koskey, Alternative Indicators of Gull and Human Fecal Pollution (UW-M, 2013)
Stephanie Labahn, Microbial Degradation of Acrylamide (UNLV/DRI, 2008)

EXTERNAL SERVICE

Manuscript Review

Frontiers in Microbiology, Microbial Ecology, Geomicrobiology, Estuarine and Coastal Shelf Science, Environmental Science and Technology, Journal of Environmental Quality, Aquatic Microbial Ecology, Geobiology, Microbiological Research, PeerJ, Journal of Great Lakes Research, Water South Africa

Proposal Review

National Science Foundation (2016,2017)

Creator and Organizer, Women's Writing Workshop

Las Vegas, NV (2009-2010)

Board of Directors

Daily Groceries Cooperative, Athens, GA (2007-2008)

President, Marine Sciences Graduate Student Association

University of Georgia (2001-2003)

Graduate Student Council

University of Georgia (2000-2001)

INTERNAL SERVICE

Computer Committee (2016-2017)

Writing Across the Curriculum (2017-present)

Faculty Development (2018-present)

Faculty Advisor, Beta Beta Beta Biology Honor Society

ADDITIONAL TRAINING

Strategies and Techniques for Analyzing Microbial Population Structure

Marine Biological Laboratory (2013)

IGS Genomics Workshop

University of Maryland School of Medicine (2013)

Microbial Genomics and Metagenomics Workshop

DOE Joint Genome Institute (2011)

PROFESSIONAL MEMBERSHIPS

American Society for Microbiology

Indiana Academy of Sciences

International Association for Great Lakes Research

COMMUNITY ENGAGEMENT

Gary Food Council

Save the Dunes